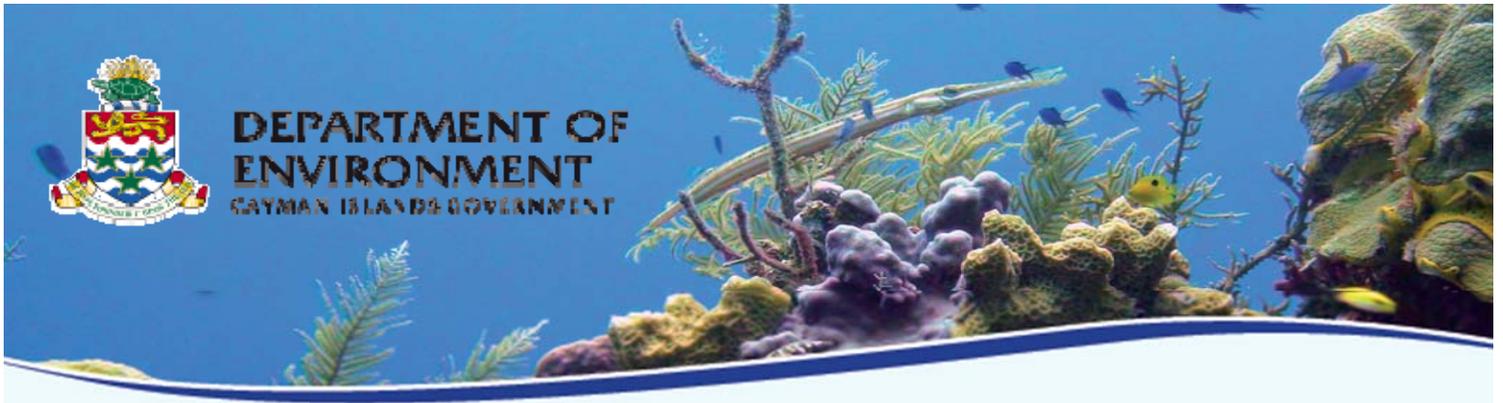




DEPARTMENT OF  
ENVIRONMENT  
CAYMAN ISLANDS GOVERNMENT



*Love the ocean? Want More fish?*

# MORE MARINE PARKS ARE NEEDED

*After 25 years of Marine Parks...*

*...it's time to plan for the next 25*



DEPARTMENT OF  
ENVIRONMENT



# The bad news: things are getting worse!



We know the marine environment is under considerable pressure compared to when Marine Parks were first established in 1986:

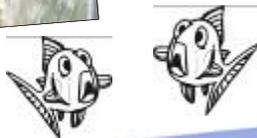
**POPULATION INCREASE**  
Cayman's population has MORE THAN DOUBLED in the life-time of our marine parks

**COASTAL DEVELOPMENT & TOURISM**  
is increasing rapidly with detrimental environmental impacts

**FISHING**  
More people, more fishing, fewer fish and serious changes to our ecosystem

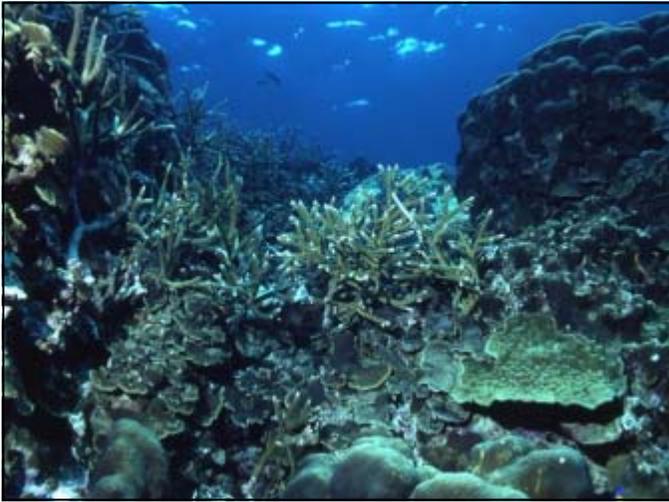
**NEW CLIMATE CHANGE**  
Coral bleaching, diseases, ocean acidification, sea-level rise and more big storms

**NEW INVASIVE SPECIES**  
E.g. The Lionfish that are eating lots of our little fish!



# The bad news: things are getting worse!

Our reefs are changing



**1970s** (Photo: Carlton Ray)

- Lots of coral (approximately 80% coral cover)
- Plenty of healthy branching coral like in this picture, which provides important shelter and homes for fish and other animals
- Big, healthy fish populations
- Bigger sized fish!
- More diversity and abundance of kinds of corals, fish and other animals in Cayman waters
- Much less macro-algae (seaweed)
- Overall, reefs were healthy and productive!



## Now

Since then:

- 1980s saw a fatal outbreak of disease which killed many of our sea urchins which eat algae off the reef
- 1998 and 2009 coral bleaching events which caused corals to die or become diseased and weakened
- Ongoing and ever increasing overfishing

Nowadays, our reefs have:

- Live coral cover is around 10-12%
- Lots of fleshy macro-algae instead of live coral (now not much space for new corals to settle)
- Diseased corals
- Less structure with very little branching coral
- Fewer fish and overall smaller fish on our reefs.



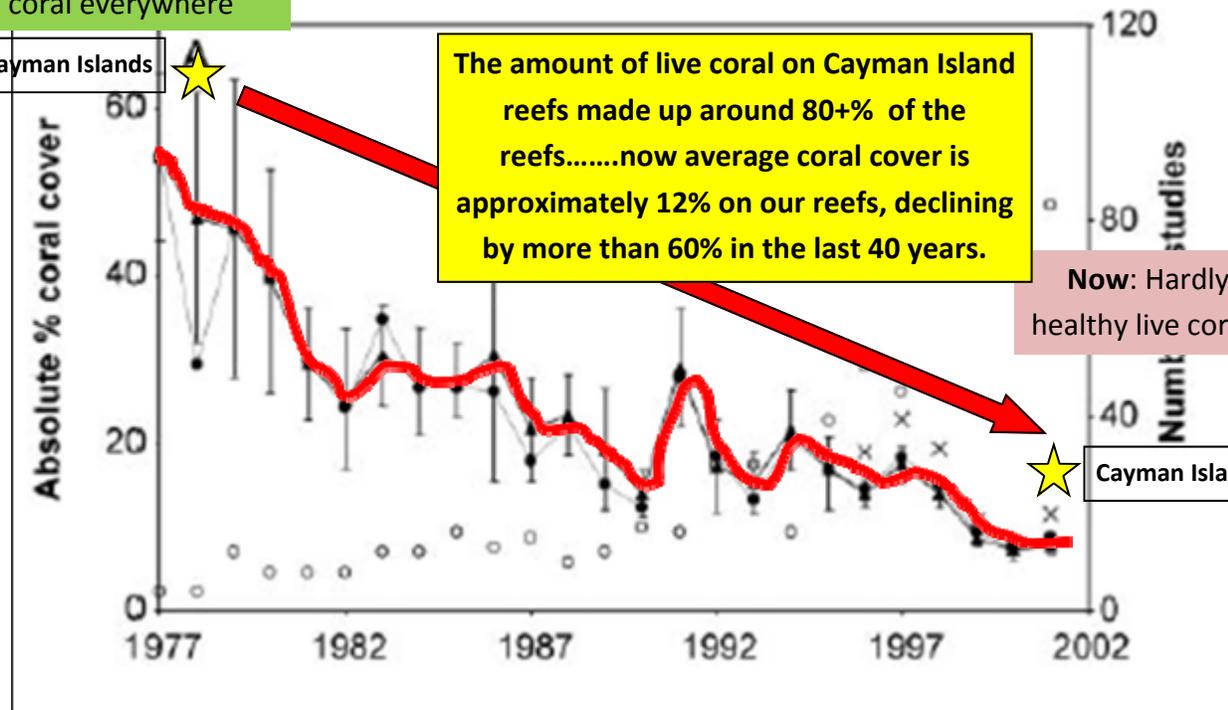
Image taken in 2011 at a DOE survey site. Almost no live coral remained and no fish were present.

# Coral reef decline in the Caribbean

All over the Caribbean, corals have been dying due to overfishing, pollution, disease and climate change:

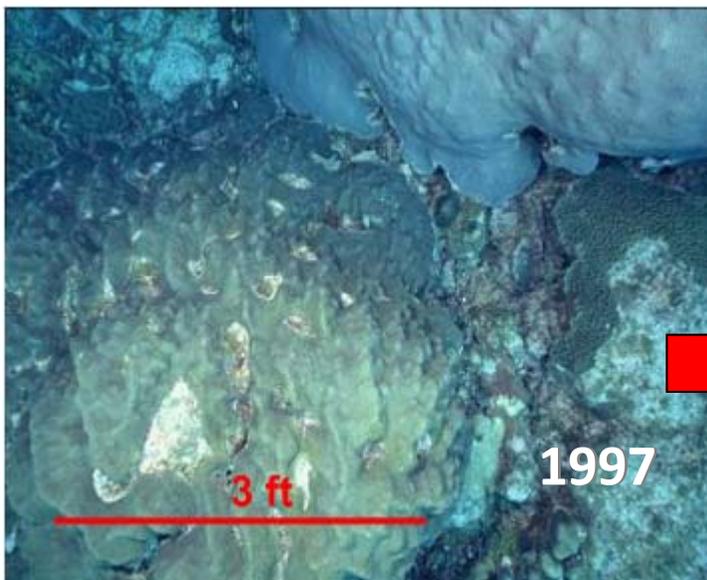
1970s: Naturally lots of coral everywhere

Cayman Islands



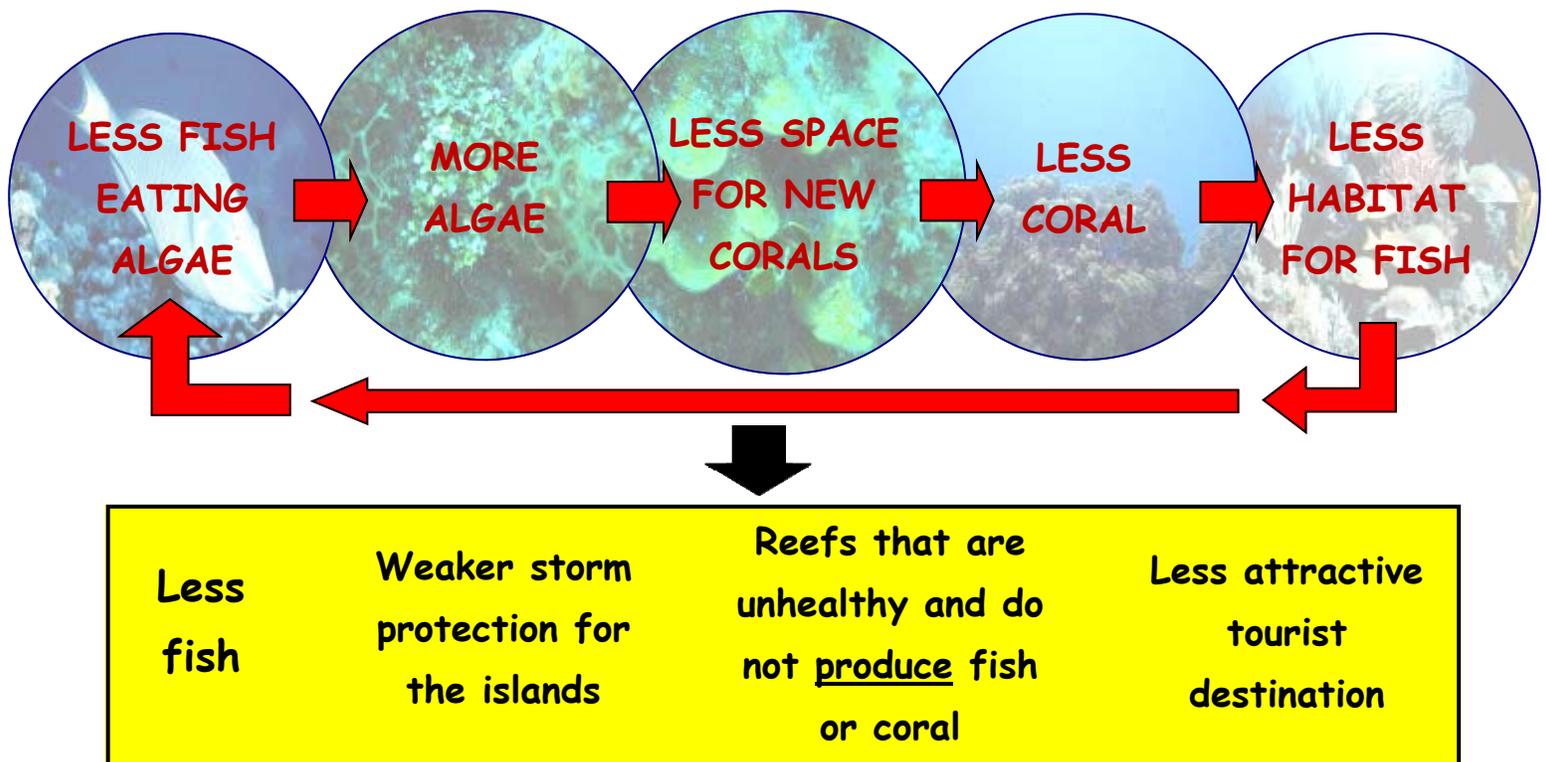
(Gardner et al. Science 2003)

Despite having well performing Marine Parks in the Cayman Islands, we have also lost a lot of coral on our reefs. You can see in these pictures below, in just 10 years, we lost almost all the coral in this area on a reef in Grand Cayman (white patches = no coral).



# Overfishing: what does it do to the reef and why do we need healthy reefs, seagrasses and mangroves?

Every fish or other animal on the reef has an important role to carry out to keep the system healthy and productive, such as eating algae. Taking out too many fish will mean that that role is no longer being carried out and the system will not function as it should. Imagine what would happen if you removed too many algae eating fish, or part of your car engine...



Do we really *need* healthy coral reefs, seagrass beds and mangroves?

Yes!

- If we hope to be able to catch lots of big fish in the future and make money from tourism, we need to make sure we look after what we have
- Healthy coral reefs and mangroves provide critical coastal protection to our small, low-lying islands of Grand Cayman, Little Cayman and Cayman Brac
- Coral reefs are one of the most diverse and fragile ecosystems on earth



# THE GOOD NEWS:

# MARINE PARKS

# CAN HELP!



## What are marine parks?

Marine Parks are areas of the seas and coasts where wildlife, particularly fish, are protected from damage and disturbance caused by human activities. They are designed to promote the recovery and conservation of nature, ecosystem services (such as coastal protection) and cultural values (such as fishing traditions).

## But what is in it for us?

- MORE FISH!
- Opportunity to catch lots of (and big) fish in Cayman waters in the future!
- Opportunity to eat fish from Cayman waters in the future!
- More attractive snorkel and dive sites for residents and tourists alike (more money to the people of the Cayman Islands)
- We meet our international obligations under the Convention on Biological Diversity (extended to the Cayman Islands in 1992 at the request of the Cayman Islands Government)

## How can marine parks help?

Less fishing and diving in certain areas means food webs may be restored, improving the way the ecosystem functions. This improves the health and resilience of our reefs and means that we will have more catchable fish since larvae, juveniles and adult fish drift or swim out of the marine parks and into the open fishing areas (known as 'spillover').



# Cayman's MARINE PARKS

The Cayman Islands Darwin Initiative Marine Parks Review:  
**We cannot do it without you!**

In 1986, the Cayman Islands boldly set-up a national system of marine parks. Now, more than 25 years later we are faced with new threats and challenges. As such we must enhance necessary protection to ensure the survival of our marine environment and marine creatures for the next 25 years and beyond.

Since 2010, we have assessed the health of our reefs and fish populations—(overall health is poor); we have assessed fishing pressure (approx. 17,400 reef fish reportedly targeted on average per month by 342 fishers interviewed); we have assessed other threats such as SCUBA diving and coastal development; we have considered all public feedback from consultation in September 2011; and we have used advanced marine protected area planning tools.

**The Result:** Draft maps of an enhanced marine parks system providing enough protection throughout the habitats and areas of the Cayman Islands, to hopefully carry our environment through another healthy and productive 25 years.



## Other key changes:

1. No dive zones (open fishing)
2. Line-fishing zones (often no dive zones)
3. Marine reserves (no-take of marine life, from shore to 200 ft depth)
4. Enhanced grouper protection

## WE NEED YOU!

You are invited to come out and see how the proposed new Marine Parks system and regulations have been drafted, to ask questions and give us your views (see back page for details)

# MARINE PARKS

## International recommendations:



### 1. PROTECT AT LEAST 40-50% OF EACH MARINE HABITAT WITHIN NO-TAKE RESERVES

(including coral reefs, seagrasses, mangroves, squab bottom, etc.)

*Why?* Protection of entire ecosystem health and resilience can be achieved only if adequate examples of every habitat are included in no-take areas. When reefs are already stressed from fishing and other local threats such as coral bleaching and disease (as experienced in Cayman waters) the level of protection should be at least 40-50% of each habitat.

### 2. HAVE NUMEROUS RESERVES AND SPREAD THEM AROUND THE ISLANDS

*Why?* This minimizes the risk that all examples of a habitat will be damaged by the same disturbance (such as a hurricane, oil spill, boat grounding etc.). If some protected habitat areas survive an impact, they can act as a source of larvae (fertilised eggs) to help other areas recover. Also all areas then benefit from the spillover of fish and other marine life from the Marine Parks.

### 3. INCLUDE CRITICAL AREAS SUCH AS SPAWNING SITES AND NURSERIES

*Why?* When animals gather together they are particularly vulnerable and often the reasons they aggregate (such as mating, spawning, feeding or breeding) are crucial to the maintenance of the population.

### 4. MARINE RESERVES SHOULD BE PERMANENTLY PROTECTED

*Why?* Long-term protection allows the entire range of species and habitats to recover. For example, 20-40 years of protection allows heavily fished species and longer-lived keystone species (e.g. sharks and some groupers) the opportunity to grow to maturity. As larger fish produce more eggs, this benefits the ecosystem AND fishery. If no-take areas are re-opened, the benefits of improved ecosystem health and a bigger fishery can be quickly lost. This is something scientists have learned in the 25 years since the Marine Parks were first established.

### 5. APPLY A MINIMUM AND VARIETY OF SIZES TO RESERVES

*Why?* Reserves must be big enough to protect animals as they move around day to day within their borders. If the areas are too small, not enough fish will build up in them to spill-over into the open areas, either as adults or as larvae. For resilience and biodiversity, larger areas should be protected.

### 6. USE SEASONAL CLOSURES IN ADDITION TO RESERVES (for species such as conch, lobster and grouper).

*Why?* Seasonal closures can be beneficial for fisheries where targeted stocks are heavily fished or particularly vulnerable to overfishing and need to be restored. This can be a seasonal closure of a particular area or a closed season for an entire fishery (as currently exists for conch and lobster).

### 7. MINIMISE EXTERNAL THREATS (by positioning reserves where there will be low levels of damaging impacts. E.g. areas with good water quality and little or no shipping activity) and **PROTECT KNOWN HEALTHY AREAS** (also unique areas important for rare or threatened species such as turtle nesting beaches and areas of branching corals so that they can supply larvae to other areas).

# Should the Cayman Islands be...



The success of our marine parks relies on everyone's support so we need to know what you think and where adjustments to our drafted proposals should be made if necessary.

## Come To Your District Public Meeting

We will be presenting these proposals at Open Exhibitions in the following venues from 11am until 10pm on these dates. Staff will be on-hand to walk you through the proposals and answer questions.

A verbal presentation of the proposals will be given at 7pm on each date.

<b>George Town</b>	Elmslie Church hall:	Tues 23rd Oct.
<b>East End</b>	East End United Church hall:	Wed 24th Oct.
<b>North Side</b>	North Side Civic Centre:	Thurs 25th Oct.
<b>Cayman Brac</b>	Aston Ruddy Centre:	Mon 29th Oct.
<b>Little Cayman</b>	Grouper room, LCBR:	Tues 30th Oct.
<b>West Bay</b>	Turtle Farm foyer	Mon 5th Nov.
<b>Bodden Town</b>	Bodden Town Civic Centre:	Tues 6th Nov.

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