

## **SURGICAL IMPLANTATION OF ACOUSTIC TRANSMITTERS IN JUVENILE RED DRUM, *SCIAENOPS OCELLATUS***

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Reliable surgical methods for implanting acoustic transmitters in juvenile red drum *Sciaenops ocellatus* (180-320 mm TL) were developed. Evaluations of fish implanted with acoustic pinger transmitters (Sonotronics, Tucson, AZ) using these methods were performed in 2002 and 2003.

Seven month transmitters weighed 4 g (water weight) and measured 32 mm x 12 mm diameter. Based on preliminary evaluations of implanted juvenile red drum, Sonotronics modified the transmitter case so that both the anterior and posterior ends were rounded. Before implanting the transmitters, we ensured that the fish were not parasite or pathogen compromised. Surgical preparations included cleaning instruments with Betadine and a sterile saline rinse. Fish were transferred directly from a holding tank into an induction bath containing 70–80 ppm of Tricaine-S™. During surgery, fish were inverted onto a V-shaped cradle and a soft rubber tube was inserted into the mouth to provide an uninterrupted flow of oxygenated seawater and anesthesia (50 ppm) over the gills. Medial integument and muscle incisions extended from the posterior pelvic fin for 10-12 mm. Incisions were proximal and lateral (1-3 mm) to the medial ventral abdominal wall. Transmitter insertion was sub-visceral, forward and anterior through the incision. Four to five interrupted sutures (Maxon™ sterile synthetic absorbable suture) closed incisions. Antibiotic ointment (Bacitracin™) was applied to the sutured area. Post-surgical assessment of the incision documented that tissue regeneration was sufficient within 10-15 days (temperature dependant) for the fish to be released after evaluation by a veterinarian.

Survival and transmitter retention was 100% for red drum held for 7 months. Growth, swimming performance, and feeding activities were normal for fish in tanks. The modified transmitter case appeared to minimize post-surgical complications related to pressure necrosis on internal organs and the body wall. Necropsies and histological evaluations performed at termination revealed tissue regeneration with no pathology associated with the implants.