

Sargassum Management in Jamaica: A National Response Strategy

NOAA in the Caribbean Annual Partners Meeting
21 June 2023

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National Environment and Planning Agency

Presentation Outline

- History of Sargassum in Jamaica
- Development of the “National Response Strategy: The Sargassum Threat”
- Information exchange and mobilization of local communities and groups
- Communication
- Sargassum monitoring and tracking
- Shoreline cleanup
- Resource assessments/surveys and research



History of Sargassum in Jamaica



Winnifred Beach, Portland (2015)



Negril (2015)

Pictures of Sargassum influx occurring around the island; Source: NEPA

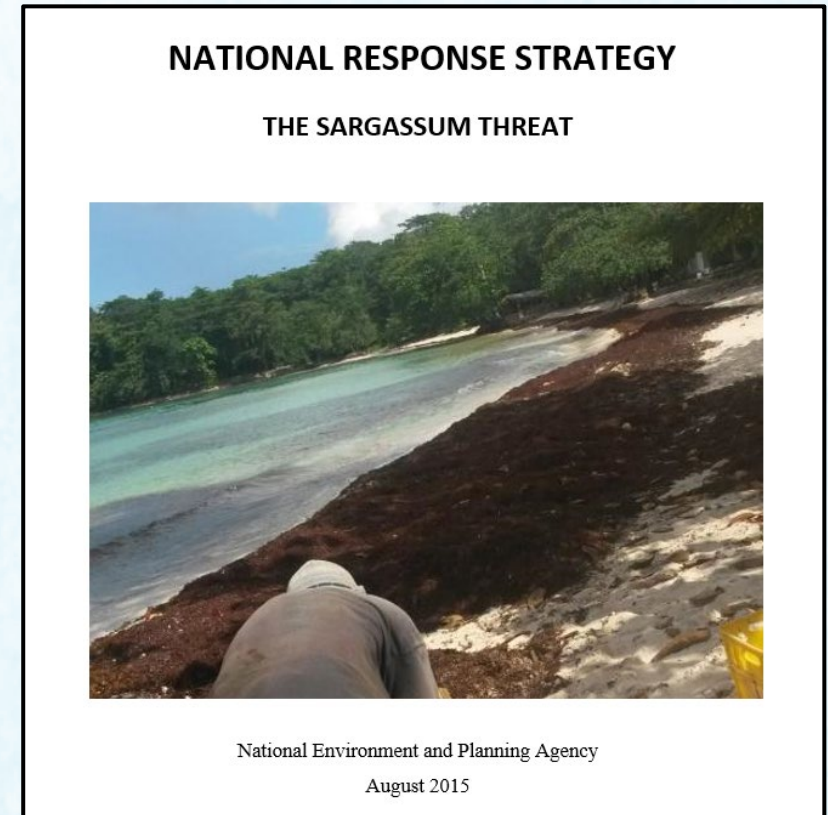


National Environment
and Planning Agency

Managing and protecting Jamaica's land, wood, air and water

Development of the “National Response Strategy: The Sargassum Threat”

The Government of Jamaica, through its agencies developed the National Sargassum Response Strategy to define measures for Sargassum response through national public sensitization, community mobilization for beach and shoreline clean-up and research and product development.




Cover page of NEPA's National Response Strategy, 2015

Information exchange and mobilization of local communities and group

Development of the General Guidelines for the Manual Removal of Sargassum from Shorelines

- The Guidelines promote the removal and disposal of accumulated Sargassum (raking, stockpiling, returning sand, disposal of dried material)
- It also outlines the Agency's position on the use of heavy machinery and
- Published in newspapers, NEPA's website and social media



SARGASSUM
GENERAL GUIDELINES FOR THE REMOVAL FROM THE BEACHES AND SHORELINE

The National Environment and Planning Agency (NEPA) wishes to advise hotel/resort owners, beach operators/fishing groups that permission is granted for the removal of the accumulated Sargassum on the beaches of their respective properties.

Removal of accumulated Sargassum must be done in accordance with the following best practice guidelines, as follows:

REMOVAL


- Removal of Sargassum is carried out manually through the use of non-intrusive methods (no heavy equipment and machinery) such as hand raking or beach raking equipment with a perforated conveyor belt; and
- The return of accumulated sand to the beach after raking.



DISPOSAL OF SARGASSUM

- Stockpiling at a designated location;
- Turn the material occasionally to encourage the drying of the material and the ultimate removal of sand;
- Disposal of the organic material at an appropriate off site location; and
- Burial on the beach where practical.

Beach operators are advised that the use of heavy equipment such as tractors and front-end loaders for the removal of Sargassum and other accumulated debris is prohibited.

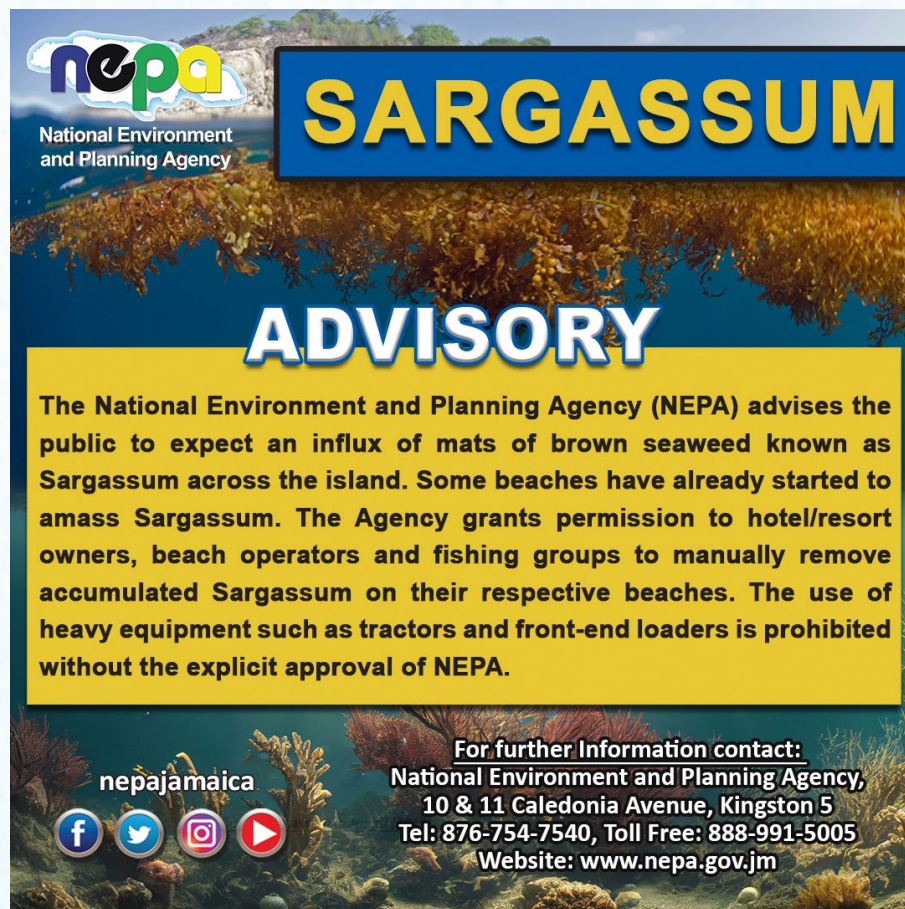
Permission should be sought from NEPA prior to the use of heavy equipment on the beach.

 Prepared by the National Environment and Planning Agency
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Communication



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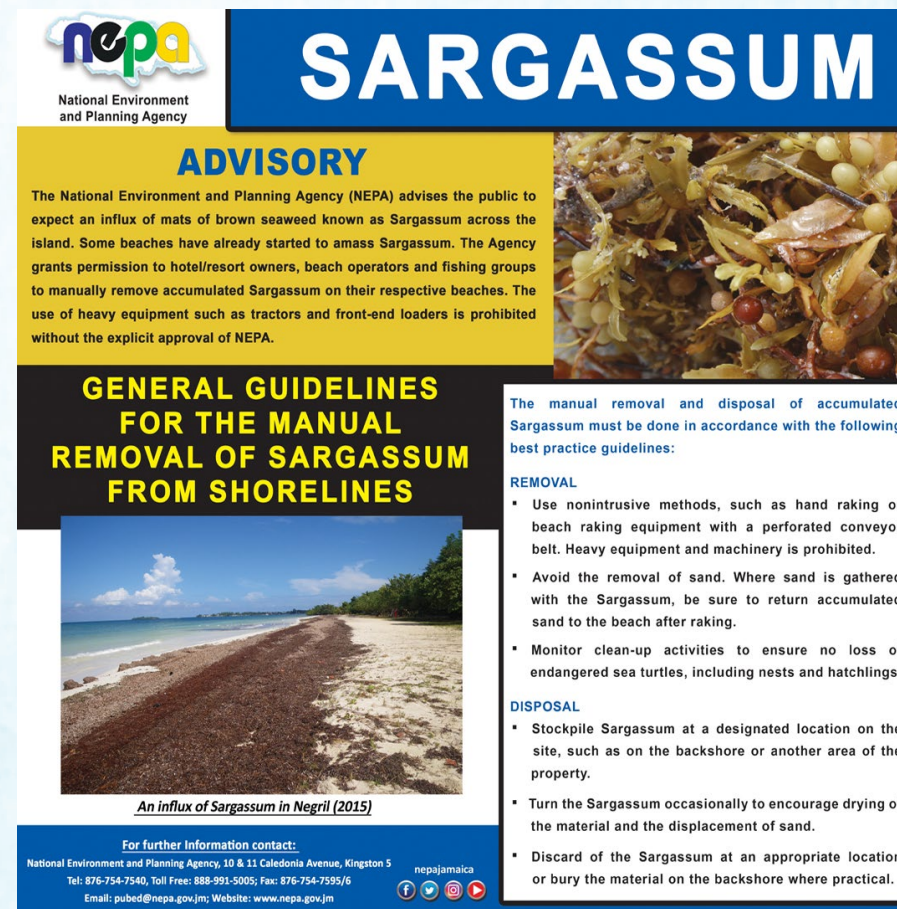

SARGASSUM

ADVISORY

The National Environment and Planning Agency (NEPA) advises the public to expect an influx of mats of brown seaweed known as Sargassum across the island. Some beaches have already started to amass Sargassum. The Agency grants permission to hotel/resort owners, beach operators and fishing groups to manually remove accumulated Sargassum on their respective beaches. The use of heavy equipment such as tractors and front-end loaders is prohibited without the explicit approval of NEPA.

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GENERAL GUIDELINES FOR THE MANUAL REMOVAL OF SARGASSUM FROM SHORELINES



An influx of Sargassum in Negril (2015)

The manual removal and disposal of accumulated Sargassum must be done in accordance with the following best practice guidelines:

REMOVAL


- Use nonintrusive methods, such as hand raking or beach raking equipment with a perforated conveyor belt. Heavy equipment and machinery is prohibited.
- Avoid the removal of sand. Where sand is gathered with the Sargassum, be sure to return accumulated sand to the beach after raking.
- Monitor clean-up activities to ensure no loss of endangered sea turtles, including nests and hatchlings.

DISPOSAL

- Stockpile Sargassum at a designated location on the site, such as on the backshore or another area of the property.
- Turn the Sargassum occasionally to encourage drying of the material and the displacement of sand.
- Discard of the Sargassum at an appropriate location or bury the material on the backshore where practical.

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Advertisements developed and published in 2023; Source: NEPA, 2023

Beach Guide

List of Beaches

Adopt A Beach

Beach Clean-up

Sea Turtles

Sargassum

News Feed

Jamaica Beach Guide




SARGASSUM



What is Sargassum?

The seaweed (Sargassum) is a type of open ocean brown algae. There are two species commonly found in the Caribbean, *S. natans* and *S. fluitans*. It is only found in the Atlantic Ocean and provides refuge for migratory species. It is free-floating seaweed and will not attach to the ocean floor; its movements depend solely on ocean currents. It is also an essential habitat for some species of fish and invertebrates and provides shelter and food to sea turtles and commercially important fish like tuna. Sargassum can also be extremely important to particular endangered and migratory species like sea turtles and whales. Additionally, Sargassum plays a role in beach nourishment and is an important element in shoreline stability, however in excessive amounts it may result in beach erosion. For further reading take a look at the "Sargassum- A Resource Guide for the Caribbean"



Two types of Sargassum species

The influx of the seaweed is believed to be related to increased accumulation in the Atlantic Ocean where nutrients are available and temperatures are high. The seaweed consolidates into large mats and is transported by ocean currents towards the Caribbean, washing up on beaches throughout the region.

As it collects and decomposes on the seashore there will be a smell, and it will also attract insects. Leaving the Sargassum on the beach has proven to be the simplest and lowest cost solution, however in instances where the seaweed is removed.

General Guideline for the removal from the beaches and shoreline

The National Environment and Planning Agency (NEPA) wishes to advise hotel/resort owners, beach operators/fishing groups that permission is granted for the removal of the accumulated Sargassum on the beaches of their respective properties. [Sargassum Management Guide](#)

Removal of accumulated Sargassum must be done in accordance with the following best practice guidelines, as follows:

Removal

Disposal of Sargassum

Sargassum Monitoring and Tracking

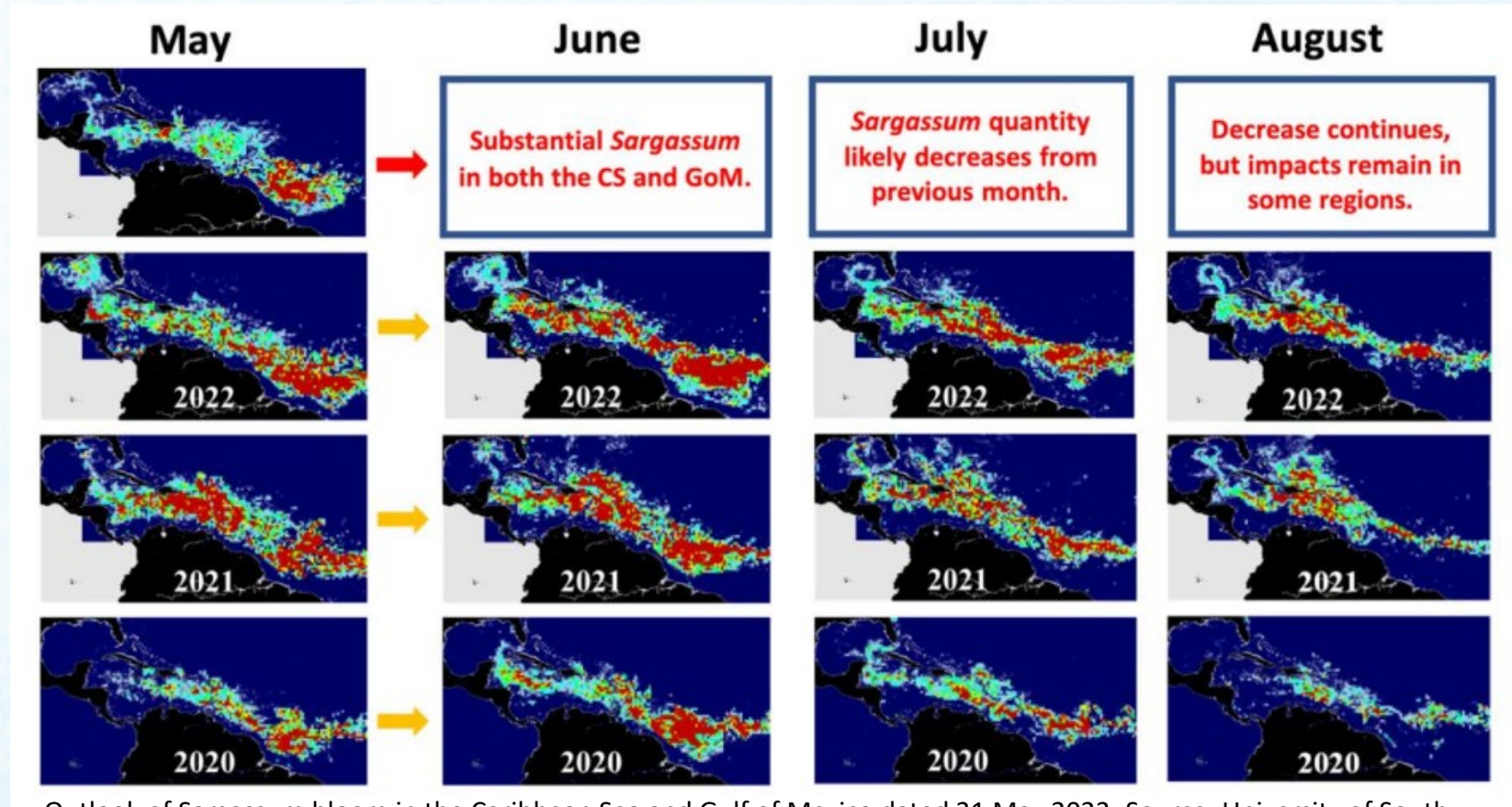
Continuous monitoring of public bathing beaches across Jamaica since 2018
Annual report prepared on the status and trends across Jamaica

A screenshot of a mobile application interface for Sargassum monitoring. The interface is displayed on a smartphone screen. At the top, it shows the time 6:18 PM and the user's name Andre. Below the header, there are several input fields for recording inspection data: Date of Inspection* (with a calendar icon and MM/DD/YYYY format), Time of Inspection* (with a clock icon and hh:mm format), Sea Conditions* (with a dropdown arrow), Wind Conditions* (with a dropdown arrow), Weather Conditions* (with a dropdown arrow), Length of beach (m)* (with a numeric keypad icon), and Is there Sargassum in the sea?*. The background of the form is a light brown color.

NEPA officers conducting Sargassum monitoring; Source: NEPA

Sargassum Monitoring and Tracking

The Agency also uses satellite-tracking systems available to the public – such as the University of South Florida’s Sargassum Watch System



Outlook of Sargassum bloom in the Caribbean Sea and Gulf of Mexico dated 31 May 2023; Source: University of South Florida Optical Oceanography Lab’s website

(https://optics.marine.usf.edu/projects/SaWS/pdf/Sargassum_outlook_2023_bulletin5_USF.pdf)

Shoreline Cleanup



Pictures of cleanup occurring around the island; Source: NEPA

Cleanup response

NEPA to embark on sargassum weed clean-up at Hellshire

Published: Friday | September 10, 2021 | 12:05 AM



File

Sargassum along the shoreline of the Hellshire Beach in St Catherine on Tuesday, August 17.

The National Environment and Planning Agency (NEPA) has embarked on a clean-up of sargassum weed along the Half Moon Bay Fishing Beach in Hellshire, St Catherine. This follows its finding that a recent localised fish kill was due to the impact of dead and decaying sargassum weed last month.

Its analysis of water samples attributed the fish kill to decaying sargassum which caused a reduction in oxygen in this area.

Picture taken from the Gleaner's website showing extracts of the article titled "NEPA to embark on sargassum weed cleanup at Hellshire" published September 2021;

Source: The Gleaner, 2021 (<https://jamaica-gleaner.com/article/news/20210910/nepa-embark-sargassum-weed-clean-hellshire>)



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Mechanical Cleanup

Sargaboard® with a trailer system (Sargatrailer®) makes collection at sea possible – specially designed for the saltwater and open sea.

SURF RAKE is efficient for Sargassum removal on the beach.



Resource assessments/surveys and research

NEPA requested partnership for research in 2018

The University of the West Indies (UWI Mona) Faculty of Science and Technology (FST) established a Sargassum group “Exploring the potential commercial uses of Sargassum”

- techniques for collecting and utilising Sargassum studied
- potential uses include as fertiliser for agricultural crops and mangrove seedlings



Exploring the potential commercial uses of Sargassum

Major findings show:

- High volume/low value: Sargassum can be used for anaerobic digestion, production of methane and soil amelioration
- High volume/medium value: Sargassum can be used as texturizing agents in a myriad of industrial applications including in the food industry
- Low volume/high value: Sargassum can potentially be used in the production of pharmaceuticals and cosmetics.



ICENS research on Sargassum in Jamaica

The International Centre for Environmental and Nuclear Sciences (ICENS), based at UWI Mona, found:

- the average concentration of arsenic in Sargassum found in Jamaica is 60 ppm (60 mg/kg)
- Reducing the arsenic levels to make Sargassum suitable for use in agriculture and other purposes poses a significant challenge

MGI Sargassum work in Jamaica

Mona GeoInformatics Institute (MGI)
(UWI Mona) major work:

- Sargassum distribution map (SARTRAC project)
- Project titled “Implementation of a Sargassum Transformation Pilot System for Jamaica’s Vulnerable Sector Pilot Project”
 - Partners: Sargassum Ocean Sequestration of Carbon, Tourism Enhancement Fund and Agrishare
 - NEPA for technical expertise and assistance

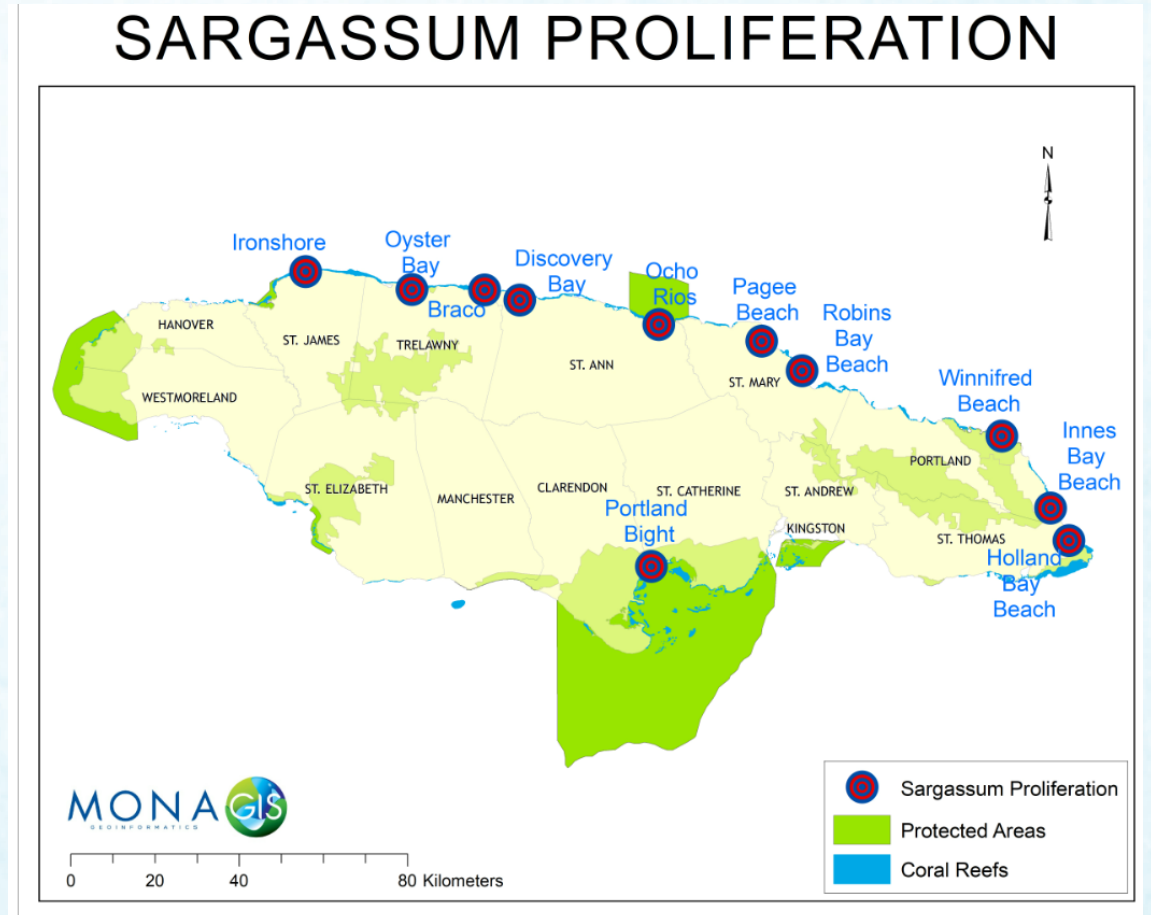


Figure 1: Map of Sargassum proliferation in 2017 across Jamaica – MGI Blue
Image 1 of 6

CLOSE

Image titled “Sargassum Proliferation” taken from MGI’s website: Mona GeoInformatics Institute, Mona Informatix Limited, 2018 (<https://blue.monagis.com/sargassum-to-systems-environmental-reporting-gets-a-boost-in-saint-lucia/>)



Thank
you!



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