

ABSTRACT

## Culturing phytoplankton

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The Smithsonian Marine Ecosystems Exhibit's mission is, "To inspire appreciation and understanding of the importance and complexity of marine ecosystems and the process of science through engaging exhibits, meaningful education, and the dissemination of Smithsonian Marine Station research." Starting from the bottom of the food web, the exhibit recreates habitats for their resident organisms. Healthy phytoplankton cultures feed the oysters' and their reefs' filter feeding inhabitants like feather duster worms, sponges, and tunicates. Phytoplankton also plays a key role in maintaining water quality by consuming nitrates and phosphorous. This project focused on and tested different light sources in order to maximize phytoplankton production. Successful maintenance of *Isochrysis galbana* made it possible to replicate and thoroughly test phytoplankton production in relation to the light spectrum. *Nannochloropsis oculata* and *Chaetoceros gracilis* were unsustainable and must be further assessed for harmful cellular organisms specific to these species, contamination, and other variables that may be attributing to cell culture crashing.

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