



## The abundance, distribution, and correlation of viruses, phytoplankton, and prokaryotes along a Pacific Ocean transect

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Limnol. Oceanogr., 47(5), 2002, 1508-1513 | DOI: 10.4319/lo.2002.47.5.1508

**ABSTRACT:** Concentrations of virus-like particles (VLP), prokaryote-like particles (PLP), chlorophyll a, and zeaxanthin were determined at 9-12 depths (0-250 m) for each of 13 stations along a 3,800-km transect from the coastal waters of Monterey Bay, California (36.62° N, 122.25° W) to the open ocean Hawaii Ocean Time-Series (HOTS) station near Hawaii (22.69° N, 158.12° W). We collected VLP and PLP, the latter of which included heterotrophic bacteria and cyanobacteria, in glutaraldehyde-fixed samples on 0.02- $\mu$ m Anodisc filters. The samples were stained with the nucleic acid dye Yo-Pro-1 and quantified by epifluorescence microscopy. Measurements of Chl a and zeaxanthin were used as indicators of total phytoplankton and cyanobacteria biomass, respectively. With the exception of the most coastal station, depth-integrated VLP and PLP abundance was similar at all stations along the transect; all stations showed a decrease of VLP and PLP with depth. Standard multiple regression analysis showed that logarithmically

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