

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

Last Revised 6-27-07

## HACCP Step 1 – Activity Description

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

<b>Project Description</b> i.e. Who; What; Where; When; How; Why
<p>Employees of AFWO will conduct adult summer steelhead and spring Chinook salmonid snorkel surveys in tributaries within the Trinity River Basin (tributaries include but are not limited to South and North Fork Trinity Rivers and New River). These surveys are conducted during August and repeated on an annual basis. Crews generally are split into groups of two employees and assigned a stream reach which is several miles long. Each day of a survey, crews will snorkel and/or walk from the top of their reach downstream to the bottom of their reach counting adult salmonids. The upper end of a reach is accessed either by vehicles or by foot. These surveys are to determine species composition, escapement numbers, and migration timing.</p>

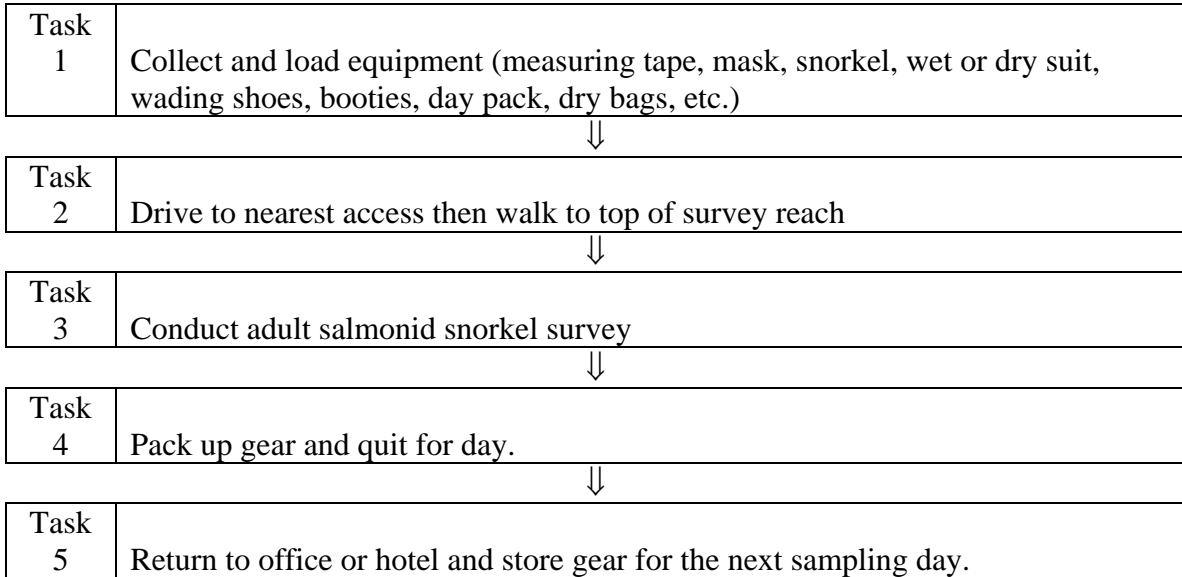
## HACCP Step 2 – Identify Potential Hazards

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

<b>Hazards: Species Which May Potentially Be Moved/Introduced</b>
<b>Vertebrates:</b> 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>Trachema scripta</i> ).
<b>Invertebrates:</b> New Zealand Mudsail ( <i>Potamopyrgus antipodarum</i> ), Zebra Mussel ( <i>Dreissena polymorpha</i> ), Quagga mussel ( <i>Dreissena bugensis</i> ).
<b>Plants:</b> Watermilfoil ( <i>Myriophyllum aquaticum</i> ), purple loosestrife ( <i>Lythrum salicaria</i> ), spotted knapweed ( <i>Centaurea maculosa</i> )
<b>Other Biologics (e.g. disease, pathogen, parasite):</b> Ceratomyxa shasta, Parvicapsula minibicornis, Nanophyetus salmincola, bacterial kidney disease ( <i>Renibacterium salmoninarum metacercaria</i> ), Hematopoietic necrosis virus (IHNV), Flavobacterium columnare
<b>Others (e.g. construction materials, etc.):</b> Gasoline, engine oil, 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

<b>1</b> <b>Tasks</b> <b>(from HACCP</b> <b>Step 3 - Flow</b> <b>Diagram)</b>	<b>2</b> <b>Potential hazards</b> <b>identified in</b> <b>HACCP Step 2</b>	<b>3</b> <b>Are any potential</b> <b>hazards</b> <b>probable? (yes/no)</b>	<b>4</b> <b>Justify evaluation</b> <b>for column 3</b>	<b>5</b> <b>What control</b> <b>measures can be</b> <b>applied to prevent</b> <b>undesirable</b> <b>results?</b>	<b>6</b> <b>Is this task a</b> <b>critical control</b> <b>point? (yes/no)</b>
Task 1. Collect equipment and load into truck	Vertebrates Fish and Bull frogs	No	Species would be removed prior to this step.		
	Invertebrates Exotic non-target species- see step 2.	Yes	Invertebrate species can survive night on gear.	Check gear for attached invertebrates and remove before going into field.	Yes
	Plants non-target species- see step 2.	Yes	Plant species can survive night in net.	Check gear for hitchhiking plants and remove before going into field	Yes
	Others Biologics See step 2.	No	Gear was decontaminated in step 4 or different gear specific to a particular watershed was used.		
	Others: See step 2.	No	Amounts of these chemicals are too small to be concerned with.		

<b>1</b> <b>Tasks</b> <b>(from HACCP</b> <b>Step 3 - Flow</b> <b>Diagram)</b>	<b>2</b> <b>Potential hazards</b> <b>identified in</b> <b>HACCP Step 2</b>	<b>3</b> <b>Are any potential</b> <b>hazards</b> <b>probable? (yes/no)</b>	<b>4</b> <b>Justify evaluation</b> <b>for column 3</b>	<b>5</b> <b>What control</b> <b>measures can be</b> <b>applied to prevent</b> <b>undesirable</b> <b>results?</b>	<b>6</b> <b>Is this task a</b> <b>critical control</b> <b>point? (yes/no)</b>
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**Hazard Analysis Worksheet (continued)**

Task 2. Drive to site unload gear and hike or raft to sampling site.	Vertebrates Fish and Bull frogs	No	Cleaned gear at a prior step.		
	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	Decontaminated gear or used site specific gear prior to driving to site.		
	Others See step 2.	No	Amounts of these chemicals are too small to be concerned with.		

Task 3. Conducted adult salmonid snorkel survey.	Vertebrates Fish and Bull frogs	No	Vertebrates are so large they would be noticed and removed at 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	Site specific gear has been used for each watershed or gear and equipment was decontaminated in task 4.		
	Others See step 2.	No	Amounts of these chemicals are too small to be concerned with.		

Task 4. Clean gear then load into truck.	Vertebrates Fish and Bull frogs	Yes	Fish and bullfrogs can hitchhike on sample gear and equipment from one watershed to the next.	Check gear 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 watershed to the next.	Check gear 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 for possible hitchhiking plants prior to going to next site.	Yes
	Other Biologics See step 2.	Yes	Biologics can hitchhike on gear and equipment from one site to the next.	Decontaminate gear if moving to different watershed or use a different set of gear specific to each watershed.	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.	No	Vertebrates were cleaned off gear in step 4.		
	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.	No	Gear was decontaminated in step 4 or watershed specific gear was used.		
	Others See step 2.	No	Amounts of these chemicals are too small to be concerned with.		



### HACCP Step 5 – HACCP Plan Form

<b>HACCP Plan Form</b>								
(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	<b>Monitoring</b>				Evaluation & Corrective Action(s) (if needed)	Supporting Documentation (if any)
			What	How	Frequency	Who		
<b>Task 1.</b> Collect and clean equipment	Vertebrates, Invertebrates, and Plants	Equipment is free of visible debris.	Snorkeling gear, wet or dry suit, wading shoes, etc.	Visually inspect all equipment and remove non targets.	Once before sampling begins.	Assigned field crew	Remove any visible plant or animal.	
<b>Task 4.</b> Clean gear and load vehicle.	Vertebrates, Invertebrates, Plants, and other biologics	Equipment is free of visible debris and decontaminated or watershed specific gear is used and is visually inspected after each survey.	Snorkeling gear, wet or dry suit, wading shoes, day pack, dry bag etc.	Visually inspect all equipment and remove non targets. Decontaminate if needed.	After sampling ends and back at vehicle.	Assigned field crew	Remove any visible plant or animal.	
<b>Facility:</b> AFWO					<b>Activity/Management Objective:</b> Survey using mask and snorkel of adult salmonids within the Klamath Basin without transferring invasive and non target species.			
<b>Address:</b> 1655 Heindon Rd., Arcata, CA 95521								
<b>Signature:</b>					<b>Date:</b>			
<b>HACCP Plan was followed.</b>								