

HACCP Step 1 – Activity Description

Activity Description	
Facility: Inks Dam National Fish Hatchery	Site:
Project Coordinator: Marc Jackson	Activity: Rearing and distribution of channel catfish for U.S. Fish and Wildlife Service Tribal Trust Responsibilities, cooperative agreements, and conservation exchanges.
Site Manager: Marc Jackson	
Address: 345 Clay Young Road Burnet, TX 78611	
Phone: 512-793-2474	

Project Description i.e. Who; What; Where; When; How; Why
<p>Fishery Resource Offices requests channel catfish (CCF) a year before production begins at the Inks Dam National Fish Hatchery (NFH). Requests are submitted to the Regional Office for prioritization with other production and fishery needs. After review, a production and stocking request is provided to the hatchery prior to the fish spawning season.</p> <p>The Project Leader and Assistant Project Leader direct the harvest of broodstock from holding ponds in early March to begin the spawning season. Three (3) to four (4) year old broodstock are harvested by draining the holding ponds, moved to separate raceways, treated with formalin, and then moved to clean ponds. In May, spawning cans are placed in the ponds to allow for spawning. In June and July, cans are checked for spawns three (3) times per week. Eggs that are collected are moved to the Holding House, disinfected with formalin, and placed into hatching trays. Eggs hatch in three (3) to five (5) days and the resulting fry are moved to clean troughs for feed training. Fry receive two (2) separate prophylactic formalin treatments for external parasites prior to being stocked in rearing ponds at 60,000-70,000 per acre. In July or August, Region 2 fish pathologists perform disease certification on the channel catfish. In late August and September ponds are seined and are split into new ponds at approximately 13,000 per acre. Saran filter socks are used to filter the water in these new ponds to reduce the threat of aquatic nuisance species (ANS). Fish are then grown and over wintered at the density until the following spring and summer when stocking begins. Ponds are harvested usually three (3) to four (4) days prior to shipping. Two (2) days before shipping, they are given a salt treatment, initially sorted for ANS and well water is used in the flow through raceway. The Regional Distribution Unit (RDU) is filled with well water and fish are again sorted while being loaded. The RDU contains chilled well water, monitors water parameters, and fish health while reroute to the stocking locations. Requesting Fishery Resources Offices meet the RDU; take additional samples to check for ANS prior to stocking.</p>

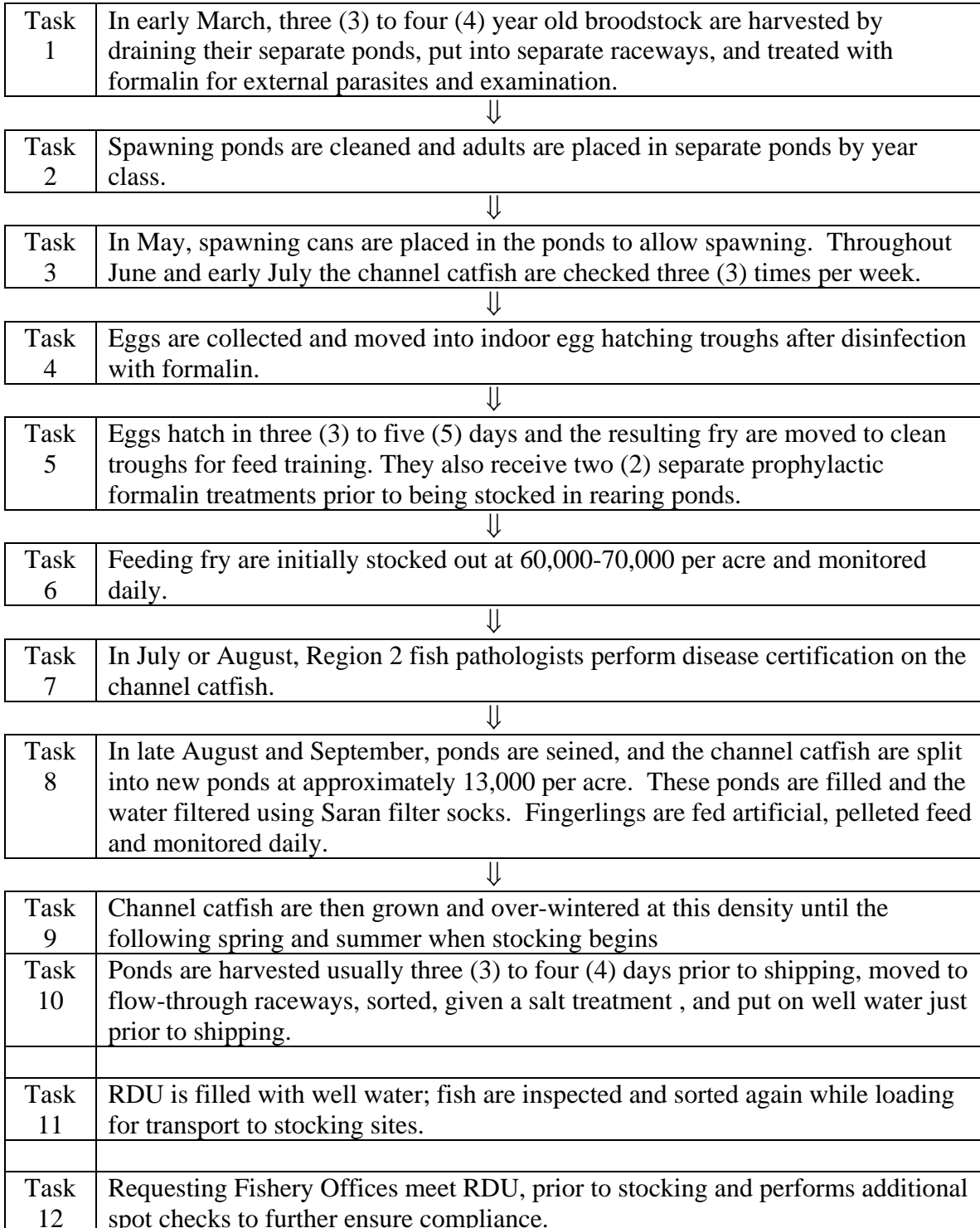
HACCP Step 2 – Identify Potential Hazards

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

Hazards: Species Which May Potentially Be Moved/Introduced
Vertebrates: Guadalupe bass (<i>Micropterus treculi</i>), Logperch (<i>Percina caprodes</i>), Gizzard shad (<i>Dorosoma cepedianum</i>), White bass (<i>Morone chrysops</i>), Bluegill (<i>Lepomis Macrochrius</i>), warmouth (<i>Lepomis gulosus</i>), Green sunfish (<i>Lepomis cyanellus</i>), common carp (<i>Cyprinus carpio</i>), smallmouth buffalo (<i>Ictiobus bubalus</i>), redbreast sunfish (<i>Lepomis auritus</i>), bullfrogs (<i>Rana catesbeiana</i>), leopard frog (<i>Rana chricahuensis</i>), red-ear turtles (<i>Trachemys scripta elegans</i>), various tadpoles and aquatic snakes
Invertebrates: Miscellaneous aquatic insects, Asian clam (<i>corbicula sp.</i>), crawfish
Plants: Potamogenton (<i>Potamogenton distinctus</i>), water star grass (<i>Schollera graminea</i>), brushy pond weed (<i>najas flexilis</i>), various algae (<i>chava</i> , <i>pithophora</i> , <i>hydrodicton</i>)
Other Biologics (e.g. disease, pathogen, parasite): ESC
Others (e.g. construction materials, etc.): None

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 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)
---	---	---	--	---	--

Task 1 Three (3) to four (4) year old broodstock are harvested by draining their separate ponds, put into raceways, and treated with formalin for external parasites and examination.	Vertebrates Other fish species, reptiles, amphibians	No	Adult fish handled individually and easily separated from ANS		No
	Invertebrates Aquatic insects (spp.), Asian clam, crawfish	No	Harvest with large holed nets prevents small invertebrates from being collected		No
	Plants Aquatic macrophytes, various algae (spp.)	No	Flow-through raceways pass algae (spp) through. Hand sort larger plants		No
	Others ESC	Yes	Fish species could be infected that inhabit Inks Lake	Yearly inspections by Region 2 fish pathologists	No

Task 2 Spawning ponds are cleaned and adults are placed in separate ponds by year class.	Vertebrates Other fish species, reptile, amphibians	Yes	Water is supplied by Inks Lake and these species are known to exist		No
	Invertebrates Aquatic insect (spp.), Asian clam, crawfish.	Yes	Water is supplied by Inks Lake and these species are known to exist		No
	Plants Aquatic macrophytes, various algae (spp.)	Yes	Seed is probably in the pond despite cleaning	Herbicide and copper sulfate treatments	No
	Others ESC	Yes	Fish species could be infected that inhabit Inks Lake	Yearly inspections by Region 2 fish pathologists	No

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)
Task 3 In May, spawning cans are placed in the ponds to allow spawning. Throughout June and early July the spawning cans are checked three (3) times per week.	Vertebrates Reptiles, amphibians, other fish species	Yes	Water is supplied by Inks Lake and these species are known to exist		No
	Invertebrates Aquatic insect (spp.), Asian clam, crawfish	Yes	Water is supplied by Inks Lake and these species are known to exist		No
	Plants Aquatic macrophytes, various algae (spp.)	Yes	Seed is probably in the pond bottoms and levee banks	Herbicide and copper sulfate treatments. Removal by hand	No
	Others ESC	Yes	Fish species could be infected that inhabit Inks Lake	Yearly inspections by Region 2 fish pathologists.	No
Task 4 Eggs are collected and moved into indoor egg hatching troughs after disinfection with formalin.	Vertebrates Reptiles, amphibians, other fish species	No	No ANS present at this life stage		No
	Invertebrates Aquatic insect (spp.), Asian clam, crawfish	No	No ANS present at this life stage		No
	Plants Aquatic macrophytes, various algae (spp.)	No	No ANS present at this life stage		No
	Others ESC	Yes	Fish species could be infected that inhabit Inks Lake	Yearly inspections by Region 2 fish pathologists	No

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)
---	---	---	--	---	--

Task 5 Eggs hatch in three (3) to five (5) days and resulting fry are moved to clean troughs for feed training. They also receive separate formalin treatments	Vertebrates Reptiles, amphibians, other fish species	No	No ANS present at this life stage		No
	Invertebrates Aquatic insect (spp.), Asian clam, crawfish	No	No ANS present at this life stage		No
	Plants Aquatic macrophytes, various algae (spp.)	No	No ANS present at this life stage	Flow through troughs pass small algae (spp)	No
	Others ESC	Yes	Fish species could be infected that inhabit Inks Lake.	Yearly inspections by Region 2 fish pathologists	No

Task 6 Feeding fry are initially stocked out at 60,000-70,000 per acre and monitored daily fish.	Vertebrates Reptiles, amphibians, other fish species	Yes	Water is supplied by Inks Lake and these species are known to exist		No
	Invertebrates Aquatic insect (spp.), Asian clam, crawfish	Yes	Water is supplied by Inks Lake and these species are known to exist		No
	Plants Aquatic macrophytes, various algae (spp.)	Yes	Water is supplied by Inks Lake and these species are known to exist	Herbicide and copper sulfate treatments	No
	Others ESC	Yes	Fish species could be infected that inhabit Inks Lake	Yearly inspections by Region 2 fish pathologists	No

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)
---	---	---	--	---	--

Task 7 In July or August, Region 2 fish pathologists perform disease certification on the channel catfish.	Vertebrates Reptiles, amphibians, other fish species	No	No ANS present at this life stage		No
	Invertebrates Aquatic insect (spp.), Asian clam, crawfish	No	No ANS present at this life stage		No
	Plants Aquatic macrophytes, various algae (spp.)	No	No ANS present at this life stage	Flow through troughs pass small algae (spp)	No
	Others ESC	Yes	Fish species could be infected that inhabit Inks Lake.	Yearly inspections by Region 2 fish pathologists	Yes

Task 8 By August and September, ponds are seined, and the channel catfish are split into new ponds at approximately 13,000 per acre. These ponds are filled and the water filtered using Saran filter socks. Fingerlings are fed artificial, pellet feed and monitored daily.	Vertebrates Reptiles, amphibians, other fish species	Yes	Water is supplied by Inks Lake and these species are known to exist		No
	Invertebrates Aquatic insect (spp.), Asian clam, crawfish	No	Water is supplied by Inks Lake and these species are known to exist		No
	Plants Aquatic macrophytes, various algae (spp.)	Yes	Water is supplied by Inks Lake and these species are known to exist	Herbicide and copper sulfate treatments	No
	Others ESC	Yes	Fish species could be infected that inhabit Inks Lake	Yearly inspections by Region 2 fish pathologists	No

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)
---	---	---	--	---	--

Task 9 Channel catfish are then grown and over-wintered at this density until the following spring and summer when stocking begins.	Vertebrates Reptiles, amphibians, other fish species	Yes	Reptiles and amphibians can enter ponds	Fathead minnows are put in ponds for ESC.	No
	Invertebrates Aquatic insect (spp.), Asian clam, crawfish	Yes	Water is supplied from Inks Lake and these species are known to exist		No
	Plants Aquatic macrophytes, various algae (spp.)	Yes	Seed is probably in the pond bottoms and levee banks	Herbicide and copper sulfate treatments	No
	Others ESC	Yes	Fish species could be infected that inhabit Inks Lake e.	Yearly inspections by Region 2 fish pathologists	No

Task 10 Ponds are harvested usually three (3) to four (4) days prior to shipping, moved to flow-through raceways and are sorted, given a salt treatment, and put on well water just prior to shipping.	Vertebrates Reptiles, amphibians, other fish species	Yes	Fathead minnows are put in ponds for ESC. Reptiles and amphibians can enter ponds	Large mesh nets allow smaller ANS to pass through. Visually inspect and hand sort	Yes
	Invertebrates Aquatic insect (spp.), Asian clam, crawfish	Yes	Water is supplied by Inks Lake and these species are known to exist	Large mesh nets allow smaller ANS to pass through. Visually inspect and hand sort	Yes
	Plants Aquatic macrophytes, various algae (spp.)	Yes	Plants and algae can get tangled in nets while harvesting the ponds	Flow-through raceways pass much of the aquatic vegetation. Visually inspect and hand sort	Yes
	Others ESC	Yes	Fish species could be infected that inhabit Inks Lake		No

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)
--	---	---	---	---	--

Task 11 RDU is filled with well water; fish are inspected and sorted again while loading for transport to stocking sites.	Vertebrates Reptiles, amphibians, other fish species	No	Well water is used.	Visually inspect and sort any ANS.	No
	Invertebrates Aquatic insect (spp.), Asian clam, crawfish	No	Well water is used.	Visually inspect and sort any ANS.	No
	Plants Aquatic macrophytes, various algae (spp.)	No	Well water is used.	Visually inspect and sort any ANS.	No
	Others ESC	Yes	Fish species could be infected that inhabit Inks Lake.	Yearly inspections by Region 2 fish pathologists	No

Task 12 Requesting Fishery Offices meet RDU, prior to stocking and performs additional spot checks to further ensure compliance.	Vertebrates Reptiles, amphibians, other fish species	No	Well water is used. Sorting has been performed	Visually inspect samples.	Yes
	Invertebrates Aquatic insect (spp.), Asian clam, crawfish	No	Well water is used. Sorting has been performed	Visually inspect samples.	Yes
	Plants Aquatic macrophytes, various algae (spp.)	No	Well water is used. Sorting has been performed	Visually inspect samples.	Yes
	Others ESC	Yes	Fish species could be infected that inhabit Inks Lake	Yearly inspections by Region 2 fish pathologists	No

HACCP Step 5 – HACCP Plan Form

HACCP Plan Form

(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	Monitoring				Evaluation & Corrective Action(s) (if needed)	Supporting Documentation (if any)
			What	How	Frequency	Who		
Task 7 In July or August, Region 2 fish pathologists perform disease certification on the channel catfish.	Other biologicals ESC	Yearly inspections by Region 2 fish pathologists	Certification on disease	Annual inspections	Annually	Region 2 fish pathologists	Any fish found testing positive would be utilized in alternative ways, locations or destroyed as per Region 2 directives.	Fish Health Certification

Facility:	Activity:
Address:	
Signature:	Date:
HACCP Plan was followed.	

HACCP Step 5 – HACCP Plan Form

HACCP Plan Form								
(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	Monitoring				Evaluation & Corrective Action(s) (if needed)	Supporting Documentation (if any)
			What	How	Frequency	Who		
Task 10 Ponds are harvested usually three (3) to four (4) days prior to shipping, moved to flow-through raceways and are sorted, given a salt treatment , and put on well water just prior to shipping.	Fish, invertebrates, aquatic macrophytes, various algae (spp), amphibians	Visually inspect, sort by hand. Use high flow to pass smaller ANS out of raceway. Treat with salt or formalin, if needed. Use well water.	Ensure all ANS are removed from target species.	High flow Visually inspect Chemical treatments	As needed	Staff	Hold longer and repeat inspections	Hatchery records

Facility:	Activity:
Address:	
Signature:	Date:
HACCP Plan was followed.	

HACCP Step 5 – HACCP Plan Form

HACCP Plan Form								
(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	Monitoring				Evaluation & Corrective Action(s) (if needed)	Supporting Documentation (if any)
			What	How	Frequency	Who		
Task 12 Requesting Fishery Offices meet RDU, prior to stocking and performs additional spot checks to further ensure compliance	Fish, invertebrates, aquatic macrophytes, Amphibians, reptiles, Asian clams various algae (spp)	Random representative samples to further ensure no ANS present	Ensure no ANS made past earlier tasks	Visual and manual sampling	Valid sample size prior to stocking	Fishery Resource biologists	Records from FRO biologist	Records from FRO biologist

Facility:	Activity:
Address:	
Signature:	Date:
HACCP Plan was followed.	

