

GROWTH RATE DYNAMICS OF *PROCHLOROCOCCUS* SPP.
IN THE EASTERN NORTH PACIFIC: CARBON 14
PIGMENT LABELING ESTIMATES

by

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ABSTRACT

GROWTH RATE DYNAMICS OF *PROCHLOROCOCCUS* SPP. IN THE EASTERN NORTH PACIFIC: CARBON 14 PIGMENT LABELING ESTIMATES

In situ carbon-specific growth rates of *Prochlorococcus* were made by measuring the incorporation of ^{14}C into its unique pigment, dv-chl *a*. A comparison was made with the rest of the phytoplankton community as a whole by also measuring the incorporation of ^{14}C into mv-chl *a*.

Results show a tenfold change in growth rates of dv-chl *a* but only a twofold change in growth rates of mv-chl *a* from California current water to Station ALOHA, Hawaii. Average mixed layer values of dv-chl *a* growth rates ranged from 0.08-1.05 day $^{-1}$ and mv-chl *a* ranged from 0.21-0.73 day $^{-1}$. Results show that colder temperatures caused a fivefold greater reduction in growth of prochlorophytes over growth of the rest of the algal community. This study suggests that the distribution of *Prochlorococcus* may be limited by temperatures below 13.5 $^{\circ}$ C and that low temperatures may be a significant factor in the observed absences of *Prochlorococcus* from California coastal waters.

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