

RAPTORS AND WATERBIRDS ON THE MAURICE RIVER

CUMBERLAND COUNTY, NEW JERSEY

*The TWENTY-EIGHTH FIELD SEASON
of an Ongoing and Long-term Avian Use Study*

**FALL 2014 through SPRING 2015
and highlighting the CORE WINTER PERIOD 2014-2015**

Research sponsored by

CITIZENS UNITED TO PROTECT THE MAURICE RIVER AND ITS TRIBUTARIES, INC.



**By Clay Sutton and James Dowdell
July 2015**

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Above: The winter of 2014-2015 was exceptionally cold, with much of the Maurice River and adjacent Delaware Bay frozen for considerably long periods. Here is an “**Iceberg**” **just off East Point**, created, presumably, by the tide and wind first piling up ice on the shoreline, then subsequently floating it free. It was over 100 feet long and about 25 feet high. Note the Common Goldeneye in the foreground, just two of the 281 present that memorable day.

-- photo by Clay Sutton. February 25, 2015.

On the cover: An immature **Red-tailed Hawk** perched on a snag on the salt marsh near East Point. Red-tails are a signature raptor species of the Maurice River, and although yet common, they are becoming a deserving “poster species” for river protection and conservation. Recent marked declines in Red-tailed numbers on the river may mean that Red-tails are indeed a bellwether bird to be monitored in relation to climate change and sea level rise on Delaware Bay.

– photo by Clay Sutton. February 8, 2015.

RAPTORS AND WATERBIRDS ON THE MAURICE RIVER

July 2014 through June 2015

The TWENTY-EIGHTH FIELD SEASON

of an Ongoing and Long-term Avian Use Study

Citizens United to Protect the Maurice River and its Tributaries, Inc.

INTRODUCTION AND OVERVIEW

The period from July 2014 through June 2015 marked the amazing twenty-eighth field season of long-term avian use studies carried out on the Maurice River under the auspices of Citizens United to Protect the Maurice River and its Tributaries, Inc. Studies included the monitoring of fall migration in 2014, spring migration in 2015, anecdotal breeding bird studies, and the all-important core winter studies carried out from December 2014 through March 2015.

An in-depth review of long-term status and trends was prepared (at the twenty-five year milestone) early in 2013, and presented at the Partnership for the Delaware Estuary Science and Environmental Summit held in Cape May, NJ (27-30 January 2013). Because this landmark major report/paper, analyzing all twenty-five years of data, is now available (archived on the CU Maurice River website: www.cumauriceriver.org), this current one season report will only offer brief discussion of the 2014-2015 findings in relation to previous years. Note that the findings of the 26th and 27th seasons of study (2012-2013 and 2013-2014) are also available on the CU website as well.

Also, and again because all of the twenty-seven years of *individual* reports are available on-line, little discussion of methodology or techniques will be offered in this short-form yearly summary. The basic methodology of the core winter studies has remained the same since 1987: nine sites (point counts) on the tidal Maurice River between Millville and East Point were sampled by Sutton and Dowdell for a period of 45 minutes each during each survey. Visit the CU website for in-depth review of all methodologies and sampling locations, as well as the goals and objectives of this long-term project.

In-depth analysis of findings were prepared at the five-year, ten-year, fifteen-year, and twenty-year milestones of this long-term study; see “Literature Cited / For Further Reference” for a complete listing of these reports. These milestone reports are now joined by the in-depth twenty-five year look at the considerable avian resources of the Maurice River, one that included an analysis of status and trends in raptor and waterbird populations over the entire study period. This report, when viewed on the CU Maurice River website, can be seen in both a short form illustrated summary (14 pages) and in its entirety (98 pages).

FINDINGS

The results of the twenty-eighth annual Maurice River Raptor and Waterbird Survey for the period July 2014 through June 2015 are shown in **Table 1**. Eight full surveys were carried out during the core winter period (4 December 2014 to 25 March 2015). Five surveys were conducted during the fall migration period of the study cycle, 31 July through 14 November 2014, and eight spring migration surveys were carried out between 1 April and 23 June 2014 (although this last date made it decidedly a “summer” survey). In all, a total of 21 field days were expended in this year-long period. Spring and fall survey results are also shown in Table 1, but are not included in the core winter season *averages* for key species shown in the table. **Peak winter season daily high counts for raptor and waterbird species are shown in Bold Face**, although note that for a number of migratory species, spring and fall totals easily exceed the peak core winter season count.

As in the past, comparative studies were conducted on Cumberland County’s Cohansey River as an adjunct to the core winter Maurice River studies. The Cohansey River was sampled just once in winter 2014-2015 (due to the fact that Clay Sutton was recovering from knee-replacement surgery in the early months of 2015). Importantly though, even though it was only monitored once, this marked the 25th consecutive winter season that the Cohansey River has been surveyed! The results of the Cohansey River winter raptor and waterbird survey are shown in **Table 2**. In recent decades, all Cohansey River surveys have been carried out on a *pro bono*/volunteer basis, at no cost to Citizens United. While little in the way of conclusions can be drawn from a single survey, it is interesting to note that for raptors, this single Cohansey count is very close to the Maurice River average for many species. Of particular note is the count of 177 Canvasback seen on 19 March near the mouth of the Cohansey near Bayside, again confirming the presence of this regular and significant signature raft of divers.

Back to the Maurice River drainage, as in past seasons, Canada Goose numbers on the Bayside State Prison grounds (adjacent to the Maurice) were again estimated; birds were counted from Route 47. Most, if not all, “Bayside geese” use the Maurice River for roosting and feeding, and these counts offer insight to regional goose populations and the potential for seasonal herbivory on Maurice River wild rice marshes. The numbers are shown below, but note that these “prison numbers” are not included in the river count totals shown in Table 1. These archived census numbers will be reviewed at some point in the future for the insight they may offer regarding conditions and goose population trends on the river itself.

2014 – 2015 Canada Goose Usage -- Bayside State Prison Grounds

<i>Date</i>	<i>Number</i>	<i>Date</i>	<i>Number</i>	<i>Date</i>	<i>Number</i>
07/31/14	284	01/29/15	782	04/30/15	22
08/19/14	300	02/11/15	580	05/09/15	NC
09/17/14	450	02/25/15	800	05/21/15	182
10/17/14	700	03/13/15	1352	05/29/15	200
11/14/14	760	03/25/15	900	06/23/15	2
12/04/14	850	04/01/15	130		
12/13/14	1280	04/07/15	112		
01/11/15	475	04/23/15	275		

TABLE 1 (page 1)
Maurice River
Raptor and Waterbird Survey
July 2014 through June 2015

	FALL 2014					CORE WINTER PERIOD 2014-2015									SPRING 2015							
DATE	7/31	8/19	9/17	10/17	11/14	12/4	12/13	1/11	1/29	2/11	2/25	3/13	3/25	AVG.	4/1	4/7	4/23	4/30	5/9	5/21	5/29	6/23
		**	**	**										N=8			**		WSB	**	**	
LOONS to CORMORANTS																						
Red-throated Loon									1			7	6		3	1	1			1		
Common Loon															1			2	1			
Pied-billed Grebe				1					1			2	1									
Horned Grebe									1	2	1					2						
Red-necked Grebe												1* 3/5			1							
Am. White Pelican																			1*			
Dbl-cr Cormorant	377	292	297	257	30	5	18		1		1	2	12		172	466	633	740	450	360	435	382
BITTERNS to VULTURES																						
Least Bittern																				1		
Great Blue Heron	9	8	10	9	18	9	21	13	9	11	3	8	8		1	2	1	1	4		1	4
Great Egret	106	85	32	9	14								9		38	55	66	73	100	50	63	144
Snowy Egret	99	71	28	12	1										24	45	35	83	75	126	56	116
Little Blue Heron																1						
Tricolored Heron															1* 3/28							
Green Heron	1																		1	1	2	4
Black-cr Nt-Heron	33	22			3					1					1				3	116	136	95
Glossy Ibis	9	1														1	19	13	4	4	12	33
Black Vulture	3	5	10	12	12	33	21	44	20	37	37	26	5	27.88	4	10	3	20	20	7	6	5
Turkey Vulture	44	28	79	46	136	157	149	166	142	118	137	165	88	140.3	128	110	32	111	75	47	39	54
WATERFOWL																						
Snow Goose						52	380	50	1275	3800	0	5050	1	1326	1000	2		1				
Canada Goose	81		2	20	109	70	254	694	626	176	494	888	315	440	147	356	70	200	50	40	161	20
Mute Swan	7	6	2	3	16	12	17	2	2	5	2	9	11		8	5	9	17	4	17	15	4
Tundra Swan									2													

Peak winter counts
Shown in **BOLD FACE**

** Lower River Survey only
* Seen on date other than official survey date or by other observers
WSB = non-standard Survey (World Series of Birding)

TABLE 1 (page 2)
Maurice River
Raptor and Waterbird Survey
July 2014 through June 2015

	FALL 2014					CORE WINTER PERIOD 2014-2015									SPRING 2015							
DATE	7/31	8/19	9/17	10/17	11/14	12/4	12/13	1/11	1/29	2/11	2/25	3/13	3/25	AVG.	4/1	4/7	4/23	4/30	5/9	5/21	5/29	6/23
		**	**	**										N=8			**		WSB	**	**	
WATERFOWL (continued)																						
Wood Duck				12*			5				2	9	13		1	4		6	2			
Gadwall									4	20		49	224		191	112	27	4				
American Wigeon										4		10	6		8		1					
Am Black Duck		4	67	181	165	132	231	463	383	955	204	647	656	459	492	160	100	107	10	16	46	11
Mallard	1		8	30	47	6	119	429	657	676	164	160	290	313	212	28	4	8	4		5	
Blue-winged Teal			10	38											2	6		8				
Northern Shoveler				13	1	4				1		1	28		14	50	41	7				
Northern Pintail				62	78	111	27	33	364	548	70	221	103	185	21	2	1					
Green-winged Teal			11	362	444	165	371	4	6	275		2265	1533	660	2280	2109	1202	447	8			
Common Teal												1	1		1							
Canvasback					1*11/27	2*12/3					2											
Ring-necked Duck								260	54			121	350		106	12						
Greater Scaup								4		27												
Lesser Scaup					2	1	1	1	1	1		1			4	4						
Scaup (sp.)								12	45	460	126	61	120		26							
Surf Scoter					1	1										20						
Wh-winged Scoter					1						1											
Black Scoter	1															4		8				
Scoter (sp.)									4			50			1							
Long-tailed Duck						2		3	4	3	1	68	4									
Bufflehead					17	69	53	258	38	105	304	174	47	131	16	38	1					
Com. Goldeneye						1		52	77	84	281	12	2									
Hooded Merganser							17	4	12	59	19	48	18		9	1						
Com. Merganser								19	21	5	179	12	3									
Red-br Merganser					3	8	6	48	96	92	201	61	130	80	57	33	2	1				
Ruddy Duck				6	103	117	131	2				5	1		1	4		6	1			
unid. diving duck												500										

Peak winter counts
Shown in **BOLD FACE**

** Lower River Survey only
* Seen on date other than official survey date or by other observers
WSB = non-standard Survey (World Series of Birding)

TABLE 1 (page 3)
Maurice River
Raptor and Waterbird Survey
July 2014 through June 2015

	FALL 2014					CORE WINTER PERIOD 2014-2015									SPRING 2015							
DATE	7/31	8/19	9/17	10/17	11/14	12/4	12/13	1/11	1/29	2/11	2/25	3/13	3/25	AVG.	4/1	4/7	4/23	4/30	5/9	5/21	5/29	6/23
		**	**	**										N=8			**		WSB	**	**	
DIURNAL RAPTORS																						
Osprey	142	62	37	7	2							1	13		70	133	47	125	75	63	46	113
Mississippi Kite																			3*		1*	
Bald Eagle	10	7	40*	26	24	12	18	29	42	30	29	34	28	27.75	15	30	14	26	15	31	17	33
Northern Harrier		1	1	6	27	22	23	21	24	19	17	22	13	20.13	15	18	3	4	3	3	1	
Sharp-sh Hawk			21	15	10	2	5	5	3	4	2	2	2	3.125								
Cooper's Hawk			2	6	6	1	4	1	1	2	1	0	1	1.375	1	2		4	1	1	2	3
Red-sh Hawk				2	14	5	7	1	4	1	2	1	0	2.625								
Broad-winged Hawk			1	1															48*			
Red-tailed Hawk	13	1	8	10	60	23	29	35	25	44	29	43	17	30.63	25	22	4	23	12	12	1	7
Rough-legged Hawk						0	0	0	0	0	0	1	0	0.125								
Golden Eagle						0	0	0	0	1	0	0	0	0.125								
American Kestrel			7	4	1	1	1	0	0	0	0	0	0	0.25	2	1		1				
Merlin			2	2		0	0	1	0	0	1	0	0	0.25				1				
Peregrine Falcon		1	1	7		0	2	0	0	1	1	2	2	1	1	1	1	1	1	1	1	2
GROUSE to CRANES																						
Ring-neck Pheasant												1										
Wild Turkey				5	16	14							64		30	27	7	14	25			5
Northern Bobwhite																			2*			
Clapper Rail	21	9	10	3	1	1				1						2	5	35	50	32	19	30
American Coot												1					1*					
SHOREBIRDS																						
Black-bellied Plover	1	3	20	26		1						4			16	25	37	106	100	126	36	
Semipalmated Plover	96	137	20	10													2	26	75	1940	172	
Killdeer	3			1	1			6	37	5		16	6		6	19	3	6	3	3	8	14
Am. Oystercatcher													2				1					

Peak winter counts
Shown in **BOLD FACE**

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WSB = non-standard Survey (World Series of Birding)

TABLE 1 (page 4)
Maurice River
Raptor and Waterbird Survey
July 2014 through June 2015

	FALL 2014					CORE WINTER PERIOD 2014-2015									SPRING 2015								
DATE	7/31	8/19	9/17	10/17	11/14	12/4	12/13	1/11	1/29	2/11	2/25	3/13	3/25	AVG.	4/1	4/7	4/23	4/30	5/9	5/21	5/29	6/23	
		**	**	**										N=8			**		WSB	**	**		
SHOREBIRDS (continued)																							
Black-necked Stilt																			3*				
American Avocet			1																1*				
Greater Yellowlegs	5	7	14	44	26	11	6	5	19		6	18	48		86	200	172	346	100	8	3		
Lesser Yellowlegs	5	2	6	1		1						3	1		55	244	364	464	300				
Willet	7	2														1	29	24	25	11	14	21	
Spotted Sandpiper	1																	2		3			
Whimbrel	1* 7/16																						
Ruddy Turnstone	1	2		1														1	10	7	171		
Red Knot																			4	118	28		
Sanderling																	1			4	53		
Semipalmated Sdp	1825	1922	214	1													26	45	250	19450	14580		
Western Sandpiper	2	2		2																			
Least Sandpiper	41	4	4				1									18		46	50	112	1		
Wh-rump. Sandpiper		1	1																		1		
Dunlin				700	20	243	30	15		12	40	6			6020	4340	2004	5033	3000	4410	40		
Stilt Sandpiper																1							
Sh-billed Dowitcher	330	170	10												4	32	270	1167	1000	757	45		
Lg-billed Dowitcher				1																			
Wilson's Snipe				1	2	1		5	1	1		3	18		4	5							
Am. Woodcock					1							1											
TOTAL SHOREBIRDS	2317	2252	290	788	50										6191	4885	2909	7266	4921	26949	15152		

Peak winter counts
Shown in **BOLD FACE**

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TABLE 1 (page 5)
Maurice River
Raptor and Waterbird Survey
July 2014 through June 2015

	FALL 2014					CORE WINTER PERIOD 2014-2015									SPRING 2015							
DATE	7/31	8/19	9/17	10/17	11/14	12/4	12/13	1/11	1/29	2/11	2/25	3/13	3/25	AVG.	4/1	4/7	4/23	4/30	5/9	5/21	5/29	6/23
		**	**	**										N=8			**		WSB	**	**	
JAEGERS to ALCIDS																						
Laughing Gull	√	√	√	√											25	√	√	√	√	√	√	√
Bonaparte's Gull					4*					4		40	15		11	58		10	1			
Ring-billed Gull	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	3	3	2	
Herring Gull	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√
Lesser Bl-backed Gull																1			1*			
Gt Bl-backed Gull	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√
Caspian Tern		3	2	3																		
Royal Tern			5	1															1*			
Forster's Tern	90	58	88	162	4											53	64	121	100	103	16	50
Least Tern																			3	10		15
Black Tern		1																				
Black Skimmer																		12	75	85	27	5
PIGEONS to WOODPECKERS																						
E. Screech Owl											1											
Short-eared Owl										1* 2/7												
Belted Kingfisher	1		5	2	3	5	3	2	6	2		3	2		2	3		1	1			

Peak winter counts
Shown in **BOLD FACE**

** Lower River Survey only
* Seen on date other than official survey date or by other observers
WSB = non-standard Survey (World Series of Birding)

Table 2
Cohansey River
Winter Raptor and Waterbird Survey
2014 – 2015

	DATE
	3/19/15
BITTERNS to VULTURES	
Great Blue Heron	1
Black Vulture	25
Turkey Vulture	128
WATERFOWL	
Snow Goose	250
Canada Goose	675
Mute Swan	2
American Wigeon	6
Am Black Duck	94
Mallard	48
Northern Pintail	25
Green-winged Teal	149
Canvasback	177
Ring-necked Duck	38
Bufflehead	49
Hooded Merganser	14
Common Merganser	2
Red-breasted Merganser	44
Ruddy Duck	1
unidentified diving ducks	100
DIURNAL RAPTORS	
Osprey	1
Bald Eagle	44
Northern Harrier	18
Sharp-sh Hawk	0
Cooper's Hawk	0
Red-shouldered Hawk	0
Red-tailed Hawk	26
Rough-legged Hawk	2
American Kestrel	1
SHOREBIRDS	
Greater Yellowlegs	26
Dunlin	50
Wilson's Snipe	1
JAEGERS to ALCIDS	
Ring-billed Gull	√
Herring Gull	√
Great Black-backed Gull	√
PIGEONS to WOODPECKERS	
Belted Kingfisher	0

SOME HIGHLIGHTS OF THE SEASON



Above: A drake **Green-winged Teal** at Bivalve on 1 April, among the 2,280 present on the Maurice River that day. Green-wings are another increasing species on the Maurice.

Middle: A late “lingering” **Red-throated Loon** in an impoundment at Heislerville WMA on 20 May. Seeing the red throat on this bird is a rare treat for South Jersey birders, as almost all Red-throated Loons are far to the north of us before they attain this late spring -- and very brief -- stunning breeding plumage.

Top: A sub-adult **Bald Eagle** “Just sitting on the dock of the Bay, watchin’ the tide.....” at East Point on 29 May. Note that the bird is banded. It was yet another exceptional year for eagles on the Maurice River, and numbers continue to grow in all seasons.

-- photos by Clay Sutton

DISCUSSION: CORE WINTER SURVEYS

Winter raptor and waterfowl surveys, the core effort of CU-sponsored ornithological studies, were conducted for the twenty-eighth consecutive winter season. Eight full river surveys were carried out between 4 December 2014 and 25 March 2015. Table 1 presented the findings for the core winter studies (as well as for all seasons); for winter surveys, peak counts for all species are shown in Bold Face. The winter average for key species was also shown in Table 1. Based on these findings, once again the Maurice River was proven to host regionally significant numbers of raptors and waterfowl in winter. For the second winter in a row, we saw true winter weather throughout Southern New Jersey. It was an “Old Fashioned Winter,” with cold temperatures, numerous snowfalls, and considerable ice on the river and nearshore Delaware Bay. These conditions again (as in winter 2013-2014) brought good waterfowl numbers to the Maurice, and proved that the river can still host exceptional numbers of waterfowl when true winter conditions prevail. So too Bald Eagles responded to the wintry conditions, with a peak of 42 birds counted on 29 January, and an average of 27.75 birds per survey that came close to winter 2013-2014’s near-record average of 30.38.

Winter weather was a huge influence in this 28th winter study season. We enjoyed (?) a cold, snowy, and icy winter – the same type of true winter that characterized the early years of these Maurice River studies. As mentioned, winter 2014-2015 followed the previous bitter winter of 2013-2014. In March of 2015, Dan Skeldon, the meteorologist for *The Press of Atlantic City*, wrote “Since the start of 2014, only three months have been have been warmer than average, and not by much. The cool has been tenacious, and shows no sign of relinquishing its grip on South Jersey or the Northeast.” Indeed, not only was it a cold winter, but it followed a cool summer and fall.

The period from February 13-21 was one of the coldest stretches of weather seen in South Jersey since 1979, with lows that went down to – 6 degrees F. at Atlantic City International Airport. It was the third coldest February on record (the coldest was 1979), with records dating back to 1874. The average temperature was 24.5 degrees, compared to the long term average of 35.3. February 2015 was also the seventh coldest month *ever* recorded in South Jersey. Respite came with the spring however, and May 2015 was the third warmest May on record in South Jersey, as well as the ninth driest since 1874. A drought was narrowly avoided when a very wet June followed. (All weather information from Dan Skeldon/*The Press of Atlantic City*).

Numerous daily low temperatures were set during winter 2014-2015, and while Maurice River and nearshore Delaware Bay waters were never totally “locked up,” there was ice on most still and many moving bodies of water for much of the season. Furthermore, these cold “Arctic Blasts” gripped the entire Northeast and Upper Midwest. For the second winter in a row, the Great Lakes were mostly covered over with ice. As a result, waterfowl that in recent years have been wintering farther north than historically (due to the long trend of mild winters), were hit very hard by the ice. We noted a major mid-winter incursion of waterfowl, mostly diving ducks; probably most came from the Great Lakes when they were pushed out by ice cover.

As a result, locally it was a good (although not great....) year for waterfowl. As we have learned over the 28 long years of this Maurice River study, our best waterfowl years occur when

ducks from farther north are pushed to our region by the snow and ice of harsh winters in the Northeast and Great Lakes regions. (Those that escape to warmer climes in the fall and early winter do just fine; it is the lingerers -- attempting to winter as far north as possible -- that get caught and need to either flee or perish).

Table 3 shows our findings on key species of winter raptors and waterfowl on the Maurice River. Here we show 2014-2015 data (Year 28) in relation to not only the two previous winters (Year 27 and Year 26), but also compare it to the peaks and averages of Segment V (of the 25 year study) – the five year pooled results from 2007-2012.

The results seen in Table 3 are largely self-explanatory. Both Snow Geese and Canada Geese were present in somewhat average numbers. The same can be said for American Black Duck and Mallard numbers for winter 2014-2015. Northern Pintail were disappointing. January build-ups were earlier and larger than usual, and we optimistically expected a very good year – maybe even the numbers of the early years of the study. However, the deep and prolonged cold of mid- to late February essentially froze the Pintail out, presumably sending them back south. The problem is that they never returned in any numbers; we can only assume that during the early March thaw they then bypassed Southern New Jersey and headed far to our north and west. So too, Green-winged Teal numbers were down due to the severe icy conditions – bucking the trend of steady increases in recent years.

Diversity was quite good however, particularly with diving ducks. Long-tailed Ducks, Common Goldeneye, and Red-breasted Merganser posted very good totals as birds were pushed to the open waters in Maurice River cove due to ice coverage in much of Delaware Bay. On 25 February, Common Merganser set a new river record with 179 (previous high was 102 in 2009-2010), with many birds pushed out of lakes and rivers far to our north by ice cover.

As was expected, the severe winter and snow and ice cover to our north pushed high numbers of Bald Eagles into the Bayshore region. A peak daily count of 42 was tallied on 29 January, and the average of 27.88 per survey almost ties our three best averages from previous years. A similar peak of 44 Balds was seen on the Cohansey River. Bald Eagle numbers represent a combination of local breeding birds and wintering birds from farther north, and in 2014-2015, continued rising numbers of breeding pairs combined with “refugees” from the frozen north made for a yet another spectacular eagle winter along the length of the Maurice. Sharp-shinned Hawk numbers were above average, although Cooper’s hawks were curiously below average. Turkey Vultures, Black Vultures, and Red-shouldered Hawks were above normal recent averages.

However the picture was, once again, not good for two of our common Maurice River signature raptor species. For Northern Harrier, the previous winter, 2013-2014, was the worst winter ever, and the winter of 2014-2015 was not much better. Although peaks and averages rose a bit, Harriers remained well below both the recent and over-all long-term averages. For Red-tailed Hawk, the findings were even more grim: The 2014-2015 average of 30.63 is our lowest average ever. The previous lowest average ever was 31.13 in 2012-2013. This means that in 28 years, our four lowest-ever average Red-tail counts have occurred in the last four winters, although the 33 averages of Years 25 and 27 tie the 33 averages of Years 1 and 2 (1987-1988 and 1988-1989). Note however that although the data is comparable, these early years

counts were taken at a time when access to the river (and resultant viewability and countability) was far more limited than today due to posted private property. Remember too that the first two years of these counts were indeed exploratory as we established consistent methodology and protocols. At that time, today's well-established approach and techniques were yet to be fully developed, refined, and sharpened to the degree enjoyed currently – an efficiency that follows nearly three decades of mostly subconscious yet likely fine-tuning. In short, there were very probably at least a few more Red-tails present than were counted in the earlier years of the count, leaving our statement that “the past four years have been the four worst years for Red-tails ever” undoubtedly true. For one thing, we were primarily searching hard for, and studying and enjoying, the one or two (rare!) Bald Eagles found on each survey in those earliest years. Such have been the changes on the Maurice over time.

But the point is, when we see that the Red-tail *peaks* of the past four years were generally the *average* number seen for the twenty years before, we can readily determine that these are not good trends for Red-tailed Hawks or Harriers. Quite probably a lack of prey is a major factor. We continue to suspect that marsh rodent numbers on the Maurice River have not yet recovered from the combined impacts of Hurricane Irene and Superstorm Sandy. Even though rodents have been reported as “starting to recover by late summer 2013” at Forsythe NWR (Source: personal communication by Becky Kern, US Fish and Wildlife Service), this may not be the case on the Maurice River and perhaps the wider Delaware Bayshore. And, as we discussed at length in both the 25 year report and subsequent yearly reports, ongoing sea level rise and loss of the high marsh are a factor too. (See these full reports for much greater discussion and analyses).

In corroboration of the above speculation, we note the following. While Hurricane Irene (28 August, 2011) and Hurricane/Superstorm Sandy (29 October, 2012) may have had the far greatest impacts on marsh rodents, monthly tidal cycles may be playing a real role in preventing a significant comeback or recovery of Meadow Voles, Rice Rats, and other prey items. *The Press of Atlantic City*, on 19 August, 2014 reported on the number of flood days that exceeded “nuisance” flood level elevation, and stated that Atlantic City and much of southern New Jersey are among the worst places in the US to experience routine flooding. Days of high tide tidal flooding per year averaged about 10 in the 1980s-1990s, but today it is about 35 days per year. Virtually every full moon, and even moderate northeast storms, flood the tidal wetlands to a degree that no doubt continues to impact marsh rodents.

Although this is largely speculation, in short and in summary, we strongly believe that tidal flooding associated with sea level rise is beginning to adversely impact both prey – and predator – populations on the Maurice River. Rough-legged Hawks and Short-eared Owls were the first to disappear from Delaware Bayshore wetlands, and we now have some evidence that the same may now be occurring with Red-tailed Hawks and particularly Northern Harriers.

Another piece of corroborating information is found in the yearly reports of The Barn Owl Research Foundation. In the “*Annual Report on the New Jersey Study Area – 2014*” (the study area is Salem and Cumberland Counties), veteran principal researchers Bruce Colvin and Paul Hegdal report that “The annual spring survey to index vole (prey) population [available to Barn Owls] was performed in mid-May 2014 in a salt marsh. Index values confirmed a moderate vole population in comparison to other years, still apparently recovering from extreme flooding in October because of Hurricane Sandy.” They further report that following the highest Barn

Owl chick mortality rates in their 35 years of study in 2013 (following Sandy), the survival rates have returned to more “normal” levels, although prey availability remains a major concern in Bayshore Barn Owl populations. In the study area, Barn Owls have been found to hunt primarily over the salt marsh, and not over the (now vanishing) agricultural fields as they once did.

But on a positive note that may imply better fortunes for Red-tails and Harriers, Colvin and Hegdal summarize that “The 2014 Barn Owl nesting season was most characterized by a delayed nesting season and high adult turnover following a severe winter. Lower chick mortality, compared to most years, and increased observations of vole as prey in the latter half of the nesting season, suggested an upswing by early summer in the recovery of prey populations following the flooding impacts of Hurricane Sandy about 20 months earlier.” We await their 2015 nesting season report, and look forward to another year’s data on wintering Red-tailed Hawks and Northern Harrier, among others, on the changing Maurice River.

TABLE 3

**Wintering Waterfowl and Raptors on the Maurice River 2007-2015;
Comparisons of Most Recent Three Winters to Segment V (2007-2012)**

	2007-2012 Segment V			Year 26 2012 - 2013		Year 27 2013 - 2014		Year 28 2014 - 2015	
	Best	Avg. Peak Count	Avg of Average Counts	Best	Avg	Best	Avg	Best	Avg
Snow Goose	12,324	6,605	2,309	13,000	2,712	5,150	1,342	5,050	1,326
Canada Goose	1538	796	268	507	260	1270	522	888	440
Am. Black Duck	1,274	829	487	458	276	1,585	938	955	459
Mallard	649	463	256	262	142	952	431	676	313
Northern Pintail	928	628	281	764	423	1,621	760	548	185
Green-winged Teal	5,850	3,270	988	4,182	1,807	2,966	1,119	2,265	660
	2007-2012 Segment V			Year 26 2012 - 2013		Year 27 2013 - 2014		Year 28 2014 - 2015	
	Best	Avg. Peak Count	Avg of Average Counts	Best	Avg	Best	Avg	Best	Avg
Black Vulture	57	38.2	22.4	25	15.38	35	19.44	44	27.88
Turkey Vulture	162	143	99	124	96	126	102	166	140
Bald Eagle	48	34.6	24.15	34	25.13	50	30.38	42	27.75
Northern Harrier	43	38	25.8	22	17.63	18	15.25	24	20.13
Sharp-shinned Hawk	18	9.4	3.04	4	1.38	6	2.75	5	3.13
Cooper's Hawk	10	6.8	3.21	6	3.5	4	2.13	4	1.38
Northern Goshawk	1								
Red-shouldered Hawk	26	8.4	1.62	2	0.75	4	1.38	7	2.63
Red-tailed Hawk	64	59.4	42	43	31.13	57	33	44	30.63
Rough-legged Hawk	1	0.6	0.07			1	0.38	1	0.13
Golden Eagle	2			1		1		1	
American Kestrel	10	3	0.77	1	0.5	1	0.13	1	0.25
Merlin	2			1		1		1	
Peregrine Falcon	4	2.4	0.98	2	0.88	4	1.13	2	1

DISCUSSION: SPRING, SUMMER, AND FALL SURVEY EFFORTS

Principal Citizens United Maurice River studies in 2014-2015 -- as in all previous seasons -- have focused primarily on winter raptors and waterfowl. In recent years however, a greater emphasis has been placed on spring and fall migration. Also over time, comparatively little effort has been focused on the breeding birds of the Maurice River watershed. However, because much of spring migration through the region is virtually concurrent with the local breeding season for many species, and because “fall” (southbound) migration for many shorebirds occurs in mid-summer, current survey efforts and protocol have allowed for a significant (if not in-depth) look at the breeding birds of the Maurice River. Findings from spring and fall sampling dates are also shown in Table 1.

As an example, during survey efforts we continue to see ample evidence of the continuing and booming resurgence of Osprey and Bald Eagles on the Maurice River, but these are well documented and reported elsewhere by CU and the ENSP, and will not be elaborated on here. Suffice it to say that Osprey and Bald Eagle have made a truly remarkable recovery in the Bayshore region and numbers continue to soar. We noted on 23 June, 2015 that 65 active Osprey nests were visible on our survey route alone, and we can only guess how many are present in the entire Maurice drainage basin. (Many nests along the river, and on all of the tributaries, are not visible from the driving route/protocol of our surveys). During 2014, we discovered that a pair of Peregrine Falcons had taken up residence on the water tower at Bayside State Prison, and brought this to the ENSP’s attention. This pair continued to reside on the tower during 2014-2015. With the complete loss of American Kestrel (the single Kestrel that attempted to winter on the Maurice during this past winter disappeared in late December.....), Peregrine is now the commonest falcon of the region except during fall migration.

On 8 May, Sutton watched both an adult male and adult female Northern Harrier determinedly attacking a Bald Eagle that had strayed near their (presumed) nest at Thompson’s Beach. And on 21 May, we watched an adult male Northern Harrier carrying prey over a considerable distance at Bivalve. Both of these behaviors no doubt reflect attempted -- if not successful -- breeding in the lower Maurice River region. Finally, the wading bird rookery at Heislerville WMA again remained active during both the 2014 and 2015 breeding seasons, although it now may be in its final years, as 100% of the trees on the breeding island are now dead.

Migratory shorebird use of the lower Maurice River impoundments and mudflats remains one of the key avian ecovalues of the region. Shorebird use of the Maurice River was explored in depth in the 2009–2010 seasonal report, and again in the recent 25 year summary report, and therefore will not be elaborated upon here. However, as Table 1 will readily attest, the Maurice River in both spring and fall continues to host globally significant numbers of migratory shorebirds. The fall 2014 season saw counts of up to 2,317 total shorebirds, and spring 2015 produced a high count of 26,949 total shorebirds on 21 May, primarily at East Point, Heislerville WMA, and the Bivalve EEP site. See Table 1 for numbers and phenology of migratory shorebird use of the Maurice.

As in previous seasons, the intense focus on the birds of the Maurice River led to many interesting finds and significant sightings, and as ecotourism increases, many “good birds” were reported by others as well. Noteworthy and certainly a first for Cumberland County away from the deep water ship channel of Delaware Bay, a Sooty Shearwater was well seen by Tom Johnson at Heislerville WMA on 25 May, a remarkable record. Mississippi Kites were seen several times by others this spring, but not on our official surveys. The unusual record of 48 Broad-winged Hawks over the Maurice region in mid-May was a rare record of wandering, non-breeding, year-old birds no doubt leaving the Cape May peninsula where they are well-known to gather/concentrate in spring. We recorded a Harbor Seal in Maurice River Cove from East Point on 13 March, and we enjoyed two River Otters on 11 January, one at Heislerville WMA and one at the NLT’s Peek Preserve near Millville. For birds and birders and biologists alike on the Maurice, it was again a remarkable and memorable winter and a rewarding annual seasonal cycle.

SUMMARY AND ACKNOWLEDGMENTS

Winter 2014-2015 marked the twenty-eighth year of study of the wintering raptors and waterfowl on the Maurice River and the twelfth year of focused spring and fall counts. Studies conducted for Citizens United to Protect the Maurice River and its Tributaries, Inc. again documented an amazing array of avian use of this key South Jersey river. 2014-2015 efforts augmented and supplemented the findings of the first twenty-seven seasons of study and documented and substantiated the Maurice River as a premier avian resource area of not only New Jersey, but of the entire Mid-Atlantic Region. Much greater in-depth discussion and recommendations were offered in the twenty-five year summary report that was presented in January 2013 at the Partnership for the Delaware Estuary Conference, and subsequently placed on the CU Maurice River website.

These 28 years of long-term study have continued to document the Maurice River as an important bird area at all seasons and by any standard applied. After twenty-eight years of study, we now firmly know the depth and diversity of the substantial birdlife of the Maurice River. Long-term studies have created a baseline of avian resource data rarely equaled for the Delaware Bayshore and the Mid-Atlantic region, and allow a better and exceptional understanding of true distribution, status, and trends of the amazing -- and dare we say unique -- birdlife of the Maurice River.

In conclusion, we once again thank Brian and Karen Johnson, Tony Klock, Laurie Pettigrew, Janet Crawford, Tom Reed, Bob Fogg, Sam Galick, Steve Glynn, Pete Dunne, Tom Johnson, Leslie Ficcaglia and the late Tony Ficcaglia, Vince Elia, Chris Herz, and Sandra Keller for shared sightings and insights, and for their continuing deep interest in the Maurice River and the Delaware Bayshore. Clay thanks Ward Dasey and Pat Sutton for their support and assistance during the ongoing and long-term volunteer Cohansey River comparative surveys.

We thank the many members, supporters, and friends of Citizens United for allowing us to be a long-term part of their continuing significant work on this great South Jersey river. Thank you for all of your important conservation efforts in Southern New Jersey, and for your ongoing vision of a wild and scenic Maurice River. As always, we particularly and sincerely thank Jane Galetto for her vision of what role these long-term studies might play in the protection of these valuable avian resources and the wonderful river upon which they so depend. Finally, we sincerely thank the U.S. Department of the Interior's National Park Service, Wild and Scenic Rivers Program, for continuing assistance to Citizens United. The award of a Wild and Scenic Rivers Partnership Grant to CU supported this project and enabled these surveys to be conducted. We recognize and thank the NPS for their continuing interest in this study and in the wildlife resources of the Maurice River.

Clay Sutton, July 2015

IN MEMORIAM:

Tony Ficcaglia

Finally in closing, I would like to dedicate this year's report as a small but heartfelt tribute to the late, and truly great, friend of the river and fervent CU member Tony Ficcaglia, who departed from us in March 2015. I would like to do so by including these thoughts that I shared at Tony's funeral service. I was asked to say a few words by his wonderful wife Leslie Ficcaglia, and it was one of the greatest honors I have known to be so asked.

There are very few people that I know that I can remember, over 25 years down the line, the exact, precise moment I met them. I remember meeting Tony like it was yesterday. The year was, I think, 1988, and I stood before Tony as he chaired the Maurice River Township Zoning Board. I was offering testimony for Citizen's United – I think it was in regard to the barge port proposal. I didn't know Tony; he didn't know me. But I will always remember his penetrating stare and, for me in my then "new job" as an environmental consultant, his rather intimidating presence!

"The truth, the whole truth, and nothing but the truth, so help me God" that I pledged on the Holy Bible that night *didn't hold a candle to* Tony's lowered head (shaved head!), and raised eyebrows version: The truth, the whole truth, and nothing but the truth because that is what I demand, not only as the chairman but as a person. If not, you will be skewered! Remember that look? No matter which side of the aisle you were from, as an appointed official Tony demanded truth, honesty, and fairness, both from, and for, all who came before him.

And that is called integrity. There was little gray area in Tony's life and work. It was black or white. There was right and wrong. There was good, and there was bad in this world.

Totally professional, as the meeting adjourned Tony gave me a bone-crushing handshake and thanked me for coming. I remember thinking that I had passed some kind of test, even though I didn't know what it was. And I remember thinking too, that I had just met a very remarkable man.

But little did I know that night, the night he gave me that penetrating inspection, that this intense man would become one of my closest friends ever. Or that by his very presence and depth, he would be more than a friend; that even though we were contemporaries, he would become a mentor.

We became friends maybe a year or so after, and then began our outdoor adventures that became a highly anticipated mainstay for both of us. Even though I grew up at the shore, Tony was the one who taught me how to go clamming. I should say he taught both Pat and me how to clam. Like everything in his life, Tony took clamming seriously: the equipment, the boat, the tides, the planning, the strategy, the cooking. There is a clamshell midden behind our house -- that many centuries from now archaeologists will probably attribute to Native Americans -- that attests to Tony's skill both as a clammer and a teacher. And I have a framed photo on my desk, a photo Leslie took, of Tony silhouetted on a timeless Down Jersey mudflat, with his clam rake and basket, searching. Zen and the art of clamming. He was searching for more than clams.

If a photo can catch a spirit, for me this one comes close, and it brings a smile each and every day [*and is included below*]. And I am happy to remember and report that we all enjoyed eating delicious clams together, if not the clamming part itself, just six weeks ago when, at least for that one evening, Tony's troubles seemed so far away.

I learned so much more from Tony, and of course from Leslie too. During sunset cruises on the Maurice River, I learned that there were more Purple Martins on the planet than I ever thought possible. And I learned that the glowing evening light, playing on the shining river, told of so much more than birds.

For all my focus on the bigger things, like eagles, I learned from Tony the love of the smaller pieces of the river's magic, like the endangered Sensitive Joint-Vetch he so assiduously monitored each year. For all my reading of ecology books, I think I learned from Tony and Leslie more about that old saying "When you tug on one thing in nature, you find that it is attached to everything else," than I ever did from the books.

I learned wine-making from Tony. For all my love of drinking wine, I never knew where it really came from! He patiently taught me, beyond the mechanics of it, that much of the pleasure of wine is in the journey, not the destination. And Tony lived so much of his life in the journeys, not the destinations that so many of us choose.

I can truly say that Tony was more of a "Renaissance Man" than any person I have ever known. We could talk about old sports cars, deer hunting, archaeology, boats, birds, botany, cooking, bird carving, history, politics, theater, art, books, music, Osprey. That's Osprey, not opera. I guess one thing I *failed* to learn from Tony was opera. My Bad! He tried, I tried, but I *can* say that we *did* enjoy many classical music concerts together.

For all our time spent together, we never actually did a lot of pure "guy stuff" together, and that was only because my wife Pat and me always did things with Tony and Leslie as couples. Tony's love, and devotion to Les, and their children and grandchildren, was more than exemplary, it was indeed deeply inspirational to all who were blessed to witness such life-long sharing, loyalty, and respect.

Finally, I will always be inspired by Tony's energy. Always, even in his later years, Tony showed an energy and the love of life, no, the *lust for life*, of a far younger person. I was reminded of Tony's endless interests and energy when I recently read the following lyrics to a song written by the venerable Mike Oldfield -- words that actually might not have meant too

much to me if I hadn't known Tony.

[There is] "No such thing as spare time,
No such thing as free time,
No such thing as down time,
All you got is life time!"

Boy, did he have a lifetime! He filled every moment. Tony went through life like a whirlwind. Few have had a life as well-lived, and fewer still have left such an impression. And today in remembrance, that gives great comfort and strength.

Thank you Tony my friend.

Clay Sutton March, 2015



*Above: **Tony clamming.** In his element, and in "The Zone." His basket, if not brimming, was always half full.*

-- photo by Leslie Ficcaglia.

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All comparative Maurice River ornithological studies discussed and / or referenced in this report have been directed and co-authored by Clay Sutton, either as an independent contractor or formerly as staff ornithologist, Southern Regional Manager and Vice President of Herpetological Associates, Inc., Plant and Wildlife Consultants. (Comparative Cohansey River studies are embedded within the Maurice River annual reports). Principal reports and publications resulting (either wholly or in part) from these studies (and funded or co-funded by Citizens United to Project the Maurice River and its Tributaries, Inc.) are as follows:

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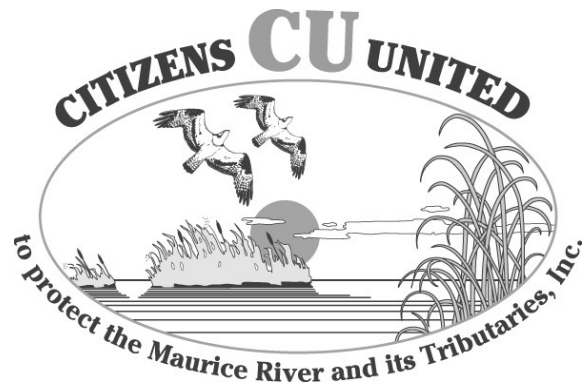
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