

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

SHALLOW WATER DEVELOPMENT AND MANAGEMENT

(Acre)

CODE 646

DEFINITION

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

PURPOSE

To provide habitat for wildlife such as shorebirds, waterfowl, wading birds, mammals, fish, reptiles, amphibians and other species that require shallow water for at least a part of their life cycle.

CONDITIONS WHERE PRACTICE APPLIES

On agricultural and moist soil areas where water can be impounded or regulated by diking, excavating, ditching, or flooding. This practice can be used to facilitate the conservation of declining wetland dependent and threatened and endangered species. Any impact on T&E species requires consultation with the USFWS with certain exceptions for the NRCS on the black-capped vireo and golden-cheeked warbler. This practice does not apply to: Wetland Restoration (657) intended to rehabilitate a degraded wetland where the soils, hydrology, vegetative community, and biological habitat are returned to original conditions; Wetland Enhancement (659) intended to rehabilitate a degraded wetland where specific functions and/or values are enhanced beyond existing conditions; or Wetland Creation (658) for creating a wetland on a site location which historically was not a wetland or on a site which was formerly a wetland but will be replaced with a wetland type not naturally occurring on the site.

CRITERIA

- Soils should have low permeability to inhibit subsurface drainage and allow for maintenance of proper water levels.
- Shallow water impoundments require an adequate water supply for system recharge and water control structures for removing water when necessary in order to produce desired habitat condition.
- Water levels must be maintained between 1 to 18 inches in depth over the majority of the area during periods of planned inundation.
- Landowner shall obtain all local, state, and federal permits necessary.
- If pumping, water rights must be assured
- The conservation practice standards, technical notes and job sheets for Dike (356), Pumping Plant for Water Control (533), Structure for Water Control (587) and Wetland Wildlife Habitat Management (644) will be used as appropriate. Refer to Chapter 6 ("Structural Design"), National Engineering Handbook, for additional design information.
- Existing drainage systems will be utilized, removed, or modified as needed to achieve the intended purpose.

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 [electronic Field Office Technical Guide](#).

NRCS, TEXAS

June 2008

Criteria for Shorebird Habitat

Areas planned to provide shorebird habitat shall have exposed mudflats and areas with 1 to 4 inches of water during seasonal periods of shorebird use.

Criteria for Waterfowl Habitat

Areas planned to provide waterfowl feeding and resting habitat shall be designed to facilitate gradual flooding of areas containing food plants to an average depth of 6 to 10 inches. Areas containing food plants shall be flooded during seasonal periods of waterfowl use.

Criteria for Amphibian Habitat

Inundation shall be planned to last throughout the local breeding period of at least one endemic amphibian species. Surrounding upland habitat shall be of sufficient quality and quantity to support the complete life-cycle requirements of at least one endemic amphibian species. Structures shall be designed to prevent fish access to areas planned for amphibian breeding habitat.

CONSIDERATIONS

Where impoundments are developed, shorelines with irregular shapes and varying side slopes from 10:1 to 20:1 along water surface margins may increase habitat diversity. To insure that foods are available to dabbling ducks, impoundments should be gradually flooded to a depth of 6-18 inches beginning in the fall of the year. A slow drawdown should begin in mid winter to expose moist mud flats during spring and early summer. Consider the effects of the timing of the flooding and drawdown, as well as the type of drawdown, on plant species composition (moist soil areas). 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 effects of residual herbicides (moist soil areas). Consider the targeted plant species' tolerances with respect to timing and type of drawdown. 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 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.

Specifications shall be recorded using approved specifications sheets, job sheets, narrative documentation in the conservation plan or other acceptable documentation. Specifications shall be reviewed and approved by a person with appropriate training in the design and implementation of shallow water areas to benefit fish and wildlife. Local, state, and federal permits required should be listed for informational purposes for the landowner, other NRCS personnel, and the general public.

OPERATION AND MAINTENANCE

The following actions shall be carried out to insure that this practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance). Any use of fertilizers, mechanical treatments, prescribed burning, pesticides and other chemicals to assure the shallow water or moist soil area function shall not compromise the intended purpose. Biological control of undesirable plant species and pests (e.g., using predator or parasitic species) shall be implemented where available and feasible. Operation and maintenance shall include monitoring and management of the site as well as structural components.

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NRCS, TEXAS

June 2008

REFERENCES

- Cross, D.H. (compiler). 1988. Waterfowl management handbook. U.S. Fish and Wildlife Service Leaflet 13 Series.
- Sanderson, G.C. (editor). 1977. Management of migratory shore and upland game birds in North America. International Association of Fish and Wildlife Agencies, Washington, D.C.
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- Kingsbury, Bruce & Joanne Gibson, 2002. Habitat management guidelines for amphibians and reptiles of the Midwest. Partners in Amphibian & Reptile Conservation, Ft Wayne IN
- Smith, L.M., R.L. Pederson and R.M. Kaminski (editors). 1989. Habitat management for migrating and wintering waterfowl in North America. Texas Tech University Press, Lubbock.
- Stutzenbaker, C.D. 1988. The mottled duck: its life history, ecology and management. Texas Parks and Wildlife Department, Austin, Texas
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APPROVAL AND CERTIFICATION
SHALLOW WATER DEVELOPMENT AND MANAGEMENT

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PRACTICE SPECIFICATIONS APPROVED:

<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> /s/ Russell O. Castro <hr style="border: 0; border-top: 1px solid black; margin-top: 5px;"/> State Biologist	<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> April 7, 2008 <hr style="border: 0; border-top: 1px solid black; margin-top: 5px;"/> Date
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<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> /s/ Susan C. Baggett <hr style="border: 0; border-top: 1px solid black; margin-top: 5px;"/> State Resource Conservationist	<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> June 17, 2008 <hr style="border: 0; border-top: 1px solid black; margin-top: 5px;"/> Date
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CERTIFICATION:

Reviewed and determined adequate without need of revision.

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