

## HOW TO PREPARE FOR COOKING

Shrimp, like all seafood, is highly perishable. Store newly purchased shrimp in your refrigerator immediately, or bury it in ice. When purchasing fresh-frozen shrimp, place it in the freezer immediately. Smell and touch the shrimp. If there is any hint of an ammonia smell, or they are slimy, discard the shrimp.

Shrimp can be prepared in a variety of ways—boiled, broiled, grilled, fried and baked are just a few of the ways. No matter how they are prepared, shrimp are near the top of the seafood popularity list.

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

**Texas Sea Grant College Program**  
2700 Earl Rudder Freeway S., Suite 1800  
College Station, Texas 77845

Additional recipes can be found at local bookstores, seafood markets and grocery stores, as well as online.



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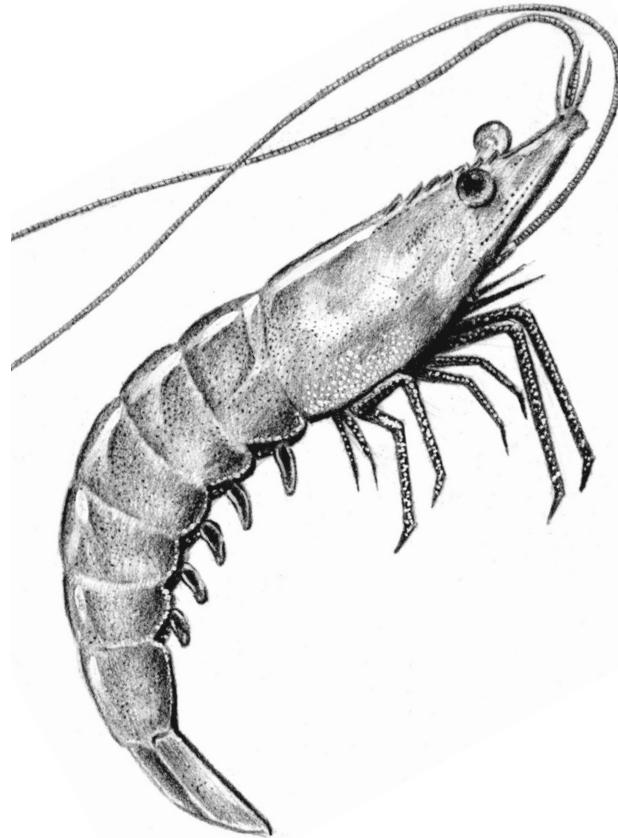
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## COASTAL FISHERIES

# Shrimp

## IN TEXAS



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Marine shrimp is by far the most popular seafood in the United States. Boiled, fried or stuffed, shrimp are delicious. They are low in saturated fat and are a very good source of protein, selenium and vitamin B-12.

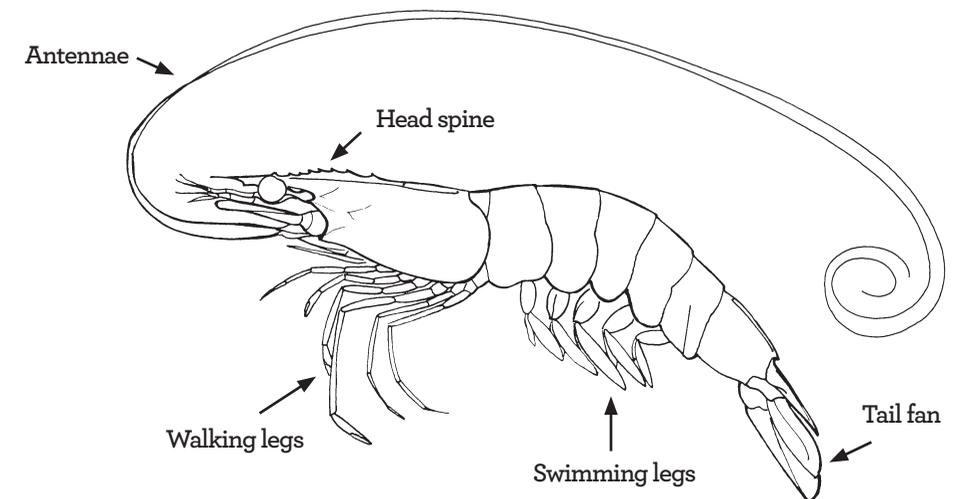
There are many kinds of shrimp found in the Gulf of Mexico; however, only those of the family Penaeidae are large enough to be considered seafood. Brown shrimp (*Farfantepenaeus aztecus*), white shrimp (*Litopenaeus setiferus*), and to a lesser extent pink shrimp (*Farfantepenaeus duorarum*) make up the bulk of Texas shrimp landings.

Shrimp are rather strange-looking creatures. The body is segmented and encased in a shell. The head spine, walking legs and antennae are attached to the head section, while the edible portion (the "tail") bears the swimming legs and tail fan (Figure 1). How these tasty crustaceans wind up on the dinner table or attached to a sportsman's fish hook is an interesting story.

Fig. 1

### GENERALIZED BODY PLAN OF A SHRIMP

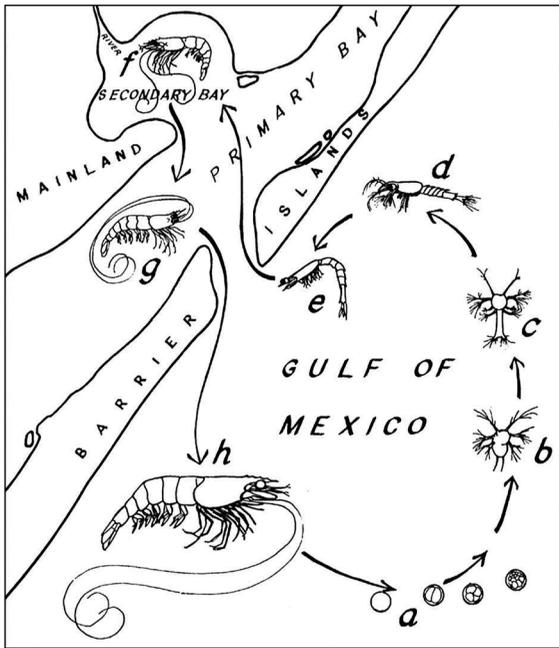
(image courtesy of the National Oceanic and Atmospheric Administration)



## LIFE STAGES

Brown, pink and white shrimp are estuary dependent and have similar life-history stages, but vary seasonally and in abundance. The term "estuary dependent" means that each species of shrimp utilizes the estuary for food, growth, and shelter during a portion of their life. In general, adult shrimp spawn in the Gulf of Mexico. One female shrimp releases 100,000 to 1 million eggs that hatch within 24 hours. The young shrimp develop through several larval stages (Figure 2) as they are carried shoreward by winds and currents. By the time the young shrimp (postlarvae) reach the gulf passes and enter the bays, they are one-fourth inch long and are transparent.

Postlarvae drift or migrate to nursery areas within shallow bays, tidal creeks and marshes where food (plant and animal matter) and protection necessary for growth and survival are available. There they develop color and become bottom dwellers. If conditions are favorable in nursery areas, the young shrimp grow rapidly and soon move to the deeper water of the bays. The young reside in bays during the spring and begin entering the Gulf in late May or early June. If growth is fast, they may leave bays early; occasionally this happens after a warm winter or when there is a large rain event causing a sudden increase in runoff from the watershed.



(image courtesy of the National Oceanic and Atmospheric Administration)

When shrimp reach juvenile and subadult stages (3 to 5 inches long) they usually migrate from the bays to the Gulf of Mexico, where they mature and complete their life cycles. Most shrimp will spend the rest of their lives in the Gulf. The fishery for them begins when the shrimp are 2 to 4 months old and continues for the remainder of their lives. If not caught by fishermen or eaten by fish, they may live to be 2 years old.

To grow, a shrimp must shed their shell and form another; this process is called ecdysis or molting. After they shed their old shell they grow larger before the new shell hardens. Shrimp grow rapidly when the water is 68° F and above. If bay water temperatures fall below 60° F shrimp growth is much slower and at temperatures below 40° F mortalities may occur.

Fig. 2

## TYPICAL LIFE CYCLE OF SHRIMP

- a) shrimp eggs
- b) nauplius larva
- c) protozoa
- d) mysis
- e) postlarva
- f) juvenile shrimp
- g) adolescent shrimp
- h) mature adult shrimp

## SHRIMP FISHERY

Brown, white and pink shrimp are taken by commercial, live bait and sport fishermen in coastal bays and the Gulf. Texas shrimp landings average almost 32 million pounds valued at \$88 million to the commercial shrimper.

Brown shrimp are harvested in coastal bays and in the Gulf and account for over 80 percent of the Texas catch. White shrimp are also caught in the bays, but are more common in bays along the upper coast, where there is adequate freshwater inflow. They stay in bays longer and reach a larger size than brown shrimp and go to the Gulf as bays cool in the fall, where they are caught in the near-shore waters off the Gulf beach.

Pink shrimp, an important commercial shrimp in Florida and Mexico, are caught in Texas but do not represent a major part of the landings. They inhabit bays from late fall through early spring, primarily along the middle and lower Texas Coast.

There are other shrimps of minor commercial value in the Gulf. Among these are the seabob, with its long head spine or rostrum; the rock shrimp, with its hard outer shell; trachypenaids, with their rough carapace; and a deep-water type called the royal red shrimp.

With few exceptions, shrimp are caught with trawls (Figure 3). These are winged nets that form a cone-like shape in the middle which tapers to a narrow end, called the cod-end. The two "wings" of a trawl are attached to wood or metal "doors." Lines run from the shrimp boat to each door. As the shrimp boat tows the trawl over the seabottom, the trawl is held open by the kite-like spreading action of the doors. Shrimp and bottom fish are scooped into the open trawl and collect in the cod-end.

Before Gulf shrimpers found out about shrimp trawling, they used long seines set close to shore and hauled by people or horses. Shrimp fishing, therefore, was worthwhile only when white shrimp were abundant near shore. By the 1940s, however, shrimp trawlers were a common sight at Gulf coast ports.

Once shrimpers were equipped with trawls, they could fish the dense shrimp stocks in deeper bay waters and the Gulf of Mexico. Improvements in transportation and refrigeration accompanied the growth of the shrimp trawl fishery, and new markets opened. Today the modern Gulf trawler is

a large, well-equipped seagoing vessel capable of towing two or more large trawls at the same time.

Since red drum, spotted seatrout and many other saltwater gamefish like to eat shrimp, the sale of live shrimp to be used as bait by sportfishers is a big business. Using small trawls, bait shrimpers make several short tows a day to catch shrimp and fish for sale to fishermen. Shorter tows are less stressful for the bait; thus, more survive to be sold as live bait.

Anyone wishing to fish for shrimp in Texas waters must possess an appropriate license. Currently, there is a license management program in place for shrimping in Texas waters. The Texas Parks and Wildlife Department (TPWD) no longer sells bait or bay (commercial seafood) shrimping licenses. In order to obtain a license, it is necessary to transfer an existing license from a current license holder. TPWD should be consulted before any license transfer to learn about the current restrictions and requirements associated with license transfers and shrimping in Texas waters.

So, the next time you are buying bait shrimp or having shrimp at your favorite restaurant, you will have a better understanding of these "rather strange-looking creatures" and how their journey brought them to you.

Fig. 3

## SHRIMP TRAWL

