

USDA
NATURAL RESOURCES
CONSERVATION SERVICE
DELAWARE
CONSERVATION
PRACTICE STANDARD

SHALLOW WATER AREA
FOR WILDLIFE

CODE 646
(Reported by Acre)

DEFINITION

Providing and managing shallow water and moist soil areas for wildlife habitat.

PURPOSES

This practice may be applied for one or more of the following purposes:

- Provide and manage shallow water habitat for waterfowl resting, feeding, and/or brood rearing;
- Provide and manage shallow water habitat for reptiles, amphibians, and insects, which serve as important food sources for waterfowl, wading birds, and other wildlife.

CONDITIONS WHERE PRACTICE

APPLIES

This practice may be applied on land which is suitable for development of shallow surface water, where seasonal water levels and/or vegetation will be actively manipulated to benefit wildlife, primarily waterfowl.

Although a shallow water wildlife area may also meet the technical criteria for wetland, this practice does not apply to land which is developed or restored primarily with the

intent of meeting wetland criteria (hydric soil,

hydrophytic vegetation, and hydrology). To construct a wetland, refer to the conservation practice standards for Wetland Restoration, Code 657; and Wetland Creation, Code 658.

CONSIDERATIONS

- Consider the long-term land use objectives of the land user. Consider the wildlife species or groups of species to be supported and the habitat needs, which can be met on the managed property.
- Assess site conditions including surrounding land uses, soils, residual herbicides (to the extent known), water availability, and existing vegetation on the site and in adjacent areas, including any noxious weeds which may be present or are likely to be introduced.
- Consider the natural availability of plant species in the soil seed bank vs. the need for planting in the pool area to provide wildlife food and cover. A diverse stand of plant species that are native, or are naturalized and are non-invasive, should be encouraged to increase wildlife benefits.
- Consider the effects of management actions on compliance with federal and state hunting regulations (e.g., baiting).
- Consider the adverse impacts of nearby populations of nuisance wildlife such as muskrats, beavers, or resident geese, on the establishment and maintenance of the site. Also consider the potential for attracting nuisance wildlife into an area.
- For muskrat control, build a 6 foot flat bench along the embankment, with normal water depth of 3-4 inches. This will discourage muskrats from burrowing into the embankment.
- Take note of other constraints such as economic feasibility, access, regulatory or cost-share program requirements, social effects, and visual aspects such as compatibility with the natural landscape.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

- Consider long-term maintenance requirements of the site, including water control structures, embankments, and vegetation.

Refer to the Maryland Wildlife Biology and Management Handbook and job sheet "Management of Shallow Water Areas for Wildlife" for additional habitat considerations for specific wildlife, such as dabbling ducks, geese, etc.

This practice has the potential to affect National Register listed cultural resources or eligible (significant) cultural resources. These may include archeological, historic, or traditional cultural properties. Care should be taken to avoid adverse impacts to these resources. Follow NRCS state policy for considering cultural resources during planning.

CRITERIA

Hydrology

The site must be capable of retaining shallow surface water during part or all of the year to provide habitat for the desired wildlife species. At maximum normal pool elevation, at least 70 percent of the pool area shall be an average of 18 inches deep or less. Within this constraint, the specific depths, duration, and frequency of surface water on the site shall be based on site conditions, the desires of the land user, and requirements of cost-sharing programs and other funding sources, as applicable.

The size and character of the watershed above the site shall be assessed under present and future conditions in order to determine available water. If pumping is to be used as a water source, the ability to supply sufficient water shall be assessed.

A soils investigation shall be performed to determine conditions for minimizing seepage losses; suitability of materials for embankment construction; adequacy of subsurface water supply; and capability to support desired plant species, as applicable.

A variety of structural measures, including but not limited to embankments, surface drain plugs, subsurface drain plugs, and excavation below the

natural ground surface, shall be used as needed to provide shallow surface water.

Embankments – Small embankments may be used to impound water and provide wetland hydrology. Embankments, which meet the definition and criteria for an embankment pond (as described in the conservation practice standard for Pond, Code 378), are not considered small embankments and shall be designed according to the embankment criteria for Pond. Fill that will be entirely within a surface drainage ditch shall be designed according to the criteria for Surface Drain Plugs, as described in the conservation practice standard for Wetland Restoration, Code 657.

Small embankments shall have a minimum top width of 4 feet, and minimum combined upstream and downstream side slopes of 6:1, with neither slope steeper than 2:1.

When needed to maintain the desired depth and duration of surface water on the site, appropriate measures shall be taken to minimize seepage losses through the embankment and subsoil.

Spillways – Spillways shall be provided for safe passage of water. Pipe conduits and vegetated spillways shall be designed according to the Engineering Field Handbook. Trash racks shall be required on inlets to pipe conduit spillways.

Spillway(s) shall be designed to pass the 10-year, 24-hour storm. A minimum of 0.5 foot of freeboard shall be provided above the 10-year flow depth. There shall be a minimum of 1 foot between the normal pool elevation and the top of the embankment.

When there is no surface inflow entering the shallow water area from off-site (i.e., no drainage area), spillway(s) shall be designed to release the volume of the 10-year, 24 hour storm within an appropriate amount of time for management of the desired plant community. The amount of time needed for release of excess water on a specific site shall be determined based on the depth of inundation and the species of plants desired on the site. A minimum of 0.5 foot of freeboard shall be provided above the 10-year rainfall depth.

Shallow water areas in which hydrology will be

manipulated by a managed drawdown shall be designed with a suitable outlet for dewatering the site, or shall include provisions for pumping to remove water within the desired time limits. When moist-soil management is planned, outlet structures shall be designed to accommodate slow release rates.

Anti-seep collars shall be required around conduits 6 inches or larger in diameter being placed in earth fills over 2 feet high. The anti-seep collars shall have a minimum 1-foot projection around the pipe.

Other Structural Measures – Surface and subsurface drain plugs shall be designed according to criteria in the conservation practice standard for Wetland Restoration, Code 657.

Structural measures are not required on sites where the natural hydrology has not been significantly modified and is sufficient to meet the intent of the practice and the needs of the land user.

Vegetation

General Requirements – Topsoiling and organic matter amendments to the wetland area shall be in accordance with the conservation practice standard for Wetland Restoration, Code 657.

Embankments and surface drain plugs (if used), shall be stabilized in accordance with the conservation practice standard for Critical Area Planting, Code 342.

In the pool area and/or in the upland buffer surrounding the pool area, vegetation may be established as described in the applicable sections, below. Note: Specific cost-sharing programs or other funding sources may impose criteria for vegetation in addition to, or more restrictive than, those specified in this standard.

If vegetation is planned for an area, it shall be established by planting or by natural regeneration methods, or a combination of the two. Vegetation may include trees, shrubs, and/or herbaceous species, depending on site conditions and the desires of the land user. Perennial plantings, which are not combined with natural regeneration, shall consist of two or more species

to provide greater vegetative diversity. Use of locally native plant species shall be encouraged.

Livestock shall be controlled or excluded as necessary to establish and maintain the vegetative cover to meet its intended purpose.

Plant and animal pest species shall be controlled to the extent feasible to achieve and maintain the intended purpose of the vegetative cover.

Noxious weeds shall be controlled as required by state law.

Pool Area - Establishment of vegetation is not required, but shall be encouraged where feasible in order to provide wildlife food and cover. Annual and/or perennial species may be used.

Species selected for establishment shall be suited to the seasonal variation of water depths and soil moisture on the site. Plant types and species shall be selected based on their compatibility in growth rates, tolerance of wet and/or dry conditions, and other characteristics. Refer to Tables 2-4 in the conservation practice standard for Wetland Restoration, Code 657.

When moist-soil management is planned, slow drawdowns of the pool area over a period of 2 to 3 weeks will encourage germination and establishment of naturally occurring annual plants, and optimal wildlife use of the site.

Buffer Area - An upland buffer, consisting primarily of perennial vegetation, shall be established a minimum of 35 feet wide around the pool area. Refer to the conservation practice standard Conservation Cover, 327, for plant species.

For purposes of this standard, the buffer requirement does not apply to the portion of the site occupied by structural measures such as embankments or surface drain plugs.

SPECIFICATIONS

Plans and specifications for shallow water wildlife habitat shall be prepared in accordance with the

previously listed criteria. Plans and specifications shall contain sufficient detail concerning site preparation and establishment to ensure successful management of the practice. Appropriate conservation practice standards shall be used for designing and installing structural and vegetative measures. Documentation shall be in accordance with the section "Supporting Data and Documentation" in this standard.

OPERATION AND MAINTENANCE

An operation and maintenance (O&M) plan shall be prepared for each shallow water site. Appropriate Job Sheet(s) may be used to serve as the management plan as well as supporting documentation and shall be provided to the land user. At a minimum, the following components shall be addressed in the O&M plan:

Structures

Describe what inspections are required to assess the integrity of the structure (if applicable) and determine whether it is functioning properly. Also describe the extent of vegetative management which will be needed on embankments and/or surface drain plugs.

Removal of Sediment and Other Repairs

Describe locations where sediment removal is acceptable (e.g., designed sediment basins, open water areas); conditions under which sediment may be removed and repairs made (e.g., time of year restrictions, permits needed, etc.).

Hydrology

Describe the extent of water level management that will be allowed/needed after the practice is installed. Water level management may consist of one of the following options:

1. Managed drawdown/inundation. The water level will be manipulated seasonally to remove water in the spring and inundate the site in the fall to encourage the growth of desired plant species and maximize the use of

the site by migrating waterfowl. The appropriate dates for drawdown and inundation will be shown in the plan.

2. Natural drawdown/inundation. The water level will not be actively managed on a regular basis. The site will have a natural water regime, in which water levels rise and fall seasonally in response to varying natural conditions. The water level may be managed if needed for control of noxious weeds, invasive species, or for making structural repairs.

Vegetation in the Pool Area

Describe the extent of vegetative management that will be allowed/needed after the practice is installed. Vegetative management in the pool area may consist of one of the following options:

1. Annually planted crops. Annual crops may be planted in the entire pool area or in food plots. Plantings will be established by means of conventional farming equipment or by broadcasting seed on exposed soil after drawdown.
2. Moist soil management. Herbaceous vegetation in the pool area may be infrequently manipulated (not more than once every two to three years) by disking or other methods to encourage the re-establishment of early successional plant species. Manipulation will occur when the pool area is sufficiently dry to support equipment, usually in early to mid-summer.
3. Minimal management. Vegetation may be maintained with minimal or no disturbance. Areas which are planned to remain predominantly herbaceous may be spot mowed or burned infrequently (not more than once every two to three years) to reduce encroachment of woody vegetation.

Vegetation in the Upland Buffer

Describe the extent of vegetative management that will be allowed/needed after the practice is established. Management may consist of mowing, burning, selective cutting, or other actions, as appropriate.

Nuisance Plants and Animals

Describe the extent to which plant and animal pest species, including noxious weeds, will need to be controlled.

Acceptable Uses

Describe the acceptable uses (e.g., haying, grazing, hunting, nature preserve, etc.) and time of year/frequency of use restrictions, if any. Pay particular attention to cost-sharing program requirements as they relate to acceptable vs. restricted uses and other management restrictions.

Frequency of Inspections

At a minimum, require annual inspections of structural and vegetative components.

5. Topographic survey of the site, as appropriate for site conditions and the proposed design.
6. Description of existing drains and extent of existing blockage (if any).

Design Data

1. Hydrologic and hydraulic design computations.
2. Cross-section and profile of embankment.
3. Profile of vegetated spillway.
4. Elevation of conduit/riser pipe and/or tile inlet riser.
5. Planned blockage of drainage systems, including cross sections and lengths of drain plugs.
6. Plan view(s) to scale showing topographic contours, planting zones for vegetation, and locations of other features, as appropriate.
7. Seeding and/or planting requirements, including species selected for each planting zone, stocking/seeding rates, and type of planting stock to be used (e.g., bare-rooted seedlings, containerized stock, etc.)
8. Operation and maintenance plan.

SUPPORTING DATA AND DOCUMENTATION

The following is a list of the minimum data and documentation to be recorded in the case file:

Planning Information, Field Data, and Survey Notes

1. Field location of the project, acres, and assistance notes. Also note the location of the project on the conservation plan map.
2. Description of the objectives of the project, including the desired functions which the wetland is expected to provide.
3. Soil investigation logs and notes.
4. Inventory of existing vegetation on the site. If applicable and available, note the agrichemicals which have been used on the site during the past 5 years.

Construction Check Data/As Built

1. Check notes recorded during or after completion of construction, and plans showing as-built conditions of all structures.
2. Note plant species as-installed, including species, quantities, date(s) planted, and planting zones.
3. Sign and date construction check notes and plans to include statement that practice meets or exceeds plans and specifications.

REFERENCES

1. Fish and Wildlife Service, Chesapeake Bay

Field Office with the Natural Science Center and Adkins Arboretum, 1995. Native Plants for Wildlife Habitat. Annapolis, MD.

2. Environmental Concerns, Inc. 1993. Wetland Planting Guide for the Northeastern United States. St. Michaels, MD.
3. Natural Resources Conservation Service, Conservation Practice Standard for Conservation Cover (Code 327).
4. Natural Resources Conservation Service, Conservation Practice Standard for Riparian Herbaceous Cover (Code 390).
5. Natural Resources Conservation Service, Conservation Practice Standard for Riparian Forest Buffer (Code 391).
6. Natural Resources Conservation Service, Conservation Practice Standard for Wetland Creation (Code 658).
7. Natural Resources Conservation Service, Conservation Practice Standard for Wetland Restoration (Code 657).
8. Natural Resources Conservation Service, Engineering Field Handbook, Chapter 6 "Structures," Chapter 11 "Ponds and Reservoirs," Chapter 13 "Wetland Restoration, Enhancement or Creation," and Chapter 14 "Drainage."
9. Natural Resources Conservation Service, Maryland Wildlife Biology and Management Handbook.
10. Natural Resources Conservation Service & Duck Unlimited Canada, Vegetating with Native Grasses in Northeastern North America.