Report of Training Workshop on
Improving management of sargassum influxes in Anguilla

The Valley, Anguilla

May 4-5, 2023

Contents

Project Background

Since 2011, sargassum influxes have been affecting the Caribbean region, becoming a recurring threat over recent years in the Eastern Caribbean, including in Anguilla, Montserrat and the Virgin Islands, UK. These influxes have resulted in increasingly negative ecological and socio-economic impacts including biodiversity loss in coastal and marine ecosystems; health impacts associated with emissions of hydrogen sulphide and ammonia; and socio-economic and livelihood impacts in the tourism, fisheries and marine transport sectors.

The project, "Sustainable sargassum management in Anguilla, British Virgin Islands and Montserrat" aims to implement a participatory and multi-level approach to managing the social-ecological system responses to sargassum influxes in order to protect and enhance coastal and marine biodiversity and associated livelihoods. It is being implemented from 2021-2024 by the Caribbean Natural Resources Institute (CANARI) in collaboration with Department of Natural Resources–Anguilla, Ministry of Natural Resources, Labour and Immigration–Virgin Islands, Department of Environment–Montserrat, Centre for Resource Management and Environmental Studies (CERMES) of the University of the West Indies, and the Organisation of Eastern Caribbean States (OECS) Commission. It is funded by a grant from the Darwin Initiative.

One of the key activities under this project is building the capacity of coastal and marine managers and users for sargassum use removal and rehabilitation of affected areas. To this end, training workshops were held in each of the participating territories as follows:

Territory	**Workshop dates**	**Facilitators**
Anguilla	May 4-5, 2023	Dr. Ainka Granderson, Senior Technical Officer, CANARI Dr. Hazel Oxenford, Professor, CERMES
Montserrat	May 23-24, 2023	Ms. Yasa Belmar, Senior Technical Officer, CANARI Ms. Richeda Speede, Research Assistant, CERMES
Virgin Islands, UK	May 30-31, 2023	

Workshop Objectives

The workshop was designed to enable participants to share experiences and to gain a better understanding of the sargassum and best practices related to its management. The original agenda is attached at **Appendix 1** although minor modifications were made during the course of the workshop.

The specific objectives of the workshop were for participants to:

- have an increased and clearer understanding of sargassum, including its origins, ecological value, uses, bloom prediction, and remaining scientific uncertainties;
- be familiar with the principles of sargassum adaptive management within application to coastal and marine resources;
- be able to select the most suitable tools and approaches for monitoring, collection and removal of sargassum and the rehabilitation of affected areas;

- be able to access and utilize data and information on sargassum, including local knowledge, to improve their management decisions; and
- be equipped to effectively engage stakeholders in participatory sargassum management and to communicate about appropriate responses and adaptation approaches.

Participants

Participants in these workshops included coastal and marine managers and users who are affected by sargassum influxes, such as government agencies responsible for natural resources management, fisheries, planning, and disaster management, fisherfolk organizations, civil society organizations, and private sector representatives. The full list of participants for Anguilla is attached as **Appendix 2**.

Structure of the Workshop

On day 1, participants were introduced to the science of sargassum, including the high level of uncertainty associated with that phenomenon and the importance of participatory monitoring and research in supporting decision-making for effective sargassum management. On day 2, the focus was on sargassum adaptive management, including practical approaches to sargassum clean-up and management, selection of tools and approaches for sargassum removal and rehabilitation of affected areas, and effective stakeholder engagement and communication.

Methods

The workshop employed an interactive and participatory format, drawing from participants' experiences and enabling them to apply their learning to their specific contexts. Various facilitation methods were utilized, including plenaries, brainstorming sessions, collaborative small-group tasks, and round-robin discussions.

The facilitators for this workshop were Dr. Ainka Granderson, Senior Technical Officer at CANARI, and Dr. Hazel Oxenford, Professor at CERMES.

This report provides a summary of the presentations delivered by the facilitators, highlights the key outcomes of group exercises and plenary discussions, and incorporates relevant insights from similar workshop sessions conducted in the other two OTs as relevant. The presentations can be found in **Appendix 3**, and photographs from the workshop are available in **Appendix 4**.

Session 1 – Workshop opening

Dr. Granderson opened the workshop by providing a brief overview of supporting project and the workshop's objectives. She noted that while it was branded as a 'trainer of trainers workshop,' it could equally be referred to as an 'asker of askers workshop' since, as we will come to understand, sargassum management raises far more questions than it provides answers.

After Dr. Granderson's introduction, Ms. Carencia Rouse, Director of Environment in the Department of Natural Resources, delivered a brief welcome address. During her speech, she highlighted that the Department has been consistently monitoring sargassum, diligently focusing on both the scientific aspects and the best practices for its management. She emphasized that the Department's overarching objective is to reach a point where sargassum can be managed effectively and efficiently. Ms. Rouse expressed optimism that by the end of the next two days, participants would gain a clearer understanding of how to manage this phenomenon, along with a better grasp of its implications and potential applications.

Session 2– Introduction to sargassum science and participatory coastal and marine resource management

The session began with an icebreaker where participants were provided with sticky notes to write down a burning question(s) they had about sargassum. Then, in round robin fashion, they stated their names, the agency they represented, and shared their question(s) with the group. After everyone had their turn, the sticky notes were collected and placed on a flip chart at the front of the room.

The questions asked by participants across the 3 territories covered a broad of topics ranging from its ecological impact and uses to questions about its effects on human health, who/which agencies are/should be responsible and appropriate measures taken to manage and control it. (See Box 1)

The rest of the session aimed to provide answers to these questions using a variety of formats. This included showing the video documentary Drowning in Seaweed, followed by a presentation Mr. Rhon Conner of the Department of Natural Resources on Sargassum Management in Anguilla.

Mr. Conner's presentation underscored the crucial role of beach tourism in Anguilla's economy and the detrimental effects of sargassum inundations on various sectors, including tourism, fishing, coastal businesses, residents, schools, and wildlife. He characterized the situation, primarily impacting the southern beaches, as a crisis and stressed the urgent need for effective management.

Currently, the response is spearheaded by the Department of Environment, which has established a Sargassum Coordinating Group, devised a comprehensive Sargassum Management Strategy, conducted monitoring of affected beaches, and coordinates cleanup efforts. Mr. Conner also elucidated the OT's system for categorizing the level of inundation, with heavy equipment mobilization triggered at level 4 or 5, while lower categories necessitate manual cleaning. Additionally, specific procedures must be followed when deploying heavy equipment, including obtaining permission from the Department of Lands and Surveys and ensuring oversight by task force members.

Figure 1 Participants engaged in discussions

Dr. Hazel Oxenford then gave a short presentation on the basic science surrounding sargassum. After this, the facilitators reviewed the burning questions shared at the beginning of the session, answering the simple ones, but highlighting overall, that there is much uncertainty regarding sargassum, highlighting the need for ongoing participatory research and monitoring as part of an adaptive management approach.

Box 1- Burning Questions

Human Health and Safety:

- Is it safe to swim in sargassum-infested waters?
- Are the gases produced by sargassum harmful?
- Does the level of heavy metals affect safety of its use in agriculture?
- Does it affect people living near sargassum?

Uses and Applications:

- Can it be used as a fertilizer/ compost in agriculture?
- What are some alternative uses of sargassum (if it shouldn't be used in agriculture)?
- What is the NPK ratio of sargassum for fertilizer?
- Is the heavy metal content and absorption a problem?
- How can sargassum be beneficial?

Management and Control:

- Are there any strategies for controlling sargassum?
- Can we harvest and control sargassum at sea?
- Are there any measures that can be taken to reduce sargassum production?
- How can we control the smell?
- How can we protect beaches for tourism?

Science of Sargassum:

- The sargassum was not always there. What changed? Where did it come from?
- What is the geographic spread of sargassum?
- What factors are contributing to sargassum influxes?
- What is the role of eutrophication? Why do we hear more about the role of climate change?
- Can we predict future influxes?
- What happens when sargassum breaks down?
- How many species of sargassum exist and which one/s are washing up on our shores?
- What is the growth rate and life span of sargassum?
- Will it ever disappear?
- How does and where does the weed absorb heavy metals from? Is all the weed contaminated or only from certain areas? Are there better strains or weaker strains?

Responsibility and Financial Aspects:

- Who is really responsibility for addressing the sargassum issue?
- Is there any international financial assistance available for clean-up?

Session 3 – Dealing with Uncertainty: Participatory Research and Monitoring

This session began with Dr. Hazel Oxenford giving a presentation introducing the Participatory Research and Monitoring (PRAM) Framework developed under the project which, if implemented, would help to fill knowledge gaps and lead to more evidence-based decision-making regarding sargassum. See **Appendix 5** for a copy of the PRAM.

Following this presentation, participants were then divided into two groups to identify the types of information it was feasible to collect and tools that could be used onshore and offshore.

Offshore
• Utilisation of satellite forecasts to understand where sargassum is coming from, the trajectory and likely landing times. • Observations and citizen science from captains, pilots, divers and fishers can provide information on how sargassum behaves at sea, what time of fish/marine species and other materials/waste are found in it. • Drone technology used to determine the distribution of sargassum, level of impact on beaches.
Onshore
• Surf rakes – monitoring how work and any impacts on beach users and biodiversity • Monitoring how long sargassum stays/ clears from the beach/ decomposes (via beach surveys) • Monitoring different approaches and sites for clean-up/collection and removal and impacts (via beach surveys) • Air quality meters (e.g. H2S) and water quality testing, and medical checks for health impacts in affected communities

General observations from this session encompassed the following key points:

- It's essential to consider the social and economic context when researching and monitoring the impacts of sargassum influxes, as these directly affect people and livelihoods, as well as the management practices and diverse applications related to sargassum.
- Particular emphasis should be placed on examining the effects on the following sectors:
    - Tourism sector
    - Fisheries sector
    - Energy sector, particularly the utilization of biofuel as a sustainable and renewable energy source.
- Effective monitoring necessitates additional training and capacity building.
- There is an ongoing need for funding and financing to sustain monitoring efforts over time.

Session 4: Field trip

The afternoon sessions consisted of field trips to the following sargassum monitoring sites in each territory:

Territory	**Sites**
Anguilla	Sandy Hill Bay, Cove Bay, and Junks Hole
Montserrat	Little Bay, Woodlands Bay and Margarita Bay
Virgin Islands (UK)	Hodges Creek Marina, Long Bay and Trellis Bay

The primary objectives were to evaluate the influence of sargassum in these areas, examine the data collection methods currently in use, and identify any additional information requirements.

Demonstration drone flights took place in Anguilla and Montserrat; however, adverse weather conditions prevented a flight in the Virgin Islands. The drone team provided insights into the process of setting up a site for drone monitoring and discussed various challenges associated with this approach. These challenges encompassed factors like weather-related flight scheduling constraints, limited drone availability (with some teams sharing access to a single drone provided under the Darwin project), and flight restrictions near certain locations, such as airports. In cases where drone usage was restricted, alternative manual methods were required.

Furthermore, it was emphasized that drone-generated data must be complemented with socio-economic information collected through diverse means, such as surveys, key-informant interviews, and focus groups. Data regarding health impacts on surrounding communities could be gathered through collaboration with public health authorities. Similarly, information on the effects on education, electricity, and water supply could also be acquired from relevant authorities, tailored to local needs and priorities.

Figure 2 Participants observing sargassum accumulations

During the site visits, participants reviewed the site profiles produced for each site and reflected on the following questions:

- how they could be improved?
- what other aspects needed to be recorded?
- Who has the required expertise?
- Which organisations have the capacity to do this monitoring on a regular basis? and
- What should the frequency of monitoring be for these different data sets

They also learnt how to identify different species of sargassum.

Figure 3 Dr. Hazel Oxenford explains sargassum species identification during field trip

Fieldtrips across the 3 territories highlighted the following issues in common:

- Many stakeholders are unaware of the types of data being collected by done monitoring teams and how this data was useful.
- While continuous monitoring is important, this data needs to be analysed, communicated and used in informing decision making regarding sargassum management.
- Iti is important to clarify roles and responsibilities so people know what to do when there is an influx of sargassum.
- It is not always necessary to clean beaches. It is important to monitor the impacts of management actions and to adjust as appropriate. Attitudes and perceptions may need to change.
- Vulnerability assessments should play a central role in prioritizing the allocation of limited resources. The facilitators emphasized that *exposure* to sargassum influxes is just one component of vulnerability. For instance, a site might have a high exposure to sargassum influxes, but if it is a self-cleaning beach and the sargassum will quickly be taken away by currents, or there are few assets or livelihoods affected in that area, the overall vulnerability of the site is low. Consequently, it would not be a priority for management efforts.

- Local/traditional knowledge of a site is important information that should be considered.
- It is important to leverage existing capacities across government, the private sector, and civil society. Establishing mechanisms that facilitate regular communication among stakeholders and encourage collaborative problem-solving is crucial.

Session 4: Debriefing of field trip and day 1

During the first session on Day 2, participants reflected on their key takeaways from Day 1 and the field trip. These were as follows:

Territory	Key take-aways from day 1 / field trip
Anguilla	• Learning more about how sargassum washes up with different species • But continued challenges marine pollution+ with sand mining+ heavy equipment • Drone demo and technical challenges • Dune rehabilitation with sargassum at Sandy Hill Bay = interesting pilot with types of plants used • Concerns about proximity of schools in island harbour to stranding sites • Need to work with range of stakeholders • Where does sargassum get stored/ disposed?

Session 5: Assessing tools and approaches for collection and removal of sargassum

This session commenced with Dr. Hazel Oxenford delivering a presentation on tools and methodologies for sargassum collection and removal. The presentation offered an overview of various on- and off-shore approaches and tools for addressing sargassum inundations. It also delved into the advantages and disadvantages of these different methods and outlined the recommended selection criteria outlined in the SAMS.

The facilitators then engaged participants in a plenary discussion regarding their prior experiences with some of the mentioned tools and approaches, lessons learned, and their relative advantages and limitations.

Key lessons learned in Anguilla were as follows:

1. Use forecast (2.5 month in advance) to inform procurement process before influx of sargassum
2. Better communication protocol for clearing beaches to hotel operators, contractors and local communities to encourage 'good practices.'
3. Activate Sargassum taskforce/ coordination mechanism for effective and efficient clean-up and removal and proper oversight by government agencies.
4. Use forecast with link to EWS to identify who should lead with what type of response needed based on size of influx
5. Review prioritization of Anguilla beaches for action based on exposure with impacts on people/ livelihoods

In the Virgin Islands workshop, experiences with the tools were as follows:

Lake harvesters

- Two of these machines were purchased by a private company
- They worked but required a conveyor belt
- Couldn't work during rough weather
- Fell into disrepair due to lack of use out of season/maintenance issues

Ocean harvesting/ skimming, shredding, sinking

- Government received a proposal from a private company
- Would require a $10k per day contract
- Uncertain about the potential environmental impacts?

Small scale harvesting experiments

- BVI Kelp – running trials on different approaches to removal, drying for export.
- Successful experiments but questions remain regarding scaling - what's appropriate for small islands when it comes to commodification

Pumps/ Ice Bubblers

- Resorts/ Marinas have utilized pumps and outboard engines to" keep it moving" and away from the desalination plant inlets
- Spent up to $1000/year on fuel
- Expense make it infeasible for long-term operation

Deflection/ Booms

- Using natural wind/ wave dynamics to deflect or keep it moving is preferable
- Not clear how this impacts on marine biodiversity/ fisheries
- Question: Are we creating "feeding stations" for sharks with nets/booms close to shore?

A key lesson emerging out of the VI session was that we need to monitor the impacts of these different tools/approaches.

Session 6: Rehabilitation of affected areas and sargassum uses

Dr. Ainka Granderson opened this session by discussing site rehabilitation. Her presentation highlighted the potential harm caused to critical habitats and ecosystems when inappropriate actions are taken to facilitate access and clean up sargassum. She also covered key considerations for different approaches to ecosystem rehabilitation and restoration. Dr. Granderson stressed the importance of gaining a comprehensive understanding of the socio-cultural and economic context, existing hazards, vulnerabilities, and technical requirements before embarking on site rehabilitation. Interventions should prioritize the needs of the most vulnerable and aim to alleviate poverty and promote livelihood development.

Following Dr. Granderson's presentation, Dr. Hazel Oxenford delved into the uses of sargassum and the feasibility of various options. These uses ranged from small to medium-scale regional initiatives, including the production of bio stimulants, weed suppressants, paper products, to larger industrial endeavours such as manufacturing construction blocks (Sargablock), plant tonics, and biofuels.

Key issues arising from this session across the three OTs included the following:

<u>Rehabilitation and restoration</u>

Anguilla:

- Observed that sargassum piled up to the back of beaches that were regularly cleaned tended to form dune-like structures.
- Small scale experiments with the use of sargassum in dune restoration is ongoing.

Montserrat:

- Near-shore ecosystems were severely affected by volcanic activity, making the protection and restoration of ecosystems crucial.
- Red mangrove propagules are brought to the island via the sargassum rafts, providing source for mangrove restoration activities.
- Not enough is known about the impact of sargassum influxes on coral reefs and sea grass beds, and whether any rehabilitation is required. Collection of baseline data and continuous monitoring is therefore necessary.

Virgin Islands:

- Prevention is better than cure.
- Strengthening and enhancing the enforcement of legislation is required to address issues related to critical ecosystem damage.
- Stricter penalties for activities that harm mangroves.
- There is need for improved education and awareness regarding more appropriate management responses.

<u>Sargassum Use</u>

Anguilla: Small-scale dune restoration experiments.

Montserrat: Was initially promoted as composting material for gardening, but there is now a need for awareness about heavy metal risks.

Virgin Islands: Incorporation into road construction on Mosquito Island; trials by BVI Kelp on collection and drying methods.

Other issues surrounding use:

- Concern about scalability of usage options due to small size and limited resources in OTs. Montserrat participants felt especially disadvantaged.
- There's a pressing need for increased collaboration among Overseas Territories (OTs) to overcome these constraints collectively.
- Identifying suitable locations for drying and storing sargassum is crucial, with a focus on areas with low heavy metal leaching. The limited availability of public land in the Virgin Islands exacerbates this challenge.
- There is need for an accessible database of methods and extraction techniques to aid usage. Intellectual property restrictions prevent uptake of viable solutions.
- In the Virgin Islands, it was suggested that youth innovation could be encouraged through science fairs and by sharing widely success stories of regional entrepreneurs.
- Government incentives are essential to stimulate private sector investment in research and development by both local and foreign entrepreneurs. The Virgin Islands, for instance, has a Climate Change Trust Fund that could potentially provide seed funding grants to innovators.
- Encouraging innovation through business incubation support for small and microenterprises in the sargassum sector is vital. Participants in the Virgin Islands identified a potential role for

the Ministry of Finance and Commerce in promoting corporate social responsibility initiatives that facilitate innovation.

- As sargassum businesses develop, there will be a need for legal clarity regarding ownership of this new resource and potential regulation. Additionally, tax-related implications should be carefully considered. The Ministry of Finance and Commerce in the Virgin Islands was highlighted as a key player in tracking the economic contributions of these businesses.

Session 7: Introduction to SAMS- Adaptive management of sargassum influx threats and opportunities

In her presentation on adaptive management of sargassum influx threats and opportunities, Dr. Ainka Granderson provided a conceptual overview of the Sargassum Adaptive Management Strategy. See **Appendix 6** for copies the Montserrat SAMS Volumes 1 and 2.

She emphasized that Sargassum presents both challenges and opportunities, stressing the importance of a balanced and integrated approach that draws from the best practices of both disaster risk management and adaptive management. Additionally, designing appropriate *institutional arrangements* that are inclusive, participatory, efficient, effective, transparent, and responsive was essential. *Financial aspects*, including funding for monitoring, evaluation, clean-up, and research and development, were also discussed.

Establishing clarity regarding the appropriate actions and responsibilities for each stage in the sargassum influx cycle is of utmost importance. To prompt participants to start considering what would be most effective in Anguilla, the presentation was followed by an exercise. During the exercise participants were tasked with creating a diagram that mapped out the various stakeholders (including government, civil society, and the private sector), their respective roles and responsibilities, as well as their capacities pertaining to sargassum management. In Anguilla, the groups developed proposed standard operating procedures to be adopted by the Ministry of Sustainability, Innovation and the Environment for different levels of influx (See Figure 4).

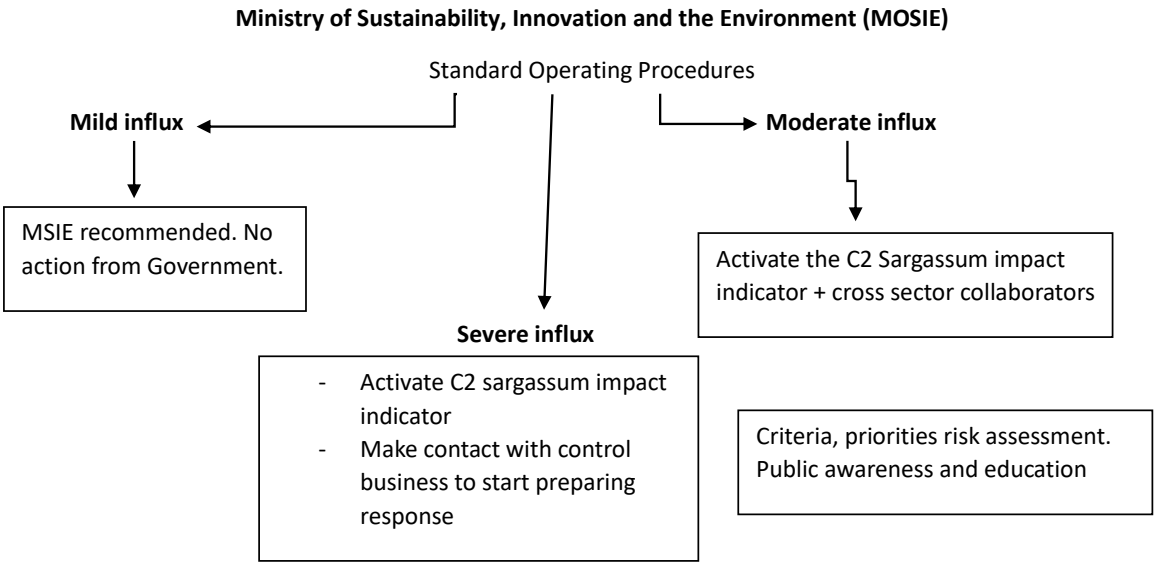

Figure 4 Standard Operating Procedures for Sargassum Management in Anguilla

They also outlined the composition of a proposed sargassum coordinating committee and their existing capacities as shown in Table 1 .

Table 1Composition and capacities of the proposed sargassum coordinating committee in Anguilla

Coordinating Committee Members	**Capacities**
ATB	• Access to equipment used in beautification; • Have budget for marketing Anguilla
Antigua Hotel and Tourism Association (AHTA)	• (Members) Large hotels have access to funds/resources to help clean the beach
AEP – Community-based Non-profit	• Collect donations • Do murals
Department of Disaster Management (DDM)	• Technical know-how for dealing with disasters and can support coordination; money put aside for disasters/emergencies
DNaR	• Human resources for awareness raising, draft management strategy, indicators that the coordinating committee would use to assist with making decisions • Drone technology to assist with monitoring

	• Access to CERMES and Uni of Florida Forecasts • No regular budget • Access to regional and international funding organisations and capacity to write proposals to access grants
Anguilla National Trust	• Capacity in coastal monitoring • Ecosystem restoration • Community mobilization • Environmental Stewardship Programme for Hotels • Education and awareness • Have a boat
Department of Lands and Surveys (DLS)	• Technical capacity • Statutory responsibility for permitting use of heavy equipment
Department of Physical Planning (DPP)	• Drone monitoring capacity • Understanding of forecasts
Antigua Air and Sea Ports Authority (AASPA)	• Clearing if it is imparting on ferry/ boat traffic in ports
Anguilla Fisher Folk Association (AFFA)	• Technical expertise • Boats • Capacity to engage in citizen science • Local knowledge
MICUHT (?)	•

Key learnings from this session across the three territories included:

- The need to clarify institutional responsibilities and to identify a lead agency who will be responsible for coordination. (The public should be aware of these responsibilities);
- The importance of leveraging existing resources and capacities;
- The need to develop standard operating procedures (SOPs) and triggers for different levels of response; and
- The importance of reflecting on what worked and what didn't during the post-influx phase and adapting institutions and SOPs as necessary.

Session 8: Delivering participatory process: stakeholder engagement and communications for management

This session underscored the significance of effective stakeholder engagement and communications in promoting participatory sargassum management. In her framing presentation, Dr. Granderson emphasized that communication could serve various purposes, including raising awareness, mobilizing action, and advocating for policy or process changes. Therefore, it is essential to have a clear goal or objective for communication and identify the target audience.

In Anguilla, participants discussed past and current communication efforts related to sargassum. They noted that in 2015, in response to a severe sargassum influx, the Department of Natural Resources (DNaR) issued press releases and organized press conferences with the aim of recruiting volunteers to assist in clean-up efforts. However, due to limited resources and budget constraints, there has been minimal strategic communication on this issue since then. Table 2 outlines the communications priorities discussed by participants in their brainstorming session.

Table 2 Priorities for Communications on sargassum management in Anguilla

Topic of messages	• Best practices for removal
Audiences	• Hotel and Tourism Association • Fishers • Divers • Schools in affected communities • Young people
Engagement	• Beach and coastal cleanups • Use of influencers • Coordinating committee • Citizen science to engage stakeholders and gather data • Public-private-civil society partnerships
Activities	• Demo Beach Clean-up to bring stakeholders out to explain what the best practices are • Schools can be engaged in this as well as hotel and tourism association • Citizen science- getting schools near affected beaches and fishers involved in monitoring, hotels with beaches near them • Video on walk-about where members of the public are asked questions about sargassum • One-on-one meetings with the Hotel and Tourism Association
Communication Products	• PSA for radio/tv • Social media and use of influencers on TickToc

	• Informational Posters • Press release on new SAMS/Coordinating Committee

Key learnings from this session across the 3 territories included:

- The importance of communicating the relevance of sargassum to interests of stakeholders across sectors;
- The role of citizen science in both monitoring and awareness-raising;
- The importance of face-to-face meetings with key stakeholders to get their buy-in; and
- The opportunity to leverage free resources such as radio interviews and government information services to disseminate messages.

Session 9: Workshop evaluation and next steps

To close the workshop, Dr. Granderson thanked the Department of Environment, Mr. Ruiz Phillips-Thomas and Deniscio Samuel, local mobilisers, and participants for their cooperation in delivering a successful workshop. She explained that explained that over the next year the project will be provide technical support for implementation of the SAMS and PRAM and engaging in practical awareness raising exercises.

The workshop evaluation report is attached as **Appendix 5**.

Appendices

Appendix 1	Original agenda
Appendix 2	Participants list
Appendix 3	Presentations
Appendix 4	Photos
Appendix 5	Participatory Research and Monitoring (PRAM) Framework
Appendix 6	Sargassum Adaptive Management Strategy (SAMS)
Appendix 7	Evaluation Report