#### Hurricane Irma Impacts to Barbuda

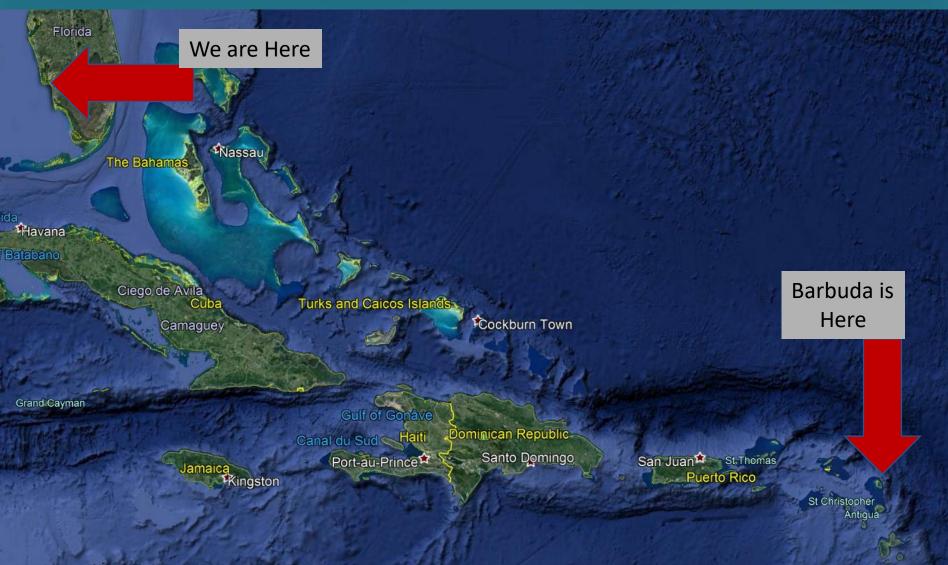
#### *33<sup>rd</sup> National Conference on Beach Preservation Technology February 6, 2020*

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Michael Jenkins, PhD, PE



APPLIED TECHNOLOGY & MANAGEMENT, INC.



Caribbean Sea

© 2019 Google US Dept of State Geographer Image Landsat / Copernicus Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google Earth



US Dept of State Geographer Data LDEO-Columbia. NSF, NOAA Data SIO, NOAA, U.S. Navy, NGA, GEBCO Google Earth

- One of the Least Populated and Developed Islands in the Eastern Caribbean
- Pink Sand Beaches
- Frigate Bird Sanctuary
- Massive Coastal Dunes (Historically)
- Unique History and Culture
- All Land Held in Common





#### Hurricane Irma

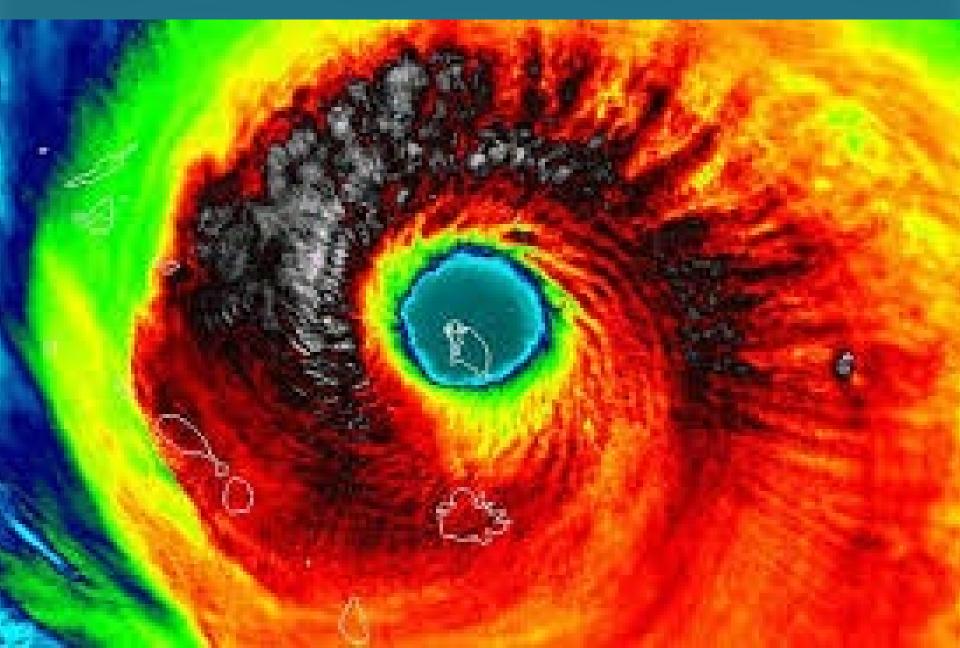
- Strongest Hurricane in Modern Era in the Eastern Caribbean
- (Until Dorian) Strongest Hurricane Ever Recorded in the Open Atlantic
- Max. Measured Winds of 180 MPH
- Storm Made Landfall on Barbuda on September 6 at Peak Intensity (min. pressure 914 mBar)



## Hurricane Irma



# Hurricane Irma



# Impact Examples



#### **Impact Examples**



# Impact Examples

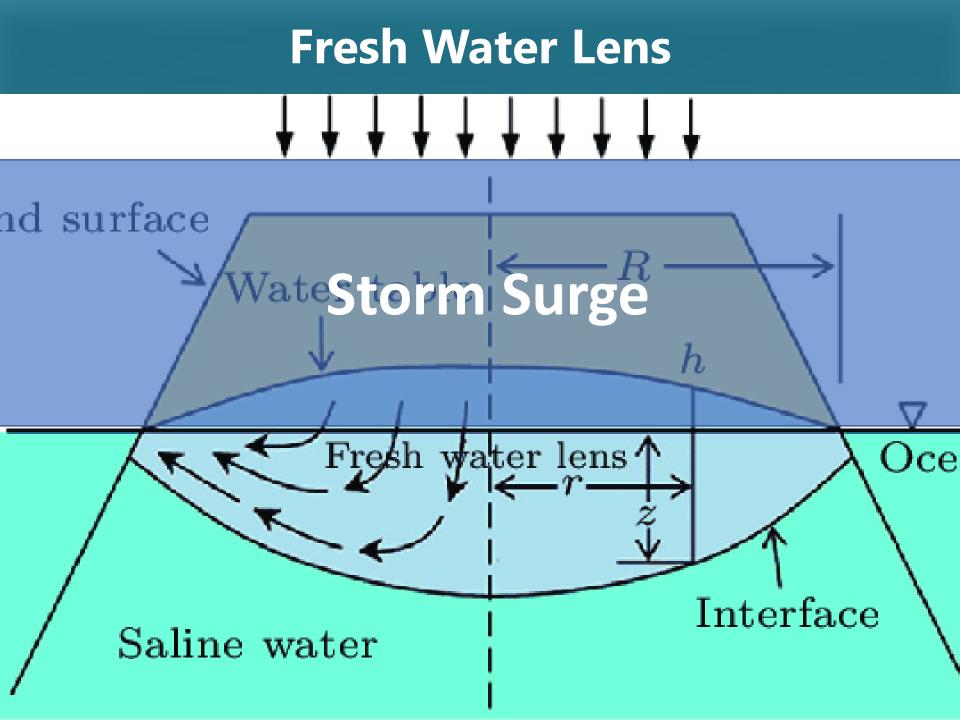


# Storm Surge



# **Storm Surge**





## **Codrington Lagoon: Pre-Storm**

Low Bay

Codrington •

# Lagoon Breach

Low Bay



Codrington •

# Lagoon Breach



#### Soufriere Volcano, Montserrat ~ 60 miles away

#### **Increased Tsunami Risk**

# IN CASE OF EARTHQUAKE GO TO HIGH GROUND OR INLAND

TSUNAMI HAZARD ZONE

## **Impact to Fisheries**



#### Barbuda Status - September 8<sup>th</sup> 2017

- 95% Structures with Major Damage
- 90% Vehicles damaged
- No Electricity
- No Fresh Water
- No Food or Supplies
- No Hospital
- Hurricane Juan Approaching

# **Response - Evacuation**

#### Storm Response

# "This is the first time in over 300 years that Barbuda does not have a single living person on it"

Sir Ronald Michael Sanders Antiguan-Barbudan Ambassador to the US



#### Current Status 2+ Years Post Irma

- Only a Handful of Barbudans Have Returned
- Limited Housing and No Employment
- Government Initiative to Encourage Tourism
- Issues with Land Ownership Hindering Recovery



## **Thank You**

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