

## HOW TO PREPARE FOR COOKING

The adage “Never to eat oysters in months without an ‘R’ ” was based partly upon difficulties in keeping oysters from spoiling in warm weather (May, June, July and August) before efficient methods of refrigeration had been developed. Actually, oysters are good to eat all year long. After spawning, however, they may become thin and watery. Oysters are in best condition in winter and early spring.

Guidelines for safely handling oysters:

1. Choose freshly-shucked oysters for broiling, smoking, or baking on the half-shell.
2. Raw oysters should be served chilled and on ice.
3. Frozen oysters should be thawed, as needed, in small quantities in a refrigerator to minimize prolonged storage of the thawed product.
4. IQF oysters must not be thawed in a container of standing water because filth from the shell may contaminate the oyster meat.
5. With proper handling, the shelf life of freshly shucked, refrigerated oysters is approximately 14 days.

Recipes for preparation of shrimp and other Texas seafoods are available by writing:

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# Oysters

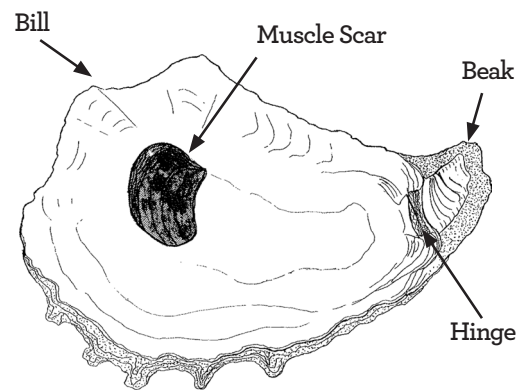
## IN TEXAS



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The eastern oyster (*Crassostrea virginica*) is among the more valuable fishery resources of the Texas coast, providing a livelihood for commercial fishermen as well as being a popular food for Texas appetites. Commercial landings average 2.7 million pounds of meat with an ex-vessel value of about \$9 million. Unlike most other seafood, the oyster meat is completely utilized—no “gutting and gilling” needed. It is one of the few animal foods eaten raw.

Often grouped with shrimps and crabs under the term “shellfish,” the oyster is no relation to either. It is actually a bivalve mollusk with two shell valves hinged together at one end and closed by a single, large muscle attached to the valves near the other end.



In Texas, the eastern oyster can be found predominantly in all bays along the upper and middle coast where there is adequate freshwater flow. Small populations of oysters occur near Port Isabel and in South Bay. Typically, it is most abundant in mid-bay areas, where it forms extensive reefs.

Oysters provide considerable value beyond just the seafood value. They improve water quality by removing sediment and other materials from the water through

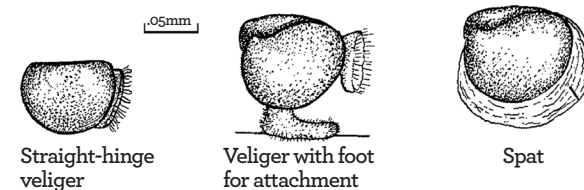
their filter feeding activities (one oyster will filter up to 50 gallons of water per day); oyster reefs provide essential habitat for many important recreational and commercial fish species and much of the prey they depend on; and oyster reefs provide protection to shorelines from wave energy that can result in erosion and loss of property.

## SPAWNING

Oysters spawn during warm weather in late spring to early fall (June to November). Eggs discharged by females are fertilized in the water by sperm released by males. Females may discharge over 100 million eggs during a season. Out of this large number of eggs, only about 1 percent of the eggs become fertile. But spawning of large numbers of oysters at the same time assures an abundance of embryonic oysters.

## DEVELOPMENT

The fertilized egg quickly develops into a swimming, shell-bearing larval oyster, or “veliger.” Physical, chemical and biological pressures from currents, pollution and other organisms may cause larval death. Although the percentage of larvae which develop to the “setting” stage may be small, it can result in tremendous numbers of tiny oysters.



Larvae which settle to the bottom and cement themselves to a suitable surface are called “spat.” Spat will set upon many different materials, such as bricks, bottles, cans, tires, even crabs and turtles. But oyster shells (both in use and empty) provide the most abundant, naturally available settling material.

Oyster spat are gregarious; that is, they tend to settle where some spat already are present. When spat are plentiful, overcrowding may occur, but this tendency helps maintain the oyster population on established reefs and is a means by which new reefs may develop. These reefs provide essential habitat for other fish and invertebrates.

Upon setting, the tiny spat begins to secrete new shell in successive layers, expanding in all dimensions. Sexual maturity occurs in about four months.

## GROWTH

Growth of oysters in Texas waters is relatively fast and occurs throughout the year. Under ideal conditions, spat may reach 1 inch in three months, 2 inches in seven months, and 3 inches in 15 months. But growth can be variable, and oysters of identical age may differ remarkably in size. Probably most Texas oysters reach the legal market size of three inches in 18 to 20 months.

## HABITAT

Living conditions in the estuary or bay undergo continual and often harsh changes. But the oyster is highly adaptable. It tolerates siltation, wide temperature ranges, near-fresh to very salty water, extreme tidal fluctuations and many other environmental changes. By tightly closing its shell, it can avoid contact with the harmful environment for some time. But when its muscle tires, the shell must open, and if conditions have not improved, the oyster will die.

## PEARLS

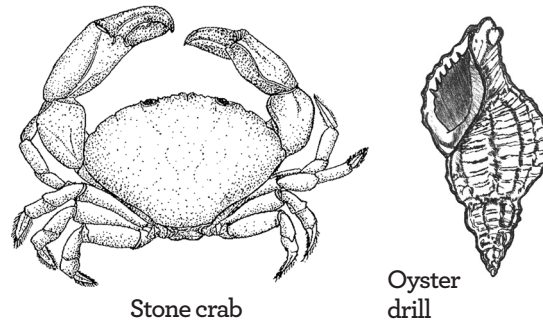
A mollusk's mantle is the organ that secretes the materials that build and repair its shell. Sometimes sand grains, shell fragments or other particles become lodged within the mantle tissue, causing an irritation. The mantle begins coating such a particle with thin layers of shell material, forming a "pearl."

Commercial oysters in Texas lack the mother-of-pearl exterior secretion needed to give the luster and beauty of the true pearl; thus these pearls, although interesting, are not valuable.

Several pearls may occur in one oyster. A world record has not been established, but a Galveston Bay oyster containing 356 pearls must be a leading contender.

## PRESSURES

Oyster must contend with a number of predators and parasites. Several types of crabs can crack the shell and feed upon the oyster. The oyster drill, a predatory snail, can rasp a hole through the shell and insert a tubular proboscis to reach the flesh.



Stone crab

Oyster drill

Certain sponges and mollusks burrow in the oyster valves for protection but may riddle the valves with extensive burrows, weakening the shell and making the oyster more vulnerable to predation. Other organisms may crowd the oysters, interfere with feeding, smother young oysters and hinder spat from setting.

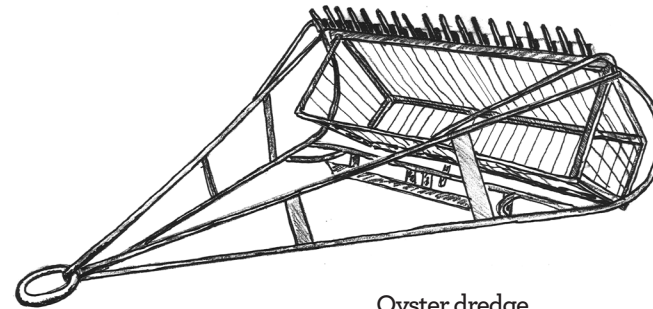
Disease-causing parasites, such as the protozoan called "Dermo," may reach epidemic proportions, killing large numbers of oysters within a short time. Such epidemic losses have been recorded wherever oysters are found. In Texas, and throughout the Gulf Coast, Dermo regularly causes moderate to severe losses among market oysters.

As filter-feeders, oysters can concentrate bacteria and viruses within their bodies; the most common bacteria in Texas is *Vibrio vulnificus* (*Vibrio*). These may be harmful to humans when oysters are eaten raw or insufficiently cooked. Such diseases as typhoid fever and hepatitis have been traced to contaminated shellfish taken from polluted waters in other parts of the country.

The Texas Department of State Health Services (DSHS) determines the sanitary quality of the oystering areas and closes those which do not meet state and federal standards. It publishes maps of the Texas coast, designating approved oystering areas as well as closed or polluted areas. By law, no one may take oysters from the polluted areas, either for sale or for personal use.

## HARVESTING

The principal gear used in harvesting is the oyster dredge, essentially a basket attached to a toothed bar. When dragged by an oyster boat over a reef, oysters are scraped off the bottom by the bar and caught in the basket. The dredge periodically is hauled aboard and the catch dumped on deck. Small oysters and shells are separated or culled from the market oysters and discarded or thrown overboard. If culling is done properly, small oysters can be separated and returned to the water without damage.



Oyster dredge

Oysters are sold either in the shell or shucked. Most dealers employ experienced shuckers to open the oysters, using special knives. After cleaning and processing, the shucked oysters are packed in jars or cans and placed in cold storage until sold. All oysters sold in Texas must be certified, which means they must be harvested, handled, processed and stored in accordance with state and federal health and food safety standards.

## PROCESSING

New technology has been introduced to maintain freshness, eliminate possible bacteria spoilage and reduce *Vibrio* levels. Three new FDA-approved technologies are being used:

1. Individual quick-freezing (IQF) involves rapid freezing of half-shell oysters on trays, then adding a thin glaze of ice to seal in the natural juices before storing them frozen.
2. Heat-cool pasteurization is a patented process whereby live oysters are placed in warm water for a certain period of time and then immediately moved to cold water to halt the cooking process.
3. High hydrostatic pressure is also a patented process that subjects oysters to high pressures (roughly 45,000 pounds per square inch) for 3 to 5 minutes and sends them to market.

## LINKS FOR INFORMATION ON OYSTER SAFETY

Texas Oysters:  
[www.texasoysters.org/about.html](http://www.texasoysters.org/about.html)

Harvest Maps:  
[www.dshs.state.tx.us/seafood/Classification.shtm](http://www.dshs.state.tx.us/seafood/Classification.shtm)

Sea Grant - Safe Oysters:  
<http://safeoysters.org/consumers/index.htm>