

Earthwatch Institute Field Report

Project Title: Damselfish of Barbados and Carriacou

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Position/Affiliations: Salem College and Independent

Research Sites: Barbados, West Indies and Carriacou Grenadine Islands, West Indies

Local Management Status of Research Sites: Marine Reserves—Barbados: Folkstone Marine Reserve. Carriacou: Sandy Beach (proposed) Reserve

Scientific Names of Primary Species: *Stegastes partitus*

Key Research Objectives:

The following questions were examined at two separate locations:

- 1. Does Reproduction in *S. partitus* differ by depth/habitat
- 2. Are there differences in water quality by depth/habitat
- 3. Does the density of Adult or Juvenile damselfish differ by depth/habitat?
- 4. Are predator densities different by depth/habitat?
- 5. How does food availability affect reproduction?

Date the report was completed: 16 September 2004

Data Collection and Results:

- a) We surveyed 100 nests at two sites in two separate locations on a daily or bi-daily basis. In addition we collected salinity, temperature, and oxygen data, as well as zooplankton abundance.
- b) What progress have you made toward achieving your original objective? We have one paper that is in prep. However the bulk of the 2004 data has yet to be analyzed.
- c) Results indicate that spawning in *Stegastes partitus* is controlled by adult biology. Specifically food availability explains a significant portion of the variation in the timing of spawning.

Significance/Benefits of Research:

- a) What is/are the significance/benefits of your research at the following levels?
 - Local (in the area of the research site): Both marine reserves will gain beneficial information that will enable them to focus protection and ideally increase the reproductive output of all fish.

- Other: A debate over what factors control the timing of spawning has split the scientific community between those that favour a larval explanation (timing is determined by factors that affect the survivorship of larvae) and those that favour an adult biology factor. Reproduction is costly and at least for *S. partitus* it appears that food abundance and quality explain the timing of their spawning.

b) How do your findings contribute to issues of sustainability?

- This study examined how habitat (shallow or deep) provides for more spawning output in *S. partitus*. This is important when designing management for all species. If predator abundance in deep sites limits the spawning output of damselfish (as preliminary analysis indicates) then protecting perceived poor sites (like shallow impacted zones) becomes more important.

Dissemination of Results

a) Have you provided details of results from your research to or within: in prep

- Scientific papers (indicate status; e.g., peer reviewed or in progress/press)
- Management plans and reports (in progress or completed)
- Presentations (given or planned)
- Popular articles or films (in progress or completed)
- Books, chapters, illustrations