1987

Colonial Bird Studies

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PERFORMANCE REPORT

STATE: VIRGINIA PROJECT NO.: W-77-R-4

PROJECT TITLE: NONGAME AND ENDANGERED SPECIES INVESTIGATIONS

STUDY TITLE: COLONIAL BIRD INVESTIGATIONS STUDY NO.: VI

JOB TITLE: COLONIAL BIRD STUDIES JOB NO.: A-D

PERIOD COVERED: July 1, 1986 - June 30, 1987

JOB VI-A OBJECTIVE: To coordinate the protection and management of colonial birds in the state.

JOB VI-B OBJECTIVE: To conduct surveys of colonial breeding birds in Virginia in order to detect changes in population numbers as well as population shifts.

JOB VI-C OBJECTIVE: To sample nesting success in colonies of selected species each year.

JOB VI-D OBJECTIVE: To conduct preliminary studies on the effects and extent of predation on colonial breeders.

SUMMARY

Censuses were conducted of all known colonies of birds in the state by aerial survey. Over 95 percent of all colonies were rechecked by ground and water to verify numbers. Extensive surveys were conducted to locate urban colonies of herons. Management plans were implemented on a number of areas. First breeding records of brown pelicans in the state were documented.

JOB VI-A - To coordinate the protection and management of colonial birds in the state.

Numerous management problems occurred during the year relative to colonial birds. On the barrier islands, most of the problems resulted from human intrusion.

Project personnel assisted the Nature Conservancy by posting colony boundaries on a number of islands. One of the project personnel served as a warden on the Conservancy islands during the course of his work. The occurrence of large populations of colonial birds in urban environments created significant management problems, particularly where there are large colonies on residential lots. A booklet on wading birds and problems faced by this group was prepared by project personnel. Efforts continue to resolve management problems with urban colonies of herons.

Other management activities are discussed for individual species under JOB VI-B.

JOB VI-B - To conduct surveys of colonial breeding birds in Virginia in order to detect changes in population numbers as well as population shifts.

Eastern Shore Colonial Bird Surveys

Colonial bird surveys were flown over Tidewater Virginia in May and in early June. Numbers for all colonies were estimated from aerial surveys and indicated on field copies of 7 1/2 minute topographic sheets. All colonies which were new in 1986 have been added to a permanent set of 7 1/2 minute topographic sheets.

Colonial species nesting on Virginia barrier islands, salt marshes, and bay islands of Chesapeake Bay were also censused by boat and foot to verify colony numbers obtained by aerial survey. All colony data for 1986 are shown in Table 1.

Surveys conducted of colonial birds on the barrier islands for the past 13 years would suggest a sharp decline in the numbers of certain species such as common terns and most of the species of herons. These numbers must be viewed within the context of the state population of these species. Population consolidation at a few other sites with occupancy of unusual new habitats may give the impression of declines in some species on the barrier islands.

Common terns numbered around 5000 breeding adults for a number of years on the barrier islands, but show an apparent decline to about 2000 breeding adults for the past three years. This apparent decline coincides with the shift of 1150 breeding adults to marsh habitats for nesting and the occupancy of a man-made island in Hampton Roads by 2365 breeding adults. The state breeding age population thus totals 5555 birds, a number equivalent to the average original population on the barrier islands.

Another species, the cattle egret, first nested in Virginia in 1961. Its numbers increased progressively until many colonies began to show declines about 1980-81. One new and one reoccupied heron colony in Chincoteague Bay located on dredge spoil areas simultaneously showed increases. The total number of breeding individuals of this species totaled 5512 in 1986 with 5100 of these nesting in the 2 colonies on dredge spoil areas.

These two examples indicate the need to look at species in the state population context and not at the annual changes which occur in individual colonies.

Table 1. Colonial Birds Nesting on the Eastern Shore of Virginia, 1986

Species	Total No. of Colonies	No. of Seaside Colonies (No. of Individuals)			No. of Bayside Colonies (No. of Individuals)		Total No. of Individuals
		Barrier Island	Marsh Island	Spoil	Marsh Island	Wooded Island	
Great Egret	11	7(411)	1(19)	2(460)		1(68)	958
Snowy Egret	11	7(655)	1(87)	2(2872)		1(345)	3958
Little Blue Heron	8	5(150)		2(525)		1(52)	727
Tri-colored Heron	10	6(436)	1(56)	2(2455)		1(138)	3085
Cattle Egret	8	4(142)	1(12)	2(5100)		1(270)	5512
Green-backed heron	3	2(12)	1(4)	2(40)			56
Black crowned night heron	8	4(850)	1(12)	2(572)		1(60)	1494
Yellow crowned night heron	4	3(63)				1(6)	69
White Ibis	1	1(2)					2
Glossy Ibis	10	6(556)	1(6)	2(630)		1(112)	
Laughing gull	53	2(22,286)	48(11,715)	2(90)	1(300)		34,391
Herring gull	23	12(8306)	7(769)	2(730)	2(84)		9889
Great black backed gull	9	7(561)	1(5)	1(30)			596
Gull-billed tern	15	12(475)		3(101)			576
Caspian tern	1	1(8)					8
Royal tern	2	2(5910)					5910
Sandwich tern	1	1(80)					80
Common tern	29	19(2220)		5(200)	5(950)		3370
Forsters tern	35	0(0)	29(1810)	1(20)	5(570)		2400
Least tern	20	20(1413)					1413
Black Skimmer	23	17(3780)	2(147)	3(135)	1(20)		4082

With the possible exception of gull-billed terns, no colonial birds appear to show population declines at the present time.

Western Shore Colonial Bird Surveys

Colonial bird surveys were conducted on the western shore by air. Many colonies were located by systematic car, foot, and boat surveys.

Many of the colonies on the western shore occur in urban environments or on man-created habitats. These colonies frequently consist of a single species as with least terns or with pairs of species as in the case of great blue herons and great egrets. In view of these characteristics, these species or species groups in specific and restricted habitats are considered separately below.

Each group presents certain management problems which are commented on.

Great Blue Heron - Great Egret Colonies

The locations of great blue heron colonies by topographic quadrangle, river or drainage system, county or city, number of pairs, habitat, and latitude/longitude have been tabulated for 1986 and are included in the following table. Each colony was checked twice during the breeding season by aerial survey. Approximately half of the areas have the land ownership identified. Efforts continue to identify land ownership.

Land owners should be informed of management strategies. A cooperative effort with a personalized sign stating the land owner's name and efforts to preserve habitat for sensitive species could generate positive concern for colonial nesters.

Two site visits were made to discuss management recommendations with landowners.

Results of the 1986 surveys are presented in Table 2.

Table 2 - LOCATION OF GREAT BLUE HERON COLONIES IN VIRGINIA 1986.

Quadrangle	Location By Terrain Feature and County/City	Great Blue Heron Pairs	Great Egret Pairs	Habitat Tree Type
Beulahville	Herring Creek King William Co.	10	3	Dead bottomland hardwood
Claybank	Queens Creek York Co.	37		Pine
Claybank	Catlett Islands York Co.	30		Pine
Gloucester	Fox Mill Run Gloucester	89		Bottomland hardwood
Franktown	Barlow Creek Northampton	14	2	Pine
Hylas	Tuckahoe Creek Goochland	6		Dead trees Swamp
Indian Head	Mason Neck Fairfax	380		Hardwood Pine
Knots Island	Cedar Island Virginia Beach City	88	25	Pine
Lancaster	Great Wicomico Northumberland	8		Bottomland hardwood
Lancaster	Bush Mill Stream Northumberland	327		Swamp bottomland
Dendron	Blackwater Sussex	32	11	Bottomland hardwood
Dendron	Blackwater Sussex-Surry	46	3	Bottomland hardwood
Mount Landing	Quioccasin Creek Essex	7		Hardwood

Table 2 - continued

Quadrangle	Location by Terrain Feature and County/City	Great Blue Heron Pairs	Great Egret Pairs	Habitat Tree Type
New Point Comfort	Peppers Creek Mathews	273		Pine
Passapatanzy	Potomac Creek Stafford Co.	185		Bottomland hardwood
Pleasant Ridge	Intracoastal Waterway Virginia Beach City	243	14	Bottomland hardwood
Providence Forge	Collins Run New Kent Co.	92		Bottomland hardwood
Richmond	Chickahominy River Hanover	4		Dead snag hardwood
Richmond	Chickahominy River Hanover	31		Bottomland
Seven Pines	Mechanicsville Chickahominy River Hanover	115	9	Bottomland hardwood
Roxbury	White Oak Swamp Chickahominy River New Kent Co.	400	49	Bottomland hardwood
Shackelford	Burnt Mill Creek King and Queen	460		Bottomland hardwood
Surry	Jamestown Island James City County	25		Pine
Tangier	Watts Island Accomac	192	93	Hardwood
Toano	France Swamp	62		Bottomland
Tunstall	Elsing Green New Kent	63		Pine and bottomland hardwood

Table 2 - continued

Quadrangle	Location by Terrain Feature and County/City	Great Blue Heron Pairs	Great Egret Pairs	Habitat Tree Type
Yorktown	Beaver Dam Creek York Co.	390	11	Pine
Ware Neck	Burke Mill Stream Gloucester	102		Bottomland hardwood
Port Royal	Mill Creek-A.P. Hill Caroline Co.	25		Bottomland hardwood
Lively	Lancaster Creek Richmond Co.	82		Dead snag & hardwood
Brandon	Morris Creek Charles City Co.	44		Bottomland hardwood
Courtland	Nottoway River Charles City Co.	32	11	Bottomland hardwood
Pleasant Ridge	Pocaty River Virginia Beach	7		Bottomland hardwood
Hog Island	Hog Island State Waterfowl Refuge Surry Co.	92		Pine
King William	Mattaponi River King William Co.	26		Dead snag bottomland hardwood
Total Individuals		8038	468	

Least Tern Populations on the Western Shore

The least tern populations at Craney Island, Portsmouth, and Grandview Beach, Hampton were successful during the 1987 breeding season. Both populations of least terns were delayed in nesting efforts by about 14 days. Both colonies were asynchronous and had three separate peak hatching dates. A summary of the colonies is found in Table 3. Data are also included for New Point Comfort where nesting success was limited. A discussion of each of these areas follows.

Table 3. Least Tern Populations at Grandview Beach, Craney Island, and New Point Comfort.

Location	Number of Adults	Nest Count	Number of Banded Young
Grandview Beach Hampton, VA	970	404	190
Craney Island Portsmouth, VA	300	142	0
New Point Comfort Mathews County, VA	200	nests observed	young observed

GRANDVIEW BEACH

The Grandview Beach area was posted with 25 least tern signs to inform the public of the nesting area and the importance of no entry or disturbance during this time. The entire boundary of the colony was marked. The area was visited at a minimum of once weekly from April 15 through May 15. Two visits per week were conducted during the peak hatching dates. Colony disturbance is still of special concern but the majority of visitors tend to abide by the request of the posted signs limiting entry into the tern colony.

The Parks Department of Hampton has proposed a long range master plan to purchase and develop the beach-front property from Buckroe Beach to Factory Point of Grandview Beach. A private consulting company has been employed to develop a plan which will best suit the interests and needs of the citizens of Hampton. As indicated in Figure 1, the city of Hampton has ownership of all areas excluding the two indicated locations and plans to have highly populated beach access in the Buckroe Beach area with low use, limited visitation in the Grandview area.

In order to protect and preserve the colonial and beach nesters of the north end of Grandview Beach, plans must include limiting and regulating traffic (boat, pedestrian, and unleashed pets) and prohibiting entrance to the colony. These can be accomplished by the following recommendations:

1) Post boundaries around the colony (Post signs by April 15; remove signs by August 15)
2) Rope off boundaries of the colony during the breeding season

3) Make the area educational by posting a large sign indicating the nesting species and the delicate nature of the area
4) Set up a volunteer concerned council that would patrol the area andtalk with people approaching the area about staying out
5) Establish an arm band or some appropriate ensign for the volunteer group to show their official affiliation
6) If the visitor impact or the visitors develop to larger numbers, total blockage of the area from beach and shoreline approach by appropriate barricades will be necessary.

The cooperation of the Virginia Department of Game and Inland Fisheries, U.S. Fish and Wildlife Service, Hampton Parks Department, and biologists involved in research on the species is necessary to reach an agreement on the appropriate steps to implement management strategies.

Table 4. Nesting Species at Grandview Beach

Species	Nests	Eggs	Young
Least Tern	404	790	400 plus
Common Tern	5	10	0
Black Skimmer	18	22	4
Piping Plover	4	12	5
Oystercatcher	3	5	0

During six of the ten visits in June an adult peregrine falcon was observed harassing the tern colony. Dead adult tern carcasses were observed, two with a notched sternum. On one occasion the falcon was observed successfully killing an adult tern. The presence of this adult bird suggests the possibility of nesting within the immediate area. An adult northern harrier regularly visited and was observed feeding on young birds. Also brown pelicans were regularly observed feeding (off shore).

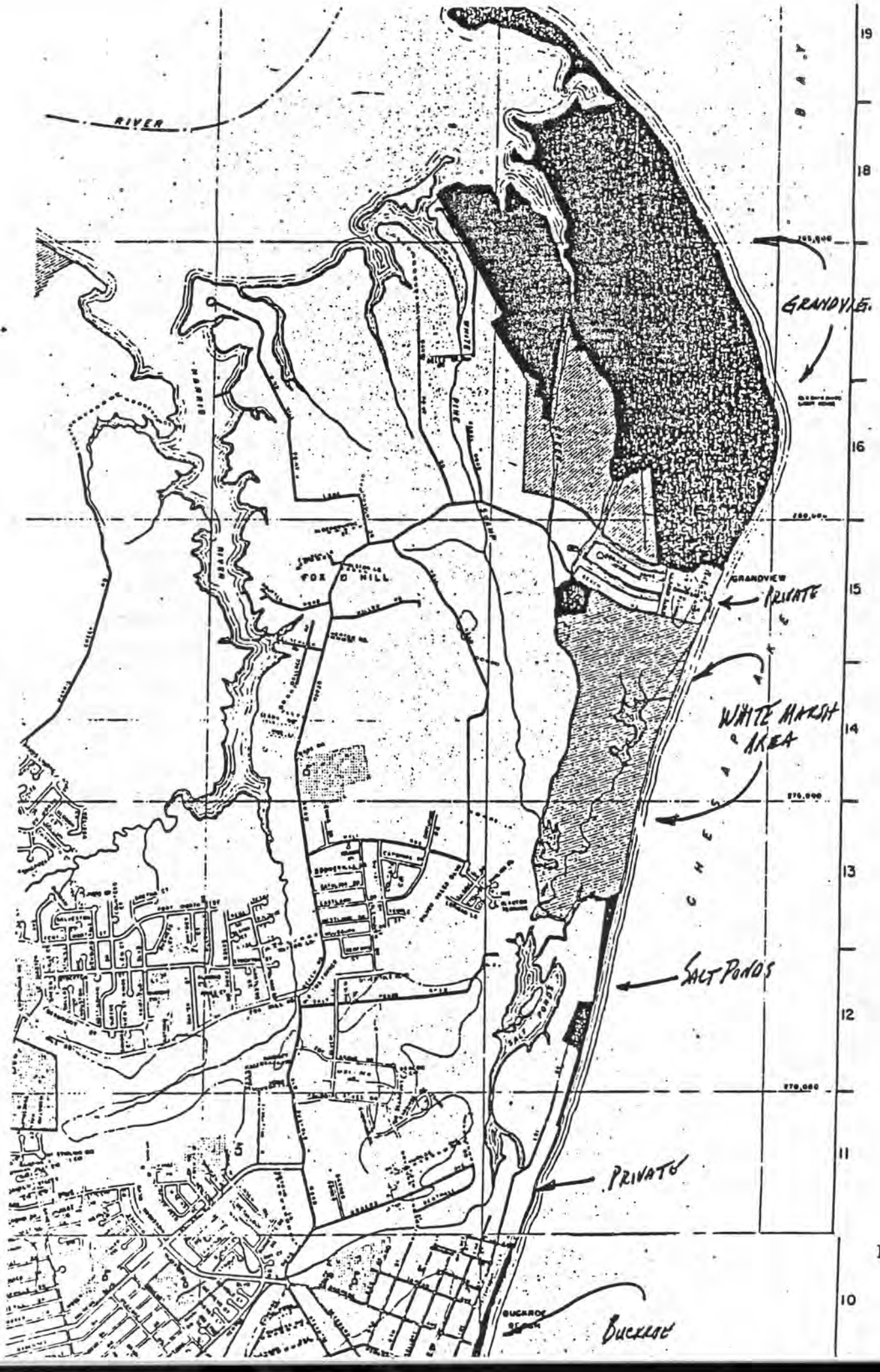
RIVER
GRANDVIEW
PRIVATE
WHITE MARSH AREA
SALT PONDS
PRIVATE
BUCKLEY
FOX HILL
19
18
16
15
14
13
12
11
10

Figure 1

CRANEY ISLAND

The dynamic nature of Craney Island is still the most important consideration in the success of the tern colonies within the area. Two locations were set aside as suitable habitat for attracting terns to Craney Island. The terns chose one of the two sites and another independent site that was to be used for the dredging fill. All work on the dredging effort ceased once the nests were discovered. Tern signs were posted with an adequate buffer to allow for heavy truck traffic access to another area for a substitute dredging operation.

In 1987, the Army Corps of Engineers, in cooperation with the Virginia Department of Game and Inland Fisheries and Ruth Beck of the College of William and Mary have continued to manage successfully for least terns on Craney Island. The Craney Island population has increased by 100 adults. The nesting area consisted of two distinct colonies with approximately 200 adults in colony I and 100 adults in colony II. This area continues to provide suitable habitat for least terns but it is dependent on the annual dredging needs of the Corps. A recommendation to set up an area that will remain suitable could insure continued existence of the terns.

NEW POINT COMFORT

Historically least terns have nested at the New Point Comfort site. The last documented nesting was in 1972. During the 1987 breeding season, least terns again successfully nested on the north end of New Point Comfort. Adults were observed from an aerial survey in May. Two ground visits confirmed nesting and a limited hatching of young. Nesting success was limited due to the frequent boating traffic, beach visitors, and campers. It is recommended that the area be posted with tern signs for the period of April 15 to August 15. The signs should mark the boundaries of the colony plus allow for a buffer zone to prevent shoreline destruction. Mathews County authorities should be notified by the Virginia Department of Game and Inland Fisheries of the reactivated site and of the need for protection.

COMMON TERN AND BLACK SKIMMER POPULATIONS AT THE HAMPTON ROADS TUNNEL

The south end of the Hampton Roads Tunnel is one of the largest common tern colonies in Virginia. It has increased steadily in the numbers of terns and skimmers in the past five years. There is no evidence of the predator problem with rats experienced in 1985. During the 1987 breeding season there was one incident of human disturbance which resulted in the destruction of five nests. Contract personnel were responsible, were reprimanded and the problem did not occur again. Photographs depicting the problem were presented to the

Department of Highways which informed the tunnel personnel of the infraction of the 1985 agreement. No further disturbance was observed.

In the expansion plans of the tunnels and any new construction involving artificial islands, consideration should be given to provide suitable substrate on the artificial islands to attract colonial nesters such as least terns, common terns, and black skimmers.

Table 5. Common Tern and Black Skimmer Populations at the Hampton Roads Tunnel.

	Total Number of Adults Per Year				
Species	1983	1984	1985	1986	1987
Common Tern	700	900	1600	2000	2565
Black Skimmer	118	122	564	746	760

BROWN PELICAN BREEDING

The first occurrence of brown pelicans breeding in Virginia was noted by project personnel on May 14, 1987, when a single egg was discovered in a nest on Fisherman Island. This egg subsequently disappeared but other nests with eggs have subsequently appeared.

Pelicans also began breeding on Metomkin Island. This population has been followed closely. Nesting chronology is shown in Table 6.

Table 6. Nesting chronology for brown pelicans on Metomkin Island.

Date	Active Nests	Eggs	Approx. No. Adults
6/23/87	3	5	250
6/27/87	6	11	80

Table 6 - continued

Date	Active Nests	Eggs	Approx. No. Adults
7/2/87	16	31	45
7/14/87	18	37	225

Approximately 35 to 40 nests are present at this site. All nests are constructed on the ground at the eastern fringe of a mixed heron colony about 300 M north of the south point of Metomkin Island. Most commonly, clutches consist of 2 eggs although several 1 egg and 3 egg clutches are also present. The number of adults present in or around the colony at any one time is highly variable, and apparently depends on the time of day and tide conditions at the time of the visit.

Based on a clutch initiation between June 17 and June 23 (Colonial Bird Survey, 6/17/87) and an incubation period of four weeks, first hatch date is predicted to occur between July 15 to July 21.

COLONIAL BIRD COLONIES IN URBAN ENVIRONMENTS

Extensive surveys were conducted both by car and foot to locate heron colonies in urban environments in lower Tidewater. In many cases, these colonies create unique management problems as many pairs may occupy the trees on a small residential lot. The accompanying problems of sanitation and noise have resulted in activities by state agencies to displace many of these birds through the use of noise makers at the time of nesting.

The Tidewater Areas of Chesapeake, Norfolk, Virginia Beach, Newport News, and Hampton have developed at a rapid rate with great loss of nesting habitat. Although disruption of birds at the time of nesting may result in their movement, it is not a long-range solution to the problem. Herons, particularly egrets, simply move to another residential area.

The impact of urbanization and the intentional disruption and movement of colonies has had a profound impact on populations of urban colonies. Of the statewide population of great egrets, approximately 50% or 449 pair, breed in residential areas. Sixty percent of these birds have subsequently been moved by one or more artificial means this spring. In addition, 82% of all homeowners interviewed stated that they too would use available harrassment tactics to remove the birds from their yards should the occasion present itself.

As a result of these attitudes, project personnel continue to coordinate with city and state authorities to arrange for long

term management of these urban nesters. In early July, a meeting was held to hear the complaints, concerns, and suggestions of local homowners. In addition, project personnel have conducted independent surveys and produced educational literature addressing the problems associated with urban herons and egrets.

Table 8. History of urban great egret colonies.

Colony	Drainage	Colony Longevity
01 Thoroughgood Colony	Lynhaven River	50 years plus
02 Giordano Colony	Eastern Branch - Elizabeth River	25 years plus
03 Mariner Colony	Western Branch - Elizabeth River	40 years plus
04 Winston Colony	Western Branch - Elizabeth River	10 years plus
05 Brown Colony	Lafayette River	10-15 years

Table 9. Colony size of great egrets over time.

Time	Colony Size (pairs) 01	02	03	04	05	Total
Historically	500(est.)	100(est.)	100(est.)	70(est.)	80(est.)	830
1986	80	110(est.)	100plus (est.)	70(est.)	8	368
1987	320	30	0	73	26	449

Table 9 clearly suggests that the long-range trends in these egret populations has been downward. Colony 03 was lost due to habitat modification. It would appear that these birds as well as birds from colony 02 which was disrupted by noise makers may have relocated to Colony 01: These relocations occurred as a

result of development in one instance and the use of noise makers in the other case.

The present egret population involves 11 residences. Nine of the homeowners are totally intolerant of the birds and 2 are moderately intolerant. About 84 percent of the population appears threatened in the next year.

A total of 172 pairs of yellow crowned night herons was located. This species is somewhat more tolerable than great egrets in urban environments because they usually occur at lower densities. The best known population of this species occurs on the Lafayette River in Norfolk.

Table 10. Yellow-crowned night heron populations on the Lafayette River, Norfolk, Virginia 1986-1987.

Year	Number of Nests in Different Habitats		Total
	Developed Property	Park or Vacant Lot	
1986	39 (85 percent)	7 (15 percent)	46
1987	26 (96 percent)	1 (4 percent)	27

Table 11. Historical Lafayette River population of yellow-crowned night herons (Below Crab Creek only).

Year	Number of Breeding Pairs
1963	43
1964	43
1965	45
1966	49
1986	11
1987	2

The apparent trend in yellow-crowned night herons in urban environments is clearly downward. This appears to be taking place both in residential areas and in open areas. The impact of intentional disruption may be great under these circumstances.

JOB VI-C - To sample nesting success in colonies of selected species each year.

Nesting success was followed in a number of colonies of each colonial species. General observations were made but individual nests were not marked for study. In general, breeding success of all species appeared to be good with a notable absence of high winds and tides to disrupt the breeding cycle.

JOB VI-D - To conduct preliminary studies on the effects and extent of predation on colonial breeders.

Observations were made of least terns being killed by a peregrine falcon on several occasions at Grandview Beach and Metomkin Island.

Extensive observations were made to document herring gull predation on Metomkin Island where the herring gull colony now numbers 3000 breeding pairs. Although overt predation was not observed, continual harrassment of colonial breeders took place, probably resulting in the movement of 400 black skimmers to another site. Some robbing of food from royal terns by herring gulls was noted.

The population of herring gulls on Metomkin Island is now so large that it is a continual threat through the breeding season to colonial nesters through both harrassment and food pilfering. It is recommended that herring gull control be implemented at Metomkin Island in 1988.

TARGET DATE FOR COMPLETION: Continuing

STATUS OF PROGRESS: On Schedule

SIGNIFICANT DEVIATIONS IN PROGRESS: None

RECOMMENDATIONS: Continue Study

COST THIS SEGMENT: FEDERAL 10,297 : STATE 3,433 : TOTAL 13,730 :

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DATE: August 1, 1987