

## ACES Project Summary: Part 2 Performance Report

**Period Covered by the Report:** 6/01/01 – 11/30/02  
**Date of Report:** 12/31/02  
**EPA Agreement Number:** R-827072-01-1  
**Title:** Effects of Estrogen Pollution on the Reproductive Fitness of the Gulf Pipefish, *Syngnathus scovelli*  
**Investigators:** Drs. Anne Boettcher<sup>1</sup>, Judith Shardo<sup>1,2</sup>, and Jon Hemming<sup>1,3</sup>  
**Institution:** University of South Alabama<sup>1</sup>, Middle Tennessee State University<sup>2</sup>, and US Fish and Wildlife Service<sup>3</sup>  
**Research Category:** Small Grant for Exploratory Research  
**Project Period:** 06/01/01-6/30/03

### Changes in Scope or Objectives:

Based on the results of the first year of study, which indicate that the greatest differences among brood stages are between the no brood stage (0 day) and the protruding snout stage (10 day), our focus for the estradiol exposure experiments will be on these two stages. In the original proposal, fish blood samples were to be sent out for vitellogenin analyses. However, Dr. Tim Sherman, Department of Biology, USA, offered his assistance in the development of an ELISA based assays for the pipefish samples using antibodies available from Cayman Chemical Company. The results obtained thus far are comparable to those available through the University of Florida, Protein Chemistry and Molecular Biomarkers Laboratory.

### Comparison of Completed to Projected Research Progress

Baseline structural and physiological data for each brood stage was collected during the first year of the study. In addition, preliminary EE2 stability experiments were run and the ELISA based vitellogenin assay was developed and tested. Laboratory EE2 exposure experiments will be conducted during late spring of 2003. Laboratory reared fish will be used for these experiments and sufficient numbers will not be available until spring of 2003.

### Report of Expenditures to Date

Item	Budget	Expenditure *	Remaining
Personnel	22,744	20,769	1,975 <sup>1</sup>
Fringe Benefits	1,686	1,686	0
Travel	1,500	520	980 <sup>2</sup>
Materials/Supplies	10,000	6,513 <sup>3</sup>	3,487 <sup>3</sup>
Printing	500	0	500 <sup>4</sup>
<b>Total Direct</b>	<b>36,430</b>	<b>29,488</b>	<b>6,942</b>
<b>FA Cost</b>	<b>12,386</b>	<b>10,142</b>	<b>2,244</b>
<b>Total Cost</b>	<b>48,816</b>	<b>39,630</b>	<b>9,186</b>

\*Expenditures as of 11/06/02 reporting period, <sup>1</sup>Personnel funds will be completed 12/31/02 with final student wage payment, <sup>2</sup> Travel funds will be used for the SICB meeting (1/03) and the Marine Benthic Ecology Meeting (3/03), <sup>3</sup>Funds were rebudgeted from supplies to cover an overage of \$163 under fringe due to charges for student FICA, remaining supply funds will be used for EE2 assays Spring 2003, <sup>4</sup>Printing funds will be used for journal and poster costs Spring 2003. **Note:** A no cost extension through June 2003 was granted.

### **Publications/Presentations:**

- Partridge, C., C. Cazalas, J. Rozelle, and A. Boettcher. In Prep. Small-scale captive breeding of a freshwater pipefish. For submission to *World Aquaculture*.
- Partridge, C. 2001. Understanding a complex male brooding system: Experimental design. Oral Presentation. Dauphin Island Sea Lab Graduate Student Symposia. Dauphin Island, AL. February 2001.
- Cazalas, C., J. Rozelle, C. Partridge, J. Hemming, and A. Boettcher. 2002. Physiological role of the brood pouch in Gulf pipefish, *Syngnathus scovelli*. Poster presentation, 2002 Benthic Ecology Meeting, Orlando, FL. March 2002.
- Partridge, C. and J. Shardo. 2002 Morphological changes in the brood pouch of the Gulf pipefish, *Syngnathus scovelli*, during egg incubation. Poster presentation, 2002 Benthic Ecology Meeting, Orlando, FL. March 2002.
- Cazalas, C., J. Rozelle, C. Partridge, J. Hemming, and A. Boettcher. 2002. Physiological role of the brood pouch in Gulf pipefish, *Syngnathus scovelli*. Poster presentation, University of South Alabama's 9<sup>th</sup> Annual Research Forum, Mobile, AL. April 2002.
- Partridge, C. and J. Shardo. 2002 Morphological changes in the brood pouch of the Gulf pipefish, *Syngnathus scovelli*, during egg incubation. Poster presentation, University of South Alabama's 9<sup>th</sup> Annual Research Forum, Mobile, AL. April 2002.
- Rozelle, J., C. Partridge, A. Boettcher, and D. Forbes. 2002. Use of gas chromatography in the elucidation of carbohydrates in the body fluids of the Gulf pipefish, *Syngnathus scovelli*. Poster presentation. University of South Alabama, University Committee for Undergraduate Research 4<sup>th</sup> Undergraduate Research Week. October 2002.