

# Policy Perspectives

*Perspectives on resource management and environmental policy from the Centre for Resource Management and Environmental Studies (CERMES), Faculty of Science and Technology, The University of the West Indies, Cave Hill Campus, Barbados.*

The Centre for Resource Management and Environmental Studies (CERMES) initiated this occasional outreach publication, **Policy Perspectives**, to share lessons learnt from applied interdisciplinary research. CERMES research is through learning-by-doing collaboration. **Policy Perspectives** may be used by policymakers and advisers to strengthen linkages between applied research and policymaking in the Wider Caribbean Region.

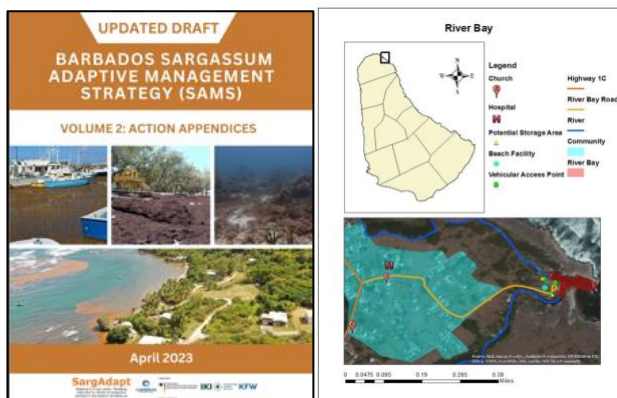
## The power of site profiles — keeping sargassum inundations in sight

### Site profiles are important sargassum management tools!

Sargassum inundation site profiles are critical components of a Sargassum Adaptive Management Strategy (SAMS) Volume 2: Action Appendices. Site profiles took different forms with various degrees of technical-scientific sophistication in UWI- CERMES project on **Adapting to a new reality: Managing responses to influxes of sargassum seaweed in the Eastern Caribbean as ecosystem hazards and opportunities (SargAdapt)**. In this issue we consider some lessons learned from the site profiling.

### What are sargassum inundation site profiles?

Good graphics such as maps and photographs have become essential for sargassum science communication and analysis. Tables are useful for summarising and organising information to be better set out and understood at a glance. These elements are prominent in the sargassum inundation site profiles shown in Volume 2: Action Appendices of a SAMS.



Each site profile describes and analyses a location at which sargassum inundations impact the social and ecological system in a way that requires use of adaptive management in response.

Managers and other stakeholders can use the profiles to know what to expect from sargassum inundations; monitor changes over time; assess exposure, sensitivity and vulnerability; design better response interventions to build resilience and much more.

### Creating the content of a profile

Several types of information are combined to create a profile. It is inevitable that gaps will occur, but we have learnt that it is vital to make the profile as complete as possible. This is particularly so for creating a useful time series for monitoring changes and predicting trends. The types of information include the following:

- Location and site maps
  - Use online maps to isolate the area of interest
  - A legend can highlight the prominent features
- Select social key features
  - These concern the site's human dimensions
  - Consider settlements, infrastructure, livelihoods
- Select ecological key features
  - These concern the site's prime natural assets
  - Consider biodiversity, essential habitats, etc.
- Dates of impacts and responses
  - What is the site history for sargassum events
  - Use several sources to help fill in the timeline
- Summary of impacts
  - How were impacts mild, moderate or severe
  - What were the notable changes that occurred
- Summary of responses
  - How did people respond, if at all, to impacts
  - What types of resources were brought to bear
- Type and terrain of site access
  - Can vehicles get to the site, and is it difficult
  - Is the terrain beach, cliff, manmade structure
- Location of site access
  - Where exactly do you go to gain site access
  - Is the access route on public or private land

- Vulnerability factors
  - What are geophysical exposure features
  - Do some factors determine area sensitivity
- Evidence of resilience
  - The manifestations of area adaptive capacity
  - How are humans networked and organised
- Overall comments on vulnerability and resilience
  - In summary what stands out about the site
  - Any comments on priority versus other sites
- Photographs of the site under different conditions
  - What does the site look like normally, pre-influx
  - What does the site look like during inundations



### Going for gold, silver or bronze?

While the preceding elements of site profiles do not vary much across the SAMS, some countries and territories have greater capacity for more high technology and scientific approaches to creating site profile content than others. Examples include use of unmanned aerial systems (UAS i.e., drones plus analytic software), geographic information systems (GIS) and artificial intelligence to provide detailed site level trends and forecasts.

A classification with criteria has not been developed, but a rough scale of gold, silver and bronze can describe them. The aim is

not to achieve the most sophistication, however, but to ensure sufficiently informative site monitoring, evaluation and learning.

### Basic bronze can be your best bet

Bronze may seem rather basic, but it can achieve consistently adequate and inexpensive information for decision-making. It is what anyone, including ordinary citizens, can easily engage in.

- Relies heavily on observations and local knowledge
- Supplemented by online maps and secondary data
- Great for community participation and citizen science
- Can regularly be done very quickly and inexpensively
- Analysis relies primarily on expert or good judgement

### Sophisticated silver is no slouch

So, what add-ons may upgrade a site profile from bronze to silver? The SAMS Volume 2 Action Appendices do not dictate a level of sophistication. They are currently all basic bronze. But, SargAdapt capacity development in participatory fieldwork and analysis using UAS (hence PUAS) has many countries keen on enhancing their site profiles by incorporating images and data collected by drones. Drone teams are trained to:

- Plan and develop aerial flight plans
- Conduct field surveys
- Process UAS data
- Do preliminary spatial analysis
- Produce site monitoring summary reports

Images include basemap, corridor, panorama and video photo plans. Drone data include: orthomosaic maps (.jpeg, .GeoTIFF, .kml), elevation models as Digital Surface and Terrain Models (DSM and DTM), \*.jpeg, GeoTIFF, and 3D models as point clouds (.las, .txt). Supplementary drone data enhances profile information previously listed. Visualization is a powerful tool.

### Gold is the greatest if it can be sustained

Progressing further with visualization and spatial analysis is the gold standard which incorporates sargassum site profiles into GIS for coastal management. If GIS is already actively used it may be a simple task to integrate sargassum inundations as new transient coastal features. Dynamic displays can be made from the time series of images and data to aid decision-making.

A challenge is usually to ensure that the GIS remains used and useful since personnel, leadership and technical functionality are all subject to change, especially in small islands. There are site profiles in the SAMS for Barbados, Dominica Grenada, St Kitts-Nevis, Saint Lucia, St Vincent and the Grenadines, British Virgin Islands, Anguilla, and Montserrat done under SargAdapt and other projects. Examples of these and related supporting information can be found on the [CERMES sargassum website](https://cermes.uwi.edu/sargassum).