



Principles for Decision Making on the Restoration of the North Pool at the Parker River National Wildlife Refuge

The Parker River National Wildlife Refuge (PRNWR) is one of the premier habitats for birds in New England. The refuge encompasses most of Plum Island, a ten-mile long barrier beach, and one of the most extensive salt marshes in New England. Over 300 species of birds have been recorded on the refuge. It is particularly noted as a migratory stopover for shorebirds, songbirds, and waterfowl and as a foraging habitat for herons and egrets. In addition, it provides nesting habitat for some coastal and salt marsh specialists, such as salt marsh sharp-tailed sparrows, willets, piping plovers, and least terns.

In the 1940s, a 165-acre section of the salt marsh was enclosed behind a berm that was created from sediment dredged from the marsh. The intention was to create a freshwater wetland within the salt marsh to optimize nesting by American black ducks. This was a common wildlife management practice at the time. One can see the same type of alteration at other east coast wildlife refuges, such as Forsythe (Brigantine), Bombay Hook, Chincoteague, and Jamaica Bay. At the PRNWR, the freshwater area created by the berm consists of two impoundments, the Bill Forward Pool (65 acres) and the North Pool (100 acres). Another impounded area, Stage Island Pool, was created in the southern part of the refuge.

For many years, the North Pool was considered to be one of the best locations in eastern Massachusetts for a variety of freshwater marsh birds, such as the pied-billed grebe, common moorhen, several species of rails, two species of bitterns, and marsh wrens. Most of these species are now state listed. Stage Island Pool was also known as a rich habitat for these rare birds. These species have not been documented as regularly occurring in the North Pool for the last 20 years, at least to the extent that they did in the past. Since no long term studies specifically designed to sample these cryptic birds were ever carried out on the refuge, our knowledge of these changes is largely anecdotal. If we assume that the anecdotal observations do reflect a real trend, the apparent inability of the North Pool to support these rare bird species at present could be the result of invasive plants (*Phragmites* and purple loosestrife) degrading the habitat, other presently unknown habitat changes, or some other factor affecting the bird populations regionally or globally.

The refuge staff has implemented several management techniques for the invasive species, including application of herbicides, mowing, burning, and the release of biological controls. These efforts have met with limited success. Two years ago, the refuge proposed breaching the berm and returning the North Pool to a salt marsh. The rationale offered by refuge staff was that maintaining the North Pool as a freshwater marsh was taking too much staff time, time that could be better spent managing the

refuge's more successful freshwater impoundments (Bill Forward Pool and Stage Island Pool). To help inform this possible new management regime, the refuge initiated studies of the hydrology, topography, and vegetation of the North Pool.

Massachusetts Audubon participated in the discussions with refuge staff of the management options. We encouraged the refuge to gather more information on the site before any decision could be made. Our goal was a management option that best protected species of concern and maximized biodiversity.

In the summer of 2004, perhaps for the first time in many years, several state listed freshwater marsh birds were present in the North Pool for much of the breeding season. There was confirmed breeding by King Rail and Least Bittern. The presence of these species in 2004 after many years of their apparent absence could have been due to the generally wetter conditions in the pool due to greater precipitation, the absence of a spring draw down, a natural cyclic use of the habitat by these species, or the closer scrutiny the site was receiving by the birding community.

Because of the recent records of these rare species, Mass Audubon does not support a plan to convert the North Pool to salt water marsh at this time. The acknowledged presence of many listed bird species and other species of management concern makes it essential to provide some guidelines for decision making for the management of the North Pool. In the interest of furthering the dialogue to reach the best management outcome, Mass Audubon proposes the following principles to guide decision-making for the management of the North Pool. Although our focus is on the North Pool, these principles could also be used as a framework for the management of the other impoundments at the PRNWR.

Principles for Decision-Making for the Management of the North Pool, Parker River National Wildlife Refuge

1. **Any management plan should do no harm to rare species.** Many freshwater marsh birds are in decline, not only in Massachusetts, but also throughout much of their ranges. To the extent that it is practical, freshwater marsh bird habitat should be a priority for the management of the North Pool.
2. **Maintaining local populations of uncommon species is important even at the edges of their ranges.** Some of the rare marsh birds that have used the North Pool historically, or in 2004, are more common elsewhere in their ranges (e.g., bitterns in the upper Midwest). Nonetheless, we still believe that there are compelling reasons grounded in the principles of population genetics and metapopulation theory for conserving local populations of species at the edges of their ranges.
3. **We need better information on the use of the North Pool by the uncommon marsh birds.** This includes surveys that are designed to specifically sample for cryptic marsh birds, such as rails and bitterns. It is essential to determine whether the summer of 2004 was atypical or representative of resurgence in the use of the North Pool by marsh birds. Such surveys should also be carried out at Stage Island Pool and Bill Forward Pool and, ideally, at other potential freshwater and

oligohaline habitats in the region, such as Lynnfield Marsh, Bunker Meadows, Great Meadows National Wildlife Refuge, and the upper part of the Parker River estuary. It would have been instructive to know whether the 2004 situation was unique to the North Pool or a regional phenomenon.

4. **There is no urgency for decision-making that would preclude getting the best possible science.** Related to (3), the refuge needs to take the time to gather the information necessary to make the best management decision. All available information on the history of past management actions and their effects should be compiled and summarized. Current and ongoing information on vegetation, hydrology, avian use, and other relevant factors should be gathered according to standardized protocols so that information will be comparable over a series of years. There is no compelling reason for the Refuge to rush to a major change in the management regime for the North Pool before it has explored all options.
5. **The management options for the North Pool should be examined in a regional context.** We need to understand what other sites, if any, may be providing habitat for the freshwater marsh birds in eastern Massachusetts and how they might compare with the North Pool. Are there other sites that are (or could be) providing habitat for these species of concern with less intensive management measures than at the North Pool? Similarly, how much difference would adding approximately 100 acres of salt marsh make to populations of Saltmarsh Sharp-tailed Sparrows or other target species that may prefer salt marshes?
6. **Future management of the North Pool should be sustainable.** The resources should be available to sustain whatever management measures are instituted. Any ongoing management measures should be as simple as possible.
7. **The principle of adaptive management should guide any changes in the habitat.** Whatever management measures are instituted, the refuge should monitor and evaluate the success of achieving intended habitat goals at regular intervals. Changes in management should be instituted, as warranted.
8. **Management measures can be phased in and each step evaluated before proceeding further.** Major habitat changes do not need to occur in one step. A model for this is the National Park Service's salt marsh restoration at Hatches Harbor, Provincetown, where tide gates were opened gradually over a period of years. This was done in conjunction with a continual, scientifically-rigorous evaluation of the changes occurring to the habitat at regular intervals of time. Whether the final decision is made to continue to manage this area as a freshwater impoundment or to conduct some degree of salt marsh restoration, any changes in water management practices, management of invasive species, or other management techniques should, if possible, be applied incrementally rather than through sudden changes.
9. **Management of the North Pool should continue to be transparent to the public.** Because of the public interest in this project, the Refuge has made information available for public review, and it continues to offer opportunities for the public to comment on the project during planning and implementation phases. We applaud this effort.