

REGULATORY PROTECTIONS AND MONITORING EFFORTS FOR COHO SALMON IN CALIFORNIA

The California Department of Fish and Wildlife (CDFW) is dedicated to the conservation of the state's anadromous salmonid resources and the sustainable management of ocean and freshwater salmon fisheries. CDFW supports management measures that target abundant stocks and minimize encounters with and incidental impacts to non-target, threatened salmon stocks. CDFW, in partnership with other state, federal, and tribal entities, has managed fisheries each year to maintain an ocean exploitation rate for Southern Oregon/Northern California Coastal (SONCC) Coho Salmon that is below 13%, as required by the current Endangered Species Act (ESA) consultation standard. CDFW also engages in fishery and population monitoring activities which support stock assessments and management. The content in this report is intended to document the actions taken in California's ocean and inland fisheries which have protective or conservation benefits to SONCC Coho Salmon.

SONCC Coho Salmon populations can be found in all major river basins within their range, as far north as the Upper Rogue and as far south as the mainstem Eel. While little is known about the current distribution of SONCC Coho Salmon in the ocean due to limited marking and tagging, the modeled distribution of impacts from the Coho Fishery Regulation Assessment Model (FRAM) show that the highest exploitation rates generally occur in California's northernmost management area, the Klamath Management Zone (KMZ). For the most recent decade, FRAM projects that 29% and 14% of all Pacific Ocean impacts on SONCC Coho Salmon occurred in the California KMZ recreational and commercial fisheries, respectively. Given this projection, and thinking to the future, CDFW supports efforts to validate and/or improve Coho FRAM in its application to inform ocean fishery impacts on SONCC Coho Salmon in California.

For ESA-threatened SONCC Coho Salmon, several protective measures have been implemented over the years. In 1993, following three years of poor returns for Oregon Coastal Natural Coho Salmon, combined with repeated overestimation of ocean abundance and underachieving spawner escapement goals, the Council was proactive in taking additional protective measures ahead of the FMP amendment process by prohibiting retention of all Coho Salmon in commercial fisheries south of Cape Falcon. Retention of Coho Salmon has not been allowed in California commercial fisheries since that time. The recreational fishery soon followed suit, with the elimination of California's marine Coho Salmon fisheries beginning in 1995 and freshwater Coho Salmon fisheries in 1998. There are also multiple area-based salmon fishing closures which serve to eliminate fishing effort on salmon stocks in certain times and areas. When the commercial fishery is open in the Klamath Management Zone, the fleet is prohibited from fishing between the Humboldt South Jetty and 40°10'00" N. lat., a closure that spans approximately 40 nautical miles of coast and that has been in effect since 1996. Additionally, salmon fishing has been prohibited in the river mouth areas adjacent to the Smith, Klamath (3-nm squares centered on the respective river mouth) and Eel (a 2-nm square centered on river mouth) rivers since the early 1980s. Since 1983, on August 1 of each year, the closure area around the Klamath river mouth further expands to a 12-nm square, known as the Klamath Control Zone, which remains in effect through the end of each season. These rivers are critical habitat for SONCC Coho Salmon and prohibiting all salmon fishing here

eliminates the risk of incidental mortality for both returning adults and immature fish that may congregate here during early-ocean phases, nearest to their home streams.

Additionally, California has required recreational anglers and commercial harvesters to use single-point barbless hooks since 1984 and 1971, respectively, to reduce the potential for hooking- and handling-related injury or mortality among those Coho Salmon that are incidentally encountered and released. These restrictions, along with the Chinook salmon seasons typical of recent years (Table 1), have minimized the impacts of California's fisheries on SONCC Coho Salmon.

State and partner-agency monitoring programs for ocean fisheries are an equally important component of California's precautionary approach to Coho Salmon conservation and management. Reports of Coho Salmon encounters are documented in Chinook-directed fisheries in a number of different fishery monitoring and data collection programs. Dockside interviews conducted as part of CDFW's ocean salmon sampling programs provide data on the number of Coho Salmon released by commercial trollers and recreational anglers participating in the Commercial Passenger Fishing Vessel (CPFV) and private skiff fishery. Additional information on the number of Coho Salmon released by CPFV anglers is supplied by operators through CDFW's logbook program. While dockside accounts of salmon releases are subject to recall error, and not all trips are intercepted by one or more of these data collection programs, they do offer a direct measure of Coho Salmon encounters in California's Chinook fisheries. In the future, CDFW looks forward to evaluating these data streams in an effort to quantify documented Coho Salmon encounters by time, area and fishery. It is hoped this information might be useful to corroborate, augment, or modify existing pre-season SONCC Coho Salmon FRAM impact projections and postseason estimates.

CDFW also makes a concerted effort each year to educate recreational anglers on Coho Salmon identification, as well as avoidance and safe handling techniques, through informational [flyers](#), special notices contained in regulation booklets, and press releases.

On the inland side, and the Klamath-Trinity Basin specifically, CDFW maintains counting stations (weirs) and together with partnering agencies surveys dozens of miles across several streams each year to estimate the escapement, as well as its age and origin (hatchery vs. natural) composition, for SONCC Coho Salmon. Coho Salmon escapement to hatcheries is also enumerated each year, as is incidental catch in non-tribal freshwater recreational fisheries. CDFW works closely with its tribal partners to assemble each year's inland catch and escapement data in support of a basin-scale run reconstruction, for the Klamath-Trinity system. These datasets are not typically available on the same timeline as those needed for Chinook salmon fishery planning each year, but they nonetheless inform Coho Salmon management in subsequent seasons. See the joint CDFW-Tribal report in the January 2021 Briefing Book for further details on these inland monitoring activities, as well as the restoration and enhancement work underway to recover SONCC Coho Salmon.

Table 1. Recreational and commercial fishing opportunity (days open) and harvest (numbers of fish and available quota [commercial only]) in the California KMZ for 2010-2021.

Year	<u>Recreational Fishery</u>		<u>Commercial Fishery</u>		
	Days Open	Harvest Estimate	Days Open	Harvest Estimate	Available Quota
2010	101	720	CLOSED	NA	NA
2011	110	9,987	15	2,391	2,280
2012	132	39,444	5	5,231	6,000
2013	131	33,981	45	10,178	16,591
2014	121	15,827	15	620	4,000
2015	130	3,690	18	46	3,000
2016	68	5,000	15	196	1,000
2017	CLOSED	NA	CLOSED	NA	NA
2018	95	3,738	87	9,011	16,862
2019	101	4,957	62	5,857	10,790
2020	65	1,816	CLOSED	NA	NA
2021	34	639	CLOSED	NA	NA