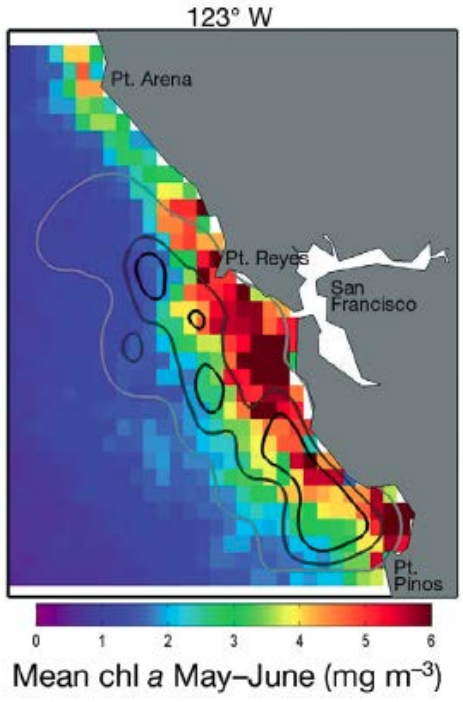
Research Brief

Predicting Seabird Hotspots

FARALLON INSTITUTE

What exactly is chlorophyll a *and how does it relate to ecosystem productivity?*
Chlorophyll a is a specific type of chlorophyll essential to photosynthesis in certain types of bacteria and phytoplankton. A region's chlorophyll *a* concentration over time has been recognized as an accurate indicator of the potential energy transfer between the trophic levels.



What did we do?
Using statistical analysis, we were able to determine areas of high chlorophyll *a* concentrations, thus high levels of phytoplankton biomass, all along the western coast, from British Columbia to Baja California. We developed a method to map the variability and spatial distribution of chlorophyll *a* concentrations over time in both coastal and offshore regions of the California Current System. We compared these concentrations to the density of seabird populations in order to determine the connection between primary and secondary (and tertiary) productivity.

Why does it matter?
Understanding the spatial organization of marine ecosystems is essential to making educated decisions concerning the management and conservation of ocean systems. Increased knowledge about marine life hotspots can help to inform choices on both the locations of potential protected areas as well as directions to take when it comes to management of marine services such as fisheries.

Caveat
Although satellite imaging of chlorophyll concentrations often correlates with the status of primary productivity, it is often not as successful in predicting the levels of productivity among organisms higher up on the food chain.

-Brief by Marie M. Sydeman

Citation: Suryan, R.M., J.A. Santora, and W.J. Sydeman. 2012. New approach for using remotely sensed chlorophyll a to identify seabird hotspots. *Marine Ecology Progress Series* 451:213-225. doi: 10.3354/meps09597.