

Arcata Fish and Wildlife Office’s Hazard Analysis and Critical Control Point Planning for Juvenile Salmonid Snorkel Surveys

Last Revised 6-27-07

HACCP Step 1 – Activity Description

Activity Description	
Facility: AFWO	Site: Klamath Basin
Project Coordinator: Mike Long	Activity: Juvenile salmonid snorkel surveys
Site Manager: Nick Hetrick	
Address: 1655 Heindon Rd Arcata, CA 95521	
Phone: 707-822-7201	

Project Description i.e. Who; What; Where; When; How; Why
<p>1. Personnel from the Arcata Fish and Wildlife Office, Karuk Tribe of California, and Yurok Tribe will conduct juvenile salmonid snorkel surveys within the Klamath Basin. Juvenile surveys are conducted annually on the mainstem Trinity River from February to May. Surveys are conducted with snorkelers entering the water and working upstream through a study site (50ft stream sections). Multiple sites are usually sampled each day. Habitat suitability information is collected from fish at each site. Sites are reached either by vehicle or raft.</p>

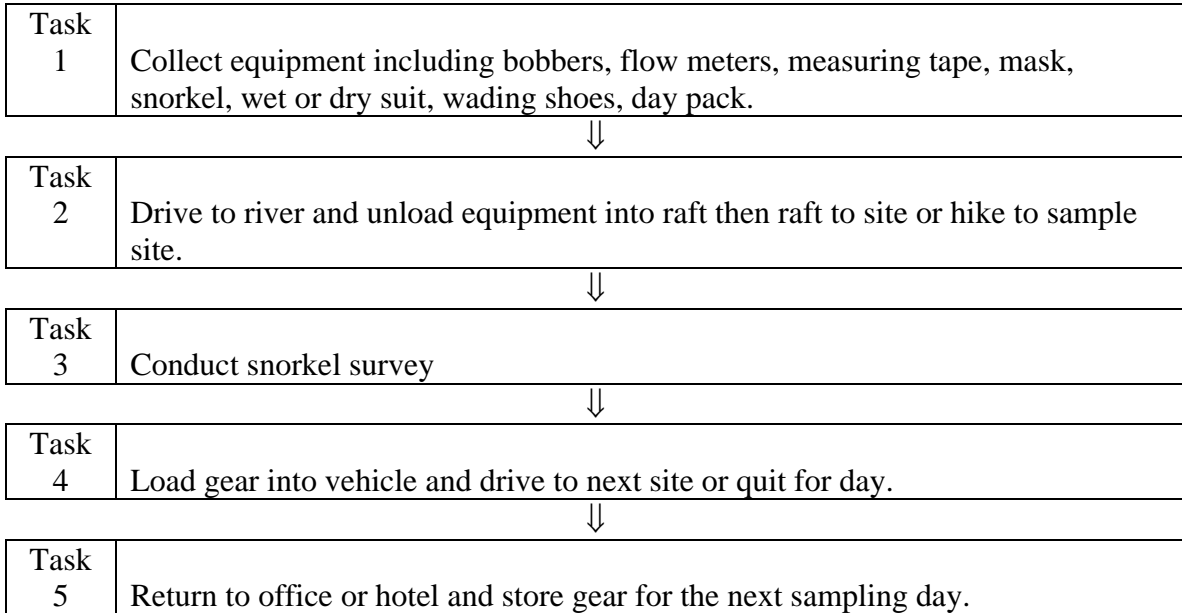
HACCP Step 2 – Identify Potential Hazards

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

Hazards: Species Which May Potentially Be Moved/Introduced
Vertebrates: Non-indigenous fish (20 species), amphibian-Bull frogs (<i>Rana catesbeiana</i>) and reptile species-Northern Water Snake (<i>Nerodia sipedon</i>), Red-eared Slider Turtle (<i>Trachemys scripta</i>).
Invertebrates: New Zealand Mudsail (<i>Potamopyrgus antipodarum</i>), Zebra Mussel (<i>Dreissena polymorpha</i>), Quagga mussel (<i>Dreissena bugensis</i>).
Plants: Watermilfoil (<i>Myriophyllum aquaticum</i>), purple loosestrife (<i>Lythrum salicaria</i>), spotted knapweed (<i>Centaurea maculosa</i>)
Other Biologics (e.g. disease, pathogen, parasite): Ceratomyxa shasta, Parvicapsula minibicornis, Nanophyetus salmincola, bacterial kidney disease (<i>Renibacterium salmoninarum</i> metacercaria), Hematopoietic necrosis virus (IHNV), Flavobacterium columnare
Others (e.g. construction materials, etc.): Gasoline, engine oil, sample preservatives (formalin), Z-fix, etc.

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)
Task 1. Collect equipment and load into truck	Vertebrates Fish and Bull frogs	No	Vertebrate species were cleaned off equipment in step 4.		
	Invertebrates Exotic non-target species- see step 2.	Yes	Invertebrate species can survive night in net.	Visually inspect equipment for hitchhiking invertebrates before going into field. Remove individuals.	Yes
	Plants Non-target species- see step 2.	Yes	Plant species can survive night in net.	Visually inspect equipment for hitchhiking plants before going into field. Remove individuals.	Yes
	Others Biologics See step 2.	Yes	Some Biologics can survive the night on equipment.	Use equipment that is specific to a particular watershed or decontaminate	Yes

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 2. Drive to the river and either load gear into raft and raft to site or hike to site from vehicle.	Vertebrates Fish and Bull frogs	No	Cleaned gear in step 4.		
	Invertebrates Exotic non-target species- see step 2.	No	Cleaned gear prior to driving to site.		
	Plants Exotic non-target species- see step 2.	No	Cleaned gear prior to driving to site.		
	Other Biologics See step 2.	No	Specific gear will be used in each watershed and sample sites will be sampled working downstream.		
	Others See step 2.	No	Amounts of these chemicals are too small to be concerned with.		
	Others: See step 2.	No	Amounts of these chemicals are too small to be concerned with.		

Hazard Analysis Worksheet (continued)

Task 3. Conduct snorkel survey at site.	Vertebrates Fish and Bull frogs	No	Gear and equipment has been checked for hitchhikers in task 4.		
	Invertebrates Exotic non-target species- see step 2.	No	Gear and equipment has been checked for hitchhikers in task 1 and 4.		
	Plants Exotic non-target species- see step 2.	No	Gear and equipment has been checked for hitchhikers in task 1 and 4.		
	Other Biologics See step 2.	No	Biologics are specific to each watershed and these surveys stay within a particular watershed. Sites will be sampled working downstream.		
	Others See step 2.	No	Amounts of these chemicals are too small to be concerned with.		

Task 4. Clean gear then load into raft or truck move to next site. Repeat from task 2 until finished sampling for day.	Vertebrates Fish and Bull frogs	Yes	Fish and bullfrogs can hitchhike on sample gear and equipment from one site to the next.	Check gear and equipment for possible hitchhiking vertebrates prior to going to next site.	Yes
	Invertebrates Exotic non-target species- see step 2.	Yes	Invertebrates can hitchhike on sample gear and equipment from one site to the next.	Check gear and equipment for possible hitchhiking invertebrates prior to going to next site.	Yes
	Plants Exotic non-target species- see step 2.	Yes	Plants can hitchhike on sample gear and equipment from one site to the next.	Check gear and equipment for possible hitchhiking plants prior to going to next site.	Yes
	Other Biologics See step 2.	Yes	Other biologics can hitchhike on sample gear and equipment from one site to the next.	Specific gear will be used in each watershed and sites will be sampled working downstream.	Yes
	Others See step 2.	No	Amounts of these chemicals are too small to be concerned with.		

Task 5. Return to office and store gear for the next sampling day.	Vertebrates Exotic non-target species- see step 2.	Yes	Some species may have been overlooked in the field cleaning.		
	Invertebrates Exotic non-target species- see step 2.	Yes	Some species may have been overlooked in the field cleaning.		
	Plants Exotic non-target species- see step 2.	Yes	Some species may have been overlooked in the field cleaning.		
	Others Biologics See step 2.	Yes	Some species may be on gear if not decontaminated in step 4. Need to Clearly mark gear for a particular watershed or decontaminate.		
	Others See step 2.	No	Amounts of these chemicals are too small to be concerned with.		

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		
Task 1. Collect equipment and personal gear and load into vehicle.	Vertebrates, Invertebrates, and Plants	Equipment and gear is free of visible debris. Specific gear will be used for different watersheds.	Snorkel gear including wetsuit or dry suit, dry bag, day pack, wading boots, etc.	Visually inspect all equipment and remove non targets.	Once before leaving office or station.	Assigned field crew	Reinspect and remove any visible plant or animal and decontaminate if moving to different watershed and specific gear is not available.	
Task 4. Clean gear and load into vehicle or boat and go to next site or quit for day.	Vertebrates, Invertebrates, and Plants	Equipment and gear is free of visible debris. Specific gear will be used for different watersheds.	Snorkeling gear including wetsuit or dry suit, wading shoes, pack, dry bag, etc.	Visually inspect all equipment and remove non targets.	After each new site is sampled and before sampling in different watershed.	Assigned field crew	Reinspect and remove any visible plant or animal and decontaminate if moving to different watershed and specific gear is not available.	
Facility: AFWO					Activity/Management Objective: Snorkel surveys of juvenile fishes within the Klamath Basin without transferring invasive and non target species.			
Address: 1655 Heindon Rd., Arcata, CA 95521								
Signature:					Date:			
HACCP Plan was followed.								