

THE DISTRIBUTION AND ABUNDANCE OF
CERTAIN REEF FISH LARVAE ADJACENT TO ADULT HABITATS
IN KANEOHE BAY, HAWAII

A THESIS SUBMITTED TO THE GRADUATE DIVISION OF THE
UNIVERSITY OF HAWAII IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF SCIENCE

IN OCEANOGRAPHY

DECEMBER 1987

By

Donald R. Kobayashi

Thesis Committee:

Thomas A. Clarke, Chairman
George W. Boehlert
Jed Hirota

ABSTRACT

Plankton samples were taken in Kaneohe Bay, Oahu with a free-fall plankton net to investigate the fine-scale distribution of larval fishes around coral reefs. Daytime samples indicated that the postflexion larvae of two gobiids (Psilogobius mainlandi and an unidentified species, Goby-1) were significantly more abundant at stations immediately adjacent to reefs (near-reef) than at stations in open water off the reef. Postflexion gobiid larvae appear to be capable of resisting advection/dispersal while remaining in the water column near suitable adult habitats. The larvae of Encrasicholina purpurea (Engraulidae) and Foa brachygrammus (Apogonidae) were significantly more abundant at off-reef stations than at near-reef stations. Nighttime samples indicated that the gobiid larvae depend on visual cues to remain near the reef. The distributions of Encrasicholina and Foa larvae appeared related to their vertical positioning.

The near-reef concentrations of the gobiid larvae indicate that reef-based planktivore pressure may be an unimportant factor in reef fish larval distributions. Typical ichthyoplankton surveys which do not sample close to adult fish habitats would greatly underestimate the abundance of larvae such as the gobiids.