

# OCEAN OPTICS XXIV

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<https://oceanopticsconference.org>

Tuesday, October 9

Poster Session 2

10:30–12:30

## **Poster 74**

### **SEASONAL VARIATION AND MODELING OF PHYTOPLANKTON, NITRATE AND TEMPERATURE AT SANTA CATALINA ISLAND, USA**

We combine remotely-sensed proxies for phytoplankton, in situ measured nutrients, and light and temperature models to understand the spring bloom around Santa Catalina Island, California, USA, and contrast it with that found at nearby San Nicolas Island. Phytoplankton is estimated from the chlorophyll product obtained from the Moderate Resolution Imaging Spectroradiometer on the Earth Observing System satellite Aqua (MODIS-AQUA). Measurements of nitrate are provided by the California Cooperative Oceanic Fisheries Investigations (CalCOFI) program and the temperature model is derived from long-duration measurements made around Santa Catalina and within the Southern California Bight. We find an island mass effect associated with San Nicolas, that is, some chlorophyll originates near the island. This signal is most evident during the fall after the typical spring phytoplankton bloom subsides. In contrast, there is a relative dearth of chlorophyll around Santa Catalina Island and its seasonal modulation corresponds to the spring bloom, implying the dynamics are much simpler for this island. Previous studies of temperature near Santa Catalina indicate that a simple one-dimensional model of temperature diffusion explains well the seasonal and at-depth modulations found there. We couple the temperature-derived vertical diffusion coefficient with nitrate measurements to make a simple one-dimensional model relating chlorophyll, insolation and nitrate for Santa Catalina.

**Craig Gelpi**, Catalina Marine Society, [craig@catalinamarinesociety.org](mailto:craig@catalinamarinesociety.org), <https://orcid.org/0000-0001-5755-2023>