



# Texas Agricultural Extension Service

The Texas A&M University System

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**To:** David Kinser  
**From:** *Malon Scogin* Malon Scogin, County Marine Agent, Jefferson-Chambers Counties  
**Subject:** Oxygen Systems of Texas Model 2001  
Oxygen Injection System  
**Reference:** The use of oxygen to increase survival of captured organisms utilized as live bait in recreational fisheries.

Coastal fishermen have found that live bait, properly fished, consistently out produces comparable dead bait. But keeping bait alive during warm summer months is a challenge. Shrimp and fish can only survive with a sufficient oxygen supply and habitat within certain temperature ranges. As water temperature increases, the water holds less oxygen. In warm water, the metabolism of cold-blooded animals, such as shrimp and fish, tends to speed up, increasing oxygen consumption and toxic waste production. Therefore oxygen must be constantly replenished.

Based on reports from bait shrimpers and bait stand operators, 60% of captured bait dies before it is sold to consumers (10% on vessel, 50% at retail outlet). This represents a significant loss of resources and economic loss for the bait shrimper and retailer, with live bait shrimp selling for approximately \$10 per quart versus \$2 per quart for dead shrimp. Recreational fishermen are also discouraged by occurrences where \$10 bait shrimp are \$2 dead shrimp before they reach their favorite fishing hole.

Previous undertakings indicated that saturation of holding water with pure oxygen increased survivability of bait organisms; therefore a demonstration was undertaken to determine if the oxygen injection system, Model 2001, of the oxygen systems of Texas could be utilized for such a purpose. In May of 1993 at Oak Island, Chambers County, Texas, commercial bait tanks were connected to the model 2001 oxygen injector and dissolved oxygen readings were taken utilizing an ICM oxygen meter. In 70°F water the system provided 12 ppm oxygen or in excess of 100% saturation.