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2013 NEST SUCCESS AND PRODUCTIVITY OF CHESAPEAKE BAY OSPREY



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College of William and Mary and the Virginia Commonwealth University

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Project Partners:

Virginia Aquarium and Marine Science Center
VCU Rice Rivers Center
US Fish and Wildlife Service - Eastern Virginia Rivers NWRC

Front Cover: Osprey nestlings with unhatched egg. Photo by Bryan Watts.



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EXECUTIVE SUMMARY

The Chesapeake Bay is home to one of the largest populations of breeding Osprey now estimated between 8,000-10,000 pairs. Osprey are a key indicator for the health of the Bay ecosystem. This study continues a long-term monitoring study of osprey populations in the Bay. We visited 189 osprey nests in coastal Virginia during the 2013 breeding season to document occupancy and breeding activity. In 2013, average reproductive rates were 1.1 chicks/active nest and 1.8 chicks/successful nest. Fifty-nine osprey were banded to document survival and dispersal including 19 breeding adults and 40 nestlings. Six GPS transmitters were deployed on adult males.

INTRODUCTION

The Chesapeake Bay is home to one of the largest populations of breeding Osprey now estimated between 8,000-10,000 pairs. The population experienced severe declines from pesticide caused reproductive suppression from the 1940s-1970s. Researchers at the Center for Conservation Biology have studied Osprey since the 1970s documenting their decline and steady recovery (Kennedy 1971, Stinson and Byrd 1976, Roberts 1982, McLean and Byrd 1991, Watts et al 2004, Watts and Paxton 2007, Glass and Watts 2009). This project is part of a long-term monitoring program for the species involving multiple generations of students, scientists, and research groups.

OBJECTIVES

Our objectives for this project were :

- 1) to monitor the annual nest success of osprey nests in the Chesapeake Bay,
- 2) to measure productivity of osprey nests and compare across years,
- 3) to band nestlings and adults for long-term survival and dispersal monitoring,
- 4) and to increase our general understanding of breeding osprey in the Chesapeake Bay

METHODS

Geographic Focus

In 2013, we focused our monitoring efforts on coastal Virginia including nests on the Rappahannock River, York River, James River, Lynnhaven River, Elizabeth River, Chesapeake Bay, and Atlantic Ocean. We partnered with VCU, Virginia Aquarium, and the Rappahannock River Valley NWR to monitor nests near their properties. Surveys were not comprehensive and all osprey nests in Virginia were not included in this study.

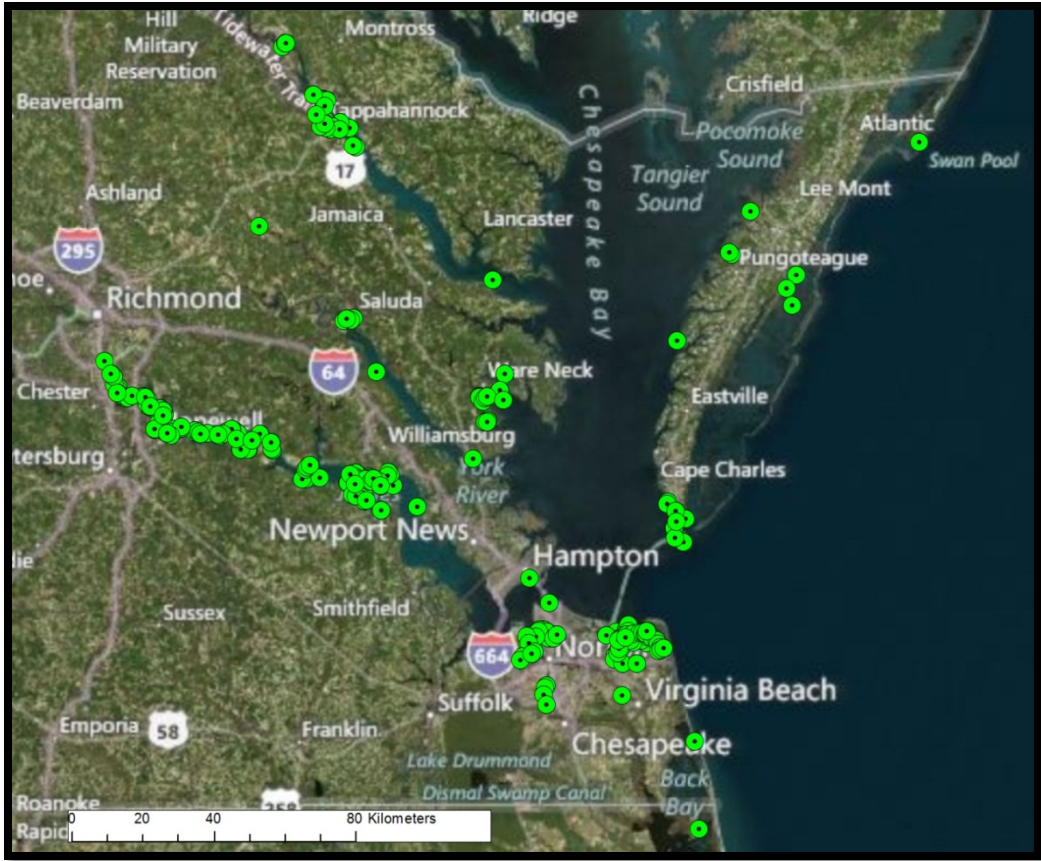


Figure 1. Osprey nests monitored by CCB during 2013.

Nest Site Surveys

We visited 189 osprey nests a minimum of three times during the breeding season to document occupancy and breeding activity. These nests were selected because of their proximity to boat ramps or visual access in to the nest. A breeding territory was considered to be “occupied” if a pair of adult Osprey was resident during the breeding season. Nests were considered to be “active” if eggs or young were detected (Postupalsky 1974). Nest observations were entered into osprey-watch.org and compiled for the [Center for Conservation Biology monitoring group](#).

Banding

We attempted to band all 4-7 week old young in accessible nests. In addition, we banded adults at active nests targeted for transmitters for Project Ospreytrak. Osprey were banded with a U.S. Fish and Wildlife Service lock-on, aluminum tarsal band on the right leg and a purple alpha-numeric auxiliary band on the left leg. Feathers and a small blood sample were



collected from a majority of banded birds. Rob Bierregaard banded under CCB permits on Tangier Island for his tracking project with the Chesapeake Bay Foundation. R. Bierregaard banded osprey with the federal band on the left leg for males and right leg for females. GPS backpack transmitters were deployed by CCB and R. Bierregaard on select adults as part of a migration tracking study.

RESULTS

We expanded our study area in 2013 and doubled the number of nests we monitored for productivity (Table 1). The average reproductive rates were 1.1 chicks/active nest, 1.8 chicks/successful nest. These meet population maintenance requirements for Osprey which range from 0.8 and 1.3 chicks/active nest (Henny and Wight 1969, Poole 1989, Spitzer 1980, Watts and Paxton 2007). We banded 19 adults and 40 nestlings during the 2013 breeding season.

Three transmitters were deployed on adult male osprey for CCB’s Project OspreyTrak. R. Bierregaard deployed three GSM-GPS units on adults as part of [Project OspreyTrax](#).

Table1. Productivity summary of CCB monitored osprey nests in Virginia.

Year	Total No. Nests	No. Occ Territories	No. Active Nests	No. Successful Nests	No. Failed Nests	No. Young Produced	No. Young/ Active Nests	No.Young/ Successful Nests
2012	78	72	59	48	4 ^a	95	1.6	2
2013	189	183	140	84	35	151	1.1	1.8

^a Failed nests were not well documented in 2012. This value is likely higher than the value shown.



Figure 2. The Solertium programming team from [osprey-watch.org](#) assisted with banding nestlings on the James River (left). Bryan Watts and Crystal Matthews (VA Aquarium) catching an adult male on the Lynnhaven River (right).



Figure 3. Left - Libby Mojica and Lauren Billodeaux (USFWS) trapping and banding adult osprey on the Rappahannock River. Right – Crystal Matthews and Crystal Equels (VA Aquarium) banding nestlings on the Lynnhaven River.

Table2. Osprey banded in Virginia during 2013.

Band Number	Aux Marker Code	Banding Date	OspreyWatch Nest Code	Age
0608-44176	DC	4/16/2013	18	L
0608-60757		4/24/2013	790	ASY
0608-63592	XK	4/16/2013	18	ASY
0608-63593	XP	4/16/2013	1617	ASY
0608-63594	XR	4/16/2013	1644	ASY
0608-63595	XU	4/22/2013	1717	ASY
0608-63596	XV	4/24/2013	4036	ASY
0608-63597	XZ	4/24/2013	4039	ASY
0608-63598	42/A	4/24/2013	1020	ASY
0788-35391	XX	4/22/2013	4048	ASY
0788-42562		4/23/2013	4465	ASY
0788-42563		4/23/2013	4466	ASY
0788-42564		4/23/2013	4466	ASY
0928-13769	06/A	6/20/2013	4210	L
0928-13770	07/A	6/20/2013	4210	L
0928-13771	08/A	6/20/2013	4219	L
0928-13773	09/A	6/20/2013	4219	L
0928-13774	10/A	6/20/2013	4292	L
0928-13775	11/A	6/20/2013	4292	L
0928-13776	12/A	6/20/2013	4292	L

Band Number	Aux Marker Code	Banding Date	OspreyWatch Nest Code	Age
0928-13777	13/A	7/14/2013	4372	L
0928-13778	14/A	7/14/2013	4372	L
0928-13779	15/A	7/14/2013	4372	L
0928-13801	43/A	4/24/2013	4041	ASY
0928-13802	44/A	4/24/2013	789	ASY
0928-13803	45/A	4/24/2013	789	ASY
0928-13851	46/A	6/21/2013	455	L
0928-13852	47/A	6/21/2013	455	L
0928-13853	48/A	6/21/2013	4039	L
0928-13854	49/A	6/21/2013	4033	L
0928-13855	50/A	7/1/2013	4339	L
0928-13856	51/A	7/1/2013	4339	L
0928-13857	52/A	7/1/2013	4330	L
0928-13858	57/A	7/9/2013	4439	L
0928-13859	58/A	7/9/2013	1621	L
0928-13860	59/A	7/9/2013	1621	L
0928-13861	60/A	7/9/2013	1621	L
0928-13862	61/A	7/9/2013	14	L
0928-13863	62/A	7/12/2013	1665	L
0928-13864	63/A	7/12/2013	22	L
0928-13865	64/A	7/12/2013	1632	L
0928-13866	65/A	7/12/2013	1632	L
0928-13867	54/A	7/9/2013	1667	L
0928-13868	66/A	7/12/2013	4394	L
0928-13869	67/A	7/12/2013	4394	L
0928-13870	68/A	7/12/2013	24	L
0928-13882	55/A	7/9/2013	4439	L
0928-13889	53/A	7/9/2013	1667	L
0928-13896	56/A	7/9/2013	4439	L
0928-13901	00/B	5/17/2013	4467	ASY
0928-13902	01/B	5/17/2013	4468	ASY
0928-13903	02/B	5/17/2013	4468	ASY
0928-13904	03/B	5/17/2013	4469	ASY
0928-13905	04/B	7/3/2013	4239	L
0928-13906	05/B	7/3/2013	8	L
0928-13907	06/B	7/3/2013	4346	L
0928-13908	07/B	7/3/2013	4346	L
0928-13909	08/B	7/3/2013	4349	L
0928-13911	09/B	7/3/2013	4349	L

Table 3. Transmitters deployed in Virginia during 2013. GSM transmitters were deployed by R. Bierregaard.

Band Number	Banding Date	Transmitter	OspreyWatch Nest Code
0788-42563	4/23/2013	GSM-GPS backpack #116	4466
0928-13903	5/17/2013	GSM-GPS backpack #121	4468
0928-13904	5/17/2013	GSM-GPS backpack #120	4469
0608-63592	4/16/2013	PTT-GPS backpack #122484	18
0608-63597	4/24/2013	PTT-GPS backpack #122485	4039
0928-13803	4/24/2013	PTT-GPS backpack #122486	789

Discussion

Nests monitored in 2013 by CCB and its conservation partners were reproductively comparable to osprey nests in the wider monitored Chesapeake Bay population (1.2 chicks/active nest, 1.8 chicks per successful nest, $n = 430$ occupied territories in OspreyWatch). We plan to continue nest monitoring in 2014 in the same core areas of the James River, Lynnhaven River, Elizabeth River, Rappahannock River, and on the bayside of the Eastern Shore of Virginia.

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