

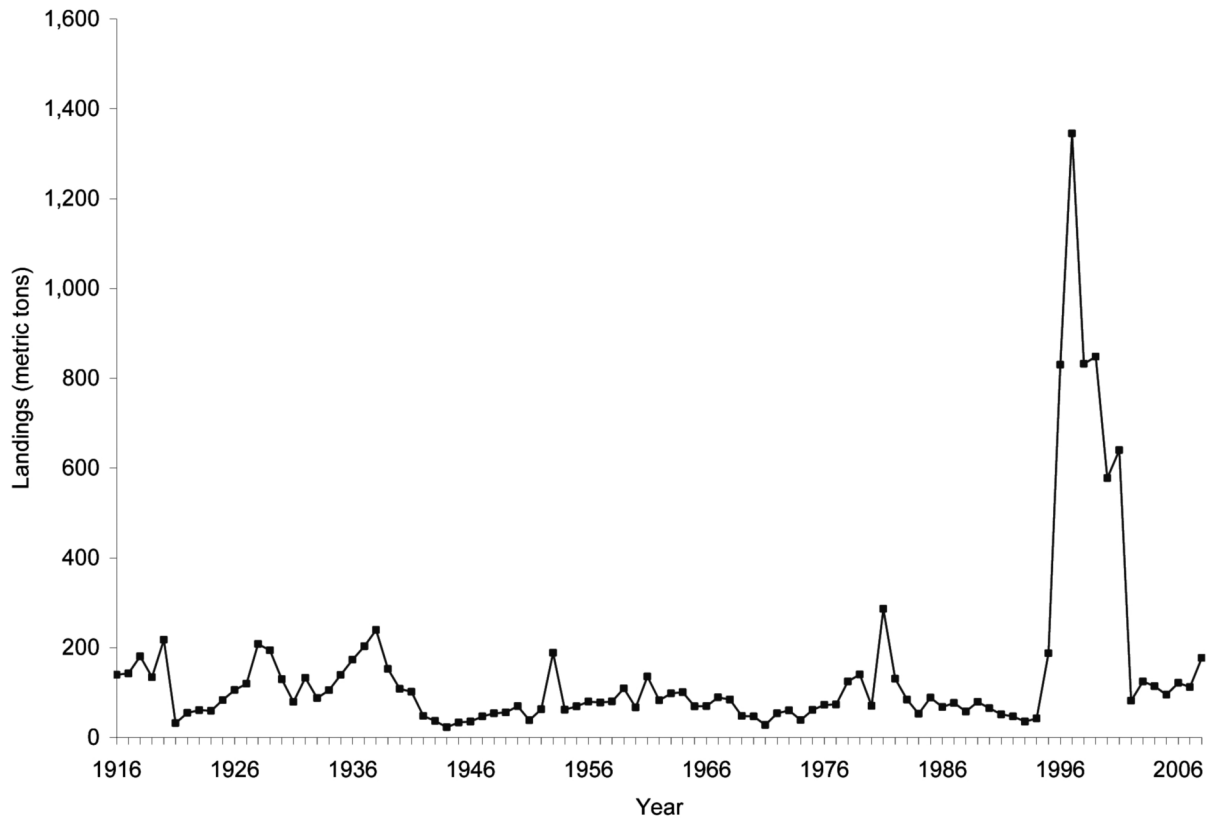


Figure 16. California commercial skate (*Rajiformes*) landings, 1916–2008.

likely have little effect on recreational catch. The Council decided not to make changes to thresher shark regulations for the 2009–10 management cycle, but did make a number of recommendations including to: (1) continue outreach to fishermen regarding best practices to increase survival of released animals, (2) improve data collection on thresher sharks (especially for private access marinas, and in commercial hook-and-line and non-HMS fisheries), (3) initiate a new stock assessment, incorporating data from Mexico, (4) better estimate the number and condition of released fish, (5) further investigate recreational gear modifications to increase survival, and (6) better identify thresher shark nursery areas.

Skates and Rays

Skates and rays (*Rajiformes*) have not historically been targeted in commercial fisheries, but have primarily been taken as incidental catch by trawlers in northern and central California. Of those identified in commercial catch, the most common skates are the big skate (*Raja binoculata*), California skate (*Raja inornata*), and longnose skate (*Raja rhina*). The most commonly identified rays are the shovelnose guitarfish (*Rhinobatos productus*) and bat ray (*Myliobatis californica*). This does not reflect actual species composition, however, because the majority of landings have been reported as “unspecified skate” or

“stingray”. Landings are also reported under specific market categories for those species above (longnose skate just added this year), as well as “unspecified ray”, “Pacific electric ray” (*Torpedo californica*), and “thornback” (*Platyrrhinoidis triseriata*). Of the 22 species of skates and rays currently known to be in California waters, only the big skates, California skates, and longnose skates are under management authority of the Council Groundfish FMP. Though these species are defined as groundfish, harvest of skates is not actively managed under the Groundfish FMP. The 11 species of rays found in California are not federally managed.

Skates. From 1916 to 1990, California commercial skate landings ranged from a low of 23 t in 1944 to a high of 286 t in 1981, averaging 95 t annually during that period (fig. 16). In the mid 1990s, skate landings increased significantly from about 42 t in 1994 to 1,345 t in 1997 due to increased demand from Asian markets. Landings fell sharply in 2002, corresponding with reduced market demand, and have averaged 118 t annually over the past seven years.

In 2008, commercial landings for skates totaled 177 t, the highest landings since 2001. Landings increased by 58% from the 112 t landed in 2007. Trawl gear accounted for most (94%) of the landings in 2008; longline, gill net, and seine gear accounted for the remaining amount (6%).

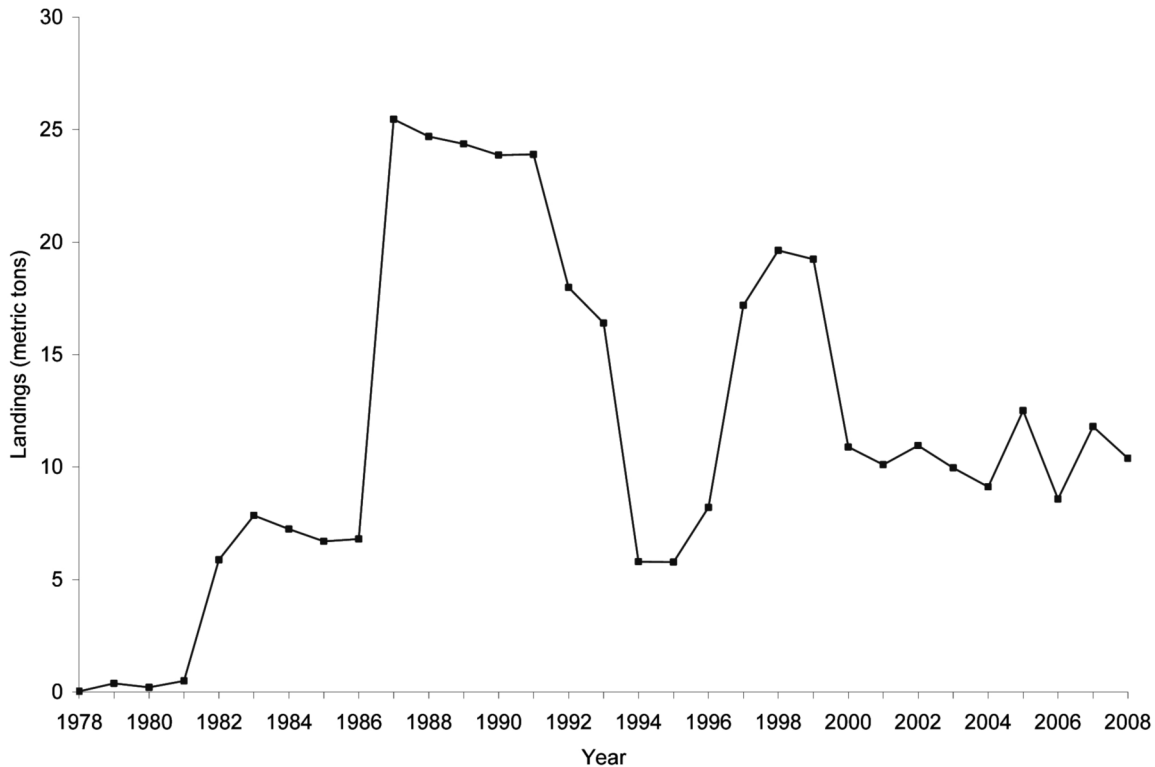


Figure 17. California commercial ray (*Rajiformes*) landings, 1978–2008.

Over 99% of the skates were landed as “unspecified skate”; the remaining fraction was landed in big skate and California skate market categories.

The ex-vessel economic value for skates during 2008 was \$96,958, 89% higher than in 2007 (\$51,292), but considerably lower than the peak value reached in 1997 (\$510,994). The average ex-vessel price in 2008 was \$0.83/kg (\$0.40/lb). Historically, the statewide economic value of skate fisheries has been small compared to other fisheries. The average annual ex-vessel price for skates ranged from \$0.02/kg (\$0.01/lb) in the late 1950s to \$0.60/kg (\$0.27/lb) in the 1990s. From 2000 to 2008, prices averaged \$0.73/kg (\$0.33/lb) and reached as high as \$22/kg (\$10/lb).

The majority of skate landings in 2008 were made in northern California, with Crescent City, Eureka, and Fort Bragg port areas accounting for 90% of the catch. In the earlier years of the fishery, most of the skate catch came through central California (Monterey and San Francisco), which accounted for 41% to 100% of the annual landings from 1948 through 1989 (72% average). Since 1975, the northern California areas have become progressively more important for skate landings. In 1995, the catch from northern California increased dramatically, and has since accounted for 72% to 93% of the total catch. Total landings from areas south of Monterey have continued to be relatively insignificant.

The increase in skate landings may be attributed to retention of previously discarded catch. When the commercial groundfish fishery was divided into limited entry and open access components in 1994, new quotas and regulations were required. The significant reduction of groundfish quotas for both components created more space in boats’ holds to retain non-quota species. Trawl vessels were able to supplement groundfish landings with skate and ray bycatch. It is uncertain whether the effort to target the skate and ray resource has increased or if previously discarded catch is simply being retained and landed.

New recommendations were made for the skate fishery in 2009. As a result of the longnose skate stock assessment completed in 2008, catch of this species is now required to be sorted upon landing (Title 14, CCR, § 189(b)(3)). Previously, market categories were limited to only big skates and California skates, though these and other species were mostly lumped into “unspecified skate” in the absence of sorting requirements. Under federal regulations, skates had been part of a species complex because they had not been thoroughly studied nor been assessed. Longnose skate is now removed from the “other species” complex and assigned species-specific allowable biological catch values for the 2009 and 2010 management cycle. State port samplers began sampling the species composition of skate market categories in 2009.

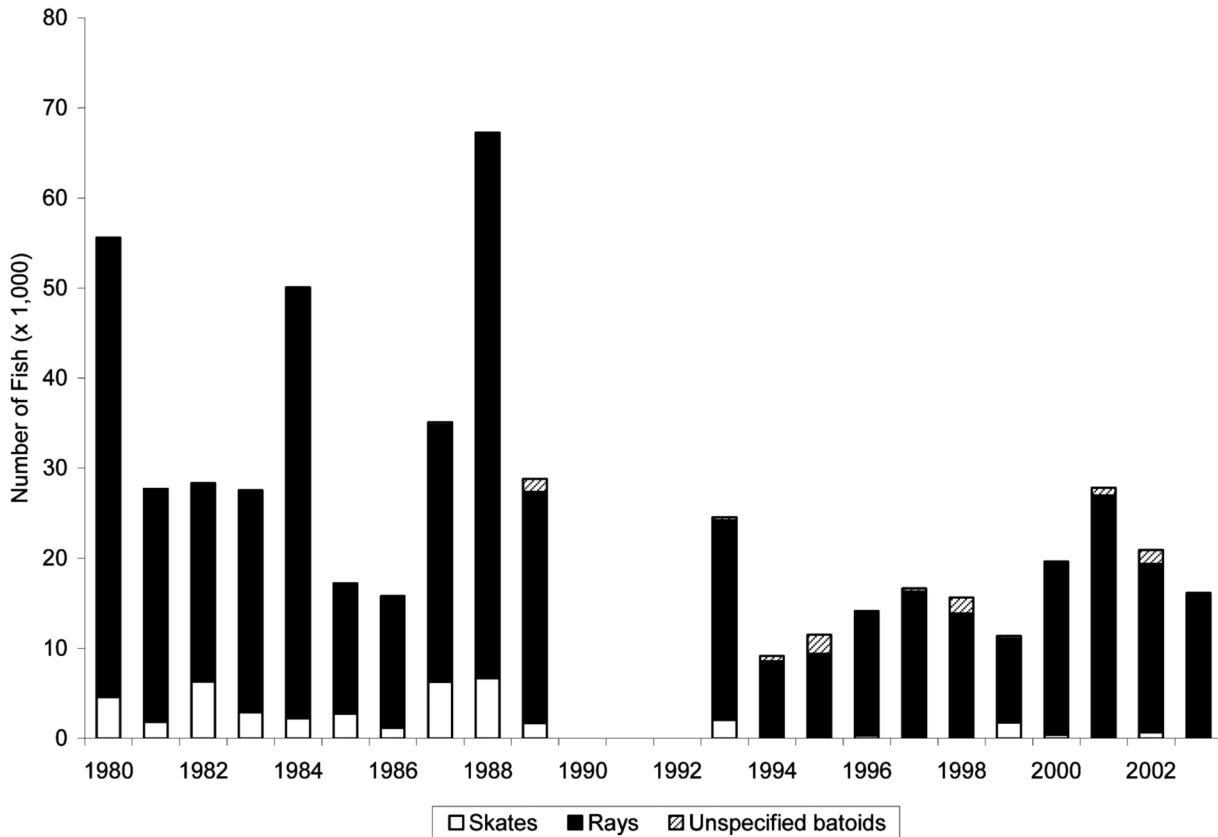


Figure 18. California recreational skate and ray (Rajiformes) landings as reported in the Marine Recreational Fisheries Statistical Survey (MRFSS), 1980–2003.

Current regulations also require all skates to be landed whole (FGC §5508, 8042). The possession of skate wings aboard a vessel is prohibited as there are no equivalents nor conversion factors established in statute or regulation under which not-whole skates may be brought ashore. In the past, only a portion of skate (and ray) catch was marketed whole; primarily, just the pectoral fins or “wings” of skates were sold. Skates are currently marketed both whole and as wings. Wings are sold largely in Asian markets as fresh or fresh-frozen, dried, or dehydrated and salted.

Rays. Commercial landings of rays have been relatively minor compared to skates. However, rays may have been included with skate landings prior to 1978 when commercial landings data became available for rays. Over the past 31 years, ray landings ranged from less than 1 t in 1978 to 25.5 t in 1987, averaging 11.7 t annually (fig. 17). In 2008, reported landings of rays totaled 10.4 t, a 12% decrease from 2007 (11.8 t). Bat rays (38%) and shovelnose guitarfish (33%) accounted for the majority of the landings in 2008. Ray landings have primarily been reported as shovelnose guitarfish, averaging 73% of the landings annually since 1978. The relative proportion of shovelnose guitarfish has been de-

clining since 2006, when this species accounted for 65% of the landings.

The ex-vessel value of rays was \$11,962 in 2008, a 16% decrease from 2007 (\$14,198). The price of rays has fluctuated considerably compared to skates. The average price rose from \$0.15/kg (\$0.07/lb) to \$4.01/kg (\$1.82/lb) from the 1970s to 1980s, and then dropped to \$1.63/kg (\$0.74/lb) in the 1990s. Between 2000 and 2008, the average price was \$1.50/kg (\$0.68/lb) with a maximum of \$110/kg (\$50/lb). In 2008, the average ex-vessel price was \$0.87/kg (\$0.39/lb), a 37% decrease from 2007 (\$1.39/kg; \$0.62/lb). Over 99% of the rays were landed in the southern California region in 2008, with the Los Angeles port complex accounting for 77% of the landings.

Recreational fishery. The recreational fishery for skates and rays is relatively small. In 2008, only 3% (7 t) of the estimated 195 t of skates and rays landed in California was recreational and 97% (188 t) was commercial. Small sport fisheries target a few of the shallow nearshore species. Rays dominate the catch (figs. 18, 19); the most common species are bat rays, shovelnose guitarfish, and thornbacks (*Raja clavata*). In 2008, an estimated 14,900 skates and rays were taken. Catch estimates

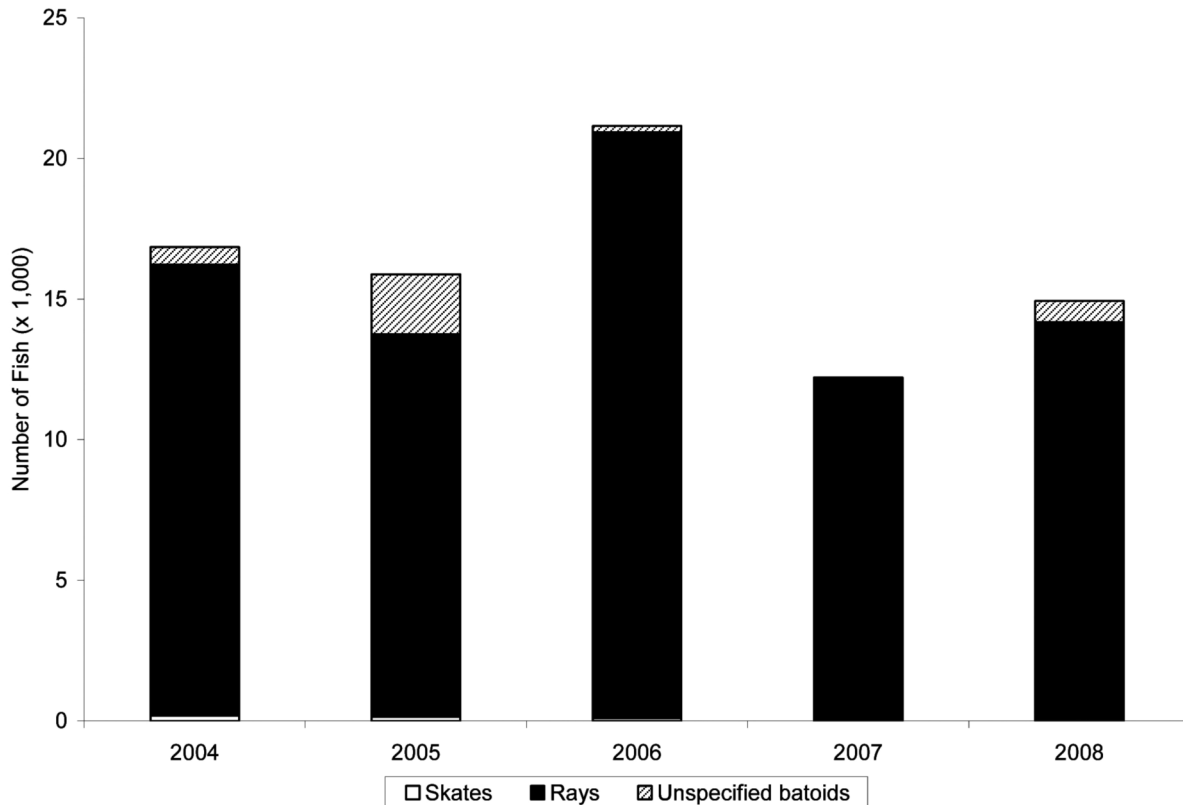


Figure 19. California recreational skate and ray (Rajiformes) landings as reported in the California Recreational Fisheries Survey (CRFS), 2004–2008.

(CRFS) indicate that an average of 16,200 fish (49 t) were taken per year from 2004 to 2008. During this period, rays composed 95% of the catch.

Kellett's Whelk

Statewide commercial landings for Kellett's whelk (*Kelletia kelletii*) in 2008 totaled 73 t, a 6% decrease from the 78 t landed in 2007, and a 16% decrease from the highest yearly recorded landings in 2006 of 87 t. Kellett's whelk landings increased steadily between 1993 and 2006 when they rose from 2 t to 87 t (fig. 20). The ex-vessel value from the 2008 commercial harvest of Kellett's whelks was approximately \$132,000, a 3% decrease from the previous high value of approximately \$136,000 in 2007. The 2008 ex-vessel price ranged from \$0.55 to \$6.61/kg with an average of \$1.84/kg, up 9% from the 2007 average of \$1.69/kg. Since 1979, the fishery's ex-vessel value has ranged from \$94 in 1988 to approximately \$136,000 in 2007 and the ex-vessel price has ranged from \$0.53/kg in 1981 to \$1.94/kg in 1992. Prior to 1979, landings were not recorded specifically for Kellett's whelks but minor landings may have occurred and been recorded as miscellaneous mollusks or sea snails.

Landings occurred at 13 ports in 2008 with five ports accounting for 85% of the catch. In 2007, landings

occurred at 15 ports with three ports landing 80% of the total catch. Kellett's whelk landings have been reported at 24 ports from 1979 to 2008, with 80% of landings occurring at four ports. The majority of landings in this time period occurred at Santa Barbara (199 t), with approximately 40% of the total landings reported. The other three top ports were Terminal Island, San Diego, and San Pedro, with cumulative landings of 80 t, 69 t and 62 t, respectively.

In 2008, 98% of all harvested Kellett's whelks were taken incidentally in lobster or rock crab traps, compared to the 93% taken in 2007 in the same gear. The remaining take in 2008 occurred through diving or finfish traps, with approximately 1% of the take attributed to each of those gears. Divers harvested 5% of the landings in 2007 and finfish gear harvested the remaining 2%. Since 1979, 89% of all harvested Kellett's whelks have been taken incidentally in lobster and crab traps when they enter to prey on bait and injured crustaceans. Ninety-nine percent of Kellett's whelks are used for human consumption and are mainly sold in domestic live fish markets.

The Kellett's whelk is usually taken incidentally in the lobster and rock crab trap fisheries, both of which are restricted access fisheries. Commercial divers are required