

Minutes of the Technical Awareness Group Meeting (2nd meeting)

For the Sargassum-Arsenic Research

Supported by the Hinkley Center for Solid and Hazardous Waste Management

Meeting held, June 21st, 2024, 10:00 am to 12:00 pm (eastern)

Meeting Participation was through Virtual Connection (Zoom)

Attendees:

Speakers:

Afeefa Abdool-Ghany, University of Miami, now at FIU

Brittany Mc Intyre, University of Miami

Helena Solo-Gabriele, University of Miami

Jiayu Li, University of Miami

Melanie Cerna, Florida International University

Attendees via computer webinar:

Alejandro Prado Iriarte, University of Miami

Alejandro Quintas, NEAT Sand

Alina Ruta, Miami-Dade Innovation Authority

Angela Delaney, Broward County Marine Resources

Bethany Tober, Biscayne Bay Aquatic Reserve

Caroline Irvin, Division of Environmental Resource Management (DERM)

Chadeene Beckles, Caribbean Agricultural Research and Development Institute (CARDI)

Chrissy Hudson, ADAR Technologies

Craig Ash, Waste Management

Danielle Jimenez, Division of Environmental Resource Management (DERM)

Dan McChesney, Shapiro Enterprises

Dan Meeroff, Florida Atlantic University

Elizabeth Kelly, Martin County

Gloria Antia, City of Miami

Guangliang Liu, Florida International University

Hannah Sackles, University of Florida

Isabela Puente, University of Miami

James Gaspard, BioChar Now

Jessica Lorenzo, City of Miami Beach

Josefina Olascoaga, University of Miami

Kimberly Moore, University of Florida, IFAS

Koa Wong, University of Miami

Lanette Sobel, Fertile Earthworm Farm

Legena Henry, Rum and Sargassum

Ligia Collado-Vides, Florida International University

Lisa James, Caribbean Agricultural Research and Development Institute (CARDI)

Louis DiVita, Hinkley Center for Solid and Hazardous Waste Management
Mark Almay, City of Fort Lauderdale
Mary Beth Morrison, Solid Waste Authority of Palm Beach County
Pamela Sweeney, Division of Environmental Resource Management (DERM)
Rivka Reiner, University of Miami,
Roland Samimy, The Village of Key Biscayne
Samir Elmir, Department of Health, Miami Dade-County
Schonna Manning, Florida International University
Shahar Tsameret, University of Miami
Shelly Krueger, Florida Sea Grant Agent for Monroe County
Stephanie Roche, Broward County's Resiliency Department
Steve Sternick, Beach Raker
Susan Noel, Loxahatchee River District
Timothy Kirby, City of Miami
Thierry Tonon, York University, UK
Tristan Alvarez, Caribbean Agricultural Research and Development Institute (CARDI)
Vincent Encomio, Florida Sea Grant Agent for Martin and St. Lucie Counties
Wilbur Mayorga, Division of Environmental Resource Management (DERM)
Yong Cai, Florida International University

Agenda
TAG Meeting, Sargassum Composting and Beach Quality

Date: June 21, 2024 (Friday)

Time: 10:00 am to 12:00 am (US Eastern)

Location: Virtual only, Zoom Link, <https://miami.zoom.us/j/92016167950>

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|----------|---|-------------------------|
| 10:00 AM | 1. Welcome and Introductions | Solo-Gabriele |
| 10:15 AM | 2. Summary of Prior Hinkley Sponsored Research <ul style="list-style-type: none">a. Economics of Sargassum Compostb. Compost Production and Characteristicsc. Questions and Answers | Abdool-Ghany |
| 10:25 AM | 3. Results to Date for Current Project (Arsenic and Bacteria Impacts from Sargassum Left on Beaches) <ul style="list-style-type: none">a. Overviewb. Phase 1 Results (Beach Study)c. Phase 2 Results (Mesocosms)d. Next Stepse. Questions and Answers | Abdool-Ghany |
| 10:45 AM | 4. Future Hinkley-Sponsored Research (Approaching Sargassum Reuse from a Risk Based Approach) | Solo-Gabriele/Mc Intyre |
| 10:55 AM | 5. Farmer Study for three Caribbean Countries <ul style="list-style-type: none">a. Overviewb. Progress to Date and Next Stepsc. Questions and Answers | Mc Intyre |
| 11:05 AM | 6. Risk Assessment for Sargassum Beach Contact | Mc Intyre/Cerna |
| 11:15 AM | 7. Research Plan and Results to Date for NSF Project focused on Air Emissions and Microbial Communities <ul style="list-style-type: none">a. Introduction and Initial Results for Air Emissionsb. Results for Enterococcic. Next Stepsd. Questions and Answers | Li/Tsamaret |
| 11:30 AM | 8. Additional questions and answers, wrap up. Open and free discussion. | Solo-Gabriele |
| 12:00 PM | 9. Adjourn | |

Questions: hmsolo@miami.edu

Minutes

Questions, Answers, and Comments (After item 2 on agenda, Summary of Prior Hinkley Sponsored Research)

1. Q: Can the arsenic get transferred to pollinators such as bees, butterflies, and birds?
A: We have not looked at this specific question. We are unaware as to if/how the arsenic can be transferred to the pollinators. We did notice that there were bees that were attracted to the mesocosms that we set up for Phase 2 of the current study.
2. Comment: One of the pathways that should be evaluated further is the leachate from the Sargassum and storm water quality at/near a Sargassum composting site. In our research we have found that arsenic is present at orders of magnitude greater than the actual cleanup target level for groundwater. We have also seen an issue with the chloride concentrations in the leachate and the storm water.
A: During the current study we did monitor the leachate from the decomposing Sargassum and the arsenic concentrations specifically. We will present on the results in the next section.
3. Comment: It needs to be qualified that any property that will be receiving materials that is considered commercial/industrial will have to issue a restriction to the property to ensure that the land does not change in the future to residential use.

Questions, Answers, and Comments (After item 3 on agenda, Results to Date for Current Project)

1. Q: Is there a way to factor the rising tide in saltwater in the arsenic concentrations? Does the integration take place above the high tide line or is it in the intertidal areas where it could be subject to salt water?
A: For this project we simulated what would happen if the decomposition process would take place above the high tide line. It would ideally be applicable to composting on or near the beach or possibly letting it dry on the beach. We agree that the intertidal zone may have different arsenic concentrations and the salt water has the ability to interfere affect the release of the arsenic from the Sargassum.
2. Was the Sargassum fresh when collected for the start of the project? Where was the sand collected for the mesocosms?
A: The Sargassum was fresh when collected for the project. We ensured that it was a fresh landing of Sargassum using EpiCollect. This site was monitored everyday to make sure that we were able to collect during a fresh stranding event. The sand was collected from the supratidal zone at the same location the Sargassum was collected.
3. Comment: The Sargassum morphotype may impact the level of arsenic and its release. Different morphotypes impact the beach at different times.

A: We agree that documenting the morphotype and species of Sargassum is important and we plan to do this as part of the study. We have samples that can be used for this.

4. Was the Sargassum from the dune area?

A: The Sargassum was collected from the intertidal zone area and it was fresh.

5. Comment: Sargassum is not allowed to be buried and cannot be used for dunes.

6. Comment: the reduction overtime that was observed is only for one loading event to a Sargassum composting operation. The reduction will not be seen since there will be multiple loading events seen at a composting facility.

Questions, Answers, and Comments (After item 4 on agenda, Future Hinkley-Sponsored Research)

1. Comment: Working with the State, we want to ensure that we account for the transformation of the different species of arsenic once the material is released into the environment. Transformations are always of concern.

2. Comment: The Rum&Sargassum Inc. company is a spin off company from the University of West Indies. The company is on-the-ground now. The digestate is used as a fertilizer. Currently running a 6-car pilot study where the use of biomethane can be used as transport fuel.

Questions, Answers, and Comments (After item 5 on agenda, Farmer Study for three Caribbean Countries)

1. Q: Is there a baseline for arsenic concentrations for what farmers are seeing?

A: We are not aware of any individuals who have looked at the arsenic concentrations in the farming products. Right now, we are working with CARDI to get that network of farmers to start talking with them, to see what they know and what's going on. This study is kind of twofold; it's a baseline study, but also data will be used for a risk assessment.

Questions, Answers, and Comments (After item 6 on agenda, Risk Assessment)

1. Comment: Reminder to include aggregate risk and recommend the use of Dr. Roberts' risk assessment approach.

A: We will be aggregating risks from ingestion, dermal, and inhalation routes and we have been using Dr. Roberts' 2005 report as a guide.

Questions, Answers, and Comments (After item 7 on agenda, NSF Project focused on Air Emissions and Microbial Communities)

1. Comment: Air emissions have been an issue in Martinique but has not yet been an issue in Miami-Dade.

A: In our field monitoring we have not be observing levels of hydrogen sulfide that would have an immediate effect on human health.