Evaluation of the Status, Use and Threats of Coastal Ecosystems in Saint Lucia.

Evaluación del Estado, Uso y Amenazas de los Ecosistemas Costeros en Santa Lucía

Évaluation de l'état, de l'utilisation et des Menaces des écosystèmes côtiers à Sainte-Lucie

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EXTENDED ABSTRACT

Marine ecosystems are important to the sustainable management of the fisheries sector in Saint Lucia. In this study the physical status of, use and threats to mangroves, sea grasses and coral reefs were assessed utilizing inputs from key stakeholders and field surveys.

Assessment methods were designed to enable participation by fisherfolk and ease of replication. The assessment was undertaken using two approaches. The first was through consultations with fisherfolk at eleven fish landing sites. Fisherfolk were asked to describe the economic and social activities taking place at marine ecosystems close to their fishing community and classify the physical state or levels of degradation as being severe (> 80% damage and loss), high (60 – 80% damage and loss), moderate (35 – 60% damage and loss), partial (20 -35 % damage and loss) or low (< 20% damage and loss). Fisherfolk were also asked to identify potential threats to the ecosystems and to indicate their perception of severity by assigning a score of 0 – 3 with 0 indicating "no threat", 1 representing "minimum threat", 2 representing "medium threat" with noticeable but not a severe, irreversible impact. A score of 3 indicated a significant threat, with a high level of negative impact. Since only one score could be assigned to each threat per ecosystem, the discussions were lengthy often leading to negotiations before scores were finalized. In other cases, there was almost instant and unanimous agreement on the score to be assigned.

The second approach used was via field visits to the various marine ecosystems on the island. At each site photographs were taken to document biological diversity, status of physical structures, presence of sargassum, water turbidity, levels of deforestation, solid waste pollution, sedimentation, fishing activities and presence of invasive species.

Results from both assessment methods were reviewed. Based on fisher consultations, mangroves were in general rated as being moderately to severely degraded. Threats were scored out of a maximum possible score of 30 (a maximum score of 3 for each of 10 mangroves). Based on this approach sedimentation received a score of 28/30 followed by illegal dumping of solid waste (score of 15/30). Sargassum scored 11/30 and possible contamination from agrochemicals scored 8/30. Using the same method of evaluation, coral reefs were overall considered to be severely degraded with key threats (based on 11 sites with a maximum possible score of 3), proposed to be sedimentation / siltation with a score of 32/33. Solid waste pollution, primarily plastics, scored 23/33, sewage contamination scored 17/33 and fishing scored 16/33. Other threats such as sargassum, invasive species, sand mining, and rough seas scored low (13,12,11,10 and 6 respectively).

Fisherfolk rated sea grasses as being severely degraded at almost all locations. With regards to threats, sedimentation scored the highest at 29/33, with sewage scoring 19/33, sargassum 11/33, pollution from industrial waste, 8/33, solid waste 7/33, tourism impacts 6/33, and agrochemicals, wave energy and invasive species each scoring 5/33.

Noteworthy, results from the field assessments closely matched those of the stakeholder reviews. Based on field surveys, mangroves were observed to be generally intact but were indeed inundated with mud and silt. Almost all mangroves were found to be impacted with silt, and solid waste, primarily bulk waste, plastic bottles, and food containers. In most cases the solid waste had clearly been brought to the mangrove by flood waters from rivers or high tides. However, in at least one case (Ma Kote Mangrove, a Ramsar site), the solid waste had clearly been dumped there. In the case of the coral reefs and sea grasses, there was evidence of impact from outflows from nearby rivers, as some silt was present on most of the reefs, and turbidity levels were low. There were also either algae and or debris (plastics, tree trunks, old shoes) seen on several reefs. The results were not surprising as for as far back as 2006, 82% of coral reefs in St. Lucia have been reported to be either dead or in poor condition (SOE, 2006). Sea grass patches were few and a lot less abundant than described by fishers for periods of 10 or more years previously. However, fishers had indicated that sea grass decline had been occurring for several years. Sea grasses were inundated with silt and in many cases plastics. Observations suggested significant loss of vegetation, but the rate or extent of loss could not be determined. Findings of the assessments are presented in Table 1. Mapping of the results are also shown in Figure 1 with additional data compiled from the St. Lucia Coral Reef Report card, (TNC, 2016). All results were presented to fishers who participated in the original consultations. The importance of stakeholder involvement in monitoring critical fisheries ecosystems was emphasized to fishers.

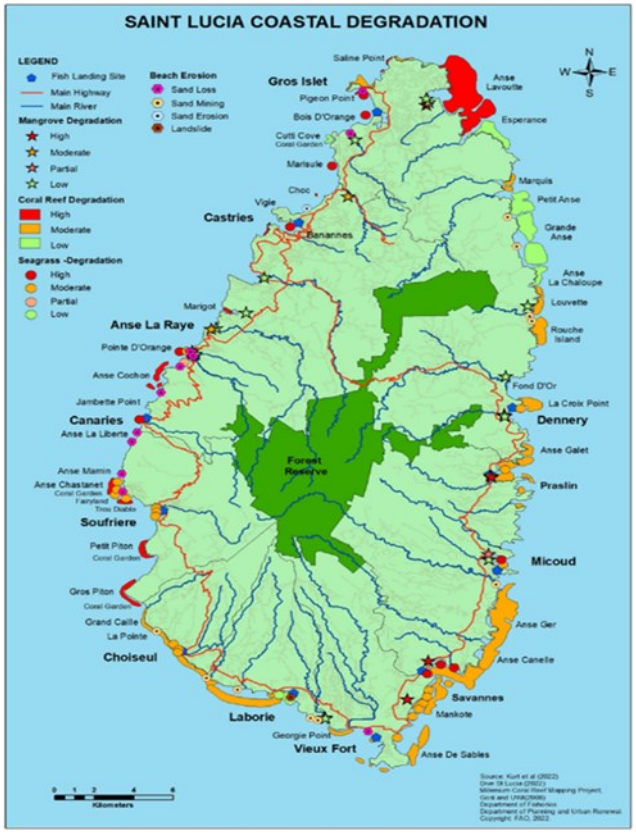

Figure 1. Status of Coastal Ecosystems in Saint Lucia based on Fisher Consultations and Rapid Field Assessments of Mangroves, Coral Reefs, and Seagrasses.

This study is part of a Green Climate Fund Fisheries Readiness Project, "Improving the Capacity of the Fisheries Sector in Saint Lucia to Enhance Resilience to Climate Change". The project is being implemented by the Food and Agriculture Organization of the United Nations. The Nationally Designated Authority for the GCF in St. Lucia is the Department of Economic Development, Transport and Civil Aviation. The focal point for this project is the Department of Fisheries in the Ministry responsible for Agriculture.

KEYWORDS: mangroves; coral reefs; sea grasses; threats

LITERATURE CITED

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The Nature Conservancy. 2016. Saint Lucia Coral Reef Report Card.

Use	Physical State	Threats
Mangroves		
Coastal protection	Generally, intact. Dieback in some mangroves	Sediment from inland sites.
Tourism		Solid waste, illegal dumping, bulk waste.
Seamoss cultivation		Sargassum infiltrates the mangroves and may be responsible for die back.
Summary: Silt from rivers pose a threat to mangroves. Sargassum infiltration occurs on the eastern part of the island.		
Coral reefs		
Fisheries	Silt and algae, solid waste & discarded fishing gear.	Silt deposition
Scuba, snuba, snorkeling		Solid waste such as plastics and tires. Some old fish gear also present.
Coral gardening		Algae
Summary: Sediment and solid wastes.		
Sea grasses		
Fish, shrimp and lobster habitat	Declined in coverage.	Heavy siltation/ mud.
		Solid waste, plastic debris
		Physical damage from fishing, most likely from dragging boats and gear over the grasses.
		Sargassum
Summary: There is a significant decline in the extent of sea grasses along coastal areas. Sizes of patches need to be measured.		

Table 1. Use, Status and Threats to Marine Ecosystems in Saint Lucia .