THURSDAY, MARCH 17, 2011

News of Our Trip to Louisiana Coast Makes the Paper

The New York Marine Education Association and New York Sea Grant's trip to the Louisiana coast made the paper today. Check out the article, "Stewards of the habitat: 14-member team from NYSMEA gets knee-deep in plants in the Gulf of Mexico," in *The Village Times Hearld* (click here).

Posted by Paul C. Focazio at 11:52 AM 0 comments

MONDAY, MARCH 7, 2011

New York Educators Help Restore Habitats off Threatened Louisiana Coast

Over the course of four days in late February, a group of New York educators traveled to Louisiana to team up with staff from Louisiana Sea Grant and the Barataria-Terrebonne National Estuary Program to rebuild tidal wetlands and maritime forest communities devastated by recent natural and man-made events.

The New York group was organized by ***Larissa Graham***, New York Sea Grant's (NYSG) Long Island Sound Study (LISS) Outreach Coordinator and ***Meghan Marrero***, the President of New York State Marine Education Association (NYSMEA) in response to the oil spill that occurred last spring. But, after talking to various experts and touring the Louisiana coast, the group quickly learned that the oil spill was only one of numerous problems that face the habitats along the Louisiana coast.

"Louisiana's wetlands are disappearing at an alarming rate," said ***Mel Landry***, Public Involvement Coordinator at the Barataria-Terrebonne National Estuary Program. "Our only chance of survival is with the support of the entire nation."

Wetlands are an extremely important habitat as they serve as feeding, breeding, and nursery grounds for thousands of wild animals in the Gulf of Mexico region. Tidal wetlands are washing away due to the canals that have been dug for oil transportation, the floodwaters that have ripped through the area during hurricanes, and the damming and channelization of the Mississippi which used to supply sediment to replenish these vital areas.

To help rebuild wetland habitats, the group volunteered with ***Caitlin Reilly*** of Louisiana Sea Grant to plant more than 320 pots of smooth

ABOUT NYSMEA

- Paul C. Focazio
- Larissa
- Meg Marrero

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cordgrass (*Spartina alterniflora*) and propagated over 2,700 Gulf Bluestem (*Schizachyrium maritimum*), two native wetland plants that will be planted at various sites. “Native grasses are an important component of our coastal ecosystems. They hold together sediments and provide habitat for native wildlife.” Reilly said, “Propagating and planting grasses is an effective way of involving volunteers in an essential aspect of coastal restoration.”

The group also helped to restore a maritime forest—a crucial habitat that provides food and shelter for neotropical birds during their migration routes. Working with Landry and ***Matt Benoit*** from the Barataria-Terrebonne National Estuary Program the group planted 800 salt matrimony vines (*Lycium carolinianum*), a native shrubbery, in what will one day be a critical part of a maritime forest on a manmade ridge created from dredged spoil.

“The efforts of these volunteers not only helped create important habitat, but also helped to educate a new set of ambassadors for the restoration of this national treasure,” said Landry.

"Although our group was only in Louisiana for a relatively short time, our goal was to learn as much as we could about the various problems affecting the Louisiana coast," said Graham. "Now that we are home, we can use the information we learned to better inform others about how they can help."

Many of the New York educators were astounded by how much of the natural landscape was altered for human needs and the effect that it was having on the surrounding habitats. “To see the fragility of the coastline first hand was depressing, but then inspirational,” said Fran Moss, one participant on the trip. “If everyone would participate in programs such as this, there is hope for restoration and the resumption of bounty.”

Marrero and Graham hope that the participants will use the trip to encourage stewardship for New York’s coastline. "NYSMEA members are eager to assist in restoration efforts, and to raise awareness back in New York that there is plenty of work to be done in the Gulf and here at home," said Marrero. "NYSMEA is making a special effort this year to involve our members in stewardship activities. There are many local citizen science activities here in New York, and our annual conference held in June will focus on these and other stewardship opportunities."

For more on the trip, see the six posts below, between February 21 - March 2, 2011, on this blog.

You can learn more about wetland loss along the Louisiana coast, visit BTNEP's Web Site or the Gulf of Mexico Sea Grant Program's Oil Spill Web site or NYSG's Resource page, NOAA Sea Grant's Response to the Gulf of Mexico Oil Spill.

Posted by Paul C. Focazio at 11:59 AM 1 comments

WEDNESDAY, MARCH 2, 2011

Building Maritime Forests and Barrier Islands in Port Fourchon and Grand Isle; More Oil Spill Clean-up on Elmer's Island

Our travels in our final days found us south of New Orleans, in the region around Port Fourchon (pictured above in 1), Louisiana's southernmost port. This sea port shows significant petroleum industry traffic from offshore Gulf oil platforms and drilling rigs as well as the Louisiana Offshore Oil Port pipeline. With primary service markets in domestic deepwater oil and gas exploration, drilling, and production in the Gulf of Mexico, Fourchon has earned the tagline "The Gulf's Energy Connection" for several reasons: (a) it has over 600 oil platforms within a 40-mile radius, (b) it's port currently services over 90% of the Gulf's deepwater oil production, and (c) this area furnishes 16-18% of the U.S. oil supply.

Just a short boat ride from the Port Fourchon Marina (2, above) is where educators from New York State Marine Education Association (NYSMEA) and New York Sea Grant (NYSG) partook in an all-day volunteer activity. The group, under guidance from staff at the Barataria-Terrebonne National Estuary Program (BTNEP), docked at the Port Fourchon Maritime Forest Ridge (3-5, above) for a habitat restoration planting.

It was 2001 when BTNEP, along with the Greater Lafourche Port Commission, began their partnership with other organizations to re-establish this ridge. Why? While Louisiana's unparalleled coastal wetlands loss has dire consequences for many species of fish and wildlife, the same can be said for ridges like this one. These ridge habitats are extremely important to many animals including the millions of migrating birds that cross the Gulf of Mexico in the spring each year on their way back to their breeding grounds in the eastern United States and Canada.

And while the Port Fourchon Maritime Forest Ridge appears rather bare in a vegetative sense, thanks to volunteer efforts like this one (during which around 800 new trees were planted), "it will hopefully one day be a full maritime forest," said ***Mel Landry***, BTNEP's Public Involvement Coordinator.

Between 1986 and 2008 alone, nearly 120,000 acres in the Barataria-Terrebonne Estuary System have benefited from habitat projects made possible through several state and federal programs, including BTNEP. Most of these projects have focused on habitats with high rates of loss, such as the barrier islands, interior marshes, bays, and bayou shorelines

of Plaquemines, Jefferson, Lafourche and Terrebonne parishes. Port Fourchon, where the maritime forest ridge in this volunteer effort is located, is on the southern tip of Louisiana's Lafourche parish.

Salt Matrimony Vine was the small tree/shrub of choice for the restoration effort, as it's a native evergreen with a high success rate in most soils that is also tolerant of salt spray and drought conditions. Other plants found on the ridge, including marsh hay, bitter panicum and Spartina patens, exhibit similar endurance qualities.

Prior to the planting, BTNEP's Plant Materials Coordinator, ***Matt Benoit***, showed the educators how to prepare and plant the salt matrimony vine (pictured 6-8, above). After holes are drilled deep enough to support the roots, the plant's soil needs some loosening up before placing the shrub in the ground, filling in the dirt around it firmly, and adding a fertilizer tablet before patting down the dirt one final time.

The NYSMEA and NYSG educators helped drill the holes and plant the shrubs during the full day of restoration efforts on the Port Fourchon Maritime Forest Ridge (pictured 9-13, above; 14-15, below).

At the end of the day, after all of the nearly 800 salt matrimony vine trees were planted, BTNEP staff brought the NYSMEA and NYSG educators back to the Port Fourchon Marina for a much needed and well-deserved reprieve (pictured 16, above).

A good example of what these educators helped work towards in Port Fourchon - a more robust and, hopefully one day, full maritime forest ridge - is what you'll see on Grand Isle, a barrier island in Louisiana's Jefferson Parish located at the mouth of Barataria Bay where it meets the Gulf of Mexico. Throughout its history, Grand Isle has been repeatedly pummelled by hurricanes. On average, Grand Isle has been affected by tropical storms or hurricanes every 2.68 years since 1877, with hurricane direct hits on average every 7.88 years.

In 1860, a 6-foot storm surge and great winds resulted in the total devastation of the island. More recently, 2005's Hurricane Katrina hit Grand Isle very hard, destroying or damaging homes and camps along the entire island. Katrina's surge reached 5 ft at Grand Isle, with large waves severely damaging the only bridge linking Grand Isle to the

mainland.

Luckily, a news report published less than two days after Katrina hit falsely noted that the area had been completely destroyed. Had this been true, it would have been even more devestating for the the skinny, seven-mile Grand Isle, Louisiana's biggest and only inhabited barrier island that is also the only barrier island large enough to support "chenier" or live oak forests (pictured in 17, above). The forests, back barrier marshes, and sandy beaches of Grand Isle are considered one of the premiere birding destinations in North America.

In the spring, a redmulberry tree with ripe fruits (pictured in 18-19, above) may be filled with a kaleidoscope of migrating birds, including blood-red Summer Tanagers, velvety-red Scarlet Tanagers, orange Baltimore Orioles, burnt-orange Orchard Orioles,deep-blue Indigo Buntings, and multi-hued Painted Buntings.

"It's the diversity of habitat that makes this place so rich and unique," said BTNEP's Landry. In addition to live oak, this mature maritime forest (pictured in 20, below) is home to a variety of other plant species, including wax myrtle, black mangroves, native palm (palmeto, pictured in 21, below), and an array of salt tolerant grasses (22).

One of three types of mangrove plants that grow in the United States, black mangroves encompass a large community in both the Grand Isle and Port Fourchon areas. This community is at the northernmost edge of the black mangrove's natural geographic range, so, because of cold stress, it only reaches shrub-size.

Overall this area's wetlands, including the mangroves, help to protect Louisiana's ports and infructure. They serve a vital purpose, both as physical habitat and nursery grounds for a wide variety of marine organisms as well as storm buffers by reducing wind and wave action in shallow shoreline areas. But, over the years, their presence in the Barataria-Terrebonne Estuary System (BTES) has declined, mostly due to subsidence, a complex process in which marsh sediments compact and sink under their own weight. Historically, annual floods over the banks of the Mississippi River provided freshwater and sediment inputs to BTES marshes and kept them above water. But, the levees that have been constructed to protect shoreline communities from these floods are also preventing water and sediment from reaching BTES marshes.

Over time, the process of subsidence drowns coastal marshes, causing chemical changes in wetland soils which, eventually, kill marsh vegetation. Without plant roots to hold it together, marsh soil breaks us and is carried away by wave action. The end result? Marsh is converted to open water. This additional volume of water causes an increase in the tidal prism, forcing passes to enlarge and reducing the lengths of barrier islands such as Grand Isle, which protect interior marshes from wave action and hurricanes.

BTNEP suggests that one of the most effective ways to supplement the Barataria-Terrebonne Estuary System is via a pipeline delivery that would go over the levees and pump in the sediment needed to replenish and build up BTES's wetlands.

It is volunteer and education efforts such as the one on display between staff of the Barataria-Terrebonne National Estuary Program and the

Long Island Sound Study (pictured in 23, below) - two of the U.S.'s 28 estuaries deemed critically in peril and nationally signicant - that make programs like these a success and the ideas therein thrive.

For more on the region, check out Louisiana Sea Grant's "Grand Isle Diaries," a sound scape that documents Grand Isle's rich history and culture, as well as its environmental importance.

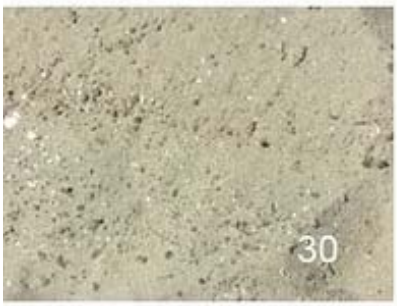
As a result of April 2010's Deepwater Horizon oil spill, Elmer's Island is currently closed to public fishing and recreation. Elmer's Island Wildlife Refuge (EIWR), owned and maintained by the state of Louisiana, is a 230-acre tract of barrier beachfront located directly across Caminada Pass from Grand Isle on the southwestern tip of Jefferson Parish.

Following clearance from state police officials (who are on premisis and constantly protrolling to be assured the area remains locked down during this period of testing) and under the supervision of ***Julia Lightener***, Fisheries Biologist with the Louisiana Department of Wildlife and Fisheries and EIWR Manager, we were able to see some of the reasons for the closure.

Elmer's Island Wildlife Refuge is where egrets and herons visit, terns, gulls and pelicans nest and plovers will winter. In it's sands you'll see ghost crabs scurrying about (pictured in 28, above), as well as beach grasses such as bitter panicum, Spartina patens and "Ghost Rider" purple bluestem, a native warm-season, perennial bunch grass well adapted to the deep South (pictured in 24-26, above).

Also in the sands of EIWR, though, are broken up tar balls, an incredibly degraded state of oil that has washed ashore (pictured in 29-31, below).

Crews are out on the beaches, raking up the tar balls (32). There are also machines nicknamed "sandbonis" that remove the top half-inch of the sand and sifts out possible tar and oil (33).



According to a recent report by *Daily Comet*, one of the area's news sources, LDWF Secretary Robert Barham, said there's "new oil" showing up on its beaches, including tar balls and a submerged mat" of crude. Federal law gives the state final say over when an area is determined "cleaned," Barham said. "In that regard, I have some security," Barham said. "But BP has sent some subtle messages that it wants to take the position that nature should takes its course at this point and that they have basically cleaned everything up. They think they're on the backside of this. But we're going to hold them accountable."

Mike Utsler, COO of British Petroleum's Gulf Coast Restoration Organization, told *Daily Comet* that the seasonal low tide of winter was expected to reveal tar mats near shore and tar balls are still washing up in "limited areas" across the coast. Utsler, who has hosted Facebook question sessions and is serving as the public face for BP's clean up, contends BP's efforts won't stop when a beach is cleaned.

"BP is going to be in the communities of the Gulf Coast for the long-term, and part of our continuing job will be to closely monitor the shoreline for any signs of tarred material," he said. "We have specially trained reconnaissance teams that patrol the shoreline looking for any signs of tar balls, and if we find any, we will still have locally based response teams and equipment ready to rapidly clean the area." Initially, he said BP's goal was to have all of the Gulf Coast's "amenity beaches" cleaned up in time for spring break.

For updates on the status of Elmer's Island Wildlife Refuge, visit it's LDWF Web page.

Posted by Paul C. Focazio at 12:41 AM 0 comments

FRIDAY, FEBRUARY 25, 2011

Restoration and Revitalization Efforts in and around New Orleans

Last October, nearly two dozen Sea Grant communicators and colleagues from throughout the national network's 32 programs participated in a habitat restoration planting effort in New Orleans' City Park. The National Sea Grant College Program engages this network of the nation's top universities, which work with coastal communities and conduct scientific research, education, training, and extension projects designed to foster science-based decisions about the use and conservation of our aquatic resources.

The Sea Grant group planted Spartina grasses – a rather common perennial marsh grass with a very high salt tolerance – along 200 feet of shoreline in the brackish Big Lake, reinforcing the shore from erosion caused by wave action. The planting also created new fisheries habitat, maintained and stocked by the Louisiana State Department of Wildlife and Fisheries.

"We have a lot of salinity issues in this part of the country, so we're always trying to figure out what will stay in place once we get it in there," says ***Caitlin Reilly*** (*pictured below in 1*), a Sea Grant extension specialist at Louisiana State University (LSU) who led the group. In addition to Spartina patens (or marsh hay, pictured in 2, below), 0ther commonly used plant species in and around New Orleans restoration sites include bitter panicum (3, below), Gulf bluestream, bullrish and oyster grass.

During this February 2011 visit with educators from the New York State Marine Education Association (NYSMEA) and some New York Sea Grant (NYSG) staff, Reilly discussed some of the other efforts of the LSU AgCenter's Wetland Plant Center (WPC) in City Park. Operated by the LSU AgCenter since the 2005 hurricane season (which included both Katrina and Rita), WPC has coordinated hundreds of volunteers to propagate and plant tens of thousands of native grasses and irises at restoration sites across southeastern Louisiana. In addition to providing plants for projects in City Park, WPC also has restoration sites in Bayou St. John, Grand Isle State Park and, until recent litigation over possible contaminated soils forced the State to place a moratorium on such activities, Elmer's Island Wildlife Management Area.

"In the face of land loss, we see a lot of need for restoration in Louisiana, especially after Hurricane Katrina," says Reilly, a native New Yorker and graduate of Manhattan College who has also coordinated the LSU AgCenter's Oil Spill Extension Response and Recovery Task Force since last June as a Louisiana Sea Grant Extension Associate.

This week, NYSMEA and NYSG staff volunteered with several dozen students from Andrew Jackson Middle School in nearby Chalmette, Louisiana (4, below) to propagate 2,700 strands of Gulf Bluestem (a wetland plant) and re-pot 320 Spartina alterniflora (smooth cordgrass, a wetland plant), for future WPC restoration efforts. All weeds were removed from each Spartina plant (6-14, below), as the plants do not compete well once planted. Also, the plants were re-potted using a mixture of mostly sand with some mulch and peat moss (5, below).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Following the plant propagation project at WPC, Reilly toured around the greater New Orleans area with NYSMEA and NYSG folks, discussing some of the problems facing the region, including the effects of humans "altering the landscape" (15, below, as seen at Bayou Sauvage National

Wildlife Refuge, NWR). Established in 1990, Bayou Sauvage NWR encompasses approximately 25,000 acres in New Orleans and is the largest urban wildlife refuge in the country. It is one of the last remaining marsh areas adjacent to Lakes Pontchartrain and Borgne.

Lake Pontchartrain is part of the area's estuary system north of New Orleans, which also includes Lakes Borgne and Saint Catherine. These spots, along with the eastern side of the city of New Orleans, are where much of the storm surge swept into New Orleans during Hurricane Katrina.

"New Orleans is in a bowl, so the [Mississippi] River is actually where the high ground is," says Reilly. "So, when Katrina was happening, you could actually still walk along the River. They called it 'The Isle of Denial" or 'The Sliver By the River.' There are also some ridges near the bayou that are high ground that didn't flood."

Historically, it was flooding from the Mississippi River that was the issue of concern. But, with all the modifications to the River's hydrology in the last 100 years, "it's changed to where we don't have as much protection against hurricane storm surges," says Reilly.

In the French Quarter, you might have seen some short-term flooding of rainwater. But, all of that went down really fast. "The real problems came from sitting water over time," says Reilly. "So, there was minimal damage to the French Quarter and right along the [Mississippi] River. It was in the areas closer to where the levees breached throughout southeast Louisiana and Mississippi that the main thrust of damage occurred."

In this region, there are two levee systems – there is the system of levees that controls the Mississippi River and another for all the drainage systems that serve as a hurricane-protection measure. The levee system on the River is what built the foot of south Louisiana that sticks out into the Gulf (as Reilly explains in 17, below). Over the last 10,000 years or so, the River has moved back and forth, spreading out sediment and building land. “At this point, with all the modifications we made to the area’s hydrology, we really don’t see a lot of River flooding,” says Reilly. “And that’s considered to be part of the problem with sinking here. We have this long-term issue of sinking and then we have all these canals which have helped speed up the process of erosion.”

There is active building happening in some areas of southern Louisiana and subsidence in others. After the Great Mississippi River flood in 1927, legislation was passed that empowered the Army Corps of Engineers to levee the entire Mississippi River, which is basically the main drainage system for the entire United States. From the Colorado Rockies to the Appalachian Mountains, everything drains into the various rivers that then drain into the Mississippi River.

And, when you combine this shift in water diversion with both a system of up-river dams that prevent sediment from flowing down and cuts through the area’s hydrology due to canal explorations for oil and gas that are slowly filtering out salt, Reilly cautions, “all of a sudden, you have tidal motion in areas like swamps that should instead have a graduated salinity. So, we’re seeing large die-offs in our swamps which should be mostly freshwater.”

Perhaps the biggest and most costly challenge to date facing the U.S. Army Corps of Engineers New Orleans District is a multi-billion dollar project being called the “Great Wall of Louisiana.” At around 20 feet high and almost two miles long, this barrier being built around the city of New Orleans is slated for completion this June. It is one of the key components in the Corps' Hurricane and Storm Risk Reduction System to defend against the effects of a 100-year storm.

One hundred year level of protection actually means reducing risk from a storm surge that has a 1% chance of being equaled or exceeded in any given year. The 1% chance is based on the combined chances of a storm of a certain size and intensity (pressure) following a certain track. Different combinations of size, intensity and track can result in a 100-year surge event.

According to the Corps' New Orleans District Web site: "What was once a patchwork of levees, floodwalls and pumps before the hurricanes is becoming a true System that will provide 100-year level perimeter protection against hurricane storm surge to greater New Orleans. Today, the area already has the best perimeter defense in its history, and work continues at a record pace. We are driving hard to have in place a system that can defend against a 100-year storm by June 2011."

Hurricane flooding in the modern era has been contributed to largely by die-offs of areas like the Cyprus Triangle, near the Ninth Ward, which is located in the easternmost downriver portion of the city of New Orleans. Such locales, including Bayou Bienvenue (18, above) never recovered after the opening of the Mississippi River limited sediment transport to keep plants and grasses in place. This move also prevented freshwater from flushing out the land after flooding from severe storms like 1965's Hurricane Betsy, which left considerable salt staining. All this has caused not only more flooding, but sinking as well.

"This land has been sliced and diced, with nothing to help build the land back up," says Reilly. "So, there are a good number of dedicated dredging and restoration projects that continue to this day to help combat these issues."

Adding additional stress to already troubled areas such as the former cyprus forests of Bayou Bienvenue are non-native species such as nutria,

a semi-aquatic rodent introduced from South America that has literally eaten up Louisiana's coastline (19, above). Nutria live in fresh, intermediate, and brackish marshes and wetlands and feed on vegetation that is vital to the area's coastline. Their "eat-outs" create opening in the marsh vegetation, and, according to the U.S. Geological Survey, they are currently affecting an estimated 100,000 acres of coastal wetlands.

With Louisiana's coastal wetlands converting to open water at an annual rate of 25-35 square miles, nutria are an additional burden to an already stressed ecosystem.

One of the areas in the New Orleans area hit hardest by Hurricane Katrina, which set down in late August 2005 (20, above), was the lower 9th Ward. Since then, help has come in the form of the Make It Right Foundation, among others. After touring the area post-Katrina and observing both the depth of flooding (21, above) and extent of damage done to the lower 9th Ward (22, above, and 24, below), Brad Pitt (23, below) established the Make It Right Foundation to build 150 green, affordable, high-quality design homes in the neighborhood closest to the levee breach.

During our visit to the lower 9th Ward, we came across a number of damaged homes (25, below), empty and abandoned house plots, and, at 1700 Deslonde Street (26, below), the first house gutted after Hurricane Katrina. We also saw a number of the homes built by Make It Right, included those pictured in (27) and (28), below.

A Make It Right Foundation display station in the lower 9th Ward illustrates the interior and exterior features included in all of the homes built and being built (29 and 30, below). These homes reflect the "green" ideals put forth by the Foundation, whose founders invited a group of high-profile and influential New Orleans, national and international architects to develop affordable, e-friendly, storm resistant housing for the community, incorporating the latest in innovative and sustainable design.

Additional post-Katrina assistance in the lower 9th Ward is offered by Common Ground Relief (CGR), whose volunteers we also visited with during our time in the area. CGR is a volunteer-run not-for-profit organization covering a diverse range of projects, ranging from new home construction and a free legal clinic, to wetlands restoration (31, below) and community gardening. CGR's volunteers, including those we met who opted for an alternative to their winter break vacation, can apply for short- or long-term housing while they pitch in with revitalization efforts in the lower 9th Ward.

Now, we're heading further south, to Louisiana's Grand Isle and Elmer's Island for some volunteer planting and a visit to a very unique maritime forest. We'll have a wrap-up from there early next week.

Posted by Paul C. Focazio at 6:21 PM 0 comments

THURSDAY, FEBRUARY 24, 2011

Louisiana's Working Coast: Resources and Restoration Efforts

"I'll share what I'm learning here with anyone who will listen," says ***Fran Moss***, a retired nurse and member of the New York State Marine Education Association, a partnership with New York Sea Grant that promotes marine awareness and encourages the growth and exchange of instructional resources within the scientific, commercial, and educational communities.

Moss, a strong proponent of science education, resides in Long Beach, Long Island (a town known for it's coastlal living), and is in "a committed relationship with the ocean." Her interest and passion for such things is mirrored in the dozen or so other NYSMEA educators visiting southern Louisiana this week to learn about the hurricane prone area since last year's Gulf oil spill.

"I will share this trip with my students, of course, but I might also be able to give a presentation to the staff at my school, and I'll certainly share with everyone else in my life," says ***David Rosenfeld***, a marine biology and marine science teacher at Rachel Carson High School for Coastal Studies in Coney Island.

Moss, Rosenfeld and the other educators began their experience volunteering at the U.S. Department of Agriculture's (USDA) Golden Meadow Plant Materials Center (GMPMC) in Galliano, Louisiana, a leader in coastal wetland ecosystem restoration. The Center develops plants and procedures to reverse the loss of coastal wetlands in the

service areas of Louisiana, Mississippi, and Texas. Golden Meadow is one in a network of 27 USDA Plant Materials Centers across the country under the Natural Resources Conservation Service (NRCS) Plant Materials Program.

Also serving as a residence for the educators, GMPMC is located within the Barataria-Terrebonne Estuary, one of the largest and most productive estuarine systems in the United States. The Estuary spans a 4.2 million acre region between the Atchafalaya and Mississippi Rivers whose preservation and restoration has been the mission of the Barataria-Terrebonne Estuary Program (BTNEP) since 1991. BTNEP is one of 28 nationally-significant U.S. estuaries identified under the Clean Water Act (see nationalestuaries.org for more).

During an introduction at GMPMC [*see pics 1-4 below*], the NYSMEA educators learned that plants developed by the Center for coastal wetland remediation, restoration, and enhancement - such as Gulf cordgrass, Pelican black mangrove, switchgrass, red mulberry, native bamboo and Gulf bluestream, the latter of which the educators planted [*see pics 5-9 below*] - have proven effective in converting open water to new marsh. These marshes reduce soil erosion and promote reestablishment of emergent and submerged aquatic vegetation. For more on plants for coastal restoration in the Gulf of Mexico, check out PMC's Web site.

According to information from BTNEP, coastal Louisiana has lost an average of 34 square miles of land, primarily marsh, per year for the last 50 years. From 1932 to 2000, 1,900 square miles have disappeared,

roughly an area the size of the state of Delaware. Says a BTNEP spokesperson, "If nothing more is done to stop this land loss, Louisiana could potentially lose approximately 700 additional square miles of land, or an area about equal to the size of the greater Washington D.C.-Baltimore area, in the next 50 years." For more information about the land loss analysis or to see an animated time series of wetland change, visit www.lacoast.gov/landloss.

This is why, now more than ever, BTNEP and Golden Meadow Plant Materials Center emphasize the importance of coastal wetland ecosystem restoration using native plants. While preparing native plantings at GMPMC, the NYSMEA educators learned that Louisiana's once vast native habitats are not only disappearing due to the effects of land loss and urban and industrial development, but also because of the introduction of invasive species like the Chinese tallow tree. "The native plants around us define our 'sense of place,'" says GMPMC's ***Garret Tomasy***. "They are the backdrop to our unique yet diverse cultural identity. How will our 'sense of place' be affected, though, if our coastal marshes vanish, or if our cypress forests turn to Chinese tallow?"


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Even in more urban settings such as New Orleans, people are encouraged to help maintain Louisiana's ecological integrity and cultural heritage by planting native plants when gardening or landscaping. Compared to exotic plants, Louisiana's roughly 2,400 indigenous plant species are better adapted to the local climate, require less maintenance, are more likely to survive storms and seasonal extremes in temperature and rainfall, and make superior wildlife habitat.

Some suggested natives include large trees like bald cypress, red mulberry, southern magnolia, live oak, tulip poplar sassafras, sugarberry, eastern red cedar, catalpa and green ash. For small trees and shrubs, there's roughleaf dogwood, red buckeye, buttonbush, pawpaw, cherry laurel, spicebush and wax myrtle. And flowers and vines such as goldenrod, black-eyed susan, Louisiana iris, wild petunia, trumpet creeper and coral honeysuckle are ideal.

To date, the NRCS's Plant Materials Program has released over 600 conservation plants across the country, most being grown by commercial growers for use today.

For more ways you can get a bigger picture of the issues of land loss in Louisiana, check out these key resources:

- ***Paradise Faded: The Fight for Louisiana*** (click here)
  A compelling look at the causes, effects, and solutions to the largest environmental disaster in American history; the loss

of Louisiana's coastal wetlands and the impact of Hurricanes Katrina and Rita in 2005. (1 hour documentary)

- ***The Rise and Disappearance of Southeast Louisiana*** (click here)
  A Times Picayune flash presentation on the building and erosion of Southeast LA. (10 min flash presentation)

The impacts of hurricanes like Katrina and Rita, as well as last year's oil spill in the Gulf, have certainly had considerable impact on the region as well. For more, see:

- ***Geographic Impact of Hurricanes*** (click here)
  A video that presents a hurricane mapping activity designed to show the geographic reach of Hurricanes Katrina and Rita. The three and a half minute video shows how the relative area affected by the two hurricanes could impact other parts of the country if they were struck by a similar natural disaster.

- ***Flash Flood*** (click here)
  A Times Picayune interactive Graphic on the flooding of New Orleasn in the wake of 2005's Hurricane Katrinahttp://www.nola.com/katrina/graphics/flashflood.swf

- **NOAA Sea Grant's Response to the Gulf of Mexico Oil Spill** (click here)

Posted by Paul C. Focazio at 12:52 AM 0 comments

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WEDNESDAY, FEBRUARY 23, 2011

The Louisiana Coast: Oil spills and more

While in graduate school, NYSG's Long Island Sound Educator, Larissa Graham, traveled down to New Orleans to help rebuild the many neighborhoods that were damaged from Hurricane Katrina. Now, five years later, she'll be returning to the Gulf coast; "This time we'll be focusing on habitats, the home to wildlife and lifeline for much of New Orleans' economy" she says. Graham provides a bit of background for those that are not familiar with the Louisianan coast in a recent post:

On April 20, 2010, the Deepwater Horizon drilling platform exploded, flooding the surrounding waters with crude oil. An estimated 4.9 million barrels of oil were estimated to have flowed into the Gulf before it was completely sealed this past September. During the cleanup process, 6.8 million liters of dispersant (think: soap-like substance) were used at depth and surface levels to break up the oil. The Deepwater Horizon incident was the largest oil spill to date—in the world.

Oil spill, from the sky.

After watching the news coverage, many individuals thought that drilling in the Gulf of Mexico should be stopped. But, that could also have a negative effect on the Gulf coast states' economies. Did you know that ¼ of all of the US's crude oil comes from the Gulf? And, Louisiana relies on oil for more than just the day-to-day luxuries of life. One out of every 13 Louisianans work on the drilling and production platforms off. So, without the drilling off the Gulf a lot of people would be out of a job. We'd think that people in the two other major industries in Louisiana—fisheries and tourism--would be against drilling but, they're not.

ABOUT NYSMEA

- Paul C. Focazio
- Larissa
- Meg Marrero

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Chances are someone in their family works in the oil drilling industry which makes the oil industry part of everyone's livelihood (more on that later...).

Looking at the coast of Louisiana, you can see the effects of the drilling. Offshore is peppered with over 3500 production platforms (platforms that are pumping oil) and even more drilling platforms. Between those that are inactive and those that are supplying oil, there are an estimated 40 THOUSAND OIL WELLS in Gulf waters. And, to add to that, imagine all of the pipelines that snake underwater to transport oil to the shore.

ACTIVE oil wells off the Gulf coast.

At first, oil wells were drilled in shallow water (1,000 feet) but, since 1994, current technology has taken the drilling industry further offshore and now the machines can reach depths of 10,000 feet! Unfortunately, our technology for safety and preparedness has not come as far. The Deepwater Horizon well was at a mere 5,000 feet and think about the tragedy that surrounded and the trouble experts had capping that oil well.

As horrible as it was, the oil spill wasn't the first problem that New Orleans has faced. We all know about Katrina—a devastating hurricane that filled New Orleans up like a bowl, leaving about 50% of households under 4 feet of polluted water. Now the Army Corps is building a 350-mile ring of levees around New Orleans that were designed to protect the City from 100-year flood levels. Will these walls be able to protect this City that was built below sea level? Only time will tell...

Besides the occasional hurricane, New Orleans has a tremendous rate of wetland loss. For those that don't know, wetlands are extremely important as they serve as feeding, breeding, and nursery grounds for thousands of wild animals—from crabs, to fish, to birds. Louisiana's wetlands make up about 40 percent of the wetlands in the States, but about 80 percent of the losses. They are disappearing at a rate of ONE ACRE PER HOUR.

Wetlands in the Gulf of Mexico formed over thousands of years. The plants trap sediment, new plants grow, more sediment is trapped, and so on and so on. Here's the problem: sediment's not washing into the

wetlands anymore so, instead, it's washing out. Why? It's simple. Over the years, the Mississippi has been dammed, diverted, and altered so much that any sediment that does make it over the dams is flushed right out to the sea, passing the wetlands entirely. Yes, managers are working to fix this. They've shown that diverting the River to areas can replenish the wetlands. But, it's hard to make big changes like that—and expensive.On top of wetland loss, the Gulf of Mexico has a "dead zone" the size of New Jersey moving around in its waters. A "dead zone" is an area where the oxygen levels are so low, animals cannot survive. It occurs from pollution that mixes with rainwater and washed into storm drains, rivers, etc. and, eventually, flows into the Gulf. The pollutants—nitrogen in particular from lawn and crop fertilizers—cause microscopic plants to bloom in the water. These plants grow and grow until they finally begin to die off. As they die off, they fall to the bottom of the water column, decompose, and rob all of the oxygen from the water column. We have the same problem in the western part of Long Island Sound and it is a nightmare to manage. But, we are lucky; we only have five states in our watershed (also called a drainage basin). The Gulf watershed consists of 31 states, amounting to 41% of the U.S.!

Again, there is management in place to try to solve this problem. An Action Plan has been created to devise a method of reducing nitrogen loading by 45%. The Plan is voluntary but at least it is a step in the right direction.

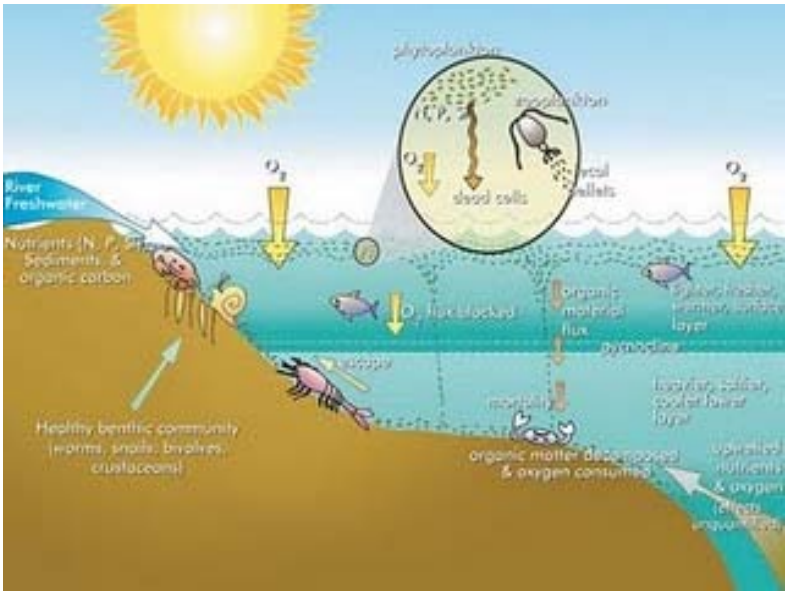

Diagram of hypoxia (or low dissolved oxygen) in coastal waters.

Don't despair, there is some good news. Oil naturally seeps into the ocean every day. It's estimated that about 17 million gallons seep into the Gulf, naturally, every year so Mother Nature has devised a plan to break down oil. After the oil spill, millions of microbes started "eating" the oil.

Researchers are still not sure what type of long-term effects the dispersants will have on the environment, especially since they were used at unprecedented amounts and depths. And, it's unclear if there will be long-term damage to deep ecosystems but, almost six months later, it seems that Mother Nature has a good handle on the situation. The shoreline impacts have been a lot more limited than we all thought, the marshes are cleaning themselves—and regrowing, bird mortality was

not as bad as expected (turtle mortality, however, is another story), and most of the impacted fishing areas are now open (yes, the seafood is safe to eat, too!).

But, like most areas in the world, the coasts and waters off Louisiana still could use a little help. And, that's just what we'll be doing this week. As you will read in the coming days, the problems in Louisiana are far larger than one person can solve but, like I always remind myself: Together, a lot of little actions can make one big difference.

See you on the Gulf Coast, y'all!!

Posted by Paul C. Focazio at 12:10 AM 0 comments

TUESDAY, FEBRUARY 22, 2011

A Primer on Oil Spill Education: 2010's Incident in the Gulf and the Effects on and Current State of the Ecosystem and Seafood

"In the last few months we have learned a lot more about the oil spill and future plans for Gulf restoration," says New York Sea Grant Director ***James Ammerman***. Ammerman first discussed the now largest oil spill in history that followed the incident during a September 2010 talk at Stony Brook Southampton and as part of a panel discussion at Stony Brook University in October 2010. Earlier this month, he was the guest speaker at Stony Brook University's School of Marine and Atmospheric Sciences for an update on the recovery efforts since last spring's blowout of British Petroleum's Macondo oil well in the Gulf of Mexico.

"The Oil Spill Commission report has been released and a new restoration task force created." Ammerman is a microbial ecologist interested in nutrient cycling and its contribution to the Gulf's "Dead Zone." From his prior faculty posts at Texas A&M and Rutgers, he led numerous cruises into the Northern Gulf from 2000 to 2004. At Rutgers, he also created and taught courses on the challenges of the Gulf post-Katrina. Released in mid-January 2011, the Report to the U.S. President from National Commission on the BP Oil Spill calls for the federal government to require tougher regulation, stiffer fines and a new industry-run safety organization within the U.S. Interior Department that would be headed by an official with a fixed term of office in order to insulate the appointee from political interference. It also recommends funding the regulatory agency that oversees offshore drilling, the Bureau of Ocean Energy Management, Regulation and Enforcement, with fees from the companies who are exploiting the nation's petroleum resource. The U.S. Interior Department was also advised in the report that it should include the National Oceanic and Atmospheric Administration (NOAA) in the decision-making process about where and how to conduct future oil and gas leasing.

The commission also found the Deepwater Horizon disaster could have been much worse than it was: "At one point, industry experts feared that a significant portion of the 4.6 billion gallon oil and gas reservoir beneath the sea floor could be released into the gulf."

While damaged marshes already appear to be re-growing and bird mortality is less than prior spills, other uncertainties include the impacts on the region's turtle and tuna populations. Also, seafood appears safe

(from open fishing areas in the Gulf), but additional testing is needed.

According to a recent fact sheet produced by Louisiana Sea Grant (LASG), "Seafood Safety in the Wake of the Deepwater Horizon Oil Spill," there is an extensive process to deem if and when to reopen seafood harvesting areas after such an event: "If and once a specific area of water was determined to have an absence of oil, and seafood samples were tested and determined to be free or below levels of concern of polycyclic aromatic or polynuclear hydrocarbons (PAHs), then this area would be opened to fishing."

The National Marine Fisheries Service (NMFS) advises on the safety of harvesting from waters that may have been contaminated by harmful substances; the U.S. Food and Drug Administration (FDA) has authority over the edible portions of seafood and seafood products after harvest; and the Environmental Protection Agency (EPA) has an advisory role regarding the environment from which seafood is harvested, under the Toxic Substances Control Act (TOSCA). State regulations typically mirror the FDA requirements and states often have an MOU (memorandum of understanding) with the FDA to conduct inspections on behalf of the federal agency.

NMFS has published protocols for monitoring seafood, and the FDA has honored this in the event of seafood harvests from oil impacted areas. First, there is a precautionary closure of fishing grounds in the area of the spill. With wave motion, if there is a sheen of oil on the water further away from the spill site, that area and a large safety buffer is closed to all seafood harvesting. FDA maintains and updates tolerance limits for suggested seafood consumption rates based upon identified compounds of concern. These are usually hydrocarbons that may contaminate water, soil, groundwater and aquatic life and contain contaminants of concern (COC) such as aliphatics, aromatics and asphaltics. Most often, these are called PAHs or polycyclic aromatic hydrocarbons (also polynuclear aromatic hydrocarbons). Consumption of PAHs represents the greatest health hazard in seafood contaminated from an oil spill.

The LASG fact sheet, which is produced in conjunction of Louisiana State University's AgCenter, includes answers to a number of other questions and concerns, such as: What are the benefits of consuming Gulf of Mexico seafood? Can seafood really be smelled to detect petrochemical contamination? And, Is there assurance that seafood has been harvested from open waters.

Another way Sea Grant is educating others about the response effort since last April's Gulf oil spill is through a partnership with the New York State Marine Education Association (NYSMEA). Starting today, NYSG staff join teachers from NYSMEA for a five-day trip to south Louisiana to learn about restoration efforts and talk with experts about wildlife rehabilitation.

"Almost five years after my first trip down to New Orleans to help rebuild after Katrina, I'll be returning to help them recover from another catastrophe," says NYSG's Long Island Sound Educator, ***Larissa Graham***. "This time we'll be focusing on habitats, the home to wildlife and lifeline for much of New Orleans' economy."

Posted by Paul C. Focazio at 12:00 AM 0 comments

MONDAY, FEBRUARY 21, 2011

Sea Grant and NYSMEA Team Up for Hands-on Oil Spill Education and Restoration Efforts

Starting tomorrow, Tuesday, Feb. 22, New York Sea Grant's (NYSG) Long Island Sound Educator, ***Larissa Graham***, and Web Content Manager, ***Paul C. Focazio***, will join teachers from the New York State Marine Education Association (NYSMEA) for a five-day trip to south Louisiana to learn about restoration efforts and talk with experts about wildlife rehabilitation. "Though our group is only in Louisiana for a relatively short time, the goal is to learn as much as we can about the various problems affecting the Gulf," says Graham. "This way, when our educators arrive back home, they can better inform others as to how they can help."

As the world is now aware, the 40th anniversary of Earth Day last spring was marred by the blowout of British Petroleum's Macondo oil well, followed by the largest oil spill in U.S. history. Since then, a number of questions have been posed – Will the Gulf recover from this? Could it happen again? How could we have learned better from past oil spills in our response this time?

"The potential for disaster was great," says NYSG Director ***Jim Ammerman*** of the Gulf oil spill, "But so far environmental impacts have been less than feared." Ammerman, like many scientists, is quick to remind us that much is still unknown about the oil spill and its impacts and will remain so for some time. "Although shoreline impacts by the spill have been limited, partly due to dispersant use, the ultimate effects of deep water dispersant use are unclear," says Ammerman. While damaged marshes already appear to be re-growing and bird mortality is less than after prior spills, uncertainties include the impacts on the region's turtle and tuna populations. Also, seafood appears safe from open fishing areas in the Gulf.

"Oil is not a foreign substance in Gulf waters," Ammerman said, referring to the area's natural underwater seeps, from which oil is largely metabolized naturally by bacteria. "The difference, here, though," he cautioned, "Is that the concentrations of oil from this incident (4.9 million barrels, or 205 million gallons) have been excessive." So, the long-term effects on fisheries, wetlands and other parts of the ecosystem have yet to be determined.

All the more reason for the NYSMEA educators to pitch-in to do their part and pass on some awareness to others about the status of the Gulf's sprawling ecosystems. "NYSMEA members are eager to assist in restoration efforts, and to raise awareness back in New York that there is plenty of work to be done in the Gulf and here at home," says NYSMEA President ***Meghan Marrero***. "NYSMEA is making a special effort this year to involve our members in stewardship activities. There are many local citizen science activities here in New York, and our annual conference held in June will focus on these and other stewardship opportunities."

Graham, who says she's also looking forward to getting her hands dirty working alongside the educators during the various habitat restoration projects planned in the area, also intends to use the trip as a way of strengthening partnerships with the Louisiana Sea Grant program and the Barataria-Terrebonne National Estuary Program. "After arriving home, I plan to talk to New York Sea Grant staff about ways we can support these programs. And, as part of NYSMEA, I am also hoping to

educate fellow NYSMEA members through various presentations at meetings and postings in our newsletter and through social networking."

"Following the trip, we will share what we've learned with other NYSMEA members through a blog and webcasts and at our annual conference," says Marrero. "Several attendees are classroom teachers, and will be bringing what they learned back to their students in the classroom right away."

To that end, NYSG's Focazio will be reporting on the week's activities via this web blog, which will be filled with stories and pictures documenting the educators' experiences. These activities will also include engaging the group in some restoration work, similar to those participated in last fall by Sea Grant staff from the national network's 32 programs. During their planting, coordinated by Louisiana State University AgCenter Extension Associate Caitlin Reilly, Sea Grant-ers contributed about 55 volunteer hours for a planting effort along 200 feet of shoreline in New Orleans' City Park. "In the face of land loss, we see a lot of need for restoration in Louisiana, especially after Hurricane Katrina," says Reilly.

"Between Sea Grant and NYSMEA, we deal with such a wide range of audiences," Focazio says, "that the blog needs to be user-friendly, interesting and informative." Target audiences include everyday people, the media, legislators and partners, such as Sea Grant's parent organization, the National Oceanic and Atmospheric Administration. Perhaps the most important use of the blog, though, is for it to serve as a resource for teachers and students. "The ultimate goal here is to have the blog be viewed as an educational tool with a high multiplier effect for learning about coastal restoration and other issues related to last year's oil spill."

These concerns span beyond the Gulf, though, says Graham, Editor of last fall's oil spill-themed Sound Update newsletter, which focuses on the region around New York/Connecticut's Long Island Sound. "This oil spill certainly makes us wonder if a similar situation could happen here and if it did, how we would respond," she says. According to one of the Sound Update articles, the Area Contingency Plan for Long Island Sound documents how the Coast Guard will work with federal, state and local governments to prepare for and respond to oil spills.

For more on *NOAA Sea Grant's response to the Gulf of Mexico oil spill*, see NYSG's related resource site.

Posted by Paul C. Focazio at 12:00 AM 0 comments

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