

**MARINE AQUACULTURE AND
STOCK ENHANCEMENT IN FLORIDA:
RESEARCH AND DEVELOPMENT**

FLORIDA PROJECT, FWC CONTRACT NO. 01359, AMENDMENT NO.1
MML Project No.'s: 170.669, 170.671, 170.672, 170.674.

FIRST INTERIM REPORT
MAY 16, 2005 - AUGUST 31, 2005



PREPARED FOR:

MR. BILL HALSTEAD
FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
STOCK ENHANCEMENT RESEARCH FACILITY
14495 HARLEE ROAD ~ PORT MANATEE, FLORIDA 34221

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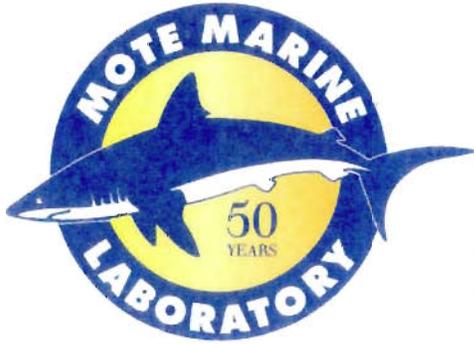
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September 6, 2005

Mote Marine Laboratory Technical Report No. 1043



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Fifty years of advancing the science of the sea.

September 05, 2005

Mr. Bill Halstead
Florida Fish and Wildlife Conservation Commission
Stock Enhancement Research Facility
14495 Harllee Road
Port Manatee, Florida 34221

Re: First Interim Report , Marine Aquaculture and Stock Enhancement in Florida: Research and Development for May 16, 2005 - August 31, 2005,. FWC Contract No. 01359, Amendment No. 1. Mote Marine Laboratory (MML) Project No's. 170.669, 170.671, 170.672, and 185.674. MML Technical Report No. 1043.

Dear Mr. Halstead,

Please accept the enclosed document as our First Interim Report to the Florida Fish and Wildlife Conservation Commission for the 2005-2006 fiscal year. The report covers work performed since our 2004-2005 Final Report ending May 15, 2005 through August 31, 2005. Section headings included in this report are as follows: (A) Collaborate in Research to Develop Stock Enhancement Capabilities with High-Priority Finfish Species - The Common Snook, (B) Evaluate Snook and Red Drum Stock Enhancement Impact in Sarasota Bay and Tampa Bay, and (C) Assist the Commission with Strategic Planning. We are pleased with the results and accomplishments in all of these areas.

On behalf of the Mote Marine Laboratory, Center for Fisheries Enhancement we look forward to continuing our successful partnership with the Florida Fish and Wildlife Conservation Commission.

Sincerely,

Carole L. Neidig
Staff Scientist
Center For Fisheries Enhancement

Cc: Ken Leber, Ph.D., Kevan Main, Ph.D., Nate Brennan, Mike Nystrom, Terri Deppe, Research Office

Encl.: MML Invoice No. 5580

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Marine Aquaculture and Stock Enhancement in Florida: Research and Development

**First Interim Report
May 16, 2005 – August 31, 2005**

A. Collaborate in Research to Develop Stock Enhancement Capabilities with High-Priority Finfish Species - The Common Snook (*Centropomus undecimalis*)

A.1 Culture of High Priority Finfish Species: Common Snook

A.1.1. Production Efforts

Strip-Spawning Results

The timeframe for strip-spawning wild snook broodstock began May 25 and ended August 22, 2005. During 2005, a total of 18 spawning attempts were conducted resulting in the capture of approximately 2,099 adult brooders. From these spawning attempts, approximately 3,835 mls of eggs (10.7 million eggs) were obtained for experimental and production research trials. With changes in the topography of the spawning sites normally used by Mote's aquaculture team, as well as the presence of red tide in local waters, this season's spawning attempts had limited success. Although we obtained a large number of eggs from the strip-spawning efforts in 2005, many of the eggs were poor quality (poor hatch rate and/or poor survival to 5 days after hatch [DAH]). We attributed the poor egg quality from the wild snook brooders to prolonged exposure to red tide in the Sarasota Bay area. Egg samples from the 2005 spawning efforts will be analyzed for lipid content by Carlos Yanes-Roca after he returns to Stirling University, which will provide additional information on egg quality in 2005. Near the end of the production season, we expanded our sampling efforts beyond Sarasota Bay to Charlotte Harbor, which had less prolonged exposure to red tide conditions. Eggs obtained from Charlotte Harbor also had poor egg quality and hatch rates; however, other factors may have limited success in Charlotte Harbor (long transport distance, late season spawning, intermittent red tide exposure, etc.).

Larval Rearing Production Results

From the 18 spawning attempts in 2005, twelve 3.3 m³ production tanks were stocked. Eggs from these spawns were also stocked in two different size (2-liter and 7-liter tanks) experimental systems at Mote Aquaculture Park. Unfortunately, eggs obtained for production and 7-liter experimental trials did not survive beyond 18 days after hatch (DAH). One potential reason for low survival has been attributed to not having the correct size first-feeding prey organism for the snook larvae's mouth gape. Lipid studies conducted by Carlos Yanes-Roca will hopefully provide more information on this issue when the data is analyzed.

Five of the spawning efforts resulted in eggs/larvae that either died right after stocking (0 DAH and 1 DAH) or the eggs died just prior to stocking. In these cases, the eggs showed poor cell division and irregular development. The exact cause for poor egg quality is unknown. Some reasons that have been suggested include late spawning trials and red tide toxins.

Live Feeds Production

Due to the small mouth gape of snook larvae at first feeding, we determined that a smaller rotifer or first feed was needed for snook larvae to initiate first feeding. In 2005, Mote's live feeds research focused on culturing a smaller strain of rotifers for snook larval culture. Both Belgium and Japanese rotifer strains (150-180 μm and 100-120 μm , respectively) were obtained as prey organisms for snook larvae. Rotifers at Mote's aquaculture facility prior to these newer strains were 220-280 μm in size. Over the 2005 production season, efforts were made to expand the newer strains of Belgium and Japanese rotifers into larger recirculating rotifer systems at Mote's Aquaculture Park (MAP). In early July, Mote's live feeds team was able to provide enough of these smaller rotifers to a limited number of the production tanks stocked at MAP. In addition, the L-type rotifers cultured at the main campus were sieved and the small-size fraction was fed to production tanks on the main campus. We also experimented with copepod nauplii (60-80 μm) in snook experimental trials. These copepods were obtained from Florida State University's copepod research team at the FSU Marine Laboratory in Turkey Point, Florida. Diapause eggs were shipped to Mote and were later hatched and reared for snook experimental trials. These organisms were fed to the 7-liter experimental systems. The results from this study will be presented in our next quarterly report.

Broodstock Efforts

All of the snook broodstock previously transported from Mote's main campus to MAP are being maintained in two, independent maturation and spawning tanks (54,315 L/tank). The broodstock maturation systems are equipped with a light activation system that simulates sunrise/sunset and moon cycles. Separate temperature control systems for each tank are currently being installed on the maturation tanks. These fish were initially held in freshwater while the filtration for this facility was being constructed. After completion of the final seawater filtration system at MAP in early January 2005, we began slowly increasing the salinity of the broodstock systems. Currently the systems are operating at full salinity (30-32 ppt). The broodstock are still routinely monitored for growth data (weight and length) as well as egg development. The captive broodstock at MAP continue to be offered a fresh cut broodstock diet of shrimp, squid, herring, and mackerel; however, the snook display a feeding preference for shrimp and herring. The July 2005 sampling effort showed no signs of maturation. On May 31, 2005, twelve additional broodstock were transported from quarantine at Mote's main campus to the MAP facilities.

In August, 15 additional snook broodstock were captured and brought to Mote's main campus for hormone injection trials. From this trial, a total of 1.2 million eggs were obtained after hormone injection; however, when the eggs were found in the egg

collectors the eggs were observed to be either unfertilized or not dividing properly. These eggs were later discarded. Future attempts are planned for the maturation and spawning of wild brooders via hormone injection in September 2005. In August and September 2005, a series of independent broodstock consultants will be working with the Mote aquaculture team to develop management strategies for maturing snook broodstock at MAP.

B. Evaluate Snook and Red Drum Stock Enhancement Impact in Sarasota Bay and Tampa Bay

B.1 Test of Density-Dependency Effects with Hatchery-Reared Juvenile Snook Released in Critical Nursery Habitats

Proposed work in this area has been completed. We are currently working on analysis and writeup of this study. Results will be distributed when they are completed.

B.2 Refining Tag Technology with the Common Snook and Red Drum

B.2.1 Adapting Tag Technology toward Stock Enhancement of the Common Snook

We published this work under the following citation in 2005:

Brennan, N. P., K. M. Leber, H. L. Blankenship, J. M. Ransier, and R. DeBruler Jr. 2005. An evaluation of coded-wire and elastomer tag performance in juvenile common snook under field and laboratory conditions. North American Journal of Fisheries Management 25: 437-445.

The study of the effects of visible implant elastomer as a tag in fish cornea tissue has been completed. Results from this study are being analyzed and will be reported when completed.

We are investigating the use of acoustic transmitters (Vemco, V8SC1L, 24 mm long) in juvenile (age-0) snook. Both hatchery and wild snook were implanted with transmitters to monitor movement patterns in 2004. We are currently analyzing the results of this study.

B.2.2 Adapting Coded-wire Tags to “Phase-I” Red Drum

A manuscript that describes these activities is in progress.

B.2.3 Feeding Ecology of juvenile snook.

Experiment 1: Determine diel feeding activity of snook ranging from 100-500mm FL in size.

May 26-June 30, 2005: To determine when snook were actively feeding, two 24-hour observation periods were carried out in North and South Creek located in the southern

portion of Sarasota Bay. Each 24-hour period was broken-up into 3-8 hour blocks and samples were taken every two hours. Snook were collected using a 73.15 x 3.05 m (240x10 ft.) bag seine with 0.32cm (1/8 in.) mesh with a 3.05 x 3.05 x 3.05 m (10x10x10 ft.) bag. Stomach contents were collected using the pulsed gastric lavage (PGL) technique, as described in Waters et al. (2004), because this allowed for the fish to be released unharmed. This method involves using slightly pressurized water jetted through the esophageal opening to fill the stomach with water while the fish is in a head up position. Then the fish is turned downward at a 45-degree angle allowing any food items to flow out into the collection net. The underbelly is then massaged as the stomach is flushed with a continuous flow of water allowing any remaining food items to be removed. This process is repeated 2-3 times until the stomach is believed to be empty (Waters et. al. 2004).

A total of 197 snook were caught of which 168 were sampled for stomach contents. Of those sampled, a total of 127 stomach samples were successfully collected. The samples were analyzed using a digestion index ranging from 0-5, with 0 equaling a fresh, undigested sample and 5 equaling a nearly completely digested sample with only bones and/or other hard parts remaining, depending on the prey item. Preliminary analysis suggests that juvenile snook feed primarily after dusk and through the early morning hours, with light to moderate feeding during the daylight hours.

Experiment 2: Describe summer juvenile snook diet in estuaries of southern Sarasota Bay.

July 1-August 19, 2005: During this time period an additional 191 snook were caught and 181 checked for stomach contents. Of those 181 snook sampled an additional 139 stomach samples were collected. These collections were performed at night in the same manner described above. Combined with the previous samples, a total of 266 stomach samples were collected throughout the summer and will be used to describe the diet of juvenile snook in southern Sarasota Bay. Of those 266 samples, 105 were collected from North Creek and 161 from South Creek, respectively.

B.3 Fishery Independent Assessment of Adult Habitat

B.3.1 Identify Recruitment of Hatchery Snook to the Adult Populations

We are in the process of producing a publication entitled “Effects of release microhabitat on survival and growth of hatchery-released snook in a Florida estuary”.

B.4 Fishery Dependent Sampling of Snook Populations in Sarasota Bay

8TH ANNUAL “SNOOK SHINDIG”

The 8th annual Snook Shindig is planned for October 14-15, 2005. We are preparing for this tournament.

B.5 An Evaluation of Cannibalism Risk in Juvenile Snook

Results from this study are being analyzed and will be reported on when complete.

B.6 Testing the Capability of Rural Snook Fisheries

We are investigating the capability of using the common snook in urban fishery environments. Forty snook (300–450 mm SL; two age classes) were tagged with individual PIT tags and VIE marks and stocked into a freshwater pond at the Mote Aquaculture Project (MAP). The pond is designed to incorporate thermal refuge, vegetative habitat, structure, and various prey species for snook. An automatic feeder supplements snook diet. The submersed temperature loggers continue to monitor surface and bottom temperatures in the pond. In July 2005 we also set up a remote tag reading antenna in the MAP pond. This remote prototype system uses passive integrated transponder tags that are activated when a tag is within range of a powered antenna. Snook will be tagged with half-duplex passive integrated transponder tags (PIT) and released into the pond this fall. Two separate antennas placed in different habitat types will allow us to determine size differential habitat use and respective survival rates of snook in the pond.

B.7 Project Tampa Bay – Red Drum Stock Enhancement

From May 16, 2005 through August 31, 2005, work continued on Project Tampa Bay (PTB), a Florida Wildlife Research Institute (FWRI) and Mote Marine Laboratory (MML) partnership funded by saltwater fishing license funds to demonstrate the effectiveness and benefits of stock enhancement in a large estuarine ecosystem. Since 1999, more than four million red drum were reared at the Stock Enhancement Research Facility (SERF) and released into the Alafia and the Little Manatee River's in Tampa Bay.

To evaluate survival, distribution, and contribution of the hatchery-reared red drum to the fishery, MML, in collaboration with FWRI and SERF staff, emphasized angler involvement, directed-target sampling, and application of acoustic telemetry. Results from FWRI and MML assessment efforts will be used to formulate management recommendations to develop an effective and responsible approach to use hatchery-releases as a tool to enhance and restore fisheries state-wide.

B.7.1 Project Awareness

To promote project awareness and engage angler participation, an outreach campaign was continued by MML, in cooperation with SERF. The MML outreach program included displaying posters, distributing information and fin clip kits to bait and tackle shops, interviews with the media, and direct contact with anglers. Educating anglers to take fin clips was particularly important because they were more familiar with reporting capture information from externally tagged fish. In PTB, hatchery-reared red drum, except for those used in FWRI and SERF special events and MML acoustic telemetry studies, were released without an external tag. In addition, it has been observed that it is necessary to keep the public informed and updated concerning PTB to ensure angler participation and community support.

B.7.2 Fin Clip Program

The goal of the Tampa Bay red drum stock enhancement project was to demonstrate the benefits of a marine stocking program. Recreational anglers were the primary recipients of the benefits of stocking and their participation was critical to assessment of project success.

The goal of the MML Red Drum Fin Clip Program was to provide tissue samples for the evaluation of hatchery-reared red drum contribution to the fishery and for determination of their optimal size at release, and optimal release habitat. An objective of the program was to establish anglers as stakeholders in the program and have them contribute tissue samples from any size red drum they captured in Tampa Bay.

The Fin Clip Program was directed by C. Neidig with valuable assistance provided by the following volunteers: J. Angiolini, E. Edstene, R. Ehlis, R. Francais, B. Frisk, M. Kagan, T. King, D. Labhart, J. Mazza, C. McClure, J. Rounds, S. Reynolds, J. Wojick, and B. Waxman. The volunteers were instrumental in assembling Fin Clip Kits, visiting bait and tackle shops, providing information to anglers, posting signage, collecting fin clips at tournaments, promoting public support and encouraging angler fish data retrieval at angler events. In addition, G. Russo (SERF) provided Fin Clip Kits at angler events and B. Wheat, Fisheries Dependent Monitoring (FDM) provided kits to anglers during creel surveys.

Posters

A laminated project poster was distributed to more than 250 bait and tackle shops, marinas, and angler and boat supply stores. In February 2005, G. Russo (SERF) provided a polyvinyl version of the poster that was posted by volunteers at boat ramps and locations where laminated posters would not last in the weather. The polyvinyl posters could also be bolted to a structure.

Special Events

June 4-5th, 2005, C. Neidig promoted the Fin Clip Program and held a silent auction to benefit the MML Redfish Fin Clip Program at the **4th Annual Slaw Dawg Invitational Tournament**, Anna Marie Island.

June 17-19th, 2005, C. Neidig promoted the Fin Clip Program and held a silent auction to benefit the MML Redfish Fin Clip Program at the **Anna Marie Community Center Benefit**, Anna Marie Island.

Fin Clip Kits

Over 8,000 Fin Clip Kits were assembled by MML and distributed since the start of Project Tampa Bay. The kits contained the supplies needed for anglers to take tissue samples from red drum, were easy to use, and could be easily stored in the angler's tackle box or cooler. Several improvements were made to the Kits based on suggestions made by participating recreational anglers and guides. In June, B. Halstead (SERF) provided financial assistance for purchasing supplies for Fin Clip Kits. As of August 2005, each

Kit consisted of a 5 "x 7 " 2.0mL thick medium duty zippered plastic bag (Rand, Pawtucket, RI) which contained:

- instruction postcard - (5" x 6 ½ ") included a schematic of "How to Take a Fin Clip" with written instructions, "How to Measure A Red Drum", and the Redfish Hotline phone number.
- Tampa Bay grid map with catch and release tips,
- scissors,
- individually wrapped alcohol wipes (4),
- Hotline telephone number decal provided by G. Russo (SERF),
- golf pencil, and
- 2" x 3" 2mL thick medium duty zippered plastic bags (4) each displaying two printed adhesive labels:
 - fish information label for anglers to record fish capture information - date, time, total length, weight, and whether fish was kept or released,
 - angler information label - name, address, telephone number. In addition, the Redfish Hotline number was displayed on the bottom of the label.

The outside of each Fin Clip Kit displayed a Project Tampa Bay decal, a label with a request for anglers to collect samples from any size red drum in Tampa Bay, and a label reminder for anglers to clean scissors with an alcohol wipe after each use.

Additional materials provided to anglers included:

- the FWC "Regulation" publication,
- Angler Reward Supporter / Project Supporter card, which included a list of more than 80 businesses that provided prizes for angler drawings and 35 businesses that provided supplies and services to MML, and
- a list of Participating Bait and Tackle Shops
- a PTB stick-on measuring tape which was redesigned in July 2005 from the previous printing and provided by G. Russo (SERF)

Reward Program

A Reward Program was used to promote the Fin Clip Program and encourage anglers to become stakeholders in the project. In August, 32 recreational anglers and captains that turned in a red drum fin clip with complete fish capture information were selected in a random drawing. The winners were sent a package with multiple prizes donated by national and local businesses and a congratulatory letter from E. Edstene, MML volunteer and Redfish Project Donation Coordinator and C. Neidig.

Reward items were attained from several businesses by sending letters and telephone calls. New participating businesses were sent a thank you letter, tax deduction information, Mote Aquarium passes, and if the in-kind contribution was over \$500.00, they received a Mote Laboratory Corporate Membership. Businesses that donated \$1,000 in in-kind gifts were also recognized with a plaque in the Mote Aquarium. In addition, the businesses were listed as Project Supporters on a card provided to anglers that received Fin Clip Kits. Since November 2002, 82 businesses contributed to the Angler Reward Program.

Bait and Tackle Shops

Monthly, MML volunteers J. Mazza and/or R. Francois called Tampa Bay area bait and tackle shops and angler supply businesses to promote the Fin Clip Program, ask if fin clips needed to be retrieved, offer laminated project posters, Fin Clip Kits, and fin clip sample bags. Numerous trips were made by C. Neidig, and volunteers J. Mazza, R. Francois, T. King and G. Russo (SERF) to businesses to pick up red drum fin clips, provide Fin Clip Kits, and project posters. To help prevent loss of fin clip samples in bait shop freezers, plastic boxes (4"x 5"x 2.5") displaying a PTB logo and a Hotline telephone number sticker were distributed. Because of employee turnover at many of the shops, shop visits were valuable for keeping their staff and subsequently their angler customers involved in the program.

Participating bait and tackle shop coverage included locations in north Sarasota, Bradenton, Palmetto, Ruskin, Gibsonton, Riverview, Apollo Beach, St. Petersburg, Madiera Beach, Treasure Island, Pinellas Park, Clearwater, Port Richey, Oldsmar, Largo, Dunedin, Tarpon Springs, Palm Harbor, and Tampa. As of August 2005, there were 58 participating Bait and Tackle Shops. Since the previous report provided to FWC, five participating shops closed and four new shops opened and joined PTB.

Angler Contributions

As of August 2005, there were 385 participating anglers in the PTB Fin Clip Program. Since our previous report ending May 15, 2005, an additional 95 anglers provided 345 additional fin clip samples, bringing the total to 1,908 that have been processed at MML. An additional 230 fin clips from new and previous contributors were collected for processing in recent weeks. Several anglers contribute fin clip samples on a regular basis. Capture locations reported by anglers included areas in Old Tampa Bay, Hillsborough Bay, and both on the east and west shores of the bay. Fin clips were also provided from north Sarasota Bay, Palma Sola Bay, and Terra Ceia Bay.

Fin clips from red drum measuring 158 to 991 mm TL were provided to FWRI Molecular Genetics Laboratory (MGL) for microsatellite DNA analysis. In August 2005, seven additional fin clips provided by anglers were determined to be from hatchery-reared red drum, bringing the total to 15. One of the most recent hatchery-reared red drum samples was collected near Tidy Island, located in north Sarasota Bay. This fish was captured by an angler participating in a Ranger Redfish Tour Tournament held in Sarasota Bay. The fish was released in the Alafia River on November 5, 2002 in the third river mile and was captured on July 15, 2005 [893 days of freedom (DOF)]. The (450.9 mm SL and 552.4 mm TL) fish was released by MML volunteers after sampling at the 10th Street Ramp in Sarasota. Two fish had more than one-thousand days of freedom. These included a phase one red drum released in the Alafia River in the first river mile on December 12, 2000 and was captured in Cockroach Bay on January 29, 2004 (1,033 DOF). The fish measured 685.8 mm TL and was not released after capture. The second fish (560 mm SL and 600 mm TL) was captured and released by S. Candileri (FDM) at Apollo Beach on July 15, 2005. The phase one fish was released on December 5, 2001, in mile two of the Alafia River. Of the 15 Angler Fin Clip Program samples determined to be hatchery-

reared fish, ten were determined to be Phase I at release, three were Phase II, and two were Phase III.

Based on information available for the eleven FDM samples, seven were determined to be Phase I at release, one was a Phase II, and one was a Phase III. Two fish were identified as being either Phase II or III at release.

C. Neidig is presently working with M. Triangali (MGL) and R. Cody (FDM) to compile a file with complete information on the 25 hatchery-reared red drum samples from both the Angler Fin Clip Program (15 samples) and FDM Angler Creel Census Program (11 samples). Upon completion, the file including an Excel table of data will be provided to the PTB team.

The genetic results (wild or hatchery) provided by FWRI for each fin clip sample were correlated by MML volunteer T. King to the capture data provided by the angler and entered in the Fin Clip Database. From this information he completed a "Thank You / Results" postcard for each participating angler to thank them for providing tissue samples for the Fin Clip Program and to provide them with the results of whether the fish they captured was hatchery or wild. The card included the date a sample was collected, the fish length, and the genetic results wild or hatchery.

B.8 Juvenile Red Drum Habitat Identification in Tampa Bay, FL

The Juvenile Red Drum Habitat Study in Tampa Bay was completed in August 2005. The Principal Investigators for this study were C. Neidig (MML), D. Roberts (SERF) and C. Armstrong (Progress Energy, PE). The study responded to the critical need to provide habitat preference information for juvenile red drum "rat reds" (177-300 mm TL) in Tampa Bay. Monitoring of juvenile red drum implanted with acoustic transmitters was implemented in 2003 as a tool to address questions concerning habitat preferences, site-utilization, preferred environmental conditions, and movement. Funding for this project was provided by the Pinellas County Environmental Fund (PCEF) / National Fish and Wildlife Foundation (NFWF), with matching funds from FWRI through the FWRI/MML Stock Enhancement Project Contract, and MML.

The data for this study is currently being analyzed by D. Roberts (SERF) and C. Neidig. A final report is being prepared for PCEF / NFWF as well as a manuscript. Results and conclusions will be provided in a FWC Progress Report upon completion of data analysis.

C. Assist the Commission with Strategic Planning

Strategic planning for the Commission's marine stock enhancement program is an ongoing, adaptive process. The focus is on (1) improving the effectiveness of the FWC's marine stock enhancement program, (2) adapting and refining aspects of a "Responsible Approach to Marine Stock Enhancement" (Blankenship and Leber, 1995) that are being incorporated into the program, and (3) evaluating the biological and economic

effectiveness of using marine stock enhancement as a resource management tool in Florida. Work done during this reporting period includes:

- Dr. Ken Leber participated in several planning meetings with FWC staff. These included meetings with Luiz Barbieri and Bill Halstead at FWRI on July 1st, and at Mote Aquaculture Park on August 3rd, and a meeting with Bill Halstead on August 10th to discuss issues involved in evaluating stock enhancement potential in Florida.
- Leber developed a presentation that he was asked to give at the upcoming FWC “Bass Stocking Symposium” to discuss optimizing stocking strategies for advanced largemouth bass fingerlings using guiding principles in the “Responsible Approach” concept. The Symposium will be at the Bass Conservation Center and Best Western Motel in Brooksville, Florida, on September 27 & 28.