

HACCP Step 1 – Spring Netting and Warmwater Culture Activities

Activity Description	
<b>Facility: Genoa National Fish Hatchery</b>	<b>Site: Upper Mississippi River</b>
<b>Project Coordinator: Roger Gordon</b>	<b>Activity: Cool and warm water fish production at the Genoa NFH</b>
<b>Site Manager: Doug Aloisi</b>	
<b>Address: S 5689 State Hwy 35 Genoa, WI 54632</b>	
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Project Description <b>i.e. Who; What; Where; When; How; Why</b>
<p>Genoa National Fish Hatchery staff collect 10-20 million eggs from sportfish captured in hoop nets and fyke nets set on the Upper Mississippi River each spring. Eggs and fish from these collection efforts are used for state sport fish restoration efforts throughout the Midwest, filling fisheries management requests from National Wildlife Refuges and tribal conservation agencies, and to support freshwater mussel conservation efforts. Approximately 40 4 foot hoop nets are set between March and April, and 10 4 foot fyke nets, with the purpose of capturing northern pike and walleye for egg/fry production. Other species of fish, i.e. largemouth bass, bluegill, yellow perch, crappie, also may be retained for captive broodstock. Fish are also supplied to various research agencies and Fish Health Centers to be analyzed for the prevalence of diseases in the wild. Fry are then stocked into rearing ponds for further growout at the station, and stocked into receiving waters in the summer/fall.</p>

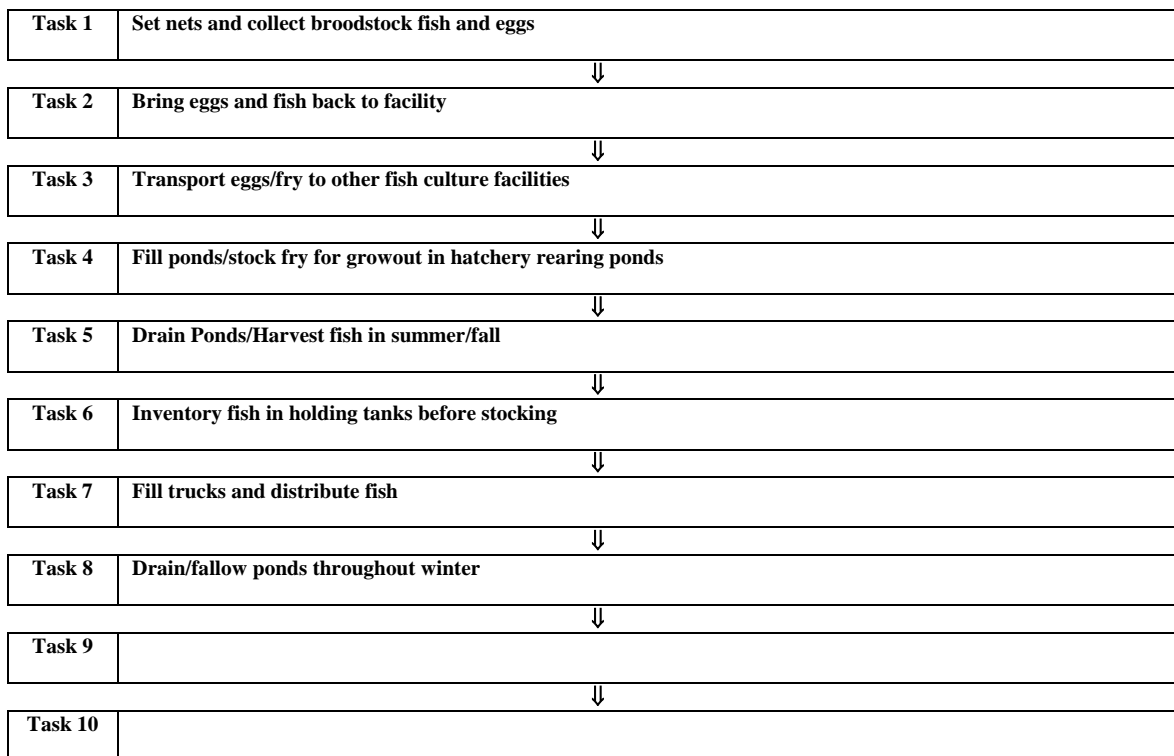
HACCP Step 2 – Identify Potential Hazards

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

Hazards: Species Which May Potentially Be Moved/Introduced
<p><b>Vertebrates:</b> green sunfish <i>Lepomis cyanellus</i>                      Brook stickleback <i>Culaea inconstans</i>                      Black bullhead <i>Ameiurus melas</i>                      Green frog <i><b>Rana clamitans</b></i>                      Leopard frog <i><b>Rana pipiens</b></i>                      Bullfrog <i>Rana catesbeiana</i></p>
<p><b>Invertebrates:</b> Zebra mussel <i>Dreissena polymorpha</i>                      Freshwater snail <i>Gastropoda</i> spp.                      Asian clam <i>Corbicula</i> spp.                      Rusty crayfish <i>Orconectes rusticus</i></p>
<p><b>Plants:</b> Eurasian watermilfoil <i>Myriophyllum spicatum</i></p>
<p><b>Other Biologics (e.g. disease, pathogen, parasite):</b>                      Largemouth Bass Virus                      Spring Viremia of Carp                      Bluegill Virus                      Infectious Pancreatic Necrosis                      Furunculosis <i>Aeromonas salmonicida</i>                      Enteric Redmouth Disease <i>Yersinia ruckeri</i>                      Bacterial Kidney Disease <i>Renibacterium salmoninarum</i>                      Other Assorted parasites/pathogens commonly found in the upper Mississippi River Basin</p>
<p><b>Others (e.g. construction materials, etc.):</b></p>

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)
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Task 1  Set nets and collect broodstock	Vertebrates	yes	Fish of all species enter net, must be sorted to eliminate undesirable species.	All fish sorted and inspected	yes
	Invertebrates	yes	Boat comes in contact with water inhabited by zebra mussels and corbicula	Boat and nets quarantined from culture facilities until netting season is over, steam-cleaned to destroy mussel veligers. River operations conclude before water temp exceeds 55 degrees F	yes
	Plants	yes	Possibility exists of plant material immigrating to hatchery.	Any plant material is removed and isolated from fish before transporting to facility	yes
	Others	yes	Fish diseases inherent in the wild populations of fish in the basin.	Fish inspected for disease and quarantined until disease clearance occurs. No river water brought back on eggs, eggs disinfected before put down at hatchery	yes

Task 2  Transport eggs/fish back to facility	Vertebrates	no	Unwanted species already removed in step 1	n/a	no
	Invertebrates	yes		Boat and equipment will be quarantined from culture facilities	yes

	<b>Plants</b>	yes	<b>Plant material may be transported with boat/equipment</b>	<b>Ensure that no plant materials are inadvertently added to culture facility.</b>	yes
	<b>Others</b>	yes	<b>Diseases may be brought in with transported eggs/fish</b>	<b>Fish will be quarantined on separate water supply until disease sampling is completed/eggs will be disinfected with iodophor. River water will not be used to transport eggs to station.</b>	yes

Hazard Analysis Worksheet (continued)

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 Transport eggs/fry to other fish culture facilities	Vertebrates	no	Nuisance species already removed in 1,2	n/a	no
	Invertebrates	no	“ fish culture water is from groundwater sources	n/a	no
	Plants	no	“	n/a	no
	Others	no	Possibility of carrier fish being transferred to other facilities	No river water will come in contact with eggs, iodophor disinfection will be used.	no
Task # 4 Fill ponds/stock fry for growout in rearing ponds	Vertebrates	yes	Nuisance species of fish may be inadvertently added to pond through filling	Ponds will be filled with groundwater filtered with a mesh sock to avoid contamination	yes
	Invertebrates	no			
	Plants	no			
	Others	yes			

Hazard Analysis Worksheet (continued)

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)
<b>Task # 5</b>  <b>Pond culture</b> <b>Drain ponds/harvest fish in</b> <b>summer/fall</b>	Vertebrates	yes	ANS can be harvested that have been inadvertently introduced to the pond through contaminated bait stockings/immigrations	Use only clean sources of bait to reduced unwanted species	yes
	Invertebrates	yes	Snails inherent in pond system can be transferred with fish during harvest	Reduce transfer of snails through careful harvesting	yes
	Plants	no	n/a	Milfoil not currently on hatchery grounds	no
	Others	no	n/a	No disease prevention/control measures available at this point	no
<b>Task # 6</b> <b>Inventory fish in holding</b> <b>tanks before stocking</b>	Vertebrates	yes	ANS can be harvested that have been inadvertently introduced to the pond through contaminated bait stockings/immigrations	Sort fish carefully during inventory process to reduce amount of undesirables in fish population.	yes
	Invertebrates	yes	ANS can be harvested that have been inadvertently introduced to the pond through contaminated bait stockings/immigrations	Sort fish carefully during inventory process to reduce amount of undesirables in fish population.	yes
	Plants	yes	ANS can be harvested that have been inadvertently introduced to the pond through contaminated bait stockings/immigration	Sort fish carefully during inventory process to reduce amount of undesirables in fish population.	yes
	Others	yes	Harvested fish may carry pathogens	Test segment of fish population for disease before stocking	yes

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Task # 7  Fill trucks and distribute fish	Vertebrates	no	Control point already listed in 5,6	n/a	no
	Invertebrates	no	n/a	n/a	no
	Plants	no	n/a	n/a	no
	Others	yes	Truckwater and equipment vector for diseases	Groundwater used for truckfilling, disinfection between trips and fish populations required	yes

Task # 8  Drain/fallow ponds for winter	Vertebrates	yes	no	Judicious use of piscicide, drying and freezing to eliminate unwanted vertebrates	yes
	Invertebrates	yes	no	Use freezing and drying during winter to eliminate unwanted species	yes
	Plants	yes	no	Use freezing and drying during winter to eliminate unwanted species	yes
	Others	yes	no	Use freezing and drying during winter to eliminate unwanted pathogens	yes

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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	Frequency	Who		
Set nets and collect broodstock	All	Stress on fish, time constraints	Eliminate undesirables	By hand, at capture	Every net	Staff	Supervisor on boat responsible for careful attention to detail	Records in daily capture log book
Transport eggs/fish to facility	Inv., plants, other		Reduce pathogens	Quarantine and disinfection	Transport	Staff	Production supervisor	
Fill ponds	All	Labor/area to rear own bait	Reduce initial contamination	Filtering	At pondfilling	Staff	Production Supervisor	
Pond culture/drain	All		Use clean sources of bait for forage	Rear uncontaminated bait	During season	Staff	Production Supervisor	
Inventory fish in holding tanks	All	Stress on harvested fish	Sort out ANS	Increase water flow	2x during holding	Staff	Production supervisor	
Fill trucks and distribute fish	Other	Time constraints	Reduce pathogen spread	Disinfecting trucks and equipment	Between populations	Staff	Production supervisor	
Drain/fallow ponds	All	Ponds fill with groundwater seeps	Eliminate ANS	Piscicide, drying and freezing	Between yearclasses	Staff	Production Supervisor	
					Activity:			
Address:								
Signature:					Date:			
HACCP Plan was followed.								