Update on Sargassum Session at GCFI72 Punta Cana

[By E. Doyle, GCFI] December 2, 2019. ***Updates on the pelagic sargassum influx from the Dominican Republic and Cuba, news on sargassum monitoring and citizen engagement, and progress in physical oceanography for tracking arrivals of sargassum to the Caribbean were recently shared during the 72nd conference of the Gulf and Caribbean Fisheries Institute (GCFI).***

This year's technical session on the sargassum influx included an update on fisheries impacts in the meeting host country. Social research by the Universidad Nacional Pedro Henríquez Ureña in the Dominican Republic indicates that fishers perceive a generally positive impact of the sargassum influx on local fisheries, with a perceived increase in the volume of their catch and an accompanying perceived increase in income. This contrasts with findings of detrimental impacts on other Caribbean fisheries, for example, the flying fish industry in Barbados. In the Dominican Republic, FAD fishers (using fish aggregating devices) are seen as best placed to take advantage of the perceived positive impacts of the sargassum influx. However, a need for training of fishers in adaptation to the sargassum influx and sustainable livelihoods was identified.

At last year's GCFI71 conference in San Andres, a proposed program for citizen reporting of sargassum landings was presented by Professor Ligia Collado-Vides. One year later, progress on implementation of the pilot "Sargassum Watch" program was presented by Lowell Iporac of Florida International University. An online sargassum reporting tool was developed using the apps CitSci and Epicollect5. Implementation of the tool required in-person training of users and constant feedback between project managers and users. Nonetheless, it was argued that citizen reporting can provide systematic, in-situ abundance observations of sargassum landings to complement other monitoring efforts.

Keeping with the theme of technological applications and the sargassum influx, the development of a geospatial approach to quantifying sargassum landings using drones was presented by CERMES Research Associate Dr. Kim Baldwin. Seeking efficiencies in monitoring over conventional quantification methods that depend on time-consuming surveys using transects and quadrats, recreational drones and photogrammetry mapping software were employed to obtain and process high resolution aerial imagery of sargassum landings on beaches in Barbados. Remote sensing and standard geospatial techniques were successfully used to map, classify and quantify the volume of stranded sargassum, potentially offering a standard approach for sargassum monitoring in the region.

Dr. Don Johnson of the Gulf Coast Research Laboratory, a frequent presenter at GCFI about ocean dynamics and the pelagic sargassum influx, gave an update about developments in technical oceanography that are being applied to enhance understanding of the sargassum influx. Studies

of ocean recirculation patterns and ocean surface transport suggest that the sargassum bloom is not confined to one recirculation region alone, nor is it due to hydrography alone. Rather, a combination of retention in a warm, nutrient-rich area together with a seeding mass is critical for a bloom to occur. He also noted 2-year pulses in the sargassum influx affecting the Gulf and Caribbean region.

For the first time, the GCFI72 sargassum session included presentations from Cuba about the impacts of the sargassum influx and local management efforts. Dr. Ana Maria Suarez of the University of La Havana described reports of the sargassum influx in Cuba, largely received from protected area managers, starting in 2012 on the south-central coast. Subsequent influxes occurred in 2015 and 2016, and in 2018 and 2019 with progressively larger landings observed on the south coast each year. She described projects related to monitoring, collection and use of sargassum by communities of Isla de la Juventud, Parque Nacional Cayos de San Felipe and Parque Nacional Ciénaga de Zapata. Asking whether or not sargassum management should take a natural disaster response approach, she posed philosophical questions about the new reality of coastal zone management in a changing world.

“In the face of this emerging threat, we need to be mindful that some sargassum on our coasts is normal,” she reminded the audience.

Her question “Can the sargassum influx help to bring into focus the otherwise hidden issue of ocean pollution, both nutrients and heavy metals?” prompted audience discussion.

Florida International University then provided an update about the findings of research into nutrient and heavy metal content in pelagic sargassum species from South Florida. Sargassum showed high carbon content relative to nitrogen and phosphorous, and was found to be phosphorous-limited relative to nitrogen. Of special note, arsenic was found in high concentrations in all samples. Other heavy metal concentrations varied among samples which might reflect the availability of these metals along the trajectory of pelagic sargassum through the Atlantic. The presence of alginates in sargassum increases biosorption of trace metals and this underpins the recommendation for managers to consider tissue metal concentrations before approving sargassum for animal of human consumption.

The moderator of the sargassum session, Ms. Emma Doyle, commented: “This year’s session at GCFI highlighted the importance of collaboration on research into the sargassum influx. It was a productive session with excellent audience input that highlighted possible future directions related to the global implications of the sargassum influx, such as communications on ocean pollution and research into carbon sequestration.”

A field visit for presenters to the Grupo Punta Cana Foundation’s pilot sargassum projects with consultants AlgeaNova show-cased efforts towards large scale composting of sargassum, the production of biogas and the use of sargassum to make disposable plates.

The GCFI72 sargassum abstracts can be found at https://www.gcfi.org/gcfi-72-conference/ and past extended abstracts can be found in the searchable database of online GCFI proceedings at https://proceedings.gcfi.org/ For more information please contact sargassum@gcfi.org.

Pilot sargassum projects in Punta Cana (top: biogas production; left composting; right disposable plates)

About the Gulf and Caribbean Fisheries Institute (GCFI): When the Gulf and Caribbean Fisheries Institute was founded in 1947, the riches in our seas appeared limitless. Originally GCFI helped develop new ways to exploit the region's marine resources and to develop new fisheries based upon this perception of an inexhaustible sea. However, it wasn't long until the degradation of marine resources and threats to regional fisheries were documented. GCFI now works to advance the goals of sustainable use, wise management, conservation, and restoration of fisheries in the region. GCFI provides a platform for the exchange of information and perspectives among decision-makers, scientists, managers, educators, resource users, and students. For more information please visit www.gcfi.org