Title: Anesthesia in Fish Using Carbon Dioxide

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Objective
The objective of this Standard Operating Procedure is to describe a method of anesthetizing fish using carbon dioxide gas.

1.0 Health and Safety
All personnel will be enrolled in the Clemson University Medical Surveillance Program.

2.0 Personnel/Training/Responsibilities
Personnel who perform anesthesia must have appropriate certification and/or training and experience with the techniques to be used. This training and experience should include familiarity with the normal behavior of the species being anesthetized, how handling and restraint affects that behavior, and an understanding of the mechanism by which the selected technique induces unconsciousness. Prior to being assigned full responsibility for performing anesthesia, all personnel must have demonstrated proficiency in the use of the technique in a closely supervised environment.

4.0 Guidelines

5.0 Procedure
Carbon dioxide should be from a compressed gas cylinder. The fish is placed into a container with an appropriate volume of water that will provide free movement of the fish to be anesthetized.
Water should then be saturated with carbon dioxide from a compressed gas cylinder (via the use of an air stone, with a moderate flow rate for ~5-10 minutes.
Fish should be monitored closely and removed when the appropriate stage of narcosis has been reached.
After the procedure/treatment has been completed, the fish should be placed into untreated water and recovery monitored, and normal behavior assured, prior to placing it back into a multiple fish housing arrangement.

6.0 Quality Control Checks and Acceptance Criteria
All procedures are subject to review by the Quality Assurance Unit.