



Curtin University Standard Operating Procedure

PROTOCOL FOR THE USE OF ICE SLURRIES AS A FORM OF EUTHANASIA FOR FISH

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Author: Dr Tara Pike, Rowan Kleindienst

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REVIEWER	Dr Tara Pike; Rowan Kleindienst				

Aims / Objectives: To provide a protocol for the use of Ice slurries as a method of euthanasia for fish at Curtin Aquatic Research Laboratories. It is not recommended for use unless the use of other forms of euthanasia (see previous SOP on euthanasia) are not suitable for an individual research project (for example, the fish cannot be contaminated with any chemicals) and the Curtin Animal Ethics Committee (AEC) approves its use.

Definitions:

Euthanasia: The act of inducing a death which is free of pain and distress.

Death: The irreversible cessation of brain function.

Humane Euthanasia: Euthanasia carried out in such a way as to induce a loss of consciousness prior to the loss of muscle control.

Ice Slurry: When a fishes body temperature is reduced to a level which induces a level of unconsciousness, leading to death. It has been used for many years in the fisheries industry; however the human nature of this method is a source of controversy. It can be used prior to a physical form of euthanasia such as iki jime.

Procedure:

1. The ice slurry should be set up in a container bigger enough to hold the required fish and to minimise the contact of the ice to the fish. The slurry should contain at least 50% ice. Crushed ice is preferable to blocks ice



2. The slurry should be at zero (0°) degrees Celsius for a fresh water slurry, and minus four (-4°) degrees Celsius for a salt water slurry. A thermometer should be used and the temperature constantly monitored, adding further ice as needed to keep the required temperature. The numbers of fish should be low enough to maintain the correct temperature.
3. Place fish into a plastic bag or similar to prevent fish from coming into direct contact with the ice.
4. Allow the fish to remain in the bath for 20 minutes, or for 10 minutes after respiratory movements have ceased.
5. Follow up with iki jime or cervical dislocation to ensure cessation of brain function if any uncertainty of death remains.

Special Considerations with Fish Euthanasia

It is worth noting that tropical species may be more susceptible to ice slurry euthanasia than temperate species.

Smaller fish are also more susceptible to ice baths.

References:

Barker, D., Allan, G.L., Rowland, S.J., Kennedy, J.D. and Pickles, J.M. (2015): A Guide to Acceptable Procedures and Practices for Aquaculture and Fisheries Research (4th Edition). Primary Industries (Fisheries) Animal Care and Ethics Committee, NSW Government.

NHMRC (2008) Guidelines to Promote the Wellbeing of Animals Used for Scientific Purposes. The Assessment and Alleviation of Pain and Distress in Research Animals.