

Consumer Preferences for Oysters in Delaware

Oysters are a unique product because economists classify oysters as both “private goods” and “public goods”. Economists refer to oysters as “private goods” because they can be harvested and sold as food. Therefore, oysters are a marketable private consumer good for which there exists a market price. Oyster aquaculture supports local jobs (watermen, processing, and restaurant industry) and enriches local culture by bringing back a traditionally local food. Economists also refer to oysters as “public goods” because they filter excess nutrients from water, thereby cleaning the water and creating positive externalities that benefit everyone. These benefits improve water quality for many purposes such as fishing, tourism, aesthetic beauty and leisurely or recreational activities. However, no market exists for these services, and producers who bear the cost of producing oysters are not compensated for these ecosystem services. Little is known about consumer demand for oysters in general. Practically nothing is known about the water quality benefits provided by oysters or whether consumers are willing to pay a price premium for oysters knowing that they provide water quality services.

Background

- Chesapeake and Delaware Bay oyster populations have declined by 90-99% and 85% of oyster reefs have disappeared in the U.S.
- Delaware is the only coastal state in the U.S. that does not have an active oyster aquaculture fishery.
- 65% of assessed estuary systems in the U.S. and 92% of the assessed mid-Atlantic estuaries reported moderate to high eutrophication (conditions that can, for example lead to harmful algae blooms). These high levels of nutrients adversely affect water quality, aquatic life and recreational use of water.
- Oysters are filter feeders, filtering nutrients from water, with a single oyster filtering up to 50 gallons per day. If Delaware had the same measure of oyster aquaculture as Rhode Island (160 acres) it could filter 9%-22% of total water volume of the Delaware Inland Bays every day.



Key Research Findings

UD’s Center for Experimental & Applied Economics conducted research over the past two years involving over 1400 potential oyster consumers, local residents and tourists. This study showed several key results relevant to the Delaware and mid-Atlantic oyster industry.

- Frequent oyster consumers prefer aquaculture to wild-caught oysters.
- First time consumers have no detectable preference between aquaculture and wild-caught.

- Local matters. Consumers are willing to pay more knowing that they are purchasing a local oyster.
 - Consumers in Delaware prefer local oysters, such as those from the Chesapeake Bay, to oysters from Long Island.
 - Tourists are also willing to pay more for local oysters. In this sense, local means literally the word “local,” not the name of the bay located nearest to where the oysters are being sold.



- For both tourists and local residents, more than half of our participants think the Delaware Inland Bays Oysters logo (see left) is appealing.
- 28% of local residents are willing to pay more for oysters accompanied by this logo.
- Consumers have much lower willingness to pay for triploid oysters, mainly because they do not understand its meaning.
- Oyster consumers that buy oysters in quantities of 6 or 12 are willing to pay significantly more money, up to \$2.12 per oyster.
- Female consumers pay 33% per oyster less than male consumers.
- As age increases, willingness to pay decreases by 2.4% per year.
- Fresh smell is the most important attribute to consumers, followed by saltiness, meat size and meat color, then shell size and shell color.
- Depending on the information given to consumers, they were willing to pay more for oysters due to their water quality services (up to \$0.60 per oyster). However, too much information about the water quality appears to lower demand for all oysters.
- For consumers, high nutrients may be a good thing if they are not informed about the negative environmental damage of eutrophication. Once consumers understand the environmental problem and that oysters can be a solution, they prefer low nutrient oysters. Safety concerns trump the environmental concerns in this case.



Policy Implications

Our results have important policy and marketing implications, especially for areas in which oyster aquaculture would provide a way to reduce excess nutrients. Public and private investments in oyster aquaculture may depend on expected returns from sales of the aquaculture products, thus it will be important to know how best to label those products. It is particularly important to understand consumers’ preferences for farmed oysters, which can contribute to water quality and provide a reprieve for oyster fisheries in the mid-Atlantic, which have seen substantial reductions in the oyster industry. As a private and a public good, oysters are vastly versatile and have the potential to improve water quality, create local jobs, and contribute to local economies by creating attractive industries for tourists and locals.

For more information, contact Dr. Kent Messer (messer@udel.edu), Dr. Tongzhe Li, or Dr. Maik Kecinski