Title: Euthanasia for Aquatic Species

I. Purpose:

The purpose of this policy is to establish minimum standards for euthanasia for aquatic species such as fish and frogs.

II. Policy:

All units providing animal care for aquatic species must meet or exceed these minimum requirements for euthanasia based on the *Guide for the Care and Use of Laboratory Animals and the AVMA (2013) Guideline on Euthanasia.*

III. Procedure:

Refer to the AVMA Guidelines on Euthanasia for approved euthanasia methods: https://www.avma.org/KB/Policies/Documents/euthanasia.pdf

The agents and methods of euthanasia appropriate for aquatics animals are available in the AVMA (2013) Guidelines for Euthanasia or subsequent revisions of that document. Euthanasia is the procedure of killing an animal rapidly, painlessly, and without distress.

Euthanasia must be carried out by trained personnel using acceptable techniques in accordance with applicable regulations, protocols, and policies. The method used should not interfere with postmortem evaluations. Proper euthanasia involves skilled personnel to help ensure that the technique is performed humanely and effectively and to minimize risk of injury to people. Personnel who perform euthanasia must have training and experience with the techniques to be used. The equipment and materials required to perform euthanasia should be readily available, and the office of the attending veterinarian or a qualified animal care specialist should ensure that all personnel performing euthanasia have demonstrated proficiency in the use of the techniques selected.

Euthanasia techniques should result in rapid unconsciousness followed by cardiac or respiratory arrest and the ultimate loss of brain function. In addition, the technique used should minimize any stress and anxiety experienced by the animal before unconsciousness (AVMA, 2013). For this reason, anesthetic agents are generally acceptable, and animals of most species can be quickly and humanely euthanized with the appropriate injection of an overdose of a barbiturate. Certain other methods may be
used for euthanasia of anesthetized animals because the major criterion (unconsciousness) has been fulfilled.

Agents that result in tissue residues cannot be used for euthanasia of animals intended for human or animal food unless those agents are approved by the FDA. The carcasses of aquatics euthanized by barbiturates may contain potentially harmful residues and should be disposed of in a manner that prevents them from being consumed by human beings or animals.

No matter what method of euthanasia is performed, personnel must ensure that death has occurred. Assurance of death may include ascertaining the absence of heartbeat and respiration, lack of corneal or other reflexes, and lack of physical movement. Personnel should be trained on how to assure death in animals.

2013AVMA Guidelines on Euthanasia

<table>
<thead>
<tr>
<th>Acceptable Methods</th>
<th>Conditional Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immersion in buffered benzocaine or benzocaine hydrochloride, isoflurane, sevoflurane, quinaldine sulfate, buffered tricaine methanesulfonate, 2-phenoxyethanol, injected pentobarbital, rapid chilling (appropriate zebrafish/research setting)</td>
<td>Eugenol, isoeugenol, clove oil, CO2-saturated water (aquarium-fish facilities/ fisheries), decapitation/cervical transection/manually applied blunt force trauma followed by pithing, rapid chilling followed by adjunctive method (aquarium-fish facilities), maceration (research setting)</td>
</tr>
</tbody>
</table>