

Algoma University Animal Care Committee	
#AU 0031 Transport of Fish to Algoma University	
Issue date: March 19, 2025	Last revised: March/2025

1) Purpose

This Standard Operating Procedure (SOP) describes procedures for the transport of fish to holding facilities at Algoma University by vehicle. This SOP was written specifically for the transport of fathead minnows (*Pimephales promelas*) from a breeding colony at Wilfrid Laurier University In Waterloo, ON, to Algoma University (approximately 8 hours of travel). That being said, this SOP can apply to the transport of any small warm-water fish species.

2) Policy

CCAC guidelines and regulations

- CCAC guidelines on: the care and use of fish in research, teaching and testing
- CCAC guidelines: Zebrafish and other small, warm-water laboratory fish

3) Responsibility

Principal investigator, their research staff, and their student investigators.

4) Training Required

Animal Research Ethics

Handling/training in the relevant species

Licence to collect fish for scientific purposes (if applicable)

SOP 0007 Anaesthesia or Euthanasia of Fish

SOP 0032 Fish Husbandry

5) Materials Required

Opaque, insulated container (e.g., a cooler)

Aeration equipment (aerators, airline, airstones, batteries if needed)

Dissolved Oxygen (DO) meter

Temperature probes

5 L sealed container with 250 mg/L MS-222 buffered to pH 7.0 with sodium bicarbonate (to be used according to SOP 0007 in the instance of injury to fish in transport)

6) Procedures

- 1) Prior to transport, ensure housing has been set up as per the Fish Husbandry SOP
- 2) Fill the transport container(s) with source water. The maximum density for small warm-water fish is 5 fish per L (as per CCAC guidelines: Zebrafish and other small, warm-water laboratory fish)
 - a) For example, if transporting 100 fish, 20 L of water is required
- 3) After fish are placed into the transport container, add aeration. Ideally 2 aerators should be used per transport container in case one fails.

- 4) Fill out the Transport log as found in Appendix A with the pertinent information.
 - 5) Fish should be monitored for temperature, dissolved oxygen (DO), and health during transport, which is recorded in the Transport log (see Appendix A). Monitoring should be done at the following timepoints:
 - a) Baseline - take measurements just before starting transport for a baseline measure
 - b) Initial - take measurements 45-60 minutes into transport to ensure conditions are acceptable and the aerators are working
 - c) Midpoint - take measurements halfway through transport (travel time from Wilfrid Laurier University to Algoma University is approximately 8 hours, midpoint would be hour 4-5)
 - d) Destination - take measurements when the containers are brought into the holding facility
- NOTE: While it may seem desirable to check on the fish and measure temperature and DO every 1-2 hours, every time the container is opened it will induce stress in the fish. Therefore, while it may be desirable to open the containers multiple times during transport to see how the fish are doing, it can do more harm than good.
- NOTE: A precipitous drop in temperature (> 2 oC per hour) or DO (below 6 mg/L) during transport should be remedied by adding a heater (for temperature) or additional aeration (for DO).
- 6) If during transport a fish shows significant signs of distress as per SOP 0007, euthanize it as per SOP 0007 Anaesthesia and Euthanasia of fish using MS-222. Signs of significant distress include not being able to right itself in the water column (i.e., swimming on their back) or showing signs of a significant injury (fin amputation, bleeding from gills, etc.).
 - 7) Upon arrival at Algoma University the containers will be transported to the holding facility
 - 8) The method for acclimating the fish to their new holding conditions is found in the Fish Husbandry SOP

7) References (if applicable)

REVISION HISTORY		
Revision #	Revision Date	Summary of Changes
1	March 18, 2025	Revision date 2028
2		
3		
4		

Appendix A: Transport log

Date: _____

AUP #: _____

Species: _____

Transporter: _____

Baseline measurements:

Temperature: _____

Dissolved oxygen (mg/L): _____

Comments on health of animals during check:

Initial measurements:

Temperature: _____

Dissolved oxygen (mg/L): _____

Comments on health of animals during check:

Mid-point measurements:

Temperature: _____

Dissolved oxygen (mg/L): _____

Comments on health of animals during check:

Destination measurements:

Temperature: _____

Dissolved oxygen (mg/L): _____

Comments on health of animals during check:

Were any animals euthanized during transport? If so, explain why below (being sure to include number of fish euthanized):