

***In situ* Scuba Diver Identification of Hatchery Released Red Snapper,
Lutjanus campechanus, Using Visual Implant Elastomer Tags in the
Gulf of Mexico**

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Abstract

Over the last 6 years approximately 3000 juvenile red snapper have been released on artificial reef habitats off the coast of Sarasota, FL. The releases were conducted to investigate the use of hatchery reared juvenile red snapper to supplement native populations in the Gulf of Mexico. Pilot releases were conducted in 2000 and 2002 to investigate release habitat preferences, stocking density effects, and *in situ* acclimation techniques to develop stocking and release protocols for red snapper. Post release assessments were based around identification and enumeration of released fish. Visual implant elastomer tags of different colors from Northwest Marine Technology, Lopez Is., WA were used to identify experimental treatments of released fish. Elastomer tags implanted between the caudal fin and anal fin rays provide a good short-term (6-8 months) identification mark for diver identifications. This tagging technique was only restricted by the number of highly contrasting colors available for comparison; however fluorescent colors were easiest to distinguish. Identification of tag lots under low light conditions was restrictive when comparing black, blue and purple. Yellow and green combinations were also difficult to distinguish under low natural lighting. The use of a low power dive light helped to differentiate the colors in these situations. Complicated experimental designs with multiple release sites and treatments required the use of the anal fin in conjunction with caudal tagging (16 tag codes). In these experiments, tags in the caudal fins were used to identify the release sites while anal tags implanted in the fins identified individual treatment types. The high number of tag codes could result in decreased abilities of the divers to identify correct codes; however, visual implant elastomer tags provide an excellent monitoring technique for *in situ* monitoring of released fish by divers.