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Thesis

Title: Trophic Position of Estuarine and Kelp-Bed Populations of the Omnivorous Silverside Fish *Atherinops affinis* (Teleostei: Atherinopsidae) from Southern California: Analyses of Dietary Items and ^{15}N and ^{13}C Stable Isotopes

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ABSTRACT

ABSTRACT. A dietary item was used and ^{15}N and ^{13}C stable isotope analyses to study the trophic position and dietary carbon sources of the marine silverside *Atherinops affinis* from estuarine and kelp-bed sites in southern California. Estuarine fish were enriched in $\delta^{15}N$ by 0.79 to 3.9% compared to kelp-bed fish, indicating that estuarine fish at some sites are one trophic level or more above kelp-bed fish. The diets suggest that estuarine fish are mostly lower in trophic level with more primary producers and less consumers in their diets. Diets of estuarine fish differed from those of kelp-bed fish by greater contributions from detritus, benthic crustaceans and macro algae and lesser contributions from planktonic crustaceans. The wider range of $\delta^{13}C$ signatures of estuarine fish suggests that they are part of multiple trophic pathways, which may be based on phytoplankton, macro algal, benthic, or detrital carbon. $\delta^{13}C$ for kelp-bed fish appears to reflect carbon sources from either phytoplankton or kelp.

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