



Shallow Water Wetland Management



Mallards



Wild Millet



Northern Pintails

Where to Get Help

For more information about managing shallow water, contact your local Natural Resources Conservation Service in the phone book under US Government

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Shallow Water Management for Wildlife

Establishment



Although waterfowl are often the main objective of managing shallow water wetlands, there are many benefits to the environment and other wildlife species. / Photographs, John Pitre, NRCS Wildlife Biologist

In the fall of the year numerous species of waterfowl, wading birds, raptors, shorebirds, and songbirds begin an annual migration to and through Louisiana. Many of these bird species and other wildlife utilize flooded agricultural fields, open sloughs, and moist soil areas for food and habitat. The migratory species, in addition to maintaining health, focus on building strength and fat reserves in preparation for spring migration, breeding, and nesting. Retaining winter water on the landscape not only benefits wildlife, but protects soil from erosion, aids in ground water recharge, controls certain weed species, helps in stubble decomposition, increases soil moisture, and generally improves soil productivity and water quality.

The development of a shallow water area as beneficial wildlife habitat begins with proper construction. Adequate soil (clay) must be present to maintain moist soil and a shallow water depth. Dikes should be constructed to impound a maximum overall depth of approximately six to eighteen inches. An area that has a wide array of depths will benefit a wide array of species. Dikes should have adequate free board to avoid overtopping during storm events. Also, the crown should be wide enough and the slope flat enough to be maintained by mowing. Trees should not be allowed on dikes. Root channels increase the potential for leaks and dam failure. Water control structures are used to vary water levels and drain the area. Variable crest weirs are generally preferred because they are self-regulating once the proper elevation in the intake has been set. Also they have the ability to serve as drainage pipes at variable speeds.

There are essentially three potential water sources for flooding shallow water areas. They are rainfall, wells, and relifting surface water if available. Pumping water and the needed equipment can be costly however rainfall can be unreliable. Because early migrant wildlife species begin arriving in Louisiana in late summer, at least ten percent of the area should be flooded in August to mid-September to a depth of two to six inches (depending on topography). Water levels should be gradually increased rather than inundating the entire area. By increasing water levels in two to six inch increments, new areas are flooded and additional food sources gradually become available. This procedure conserves food for later in winter and provides a range of water depths, which benefits a wider array of wildlife. Fields should be completely flooded by mid-December and maintained until migratory wildlife depart (which can extend into early summer). Many people often inquire about what to plant in shallow water areas. Although food plantings can have a place in wildlife enhancement, often the beneficial naturally occurring vegetation (e.g. smartweed, wild millets, etc.) within properly managed shallow water areas provide more seed and other edible plant parts, more invertebrates (protein sources) without the site preparation, seed and fertilizer costs, and planting labor. Naturally occurring vegetation often will last longer (slower breakdown) when flooded than typical agricultural commodities and grains. In addition, naturally occurring vegetation is currently exempt from migratory bird baiting regulations.

Management

Although shallow water wetland systems are among the most productive ecosystems in terms of total biomass, few wetland dependant species, especially birds, acquire substantial energy or nutritional resources directly from plant material consumption other than seeds. Much of the energy from plants is transferred to primary consumers, including a diverse group of invertebrate species. Manipulating water levels not only directly affect invertebrate populations, but also indirectly affect other fauna through the modification of semi-aquatic plant communities. Varying water levels influences germination, seed and/or tuber production and maturation and plant structure.

Shallow water areas are early successional habitats. Two factors that greatly influence the productivity, are the state of succession, and hydroperiod. The **state of succession** refers to the amount of pioneer plants present. The percentage of non-food producing plant species generally tends to increase in each consecutive year the area is not disturbed. Disturbance or manipulations such as disking, mowing, and burning greatly affect the response of naturally occurring plants to different management techniques. Impoundments should be manipulated at two to three year intervals to set back succession and control undesirable plant invasion. Disking is the most common form of manipulation used to set back plant succession in Louisiana shallow water areas. Vegetative succession manipulations typically are scheduled every two years. If undesirable plants begin to impact the area, more frequent manipulations may be warranted. **Hydroperiod** refers to the onset, frequency, and duration of flooding the area. The timing of the annual drawdown will have great effect on the types of plant communities that emerge. Early season drawdowns occur within the first 45 days of the growing season, mid-season drawdowns occur within the second 45 days of the growing season, and late season drawdowns occur after the second 45 days of the growing season. Each will produce different types of plant communities based on the variables of each site. Although early season drawdowns can produce desirable results, beginning a drawdown later will provide the wetland habitat longer.



Areas should also be dewatered as slowly as practical. The gradual draining stimulates more plant diversity, which is a major key to success. Quick drawdowns (less than two weeks) reduce diversity, often producing monocultures of vegetation. Because there are so many options and variables associated with the management of shallow water areas, keeping detailed records of flooding and dewatering dates, flood duration, water depths, and manipulations are recommended.



Northern Shovelers and Common Egrets foraging in shallow water.

References

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Ducks Unlimited, Inc. 1993 Waterfowl Habitat Management Handbook for the Lower Mississippi River Valley. Publication 1864. DU, Mississippi Cooperative Extension Service, National Fish and Wildlife Foundation