

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

FISHPOND MANAGEMENT

(Ac.)

CODE 399

DEFINITION

Managing impounded aquatic habitat and water quality for the production of fish.

PURPOSE

- To provide favorable habitat for fish and other aquatic organisms which help sustain the fish population.
- To develop and maintain a desired species composition and ratio.
- To develop and maintain a desired level of production.

CONDITIONS WHERE PRACTICE APPLIES

In warm and cold water ponds, lakes, and reservoirs not managed for commercial aquaculture purposes.

CRITERIA

General Criteria Applicable to All Purposes

Newly constructed fishponds must meet the requirements of Conservation Practice Standard 378, Pond.

Livestock shall be excluded from the pond whenever livestock numbers or conditions relative to livestock access would create unfavorable impacts to fish habitat or water quality.

Control nuisance species in compliance with state and local regulations.

Protect the site from flooding, sedimentation, and contamination.

Control undesirable aquatic vegetation.

Comply with state and local regulations when selecting species to be stocked. In Tennessee it is illegal to stock any carp other than the

triploid grass carp. Other fish species also prohibited in the state include the blueback herring, swamp eel, round goby, rudd, ruffe, and snakehead.

Discharges from ponds, lakes, and reservoirs when planned and carried out as part of fishpond management will meet state water quality standards.

Prevent the fish in the pond from escaping or being introduced into adjoining waters where native species might be adversely affected in accordance with state and local regulations.

Avoid stocking older ponds containing existing fish populations unless the existing fish are removed first, or a supplemental stocking regimen is supported by adequate sampling and favorable conditions to support the supplemental stocking.

Criteria to Provide Favorable Habitat for Fish and other Aquatic Organisms which Help Sustain the Fish Population

Newly constructed multi-species (i.e. bass/bluegill) ponds shall be constructed with irregular or undulating pond bottom contours consisting of humps and holes.

Newly constructed bass/bluegill ponds shall have at least 85% of the normal water surface area three feet or deeper to limit the possibility of overabundant aquatic vegetation production.

Fish attractors such as brush piles, stake beds, etc. must be placed in depths at least four feet below ordinary low water to limit excessive protection for smaller forage fish. Fish attractors should not be placed in depths exceeding six feet to maximize use during periods of stratification. A minimum of one fish attractor per surface acre is necessary to enhance inadequate escape cover, i.e. when

Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard, contact your Natural Resources Conservation Service [State Office](#) or visit the [Field Office Technical Guide](#).

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there is a lack of desirable aquatic vegetation.

Restrict placement of spawning habitat (i.e. pea gravel beds) to bass/bluegill ponds lacking gravelly bottom areas and with minimal sedimentation from offsite sources. A minimum of one 10x10 foot gravel bed per surface acre should be built in 2 to 4 feet of water when bass or bluegill spawning habitat is determined deficient.

Criteria to Develop and Maintain a Desired Species Composition and Ratio

Limit species for stocking to those that are locally adapted for use in ponds, lakes or reservoirs. The most common warmwater species in Tennessee to consider would be northern largemouth bass, bluegill sunfish, redear sunfish, hybrid bream, fathead minnows, and channel catfish. Rainbow trout are adapted to coldwater ponds or may be stocked as over winter put-and-take in warmwater ponds.

Based on client objectives and local regulations develop a pond management plan that specifies species selection, stocking rates and ratios.

Develop species selection, stocking rates, and ratios with respect to the size, depth, water temperature, and water quality of the pond to be stocked.

Criteria to Develop and Maintain a Desired Level of Production

When fish production is dependent upon a forage base, the forage fish shall be stocked prior to or concurrent with the predator species and in a manner to insure the establishment of the forage base.

Maintain the desired level of production through liming, fertilization, slot limits, harvesting, or supplemental feeding. Address water quality conditions (e.g., dissolved oxygen level, total hardness, pH, alkalinity, phytoplankton bloom, etc.) based on local conditions using the pond management plan.

Aquatic organism health issues directly affect production levels and need to be included in the pond management plan. Follow proper diagnostic sampling procedures during fish kills and when submitting samples to diagnostic labs.

CONSIDERATIONS

Use native species whenever possible. Nonnative game or forage fish can escape ponds and severely affect adjacent ecosystems.

Consider alternatives to the use of pesticides in the drainage area above the site, which may have negative impacts to water quality and aquatic organisms.

Consider the use of nutrient and pest management practices in the watershed to maintain water quality.

Consider the effect of additional uses (e.g., livestock watering, recreation, irrigation, etc.) on the fish and/or aquatic organism population. Ponds with livestock access should always consider the permanent exclusion of livestock, or if feasible the installation of a gravity fed water line to a below-dam trough or tank.

Consider sowing entire pond bottoms to a quick germinating temporary cover plant such as wheat or millets immediately after construction to limit turbidity during fill up, reduce sediment deposition, and "age" the pond by accelerating the developing food chain.

Consider including in the construction design of new fishponds the installation of drainpipes through a principal spillway (overflow pipe), siphon tube, etc. for drawdown and/or draining capabilities, which will increase management options for fish production and habitat improvement.

Consider retrofitting a principal spillway designed for surface water release with bottom water release to improve water quality.

Consider the use of supplemental aeration equipment to improve gas transfer, water quality, and minimize fish stress within the impoundment, primarily in ponds planned for high production (e.g. single-species catfish ponds).

Consider adopting a put-and-take non-bass stocking and management system (e.g. single-species stocking such as channel catfish, hybrid bream, or catfish/hybrid bream) for ponds of less than 1 acre, instead of a multiple-species bass-dominant stocking and management system (e.g. bass/bluegill/catfish). Multiple-species

stockings are more difficult to maintain proper population balance in small ponds.

Consider providing additional fish and wildlife habitat within or around the impoundment for cover and spawning/breeding purposes. A vegetated buffer around the pond can provide multiple benefits, such as nesting and escape cover, reduced bank erosion, and improved water quality.

Grassy cover around the impoundment that provides nesting cover should not be mowed until after the primary nesting season, April 15 to August 15.

PLANS AND SPECIFICATIONS

A pond management plan will be prepared using approved specification sheets, job sheets, technical notes, narrative statements in the conservation plan, or other documentation.

The plan will include:

- A location map and plan view of the site;
- Statement of purpose that describes the species(s) desired and management goals;
- Evaluation methods (observation, seining, electroshocking, harvest records, etc.) for determining the population dynamics of fish and other aquatic organisms;
- Reference to State Aquatic Nuisance Species Management Plan recommendations, if applicable;
- Permit requirements and regulations, if applicable (this does not include construction permits, e.g. TDEC-SWPPP, COE-404, TVA-26, or TDEC-ARAP permits that may be required to build, modify, or repair a dam under the Pond standard); and
- A corrective management plan, if applicable, when population balance or pond renovation is warranted. Corrective management will typically consist of renovation, harvest manipulation, and/or supplemental stocking.

OPERATION AND MAINTENANCE

Develop an operation and maintenance plan that includes the following actions that are required for successful management of the pond, lake, or reservoir:

1. Evaluation of habitat conditions on a regular basis.
2. Management of fish or other aquatic organism populations through harvesting, pond drawdowns, or other methods for maintaining a balanced population between fish, food sources, and environmental conditions.
3. Supplemental feeding where applicable.
4. Removal of undesirable and overpopulated organisms.
5. Management and control of aquatic vegetation.
6. Application of fertilizer and lime where applicable.
7. Monitoring and maintenance of desired water quality conditions (e.g., dissolved oxygen level, total hardness, pH, alkalinity, phytoplankton bloom, etc.).
8. Periodic inspection and maintenance of structural components (e.g., water level control equipment).
9. Detection and identification of fish pathogens and instructions for collecting and preserving samples.
10. Operation and maintenance procedures for water treatment and escape-control mechanisms at discharge points.

REFERENCES

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