

**THE SETTLEMENT AND RECRUITMENT OF POSTLARVAL
FISHES INTO THE CORAL REEF COMMUNITY**

JOHN C. OGDEN,
S. MILLER,
W. McFARLAND,
N. WOLF,
M. J. SHULMAN,
and
J. P. EBERSOLE

[Converted to electronic format by Damon J. Gomez (NOAA/RSMAS) in 2003. Copy available at the NOAA Miami Regional Library. Minor editorial changes were made.]

Date: July 7-14, 1979

Purpose: Observe colonization of reefs by postlarval fish to describe the events of settlement and determine their role in shaping the eventual composition of the developing fish community (Report No. 79-1)

Participants: John C. Ogden, Principal Investigator—West Indies Laboratory, Fairleigh Dickinson University, S. Miller—West Indies Laboratory, W. McFarland—Cornell University, N. Wolf—Cornell University, M. J. Shulman—University of Washington, and J. P. Ebersole—University of Massachusetts

Accomplishments: Thirty artificial reefs were constructed on the sand floor of the Salt River Canyon at three different times: June 7, June 22, and July 7. Adult damselfish (*Eupomacentrus variabilis* or *E. leucostictus*) were transplanted to replicates of each time series. The reefs were monitored twice weekly prior to and several times daily during the mission. A transect on the east wall of the Salt River Canyon was also investigated for larval fish during the mission.

Observations were made of interactions between settling postlarval fish, resident damselfish, and transient predators. Transfers of various species onto reefs were carried out to examine the effect of one species on another. Preliminary results have indicated that interactions between postlarval fish are important in determining where fish will settle and the chances of their survival (e.g., presence of juvenile snappers (*Lutjanus mahogoni* and *L. buccanella*) prevents the settlement of postlarval grunts (Family *Pomadasyidae*)). Adult territorial fish also

affect recruitment (e.g., adult damselfish lowered recruitment of surgeonfish (*Acanthurus bahianus* and *A. chirurgus*). The presence of an established fish community decreases recruitment of postlarval fish. Older reefs had significantly fewer settling fish than reefs that had just been built. Plankton tows were conducted at surface and midwater levels while aquanauts made tows at 2-3 meters above the canyon floor at regular intervals throughout day and night. These established that there was an increase in the number of larval fish in surface and midwater plankton during the night, with a peak about an hour before dawn. An initial impression is that postlarval fish first appear on reefs at dawn.