

Spatial and temporal variability of lipid and energy content of northern California Current euphausiids

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Euphausiids play an important role in the northern California Current food web, serving as a prey source for marine birds, baleen whales, and commercially important fish species. The amount of energy euphausiids provide depends on the average energy density of individuals as well as their abundance and distribution. In this study, protein, lipid, and energy contents of adult *Euphausia pacifica* and *Thysanoessa spinifera* were examined both spatially and temporally. Individuals have been collected approximately monthly since May 2013 off the coast of Trinidad, CA, USA (~41°N) to examine seasonal and interannual trends in lipid and energy content. During July 2013 to May 2014, small numbers of these species were also collected off of Newport, OR (~44.5°N) to assess spatial variability. During 2013-2014, lipid content was generally low in both species off of Trinidad (3-9% of dry mass) and protein content drove patterns in calorie content. Lipid content increased from late summer into early spring, while calorie density peaked in September-November. Significant spatial variability was observed between collection sites. Individuals from Newport had significantly higher levels of lipids and calories than their Trinidad counterparts. These trends were particularly pronounced with *T. spinifera*, whose lipid content was over 5 times higher in Newport individuals. This may reflect a higher abundance of food in the locations where *T. spinifera* are commonly found off of Newport, or a more efficient use of acquired energy that allows for higher storage lipid accumulation.

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