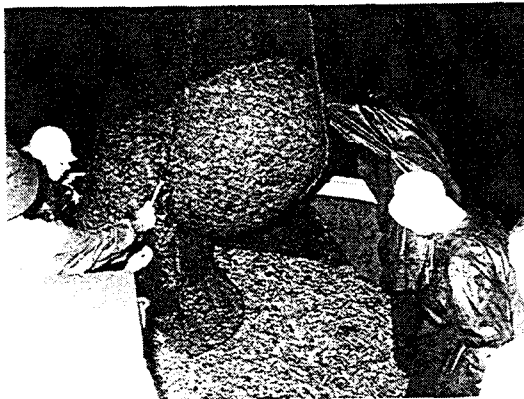


PELAGIC RED CRAB

History of the Fishery

Pelagic red crabs (*Pleuroncodes planipes*) constitute a large fishery resource when they periodically appear off the southern California coast. The bulk of the resource is centered off southern Baja California, but during warm water years many crabs are carried as far north as Monterey. Although this species is not now fished commercially, in the past it has been used in pet food and aquaculture feed, and other uses have been suggested. The flesh is edible (red crab is closely related to "langostino," which has been imported from Chile for many years), and the shell can be converted to "chitosan," a compound similar to cellulose with a number of practical applications. The carotenoid pigment in red crab can be used to enhance pigmentation in the flesh and skin of fishes, as well as feathers of birds such as captive flamingos. It also gives a desirable golden hue to the skin of chickens.

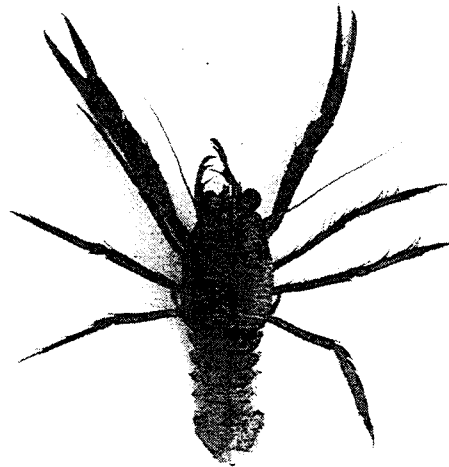


Midwater trawl catch of pelagic red crabs.

A small fishery for pelagic red crab was initiated in the early 1970's, with practically all of the catches being made off southern Baja California, Mexico. The fishery lasted until around 1977, when extended jurisdiction effectively closed all areas of dense concentration of red crabs to American fishermen. Throughout the fishery's existence, a single boat made all commercial landings of red crabs.

Although large numbers of red crabs are periodically seen off southern California, attempts to catch them in commercial quantities have proven difficult. Thus, the fishery was conducted in southern Baja California, particularly in and near Magdalena Bay. All the landings were made in San Pedro. Initially the crabs were used as an ingredient in canned cat food, but later they were minced and included in the formulation of a salmon feed known as "Oregon Moist Pellets," used extensively by salmon growers. The value of red crab lay in its high concentration of carotenoid pigments which, when ingested and assimilated by salmon, gave the fish flesh its characteristic color. Without the inclusion of carotenoid pigments in the diet, the flesh of cultured salmon is pale.

Both midwater and bottom trawls have been successfully used to catch pelagic red crab. A special problem occurs in unloading the catch from the trawl nets, because the crabs interlock with each other and splitting off manageable amounts in the cod end is difficult. On-board handling and storage are also difficult, because the crabs are light and bulky. Further, enzyme activity quickly causes spoilage. In order to store large quantities aboard a vessel, it was found that grinding and freezing the product in plastic bags was most practical.



Pelagic red crab, *Pleuroncodes planipes*.

Status of Biological Knowledge

The pelagic red crab is a striking red crustacean belonging to the family Galatheidae, which includes a number of lobster-like crabs. Adult red crabs attain body lengths of only about 2.5 inches, and 100 or more individuals are needed to make up a pound.

Pelagic red crab is normally found off southern Baja California, Mexico, but in years when strong northward transport of water occurs along the west coast it can be found as far north as Monterey. They are found in surface layers, and on the bottom from shallow depths to around 150 fathoms. Although they have been found in temperatures of 48 to 82°, they seem to prefer water temperatures between 59 and 70° F.

Larval and young stages of red crab lead a planktonic life for about a year. In the second year, maturing crabs are about 0.6 inch in carapace length and spend some time on the bottom. By the end of the second year they are slightly larger than one inch long and become strictly benthic.

Red crabs become reproductively mature sometime in their second year. Each female may have two or three broods of eggs in one season, with up to 3,600 eggs in a brood. Eggs hatch about two weeks after they are carried externally. Spawning peaks in the winter, mainly off southern Baja California, but in warm water years spawning can occur as far north as southern California.

Planktonic red crabs feed on phyto- and zooplankton by filtration. Benthic stages probably feed primarily on detritus, but can also feed on dead animal matter and can even catch live copepods by using their chelipeds.

In nature, the red crab is an important food item for many fishes, birds and marine mammals, because of its great abundance and availability. Predators of red crab include most carnivorous fishes, especially tuna off southern Baja California, several species of birds, sea lions and some whales. Off southern California, they constitute an important food item for gulls and probably marine mammals as well, especially during El Niño years when other feed such as squid and anchovy are scarce.

Younger stages of pelagic red crab live up to their name, and are transported in all directions by currents from the primary spawning grounds off south-central Baja California. Windrows of these crabs are often seen stretching for miles on and near the surface. Mass strandings of pelagic red crabs occur regularly on beaches in Baja California and periodically happen as far north as Monterey.

Status of Population

Little information is available about the abundance of pelagic red crab. One survey by a Russian research vessel found around 300,000 tons of red crabs in an area of 77,000 square miles off Baja California. In another study, stomach contents of tunas caught in this area indicated that the fish ate around a pint of red crabs daily; so the total abundance must be considerable. Off California, however, large quantities occur only infrequently, when warm currents carry the crabs northward from the center of abundance off Baja California.

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