

Ocean Habitat of Juvenile Chinook Salmon at the Southern End of Their Range

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Characterizing the ocean habitat of Chinook salmon is important for understanding the mechanisms affecting movement and survival. We sampled juvenile Chinook salmon during summer and fall of 1999 to 2011 from Monterey, California (36.57°N), to Newport, Oregon (44.67°N). Chinook salmon juveniles (< 250 mm fork length [FL]) were present in 46% of the 463 total hauls and sub-adults (250-400 mm FL) were present in 17% of hauls. Catch per unit effort (CPUE) was modeled using season (summer or fall), year, bottom depth, distance from shore, latitude, temperature, salinity, and chlorophyll-*a* concentration as candidate predictors. The relationships between Chinook salmon CPUE and the covariates were assessed using both generalized linear models and generalized additive models. There were significant relationships between salmon CPUE and year sampled, bottom depth, chlorophyll-*a* concentration, and either latitude or distance to shore. The relative contribution of each variable differed with season and fork length, demonstrating that salmon occupy different habitats seasonally and throughout their ocean life. While some patterns appear to be common across the Chinook salmon range, the regional influence of narrow shelf breaks, strong upwelling, and small river plumes influenced the distribution in ways that were regionally specific to the southern part of their range.