

WORLD  
RESOURCES  
INSTITUTE



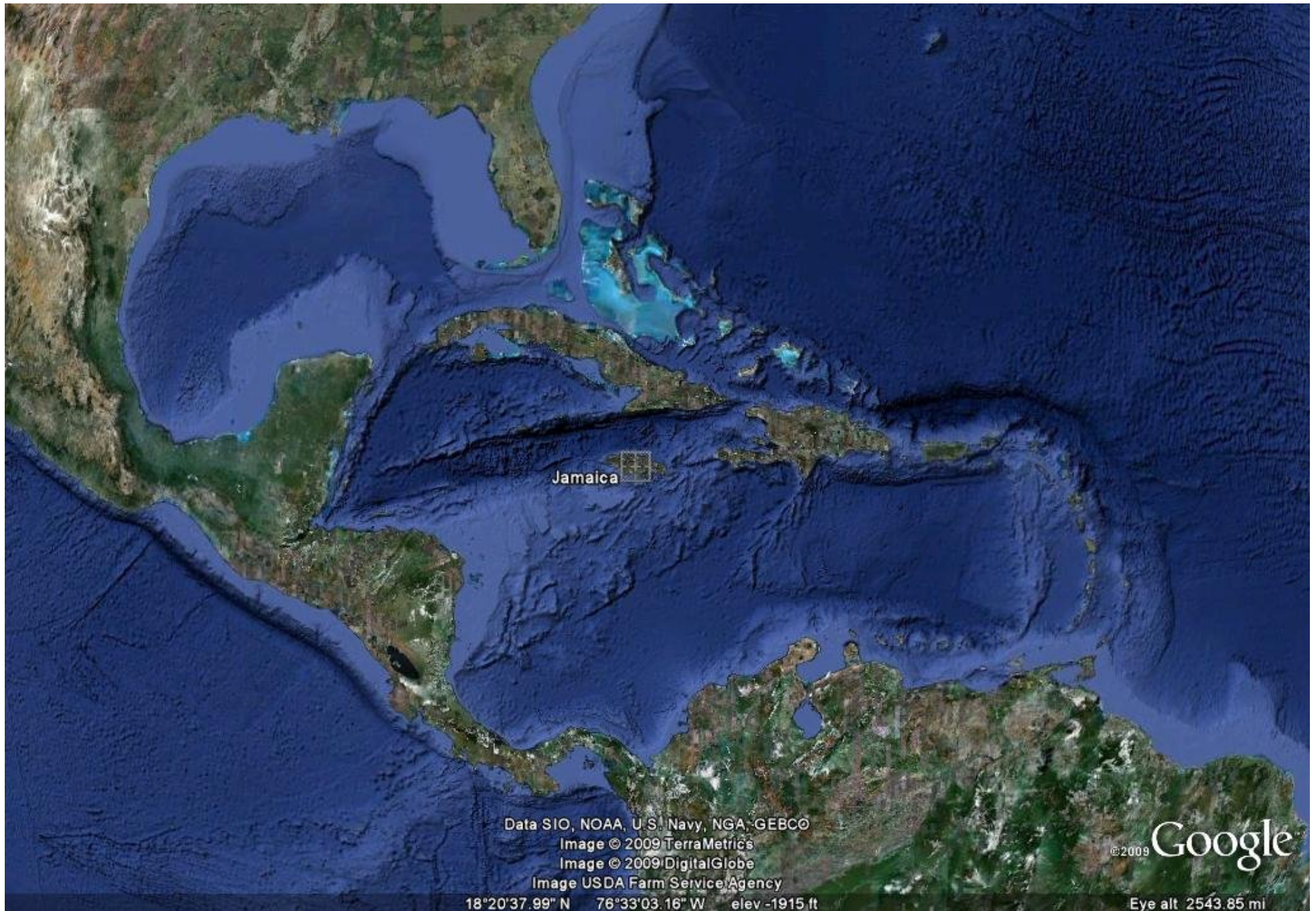
## **Caribbean Day**

**ICRI General Meeting Monaco**

**Wednesday 13 January 2010**

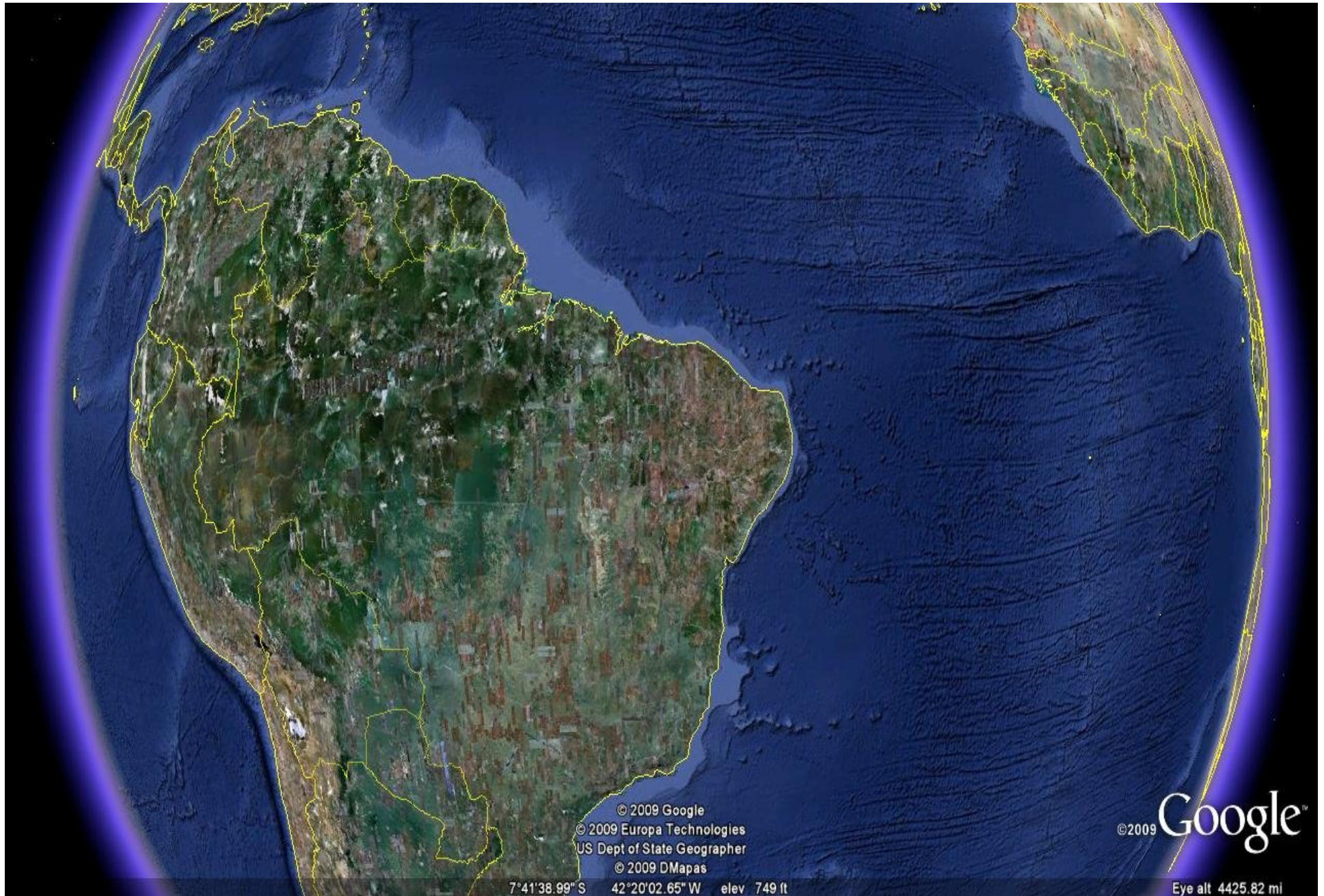


## The Wider Caribbean – ICRI General Meeting Special Session





## The Wider Caribbean – includes Brazil for ICRI



# Wednesday January 13th - Caribbean day

- 08:30 - Presentation of the reefs in the region
- 09:00 - Monitoring, Status and threats to reefs, Clive Wilkinson (GCRMN)
- 09:30- Economic valuation of coral reefs, Laurretta Burke (WRI)
- *10:00 - Coffee Break*

# Wednesday January 13th - Caribbean day

10:30 - Major projects in the region

Caribbean Challenge, The Nature Conservancy

Caribbean Environment Programme (CEP) / UNEP

Centres d'Activités Régionaux (CAR) / SPAW (Specially

Protected Areas and Wildlife) Hélène Souan (CAR SPAW)

Fonds Français pour l'Environnement Mondial (FFEM) / Agence Française de Développement (AFD), Julien Calas (FFEM)

Initiative française pour les récifs coralliens (IFRECOR)

U.S. Coral Reef Task Force

Discussion

- 12:30 - *Lunch*

# **Wednesday January 13th - Caribbean day**

13:30 - Discussions on the following themes:

Invasive Alien Species (discussion about the need of a region wide strategy for control)

Marine Protected Areas (discussion about management plans, regional indicators and socio-economics aspects)

Tourism

17:30 - Conclusions

- 08:30 - Presentation of the reefs in the region  
- *Nelson Andrade (UNEP CEP)*
- 09:00 - Monitoring, Status and threats to reefs, *Clive Wilkinson (GCRMN)*
- 09:30- Economic valuation of coral reefs, *Lauretta Burke (WRI)*
- 10:00 - *Coffee Break*





# ***Threats to Caribbean Coral Reefs***

## **Global Change Threats:**

- Coral bleaching
- Rising levels of CO<sub>2</sub>
- Diseases, Plagues and Invasives

## **Direct Human Pressures:**

- Over-fishing (& destructive fishing)
- Sediments
- Nutrients
- Development

## **Governance, Awareness and Political Will:**

- Poor management capacity
- Rising poverty & growing populations
- Low Political Will







# ***Threats to Caribbean Coral Reefs***

## **Global Change Threats:**

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Diseases, Plagues and Invasives

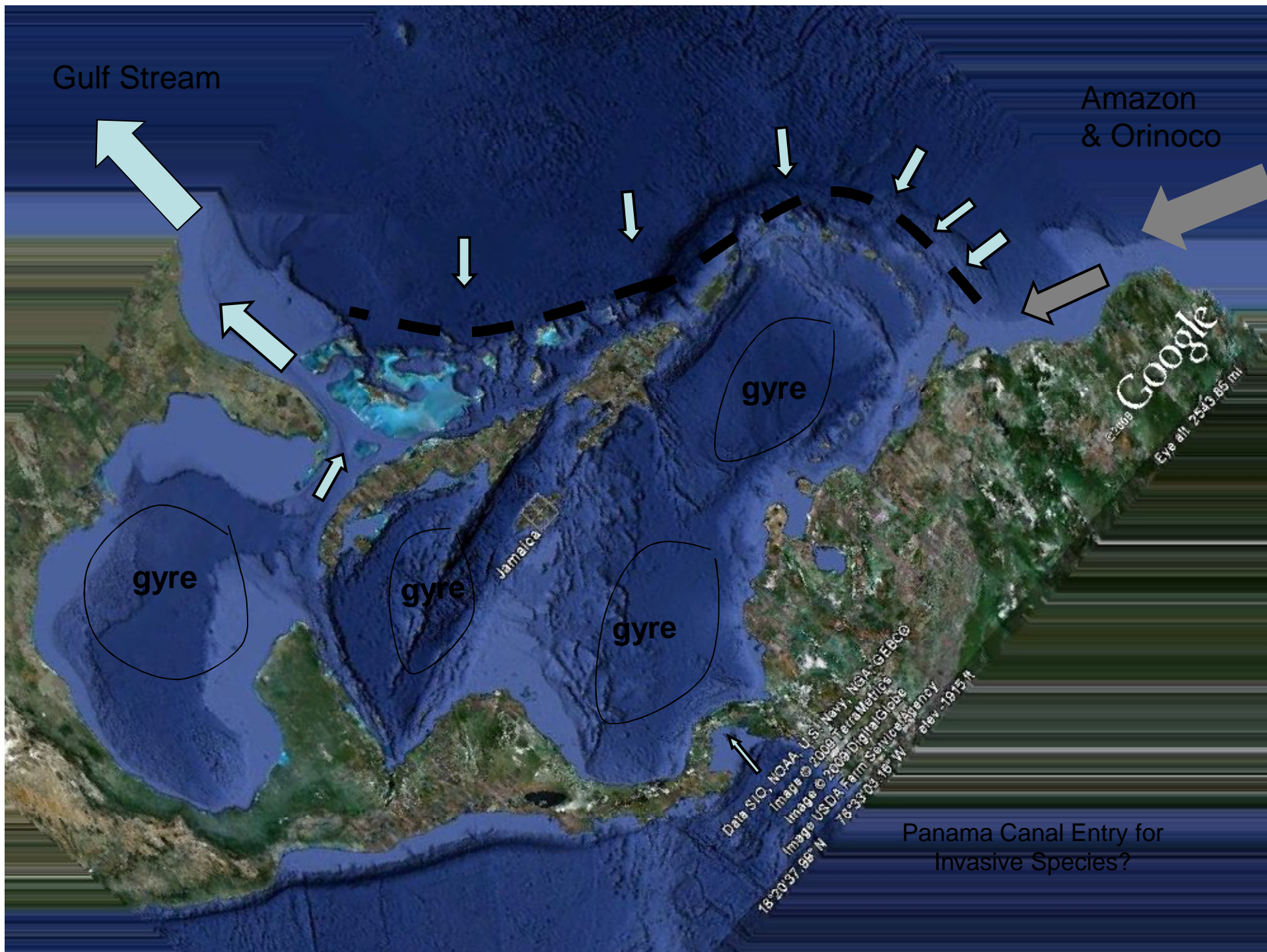
## **Probably the major 'natural' threats**

**Coral bleaching** has devastated reefs since ~ 1980 with major losses in 1982-82, 1987, 1990, 1997-98 & 2005

**Diseases of corals**, especially *Acropora* spp. Devastated by White Band Disease and many others

**Invasive or Disease** - 95% death of long-spined sea urchin, *Diadema antillarum* in 1983-84.







# ***Threats to Caribbean Coral Reefs***

## **Direct Human Pressures:**

Over-fishing (& destructive fishing)

Sediments

Nutrients

Development


## **Human pressures major threat - all of the above!!**

Many reefs have few or 'no' fish

Sediment covers many reefs especially high volcanic islands; poor land use, agriculture, animal raising

Nutrients from sewage threatens reefs in most countries

Development – populations growing rapidly, tourism development can be damaging







## ***Example: Threats to Reefs in Haiti***

### **The Current Situation**

- No MPAs
- No government unit
- No human resources in government
- Few human resources outside government


One major NGO FoProBiM - *Fondation pour la Protection de la Biodiversité Marine*, Jean Wiener, Director



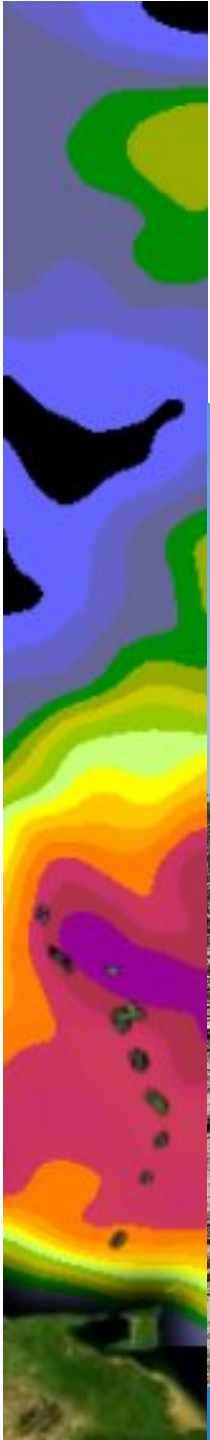




## ***Example: Threats to Reefs in Haiti***

- Over-fishing
  - Sedimentation
  - Mangrove exploitation
  - Coral harvesting (export)
  - Marine turtle exploitation
  - Marine/coastal Pollution
- 

# Mangrove Cutting





# Mangrove Charcoal Production





# Coral Harvesting





# Marine Turtle Exploitation



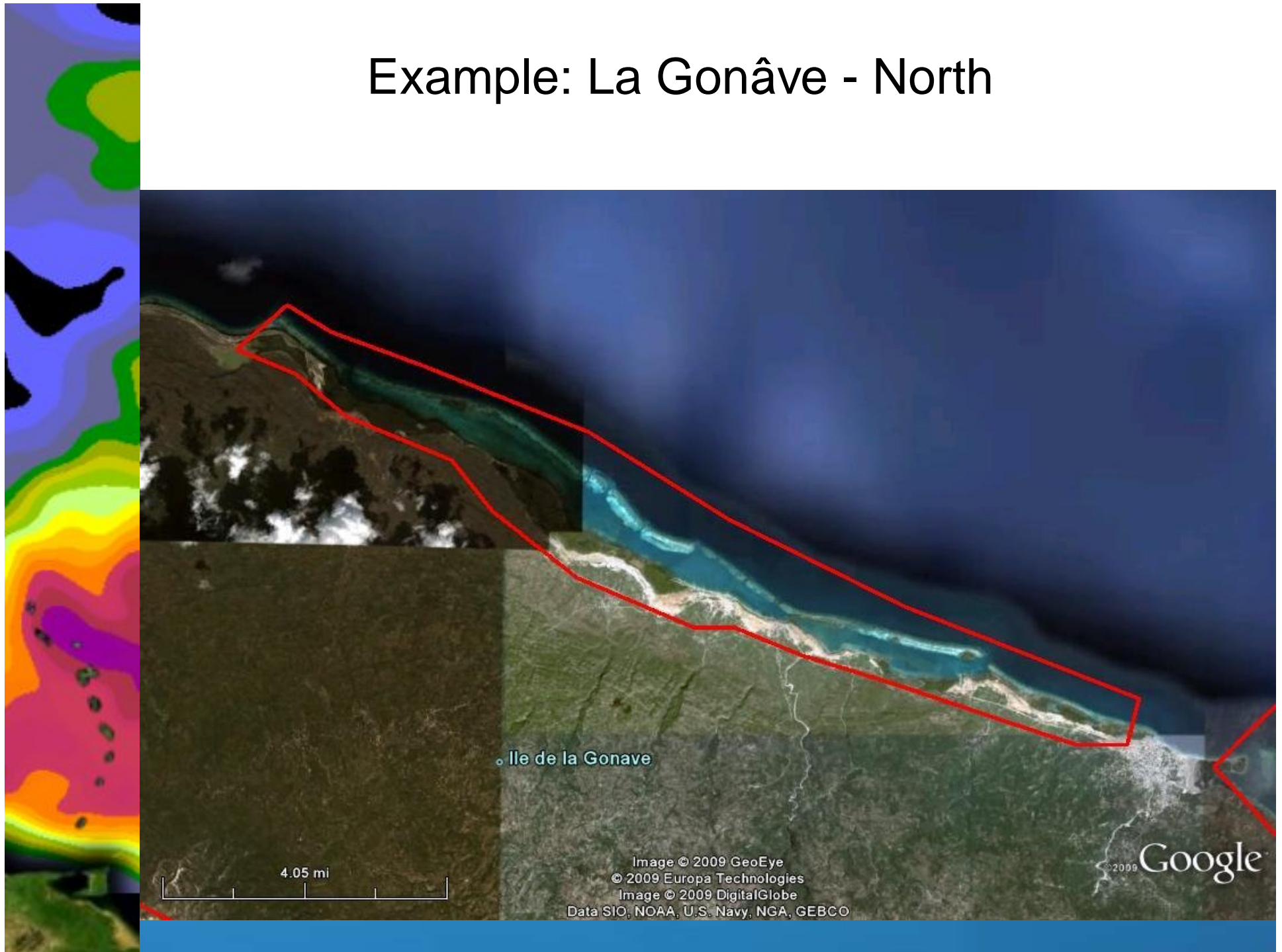


# Potential MPA Sites for Haïti





## Example: La Gonâve - North



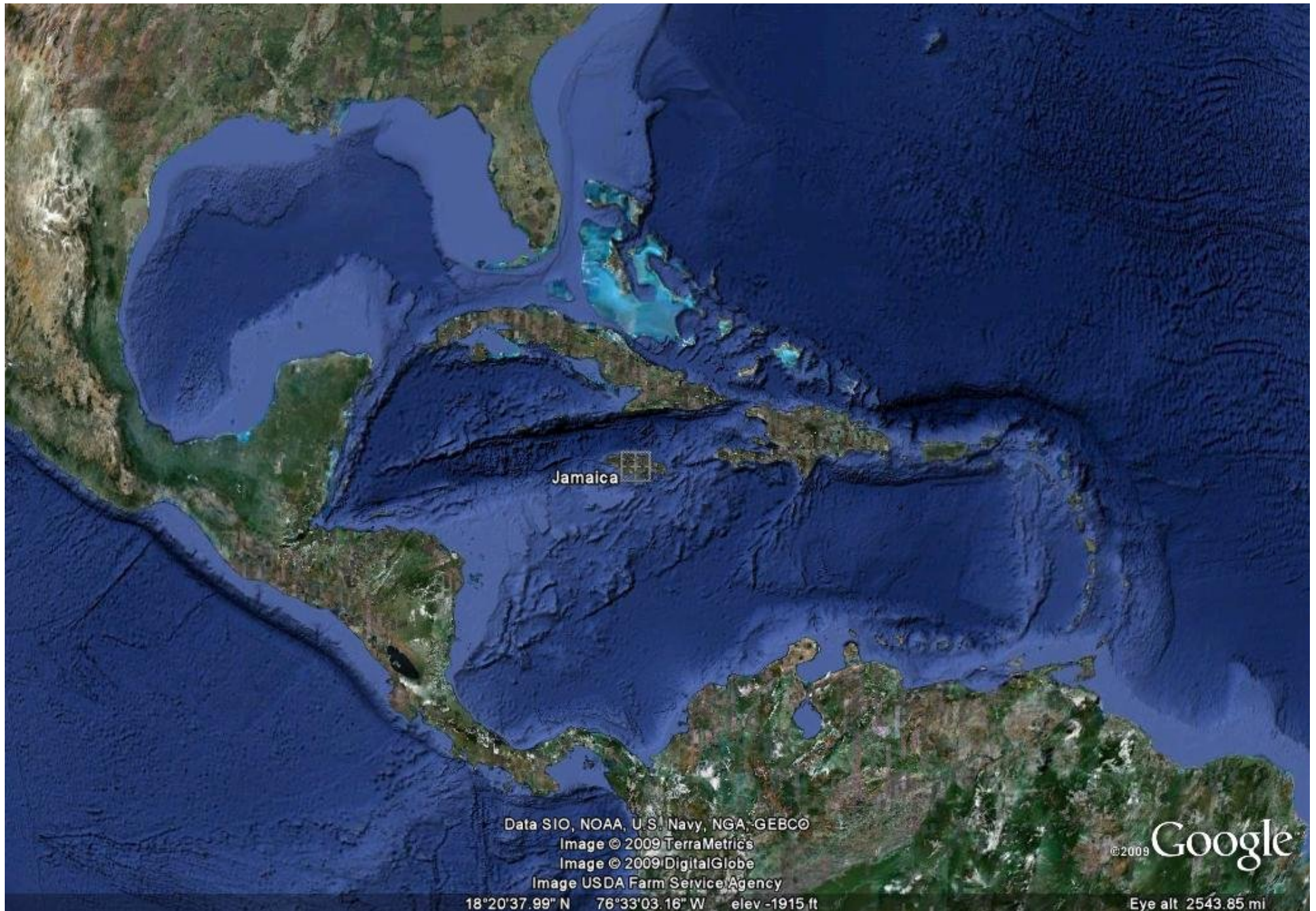


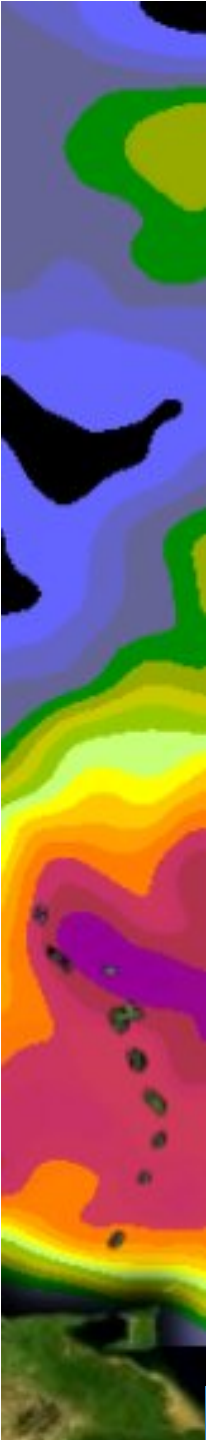
## ***Needs in Haiti***

- Increase local human resources
- Increase local monitoring
- Better international surveillance (if no demand - no export incentive for coral)
- Financial resources




## The Wider Caribbean – ICRI General Meeting Special Session






# **Monitoring and Status of Jamaican Reefs**

*ECOSYSTEMS MANAGEMENT BRANCH  
NATIONAL ENVIRONMENT AND PLANNING AGENCY*

- Integrated Coastal Management etc.
  - Environmental Education and Awareness.
  - Co-management of Coastal Resources.
  - Control of Marine Pollution.
  - Research and Monitoring for Management
- 



## Monitoring and Status of Jamaican Reefs

- Baseline fish surveys in sanctuaries
  - Fisheries Bill (draft)- better fisheries, aquaculture management.
  - Aim - improve protected area management via zoning & enforcing regulations
  - Mandate & enforce ***no net loss policy*** for all coasts.
- 





## Monitoring and Status of Jamaican Reefs

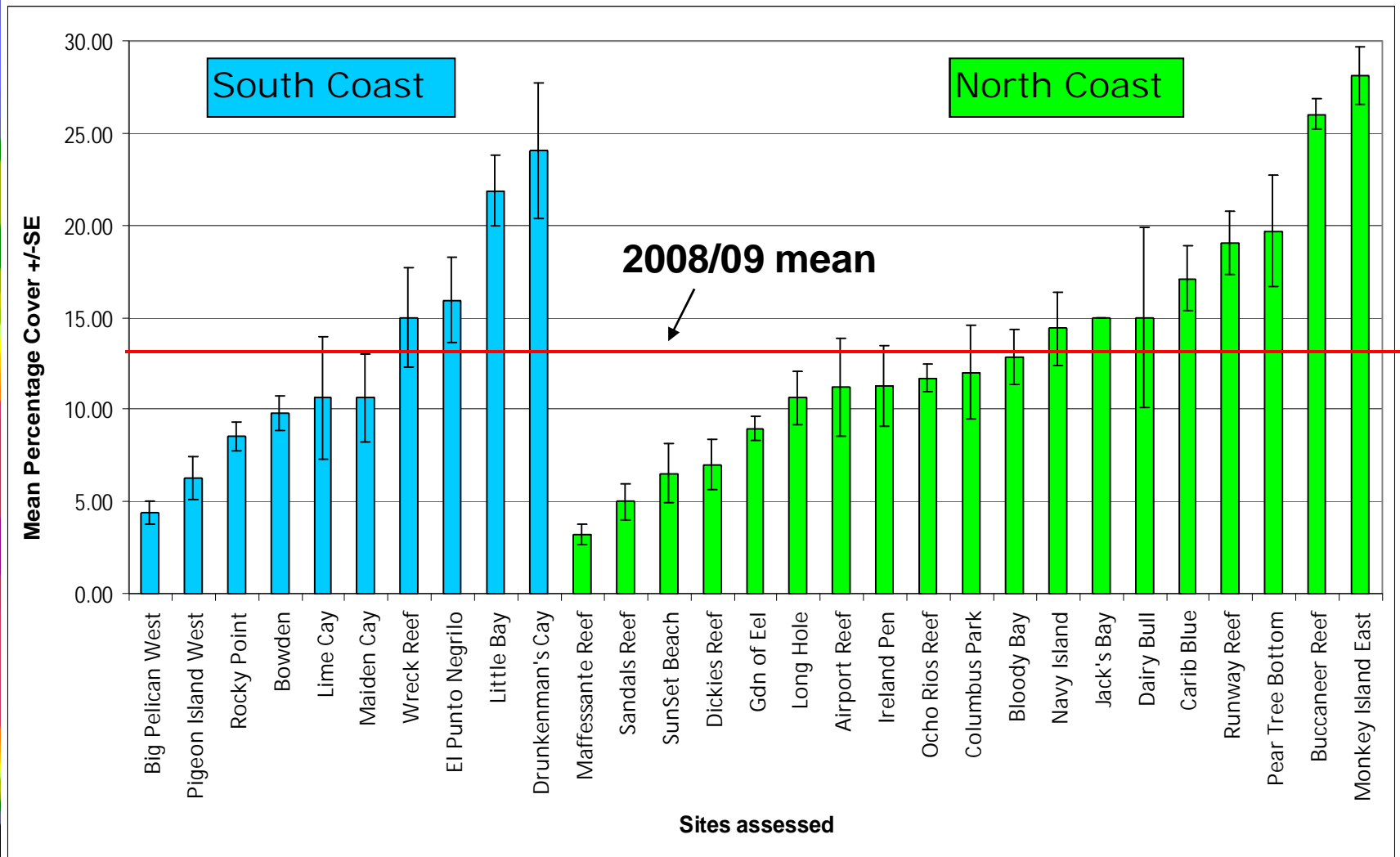
- **Coral Reefs** – databases, assessment via Video, Reef Check & Rapid Assessment (20 sites instead of 36)
  - *Fish abundance low, lionfish invading.*
- **Mangroves** - map areas remotely & manage impacts via permits and licenses
- **Seagrass beds** - better mapping & Inform the development applications



## Mean Hard Coral % cover

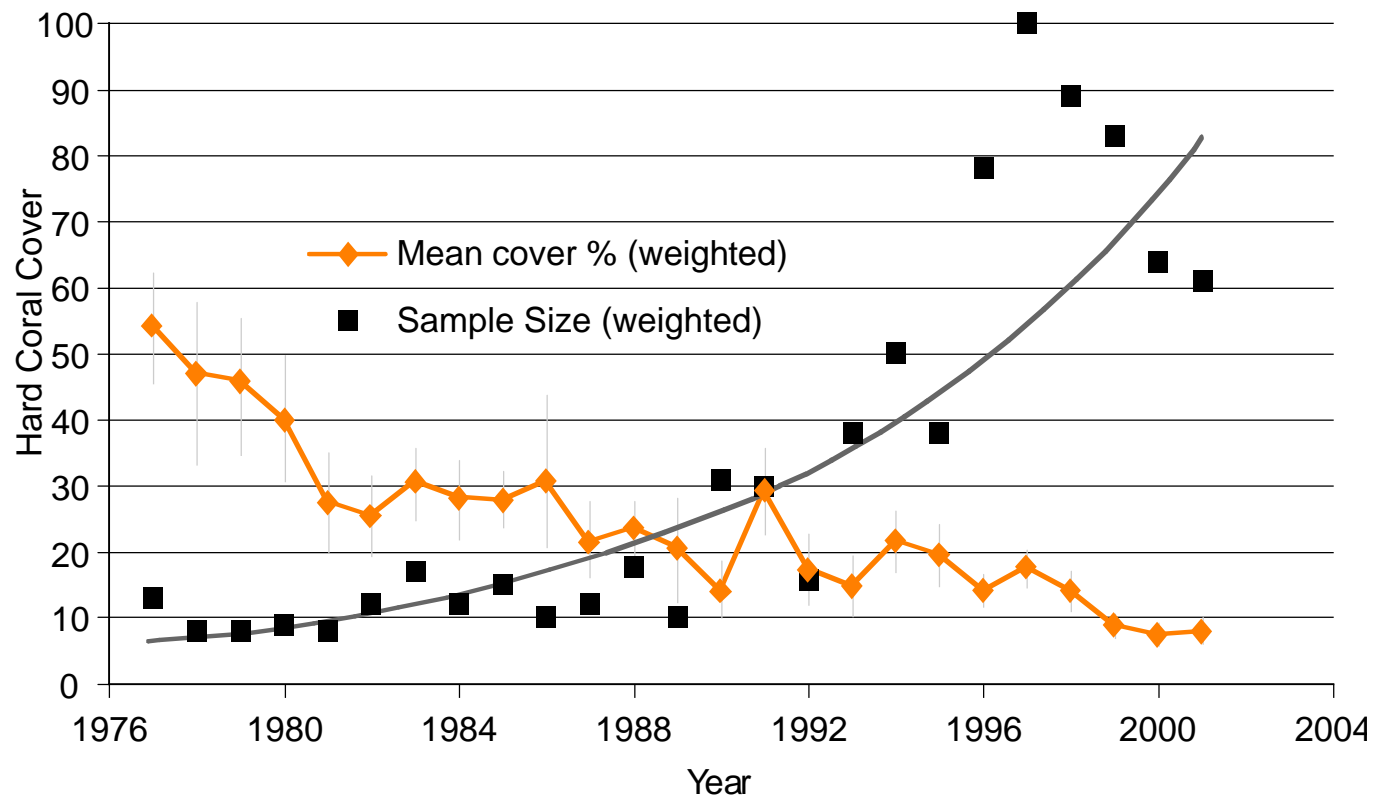
2008-09 mean - 13.7% (36 sites)

2001-07 mean – 14.8% (54 sites)

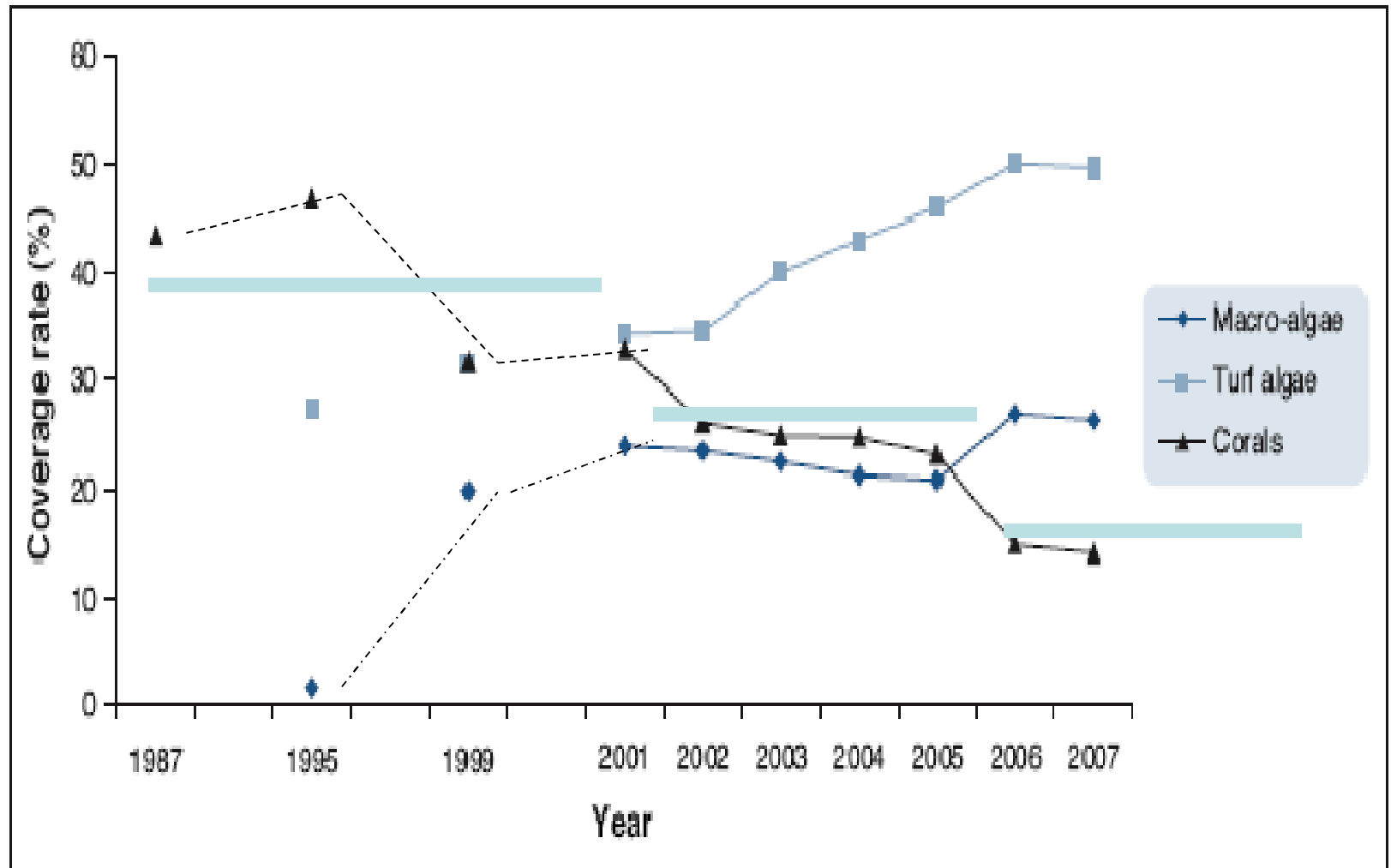


# Summary of reef status

- Live coral cover loss from 50% to 10% in 25 yr



## Example from Guadeloupe





# ***Threats to Caribbean Coral Reefs***

## **Governance, Awareness and Political Will:**

Poor management capacity

Rising poverty & growing populations

Low Political Will

This is major future problem for SIDS –

**Poor management capacity** –few trained personnel & equipment to manage, raise awareness, enforce & monitoring; few MPAs managed effectively

**Rising poverty & growing populations** – negate efforts at conservation, resource use increasing beyond sustainability

**Low Political Will** – need strong political will & governance of resources;





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## Importance of Monitoring:

- First activity in any project
- Involve all in team (ranger to Minister)
- Gather data – (or work in the dark)
- Determine what is to be managed
- Assess value of resources (\$)
- Raise awareness in team
- Inform the public to gain support





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## ***CURRENT NODE STRUCTURE***

- **Southern Tropical America** - Colombia, Brazil, Costa Rica, Panama, Venezuela
- **Mesoamerican Barrier Reef** – Belize, Guatemala, Honduras, Mexico and Pacific side
- **US Caribbean reefs** – Florida, Flower Garden Banks, Puerto Rico, USVI, Navassa

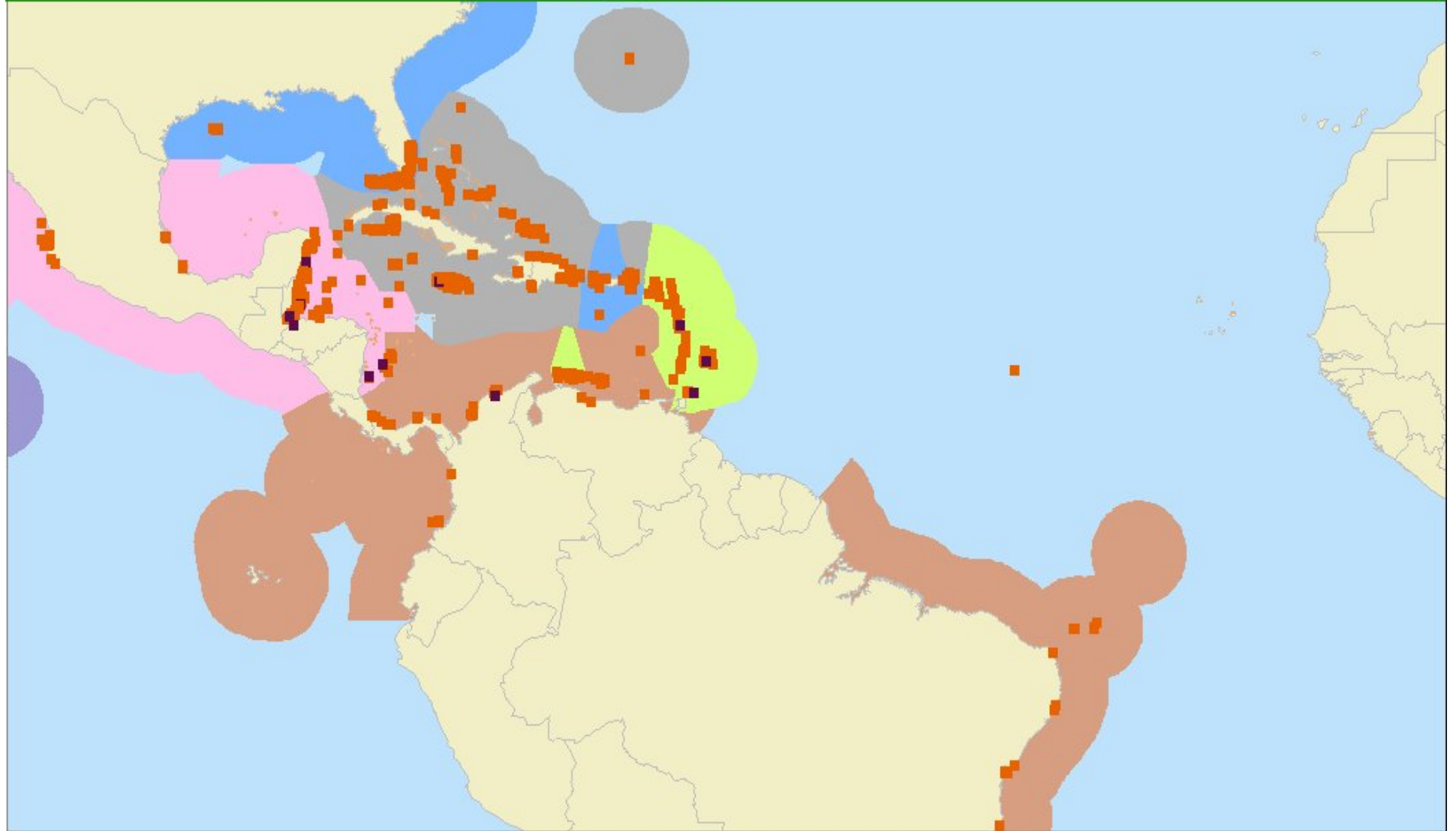




## ***CURRENT NODE STRUCTURE***

- **Lesser Antilles** – the Organisation of Eastern Caribbean States (OECS) from British Virgin Islands through Barbados, Trinidad and Tobago including French and Netherlands Antilles,
- **Northern Caribbean and Western Atlantic** - Jamaica, The Bahamas, Bermuda, Cayman Islands, Cuba, Dominican Republic, Haiti, & Turks and Caicos Islands

## Coral Reef Monitoring

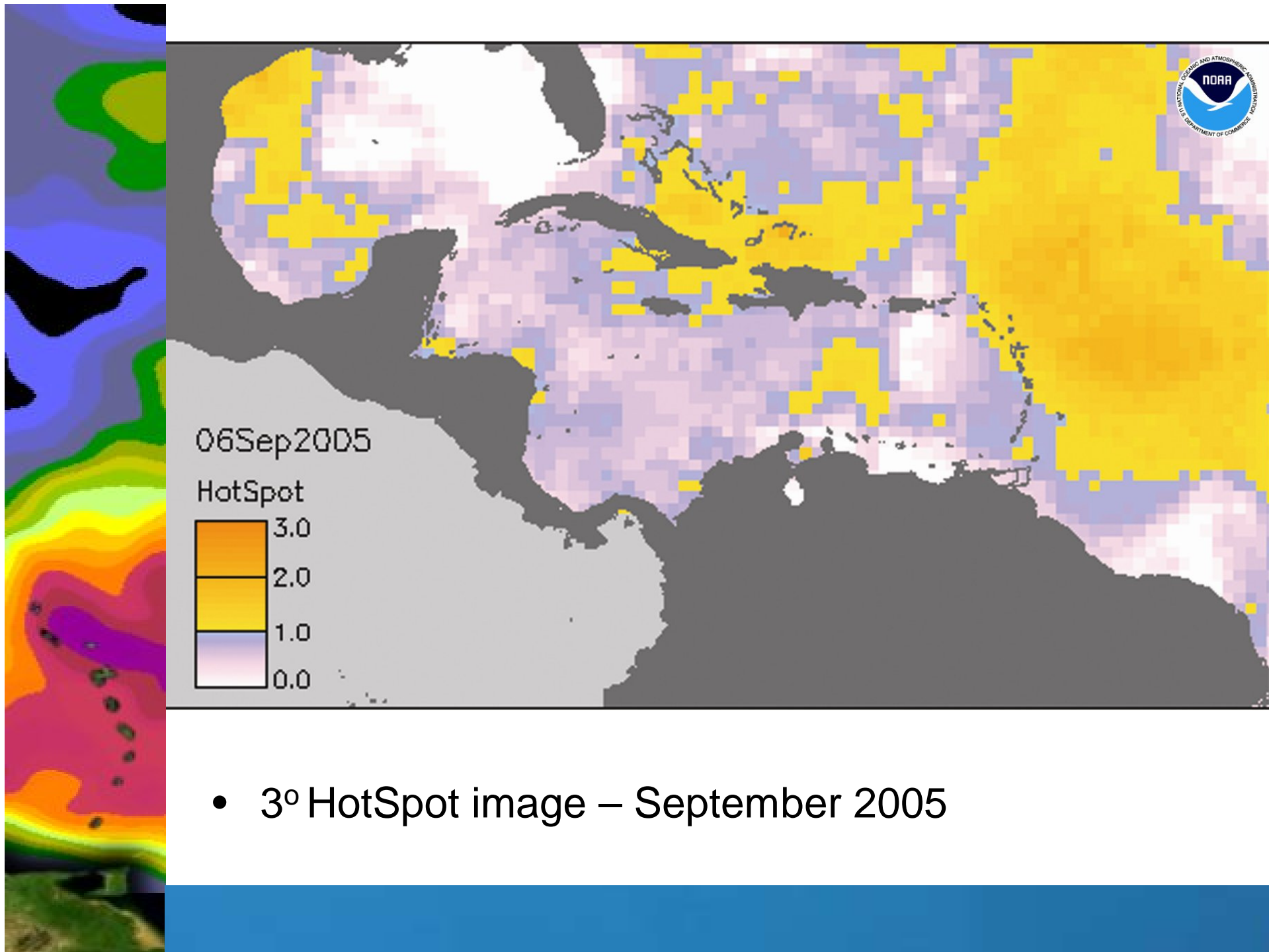


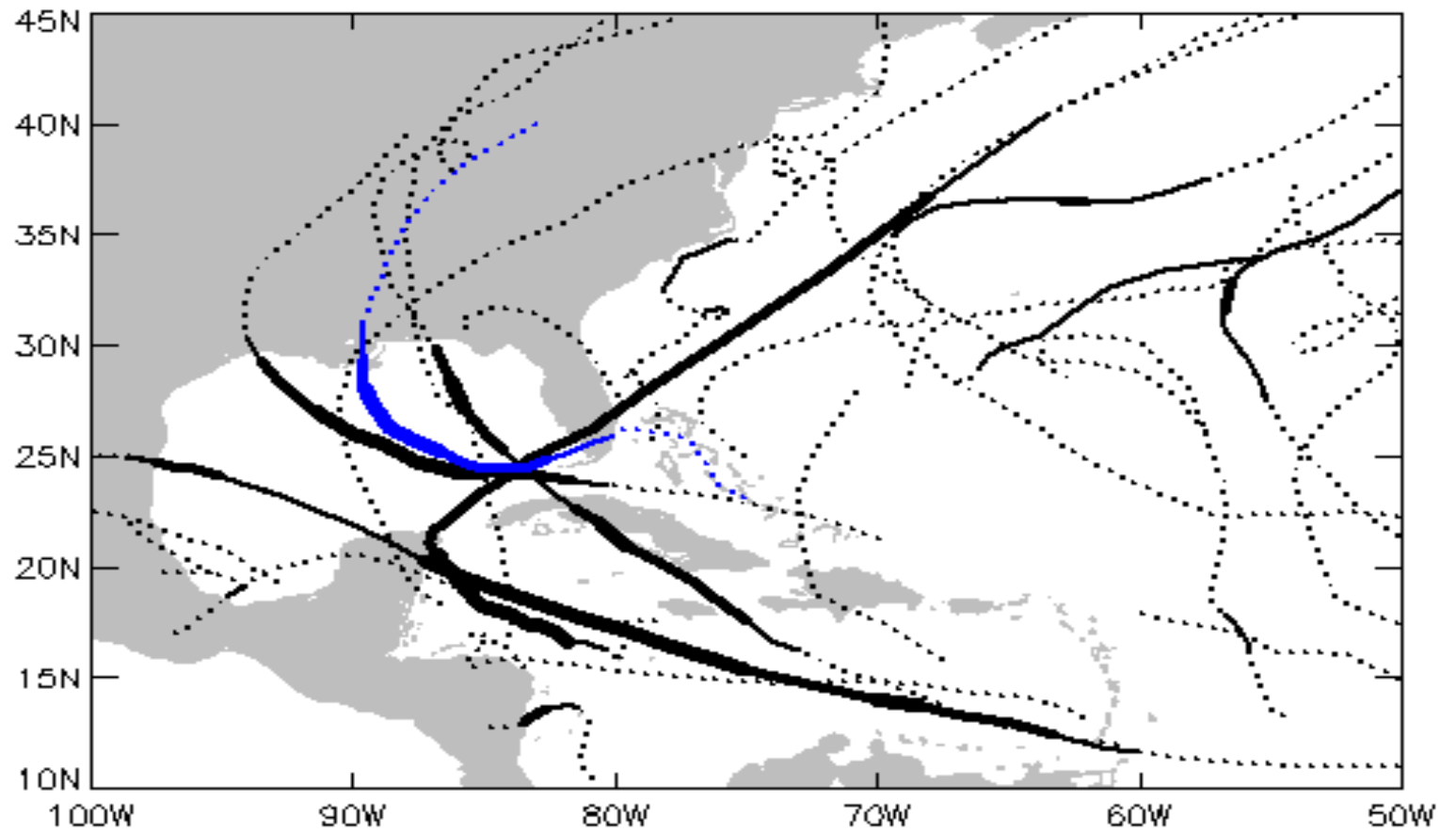
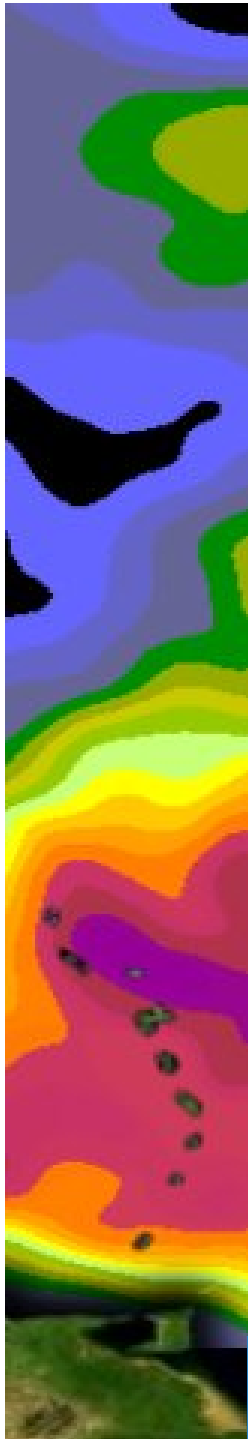
1000 0 2000 (km)



- 2005 was exceptional because:
  - Hottest year on record
  - Most severe coral bleaching in the Caribbean
  - Most active hurricane season
    - 26 tropical storms
    - 13 hurricanes
    - 5 very severe (Dennis, Emily, Katrina, Rita & Wilma)







**No hurricanes through Lesser Antilles.**

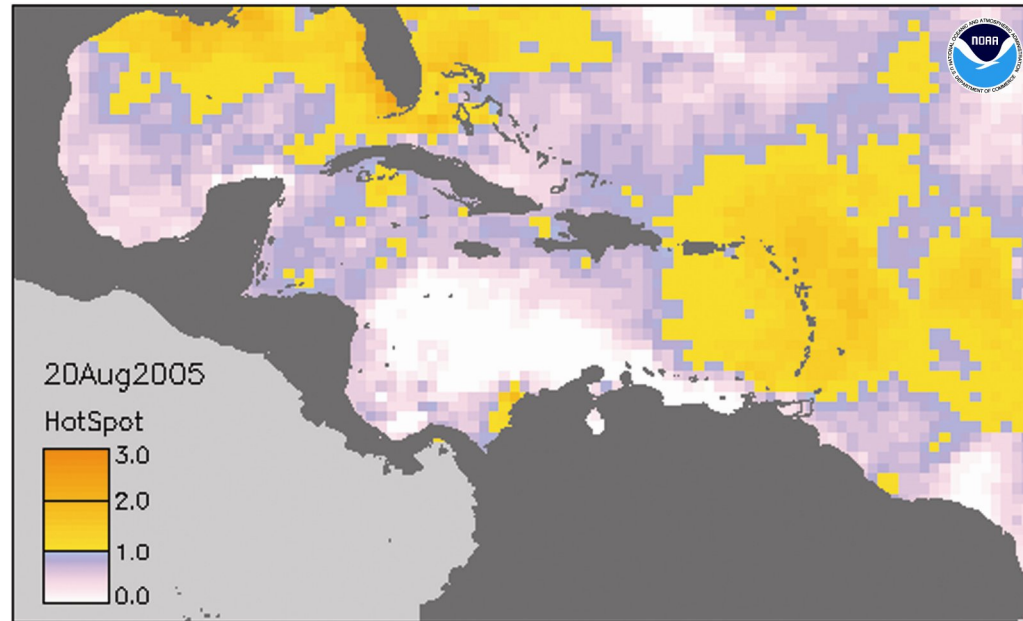
STATUS OF  
CARIBBEAN  
CORAL REEFS  
AFTER  
BLEACHING  
AND  
HURRICANES  
IN 2005

EDITED BY CLIVE WILKINSON  
AND DAVID SOUTER

ICRI  
INTERNATIONAL  
CORAL REEF INITIATIVE

GCRMN  
GLOBAL CORAL REEF  
MONITORING NETWORK

IYOR 2008  
INTERNATIONAL YEAR OF THE REEF

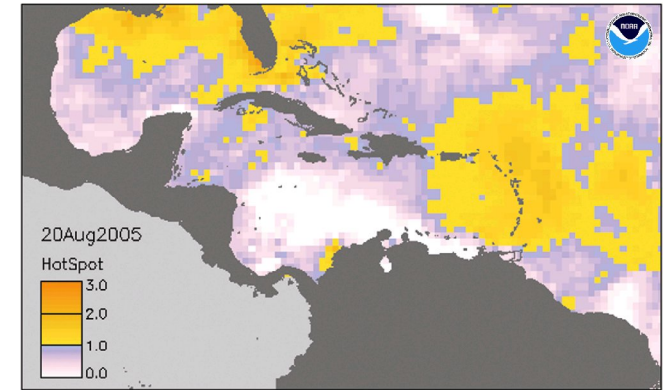


- **Coral Bleaching & Mortality in much of Caribbean:**
  - Florida, Cuba, Jamaica, USVI, Bahamas,
  - Colombia, Venezuela, Mexico, Belize etc.
  - And the Lesser Antilles



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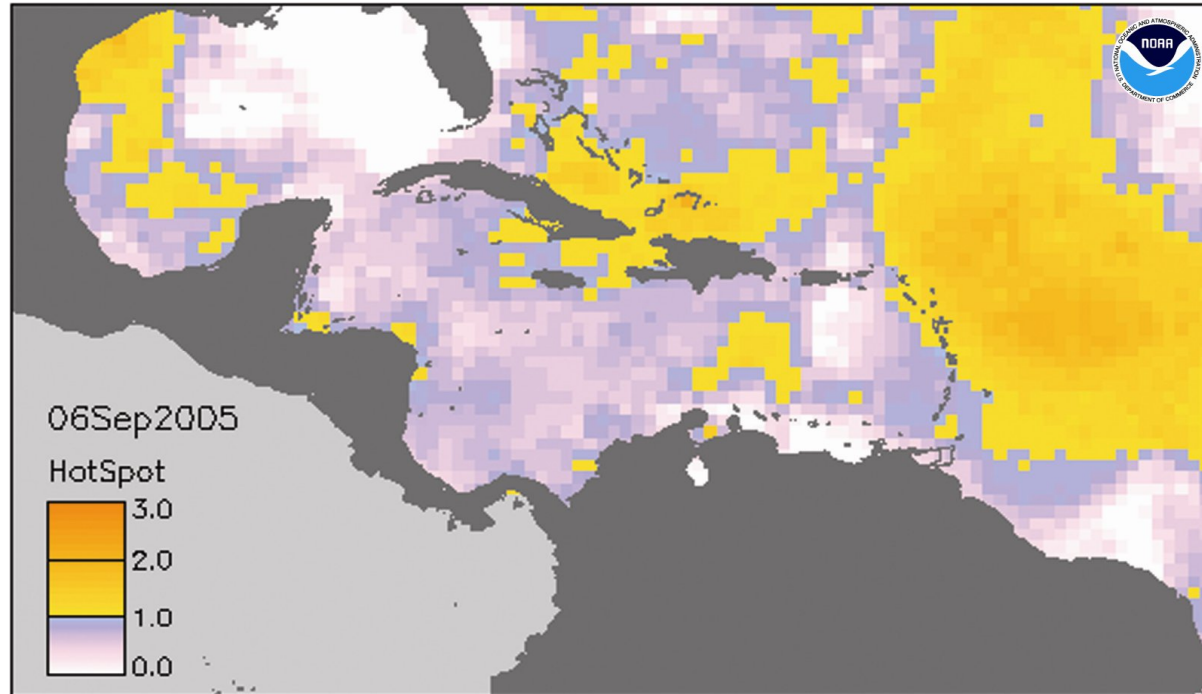
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- Bleaching of 50% - 90% of corals in:
  - Florida
  - Puerto Rico
  - Cayman Islands
  - Northern Dutch Antilles (St. Maarten, Saba, St. Eustatius)
  - ***Guadeloupe, Martinique, St. Barthelemy***
  - Barbados
  - North coast of Jamaica
  - Cuba

STATUS OF  
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- Coral mortality worst recorded
  - Barbados - 17% - 20%; French Caribbean -11% - 30% **Guadeloupe, Martinique, St. Barthelemy**
  - Dutch Caribbean - 18%
  - US Virgin Islands - 51% loss of coral cover from bleaching & disease



## SUMMARY CARIBBEAN REEFS

- From Status 2008:
    - 12% to 21% reefs ‘destroyed’
    - 13% to 31% at critical stage
    - Only 30% to 45% considered healthy
  - Best reefs – those remote from humans & land masses (except Cuba);
  - Reefs damaged at different times:
    - Florida in early 1980s
    - Mesoamerica – from 1980s to 2005;
    - Big events – Diadema loss; white band diseases; bleaching especially 1997/98 & 2005
- 





## SUMMARY CARIBBEAN REEFS

- Major coral mortality since 1980
  - Causes – mix of disease, bleaching and direct human damage
  - Probable losses in best areas from >50% coral cover to <15%;
  - Fish and mollusc resources seriously over fished
  - Tourism – part problem, part solution
  - Awareness is increasing
  - Some major initiatives commencing e.g. Caribbean Challenge
- 