

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD AND SPECIFICATIONS
SHALLOW WATER MANAGEMENT FOR WILDLIFE**

(acre)

Code 646

DEFINITION

Managing shallow water on agricultural lands and moist soil areas for wildlife habitat.

PURPOSE

- Provide open water areas on agricultural fields and moist soil areas to facilitate waterfowl resting and feeding.
- Provide habitat for reptiles and amphibians and other aquatic species which serve as important prey species for waterfowl, raptors, herons, and other wildlife.

CONDITIONS WHERE PRACTICE APPLIES

On agricultural and moist soil areas, on both hydric and non-hydric soils, where water can be impounded or regulated by diking, ditching, or flooding for the purpose of management for waterfowl and their prey.

This practice can be used to facilitate the conservation of declining wetland-dependent threatened and endangered species.

This practice applies where the intended purpose is to create and/or manage shallow water.

CRITERIA

General Criteria Applicable to all Purposes

Soils should have moderately slow permeability (less than 0.6 inches per hour) or seasonal high water table, to inhibit subsurface drainage and allow for maintenance of proper water levels.

Shallow water impoundments require an adequate water supply for reflooding the impoundment during periods of planned inundation. This water supply can be as a result of flooding, overland run-off, or a pumped source. An adequate method for dewatering the impoundment is required during planned drawdowns.

Water levels will be maintained at an average depth of 6 inches over 50% or more of the area during periods of planned inundation.

Landowner shall obtain all local, state, and federal permits as necessary. Water control structures and drainage modifications shall comply with all local, state, and federal regulations (e.g. state drainage law). If pumping is required water rights must be assured.

PUMPING PLANT FOR WATER CONTROL (533), STRUCTURE FOR WATER CONTROL (587), and WETLAND RESTORATION (657) will be used as appropriate. Refer to Chapter 6 of the Engineering Field Handbook, "Structures," for additional design information. Existing drainage systems will be utilized, removed, or modified as needed to achieve the intended purpose.

WETLAND RESTORATION (657) will be used if berms are needed as part of the water control plan.

Management measures shall be provided to control invasive species and noxious weeds on a "spot" basis.

Existing wetlands will be preserved and protected from being manipulated or will not be used in a manner which would reduce the functions (type or capacity) of the wetlands.

Water control structures will be designed on an individual job basis, or applicable NRCS standard drawings shall be adapted to meet site conditions and functional requirements. The drawings shall be part of an approved overall engineering plan for the site.

A water management plan, when needed, will be developed to insure proper use of water level manipulation. Consult with NRCS Biologist/Wildlife Conservationist or MDC Biologist for specific recommendations.

Care must be used to insure that the area's visual resources are not damaged.

All disturbed areas will be seeded to wildlife friendly vegetation. Vegetation used will be adapted for use on the local soil/site conditions. Disturbed areas will be vegetated according to a revegetation plan. Use CONSERVATION COVER (327) unless the area is subject to frequent overflows or spillway protection is needed, then CRITICAL AREA PLANTING (342) will be used. Native plant materials will be used whenever possible to provide the intended protection.

CONSIDERATIONS

For optimum site conditions and management considerations for shallow water impoundments see **Table 1**.

Consider gradually flooding the area to a depth of 3 to 8 inches over a majority of the impoundment to insure that foods are available to dabbling ducks and shorebirds.

Consider the effects of the timing of the flooding and drawdown, as well as the type of drawdown, on target plant species and plant species composition (moist soil areas).

Consider disking 25-40% of the area on a rotational basis to prevent woody encroachment and provide a variety of seed bearing herbaceous vegetation.

Consider the species flooding tolerances and the composition of seed in the soil at the site (moist soil areas).

Consider effects on wetlands or wildlife habitats that would be associated with the practice.

Consider the need for buffer practices beneficial to wildlife around the perimeter of the site. Plan

practices such as FILTER STRIP (393), FIELD BORDER (386) and/or CONSERVATION COVER (327) to create a vegetative buffer between the management unit and adjacent land uses. This buffer should be at least 30 feet wide, or wider, depending on its purpose.

Consider the effects of residual herbicides and insecticides, excessive nutrients, and mineral accumulation potential (moist soil areas).

Consider effects on movement of dissolved substances to groundwater and to downstream surface waters.

Consider effects on downstream flows that would affect other water uses or users.

PLANS AND SPECIFICATIONS

Plans and specifications for this practice shall be prepared for each site. Plans and specifications shall be recorded using approved specification sheets, job sheets, technical notes, narrative documentation in the conservation plan, or other acceptable documentation.

NRCS staff is encouraged to work closely with the NRCS Biologist, MDC Biologist, or other wetland specialist in developing site specific plans and specifications.

Plans and specifications for installing structures for water control shall be in keeping with this standard and shall prescribe the requirements for applying the practice to achieve its intended purpose. The plan shall specify the location, grades, dimensions, materials, hydraulic and structural requirements for the individual structure, and the timing or sequence of installation activities. Provisions must be made for necessary maintenance.

OPERATION AND MAINTENANCE

The purpose of operation and maintenance is to insure that the practice functions as intended.

A plan for the operation, maintenance, and management of the shallow water or moist soil area shall be developed and recorded using approved job sheets, technical notes, or other forms of acceptable documentation. The plan shall include monitoring and management of the overall site, as well as structural and vegetative measures. An annual inspection should be made of all structural and vegetative practices.

Actions will be carried out to ensure the practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation) such as water level manipulation, moist soil management, planting waterfowl food crops, managing crop residue, prescribed fire, and disking. Repair and upkeep of the practice (maintenance) shall be carried out as needed, such as repair or replacement of vegetative or structural components.

Biological control of undesirable plant species and pests (e.g., using predator or parasitic species) shall be implemented where available and feasible.

REFERENCES

- Eldridge, Jan. 1990. *Management of Habitat for Breeding and Migrating Shorebirds in the Midwest*, 13.2.14 *Fish and Wildlife Leaflet 13, Waterfowl Management Handbook*. U.S. Fish and Wildlife Service. Washington D.C. 6 pp. Available on the Internet at <http://www.mesc.usgs.gov/wmh/Default.htm>
- Fredrickson, Leigh H. 1991. *Strategies for Water Level Manipulations in Moist-soil Systems*, 13.4.6 *Fish and Wildlife Leaflet 13, Waterfowl Management Handbook*. U.S. Fish and Wildlife Service. Washington D.C. 8 pp. Available on the Internet at <http://www.mesc.usgs.gov/wmh/Default.htm>
- Fredrickson, Leigh H. and Frederic A. Reid. 1988. *Waterfowl Use of Wetland Complexes*, 13.2.1 *Fish and Wildlife Leaflet 13, Waterfowl Management Handbook*. U.S. Fish and Wildlife Service. Washington, D. C. 6pp. Available on the Internet at <http://www.mesc.usgs.gov/wmh/Default.htm>
- Kelley, J.R. Jr., M.K. Laubhan, F.A. Reid, J.S. Wortham, and L.H. Fredrickson. 1990. *Options for Water-level Control in Developed Wetlands*, 13.4.8 *Fish and Wildlife Leaflet 13, Waterfowl Management Handbook*. U.S. Fish and Wildlife Service. Washington D.C. 8 pp. Available on the Internet at <http://www.mesc.usgs.gov/wmh/Default.htm>
- Ringelman, James K. 1990. *Managing Agricultural Foods for Waterfowl*, 13.4.3 *Fish and Wildlife Leaflet 13, Waterfowl Management Handbook*. U.S. Fish and Wildlife Service. Washington D.C. 4 pp. Available on the Internet at <http://www.mesc.usgs.gov/wmh/Default.htm>
- USDA Natural Resources Conservation Service. 1992. *Engineering Field Handbook, Chapter 13, Wetland Restoration, Enhancement, or Creation*. Washington D.C. 74 pp.
- USDA Natural Resources Conservation Service. 1975. *Engineering Field Handbook, Chapter 6, Structures*. Washington D.C. 91 pp.

Table 1. Important considerations in evaluating wetland management potential.

Factors	Optimum Condition
Water supply	<ul style="list-style-type: none"> • Independent supply into each unit. • Water supply enters at highest elevation.
Water discharge	<ul style="list-style-type: none"> • Independent discharge from each unit • Discharge at lowest elevation for complete drainage. • Floor of control structure set at correct elevation for complete drainage
Water control	<ul style="list-style-type: none"> • Stoplog structure allowing 2-inch changes in water levels. • Adequate capacity to handle storm events
Optimum unit size	<ul style="list-style-type: none"> • 5 to 100 acres
Optimum number of units	<ul style="list-style-type: none"> • At least 5 within a 10-mile radius of units

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