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Osprey Population Studies

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PERFORMANCE REPORT

STATE:	VIRGINIA	PROJECT NO.:	W-77-R-5
PROJECT TITLE:	NONGAME AND ENDANGERED SPECIES INVESTIGATIONS	STUDY NO.:	VII
STUDY TITLE:	OSPREY POPULATION STUDIES	JOB NO.:	A-D
PERIOD COVERED:	July 1, 1987 - June 30, 1988		

JOB VII-A OBJECTIVE: To make a complete aerial and ground survey of active osprey nests in Virginia to determine total breeding population size.

JOB VII-B OBJECTIVE: To measure hatching and fledging success of a sample of osprey nests representative of all of the major estuaries as well as the Eastern Shore of Virginia.

JOB VII-C OBJECTIVE: To coordinate all transfer of young ospreys from Virginia to other states involved in reintroduction programs for this species.

JOB VII-D OBJECTIVE: To make detailed studies at nests in areas of high pre-fledgling mortality and areas of low pre-fledgling mortality to determine causes of differential rates of survival.

SUMMARY:

Nesting surveys were conducted in the state, utilizing both boats and aircraft. These surveys resulted in the location of 1102 active nests. This survey is believed to be within 10 percent of the total breeding population. Detailed reproductive data were obtained on a sample of 479 nests from the west side of Chesapeake Bay. Production of this sample of nests was 1.08 young per active nest. Eggs were collected for contaminant analysis.

JOB VII-A - To make a complete aerial and ground survey of active osprey nests in Virginia to determine total breeding population size.

Surveys by air and by boat were conducted during April and the first half of May to locate active osprey nests. An active nest was defined as one in which there was a bird in incubating position. Additional active nests were located during the course of bald eagle nesting surveys. Other nests were located as a result of reports received from interested parties.

Nest locations have been plotted on 7 1/2 minute topographic sheets. All breeding records prior to 1988 have been entered into the records of the Breeding Bird Atlas Project, providing that study with a very complete history of the breeding distribution of this species in the state.

TABLE 1. Active osprey nests in Virginia, 1987, as determined by aerial and boat survey.

Area	No. of Active Nests
James - Chickahominy Rivers	57
York, Pamunkey, Mattaponi Rivers	74
Mobjack Bay - New Point Comfort	119
Fleets Bay - Great Wicomico River	68
Rappahannock River	182
Potomac River	190
Lower Tidewater	184
Eastern Shore	212
Inland Impoundments	6
Total	1102

This figure of 1102 breeding pairs is probably within 10 percent of the total breeding population which has doubled since 1975. These numbers do not reflect the non-breeding adults which are in the population and which likely consist of several hundred additional birds.

JOB VII-B - To measure hatching and fledging success of a sample of osprey nests representative of all of the major estuaries as well as the Eastern Shore of Virginia.

The productivity of ospreys in Virginia has been followed for the past 19 years. In 1985, all data for this time period were standardized on the basis of a new set of criteria and the data entered into the William and Mary computer. Data for 1986 were recently added.

Data for the breeding season of 1988 are incomplete at this time. Data for 1987 are presented in Table 2. For comparative purposes, data for 1983-1987 are included. Nest sample size is based only on nests of known outcome, hence does not reflect total number of nests for any area. Nest sample size in 1984 is smaller because of heavy nest destruction by a severe storm.

For purposes of comparison, the state has been divided into a number of study areas as follows:

York River System - mouth of river to West Point

Mobjack Bay - York River to Piankatank River, including the latter

Rappahannock River - mouth of river to Leedstown

Fleets Bay - Fleets Bay to Great Wicomico River, including the latter

Potomac River - Little Wicomico River west to Nomini Bay

Average production of fledglings per active nest as indicated is probably an over estimate of true fledging rates. Young have been counted as fledglings for this tabulation if they had reached 3 1/2 weeks of age at the time of last nest visitation.

The productivity of ospreys in 1987 showed a slight decline from 1986 to a level probably still below that considered adequate for population maintenance. It is difficult to predict the accuracy of fledging rates given in view of pre-fledging losses, even after 5 weeks of age. The five year average production of 1838 successful nests, based on the above criteria, is 1.12 young per active nest. Based on the old life tables for this species, this is minimally adequate to sustain the population. On the basis of more recently calculated life tables, production at this level would result in an increase in the population.

JOB VIII-C - To coordinate all transfer of young ospreys from Virginia to other states involved in reintroduction programs for this species.

Osprey nests were monitored for possible donor nests from which young could be taken for transfer to other states. Because of nesting asynchrony and logistical problems, it was difficult to provide all young requested. Nine six-week old young were sent to West Virginia for hacking.

JOB VII-D - To make detailed studies of nests in areas of high pre-fledgling mortality to determine causes of differential rate of survival.

Data originally derived in this study support the contention that ospreys in Virginia may be suffering from a food stress problem. A number of chicks have been observed which show abnormal feather development. This condition, characterized by no feather development on the body and fairly typical feather development on the wings and head, was noted commonly from 1984-1987.

In 1987, one chick of this type was sent to the U.S. Fish and Wildlife Service Wildlife Diseases Laboratory for necropsy. Necropsy revealed no unusual pathology other than twisted appendages and evidence of severe malnutrition.

TABLE 2. Productivity of ospreys from a sample of nests on the western side of Chesapeake Bay 1983-1987.

Study Area	No. of Active Nests					No. of Young Fledged					No. of Young Fledged per Active Nest				
	1983	1984	1985	1986	1987	1983	1984	1985	1986	1987	1983	1984	1985	1986	1987
York River	50	37	57	50	67	58	38	52	92	109	1.16	1.02	1.48	1.84	1.63
Mobjack Bay	92	54	102	93	112	122	81	96	99	121	1.33	1.50	0.94	1.06	1.0
Rappahannock River	96	73	98	109	149	125	85	106	107	152	1.09	1.16	1.08	0.98	1.0
Potomac River	77	53	84	77	109	105	50	87	100	99	1.36	0.94	1.04	1.29	0.91
Fleets Bay	45	16	48	48	42	49	17	39	40	34	1.09	1.06	0.81	0.83	0.8
Totals	360	233	389	377	479	459	271	380	438	515	1.28	1.16	0.98	1.16	1.0

In 1988, very few chicks exhibiting these developmental conditions were observed. Eight eggs were sent to V.P.I. and S.U. for chemical analysis

Three nests were observed for two hour periods when time permitted. At all nests, food delivery was higher than shown in studies completed in 1986 and as high as studies conducted in 1975. One of these two nests contained young in which one chick showed abnormal feather development and was well behind its sibling in behavioral development. During one, two hour observation period, the male brought in five fish. This level of food delivery would appear more than adequate if sustained.

Future studies will explore this problem further.

MANAGEMENT ACTIVITIES

The increase in population size of ospreys continued to present problems. A number of complaints of ospreys nesting on chimneys and docks were investigated and resolved.

Five osprey chicks were collected from animal rehabilitation centers and fostered to parents in the wild.

TARGET DATE FOR COMPLETION: Continuing

STATUS OF PROGRESS: On Schedule

SIGNIFICANT DEVIATIONS IN PROGRESS: None

RECOMMENDATIONS: Continue Study

COST THIS SEGMENT: Federal $5,844.00 State $1,948.00 Total $7,792.00

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DATE: August 1, 1988