

**Stockton Fish and Wildlife Office Delta Juvenile Fish
Monitoring Program Hazard Analysis Critical Control Point
Plan #1: Beach Seine Sampling of Juvenile Fish**

Last Revised December, 2005



HACCP Step 1 – Activity Description

Activity Description	
Facility: STFWO	Site:
Project Leader: Russell Bellmer	Activity/Management Objective: Beach seine sampling of juvenile fishes within the Sacramento and San Joaquin Rivers and bays without transferring invasive and non-target species between sample locations.
Project Manager: Paul Cadrett	
Address: 4001 North Wilson Way Stockton, CA 95204	
Phone: 209-946-6400	

Project Description i.e. Who; What; Where; When; How; Why
<p>The juvenile fishes monitoring program field crew, including biological science technicians, boat operators, and biologists, conduct beach seine sampling of juvenile fishes within the Sacramento San Joaquin River and Bays. Sampling is conducted year around at least once per week, and up to three times a week during times of peak juvenile salmon migration (October-December). Beach seine investigations are conducted with a 15mX1.2m beach seine with 3.2 mm delta mesh. Beach seine sample locations are sampled by truck, depending on their location. The juvenile fishes monitoring program samples year round to:</p> <ol style="list-style-type: none"> 1. Monitor sensitive juvenile salmon populations for delta water operations. 2. Monitor trends of overall juvenile fish populations and fish distribution.

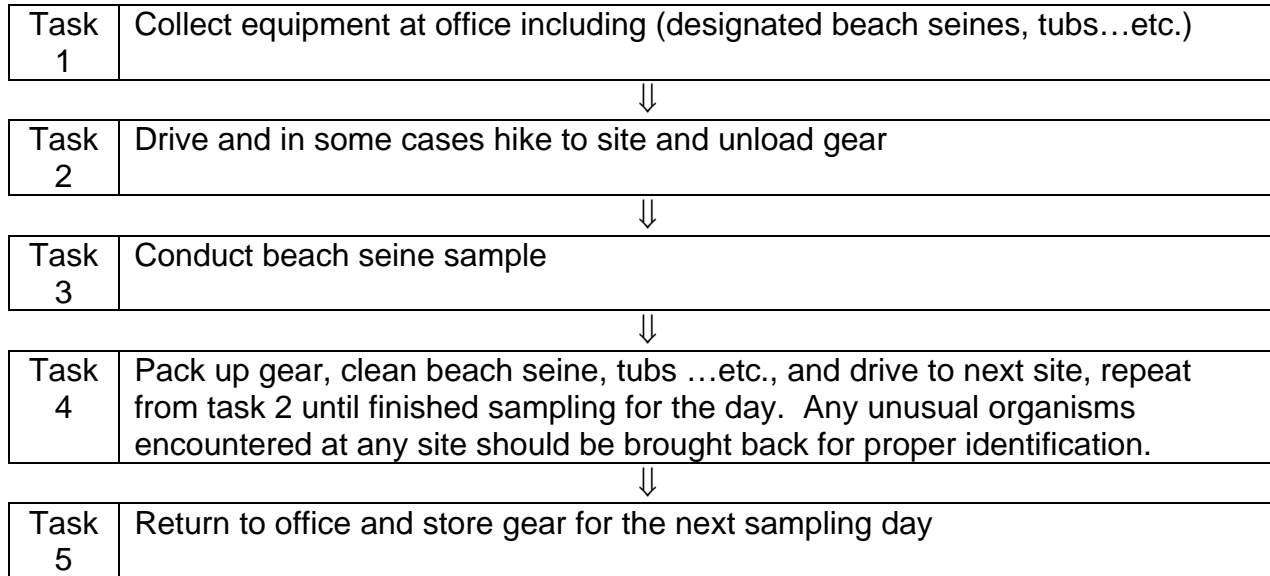
HACCP Step 2 – Identify Potential Hazards

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

Hazards: Species or Contaminants Which May Potentially Be Moved/Introduced
Vertebrates: Bullfrogs (<i>Rana catesbeiana</i>), All exotic and invasive fish species
Invertebrates: New Zealand Mudsnail (<i>Potamopyrgus antipodarum</i>), Zebra Mussel (<i>Dreissena polymorpha</i>), Asian Clam (<i>Corbicula fluminea</i>), Siberian Prawn (<i>Exopaleomon modestus</i>), Bubble Snail (<i>Haminoea japonica</i>), Jellyfish (any sp.), Crawdads (any sp.), Mitten Crabs (<i>Eriocheir sinensis</i>), Green Crabs (<i>Carcinus maenas</i>)
Plants: Purple Loosestrife (<i>Lythrum salicaria</i>), Broadleaved pepperweed (<i>Lepidium latifolium</i>), Brazilian Waterweed (<i>Egeria densa</i>), Water Hyacinth (<i>Eichhornia crassipes</i>), Watermilfoil (<i>Myriophyllum aquaticum</i>), Giant Arundo (<i>Arundo donax</i>), Yellow Flag Iris (<i>Iris pseudacorus</i>), Scarlet Wisteria (<i>Sesbania punicea</i>), Hydrilla (<i>Hydrilla verticillata</i>), Canadian Waterweed (<i>Elodea Canadensis</i>), Ludwigia (<i>Ludwigia grandiflora</i>)
Other Biologics (e.g. genetics, disease, pathogen, parasite, or non-pathogens): Whirling disease, (list others here)
Others (non-biological contaminants e.g. pesticide residue, oil products, etc. or harborage via packing or construction materials, etc.): Small amounts of pesticide residue, oil, and human waste

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 significant ? (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 including (beach seine, tubs, etc.)	Vertebrates Fish Bullfrogs	No Yes	Fish species present cannot survive night in net, however bullfrogs can.	Check beach seine nets for possible hitchhiking vertebrates prior to going out in the field.	Yes
	Invertebrates Exotic non-target invertebrates (See step 2)	Yes	Invertebrate species present can survive night in net.	Check beach seine nets for possible hitchhiking invertebrates prior to going out in the field.	Yes
	Plants Exotic non-target plant species (See step 2)	Yes	Plant species present can survive night in net.	Check beach seine nets for possible hitchhiking plants prior to going out in the field.	Yes
	Others Biologics Whirling Disease	No	These are prevalent throughout the system		
	Others Oil spills, pesticide contaminants human waste	No	Amounts of oil or pesticides are too small to be concerned with		

HACCP Step 4 - Hazard Analysis Worksheet (continued)

1 Tasks (from HACCP Step 3 - Flow Diagram)	2 Potential hazards identified in HACCP Step 2	3 Are any potential hazards significant ? (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, and in some cases hike to site from truck, and unload gear	Vertebrates Fish Bullfrogs	No	Cleaned seine nets prior to driving to site.		
	Invertebrates Exotic non-target invertebrates (See step 2)	No	Cleaned seine nets prior to driving to site.		
	Plants Exotic non-target plant species (See step 2)	No	Cleaned seine nets prior to driving to site.		
	Others Biologics Whirling Disease	No	These are prevalent throughout the system		
	Others Oil spills, pesticide contaminants human waste	No	Amounts of oil or pesticides are too small to be concerned with		

HACCP Step 4 - Hazard Analysis Worksheet (continued)

1 Tasks (from HACCP Step 3 - Flow Diagram)	2 Potential hazards identified in HACCP Step 2	3 Are any potential hazards significant ? (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 3 Conduct beach seine sample	Vertebrates Fish Bullfrogs	No	Gear and equipment has been checked for hitchhikers in task #1 or #4.		
	Invertebrates Exotic non-target invertebrates (See step 2)	No	Gear and equipment has been checked for hitchhikers in task #1 or #4.		
	Plants Exotic non-target plant species (See step 2)	No	Gear and equipment has been checked for hitchhikers in task #1 or #4.		
	Others Biologics Whirling Disease	No	These are prevalent throughout the system		
	Others Oil spills, pesticide contaminants human waste	No	Amounts of oil or pesticides are too small to be concerned with		

HACCP Step 4 - Hazard Analysis Worksheet (continued)

1 Tasks (from HACCP Step 3 - Flow Diagram)	2 Potential hazards identified in HACCP Step 2	3 Are any potential hazards significant ? (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 4 Pack up gear, clean beach seine, tubs ...etc., and drive to next site, repeat from task 2 until finished sampling for the day. Any unusual organisms encountered at any site should be brought back for proper identification.	Vertebrates Fish Bullfrogs	Yes	Fish and bullfrogs can hitchhike on sample gear and equipment from site to site	Check beach seine nets and all associated sampling gear for possible hitchhiking vertebrates prior to going to next site	Yes
	Invertebrates Exotic non-target invertebrates (See step 2)	Yes	Invertebrates can hitchhike on sample gear and equipment from site to site	Check beach seine nets and all associated sampling gear for possible hitchhiking invertebrates prior to going to next site	Yes
	Plants Exotic non-target plant species (See step 2)	Yes	Plants can hitchhike on sample gear and equipment from site to site	Check beach seine nets and all associated sampling gear for possible hitchhiking plants prior to going to next site	Yes
	Others Biologics Whirling Disease	No	These are prevalent throughout the system		
	Others Oil spills, pesticide contaminants human waste	No	Amounts of oil or pesticides are too small to be concerned with		

HACCP Step 4 - Hazard Analysis Worksheet (continued)

1 Tasks (from HACCP Step 3 - Flow Diagram)	2 Potential hazards identified in HACCP Step 2	3 Are any potential hazards significant ? (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 5 Return to office and store gear for the next sampling day	Vertebrates Fish Bullfrogs	Yes	Some species may have been overlooked in the field cleaning	In task 1 the seine net and associated gear will be cleaned in the morning before sampling begins.	No
	Invertebrates Exotic non-target invertebrates (See step 2)	Yes	Some species may have been overlooked in the field cleaning	In task 1 the seine net and associated gear will be cleaned in the morning before sampling begins.	No
	Plants Exotic non-target plant species (See step 2)	Yes	Some species may have been overlooked in the field cleaning	In task 1 the seine net and associated gear will be cleaned in the morning before sampling begins.	No
	Others Biologics Whirling Disease	No	These are prevalent throughout the system		
	Others Oil spills, pesticide contaminants human waste	No	Amounts of oil or pesticides are too small to be concerned with		

