

Solutions to Benefit Both the Natural and Built Environments: Sustainable Tourism and Lessons From Cuba



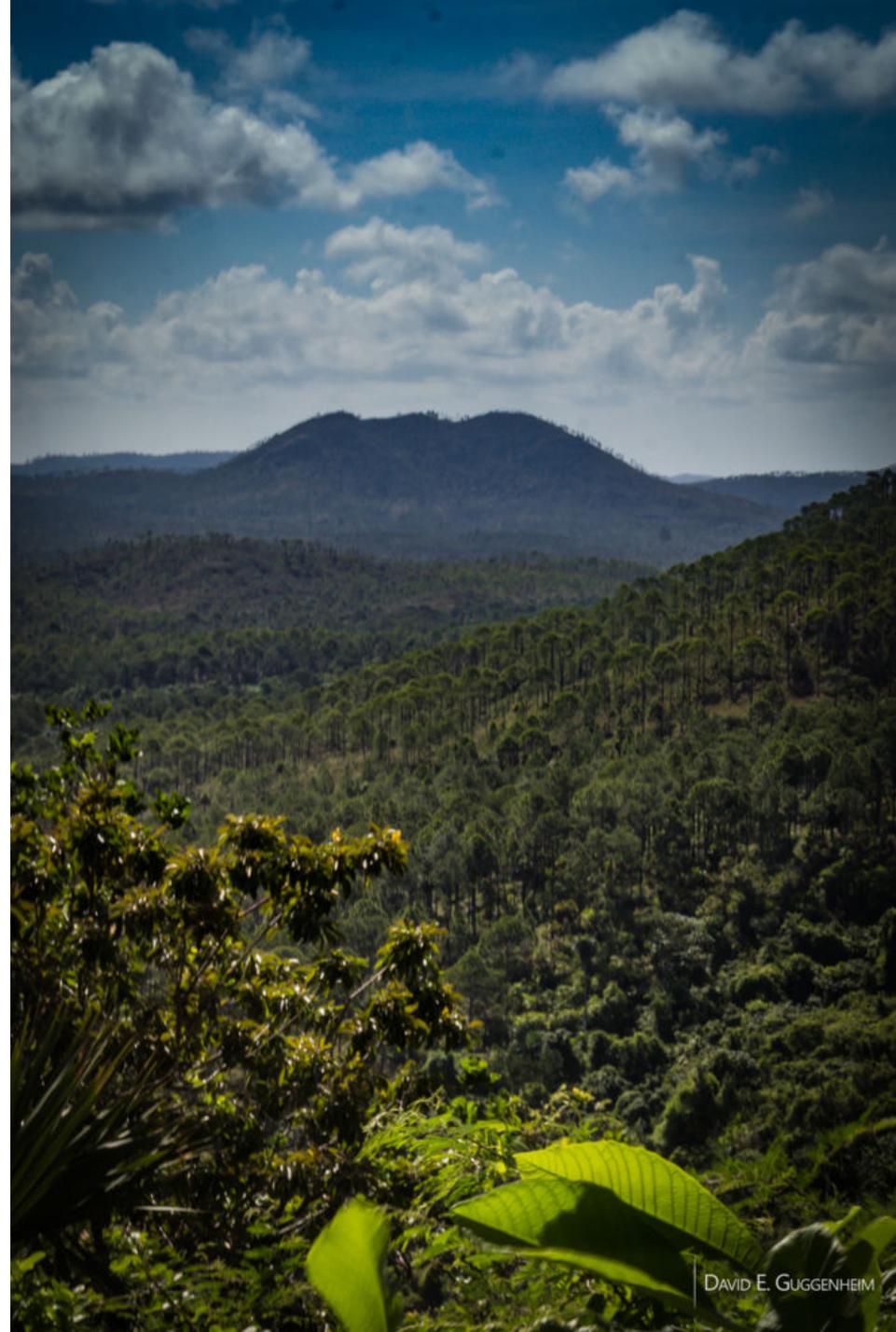
David E. Guggenheim, Ph.D. | Founder & President
Ocean Doctor – Washington, DC USA

**KEEPING HISTORY
ABOVE WATER**

Keeping History Above Water
Annapolis, Maryland | Oct 29 – Nov 1, 2017







EASTERN

EASTERN

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EASTERN PASSENGER TICKET AND BAGGAGE CHECK

ORIGIN: PHILADELPHIA PA
DESTINATION: MIAMI FL

NAME OF PASSENGER: JUGENHEIM/DAVID

FLIGHT: 35 Y 24 JUN 1984

FARE BASIS: OK Y

ISSUE DATE: MAY 22 '74

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FARE CALCULATION

BASE 83.92
TAX 6.72
TOTAL 90.64

FORM OF PAYMENT: TBM

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2004



Courtesy of Phil Dustan

GCRMN
GLOBAL CORAL REEF
MONITORING NETWORK

ICRI



ABU Center of Excellence
Coral Reef Studies



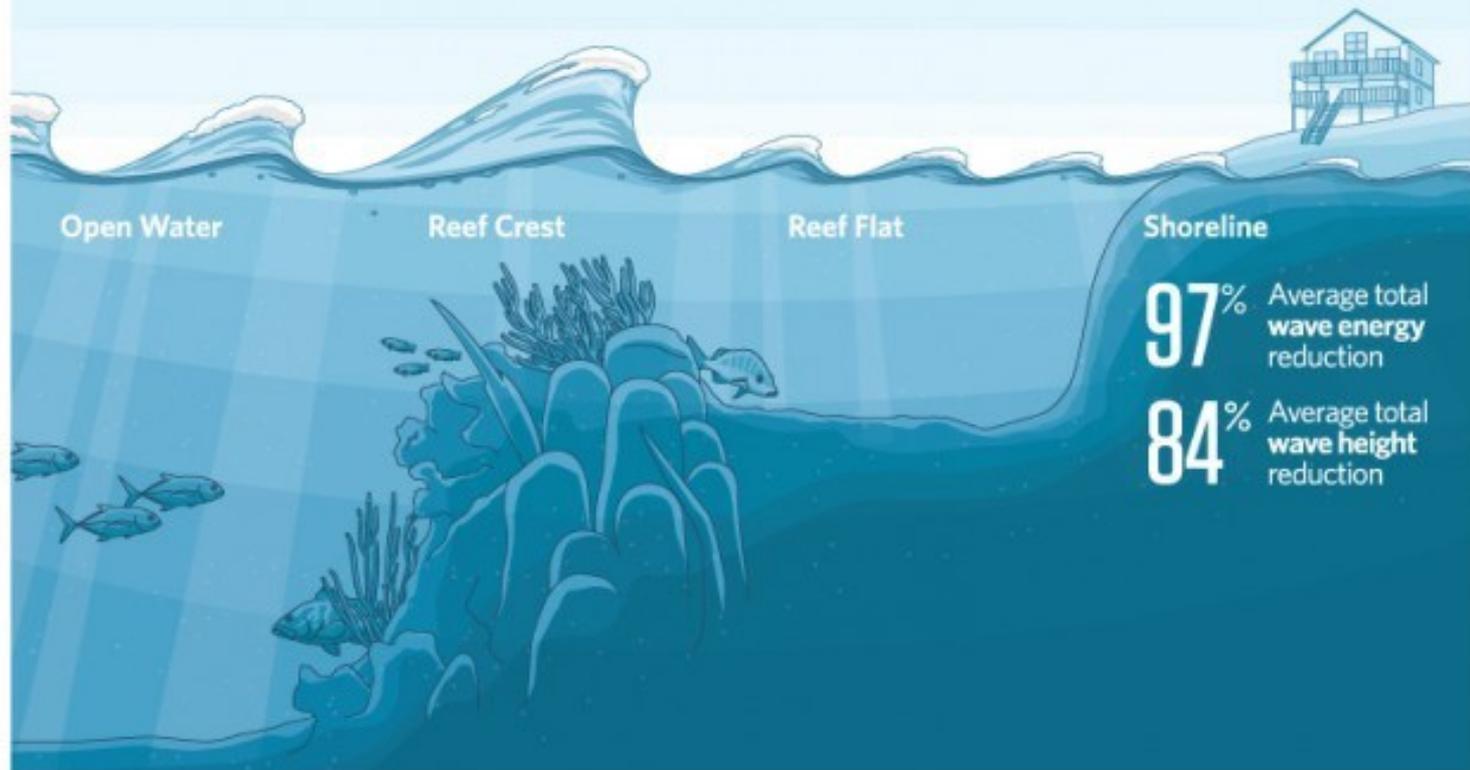
Average decline of coral cover in the Caribbean of more than 50 percent since 1970

Status and Trends of Caribbean Coral Reefs: 1970-2012

EDITED BY
JEREMY JACKSON · MARY DONOVAN · KATIE CRAMER · VIVIAN LAM

Coral Reefs Reduce Wave Energy and Height

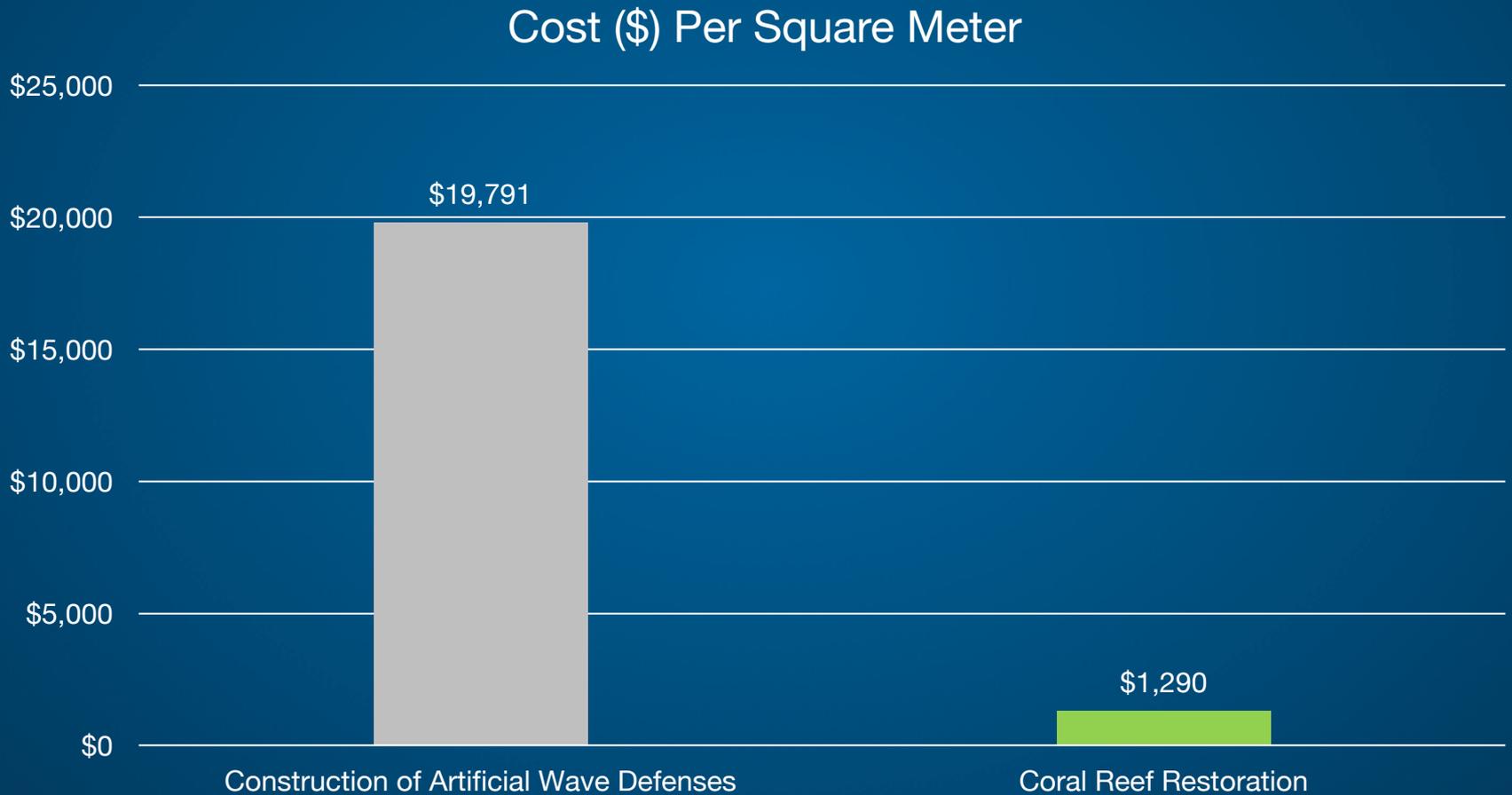
Coral reefs reduce wave energy by an average of 97 percent across all studies globally. The reef crest, or shallowest part of the reef where the waves break first, dissipates 86 percent of wave energy on its own. The whole reef reduces wave height by 84 percent.



Study Citation: Ferrario, F., M.W. Beck, C.D. Storlazzi, F. Micheli, C.C. Shepard, L. Airoidi. 2014. The Effectiveness of Coral Reefs for Coastal Hazard Risk Reduction and Adaptation. *Nature Communications*. Doi:10.1038/ncomms4794

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Construction of Artificial Wave Defenses vs. Coral Reef Restoration

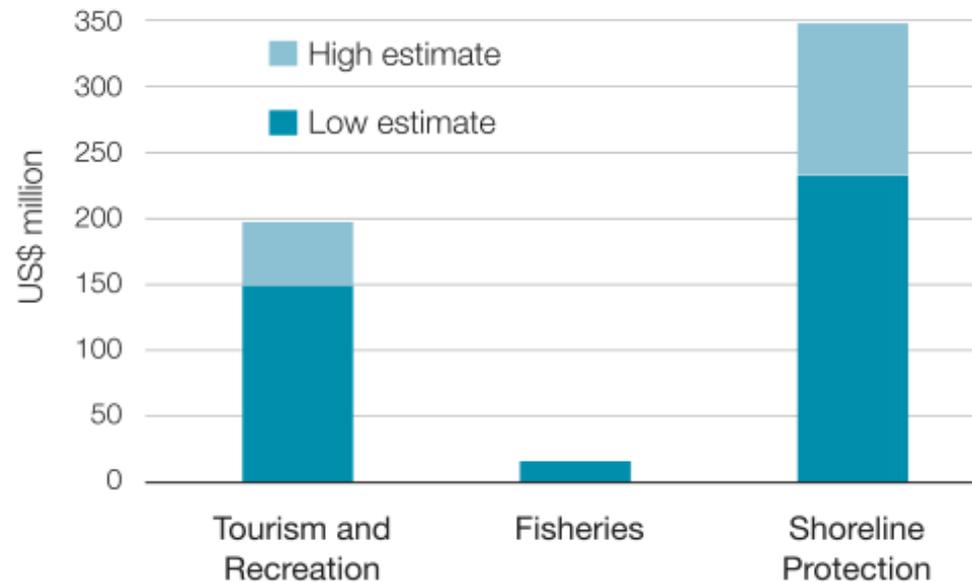


(Source: Ferraro *et al.*, 2014)



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ANNUAL ECONOMIC CONTRIBUTION OF CORAL REEFS AND MANGROVES IN BELIZE



Source: World Resources Institute (2007) *Coastal Capital: Belize The Economic Contribution of Belize's Coral Reefs and Mangroves*. Washington, DC



THREATS TO CORAL REEFS CLIMATE CHANGE

Increased greenhouse gases from human activities result in climate change and ocean acidification.

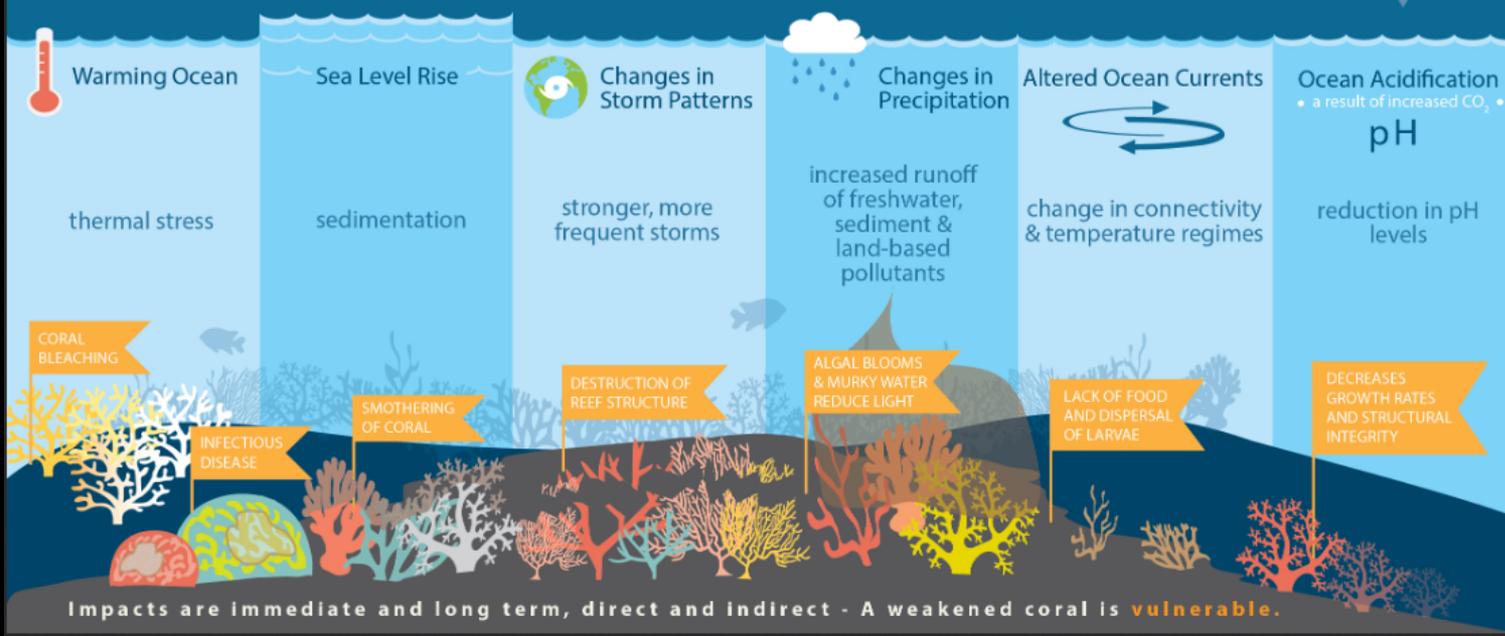
CLIMATE CHANGE = OCEAN CHANGE



CO₂

The world's ocean is a massive sink that absorbs carbon dioxide (CO₂). Although this has slowed global warming, it is also changing ocean chemistry.

CLIMATE CHANGE dramatically affects CORAL REEF ECOSYSTEMS









Natural Flowways

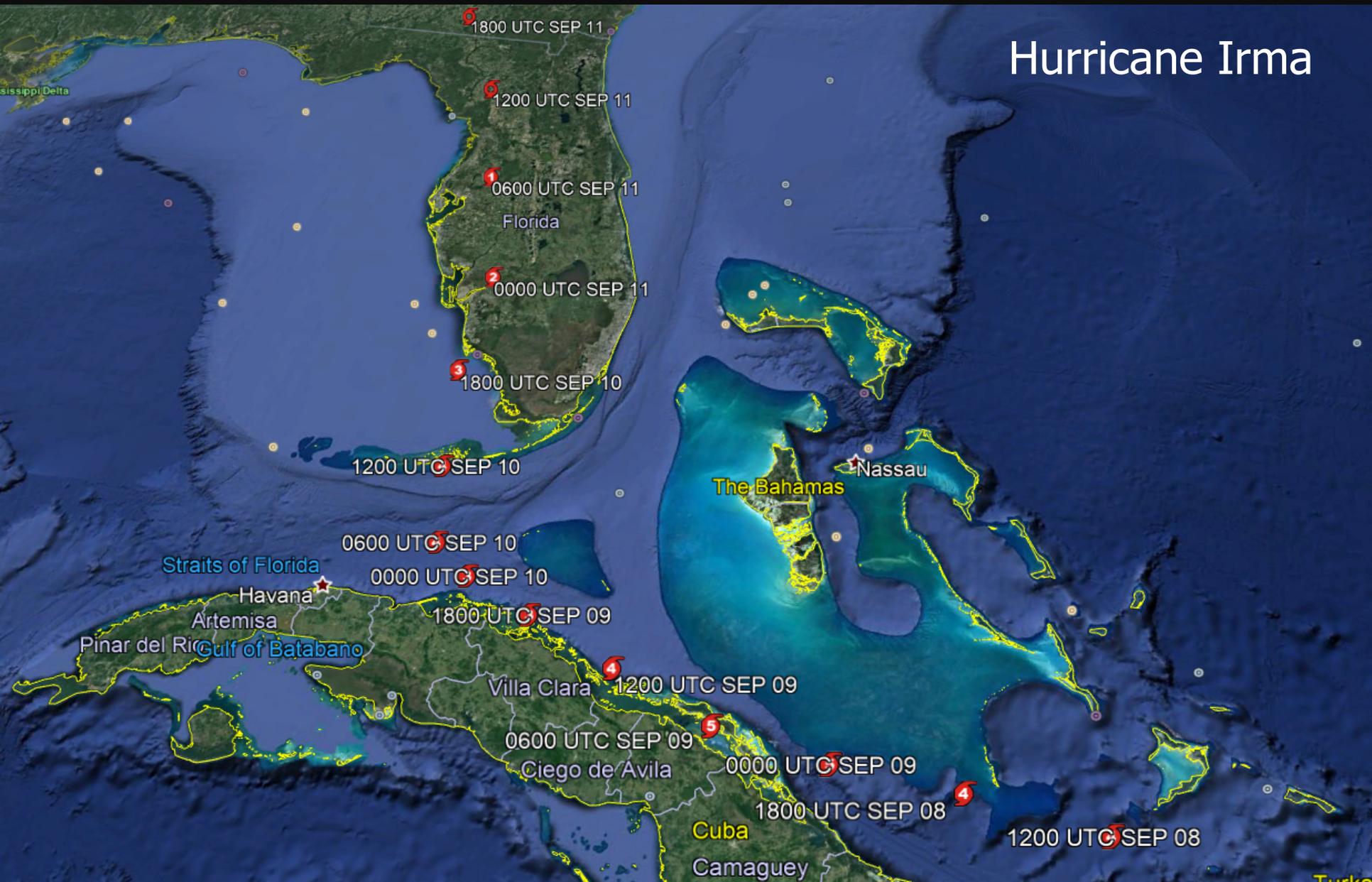






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Hurricane Irma









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A Century of Unsustainable Tourism in the Caribbean:

Lessons Learned and Opportunities for Cuba



Tourism in the Caribbean

1800s: Resort hotels built in the Bahamas, Jamaica, Barbados. Wealthy Americans, Europeans interested in the curative benefits of bathing.

- Many Caribbean islands are colonies of European countries
- Europeans visit their corresponding colony island. Americans primarily visit the Bahamas and Cuba.



Tourism in the Caribbean

1880s: Dual-purpose banana boats used to deliver tourists to the Caribbean, export bananas.

U.S.-owned United Fruit Company formed in 1899 is largest company to operate these cruises.



Tourism in the Caribbean

1920s : Tourists visit the Caribbean for sunbathing as a tan begins to be seen as a sign of health



Tourism in the Caribbean

1950s – 60s: Decline of plantation economy, encouraged by the United Nations and World Bank, Caribbean (beginning with Puerto Rico, the Bahamas, and Jamaica) invest in tourism as a development tool.



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Tourism in the Caribbean

1960s: The development of economical long haul jet airplane puts the Caribbean in reach financially and technologically for the average vacationer.

Visitors from Europe travel to the Caribbean in 8 hours rather than requiring a three week trip by ship.

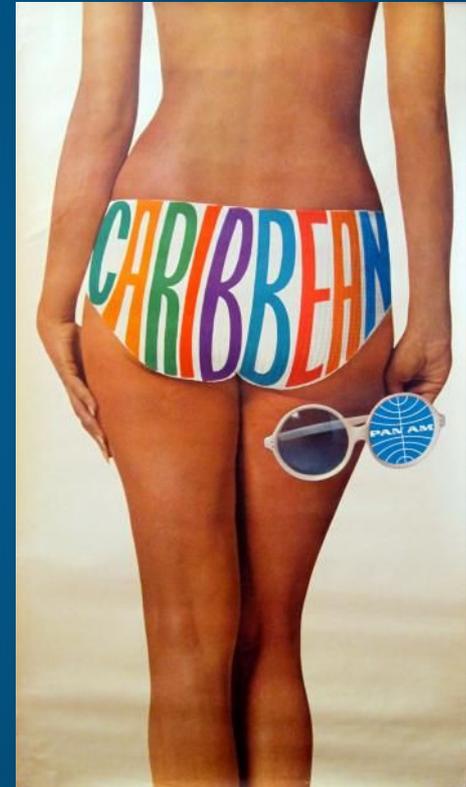


Tourism in the Caribbean

1960s - 1970s: Caribbean governments begin to entice foreign investors with incentives

- waivers from labor legislation
- duty free imports of raw materials and capital goods
- exemptions from taxation or restrictions on profit repatriation.

1961-1971: Caribbean tourism increases from 720,000 to over 4.6 million visitors per year



Tourism in the Caribbean

1980s: "Sun, Sand and Sea" tourism becomes a major tourism product

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©American Express Travel Related Services Company, Inc. 1984



Go Today, Pay Tomorrow

Tourism in the Caribbean

2000s: High volume mass tourism dominates the tourism market in the Caribbean with prepay travel packages for resorts and cruise ship vacations.



Tourism in the Caribbean Today

- Caribbean is now most tourism-intensive and tourism-dependent region in the world
- Sun, sand, and sea mass tourism model beginning in 1960s
 - Caribbean as a playground
 - Homogenous/distinctions irrelevant
 - Driven by activities, costs
- Players that control and profit from the industry are largely non-Caribbean



Commoditization

Process by which goods that have economic value and are distinguishable in terms of attributes (uniqueness or brand) end up becoming simple commodities in the eyes of the market or consumers.

- Products/Services/Skills no longer a differentiator
- Seller can no longer demand premium rates
- Intense competition among sellers (price)
- Low margins on sales



cancun



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Cancún - Wikipedia

<https://en.wikipedia.org/wiki/Cancún> ▼

Cancún is a city in southeastern Mexico on the northeast coast of the Yucatán Peninsula in the Mexican state of Quintana Roo. It is an important tourist ...

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Cultural Commoditization

Reconstructed Ethnicity:

Customs, religious rituals, and festivals are sanitized, presented at different times or shortened to conform to tourist timelines, expectations

Culture becomes a product that is on display and for sale; artists adapt products to align with tourists "taste"

Homogenization of Caribbean

Culture



Other Socioeconomic Impacts

- Employment often not dispersed throughout the community/region
- Many tourism industry jobs for locals are low wage/unskilled (waiters, housekeepers, gardeners)
- Much work is seasonal, does not provide a stable income
- Skilled workforce imported; alters makeup of the host community; "strangers in their own land"

Leakage vs. Linkage

Leakage: Loss of tourism revenue to other countries' economies

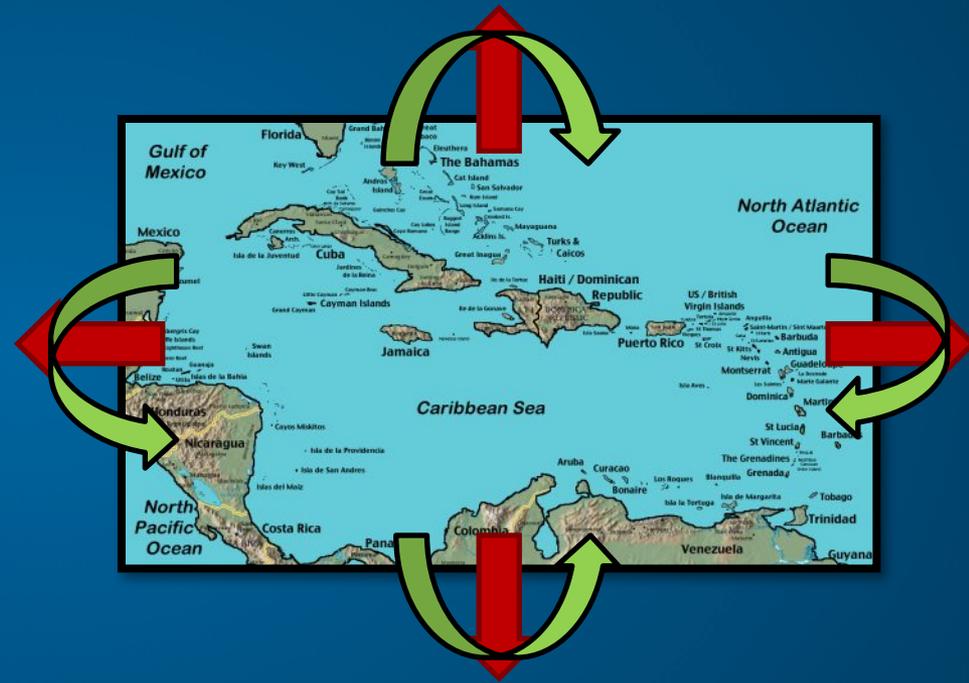
Occurs when local economy cannot provide reliable, competitively priced supply, comparable quality of the required product, or service that the market demands



Leakage vs. Linkage

Linkage: Integration of tourism sector (hotels, lodges, restaurants, tour operators and transport providers) and the local economy.

Increased integration can develop strong linkages between tourism and other economic sectors including agriculture, fisheries, manufacturing, construction and crafts production.



Cruise Ships

- Fastest growing sector of the travel industry for past 20 years, avg. growth rate of 7.4%
- Generate \$18 billion/year
- Caribbean leading destination (41% of all cruise travel)
- Ports of call compete to receive ships, lower prices in order to stay competitive
- Commoditization/homogenization of the Caribbean has exacerbated competition among ports. Easy for ships to move to another port.
- Registration with a "flag of convenience" (Bahamas, Panama, Liberia) allowing them to avoid environmental regulations, taxation, and labor laws concerning the environment



Cruise Ships

- Like long haul jet flights in the 50s/60s, cruising now becoming available to more economic classes; travelers are spending less at ports of call
- Land based tourists spend 13x more in host countries than cruise passengers
- Operate like all-inclusive resorts

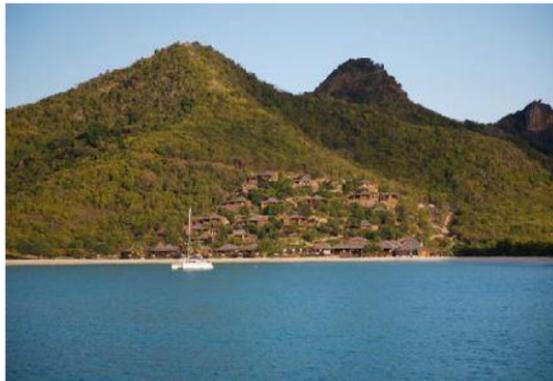




**Impacts of hotel siting and design
on biodiversity in the insular Caribbean:
a situation analysis**

A report prepared as part of the IUCN Business and Biodiversity Programme and the IUCN Caribbean Initiative project "Integrating Biodiversity in the Caribbean Hotel Sector".

September 2011



IUCN (International Union for Conservation of Nature)
Rue Mauverney 28
1196 Gland, Switzerland
Tel: +41 22 999 0296
Fax: +41 22 999 0029
www.iucn.org

- Landscape modification due to tourism development one of main contemporary drivers of habitat loss in the Caribbean
- 42% loss of mangroves in past 25 years

ICOMOS

international council on monuments and sites



Caribbean
MANGROVES



-42%

Caribbean
CORAL



-50%



Courtesy of Phil Dustan

Florida Keys, USA 1975



Jardines de la Reina, Cuba 2015







“OMG, I want to see Cuba before ~~the~~ we ~~Americans~~ ruin it!!! ”

GOATEMALA CITY	12:20P	American	1603	D12	On Time
HAVANA, CUBA	8:00A	American	9454	D17	On Time
HAVANA, CUBA	8:00A	Aruba	252	F12	On Time
HAVANA, CUBA	9:00A	XTRA Airways	3830	G4	On Time
HAVANA, CUBA	9:30A	SWIFT AIR	503	G8	On Time
HAVANA, CUBA	10:00A	EASTERN	3141	F3	On Time
HAVANA, CUBA	12:30P	American	9446	D19	On Time
HOUSTONIAH	7:10A	American	1604	D3	On Time



"Tsunami Norteamericano"



- **2014-2015:** Cuba's tourism rose by 17.6 percent (to 3.1 million tourists) a rate increase roughly quadruple the world average during 2015.
- **Mid-2016:**
 - 2 million foreign tourists, 11.9% more than in the same period in 2015.
 - U.S. 2nd largest source of visitors after Canada, an increase of 80% (138,000) over 2015





If implemented responsibly, tourism represents a significant opportunity to advance the economic and environmental well-being of Cuba's coastal communities.

Development of Cuban Tourism Sector

- **1995:** Foreign investment law
- **1997:** Cuban economic resolution highlights tourism as an important part of redefined Cuban economy
- **2008:** Reforms under Presidente Raul Castro allowing limited privatization in tourism sector (casas particulares, paladares)
- **2015:** \$2.8 billion USD in tourist revenues- 2015



Cuba's Advantages & Opportunities

- Cuba has not been culturally homogenized as the rest of the Caribbean
 - Can market itself as unique, authentic cultural and environmental destination
 - Far less pressure to compete based on price
- Strong environmental laws, network of protected areas, commitment by government to protect environment





Phase II: CUSP Implementation



3 Priorities:

1. Collaboration with Cuban Environmental Ministry (CITMA) on Educating U.S. Corporations and Investors on Cuban Environmental Law, Planning, and Permitting



Phase II: CUSP Implementation



3 Priorities:

1. Collaboration with Cuban Environmental Ministry (CITMA) on Educating U.S. Corporations and Investors on Cuban Environmental Law, Planning, and Permitting
2. Havana Bay Master Plan - Urban Planning

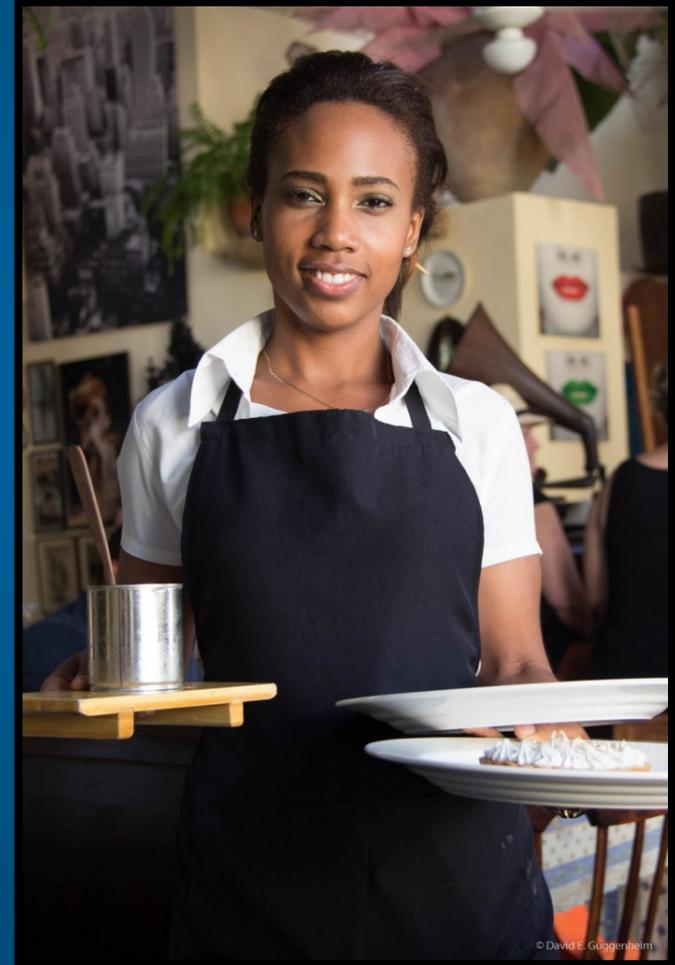


Phase II: CUSP Implementation



3 Priorities:

1. Collaboration with Cuban Government to Educate U.S. Corporations and Investors on Cuban Environmental Law, Planning, and Permitting
2. Havana Bay Master Plan - Urban Planning
3. Collaboration with Cuban Government to Ensure that New Generation of Small-Scale Businesses Employs Sustainable Practices



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Environmental Economics in Cuban Law

References to the Use of Environmental Economics and Economic Tools in Cuba's Law 81 of the Environment (Adopted June 11, 1997)

TITLE SIX: SPECIFIC SPHERES OF ENVIRONMENTAL PROTECTION

CHAPTER II: PROTECTION AND SUSTAINABLE USE OF BIOLOGICAL DIVERSITY

Article 88. The Ministry of Science, Technology, and Environment, in coordination with other responsible agencies and bodies, will direct actions intended to:

- k) promote the economic evaluation of biological diversity;
- q) adopt or propose the adoption, as appropriate, of economic and social incentives for the conservation and sustainable use of biological diversity.

Coastal Capital: Belize

The Economic Contribution of Belize's Coral Reefs and Mangroves



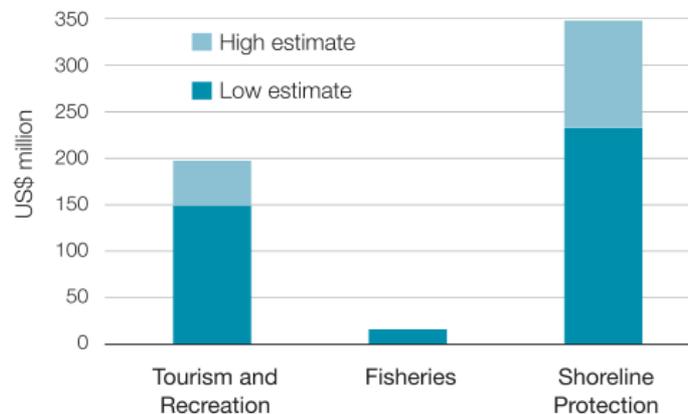
Coastal and marine ecosystems provide vitally important goods and services to countries in the Caribbean. This study looks at only three out of the many culturally and economically valuable services provided by these ecosystems in Belize. Even within this narrowed scope, this study finds that the country's coastal resources are extremely valuable. Belize's coral reefs and mangrove-lined coasts provide critical protection against erosion and wave-induced damages from tropical storms; they have supported artisanal fishing communities for generations; and they stand at the center of vibrant tourism industry, drawing snorkelers, divers and sport fishermen from all over the world.

Despite their importance, these benefits are frequently overlooked or underappreciated in coastal investment and policy decisions. Unchecked coastal development, overfishing, and pressures from tourism threaten the country's reefs, with the additional threats of warming seas, fiercer storms, and other climate-related changes

looming on the horizon. Fish populations, including commercially valuable sport-fishing species and colorful reef fish, will diminish if they lose the mangrove forests they rely upon as critical nursery habitats. Coastal properties will become increasingly vulnerable to storms and erosion, and reef-related tourism will suffer as reefs and mangroves decline.

Belize's government, NGOs, and private sector have begun to recognize the importance of coastal ecosystems to the economy. Nevertheless, the amount currently invested in protecting Belize's coral reefs and mangroves is very small when compared to the contribution of these resources to the national economy. The World Resources Institute (WRI), in collaboration with WWF Central America, assessed the economic contribution of these services at the national level and within individual Marine Protected Areas in Belize. For the full report and methodology, please visit www.wri.org/project/valuation-caribbean-reefs.

ANNUAL ECONOMIC CONTRIBUTION OF CORAL REEFS AND MANGROVES IN BELIZE

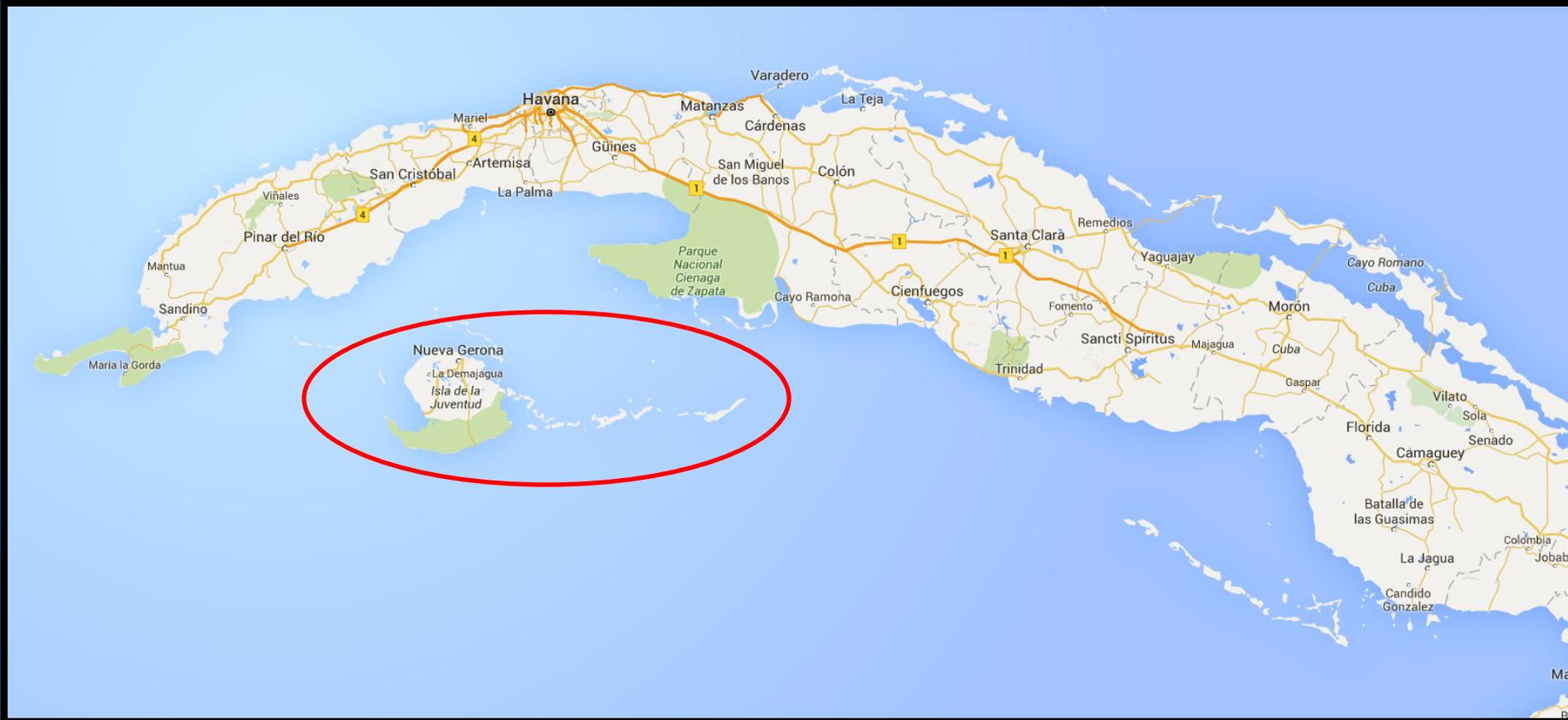


Source: World Resources Institute (2007) *Coastal Capital: Belize The Economic Contribution of Belize's Coral Reefs and Mangroves*. Washington, DC





Protecting Cuba's Coastal Environment in an Era of Change: Considering the Economic Value of Natural Ecosystems



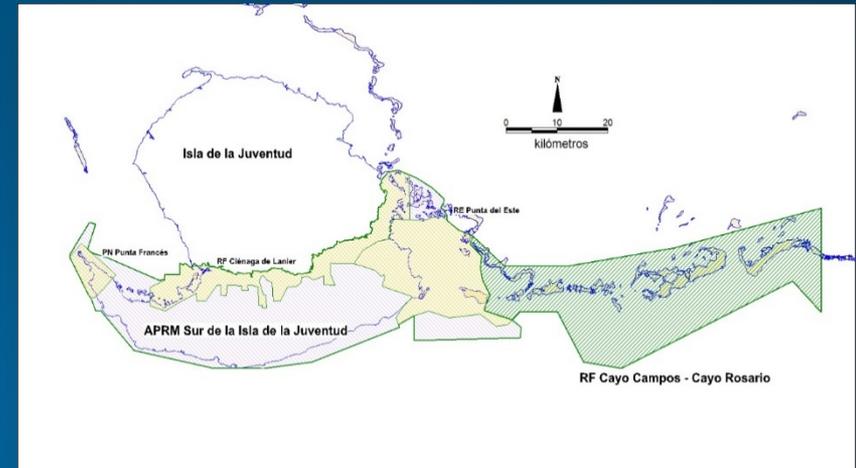


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Objectives

- Quantify (economic valuation) ecosystem services in the Canarreos Archipelago in 2017
- Obtain the expected value under different scenarios of tourism development, to be used for decision making
- Understand relationship between local community and the marine ecosystem
- Identify and implement feasible and sustainable alternatives for the local community and the marine environment



Isle of Youth

Isla de la Juventud

7th Largest
Caribbean Island























PROYECTO: **RED ALERTA**
Cocodrilo, Isla de la Juventud, Cuba

Conectando la Comunidad con el Océano

Approach

- Assess economically- and environmentally-sustainable alternatives for the community
- Strengthen connection between community and its natural ecosystems
- Ongoing environmental education and outreach















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Horario
Viernes: 8:00pm a
Sabado: 8:00pm a

LAVEN
Pollution
LANCEL
KEVIN

Opportunities

- Role of environmental economics in informing decisionmaking
- Strengthen connections between communities and their natural ecosystems
- Small-scale tourism
 - Offers visitors a unique, "authentic" experience
- Agricultural connections, cooperatives
- "Pocket" cruises
- Cuba Autentica!









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Agency/Agencia

ANTHROPOLOGIE CONSULTING LLC

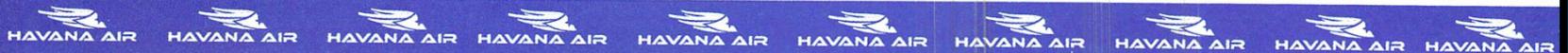
Name/Nombre

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Date/Fecha: 12/24/2015

GUGGENHEIM/ DAVID EDWARD

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MIA	HAV	EA3145	12/25/2015	10:00 AM	2:00 PM	3:00 PM	G	EASTERN AIRLINE
HAV	MIA	EA3148	12/31/2015	2:00 PM	6:00 PM	7:00 PM	T-2	EASTERN AIRLINE





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- CUSP: Because of focus on small scale, educating cuenta propistas
- Value to environment of mangroves (Belize example)
- Positive feedback loop (powerful hurricanes>destruction of natural environment>increased shoreline destruction)
- Green infrastructure; natural flowways; let mother nature do what she's best at; fresh water a pollutant
- The Potential for Small-Scale Projects to Advance Sustainability and Restoration Initiatives in Cuba.
- NGO-ENGAGEMENT!!! There is great interest in the development of small-scale restoration and sustainable initiatives in Cuba from the U.S. investment sector and a significant need from Cuba to collaborate with

- The coral reef structure buffers shorelines against waves, storms, and floods, helping to prevent loss of life, property damage, and erosion. When reefs are damaged or destroyed, the absence of this natural barrier can increase the damage to coastal communities from normal wave action and violent storms.
- Several million people live in U.S. coastal areas adjacent to or near coral reefs. Some coastal development is required to provide necessary infrastructure for coastal residents and the growing coastal tourism industry.
- However, the impacts of coastal development (e.g., marina, dock, and bridge construction, dredging to replenish beaches) and polluted runoff from coastal areas can damage coral reefs over the long term. Therefore, the health of coral reefs depends on sustainable coastal development practices that protect sensitive coral ecosystems and the creatures that reside there.