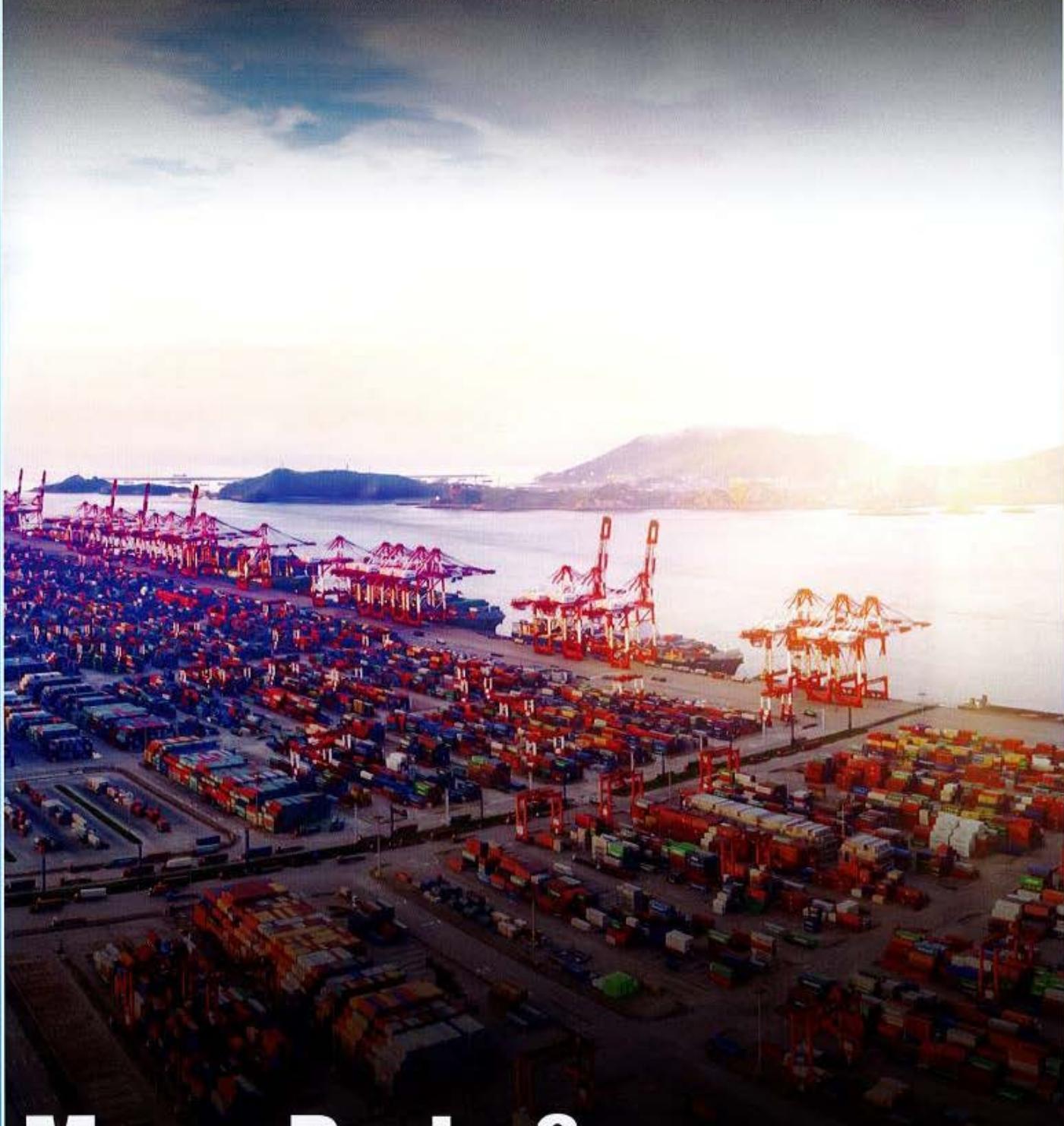


**PORT**  
TECHNOLOGY



AUTUMN EDITION 75 - 2017

# THE JOURNAL OF PORTS AND TERMINALS



## Mega-Ports & Mega-Terminals Evolve



# PORT EVERGLADES

## A FRAMEWORK FOR COOPERATION WITH THE EPA

Erik Neugaard, Environmental Program Manager, and Peg Buchan, Assistant Port Director, Port Everglades, Florida, US

Port Everglades, Florida's top container port and one of the three busiest cruise ports in the world, readily accepted a challenging opportunity with the US Environmental Protection Agency's Office of Transportation and Air Quality (EPA) to partner and coordinate research and modeling for covering port-related operations, technologies, and growth scenarios. Port Everglades is the first port in the United States to partner with the EPA in this way. Other seaports called it a bold and brave partnership. We called it the right thing to do.

Port Everglades' leadership agreed to work together with the EPA to teach them about port operations and to allow them to use Port Everglades as a training ground. This way, they could evaluate various effective technology and operational clean air strategy scenarios for seaports in a real port versus a virtual port. By collaborating to research and model port operation and technology scenarios in terms of air quality outcomes and solutions, EPA can now cite practical seaport centric examples in discussions with other

ports, related agencies, and stakeholders about lessons learned.

Since participating in the program, the EPA has used the Port Everglades model in their presentations for reaching out to other seaports across the United States.

### A WAY TO MEASURE AIR EMISSIONS

However, Port Everglades did not previously have a baseline year air emissions inventory in part because Broward County currently meets EPA's environmental standards for air quality. Port Everglades decided to create a benchmark or baseline by which to measure future changes in emissions to take necessary actions to maintain air quality standards.

As part of our commitment to the EPA partnership and to our community, Starcrest Consulting Group, LLC, was hired to collect the data required for the inventory. We asked our customers to voluntarily submit vehicle and vessel movements and facilities and operational information to Starcrest with the understanding that it would be

kept confidential vis-à-vis their individual companies.

As one of two main considerations, we made sure our customers understood that the inventory would not result in a policy document or policy recommendations. We also ensured that when we were asked by our customers what was in it for them, we could explain that some regulatory agencies currently estimate emissions for certain ports using a method that is more of a screening technique using surrogate data and may not reflect actual conditions. Estimating port-related emissions without significant local data can overstate port emissions.

Once this was explained, 95% of Port Everglades' customers chose to participate.

After one full year of data collection and collaboration with a technical working group comprised of local environmental professionals, the Port Everglades 2015 Baseline Air Emissions Inventory was completed and released to the public in December, 2016.



## POLLUTANTS ASSESSED

The study presents a detailed overview of port-related emissions on the major mobile source categories associated with marine activities which are ocean-going vessels, harbor vessels, cargo handling equipment, on-road heavy-duty and light-duty vehicles, and rail operations. It also includes greenhouse gas emissions from electrical power consumption for buildings and lighting. The geographical domain for the landside source categories is within the Port jurisdictional boundary and its associated terminals. The marine-side geographical domain includes the port jurisdiction and extends three nautical miles beyond the entrance channel.

The inventory estimated certain Clean Air Act-established criteria pollutants and precursors (nitrogen oxides, sulfur dioxide, volatile organic compounds, particulate matter, and carbon monoxide); greenhouse gases (carbon dioxide, methane and nitrous oxide); and diesel particulate matter. All of the baseline data relate to the 2015 calendar year. Subsequent studies will be conducted every few years and the baseline data will serve as a benchmark for how well Port Everglades maintains its air quality without compromising growth initiatives.

## ESTIMATING EQUIPMENT EMISSIONS

Data gathered included detailed information on cargo handling equipment, such as the type, engine model year, fuel type, horsepower and hours of operation. Similar data was collected about harbor craft vessels, as well as the mooring and hoteling of cruise vessels. Truck gate moves and moves within the terminal were also calculated. The energy consumption for stationary generators, air-conditioning systems and all electricity use were also factored into the comprehensive report. EPA did not receive confidential business information or terminal-specific information. The Port also permitted the EPA to discuss the data with Starcrest to obtain a deeper understanding of the collection methodologies and emission calculations used. Allowing them to use actual factual data instead of surrogate data refines and substantiates their ability to make solid recommendations and lessons learned.

The port has immediately benefited from the study by quantifying our air emission source data. For instance, out of the 485 pieces of inventoried non-road equipment, for example forklifts, yard tractors, cranes, and loaders, 87% were diesel, 10% were electric, 2% ran on propane and 1% used gasoline. Electric equipment was included in the count to note its presence within port boundaries. When we make investments in new equipment now, or use electric power rather than diesel for our generators, we will record our positive impact on our air

quality. The same will be true in terms of any reduction in idling of port-related vehicles and equipment.

- The partnership initiative has sharpened our focus. We can see that a long-term clean-air strategy that incorporates real data, scientific projections, management solutions, and governmental outreach support or action is essential to maintain high air quality in and around the port.

This is especially important as our seaport continues to expand and we help our customers enhance their operations. Both the EPA partnership and the Air Emission study will help us to prepare climate adaptation strategies and incorporate methods to reduce greenhouse gas emissions inventories into our 20-Year Master/Vision Plans.

- As a result of the study, all of our customers have been advised of purchasing decisions and operational changes that can be made to further reduce emissions.

- We are working together on these initiatives, which include applying for grants and seeking investments to match port funding.

- We also anticipate completing a 2020 air emissions inventory that will give us a new scorecard that will tell where we've improved.

## EPA PORTS INITIATIVE

The voluntary partnership between Port Everglades and EPA is also part of EPA's

## ABOUT THE AUTHOR

Erik Neugaard, Port Everglades Environmental Program Manager, has 24 years of experience as an environmental scientist and planner. An avid scuba diver, Neugaard formerly worked as a dive instructor and naturalist. He earned a Master's Degree in Marine Biology from Nova Southeastern University Oceanographic Center and is president of the South Florida Association of Environmental Professionals.

Peg Buchan handles strategic planning and development as Assistant Director and manages legislative concerns and public and civic initiatives.

Buchan is a graduate of Nova Southeastern University receiving a Bachelor's of Science degree in Professional Management and holds a Master's Degree in Negotiations and Conflict Resolution from California State University.

broader Ports Initiative. In fact, the EPA is conducting a separate emissions assessment for areas outside the port's jurisdictional boundaries, such as the highways and rail lines used by the port's customers. The goal is to identify where emission reductions would provide the best public health and environmental benefits. Port Everglades takes environmental stewardship seriously. Good air quality where we live and work improves overall quality of life. Air pollution is caused in part by mobile sources such as ships, rail, trucks and off-road equipment, as well as stationary sources like buildings and power plants. These different sources can produce health-related problems. It is important to continuously seek ways to reduce emissions, and we will use the air emissions inventory baseline to measure our efforts.

As custodians of one of the most diverse ecosystems in the country, Port Everglades remains steadfast in its dedication to careful, ecologically sound growth. Broward County's leaders recognize that maintaining a careful balance between commerce and the environment is essential for the region's well-being.

Our commitment is to ensure the long-term interest of both the maritime community and the fragile environment within and around the Port by adhering to stringent governmental regulations, employing best management practices, careful study, and advancing progressive remedial and protective measures.

## ABOUT THE ORGANISATION

As one of Florida's leading economic powerhouses, Broward County's Port Everglades is the gateway for international trade and cruise vacations. The Port Everglades Department is a self-supporting Enterprise Fund of Broward County, Florida government with operating revenues of more than \$163 million in Fiscal Year 2016. It does not rely on local tax dollars for operations. The total value of economic activity related to Port Everglades is nearly \$30 billion. More than 222,000 Florida jobs are impacted by the Port, including almost 13,000 people who work for companies that provide direct services to Port Everglades.

## ENQUIRIES

1850 Eller Drive  
Fort Lauderdale  
FL 33316  
Tel: 954-523-3404;  
Email: [PortEverglades@broward.org](mailto:PortEverglades@broward.org)  
Website: [www.epa.gov/ports-initiative](http://www.epa.gov/ports-initiative)