MAURICE RIVER

SHOREBIRDS

CUMBERLAND COUNTY, NJ

A Ten Year Summary of
Spring and Fall Migrant Shorebird Use
of the Lower Maurice River

2000-2010

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

By Clay Sutton and James Dowdell
July 2010

Prepared for:

Citizens United
to Protect the Maurice River
and its Tributaries, Inc. (CU)
22 Brittany Lane
Millville, NJ 08332
www.cumauriceriver.org

Prepared by:

Clay and Pat Sutton LLC
129 Bucks Avenue
Cape May Court House, NJ 08210
609-465-3397
claysutton@comcast.net

Above:

The annual spring drawdown at Heislerville Wildlife Management Area attracts tens of thousands of shorebirds each season.

– Photo by Clay and Pat Sutton, 17 May 2008

On the cover:

Spring shorebirds at Heislerville Wildlife Management Area, principally Semipalmated Sandpipers, Dunlin, and Short-billed Dowitchers.

– Photo by Clay and Pat Sutton, 17 May 2008

MAURICE RIVER SHOREBIRDS

CUMBERLAND COUNTY, NJ

A Ten Year Summary of

Spring and Fall Migrant Shorebird Use

of the Lower Maurice River, 2000-2010

INTRODUCTION AND OVERVIEW

Sponsored by Citizens United to Protect the Maurice River and its Tributaries, Inc., ornithological studies on Cumberland County's Maurice River are now in their 24th year. Beginning in 1987, long-term and ongoing bird use surveys have yielded an in-depth understanding of avian status and trends on the Maurice River. Originally, bird studies focused primarily on wintering raptors and waterfowl, and these core winter season surveys are still ongoing. Other efforts have focused on breeding birds and the now well-known autumn raptor migration at East Point. A listing of reports covering these surveys is included at the end of this report.

In recent years, core winter studies have been expanded to include both the spring and fall migration seasons. Beginning in 2000, we began to focus specifically on migratory shorebird use of the Maurice River, and in fall 2003 and spring 2004, systematic counts were begun and continue to the current time. For a number of years, Citizens United (CU) has been a partner and stakeholder in both the New Jersey Division of Fish and Wildlife Endangered and Nongame Species Program (NJ DFW ENSP) and in international efforts and programs to protect migratory shorebirds on Delaware Bay. Therefore, it was deemed appropriate and timely to focus CU inventory and monitoring resources on gaining valuable data on shorebird use of the Maurice River itself. This concern and focus led to these current and ongoing shorebird studies.

The Delaware Bay is well known as a migratory shorebird staging area of international significance, as shorebirds gather to feed on the eggs of Horseshoe Crabs. The Maurice River has long been known to support significant numbers of migratory shorebirds. Both anecdotal data from birders and NJ DFW ENSP aerial surveys have shown the Delaware bay beaches of the lower Maurice River, at and near East Point, to support high numbers of shorebirds in spring. What is less known and understood is the extent of shorebird use of other tidal portions of the Maurice River Basin – those areas away from the immediate Delaware Bay beaches.

Heislerville Wildlife Management Area (WMA) has long been known to attract numerous shorebirds in spring (and fall), primarily on the Basket Flats mudflats south of the wildlife drive at low tide. However, beginning in 2006, the DFW began drawing down one or more of the tidal impoundments each May. This enlightened management technique, which provides rich mudflats at all tide stages, quickly attracted highly significant numbers (and variety) of shorebirds, birds that both roost and feed at the site.

In addition to East Point and Heislerville WMA, the 4,200-acre Commercial Township Wetlands Restoration Site at Bivalve attracts large numbers of shorebirds in spring and fall. Beginning in about 1995, when these tidal impoundments were first created by Public Service Electric and Gas (PSE&G) as a mitigation project (the Estuary Enhancement Program – said to be the world's largest salt marsh restoration project), the vast mudflats at Bivalve began to attract many thousands of shorebirds annually.

It is against this backdrop, beginning in fall 2003, that Citizens United has supported systematic and targeted shorebird surveys in spring and fall on the lower Maurice River. This report summarizes ten spring seasons and ten fall seasons of Maurice River shorebird surveys.

METHODOLOGY

This report details shorebird numbers recorded on the lower Maurice River dating back to 2000. Beginning in Fall 2003 and Spring 2004, study efforts have included focused, targeted, and systematic surveys of Maurice River shorebird numbers and variety.

Point counts are conducted at three primary locations on the lower Maurice River: East Point, Heislerville WMA, and Bivalve.

- At East Point, a composite count is done from three vantage points: the boat ramp at the end of Lighthouse Avenue by the East Point Lighthouse; the seawall at the end of East Point Road; and the road end at the eastern end of Bay Avenue (see **MAP 1**).

- At Heislerville, all three impoundments are counted, as well as the mudflats south of the wildlife drive dike (if exposed at lower tide levels) (see **MAP 2**).

- At Bivalve, counts are taken from the Wetlands Restoration Site boardwalk / observation platform accessible from Shell Road (adjacent to / across from the Bayshore Discovery Project office); the boardwalk / observation platform at the southern end of Strawberry Avenue in Port Norris; and the dike overlook at the southern end of Berrytown Road. On a few occasions in spring, usually at high tide, shorebirds have packed the freshly plowed fields at Robbinstown Road, and on these occasions these roosting and feeding birds are added to the Bivalve composite total (see **MAP 3**).

In summary, there are three primary count locations, but three individual count stations are found at each location; therefore nine point counts are taken during each shorebird survey.

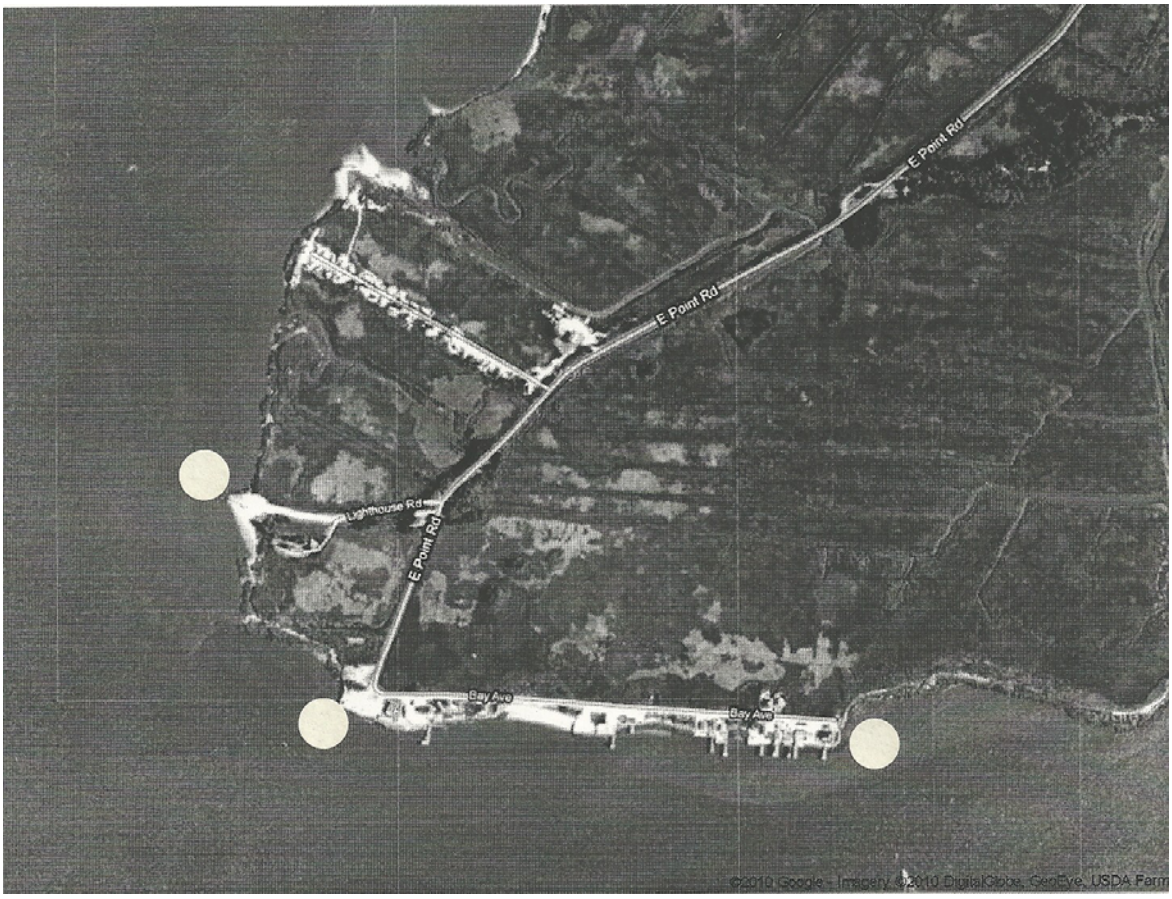
Two observers, Dowdell and Sutton, count shorebirds as quickly and efficiently as possible. Counts are conducted both by binocular and spotting scope, depending on the distance of the flocks. Normally different species are tallied by each observer in order to get through the vast flocks before they flush or move around. Birds on the mudflats are tallied individually as far as is possible, although many groups must be counted in blocks of ten. Flying flocks, if not previously counted on the ground, are estimated by each observer and if totals differ, they are averaged. All waterbirds and raptors are tallied, but only shorebirds are reported on herein.

Point counts are not timed; birds are counted until all present are counted; observers then move quickly to the next point in order to hopefully get there before birds possibly move into or out of the area. The nine point counts at the three locations usually take about five hours to carry out. Counts are conducted only in good weather and good visibility. Tidal stage and water levels are recorded. As far as is practicable, observers attempt to count Heislerville at high tide (when shorebirds have been pushed off most other feeding sites and are roosting or feeding in the drawn-down impoundments) and Bivavle at lower stages of the tide (since a high tide normally fills the impoundments at Bivalve, leaving no mudflats to attract shorebirds).

MAP 1

EAST POINT

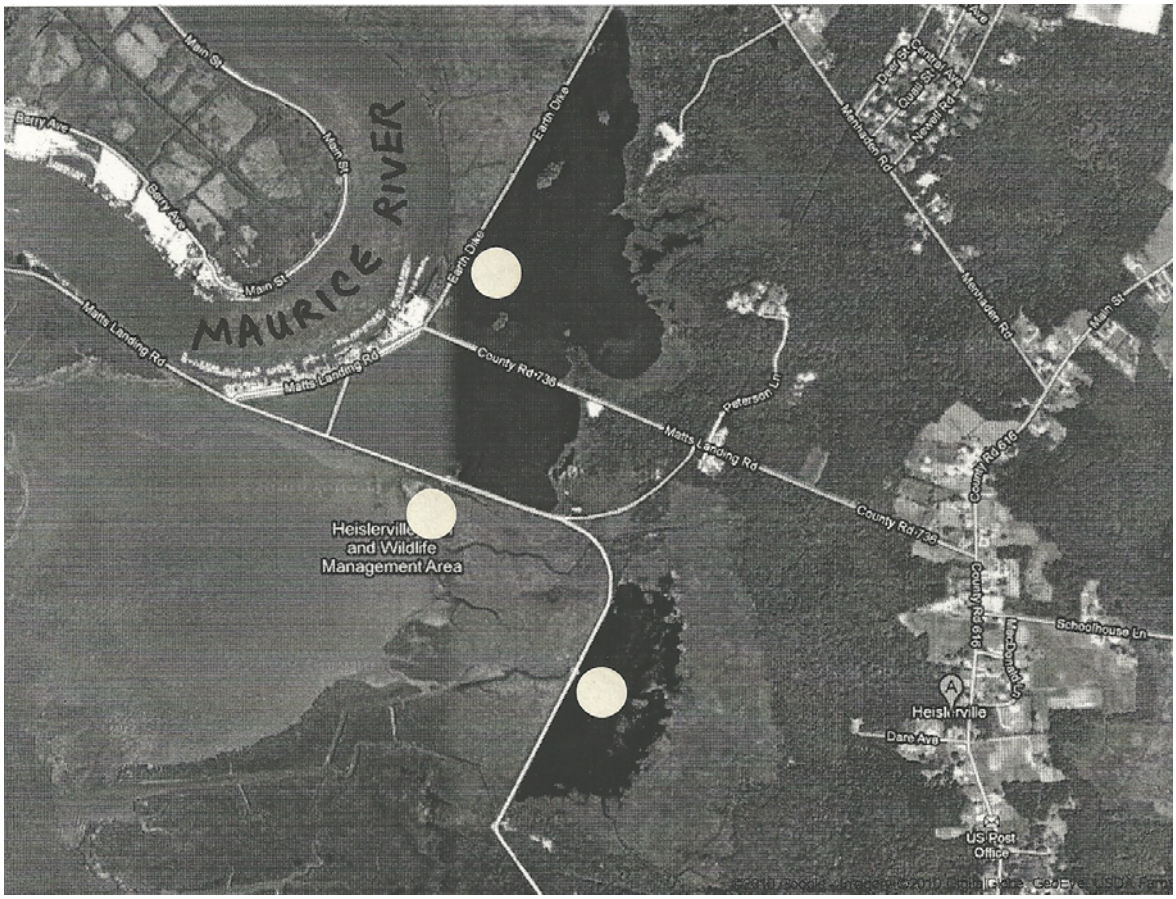
SHOREBIRD POINT COUNT LOCATIONS



MAP 2

HEISLERVILLE WMA

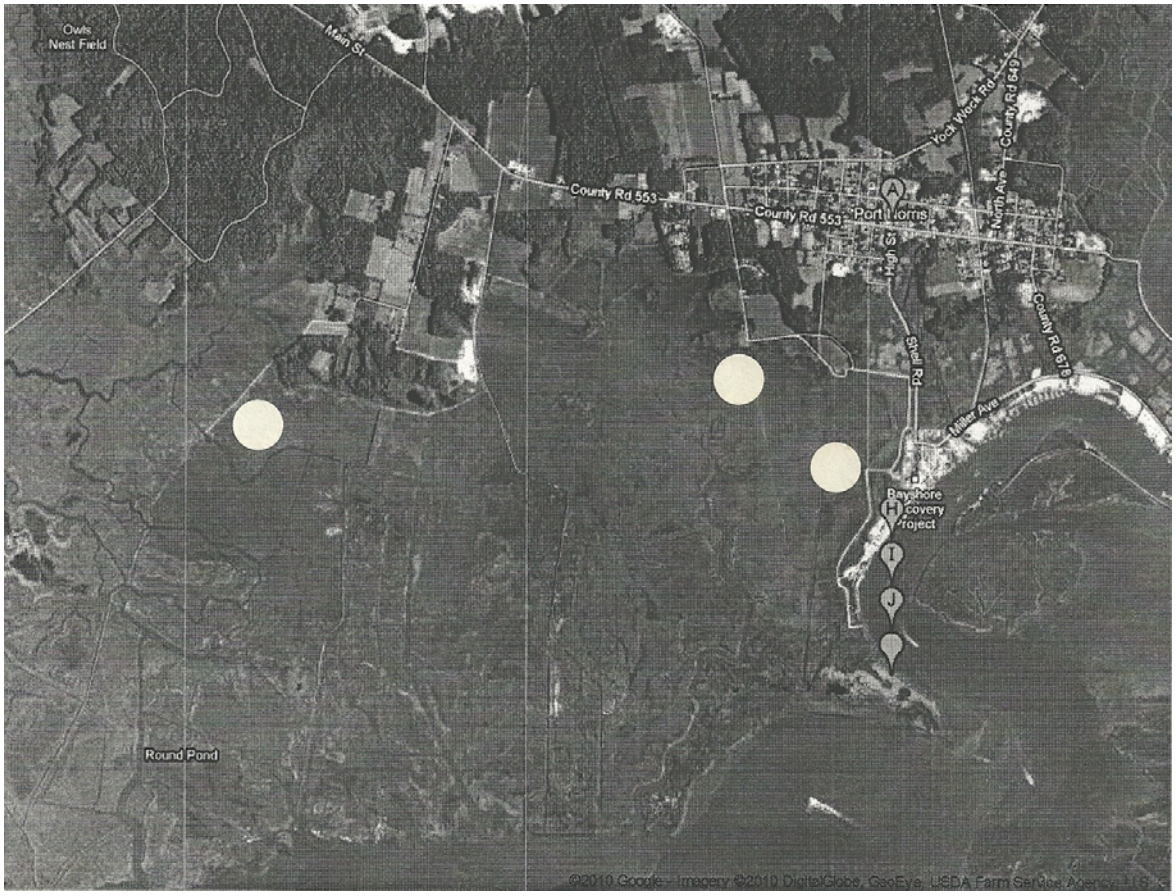
SHOREBIRD POINT COUNT LOCATIONS



MAP 3

BIVALVE
WETLANDS RESTORATION SITE

SHOREBIRD POINT COUNT LOCATIONS



FINDINGS

Ten spring seasons of Maurice River shorebird counts, 2000-2010 (no counts were conducted in Spring 2003), are shown in **Table 1**. Thirty-five data sets are shown for the spring (northbound) migration period. Nine fall seasons of Maurice River shorebird counts, 2000-2009 (no counts were conducted in 2002), are shown in **Table 2**. Forty-five data sets are shown for the fall (southbound) migration period. In Tables 1 and 2, **all-time peak seasonal shorebird counts** for the lower Maurice River study area are shown in **boldface**.

In the ten years of study, 34 species of shorebirds have been recorded on the Maurice River, some in small numbers and some in very high numbers. One additional subspecies has been recorded, the "Western" Willet. Recorded on several occasions, the "Western" Willet breeds on the Great Plains, and is reportedly a candidate for "splitting" – that is, to gain full species status. Because of the ephemeral nature of shorebird migration, we make no attempt here to compare data from year to year. Average numbers would mean little since we make every effort to survey when peak numbers for each species occur during their sometimes short seasonal stay on the Maurice River.

Tables 1 and 2 on a few occasions show unusual shorebirds that were known present on count day, but that were recorded by other reliable observers. Heislerville WMA and the Bivalve EEP site are now heavily birded in spring, and inevitably other rarer species have been seen by the multiple observers present. (In short, it is hard to search for a Curlew Sandpiper hidden among 15,000 other shorebirds, especially when you are tasked with accurately counting the 15,000 others!) Unusual shorebirds seen by other observers (but not recorded by the official point counts) are noted with an asterisk in Tables 1 and 2.

Two shorebird species are greatly under reported in Tables 1 and 2. Wilson's Snipe is a very early migrant through our region and numbers peak long before the normal "spring" survey period. For example, up to 107 Wilson's Snipe have been counted on the Maurice River during winter raptor and waterbird surveys (seen on 28 March 2006, 107 Wilson's Snipe is the second highest maxima "one spot total" ever recorded in New Jersey), as well as 75 on 14 March 2002, and 51 on 20 March 2007. Likewise, American Woodcock is a numerous migrant through the South Jersey region in spring and particularly in fall. Nocturnal and secretive, this "upland" shorebird is rarely detected on standard surveys. Nonetheless, up to 14 American Woodcock have been counted on a winter raptor / waterbird survey (28 December 2000) and 10 were counted on 12 February 2010, all pushed to roadsides by heavy snow cover. It is important to remember that these two shorebirds are also a key part of the Maurice River shorebird group.

Finally, one additional shorebird species not in Tables 1 and 2 is known to have occurred on the lower Maurice River, a Spotted Redshank (a Eurasian shorebird), that was well seen and photographed at Heislerville WMA on 27 March 1977 by Clay Sutton and Alfred Nicholson.

DISCUSSION – SPRING SHOREBIRDS ON THE MAURICE RIVER

Since the late 1970s it has been well known that the Delaware Bayshore hosts globally significant numbers of shorebirds in spring. It is also known that the Delaware Bay beaches near East Point support large numbers of shorebirds at that time, principally Red Knot, Sanderling, Ruddy Turnstone, Dunlin, and Semipalmated Sandpiper. Now, ten years of focused and targeted shorebird counts on key lower Maurice River areas – Heislerville WMA and Bivalve – have documented large numbers of shorebirds using Maurice River mudflats and impoundments as well.

Large numbers of Black-bellied Plover, Semipalmated Plover, Greater Yellowlegs, Lesser Yellowlegs, Semipalmated Sandpiper, Dunlin, and Short-billed Dowitcher are found each spring on the Maurice River, mixed between Heislerville WMA and Bivalve depending on the tide stage and resultant water levels.

Because conservation, greater awareness, and recognition of Maurice River shorebird resources were the principal goals of these shorebird studies, every effort was made to maximize the limited time (the number of survey dates available), as well as find the best route that would allow counters to "work the tide" to find the true number of birds present.

As shorebirds move around a great deal in relation to tide and water depth, there was some concern with the possibility of double counting, and on a number of occasions the observers backtracked to recheck numbers. For example, on 17 May 2007 an amazing 40,929 shorebirds were carefully counted, by far a new record at that time for "total shorebirds" on the Maurice River. On that day the Heislerville WMA impoundments held over 17,000 shorebirds. We immediately went to Bivalve, where the EEP held 22,000 additional shorebirds (due to distance, haze, and heat waves, 20,000 of these were recorded as "unidentified shorebirds"). For clarification, we then immediately went back to Heislerville where 17,000 shorebirds were still present – eliminating the issue of possible double-counting due to shorebird movements in relation to the stage of the tide. These astounding numbers occurred on a day that we were truly able to "hit the peak" of shorebird spring migration staging. (It is important to again note that the now annual spring drawdown of Heislerville WMA's impoundments is highly beneficial to shorebirds. The Division of Fish and Wildlife should be highly commended for this enlightened management strategy.)

Also on several occasions our counts were corroborated by researchers from the New Jersey Audubon Society (NJAS) in the area to study Semipalmated Sandpipers. For example, on 19 May 2010 we counted 17,489 shorebirds using our standard protocol. On the same day NJAS researcher Vince Elia had established 15,000+ shorebirds to be present, a remarkably similar count when dealing with such large (and mobile) numbers. Likewise, in 2008, when we estimated 45,487 shorebirds to be present, our peak "total shorebird" count, Vince Elia said he believed "at least" 40,000 shorebirds were present.

There have been days when counts were more difficult and problematical. At high tide

on some days, many shorebirds depart Bivalve to fly to the drawn down impoundments at Heislerville WMA to roost and feed. Conversely at low tide, many depart Heislerville to feed on Basket Flats, the beaches, and at Bivalve. On the day discussed above, that did not happen, but on a number of surveys we first counted Bivalve, then watched many leave for Heislerville as water levels rose. On these days few if any additional shorebirds were added to the count at Heislerville WMA.

Despite repeatable methodology, on some days numbers were, to some degree, the observers' best guess at true numbers present. Nonetheless, we make every attempt to err on the side of caution, and often numbers recorded are conservative.

An additional reason to believe that numbers are largely conservative is based on the very size of the Bivalve Wetlands Restoration Site. At 4,200 acres, much of it is inaccessible, and vast areas of mudflats remain unseen by counters at the three point count sites. Perhaps hunting Peregrines may flush distant, previously unseen flocks so they may be counted in flight (as happened in part on the day recounted above), but short of this scenario, many birds often remain unseen and uncounted.

We believe that the shorebird numbers reported herein are a reliable, yet conservative estimate of the shorebird numbers on the lower Maurice River. Such numbers are significant for the Delaware Bayshore, New Jersey, and the entire flyway.

DISCUSSION – FALL SHOREBIRDS ON THE MAURICE RIVER

While we have long recognized the value of Delaware Bay to shorebirds in spring, far less information was available regarding potential shorebird use in fall. Excepting Delaware's remarkable refuges (Bombay Hook NWR, Little Creek WMA, Ted Harvey Conservation Area, etc.), in the recent past few associated the Delaware Bay with shorebirds in fall.

Delaware Bay beaches receive relatively little use by shorebirds during fall migration. However, the mudflats and impoundments at Heislerville WMA and Bivalve see heavy use by migrant shorebirds during fall migration. We use the term "fall migration" for southbound shorebirds, even though most of the northern and Arctic breeders that pass through our area do so in July, August, and early September. (While we say "relatively little use," it is important to note that, on occasion, bay beaches are extensively used by southbound migrant shorebirds. For example, on 3 August 2010, Sutton counted over 2,000 shorebirds, mostly Semipalmated Sandpipers and Sanderling, on the beach at Reeds Beach in Cape May County – all feeding on Horseshoe Crab eggs and larvae made available by crabs that had nested during July's moon tides. Southbound shorebirds eat Horseshoe Crab eggs too!)

While 2000 and 2001 studies discovered considerable use and the potential for targeted surveys, from 2003 through 2009 focused efforts documented substantial use of the lower Maurice River by southbound shorebirds. While total shorebird numbers are nowhere near what they are in spring (plus Heislerville WMA is usually not drawn down for shorebirds in fall), shorebird use in fall is still highly significant for the region. Up to 12,632 shorebirds have been recorded (10 August 2000) on the lower Maurice River, numbers undocumented elsewhere on New Jersey's Delaware Bayshore. In New Jersey, only Forsythe NWR regularly records higher shorebird numbers than those we have documented for the lower Maurice River.

In a careful review of Table 2, it appears that in recent years shorebird numbers have dropped substantially from those recorded in 2000 and 2001, possibly calling into question the numbers estimated in those years. It is true that 2000 and 2001 saw exploratory surveys and were prior to current protocol; numbers were largely estimated rather than systematically counted (2000 and 2001 shorebird counts were ancillary and adjunct to other raptor and waterbird survey efforts). Data from 2003 to the present has been much more systematically gathered, with careful counts rather than any estimates.

Yet it needs to be remembered that the Bivalve Wetlands Restoration Site is not what it was in 2000. The area is growing up (growing "in") with *Spartina alterniflora*, and each year mudflat area is substantially less than the prior year. This is particularly true in fall – following a growing season that has produced lush growth; this impacts not only the acreage of mudflats available to shorebirds, but also their visibility to observers – their detectability. A major goal of PSE&G management and mitigation efforts is fish production – not the creation of shorebird habitat. The goal of the wetlands management is for the area to largely fill in with *Spartina*, and this effort seems to be working. The Thompson's Beach PSE&G site a decade ago was prime shorebird mudflats, yet has today substantially filled in with *Spartina*, providing far less shorebird habitat. In the 1970s, Moore's Beach was a prime shorebird-use area (and a birder's

mecca), yet today virtually no mudflat remains as *Spartina* has reclaimed once vast mudflats.

The point is, despite different survey protocols, we really believe that shorebird habitat and shorebird numbers have declined at Bivalve, an alarming trend that should be a focus point for shorebird managers. Nonetheless, Maurice River fall shorebird surveys have shown that the lower river still supports regionally significant numbers and variety of shorebirds during their southbound migration, numbers that should compel recognition, protection efforts, and management priorities.

SUMMARY AND CONCLUSIONS

Citizens United-sponsored shorebird surveys on the Maurice River have documented substantial and significant shorebird use in spring and fall. Ten years of point counts during both spring (northbound) and fall (southbound) shorebird migration have shown the lower Maurice River – particularly the East Point, Heislerville WMA, and Bivalve Wetlands Restoration Site – to host large numbers and a wide variety of shorebirds.

Importantly, studies have shown that Delaware Bay shorebirds use far more area / habitat than the beaches and flats at the edge of the bay. Large numbers occur both on natural mudflats (Basket Flats) and in tidal impoundments as well.

These ten years of shorebird counts should augment DFW ENSP aerial censuses of the Delaware Bayshore and further substantiate the need to protect the resources of the lower Maurice River. The presence of such numbers of migratory shorebirds on the river's mudflats and tidal impoundments should call for management of resources and habitats that will promote the long-term protection and conservation of these long-distance migrants.

Migratory shorebirds are one more among many documented and proven ecovalues of the Wild and Scenic Maurice River, and brightly colored, restless feeding shorebirds by the thousands are yet one more reason that the Maurice River is a very special place indeed.

A final note is the large number of birders (ecotourists) who are coming to the Delaware Bayshore region, and particularly the lower Maurice River to view the migratory shorebirds gathered there. Places such as East Point, Heislerville WMA, and Bivalve have become a definitive destination in spring, visited by dozens of birders daily.

Such coverage leads to many discoveries and many "good birds." It is a simply fact (and not overstatement) that Heislerville WMA has become the best place to see Curlew Sandpiper (a Eurasian species) in all of North America, with up to 3 individuals recorded each spring from 2006 through 2010. Indeed, birders have come from all over North America to enjoy the lower Maurice River and Delaware Bayshore at their finest – teeming with shorebirds on their way to or from the high Arctic breeding grounds. The Maurice River is an important way station on that journey.

ACKNOWLEDGMENTS

We thank the officers and the membership of Citizens United to Protect the Maurice River and its Tributaries, Inc. for the privilege and pleasure of carrying out these important studies of the timeless Maurice River. Thank you for all of your important work in Southern New Jersey, and for your ongoing vision of a wild and scenic Maurice River.

We thank Karen Johnson, Brian Johnson, Janet Crawford, Sandra Keller, Chris Vogel, Tom Reed, and Vince Elia for sharing sightings from the Maurice River in spring and fall and for discovering and documenting a number of the rarer shorebirds that have graced the Maurice River of late.

We sincerely thank Yvonne Ter Haar Grant and James Grayson Grant for their interest in all of the natural world, and for their interest in and support of this project and the many wonders of the Maurice River.

Clay Sutton

July 2010

LITERATURE CITED / FOR FURTHER REFERENCE

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 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:

Sutton, C. and J. Dowdell. 1987. An Inventory and Habitat Assessment of the Birds of the Manumuskin River Drainage System and Portions of the Adjacent Maurice River, Cumberland County, N.J. Herpetological Associates, Inc.

Sutton, C., 1988. "Wintering Raptors and Waterfowl on the Maurice River." *Records of New Jersey Birds*, 14(3): 42-51. New Jersey Audubon Society.

Sutton, C., J. Dowdell, et al. 1988-2009. "Wintering Raptors and Waterfowl on the Maurice River." Yearly progress and summary reports prepared for Citizens United to Protect the Maurice River and its Tributaries. (Twenty-two Individual Seasonal Reports.)

Sutton, C., C. Schultz, and P. Kerlinger. 1991. "Autumn Raptor Migration Along New Jersey's Delaware Bayshore - A Hawk Migration Study at East Point, New Jersey." *Hawk Migration Studies*, 17(1): 58-64. Hawk Migration Association of North America.

Sutton, C. and K. Williams. 1992. Comparative Raptor and Waterfowl Use of Specific Sections of the Maurice River. Report prepared for the Natural Lands Trust, Inc., by Herpetological Assoc., Inc.

Niles, L. and C. Sutton. 1995. Migratory Raptors. Pages 433-440 in L.E. Dove and R.M. Nyman, Editors. *Living Resources of the Delaware Estuary*. Delaware Estuary Program, USEPA.

Sutton, C. and P. Kerlinger. 1997. "The Delaware Bayshore of New Jersey: A Raptor Migration and Wintering Site of Hemispheric Significance." *The Journal of Raptor Research*, 31(1): 54-58. The Raptor Research Foundation.

Sutton, C., V. Elia, and J. Dowdell. 1998. "Status and Trends in Wintering Raptors and Waterfowl on the Maurice River: A Ten Year Study." *Records of New Jersey Birds*, 24(2): 26-35. New Jersey Audubon Society.

Sutton, C. and J. Dowdell. 2002. "Wintering Raptors and Waterfowl on the Maurice River – The Fifteenth Year of an on-going and long-term study. Observed Status and Trends: A Fifteen Year Review 1987-2002." Prepared for Citizens United to Protect the Maurice River and its Tributaries, Inc.

Sutton, C. and J. Dowdell. 2007. "Wintering Raptors and Waterfowl on the Maurice River – A Twenty-Year Summary of Observed Status and Trends, 1987-2007." Prepared for Citizens United to Protect the Maurice River and its Tributaries, Inc. May 2009.