



Natural Resources Conservation Service
CONSERVATION PRACTICE STANDARD
SEASONAL WATER MANAGEMENT FOR WILDLIFE

CODE 646

(ac)

DEFINITION

The seasonal inundation of lands with water to provide specific life cycle needs for fish or wildlife.

PURPOSE

This practice is used to:

- Provide essential habitat elements for wildlife such as shorebirds, waterfowl, wading birds, mammals, fish, reptiles, amphibians, and other species that require standing or pooled water for a portion of their life cycle, by managing the depth and duration of inundation.

CONDITIONS WHERE PRACTICE APPLIES

Lands that can be inundated by active management of water using existing or planned infrastructure including dikes, ditches, pumps, and water control structures.

Floodplains where seasonal flooding is needed to provide refuge for native fish during high flow periods.

This practice does not substitute or replace —

- Conservation Practice Standard (CPS) Dike and Levee (Code 356) and (CPS) Structure for Water Control (Code 587) when structural practices are needed to impound or hold water.
- CPS Watering Facility (Code 614), applied to provide sources of drinking water for wildlife.
- CPS Constructed Wetland (Code 656) intended to treat point and nonpoint sources of water pollution.
- CPS Wetland Restoration (Code 657) applied to rehabilitate a degraded wetland where the soils, hydrology, vegetation community, and biological habitat are returned to a close approximation of the original conditions.
- CPS Wetland Creation (Code 658), applied to create wetland functions on a site that was not a wetland historically.
- CPS Wetland Enhancement (Code 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 than what previously existed on the site.
- CPS Wetland Wildlife Habitat Management (Code 644), applied to maintain, develop, or improve existing wetland habitat by means other than managing the level and duration of inundation.
- CPS Fish Pond Management (Code 399) installed for the purpose of managing impounded aquatic habitat and water quality for the production of fish.

CRITERIA

General Criteria Applicable to All Purposes

Apply an NRCS State approved habitat evaluation or assessment (e.g., Wildlife Habitat Evaluation Guide) to identify habitat-limiting factors that can be addressed by managing inundation on the planning area.

The site must be capable of supporting surface inundation for the prescribed period.

Water supply for planned periods of inundation must be adequate (e.g., available and reliable).

Water supply for planned periods of inundation must be of acceptable quality for intended wildlife.

Dewatering must be possible within a prescribed schedule to meet both the target habitat conditions and future management needs.

Maintain the appropriate depth over most of the planning area during periods of scheduled inundation.

Utilize, decommission, or modify existing drainage systems to achieve the intended purpose.

Duration of inundation must be sufficient to meet the identified life cycle need (e.g., extend throughout the local breeding period).

Surrounding upland habitat must be of sufficient quality and quantity to support the complete life-cycle requirements when amphibians are the objective.

Water control and management structures must prevent predatory fish access to areas planned for amphibian breeding habitat.

CONSIDERATIONS

Nearly level sites will allow for larger units while keeping planned water depths within a consistent range over most of the unit and while more undulating sites will provide more diversity of water depths.

The timing of flooding and drawdown, as well as the type of drawdown, will affect future management of the site (e.g., planting the next crop in sequence or moist soil plant species composition).

Consider tolerance of plants to flooding and salinity.

Nutrient and pesticide residues may affect plant species composition and the site's capability to grow desirable plants, and may negatively impact amphibians and other wildlife.

Adding and holding water on a site may impact adjacent habitats and crops.

Implementing this practice may increase movement of dissolved and suspended substances to downstream surface waters and groundwater.

The practice may affect downstream flows or aquifers that would affect other water uses or users.

The practice may function as a link in a habitat corridor that aids the site's use and colonization by wetland flora and fauna.

The composition, structure, and extent of surrounding upland vegetation may influence habitat functions. (E.g., early successional uplands may improve conditions for shorebirds but decrease nesting habitat for waterfowl.)

Installation of vegetated buffers on surrounding uplands may improve water quality in the shallow water area.

Implementing this practice may raise downstream water temperature, causing detrimental impacts to associated aquatic and terrestrial communities.

Increasing water depth and duration may be used as a method to promote desired vegetation.

Human and livestock activities in and surrounding the practice may disturb wildlife, thereby decreasing habitat suitability and function. Vegetative screens, fences, or gates are means of reducing unwanted disturbance.

Inundation of soils and vegetation with water may create anaerobic conditions, leading to increased methane emissions.

PLANS AND SPECIFICATIONS

Practice designs will specify the targeted species, desired water depths and duration and timing of inundation, as well as drawdown dates, rates, and methods.

Practice designs will specify the supporting practices required to implement the practice, as applicable.

Specifications should be recorded using state approved specifications sheets, narrative documentation in the conservation plan or other acceptable documentation.

OPERATION AND MAINTENANCE

The following actions must be carried out to ensure that this practice functions as intended throughout its expected lifespan. These actions include routine 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 must not compromise the capability of the practice to provide habitat for the target species.
- Monitor and repair structural components as necessary, particularly after flood events.
- Repeat habitat evaluation or assessment procedures to determine habitat quality provided and adjust water management as necessary to achieve habitat objectives.

REFERENCES

Frederickson, L.H. and F.A Reid. 1988. Waterfowl Management Handbook. US Fish and Wildlife Service, Leaflet 13, 258 pp.

Fredrickson, L.H. 1991. Strategies for Water Level Manipulations in Moist-soil Systems, 13.4.6, Gaylord Memorial Laboratory, School of Natural Resources, University of Missouri-Columbia, Puxico, MO.

Helmets, D. 1992. Shorebird Management Manual. Western Hemisphere Shorebird Reserve Network, Manomet, MA 58 pp.

Kaminski, R.M. and J.B. Davis. 2014. Evaluation of the migratory bird habitat initiative: Report of Findings. Forest and Wildlife Research Center, Research Bulletin WF391, Mississippi State University. 24 pp.

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

Nelms, K.D, B. Ballinger and A. Boyles, Eds, 2007. Wetland Management for Waterfowl Handbook. Mississippi River Trust, USDA Natural Resources Conservation Service, and US Fish and Wildlife Service, 132 pp.

Sieges, M.L., J.A. Smolinsky, M.J. Baldwin, W.C. Barrow, Jr., L.A. Randall, and J.J. Buler. 2014. Assessment of Bird Response to the Migratory Bird Habitat Initiative Using Weather-Surveillance Radar. Southeastern Naturalist 13(1):G36-G65.

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

Stafford, J.D., R.M. Kaminski, K.J. Reinecke and S.W. Manley. 2006. Waste Rice for Waterfowl in the Mississippi Alluvial Valley. *Journal of Wildlife Management* 70 (1): 61–69.

USDA-NRCS and Wildlife Habitat Council. 2007. Temporarily flooded wetlands. Fish and Wildlife Habitat Management Leaflet No. 47. Washington, D.C.

Zinke, B.M, 2014. "Comparison of Small Mammal Communities in Ephemeral Wetlands and Wet Meadows during Drought." Masters Theses, Fort Hays State University.