

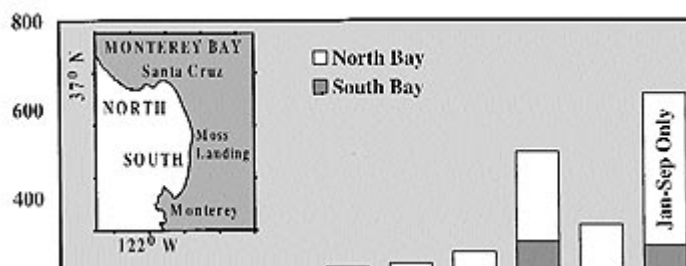
## Monitoring Marine Mammal and Seabird Bycatch in the Monterey Area Set Gillnet Fishery



During the 1980s extensive bycatch of seabirds and marine mammals in central California's set gillnet fisheries prompted a series of regulations, which ultimately appeared successful at reducing mortality of the three species of primary concern: Common Murre, sea otter (*Enhydra lutris*) and harbor porpoise (*Phocoena phocoena*). A National Marine Fisheries Service (NMFS) observer program provided bycatch data from 1990 to 1994, and was discontinued after 1994 because bycatch of harbor porpoise was low and no sea otters were observed entangled after 1990.

In August 1997, however, an unusual seabird stranding event was detected by the Monterey Bay National Marine Sanctuary's Beach COMBERS program (see [Bird Section](#) for program details). Several hundred dead Common Murres were found on a 14-km section of beach in southern Monterey Bay. Because of the localized nature of the strandings, and because Common Murres had a history of significant mortality in gillnets, fishery entanglement was considered a possible cause of death for these birds.

Halibut set gillnet fishery records revealed that effort had increased substantially between 1994 and 1998 and had also shifted to the southern areas of Monterey Bay (Figure 1). Increasing effort was taking place just offshore of the beaches exhibiting high seabird deposition rates. This area historically had high bycatch rates of harbor porpoise, southern sea otter, and Common Murres. There was, therefore, concern over potential increased fishery mortality for all three species, particularly given an increase in harbor porpoise stranding rates and an apparent decline in the sea otter population after 1995 (see article in [Endangered Species](#) section). Without observer data for 1995-98, however, it was not possible to estimate accurately the level of mortality during those years.



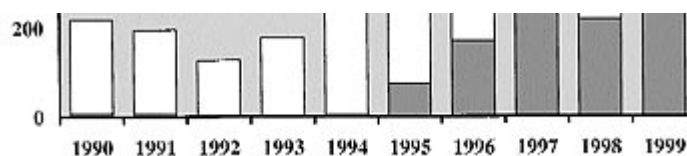


Figure 1: Halibut set gillnet fishery effort for Monterey Bay in the 1990s.

In April 1999 NMFS reinstated an observer program for the Monterey Bay area set gillnet fishery. Approximately 25 percent of fishing effort was observed between April and September, providing much-needed data on marine mammal and seabird entanglements. Observed mortalities for this six-month period included 26 harbor porpoises, 1 unidentified cetacean (almost certainly a harbor porpoise), 47 harbor seals, 4 elephant seals, 5 California sea lions, 1 southern sea otter, and 286 Common Murres. Although overall mortality estimates are not yet available, simple extrapolation indicates that about 100 harbor porpoises, 1,000 Common Murres, and up to 4 sea otters may have died in Monterey Bay area gillnets during this period.

Multi-agency efforts are presently underway to evaluate and address this mortality. The central California harbor porpoise population is estimated to be about 5,700 animals, and under the Marine Mammal Protection Act, the maximum allowable incidental mortality of this species is forty-two animals per year. NMFS is therefore currently working with fishermen to implement voluntary measures to reduce the mortality of harbor porpoise, including the use of acoustical devices ('pingers'), which have been extremely effective at reducing marine mammal entanglements in other gillnet fisheries. Studies are also underway to identify the potential impacts of the present gillnet mortality on southern sea otters and Common Murres.

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