What was our goal with this study?
In the past, many studies have examined habitat selection and the relationship between krill distribution and organisms that depend on krill for nourishment, such as seabirds and whales. However, many of these studies covered only a brief period of time (a single season or only a few years). We aimed to outline the spatial distribution of krill in the California Current system over a five year period, thus increasing the reliability of our results. We then associated the krill distributions with seabird distributions, attempting to reinforce the hypothesis that krill and seabird distributions vary together from year to year.

What were our methods?
First, we narrowed our focus down to two species of seabirds, the Cassin’s auklet and the sooty shearwater, both of which depend heavily on krill for survival. We chose these species because although they both are greatly affected by krill abundance, each has its own unique life cycle timing (phenology) and method of feeding. We analyzed krill data from acoustic surveys (where vessels use sonar to detect the location and abundance of organisms in the water) and net samples, and we used visual surveys of seabirds to determine the spatial distribution of the species involved.

What did we conclude?
We found that in recent years, there has been considerable variation in the spatial distribution and amount of krill in the California region. Despite these fluctuations, the relationship between krill and seabird species remained steady. In general, we confirmed the hypothesis that the spatial distributions of seabirds and of krill change concurrently.

Why is this important?
A wide range of species in this region directly or indirectly depend on krill as a food source, therefore a clear understanding of the spatial distribution and abundance of krill is a solid foundation upon which policy makers can create effective ecosystem-based plans. Our results can be used to make educated decisions based on the durability of species in the California Current, including species important to commercial and recreational fisheries. It would be useful to take krill distribution into consideration when assessing the potential future health of sought-after fish species as well as areas of the ocean ecosystem most worth protecting.

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