



Sustaining turtles,  
environments,  
economies &  
livelihoods

## THE STEEL PROJECT

2020-2023



GOVERNMENT OF THE  
VIRGIN ISLANDS



University  
of Exeter



## PROJECT GOAL:

# RECOVERY OF SEA TURTLE POPULATIONS BOTH LOCALLY & REGIONALLY

## USING:

- Up-to-date, scientific evidence to support decisions
- Community Engagement & Input

# SEA TURTLES OF THE BVI

## GREEN



## HAWKSBILL



## \*LOGGERHEAD



## LIFE STAGES

- Juvenile to Sub-adult (teenagers)
- Adults
- Mating/Inter-nesting
- Nesting

## FEEDING RESIDENTS

Hawksbills

Greens

*\*Loggerheads*

## NESTING

Leatherback

Hawksbills

Greens

## LEATHERBACK

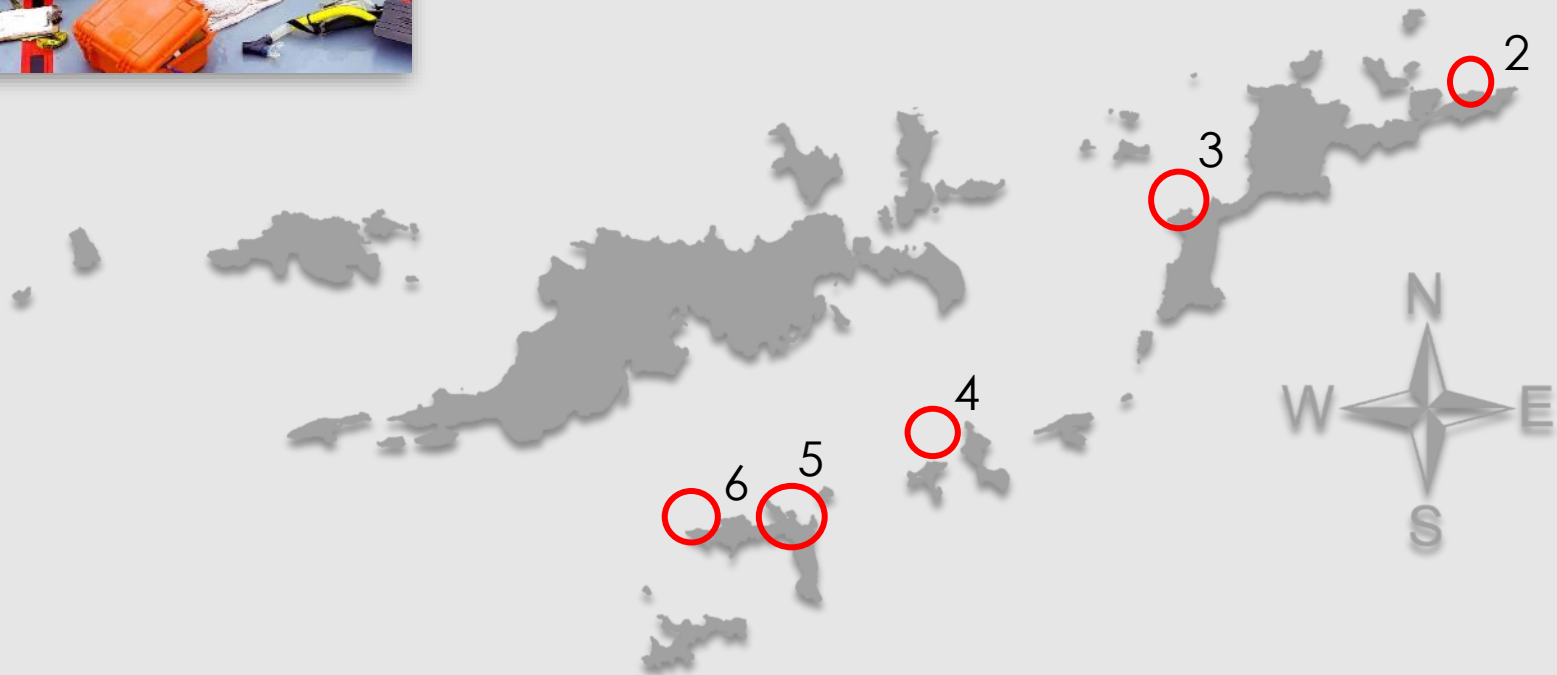


\* Loggerheads are rare and may only be migrating through the Territory

# KEY FEEDING/RESIDENT SITES



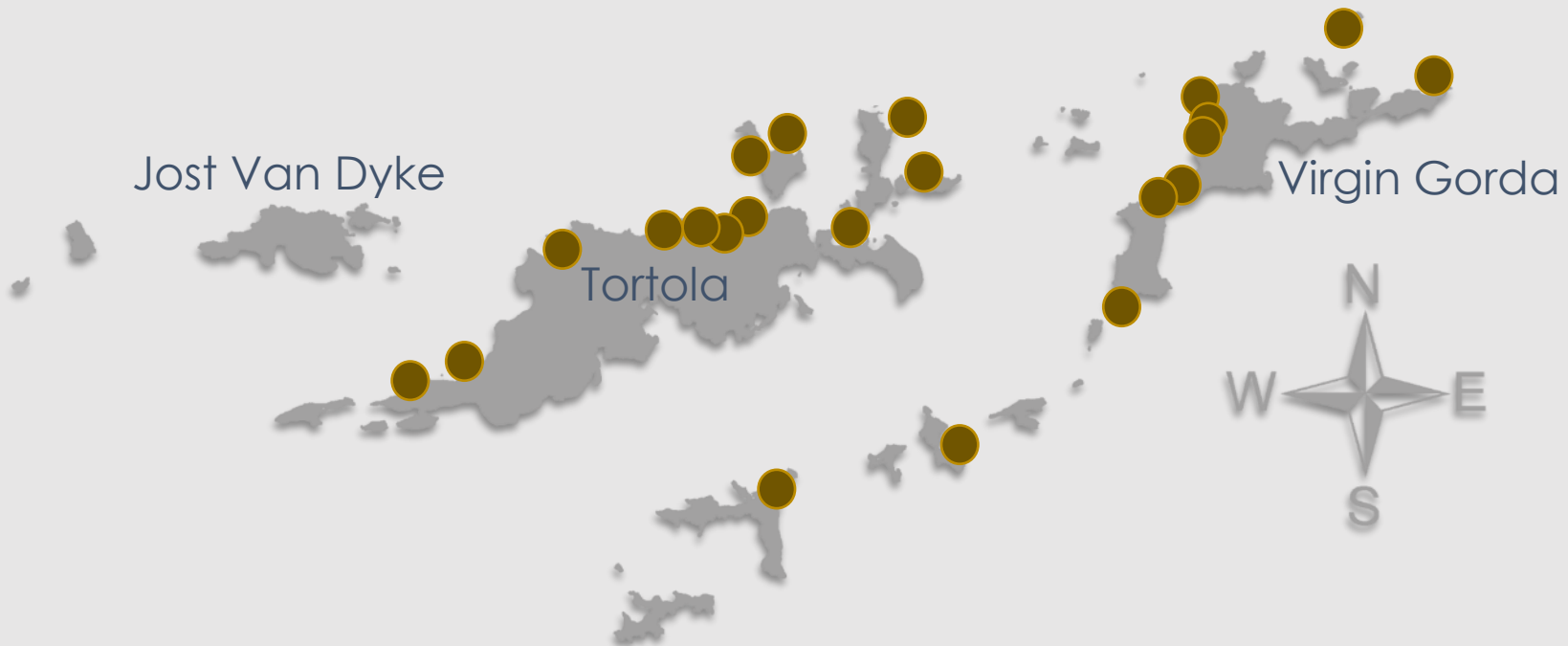
1. SE ANEGADA
2. OIL NUT BAY
3. LITTLE DIX BAY
4. MANCHIONEEL BAY, COOPER
5. DEADMAN'S BAY, PETER
6. LITTLE HARBOUR, PETER



# BVI NESTING LOCATIONS



**Leatherback**- North Shore Beaches  
**Hawksbills** – Beaches with Vegetation  
**Greens**- Anegada



# A TURTLE'S LIFE CYCLE

## (1) Nesting & Hatchlings

## (2) The "Lost Years"

## (3) Juvenile to sub-adult feeding grounds

## (4) Adult feeding grounds

## (5) Inter-nesting

DNA testing has identified juveniles to sub-adults in the BVI originally hatched from:

(GREENS)

- Ascension Island
- Costa Rica
- Mexico
- USA
- Venezuela

(HAWKSBILL)

- Cuba
- Barbados
- Anguilla
- Antigua
- Montserrat

BVI-tagged turtles have been recaptured as adults in:

- St. Barth's
- Guadeloupe (Nesting)
- Bonaire
- Nicaragua (Harvested)

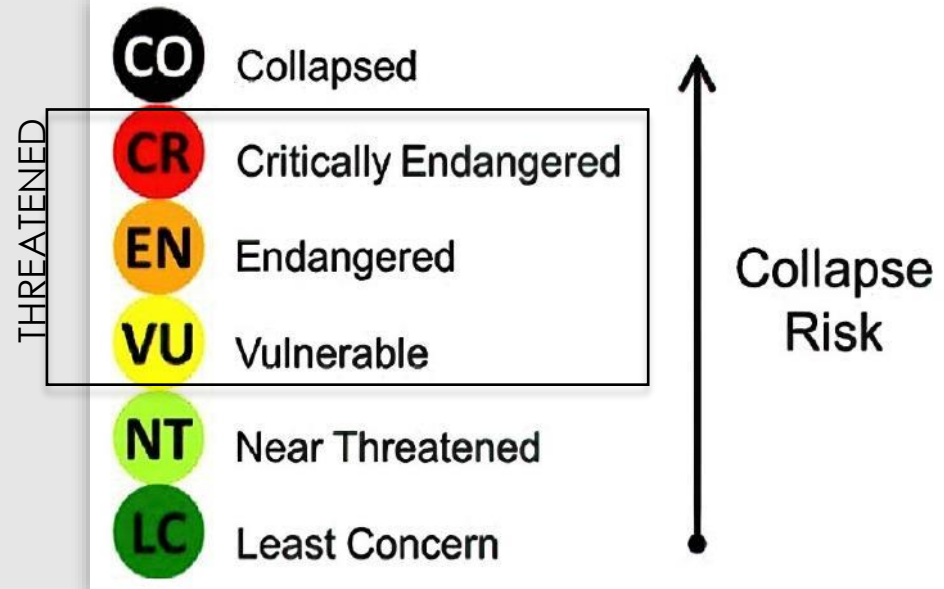


Migrations can be up to 1000s of miles across the region!

# SEA TURTLE POPULATION STATUS



Assessed by the Marine Turtle Research Group under the International Union for the Conservation of Nature (IUCN)



## HAWKSBILL

Global Population Status (Regional population being assessed)

**CRITICALLY ENDANGERED**

## LEATHERBACK

Northwest Atlantic

**ENDANGERED**

## GREEN

South Atlantic Subpopulation

**LEAST CONCERN**

## LOGGERHEAD

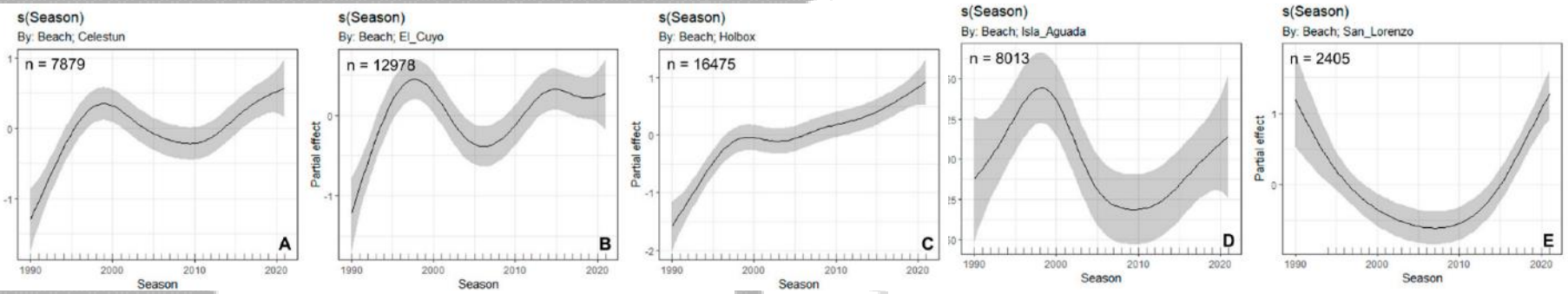
Northwest Atlantic Subpopulation

**LEAST CONCERN**

# CARIBBEAN NESTING HAWKSBILL TURTLES

## Critically Endangered – Variable trends

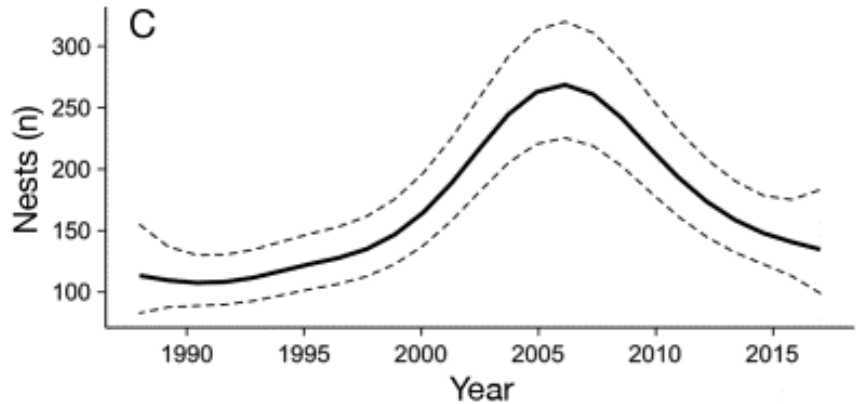
(hundreds of nests)



(López-Castro *et al.*, 2022)

**Mexico**

**US Virgin Islands**



(MGulick *et al.*, 2022)  
Model predictions from d additive models with negative binomial link functions; dashed lines: 95% CI



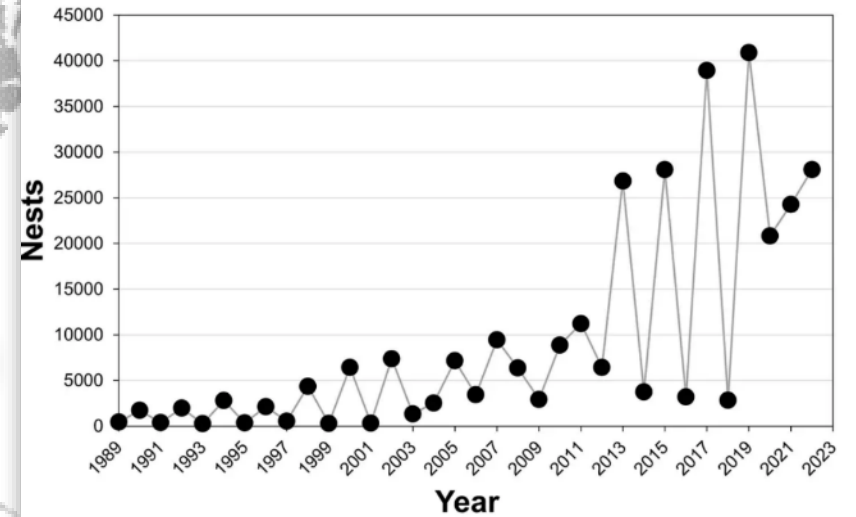
# CARIBBEAN NESTING GREEN TURTLES

Species of Least Concern

Variable trends

(thousands of nests)

Florida

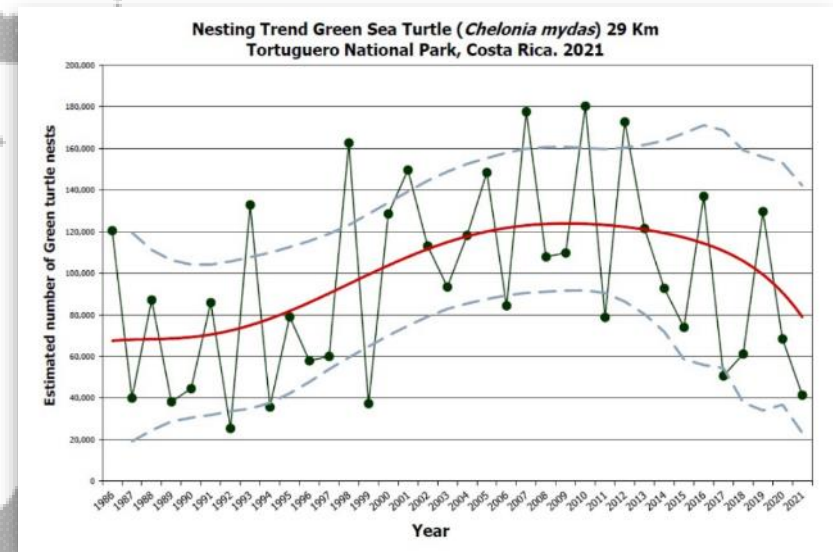


Fish and Wildlife Research Institute (FWRI)

<https://myfwc.com/research/wildlife/sea-turtles/nesting/beach-survey-totals/>



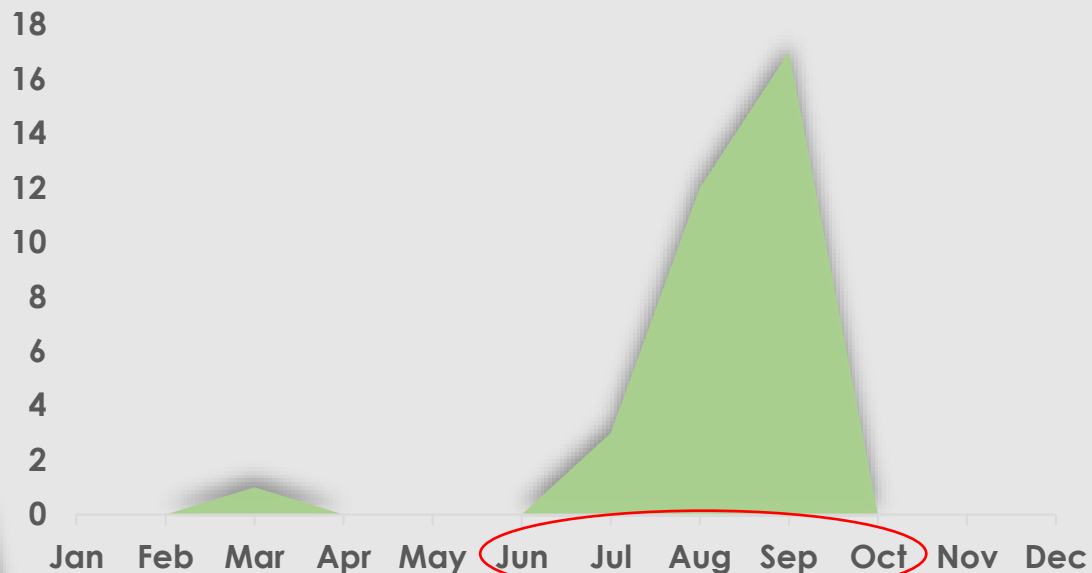
Costa Rica



Tortuguero National Park, 2021

# BVI NESTING HAWKSBILL & GREEN TRENDS

## GREEN



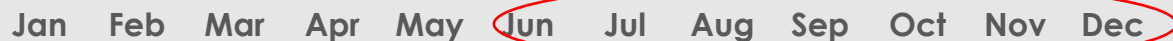
2003-2005	2020 -2022
<b>Greens: 27</b>	<b>Greens: 33</b>
<b>Hawksbills: 42</b>	<b>Hawksbills: 158</b>
Total: 69	Total: 191

Year-round nesting activities

**MAXIMUM SIZE LIMITS NEEDED TO PROTECT ADULTS ALL YEAR-ROUND**



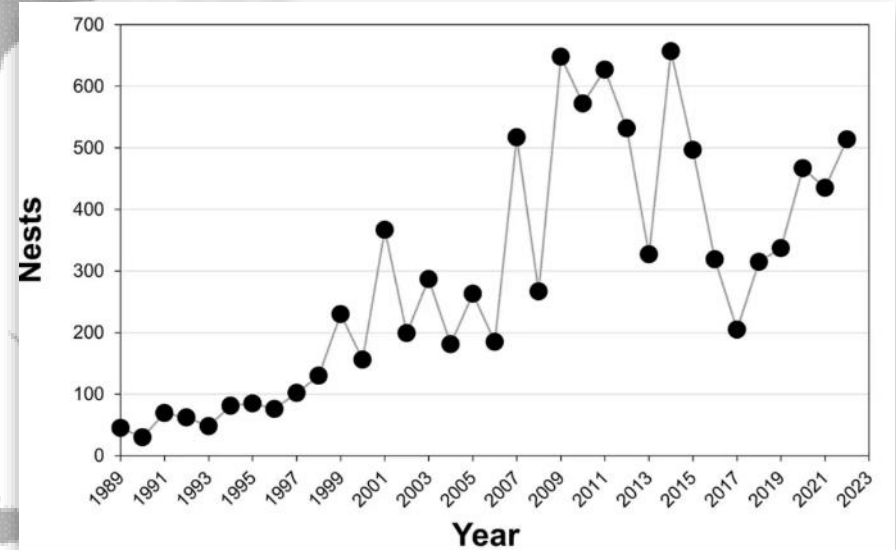
HAWKSBILL



# CARIBBEAN NESTING LEATHERBACK TURTLES

Endangered - Declining

Florida

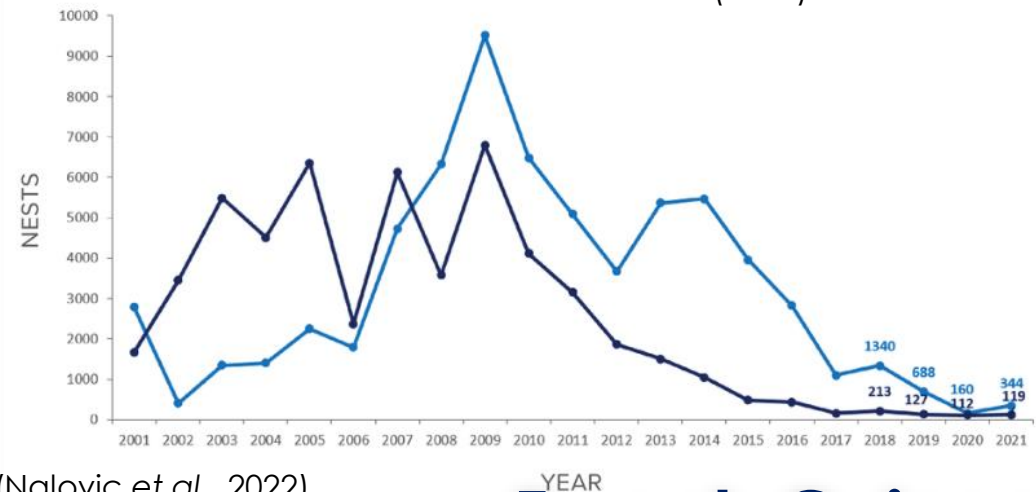


Fish and Wildlife Research Institute (FWRI)

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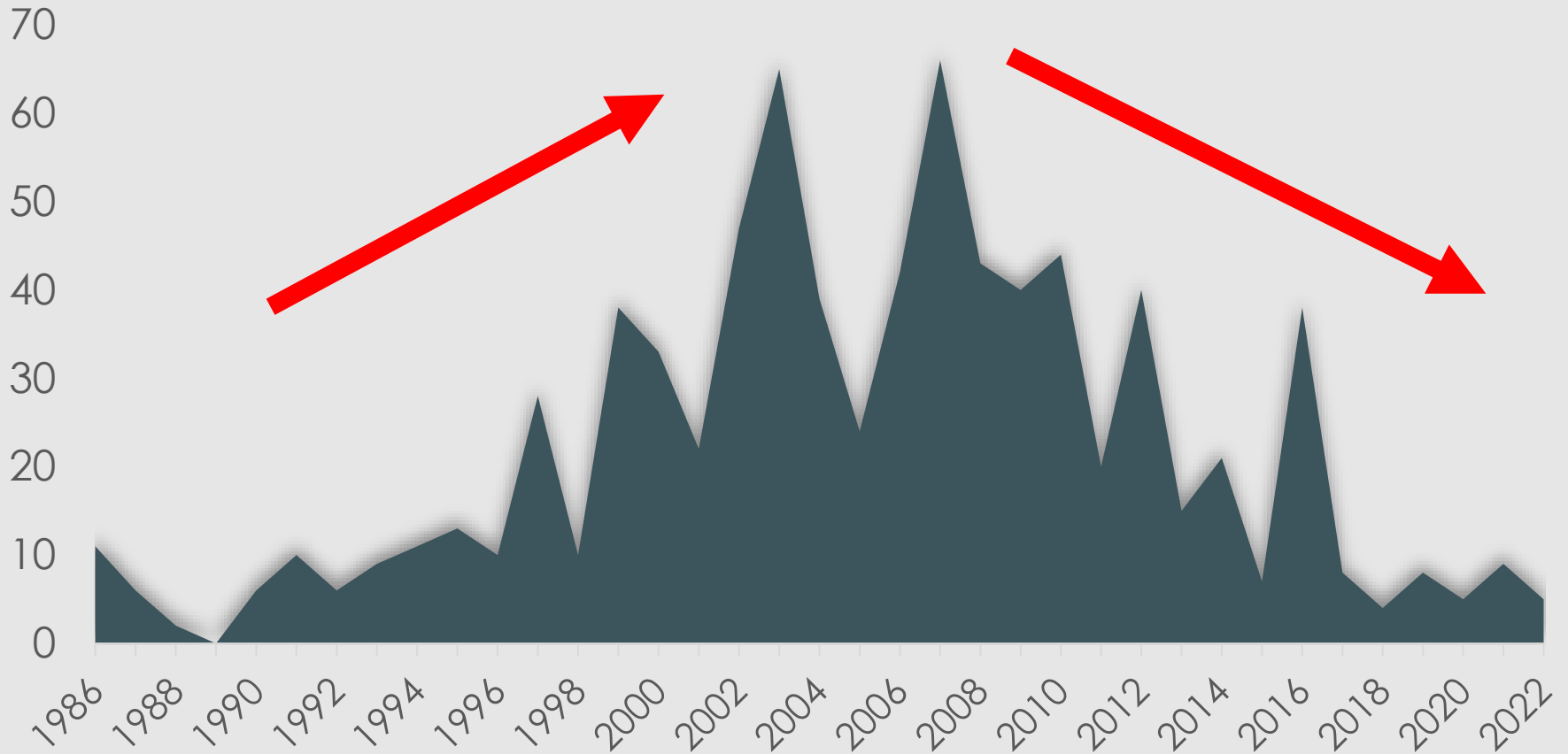


(Nalovic et al., 2022)

French Guiana

# BVI NESTING TRENDS

## LEATHERBACK NESTINGS 1986-2022

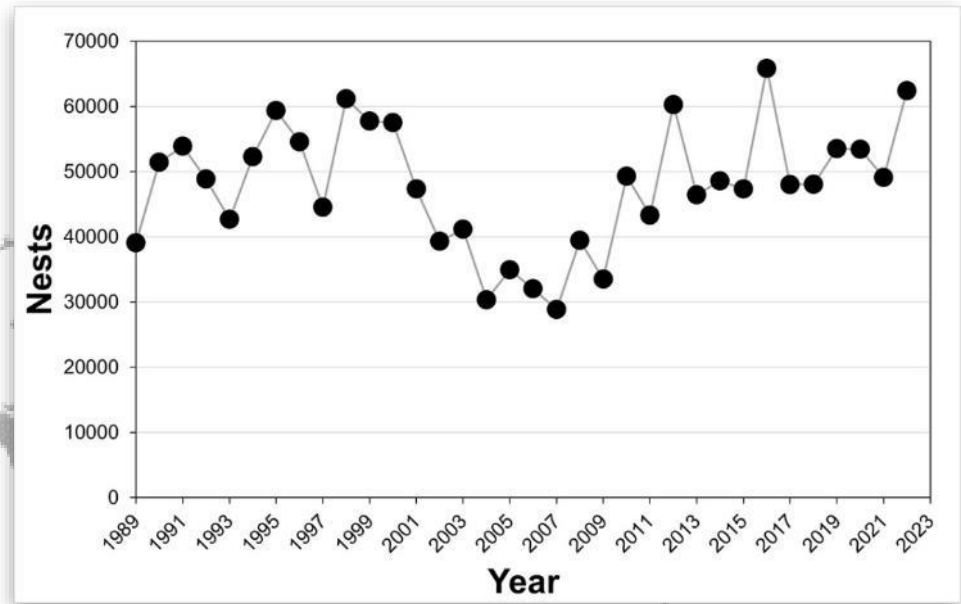


**FULLY PROTECTED SPECIES**

# CARIBBEAN NESTING LOGGERHEAD TURTLES

Stable/Rising

Florida



Fish and Wildlife Research Institute (FWRI)

<https://myfwc.com/research/wildlife/sea-turtles/nesting/beach-survey-totals/>

# RESIDENT IN-WATER TURTLES

Capture/Recapture in Key Index Foraging Locations  
(Hot Spots)

15 YEARS AGO

- **172 GREEN**
- **328 HAWKSBILL**

(McGowan *et al.*, 2008)

2020-2022

- **167 GREEN**
- **6 HAWKSBILLS**

(STEEL Project )

**PROTECTION IS NEEDED DUE TO A  
DRASTIC DECLINE IN THE HAWKSBILL  
FORAGING POPULATION**



# HABITAT ASSESSMENTS (BEACHES)



## IMPACTS OF COASTAL DEVELOPMENT

- Poor Drainage (*impacts beach quality*)
- Excessive Lighting (*disturbs/disorients turtles*)
- Vegetation removal (*removes nesting habitat, contributes to beach erosion*)



**NEED FOR HABITAT PROTECTION**

# HABITAT ASSESSMENTS



**ANCHOR DAMAGE**



**INVASIVE SEAGRASS**



**SARGASSUM**

**NEED FOR HABITAT PROTECTION / DESIGNATED ANCHORAGES**



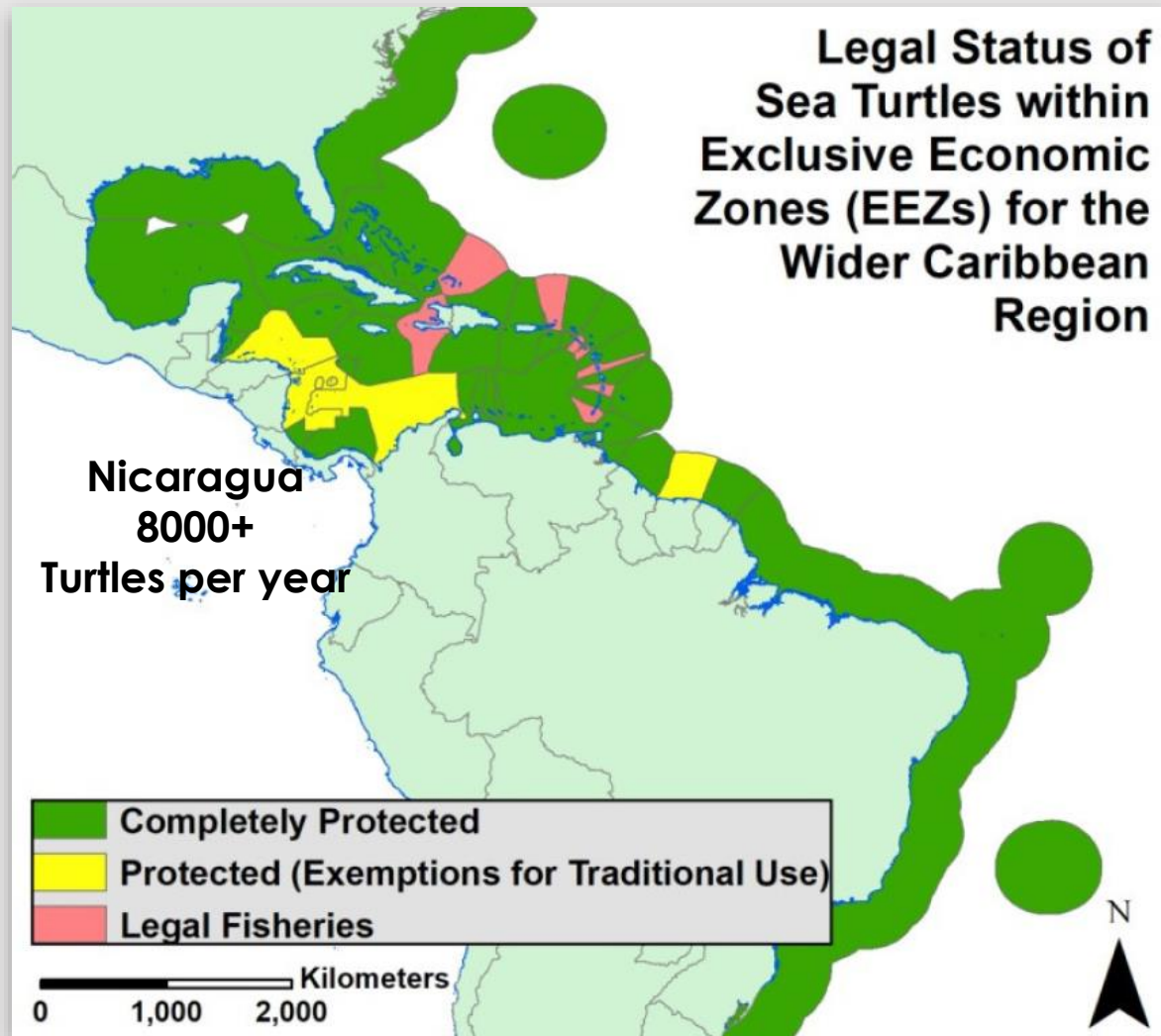
# HABITAT ASSESSMENTS

- **INCREASED CASES OF FIBRO-PAPILLOMATOSIS (FP)**  
4 OUT OF 6 HOT SPOTS
- **EXCESSIVE FISHING LINE**
- **INCREASED BOAT STRIKES**



**INCREASED EDUCATION ON THREATS TO TURTLES**

# REGIONAL TURTLE FISHERIES



**16 COUNTRIES ALLOW TURTLE FISHING**

# BVI TURTLE FISHERY

## 50+ YEARS AGO:

- Est. 200 turtle fishers
- Longer open season

## 20 YEARS AGO (approx. take):

- 150 Green
- 70 Hawksbills

## TODAY

- <20 Turtle fishers
- <5 turtles per season (per fisher)
- Fishers see a decline in hawksbills, so are left alone



**Over the last 5 years,  
the size and scale of  
the turtle fishery have  
decreased.**

**UPDATED LEGAL MEASURES TO REFLECT CURRENT SITUATION  
(SEASON & SIZE RESTRICTIONS)**



# THE HUMAN DIMENSION



Community Voice  
Method (CVM) uses  
stakeholder  
engagement  
through filming  
interviews

(Balancing Conservation & Culture)

## Community Consultations

(Series of workshops & online surveys in  
April 2023)

**WILL ENABLE COMMUNITY  
INPUT INTO DEVELOPING  
TURTLE CONSERVATION  
SOLUTIONS**

# THANK YOU!



[WWW.BVIARK.ORG](http://WWW.BVIARK.ORG)



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