

# Ridgeback Prawn

## History of the Fishery

Intermittent catches of small numbers of ridgeback prawns (*Sicyonia ingentis*) in Santa Barbara-area fish trawls led to the development of regulations to allow the take of prawns with small mesh trawl nets. Enactment of these regulations in 1965 resulted in the landing of 30,200 pounds of prawns the following year; however, landings quickly slumped when prawns proved difficult to market. Annual landings were below 5,000 pounds from 1974 to 1977, except in 1975 when they were 28,000 pounds. The catch increased to 356,000 pounds in 1979, but declined to 129,000 pounds three years later. In 1985, landings peaked at nearly 900,000 pounds, but they subsequently declined to 142,000 pounds in 1988 following several year-class failures. Landings reached a low of 64,000 pounds in 1992, but increased to 607,000 pounds in 1996. After a dip to 387,000 pounds in 1997, ridgeback prawn landings reached a new high of about 1,391,000 pounds in 1999.

The fishery is centered in the Santa Barbara Channel and off Santa Monica Bay. In 1999, 32 boats participated in the fishery. Traditionally, a number of boats fish year round for both ridgeback and spot prawns, targeting ridgeback prawns during the closed season for spot prawns and fishing for spot prawn during the ridgeback closure. Most boats typically use single rig trawl gear (only one boat was noted to be using double rig gear in 1999). The average trawler length is 45 feet with a range of 28 to 76 feet. Six of these boats are over 50 feet in length.

Following the 1981 decline in landings, a summer closure (June 1 through September 30) was adopted by the California Fish and Game Commission to protect spawning female and juvenile ridgeback prawns. An incidental take of 50 pounds of prawns or 15 percent by weight is allowed during the closed period. During the season, a maximum of 1,000 pounds of other fish may be landed with ridgeback prawns. Any amount of sea cucumbers may be landed with ridgeback prawns as long as the vessel owner/operator possesses a sea cucumber permit. Other



Ridgeback Prawn, *Sicyonia ingentis*  
Credit: David Ono, DFG

regulations include a prohibition of trawling within state waters (three-miles from the mainland shore and islands), a minimum fishing depth of 25 fathoms, a minimum mesh size of 1.5 inches for single-walled codends or three inches for double-walled codends and a logbook requirement.

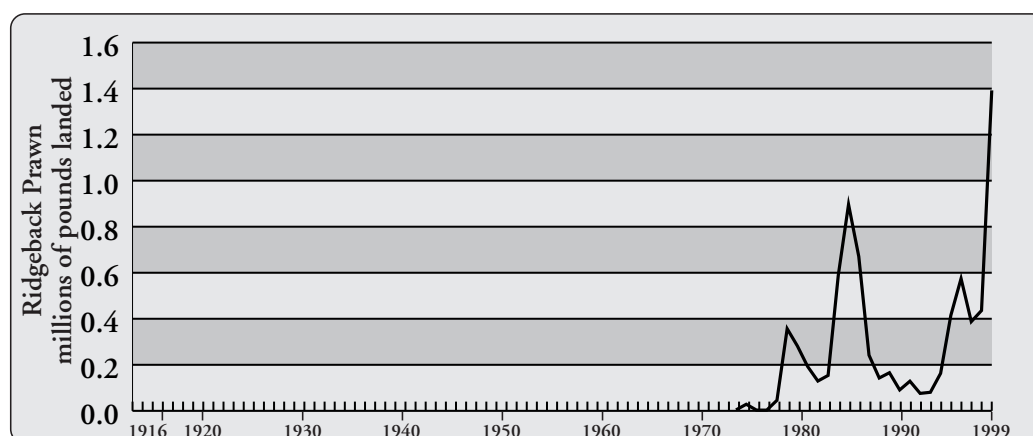
Demand for this resource continues to be high, as its sweet flavor and low price make it a favorite among fresh fish buyers. As this species does not freeze well, it is primarily sold as fresh whole prawns; however, prawns are often landed live to supply a secondary live prawn market, and also to prevent discoloration from a black pigment that forms after death, which lowers consumer appeal. In 1999, live prawns accounted for 28 percent of the landings, but have been as high as 68 percent in 1997. The median ex-vessel price in 1999 for all ridgeback prawn was \$1.30 per pound. Live prawns sold for a median price of \$2 per pound, with a range of \$1 to \$5 per pound, while fresh dead prawns sold for a median of \$1 with a range of \$0.20 to \$3.35 per pound.

## Status of Biological Knowledge

Ridgeback prawns occur from Monterey, California to Cedros Island, Baja California, at depths ranging from less than 145 feet to 525 feet. Major concentrations occur in the Ventura-Santa Barbara Channel area, Santa Monica Bay, and off Oceanside. One study found ridgeback prawns to be one of the most common invertebrates to appear in its trawls, occurring in 59 percent of tows along the mainland shelf within the Southern California Bight. Other pockets of abundance are found off Baja California. This species occurs on substrates of sand, shell and green mud. As these animals are relatively sessile, little or no intermixing occurs. Their maximum life span is five years and sexes are separate. Females reach a maximum length of 1.8 inches carapace length (CL), and males 1.5 inches CL.

These shrimp are free spawners, as opposed to other shrimps, which carry eggs. Both sexes spawn as early as the first year, but most spawn during the second year at a size of 1.2 inches CL. The spawning period is more seasonal than with other penaeid shrimp. Studies suggest that this species undergoes multiple spawning from June through October. Following spawning, both sexes undergo molting and continue molting throughout winter and spring. The number of eggs produced averages 86,000.

The food habits of the ridgeback prawn are unknown, but it may be a detritus feeder like closely related species. In Baja California, ridgeback prawns are preyed on by several species of sea robins. In southern California, it is presumed other groundfish such as rockfish and lingcod



**Commercial Landings  
1916-1999, Ridgeback Prawn**  
Data Source: DFG Catch Bulletins  
and commercial landing receipts.

prey on them as well. Other likely predators include octopus, sharks, halibut, and bat rays.

## Status of the Population

Yearly sea surveys between 1982 and 1991 documented relative abundance and year-class strengths of juvenile ridgeback prawns. Relative abundance in terms of numbers of animals per 15-minute tow began increasing from 66 animals per tow in 1982 to 1,200 animals per tow by 1984, but began to decline in 1985 when the catch fell to 132 per tow. These trends mirrored the rise and fall of yearly commercial catches. The population of ridgeback prawns in the Ventura area increased dramatically during 1983 to 1985, but then began declining.

Ridgeback prawn trawl logs, required since 1986, show an average of 147 pounds of ridgeback prawn caught per tow/hour, dropping to a low of 32 pounds per tow/hour in 1992, and steadily increasing to 213 pounds per tow/hour in 1999. This increase is in addition to an increase in the number of vessels (from 17 in 1992, a high of 43 vessels in 1995, to 32 in 1999), and more effort directed at ridgeback prawns during the spot prawn closed season.

Potential causes for this increase are the effects of El Niño, which may have provided optimum conditions for growth and recruitment; reduced predator populations; and regulatory restrictions on the fishery. No population estimates were available for any of the major fishing grounds, although the majority of catches consisted of two- and three-year-old animals.

## Management Considerations

See the Management Considerations Appendix A for further information.

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