

Trout HACCP Plan

HACCP Step 1 – Activity Description

Activity Description	
Facility: Dale Hollow National Fish Hatchery	Site: Dale Hollow National Fish Hatchery
Project Coordinator: Rick Nehrling	Activity: Coldwater Fish Production and Distribution - Dale Hollow National Fish Hatchery
Site Manager: Andrew L. Currie	
Address: 145 Fish Hatchery Road Celina, TN 38551-6268	
Phone: (931) 243-2443	

Project Description i.e. Who; What; Where; When; How; Why
<p>Dale Hollow National Fish Hatchery receives disease free, genetically distinct, eyed trout eggs from state and federal hatcheries participating in the National Broodstock Program. Fish derived from these eggs are used primarily to mitigate for the impacts of U.S. Army Corps of Engineers and Tennessee Valley Authority dams in Tennessee and Georgia. Although the fish production program at Dale Hollow National Fish Hatchery focuses on mitigation, a limited number of trout are produced for other purposes. Fish are provided to Tennessee to enhance recreational fishing opportunities on non-federal lands. Fish are also provided to Alabama in return for Gulf Coast striped bass which are supplied to Service hatcheries in support of ongoing efforts to restore depleted stocks of Gulf Coast striped bass. Surplus trout are occasionally provided to the Eastern Band of Cherokee Indians to enhance recreational fishing opportunities on Tribal lands. Approximately 58% (by weight) of the fish distributed annually are hauled by Tennessee Wildlife Resources Agency trucks and personnel and 42% (by weight) of the fish distributed annually are hauled by Service trucks and personnel. Approximately 1.9 million rainbow, brown, lake and brook trout, are produced annually for distribution in the Southeast.</p>

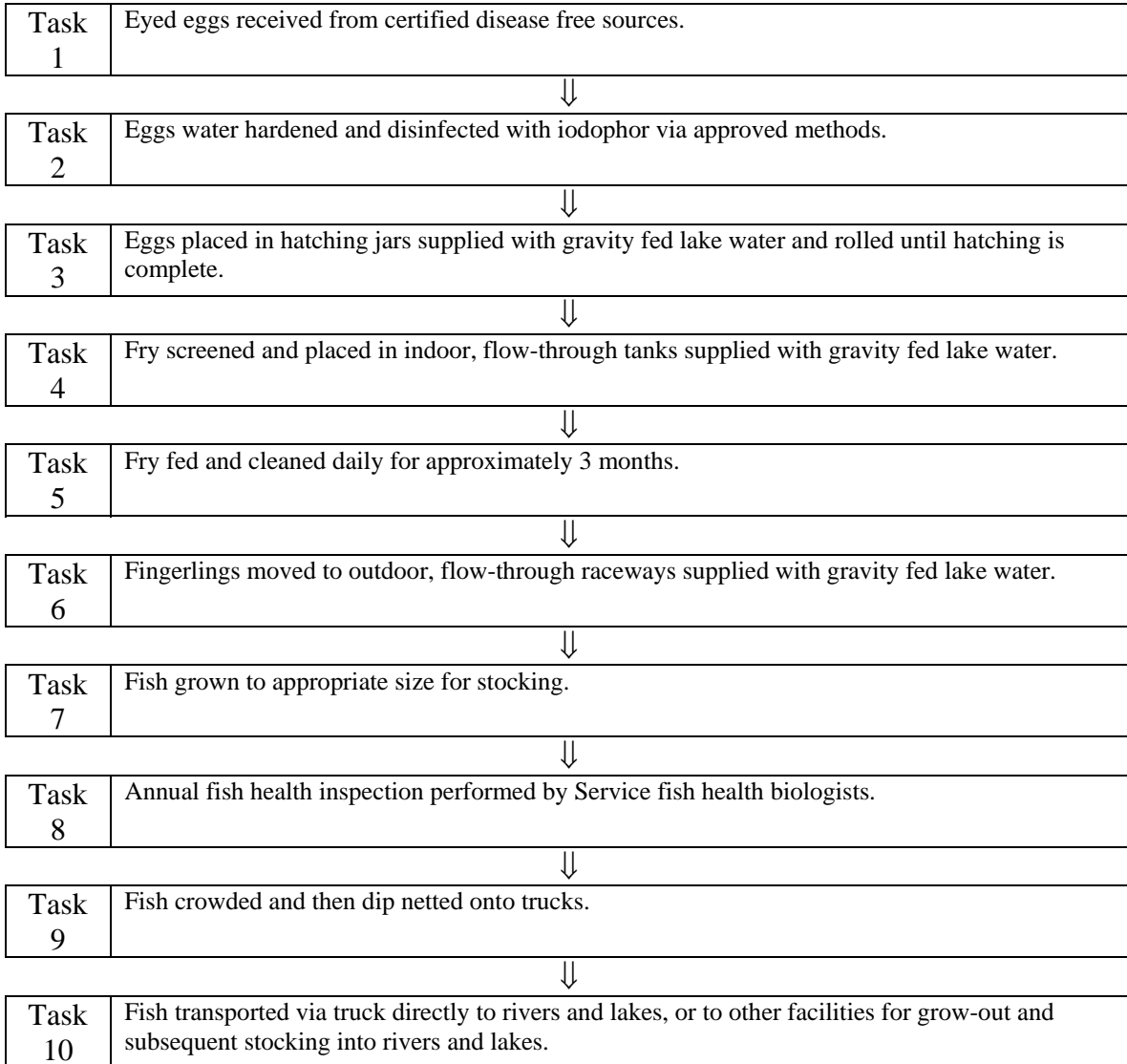
HACCP Step 2 – Identify Potential Hazards

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

Hazards: Species Which May Potentially Be Moved/Introduced
Vertebrates: Common carp (<i>Cyprinus carpio</i>)
Invertebrates: Zebra mussel (<i>Dreissena polymorpha</i>) Freshwater snail (<i>Gastropoda</i> spp.) Asian clam (<i>Corbicula fluminea</i>) New Zealand mud snail (<i>Polamopyrgus antipodarum</i>)
Plants: Eurasian watermilfoil (<i>Myriophyllum spicatum</i>) Hydrilla (<i>Hydrilla verticillata</i>)
Other Biologics (e.g. disease, pathogen, parasite): Fish pathogens commonly found in the Tennessee and Cumberland River Basins and reportable salmonid pathogens (i.e., Infectious Pancreatic Necrosis, Furunculosis, Enteric Redmouth Disease, Bacterial Kidney Disease)
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



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 Eyed eggs received from certified disease free sources.	<u>Vertebrates</u> None	No	Vertebrate ANS could not survive the chemical treatment regimes that the eggs receive prior to shipment.	NA	No
	<u>Invertebrates</u> None	No	Invertebrate ANS could not survive the chemical treatment regimes that the eggs receive prior to shipment.	NA	No
	<u>Plants</u> No	No	Plant ANS could not survive the chemical treatment regimes that the eggs receive prior to shipment.	NA	No
	<u>Others</u> Fish pathogens	Yes	Fish pathogens could be brought in with the egg shipment.	Control measure not practical until Task 2.	No

Task 2 Eggs water hardened and disinfected with iodophor via approved methods.	<u>Vertebrates</u> None	No	Vertebrate ANS entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No
	<u>Invertebrates</u> None	No	Invertebrate ANS entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No
	<u>Plants</u> None	No	Plant ANS entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No
	<u>Others</u> Fish pathogens	Yes	Fish pathogens could be contained in the egg shipment and enter the immediate drainage.	Disinfection of the eggs with iodophor and proper disposal of shipping containers reduces the risk of fish pathogens being introduced to the immediate drainage.	Yes

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 3 Eggs placed in hatching jars supplied with gravity fed lake water and rolled until hatching is complete.	<u>Vertebrates</u> None	No	Vertebrate ANS entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No
	<u>Invertebrates</u> None	No	Invertebrate ANS entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No
	<u>Plants</u> None	No	Plant ANS entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No
	<u>Others</u> None	No	Fish pathogens entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No

Task 4 Fry screened and placed in indoor, flow-through tanks supplied with gravity fed lake water.	<u>Vertebrates</u> None	No	Vertebrate ANS entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No
	<u>Invertebrates</u> None	No	Invertebrate ANS entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No
	<u>Plants</u> None	No	Plant ANS entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No
	<u>Others</u> None	No	Fish pathogens entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No

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 5 Fry fed and cleaned daily for approximately 3 months.	<u>Vertebrates</u> None	No	Vertebrate ANS entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No
	<u>Invertebrates</u> None	No	Invertebrate ANS entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No
	<u>Plants</u> None	No	Plant ANS entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No
	<u>Others</u> None	No	Fish pathogens entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No

Task 6 Fingerlings moved to outdoor, flow-through raceways supplied with gravity fed lake water.	<u>Vertebrates</u> None	No	Vertebrate ANS entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No
	<u>Invertebrates</u> None	No	Invertebrate ANS entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No
	<u>Plants</u> None	No	Plant ANS entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No
	<u>Others</u> None	No	Fish pathogens entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No

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 7 Fish grown to appropriate size for stocking.	<u>Vertebrates</u> None	No	Vertebrate ANS entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No
	<u>Invertebrates</u> None	No	Invertebrate ANS entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No
	<u>Plants</u> None	No	Plant ANS entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No
	<u>Others</u> None	No	Fish pathogens entering the hatchery from the water supply source are present in the immediate drainage.	Control not practical at this stage.	No

Task 8 Annual fish health inspection performed by Service fish health biologists.	<u>Vertebrates</u> None	No	Annual fish health inspection does not target vertebrate ANS.	NA	No
	<u>Invertebrates</u> None	No	Annual fish health inspection does not target invertebrate ANS.	NA	No
	<u>Plants</u> None	No	Annual fish health inspection does not target plant ANS.	NA	No
	<u>Others</u> Fish pathogens	Yes	Pathogens of concern can be introduced into the wild if the fish are not properly inspected.	If pathogens of concern are detected that are not present at the various stocking sites and pose a risk to wild fish, the cultured fish will not be released.	Yes

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 9 Fish crowded and then dip netted onto trucks.	<u>Vertebrates</u> None	No	Small vertebrate ANS consumed by the trout and large vertebrate ANS retained by raceway headscreen or killed by truck fill pump.	NA	No
	<u>Invertebrates</u> Zebra mussel, freshwater snail, Asian clam, New Zealand mud snail	Yes	Invertebrate ANS could be transported from the hatchery to the stocking site.	Place a mesh bag over the truck fill pipe. Clean mesh bag and disinfect with 200 mg/L chlorine on a regular basis.	Yes
	<u>Plants</u> Eurasian watermilfoil, Hydrilla	Yes	Plant ANS could be transported from the hatchery to the stocking site.	Place a mesh bag over the truck fill pipe. Clean mesh bag and disinfect with 200 mg/L chlorine on a regular basis.	Yes
	<u>Others</u> Fish pathogens	Yes	Fish pathogens could be brought into the hatchery on contaminated distribution trucks.	Disinfect suspect distribution trucks with 200 mg/L chlorine or 600 mg/L quaternary ammonium prior to entering the fish production area.	Yes

Task 10 Fish transported via truck directly to rivers and lakes, or to other facilities for grow-out and subsequent stocking into rivers and lakes.	<u>Vertebrates</u> None	No	Vertebrate ANS generally too large to adhere to truck surfaces and unable to survive out of water.	NA	No
	<u>Invertebrates</u> Zebra mussel, freshwater snail, Asian clam, New Zealand mud snail	Yes	Invertebrate ANS could be brought into the hatchery on contaminated distribution trucks.	Avoid contact between truck and water at stocking site. Disinfect suspect trucks after distribution trip.	Yes
	<u>Plants</u> Eurasian watermilfoil, Hydrilla	Yes	Plant ANS could be brought into the hatchery on contaminated distribution trucks.	Avoid contact between truck and water at stocking site. Disinfect suspect trucks after distribution trip.	Yes
	<u>Others</u> Fish pathogens	Yes	Fish pathogens could be brought into the hatchery on contaminated distribution trucks.	Avoid contact between truck and water at stocking site. Disinfect suspect trucks after distribution trip.	Yes

HACCP Step 5 – HACCP Plan Form

Significant Hazard(s)	Limits for each Control Measure	Monitoring				Evaluation & Corrective Action(s) (if needed)	Supporting Documentation (if any)
		What	How	Frequency	Who		
(2) Unintentional spread of pathogens of concern into the hatchery and into the wild or other culture facilities.	Adequate contact between ANS and iodophor required for effective disinfection. Only ANS on outside of egg removed. Possibility exists of pathogens of concern contained inside the egg surviving the disinfection process.	Disinfection protocol.	Monitor disinfection process.	Whenever eggs are water hardened and disinfected.	Hatchery personnel taking part in egg water hardening and disinfecting activities.	Hatchery site supervisor responsible for following protocol.	Records in chemical use log book.
(8) Unintentional spread of pathogens of concern into the wild or other culture facilities.	A very small possibility of not detecting existing pathogens of concern during the fish health inspection does exist.	Presence of pathogens of concern.	Visual and microscopic inspection.	During the annual fish health inspection.	Warm Springs Fish Health Center, GA	Presence of pathogens of concern that are not present at the stocking site(s) would preclude shipping fish from the hatchery to the wild or to other culture facilities.	Fish Health Inspection Report
(9) Unintentional spread of invertebrate and plant ANS and pathogens of concern into the wild or other culture facilities.	Adequate contact between ANS and chlorine/quaternary ammonium required for effective disinfection of equipment and trucks. Defect or tear in the mesh bag could allow passage of ANS into truck during filing activities.	Disinfection protocol and condition of mesh bag.	Monitor disinfection process and visually inspect condition of mesh bag.	Prior to filling distribution truck with water.	Hatchery personnel taking part in fish distribution activities.	Hatchery site supervisor responsible for following protocol(s).	Records in daily log book. Records in chemical use log book.
(10) Unintentional spread of invertebrate and plant ANS and pathogens of concern from the wild or from other culture facilities back into the hatchery.	Adequate contact between ANS and chlorine/quaternary ammonium required for effective disinfection of equipment and trucks.	Disinfection protocol.	Monitor disinfection process.	Whenever a truck returns to the hatchery from a fish distribution trip.	Hatchery personnel taking part in fish distribution activities.	Hatchery site supervisor responsible for following protocol.	Records in chemical use log book.

Facility:	Dale Hollow National Fish Hatchery	Activity:	Coldwater Fish Production and Distribution - Dale Hollow National Fish Hatchery
Address:	145 Fish Hatchery Road Celina, TN 38551		
Signature:		Date:	
HACCP Plan was followed.			