The Skimmer

News from the Delaware National Estuarine Research Reserve Winter 2010 Volume XVI, No. 1

where the rivers meet the sea!

Estuaries...

Inside this issue:

Calendar of Events	2
Professional Workshops	3
"Rooting for Native Plants"	4
Reserve Research in Action	5
Six Years...	6
CTP Workshops	7

Reserve Staff Attends National Meeting

In early November, over 180 people from across the country including staff from the 27 Reserves and the National Oceanic and Atmospheric Administration met in Coronado, California to attend the Annual National Estuarine Research Reserve System (NERRS) and National Estuarine Research Reserve Association meeting. The theme of the meeting this year was a timely topic: *The Human Touch on Natural Systems*. The Annual Meeting is considered a "working/decision making" meeting where long and short-term plans, program strategies, and budgets are developed for the Reserve System as a whole. In addition, the meeting is a venue where core Reserve staff obtains relevant, targeted information and training.

This year, the meeting was hosted by the Tijuana National Estuarine Research Reserve. The 2,531 acre Reserve, designated in 1982, is located in Imperial Beach, California and is situated in a highly urbanized location approximately 15 miles south of San Diego and immediately adjacent to Tijuana, Mexico. It preserves one of the largest remaining examples of coastal wetland habitats in the southern California sub-region. Three quarters of the reserve's watershed is in Mexico, so reserve programs incorporate an international perspective to critical issues of habitat restoration, endangered species management, wastewater treatment issues from Mexico, sediment management, and recreational use. The reserve is a home to eight threatened and endangered species of plants and birds and is recognized as a 'wetland of international importance' by the Ramsar Convention. To find out more about the Tijuana Reserve or any of the 27 Reserves, including Delaware visit us on the web at www.nerrs.noaa.gov.

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Calendar of Events

Winter 2010

Experience the Estuary

January

28th Winter Wetland Walk
11:00 am — 12:00 pm
(St. Jones Reserve)

February

9th Winter Wetland Walk
11:00 am—12:00 pm
(St. Jones Reserve)

15th Animals in Winter
10:30 am—11:30 am
(St. Jones Reserve)

March

4th Coastal Heritage Driving Tour
9:00 am—2:00 pm
(St. Jones Reserve)

25th Discovery Lab: Animal Clues
4:30 pm—5:30 pm
(St. Jones Reserve)

Please Register by Calling 302-739-3436.

Announcing...Teacher Workshops

GREEN EGGS AND SAND

This is a wonderful opportunity to infuse a global biodiversity and current resource management challenge in your classroom, join educators from Delaware, Maryland, and New Jersey in the spring of 2010 to learn about horseshoe crabs, shorebirds, and the complex human and management issues that surround them.

Workshop Opportunities:

April 30-May 2, 2010 Savannah, Georgia

May 21-23, 2010 Smyrna, Delaware

For additional information visit us at www.tydb.org/greeneggs_sand.php

PROJECT WILD and PROJECT WET WORKSHOP

Calling all educators...come join us for this awesome 1-day hands-on workshop to integrate the Project WET (Water Education for Teachers) and Project WILD activities in your education program. Please call Jennifer Holmes at 302-739-3436 for registration.

Workshop Opportunity:

April 13, 2010 (Register by March 29, 2010)

St. Jones Reserve - Dover, Delaware

The goal of Project WILD is to assist learners of any age in developing awareness, knowledge, skills and commitment to result in informed decisions, responsible behavior and constructive actions concerning wildlife and the environment upon which all life depends.

The goal of Project WET is to facilitate and promote the awareness, appreciation, knowledge, and stewardship of water resources through the development and dissemination of classroom-ready teaching aids and the establishment of state and internationally sponsored Project WET programs.

D-fense - "Rooting" for Native Plants:

Delaware Invasive Species Council 2009 Annual Meeting

In November, DNERR's Coastal Training Program partnered with the Delaware Invasive Species Council (DISC) by helping to sponsor the 2009 DISC Annual Meeting at St. Andrews School in Middletown, Delaware. DISC's mission is to protect Delaware's ecosystems by preventing the introduction and reducing the impact of non-native invasive species. An invasive species is an alien species whose introduction causes or is likely to cause economic or environmental harm or harm to human health. DISC provides education to the public regarding impacts and controls for invasive species, conducts research on important invasive species issues. DISC is also responsible for maintaining an invasive species tracking system to assist with the management of these species.

The DISC Annual Meeting was once again a popular event with approximate 80 people in attendance including university researchers, agency scientists and planners, horticulturalists, and consultants. The meeting included a keynote presentation on treasured native species in Delaware by Dr. Doug Tallamy, Chairperson and Professor, Department of Entomology and Wildlife Ecology at the University of Delaware. Other presentations during the meeting touched on other important invasive species issues within Delaware such as the effects of an deer on native plants, current research on the highly competitive invasive species: *Phragmites*, and the impacts of sea level rise on native habitat.

Meeting participants also had the opportunity to experience invasive species management in action during a tour of grounds of St. Andrews School. St. Andrew's has initiated a number of steps to eradicate the presence of invasive species along its forested trails including multi-flora rose, Japanese honeysuckle, and common periwinkle.

For more information about what you can do to control and reduce the impact of invasive species, visit DISC's website: http://www.delawareinvasives.net. Also, please be sure to check the Coastal Training Program's webpage for more information about upcoming workshops at: http://www.swc.dnrec.delaware.gov/coastal/DNERR/Pages DNERRCoastalDecisionMakerWorkshops.aspx.

Please refer to page 7 for a list of upcoming workshops for decision makers.

Kelly Wolfe, CTP Coordinator

COASTAL TRAINING PROGRAM

Delaware National Estuarine Research Reserve

Reserve Research In Action:

DNERR assists local community identify flood issues

The community of Kitts Hummock, DE has become prone to frequent coastal storm flooding problems. The Delaware National Estuarine Research Reserve, because of their expertise in the area, was asked by the Delaware Department of Natural Resources and Environmental Control, Division of Soil and Water Conservation to examine the hydrology of the area to understand the causes of the flooding and ways to improve drainage. To investigate these issues, a comprehensive water level monitoring network was established around the community. As part of the study, key questions posed by the residents of Kitts Hummock were addressed. These residential concerns, besides the overall hydrology, included the connection of the marsh north and south of Kitts Hummock Road, the effects of the Ted Harvey Wildlife Area impoundments on the adjacent marsh, the effectiveness of the tide gate, and whether the drainage system influences the open water areas in the marsh.

Figure 2. Locations of water level recorders.

The monitoring occurred from June through September 2009. During this time period there were several major storm events and two extended dry periods which provided information on various types of environmental conditions. Seven water level recorders were installed in the area and a flow recorder installed at the tide gate south of the community. In addition, data was collected from the Reserve weather station and the USGS tide gauge at Bowers Beach.

Some of the conclusions from the study included:

- The local tide data reported for the Murderkill River at the Bowers Beach gauge is incorrect. The data is reported in an outdated datum (NGVD29) and is higher than the actual tide level by approximately 0.35 meters (13.5 in). To convert the data into the most current datum recording system and correct for the error the value must be reduced by 0.55 meters (21.6 in).

- Flooding of the Kitts Hummock marshes occurs when Delaware Bay water levels exceed approximately 1.1 meters (NAVD88). The flooding originates north of the community of Kitts Hummock in the vicinity of Sand Ditch. Sustained periods of high tidal levels in the Bay will provide sufficient overwash for the flood waters to move southward towards Kitts Hummock and cross over Kitts Hummock Road. During the Mothers Day storm of 2008 the water elevation at Kitts Hummock was at 2.0 meters (NAVD88).

Continued on page 7

Six Years Later...

In the fall of 2003, the Reserve established the Alvin G. Wilson Conservation Demonstration area in partnership with the Kent County Soil Conservation District, Natural Resources Conservation Service, Ducks Unlimited and private property owner, Richard Wilson. The goal of the project was to provide a living exhibit where interested farmers and land owners can see conservation in action by having the opportunity to visit an area where a variety of conservation practices have been utilized.

It has been six years since the Reserve transformed those 12 acres of poorly drained farm land at the St Jones Reserve and converted them into conservation demonstration plots. Over the years these areas have provided habitat, food, shelter, and nursery grounds for various wildlife. Habitats installed as part of these conservation efforts include three wetland areas, plots of warm and cool season grasses, and areas of reforestation. The grass plots consist of plantings of creeping red fescue, side oats gamma, Niagara big bluestem, camper little bluestem, Virginia wild rye, Blackwell switch grass, Atlantic coastal panic grass, and Rumsey Indian grass. The reforested areas included the planting of 15 native tree species which have grown considerably in the last six years.

It was our desire to offer insight into the undertaking of a conservation project, whether constructing a wetland or conducting grass plantings for wildlife habitat or filter strips, and what an installation might look like before and after these areas begin to flourish. If you are interested in a tour of the demonstration area or would like more information about conservation practices please contact Wes Conley, Conservationist, at 739-3436.

Then, 2003.

Now, 2009.

Reserve Research In Action...continued from page 5

- Rainfall events will raise the water elevation in the open water areas of the marsh by approximately 1.4 times the rainfall amount. There is a longer lag time in northern marsh to peak levels caused by runoff water from the upper watershed (drainage area).
- The maximum observed drainage rate of the northern marsh was approximately 4.2 cm/day (1.6 in/day), the southern marsh can drain at a rate of 2.5 cm/day (1.0 in/day) through the tide gate.
- The tide gate installed at the outfall of the South Bay Drive ditch, under normal conditions provides the marsh with limited tidal flushing as designed. During neap tides there is a net flow to the Delaware Bay and during spring tides there is a net flow into the marsh.

Over the past 50 years the relative sea level around Kitts Hummock has risen approximately 28 cm (11 in). Local land subsidence, diminished accretion rates, and global sea level rise would be an explanation of expanded open water areas and increased marsh areas documented in historic photos.

Robert Scarborough, Research Coordinator

What's Next For Delaware CTP...Upcoming Workshops

January 20, 2010 — **Delaware Wetlands Conference 2010** - Sheraton Hotel, Dover
The Coastal Training Program is partnering with the Delaware Department of Natural Resources and Environmental Control, Watershed Assessment Section to sponsor the 2010 Delaware Wetlands Conference which will bring together managers, scientists, and decision makers to share ideas and formulate pathways for restoring and protecting wetland resources in Delaware through the integration of existing programs, development and implementation of conservation strategies, and focused education and outreach efforts.

February 23, 2010 — **"New Issues and Challenges Facing Delaware Landowners: Land Protection Strategies and Land Conservation Options-** Blackbird Creek Reserve
The Coastal Training Program and The Nature Conservancy will be co-hosting a workshop for private landowners that will focus on the implications of sea level rise and what conservation options are available for keeping property owners resilient.

March 17, 2010 — **Wetland Restoration Techniques Workshop** - Blackbird Creek Reserve
CTP will host a wetland restoration techniques training program that will be led by Tom Barthelmeh from DNREC's Drainage and Management section. Additionally, an overview of the effects of sea level rise and climate change on wetland restoration will be presented.

The Delaware National Estuarine Research Reserve (DNERR) is one of 27 designated reserves across the country. The program is a federal-state partnership whose goal is to establish, protect and manage natural estuarine habitats for research and education. Delaware's Reserve consists of two components, the St Jones Reserve south of Dover, and the Blackbird Creek Reserve in Townsend. These sites include both brackish and freshwater estuaries and represent the diverse estuarine ecosystems found throughout the Mid-Atlantic.

Winter at the Reserve

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