



Mangroves

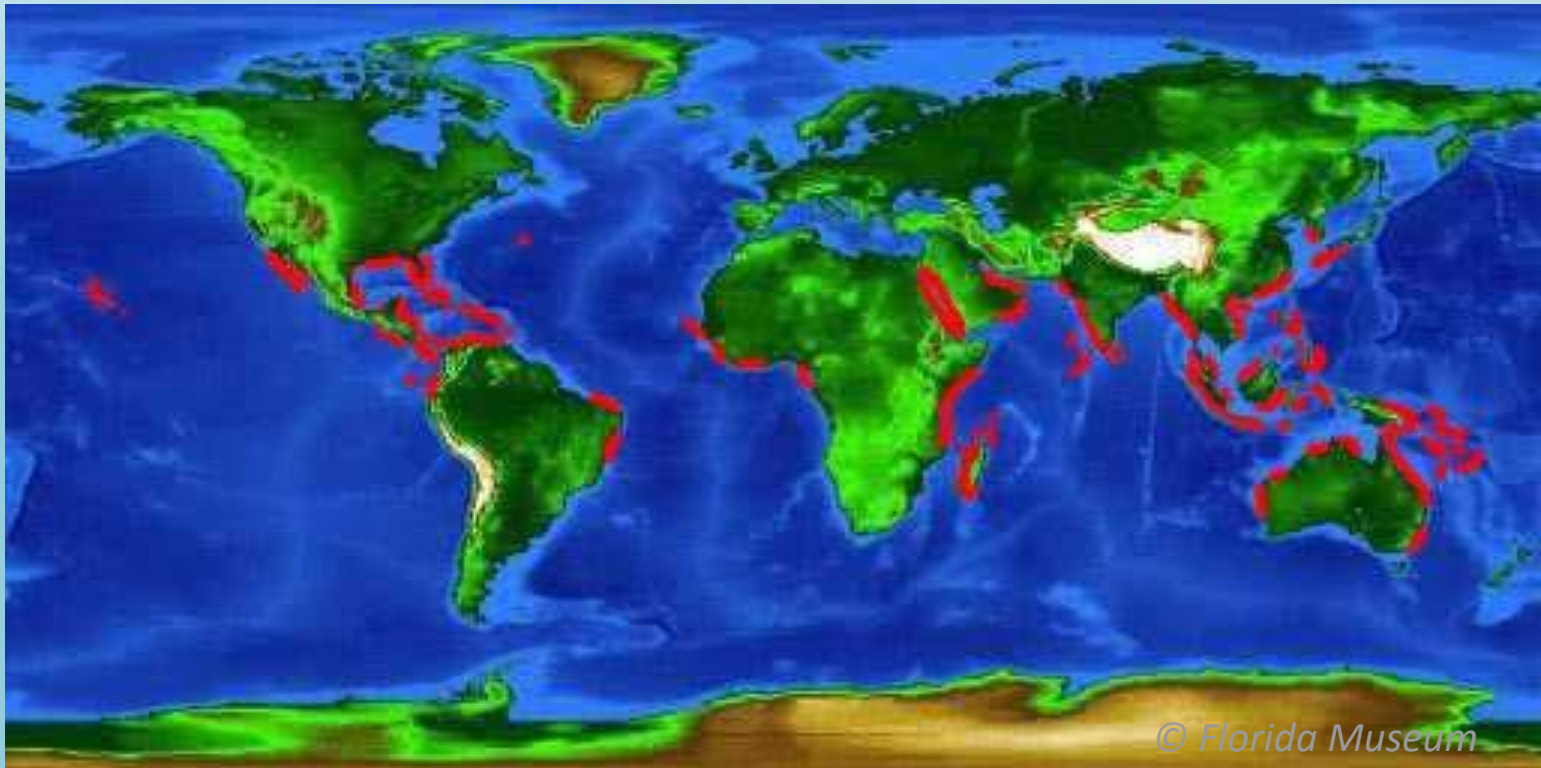
A Coastal Ecosystem

Mangroves are trees adapted to live near salt water.



Where are Mangroves found?

Found in tropical countries, growing along sheltered coastlines, ponds, rivers and lakes.



Mangroves

There are about 70 types of mangroves in the World.

Red, White and Black Mangroves and a close relative, Buttonwood are found in Cayman.



Red Mangrove



- Flowers of the red mangrove are fertilized then begin to develop.

Red Mangrove Seedling



- ▶ The propagule or seedling, does not drop from the tree immediately, but continues to grow on the parent tree until it is able to survive on its own.
- ▶ When it does drop off, the propagule can float. It is heavier at the root end, and eventually the lower end makes contact with soil and begins to grow.

Red Mangrove



Seedling



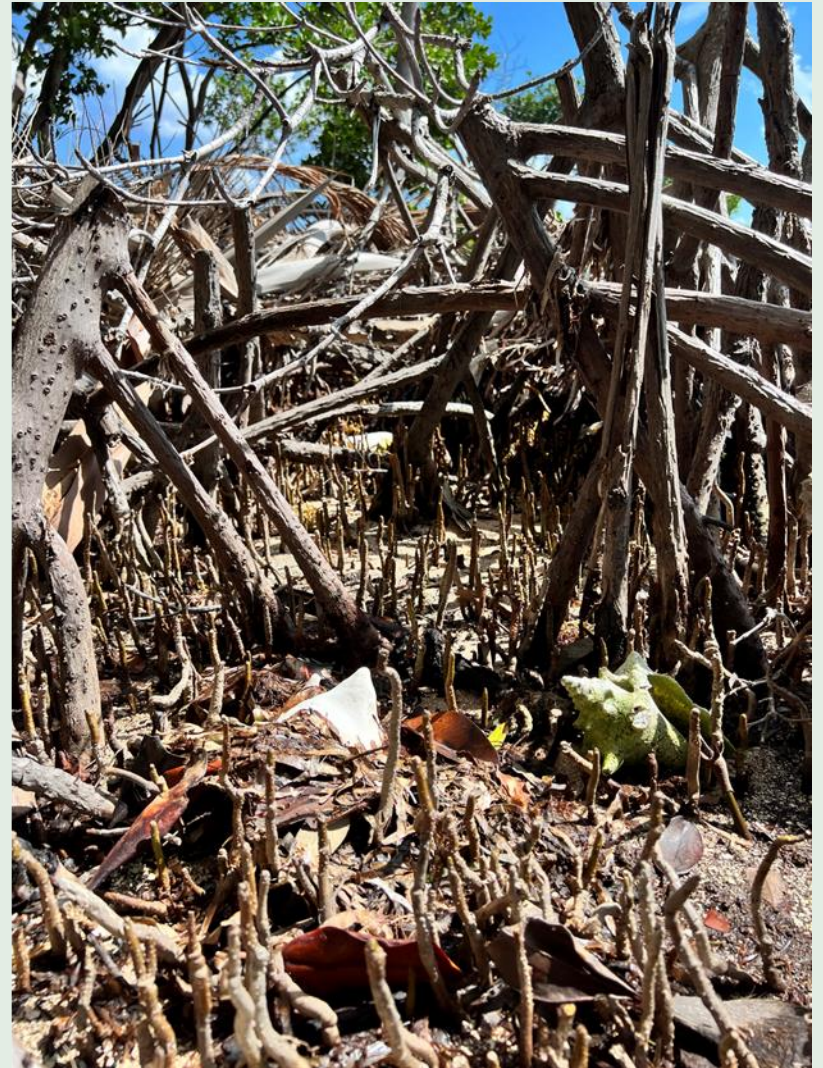
Prop Roots



Black Mangrove



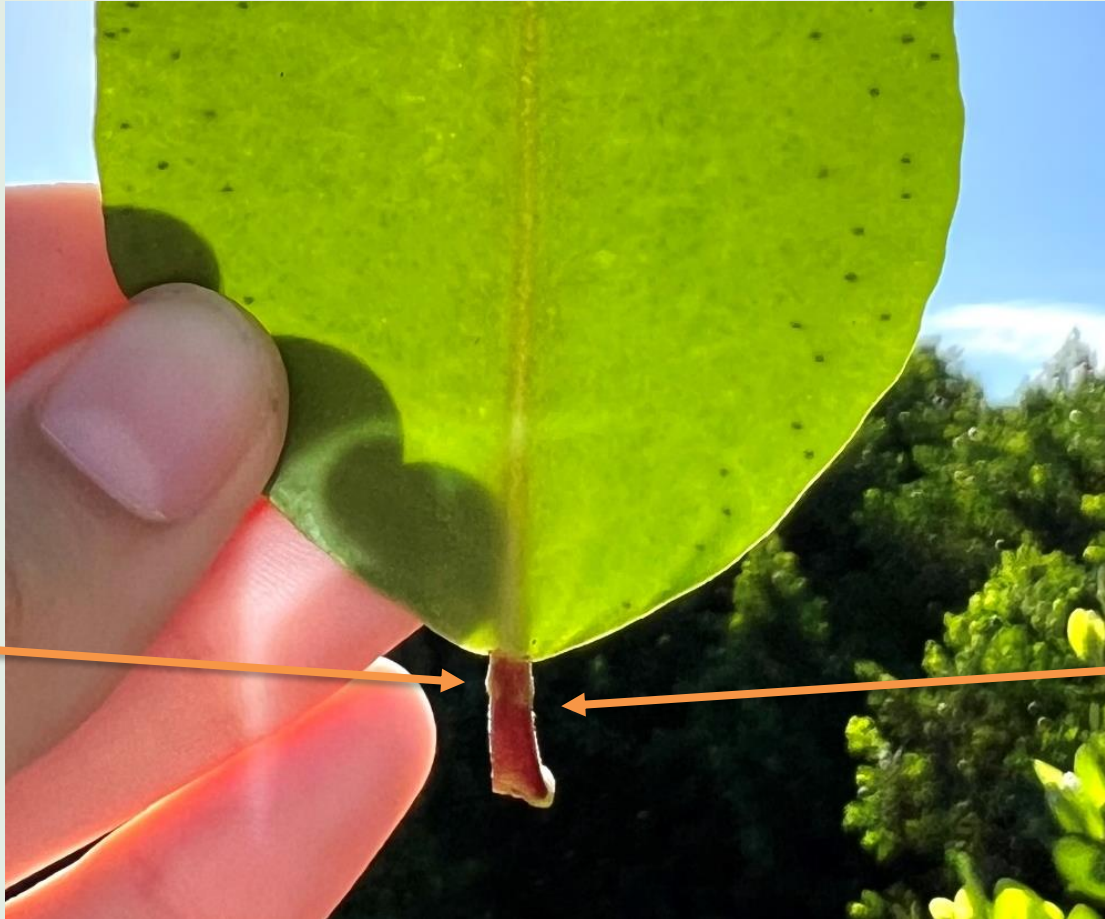
Black Mangrove



White Mangrove



White Mangrove - Nectararies



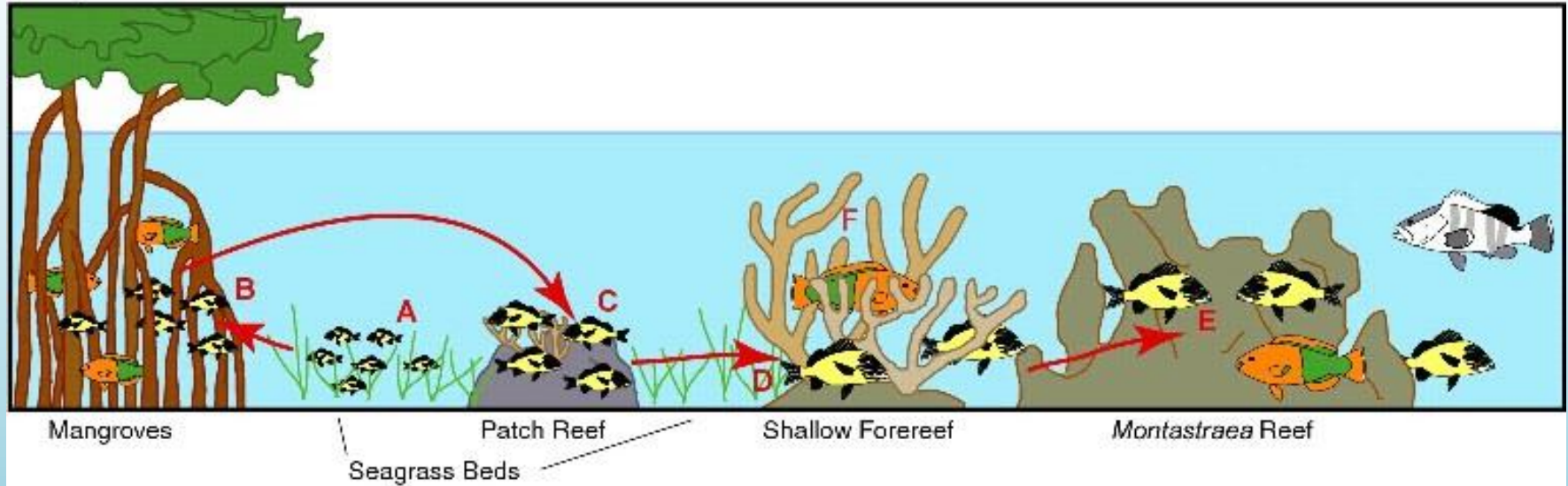
Mangroves provide many important functions important to the Cayman Islands:



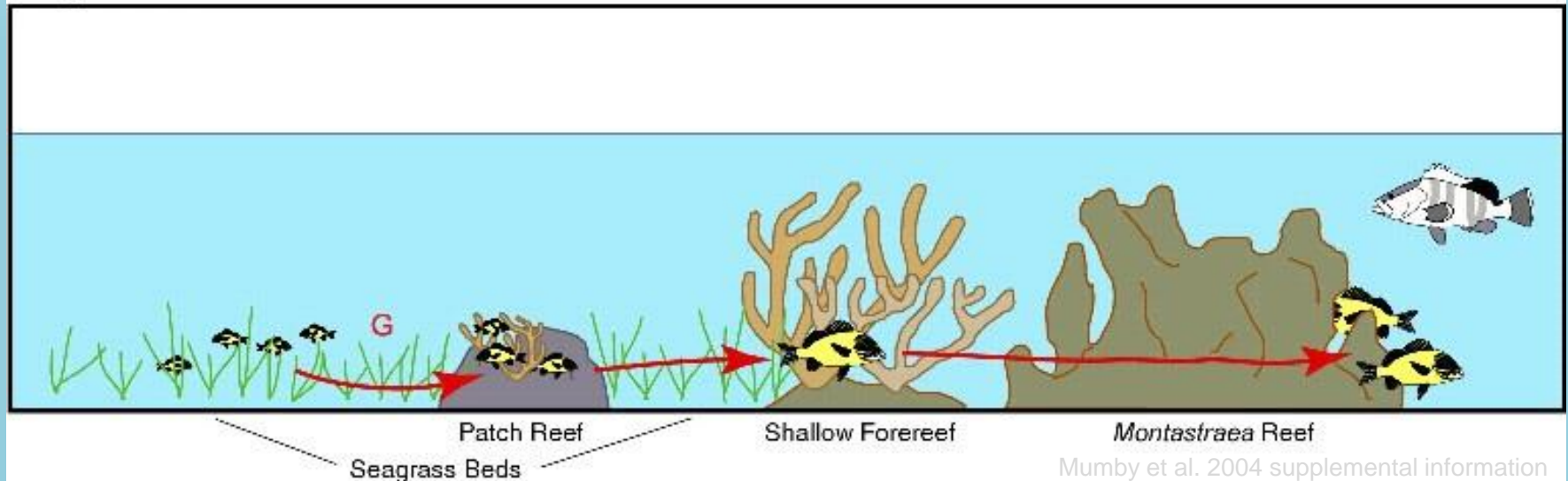
- Ideal habitat for animals
- Nursery for fish
- Storm protection
- Shoreline protection
- Filters water
- Tourism and recreation
- Precipitation patterns
- Carbon storage
- Builds land
- Beauty and inspiration

Example - Mangrove Loss

Mangroves Present



Mangroves Absent



Habitat

Mangroves offer
food and shelter for:



Habitat

Mangroves
offer food and
shelter for:

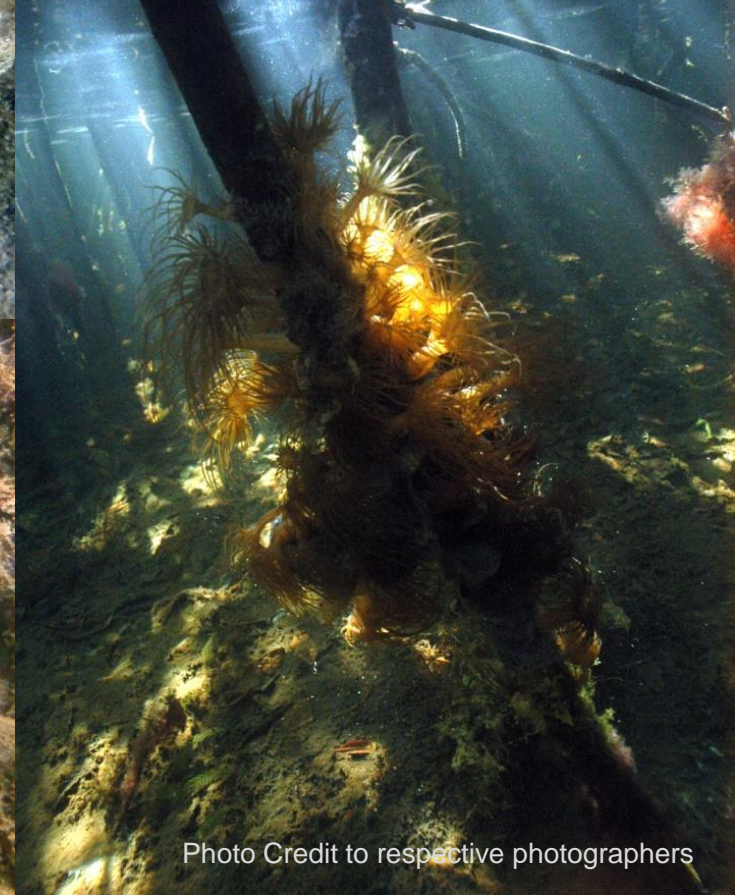
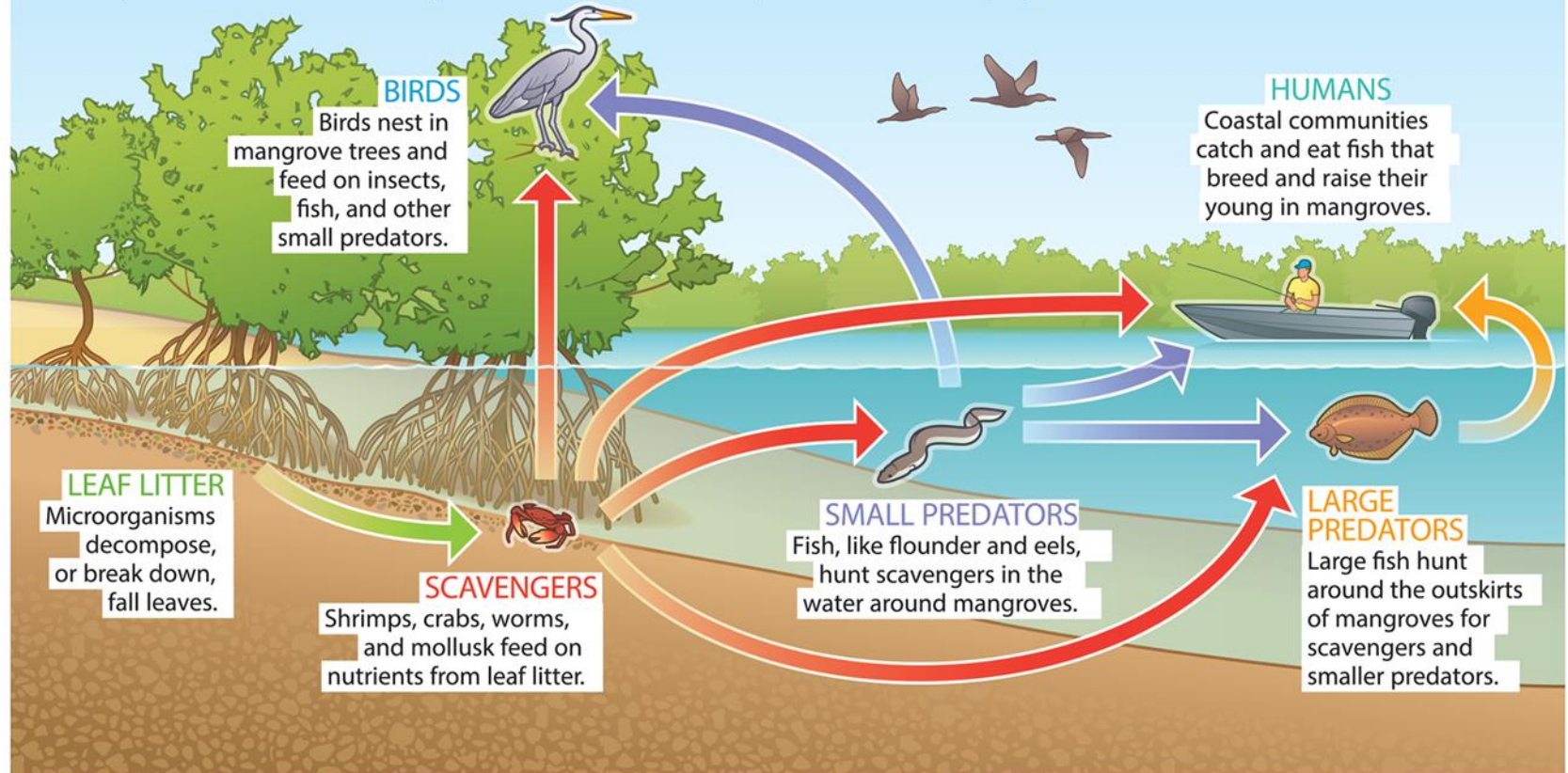


Photo Credit to respective photographers

Mangrove Food Web

MANGROVE FOOD WEB

Many species live in and around mangroves. Together, these organisms make up a complex food web in which organisms feed on plants and predators seek out prey.



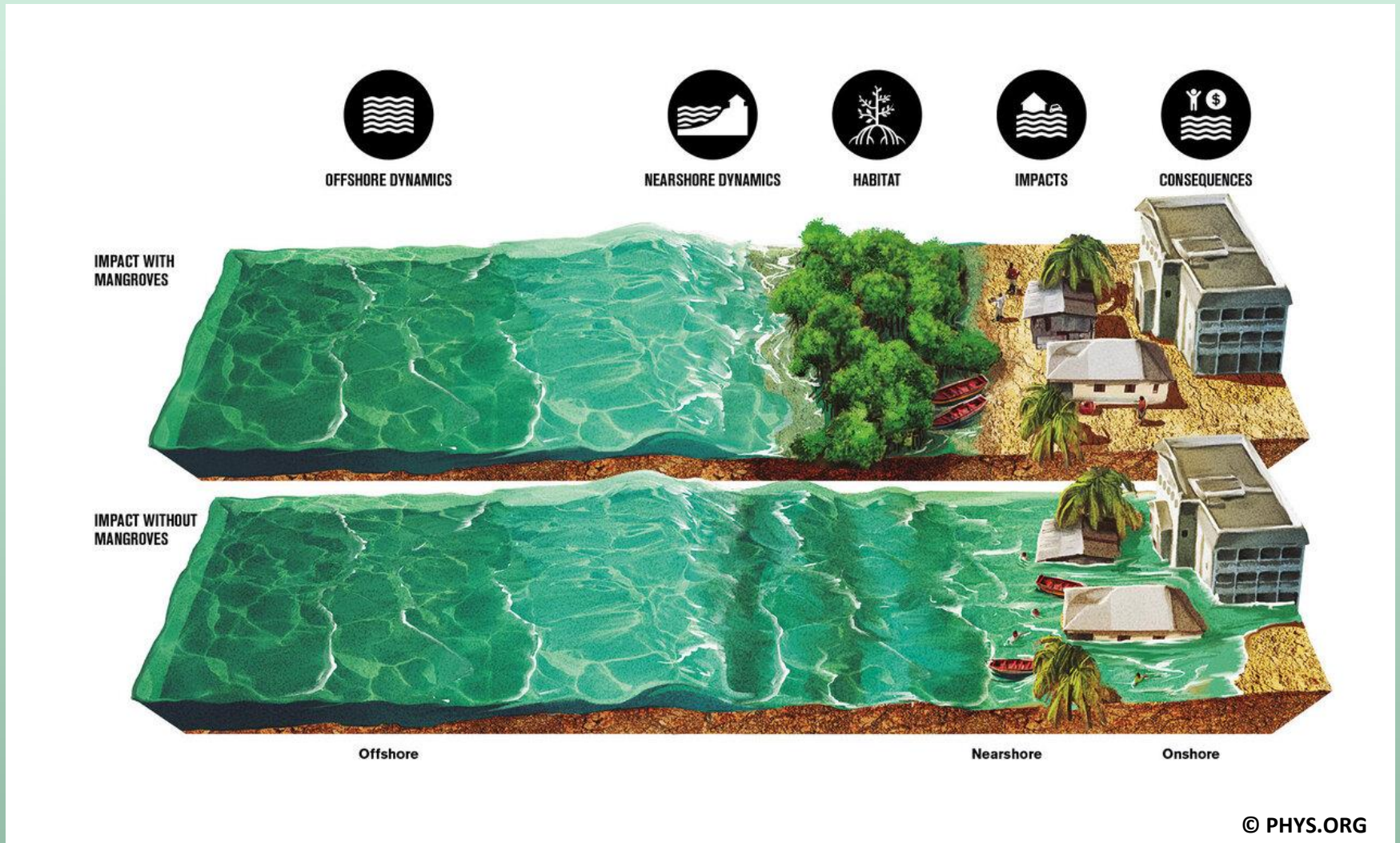
Fish nursery

Baby fish can escape their predators by hiding in the roots.



Storm protection

Mangroves provide a first line of defense against hurricanes on land.



Shoreline protection

Mangroves and other plants help to secure beaches.



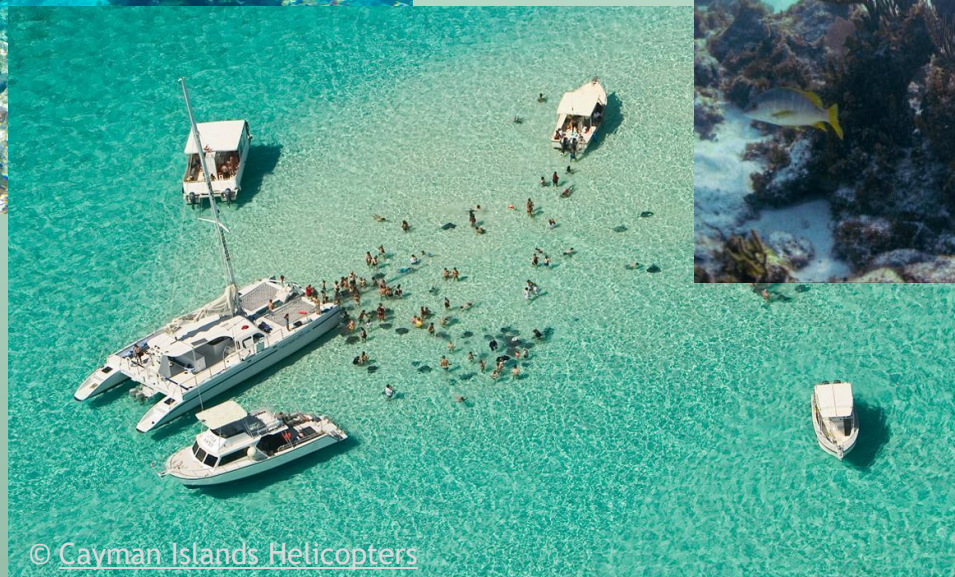
Barkers, Grand Cayman



Booby Pond, Little Cayman

Clean, clear water

Mangroves play an important role in maintaining clear water and ensuring fish and nutrients for the reefs.



Tourism

- Thousands of Cayman's tourists choose to visit the mangroves.



Sport fishing

Sport fishermen seek bonefish, tarpon and snook around mangroves. Baitfish are netted here and even deep-sea fishing is directly related to mangroves.



Builds Land

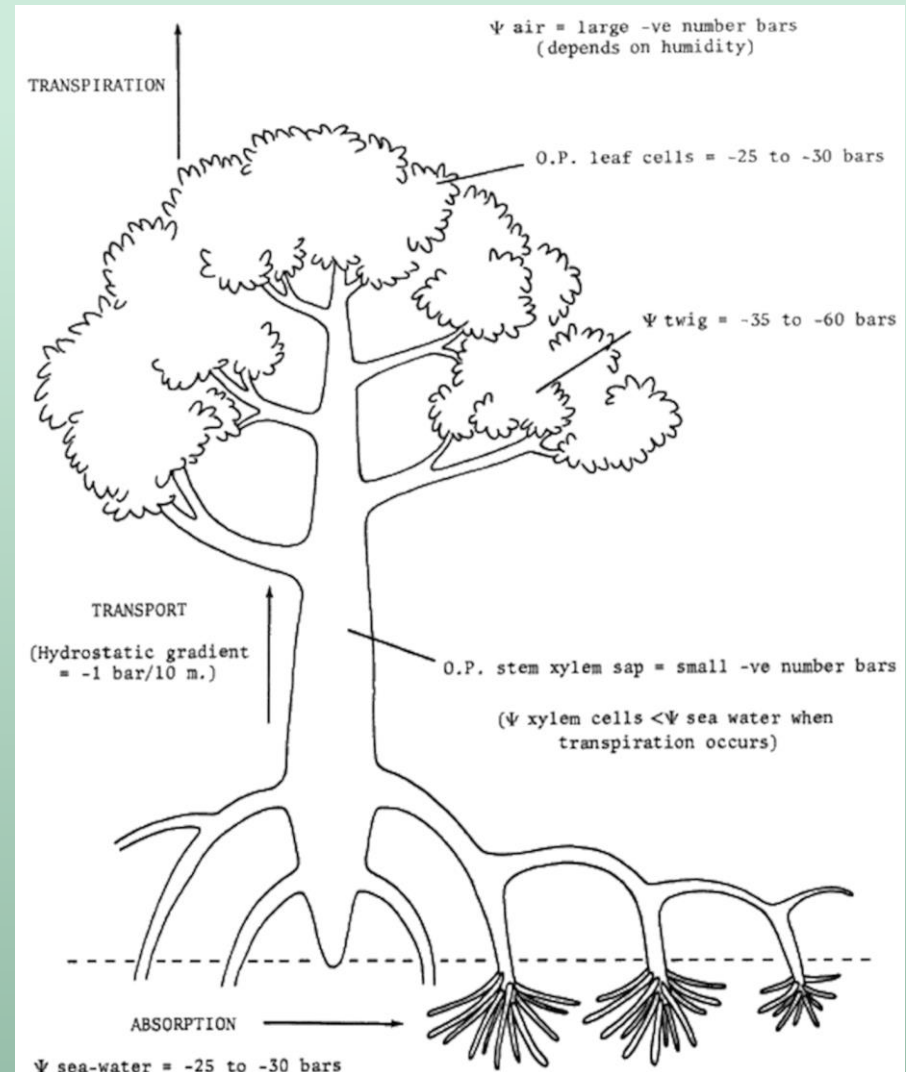


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- Mangroves build land at the rate of about 3mm/year by:
- Catching soil in their roots
- Dropping leaves and decaying roots
- Current sea level rise is about 3 mm/year!

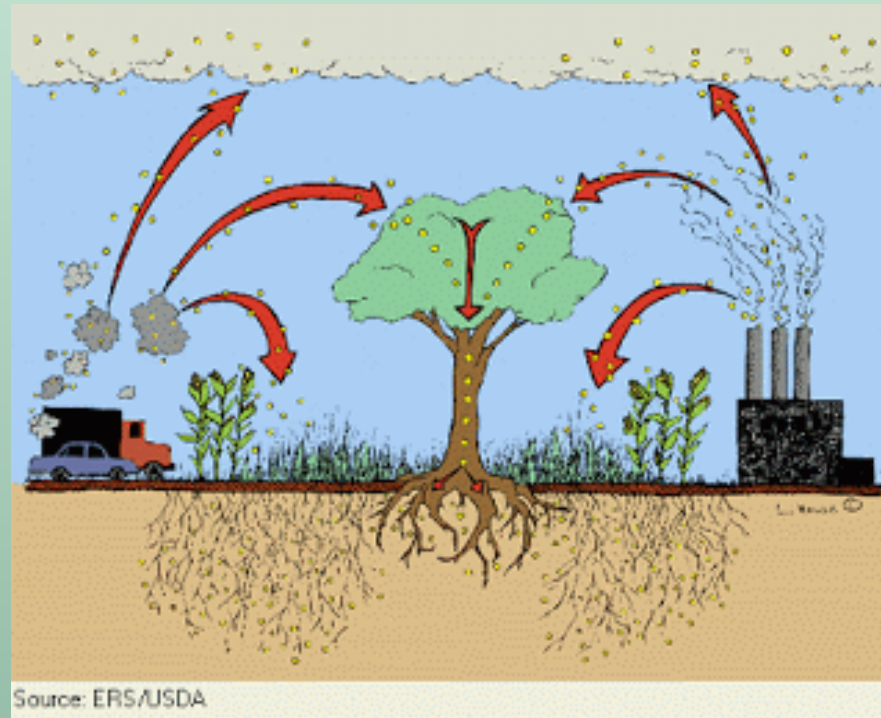
Precipitation Patterns

- Rainfall is greater in western areas of Grand Cayman than in the eastern districts. As more of the Central Mangrove Wetlands are removed and developed, George Town and West Bay will see less and less rainfall.

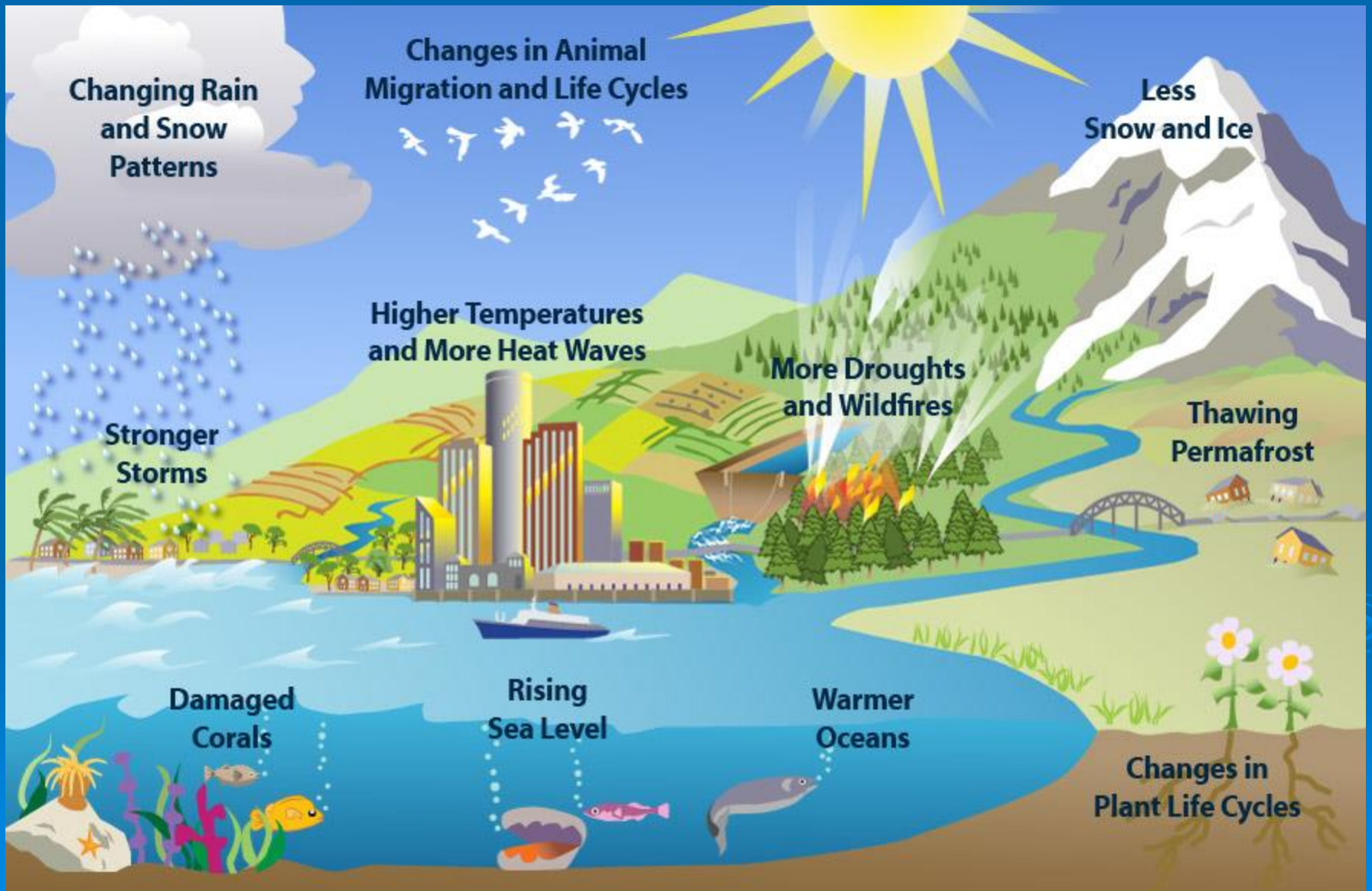


Carbon Storage

- Mangrove ecosystems are important “carbon sinks” and play an important role in climate change mitigation.



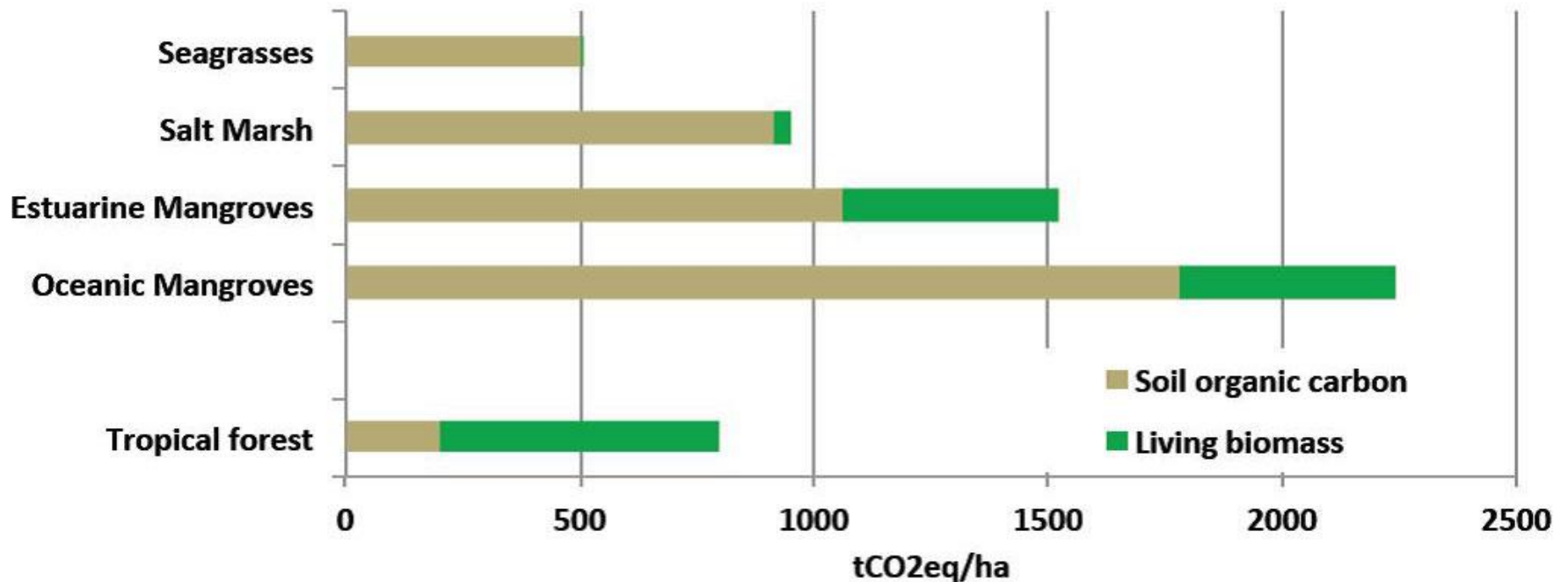
Effects of Climate Change



Forests are the lungs of the Earth



Carbon Storage Abilities of Different Habitat Types



*Data is per unit area, where tCO2eq/ha is tons of carbon dioxide equivalents per hectare

Source: Murray, Brian, Linwood Pendleton, W. Aaron Jenkins, and Samantha Sifleet. 2011. Green Payments for Blue Carbon: Economic Incentives for Protecting Threatened Coastal Habitats. Nicholas Institute Report. NI R 11-04

Threats

- Dumping of garbage
- Cutting forests
- Oil spills
- Shrimp Farming



Threats

Quarries

Pollution

Coastal development



Preservation in the Cayman Islands

Central Mangrove Wetlands – 8,655 Acres

The National Trust

- Holds, in trust for the people of the Cayman Islands, approx. 1500 acres of Mangrove Wetland
- Land Reserve Fund

Department of Environment

- New laws
- 1500 acres protected in marine park
- Environmental Zones

