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A New Life After Hurricane Sandy

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This spring, Mr. Harry Strano, a wildlife biologist, was walking on the shore in Deal, New Jersey when he was pleasantly surprised. He saw a pair of clownish-looking birds building a nest. Others probably noticed them as well with their long legs, bright yellow eyes and long striking red-orange bills. These birds are American Oystercatchers. As a State Special Concern Species, their population is in decline and at risk of becoming threatened. Ms. Jen LaStella, another wildlife biologist, believes that the birds are returning to the shore because of a beach nourishment project being performed by the U.S. Army Corps of Engineers (USACE), New York District. La Stella expressed that "The beaches created by the replenishment provide ample space and opportunities for shorebirds to rest, forage, and even nest". LaStella and Strano, who work for Amy S. Green Environmental Consultants, Inc., are performing environmental construction monitoring for this Corps project.

The Atlantic Coast of New Jersey Sandy Hook to Barnegat Inlet Beach Erosion Control Project is the largest beach nourishment project ever undertaken by the USACE and is scheduled to finish up this year. The project will improve resiliency and reduce coastal storm risk to the shoreline in the aftermath of Hurricane Sandy. As an added benefit, the project will provide habitat for various rare, threatened and endangered wildlife like the **American Oystercatcher** that makes the shore their home. The project began in 1994 and is being constructed by the Corps' contractor Manson Construction Company. Amy S. Greene Environmental Consultants, Inc. is their subcontractor and provides construction monitoring services for rare, threatened, and endangered species. The project encompasses 21-miles of the Monmouth County, New Jersey shoreline that extends from the Township of Sea Bright down the shore to the Manasquan Inlet. The Corps is working on this project in cooperation with its non-federal sponsor, the New Jersey Department of Environmental Protection, and maintains close coordination with the U.S. Fish & Wildlife Service.

The work includes pumping offshore sand onto the shore to reinforce the natural protection to the upland afforded by the beach which reduces the risk of wave damage and inundation. The completed project will widen the shoreline 400 feet and build up the beach 10 feet above sea level. "This project is the world's biggest beach-fill project in terms of sand volume," according to Mr. Anthony Ciorra, Chief, Hurricane Sandy Branch, New York District, USACE. The project also includes notching or removing rock, known as armour stone- from three existing groins from Elberon to Loch Arbour. A groin structure extends out from the shore into the water and interrupts water flow and limits the movement of sand to prevent beach erosion and increase resiliency. In addition, 10 existing storm water outfall pipe extensions are being lengthened. These pipes carry storm water from the land to the ocean. In 2012, 18 of the 21-mile project was completed. It was at this time that Hurricane Sandy devastated the region, removing 5 million cubic yards of sand from the shore. This is enough sand to fill New Jersey's MetLife Stadium. In early 2013, the Disaster Relief Appropriations Act of 2013 (PL 113-2), better known as the Sandy Relief Bill, was passed and it authorized the Corps to not only repair engineered beach projects by

replacing the sand lost during Sandy, but to also restore them to their original design profiles. Since Sandy, the Corps has repaired the 18 miles of shoreline that was damaged and replaced 7.7 million cubic yards of sand to the shore.

Work then began on completing the remaining 3-miles of the project, between Deal and Elberon. On this project, as with all Corps beach nourishment projects, the Corps implements measures to protect and minimize impacts to rare, threatened, and endangered species. The measures are focused on the life and habitat requirements of federally listed species, including the Piping Plover, but other species benefit as well. In addition to the American Oystercatcher (Haematopus palliates), these species of concern in New Jersey include the federally listed-threatened and state-endangered Piping Plover (Charadrius melodus) and the plant, Seabeach Amaranth (Amaranthus pumilus), as well as the state endangered Least Tern (Sterna antillarum). Peter Weppler, Chief, Environmental Analysis Branch, New York District, USACE stated that these measures include performing work on the project only during the times of the year that are not a threat to the species. For example, sand was not placed on the shore between March 15th and August 15th because this is the time of the year that the Piping Plover nests on the shore. During this time, sand placement did occur in portions of the project where Piping Plovers were determined not to be nesting. Moreover, "We also place string fencing on the project property to delineate areas used by Piping Plovers and we set up protective buffers around these areas," said Weppler. Hiring Environmental Construction Monitors, like LaStella and Strano has been another important measure. Tasks the monitors perform include creating a monitoring plan in cooperation with the project team; conducting regular field surveys to identify rare, threatened and endangered wildlife and plant species; recording behaviors, locations, and potential threats to these species; and documenting all other wildlife and plant species observations within and adjacent to the project area. In addition, they provide recommendations for avoiding and minimizing potential impacts to wildlife and ecological communities and educate the public while on the project site. Strano said that public education is very important because hopefully the experiences will make beach visitors aware and therefore, more tolerant of any inconveniences that are associated with protected beach areas.

While monitoring this project, LaStella spotted several species, but she was surprised to see the American Oystercatcher nesting along the shoreline. She believes the newly replenished beach was what attracted the bird since "Prior to beach nourishment activities, beaches were virtually absent from portions of the project area due to years of erosion and storm events, as well as, changes in natural sand deposition processes. The beaches created by the replenishment provide ample space and opportunities for shorebirds to rest, forage, and even nest." LaStella began monitoring the project in 2016.

During the first monitoring season, she observed American Oystercatchers foraging and displaying courtship behaviors; however, they did not establish any nests that year. She said that over the course of the year, natural coastal processes like the ocean currents and weather helped reshape the newly constructed beach to form tidal flats and gentler slopes. The beach now provides much better foraging habitat, particularly during low tide. During the 2017 nesting season, Amy Greene's wildlife biologists observed three pairs of Oystercatchers attempting to nest within the project area, and several other groups of American Oystercatchers frequenting the area to forage and rest. Out of the three nests, she witnessed one nest successfully hatch three eggs, which ultimately produced one fledgling. She said that the success of this nest was likely due to protective measures and buffers that were implemented during construction, as well as, the presence of jetties immediately north and south of the nest which provided protection from predators, such as crows and gulls. In addition, she also believes that the construction itself likely deterred some of the normal beach activities in the vicinity of the nest, which likely contributed to the success of this nest.

The cooperation of the construction workers also helped Strano believes. Strano explained that "It was very exciting to discover the American Oystercatcher nest inside the work area however, we were a bit apprehensive. We knew it would be a tremendous challenge for this pair to rear chicks at this location because there are multiple threats at this and other beachfront locations including foxes, dogs, storms, occasional vehicles, and overly enthusiastic beach visitors." Furthermore, "We were encouraged by the immediate cooperation and interest in the birds expressed by the onsite construction crews," he said. "The crews' willingness to follow our guidance immediately appeased some of the concern we had. The adequate planning, cooperation, and open communication of all stakeholders resulted in effective protections for these birds without major delays to the project." LaStella

A few facts about the American Oystercatcher

They make loud calls and exhibit gregarious behavior.
They are threatened by human disturbances, habitat loss from coastal development, a host of predators, and flooding events.
Their primary food sources are oysters, clams, and mussels. They use their strong beaks and tongues to pry open their shells.
Breeding is in March on NJ's coastal beaches, inlet systems, and salt marshes.
Adults typically lay 1-3 eggs and fledged chicks mostly migrate to the SE.
For more information please visit: http://www.conservewildlifenj.org/species/fieldguide/view/Haematopuspalliatus

added, "One construction worker bought binoculars and a bird book, while others excitedly reported their bird observations to me from the day prior." Protecting endangered species, such as the American Oystercatcher, is beneficial to our whole environment. "Protecting shorebird nesting habitats often equates to protecting dune and beach systems and all of the species that inhabit these systems," Strano stated. Strano shared that if you study American beach-grass dune communities, which are often a component of beach nesting bird habitats, you will notice a stunning variety of organisms that rely on these systems. Migrating birds, such as certain songbirds and raptors; numerous butterflies and other pollenating insects and even some reptiles and amphibians, such as Eastern Box Turtles and Fowler's Toads, are all found in these communities. He added that protecting the beach and dune systems, particularly the American beach grass communities, also helps protect the adjacent landward properties from storm surges and flooding. Recent storms have demonstrated the natural binding properties and erosion resistance of beach grass root systems. Not only are LaStella and Strano extremely happy about the environmental benefits of this coastal storm risk management project, but environmental agencies are thrilled as well. "The NJDEP's Endangered and Non-Game Species Program and the New Jersey Audubon expressed their excitement to us about the nesting success of these American Oystercatchers, a bird that is part of the NJDEP's shorebird protection plan," said LaStella. The project is expected to be completed later this year and after this will receive periodic sand replacement. "The project will not completely protect from another Hurricane Sandy like-storm, but it will greatly reduce the negative impacts," said Ciorra. LaStella said, "I am passionate about the protection of wildlife and their habitat and am therefore, grateful that we had the opportunity to provide environmental construction services for the Corps' beach nourishment projects." She added, "Development and construction projects will continue as long as we inhabit the earth, so finding a balance between progress and protecting the natural world is essential and rewarding in so many ways."

Photo 1- American Oystercatcher chick. Credit: Amy S. Greene Env. Consult., Photo 2 - A group of American Oystercatchers. Credit: J. LaStella, Photo 3- American Oystercatcher adult and chick. Credit: L. Dancer.

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