

shellfish

the positive face of aquaculture

What Falls Under the Term "Shellfish"?
The term "shellfish" includes mollusks (such as clams, oysters, scallops, and mussels) and crustaceans (such as shrimp, lobsters, and crabs). Because few crustaceans other than shrimp are widely farmed, "shellfish" and "mollusk" are used interchangeably here. We will cover the complex problems of shrimp farming in a separate communiqué.

What Is Aquaculture?

The cultivation of any water-dwelling creature or plant is aquaculture. Some people reserve "aquaculture" for freshwater operations, preferring the slightly more precise term "mariculture" for marine operations. However, whether it's freshwater or seawater, minimal handling or highly controlled, it all falls under "aquaculture."

Which Mollusks Are Farmed

Abalone (West Coast), Clams, Geoduck clams (West Coast), Mussels, Oysters, Scallops

Best Shellfish Choices

Farmed, native species grown in suspension nets or cages.

Shellfish Aquaculture Basics

Taste: Varies by season, species, and body of water, not wild or farmed. According to Frankenthaler, "One of the wonderful things about shellfish farming is the idea that the clams, oysters, mussels are feeding in the wild on their natural diet in a seasonal way."

Size and Appearance: Some farmed mollusks will have a different appearance, usually for the better. Oysters tend to grow in clumps in the wild and don't, in Rheault's words, "have the highly desirable yuppie raw bar single shape." Farmed mollusks also have a consistency of size and shape that the wild supply can't guarantee.

Feed: Not used.

Chemicals/Drugs: Not used.

Pollution: In addition to not adding food or chemical inputs to the water, farms actually enhance water quality as the mollusks filter nitrogen out of the water.

The cultivation of any water-dwelling creature or plant is aquaculture. And because it all falls under this broad heading, which has come under fire lately, some people are avoiding any farmed seafood. That's a shame, because many freshwater farmed fish are top sustainable choices, and mollusk aquaculture can actually benefit the environment. "It surprises me," says Stan Frankenthaler, formerly the chef and owner of Salamander in Boston and now the culinary research and development chef for the North Atlantic region of Whole Foods Market, "that people would cast such a pall on all sorts of aquaculture, where they don't do that with agriculture."

Robert Rheault of Moonstone Oysters has raised oysters on a 2.3 acre farm in Narragansett Bay in Rhode Island for the past 20 years. He's worried about the negative press. "I'm trying to avoid being hit with the broad brush of the salmon fiasco, basically," he says. "There are allegations about the aquaculture industry that we don't think pertain to our sector."

Taste & Appearance

Of course, chefs are concerned with taste, and one major complaint chefs have about farmed seafood is that it can taste strikingly different from its wild counterpart, usually for the worse. Farmed finfish lead very different lives from their wild relatives and eat very different food. Even if their diet consists largely of fishmeal, they are still eating additives and filler. The taste of most farmed shellfish, however, is indistinguishable from wild. Why? According to Frankenthaler, "You don't feed shellfish. The farmer is a steward, a custodian. He's taking care of them in their local environment. He's tending them so that they stay healthier and cleaner." As filter feeders, mollusks eat whatever nutrients are already present in the water. The taste differences are a result of species, season, and body of water. As Rheault says, "I can taste a strong difference between oysters grown in my pond and the same oysters growing six miles away in Narragansett Bay, but not between cultured and wild oysters from the same body of water."

Most chefs and consumers are accustomed to shellfish of a certain size because of state shellfish regulations. The regulations are designed to protect the wild population. In some states, shellfish growers have successfully argued that they should be allowed to harvest undersized mollusks just as farmers are allowed to harvest micro-greens. Growers such as Tony Blanchard, of Blanchard Seafood in South Carolina, are allowed to harvest and sell undersized clams, but the regulations vary by state and type of shellfish. Peter Hoffman, of Savoy in New York, serves small Taylor Bay scallops still in the shell. He loves the varied colors of the shell, and the briny sweetness that comes with eating the whole scallop.

Environmental Benefits

Mollusks are filter feeders. When run-off causes coastal waters to become too nutrient rich, making the waters unfriendly to fish and plant life, mollusks filter out these excess nutrients, helping to restore the health of the water. Scientists in the Chesapeake Bay region actually hope to reduce the pollution and nutrient levels in the bay by rebuilding the oyster populations. According to Rheault, for every ton of oyster meat he harvests, he removes about four pounds of nitrogen from the water; annually, he probably makes up for about 38 people's input to the water. Additionally, shellfish are highly sensitive to pollution—so sensitive, in fact, that they are sometimes called the "canaries of the sea," a reference to the birds miners used to detect low oxygen levels. If pollution levels rise, shellfish farmers are the first to notice. In California, oyster farmers are battling dairy farmers over run-off; when heavy storms force manure into the water, the oyster farmers are forced to stop harvesting for a week.

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Community & Cultural Benefits of Shellfish Farming

Rob Garrison is the director of the Wampanoag Aquinnah Shellfish Hatchery on Martha's Vineyard in Massachusetts. The hatchery is an economic development project of the Wampanoag tribe, Massachusetts' only federally recognized Native American tribe. It started three years ago with a focus on oysters. While the oysters

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are expected to be the moneymaker of the operation, the tribe is also investing time and money into bay scallops, which are considerably harder and more expensive to raise. (Today, most bay scallops come from China, where they are raised in suspension nets.) "It's difficult to overwinter them, which you need to do to get a large scallop," Garrison says. "They are delicate animals. They require a lot more space." The tribe is making the effort, he says, because "historically, bay scallops have played an important cultural role for the tribe."

Other coastal communities also benefit from mollusk aquaculture. As fishing regulations continue to tighten, shellfish farms offer jobs—what's more, jobs out on the water, an important point for families who have been fishing for centuries.

Three Potential Problems with Shellfish

1. Contaminants. Raw shellfish are a delicacy, but they should be treated with caution and awareness. *Vibrio vulnificus*, a dangerous bacterium that contaminates raw shellfish from the Gulf of Mexico, is responsible for most raw shellfish worries. While following the old rule about only eating raw shellfish in months with an "r" (the colder months when shellfish is significantly less likely to be contaminated) is no longer necessary, it's not a bad idea to avoid wild, raw shellfish from warm waters during the warmer months. Rebecca Goldberg, a senior scientist at Environmental Defense, says that to reduce the risk of sickness, you should purchase depurated shellfish from unpolluted, cold waters. Depuration is the process of holding live shellfish in tanks of clean water to cleanse them of contaminants. Concerns about high mercury and PCB levels in all types of seafood have been in the news lately. Environmental Defense's Seafood Selector offers information on mercury and PCBs (www.environmentaldefense.org/tool_pop.cfm?tool=seafood), as well as harvest methods and species.

2. Harvest methods. The biggest environmental concerns with shellfish, both wild and farmed, are the harvest methods. In general, farmed mollusks are a better environmental choice than wild. The best choices are mollusks farmed in suspended cages or nets; at harvest time, the habitat is not disturbed at all. Dredging, commonly used for scallops and clams, severely damages the ocean floor and can harm plant life and other species. Mollusks that are dredged, whether farmed or wild, are the worst choices. Rakes are sometimes used for scallops, clams, and mussels, and are less destructive. Clams burrow into the soft ocean floor, and unlike mussels, oysters, or scallops, cannot be raised off the ocean floor. From an environmental standpoint, farmed clams, raked or hand picked, are the best choice, because farms are densely stocked, and the area disrupted is reduced. Hand picking is minimally disruptive.

3. Non-native species. In many areas, the species farmed is not the species native to the area. This can be a cause for concern if the farm sites and the wild habitat are too close. The alien species can sometimes spread disease or displace the native species. Learn which species are native to your producer's area and if the native population is in any distress.



In the end, farmed shellfish have many environmental benefits, and, according to Frankenthaler, have the all-important taste of the region: "The element of terroir or regionality—however you want to express the nice, unique flavor—is there in shellfish farming. Add on top of that the consistency of availability, size, freshness, and shape... All those things matter, and they're all there with a farmed clam, oyster, or mussel."

Carol Trauner is the publications director at Chefs Collaborative. We welcome your thoughts—please send comments or questions to carol@chefscollaborative.org. Look for the first entry in our Sustainable Storeroom series in May 2004.

Rare Shellfish

The Olympia oyster (the only native Northwest oyster) and the Delaware Bay oyster have been added to Slow Food's Ark of Taste:

www.slowfoodusa.org/ark

Books & Publications

Annual Report on United States Seafood Industry by Howard Johnson

Business Guide for Sustainable Seafood by Environmental Defense (also available online)

Seafood Lover's Almanac by National Audubon Society

Web Resources

Environmental Defense's Seafood Selector lists species, capture methods, nutrition, and main commercial sources: www.environmentaldefense.org/tool_pop.cfm?tool=seafood

Pacific Coast Shellfish Growers has information on West Coast species: www.pcsqa.org/Shellfish_101/index.html

The National Shellfisheries Association has an extensive list of resources: www.shellfish.org/res-web.htm

The Food and Agriculture Organization (FAO) of the United Nations has a fisheries glossary: www.fao.org/fi/glossary

The National Oceanic and Atmospheric Administration (NOAA) monitors chemical contaminants in oysters and mussels as part of its Mussel Watch project: <http://insandt.noaa.gov>

Shellfish Producers Mentioned

Blanchard Seafood sells clams under the Stella Maris Premium Clams label www.stellamarisclams.com

Moonstone Oysters www.moonstoneoysters.com (in progress) (401) 783-3360

Wampanoag Aquinnah Shellfish Hatchery (508) 645-9265