

S6-P3**Developing marine food web models to evaluate blue whale, Cassin's auklet and salmon responses to long- and short-term changes in oceanography in the California Current**Ryan J. **Hartnett**^{1,2}, Karina Nielsen², Frances Wilkerson², Meredith Elliott¹, Nadav Nur¹ and Jaime Jahncke¹¹ Point Blue Conservation Science, Petaluma, CA, USA² Romberg Tiburon Center for Environmental Studies, San Francisco State University, Tiburon, CA, USA
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Upwelling of deep water delivers nutrients to the surface that results in recurring blooms of phytoplankton, abundant zooplankton, and a diversity of pelagic predators in the Gulf of the Farallones (GOF), in the California Current. Anomalous ocean conditions are linked to fluctuations in predator populations. Nutrients presumably play a key role in driving abundances of predators but has not been directly examined. Using the ten-year multivariate ACCESS dataset from the GOF, we investigate mid- and high-trophic level responses to Pacific-basin scale climate, regional and local ocean conditions. Using path analysis we examine how environmental drivers affect nutrients and determine spatial and temporal patterns in distribution and abundance of lipid-rich copepods and krill. Similarly we analyze how drivers affect temporal abundance of blue whale, Cassin's auklet, and salmon. We find that krill and copepod abundance associates with strong upwelling near the shelf break during May-June, with direct and indirect climate influence. Cassin's auklet densities associated with environmental factors that regulate krill availability near the surface where they feed. Blue whale abundance reflects overall krill biomass, driven by phytoplankton stock and ocean temperature. Salmon abundance is influenced by krill and climate during smolting conditions. We find that zooplankton and top predators do not respond uniformly to conditions and changing resources due to the complexity of the food web, how they utilize the ecosystem, and the traits of the various organisms involved. This complexity needs to be included in any attempts to model top predators' responses to changing ocean conditions.

S6-P4**Fine scale oceanography and the ecology of juvenile Chinook Salmon in the Salish Sea**William Duguid and Francis **Juanes**

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While many juvenile Pacific Salmon migrate rapidly onto the continental shelf, some stocks remain in coastal basins and inlets through their first marine summer. Epipelagic habitats in these regions may be highly structured: wind and tidal currents interact with complex topography, resulting in spatial variability in water column stratification and generating hydrological features including tidal jets. This structure may result in regions where conditions conducive to rapid growth lead to predictable concentrations of juvenile salmon; potentially modulating both intraspecific density dependence and interactions with higher and lower trophic levels. We are employing a flexible, low cost, small vessel based approach (microtrolling), coupled with sampling of zooplankton and water column properties, to investigate distribution, diet and growth of juvenile Chinook Salmon in Salish Sea. Our results suggest that diet and growth of juvenile salmon varies between spatially adjacent but oceanographically dissimilar sites. Furthermore, distribution and/or feeding activity is in some cases spatiotemporally structured by tidal forcing at scales of 100s of meters or less. Understanding utilization of foraging hotspots should inform attempts to determine factors controlling early marine survival in the Salish Sea and provide general insights into how behavior interacts with fine scale oceanography to influence the ecology of juvenile salmon.