

Review of Cobia (*Rachycentron canaum*) Hatchery Technology at the University of Miami Experimental Hatchery (UMEH).

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This talk will review the developments in hatchery technologies and protocols of disease management at the University of Miami Experimental Fish Hatchery. Briefly reviewed is the capture, transport, prophylaxis, sampling, acclimation, and quarantine of wild caught broodstock, including disease management in recirculating systems. Following quarantine is the conditioning and maturation of broodstock to spawning condition, which was completed in only two months from capture to first spawning in captivity. Other investigations either completed or currently underway include larval shipping trials, prophylactic treatment of diseases during larval rearing, and the use of probiotics during the culture and enrichment of live feeds.

Initial trials aimed at reducing costs and mortality in juvenile shipments were conducted during the summer of 2005. Simulated 18 hr shipments using 1- 5 g juveniles indicated that biomass densities (5.7kg/m³) could be increased and temperatures decreased (18°C) during shipment without high mortalities. Prophylactic formalin treatments before shipment and probiotics use during shipment also suggest incorporation into standard shipping protocols in order to reduce mortalities. Survivorship during these trials was high, ranging from 97-100%.

A larval rearing trial during the fall of 2005 provided the opportunity to conduct preliminary investigations into prophylactic disease management. Cobia are known to be susceptible to bacterial, protozoan, and metazoan infestations throughout their life stages, particularly *Amyloodinium*, *Cryptocarian*, and *Brooklanela*. Bacterial enteritis was observed and brought under control using formalin treatments during this larval rearing trial. A probiotic addition directly to the tank water (25 ppm) indicated further improvement of larval fish health, although this was not experimentally verified. An outbreak of *Amyloodinium* later occurred; this parasitic infestation was controlled using treatments of copper sulfate. Further study of probiotics, formalin, and copper sulfate treatments to larvae or young juveniles is expected to directly improve larval survivorship via the development of safe treatment protocols.

Improved management of live feed culture microbial communities has been preliminarily investigated. Artemia produced from Embryon™ (24 hr hatching period) were analyzed to determine total and gram-negative population levels of microbial communities with and without probiotic additions. Although these studies are preliminary in nature, a full characterization of microbial communities from water intake to live feeds culture tanks, fish culture tanks, will soon be underway. The UMEH is gearing up to investigate probiotics utilization in all aspects of larvae culture, from egg to growout, intending to develop protocols that will increase larval survivorship and production of a healthier, more consistent larval cultures.

