The Realities of the Pelagic Sargassum Influx and Biodiversity Conservation in Grenada, West Indies

Las Realidades de la Afluencia de Sargazo Pelágico y la Conservación de la Biodiversidad en Granada, Indias Occidentales

Les Réalités de L'afflux de Sargassum Pélagique et la Conservation de la Biodiversité à Grenade, dans les Antilles

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ABSTRACT

The influx of pelagic Sargassum to the Caribbean in 2014 - 2015 has presented a host of challenges to island nations. It has raised many questions which were often directed towards local academic institutions. This presentation will examine challenges that were faced by the island nation of Grenada and the many, varied questions that were directed towards local academics in connection with Sargassum. We will summarize biodiversity impacts experienced locally and the associated coastal management needs that arose, especially in relation to endangered biodiversity. We set this against a backdrop of stakeholder participation in coastal management, the critical importance of the fisheries for local livelihoods, and a long track record of biodiversity monitoring in Grenada. For example, mainland Grenada hosts a critical population of nesting leatherback sea turtles, the third largest nesting site in the Caribbean. Grenada has more than 10 years of monitoring data from our index nesting beach and preliminary 2015 results show that up to 80% of nests on the south side of the index beach were lost due to impacts of Sargassum and beach erosion. We will describe management actions taken by NGOs together with a number of government ministries including practical measures to reduce mortality, and outreach/education about Sargassum and at the same time to raise awareness of the importance and value of Grenada's marine resources. We will share lessons learned about responding to questions raised by the Sargassum influx that will be useful for other Caribbean nations facing this emerging regional issue.

KEY WORDS: Sargassum, biodiversity, fisheries impacts, ecosystems, sea turtles

INTRODUCTION

Grenada is a volcanic origin, Small Island Developing State located at the southern end of Lesser Antillean island chain in the Caribbean. Grenada has a land area of 344 km^2 and a population of approximately 111,000. Tourism is a key component of the economy. Grenada hosts the third largest nesting population of Leatherback turtles in the region (800+ nests annually); local Non Governmental Organisation Ocean Spirits Inc. (national coordinators for regional sea turtle network WIDECAST) has monitored key nesting beaches in Grenada since 1999. Levera Beach (on the north end of the main island), the principle nesting beach and a number of other beaches are patrolled by Ocean Spirits through the nesting season Unprecedented amounts of Sargassum were deposited in coastal areas of Grenada in 2014 - 2015. Concerns were raised by coastal communities, business owners, conservation organizations and government representatives from ministries including Health and the Environment. Representatives from St. George's University (SGU) were called upon for advice by many.

FINDINGS

Female Leatherback turtles were seen to experience difficulty digging their nest chambers in Sargassum covered sand. When possible, Sargassum was cleared by hand from around the nesting turtles. Accumulations of Sargassum on beaches put hatchlings at increased risk of dehydration, exhaustion and predation by birds through entanglement and disorientation. Ocean Spirits beach patrols were increased to remove turtle hatchlings that had become trapped in stranded Sargassum. Sargassum free channels were cleared to facilitate hatchlings passage from nest to sea with rakes. A number of juvenile Green turtles and a juvenile Olive Ridley turtle washed on to beaches on mats of Sargassum (juveniles are not normally seen on beaches in Grenada); they appeared lethargic and unable to re-enter the water unaided. Beach erosion appeared to be exacerbated when heavy surf stripped Sargassum bound to sand from Levera Beach and up to 80% of nests from the south side of Levera Beach were washed out and lost in 2015. Local community members, including fishermen reporting stranded turtles via the Ocean Spirits Sea Turtle Hotline and many people assisted in manually clearing Sargassum from specific locations under careful guidance. Ocean Spirits encouraged local communities to leave the Sargassum on beaches wherever possible.

A number of fish kills were reported around the time of the peak influx of Sargassum. This may have resulted from Sargassum reducing the flushing of land based sources of pollution and/ or water quality changes resulting from Sargassum decomposition on beaches and in bays. A partially decomposed porpoise was found in a Sargassum pile (species unknown).

Tourism is a critically important component of Grenada's economy. International news headlines of Caribbean beaches piled with Sargassum caused considerable concern to many in the public and private sector. Heavy machinery was unfortunately deployed on a small number of beaches but most were left to clear naturally. Questions regarding many aspects of the

Sargassum were directed at the local academic institution in Grenada, St. George's University. Questions ranged from basic: what is it? and where is it coming from? through to: is it dangerous to human health? and is it safe to apply to agricultural land? The GCFI Sargassum Fact Sheet was an invaluable resource and was shared with many who requested advice/ guidance. Information shared at the University of the West Indies Sargassum Symposium in August 2015 and the web resources available from 'Sargassum and Future Enterprises' hosted by CERMES of the University of the West Indies and the SPAW-RAC Sargassum Basecamp forum are excellent sources of information and news. A class session on Sargassum was added into an undergraduate course (the Minister of Health attended this session in fall 2015); a research seminar on Sargassum was presented at SGU and Ocean Spirits ran sessions on Sargassum at their Environmental Science Club (an after school programme) and Summer Camp.

The Government of Grenada established a Sargassum Task force in August 2015 chaired by the Minister of Health. The task force investigated a number of Sargassum removal machines and drafted a 'Sargassum Protocol'. Funding was anticipated to fund a 'Biogas from Sargassum' pilot project proposed by local entrepreneurs. After a number of months of Sargassum being scarce on Grenadian coastlines, questions are again being asked, this time focused on, is it coming back?

CONCLUSION

The influx of Sargassum resulted in challenges to local communities and to biodiversity in Grenada. Further public outreach is recommended in the event of another Sargassum influx. Frequent patrols by Ocean Spirits and reporting by locals saved many IUCN Red Listed sea turtles and facilitated the continuation of nesting in many individuals. Erosion of nesting beaches heavily impacted by Sargassum is of concern. Good support from regional initiatives proved invaluable in providing information and guidance to many frequently asked questions.

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