

**Stockton Fish and Wildlife Office Delta Juvenile Fish
Monitoring Program Hazard Analysis Critical Control Point
Plan #2: Juvenile Fish Sampling with Boats**

Last Revised December, 2005



HACCP Step 1 – Activity Description

| Activity Description | |
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| Facility: STFWO | Site: |
| Project Leader: Russell Bellmer | Activity/Management Objective: Launching boats and performing boat-driven sampling 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 | |

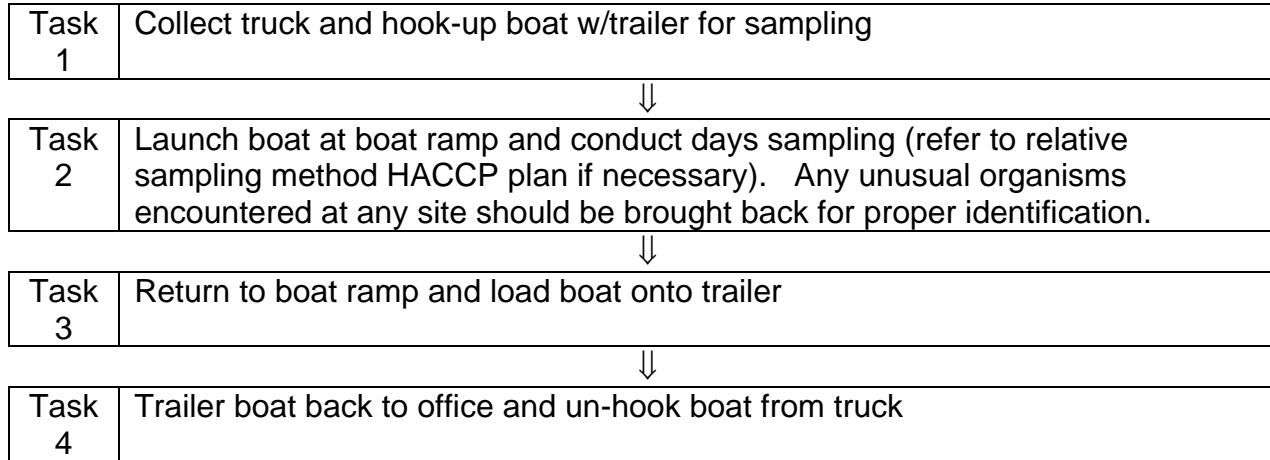
| Project Description i.e. Who; What; Where; When; How; Why |
|--|
| <p>The juvenile fishes monitoring program field crew, including biological science technicians, boat operators, and biologists, conducts boat-driven sampling of juvenile fishes within the Sacramento San Joaquin River and Bays. Sampling 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). 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

| Hazards: Species or Contaminants Which May Potentially Be Moved/Introduced |
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| 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>Exopalaemon 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



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) |
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|--|--|-----------|--|---|----|
| Task 1 Collect truck and hook-up boat w/trailer for sampling | Vertebrates Fish Bullfrogs | No Yes | Fish species present cannot survive night in boat or bilge, however bullfrogs can. | Check boats for possible hitchhiking vertebrates prior to going out in the field. | No |
| | Invertebrates Exotic non-target invertebrates (see step 2). | Yes | Invertebrate species present can survive night in boat or bilge. | Check boats for possible hitchhiking invertebrates prior to going out in the field. | No |
| | Plants Exotic non-target plant species (See step 2) | Yes | Plant species present can survive night in boat or bilge. | Check boats for possible hitchhiking plants prior to going out in the field. | 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 | | |

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|--|---|----|---|--|--|
| Task 2 Launch boat at boat ramp and conduct days sampling (refer to relative sampling method HACCP plan if necessary). Any unusual organisms encountered at any site should be brought back for proper identification. | Vertebrates Fish Bullfrogs | No | Cleaned boats prior to driving to site. | | |
| | Invertebrates Exotic non-target invertebrates (See step 2) | No | Cleaned boats prior to driving to site. | | |
| | Plants Exotic non-target plant species (See step 2) | No | Cleaned boats 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 Return to boat ramp and load boat onto trailer. | Vertebrates Fish Bullfrogs | Yes | Vertebrates can be hitchhiking in boat and/or bilge. | Remove boat plug and clean boat/bilge and trailer. | Yes |
| | Invertebrates Exotic non-target invertebrates (See step 2) | Yes | Invertebrates can be hitchhiking in boat and bilge. | Remove boat plug and clean boat/bilge and trailer. | Yes |
| | Plants Exotic non-target plant species (See step 2) | Yes | Plants can be hitchhiking in boat and bilge. | Remove boat plug and clean boat/bilge and trailer. | 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 | | |
| Task 4 Trailer boat back to office and un-hook boat from truck | Vertebrates Fish Bullfrogs | No | Boat and bilge was cleaned at boat ramp before returning to office. | | |
| | Invertebrates Exotic non-target invertebrates (See step 2) | No | Boat and bilge was cleaned at boat ramp before returning to office. | | |
| | Plants Exotic non-target plant species (See step 2) | No | Boat and bilge was cleaned at boat ramp before returning to office. | | |
| | 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 | | |

