

American Association of Port Authorities 2020 Environmental Improvement Awards

Nomination of Port Everglades Comprehensive Environmental Management Program June 30th, 2020



Introduction

This nomination summarizes the Port Everglades Comprehensive Environmental Management Program. The goals and objectives of this program include successfully implementing environmental compliance activities to meet regulatory requirements, and to voluntarily implement environmental stewardship initiatives to provide additional benefit to the environment. Because they are unique, this nomination first describes the environmental stewardship initiatives, then subsequently describes the environmental compliance activities which are common to most other ports. Sharing these initiatives through this award nomination will hopefully facilitate the development and improvement of comprehensive environmental management programs at other ports.

Discussion

Port Everglades opened in 1928, and this comprehensive environmental program has existed since at least 1987. The objectives of this program have always been to successfully implement environmental compliance activities and voluntarily implement environmental stewardship initiatives, using all applicable methods. As explicitly addressed in the detailed descriptions below, this program fulfills the six general award criteria as follows:

- 1) Provides an outstanding level and nature of benefits to environmental quality, beautification and community involvement via all described activities and initiatives;
- 2) Provides an outstanding level of independent involvement and effort by Port Everglades, as all described activities and initiatives are solely conceived and implemented by Port Everglades, with minor collaboration;
- 3) Provides an outstanding level of creativity in identifying opportunities for environmental protection and enhancement as well as developing unique solution and programs to fulfil them;
- 4) Provides outstanding overall program results with most described initiatives being complete, or demonstrating increment benefits for ongoing initiatives;
- 5) Provides an outstanding cost effectiveness of the program since most described initiatives are being implemented by in-house environmental staff; and
- 6) Provides an outstanding transferability of the technology and/or ideas to the port industry through the descriptions and supporting documentation.

Other Awards

The Port Everglades Environmental Stewardship Program is the 2020 recipient of the National Association of Environmental Professionals (www.NAEP.org) Environmental Excellence Award. Port Everglades was also previously awarded the following AAPA Environmental Improvement Awards: 1983 (Award of Excellence), 1986 (Award of Excellence), and 1991 (Mitigation).

I. Environmental Stewardship

Environmental Stewardship is a core value of the Port Everglades Mission Statement:

Port Everglades is Florida's powerhouse global gateway. A respected leader in trade, travel and financial stability, we create economic and social value by working in partnership with world-class clients. We achieve advancements focusing on efficient facilities, trade and cruise expansion, jobs growth, safety, security and environmental stewardship for our customers, stakeholders and community.

Environmental Program Manager

In 2016, Port Everglades hired Erik Neugaard to manage the Environmental Compliance and Stewardship Program. Mr. Neugaard has more than 30 years of experience as an environmental professional in South Florida working in the public and private sectors on a full-spectrum of environmental issues. He has a master's degree in marine biology and holds numerous professional certifications including; Ecologist, Fisheries Professional, Wetland Scientist, Wildlife Biologist, NOAA Protected Species Observer, GIS Professional, Planner, Hazardous Materials Manager and OSHA HAZWOPER Supervisor. He is also past President of the Florida Association of Environmental Professionals (www.faep-fl.org) and past Chairman of the Florida Seaport Environmental Management Committee (www.flaports.org). In 2019, Mr. Neugaard, was also certified by the National Wildlife Federation as a Habitat Steward.

Environmental Internship Program

In 2017, a formal environmental internship program was established to provide relevant on-the-job training and work experience for local university environmental students. To date, nine interns have completed the program and two of them have also opted to receive college credits for their internships. The interns have been provided complete access to all activities involved in managing an environmental program at a major port, and each was assigned additional research or projects to complete. Examples of the research and projects include; participating in coral nursery project, vegetation mapping, preparing local-native plant guide, petroleum pipeline lease mapping, mapping stormwater licenses, designing continuous sidewalk system, designing and environmental permitting mangrove mitigation, planting mangroves, environmental permitting Florida Fish and Wildlife Conservation Commission (FFWCC) floating dock, migration study of the Florida manatee (*Trichechus manatus latirostris*), mapping exterior lights and nearby sea turtle nesting activity, terrestrial and underwater noise analyses, sustainability and resiliency studies, studying shorebird nesting activity, and collecting substrate samples and studying alternative seagrass mitigation options. Attached are the final report prepared by an intern about her internship, a poster about Port Everglades involvement in a *Community Coral Nursery* prepared by an

intern for presentation at the 2017 U.S. Coral Reef Task Force Meeting, and a poster about *Sustainability and Resiliency at Port Everglades* prepared by an intern for presentation at the 11th Annual Southeast Florida Regional Climate Leadership Summit. The abstract for an additional intern-prepared poster about *Application of CPCe Software in Boulder Mitigation Reef Monitoring* was accepted for the FFWCC 2020 Artificial Reef Conference, but the conference has been postponed from April 2020, until November 2020, due to COVID-19.

Green Marine Certification Program

Port Everglades voluntarily joined Green Marine in 2013. The Green Marine environmental certification program offers a detailed framework for maritime companies to first establish and then reduce their environmental footprint. Program participants include ship owners, port authorities, seaway corporations, terminal operators and shipyard managers; and each has to demonstrate year-over-year improvement in measurable ways to maintain their certification. Some of the performance indicators have been developed to protect specific habitat and/or species in a region or to deal with particular maritime operations within that area. The program uses thirteen performance indicators, to address key environmental issues regarding air, land and water pollution. For the 2019 calendar year reporting period, Port Everglades attained the following scores (out of a maximum of 5) for each of the major categories of performance indicators;

- 5/5 - Greenhouse Gases and Air Pollutants
- 5/5 - Spill Prevention
- 5/5 - Community Impacts
- 5/5 - Environmental Leadership
- 4/5 - Waste Management
- 4/5 - Underwater Noise

Attached is a copy of the scoring guide, with details of how the scores were attained.

Sustainability Initiatives

All new buildings constructed at Port Everglades are designed to be U.S. Green Building Council (www.usgbc.org) Leadership in Energy and Environmental Design (LEED) certified. Terminal 4 was certified at the Silver level, and the certification for Terminal 25, which was completed in 2019, is still under review. The new parking garage for Terminals 2 and 4 will be sustainability certified by Parkmart (www.parksmart.gbci.org). Port Everglades has replaced all its diesel trucks with Tier 3 and Tier 4 engines, retrofitted pilot boat engines with more energy-efficient engines, and has a fleet of hybrid and electric pool vehicles. Employees are encouraged to

carpool whenever possible, and employees who ride their bicycles to work are allowed to bring their bicycles into their offices. The *Port Everglades 2015 Baseline Air Emissions Inventory* was completed in 2016. It included an inventory of all port and terminal operator owned/leased, and operated fleets, such as vehicle, off-road, and locomotives; and addressed key criteria air pollutants, such as NOx, SOx, VOC, and PM. Port Everglades also voluntarily entered into a partnership in 2016 with the U.S. Environmental Protection Agency Office of Transportation and Air Quality (EPA) to use the comprehensive baseline air emissions inventory to complete the attached *Emission Inventories and Reduction Strategies Report* to serve all ports nationwide. In 2019, Port Everglades completed a ten-year energy-efficient equipment upgrade project (led by Trane South Florida for \$4.4 million) in the cruise terminals and office buildings to produce annual reductions of: CO2 - 9.8 million pound; Sulfur Dioxide - 61,101 pounds; Nitrous Dioxide - 17,091 pounds. The project also resulted in an annual savings of approximately 6,540,825 kilowatt-hours (\$45,858 per year) and \$773,339 in capital costs. In addition, all 4,247 exterior lights at Port Everglades have been GIS mapped and an upgrade program to high efficiency light-emitting diode (LED) fixtures is currently being implemented. Opportunities to provide electric vehicle charging stations are also being pursued.

Resiliency Studies

Port Everglades is collaborating with Florida Atlantic University and the University of Illinois Critical Infrastructure Institute to independently conduct resiliency studies of port operations, funded through the Department of Homeland Security. Port Everglades has also GIS mapped all its infrastructure components and is determining the sea level (from storm surge or sea level rise) at which each component could be impacted. Preliminary findings of the Port Everglades study are included in the attached poster about *Sustainability and Resiliency at Port Everglades* presented at the 11th Annual Southeast Florida Regional Climate Leadership Summit. This poster also described an analysis of data collected by a National Oceanic and Atmospheric Administration (NOAA) National Ocean Service (NOS) Physical Oceanographic Real-Time System (www.tidesandcurrents.noaa.gov/ports.html) microwave sea level and atmospheric data collection station voluntarily purchased and installed by Port Everglades in 2018. PORTS® is an integrated system of sensors concentrated in seaports that provide commercial vessel operators with accurate and reliable real-time information about environmental conditions. PORTS® measures and disseminates observations, predictions and nowcast/forecasts for microwave-accuracy water levels, currents, bridge air gap, salinity and meteorological parameters (e.g., winds, waves, atmospheric pressure, visibility, air and water temperatures).

Optimizing Wildlife Habitat Value

Port Everglades shares portions of the Intracoastal Waterway with Mizell-Johnson State Park and is adjacent to Broward County West Lake Natural Area. Consequently, the port serves as an important migration corridor for many species of wildlife. Port Everglades committed to optimizing habitat value in the port's green spaces in its 2018-2022 five-year business plan. To meet this goal, ten acres of property infested with the exotic invasive Australian pine tree (*Casuarina equisetifolia*) along environmentally sensitive West Lake Park Natural Area and the Dania Cutoff Canal were removed in 2018 at a cost of approximately \$100,000. All 3,363 trees on property owned by Port Everglades have been surveyed, identified to species, and classified as native or exotic. The exotic trees have been flagged for staged removal. In 2019, 21 exotic black olive trees (*Terminalia buceras*) were removed and replaced with the 131 locally native trees planted in applicable local habitat assemblages. Additional subcanopy shrubs and graminoids will be added when this tree canopy matures. The graphic below shows the locations and local habitats being voluntarily created. In 2017, Port Everglades became a Certified Wildlife Habitat through the National Wildlife Federation (www.NWF.org), and in 2019, our Environmental Program Manager, who is also a Certified Wildlife Biologist, Fisheries Professional and Professional Wetland Scientist, was certified by the National Wildlife Federation as a Habitat Steward.

Providing Local Habitat Mitigation Projects

Though habitat mitigation is a regulatory requirement, it can often be achieved by simply purchasing credits at a mitigation bank. In 2015, in lieu of purchasing credits at the Everglades Mitigation Bank located in southern Miami-Dade County, approximately 50 miles south or other mitigation bank options, Port Everglades excavated 16.5 acres onsite developed uplands and planted 48,954 mangroves and 12,827 upland buffer plants as a wetland enhancement project. This mitigation project was a complete success, was transferred to the Florida Department of Environmental Protection (FDEP) along with 46.5 additional acres of mangrove forest and is being monitored in collaboration with the South Florida Audubon Society. For the upcoming Deepening Project, Port Everglades is also proposing the creation of additional mangrove forest and seagrass beds by removing spoil islands infested with invasive exotic upland species, at a much greater expense, in lieu of simply purchasing credits at a mitigation bank.

Artificial Reefs and Mitigation Reefs

Port Everglades became involved in artificial reef construction in 1981 with the voluntary deployment of NSWC Cable Spools in 150 feet of water, in what is now permitted as the 329-acre Port Everglades Artificial Reef Area and has since received many additional deployments of artificial reef materials. Situated below recreational diving

depths near the entrance channel, this area is one of the most popular sport fishing locations in Broward County. Port Everglades has also voluntarily participated financially in the deployment of the following other artificial reefs off Broward County: 430' freighter *Lowrance* in 1984, 150' freighter *Rebel* in 1985, and 324' tanker *Lady Luck* in 2016; as well as the removal of approximately two-million tires that were deployed by others as failed artificial reefs in the 1970's. In addition, in 2019, Port Everglades constructed a mitigation reef consisting of five piles of boulders, each fifty feet in diameter and twelve feet tall, located one-mile offshore Dania Beach in thirty-five feet of water. Though this was required mitigation for the Southport Turning Notch Extension Project, additional environmental stewardship was implemented when parrotfish (Family *Scaridae*) began eating the 814 coral colonies that were relocated to it, and \$90,000 was spent to place a protective cage on each coral colony. The relocated corals are currently being monitored to determine when the cages can be removed.

Coral Research and Reef Protection

The Southeast Florida Coral Reef Tract (www.southeastfloridareefs.net) contains 42 species of reef-building stony corals (*Scleractinian*), and 35 of these species have been documented in the immediate vicinity of Port Everglades. Most of the stony coral species are succumbing to a lethal tissue loss disease. Port Everglades is a member of FDEP's Southeast Florida Coral Reef Initiative (SEFCRI), actively participates in their meetings and ongoing research, and has offered a SEFCRI coral species and disease identification course taught by the Environmental Program Manager. Port Everglades also participates in meetings of the Florida Ocean Alliance (www.floridaoceanalliance.org), Friends of Our Florida Reefs (www.floridareef.org), and Marine Research Hub of South Florida (www.miasf.org). In 2019, Port Everglades voluntarily collected and donated 1,200 additional coral colonies attached to submerged rip-rap in the Southport Turning Notch to local universities and other coral research institutes because they are believed to have a disease-resistant genome; and Port Everglades is collaborating with the FFWCC and South Florida Association of Environmental Professionals (www.SFAEP.org), which holds the FFWCC Special Activities License, to voluntarily establish a coral research and propagation nursery.

Community Oyster Gardening Program

The Eastern oyster (*Crassostrea virginica*), for which there is a significant commercial seafood market demand is becoming imperiled and is no longer found in Broward County due to water quality impacts, waterway channelization and shoreline bulkheading. Port Everglades, recognizing the benefits of oyster beds which significantly filter surrounding water and provide important estuarine habitat, is collaborating with the FFWCC and SFAEP, which holds the FFWCC Special Activities License, to establish a voluntary community-based oyster

gardening program to reestablish living Eastern oyster beds in Broward County and other areas of South Florida. Port Everglades is currently experimenting with placement of an Eastern oyster shell cultch bag in the Dania Cutoff Canal, along its southern boundary where there is the necessary mixing of freshwater inflow and estuarine tidal activity to support larval spat colonization. Port Everglades is also evaluating potential onsite locations for drying piles of discarded Eastern oyster shells from local seafood restaurants and is protecting other species of oysters found within the port from avoidable impacts.

Manatee Research, Protection and Rescue

Florida Power and Light's Port Everglades Center uses water to cool its turbines and releases the warmed water into the canal within Port Everglades, providing one of the two major warm water refuges for the Florida manatee (*Trichechus manatus latirostris*) in Broward County. Manatees, which are warm-blooded mammals, aggregate during winter months (formally November 15th through March 31st) in water discharges from freshwater springs and power plants to avoid hypothermia and associated mortality. Port Everglades has participated in multiagency satellite tracking research of manatee movements, has conducted independent GIS correlational analyses of aggregation site activity using aerial point count data, and is currently participating in prop scar identification tracking to study aggregation site use. On November 15th of each year, a notice is sent to all vessel operators and other members of the port community to remind them of the manatee aggregation and the lower vessel speed zones. Many staff and other members of the port community, regardless of their employment position help monitor the wellbeing of the manatees, often reporting their findings via the "I Spy a Manatee" phone app developed by the Broward County Environmental Protection and Growth Management Department (EPGMD - www.broward.org/Manatees). Distress manatees observed by Port Everglades staff are reported to the FFWCC, and rescues are coordinated with the FFWCC and Broward County Sheriff's Office. Rescued manatees are taken by FFWCC "manatee ambulance" to Miami Seaquarium, where they are rehabilitated. In 2018, a 5-month-old manatee named "Brownee" was rescued from Port Everglades where he was found swimming alone without his mother. In January 2020, he was released at Port Everglades weighing more than 600 pounds and fitted with a satellite tracking belt around his tail. The belt stayed on him until March 2020 and helped biologists gather information on his travels and habits (<http://manatees.mapntracker.com/wildtracks/map>). When last spotted in the Banana River in April 2020 it was reported; "He has had great movements so far that indicate he knows what he is doing and has been seen feeding during most of his visuals."

North Atlantic Right Whale Protection

The critically endangered North Atlantic Right Whale (*Eubalaena glacialis*) spends summer months off the Northern Atlantic States and winter months off Georgia and Florida. Though Port Everglades is south of the designated Southeastern U.S. Calving Area (Unit 2) Critical Habitat, they occasionally pass through the nearshore waters off Port Everglades, and during winter months Port Everglades voluntarily monitors the NOAA Interactive North Atlantic Right Whale Sightings Map (<https://nefsc.noaa.gov/psb/surveys>) for nearby sightings. When a North Atlantic Right Whale is sighted within 50 miles, the Port Environmental Program Manager notifies the harbormaster, who reports the observation to ships that may pass through the location, and if any construction work requiring protected species observations are required, additional staff is voluntarily deployed to provide additional protection for the North Atlantic Right Whale, even if not required by the issued permits.

Sea Turtle Research and Protection

There are seven species of sea turtles worldwide, five species can be found in the waters of Port Everglades, and three species nest on adjacent beaches. Though sea turtles are marine reptiles, females lay their eggs in nests dug into beach sand; and when the hatchlings emerge, they can be attracted by inland exterior lights into roadways and other perilous environments. Port Everglades is voluntarily collaborating with the U.S. Fish and Wildlife Service, FFWCC, EPGMD and adjacent Mizel-Johnson State Park to develop and implement an exterior lighting upgrade to minimize energy consumption and greenhouse gas emissions, and diminish sea turtle false nesting crawls and hatchling disorientations. Port Everglades GIS mapped each of the 4,247 exterior lights, adjacent beach nesting locations, and locations of documented false crawls, successful nests, and hatchling disorientations to help delineate the most problematic areas to facilitate a phased upgrade implementation plan.

Shorebird Nesting Research

Port Everglades is a member of the FFWCC Florida Shorebird Alliance (www.flshorebirdalliance.org) and participates in their meetings and conducts shorebird surveys along the 5¾-mile beach south of Mizell Johnson State Park south to the Miami-Dade County Line. Port Everglades is GIS mapping all shorebird nesting at the port and uses wildlife cameras to monitor their nesting activity. The rooftop of Terminal 26 supported the largest nesting colony of imperiled least terns (*Sternula antillarum*) in Southeast Florida until activity on the north runway at Fort Lauderdale International Airport, in which it is in the direct flight path, recently increased.

Alternative Shorebird Nesting Area

In April 2019, with the objective of voluntarily providing an alternative location for the least terns and other shorebirds to nest away from the direct flight paths of Fort Lauderdale International Airport, a 0.1-acre area

adjacent to the Danial Cutoff Canal was cleared and covered with ¼-inch pea gravel. This project was coordinated with the FFWCC Florida Shorebird Alliance, and for the 2019 Earth Day celebration, the port community was invited to a least tern decoy painting party, at which 40 least tern decoys were carefully painted. The decoys were placed in the alternative shorebird nesting area prior to the commencement of the least tern nesting season, but only killdeer shorebirds (*Charadrius vociferus*) nested in the area in 2019. To improve the survivorship of the shorebird nesting in 2019, traps were placed to catch and remove iguanas (*Iguana spp.*), which predate eggs, and feral cats (*Felis catus*) which are especially lethal to flightless chicks. During the nesting monitoring, three of the five killdeer chicks were observed to successfully fledge. In 2020, due to COVID-19 constraints, the alternative shorebird nesting area was not prepared for the shorebird nesting season, but it will be prepared and monitored again in 2021 and subsequent nesting seasons.

Exotic Animal Control Programs

A feral cat trap-neuter-release (TNR) program was voluntarily implemented by Port Everglades staff, at their own expense in 2001. This program has substantially and humanely reduced the population of feral cats at the port, which can have a significant impact on the lifespan of native birds and other wildlife, from hundreds to approximately 25-35. In 2010, the colony of TNR cats was formally registered (Colony #201) with Cat Rescue, Inc, and in 2017, the locations at which the TNR feral cat colonies are maintained were restricted to port-owned land far from native wildlife habitat.

Bee Conservation

Because Port Everglades is a major agricultural port and due to its coastal location, many bee colonies migrate through and nest in it. Port Everglades coordinates with the apiary specialists at the Florida Department of Agriculture and Consumer Services (www.fdacs.gov) to study the bee colonies, and members of the Broward County Beekeepers Association (www.browardbees.org) to rescue problematic bee colonies when feasible. Port Everglades also helped establish a Broward County contract for professional live bee colony removal, in lieu of extermination, and is GIS mapping all bee colonies observed to identify hotspots and setting baited bee swarm traps in the hot spots to facilitate rescue of bee colonies.

Broward County Bioswale Demonstration Project

Port Everglades, which is a department of Broward County, closely collaborates on many environmental initiatives with the EPGMD. In 2018, EPGMD was seeking a location to implement a bioswale demonstration project to concentrate and convey stormwater runoff while removing debris and pollution. Port Everglades was able to find a location that met their needs and paid for implementation of the project.

Environmental Interpretation Inspired by Native Wildlife Artwork

Port Everglades participates in the Broward County Art in Public Places Program by commissioning projects that showcase native wildlife species, to inspire appreciation for them. More than four million cruise ship passengers pass through Port Everglades annually and the artwork is located to optimize visual interaction with the cruise ship passengers. A ruby-throated hummingbird (*Archilochus colubris*) mural painted on the side of the the harbormaster tower has received many compliments from cruise passengers and other visitors.

Public Outreach

In addition to the previously described and requisite agency coordination (which is comprehensive) and previously described presentations, Port Everglades regularly provides environmental presentations and tours to schools and other interested groups. Port Everglades has provided free technical training to the public on GIS Environmental Analyses; and free FDEP Florida Stormwater, Erosion, and Sedimentation Control Inspector Training & Certification Program courses offered by Port Everglades have accommodated as many as 125 students consisting of port staff and the public. Port Everglades has also organized and lead an expert panel public webinar discussion on native vegetation; made a public presentation about its green infrastructure, and presented the success of the Port Everglades Environmental Program at annual conferences of SFAEP and Green Marine.

II. Environmental Compliance

Environmental Regulatory Requirement Compliance

One of the fundamental responsibilities of a comprehensive environmental program is to ensure compliance with all applicable regulatory requirements. Port Everglades has GIS mapped all its infrastructure components, construction projects, and associated environmental licenses and permits. With exception of some expired county stormwater management licenses that were discovered during the GIS mapping and are currently being renewed, Port Everglades is currently in compliance with all applicable environmental regulations.

These regulations include:

- Florida Statutes and Broward County Code for petroleum storage tanks.
- Federal Regulations, Florida Statutes and Broward County Code for remediating contamination.
- Federal Regulations, Florida Statutes and Broward County Code for handling hazardous materials.
- Federal Regulations, Florida Statutes and Broward County Code regarding stormwater discharges.
- Federal Regulations, Florida Statutes and Broward County Code regarding air quality and noise.
- Federal Regulations, Florida Statutes and Broward County Code regarding cultural resources.
- Federal Regulations, Florida Statutes and Broward County Code for avoiding, minimizing or mitigating for natural resource impacts, and protecting remaining natural resources during construction projects.

Port Everglades Tariff #12, Item #1015 (Discharge of Pollutants) states; "No person or company shall deposit, place or discharge into the air of Port Everglades, pollutants of any kind to include, but not limited to, any air pollution, ship smoke emissions, dust particles, or gas in air. Vessels, discharging vessel smoke emissions into the air, or other port jurisdictional areas will be reported to the United States Coast Guard and other appropriate federal, state and local agencies." This tariff significantly increases the level of environmental protection at Port Everglades, but requires additional effort to ensure compliance. Though it also minimizes involvement with issues such as ballast water discharges, there is pending legislation and there are frequent challenges to the tariff that require keeping informed of advancing technologies and coordinating with regulatory agencies about them.

The following is a numeric summary of Port Everglades infrastructure that has environmental regulations:

- 3 port-managed maintenance facilities.
- 50 fuel storage tanks on port property.
- 400 storage tanks at 19 private bulk storage facilities within the port (collaboration only).
- >50 miles of petroleum pipelines on port property.

- >50 miles of stormwater management system pipes.
- 1081 stormwater inlets.
- 80 stormwater outfalls.
- 38 stormwater ditches and infiltration structures totaling 23 acres.

Spill Response

The high volume of petroleum product storage (± 420 million gallons) and throughput, and construction activities result in occasional spills that must be immediately addressed to minimize environmental impacts. Port Everglades has an Oil Response Plan, coordinates regularly with the U.S. Coast Guard which has a base within the harbor, and utilizes qualified spill response contractors as needed. As noted above, Environmental Program Manager is a Certified Hazardous Materials Manager, OSHA Hazardous Waste Site Operations Supervisor and has 28 years of spill response, assessment and remediation experience.