Gaper Clams

History of the Fishery

The fishery for the gaper clams, the Pacific gaper (*Tresus nuttalli*) and the fat gaper (*Tresus capax*), is almost exclusively sport, however, the Fish and Game Code allows these clams to be harvested commercially in Humboldt Bay for daily restaurant or market orders. For the 20-year period from 1950 to 1970, annual commercial landings for Humboldt Bay averaged 1,000 pounds with a maximum annual landing of 6,000 pounds and a minimum of 200 pounds. More stringent public health regulations concerning the marketing of shellfish and the retirement of a long-time commercial clammer essentially eliminated the commercial clam fishery in the early 1980s.

The Pacific and fat gaper are the object of a heavy sport fishery that takes place in intertidal areas of bays with sand and mud bottoms. Humboldt Bay, Bodega Bay, Tomales Bay, Drakes Estero, Elkhorn Slough and Morro Bay are popular digging areas. At Tomales Bay, which is one of the major producing areas, as many as 1,200 people have been counted during one low tide on the two emergent sand bars. These popular areas, Clam Bar and Seal Bar, can be reached only by boat. In the past, a commercial ferry provided transportation to the two sandbars allowing as many as 11,000 people to dig there each year. With a legal limit of 10 gaper clams per day, clammers were taking about 55,000 clams per year. However, the commercial ferry service has recently been permanently discontinued and the annual sport take of clams has fallen by almost 75 percent.

Sport take of gaper clams is also quite popular in Humboldt Bay. A survey in 1992 estimated an average of 4,300 sport clammers per year for the previous 10-year period with an estimated annual take of 56,000 gaper clams. Current effort by clammers is estimated to be about the same or slightly higher. Since the discontinuance of the Tomales Bay clam ferry, Humboldt Bay is the largest gaper clam fishery in the state.

In the past, Morro Bay had been considered a good location for sport take of gaper clams. However, settlement of small gaper clams has been poor since the early-1990s for unknown reasons and that factor coupled with foraging by sea otters has reduced abundance of gaper clams, resulting in greatly reduced effort by clammers in the 1990s.

Utilization of gaper clams has increased through the years, and it appears that it will continue to increase in proportion to population growth in the coastal counties where these clams occur. There is no season or size limit, but there are bag limits set for sport and commercial harvesting. An angler may take 10 clams per day throughout the state, except in Elkhorn Slough where the limit is 12 clams per day and in Humboldt Bay where a take of 25 clams per day is allowed. The fact that gaper clams have relatively thin shells, which do not close tightly enough to maintain their moisture, restricts the commercial use of these clams to a fairly local market.

Diggers generally use skiffs to get to the better clam digging areas. Shovels are used to dig the clams, which may be as deep as four feet in sand or mud. In muddy areas, three-foot lengths of PVC pipes about 12 to 15 inches in diameter are often used to prevent the hole from caving in, enabling clammers to reach deeply buried clams.

Gaper clams generally are used in clam chowder or fried and served as a main dish.

Status of Biological Knowledge

Gaper clams are found from Alaska to Scammon's Lagoon, Baja California. Both the Pacific and fat gaper live in fine sand or firm sandy-mud bottoms in bays, estuaries, and more sheltered outer coast areas. They are found from the intertidal zone to depths of at least 150 feet. The Pacific gaper is the most commonly taken gaper clam in California. A closely related species, the fat gaper, is the predominant gaper clam taken in Humboldt Bay, where it is very common in the intertidal zone. Further south, the fat gaper occurs mostly subtidally but can make up to five percent of the catch taken in the intertidal zone at Tomales Bay.

Reproduction occurs year around in central California but is predominant during spring and peaks in the months of February and April. Upon completion of a free-swimming larval stage, the young gaper clam settles down to a fixed position and comparatively inactive existence. The only movement is downward as the clam grows older and increases in size. After reaching a size of about three inches, little downward movement occurs.

Age and growth studies reveal that most gaper clams taken in central California range from about three to eight years old. For the first four years, the clams average about one inch of growth in length per year. The growth rate

Pacific Gaper Clam, *Tresus nuttalli*
Credit: Windy Montgomery, University of California

appears to slow down after this period. Gaper clams live to a maximum age of 17 years and can attain a length of 10 inches with a weight of approximately five pounds.

The gaper clams reach sexual maturity and spawns at about two to three years of age. At this time, they are two to 2.75 inches in size. Spawning appears to begin in the spring, coinciding with the seasonal water temperature minimum.

Gaper clams are suspension feeders, feeding on suspended particles, which include phytoplankton and detritus. In intertidal beds, feeding occurs during the high tide period.

Status of the Population

Although densities of gaper clams in areas of certain bays have been determined, complete statewide intertidal and subtidal population estimates have not been made. However, both the intertidal and subtidal resource appears to be in a healthy state where most clamming effort is located. Subtidal populations are relatively unavailable and unused by sport clammers and provide a spawning refuge. In general, spawning stock reserves seem adequate to sustain the population. Gaper clams occur in densities of up to 20 clams per square foot, with a density of two clams per square foot considered commercially viable. Intertidal siphon counts by biologists using a stratified random sampling design on Clam Bar in Tomales Bay supplied data for estimating intertidal population sizes of 540,000 gaper clams in 1968 and 430,000 in 1969.

Management Considerations

See the Management Considerations Appendix A for further information.

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DFG biologists showing off gaper clam catch from Tomales Bay
Credit: DFG