Coastal Threats

Jennifer O'Donnell, Ph.D.
UConn, Dept. of Marine Sciences

CT Task Force for Climate Change
and Shoreline Preservation

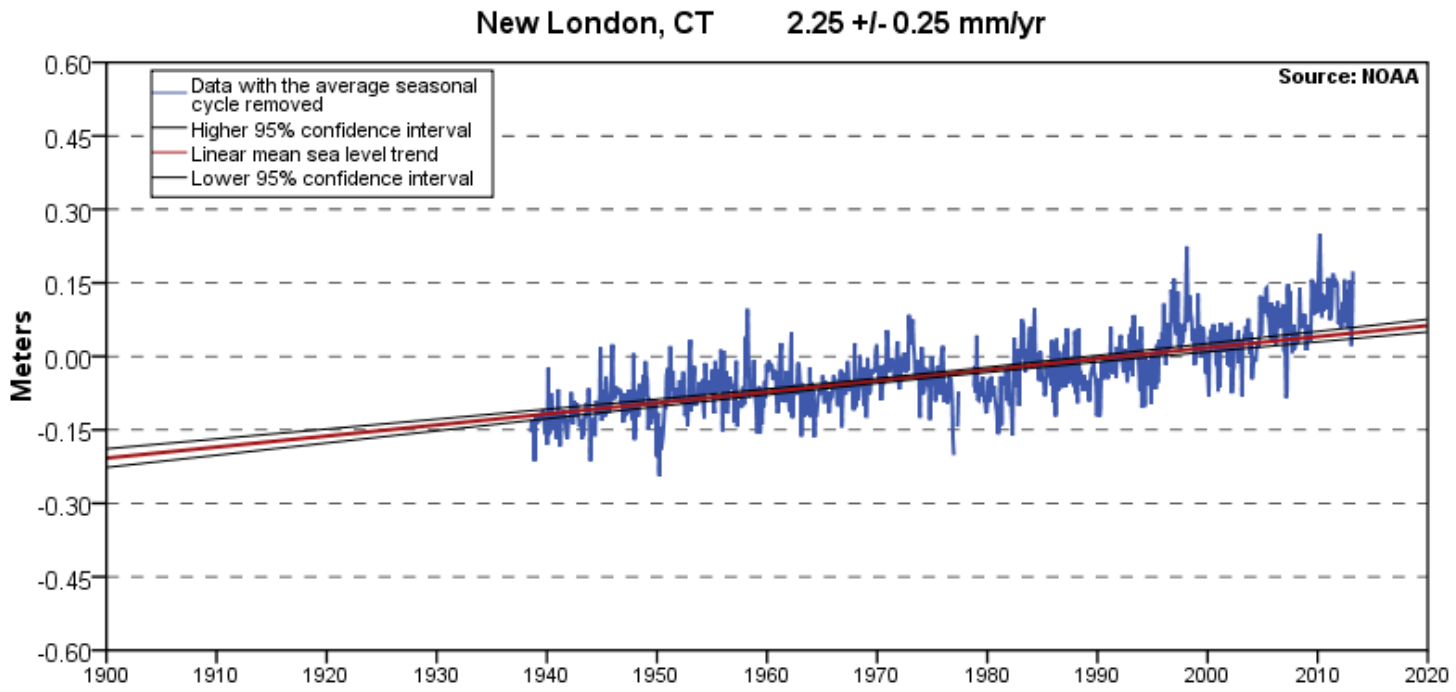
What is threatening our coasts?

- Winds
- Waves
- Storm Surges
- Sea level rise
- Coastal Construction



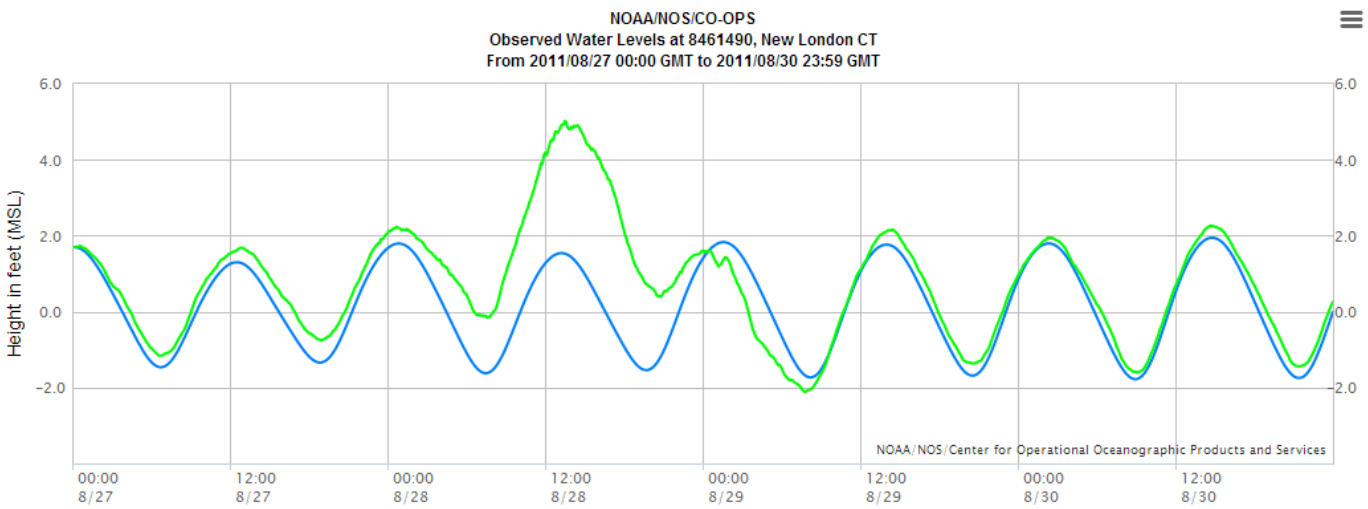
Sea Level Rise

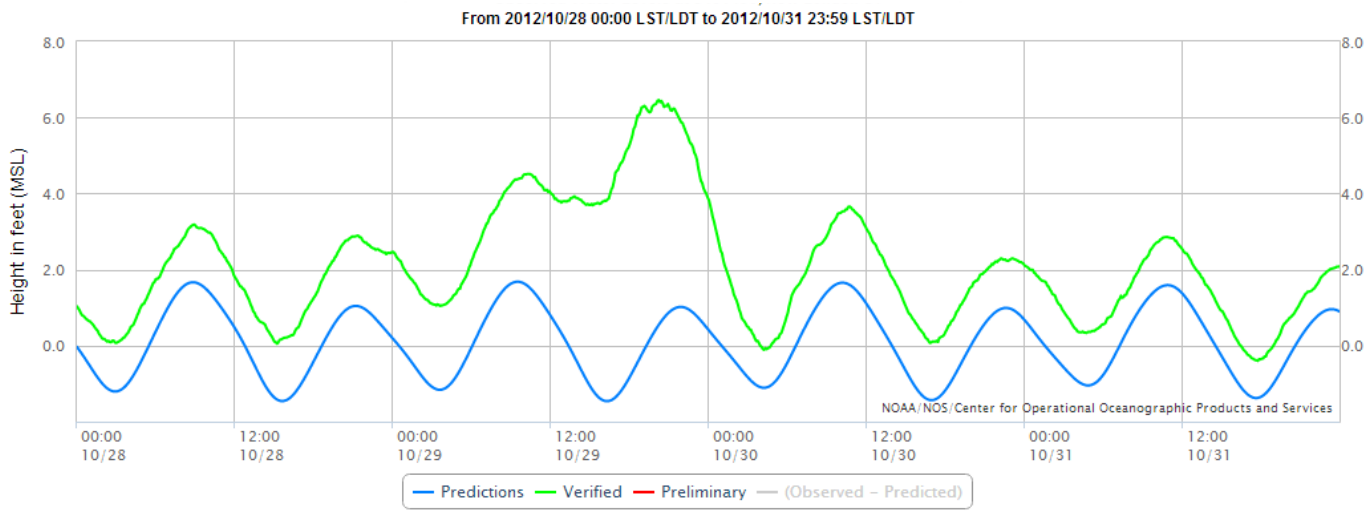
Sea level is rising, but how fast?



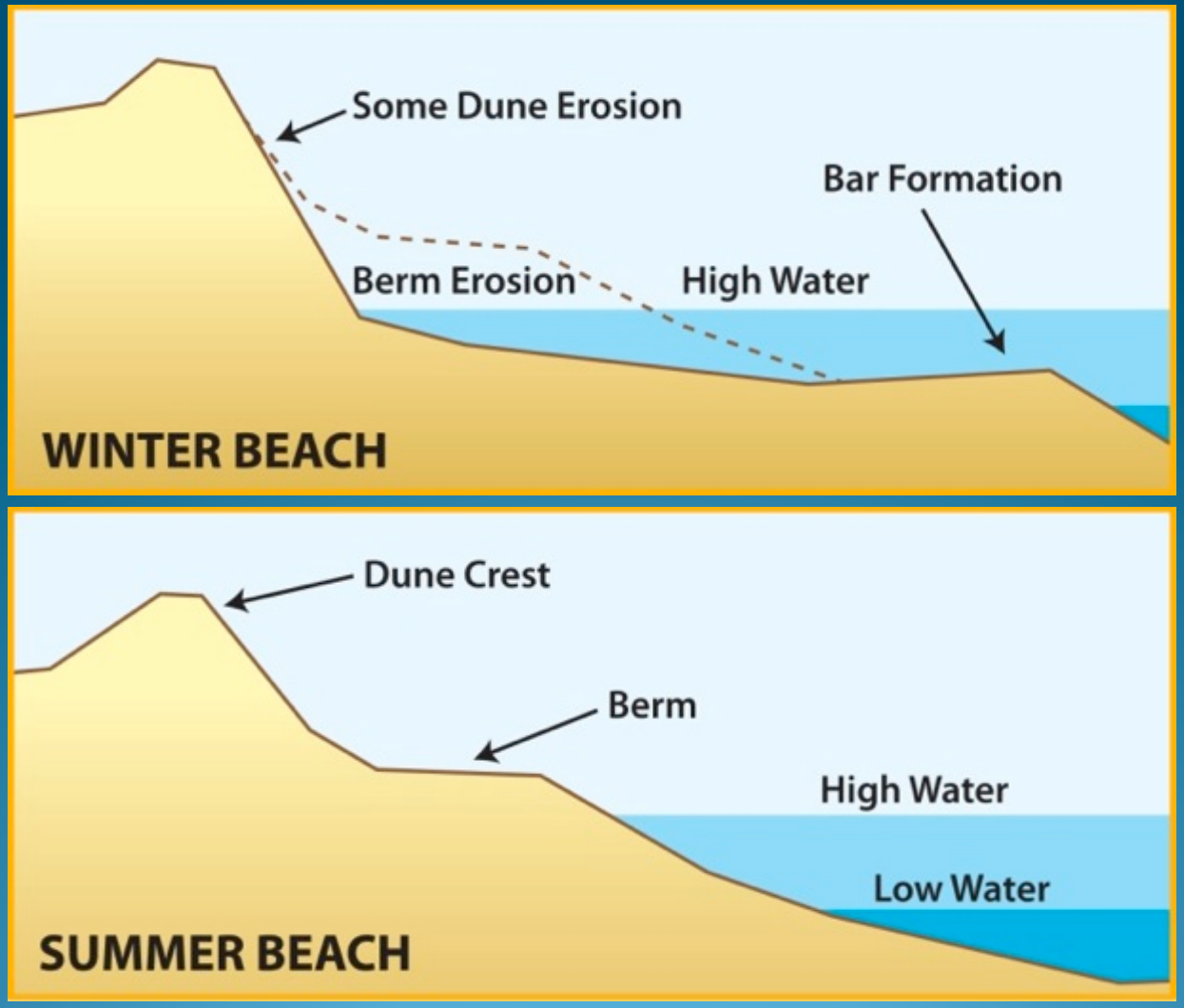
The mean sea level trend is 2.25 millimeters/year with a 95% confidence interval of +/- 0.25 mm/yr based on monthly mean sea level data from 1938 to 2006 which is equivalent to a change of 0.74 feet in 100 years.

Storm Surge: Irene vs Sandy





Shorelines are constantly changing



Event Related Changes









Long Term Changes



Long–term Changes





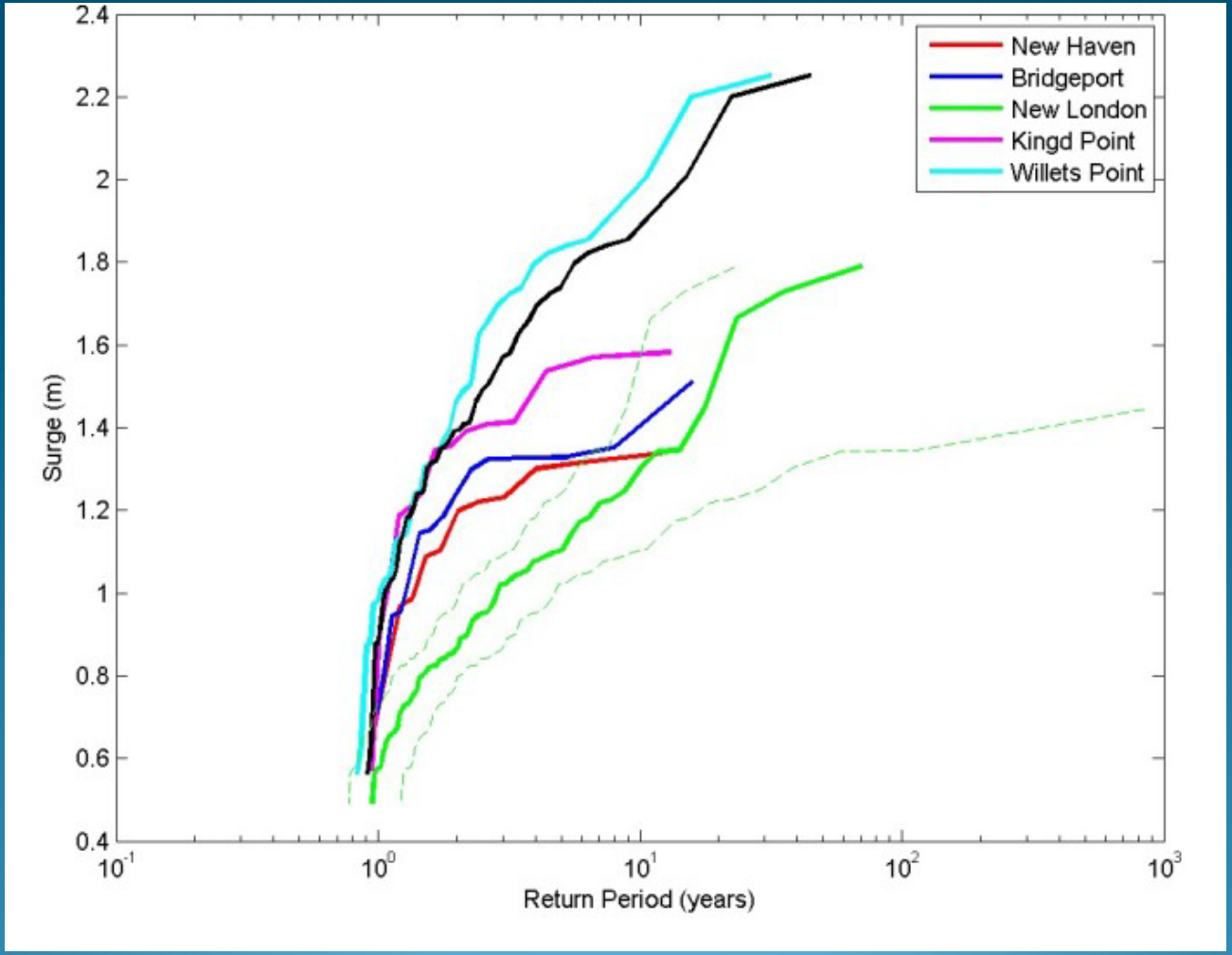
William J. Hackett
Director

STATE OF CONNECTICUT
DIVISION OF
EMERGENCY MANAGEMENT AND HOMELAND SECURITY

HURRICANE RETURN PERIODS IN CONNECTICUT

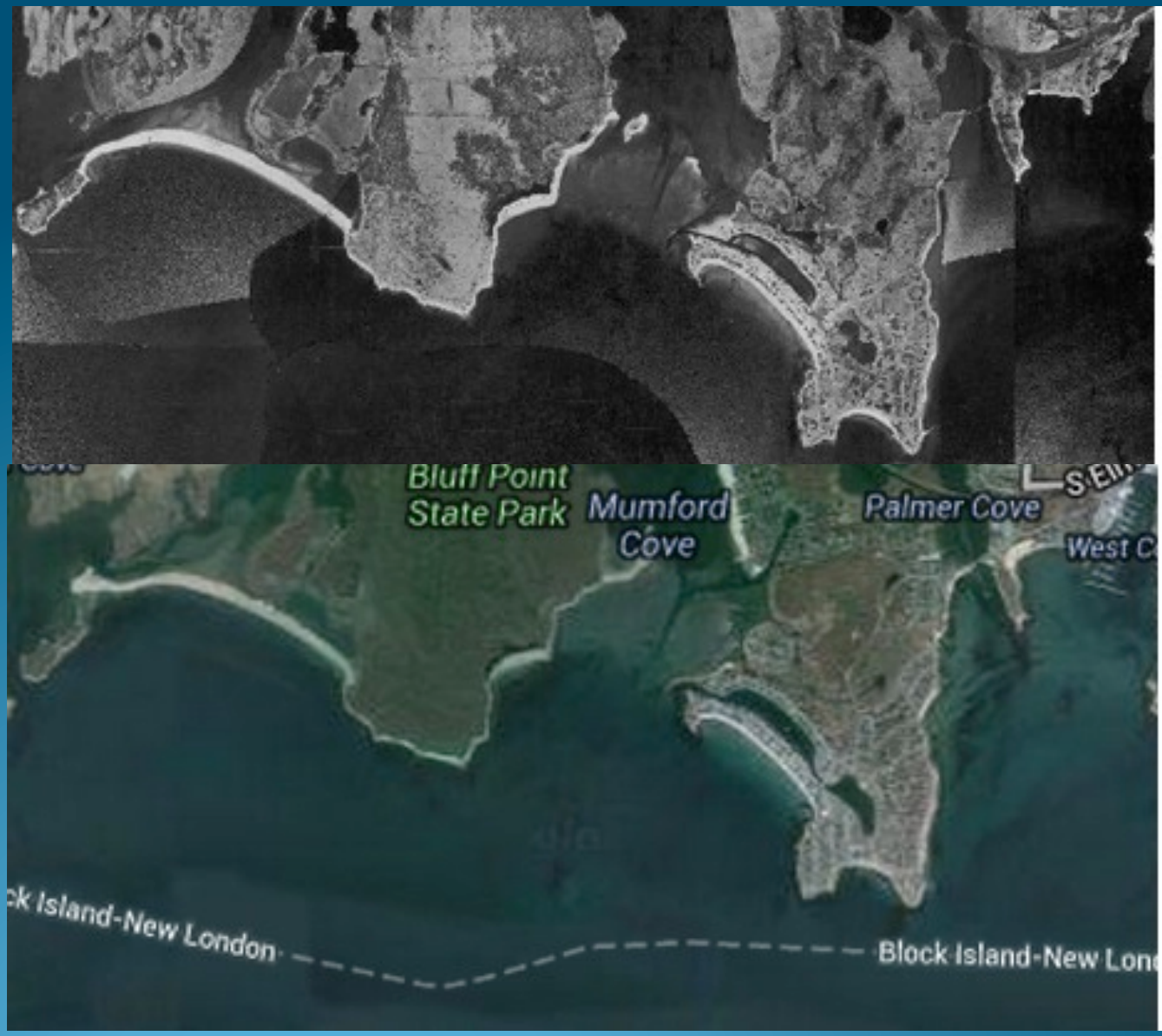
CATEGORY	WINDS	RETURN PERIOD	LAST OCCURRED	OVERDUE
CAT. I	74-95 MPH	17 Years	1985	10 years Overdue
CAT. II	96-110 MPH	39 Years	1985	In 12 Years
CAT. III	111-130 MPH	69 Years	1954	In 12 Years
CAT. IV	131-155 MPH	155 Years	< 1851	6 Years Overdue
CAT. V	> 155 MPH	400 Years	< 1851	In 249 Years

SLR + Surge = Increased Flooding

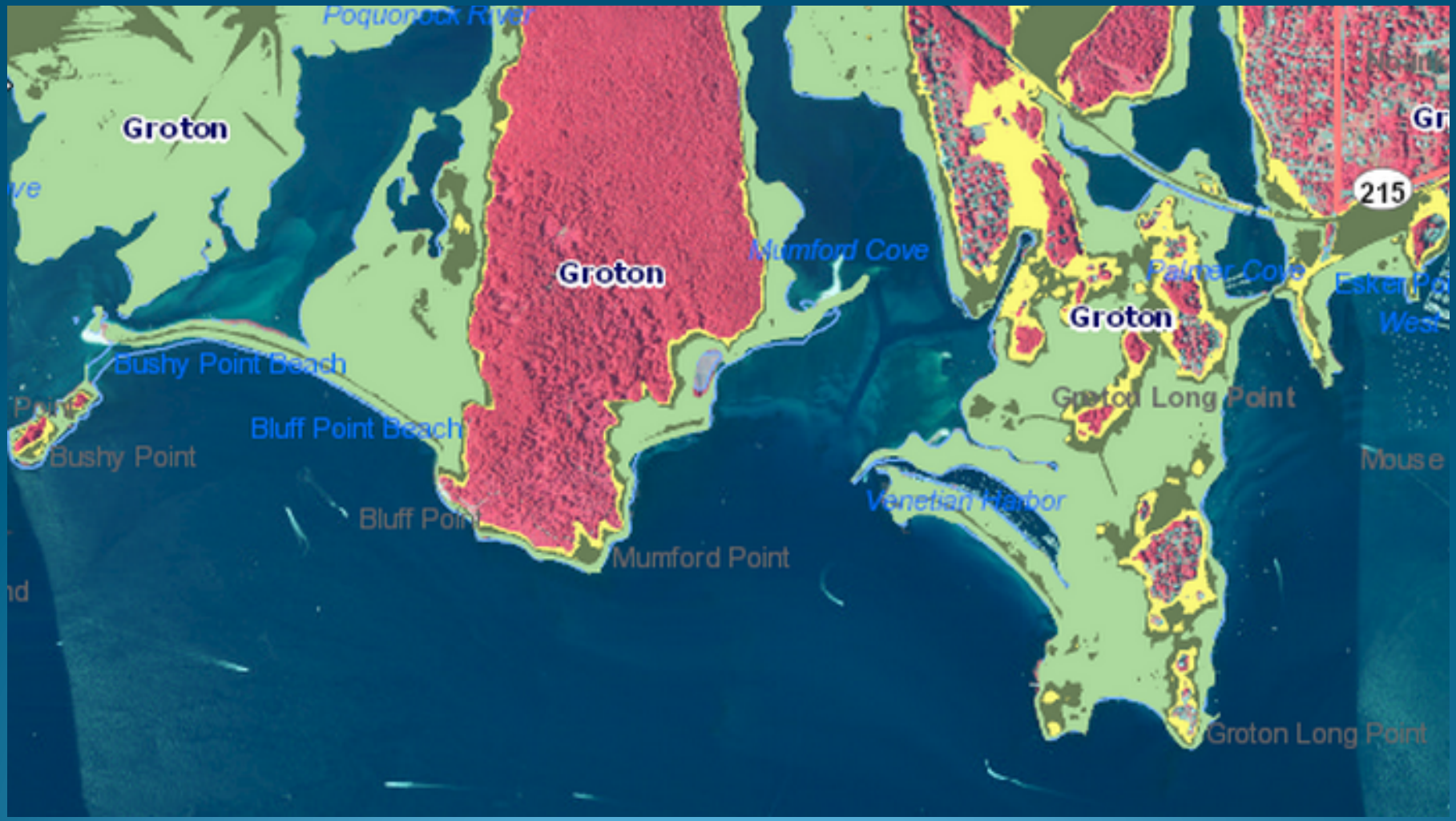


Restore, Rebuild or Retreat?

Retreat created Bluff Point State Park



Category 3 Inundation



New Development



Not just storm surge



Bunker Living





Beachfront Property



This is not a Connecticut Beach!



Summary

- Shorelines are always changing: long-term, seasonally and episodic
- Shoreline protection and adaptation approaches must be site specific – one approach does not fit all!
- It will not be possible to keep things as they were/are, protect private property, maintain infrastructure and save the shoreline – difficult decisions will have to be made.



Questions?

Jennifer O'Donnell
jodonnell@coastaloa.com
860-961-2467

Storm Surge

the difference between predicted and measured water level

