

FRESHWATER MARSH, WET MEADOW, WET SHRUB HABITATS

CLIMATE ASSESSMENT

This category includes herbaceous marshes as well as shrub-dominated swamps. Marshes occur primarily on mineral soils, distinguishing them from peatlands, which occur on organic soils. They are typically associated with basins along low-gradient streams, and are often the result of beaver activity. The range of marsh vegetation includes floating-leaved aquatic species in deep water locations, tall grasses and forbs in meadow marshes, and tall shrubs like dogwoods and alders in moist thickets.



POTENTIAL CHANGES TO HABITAT

- Changes in precipitation patterns will lead to changes in duration and seasonality of flooding. These changes will likely favor generalist species that can tolerate a broader range of hydrologic conditions, and lead to an overall loss of plant species diversity.
- As temperatures increase, invasive species currently present could become more abundant, and new invasive species could arrive.

WHAT DOES THIS MEAN?

In general, marshes may be more resilient to climate change impacts than other wetland types. They are typically characterized by widespread species, and cover a broad hydrologic gradient: from open water habitats with floating-leaved plants like water lilies, to shallow meadow marshes that are dominated by tall grasses, sedges and shrubs (Golet et al 1993). This broad range suggests that, even if there are hydrologic changes as a result of climate change, marshes will persist. However, there will likely be shifts in vegetation composition and structure at individual sites as water levels change in duration and seasonality. These potential changes may lead to a loss of species diversity, as generalist species that tolerate a wide range of conditions prevail over species that require a specific hydrologic regime.

Dramatic changes in hydrologic patterns would essentially function as new disturbances in these systems, making them more vulnerable to invasion by exotic plants. Invasive exotics that are currently present, such as phragmites and purple loosestrife, could become more abundant and other species may move in from the south or elsewhere as temperatures increase. Increased human development near marshes also opens additional pathways for exotic plant invasions.

HOW DOES THIS AFFECT WILDLIFE?

If wetland habitats change composition as a result of climate change, specialist wildlife species are likely to be more affected than generalists, but most SGCN marsh species are believed tolerant of a wide range of conditions. A net lowering of the water level in marsh or shrub wetlands may facilitate easier access by predators to nesting birds such as American Bittern and Pied-billed Grebe, especially if nests are initiated during periods of higher water in the spring.

General Strategies to Address these Vulnerabilities:

See the full [Climate Change Adaptation Plan](#) for strategy descriptions

- S1: Conserve Areas for Habitat Expansion and/or Connectivity
- S2: Habitat Restoration and Management
- S4: Protect Riparian and Shoreland Buffers
- S5: Invasive Species Plan
- S6: Comprehensive Planning
- S7: Stormwater Policy and Flood Response
- S8: Revise Water Withdrawal Policies

Specific Strategies:

1. Manage water control structures to maintain marsh hydrology in the face of changing weather patterns.
2. Identify marshes that are important for wildlife species that are considered vulnerable to climate change