Lahontan National Fish Hatchery Complex

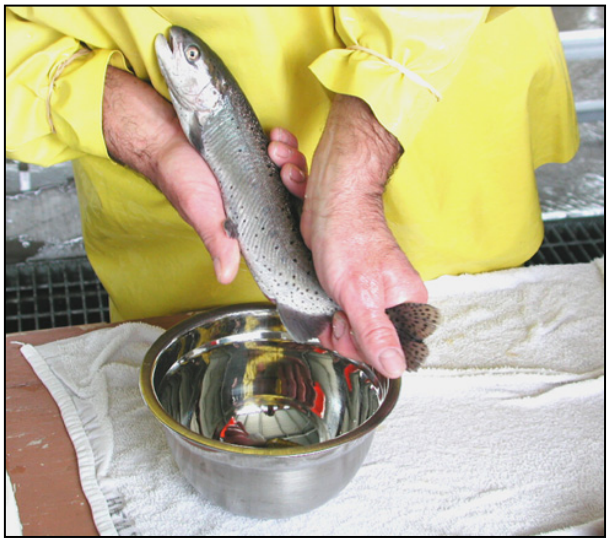
Nevada Fisheries Resource Office, Lahontan National Fish Hatchery & Marble Bluff Fish Passage Facility

U.S. Fish and Wildlife Service; Lahontan National Fish Hatchery

Hazard Analysis Critical Control Point (HACCP) Plan for Stocking Lahontan Cutthroat Trout (*Oncorhynchus clarki henshawi*) into Walker Lake, Nevada

December, 2005

(Also available on the internet at: http://haccp-nrm.org/plans.asp)



Activity Description

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Facility: Lahontan National Fish Hatchery Complex (**LNFHC**)	Site: LNF Hatchery
Project Leader: Lisa Heki	Activity/Management Objective: Stocking Walker Lake with Lahontan Cutthroat Trout (*Oncorhynchus clarki henshawi*, **LCT**) free of non-targets.
Hatchery Supervisor: John Bigelow	
Address: 710 Highway 395 Gardnerville, NV 89410	
Phone: (775) 265-2425	

Project Description i.e. Who; What; Where; When; How; Why
• Who: LNF Hatchery staff (lead); Pyramid Lake staff, Reno FWS staff, Nevada Department of Wildlife staff (assist). • What: Transferring, acclimating, transporting and stocking LCT. • Where: Hatchery (transfer), Pyramid Lake/Sutcliffe (acclimate), Walker Lake (distribute/stock). • When: Spring (depends on tagging, water year, etc.) • How: 6" reared LCT already present at LNFH. Use fish pump to load LCT into truck, previously filled with well water at the hatchery. Drive truck to Sutcliffe, release fish into Sutcliffe holding facilities via gravity release. Acclimated at Sutcliffe for 2-7 days. Transport truck is filled with Pyramid Lake water. Fish are loaded into truck via dip nets. Drive truck to Walker Lake and release fish (13,000 - 20,000) via gravity at Walker Lake shoreline. Truck sometimes can be used to transport one group of fish to Sutcliffe and acclimated fish to Walker Lake on the same day. Drive truck back to hatchery after moving fish. • Why: Maintaining a recreational fishery and assisting in recovery of ESA listed fish (LCT).

Identified Potential Hazards

Hazards: Species or Contaminants Which May Potentially Be Moved/Introduced
Vertebrates: -Fish (cui-ui [*Chasmistes cujus*], grass carp [ex. *Ctenopharyngodon idella*], goldfish [*Carassius auratus*], western mosquito fish [*Gambusia affins*], etc.) -Amphibians (ex. Bullfrogs [*Rana catesbeiana*])
Invertebrates: -Asian clam (*Corbicula fluminea*), -New Zealand mudsnail (*Potamopyrgus antipodarum*), other non-native snail -Zebra mussel (*Dreissena polymorpha*) -Insects
Plants: -Aquatics: Eurasian watermilfoil (*Myriophyllum spicatum*), Brazilian waterweed (*Egeria densa*), filamentous Algae [MAYBE] -Water hyacinth (*Eichhornia crassipes*), Ludwigia/Uraguayan primrose (*Ludwigia grandiflora*) - Terrestrial/riparian: white top (*Lepidium latifolium*), Canada thistle (*Cirsium arvense*), purple loosestrife (*Lythrum salicaria*), Salt cedar (*Tamarix sp*.) [MAYBE]: Giant Arundo (*Arundo donax*), Scarlet wisteria (*Sesbania punicea*)
Other Biologics (e.g. genetics, disease, pathogen, parasite, or non-pathogens): -Fish pathogens (ex. whirling disease, furunculosis, bacterial kidney disease (BKD), bacterial gill disease, Ich, Costia)
Others (non-biological contaminants e.g. pesticide residue, oil products, etc. or harborage via packing or construction materials, etc.): -Benzalkonium chloride (**BC**) [200 ppm] -Sodium hypochlorite (200 pm) - oil - gasoline

Activity/Project Flow Diagram

Flow Diagram Outlining Sequential Tasks to Complete Activity/Project
As Described in Activity Description (on page 2)

Task 1	Fill transport truck with well water at hatchery and load 6" LCT via fish pump.
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Task 2	Drive truck to acclimation site at Sutcliffe and unload LCT via gravity release of fish.
⇓	
Task 3	Fill truck with Pyramid Lake water.
⇓	
Task 4	Load truck with acclimated LCT via dip net.
⇓	
Task 5	Drive truck to Walker Lake and unload LCT via gravity release of fish.
⇓	
Task 6	Drive truck back to Hatchery, (stop at commercial car wash on the way back to hatchery), disinfect at hatchery.

Hazard Analysis Worksheet for Task 1

1 Tasks (from HACCP Step 3 - Flow Diagram)	2 Potential hazards identified in HACCP Step 2	3 Are any potential hazards significant? (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 Fill transport truck with well water at hatchery and load 6" LCT via fish pump.	Vertebrates amphibians	No	Not detected in raceways, very rarely near fish rearing facilities.		
	Invertebrates insects, snails, others	No	Not common in fish rearing or well water and no unique non-native inverts known.		
	Plants algae, aquatic plant parts	No	Algae and plants on site are ubiquitous in area.		
	Other Biologics fungus, pathogens	Yes	Known fish diseases on site, but also present throughout area.	- fish health inspections (3x per yr/ within 3 months of stocking) - visual inspection of fish for signs of illness - equipment disinfection during rearing - UV treatment of recirculation water	Yes
	Others Oil, other automotive fluids	Yes	Truck could have mechanical problems (e.g., oil leak)	- visual inspection of truck for problems - routine maintenance (e.g. oil changes etc.)	Yes

Hazard Analysis Worksheet for Task 2 and Task 3

1 Tasks (from HACCP Step 3 - Flow Diagram)	2 Potential hazards identified in HACCP Step 2	3 Are any potential hazards significant? (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 2 Drive truck to acclimation site at Sutcliffe and unload LCT via gravity release of fish.	Vertebrates	No	Truck and fish not exposed to contamination sources		
	Invertebrates	No	Truck and fish not exposed to contamination sources		
	Plants	No	Truck and fish not exposed to contamination sources		
	Other Biologics	No	Truck and fish not exposed to contamination sources		
	Others	No	Truck and fish not exposed to contamination sources		
Task 3 Fill truck with Pyramid Lake water.	Vertebrates fish or fish eggs, amphibians	Yes	Live vertebrates have not been detected, but possible.	- build and use mesh screen for truck	Yes
	Invertebrates snails, insects, etc.	Yes	Inverts could be pumped with water.	- build and use mesh screen for truck	Yes
	Plants aquatic plants	Yes	Plant fragments could be pumped with water	- build and use mesh screen for truck	Yes
	Other Biologics	No	No known unique pathogens		
	Others	No	No known other hazards.		

Hazard Analysis Worksheet for Task 4

1 Tasks (from HACCP Step 3 - Flow Diagram)	2 Potential hazards identified in HACCP Step 2	3 Are any potential hazards significant? (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 4 Load truck with acclimated LCT via dip net.	Vertebrates fish or fish eggs, amphibians	No	Water, used to fill acclimation tanks, aerated through screen, cement walls limit access, netting over top, tanks dewatered for a significant portion of the year.		
	Invertebrates snails, insects, etc.	Yes	Inverts could be transferred in nets with fish	- Most small inverts fall through mesh of dip nets. Use largest mesh possible (1/2"). - Visually inspect and remove macroinvertebrates from all equipment used - Inspect crowding screen for inverts/plants then remove while dip netting.	Yes
	Plants aquatic plants	Yes	Plant fragments could be in nets with fish	- Visual inspection and removal of plant fragments from all equipment used.	Yes
	Other Biologics	No	No known unique pathogens		
	Others	No	Truck and fish not exposed to contamination sources		

Hazard Analysis Worksheet for Task 5

1 Tasks (from HACCP Step 3 - Flow Diagram)	2 Potential hazards identified in HACCP Step 2	3 Are any potential hazards significant? (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 Drive truck to Walker Lake and unload LCT via gravity release of fish.	Vertebrates	No	Tanks visually inspected to ensure all fish released. No new source.		
	Invertebrates	No	Truck not exposed to contamination sources (loading on concrete).		
	Plants	No	Truck not exposed to contamination sources (loading on concrete).		
	Other Biologics	No	Truck not exposed to contamination sources (loading on concrete).		
	Others	No	None to transport back to hatchery.		

Hazard Analysis Worksheet for Task 6

1 Tasks (from HACCP Step 3 - Flow Diagram)	2 Potential hazards identified in HACCP Step 2	3 Are any potential hazards significant? (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 6 Drive truck back to Hatchery, (stop at commercial car wash on the way back to hatchery), disinfect at hatchery.	Vertebrates	No	Tanks visually inspected to ensure all fish released. No new source.		
	Invertebrates snails, insects, etc.	Yes	**(A.)** Debris on tank, truck and equipment **(B.)** Residual water from Pyramid Lake in tank	**(A.)** Wash truck at commercial car wash before returning to hatchery **(B.)** Disinfect tank with BC on site **(A/B.)** Disinfect truck tires, equipment and undercarriage with BC on site	Yes
	Plants aquatic or riparian weeds	Yes	**(C.)** Vegetation could be caught on truck undercarriage or tires **(D.)** Small seeds could be on tires or truck	**(C.)** Visually inspect and remove visible plant debris prior to leaving Walker Lake **(D.)** Wash truck at commercial car wash to eliminate seeds	Yes
	Other Biologics fish pathogens	Yes	Fish pathogens on truck from Walker Lake	- Wash truck at commercial car wash - Disinfect truck tires, equipment and undercarriage with BC on site	Yes
	Others	No			

HACCP Plan Form (page 1 of 2)

HACCP Plan Form (all CCPs or "yeses" from column 6 of HACCP Step 4 – Hazard Analysis Worksheet)		
(1) Critical Control Point:		**Fill transport truck with well water at hatchery and load 6" fish**
Significant Hazard(s):		fungus, pathogens, automotive oil/fluids
Limits for Each Control Measure:		abnormal fish behavior/appearance, visible leak from truck
Monitoring	What:	fish behavior/appearance (ex. flashing, sores on fish, etc.), automotive leaks
	How:	biologists will monitor fish prior to loading during sample counting, visual inspection of truck prior to leaving site
	Frequency:	every time the truck is loaded
	Who:	biologists, truck operators
Evaluation & Corrective Action(s) (if needed):		if biologists observe significant abnormal behavior/appearance delay stocking (or cancel if necessary), if truck has significant leak will delay stocking until repair is possible
Supporting Documents (if any):		mortality records, fish health reports
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(2) Critical Control Point:		**Fill truck with Pyramid Lake water**
Significant Hazard(s):		vertebrates (unlikely, but possible), aquatic inverts, aquatic plants
Limits for Each Control Measure:		any significant visible vertebrates, inverts or plant fragments
Monitoring	What:	inspect tank after filled, before fish are loaded
	How:	visual inspection
	Frequency:	each time tank is filled
	Who:	truck operator
Evaluation & Corrective Action(s) (if needed):		net out significant vertebrates, inverts or plants - reevaluate control measures if not effective (water filter mesh size)
Supporting Documents (if any):		none
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(3) Critical Control Point:		**Load truck with acclimated fish via dip net**
Significant Hazard(s):		aquatic inverts, aquatic plants
Limits for Each Control Measure:		significant amount of plant fragments (other than filamentous algae) and invertebrates
Monitoring	What:	significant plant fragments or inverts
	How:	inspection as fish are dip netted and loaded into truck
	Frequency:	as each net full of fish is dip netted and loaded
	Who:	hand netters and truck operator
Evaluation & Corrective Action(s) (if needed):		skim off all plant fragments (other then algae) from tanks, **if there appears to be significant invert risk (ex. NZMS)** then gravity feed fish back into holding tanks until inverts can be identified
Supporting Documents (if any):		none
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Address: 710 Highway 395 Gardnerville, NV 89410	
Signature: **HACCP Plan was followed.**	**Date:**

HACCP Plan Form (page 2 of 2)

HACCP Plan Form (all CCPs or "yeses" from column 6 of HACCP Step 4 – Hazard Analysis Worksheet)		
(4) Critical Control Point:		**Drive truck back to Hatchery (stop at commercial car wash on the way back) and disinfect.**
Significant Hazard(s):		aquatic inverts, aquatic/riparian weeds, fish pathogens
Limits for Each Control Measure:		visible debris on truck/equipment
Monitoring	What:	visible debris/mud
	How:	visual inspection
	Frequency:	every time the truck arrives at the hatchery
	Who:	truck operators
Evaluation & Corrective Action(s) (if needed):		if any visible debris, repeat wash
Supporting Documents (if any):		disinfectant MSDSs

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