Mokelumne River Fish Hatchery

Hazard Analysis Critical Control Point (HACCP) Plan for Release of Chinook Salmon and Steelhead Near Thornton on the Mokelumne River February 15, 2006



Activity	Activity Description				
Facility: Mokelumne River Fish Hatchery (MRFH)	Site: Mokelumne River Fish Hatchery				
Project Leader: Bill Smith (CDFG)	Activity/Management Objective:				
Hatchery Supervisor: Bob Anderson (CDFG)	-Loading and releasing Chinook salmon (<i>Oncorhynchus tshawytscha</i>) and steelhead				
Address: 25800 McIntire Road Clements, CA 95227	 Oncornynchus mykiss) at Thornton, on the Mokelumne River without transporting non targets 				
Phone: (209) 759-3383					

Project Description

i.e. Who; What; Where; When; How; Why

• Who: MRFH (California Department of Fish and Game staff), East Bay Municipal Utility District (EBMUD) biologists

• What: Loading and releasing Chinook salmon and steelhead

- Where: Thornton on the Mokelumne River (Walnut Grove Rd.)
- When: February through June each year, over 100 truck releases per year

• **How:** Three trucks are used, any borrowed trucks are decontaminated with chlorine on the inside of the tanks, prior to use by the MRFH. Load truck with Camanche Reservoir lake water, use 8" fish pumps through a dewatering tower to load fish into the truck tank. Drive fish to release location. Gravity release fish through a discharge tube (6' long), without coming into contact with river water. Visually inspect and remove plants, snails and other debris from truck and personal equipment. After release of fish the truck returns to the MRFH.

• Why: Mitigate for lost Chinook salmon and steelhead spawning habitat resulting from Camanche dam construction

Hazards: Species or Contaminants Which May Potentially Be Moved/Introduced

Vertebrates: bullfrog tadpoles (*Rana catesbeiana*), Ictalurids (cat fishes), Centrarchids (sun fishes), gobies (any sp.), sculpin (any sp.), shiners (any sp.), threadfin shad (*Dorosoma petenense*), mosquito fish (*Gambusia affinis*), snakes (any)

Invertebrates: New Zealand mudsnail (*Potamopyrgus antipodarum*), mitten crabs (*Eriocheir sinensis*), crayfish (any sp.), Asian clam (*Corbicula fluminea*), aquatic insects (any), glass shrimp (*Palaemonetes kadiakensis*), exotic snails (any), freshwater jelly (ex. *Craspedacusta sowerbii*), zooplankton (any)

Plants: <u>Aquatic:</u> Brazilian waterweed (*Egeria densa*), water hyacinth (*Eichhornia crassipes*), Eurasian watermilfoil (*Myriophyllum spicatum*), algae (any) and other aquatic plants.

Terrestrial: yellow star thistle (*Centaurea solstitialis*), common cattail (*Typha latifolia*), Himalayan blackberry (*Rubus discolor*), prickly lettuce (*Lactuca serriola*), radish (*Rafanus sativus*), field bindweed (*Convalvulus arensis*), nutsedge (*Cyperus rotundus*), curley dock (*Rumex crispus*), smartweed (*Polygonum sp.*), pigweed (*Amaranthus sp.*) and other terrestrial weeds.

Other Biologics: Infectious hematopoietic necrosis virsus (IHN), Columnaris (*Flexibacter columnaris*), Costia (Ichthyobodo), Whirling disease (*Myxobolus cerebralis*), anchor worm (*Lernea sp.*), cold water disease (*Vibrio sp.*), Bacterial Kidney Disease (*Renibacterium salmoninarum*, BKD)

Others (non-biological contaminants): Chlorine, iodine, oil, gasoline, diesel, potassium permanganate (KMnO₄), hydrogen peroxide, salt, antibiotics (ex. Oxytetracycline), roundup (Glyphosate)

Activity/Project Flow Diagram

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

Task	Visually inspect truck and truck tank
1	
	\downarrow
Task	Load truck tank with lake (Camanche Reservoir) water
TUSK	
2	
•	
	↓
Task	Load fish into truck and drive to release location
2	
3	
	\downarrow
Task	Release fish via gravity
4	i tere de l'en ria giarry
4	
	\downarrow
Task	Visually inspect truck and return to hatchery
	violally inopoor track and rotatil to hatchory
5	

1	2	3	4	5	6
Tasks	Potential hazards	Are any	Justify evaluation for	What control measures can	Is this task
(from HACCP Step 3 -	identified in HACCP	potential	column 3	be applied to prevent	a critical
Flow Diagram)	Step 2	hazards		undesirable results?	control
		significant?			point?
		(yes/no)			(yes/no)
Task 1	Vertebrates	No	Has not happened		No
Visually inspect truck and truck tank	rats, etc.				
	Invertebrates insects	No	Insects common in area		No
	Plants weed seeds	No	Plants common throughout area		No
	Other Biologics	n/a	No other biologics show up		No
	Others dead fish	No	No opportunity for spread		no

1	2	3	4	5	6
Tasks	Potential hazards	Are any	Justify evaluation for	What control measures can	Is this task
(from HACCP Step 3 -	identified in HACCP	potential	column 3	be applied to prevent	a critical
Flow Diagram)	Step 2	hazards		undesirable results?	control
		significant?			point?
		(yes/no)			(yes/no)
		1			
Task 2	Vertebrates	No	Same water system	Most fish can not survive	No
Load truck with lake	small fish (ex.			passage from deep water	
water	sculpin)			source	
	Invertebrates	No	Source water system is		No
	snails, zooplankton,		the same as release		
	freshwater jelly		water		
	Plants	No	No unique species found		No
	aquatic plant		upstream, no plant		
	fragment, algae		fragments have been		
	in eight ein i, eingere		observed		
F	Other Biologics	No	Water already moves		No
	whirling disease		through system no		
	IHN		added risk		
	Others	n/a	None known		No
	none known	1,4			

1	2	3	4	5	6
Tasks	Potential hazards	Are any	Justify evaluation for	What control measures can	Is this task
(from HACCP Step 3 -	identified in HACCP	potential	column 3	be applied to prevent	a critical
Flow Diagram)	Step 2	hazards		undesirable results?	control
		significant?			point?
		(yes/no)			(yes/no)
lask 3	Vertebrates	No	Species are common		NO
Load fish into truck	sculpin		throughout system		
and drive to release					
location	Invertebrates	No	Species are common		No
	snails, zooplankton		throughout system		
	Plants	No	Species are common		No
	algae		throughout system		
	Other Biologics	No	Already present		No
	disease		throughout system		
	Others	Yes	Last opportunity to make	Pre-trip inspection and	Yes
	oil, automotive		repairs, before leaving	repairs if necessary	
	fluids		the MRFH		

1	2	3	4	5	6
Tasks	Potential hazards	Are any	Justify evaluation for	What control measures can	Is this task
(from HACCP Step 3 -	identified in HACCP	potential	column 3	be applied to prevent	a critical
Flow Diagram)	Step 2	hazards		undesirable results?	control
C ,		significant?			point?
		(yes/no)			(yes/no)
					,
Task 4	Vertebrates	No	Species are common		No
Release fish via	sculpin		throughout system		
gravity					
3 -					
	Invertebrates	No	Species are common		No
	snails, zooplankton		throughout system		
	Plants	No	Species are common		No
	algae		throughout system		
	aigue				
	Other Biologics	No	Species are common		No
	disease		throughout system		
	Others	No	Vehicle already checked	check for leaking of fluids	No
	oil. automotive	-	before leaving hatcherv		-
	fluids				

1	2	3	4	5	6
Tasks	Potential hazards	Are any	Justify evaluation for	What control measures can	Is this task
(from HACCP Step 3 -	identified in HACCP	potential	column 3	be applied to prevent	a critical
Flow Diagram)	Step 2	hazards		undesirable results?	control
		significant?			point?
		(yes/no)			(yes/no)
	1				1
Task 5	Vertebrates	No	No opportunity for		No
Visually inspect truck	none		transport		
and equipment then					
return to hatchery	Invertebrates	Yes	Could be transported	avoid contact with water,	Yes
	New Zealand		upstream through	mud for equipment and	
	mudsnail		contact with water/mud,	personnel, visually inspect	
			but unlikely to survive	truck and equipment	
			transport on truck tires		
	Plants	No	Common throughout		No
	weed seeds,		system		
	aquatic plant				
	fragments				
	Other Biologics	No	Concrete boat ramp, no		No
	none		opportunity for transport		-
	Others	No	Concrete boat ramp. no		no
	none	-	opportunity for transport		-

HACCP Plan Form (all CCPs or "veses" from column 6 of HACCP Step 4 – Hazard Analysis Worksheet)					
(1) Critical Control Point: Task 3 Load fish into truck and drive to release location					
Significant Upzard		<u>sutamativa fluida</u>			
Significant nazaru			fluide or fluid lovels outside of approxima		
		parameters	nulds of huid levels outside of operating		
	What:	oil, any other au	utomotive fluids		
Monitoring	How:	pre-trip inspecti	on		
wormoning	Frequency:	every day (full i	nspection), periodically throughout day (visual)		
	Who:	truck operator	r		
Evaluation & Corre (if needed):	ective Action(s)	shut down relea corrective action tools in truck, m	hut down release activities until repaired (full inspection), various corrective actions throughout day (visual) [ex. minor repairs with cols in truck, major repair requires transfer of fish, etc.]		
Supporting Docum	nents (if any):	pre-trip inspecti	on form, maintenance records [on site file]		
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(2) Critical Contro	ol Point: Tasl	5 Visually inspectively inspectively show the second se	ect truck and equipment then return to hatchery		
Significant Hazard	(s): New	Zealand mudsnail			
Limits for Each Co	ntrol Measure:	a single visible water/mud	NZMS, equipment (ex. boots) or truck contacts		
	What:	any visible NZM	IS, contact with water or mud		
Monitoring	How:	visual inspectio	n, observation		
wormoning	Frequency:	every release tr	trip		
	Who:	truck operator, any passenger			
Evaluation & Corre	ective Action(s)	hose down any	equipment that has contacted water/mud, if visible		
(if needed):		NZMS on boots	then bag and freeze boots for 48 hours		
Supporting Docum	nents (if any):				
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	·>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	><<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<		
(3) Critical Contro	ol Point: n/a				
Significant Hazard	(s):				
Limits for Each Co	ntrol Measure:				
	What:				
	How:		_		
Monitoring	Frequency:		_		
	Who:		_		
Evaluation & Corre	ective Action(s)				
Supporting Documents (if any):					
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Eacility: Mokelur	mna Rivar Fish	Hatchery	Activity/Management Objective:		
Facility: Mokelumne River Fish Halchery			-Loading and releasing Chinook salmon		
Address: 25800 McIntire Road			(Oncorhynchus tshawytscha) and steelhead		
Clements, CA 95227			(<i>Oncorhynchus mykiss</i>) at Thornton, on the Mokelumne River without transporting non-		
Signature:			Date:		
HACCP Plan was	followed.				