

APPENDIX B

Charlie Craig Hatchery, Arkansas HACCP Plan for Black Crappie

Revision Date: October 21, 2003

- 1) Species Description
- 2) Past Stocking History
- 3) Flow Diagram
- 4) Potential Hazards
- 5) Hazard Analysis Worksheet
- 6) HACCP Plan Form
- 7) HACCP Step Summary

1. Species Description

Hatchery Name:	Charlie Craig State Fish Hatchery, Arkansas
Hatchery Address:	977 West Fish Hatchery Road P.O. Box 58 Centerton, AR 72719
Species of fish imported:	Black Crappie (<i>Pomoxis nigromaculatus</i>) Species Code BLC
Cultured, wild harvested, or both:	Cultured
Harvest method:	Earthen ponds drained into kettle and crappie seined
Method of distribution:	Wyoming Game and Fish Department fish distribution unit
Intended use:	Importation into the state of Wyoming for public fisheries management
Risk Level Prior to HACCP:	Level 4, Low Risk – NTS Present in Source (APPENDIX D).
Risk Level After HACCP:	Level 1 – 3, Low Risk—depended if NTS present prior to loading and type of NTS present (APPENDIX D).

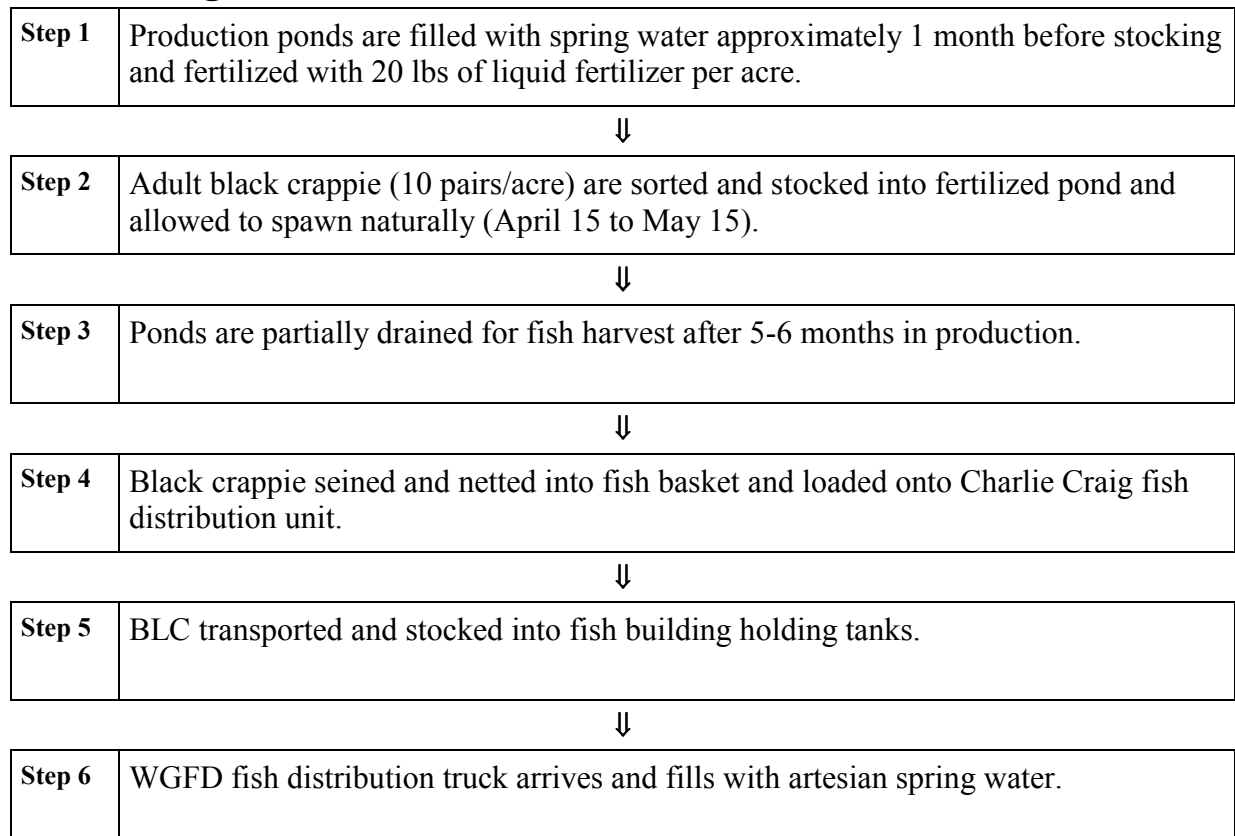
2. Past Stocking History

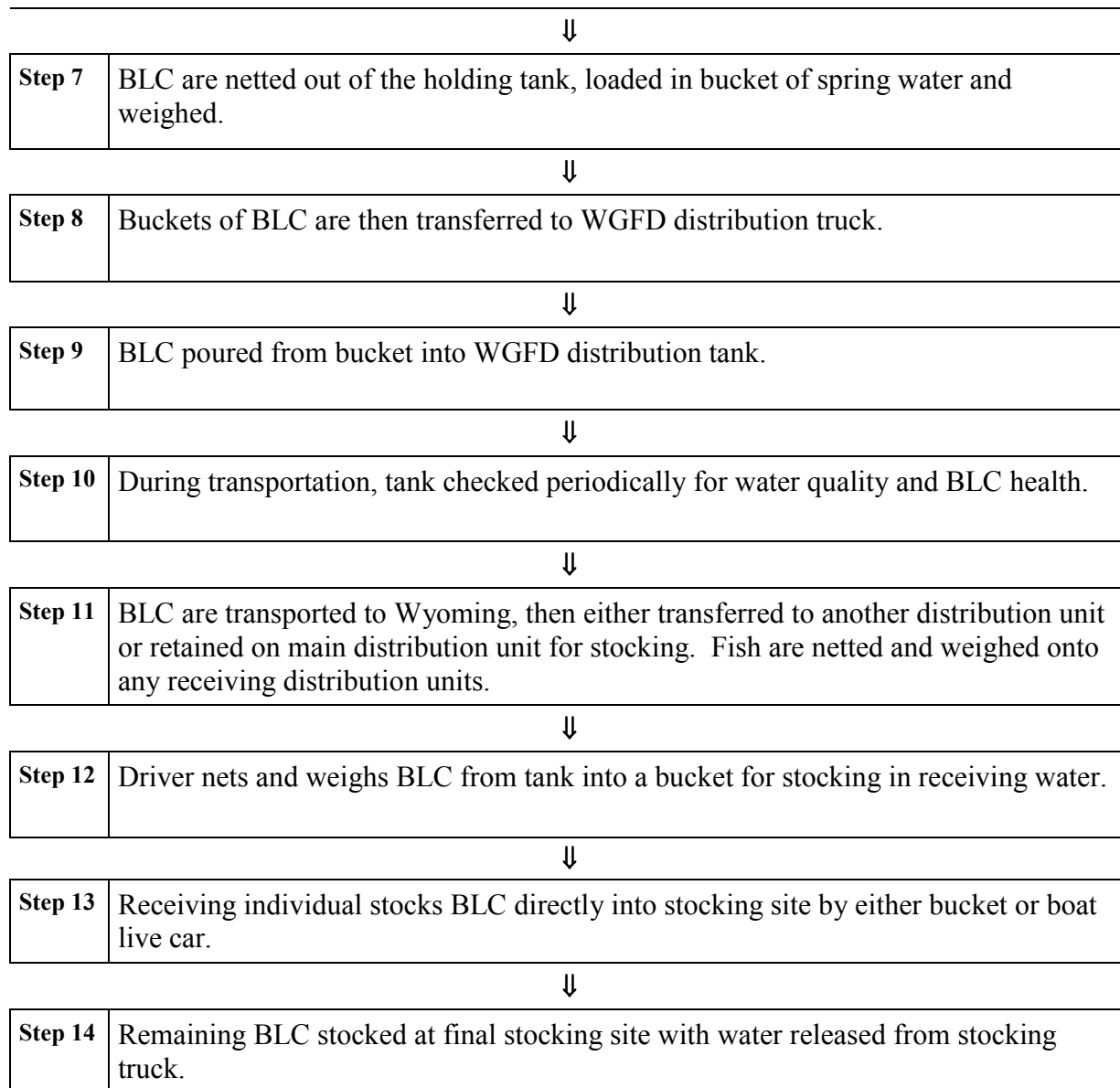
Water Name	Species	Number Stocked	Lbs Stocked	No/Lb	Stocking Date	ANS/NTS Present
Desmet Lake	BLC	20,055	340	58.90	10/14/1993	Unknown
Desmet Lake	BLC	50,000	200	250.00	10/12/1994	Unknown
Desmet Lake	BLC	40,000	293	136.75	10/05/1995	Unknown
Glendo Reservoir	BLC	39,600	290	136.75	10/05/1995	Unknown
	1995	79,600	582			
Desmet Lake	BLC	15,640	40	391.00	10/31/1996	Unknown

2. Past Stocking History (Continued)

Water Name	Species	Number Stocked	Lbs Stocked	No/Lb	Stocking Date	ANS/NTS Present
Hawk Springs Res	BLC	26,079	143	182.00	11/06/1997	Unknown
Packers Lake	BLC	3,130	17	182.00	11/06/1997	Unknown
Wheatland Res 1	BLC	10,431	57	182.00	11/06/1997	Unknown
Suntych Res	BLC	218	1	182.00	11/06/1997	Unknown
Rock Lake	BLC	2,966	16	182.00	11/06/1997	Unknown
	1997	42,824	235			
Hawk Springs Res	BLC	3,016	29	104.00	10/28/1999	Unknown
Hawk Springs Res	BLC	24,960	240	104.00	10/28/1999	Unknown
Packers Lake	BLC	3,016	29	104.00	10/28/1999	Unknown
	1999	30,992	298			
Packers Lake	BLC	4,130	14	295.00	10/17/2001	Unknown
Rock Lake	BLC	6,195	21	295.00	10/17/2001	Unknown
Hawk Springs Res	BLC	25,075	85	295.00	10/17/2001	Unknown
	2001	35,400	120			

2. Flow Diagram





4. Potential Hazards (List relevant species)

- A. **Aquatic Nuisance Species (ANS) Plants.** None identified in immediate drainage (CONTACT FREQUENCY – NONE).
- B. **Aquatic Nuisance Species (ANS) Fish and Other Vertebrates.** None identified in immediate drainage (CONTACT FREQUENCY – NONE).
- C. **Aquatic Nuisance Species (ANS) Invertebrates.** None identified in immediate drainage (CONTACT FREQUENCY – NONE)
- D. **Non-Target Species (NTS) Plants.** Filamentous algae, not an issue (CONTACT FREQUENCY – VERY LOW).

- E. Non-Target Species (NTS) Fish.** Occasionally capture mosquitofish (*Gambusia affinis*) in black crappie ponds (CONTACT FREQUENCY – VERY LOW).
- F. Non-Target Species (NTS) Amphibians.** Tadpoles (American Bullfrog) occasionally captured when harvesting ponds. (CONTACT FREQUENCY – VERY LOW).
- G. Non-Target Species (NTS) Invertebrates.** None captured when harvesting ponds (CONTACT FREQUENCY –NONE).
- H. Specific Pathogen of Concern and/or Other Health Concerns:** Annual fish health assessments are conducted on black crappie reared at the CCFH. (CONTACT FREQUENCY – VERY LOW).

5. Hazard Analysis Worksheet

A. ANS Hazard Analysis Worksheet

(1) Harvest or Aquaculture Step (from flow diagram)	(2) Identify potential ANS hazards introduced or controlled at this step (1)	(3) Are any potential ANS hazards significant? (Yes/No)	(4) Justify your decisions for column 3.	(5) What control measures can be applied to prevent the significant hazards?	(6) Is this step a critical control point? (Yes/No)
All Steps	Fish/Other Vertebrate	NO	None Present		
	Invertebrate	NO	None Present		
	Plant	NO	None Present		

B. NTS Hazard Analysis Worksheet (Continued)

(1) Harvest or Aquaculture Step (from flow diagram)	(2) Identify potential NTS hazards introduced or controlled at this step (1)	(3) Are any potential NTS hazards significant? (Yes/No)	(4) Justify your decisions for column 3.	(5) What control measures can be applied to prevent the significant hazards?	(6) Is this step a critical control point? (Yes/No)
Step 1. Production ponds are filled with spring water approximately 1 month before stocking and fertilized with 20 lbs of liquid fertilizer per acre.	Fish/Other Vertebrate	No	None Present		
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
Step 2. Adult black crappie (10 pairs/acre) are sorted and stocked into fertilized pond and allowed to spawn naturally (April 15 to May 15).	Fish/Other Vertebrate	No	None Present		
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
Step 3. Ponds are partially drained for fish harvest after 5-6 months in production.	Fish/Other Vertebrate	No	None Present		
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
Step 4. Black crappie seined and netted into fish basket and loaded onto Charlie Craig fish distribution unit.	Fish/Other Vertebrate	No	Remote Possibility of NTS Present	ID & Remove any NTS Vertebrates From Seine	Yes
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
Step 5. BLC transported and stocked into fish building holding tanks.	Fish/Other Vertebrate	No	None Present		
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
Step 6. WGFD fish distribution truck arrives and fills with artesian spring water.	Fish/Other Vertebrate	No	None Present		
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
Step 7. BLC are netted out of the holding tank, loaded in bucket of spring water and weighed.	Fish/Other Vertebrate <i>Gambusia affinis</i>	No	NTS Fish May Be Present in Buckets	If Present, ID & Remove Any NTS Vertebrates From Buckets If Possible	No
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		

B. NTS Hazard Analysis Worksheet (Continued)

(1) Harvest or Aquaculture Step (from flow diagram)	(2) Identify potential NTS hazards introduced or controlled at this step (1)	(3) Are any potential NTS hazards significant? (Yes/No)	(4) Justify your decisions for column 3.	(5) What control measures can be applied to prevent the significant hazards?	(6) Is this step a critical control point? (Yes/No)
Step 8. Buckets of BLC are then transferred to WGFD distribution truck.	Fish/Other Vertebrate <i>Gambusia affinis</i>	No	NTS Fish May Be Present in Buckets	NTS Present Controlled at Subsequent Step	No
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
Step 9. BLC poured from bucket into WGFD distribution tank.	Fish/Other Vertebrate <i>Gambusia affinis</i>	Yes	NTS Fish May Be Present in Buckets	If NTS Present, Run Bucket Over Sort Board Before Loading	Yes
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
Step 10. During transportation, tank checked periodically for water quality and BLC health.	Fish/Other Vertebrate <i>Gambusia affinis</i>	No	NTS Fish May Be Present in Tank	If NTS Present, Try to Remove If Possible	No
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
Step 11. BLC are transported to Wyoming, then either transferred to another distribution unit or retained on main distribution unit for stocking. Fish are netted and weighed onto any receiving distribution units.	Fish/Other Vertebrate <i>Gambusia affinis</i>	No	NTS Fish May Be Present in Net	Visual Inspection Of Sampled Fish, Sort Board Fish If NTS Present	No
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
Step 12. Driver nets and weighs BLC from tank into a bucket for stocking in receiving water.	Fish/Other Vertebrate <i>Gambusia affinis</i>	Yes	If NTS ID'd By Step 9, NTS May Be Present In Bucket	Visual Inspection Of Bucket, Sort If NTS Identified	Yes
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		

C. NTS Hazard Analysis Worksheet (Continued)

(1) Harvest or Aquaculture Step (from flow diagram)	(2) Identify potential NTS hazards introduced or controlled at this step (1)	(3) Are any potential NTS hazards significant? (Yes/No)	(4) Justify your decisions for column 3.	(5) What control measures can be applied to prevent the significant hazards?	(6) Is this step a critical control point? (Yes/No)
Step 13. Receiving individual stocks BLC directly into stocking site by either bucket or boat live car.	Fish/Other Vertebrate <i>Gambusia affinis</i>	Yes	NTS Fish May Be Present In Bucket	If NTS ID'd At Steps 4 & 12, Visual Review Of Bucket Before Stocking	No
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
Step 14. Remaining BLC stocked at final stocking site with water released from stocking truck.	Fish/Other Vertebrate <i>Gambusia affinis</i>	Yes	NTS Fish May Still Be Present in Distribution Tank	If NTS ID'd At Step 11 Or 12, Empty Tank Into Net And Run Remaining CCF Over Sort Board If NTS Is Of Concern	Yes
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		

6. ANS-HACCP Plan Form – Preventative Measures

(1) Critical Control Point: Step 4. Black crappie seined and netted into fish basket and loaded onto Charlie Craig fish distribution unit.	
(2) Significant Hazard(s): First opportunity to examine BLC for NTS vertebrates or plant introduction. If no NTS present, risk level reduced significantly.	
(3) Limits for Each Control Measure: Identify any NTS vertebrate present. WGFD representatives informed of NTS prior to their arrival for loading.	
Monitoring	(4) What: If NTS identified, requires focused HACCP due to increased risk level. Identified NTS may be acceptable for destination and considered lower risk level after review of WGFD NTS Acceptance List (APPENDIX C, "Stocking Guide for Non-Target Species Management").
	(5) How: If NTS is identified and a concern, additional examination of fish loaded to the hatchery is required to determine extent of NTS presence. Sorting and removal may be required in subsequent steps if NTS not acceptable for destination; or confirm load not accepted for importation.

