

Wyoming Game and Fish Department
Fish Division

FISH IMPORTATION RISK ASSESSMENT

Fish Culture Site: Byron State Fish Hatchery, Oklahoma Department of Wildlife Conservation



Primary Rearing Site Information

Location: Six miles north of Great Salt Plains Reservoir and Salt Plains National Wildlife Refuge; 45 miles northwest of Enid, Oklahoma and 90 miles southwest of Wichita, Kansas.

Map Coordinates: Approximately 98° 10' 50" Longitude, 36° 50' 25" Latitude

Drainage: Hatchery lies in an isolated drainage above Sand Creek and 4 miles above the confluence with the Salt Fork of the Arkansas River. Water flows within the hatchery drainage originate from the hatchery well supply.

Water Supply: Well water initial source supplying rearing building and ponds. Hatchery effluent drains to lower hatchery reservoir, and then recycled by pump to two upper hatchery reservoirs for gravity flow supply to rearing building and ponds. All reservoir supply water is filtered through 32 X 32 (1/32" opening) mesh bags to remove possible exposure to fish and other larger vertebrates and invertebrates.

Fish Species Typically Reared: Fish in **bold** indicate potential species for importation:

Walleye	Sauger	Sauger X Walleye
Striped Bass	White Bass X Striped Bass	Largemouth Bass (Northern)
Smallmouth Bass	Channel Catfish	Largemouth Bass (Florida)
Goldfish	Redear Sunfish	Bluegill
Paddlefish	Redear X Green Sunfish	Bluegill X Green Sunfish

Rearing Facilities

Cool/Warmwater Building: Building used to receive, hold, spawn, incubate, hatch and start initial rearing of cool and warmwater species. Water supplies for this building are well water and water (recycled) from hatchery reservoir. Effluent drains to lower hatchery reservoir and pumped to upper hatchery reservoirs. The upper reservoirs are used to fill hatchery ponds or supply the hatchery building.

Hatchery Rearing Pond Unit: Twenty (20) ponds varying from 0.4 acres to 2.7 acres filled by draining water from upper supply reservoirs. Ponds are harvested to individual internal harvest basin supplied with fresh water from hatchery reservoirs.

Propagation of Fish for Importation

Bluegill: reared in hatchery rearing ponds (APPENDIX A).

- Spawning and Rearing Site – Byron State Fish Hatchery ponds
- Spawning and Rearing Period – June 15 through October 30 (multiple spawn periods).
- Pond Preparation – pond bottoms are tilled and then ponds are filled. Water supply is filtered through 32 X 32 (1/32” opening) mesh bags to remove possible exposure to fish and other larger vertebrates and invertebrates. Ponds are fertilized with 100 lbs. of cottonseed meal per acre. Adult fish are stocked 2 to 4 days post filling.
- Spawning and Rearing – adult fish are sexed and stocked (30 pair per acre) in ponds. Natural spawn, hatch and rearing occur in same pond environment until progeny reach desired size for harvest.
- Production Period -- 100 to 120 days.
- Pond Harvest – Water is drained from the ponds through screened pond effluent collecting fish in an internal harvest basin with water supplied to harvest basin from hatchery reservoirs. Fingerlings are loaded and transported to hatchery building where they are treated with salt and held for 12 to 36 hours. Building water supply same water source as pond and harvest basin supply.

Hybrid Sunfish (Bluegill X Green Sunfish): reared in hatchery ponds (APPENDIX B).

- Spawning and Rearing Site – Byron State Fish Hatchery ponds
- Spawning and Rearing Period – June 15 through October 30 (multiple spawning periods).

- Spawning and Rearing – adult fish sexed and stocked (15 male bluegill and 15 female green sunfish per acre) in ponds. Natural spawn, hatch and rearing occur in same pond environment until progeny reach desired size for harvest.
- Pond Preparation – pond bottoms are tilled and then ponds are filled. Water is filtered through 32 X 32 (1/32” opening) mesh bags to remove possible exposure to fish and other larger vertebrates and invertebrates. Ponds are fertilized with 100 lbs. of cottonseed meal per acre. Adult fish are stocked 2-4 days post filling.
- Production Period – 100 to 120 days.
- Pond Harvest – Water is drained from the ponds through screened pond effluent collecting fish in an internal harvest basin with water supplied to harvest basin from hatchery reservoirs. Fingerlings are loaded and transported to hatchery building where they are treated with salt and held for 12 to 36 hours. Building water supply same water source as pond and harvest basin supply.

Drainage Information

Fish in Drainage: Species in **bold** indicate species not found in Wyoming. Only one pond is above the hatchery in this drainage. Water leaves the hatchery and goes through three ponds (2 are dry 9 months of the year) and 1.5 miles of heavily vegetated draws before reaching Sand Creek.

Bluegill	Largemouth Bass	Green Sunfish
Channel Catfish	Mosquito Fish (<i>Gambusia</i>)	Sauger X Walleye*
Walleye*	Sauger*	Largemouth Bass (Northern)*
Striped Bass*	White Bass X Striped Bass*	Largemouth Bass (Florida)*
Smallmouth Bass*	Channel Catfish*	Bluegill*
Goldfish*	Redear Sunfish*	Bluegill X Green Sunfish*
Paddlefish*	Redear X Green Sunfish*	

* indicates hatchery production fish

Amphibians in Drainage:

<u>Species Identified in Drainage</u>	<u>Drainage in Species Probable Range</u>
Plains Leopard Frog	Smallmouth Salamander
Tiger Salamander	Great Plains Toad
Plains Spadefoot Toad	Great Plains Narrowmouth Toad
Woodhouse Toad	
Bullfrog	
Blanchard’s Cricket Frog	
Chorus Frog	

Known Aquatic Nuisance Species in Drainage: None. Zebra mussels are an ANS of concern present in the region. A long term monitoring program shows no evidence of this or other ANS present in the immediate drainage or the nearest major drainage, the Salt Fork of the Arkansas River.

Aquatic Nuisance Species (ANS)/Non-Target Species (NTS) Identification and Interaction

Aquatic Nuisance Species: None

Non-Target Species (NTS) Plants: Southern Najas, Chara, Coontail, Duckweed, American Pondweed, filamentous algae and cattail. Chara, Coontail, and filamentous algae are generally the only vegetation found in the ponds that can be flushed into the basin. Typically the hatchery staff uses herbicides, dyes, and white amur to control vegetation and prevent spread. Any plant material found in basin is removed while fish are being weighed and loaded.

Non- Target Species (NTS) Fish: Although infrequent it is possible to get NTS, mainly green sunfish, in basins during harvest.

- Production ponds
 - ✓ Possible, but unlikely, introduction of green sunfish fry during filling for bluegill and bluegill X green sunfish production. Ponds filled are filtered to prevent such introduction. Precautions are taken during stocking of adult fish to insure no green sunfish adults are stocked in bluegill ponds and no green sunfish males are stocked into the hybrid ponds.
- Harvest basins
 - ✓ Identification and removal of any NTS fish during harvest, netting, weighing, and loading of fish onto transport trucks to be moved to holding tanks in hatchery building.
- Holding tanks in hatchery building
 - ✓ Identification and removal of any NTS fish during netting, weighing, unloading and reloading of fish. Water level maintenance in holding tanks is utilized to remove green sunfish.

Non- Target Species (NTS) Amphibians: NTS amphibian life stages (tadpoles and mudpuppies) may be present in basins during harvest. Size of amphibian makes removal easy.

- Production ponds
 - ✓ Possible NTS amphibian introduction from spawning directly in pond.
- Harvest basins
 - ✓ Removal of NTS amphibians can be accomplished during netting, weighing, and loading of fish on transport unit.
- Hatchery building holding tanks
 - ✓ If needed, removal of any NTS amphibians can be accomplished at this stage. They can be removed during unloading, holding, and loading phase of this operation.

Non- Target Species (NTS) Invertebrates: Primary invertebrates present are snails of genus Physa and Hydra. Snail densities are typically very low and can be removed during netting, weighing, and loading of fish.

Specific Pathogens of Concern and/or Other Health Concerns: Byron State Fish Hatchery has been tested and determined to be Largemouth Bass Virus free. Parasites present on hatchery include *Trichodina*, *Dactylgyrus*, and *Ichthyophthirius*. Channel catfish virus has not been identified on the hatchery in the last 10 years.