

FROM EGG TO MARKET: THE DEVELOPMENT OF A NEW, SUSTAINABLE
OFFSHORE AQUACULTURE INDUSTRY IN FLORIDA (US) AND THE
CARIBBEAN.

Daniel D. Benetti*, Brian O'Hanlon, Joseph Ayvazian, M. Refik Orhun, Jose A. Rivera, Patrick H. Rice, Philippe A. Douillet

University of Miami, Rosenstiel School of Marine and Atmospheric Science,
4600 Rickenbacker Causeway, Miami, FL 33149, U.S.A., e-mail:
dbenetti@rsmas.miami.edu

Hatchery and growout technology for the reliable production of cobia (*Rachycentron canadum*) and other candidate species for offshore aquaculture are discussed in this paper. Most recently, we have been working towards the development of sustainable microbial management in live feeds and larval rearing tanks, including disinfection methods and the use of probiotic bacteria. The strategy is to out-compete contaminant, pathogenic microbes by "competitive exclusion", increasing digestibility and boosting the immune system of the larvae, thus avoiding the need for antibiotic treatments to prevent and control disease outbreaks. Strains have been selected during years of research conducted on red drum (*Sciaenops ocellatus*) larvae and tilapia (*Oreochromis sp*) juveniles, as well as with cultures of rotifers (*Brachionus sp*) and *Artemia* nauplii. The selection of probiotic bacteria has been based on antagonistic properties towards contaminant bacteria pathogenic to fish such as *Vibrio sp*, enhancement of digestion and food conversion efficiency, and enhancement of overall growth and survival. Both cobia and mutton snapper exhibit very good potential for commercial aquaculture development in net cages in the SE U.S. and the Caribbean. Cobia exhibits extraordinary rates of development and growth. During Snapperfarm's demonstration project off Culebra Is., Puerto Rico, cobia grew to an average of 6.03 kg (SD=2.4; CV=39%) or 13.3 lb in one year, ranging in size from 1.7-9.1 kg (4-20 lb). Estimated survival rate is > 95%, and feed conversion rate (FCR) is 1:1. However, accurate final values will only be known once all fish are harvested. Snapperfarm has been harvesting 500-1000 kg of cobia per week (1,000-2,000 lb/week). Fish are being shipped to the continental U.S., where they are being sold fresh for US 8/kg to the high-end market. Thus far, no noticeable environmental impact has been ever detected in the areas surrounding the cages. The technology for producing cobia from egg to market is in place.

