

HACCP (Hazard Analysis and Critical Control Point) Plan

Collection - Texas wild rice *Zizania texana*

Modified on 6-Feb-04

1. Product Description
2. Flow Diagram
3. Potential Hazards
4. Hazard Analysis Worksheet
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1. Product Description

Firm Name:	San Marcos National Fish Hatchery and Technology Center
Firm Address:	500 East McCarty Lane San Marcos, Texas 78666
Species:	Collection - Texas wild rice (<i>Zizania texana</i>)
Cultured, wild-harvested, or both:	wild-harvested
Harvest method:	cut asexual clone (tiller) with well developed root system from parent plant
Method of storage:	flow-through units supplied with water directly from the Edward's Aquifer
Intended use and consumer:	as refugium in the event there is a catastrophic loss of the wild population

2. Flow Diagram

Step 1	Texas wild rice is collected as needed from the San Marcos River in conjunction with personnel familiar with TPWD naming system. Individual tillers with well developed root systems are cut from the parent plant and carefully inspected for attached snails and any other species present (esp. the protected fountain darter and San Marcos salamander). All visible hitchhikers are removed.
Step 2	Texas wild rice is transported in an ice chest filled with river water to the greenhouse at NFHTC where it is dipped in Roccal (50% AI) solution (6ml/L), then placed by hand into a flow-through quarantine tank
Step 3	quarantine tank is checked every 3 days for presence of other species (e.g. snails, fish, salamanders, crayfish, bladderwort) which are removed
Step 4	after 4 weeks of quarantine, Texas wild rice is ready for potting and placement in flow-through tanks in the greenhouse
Step 5	
Step 6	

3. Potential Aquatic Nuisance Species (ANS) Hazards

List aquatic species here that are found in hatchery water supply or local waters that could potentially hitchhike to receiving waters and cause ecological harm.

Vertebrates armored catfishes, mosquitofish, various aquarium-trade fishes, tadpoles, fountain darters

Invertebrates *Melanoides tuberculata*, *Thiara granifera*, crayfish, various parasites

Plants *Hydrilla verticellata*, *Hygrophila polysperma*, *Cryptocoryne beckettii*

4. Hazard Analysis Worksheet

(1) Harvest or Aquaculture Step	(2) Identify potential ANS hazards introduced or controlled		(3) Are any hazards significant?	(4) Justify your decisions for column 3	(5) What control measures can be applied to prevent the hazards?	(6) Is this step a critical control point?
Texas wild rice is collected as needed from the San Marcos River in conjunction with personnel familiar with TPWD naming system. Individual tillers with well developed root systems are cut from the parent plant and carefully inspected for attached	vertebrates	armored catfishes, mosquitofish, various aquarium-trade fishes, tadpoles, fountain	yes	ANS are present in the San Marcos River	manually remove ANS from collection at site	yes
	invertebrates	Melanoides tuberculata, Thiara granifera, crayfish, various parasites	yes	ANS are present in the San Marcos River	manually remove ANS from collection at site	yes
	plants	Hydrilla verticellata, Hygrophila polysperma, Cryptocoryne beckettii	yes	ANS are present in the San Marcos River	manually remove ANS from collection at site	yes
Texas wild rice is transported in an ice chest filled with river water to the greenhouse at NFHTC where it is dipped in Roccal (50% AI) solution (6ml/L), then placed by hand into a flow-through quarantine tank	vertebrates	armored catfishes, mosquitofish, various aquarium-trade fishes, tadpoles, fountain	yes	young could be overlooked during sorting	disinfected before quarantined	yes
	invertebrates	Melanoides tuberculata, Thiara granifera, crayfish, various parasites	yes	small organisms could be overlooked during sorting	disinfected before quarantined	yes
	plants	Hydrilla verticellata, Hygrophila polysperma, Cryptocoryne beckettii	yes	small plants/sections could be overlooked during sorting	disinfected before quarantined	yes
quarantine tank is checked every 3 days for presence of other species (e.g. snails, fish, salamanders, crayfish, bladderwort) which are removed	vertebrates	armored catfishes, mosquitofish, various aquarium-trade fishes, tadpoles, fountain	no	young should be killed by disinfection	ANS becomes more noticeable as develop and are removed during quarantine process	no
	invertebrates	Melanoides tuberculata, Thiara granifera, crayfish, various parasites	yes	some organisms could survive disinfection	ANS becomes more noticeable as develop and are removed during quarantine process	yes
	plants	Hydrilla verticellata, Hygrophila polysperma, Cryptocoryne beckettii	yes	some organisms could survive disinfection	ANS becomes more noticeable as develop and are removed during quarantine process	yes

4. Hazard Analysis Worksheet

(1) Harvest or Aquaculture Step	(2) Identify potential ANS hazards introduced or controlled		(3) Are any hazards significant?	(4) Justify your decisions for column 3	(5) What control measures can be applied to prevent the hazards?	(6) Is this step a critical control point?
after 4 weeks of quarantine, Texas wild rice is ready for potting and placement in flow-through tanks in the greenhouse	vertebrates	armored catfishes, mosquitofish, various aquarium-trade fishes, tadpoles, fountain	no	Control of ANS hazard completed	Not needed	no
	invertebrates	Melanoides tuberculata, Thiara granifera, crayfish, various parasites	no	Control of ANS hazard completed	Not needed	no
	plants	Hydrilla verticellata, Hygrophila polysperma, Cryptocoryne beckettii	no	Control of ANS hazard completed	Not needed	no
	vertebrates					
	invertebrates					
	plants					
	vertebrates					
	invertebrates					
	plants					

