

INLAND BAYS WATERSHED TOUR

CCMP Implementation Projects

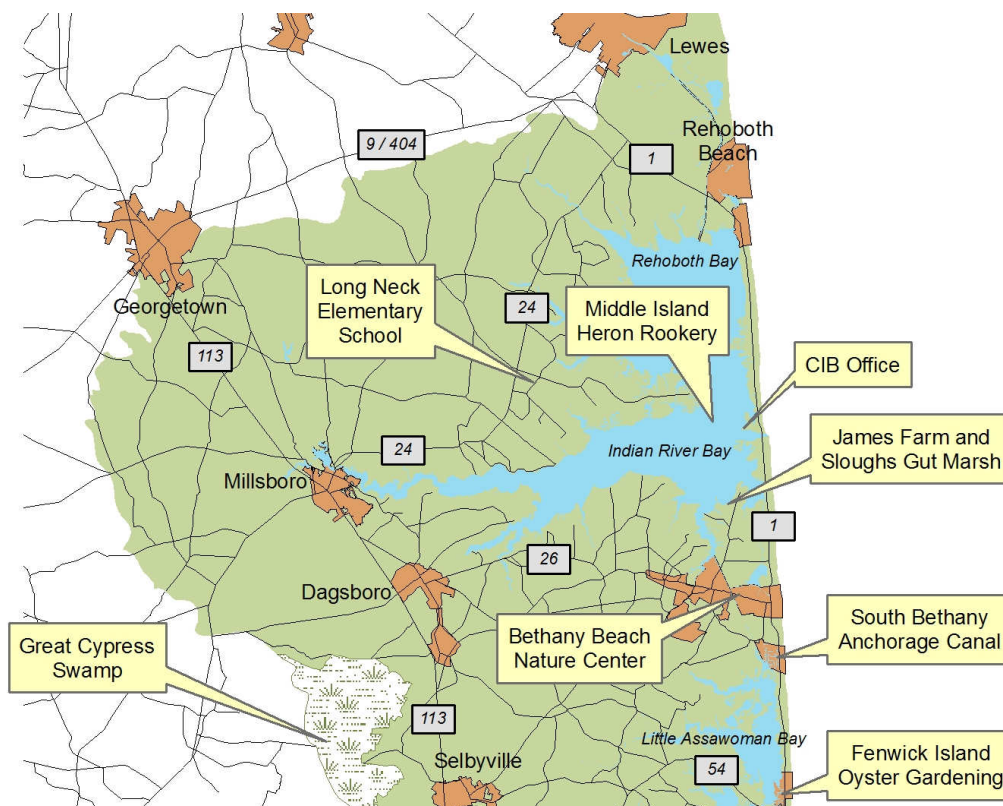


CENTER FOR THE INLAND BAYS, INC.

Environmental Protection Agency
Program Evaluation

Friday
June 19, 2009

Project Site Map



Special points of interest:

- THE DELAWARE COASTLINE IS DOTTED BY SEVERAL WWII OBSERVATION TOWERS
- THE MODERN-DAY BROILER CHICKEN INDUSTRY HAS ITS ORIGINS IN OCEAN VIEW, DE
- ACCORDING TO THE 2000 CENSUS, SUSSEX COUNTY'S POPULATION GREW BY AN ASTONISHING 38%!
- THE COASTAL RESORT AREA FROM LEWES TO FENWICK ISLAND ATTRACTS MORE THAN 5 MILLION VISITORS ANNUALLY!

On this tour:

MIDDLE ISLAND ROOKERY	2
JAMES FARM ECOLOGICAL PRESERVE	2
SLOUGHS GUT MARSH ENHANCEMENT	2
BETHANY BEACH NATURE CENTER	3
SOUTH BETHANY STORM-WATER RETROFITS	3
OYSTER GARDENING	3
GREAT CYPRESS SWAMP	4
SCHOOLYARD HABITATS	4

"Boots on the ground" projects highlight CIB success!

Since the 2005 Program Evaluation, the CIB has aggressively sought to engage the public in our work and deliver products and services that exemplify the active role of a successful National Estuary Program. This tour will demonstrate those efforts through involvement in four core areas of

mission- Restoration, Research, Education & Outreach, and Public Policy.

The project sites that we visit today will also exhibit our proud partnerships with a variety of individuals, agencies and organizations that share our vision for "fishable and swimmable" Inland Bays.

We think the results at these project sites speak for themselves, but we're certain that our partners will also share with you their interest in our work and their continuing support for the Delaware Inland Bays Estuary Program. Without that support and their passion, we wouldn't be successful!

INLAND BAYS WATERSHED TOUR

CCMP Implementation Projects



Local wildlife photographer Jay Fleming captured this sunrise behind the artificial rookery on Middle Island.

If you build it, they will come (Site #1: Middle Island)

Great Blue Herons and various species of Egrets are common in the Inland Bays watershed. Unfortunately, the habitat they need for breeding has been decreasing at an alarming rate. Although there are sizable wooded areas further inland, a few historical areas for colonial nesting birds remain on isolated islands around the Inland Bays. These isolated islands keep the birds safe from predation by fox, raccoon, and snakes. They are also close to productive bay waters, which provide a food source for

nesting birds.

Privately-owned, Middle Island is a combination of tidal marsh and a small overwash dune where a great number of these colonial nesting birds breed each spring. Over the last decade, the trees and many of the shrubs on Middle Island that supported nesting activity have disappeared. This has forced many of the birds to construct nests on the ground. Unfortunately, during last year's Nor'easter in mid-May, a significant number of these nests were destroyed by flood

tides and wave action.

Center staff identified an opportunity to reverse the loss of valuable nesting habitat by building an artificial nesting structure on Middle Island. The USDA Natural Resources Conservation Service provided cost-share assistance for the project, which resulted in 28 nesting baskets installed on four posts at a cost of \$500 per nest. Completed in late-March 2009, the structure is successfully being used by eight breeding pairs of Great Blue Herons.

"A hidden gem" (Site #2: James Farm Ecological Preserve)

The 150-acre James Farm property was gifted to Sussex County from the late Mary Lighthipe, the last living descendant of the James family, who had farmed the land for generations. She gave it in memory of her son, Harold, who was tragically killed in an automobile accident. Mary donated the property with the condition that the grounds are used for environmental education and recreational activities,

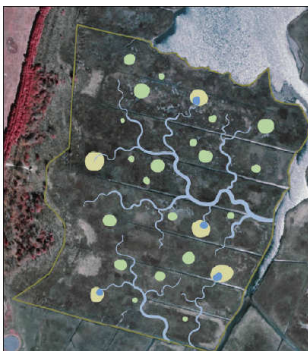
and that no overnight camping or permanent structures be erected there.

In the fall of 1998, the Delaware Center for the Inland Bays entered into an agreement with Sussex County to manage the property. Since that time, the CIB has worked with the surrounding community to create an ecological preserve. The preserve now features more than two miles of marked hik-

ing trails, three observation platforms, a boardwalk beach crossing, wildflower gardens, an amphitheater, an informational kiosk, rest areas, and more than 4,000 trees purchased and planted in a USFWS "Partners for Wildlife" reforestation effort.

The public is invited to visit James Farm any day from sunrise to sundown, free of charge.

"Located just a short drive from Bethany Beach, the James Farm is an oasis of woodlands and wetlands on Indian River Bay."



Proposed tidal creeks, pools and mudflats at the Sloughs Gut Marsh.

Reversing the past (Site #3: Sloughs Gut)

Sloughs Gut Marsh is typical of *Spartina* marshes in the mid-Atlantic region. In the 1930s, the Civilian Conservation Corps excavated a series of ditches in the marsh for mosquito control purposes. These ditches were maintained as such until the 1960s.

The Sloughs Gut Marsh Enhancement Project resulted from a Natural Resources

Damage Assessment (NRDA) related to an oil spill at the Indian River Generating Station. Pre-restoration monitoring indicated the marsh was functioning and being used by various aquatic and avian wildlife species; however, ditching had likely degraded the quality of the marsh by altering its hydrology and decreasing "micro-habitats," such as shallow pools and tidal mudflats,

that are important for increasing species diversity.

Work began on-site in January 2009 and was completed in April. The goal was to return a more "natural" hydrology to the Sloughs Gut marsh by creating meandering creeks, pools, and mudflats that will enhance the habitat value of the salt marsh for invertebrates, fish, birds and plants.

Environmental Protection Agency Program Evaluation

I-wall an eye-full (Site #4: Bethany Beach Nature Center)

The Center for the Inland Bays has partnered with the Town of Bethany Beach to bring the Inland Bays story to residents and visitors through state-of-the-art exhibits and a demonstration native plant garden.

The I-Wall Exhibit, located inside the Nature Center, is interactive; the visitor moves a monitor across a wall graphic, which signals the on-board computer to display graphics animation, audio and video content, providing many layers of images and informa-

tion as the visitor moves along the "wall."

The story begins in the freshwater wetlands and headwater tributaries of the Inland Bays, and transports the visitor through the maritime forests, saltmarshes, sand beaches, intertidal flats to the shallow water, then the open waters of the Bays.

Behind the Nature Center is the Native Plant Demonstration Garden. Created in 2006 with a \$5,000 grant from the CIB, the garden showcases

many plants native to our watershed and provides information about the environmental benefits of gardening and landscaping with 'natives.'

From the Nature Center, a boardwalk leads the visitor beside freshwater wetlands, through the maritime forest habitat, over the salt marsh, to the edge of Salt Pond. Educational signage informs the visitor along the way.



The Town of Bethany's Nature Center is an attraction for both residents and tourists who want to learn more about Delaware's Inland Bays.

New life for dead-end canals? (Site #5: South Bethany)

The Anchorage canal is the northernmost canal in South Bethany and it connects to Little Assawoman Bay. Relative to other canals in South Bethany, it has a very large drainage area of at least 65 acres, about half of which is impervious surface. The discharge to the canal has been the focus of a couple of joint studies between the Center, the University of Delaware and DelDOT. These studies

have shown that high levels of nitrogen, hydrocarbons, and sediment enter the canal from the watershed, which produces runoff even during light rains.

Recently, the CIB coordinated an effort that has generated a total of \$70,000 worth of services from the USACE Planning Assistance to the States Program, DelDOT and the Town of South Bethany to implement a stormwater retro-

fit assessment. The nationally-known Center for Watershed Protection has been selected to conduct the assessment, which will include a GIS-based office component, three days of technical field assessments, and a prioritized retrofit strategy developed with input from project cooperators. The goal is to complete the assessment by fall of 2009 and to have some level of implementation funds secured by this time.

"This unique project will focus a great deal of planning effort in a relatively small drainage area and will include consideration of cost efficiency, sea level rise, coastal aesthetics, and education."

"Buzzing" with excitement (Site #6: Fenwick Island)

As a US Navy submarine commander, Captain Edward "Buzz" Henifin spent his career focusing on activity under the seas. As a "Block Captain" in the CIB's Oyster Gardening Program, Buzz remains focused on what is happening below the water's surface adjacent to his Fenwick Island residence.

Initiated in 2003 with an

\$11,000 grant from NOAA's Five-Star Community Restoration Partnership, the oyster gardening program attracted 15 volunteer gardeners, including Buzz, at 12 sites during its inaugural season.

This year, the CIB anticipates a cadre of over 200 volunteer gardeners at more than 130 sites throughout all three of Delaware's Inland Bays.

The Oyster Gardening Program remains one of the Center's most successful public engagement activities. In addition, it has served to attract new partnerships, such as the involvement of research faculty and students from Delaware State University, an HBCU Land Grant university. The program has also sparked interest in commercial aquaculture in the Inland Bays .



Taylor floats, such as the one shown in this photo, are provided to volunteer oyster gardeners for use at their waterfront properties.



At one time, the Great Cypress Swamp covered more than 60,000 acres and stretched from the Atlantic coast west to the Maryland/Delaware line.

What was; what is; and, what will be! (Site #7: Great Cypress Swamp)

The Great Cypress Swamp represents the largest contiguous acreage holding of Delaware Wild Lands, a private, non-profit, tax-exempt organization dedicated to the conservation and preservation of natural areas. This 11,000 acre property contains significant forested and agricultural wetlands altered by a private ditch system that feeds into Delaware's Inland Bays via Vine's Creek.

Delaware Wild Lands has investigated numerous man-

agement strategies that would protect, preserve, restore, and enhance the natural attributes of the Great Cypress Swamp. One component of an effective long-term comprehensive management plan for the Great Cypress Swamp is to control water levels to aid in restoration activities.

The CIB-funded **Hydrological Enhancement via Water Level Control Structures Project** is designed to partially restore some of the historic wetland functions and values

within the most heavily ditched portion of the swamp. Five earthen plugs and six water control structures are expected to increase the zone and duration of interstitial saturation, but are not expected to result in inundation greater than that normally associated with seasonal variation. The resulting improvements in hydrology will help ensure the success of Atlantic White Cedar and Baldcypress community restoration efforts currently underway.

"Schoolyard habitats are living classrooms for hands-on learning, where students can conduct their own investigation and research... turning schoolyards into outdoor learning discovery zones."

"No child left inside!" (Site #8: Long Neck E.S.)

Following on the heels of the successful Outdoor Learning Program at the James Farm Ecological Preserve, the CIB created a Schoolyard Habitat Program targeting schools in the watershed so that "watershed education" becomes part of the student experience throughout the entire school year.

In the fall of 2006, the Center formed a partnership with the Indian River School District and Environmental Concern, Inc. to bring schoolyard habitats to elementary schools in

the Inland Bays Watershed. In 2007, schoolyard habitats were created at Phillip C. Showell Elementary School and at Long Neck Elementary School. In 2008, schoolyard habitats were completed at Indian River High School and East Millsboro E.S. This spring, the CIB added habitats at the Southern Delaware School for the Arts and Sussex Central High School.

Schoolyard habitats begin with conversion of an area to a wetland, but each year,

something new can be added as part of a "legacy program" for graduating classes. This might include a butterfly garden, a blue bird trail, a wildflower meadow, a rain garden or any other feature that creates habitat for native plants and animals.

This program helps to further our education and outreach objectives, but also supports other areas of our mission, including habitat restoration, non-point source pollutant reduction, and science/research (data collection).

CONTACT LIST

Katie Hall
Manager
Bethany Beach Nature Center
Bethany Beach, DE 19930
(302) 539-8011

Edward "Buzz" Henifin
Fenwick Block Captain
48 W. Farmington St.
Fenwick Island, DE 19944
(302) 539-5657

Pete Martin
Field Ecologist
Delaware Wild Lands
315 E. Main St.
Odessa, DE
(302) 378-2736

Dr. Suzanne Tiemann
Assistant Principal
Long Neck E.S.
26064 School Lane
Millsboro, DE 19966
(302) 945-6200