

Lakes And Reservoirs
Mid-Atlantic Coastal Plain

There are 22 natural lakes in the Coastal Plain. Basins range from Carolina bays to peatland depressions. Most natural lakes in North Carolina are acidic and therefore have relatively low productivity. Lake Waccamaw is an exception, with neutral pH and a high calcium content. This lake is home to many endemic species and is therefore of extreme importance.

Reservoirs tend to be quite small on the Coastal Plain since topography is so flat. Millponds, farm ponds, Carolina bays and impoundments are quite common and provide key habitat for lentic aquatic or semi-aquatic wildlife species. These areas (and the immediate shoreline vegetation) are also important areas for many bird species (nesting, roosting, and feeding sites) and provide habitat for fish, reptiles, amphibians, and aquatic or semi-aquatic mammals. *Beaver ponds are discussed in the Small Wetland Communities section.*

In particular, these sites and immediately adjacent cover (especially the smaller ponds) are habitat for wading birds and shorebirds for foraging, and also important sites for breeding for species such as green heron. Common yellowthroat and red-winged blackbird are typical nesters in vegetation along shorelines, and swallows and swifts often forage over lakes and ponds. Bald eagle and osprey nest and/or forage at these sites, and waterfowl roost, loaf and feed during migration and winter. Double-crested cormorants are becoming common year-round residents at most coastal lakes. Anhinga are sometimes seen during summer, nesting at millponds and/or natural lakes. In addition, these water bodies are popular destinations for human recreational activities such as canoeing, fishing, crabbing and swimming. Table 1 provides a list of priority species associated with this habitat for which there is conservation concern.

Other fully aquatic taxa (fish, mussels, crayfish, and snails) are referenced in the river basin descriptions. See the river basin descriptions or Chapter 5B of the Wildlife Action Plan for more detailed information on aquatic species and habitats, by basin.

Table 1. Priority species associated with coastal plain lakes and reservoirs.

Group	Scientific name	Common name	State status* (Federal status)
Birds	<i>Anhinga anhinga</i>	Anhinga	SR
	<i>Egretta caerulea</i>	Little Blue Heron	SC
	<i>Egretta thula</i>	Snowy Egret	SC
	<i>Gallinula chloropus</i>	Common Moorhen	
	<i>Haliaeetus leucocephalus</i>	Bald Eagle	T (T)
	<i>Ixobrychus exilis</i>	Least Bittern	
	<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	
	<i>Mycteria americana</i>	Wood Stork	E (E)

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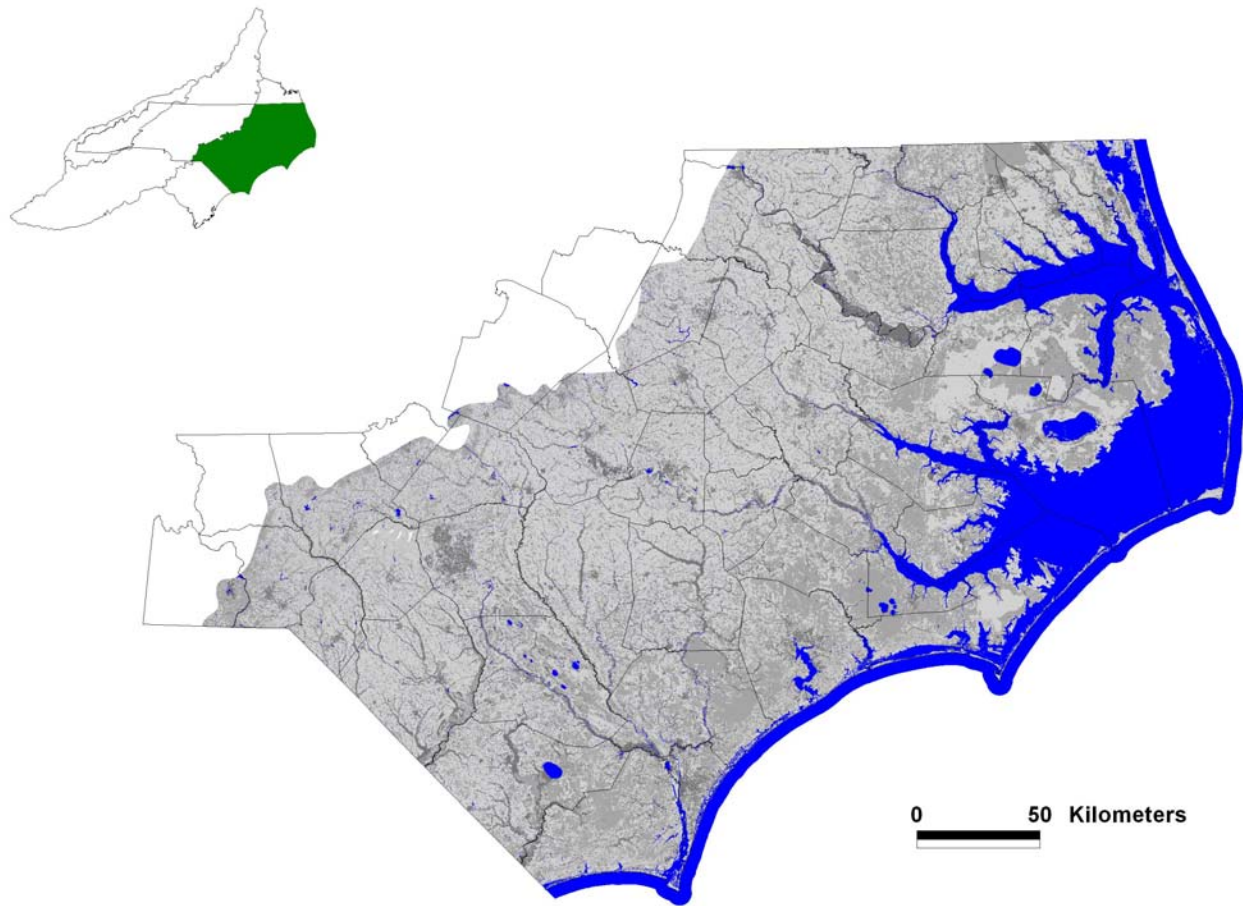
Group	Scientific name	Common name	State status* (Federal status)
	<i>Nyctanassa violacea</i>	Yellow-crowned Night-heron	
Reptiles	<i>Alligator mississippiensis</i>	American Alligator	T (T)
	<i>Apalone spinifera aspera</i>	Gulf Coast Spiny Softshell	
	<i>Deirochelys reticularia</i>	Eastern Chicken Turtle	SR
	<i>Farancia abacura abacura</i>	Eastern Mudsnake	
	<i>Farancia erythrogramma erythrogramma</i>	Common Rainbow Snake	
	<i>Kinosternon baurii</i>	Striped Mud Turtle	
	<i>Regina rigida</i>	Glossy Crayfish Snake	SR
	<i>Thamnophis sauritus sauritus</i>	Common Ribbonsnake	
*Abbreviations			
E	Endangered		
T	Threatened		
SC	Special Concern		
SR	Significantly Rare		

Location And Condition Of Habitat

Many of the natural lake communities (e.g. Lake Mattamuskeet) in the coastal plain are in public ownership. However, the degree to which the shoreline and water quality are protected varies (NCNHP 2001). Many of these sites are important waterfowl, wading bird and even shorebird wintering and migration stopover areas, especially at National Wildlife Refuges (NWR) like Lake Mattamuskeet NWR and Pocosin Lakes NWR. Map 1 depicts locations of floodplain forest habitats in the Mid-Atlantic Coastal Plain ecoregion.

Millponds and man-made impoundments provide key habitat for many species of waterfowl, wading birds and other waterbirds throughout the year and are found throughout the Coastal Plain. Impoundments vary with age, water depth and disturbance history; the isolation of these ponds may be an important factor in determining the flora and fauna present (Schafale and Weakley 1990).

Map 1. Lakes in the Mid-Atlantic Coastal Plain ecoregion of North Carolina (in blue; open water and sounds also shown).



Data source: NC GAP, 1992

Problems Affecting Species And Habitats

Development and loss of associated riparian habitats are primary concerns. Although bald eagles have found additional shorelines to use as perch/foraging sites through the many constructed reservoirs, most of these shorelines are becoming heavily impacted by development.

Changes in hydrology and water chemistry are leading to water quality concerns. Exotic species (e.g., *Hydrilla* and other plants, *Corbicula*, carp) negatively affect native frogs and turtles due to decreased native plant and animal diversity. Avian Vacuolar Myelinopathy (AVM) is a disease that affects birds that use these habitats. It has been known to kill at least 99 bald eagles in the southeast and is associated with a Noval Cyanobacterial species in aquatic plants such as

hydrilla. Shorelines are often trampled and shoreline erosion and mowing is a concern in many areas. Point and non-point source pollution sources from residential areas and other sources (e.g. 2-stroke engines) are prevalent, and non-point source pollution from agriculture and logging is possible for several sites. This pollution leads to algal blooms and low dissolved oxygen events. Disturbance (boat and personal watercraft wakes and associated noise pollution) by boats and potential Outlying Landing Field aircraft are also a concern relating to some species of wildlife, especially waterfowl. Until regulation changes in 2004, trapping of turtles for the food market was a severe impact on Coastal Plain lakes and ponds.

Species And Habitat Conservation Actions and Priorities For Implementation

Elimination and control of exotics, especially aquatic plants, is imperative. Native vegetative composition and structure are important to the seasonal migrations of many wetland-related reptiles and amphibians (Bailey *et al.* 2004). Better buffers surrounding these areas are also needed and lakeshore development needs to be limited to reduce pollution and recreational access impacts on lake communities. Natural structures, in the form of logs, rocks, and snags, should be retained. Development near bald eagle nest trees needs to be controlled.

Conservation of millponds that are being drained due to dike maintenance costs will also be a pressing issue in the coming years. We need to promote techniques for managing beaver damage that minimize loss of quantity and quality of beaver ponds. Beaver ponds are important habitat for many birds, mammals, amphibians and reptiles. Coordination with waterbird working groups should continue and future recommendations from the North American Waterbird Conservation Plan should be followed (Kushlan *et al.* 2002).

Acquisition and other protection of natural lakes and ponds is a high priority. There are still a few such lakes in the “Bladen Lakes” region that are in private, unprotected ownership. Protection of some millponds is also warranted, though this is a lower priority than protection of natural water bodies.

See the river basin sections for more detailed conservation recommendations regarding aquatic species and habitats.

Priority Research, Survey, And Monitoring

- **Surveys**
 - Conduct status and distribution survey work for bald eagle, anhinga, common moorhen, swallows, wood stork, yellow-crowned night-heron (and other ibis, herons and egrets).
 - Document the status and distribution of rails at all times of the year, and least bittern use of marsh areas.
 - Document breeding landbird use of water-filled Carolina bay edges (Mamo and Bolen 1999).

- Establish survey stations for foraging bats.
 - Document the status and distribution of uncommon or hard to find reptiles (e.g. eastern chicken turtle, eastern mudsnake, glossy crayfish snake); initiate surveys for other reptiles and amphibians using lentic habitats.
 - Establish frog call survey stations at several sites in the Coastal Plain on public lands (and if possible on private lands).
- **Monitoring**
 - Continue long-term monitoring for bald eagles and expand long-term monitoring for nesting ospreys, rails and other marshbirds.
 - Continue surveys and monitoring of heronries.
 - Establish long-term monitoring for all pond turtles (often subject to collection).
 - Conduct monitoring to track impacts of exotics on native wildlife.
- **Research**
 - Track and identify problems associated with avian vacuolar myelinopathy that cause mortality in American coots, other waterfowl, and bald eagles (to continue to follow up on recent research) (Augspurger *et al.* 2003).
 - Conduct movement research for eastern chicken turtle and some snakes (e.g. eastern mudsnake, common rainbow snake and glossy crayfish snake), using telemetry.

Supporting References

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