Palm Beach County’s artificial reef program continues to grow. These new reefs enhance a system of more than 55 vessels, 100,000 tons of concrete and 133,000 tons of limestone boulders. Learn more at discover.pbcgov.org/erm/Pages/Reefs.aspx.

**Singer Island**

The Palm Beach County Fishing Foundation deployed 24 reef darts in 110 feet of water off Singer Island near where the 2017 reef darts were placed. (Watch video here: [https://www.youtube.com/watch?v=ksS0m4dhqI](https://www.youtube.com/watch?v=ksS0m4dhqI)) This year the group utilized concrete culverts and Florida Power & Light light poles to recycle material and keep it out of local landfills. In 2019 the Palm Beach County Fishing Foundation will deploy similar structures to create habitat for snapper and grouper.

**Boca Raton**

South county divers have a new artificial reef to explore. More than 500 tons of limestone boulders were placed north of the Boca Inlet in 35 feet of water to create a nearshore step reef for juvenile fish. This reef offers the young fish a place to take cover as they exit the inlet and head to the natural reef system. The rock was placed in two piles, each stacked three to four rocks high with a 15-foot profile. The project was funded in part by a Fish and Wildlife Conservation Commission Artificial Reef grant.

**Juno Beach / Jupiter**

The Andrew ‘Red’ Harris Foundation has partnered with, and donated material to, Palm Beach County’s artificial reef program for five years. This year 500 tons of limestone boulders and 30 artificial reef modules were donated and placed in 75 feet of water off Juno Beach. Additionally, two modules were built and donated by Eagle Scout candidate, Andres Cundiff, off Jupiter.
Palm Beach County Beaches Go High Tech
Using Unmanned Aerial Vehicles (UAVs) to Map Beaches Before and After Storms

Palm Beach County staff took a new approach to monitoring beaches during hurricane season: UAVs. These small unmanned aircraft are the perfect tool for staff to make rapid beach assessments before and after a storm. By comparing two surveys, staff can quickly estimate the amount of erosion that occurred. Environmental managers can use this information to apply for federal assistance for critically-eroded areas which may require additional sand ahead of the regular beach renourishment schedule.

The UAV flies in a grid pattern, taking overlapping photographs of the beach surface along the entire length of the survey area. The images are loaded into a computer program that generates an aerial composite image and a digital elevation model. Staff also place ground targets throughout the survey area, which are precisely measured with survey-grade GPS receivers to ensure the elevation data is accurate to within a few centimeters. The program is currently being used for county-managed beaches in Tequesta, Jupiter, Juno Beach, Singer Island, South Palm Beach, and Ocean Ridge, and supplements existing ground-based survey efforts. For more information on Palm Beach County’s beach management program, visit discover.pbcgov.org/erm/pages/beaches.aspx.

Seeing a Nesting Sea Turtle is Simply Spectacular

Each year, from March through October, thousands of sea turtles lay eggs on Palm Beach County’s beaches. The whole process only takes about an hour but it is a magical thing to witness. Since sea turtles are a protected species, only permitted organizations can offer people the experience of watching a nesting sea turtle. This summer the Department of Environmental Resources Management partnered with the Palm Beach Marriott Singer Island Beach Resort and Spa to offer guided nesting walks on the beach in front of the resort. The program began with an educational presentation while trained scouts hit the beach looking for a nesting turtle. Once a sea turtle was spotted, the scouts reported the location and the group watched the females lay 80 to 100 eggs. For more information about sea turtle walks in Palm Beach County, check out this video by Palm Beach County Film and Television - www.thepalmbeaches.tv/destination-overviews/ocean-life/turtle-time-palm-beaches/.

By Kelly Martin
The Atlantic Coastal Fish Habitat Partnership (ACFHP) presented Eric Anderson, Senior Environmental Analyst with Palm Beach County Department of Environmental Resources Management, its 2018 Melissa Laser Habitat Conservation Award. Eric led the design and management of 10 restoration projects in Lake Worth Lagoon. The lagoon is situated in a heavily populated section of the county, creating unique environmental challenges. Eric's work focused on restoration of mangrove and seagrass habitats by creating in-water habitat islands.

The Grassy Flats project, endorsed by ACFHP in 2012, exemplifies Eric's talents in managing a successful restoration project. Grassy Flats is a 12-acre, $3.7 million seagrass, mangrove, oyster, tidal marsh restoration project that included multiple partners and grants. This project employed innovative construction methods, including a “sand-shooter” and beneficial re-use of sediments. Monitoring of fish, wildlife and vegetation two years after completion of the project shows it is successfully providing habitat and being utilized by native wildlife. The project proved to be resilient and withstood the impacts of Hurricane Irma in 2017.

The Melissa Laser Fish Habitat Conservation Award is bestowed upon individuals deemed to further the conservation, protection, restoration, and enhancement of habitat for native Atlantic fisheries in a unique or extraordinary manner. The award was established in memory of Dr. Melissa Laser who passed away unexpectedly on April 27, 2010. Melissa was a biologist with the Maine Department of Marine Resources where she worked tirelessly to protect, improve, and restore aquatic ecosystems in Maine and along the entire Atlantic coast.

Visit http://discover.pbcgov.org/erm/Publications/GrassyFlatsRestoration.pdf to learn more about Grassy Flats Restoration Project.
Invasive species know no boundaries. That’s why Department staff work cooperatively across our fence lines with other land managers. There are 16 geographic regions within Florida where federal, state, tribal and local agencies along with non-government groups work together to reduce the threat of exotic invasive species. These geographically focused collaborations are known as Cooperative Invasive Species Management Areas (CISMA). Their focus includes invasive species prevention, management, education, monitoring, research, and early detection / rapid response.

When exotic species escape and become established on conservation lands, these non-native species disrupt native ecosystems and crowd-out native plants and animals. Detecting these escaped populations and eradicating them early before they get established is the most cost-effective and successful way to prevent the spread of new invasive species. A new invasive species, Torell’s eucalyptus (*Corymbia torelliana*), is grabbing the attention of land managers. This flowering ornamental plant used in urban landscaping is native to Australia. It “escaped” cultivation and was observed at Winding Waters Natural Area in 2011 and more recently found at North Jupiter Flatwoods Natural Area. Although seed dispersal in eucalyptus species are generally limited to wind and gravity, this species is a concern as it produces copious amounts of seeds.

Palm Beach County Department of Environmental Resources Management is working with local CISMAs to spread the word that Torell’s eucalyptus has the ability to invade natural ecosystems. With early detection and rapid response, we can prevent the spread of this species in our conservation lands. If you would like to help with early detection, you can report invasive plants through the EDDMapS website (www.eddmaps.org) or the phone app available for iPhone and Android. The public can also report invasive animal species to the 1-888-IVEGOT1 hotline.

Eagle Scout Project Benefits People and Wildlife

Thanks to Blaine Baxter, and members of Boy Scout Troop 173, a north county natural area has upgraded infrastructure for people and wildlife. Blaine, a Jupiter High School student and Life Scout, completed his Eagle Scout project on August 25 at Cypress Creek Natural Area. He, along with other scouts, family and friends, installed two purple martin houses, replaced old wood parking stops with new concrete stops, built a picnic table and re-blazed a section of hiking trail. Thank you, Blaine, for helping preserve and protect a Palm Beach County natural treasure.
What’s Going on Below the Surface of Lake Worth Lagoon
Florida Fish and Wildlife Conservation Commission Monitoring Lagoon Fisheries

Florida Fish and Wildlife Conservation Commission staff perform quarterly fisheries monitoring in Lake Worth Lagoon. They sample several areas in the lagoon, including Snook Islands Natural Area, Grassy Flats restoration area and Munyon Island. The most recent monitoring occurred in August. The results were impressive - more than 3,700 fish and invertebrates representing 56 species were documented. This included 1,140 juvenile mojarras, 791 bay anchovies, 571 silver jennies and 195 juvenile shrimp. Two notable catches were a juvenile bonefish at Grassy Flats and an adult bonefish at Munyon Island. To learn more about Lake Worth Lagoon, visit http://discover.pbcgov.org/erm/Pages/Lake-Worth-Lagoon.aspx.

Spotlight on Protecting Palm Beach County’s Gopher Tortoises

Visitors to some Palm Beach County natural areas will notice new signs promoting the protection of gopher tortoises. The signs detail the important role tortoise burrows play by offering shelter to many other animals. They also provide important safety information for hikers walking through gopher tortoise territory and remind people that these animals don’t swim. (Many well-meaning people, upon finding a gopher tortoise, think it needs to be released in or near water.) Educating visitors about these unique reptiles will aid in their protection and preservation. The signs were produced by the Florida Wildlife Federation.
The summer of 2018 marked the second year of the Green Futures Summer Internship program. The Department of Environmental Resources Management (ERM), along with Palm Beach County’s Youth Services, began a summer internship program for at-risk youth ages 17 to 22 in 2017. The goal of the program is to inspire and mentor young adults by giving them first-hand experience doing “green” jobs that preserve, protect, and enhance Palm Beach County’s land and water resources.

Over the course of four weeks, nine interns worked alongside ERM staff doing a little bit of everything: learning about South Florida ecosystems, identifying plants and animals in natural areas and Lake Worth Lagoon, conducting environmental surveys, working with laboratory equipment, assisting with education and outreach and general office work such as scanning, filing, and organizing. For many of the participants, this was their first bon-a-fide job exposing them to real scientific fieldwork.

From all accounts the interns enjoyed this unique opportunity as seen in their field journals outlining their daily observations and recording their comments about the day’s events:

“Learned that stepping out of your comfort zone is essential in being able to learn things.”

Katia

“At the end of this internship I’ve gained an appreciation for the Florida I live in.”

Adrian

“This internship was more than a learning experience; it was a personal growth experience.”

Daiana
The Magic of VOLUNTEERS!

Who are ERM’s volunteers? They are high school and college students with a desire to help keep our environment healthy. They are working adults willing to give up a part of their weekend to preserve and care for our environment. They are retirees who are ready to help any day of the week.

What do these three groups have in common? A love for a clean environment. They are proud to live in a community where nature counts. During the past five months (July - November), these fabulous people donated 858 labor hours. More than 290 volunteers worked on 36 projects in county-owned natural areas. They removed 9,435 pounds of trash, transplanted 400 dancing lady orchids and planted 150 grasses and 95 pond apple trees.

By Ann Mathews

Top: Volunteers cleaned Limestone Creek Natural Area in Jupiter for the International Coastal Cleanup.

Right Top Left: Volunteers removed a bunch of trash from palmettos during a cleanup of Hypoluxo Scrub Natural Area.

Right Top Right: Volunteers cleaned the Intracoastal Waterway shoreline of Jupiter Ridge Natural Area.

Right Middle Left: IBM Southeast Credit Union employees and their families removed trash from Lantana Scrub Natural Area.

Right Middle Right: Jupiter High School Environmental Research and Field Studies Academy students planted pond apples at Cypress Creek Natural Area.

Right Bottom Left: Gardens Gives Back Community Service Experience summer campers removed trash from Winding Waters Natural Area in West Palm Beach.

Right Bottom Right: Volunteers cleaned Jupiter Inlet Lighthouse Outstanding Natural Area for National Public Lands Day.
Wildlife Releases at Winding Waters Natural Area
South Florida Wildlife Center Releases Rehabilitated Birds & Tortoises

In September staff from the Department of Environmental Resources Management and South Florida Wildlife Center released four gopher tortoises, three young common gallinules, two Cooper’s hawks, two doves and a gray kingbird at Winding Waters Natural Area in West Palm Beach. The young birds were orphans raised by the South Florida Wildlife Center while the gopher tortoises are part of the Florida Fish and Wildlife Commission waif gopher tortoise program. It’s always a good feeling when wildlife can be released back into the wild!

Top Left: A Cooper’s hawk flies out of the travel carrier and into the slash pine forest.
Top Right: A gopher tortoise ready to head to its new home in the woods.
Middle: Two doves are released at Winding Waters Natural Area.
Bottom Left: A gray kingbird streaks skyward to check out the area.
Bottom Right: Young common gallinules head to the wetlands.

Looks like fly is on the menu - all wrapped up and kept in storage until the Argiope spider gets hungry. Note the center of the web features a heavy zigzag pattern. This may attract prey since it reflects light and insects may be tricked to believe they are flying towards a gap in the vegetation or it alerts larger animals like birds that the web is there so they do not fly into it and destroy it. Either way, spiders and the webs they build are fascinating wonders of nature.