

INTENSIVE REARING OF SPOTTED SEATROUT *Cynoscion nebulosus*

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The spotted seatrout *Cynoscion nebulosus* is the most popular sport fish in the Gulf of Mexico. However, the increasing pressure on seatrout for food and recreation combined with the seatrout's dependence on inshore habitats that are increasingly threatened by coastal development has raised concerns over the long-term viability of the stock. In 2004, the Gulf Coast Research Laboratory and the Mississippi Department of Marine Resources began investigating the feasibility of using cultured seatrout as part of the management strategy for seatrout in Mississippi waters.

Rearing of the species for stock enhancement is typically done extensively in ponds containing estuarine water and mixed wild zooplankton over about 30 days. Pond culture is not feasible at our facility; thus, our program focuses on recirculating, intensive culture. Intensive culture, while fairly labor intensive, offers the potential of low inter- and intrabatch variability, significant biosecurity, and greater survival compared to extensive culture.

Two tanks of broodstock (20 animals in each at a 1:1 sex ratio) under photoperiod and temperature manipulation have produced approximately 45 million eggs in 70 spawning events since the summer of 2006 (ave. ~643,000 per spawn). Fertilization rates average 70%.

Larvae are fed enriched ss-rotifers supplemented with laboratory-reared *Acartia tonsa* nauplii beginning on day 2 post-hatch (PH), weaned to enriched *Artemia* by day 6 PH, and weaned to pelleted food by day 15 PH. The system has produced approximately 20% survival through day-25 PH. Production is currently limited by the space available for larval rearing; however, research is underway to determine how to maximize survival through larval rearing. Growth averages about 1 mm per day during larval rearing.

Growout to the minimum size required to receive and retain a coded-wire tag for release (approximately 70mm total length), requires an additional 30-40 days, during which we've achieved about 75% survival. Growth continues linearly at about 1 mm per day; but, beginning at about day 40, fish begin increasing their weight substantially relative to their length. Work to maximize survival and rearing density is ongoing.