Shallow Water Development and Management (Acre) 646

DEFINITION

The inundation of lands to provide habitat for fish and/or wildlife.

PURPOSES

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 lands, both hydric and non-hydric soils, where water can be impounded or regulated for the purpose of wildlife habitat management.

On floodplain areas that provide refuge habitats for native fish during high flow periods.

In both cases, water can be managed through diking, ditching, pumping, flooding, diversion, excavation, and/or through the use of water control structures to improve habitat for fish and wildlife. In addition, vegetation within and around the inundated area can be managed or manipulated through water level management, use of prescribed fire, and chemical and/or mechanical treatments.

This practice does not apply to:

- Wildlife Watering Facility (648) intended to provide watering places for wildlife.
- Wetland restoration (657) intended to rehabilitate a degraded wetland where the soils, hydrology, vegetation community, and biological habitat are returned to a close approximation of the original conditions.
- Wetland Enhancement (659) intended for modification of an existing wetland where specific attributes are targeted by management objectives, possibly at the expense of other attributes, or the rehabilitation of a degraded wetland where the result is a wetland that is different that what previously existed on the site.
- Wetland Construction (656) intended to treat point and non-point sources of water pollution.
- Wetland Creation (658) for creating a wetland on a site which historically was not a wetland.

CRITERIA

General Criteria Applicable to All Purposes

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

Sites should hold shallow water temporarily, seasonally, or year-round to meet the needs of the target fish and/or wildlife.

Site must be free of hazardous materials.

Shallow water impoundments require an adequate water supply for flooding the impoundment during periods of planned inundation.

The landowner shall be responsible for obtaining all local, state, and federal permits which may be necessary.

The Standards and Specifications for: Wetland Restoration (657), Dike(356), Pumping Plant for Water Control (533), and Structure for Water Control (587) will be used as appropriate. Existing drainage system will be utilized, removed, or modified as needed to achieve the intended purpose.

Existing wetlands will be preserved and protected from being manipulated or used in a manner that would reduce the functions the wetlands are providing.

Invasive plant species and noxious weed shall be controlled on the site.

Additional Criteria for Waterfowl Habitat

Water levels should be able to be maintained between 1 to 18 inches in depth over the majority of the area during periods of planned inundation.

Shallow water areas can be managed or protected in spring to promote aquatic insects and other invertebrates, which provide critical protein to waterfowl during migration and nesting.

Vegetative food for waterfowl may be provided within the flooded area by managing natural moist soil plants, planting a crop for wildlife, or managing crop residues.

See the Shallow Water Management Conservation Sheet for further information on planned drawdown requirements.

Additional 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.

Proper seasonal impounding of water followed by a planned drawdown of that water will provide the greatest benefit to shorebirds.

Additional Criteria for Amphibian and Reptile Habitat

Inundation shall be planned to last throughout the local breeding period of a local amphibian species. Ephemeral wetlands that have seasonal water in the fall, winter, and spring is a critical habitat component for many amphibians.

Manipulation of water levels, particularly lowering of water in winter is detrimental to many amphibians and reptiles.

Areas used by breeding amphibians should be kept at a depth that will not support fish.

Winter water depths of 4 to 6 feet shall be developed in 10 to 15% of the area for hibernating species.

Surrounding upland habitat shall be of sufficient quality and quantity to support the complete life-cycle requirements of the local amphibian species. Provide a minimum of a 50 foot buffer adjacent to the inundated area.

CONSIDERATIONS

Optimum site conditions include a dependable water supply; topography which permits water coverage at desired depths over a majority of the site; and water control structures that enable water to be supplied, distributed. and discharged at the desired rate and time.

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. Generally, early season drawdowns result in the greatest quantity of seeds produced. Poorly timed drawdowns may be detrimental to fish and wildlife.

To ensure that foods are available to dabbling ducks, impoundments should be gradually flooded in increments of 4 to 10 inches of water.

Where impoundments are developed, shorelines with irregular shapes and varying side slopes from 9:1 to 20:1 along water surface margins will increase habitat diversity. These sites may require active management to prevent undesired vegetation such as reed canary grass.

Consider the possible detrimental effects of residual herbicides on moist soil areas, as well as chemical runoff into water areas.

Consider developing at least one area with water between 4 to 6 feet deep to provide habitat for hibernating amphibians and reptiles and for promoting predators of mosquitoes.

Buffers are an important component in maintaining water quality and the habitat value of shallow water areas. Consider the need for buffer practices beneficial to wildlife around the perimeter of the site. Plan practices such as Filter Strip (393) to limit sedimentation from entering or leaving the management unit, and/or Field Border (386) and/or Conservation Cover (327) to create a vegetative buffer between the management unit and adjacent land uses. Refer to the Filter Strip Standard (393) for width requirements.

Human and livestock activities in and surrounding the practice may disturb wildlife, thereby decreasing wildlife usage. Vegetative screens, fences, or gates are means of reducing unwanted disturbance and should be used.

The interspersion or the intermixing of the various wildlife habitat components is habitat diversity. A complex of diverse wetland types within the landscape is very beneficial to wetland species. A mixture of open water, mudflats, emergent, scrub shrub, and forested and riparian wetlands will attract the greatest diversity of game and non-game wetland animal species.

Wildlife is not restricted by human property boundaries so adjoining properties should also be considered when providing necessary habitat components. Home ranges vary by species but appropriate food, cover, and water must be present and in sufficient quantity and quality to be useable for the species daily and seasonal needs. Many migratory wetland wildlife species benefit from seasonal water bodies that provide resting areas and food sources.

Consider the effects of hydrologic manipulations on downstream flows or aquifers, the water budget, the groundwater, and on the movement of sediment and sediment-attached substances. Also consider the effects on adjacent wetlands and water bodies.

PLANS AND SPECIFICATIONS

Plans and specifications shall be prepared in accordance with the criteria of this standard and shall describe the requirements for applying the practice to achieve its intended use. Plans and specifications shall be developed for the specific field site to meet the objectives of the landowner. Plans and specifications may include engineering plans, conservation sheets, technical notes, or narrative statements in conservation plans.

Refer to Conservation Sheet 646 “Shallow Water Management for Wildlife” for minimum documentation requirements.

The planner is encouraged to work closely with the Natural Resources Conservation Service (NRCS) or Michigan Department of Natural Resources (MDNR) District 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 other appropriate standards.

OPERATION AND MAINTENANCE

The purpose of operation and maintenance is to ensure that the practice functions as intended over time.

A plan for the operation, maintenance, and management of the shallow water or moist soil area shall be developed. The plan shall include monitoring and management of the overall site, as well as structural and vegetative measures. The prepared 646 Operation and Maintenance plan may be used instead of preparing a plan.

To control invasion of undesirable plants, the impoundment should be dewatered and disked or burned as needed.

Actions will be carried out to ensure the practice functions as intended through its expected life. These actions include normal repetitive activities in the application and use of water level manipulation, moist soil management, planting waterfowl food crops, managing crop residues, prescribed fire, and disking.

Any use of fertilizers, mechanical treatments, prescribed burning, and pesticides and other chemicals shall not compromise the intended purpose of the shallow water or moist soil area.

Promptly remove and dispose of dead birds or fish to control the spread of avian botulism and other wildlife diseases.

REFERENCES

Helmers, Doug. 1992. Shorebird Management Manual. Western hemisphere Shorebird Reserve Network, Manomet, MA, 58 pp.

Kingsbury, Bruce & Joanne Gibson, 2002. Habitat Management Guidelines for Amphibians and Reptiles of the Midwest. Partners in Amphibian and Reptile Conservation, Ft. Wayne IN, 57 pp.

Smith, Loren M. and Roger L. Pederson. 1989. Habitat management for migrating and wintering waterfowl in North America. Texas Tech University Press, 574 pp.