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# Fact Sheet

## Pelagic Sargasssum Influx in the Wider Caribbean

Massive quantities of pelagic sargassum occurred throughout the Caribbean in 2011, impacting aquatic resources, fisheries, shorelines, waterways, and tourism. Similar events have occurred since then, with a particularly heavy influx of sargassum observed during 2015. This Fact Sheet seeks to share the state of knowledge about the sargassum influx and to promote the adoption of best management practices. Some of the questions that we're frequently asked are:

***What is it?*** Pelagic sargassum is a brown alga, or seaweed that floats free in the ocean and never attaches to the ocean floor. These free-floating forms are only found in the Atlantic Ocean. Sargassum provides refuge for migratory species and essential habitat for some 120 species of fish and more than 120 species of invertebrates. It's an important nursery habitat that provides shelter and food for endangered species such as sea turtles and for commercially important species of fish such as tunas. There are two species of sargassum involved in the sargassum influx: *Sargassum natans* and *Sargassum fluitans.*

**Left:** *Sargassum natans;* **Right:** *Sargassum fluitans*
Photo: H. Oxenford

The sargassum ecosystem Photo: B. Raines

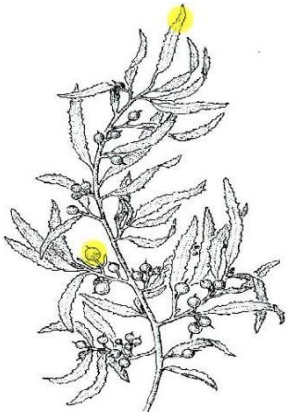
***Where does it come from?*** Sargassum travels on ocean currents. Scientists are able to determine where the sargassum comes from by back-tracking from its stranding location using ocean models and data on movements of satellite trackers that are deployed at sea. It is believed that the recent influxes are related to massive sargassum blooms occurring in particular areas of the Atlantic, not directly associated with the Sargasso Sea, where nutrients are available and temperatures are high. The sargassum consolidates into large mats and windrows and is transported by ocean currents towards and throughout the Caribbean.

***Will the sargassum influx occur every year?*** We don't know for sure if it will happen every year, but currently proposed efforts to develop prediction and alert systems would help answer this important question. Signs from the Eastern Caribbean so far this year are that we'll be seeing sargassum in the region periodically throughout 2015. Some scientists associate the cause of sargassum with higher than normal temperatures and low winds, both of which influence ocean currents, and they draw links to global climate change.

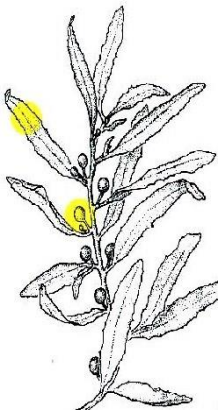
***Will the influx happen all year round?*** The sargassum does not necessarily affect the same location in the Caribbean all year. As it's transported on currents it progressively affects different locations across the region. At any one time of the year there are multiple locations that can be affected.

***Is it a problem to leave it to rot on the beach?*** Sargassum occurs naturally on beaches, albeit in smaller quantities. It plays a role in beach nourishment and is an important element of shoreline stability. Sand dune plants need nutrients from the sargassum and sea birds, for example, depend on the sea life carried in the sargassum for food. During decomposition there will inevitably be a smell and insects around. The experience in locations that have left the sargassum on the beach is that it will eventually get washed away or buried in the next storm, with rain easing the smell. Leaving sargassum on the beach has proven to be the simplest and lowest cost approach, also helping to nourish the beach and stabilize the shoreline.

Photo: Les Fruits de Mer



***Sargassum natans***
**- Pods usually tipped with a spike**
**- Leaves long-stalked and narrow**



***Sargassum fluitans***
**- Pods usually not tipped with spike**
**- Leaves short-stalked and broad**

Illustrations by Julia S. Child (Schneider and Searies, 1991)

***What's that smell?*** When sargassum accumulates and decomposes in large quantities, the smell of rotten egg gas can occur. This is hydrogen sulfide gas and is given off as part of natural decomposition. The US Occupational Safety and Health Administration lists that when the smell is described as 'more offensive' (3-5 parts per million) then prolonged exposure may cause effects such as nausea, tearing of the eyes, headaches and loss of sleep. Asthma sufferers may experience airway problems. Full details are at https://www.osha.gov/SLTC/hydrogensulfide/hazards.html. Tarnishing of metals has been reported in areas affected by the sargassum influx and is likely associated with hydrogen sulphide, with the effect improving when exposure eases.

***Are there any uses for sargassum?*** The species of pelagic sargassum involved in the influx are different from those grown as sea moss in the Caribbean and sometimes used in food and drinks. Sargassum can be used as mulch or compost – allow salt to wash out in the rain and mix with manure and soil. Collected sargassum can also be usefully redistributed in areas affected by beach erosion. But care is needed in how this is done so as to avoid damaging sand dunes and to avoid impacting sea turtle nesting and bird nesting habitat. The Coastal and Wetlands Ecology Laboratory of Texas A&M University Galveston Campus is testing compacting sargassum in bales, burying them in eroded areas and planting dune vegetation on top. New uses for sargassum collected from beach strandings are being developed – as biofuel, fertilizer and livestock feed or fish food, for example.

Photo: N. Cazaubon

Photos: E.Doyle

***What about fishers and impacts of the sargassum influx?*** Since the influx of sargassum is a relatively new topic there is only limited experience in relation to its management, especially in dealing with impacts on fishers and interactions with boats and fishing gear. Fishers might consider the following:

- The sargassum influx does not necessarily affect the same location in the Caribbean all year, so there will likely be periods when a particular fishing area is less affected by sargassum;
- Impacts are being seen on different types of fisheries, sometimes with a prevalence of juvenile fish which are vulnerable to over-fishing;
- Sargassum has impacts on fishing gear and motors. Fishers are coming up with devices to free rudders of weed, to back up engines to free propellers, and are using strainers across the water intakes to prevent blockage and engine over-heating;
- Those heading to sea need to be prepared to deal with gear complications plus possible loss of power or steering, and plan for the safety implications of this, especially when fishing at night;
- Having a set of oars, or in shallow areas a pole, may help with maneuvering small fishing boats through some accumulations of sargassum;
- Fishers may prefer to keep their boats in less affected bays, where these exist, eg. on the leeward side of islands;
- Researchers who are working to track causes and transport pathways, as well as develop prediction and alert systems, welcome reports of sargassum from fishers and boaters. Researchers also welcome observations from fishers about the impact of sargassum on their catch, and how their catch differs from years without sargassum influx. Please use the reporting site **http://www.usm.edu/gcrl/sargassum/sargassum.observation.form.php**.

***What can we do about the sargassum influx?*** Attempts at local management mostly focus on dealing with the large quantities of sargassum washed up on beaches. Coastal managers agree on the need to balance the importance of sargassum for natural processes and as life-giving nourishment for beaches and seabirds, with pressure to address negative impacts on communities. In parts of the Atlantic, including Bermuda and the US, pelagic sargassum is acknowledged as essential habitat and is protected from in-water collection. Be aware that:

- Collection of pelagic sargassum from the sea threatens the marine organisms living within the sargassum ecosystem and can have detrimental impacts for the fisheries resources that many coastal communities depend upon for their livelihoods;
- Applying any chemicals to sargassum makes things worse, is hugely damaging to reefs and fish and is illegal;
- Typically the law does not require agencies to remove sargassum since it's not marine debris but is natural;
- Where capacity exists to clean beaches, it's essential to establish clear policies about where, when and how to clean beaches so as to avoid detrimental impacts such as worsened erosion from the use of machinery for beach cleaning.

Sargassum life Photos: D.J. Southall

***What are some good practices to apply if removing sargassum from beaches?*** A review of experiences from beaches affected by sargassum in the Gulf of Mexico at the 2015 Sargassum Symposium hosted by Texas A&M University Galveston Campus, NASA Stennis Space Center and Galveston Island Park Board of Trustees highlighted that:

- Beach cleaning should be done only in the presence of monitors who check for wildlife prior to any cleaning, and operators must respect no-go areas such as sea turtle or bird nests;
- Patience is required, and be aware that it's not necessarily desirable to clean beaches that are already facing a precarious erosion situation, that are essential habitat for sea turtle nesting or where grooming will increase wind-blown sand and worsen erosion;
- Removal of sargassum should be from and to agreed areas only, and equipment should use the same route on to and off the beach to prevent harming dunes, destroying dune vegetation and turtle or bird nests;
- There is a difference between achieving a naturally clean beach and an over-sanitized beach - constant grooming of the beach for regular maintenance or for aesthetic purposes is discouraged due to very real risks of worsened beach erosion from physical damage of machinery and unintended removal of sand;
- Least intrusive practices are preferred - hand raking is preferable to machinery, beach raking equipment with a perforated conveyor belt is preferable to heavy construction equipment, and heavy tracked equipment like road graders are prohibited. Front loaders must utilize a bucket level control indicator/float mechanism to prevent gouging of the beach;
- A mechanized beach rake can remove moderate quantities of sargassum on dry sand. When exceptional amounts occur (ie. in excess of 3 feet deep) then removal of just the upper layers of sargassum first with a front loader, without touching sand, can be followed by mechanized beach raking in order to reduce sand loss;
- Cleaning should always occur at low tide and heavy equipment should stay on wet sand in the tidal zone. Adjust cleaning schedules to when wind and storms are less likely to immediately bring new influxes;
- Consider public safety and avoid mechanical beach cleaning in the presence of fishers or beach goers;
- In embracing the challenge of sargassum, good communications between agencies and the private sector, with the press, and with locals and visitors is essential. Make sure everyone knows where clean or less-affected beaches can be found.

## We can't keep our heads in the sand about sargassum!

To report sargassum please go to **http://www.usm.edu/gcrl/sargassum/sargassum.observation.form.php**
For more information contact sargassum@gcfi.org

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