Aquaculture America Society 2007, San Antonio, Texas. USA

PROGRESS IN HATCHERY TECHNOLOGY OF COBIA *Rachycentron canadum* AT THE UNIVERSITY OF MIAMI EXPERIMENTAL HATCHERY (UMEH)

Refik Orhun*, Daniel Benetti, Ian Zink, James Collins, Patrick Rice, Fernando Cavalin, Bruno Sardenberg, and Philippe Douillet

Aquaculture Program – Division of Marine Affairs and Policy
University of Miami Rosenstiel School of Marine and Atmospheric Science
Email: rorhun@rsmas.miami.edu

This paper summarizes advances in hatchery technology of cobia (*Rachycentron canadum*) at the University of Miami Experimental Fish Hatchery. It presents and discusses capture, transport, acclimation, sampling, prophylaxis, quarantine and conditioning of broodstock fish prior to maturation and spawning, as well as the use of probiotics in live feeds, larval rearing and production of juveniles in intensive and semi-intensive systems. In addition, experimental shipping trials (18h) were conducted with early cobia juveniles (1-5g) to determine the lowest safe shipping temperature, the highest possible biomass density, and to evaluate the effects of additions of probiotic bacteria and pre-shipping prophylactic treatments. Using an ammonia control agent and a buffer, juveniles showed high survival (97-100%) rates at 18°C and biomass densities up to 5.7kg/m^3 even after treatment with formalin @ 100 ppm for one hour prior to shipping.

Further, a three-week feeding trial was conducted with two groups of cobia juveniles (initial average weight 11.1g to 23.5g) to evaluate a new commercial pellet diet developed for marine fish in the US. Juveniles grew 300 and 450% in weight for the large and small fish group, respectively, with 100% survival in both groups. Estimated daily rations ranged from 3.2-10.7% of body weight per day and specific growth rates ranged from 5.5-9.6 % per day and were related tank biomass density. Feed conversion ratio (FCR) of 0.7 was estimated for both groups.

A semi-intensive cobia juvenile production trial was conducted in a lined pond (1000 m^3), where 500,000 two-day old cobia larvae were stocked two days after fertilization and 5 days after filing. At the time of stocking, a diatom bloom dominated by *Nitzschia sp* had already developed. Cobia larvae successfully commenced first feeding on tintinnids and other naked ciliates of 50-80 micron in size. Beginning two days after stocking of larvae, 24 million *Artemia* nauplii were added daily to the pond to control the high amount small ciliates (<10µ). Cobia larvae had their guts full of *Artemia* nauplii six days post hatch (dph). A week later, cobia post-larvae and early juveniles were feeding on a combination of copepods and *Artemia* nauplii, and soon began preying on aquatic insects, such as water boatman *Corixa sp* and mosquito *Ochlerotatus sp* larvae. Due to the high temperature of the pond (32º C) throughout the trial, growth of cobia was very fast and weaning onto pellets was initiated 16 dph. At 21 dph, an estimated 50,000 early juveniles were alive (10% survival). At 24 dph, the estimated number of early juveniles was over 20,000. About 10,000 juveniles of 45mm in length and 0.2gm in weight were shipped from UM to ACFK, a commercial hatchery located in the Florida Keys.