DELAWARE CENTER FOR THE
INLAND BAYS
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July 22, 2014

Members of the Delaware Wetlands Advisory Committee:

This letter is written in response to the call for new recommendations from Committee Members as requested by Chairman Parkowski.

From 1992 to 2007, the Inland Bays watershed lost 1,077 acres of natural freshwater wetlands. These losses are cause for great concern given the regulatory protections for wetlands that were in place and given the impaired status of the Inland Bays for nutrient pollution. Freshwater wetlands reduce nutrient loads to waterways through the microbially-mediated removal of nitrogen, the trapping of nutrients and sediments, and through hydrologic storage. They also reduce flooding, support critical wildlife habitat, and are of great economic value to the people of Delaware.

The original 1995 Inland Bays Comprehensive Conservation and Management Plan included actions to "Provide maximum protection of waterways, groundwater, natural areas, open space, and tidal and non-tidal wetlands," and to "Develop and implement a no net loss of wetlands policy." The 2012 Addendum to the CCMP includes an objective to "Halt the continued loss of wetlands and reverse these loss trends by promoting projects to mitigate for previously lost wetlands."

In addition to these CCMP actions, DNREC's 2008 Inland Bays Pollution Control Strategy contains actions to restore 4,147 acres of wetlands and establish buffers on mapped freshwater streams and ditches. Buffers of such water features would provide additional protection to streamside wetlands. Unfortunately, little progress has been documented on the former action and the latter action was stricken from regulation as the result of a lawsuit.

I recommend the following actions regarding freshwater wetlands protection. These actions are in my opinion priority for implementing the Inland Bays CCMP. Some of these actions have been recommended as a part of the DNREC's Wetland Protection Strategic Plan (2013) and Wetland Program Review (2010). Importantly, most of the actions should be able to be accomplished within the existing authorities of the State and under existing regulations.

1. Request a new Executive Order on Freshwater Wetlands. An order similar to Executive Order 56, issued by Governor Castle in 1988, should reaffirm the importance of freshwater wetlands and the commitment of all state agencies to avoid and minimize impacts to these resources. Such an order should also include 1) a policy for no-net loss of wetlands or a policy of reversal of wetland loss trends and 2) the requirement for a multi-agency action plan to achieve such a policy over a given period.

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As an example of how this could be effective, the reissuance of this Order might encourage DelDOT to reconsider its preferred alternative to the Route 113 Millsboro South Transportation Study. This study by DelDOT has recommended a bypass highway around Millsboro that includes a bridge across Indian River and crossings of 11 other waterways. DelDOT estimates that this will impact 19,246 linear feet of streams, 20,851 linear feet of subaqueous lands, 14,482 linear feet of tax ditches, and impact 30.8 acres of wetlands. With such an Executive Order in place, perhaps DelDOT would have the incentive to reconsider the practicable on-alignment alternative to the bypass, which is based upon improving the existing highway, is less expensive, and results in less than half of the proposed bypass's impacts to wetlands alone.

2. Update State wetlands regulatory maps and include those freshwater wetlands that meet the definition established in the 1973 Wetlands Act. DNREC's wetlands regulatory maps have not been updated for approximately 25 years. An update is overdue considering that tidal wetlands of the Inland Bays have been found to move inland from an average of 0.8 to 6.1 feet per year. Updated maps will regulate significant areas of tidal wetlands that have formed via wetland migration since the last maps were adopted.

The Wetlands Act under Sec. 6603 also defined wetlands to include "those lands not currently used for agricultural purposes containing 400 acres or more of contiguous nontidal swamp, bog, muck or marsh exclusive of narrow stream valleys where fresh water stands most, if not all, of the time due to high water table, which contribute significantly to ground water recharge, and which would require intensive artificial drainage using equipment such as pumping stations, drain fields or ditches for the production of agricultural crops." These wetlands were never included in regulatory maps. An attached analysis conducted by the Center has found that 28 individual contiguous non-tidal wetlands blocks that are over 400 acres and not used for agricultural purposes exist in the State; and in total they include 22,750 acres. Assuredly, some of this acreage will not meet the above definition upon scrutiny. In particular, some blocks may or may not be considered exclusive of narrow stream valleys and may or may not have standing water most of the time. However, it is very likely that a reasonable, criteria-based definition applied to these blocks would result in increased protection for many thousands of acres of important freshwater wetlands.

3. Utilize Clean Water Act (CWA) Section 401 certification authority to help reverse losses of wetlands in watersheds with waters that do not meet State Water Quality Standards and in watersheds having waters with Exceptional Ecological and Recreational Significance (ERES) designations. Under section 401 of the CWA, a federal agency cannot issue a permit for an activity that may result in a discharge to waters of the US until the State has granted or waived certification. Given the inability of so many of the State's waters to meet water quality standards for nutrients and dissolved oxygen and given the aforementioned rates of wetlands loss, DNREC has justification to develop and implement a certification process for all permits in watersheds with waters that do not meet water quality standards and in watersheds having ERES waters. This would include increased review of permits by the State (including nation-wide permits) for avoidance and minimization of impacts, additional limitations and conditions

for permits, and the requirement for increased mitigation ratios based on freshwater wetlands restoration plans developed in response to an Executive Order. General certification conditions could be developed related to project impacts, buffers, wetland types, and sub-watersheds so that all projects are held to the same standards and level of scrutiny. The EPA's 2010 publication Clean Water Act Section 401 Water Quality Certification: A Water Quality Protection Tool for States and Tribes provides an overview of considerations for utilizing this approach.

4. Utilize the Policies for ERES Waters in the State Water Quality Standards to reduce impacts to wetlands. ERES Waters policies require the following for Waters of the State, of which freshwater wetlands are included by definition:

Section 5.2. …Further the Department shall assure that there shall be achieved…all reasonable best management practices for nonpoint source control.

Section 5.6.1.3 Discharges to ERES waters shall be avoided to the maximum extent practicable. In order to be permitted, a discharge must be the least environmentally damaging practicable alternative.

Section 5.6.3.5 Best Management Practices. The Department may adopt pursuant to 7 Del. Code 6010, best management practices for selected sources of pollution to ERES waters. Best management practices identified by the Department pursuant to this subsection shall provide a standard for the control of the addition of pollutants which reflects the greatest degree of pollutant reduction achievable including, where practicable, a standard requiring no discharge of pollutants.

These policies could be used to justify utilization of Section 401 certification authority. Further, DNREC intends to review the Inland Bays Pollution Control Strategies in 2018 to assure progress towards achieving water quality standards. If it is determined that adequate progress is not being achieved, ERES policies could be used to justify inclusion of freshwater wetlands regulation into a revision of the Pollution Control Strategies.

Thank you for your consideration of these recommendations.

Sincerely,

Chris Bason
Executive Director

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Large Continuous Freshwater Wetland Block Identification

July 17, 2014

Delaware Center for the Inland Bays

In an effort to identify large continuous or uninterrupted blocks of wetland, which are classified as non-tidal and non-riverine in setting, a GIS analysis was conducted using the 2007 Delaware Wetlands layer. This data layer was allocated directly from the DNREC Watershed Assessment Section, to assure the most up-to-date layer was used for the analysis. The Wetlands layer was created by Virginia Tech's Conservation Management Institute in partnership with the U.S. Fish and Wildlife Service, National Wetlands Inventory (NWI) and the Delaware Department of Natural Resources and Environmental Control (DNREC). DNREC's Watershed Assessment Section updated the existing USFWS National Wetlands Inventory (NWI) and Delaware Statewide Wetland Mapping Project (SWMP) data to meet or exceed NWI procedures and the guidelines of the Federal Geographic Data Committee's Wetland Mapping Standard. The minimum mapping unit (MMU) for this data set was 0.5 acres, as identified in the layers metadata.

The minimum size of the continuous blocks to be identified was set at uninterrupted 400 acres. To conduct this identification, a GIS analysis was conducted using ArcMap 10.1. To start the analysis; all tidal, riverine, and standing water bodies (i.e. ponds and lakes) were excluded from the wetland layers. This was done by using a definition query to only include wetlands with an attribute modifier starting with L2 (Littoral Lacustrine) or P (Palustrine) only. The remaining blocks of lacustrine and Palustrine wetlands were then evaluated to identify continuous reaches of non-tidal wetlands that were uninterrupted by changes in land cover or transected by human structures (i.e. roads). Wetland polygons that were uninterrupted and had neighboring polygon features, which intersected them (or had shared boarders), were grouped together, using a selection function (select feature by polygon). The selected polygons then had their aggregate area calculated using the sum statistics within the attribute table (using the acreage column). If the continuous selected aggregate area exceeded 400 acreages, the identified (e.g. selected) non-tidal wetland polygons were merged. The individual wetland polygon boarders where dissolved to form a continuous block. In all, 28 continuous non-tidal wetland (either Palustrine or Lacustrine, or a combination of both) blocks were identified (Figure 1). Southern New Castle County contained two continuous blocks (Figure 2); Kent County contained 14 continuous blocks (Figure 2); and Sussex County contained 12 continuous blocks (Figure 3). The size of the blocks ranged from 401.56 acres to 3331.42 acres (mean size of 812.48 acres with a Standard deviation of 718.22 acres; Table 1). The total acreage of the 28 identified continuous non-tidal wetland blocks was 22,749.51 acres.

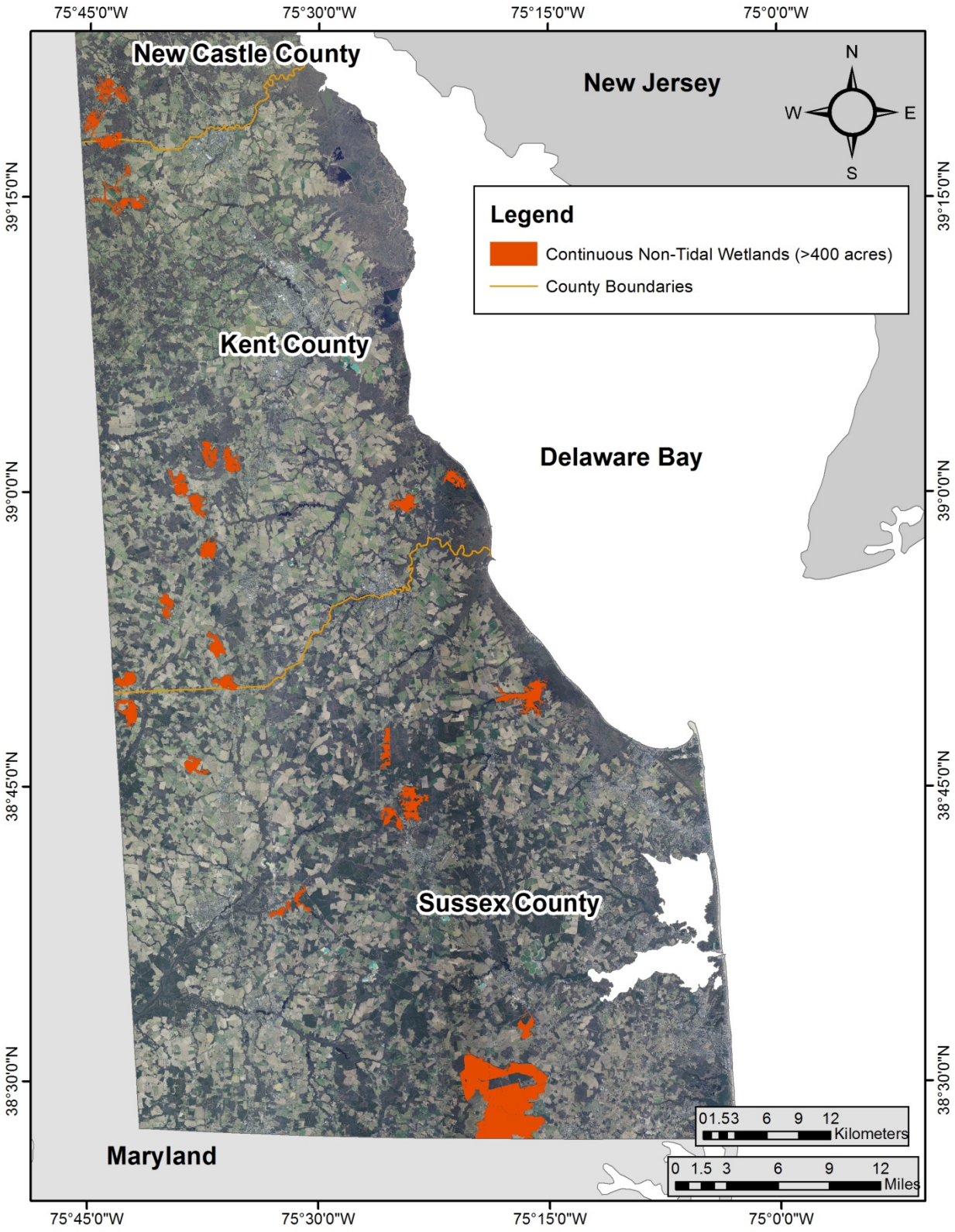

Figure 1. Map of the State of Delaware illustrating the location of the 28 identified continuous non-tidal wetland blocks, greater than 400 acres in aggregate size.

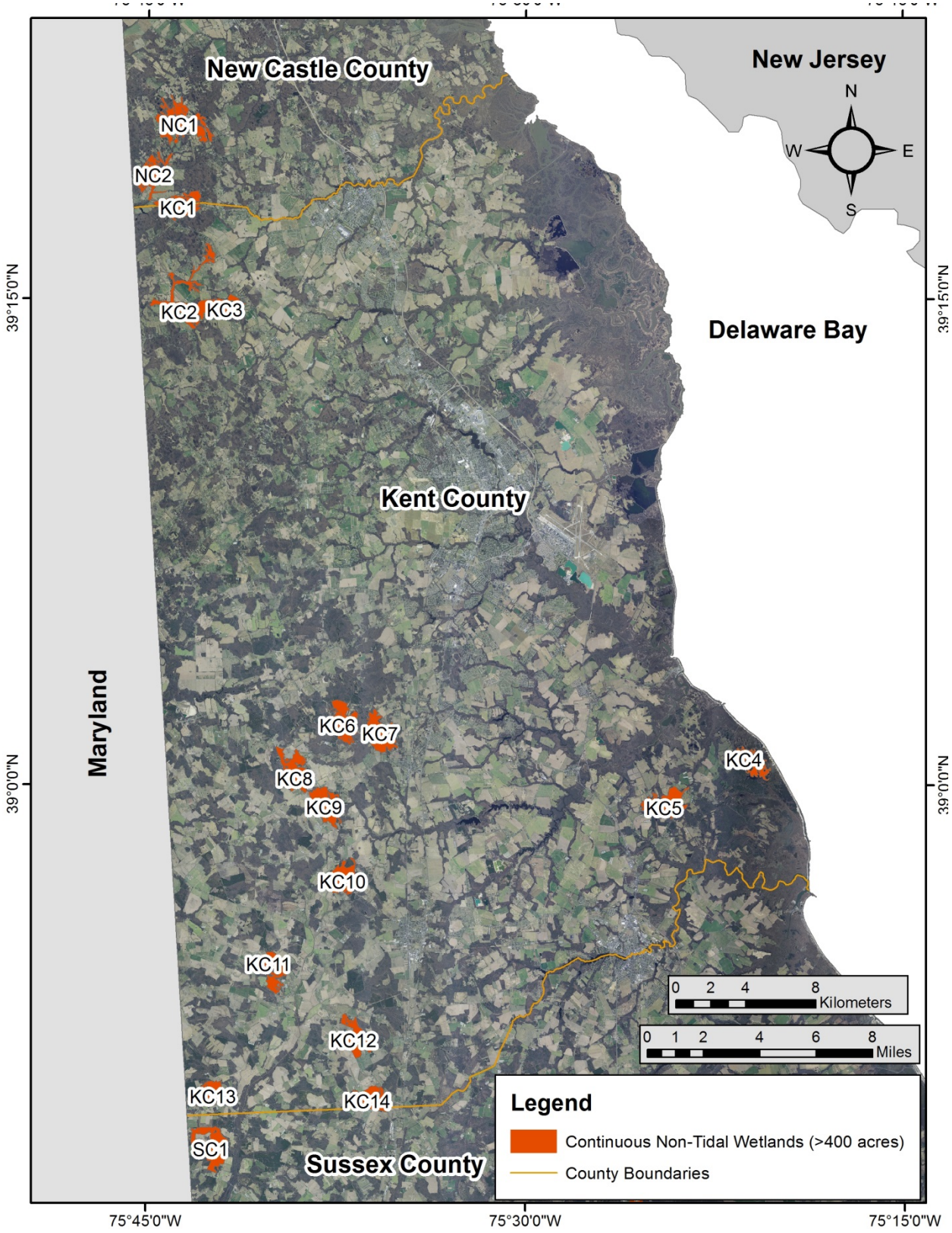

Figure 2. Map of extreme southern section of New Castle County and Kent County, where continuous non-tidal wetland blocks, greater than 400 acres in aggregate size, were identified.

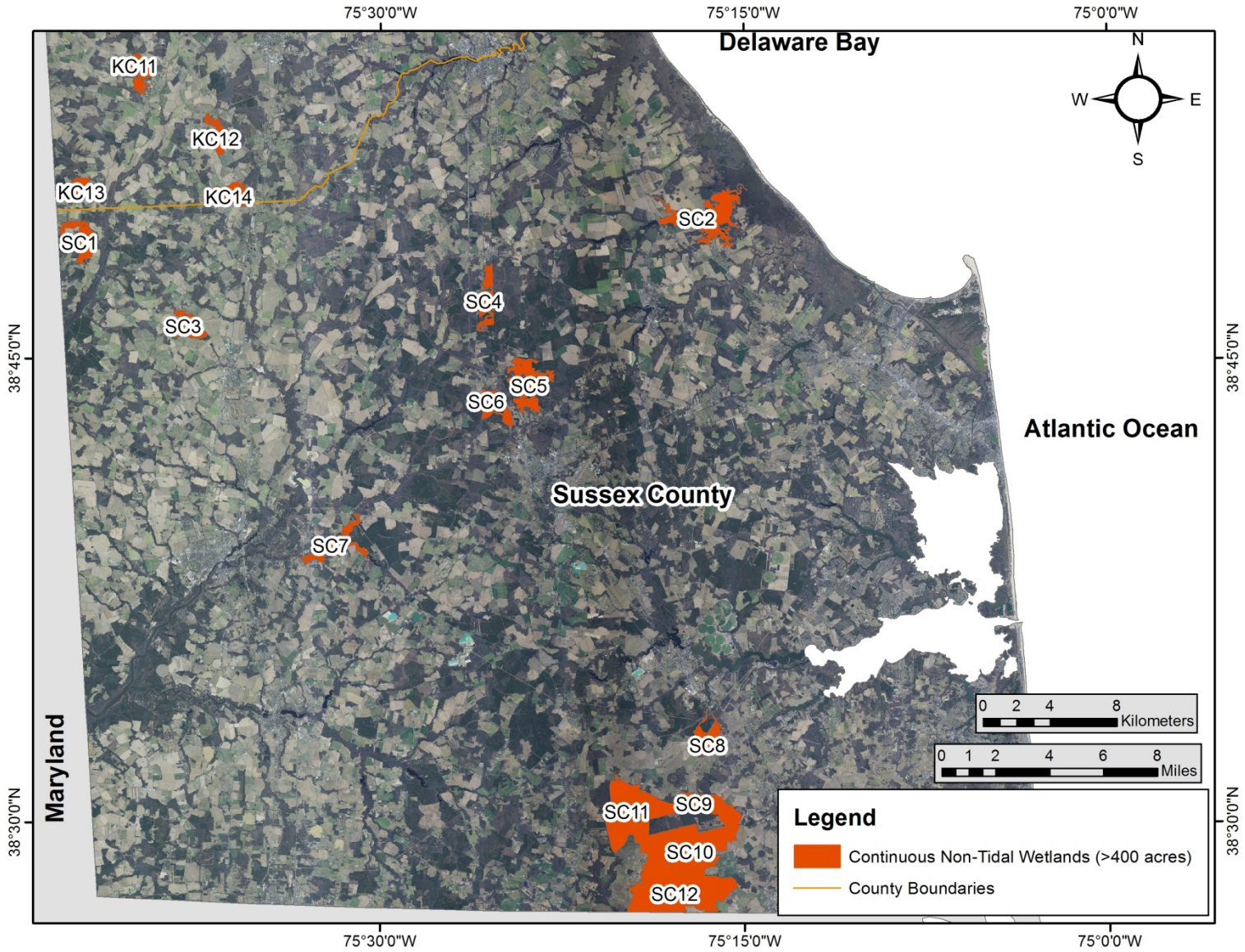

Figure 3. Map of the Sussex County's 12 identified continuous non-tidal wetland blocks, greater than 400 acres in aggregate size.

Block ID	Block Size (Acres)	Individual Wetland Polygon per Block
KC1	526.60	121
KC2	476.97	52
KC3	423.40	35
KC4	420.14	45
KC5	554.74	22
KC6	507.85	26
KC7	521.22	63
KC8	549.28	32
KC9	481.40	15
KC10	494.04	26
KC11	401.56	18
KC12	479.18	8
KC13	452.16	14
KC14	465.47	11
NC1	749.11	121
NC2	436.96	71
SC1	647.66	28
SC2	1392.15	139
SC3	445.70	42
SC4	468.55	31
SC5	1003.27	52
SC6	460.97	30
SC7	496.64	48
SC8	419.91	37
SC9	1356.29	67
SC10	2587.03	45
SC11	2199.82	90
SC12	3331.42	80

Table 1. Aggregate size, in acres, and total number of individual non-tidal wetland polygons for each identified continuous non-tidal and non-riverine wetland block, over 400 acres in aggregate size.