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# St Lucia Coastal Habitat Mapping Project

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## Day 2 - References

Authors	Year	Title	Geographical Context			Summary of Report
			Within Study Area	St Lucia	Caribbean and Global	
Anon		Site Exchange of Park Staff and Fishermen between St Lucia and Bonaire	X	X	X	Bonaire National Marine Park recently realised that there is an urgent need to establish No Take Marine Reserves (NTMRs) as reef fish populations are showing clear signs of chronic and acute overfishing. St Lucia Marine Management Area (SMMA) has been selected by ICRAN-UNEP as a Caribbean Demonstration site because of its excellent work with local fishing communities in establishing and maintaining a system of NTMRs. Site exchanges with St Lucia would allow for transfer of knowledge and expertise and build local capacity and support on Bonaire for the establishment of Fish Protection Areas
Bacci. M.E.	1998	Marine Protected Areas in the Eastern Caribbean: A Tourism Market Study			X	Most MPAs are under an immense amount of stress, particularly those that lack a clearly defined tourism management strategy. Often conflict between tourism development and scientific management. Case study of 5 MPAs around Caribbean region. The key to successful tourism development is systematic planning and management.
Burke. L, Greenhalge. S, Prager. D & Cooper. E.	2008	Coastal Capital - Economic Valuation of Coral Reefs in Tobago and St Lucia		X	X	Economic benefits derived from coral reefs are vital to the economies of small island states in the Caribbean. Economic valuation of these benefits helps to guide the wise, sustainable use of these resources. The direct economic impacts from visitor spending in St Lucia in 2006 were estimated at US\$ 91.6 million which is approximately 11% of GDP and approximately US\$ 68-102 million in indirect economic impacts. Total economic impacts resulting from the coral reefs in St Lucia in 2001 were estimated to be US\$ 160-194 million, this figure includes the values attributed to the coastal protection, fisheries, tourism etc supplied by the coral reefs.
Cox. C. & Madramootoo. C.	1998	Application of geographic information systems in watershed management planning in St Lucia.		X		This paper presents the use of geographic information systems (GIS) to develop conservation-oriented watershed management strategies on St. Lucia. The GIS provided easy assessment of the relative erosion hazard over the watersheds under the different land management options. Overall the study demonstrates the effectiveness of which GIS technology can be used in watershed management planning for St. Lucia in terms of identifying and prioritising areas for implementation of remedial conservation measures.
Cox. C., Sarangi. A. & Madramootoo. C.	2006	Effect of land management on runoff and soil losses from two small watersheds in St Lucia		X		This paper assesses the influence of land use on runoff and soil loss on two small watersheds in St Lucia, under contrasting land management regimes. Over the study period of 8 months between July 1999 and February 2000 it was found that soil losses from an intensively cultivated agricultural watershed were 20-times higher in magnitude than that of a forested watershed. It was concluded that this was due to higher surface runoff rates and exposure of soil to direct raindrop impact within cultivated areas, whereas the forest canopy cover in combination with higher infiltration capacities of the forested land reduced the erosive runoff from the forest watershed and thus soil loss. It was recommended that the government encourage landholders on steep hillsides to implement agro-forestry systems and construct soil and water conservation structures at appropriate locations to prevent soil loss and to harvest water.
Coastal Zone Management Consultancy Consortium	2008	Integrated coastal zone management action plan		X		The processes and considerations in the production of the Coastal Zone Strategy and Action Plan for St Lucia. Based upon Island Systems Management Philosophy. The diminutive size of small islands means that development and the physical environment are closely related and interdependent. In order for management of the use of island resources to be more effective, a framework that integrates all stakeholders into a collaborative and coordinated structure is the ideal.
De Beauville – Scott. S.	2004	Report on Reef Check Monitoring Programme in St. Lucia (1999-2004)	X			In 1990, St Lucia joined the Reef Check Programme with 5 sites being established within the Soufriere Marine Management Area (SMMA). Over the next 4 years, a further 3 sites around St Lucia were added to the programme. The report summarizes results of the programme to date.
Ellison, A. Farnsworth, E.	1996	Anthropogenic Disturbance of Caribbean Mangrove Ecosystems: Past Impacts, Present Trends and Future Predictions		X		Review of historical, current and future impact of 4 classes of anthropogenic disturbance – extraction, pollution, reclamation and climate change on Caribbean mangrove systems. Looks at time taken for cut mangrove to regenerate and the persistence of hydrocarbons in mangal systems. Subsequent impacts to fisheries resulting from nursery habitat loss.

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Environment and Sustainable Development Unit	2007	Review of the policy, legal and institutional frameworks for protected areas management in St Lucia		X		Review of the policy, legal, and institutional frameworks for protected areas management in St Lucia. The findings were that management of protected areas is fragmented, inappropriate and requires updating to include new concepts and approaches, to give more attention to St Lucia's obligations under the various multi lateral environmental agreements, deal more seriously with threats and bring all development issues into a more cohesive policy framework.
Gell. F.R. & Roberts. C.M.	2003	The fishery effects of marine reserves and fishery closures			X	Marine reserves are frequently proposed as a tool for managing fisheries. Fishery benefits claimed for reserves include increases in spawning stock size, animal body size, and reproductive output of exported species. Reserves are predicted to augment catches through export of offspring to fishing grounds, and spillover of juveniles and adults from reserves to fisheries. Encouraged by positive results, many countries and states have embarked upon initiatives to establish networks of marine reserves, however, reserves remain highly controversial among fishers and fishing industry bodies who argue that fishery benefits remain unproven. We now have strong evidence that with the support of local communities, marine reserves offer a highly effective management tool. Although they have been successful as a stand-alone measure, they are most effective when implemented as part of a package of limits on fishing effort, designed to protect exploited species and their habitats.
Geoghegan. T., Renard. Y., Brown. N. & Krishnarayan. V.	1999	Evaluation of Caribbean Experiences in Participatory Planning and Management of Marine and Coastal Reserves.			X	Provides case studies and draws lessons from recent experiences from the Caribbean in participatory and collaborative management of coastal and marine resources. Details lessons that learned from previous planning and management experience in the Caribbean that future efforts should be guided by.
GoSL	2002	Legal and Institutional Review of Environmental Management in St. Lucia		X		Review of current legal policy and institutional status and needs for each sector (tourism, energy, resources etc). Examines legal framework for environmental management in St Lucia.
GoSL	2001	Plan for Managing the Fisheries of St. Lucia (FMP)		X		This Fisheries Management Plan (FMP) encompasses both conservation and development issues. It gives background regarding fisheries issues in general and outlines specific management plans for the major fisheries of St Lucia. It is worth noting that this document is the output of broad consultation among fisheries stakeholders.
GoSL - Ministry of Agriculture, Forestry & Fisheries	2002	Coastal Zone Management in St. Lucia: Issues Paper.		X		Prepared as a working paper for a series of consultations aimed at developing a framework for coastal zone management in St. Lucia. It outlines coastal zone management issues and forms part of the basis for the development of a Coastal Zone Management Policy for St. Lucia.
GoSL - Ministry of Physical Development, Environment and Housing	2004	National Environment Policy and National Environmental Management Strategy		X		National Environment Policy provides the broad framework for environmental management in St. Lucia, and establishes links with policies and programmes in all relevant sectors of economic and social development. The National Environmental Management Strategy aims to provide the specific directions and mechanisms for more effective policy implementation and includes specific results expected and actions necessary to realise the policy objectives.
Hawkins. J.P., Roberts. C.M., Dytham. C., Scheltern. C.Nugues. M	2006	Effects of habitat characteristics and sedimentation on performance of marine reserves in St Lucia	X			Examines factors affecting the rate and extent of biomass build-up among commercially important groupers, snappers, grunts, parrotfish and surgeonfish in a network of four marine reserves in southwest St. Lucia
Hawkins. J.P., Roberts. C.M., Gell. F.R. & Dytham. C.	2007	Effects of trap fishing on reef fish communities.			X	Trap fishing is widespread on coral reefs but the sustainability of this practice is causing concern because it is efficient and unselective. The effects of trap fishing were investigated by comparing fish assemblages among six Caribbean islands subject to different trapping pressures. These ranged from none in Bonaire and Saba increasing through Puerto Rico, St Lucia, Dominica and Jamaica respectively. at the intensities seen in this study, trap fisheries cause serious over-fishing, reduce biodiversity, and alter ecosystem structure.
Isaac. C. & Bourgue.C.P.A.	2001	Ecological life zones of St. Lucia		X		Applies geographical information and Artificial Neural Network (ANN) technologies in assessing ecosystem distribution on the island of St. Lucia, as well as to develop an improved ecological classification using Holdridge's system of natural life zones.

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Isaac, C., OECS	2002	The way forward: An integrated watershed management policy framework for three OECS islands			X	This report presents the findings of a review of Lessons Learned under the organization of Eastern Caribbean States (OECS) through its Natural Resources Management Unit (NRMU) Watershed Program and consequently provides considerations on the way forward, including a Policy framework for integrated watershed management. This program has invested in community-based projects at Talvan in St. Lucia, Marriagua in St. Vincent, and Wingfield in St. Kitts with the general purpose of improving the quantity and quality of water flowing through the watersheds. This was done through participatory mechanisms involving rural communities, grassroots organizations, local social actors and government institutions.
Leandre, R.	2007	St. Lucia. Report on the training needs assessment and capacity building plan for members of the Fond D'Or Watershed Management Committee		X		Analysis and assessment of the skills and competences required by members of the Fond D'Or Watershed Management Committee (FVMC) and development of an appropriate human resource training plan geared towards sustainable natural resource and environmental management.
Lorah, P, Conway, C. & Jackiewicz, E.	1995	Institutional Mechanisms for coastal resource protection in St Lucia		X		Focuses on a number of progressive natural resource management programs attempting to balance the need for environmental preservation and economic security in the Caribbean. Nature of the threats to St. Lucia's most vital natural resources, and recent resource management initiatives responding to these threats. Presents lessons for progressive policy making based on successful cases.
McConney, P., Pomeroy, R. & Mahon, R.		Coastal resources co-management in the Caribbean			X	In the small island developing states of the Caribbean the term "co-management" is increasingly used in the context of promoting conservation, especially of overexploited small scale coastal fisheries, yet shared concepts of what the categories, phases and other dimensions of co-management are seem to be scarce. Also missing are clear objectives of what the parties expect to be achieved through co-management. Civil society and State stakeholders need to distinguish means of achieving successful collaborative co-management from those that relate more to co-optation and coercion. Guidelines on key concepts and conditions to facilitate successful coastal resource co management, developed from case studies, are presented to encourage the introduction of improved institutional arrangements.
Pierre, D.,	2000	Adjusting to a New Way of Life: Marine Management Areas and Fishers,	X			Details the evolution of fishing practices of the Soufriere fishers in recent years and the changes that have come about since the establishment of the Soufriere Marine Management Area (SMMA). Before the SMMA was established there was conflict between the fishers and the ever increasing tourist industry in the area, however since the SMMA the fishers now have fishing priority areas, although they are still impacted since they have lost many of their prime reef fishing areas. In an effort to alleviate the constraints faced by Soufriere fishers, the Government of St Lucia has embarked on several initiatives including a temporary stipend for traditional fishers and selective access to the marine reserve for certain fishing gears. In addition an initiative between the Government of St Lucia and France (FFEM) is providing assistance in the form of long line training, gillnet buy-back scheme, construction of a jetty and provision of an ice machine to name a few, with the focus of conserving the sustainable use of marine resources in the Soufriere district. Local fishers require support and assistance if marine management areas are to be successful in the long term.
Prudent-Phillip et al	2008	Option and recommendations to address the policy, institutional and legislative gaps within the integrated coastal zone management framework			X	Examination of the institutional and legal arrangements for coastal zone management reveals that the multi-faceted and multi-disciplinary nature of coastal resources management requires a specialized framework of management that is suggested within the ISM philosophy. Report concludes that instead of the current definition articulated in the Coastal Zone Management Policy (2004), it is necessary that the Island Systems Management framework becomes the defining construct for natural resources management.
Renard, Y.		The New SMMA.	X			Brief review of the Soufriere Marine Management Area by its Executive Director. Sets forth its successes, failures and the lessons learned and the future plans.

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Renard. Y.	2001	Case of the Soufriere Marine Management Area (SMMA), St Lucia.	X			Detailed review of the SMMA charting its creation, implementation, monitoring programs, development, mitigation and plans for the future. Provides valuable insight in to conflict management and the lessons that can be learnt from the SMMA.
Renard. Y., Brown. N. & Geohegan. T.	2001	Stakeholder approaches to natural resource management in the Caribbean.			X	Describes a research project, “Synthesizing the Caribbean experience in stakeholder analysis for participatory natural resource management,” carried out for the purpose of assessing the growing body of experience in stakeholder approaches in the region. Paper summarises the conclusions of the project, complemented by lessons learnt by CANARI in field activities and training programmes in the region. It also offers a brief summary of six case studies documenting examples of stakeholder approaches in a variety of contexts.
Samuel, N. Smith, A.	2000	Popular Knowledge and Science: Using the Information that Counts in Managing Use of a Mangrove in St. Lucia	X			Demonstrates the importance of using local knowledge in the management of natural resources. Mankote mangrove in St Lucia (~ 20% of St Lucia’s Mangroves), declared a marine reserve in 1986 has been used since the mid eighteenth century as a source of fuel wood. Studies into the impact of charcoal production on biomass found that charcoal production could be sustainable. Increased cohesion and participation meant that the charcoal producers’ knowledge of mangroves was recognised and incorporated in to the planning process. Especially important, as their knowledge and application of harvesting methods that encourage regeneration, or coppicing, this is a key element of the sustainability of the harvest. These practices have now been incorporated into the draft management agreement.
Sandersen. H.T. & Koester.S.	2000	Co-Management of Tropical Coastal Zones: The case of the Soufriere Marine Management Area, St Lucia, WI	X			Top down approach to fisheries management doesn’t work when adapted to third world fisheries. Co management, a resource management approach oriented towards resource users and communities proposed as an alternative. In order for co management to be successful it needs to be an ongoing process with commitment, flexibility and patience on the part of all stakeholders.
Schleupner, C.	2008	Evaluation of coastal squeeze and its consequences for the Caribbean island Martinique			X	Based on a spatial model, the Martinique beaches and coastal wetlands are examined to identify the risks of coastal squeeze. Paper concludes that if sea level rises and beach reduction becomes an increasing problem the attractiveness of Martinique beaches as a tourist destination is likely to decline.
SMMA		Soufriere Regional Development Foundation Communication Plan	X			Plan developed for the Soufriere Regional Development Foundation to address the information and communication needs of the Soufriere Marine Management Area (SMMA). Is intended to serve as a guide for the communication activities of the Soufriere Foundation and other participating organizations. Identifies main target audiences and key messages, and suggests ways of communicating these messages to the appropriate target audience.
SMMA		Coral Protection Programme (Guidelines)	X			SMMA coral protection guidelines.
SMMA		Soufriere Marine Management Area - Zoning map	X			Zoning map, depicting activities allowed within each sector of the SMMA.
SMMA	2001	SMMA Monitoring Stations	X			Map of monitoring sites within the SMMA e.g. Reef Check, sediment traps, turbidity, salinity and water tempe
SMMA	2001	Framework to guide the design and conduct of research and monitoring programmes and activities within the soufriere marine management area (SMMA)	X			SMMA established as a participatory institution for the management of the coastal and marine resources of the Soufriere region, on the southwest coast of St. Lucia. In order to increase the efficiency, effectiveness and quality of management, this Research and Monitoring Framework was developed in order to, <i>to guide the involvement of students and researchers in research activities within the SMMA, to enhance the availability and use of information and knowledge relevant to management and to document and analyse the experience of the SMMA.</i>
SMMA		Conflict resolution and participatory planning: The case of the Soufriere marine management area.	X			Detailed review of the SMMA charting its creation, implementation, monitoring programs, development, mitigation and plans for the future. Provides valuable insight in to conflict management and the lessons that can be learnt from the SMMA.

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Soufriere Regional Development Foundation	1994	Management Plan for the Soufriere Marine Management Area.	X			This Management Plan has been prepared through the collaborative effort of a number of agencies and knowledgeable resource persons and is intended to alleviate problems of resource conflict that have been encountered. It is intended that the plan will be reviewed periodically and modified as necessary to meet the aims of the SMMA.
Sustainable agriculture and rural development (SARD)		Marine management in Soufriere, ST Lucia	X			The SMMA is a good example of an institution which has been developed to meet the needs of present generations without comprising the ability of future generations to satisfy their needs. The participatory approach to management ensures that all users have an input into decision making, thus fostering compliance with regulations governing the operations of the area. Continued use of the participatory approach to management, will ensure that SMMA attains and maintains its ultimate aim of harmonious and sustainable development of marine and coastal resources.
Timms. B.	2006	Caribbean agriculture - tourism linkages in a neoliberal world			X	Production of agricultural products for export while relying on imported food has long dominated the agricultural sector in the Caribbean, a legacy of the plantation economy. One strategy that can have a positive impact on reducing this dependency is the use of locally grown agricultural products by the hotel sector. Article investigates the hurdles that must be overcome if domestic agriculture is to tap into the tourist market
Tompkins, E. L.	2004	Planning for climate change in small islands: Insights from national hurricane preparedness in the Cayman Islands			X	The importance of planning for future increases in population in the coastal zone combined with increased land loss and flooding resulting from climate change.
UNEP	2008	Pitons Management Area, St Lucia.	X			Data sheet on Pitons Management Area, St Lucia.
UNESCO	1997	Integrated framework for the management of beach resources within the smaller Caribbean islands.			X	Results of the workshop held in 1996. Includes summaries of the presentations on beach erosion, hurricane impacts, beach and sand mining, community, traditional and modern approaches to coastal management and the dependence of tourism on beaches. The workshop led to the development of a strategy for 'Sustainable beach management by the year 2001', the key elements of which are set forth in this report.
Walker. L.A		Towards the Development of a Coastal Zone Management Strategy and Action Plan for St. Lucia		X		Document outlines the stages in the development of a coastal zone management programme for St. Lucia. A draft Coastal Zone Management Strategy and Action Plan is presented and the last section of the paper proposes a draft regional (local) action plan for the four regions recommended under the CZM Policy document: the Northwest Coastal Region; Central West Coastal Region; Northeast Coastal Region and the Southwest to Southeast Coastal Region due to their differing degrees of stressors
Williams-Peter, S.	2007	Marine/Coastal Priority Issues, How they are being addressed and associated data needs	X	X		Power point presentation on the St Lucia National Report describing the pressures the coastal environment is under and the steps needed to address them. In particular is the need for data such as habitat maps, sedimentation rates, salinity, water quality. Etc.