

racuda on the coast of Los Angeles County. It is thus described in a letter to the Fish Commission from Mr. John L. Griffin, of Los Angeles, dated March 2, 1894:

Barracuda put in an appearance one month earlier than ever before. They came in immense quantities and something happened to them. Thousands came ashore dead, while the water was full of fish that seemed dazed, swimming about with their heads out of water. Among them were some halibut, yellowtails, and some other fish, but they were principally barracuda. All kinds of theories have been advanced; one that fishermen had used dynamite bombs; another that it was caused by volcanic disturbances from the bottom; another that the fish coming from tropical waters became chilled; then another, which the newspapers put forth much to the disadvantage of fishermen and fish-dealers, that it was disease, and there has been a great falling off in the consumption of fish in consequence.

The most plausible explanation of the phenomenon was that there was an unusually active eruption of the submarine oil springs off this coast, and that the fish were asphyxiated by having their gills coated with the oil.

MACKEREL AND MACKEREL-CANNING.

In connection with the capture and canning of sardines at San Pedro, a species of carangoid fish (*Trachurus picturatus*) is taken and utilized to some extent for canning and salting. At San Pedro it is known as "Spanish mackerel"; at other places on the coast it is called "horse mackerel." Dr. Jordan remarks of this fish:

It ranges from Monterey southward to Chile, appearing in California in the summer, remaining in the spawning season, and disappearing before December. It arrives at Santa Barbara in July and at Monterey in August. In late summer it is exceedingly abundant. It forms part of the food of larger fishes, and great numbers are salted for bait. As a food-fish it is held in low esteem, but whether this is due entirely to its small size we do not know. It is identical with the well-known Mediterranean species.

At San Pedro these fish are taken in the small steam vessel used for sardine fishing. A special purse seine, 135 fathoms long and 100 feet deep, with a 2-inch mesh, is used. The fish are caught in San Pedro Bay and around the Catalina Islands. They go in schools of varying sizes. Some large hauls are made; thus, in the fall of 1893, 150 barrels were taken at one set near the Catalina Islands.

The fish caught are mostly of small size. According to the statements of the gentlemen connected with the California Fish Company, the largest taken in their seine are 12 or 14 inches long, the smallest are about 6 inches, and the average length is about 9 inches. The smallest fish are packed in oil in half-pound square cans and in mustard, tomato sauce, and souse in 2-pound oval cans. The fish too large for canning are salted. They are never fat, however, and do not make a high grade of salt fish.

Another species of mackerel, the club or bull's-eye mackerel (*Scomber colias*), occurs at San Pedro and is utilized to a small extent for canning and salting, as well as being sold fresh. It is there called the "steelhead mackerel." The head is said by the fishermen to be very hard, and in splitting the fish for salting an extra cut of the knife is required to divide the head. The fish is also sometimes designated as the "horse mackerel" in Los Angeles County. It reaches a weight of 3 or 4 pounds, but its average weight is only 2. The flavor and coarseness of the flesh of this fish make it undesirable for canning. Up to the present time, no first-class salt fish of this species have been prepared. The lack of oil in the flesh and the tendency of the latter to assume a dark color are serious drawbacks to the packing of an acceptable salt mackerel.

In the San Francisco market this fish is known as "mackerel," and ranks as a first-class food-fish. The supply is limited, and comes entirely from the southern part of the State. During the early part of June a few boxes of these fish were received by San Francisco dealers, but the bulk of the receipts comes later. The fish examined were of uniform size, having a length of about 16 inches.