

## **Fishery-at-a-Glance:** Bay Shrimp

**Scientific Name(s):** 'Bay Shrimp' as a term refers to a multiple species of *Crangon*, including the California Bay Shrimp, *Crangon franciscorum*, and other genera of shrimp targeted by trawlers in San Francisco Bay. Fish species also landed by this fishery are the Oriental Goby, *Acanthogobius flavimanus*, Longjaw Mudsucker, *Gilichthys mirabilis*, Staghorn Sculpin, *Leptocottus armatus*, and Plainfin Midshipman, *Porichthys notatus*.

**Range:** The commercial Bay Shrimp fishery is confined to San Francisco Bay. Species fished under commercial Bay Shrimp regulations are also found in bays and estuaries from Alaska to San Diego.

**Habitat:** Bay Shrimp are found in soft bottom estuaries.

**Size (length and weight):** Average length for adult males and females are 45 and 60 millimeters (1.77 and 2.36 inch) respectively.

**Life span:** Life spans of Bay Shrimp vary by estuary and in the San Francisco estuary, male shrimp are estimated to attain a maximum age of 1.5 year and females may live up to 2.5 years.

**Reproduction:** The California Bay Shrimp, Blacktail Shrimp, and the Blackspotted Shrimp all display sexual dimorphism displaying distinguishable features after reaching a size of 22 mm (0.87 in) or more where the females carry their eggs externally.

**Prey:** Bay Shrimp opportunistically prey upon small epibenthic and benthic fauna where they transfer energy from the primary consumers to apex predators in the food web.

**Predators:** The various species of Bay Shrimp serve as a primary food source for commercial sport fishes in the estuaries of the Pacific Coast. Major predators include Green and White Sturgeon, Striped Bass, Leopard Shark, Brown Smoothhound Shark, Big Skate, White Croaker, Staghorn Sculpin, Starry Flounder, English Sole, Pile and Rubberlip Surfperch, Pacific Tomcod and Brown Rockfish.

**Fishery:** Commercial take of Bay Shrimp, as well as various bait fish species, by trawl net in San Francisco Bay.

**Area fished:** Various specific areas within San Francisco Bay, including the south bay near Alviso, Redwood Creek, and Coyote Point; the mouth of the Petaluma River and

other parts of San Pablo Bay; and the mouth of the Napa River and the Carquinez Strait are targeted by this fishery.

**Fishing season:** There are no seasonal time constraints on the commercial or recreational fisheries.

**Fishing gear:** In San Francisco bay, shrimp may be taken recreationally by hand, by use of hand-operated appliances, dip nets, Hawaiian-type throw nets, and by hand powered shrimp beam trawls whose frame is smaller than 24 by 18 inches (61 by 45.7 centimeters). These trawls may be towed by motorized vessels but may not be retrieved by mechanical devices.

The commercial fishery exclusively uses beam trawls that are spread out by a pole to a width of 20 to 25 feet (6.1 meters) including a mesh size of  $\frac{7}{8}$  inch (2.22 centimeters) to 1 inch (2.54 centimeter) for the cod end.

**Market(s):** The primary market for Bay Shrimp is as bait for the sport fishing of Striped Bass and Sturgeon. Landings are influenced by the demand from bait shops.

**Current stock status:** As of 2018 the stock status of the various species targeted by the commercial Bay Shrimp Fishery is unknown.

**Management:** Recreational regulations allow take of various shrimp species throughout California, and participants, including those in San Francisco Bay, are limited to a 5 lb daily bag and possession limit. If using a shrimp beam trawl, any fish, other than shrimp caught in the trawl must be returned immediately to the water.

Commercial beam-trawl fishery participants in San Francisco Bay must possess a current Bay Shrimp permit, and may retain shrimp species along with four finfish, including Oriental Goby, Longjaw Mudsucker, Staghorn Sculpin, and Plainfin Midshipman. While there are currently no concerns about the status of the five primary shrimp species targeted by this fishery, it is known to interact with sensitive species, such as Longfin Smelt, and additional data on bycatch are needed to determine the extent of the impact on their populations.