

# Winter Chinook Carcass Survey HACCP Plan

## HACCP Step 1 – Activity Description

<b>Activity Description</b>		
Facility:	Red Bluff Fish and Wildlife Office/Anderson Field Office	Site: upper Sacramento River
Project Coordinator:	Kevin Niemela	Activity: boat survey for winter Chinook salmon carcasses in the upper Sacramento River
Site Manager:	James G. Smith	
Address:	10950 Tyler Road Red Bluff, CA 96080	
Phone:	530-527-3043	

<b>Project Description</b> i.e. Who; What; Where; When; How; Why
<p>From May through August field crews from the U.S. Fish and Wildlife Service and the California Department of Fish and Game survey the upper Sacramento River between Keswick Dam and Cottonwood Creek for carcasses of winter Chinook salmon. This survey is used to generate an estimate of escapement of winter Chinook salmon by using a mark and resample methodology. The winter Chinook carcass survey is conducted using two to four boats, each having a driver and at least one additional observer. Boats travel in an upstream direction and observe for carcasses. Carcasses are collected using a long wooden pole with a gig attached to the end. Collected carcasses are lifted into the boat where biological data are recorded and samples are collected, including scales, fin tissue, and the head. Samples are taken to the Red Bluff field office. After sampling the carcasses are either cut in half or tags may be applied to wholly intact carcasses, after which, they are returned to the river. It is sometimes necessary to beach the boat along the shore in order to work up large numbers of carcasses or to enable access to carcasses located in shallow sections of the river that are inaccessible to boats. Water temperature is and clarity are measured daily using a handheld thermometer and a Secchi disk.</p>

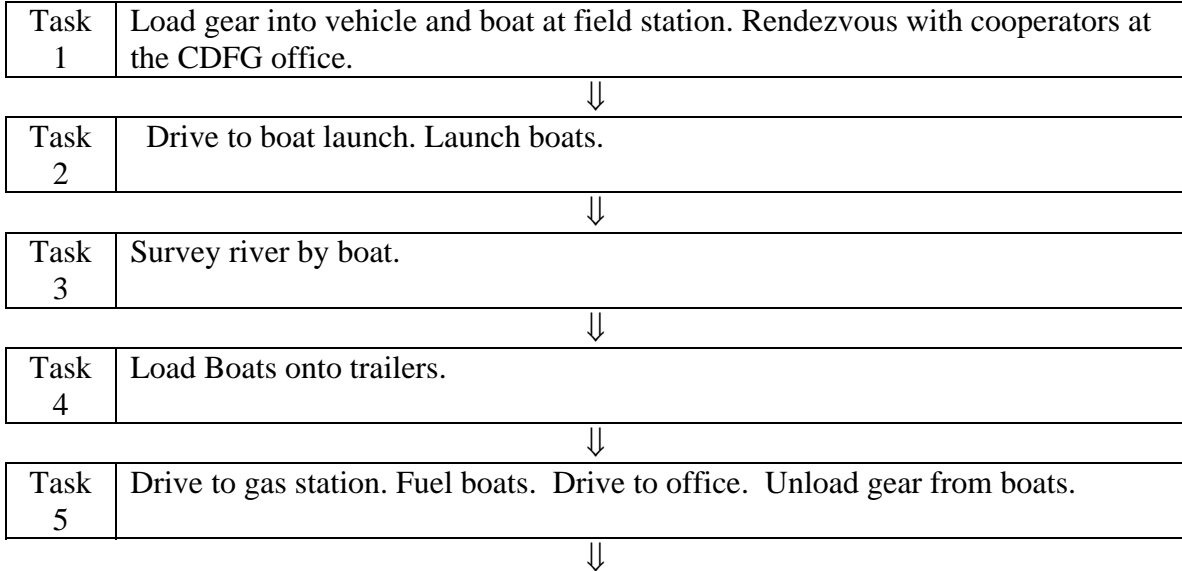
## HACCP Step 2 – Identify Potential Hazards

(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> None.
<b>Invertebrates:</b> Aggressive invasive mollusks not yet identified at sites including but not limited to: New Zealand Mudsnailed ( <i>Polamophyrus antipodarum</i> ) and Zebra mussel ( <i>Dreissena polymorpha</i> ) and quagga mussel ( <i>D. bugensis</i> ). Also, other invasive mollusks that may already be present at site including: Freshwater Asian clam ( <i>Corbicula fluminea</i> ).
<b>Plants:</b> Aggressive invasive <b>terrestrial plant species</b> not yet identified at sites including but not limited to: Giant Arundo ( <i>Arundo donax</i> ); Salt Cedar ( <i>Tamarix spp.</i> ); Purple loosestrife ( <i>Lythrum salicaria</i> ). Other invasive terrestrial plants that may be present at sites: Black locust; Broome Tree of Heaven and Pepperweed ( <i>Lepidium latifolium</i> ). Aggressive invasive <b>aquatic plant species</b> not yet identified at sites including but not limited to: Hydrilla ( <i>Hydrilla verticillata</i> ); Water Hyacinth ( <i>Eichhornia crassipes</i> ). Other invasive aquatics that may be present at sites including invasive <i>Ludwigia</i> species and Eurasian watermillfoil ( <i>Myriophyllum spicatum</i> ).
<b>Other Biologics (e.g. disease, pathogen, parasite):</b> Rosette agent, whirling disease, and IHN.
<b>Others (e.g. construction materials, etc.):</b> Gas or oil from boat motor

### HACCP Step 3 – Flow Diagram

Flow Diagram Outlining Sequential Tasks to Complete Activity/Project  
Described in HACCP Step 1 – Activity Description



### 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)
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<b>Task 1</b>  Load gear into vehicle at field station.	<u>Vertebrates</u> None	No	Not likely to unknowingly transfer vertebrates in this survey		Yes
	<u>Invertebrates</u> See Step 2: Invertebrates	Yes	Due to their ability to survive and small size, invertebrates could remain on gear, vehicle, boat, or trailer from the previous survey period due to inability to completely remove all Task 5.	Visually inspect sampling gear, motor vehicle, boat, and trailer. If invertebrates, debris or mud are found, clean gear and remove and dispose of properly.	
	<u>Plants</u> See Step 2: Plants	Yes	Plants could remain and survive on gear, motor vehicle, boat, or trailer from the previous survey period due to inability to completely remove all in Task 5.	Visually inspect sampling gear, vehicle, boat, and trailer. If plants, debris or mud are found, clean gear and remove and dispose of properly.	
	<u>Others</u> See Step 2: Others and Other Biologics	No	Any fish pathogens present are ubiquitous throughout the entire survey range in upper Sacramento River and transfer to proximate locations is not a concern.	Visually inspect sampling gear, vehicle, boat, and trailer. Remove and dispose of plants, debris, mud, water, oil and gas residue.	

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<b>Task 2</b>  Drive to boat launch and launch boats.	<u>Vertebrates</u> None	No	Not likely to unknowingly transfer vertebrates in this survey		No
	<u>Invertebrates</u> See Step 2: Invertebrates	Yes	Difficult to visually detect all invertebrates which may have survived in gear, motor vehicle, boat, or trailer.	Checked and cleaned gear in previous task. Remove and properly dispose of any invertebrates, debris and mud observed.	
	<u>Plants</u> See Step 2: Plants	Yes	Difficult to visually detect all plants and may have survived on gear, vehicle, boat, or trailer. New terrestrial plants and/or seeds may be picked up in route.	Checked and cleaned gear in previous task. Remove and properly dispose of any plants, debris and mud observed.	
	<u>Others</u> See Step 2: Others and Other Biologics	No	Not entering water in this task. Any fish pathogens present are ubiquitous throughout the entire survey range in upper Sacramento River and transfer to proximate locations is not a concern.		

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<b>Task 3</b>  Survey river by boat.	<u>Vertebrates</u> None	No	Not likely to unknowingly transfer vertebrates in this survey		No
	<u>Invertebrates</u> See Step 2: Invertebrates	Yes	May pick up and/or redeposit invertebrates on gear while conducting survey.	Visual inspection and removal of invertebrates, debris and mud while conducting survey (brushing, picking from gear).	
	<u>Plants</u> See Step 2: Plants	Yes	May pick up and/or redeposit plants on gear while conducting survey.	Visual inspection and removal of plants, debris and mud while conducting survey (brushing, picking from gear).	
	<u>Others</u> See Step 2: Others and Other Biologics	No	Any fish pathogens present are ubiquitous throughout the entire survey range in upper Sacramento River and transfer to proximate locations is not a concern.	Rinse gear and remove visible carcass pieces from gear to the extent practicable.	

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<b>Task 4</b>  Load Boats onto trailers.	<u>Vertebrates</u>	No	Not likely to unknowingly transfer vertebrates in this survey		Yes
	<u>Invertebrates</u> See Step 2: Invertebrates	Yes	Invertebrates may be on gear, boat, or trailer and could be transported to next site, field office, or anywhere between.	Visually inspect and remove invertebrates, mud and debris from gear before loading gear and leaving site.	
	<u>Plants</u> See Step 2: Plants	Yes	Invertebrates may be on gear, boat, or trailer and could be transported to next site, field office, or anywhere between.	Visually inspect and remove plants, mud and debris from gear before loading gear and leaving site.	
	<u>Others</u> See Step 2: Others and Other Biologics	Yes	Standing water in the boat may contain pathogenic organisms which could be spread to another watershed if the boat were used in a different survey.	Drain water from boat while on the boat ramp. Visually inspect and remove pieces of carcass, mud and debris from gear and boat before loading gear and leaving site, to the extent practicable.	

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<b>Task 5</b>  Drive to gas station. Fuel boats. Drive to office. Unload gear from boats.	<u>Vertebrates</u> None.	No	Not likely to unknowingly transfer vertebrates in this survey		No
	<u>Invertebrates</u> See Step 2: Invertebrates	Yes	Invertebrates could remain and survive on the gear, boat, trailer, or vehicle and could be transported to next site, field office, or anywhere between.. Difficult for the crew to visually detect and remove them in the field due to their small size.	Store gear and boat in designated storage areas.	
	<u>Plants</u> See Step 2: Plants	Yes	Plants could remain and survive on the gear, boat, trailer, or vehicle and could be transported to next site, field office, or anywhere between.. Difficult for the crew to visually detect and remove them in the field due to their small size.	Store gear and boat in designated storage area.	
	<u>Others</u> See Step 2: Others and Other Biologics	Yes	Boat may have oil or gas residue from fueling. Boat or sampling gear may contain standing water containing pathogenic organisms.	Wipe exposed gas or motor oil from surfaces of boat/motor. Water was drained from boat in previous step. Store gear and boat in designated storage area. Clean and disinfect gear, boat, and trailer, as necessary, before they are used in another watershed or at the hatchery.	

### HACCP Step 5 – HACCP Plan Form

HACCP Plan Form								
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		
<p><b>Task 1</b> Load gear into vehicle at field station.</p>	<p>Invertebrates or plants may have been left on sampling gear, vehicle, boat, or trailer from previous day.</p>	<p>Sampling gear, vehicle, boat, and trailer are free from visible debris, mud, standing water, and organisms.</p>	<p>All sampling gear, vehicle, boat, and trailer.</p>	<p>Visually inspect gear, vehicle, boat, and trailer. Remove debris, mud and organisms by brushing, picking, rinsing prior to transportation.</p>	<p>Before leaving field station to go to sample sites.</p>	<p>Field sampling crew.</p>	<p>Determine that controls are in place and working.</p>	<p>NA</p>
<p><b>Task 4</b> Load Boats onto trailers. Secure gear into boats or transfer into vehicles, as appropriate. Coordinate data sheets and consolidate and organize biological samples.</p>	<p>Invertebrates or plants may be transported to next site/back to field office.</p>	<p>Sampling gear, vehicle, boat, and trailer are free from visible debris, mud, standing water, and organisms.</p>	<p>All sampling gear, vehicle, boat, and trailer.</p>	<p>Visually inspect gear, vehicle, boat, and trailer. Remove debris, mud and organisms by brushing, picking, rinsing prior to transportation.</p>	<p>Before leaving boat ramp and before entering vehicle to travel to the next site/back to office.</p>	<p>Field sampling crew.</p>	<p>Determine that controls are in place and working.</p>	<p>NA</p>
<b>Facility:</b>		Red Bluff Fish and Wildlife Office/Anderson Field Office						
<b>Address:</b>		10950 Tyler Road Red Bluff, CA 96059			<b>Activity:</b> Winter Chinook Salmon Carcass Survey			
<b>Signature:</b>		<b>Date:</b>						
<b>HACCP Plan was followed.</b>								