



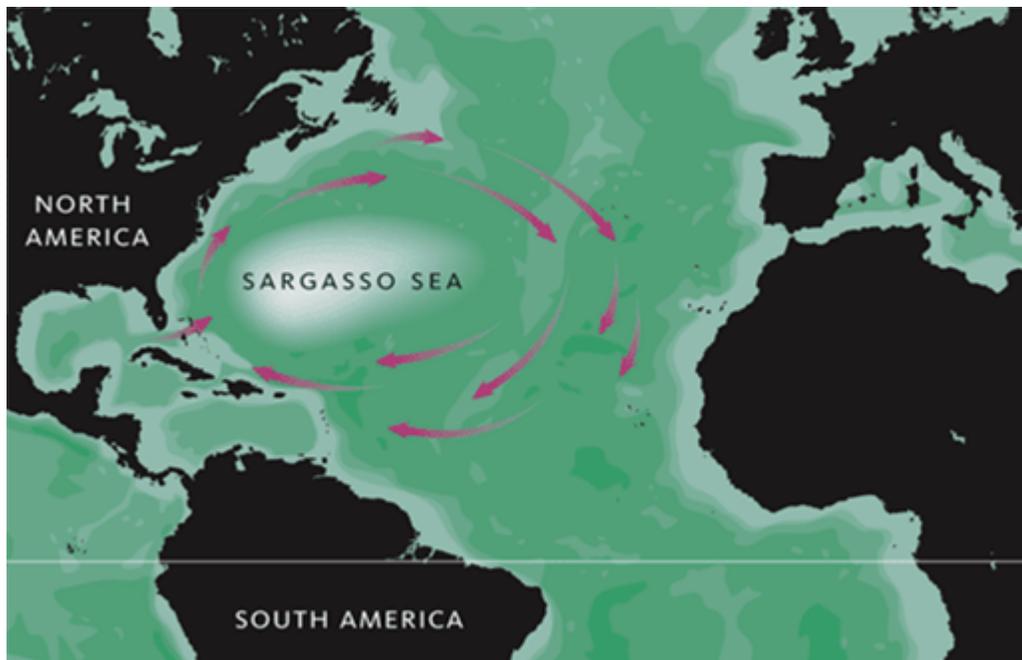
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## What is *Sargassum*?



Figure 1: The two species of *Sargassum* common to our area. From Doyle and Franks 2015. *Sargassum* fact sheet, Gulf and Caribbean Fisheries Institute.  
Photo by Jim Franks.

As Christopher Columbus sailed his way across the northwest Atlantic Ocean in 1492, he wrote in his logbook that his crew “saw much weed and very often, and it was vegetation from rocks and it came from a westerly direction; they judged themselves to be near land.” To his dismay, Columbus was nowhere near land; more than 500 years later, we know that weed as seaweed called *Sargassum*, named by Portuguese sailors who thought the seaweed’s floats resembled “little grapes,” or sargaço in Portuguese. The *Sargassum* we see in the northwest Atlantic is actually two different species that are similar in appearance: *Sargassum natans* and *Sargassum fluitans* (Figure 1). This free-floating brown algae is holopelagic, meaning it spends its entire life cycle at sea and is never anchored to the seafloor. Large expanses of *Sargassum* can be found east of the Gulf Stream and west of the Canary Islands, a region known as the Sargasso Sea (Figure 2).



*Figure 2: The Sargasso Sea.  
Public domain map from Wikipedia.*

**Why is it important?**



Figure 3: The sargassum fish *Histrio histrio*. Image from Totti, CC BY-SA 4.0.

As many fishermen know, *Sargassum* converges to form dense, tangled mats that provide protection from predators for dozens of fish species. Some of these fishes are endemic to *Sargassum*, meaning they use *Sargassum* as habitat their entire lives. Other species only associate with *Sargassum* temporarily, typically as larval fishes. Perhaps the best example of a species endemic to *Sargassum* is the sargassum fish (*Histrio histrio*) (Figure 3), whereas gray triggerfish (*Balistes capriscus*) and greater amberjack (*Seriola dumerili*) only use *Sargassum* early in their life cycles (Figure 4). In addition to the multitude of fishes, *Sargassum* is critical habitat for numerous species of sea turtle, shrimp, crab, and even sea bird, who forage on *Sargassum* inhabitants.



Figure 4: Several juvenile jacks using Sargassum as habitat.  
Image from Sportfish Magazine.

## The Great Atlantic Sargassum Belt

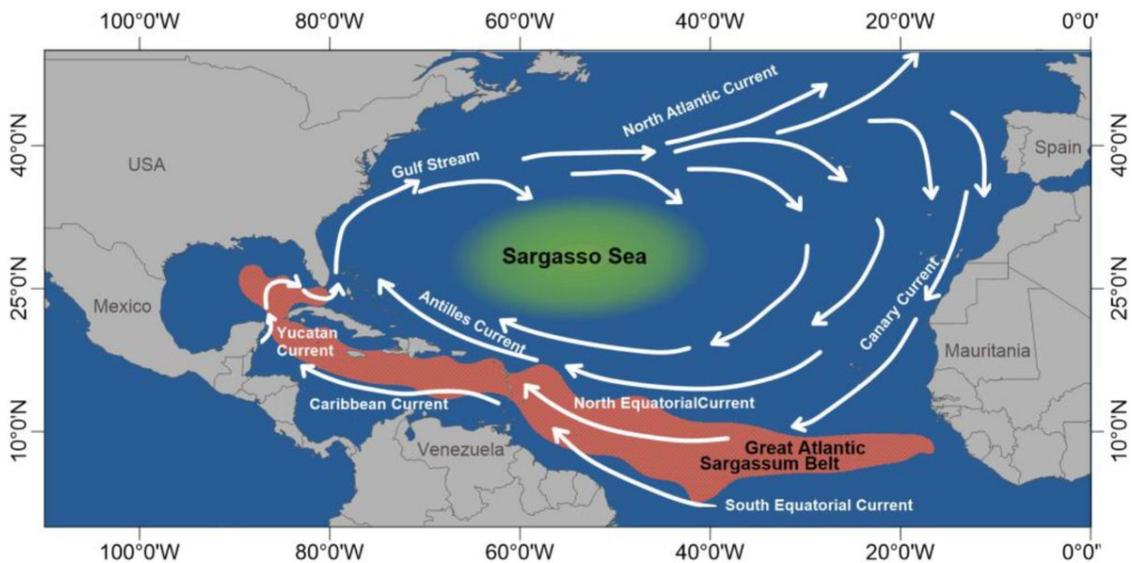


Figure 5: The Great Atlantic Sargassum Belt.  
Figure 1 from López Miranda et al. 2021. Commercial potential of pelagic Sargassum spp. in Mexico. *Frontiers in Marine Science* 8: 768470.

Clearly, *Sargassum* has long served an important role for a plethora of species. Sadly, though, it's possible to have too much of a good thing. Until recently,

most free-floating *Sargassum* was found in the Sargasso Sea and the Gulf of Mexico. However, starting in 2011, *Sargassum* started to appear in other parts of the Atlantic Ocean. Dubbed “The Great Atlantic *Sargassum* Belt,” this unprecedented *Sargassum* bloom heralded the arrival of a *regime shift*, or a large and sudden change to an ecosystem that persists for a long time (Figure 5).

## *Sargassum* in the Caribbean



*Figure 6: Vast expanses of Sargassum covering a beach in Barbados.  
Photo from the Barbados Sea Turtle Project.*

Nowhere has this sudden increase in *Sargassum* been more evident than in the Caribbean. Since 2011, large regions of the Caribbean and Central Atlantic have been periodically inundated with *Sargassum* (Figure 6). The arrival of *Sargassum* in these areas is particularly problematic for island nations that rely heavily on tourism. Not only do huge mounds of *Sargassum* block beach access, but they also have an unpleasant smell and are incredibly costly to remove (Figure 7). For many islands, these impacts have been crippling.



*Figure 7: Workers remove heaps of Sargassum on a beach in Quintana Roo, Mexico. Photo by Bénédicte Desrus.*

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## A new normal?

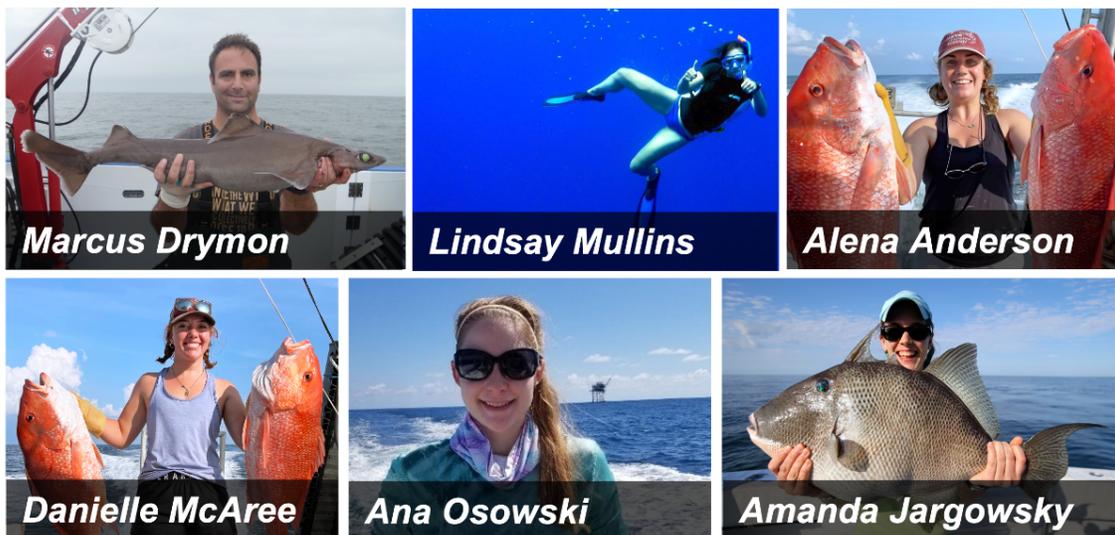
What caused the regime shift that led to these recent changes in *Sargassum* dynamics? Most scientists suggest a combination of factors, including 1) warming ocean temperatures more hospitable to *Sargassum* growth, 2) upwelling of currents off West Africa, and 3) increased nutrient concentrations in Amazon River discharge. Regardless of the mechanism, the Caribbean now faces new cultural and economic challenges. These challenges have spurred the development of potential new uses for *Sargassum*, including animal feed, fertilizer, biofuel, and even construction material. Bricks formed from dried *Sargassum* termed “Sargablocks” have been used to construct houses along Mexico’s Yucatan Peninsula (Figure 8).

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*Figure 8: A worker stacking Sargablocks in Puerto Morelos, Mexico. Image from REUTERS/Paola Chiomante.*

Time will tell if the Caribbean influxes of *Sargassum* are the new normal. Continued tracking and satellite monitoring of the Great Atlantic *Sargassum* Belt, coupled with innovative ways to commercialize *Sargassum*, are vital to controlling blooms of this critical habitat.



I'm Marcus Drymon, an Assistant Extension Professor at Mississippi State University and a Marine Fisheries Specialist at Mississippi-Alabama Sea Grant. Lindsay Mullins, Alena Anderson, Danielle McAree, Ana Osowski, Amanda

Jargowsky, and I are the Marine Fisheries Ecology Lab. We'd love to hear from you! Please reach out to us at [marinefisheriesecology@gmail.com](mailto:marinefisheriesecology@gmail.com)

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