

# Arcata Fish and Wildlife Office’s Hazard Analysis and Critical Control Point Planning for Beach Seining of Juvenile Fish

Last Revised 6-27-07

## HACCP Step 1 – Activity Description

<b>Activity Description</b>	
Facility: AFWO	Site: Klamath Basin
Project Coordinator: Mike Long	Activity: Beach Seining
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>Personnel from the Arcata Fish and Wildlife Office, Karuk Tribe of California, and Yurok Tribe will conduct beach seine sampling of juvenile fishes within the Klamath Basin. Sampling is conducted weekly at specific sites during spring and summer months (February to August). Beach seine investigations are conducted using a 10mx1.2m beach seine with 3.2mm delta mesh. Beach seine locations are reached by motor vehicle. Juvenile fish are sampled to:</p> <ol style="list-style-type: none"> <li>1. Monitor juvenile salmonid populations in the Klamath Basin.</li> <li>2. Collect juvenile Chinook salmon for trap efficiencies.</li> <li>3. Check fish condition for fish health.</li> </ol>

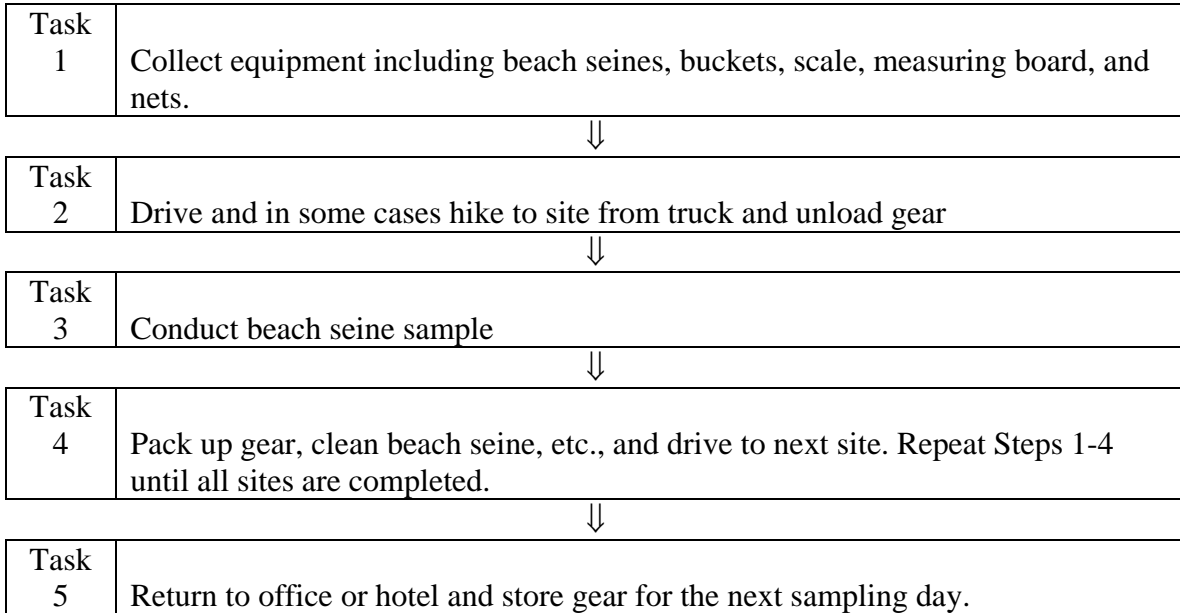
## HACCP Step 2 – Identify Potential Hazards

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

<b>Hazards: Species Which May Potentially Be Moved/Introduced</b>
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 Mudsnail ( <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 metacercaria</i> ), 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

<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	Yes	Fish species present cannot survive night in net, but bullfrogs can.	Visually inspect seines and remove hitchhiking vertebrates before going into field.	Yes
	Invertebrates Exotic non-target species- see step 2.	Yes	Invertebrate species can survive night in net.	Visually inspect seines and remove hitchhiking invertebrates before going into field.	Yes
	Plants non-target species- see step 2.	Yes	Plant species can survive night in net.	Visually inspect seines and remove hitchhiking plants before going into field	Yes
	Others Biologics See step 2.	Yes	Some Biologics can survive the night on equipment	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.		
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Task 2. Drive to site unload gear and hike to sampling site.	Vertebrates Fish and Bull frogs	No	Cleaned seine nets prior to driving to site.		
	Invertebrates Exotic non-target species- see step 2.	No	Cleaned seine nets prior to driving to site.		
	Plants Exotic non-target species- see step 2.	No	Cleaned seine nets 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.		
<b>1 Tasks (from HACCP Step 3 - Flow Diagram)</b>	<b>2 Potential hazards identified in HACCP Step 2</b>	<b>3 Are any potential hazards probable? (yes/no)</b>	<b>4 Justify evaluation for column 3</b>	<b>5 What control measures can be applied to prevent undesirable results?</b>	<b>6 Is this task a critical control point? (yes/no)</b>

Hazard Analysis Worksheet (continued)

Task 3. Conduct beach seine sample.	Vertebrates Fish and Bull frogs	No	Gear and equipment has been checked for hitchhikers in task 1 and 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	Specific gear will be used in each watershed and 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 next truck and drive 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 beach seine nets and all associated sampling gear for possible hitchhiking vertebrates and remove 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 beach seine nets and all associated sampling gear for possible hitchhiking invertebrates and remove 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 beach seine nets and all associated sampling gear for possible hitchhiking plants and remove prior to going to next site.	Yes
	Other Biologics See step 2.	Yes	Some 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.	Hazard taken care of in previous task.	No
	Invertebrates Exotic non-target species- see step 2.	Yes	Some species may have been overlooked in the field cleaning.	Hazard taken care of in previous task.	No
	Plants Exotic non-target species- see step 2.	Yes	Some species may have been overlooked in the field cleaning.	Hazard taken care of in previous task.	No
	Others Biologics See step 2.	Yes	Specific gear will be used in each watershed and sites will be sampled working downstream.	Hazard taken care of in previous task.	No
	Others See step 2.	No	Amounts of these chemicals are too small to be concerned with.		

**HACCP Step 5 – HACCP Plan Form**

<p align="center"><b>HACCP Plan Form</b>                      (all CCP's or "yes's" from column 6 of HACCP Step 4 – Hazard Analysis Worksheet)</p>								
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		
<b>Task 1.</b> Collect equipment including beach seines, scale tray, buckets, measuring boards, nets, waders, wading shoes, etc.	Vertebrates, Invertebrates, Plants, and other biologics.	Nets and equipment are free of visible debris.	Beach seines, buckets, dip nets, measuring boards, scale tray, waders, wading boots, etc.	Visually inspect all equipment and remove non targets.	Once before sampling begins.	Assigned field crew	Reinspect and remove any visible plant or animal.  Use specific gear designated for particular sites.	
<b>Task 4.</b> Load gear into vehicle and drive to next site.	Vertebrates, Invertebrates, Plants, and other biologics.	Nets and equipment are free of visible debris.	Beach seines, buckets, dip nets, measuring boards, scale tray, waders, wading boots, etc.	Visually inspect all equipment and remove non targets.	After each beach seine site is sampled.	Assigned field crew	Reinspect and remove any visible plant or animal.	
<b>Facility:</b> AFWO					<b>Activity/Management Objective:</b> Beach seine sampling of juvenile fishes within the Klamath Basin.			
<b>Address:</b> 1655 Heindon Rd., Arcata, CA 95521								

<b>Signature:</b> <b>HACCP Plan was followed.</b>	<b>Date:</b>