



City of Hallandale Beach Sargassum Management Update



What are we currently doing to manage the sargassum?



Mechanical Sargassum Management

- Department of Public Works Staff collects and then tills the sargassum on the beach each morning. Tilling the sargassum under helps combat erosion.
 - This is done within the constraints of our Field Permit with the Florida Department of Environmental Protection
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Beach Cleaning Permit Conditions within Brevard Through Broward County



Permit Restrictions

- Only during daylight hours
- Confined to 10 feet seaward of the dune vegetation to the high water line
- No machines can be on the beach until the Broward County Sea Turtle Conservation Program has notified us that they have completed their daily survey
- If mechanical beach cleaning has occurred before the sea turtle survey has been completed, we cannot mechanically manage sargassum for 65 days or after November 30, whichever comes first
- If a sea turtle nest is lost for some reason, no mechanical beach cleaning can be conducted until the Broward County Sea Turtle Conservation Program has identified the nest and restored the markers
- No mechanical cleaning equipment is permitted within sea turtle nests

Beach Cleaning Permit Conditions within Brevard Through Broward County (Continued)



Permit Restrictions



- Mechanical beach cleaning equipment shall not penetrate more than 2 inches into the surface of the beach, have tire pressure over 10 psi, include box blades or front/rear mounted blades, or leave ruts formed on the beach.
- Tractor tire requirements create challenges in accessing the beach and/or transporting the equipment.
- Just the tires and rims cost \approx \$19,500.

Why all the restrictions?



“No person may take, harm, pursue, shoot, wound, kill, trap, capture, or attempt to engage such conduct to marine turtles, turtle nests, and/or turtle eggs.”

Loggerhead Turtle

Caretta caretta



Protected Status

ESA ENDANGERED

North Pacific Ocean DPS

ESA ENDANGERED - FOREIGN

Mediterranean Sea DPS, Northeast Atlantic Ocean DPS, North Indian Ocean DPS, South Pacific Ocean DPS

ESA THREATENED

Northwest Atlantic Ocean DPS

Green Turtle

Chelonia mydas



Protected Status

ESA ENDANGERED

Central South Pacific DPS, Central West Pacific DPS

ESA ENDANGERED - FOREIGN

Mediterranean DPS

ESA THREATENED

Central North Pacific DPS, East Pacific DPS, North Atlantic DPS, South Atlantic DPS

Leatherback Turtle

Dermochelys coriacea



Protected Status

ESA ENDANGERED

Throughout Its Range

ESA CANDIDATE

Northwest Atlantic DPS

CITES APPENDIX I

Throughout Its Range

Can we remove sargassum in-water?



The Short Answer- No.

- FDEP does not see how we could do this without negatively impacting multiple different organisms and wildlife. They will not permit this.



If all the restrictions are for sea turtles, can we scour the beach starting November 1?



We're still limited by our Permit.

- The City would be able to run the machinery on the beach earlier, yes.
 - We still would not be able to clean areas other than that area between 10 feet from the dunes to the high water line.
 - We would still only be able to use equipment included in our Permit.
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Why is there so much sargassum anyway?



Our actions have lead to this.

- Worst on days with east winds
- Warmer Oceans (climate change)
- Increased nutrient loads (including dust from the Sahara)



THE SARGASSO SEA

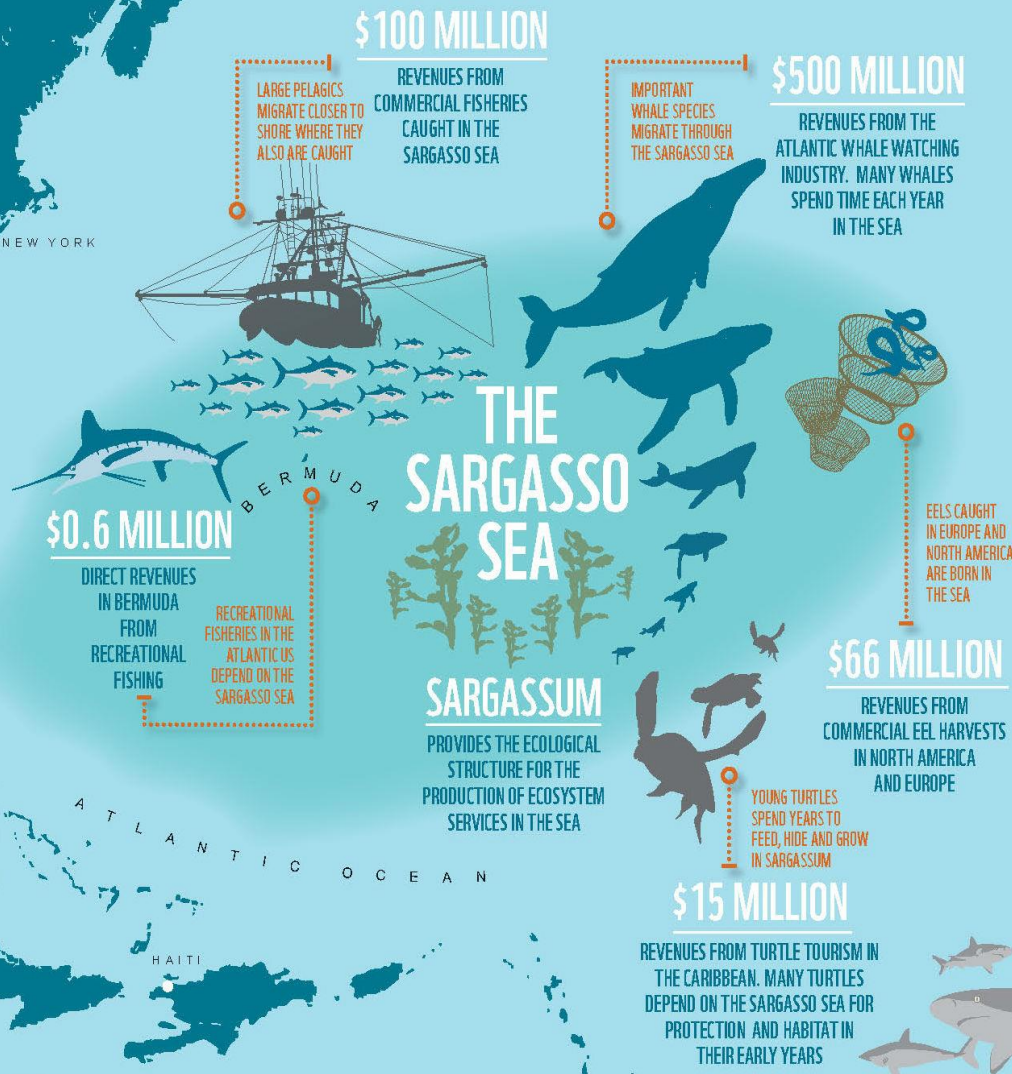
A VITAL ECOSYSTEM OF GLOBAL IMPORTANCE

THE SARGASSO SEA CREATES AN ESSENTIAL HABITAT FOR WORLDWIDE SPECIES GLOBALLY, BUT WHAT IS THE ECONOMIC CONTRIBUTION OF THIS HIGH BIODIVERSE AND PRODUCTIVE AREA?

THE STUDY

THE STUDY LINKS THE ECOLOGICAL HEALTH OF THE SARGASSO SEA TO RELEVANT ECONOMIC SECTORS USING EXISTING DATA. THIS INCLUDES ECOSYSTEM SERVICES THAT ARE ENJOYED DIRECTLY WITHIN THE SARGASSO SEA. THE HEALTH OF THE SARGASSO SEA PROVIDES A FOUNDATION FOR ECONOMIC ACTIVITIES OUTSIDE OF THE SARGASSO SEA. SPECIES OF ECONOMIC INTEREST, SUCH AS EEL, BILLFISH, WHALES, TURTLES RELY ON THE SARGASSO SEA FOR SPAWNING, MATURATION, FEEDING, CRITICAL ROUTE FOR MIGRATION.

PENDLETON, L., F. KROWICKI, P. STROSSER, AND J. HALLETT-MURDOCH. ASSESSING THE ECONOMIC CONTRIBUTION OF MARINE AND COASTAL ECOSYSTEM SERVICES IN THE SARGASSO SEA. (NIR 14-05. DURHAM, NC: DUKE UNIVERSITY)



UNQUANTIFIED BENEFITS

ADDITIONALLY, THE SARGASSO SEA SUPPORTS A LARGE NUMBER OF ECOSYSTEM SERVICES THAT HAVE YET TO BE QUANTIFIED, INCLUDING:

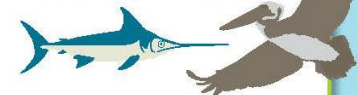
ECOLOGICAL FUNCTION

SARGASSUM CONTRIBUTES TO THE CREATION OF BEACHES AND SHORELINE PROTECTION, CARBON SEQUESTRATION, OXYGEN PRODUCTION, AND BIODIVERSITY PROTECTION



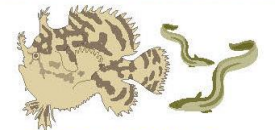
WILDLIFE

ENJOYED BY BIRD WATCHERS AND SEA LIFE VIEWED BY SCUBA DIVERS, SNORKELERS, AND OTHERS



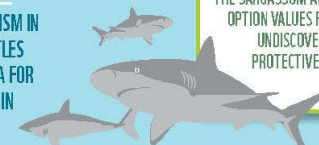
ICONIC ORGANISMS

MORE THAN 100 SPECIES OF INVERTEBRATES, MORE THAN 280 SPECIES OF FISH, AND 23 SPECIES OF SEABIRD, INCLUDING MANY THREATENED AND ENDANGERED SPECIES



PASSIVE USE VALUES

INCLUDING THE EXISTENCE OF CHARISMATIC SPECIES AND RARE OR THREATENED SPECIES LIKE WHALES, TURTLES, SHARKS, AND EMBLEMATIC SPECIES (E.G., THE SARGASSUM ANGLERFISH) AS WELL AS POTENTIAL OPTION VALUES FOR ORGANISMS THAT ARE AS YET UNDISCOVERED. SARGASSUM PROVIDES PROTECTIVE HABITAT FOR YOUR TURTLES AND SHARKS.





A brief reminder that
we share this Earth with
many other organisms
who depend on
sargassum

What is the City planning to improve sargassum management?



Using sargassum as a local resource to close the loop and cut costs

- The City is in conversation with the City of Fort Lauderdale about their sargassum composting program. We may conduct a Pilot Program in Hallandale Beach.
- Fort Lauderdale **saves ~\$4,000 per day** in hauling and dumping fees by composting their sargassum instead
- They offset about **\$10,000 landscape expenses per year** with their finished compost. Bonus: no more plastic bags of topsoil!

What is the City planning to improve sargassum management?



We're planning to install educational signage



What is the City planning to improve sargassum management?



We're actively monitoring relevant scientific research on the issue of sargassum blooms and management and how other communities are responding

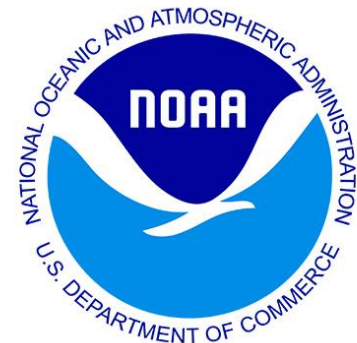


GULF AND CARIBBEAN
FISHERIES INSTITUTE

USF UNIVERSITY OF
SOUTH FLORIDA

Optical Oceanography Laboratory

Satellite-based Sargassum Watch System (SaWS)



The Nippon Foundation
NEREUS PROGRAM
Predicting Future Oceans

SEAS

SARGASSUM EARLY ADVISORY SYSTEM

AN A&M GALVESTON RESEARCH PROJECT DEDICATED TO PREDICTING SARGASSUM



Lets be grateful and work towards reducing these
influxes



Barbados



Jensen Beach, FL

What can the City do?

What can we all do?



Short Term Solutions

- Keep the sargassum managed to retain property values and draw for tourists
- Provide educational information to residents, tourists, and businesses
- Pass and enforce Ordinances which reduce waterway nutrient loading
- Explore potential improvements to be included in the City's FDEP Permit renewal
- Sargassum Compost Pilot Program



Long Term Solutions

- Greatly reduce the nutrients running off from the City into waterways
- Encourage the use of sargassum for cottage industries and small businesses (soap, building material, biodegradable plastics, etc.)
- Educate residents, visitors, and businesses about the ecological role of sargassum and why its important
- Use sargassum blooms as an impetus for greenhouse gas emissions reduction
- Large-scale Sargassum Compost Program

Questions?

Thank you!

