

TITLE: HACCP Plan for Dip-netting Mosquitofish

HACCP Step 1 – Activity Description

Activity Description	
Facility: The University of Texas at Arlington	Site: Fairfield Lake, Freestone County, TX
Project Coordinator: Robert F. McMahon	Activity: Catching wild mosquitofish (<i>Gambusia affinis</i>) by dip netting.
Site Manager: David K. Britton	
Address: UTA Box 19498 Arlington, Texas 76109	
Phone: (817) 272-5577	

Project Description i.e. Who; What; Where; When; How; Why
<p>Graduate students collect Western Mosquitofish (<i>Gambusia affinis</i>) for laboratory studies by collecting them in the field. Collection is by dip netting. Fish are collected and held in either 5-gallon buckets or in 48-quart coolers until they are brought back to the laboratory at the University of Texas at Arlington. Fish brought back to the lab are utilized for graduate research on the evolution of thermal tolerance in this species.</p>

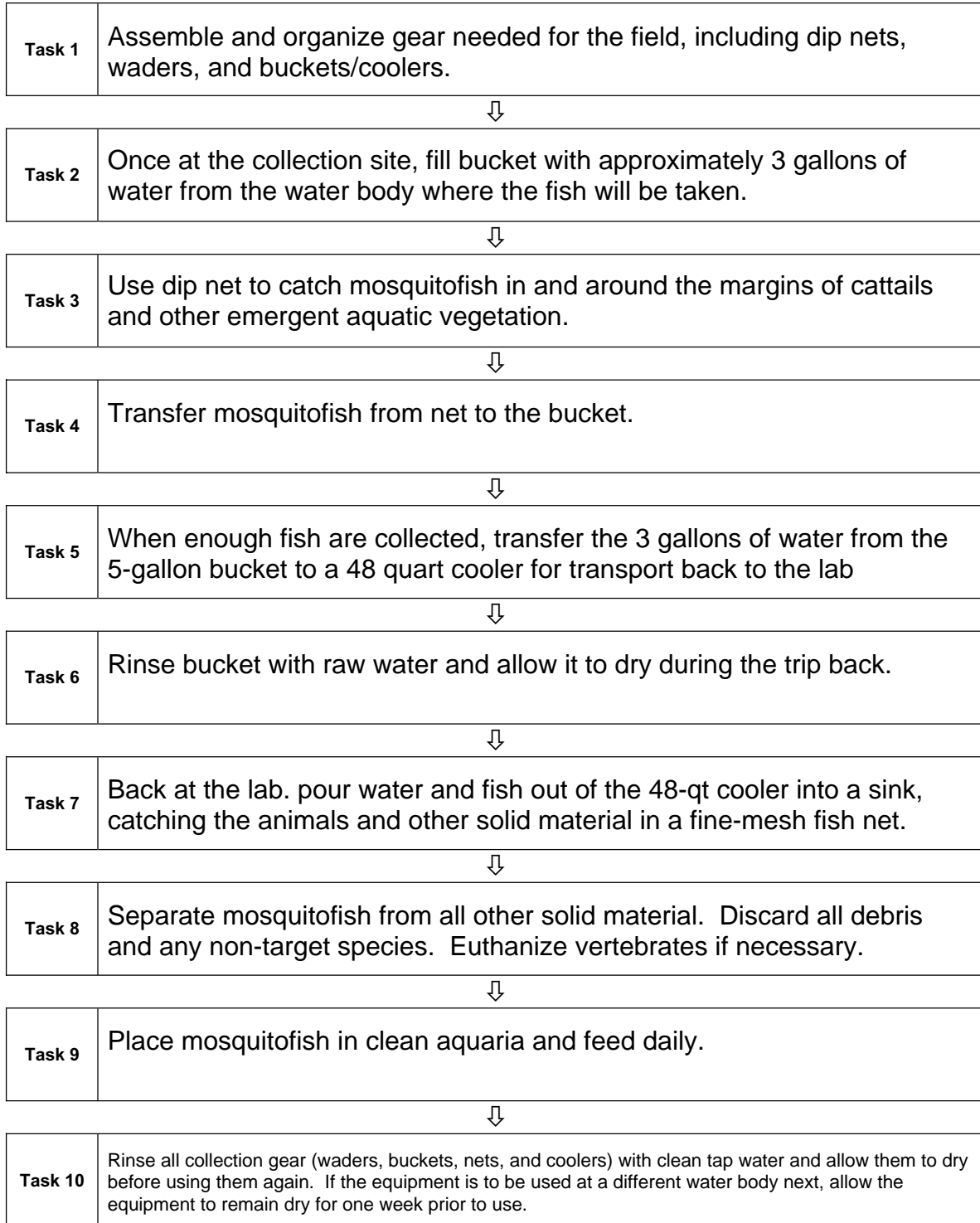
HACCP Step 2 – Identify Potential Hazards

(to be transferred to column 2 of HACCP Step 4 – Hazard Analysis Worksheet)

Hazards: Species Which May Potentially Be Moved/Introduced
Vertebrates: Tadpoles, Minnows, other small fish including fry.
Invertebrates: Snails, crustaceans, insect larvae, worms.
Plants: Hydrilla
Other Biologics (e.g. disease, pathogen, parasite):
Others (e.g. construction materials, etc.):

HACCP Step 3 – Flow Diagram

Flow Diagram Outlining Sequential Tasks to Complete Activity/Project
Described in HACCP Step 1 – Activity Description
(to be transferred to column 1 of the HACCP Step 4 – Hazard Analysis Worksheet)



HACCP Step 4 - Hazard Analysis Worksheet

1 Tasks (from HACCP Step 3 - Flow Diagram)	2 Potential hazards identified in HACCP Step 2	3 Are any potential hazards probable? (yes/no)	4 Justify evaluation for column 3	5 What control measures can be applied to prevent undesirable results?	6 Is this task a critical control point? (yes/no)
Task 1 Assemble and organize gear needed for the field, including dip nets, waders, and buckets/coolers.	Vertebrates none	no	dry gear is unlikely to spread aquatic nuisance species	inspect gear	<input type="checkbox"/>
	Invertebrates none	no	dry gear is unlikely to spread aquatic nuisance species	inspect gear	<input type="checkbox"/>
	Plants none	no	dry gear is unlikely to spread aquatic nuisance species	inspect gear	<input type="checkbox"/>
	Others none	no	dry gear is unlikely to spread aquatic nuisance species	inspect gear	<input type="checkbox"/>
Task 2 Once at the collection site, fill bucket with approximately 3 gallons of water from the water body where the fish will be taken.	Vertebrates tadpoles, small fish	yes	filling the bucket could inadvertently catch non-target organisms	dump bucket or remove any organism noticed	<input type="checkbox"/>
	Invertebrates snails, crustaceans, insect larvae	yes	filling the bucket could inadvertently catch non-target organisms	dump bucket or remove any organism noticed	<input type="checkbox"/>
	Plants hydrilla	yes	filling the bucket could inadvertently catch non-target organisms	remove any plant material	<input type="checkbox"/>
	Others none	no			

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Task 3 Use dip net to catch mosquitofish in and around the margins of cattails and other emergent aquatic vegetation.	Vertebrates tadpoles, small fish	yes	dip netting often produces non-targets	remove any non-targets from net if noticed	<input type="checkbox"/>
	Invertebrates snails, crustaceans, insect larvae	yes	dip netting often produces non-targets	remove any non-targets from net if noticed	<input type="checkbox"/>
	Plants hydrilla	yes	dip netting often produces non-targets	remove any non-targets from net if noticed	<input type="checkbox"/>
	Others none	no			<input type="checkbox"/>
Task 4 Transfer mosquitofish from net to the bucket.	Vertebrates none	no	transferring does not add anything new		<input type="checkbox"/>
	Invertebrates none	no	transferring does not add anything new		<input type="checkbox"/>
	Plants none	no	transferring does not add anything new		<input type="checkbox"/>
	Others none	no	transferring does not add anything new		<input type="checkbox"/>

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Task 5 When enough fish are collected, transfer the 3 gallons of water from the 5-gallon bucket to a 48 quart cooler for transport back to the lab	Vertebrates none	no	transferring does not add anything new		<input type="checkbox"/>
	Invertebrates none	no	transferring does not add anything new		<input type="checkbox"/>
	Plants none	no	transferring does not add anything new		<input type="checkbox"/>
	Others none	no	transferring does not add anything new		<input type="checkbox"/>
Task 6 Rinse bucket with raw water and allow it to dry during the trip back.	Vertebrates				<input type="checkbox"/>
	Invertebrates snails	yes	snails often cling to the sides of the bucket	clean bucket thoroughly and remove any snails	<input type="checkbox"/>
	Plants				<input type="checkbox"/>
	Others				<input type="checkbox"/>

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Task 7 Back at the lab. pour water and fish out of the 48- qt cooler into a sink, catching the animals and other solid material in a fine-mesh fish net.	Vertebrates none Invertebrates none Plants none Others none	no no no no	transferring does not add anything new transferring does not add anything new transferring does not add anything new transferring does not add anything new		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Task 8 Separate mosquitofish from all other solid material. Discard all debris and any non-target species. Euthanize vertebrates if necessary.	Vertebrates tadpoles, small fish Invertebrates snails, crustaceans, worms, insect larvae Plants hydrilla Others	yes yes	small fish may be mistaken for mosquitofish snails in particular may transfer to other lab equipment	examine fish closely and remove any non-targets separate mosquitofish in the sink only, rinse all equipment thoroughly	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

HACCP Step 4 - Hazard Analysis Worksheet

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Task 9 Place mosquitofish in clean aquaria and feed daily.	Vertebrates none Invertebrates none Plants none Others none				<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Task 10 Rinse all collection gear (waders, buckets, nets, and coolers) with clean tap water and allow them to dry before using them again. If the equipment is to be used at a different water body next, allow the equipment to remain dry for one week prior to use.	Vertebrates fish, tadpoles Invertebrates snails, crustaceans, insect larvae, worms Plants hydrilla Others	yes yes yes	live organisms may adhere to gear live organisms may adhere to gear live organisms may adhere to gear	drying gear will kill aquatic organisms drying gear will kill aquatic organisms drying gear will kill aquatic organisms	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>

HACCP Step 5 – HACCP Plan Form

HACCP Plan Form (all CCP's or "yes's" from column 6 of HACCP Step 4 – Hazard Analysis Worksheet)								
Critical Control Point (CCP)	Significant Hazard(s)	Limits for each Control Measure	Monitoring			Evaluation & Corrective	Action(s) (if needed)	Supporting Documentation (if any)
			What	How	Who			
Task 8	small fish and snails	zero tolerance	all non-targets	individual examination	researcher	every time	discard all non-targets	none
Task 10	fish, tadpoles, snails, insects, crustaceans	zero tolerance	all non-targets	individual examination	researcher	every time	discard all non-targets	none

Facility:	The University of Texas at Arlington
Address:	UTA Box 19498 Arlington, Texas 76109
Signature:	
Activity:	Catching wild mosquitofish (<i>Gambusia affinis</i>) by dip netting.
Date:	