

## SCDNR Guidelines for Private Recreational Ponds

March 17, 2020

South Carolina Department of Natural Resources (SCDNR) has developed the Guidelines for Private Recreational Ponds. The SCDNR is the steward of the state's natural resources and is responsible for the protection and management of these resources for the use and enjoyment of the public. SCDNR, in carrying out its protection and management responsibilities, must balance its objectives and actions in order to most appropriately protect and sustain the natural resources of South Carolina.

The construction of private recreational ponds provides opportunity for maintaining a stayed tradition in South Carolina's culture of recreational fishing. However, these benefits are often gained at costs to both natural ecosystem functions and native biological communities. Ponds can result in substantial changes in stream flow, water temperature, wetland functions, energy cycles, channel morphology and natural biological communities. To balance the management of South Carolina natural resources with the protection of natural ecosystems, SCDNR has developed these guidelines for suitable pond construction and management for the purpose of recreational fishing.

**In order to fulfill the goals of this guidance, applications for private recreational ponds should contain sufficient information to allow determinations relative to these criteria. They must contain a plan that addresses the elements listed below.**

### I. Siting

#### a. Uplands

- i. Site the pond solely in uplands. If this occurs, no permitting is required from the U.S. Army Corps of Engineers (USACE); however, other state and local permits may be required.
- ii. If powerline, telephone or gas lines (or the associated right-of-way) are located within the pond location, a letter of permission or easement access may be required from the appropriate utility company.

#### b. Waters

- i. Ponds should not be constructed in navigable waters and/or adjacent wetlands. Ponds should not be constructed on a perennial stream; however, on a case by case basis these ponds will be evaluated on a perennial stream if the proposed pond site is situated between a pond upstream and downstream. In general, ponds built on perennial streams are not manageable for fisheries due to poor water retention time and competitive fish species introductions.
- ii. Ponds should not be constructed in a stream that does not have an existing pond between the site and the nearest downstream navigable water, as defined by the South Carolina Department of Health and Environmental Control per S.C. Code of Laws §49-1-10 and Code of Regulations 19-450.2.C.
- iii. Ponds should not be constructed on trout waters. Trout waters are defined in the S.C. Code of Regulations 61-69.
- iv. Proposed ponds sited in streams which do have an existing pond downstream of the proposed pond site and the nearest downstream navigable water will be evaluated.
- v. Proposed ponds sited on intermittent streams and/or adjacent wetlands will be evaluated.
- vi. Proposed ponds should be built on sites where either the watershed rainfall runoff or the spring fed inflow is enough to maintain the water level within the impoundment to support the fishery. Pond levels should not be maintained with the use of supplemental well water.
- vii. If powerline, telephone or gas lines or the associated right-of-way are located within the pond location, a letter of permission or easement access may be required from the appropriate utility company.

- c. Sensitive Resources
  - i. Ponds should not be constructed if their construction will negatively impact a state or federal threatened or endangered species.
- d. Water Quality
  - i. If the proposed pond will be fed by a creek or spring, it is required that a water quality check occur to ensure the water is an adequate pH (6-9) to sustain a recreational fishery prior to construction. It is also recommended that the alkalinity and hardness be checked to determine what long-term management costs (liming/fertilizing) may be associated with the proposed pond prior to construction to ensure its productivity as a recreational fishing pond. SCDNR recommends that the pond owner consult the SCDNR publication "Managing Ponds for Recreational Fishing"<sup>1</sup> to determine fish stocking rates for fertilized versus unfertilized ponds. Provide the water chemistry information as a part of the pond proposal plan.
- e. Soils
  - i. Soils should have low permeability thereby allowing for proper water level maintenance.
  - ii. Check the soils of the proposed site by contacting a professional pond construction company that can conduct site evaluations and soil analysis. The proposed pond site should have soils that have low permeability and good compaction such as a clay, silty clay or sandy clay content to be able to hold water. During construction be careful not to excavate below the restrictive clay layer. This can be determined with a bore sample. Provide information on soil types as a part of the pond proposal plan.
- f. Hazards
  - i. Identify any hazards on the proposed pond site that may affect the project such as powerlines, roadways, location of adjacent landowner homes, etc. on a map.

## II. Construction

To provide the information necessary to submit a pond construction permit under the General Permit, it is recommended, but not required, that a professional pond construction company be consulted for the submission of the following information, along with pond design:

- a. For the purposes of the General Permit, ponds should be constructed between 1 to 5 acres and built an adequate size not to exceed what the watershed can contribute, unless a reliable spring is available. If the pond is fed by runoff, each acre of pond requires 10-12 acres of watershed (generally undeveloped land). Avoid including too much watershed acreage as excess waterflow is undesirable.
- b. A recreational fishing pond should have a maximum pond depth that ranges between 5 and 10 feet. (Depths greater than 10 feet may result in stratification and associated water quality issues, such as low dissolved oxygen.) If the pond is predominantly fed by an adequate spring, then the maximum depth should range between 5 to 6 feet. For those that are relying predominantly on runoff from the watershed, the maximum depth should range between 7 to 10 feet. For recreational fishing, excavated ponds should be constructed in a manner to provide variability of the shoreline, and therefore fish habitat, so as not to create a perfect square, circle or oval. The higher the shoreline development ratio<sup>i</sup>, or the more irregular the shoreline, the greater the potential for development of productive littoral communities.
- c. Twenty five percent of the total pond acreage should be constructed at 3 feet deep to create a littoral shelf of fish habitat. (Waters shallower than 3 feet should be minimized to prevent aquatic weed problems.) Proposed plans for submission must include a depiction of the proposed location(s) of the littoral zone(s) and a typical cross-section. Vegetation may be used to stabilize the littoral shelf and improve water quality within the

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<sup>1</sup> [www.dnr.sc.gov/fishpond](http://www.dnr.sc.gov/fishpond)

pond. Vegetation must be herbaceous native emergent species or appropriate native woody shrubs, such as buttonbush. Cypress may also be planted, where appropriate, in the pond bed. Helpful resources for planting may be found at

- i. <https://hgic.clemson.edu/factsheet/aquatic-shoreline-plant-selection/>
- ii. <https://hgic.clemson.edu/factsheet/shorescaping-freshwater-shorelines/>

- d. Inflow volume must approximate outflow volume for ponds constructed in streams. The proposed project submittal must include calculations that demonstrate that the downstream flow will not be adversely affected by the proposed pond. Submittals must include clear and concise drawings such as a plan view and cross section depicting the use of a low flow device or other method to prevent adverse impacts to the flow and circulation of flow downstream. Further, the applicant must submit documentation that during a normal rainfall year, the tributary to be impounded has adequate flows to support a pond of the size proposed without impacting downstream flows. This documentation may vary depending upon available flows within the tributary to be impounded. The documentation must be commensurate with the size of the proposed pond and the environment surrounding the proposed pond. For example, small ponds on tributaries with higher volume or perennial flows may require less documentation. Ponds on low volume or less than perennial tributaries may require inflow calculations and projected outflow calculations that account for average seepage losses and evaporation. The selected low flow device must be specified and depicted in the permitted plans. It is important to note that the property owner must manage the required low flow device such that during drought conditions, downstream flow is maintained; even if this requires that during drought events, the water level within the pond is substantially lower than normal pool elevation. Physical management of the low flow device will be a special condition of the permit.
- e. The pond will be managed with adequate forested and vegetated buffers. This requires that at least 50% of the pond perimeter, excluding the dike/dam/embankment, be maintained, or planted, in a forested buffer that averages at least 50 feet in width and the remaining 50% of the pond perimeter in a non-invasive grass or forb. Additionally, the downstream portion of the tributary must be maintained in a forested buffer that is at least 50 feet in width (on both streambanks) and continues for a minimum of 100 feet downstream or to the property line, whichever is closer. Deed restrictive covenants, or a similar document, requiring that the buffer be maintained in perpetuity is required and will be made part of the permit via special condition.
- f. All trees, vegetation, roots, stumps and large rocks must be removed from the dam/dike/embankment site to prevent potential dam failures. The decay or organic materials left in the dam will create passages allowing water to seep and large rocks may prevent proper compaction.
- g. The dike/dam must be keyed with a clay core at least 8 feet wide and extend into the impermeable layer below the bottom of the pond, generally at least 2 feet. The core should extend to the top of the dam, not just to the top of the water.
- h. The dike/dam/embankment must be designed to incorporate a 3:1 slope on the inside of the pond (water side) and a 3:1 or 2:1 on the outside. The top width of the dam should be a minimum of 12 feet wide.
- i. A water control structure or primary spillway should be included to allow controlled release of water to maintain the desired depth of the pond. Examples of water control structures include: a conduit and riser, trickle tube with antiseep collar, bottom draw riser or a bottom draw with a valve. The water control structure and primary spillway must be specified and depicted in the plans.
- j. The embankment design must include a structure for energy dissipation and water aeration at the outfall point/location/structure. Details regarding the energy dissipation

and water aeration structure must be included within the work plan and depicted on the appropriate project drawings.

- k. The emergency spillway must be constructed such that it discharges into the tributary and into an area of the tributary that is sufficiently stabilized to prevent excessive erosion during storm events. The emergency spillway should be on one end of the dam and placed slightly below the top of the dam at less than 2 feet above the riser. The width of the spillway channel is determined by the discharge or size of the watershed and size of the pond. A professional pond construction consultant should be able to assist with this determination. The emergency spillway must be specified and depicted in the plans.
- l. A water control structure or primary spillway should be included to allow controlled release of water to maintain the desired depth of the pond. It is recommended that a low level or bottom release control structure be used. The water control structure and primary spillway must be specified and depicted in the plans.
- m. Topsoil excavated during construction should be retained separately, so that it can be spread on the dam and banks of the finished pond. Subsoils are poor substrates for plant growth and if left adjacent to the pond will erode back into the pond and become a source of turbidity and poor water quality. Excavated material should be moved away from the pond into an upland area.
- n. To prevent erosion, establish vegetation (grasses such as rye, wheat or millet) on the pond banks and excavated material piles immediately after the completion of the pond until permanent grasses are able to be planted or established.

### III. Pond Management

- a. Primary spillways should be inspected routinely for signs of beaver or other animal activity that could affect the function of the spillway.
- b. Emergency spillways should be inspected routinely for signs of animal activity and maintained free of woody vegetation.
- c. Dikes/dam/embankments should be routinely inspected and managed for signs of faults, leaks, and animal activity (muskrat and beaver), as well as maintained free of woody vegetation to protect the integrity of the dam. The dike/dam/embankment should be maintained in grasses.
- d. For additional detailed information regarding management such as pond stocking, fertilization and liming rates, visit: [www.dnr.sc.gov/fishpond/](http://www.dnr.sc.gov/fishpond/)

#### Note:

#### SC Department of Health and Environmental Control (DHEC) Dam Safety Program

<https://scdhec.gov/environment/bureau-water/dams-reservoirs>

Under state law and regulations, before a dam that meets regulatory criteria can be built, altered, repaired, or removed, plans and specifications must be submitted to the DHEC Dams and Reservoirs Safety Program for review. Once that review is complete, work can commence after a written permit is issued by the Department. The Dams and Reservoirs Safety Program reviews permit applications while also conducting safety inspections of regulated dams and providing informational and technical assistance to dam owners and operators in South Carolina to ensure their compliance with state laws and regulations.

The program conducts construction inspections and final inspections on permitted projects to ensure all work is performed in accordance with the approved plans and specifications. Before a regulated dam or reservoir can be placed into operation, written authorization must be granted by the program.

#### SC Dams and Reservoirs – Tax Credits

<http://www.scdhec.gov/Environment/WaterQuality/DamsReservoirs/TaxCredits/>

Section 12-6-3370 of the 1976 South Carolina Code of Laws provides for a state tax credit for the construction, installation or restoration of water impoundments and water control structures used for certain purposes. That Section of the 1976 Code is printed here:

Section 12-6-3370. Tax credits for construction, installation or restoration of water impoundments and water control structures.

1. A taxpayer may claim a credit for twenty-five percent of all expenditures for the construction, installation, or restoration of ponds, lakes, other water impoundments, and water control structures designed for the purposes of water storage for irrigation, water supply, sediment control, erosion control or aquaculture and wildlife management, providing these items are not located in or adjacent to and filled primarily by coastal waters of the State.
2. In the case of pass-through entities, the credit is determined at the entity level and is limited to two thousand five hundred dollars. The maximum amount of credit for all taxpayers, including any credit passed through to the taxpayer from a partnership, "S" Corporation, estate, or trust, is also limited to two thousand five hundred dollars.
3. If the credit exceeds the taxpayer's tax liability for the taxable year, the excess amount may be carried forward for credit against income taxes in the next five succeeding taxable years.
4. To qualify for the credit the taxpayer must obtain a construction permit issued by the Department of Health and Environmental Control or proof of exemption from permit requirements issued by the department, the Natural Resources Conservation Service, or a local Soil and Water Conservation District.

To obtain the proof of exemption form referenced in (D) above, the owner must first insure that the dam is less than 25 feet high and will impound less than 50 acre feet of water and does not present a hazard for loss of life in case of failure (for dams of lesser size). Once the owner has determined with certainty that his dam does not meet the size requirements to require a permit, proceed with construction. When construction is complete, call the DHEC Environmental Quality Control Regional Office of the county in which the dam is located, and ask for the Dam Certificate of Exemption Form. The Regional Office will arrange for someone to meet the owner or his representative at the dam to verify its location, size, and use. That Regional Office representative will issue the Certificate to the owner, and the owner can then use that document to apply for the tax credit when he files his state income tax return on or before the following April 15th. For permitted dams, the permit to construct and certificate of completion should be filed with the state income tax return.

#### **Additional Sources**

Natural Resources Conservation Service Conservation Practice Standard. Pond. No. 378.

<file:///V:/Other/Impoundment%20Policy%20Planning/Pond%20RGP/NRCS%20Pond%20Standard%20Practice%20Code%20378.pdf>

Natural Resources Conservation Service. Ponds: Planning, Design and Construction. Agriculture Handbook No. 590.

<file:///V:/Other/Impoundment%20Policy%20Planning/Pond%20RGP/NRCS%20Pond%20Standard%20Practice%20Code%20378.pdf>

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<sup>1</sup> Hutchinson, G.E. 1957. A treatise on limnology v.1. Geography, Physics and Chemistry. Wiley. 1015pp  
Shoreline development is the ratio of the length of the shoreline to the circumference of a circle of area equal to that of the lake.