OBJECTIVE
The objective of this Standard Operating Procedure is to describe a method of euthanasia for fish using Tricaine methane sulfonate (TMS, MS-222).

1.0 HEALTH AND SAFETY
All personnel will be enrolled in the Clemson University Medical Surveillance Program. Gloves must be worn when making and using this solution.

2.0 PERSONNEL/TRAINING/RESPONSIBILITIES
Personnel who perform euthanasia must have appropriate certification and/or training and experience with the techniques to be used, to assure that animal pain and distress are minimized during euthanasia. This training and experience should include familiarity with the normal behavior of the species being euthanized, how handling and restraint affects that behavior, and an understanding of the mechanism by which the selected technique induces unconsciousness and death. Prior to being assigned full responsibility for performing euthanasia, all personnel must have demonstrated proficiency in the use of the technique in a closely supervised environment.

3.0 GUIDELINES

4.0 PROCEDURE
A euthanasia solution is prepared by mixing 1.0 to 1.5g of TMS or MS-222 per liter of water, buffered to a pH of 7.0 to 7.5 with sodium bicarbonate (NaHCO₃).
The container should be of appropriate size for the species to assure free movement.
The fish is placed into the euthanasia solution and closely monitored.
The fish can be removed only after ten minutes have passed since its last observed opercular (respiration) movements have occurred.
Large fish may be removed from the water, the gill cover lifted, and a concentrated solution, flushed over the gills using a syringe or dropper.

This method of euthanasia for fish does not require a secondary procedure (i.e., pithing, decapitation).

5.0 QUALITY CONTROL CHECKS AND ACCEPTANCE CRITERIA
All procedures are subject to review by the Quality Assurance Unit.

6.0 LITERATURE CITED