

California Dungeness Crab Task Force - Sea Otter Backgrounder

Discussed at November 2-3, 2023, Meeting

The California Dungeness Crab Task Force (DCTF) will meet in November 2023 to discuss the U.S. Fish and Wildlife Service's initiative on sea otter reintroduction. The document below outlines information and case studies to inform the DCTF's conversations.

Background

The U.S. Fish and Wildlife Service is exploring the [feasibility of reintroducing sea otters along the Pacific Coast](#). This directive stemmed from language in the [Consolidated Appropriations Act for 2021](#). This mandate points to the sea otter's "critical ecological role in the marine environment as a keystone species that significantly affects the structure and function of the surrounding ecosystem." Sea otters have been absent from most of the Pacific Coast for more than 100 years since their near extinction due to the maritime fur trade. In June 2023, USFW held numerous community meetings in Northern California and Oregon to share information from scientists and receive public input to inform the next steps.

Sea otters are a keystone species — they play an essential role in maintaining the stability of the kelp ecosystem. Sea otters' primary diet is sea urchins, followed by crabs, snails, fish, clams, mussels, and other invertebrates. Dungeness Crab is less than 2% of sea otters' total diet in Central California ([Boustany et al.](#)) when other preferred food sources are available.

Harvest of sea otters for their furs began in the mid-1700s, dwindling to ~1% of the original global population by 1911. Attempts were made to reintroduce sea otters throughout the United States West Coast beginning in the mid-1960s. California's Southern Sea Otter population ranges from Pigeon Point to just south of Point Conception, with another population at San Nicolas Island. Sea otters are absent from their historical California ranges north of Half Moon Bay and south of Santa Barbara. (reference: [USFW](#))



Current and presumed historical range of the Southern (California) Sea Otter (from USFWS 2015)

Available Studies

The studies below were identified to be of potential interest to the DCTF.

Study: Examining the potential conflict between sea otter recovery & Dungeness crab fisheries in California (2021)

In 2020, researchers explored the relationship between sea otters and the Dungeness crab fishing in California. Despite Dungeness crab constituting less than 2% of sea otters' total diet, according to Boustany et al., the interaction between these species appears mutually beneficial and indicates a balanced natural occurrence. In areas such as Elkhorn Slough and the greater Monterey Bay, Dungeness crab was a small portion of the biomass consumed by sea otters and relatively minor in their overall diet. A positive correlation was found between the size of the otter population and the fishing success of California ports within the otter range. Dungeness crab landings and abundance were found to be higher at ports within the range of otters, such as Morro Bay, Monterey, and Half Moon Bay, relative to other California ports from 1980-2018. Increasing otter populations and growing Dungeness crab populations resulted in a positive correlation between the number of otters and fishing success at ports where otters are present.

Study: Informing sea otter reintroduction through habitat and human interaction assessment (2021)

A 2021 study by researchers at the University of California, Santa Cruz, investigated the potential for successful reintroduction of sea otters in Oregon and its potential broader impacts. The study also helps to shed insight into how fishing grounds, particularly those for Dungeness crab, may be impacted by sea otter reintroduction. The research indicates that 22% of traditional Dungeness crab fishing grounds overlapped with the areas where sea otters are anticipated to favor. While high-yield crabbing locations were found within the dispersal distance for sea otters, the majority of these valuable fishing grounds are in offshore areas that are beyond the diving capacity of the sea otters, resulting in competition only in isolated, shallow water areas.

Orca Inlet Alaska (1999)

In the Orca Inlet, Alaska, the Dungeness crab population experienced sharp declines from 1986-1999, resulting in a closure of Dungeness crab fishing in the area. This decline was largely attributed to sea otter predation, which migrated in substantial numbers to the area during the 1980s and had a profound impact on the Dungeness crab stock. However, sea otter predation was compounded by other factors, including poor larval recruitment, warmer ocean temperatures, and overfishing. As a result of these ongoing challenges, the Dungeness crab stocks in the Orca Inlet remain in a depressed state, and the fishery has remained closed since the early 2000s.