

Phytoplankton Production for Mariculture

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Abstract

An experimental hatchery and nursery at the W.A. Marine Research Laboratories produces 2300L of unicellular phytoplankton as food for the larvae and juveniles of several commercially important bivalves and gastropods.

Three diatoms and five flagellates are monocultured in batches using techniques similarly employed by commercial hatcheries. Axenic 250 ml starter cultures are used to inoculate 2 L cultures which are either harvested or used to inoculate 5 L cultures, 20 L glass carboys or 500 L polyethylene bags.

Algae are grown in sub-micron filtered, ultraviolet irradiated seawater enriched by Guillard's f/2 medium, with sources of nitrate and trace elements modified for certain diatoms and bag cultures. Cultures greater than 250 ml are aerated with filtered air intermittently enriched with 0.45% (by volume) carbon dioxide. Light is provided by 60/80 W fluorescent tubes. Algae harvested from carboys or bags are not axenic but have bacterial levels less than 10^6 bacteria ml⁻¹ and are free of Vibrio species.