

# ATTACHMENT A

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# Harris Nuclear Plant Environmental Monitoring Reports Summary

## Introduction

This technical memorandum (TM) provides a general description of the monitoring program and the data in Progress Energy's environmental monitoring reports for the Shearon Harris Nuclear Power Plant site from 1979 through 2006. The biological topics in the reports include: vegetation, benthic macroinvertebrates, fisheries, reptiles and amphibians, birds, and mammals. This TM provides a general index of the types of data in the monitoring reports so that future analysis can focus on the most appropriate monitoring reports for the desired analysis. Each topic section in this TM provides a brief description of the methods and the general time period the biological unit was monitored. Table 1 provides a general overview of when each topic was monitored (Asian Clam and Zebra Mussel surveys are discussed in the Benthic Macroinvertebrates section). Summary tables of the species observed are also included for fish, reptiles, amphibians, birds, and mammals. The original monitoring reports should be consulted for raw data or detailed analysis.

The information in this TM was gathered through a review of all the environmental monitoring reports from 1979 through 2006. The primary information extracted from the reports included general sampling methods, how often sampling occurs each year, general sampling trends, how the methods changed year to year, and annual species lists. A map of the Harris Nuclear Plant monitoring area was also extracted from the 2006 report and is included in Attachment A. The letters on the map represent sampling areas for water quality, zebra mussel surveys, electrofishing, and aquatic vegetation surveys. The numbers on the figure indicate specific sampling stations. Most of the reports provide an introductory overview, detailed descriptions of methods, and in depth analyses for each biological topic. Extensive tables, species lists, figures, and graphics are included in the discussion and analysis portion of the reports. In general, the earlier studies from the 1980s and early 1990s provide significantly more detail compared to the recent versions. Detailed water quality monitoring data is also included in every annual report. All the available environmental monitoring reports are listed in the references section of this document.

**TABLE 1**  
Time Period each Biological Topic was Monitored

Biological Topic	Time Period Monitored
Vegetation	1979-1988, excluding 1985
Benthic Macroinvertebrates	1979-1988
Asian Clam Surveys	1984-1998
Zebra Mussel Surveys	1992-2006, excluding 2005
Fisheries	1979-1995, no surveys in 1996 and 1997, Biannually 2000 to present
Reptiles and Amphibians	1979-1985
Birds	1979-1987
Mammals	1979-1986

## 1. Vegetation

Terrestrial vegetation surveys were conducted from 1979 to 1988, excluding 1985. A qualitative survey was completed at three sites in the spring, summer, and fall of 1979 prior to construction of the reservoir. The qualitative surveys at these three sites were continued through 1981, until the sampling locations were changed in 1982 after completion of the power plant and reservoir. Quantitative determinations of forest stand characteristics were made in fall of 1980 at two of the original terrestrial locations (SA3 and SA4). See Figure 1.2 "Shearon Harris Nuclear Power Plant site terrestrial sampling areas and roadside avifauna survey route" in Attachment A. Terrestrial sampling occurred at either all or a combination of the SA (SA1, SA2, SA3, and SA4) sites between the years 1979 and 1981. In 1982, four new study areas were established in various communities representing forest types surrounding the reservoir. Sites SA5, SA6, SA7, and SA8 on Figure 1.1 "Shearon Harris Nuclear Power Plant site sampling stations for 1982" represent the new sampling areas established in 1982 (see Attachment A). The herbaceous species were surveyed, shrub and understory measurements were taken, and canopy species were recorded in each survey area (see the 1982 Environmental Monitoring Report for detailed sampling methods). Three of these surveys were conducted in 1982, but one annual survey was completed in 1983 and 1984. Terrestrial vegetation surveys were not completed in 1985. Quantitative vegetation surveys of the Wildlife Management areas were conducted from 1986 to 1988. The point-quarter method was used to characterize species composition and density of timber stands in the area. This method estimates relative importance of canopy trees. Terrestrial surveys ended after 1988, but refer to the 1979-1988 Environmental Monitoring Reports for a detailed analysis of the results.

Aquatic vegetation surveys began in 1983. Surveys were conducted by boat along portions of the shoreline and/or littoral zone of the main lake and auxiliary reservoir. Special emphasis was placed in areas, such as boat ramps and road crossings, where the introduction of potentially troublesome species might occur. The later vegetation surveys particularly focused on documenting the presence of hydrilla and creeping water primrose

pest plants. From 1983 to 1988, aquatic vegetation was surveyed four times a year during the spring, summer, and fall. Aquatic vegetation was surveyed once during each season of spring, summer, and fall in 1989 and 1990. In 1991 and 1992, sampling was completed twice a year, and from 1993 to the present aquatic vegetation is surveyed once annually.

## 2. Benthic Macroinvertebrates

Benthic macroinvertebrate sampling was conducted from 1979 to 1988. Quarterly sampling of macroinvertebrates occurred in both the Cape Fear River and feeder streams to Lake Harris from 1979 to 1981. The sampling methods during this time included three ponar grab samples and the collection of two replicate artificial substrate samplers at each of 13 stations. The replicate samplers were returned to the lab for further analysis.

In 1982, the sampling transects were changed after the power plant was completed. Quarterly ponar samples were collected at three stations located in different areas of the reservoir. Three replicate samples were collected for every station at both 2 and 4 meter depths. In 1984, monthly collections were made at the 2-meter depth to provide 1 full year of preoperational data from the most taxonomically rich area of the littoral zone. In 1983, an additional station was surveyed in the main reservoir, and one ponar sample was collected from the auxiliary reservoir. Sampling was conducted on a bimonthly schedule instead of quarterly from 1986 through 1988. Organisms collected from the ponar samples were preserved in a 70 percent ethanol-glycerin for counting and identification in the lab. Benthic macroinvertebrate sampling ended after 1988.

Asian clam (*Corbicula*) surveys began in 1984 but were discontinued after 1998. From 1984 to 1986, quarterly ponar samples from 2 and 4 meter depths were collected from intake structure and the auxiliary reservoir. These areas were sampled bimonthly in 1987 and 1988, but starting in 1989 through 1998 sampling was conducted on a biannual basis. Shoreline samples were collected once annually from 1984 to 1991. The sampling stations were found in 1.6-km intervals along the Lake Harris shoreline. Asian clam surveys of the emergency service water, cooling tower makeup, and fire protection systems began in 1986. Surveys of these structures were conducted twice per year but sampling terminated in 1998. Based on survey results, Asian clams were introduced to the reservoir in 1984, and the population spread throughout the lake and into the auxiliary reservoir by 1998. The clams have been observed in the main intake canal, service water systems, and the cooling water makeup but have caused no operational problems for the Harris Nuclear Plant.

Zebra mussel surveys were conducted from 1992 to 2006, excluding 2005. To monitor zebra mussels, an artificial substrate sampler, constructed of a PVC frame and fitted with removable PVC plates, was placed near the cooling tower makeup intake structure. This sampler, the dock at the Holleman's boat ramp, or the water quality station marker buoys were visually inspected for the presence of mussels during routine water quality or Asiatic clam survey monitoring. Zebra mussel surveys were conducted once per calendar month from 1992 to 1994 and once every other month in 1995 and 1996. From 1997 to 2006 (excluding 2005), surveys were completed on a quarterly basis. Surveys for quagga mussels were conducted once monthly in 1993 and 1994 and were surveyed quarterly in 2003. Zebra mussels and quagga mussels were not observed in the main or auxiliary reservoirs during the survey period.

### 3. Fisheries

Annual fisheries surveys were conducted from 1979 to 1995. Surveys were not performed in 1996 and 1997, and starting in 2000 sampling occurred every other year. See Tables 2 and 3 for complete species lists from 1979 to 2006.

From 1979 to 1981, fish communities were sampled quarterly in the Cape Fear River and in various streams feeding Lake Harris. Boat electrofishers, backpack electrofishers, and fyke nets were used to sample fishes in the Cape Fear River. Backpack electrofishers were used for stream sampling. Species collected in the field were identified, weighed, and measured.

In 1982, the sampling transects changed after the power plant was completed. All sampling efforts were now concentrated in the main Lake Harris reservoir, which included various open water, cove, and feeder stream habitats. Quarterly use of gill nets, fyke nets, and electrofishing surveys continued in 1982. A larval trap survey and cove rotenone analyses were also initiated in 1982. Plexiglas larval fish traps were placed at three locations in the reservoir during August and November. The traps were set for two consecutive days and fished at approximately 24-hour intervals. Rotenone sampling occurred in three coves representing the main dam area and each of the two major arms of the reservoir. Fish were collected for 3 days after rotenone was applied. All species collected from the different gear types were separated by species, counted, measured, and weighed when possible.

The larval trap program was expanded in 1983 with additional locations and more frequent sampling, but the program was dropped in 1984. Larval push net sampling was also initiated in 1983. A push net apparatus was pulled behind a boat for approximately 6 minutes at five stations. The push net sampling occurred biweekly from April to August during nighttime hours but was discontinued after 1988. No larval sampling was conducted in 1985.

Rotenone cove sampling occurred every other year from 1982 to 1990. The program has since been discontinued. The use of fyke and gill nets was also discontinued after 1984. A creel survey was performed in 1984 to assess the recreational fishery. Sampling was conducted during one randomly selected weekday and one weekend day per week from various locations around the reservoir. Additional sampling of largemouth bass occurred from 1991 to 1993 as a result of annual fishing tournaments. Once the tournament ended, the fish were weighed, measured, tagged, and released.

Boat electrofishing continued on a quarterly basis from 1982 to 1995 in the sampling transects established in 1982. Sampling was not performed in 1996 and 1997, and starting in 2000 sampling occurred every other year. Biannual sampling occurred in 1992, 1993, 1994, and 1998. The electrofishing methods included 15-minute samples at each station (approximately 10 stations) using the electrofishing boat with pulsed DC current. Collected fishes were weighed, measured, and released.

**TABLE 2**  
Fish Species Collected from Lake Harris from 1979 to 1990

Species Common Name	Scientific Name	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Bowfin	<i>Amia calva</i>										X	X	X
American Eel	<i>Anguilla rostrata</i>	X	X	X	X	X	X	X	X	X			
Gizzard Shad	<i>Dorosoma cepedianum</i>			X	X	X	X	X	X	X	X	X	X
Threadfin Shad	<i>Dorosoma petenense</i>										X	X	X
Eastern Mudminnow	<i>Umbra pygmaea</i>	X	X		X								
Redfin Pickerel	<i>Esox americanus</i>	X	X	X	X	X	X		X		X		X
Chain Pickerel	<i>Esox niger</i>			X	X	X	X	X	X	X	X	X	X
Rosyside Dace	<i>Clinostomus funduloides</i>		X	X		X					X		
Bluehead Chub	<i>Nocomis biguttatus</i>	X	X	X									
Golden Shiner	<i>Notemigonus crysoleucas</i>	X	X	X	X	X	X	X	X	X	X	X	X
White Shiner	<i>Notropis albeolus</i>	X	X	X									
Whitemouth Shiner	<i>Notropis alborus</i>	X	X	X		X							
Highfin Shiner	<i>Notropis altipinnis</i>	X	X	X		X							
Comely Shiner	<i>Notropis amoenus</i>	X		X									
Satinfin Shiner	<i>Notropis analostanus</i>	X	X	X		X							
Spottail Shiner	<i>Notropis hudsonius</i>	X	X	X									
Coastal Shiner	<i>Notropis petersoni</i>					X					X	X	X
Swallowtail Shiner	<i>Notropis procne</i>	X	X										
Sandbar Shiner	<i>Notropis scepticus</i>	X	X	X									
Creek Chub	<i>Semotilus atromaculatus</i>	X	X	X									

**TABLE 2**  
Fish Species Collected from Lake Harris from 1979 to 1990

<b>Species Common Name</b>	<b>Scientific Name</b>	<b>1979</b>	<b>1980</b>	<b>1981</b>	<b>1982</b>	<b>1983</b>	<b>1984</b>	<b>1985</b>	<b>1986</b>	<b>1987</b>	<b>1988</b>	<b>1989</b>	<b>1990</b>
Creek Chubsucker	<i>Erimyzon oblongus</i>	X	X	X	X	X	X		X		X	X	X
Silver Redhorse	<i>Moxostoma anisurum</i>						X				X		
Shorthead Redhorse	<i>Moxostoma macrolepidotum</i>		X		X								
Smallfin Redhorse, i.e. brassy jumprock	<i>Scartomyzon sp. cf. lachneri</i>			X		X							
Striped Jumprock	<i>Moxostoma rupiscartes</i>	X											
Snail Bullhead	<i>Ameiurus brunneus</i>	X	X	X	X	X	X						
White Catfish	<i>Ameiurus catus</i>	X			X								
Black Bullhead	<i>Ameiurus melas</i>			X	X	X							
Yellow Bullhead	<i>Ameiurus natalis</i>	X	X		X	X	X	X	X	X	X	X	X
Brown Bullhead	<i>Ameiurus nebulosus</i>	X	X	X	X	X	X	X	X	X	X	X	X
Flat Bullhead	<i>Ameiurus platycephalus</i>	X		X	X	X	X	X	X	X	X		X
Channel Catfish	<i>Ictalurus punctatus</i>	X			X	X		X	X		X	X	X
Tadpole madtom	<i>Noturus gyrinus</i>	X	X								X		
Margined Madtom	<i>Noturus insignis</i>	X	X	X	X								
Flathead Catfish	<i>Ptyodictis olivaris</i>								X		X		
Pirate Perch	<i>Aphredoderus sayanus</i>	X	X	X	X	X	X						
Speckled Killifish	<i>Fundulus rathbuni</i>	X	X	X									
Eastern Mosquito Fish	<i>Gambusia holbrooki</i>	X	X	X	X	X	X	X	X		X		X
Mud Sunfish	<i>Acantharchus pomotis</i>	X	X	X	X	X			X				

**TABLE 2**  
Fish Species Collected from Lake Harris from 1979 to 1990

Species Common Name	Scientific Name	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Flier	<i>Centrarchus macropterus</i>	X	X	X	X	X	X	X		X	X		
Bluespotted Sunfish	<i>Enneacanthus gloriosus</i>		X	X	X	X	X		X	X	X	X	X
Redbreast Sunfish	<i>Lepomis auritus</i>	X	X	X	X	X	X	X	X	X	X	X	X
Green Sunfish	<i>Lepomis cynellus</i>	X	X	X	X	X	X	X	X	X	X	X	X
Pumpkinseed	<i>Lepomis gibbosus</i>	X	X	X	X	X	X	X	X	X	X	X	X
Warmouth	<i>Lepomis gulosus</i>	X	X	X	X	X	X	X	X	X	X	X	X
Bluegill	<i>Lepomis macrochirus</i>	X	X	X	X	X	X	X	X	X	X	X	X
Redear Sunfish	<i>Lepomis microlophus</i>		X		X	X	X	X	X	X	X	X	X
Largemouth Bass	<i>Micropterus salmoides</i>	X	X	X	X	X	X	X	X	X	X	X	X
White Crappie	<i>Pomoxis annularis</i>				X	X	X		X			X	
Black Crappie	<i>Pomoxis nigromaculatus</i>			X	X	X	X	X	X	X	X	X	X
Swamp Darter	<i>Etheostoma fusiforme</i>	X				X		X	X		X		X
Tessellated Darter	<i>Etheostoma olmsted</i>		X	X		X							
Sawcheck Darter	<i>Etheostoma serriferum</i>	X	X	X	X		X						
Piedmont Darter	<i>Percina crassa</i>	X	X	X									



**TABLE 3**  
Fish Species Collected from Lake Harris from 1991 to 2006

Species Common Name	Scientific Name	1991	1992	1993	1994	1995	1998	1999	2000	2002	2004	2006
Bowfin	<i>Amia calva</i>	X	X	X	X			X	X	X	X	X
American Eel	<i>Anguilla rostrata</i>	X										
Gizzard Shad	<i>Dorosoma cepedianum</i>	X	X	X	X	X	X	X	X	X	X	X
Threadfin Shad	<i>Dorosoma petenense</i>		X	X		X	X	X	X	X	X	X
Common Carp	<i>Cyprinus carpio</i>								X	X	X	X
Chain Pickerel	<i>Esox niger</i>	X	X	X	X	X	X	X	X	X	X	X
Golden Shiner	<i>Notemigonus crysoleucas</i>	X	X	X	X	X	X	X	X	X	X	X
Comely Shiner	<i>Notropis amoenus</i>						X	X				
Spottail Shiner	<i>Notropis hudsonius</i>							X				
Coastal Shiner	<i>Notropis petersoni</i>							X	X	X	X	X
Snail Bullhead	<i>Ameiurus brunneus</i>				X		X					X
White Catfish	<i>Ameiurus catus</i>							X	X	X	X	X
Black Bullhead	<i>Ameiurus melas</i>											
Yellow Bullhead	<i>Ameiurus natalis</i>		X		X	X		X			X	
Brown Bullhead	<i>Ameiurus nebulosus</i>	X	X	X	X	X	X	X	X	X	X	X
Flat Bullhead	<i>Ameiurus platycephalus</i>	X		X		X	X		X	X	X	X

**TABLE 3**  
Fish Species Collected from Lake Harris from 1991 to 2006

Species Common Name	Scientific Name	1991	1992	1993	1994	1995	1998	1999	2000	2002	2004	2006
Channel Catfish	<i>Ictalurus punctatus</i>	X		X	X	X	X	X	X	X	X	X
Eastern Mosquito Fish	<i>Gambusia holbrooki</i>		X		X			X			X	
Bluespotted Sunfish	<i>Enneacanthus gloriosus</i>	X	X		X	X	X	X	X	X	X	X
Redbreast Sunfish	<i>Lepomis auritus</i>	X	X	X	X	X	X	X	X		X	
Green Sunfish	<i>Lepomis cynellus</i>	X	X									
Pumpkinseed	<i>Lepomis gibbosus</i>	X	X	X	X	X		X		X		
Warmouth	<i>Lepomis gulosus</i>	X	X	X	X	X	X	X	X	X	X	X
Bluegill	<i>Lepomis macrochirus</i>	X	X	X	X	X	X	X	X	X	X	X
Redear Sunfish	<i>Lepomis microlophus</i>	X	X	X	X	X	X	X	X	X	X	X
Largemouth Bass	<i>Micropterus salmoides</i>	X	X	X	X	X	X	X	X	X	X	X
White Crappie	<i>Pomoxis annularis</i>			X	X			X	X			
Black Crappie	<i>Pomoxis nigromaculatus</i>	X	X	X	X	X	X	X	X	X	X	X
White Perch	<i>Morone americana</i>								X	X	X	X
Swamp Darter	<i>Etheostoma fusiforme</i>										X	

## 4. Reptiles and Amphibians

Reptile and amphibian surveys at the Harris Nuclear Plant were performed between 1979 and 1985. From 1979 to 1981, reptiles and amphibians were sampled concurrently with quarterly terrestrial surveys. The terrestrial surveys were conducted at four sites along the Harris Lake shoreline (SA1, SA2, SA3, and SA4 on Figure 1.2 in Attachment A). Collected species were identified using standard field guides and taxonomic keys. Four new study areas (SA5, SA6, SA7, and SA8 on Figure 1.1 in Attachment A) were established in 1982 for environmental monitoring during plant operation after the original sites were either inundated or destroyed from plant construction.

The sampling methods in 1982 were also modified for the new study areas. The new monitoring methods required timed, systematic surveys on the four study areas to be conducted once monthly from March through August. A total of 100 stations were established in the four study areas. Each month two observers would visit the stations and over-turn rocks, logs, and leaves to sample amphibians and reptiles. The captured individuals were then identified and recorded. The species sampled from 1979 to 1985 are listed in Table 4.

**TABLE 4**  
Amphibians and Reptiles Sampled from 1979 to 1985

Common Name	Scientific Name
Red-spotted Newt	<i>Notophthalmus viridescens</i>
Spotted Salamander	<i>Ambystoma maculatum</i>
Marbled Salamander	<i>Ambystoma opacum</i>
Slimy Salamander	<i>Plethodon glutinosus</i>
American Toad	<i>Bufo americanus</i>
Southern Toad	<i>Bufo terrestris</i>
Fowlers Toad	<i>Bufo fowleri</i>
Eastern Narrowmouth Toad	<i>Gastrophryne carolinensis</i>
Gray Tree Frog	<i>Hyla versicolor</i>
Green Tree Frog	<i>Hyla cinerea</i>
Squirrel Tree Frog	<i>Hyla squirella</i>
Northern Spring Peeper	<i>Pseudacris crucifer</i>
Upland Chorus Frog	<i>Pseudacris feriarum</i>
Northern Cricket Frog	<i>Acris crepitans</i>
Green Frog	<i>Rana clamitans</i>
Pickerel Frog	<i>Rana palustris</i>
Bullfrog	<i>Rana catesbeiana</i>
Southern Leopard Frog	<i>Rana sphenoccephala</i>

**TABLE 4**  
Amphibians and Reptiles Sampled from 1979 to 1985

<b>Common Name</b>	<b>Scientific Name</b>
Common Snapping Turtle	<i>Chelydra serpentina</i>
Eastern Mud Turtle	<i>Kinosternon subrubrum</i>
Eastern Painted Turtle	<i>Chrysemys picta picta</i>
Yellow-bellied Slider	<i>Trachemys scripta scripta</i>
River Cooter	<i>Pseudemys texana</i>
Florida Cooter	<i>Pseudemys floridana</i>
Spotted Turtle	<i>Clemmys guttata</i>
Eastern Box Turtle	<i>Terrapene carolina</i>
Green Anole	<i>Anolis carolinensis</i>
Northern Fence Lizard	<i>Sceloporus undulatus hyacinthinus</i>
Ground Skink	<i>Scincella lateralis</i>
Five-lined Skink	<i>Eumeces fasciatus</i>
Southeastern Five-lined Skink	<i>Eumeces inexpectatus</i>
Broad-headed Skink	<i>Eumeces laticeps</i>
Six-lined Racerunner	<i>Cnemidophorus sexlineatus</i>
Southern Copperhead	<i>Agkistrodon contortrix contortrix</i>
Northern Water Snake	<i>Nerodia sipedon</i>
Brown Water Snake	<i>Nerodia taxispilota</i>
Red-bellied Water Snake	<i>Nerodia erythrogaster erythrogaster</i>
Northern Brown Snake	<i>Storeria dekayi dekayi</i>
Eastern Hognose Snake	<i>Heterodon platyrhinos</i>
Rough Green Snake	<i>Opheodrys aestivus</i>
Rough Earth Snake	<i>Virginia striatula</i>
Eastern Worm Snake	<i>Carphophis amoenus amoenus</i>
Southern Ringneck Snake	<i>Diadophis punctatus punctatus</i>
Black Rat Snake	<i>Elaphe obsoleta obsoleta</i>
Corn Snake	<i>Elaphe guttata guttata</i>
Northern Black Racer	<i>Coluber constrictor constrictor</i>
Eastern Kingsnake	<i>Lampropeltis getula getula</i>
Mole Kingsnake	<i>Lampropeltis calligaster rhombomaculata</i>

## 5. Birds

Bird species were monitored around the Harris Power Plant from 1979 to 1987. The initial bird surveys starting in 1979 to 1981 consisted of roadside surveys and general observations made each quarter along the 10-mile Merry Oaks-Buckhorn Dam route (see Figure 1.2 in Attachment A for the 10-mile sampling route). The survey team would stop every mile for 3 minutes to record bird species, and any species observed between stops were also noted. The surveys were generally performed during morning hours.

Starting in 1982, waterfowl surveys were added to the monitoring methods. Waterfowl species were observed, starting on a weekly basis in 1982 and moving to biweekly in 1983, during fall and winter months from various points along the Lake Harris shoreline. Roadside surveys along the Merry Oaks-Buckhorn Dam route continued through 1987 along with other miscellaneous observations.

Woodland bird surveys were conducted from 1982 to 1984. These surveys were initiated to provide information on wintering and breeding bird species using forested areas around Lake Harris and to describe species-habitat relationships. A total of 50 survey plots were established in forested areas around the lake. Surveys were conducted once in winter and once in the spring and would begin approximately 30 minutes prior to sunrise and end 3 hours later. All birds seen or heard during a 10-minute period at each plot were recorded as singing males, males, or "other." A habitat classification of predominantly pine, hardwood, or mixed pine-hardwood was also recorded for each plot.

In the years 1983 and 1984, wild turkey surveys were performed. The surveys were conducted weekly during the months of March and April. The Shearon Harris Nuclear Power Plant (SHNPP) property was divided into eight areas. Surveys for each of the eight areas began approximately 30 minutes prior to sunrise and ended 3 hours later. The observers would listen for turkey calls and would attempt to elicit a response with recorded calls and box callers. One turkey observation occurred during the 1983 survey, but none were viewed in 1984.

Spring and winter bird counts were also initiated in 1984. The purpose of the counts was to maximize the number of species observed during a 24-hour period by visiting as many habitat types as possible during this interval. A two-person team would sample terrestrial areas while another two-person team sampled the Harris Lake reservoir. Counts began at sunrise and ended shortly after dark. The counts were performed twice annually from 1984 to 1987 excluding 1985.

A special study on red-cockaded woodpeckers at the SHNPP site was conducted in 1984. Habitat characteristics and home range size were investigated for the red-cockaded woodpecker family group located on the property, and a refuge site was established. The refuge site was monitored for nesting activities once a week in 1986. However, the colony of red-cockaded woodpeckers observed in 1986 were absent in 1987 and have not been observed since. The North Carolina Natural Heritage Program considers this species to no longer inhabit Wake County.

Wood duck and bluebird boxes were initially established in 1985. A box monitoring program was in the place through 1991, and boxes were checked and added annually. The

program has since been transferred to a local duck club and only the results through 1991 are included in this TM.

Tables 5 through 8 lists birds observed for each season from 1979 to 1984, excluding a winter bird survey in 1979. Table 9 provides a general list of waterfowl species observed from 1982 to 1987.

**TABLE 5**  
Spring Bird Species Observed from 1979 to 1984

Common Name	Scientific Name	1979	1980	1981	1982	1983	1984
European Starling	<i>Sturnus vulgaris</i>	X	X	X	X		X
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	X		X	X	X	X
Tufted Titmouse	<i>Parus bicolor</i>	X	X	X	X	X	X
American Crow	<i>Corvus brachyrhynchos</i>	X	X	X	X	X	X
Eastern Meadowlark	<i>Sturnella magna</i>	X	X	X	X	X	X
Common Grackle	<i>Quiscalus quiscula</i>	X	X	X	X	X	X
Dark-eyed Junco	<i>Junco hyemalis</i>						X
Field Sparrow	<i>Spizella pusilla</i>	X	X		X		X
Blue Jay	<i>Cyanocitta cristata</i>	X	X	X	X	X	
House Sparrow	<i>Passer domesticus</i>		X	X		X	X
Chipping Sparrow	<i>Spizella passerina</i>			X	X		
American Robin	<i>Turdus migratorius</i>	X	X	X	X	X	X
Carolina Chickadee	<i>Parus carolinensis</i>	X	X	X	X	X	X
White-throated Sparrow	<i>Zonotrichia albicollis</i>			X		X	X
Turkey Vulture	<i>Cathartes aura</i>	X	X		X		X
Northern Cardinal	<i>Cardinalis cardinalis</i>	X	X	X	X	X	X
Mourning Dove	<i>Zenaidura macroura</i>	X	X	X	X	X	X
Eastern Bluebird	<i>Sialia sialis</i>	X	X	X	X	X	X
Song Sparrow	<i>Melospiza melodia</i>	X		X	X		
Northern Flicker	<i>Colaptes auratus</i>	X		X		X	X

**TABLE 5**  
Spring Bird Species Observed from 1979 to 1984

Common Name	Scientific Name	1979	1980	1981	1982	1983	1984
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>			X	X	X	X
Downy Woodpecker	<i>Picoides pubescens</i>					X	
Mockingbird	<i>Mimus polyglottos</i>	X	X	X	X	X	
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	X	X	X	X	X	X
Red-tailed Hawk	<i>Buteo jamaicensis</i>			X	X		X
Carolina Wren	<i>Thryothorus ludovicianus</i>	X	X	X	X	X	X
Brown Thrasher	<i>Toxostoma rufum</i>	X	X		X		
Loggerhead Shrike	<i>Lanius ludovicianus</i>		X				
Sharp-shinned Hawk	<i>Accipiter striatus</i>			X			
Belted Kingfisher	<i>Ceryle alcyon</i>				X		
Wood Duck	<i>Aix sponsa</i>			X	X		
Pine Warbler	<i>Dendroica pinus</i>	X		X	X	X	X
Common Yellowthroat	<i>Geothlypis trichas</i>	X	X	X	X	X	X
Prairie Warbler	<i>Dendroica discolor</i>	X	X	X	X	X	
Hooded Warbler	<i>Wilsonia citrina</i>	X	X	X	X	X	
Yellow-rumped Warbler	<i>Dendroica coronata</i>			X		X	
Yellow-breasted Chat	<i>Icteria virens</i>		X		X		
Yellow Warbler	<i>Dendroica petechia</i>				X		
Yellow-throated Warbler	<i>Dendroica dominica</i>					X	
Northern Parula	<i>Parula americana</i>					X	



**TABLE 5**  
Spring Bird Species Observed from 1979 to 1984

Common Name	Scientific Name	1979	1980	1981	1982	1983	1984
American Goldfinch	<i>Carduelis tristis</i>	X	X	X		X	X
Green-backed Heron	<i>Butorides striatus</i>					X	
Brown-headed Cowbird	<i>Molothrus ater</i>	X		X	X	X	X
Eastern Phoebe	<i>Sayornis phoebe</i>				X		
Purple Martin	<i>Progne subis</i>	X	X	X	X	X	X
Chimney Swift	<i>Chaetura pelagica</i>	X	X	X	X		
Wood Thrush	<i>Hylocichla mustelina</i>	X	X	X	X		
Hermit Thrush	<i>Catharus guttatus</i>			X		X	
Bobwhite	<i>Colinus virginianus</i>	X	X		X		
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	X		X			
Barn Swallow	<i>Hirundo rustica</i>	X			X	X	
Indigo Bunting	<i>Passerina cyanea</i>	X	X		X		
Brown-headed Nuthatch	<i>Sitta pusilla</i>	X					
Red-eyed Vireo	<i>Vireo olivaceus</i>	X	X	X	X		X
White-eyed Vireo	<i>Vireo griseus</i>		X		X	X	
Eastern Kingbird	<i>Tyrannus tyrannus</i>	X			X		
Summer Tanager	<i>Piranga rubra</i>		X		X		
Scarlet Tanager	<i>Piranga olivacea</i>		X				
Blue Grosbeak	<i>Guiraca caerulea</i>		X		X		
Gray Catbird	<i>Dumetella carolinensis</i>		X				

**TABLE 5**  
Spring Bird Species Observed from 1979 to 1984

Common Name	Scientific Name	1979	1980	1981	1982	1983	1984
Orchard Oriole	<i>Icterus spurius</i>		X				
Baltimore Oriole	<i>Icterus galbula</i>				X		
Mallard	<i>Anas platyrhynchos</i>			X			X
Blue-gray Gnatcatcher	<i>Poliophtila caerulea</i>			X			
Ovenbird	<i>Seiurus aurocapillus</i>				X	X	X
Eastern Wood pewee	<i>Contopus virens</i>				X		X
Osprey	<i>Pandion haliaetus</i>						X

**TABLE 6**  
Summer Bird Species Observed from 1979 to 1984

Common Name	Scientific Name	1979	1980	1981	1982	1983	1984
European Starling	<i>Sturnus vulgaris</i>	X	X	X		X	
Red-winged Blackbird	<i>Agelaius phoeniceus</i>		X	X		X	X
Tufted Titmouse	<i>Parus bicolor</i>	X	X	X		X	X
American Crow	<i>Corvus brachyrhynchos</i>	X	X	X	X	X	X
Eastern Meadowlark	<i>Sturnella magna</i>	X			X	X	X
Common Grackle	<i>Quiscalus quiscula</i>	X				X	X
Field Sparrow	<i>Spizella pusilla</i>		X	X		X	X
Blue Jay	<i>Cyanocitta cristata</i>	X	X	X	X	X	X
House Sparrow	<i>Passer domesticus</i>	X	X	X	X	X	
Chipping Sparrow	<i>Spizella passerina</i>			X		X	X
American Robin	<i>Turdus migratorius</i>	X	X	X		X	X
Carolina Chickadee	<i>Parus carolinensis</i>	X	X	X	X	X	X
Turkey Vulture	<i>Cathartes aura</i>	X		X	X		
Northern Cardinal	<i>Cardinalis cardinalis</i>	X	X	X	X	X	X
Mourning Dove	<i>Zenaidura macroura</i>	X	X	X	X	X	X
Rock Dove	<i>Columba livia</i>		X				
Eastern Bluebird	<i>Sialia sialis</i>	X	X	X	X	X	X
Song Sparrow	<i>Melospiza melodia</i>	X	X	X			
Northern Flicker	<i>Colaptes auratus</i>	X	X		X	X	X
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	X	X	X	X	X	X

**TABLE 6**  
Summer Bird Species Observed from 1979 to 1984

Common Name	Scientific Name	1979	1980	1981	1982	1983	1984
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	X					
Downy Woodpecker	<i>Picoides pubescens</i>	X			X		
Mockingbird	<i>Mimus polyglottos</i>	X	X	X	X	X	X
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	X	X	X	X	X	X
Red-tailed Hawk	<i>Buteo jamaicensis</i>	X		X	X		X
Red-shouldered Hawk	<i>Buteo lineatus</i>				X		
Carolina Wren	<i>Thryothorus ludovicianus</i>	X	X	X	X	X	X
Brown Thrasher	<i>Toxostoma rufum</i>		X			X	
Loggerhead Shrike	<i>Lanius ludovicianus</i>		X				
Belted Kingfisher	<i>Ceryle alcyon</i>	X		X		X	
Wood Duck	<i>Aix sponsa</i>	X					
Pine Warbler	<i>Dendroica pinus</i>		X	X	X		X
Common Yellowthroat	<i>Geothlypis trichas</i>	X	X			X	X
Prairie Warbler	<i>Dendroica discolor</i>		X			X	
Hooded Warbler	<i>Wilsonia citrina</i>						X
Black-and-White Warbler	<i>Mniotilta varia</i>		X				
Yellow-rumped Warbler	<i>Dendroica coronata</i>	X					
Yellow-breasted Chat	<i>Icteria virens</i>	X				X	X
Yellow-throated Warbler	<i>Dendroica dominica</i>	X					
Prothonotary Warbler	<i>Protonotaria citrea</i>	X					

**TABLE 6**  
Summer Bird Species Observed from 1979 to 1984

Common Name	Scientific Name	1979	1980	1981	1982	1983	1984
American Goldfinch	<i>Carduelis tristis</i>	X		X	X		X
Great Blue Heron	<i>Ardea herodias</i>	X		X		X	
Green-backed Heron	<i>Butorides striatus</i>			X	X	X	
Brown-headed Cowbird	<i>Molothrus ater</i>		X			X	
Eastern Phoebe	<i>Sayornis phoebe</i>	X	X	X			
Purple Martin	<i>Progne subis</i>		X	X		X	X
Chimney Swift	<i>Chaetura pelagica</i>	X	X	X	X	X	X
Wood Thrush	<i>Hylocichla mustelina</i>		X	X		X	X
Hermit Thrush	<i>Catharus guttatus</i>	X					
Bobwhite	<i>Colinus virginianus</i>		X	X	X	X	X
Barn Swallow	<i>Hirundo rustica</i>	X	X	X		X	X
Bank Swallow	<i>Riparia riparia</i>						X
Indigo Bunting	<i>Passerina cyanea</i>	X	X	X		X	X
White-breasted Nuthatch	<i>Sitta carolinensis</i>	X					
Red-eyed Vireo	<i>Vireo olivaceus</i>	X	X			X	X
White-eyed Vireo	<i>Vireo griseus</i>	X		X	X		X
Solitary Vireo	<i>Vireo solitarius</i>		X				
Eastern Kingbird	<i>Tyrannus tyrannus</i>	X		X	X		
Summer Tanager	<i>Piranga rubra</i>		X		X	X	X
Scarlet Tanager	<i>Piranga olivacea</i>					X	
Blue Grosbeak	<i>Guiraca caerulea</i>	X	X		X	X	X

**TABLE 6**  
Summer Bird Species Observed from 1979 to 1984

Common Name	Scientific Name	1979	1980	1981	1982	1983	1984
Gray Catbird	<i>Dumetella carolinensis</i>	X		X			
Orchard Oriole	<i>Icterus spurius</i>	X					X
American Redstart	<i>Setophaga ruticilla</i>	X					
Blue-gray Gnatcatcher	<i>Poliophtila caerulea</i>	X	X	X	X		X
Ovenbird	<i>Seiurus aurocapillus</i>					X	X
Eastern Wood Pewee	<i>Contopus virens</i>	X	X	X	X	X	X
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	X					
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	X	X	X	X	X	X
Barred Owl	<i>Strix varia</i>	X	X				
Great-crested Flycatcher	<i>Myiarchus crinitus</i>		X				
Acadian Flycatcher	<i>Empidonax virescens</i>						X
Common Nighthawk	<i>Chordeiles minor</i>				X		

**TABLE 7**  
Fall Bird Species Observed from 1979 to 1984

Common Name	Scientific Name	1979	1980	1981	1982	1983	1984
European Starling	<i>Sturnus vulgaris</i>	X	X	X	X	X	X
Red-winged Blackbird	<i>Agelaius phoeniceus</i>		X	X	X		
Tufted Titmouse	<i>Parus bicolor</i>	X	X	X	X		
American Crow	<i>Corvus brachyrhynchos</i>	X	X	X	X	X	X
Eastern Meadowlark	<i>Sturnella magna</i>	X	X	X	X	X	
Common Grackle	<i>Quiscalus quiscula</i>	X	X	X	X	X	X
Dark-eyed Junco	<i>Junco hyemalis</i>		X	X	X		
Field Sparrow	<i>Spizella pusilla</i>	X	X	X			X
Blue Jay	<i>Cyanocitta cristata</i>	X	X	X	X	X	X
House Sparrow	<i>Passer domesticus</i>	X	X	X	X	X	X
Chipping Sparrow	<i>Spizella passerina</i>						X
American Robin	<i>Turdus migratorius</i>	X	X	X	X		X
Carolina Chickadee	<i>Parus carolinensis</i>	X	X	X	X	X	
Turkey Vulture	<i>Cathartes aura</i>			X			
Northern Cardinal	<i>Cardinalis cardinalis</i>	X	X		X	X	X
Mourning Dove	<i>Zenaidura macroura</i>	X	X	X	X	X	X
Eastern Bluebird	<i>Sialia sialis</i>	X	X	X	X	X	X
Song Sparrow	<i>Melospiza melodia</i>	X		X	X		
White-throated Sparrow	<i>Zonotrichia albicollis</i>	X	X	X	X		
Northern Flicker	<i>Colaptes auratus</i>	X	X	X	X	X	X
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	X	X	X	X	X	X

**TABLE 7**  
Fall Bird Species Observed from 1979 to 1984

Common Name	Scientific Name	1979	1980	1981	1982	1983	1984
Pileated Woodpecker	<i>Dryocopus pileatus</i>	X					
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	X			X	X	
Downy Woodpecker	<i>Picoides pubescens</i>		X		X		X
Hairy Woodpecker	<i>Picoides villosus</i>		X				
Mockingbird	<i>Mimus polyglottos</i>	X	X	X	X	X	X
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	X	X	X	X	X	X
Red-tailed Hawk	<i>Buteo jamaicensis</i>	X	X	X		X	X
Sharp-shinned Hawk	<i>Accipiter striatus</i>		X				
Carolina Wren	<i>Thryothorus ludovicianus</i>	X	X	X	X	X	X
Loggerhead Shrike	<i>Lanius ludovicianus</i>	X		X			
Belted Kingfisher	<i>Ceryle alcyon</i>	X	X	X	X	X	
Wood Duck	<i>Aix sponsa</i>			X	X	X	
Pine Warbler	<i>Dendroica pinus</i>		X			X	
Common Yellowthroat	<i>Geothlypis trichas</i>	X	X				
Prairie Warbler	<i>Dendroica discolor</i>		X				
Yellow-rumped Warbler	<i>Dendroica coronata</i>	X		X			
American Goldfinch	<i>Carduelis tristis</i>	X	X				
Great Blue Heron	<i>Ardea herodias</i>				X	X	
Brown-headed Cowbird	<i>Molothrus ater</i>	X		X	X		
Eastern Phoebe	<i>Sayornis phoebe</i>	X	X	X			X
Bobwhite	<i>Colinus virginianus</i>		X				
Red-eyed Vireo	<i>Vireo olivaceus</i>	X					



**TABLE 7**  
Fall Bird Species Observed from 1979 to 1984

Common Name	Scientific Name	1979	1980	1981	1982	1983	1984
Gray Catbird	<i>Dumetella carolinensis</i>			X			X
Eastern Screech Owl	<i>Megascops asio</i>					X	
American Kestrel	<i>Falco sparverius</i>	X	X		X		

**TABLE 8**  
Winter Bird Species Observed from 1980 to 1984

Common Name	Scientific Name	1980	1981	1982	1983	1984
European Starling	<i>Sturnus vulgaris</i>	X	X	X		X
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	X	X		X	
Tufted Titmouse	<i>Parus bicolor</i>	X	X	X		
American Crow	<i>Corvus brachyrhynchos</i>	X	X	X	X	X
Eastern Meadowlark	<i>Sturnella magna</i>	X	X	X	X	
Common Grackle	<i>Quiscalus quiscula</i>	X	X		X	
Dark-eyed Junco	<i>Junco hyemalis</i>	X	X	X	X	X
Field Sparrow	<i>Spizella pusilla</i>	X			X	X
Blue Jay	<i>Cyanocitta cristata</i>	X	X	X	X	X
House Sparrow	<i>Passer domesticus</i>	X	X			
American Robin	<i>Turdus migratorius</i>	X	X	X	X	
Carolina Chickadee	<i>Parus carolinensis</i>	X	X	X	X	X
White-throated Sparrow	<i>Zonotrichia albicollis</i>	X	X	X	X	X
Turkey Vulture	<i>Cathartes aura</i>	X	X			
Northern Cardinal	<i>Cardinalis cardinalis</i>	X	X	X	X	X
Mourning Dove	<i>Zenaidura macroura</i>	X	X	X	X	X
Eastern Bluebird	<i>Sialia sialis</i>	X	X	X	X	X
Song Sparrow	<i>Melospiza melodia</i>	X		X		X
Northern Flicker	<i>Colaptes auratus</i>	X	X	X	X	X
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>		X	X	X	X
Downy Woodpecker	<i>Picoides pubescens</i>				X	

**TABLE 8**  
Winter Bird Species Observed from 1980 to 1984

Common Name	Scientific Name	1980	1981	1982	1983	1984
Hairy Woodpecker	<i>Picoides villosus</i>				X	
Mockingbird	<i>Mimus polyglottos</i>	X	X		X	X
Eastern towhee	<i>Pipilo erythrophthalmus</i>	X	X	X	X	X
Red-tailed Hawk	<i>Buteo jamaicensis</i>	X	X		X	X
Brown Creeper	<i>Certhia americana</i>	X				
Carolina Wren	<i>Thryothorus ludovicianus</i>	X	X	X	X	
Brown Thrasher	<i>Toxostoma rufum</i>	X				
Loggerhead Shrike	<i>Lanius ludovicianus</i>	X				
Red-shouldered Hawk	<i>Buteo lineatus</i>	X				
Sharp-shinned Hawk	<i>Accipiter striatus</i>	X		X		
Trail's Flycatcher	<i>Empidonax traillii</i>		X			
Purple Finch	<i>Carpodacus purpureus</i>		X			
Belted Kingfisher	<i>Ceryle alcyon</i>		X	X	X	
Wood Duck	<i>Aix sponsa</i>		X			
Pine Warbler	<i>Dendroica pinus</i>			X		X
Ring-billed Gull	<i>Larus delawarensis</i>			X		
Pied-billed Grebe	<i>Podilymbus podiceps</i>			X		
Cedar Waxwing	<i>Bombycilla cedrorum</i>			X	X	
American Goldfinch	<i>Carduelis tristis</i>			X		X
Lesser Scaup	<i>Aythya affinis</i>			X		
Barred Owl	<i>Strix vaira</i>			X		
Great Blue Heron	<i>Ardea herodias</i>			X	X	

**TABLE 8**  
Winter Bird Species Observed from 1980 to 1984

Common Name	Scientific Name	1980	1981	1982	1983	1984
Brown-headed Cowbird	<i>Molothrus ater</i>				X	
Northern Harrier	<i>Circus cyaneus</i>				X	
Eastern Phoebe	<i>Sayornis phoebe</i>					X

**TABLE 9**  
Waterfowl Species Observed from 1982 to 1987

<b>Common Name</b>	<b>Scientific Name</b>
Common Loon	<i>Gavia immer</i>
Horned Grebe	<i>Podiceps auritus</i>
Pied-billed Grebe	<i>Podilymbus podiceps</i>
Double Crested Cormorant	<i>Phalacrocorax auritus</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Osprey	<i>Pandion haliaetus</i>
Common Merganser	<i>Mergus merganser</i>
Red-breasted Merganser	<i>Mergus serrator</i>
Hooded Merganser	<i>Lophodytes cucullatus</i>
Mallard	<i>Anas platyrhynchos</i>
American Black Duck	<i>Anas rubripes</i>
Green-winged Teal	<i>Anas carolinensis</i>
Blue-winged Teal	<i>Anas discors</i>
Gadwall	<i>Anas strepera</i>
Pintail	<i>Anas acuta</i>
American Wigeon	<i>Anas americana</i>
Wood Duck	<i>Aix sponsa</i>
Canvasback	<i>Aythya valisineria</i>
Ring-necked Duck	<i>Aythya collaris</i>
Common Goldeneye	<i>Bucephala clangula</i>
Bufflehead	<i>Bucephala albeola</i>
Lesser Scaup	<i>Aythya affinis</i>
Ruddy Duck	<i>Oxyura jamaicensis</i>
Canada Goose	<i>Branta canadensis</i>
American Coot	<i>Fulica americana</i>
White Ibis	<i>Eudocimus albus</i>
Cattle Egret	<i>Bubulcus ibis</i>
Great Egret	<i>Ardea alba</i>
Great Blue Heron	<i>Ardea herodias</i>
Louisiana Heron	<i>Ardea ludoviciana</i>
Little Blue Heron	<i>Egretta caerulea</i>
Green Heron	<i>Butorides virescens</i>

**TABLE 9**  
Waterfowl Species Observed from 1982 to 1987

Common Name	Scientific Name
Solitary Sandpiper	<i>Tringa solitaria</i>
Spotted Sandpiper	<i>Actitis macularia</i>
Common Snipe	<i>Gallinago gallinago</i>
Lesser Yellowlegs	<i>Tringa flavipes</i>
Killdeer	<i>Charadrius vociferus</i>
Caspian Tern	<i>Sterna caspia</i>
Ring-billed Gull	<i>Larus delawarensis</i>
Tundra Swan	<i>Cygnus columbianus</i>
Northern Harrier	<i>Circus cyaneus</i>

## 6. Mammals

Mammals were surveyed at the Harris Nuclear Plant from 1979 to 1986. However, the sampling methods frequently changed during the 8-year survey period. From 1979 to 1980, small mammal trapping studies were established at four study areas (SA1, SA2, SA3, and SA4 on Figure 1.2 in Attachment A) along the Harris Lake shoreline. The trapping studies were conducted for three trapping nights on a quarterly sampling period. Each of the four study areas had 20 trapping stations where two standard mouse traps and one standard rat trap were placed. The traps were checked daily and rebaited as necessary. Any additional observed mammals or animal tracks were also noted during the general terrestrial studies of the four areas.

In 1981, no traps were set, and actual sightings of species and identification of tracks were noted during the terrestrial surveys. From 1982 to 1986, four new study areas (SA5, SA6, SA7, and SA8 on Figure 1.1 in Attachment A) were established following completion of the plant construction. The small mammal trapping studies were once again conducted in 1982 for the new study areas. The traps were set for 10 consecutive days and were checked daily. Miscellaneous mammal observations were also noted during the general terrestrial surveys.

The sampling methods protocol significantly changed between 1983 and 1985. During this time period, small mammal trapping studies were replaced with scent station sampling. This technique was used to detect trends in relative abundance for certain carnivore populations by calculating indices of visitation rates. The scent station sampling was conducted in April and November and entails establishing survey lines with six stations per line. At each station powdered lines were placed in a circle and brushed smooth to detect animal tracks. To attract predators to the station, pure red fox or wildcat urine was placed in the center of the powdered circle. The stations were checked over a 2-day period. Miscellaneous mammal observations were also noted during the general terrestrial surveys. In 1986 mammals were not systematically monitored apart from miscellaneous sightings.

during terrestrial surveys. All the mammals species observed between 1979 and 1986 are listed in Table 10.

**TABLE 10**  
Mammal Species Observed from 1979 to 1986

Common Name	Scientific Name
Opossum	<i>Didelphis virginiana</i>
Short-tail Shrew	<i>Blarina carolinensis</i>
Eastern Mole	<i>Scalopus aquaticus</i>
Eastern Cottontail	<i>Sylvilagus floridanus</i>
Eastern Gray Squirrel	<i>Sciurus carolinensis</i>
Eastern Fox Squirrel	<i>Sciurus niger</i>
Beaver	<i>Castor canadensis</i>
Eastern Harvest Mouse	<i>Reithrodontomys humulis</i>
White-footed Mouse	<i>Peromyscus leucopus</i>
Golden Mouse	<i>Ochrotomys nuttalli</i>
House Mouse	<i>Mus musculus</i>
Hispid Cotton Rat	<i>Sigmodon hispidus</i>
Marsh Rice Rat	<i>Oryzomys palustris</i>
Muskrat	<i>Ondatra zibethicus</i>
River Otter	<i>Lutra canadensis</i>
Gray Fox	<i>Urocyon cinereoargenteus</i>
Red Fox	<i>Vulpes vulpes</i>
Dog	<i>Canis familiaris</i>
Raccoon	<i>Procyon lotor</i>
Bobcat	<i>Lynx rufus</i>
House Cat	<i>Felis domesticus</i>
Whitetail Deer	<i>Odocoileus virginianus</i>
Red Bat	<i>Lasiurus borealis</i>

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# Attachment A

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Figure 1. Sampling areas and stations at Harris Reservoir during 2006.

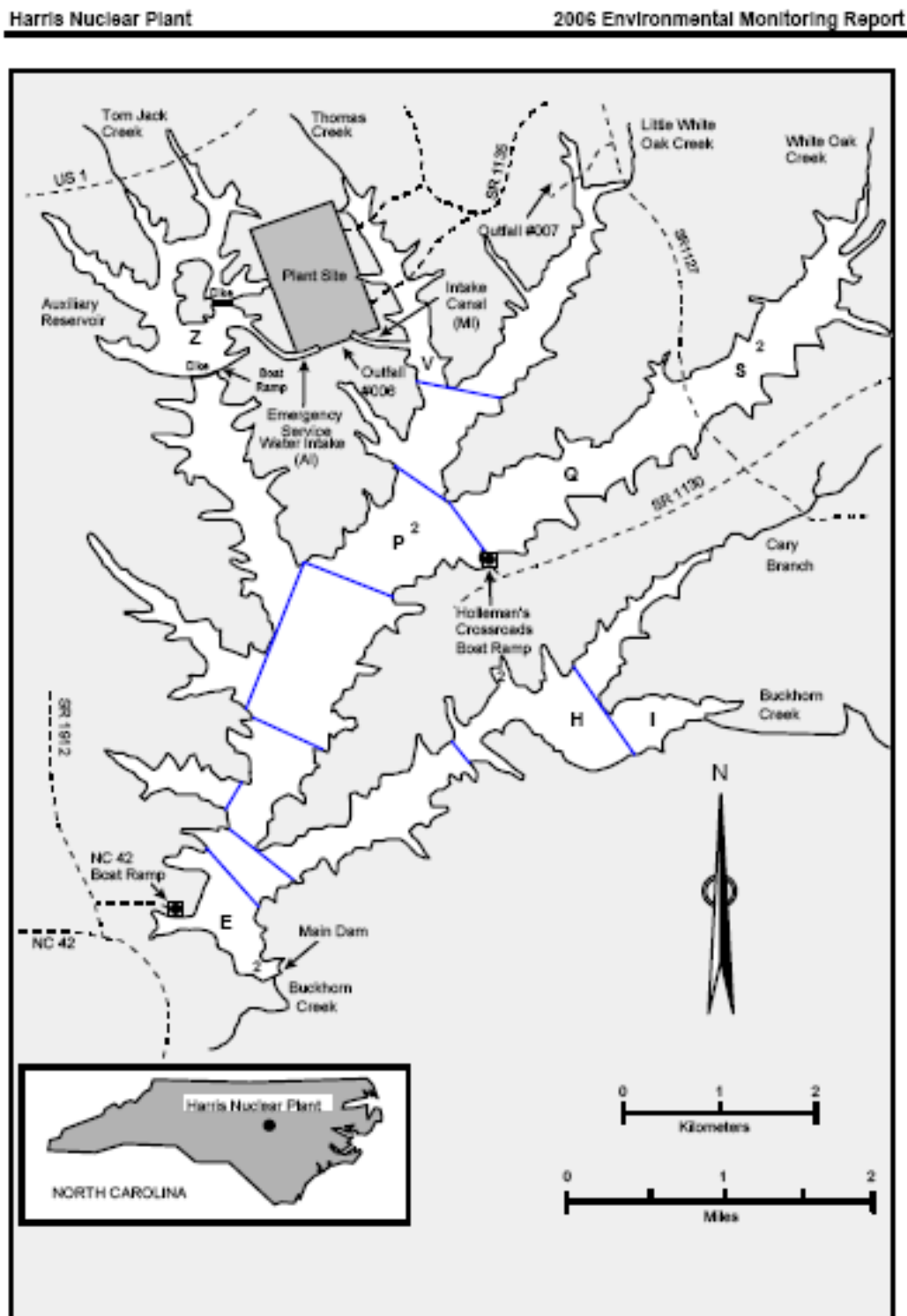


Figure 1. Sampling areas and stations at Harris Reservoir during 2006.

Figure 1.1. Shearon Harris Nuclear Power Plant site sampling stations for 1982.

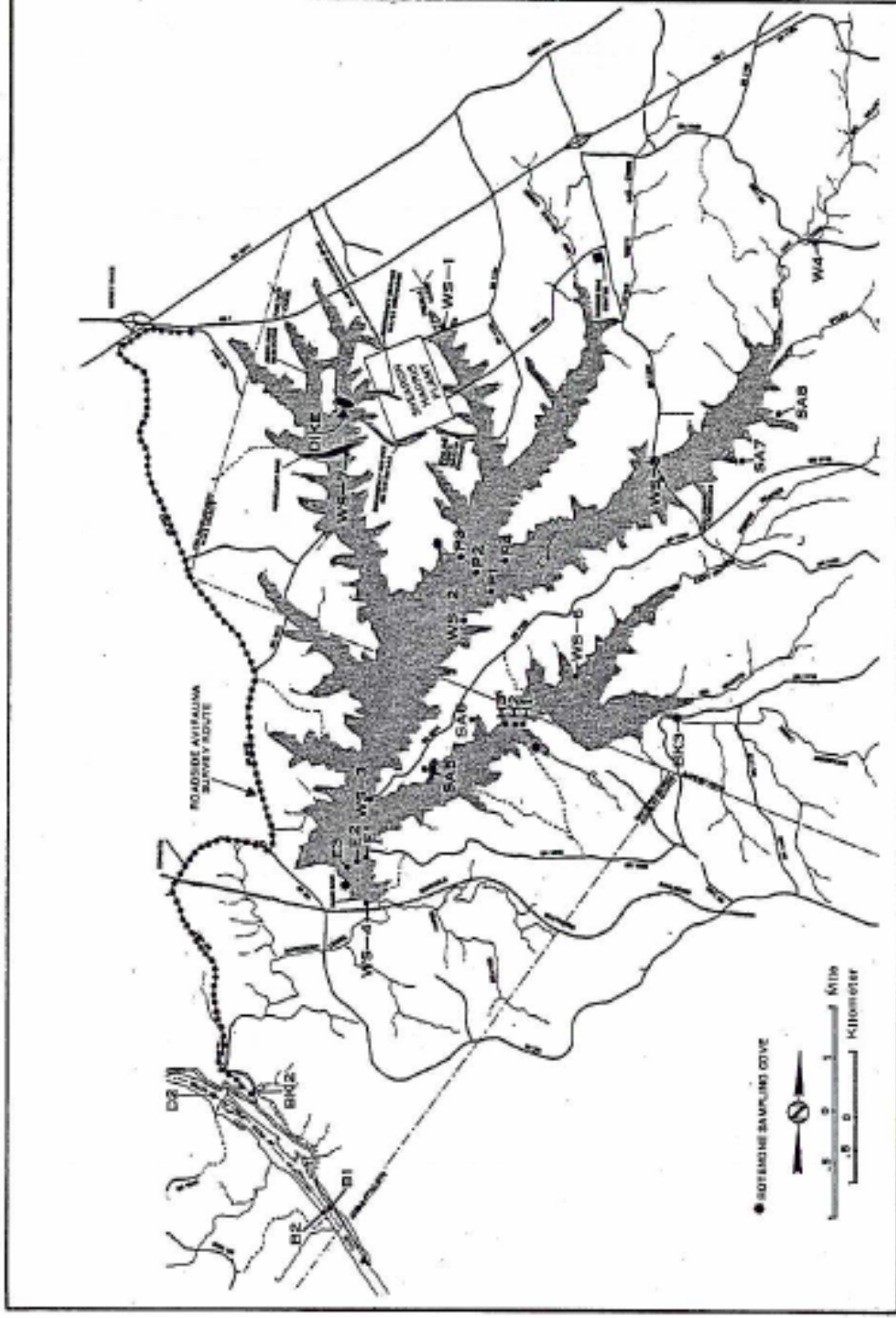


Figure 1.1 Shearon Harris Nuclear Power Plant site sampling stations for 1982.

Figure 1.2. Shearon Harris Nuclear Power Plant site terrestrial sampling areas and roadside avifauna survey route.

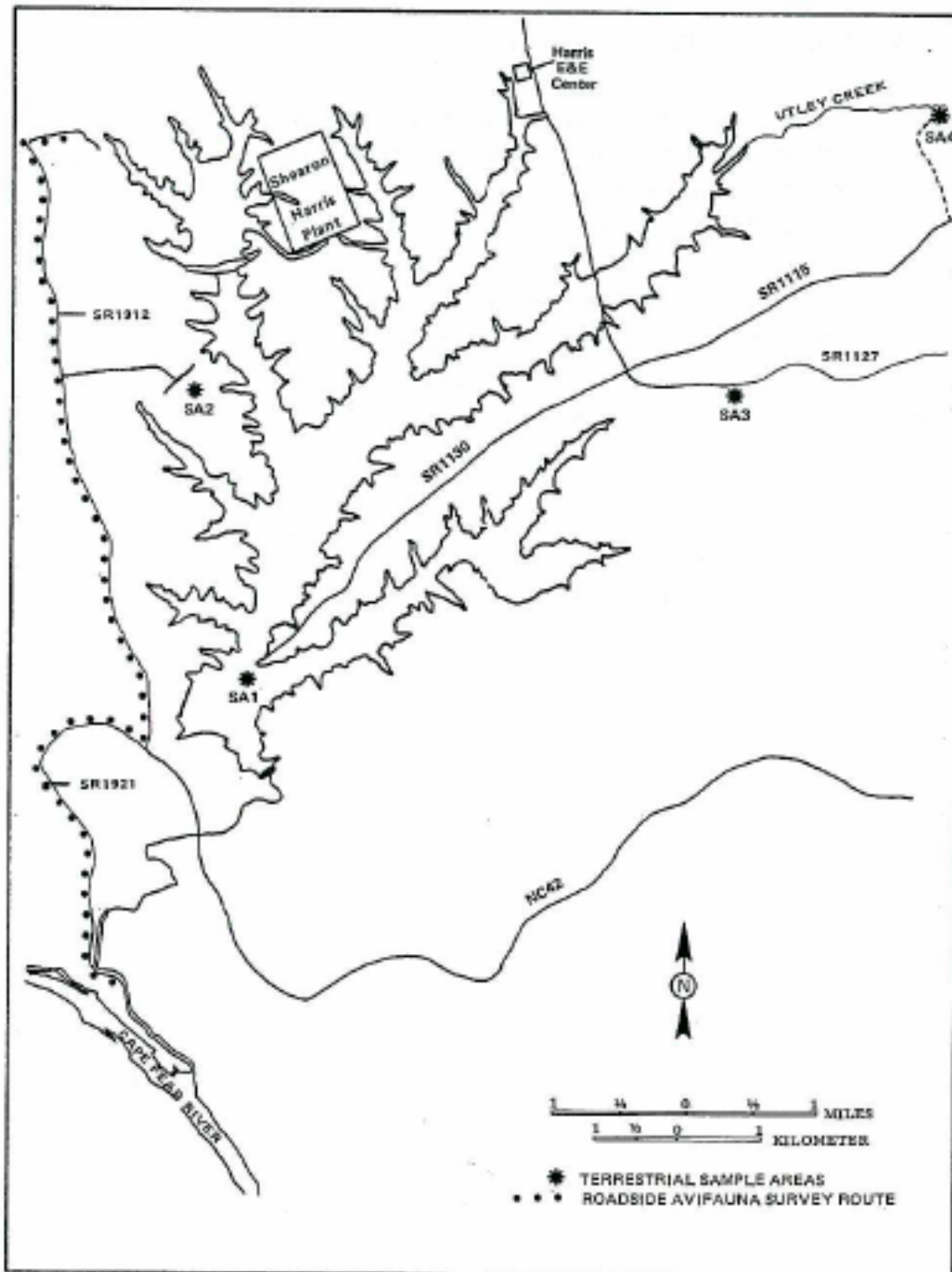


Figure 1.2 Shearon Harris Nuclear Power Plant site terrestrial sampling areas and roadside avifauna survey route.

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