



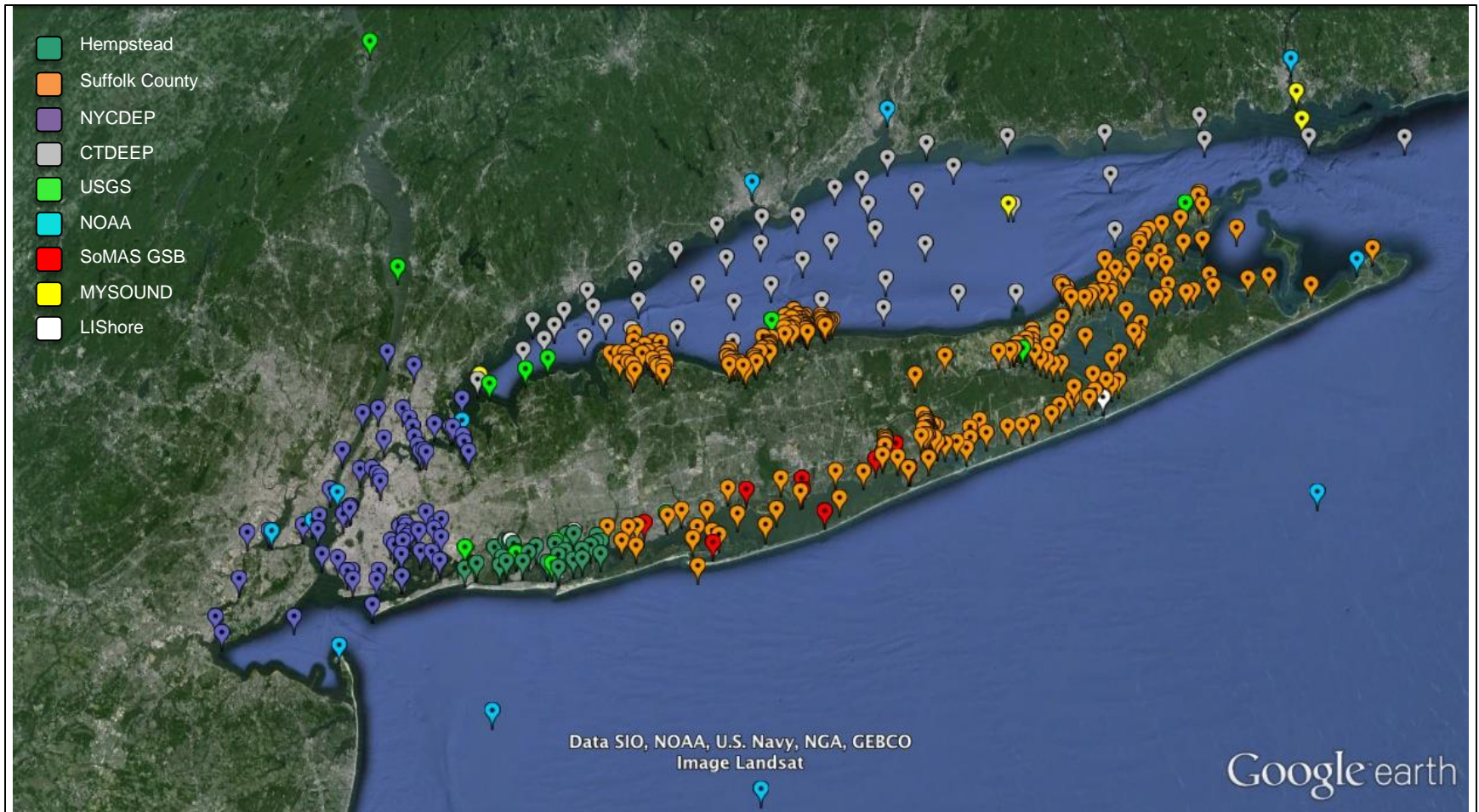
Integration of Multiple Monitoring Systems Targeting Coastal Zones

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Objectives:

- Report existing real-time water and ecosystem monitoring systems along the New York State coasts in order to assess storm threats to coastal ecosystems under climate change.
- Generate a database of coastal ecosystem monitoring data as a baseline.
- Generate a web interface integrating and accessing continuous coastal ecosystem monitoring data on the NYS RISE web site.

All Monitoring Locations



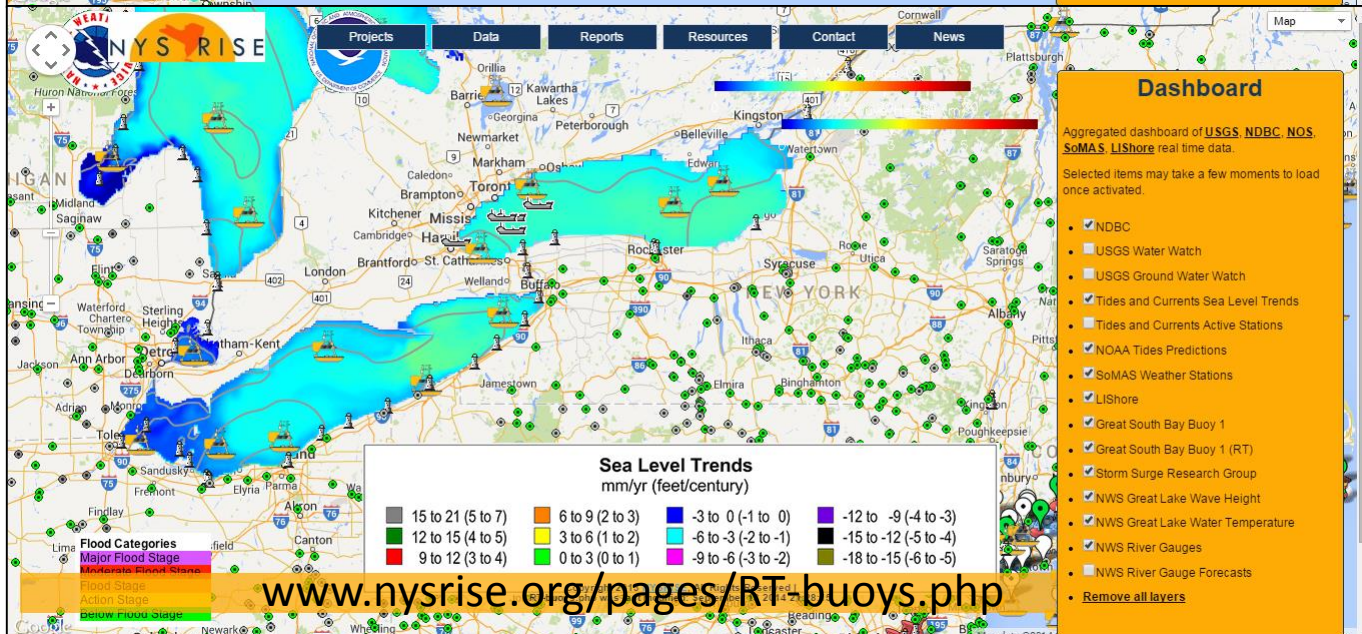
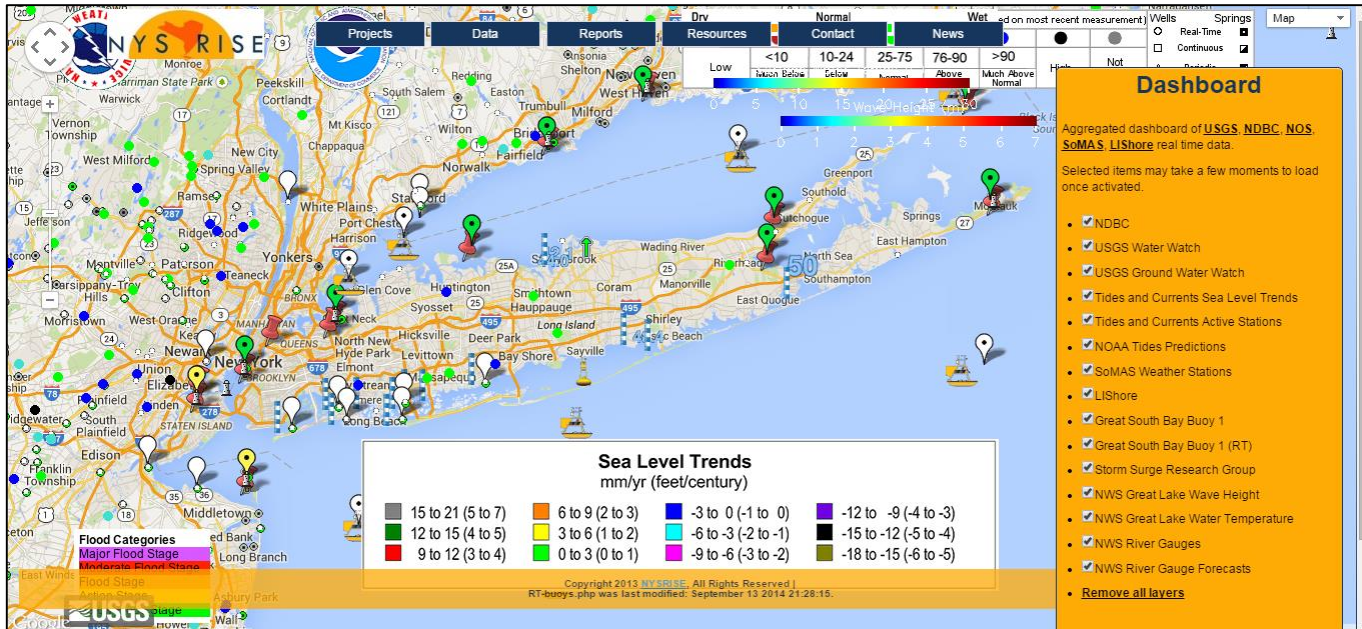
Discrete Monitoring Locations



Continuous Monitoring Locations



Monitoring dashboard



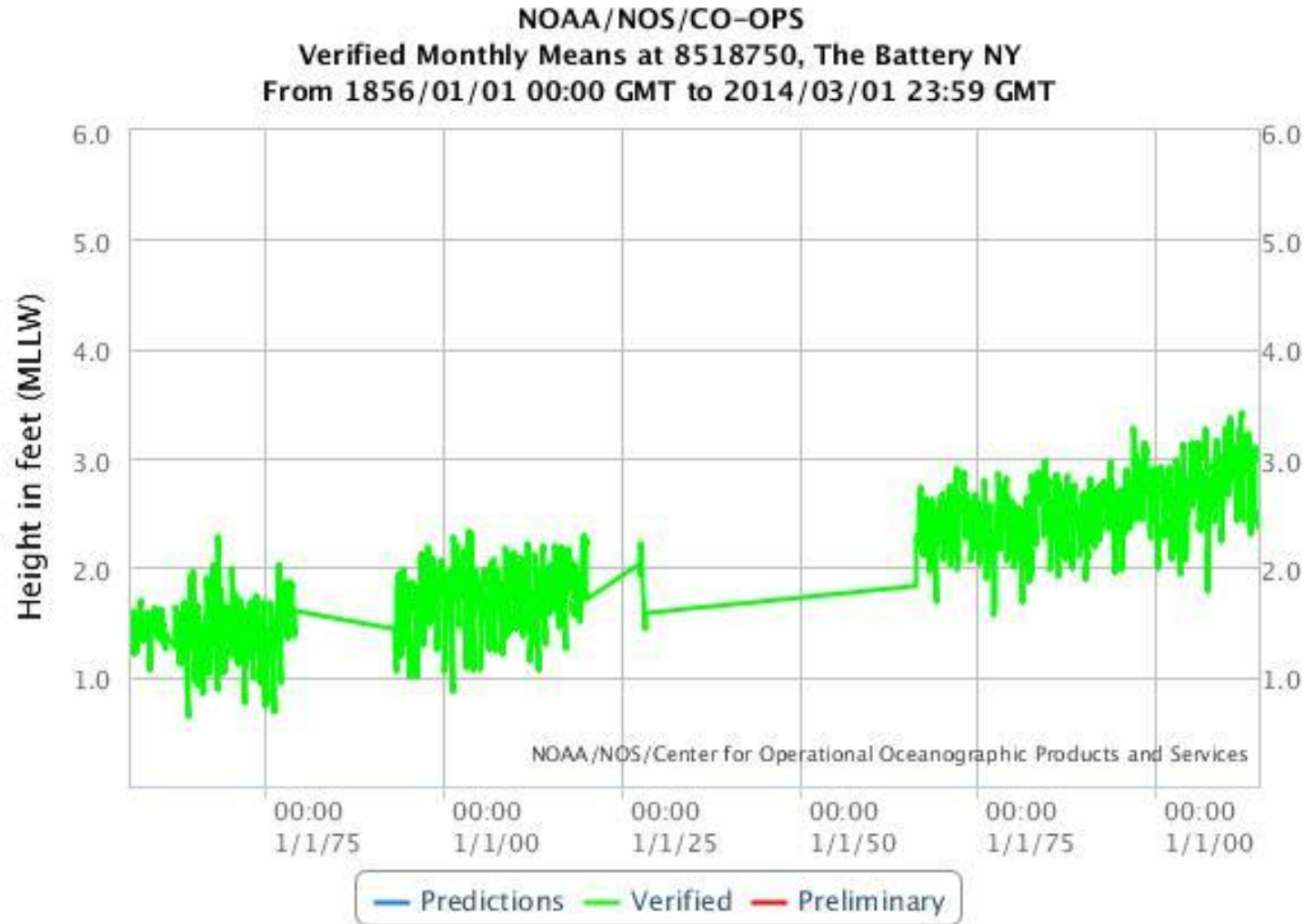
>50 parameters monitored by 10 groups

Parameters	Agency									
	Discrete Sampling					Continuous Monitoring				
	NYCDEP	Suffolk County	CTDEEP	Hempstead	NYSDEC	USGS	NOAA	GSB Project	MYSOUND	LiShore
Ammonia	X	X	X							
Barometric Pressure						X	X	X	X	
Biological Oxygen Demand				X						
Brown Tide		X								
Carbon (Dissolved Organic)	X	X	X							
Carbon (Total Organic)		X								
Carbon (Particulate)			X							
Chloride		X								
Chlorophyll-a	X	X	X			X		X		
Chlorophyll-a (Fractionated)		X								
Coliform (Total)		X								
Conductivity		X	X			X				
Dew Point							X		X	
Dissolved Oxygen	X	X	X	X		X			X	
Enterococcus	X									
Fecal Coliform	X	X			X					
Fluorescence	X		X					X		
Humidity						X			X	
Metals		X								
Nitrate (NO3)		X				X				
Nitrite (NO2)		X								
Nitrogen	X	X								
Nitrogen (Dissolved)		X	X							
Nitrogen (Particulate)			X							
NOx		X	X							
Ocean elevation						X	X	X		X
Organic Pollutants		X								
Ortho-Phosphate	X	X	X	X						
Oxidative Reduction Potential	X									
pH	X	X	X			X				
Phosphorous	X	X								
Phosphorous (Dissolved)		X	X							
Phosphorous (Particulate)			X							
Photosynthetically Active Radiation	X							X		
Precipitation						X		X		X
Salinity	X	X	X	X		X		X	X	
Silica (Biogenic)			X							
Silicate	X	X	X							
Sulfate		X								
Suspended Solids	X	X	X							
Temperature (Air)							X	X	X	
Temperature (Water)	X	X	X	X		X	X	X	X	X
Transparency (Secchi)	X	X		X						
Turbidity	X					X		X		
Urea		X								
Wave height							X		X	
Wind	X					X	X	X	X	

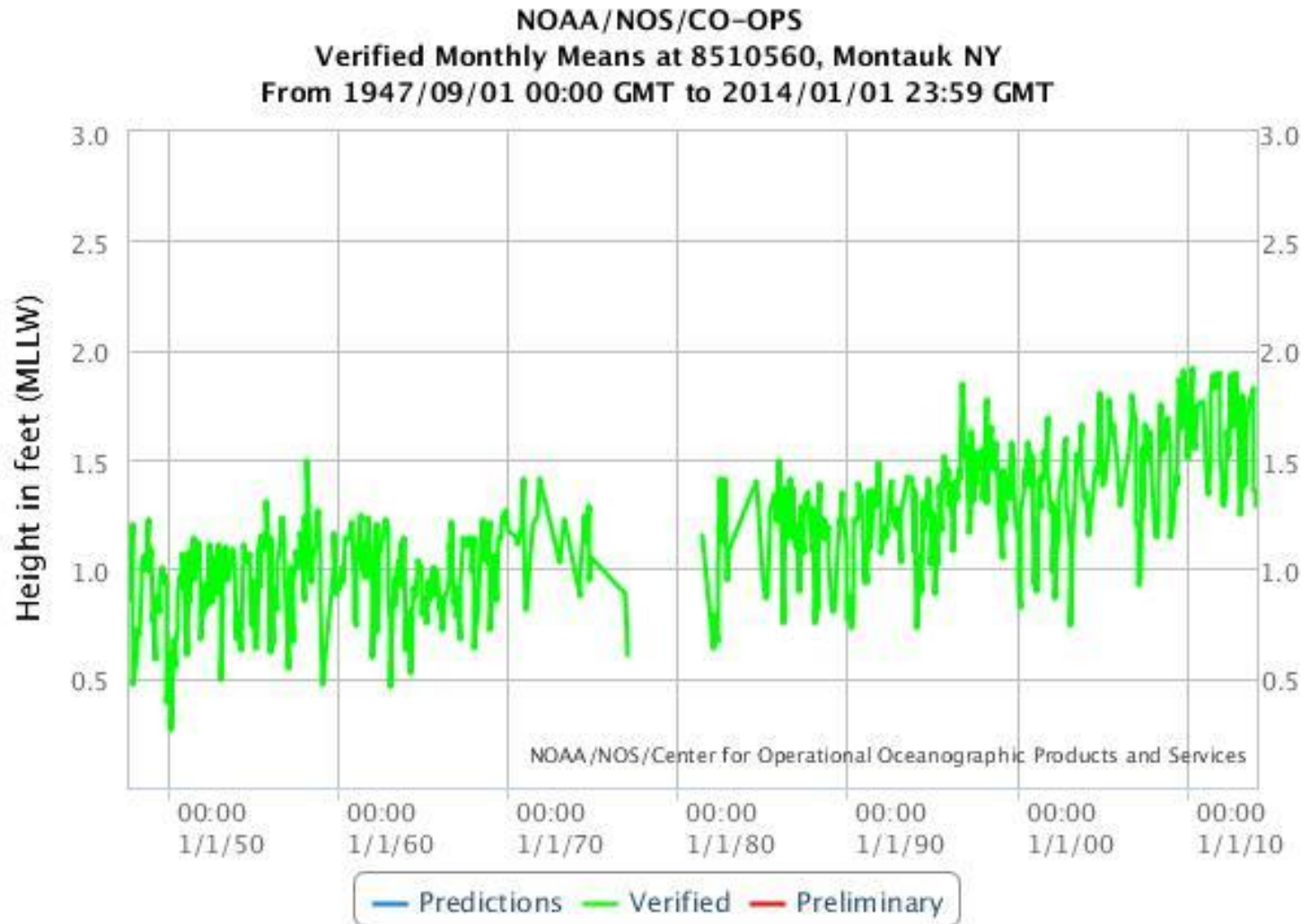
Is climate change detectable in NY coastal waters?



Sea Level, New York City Battery

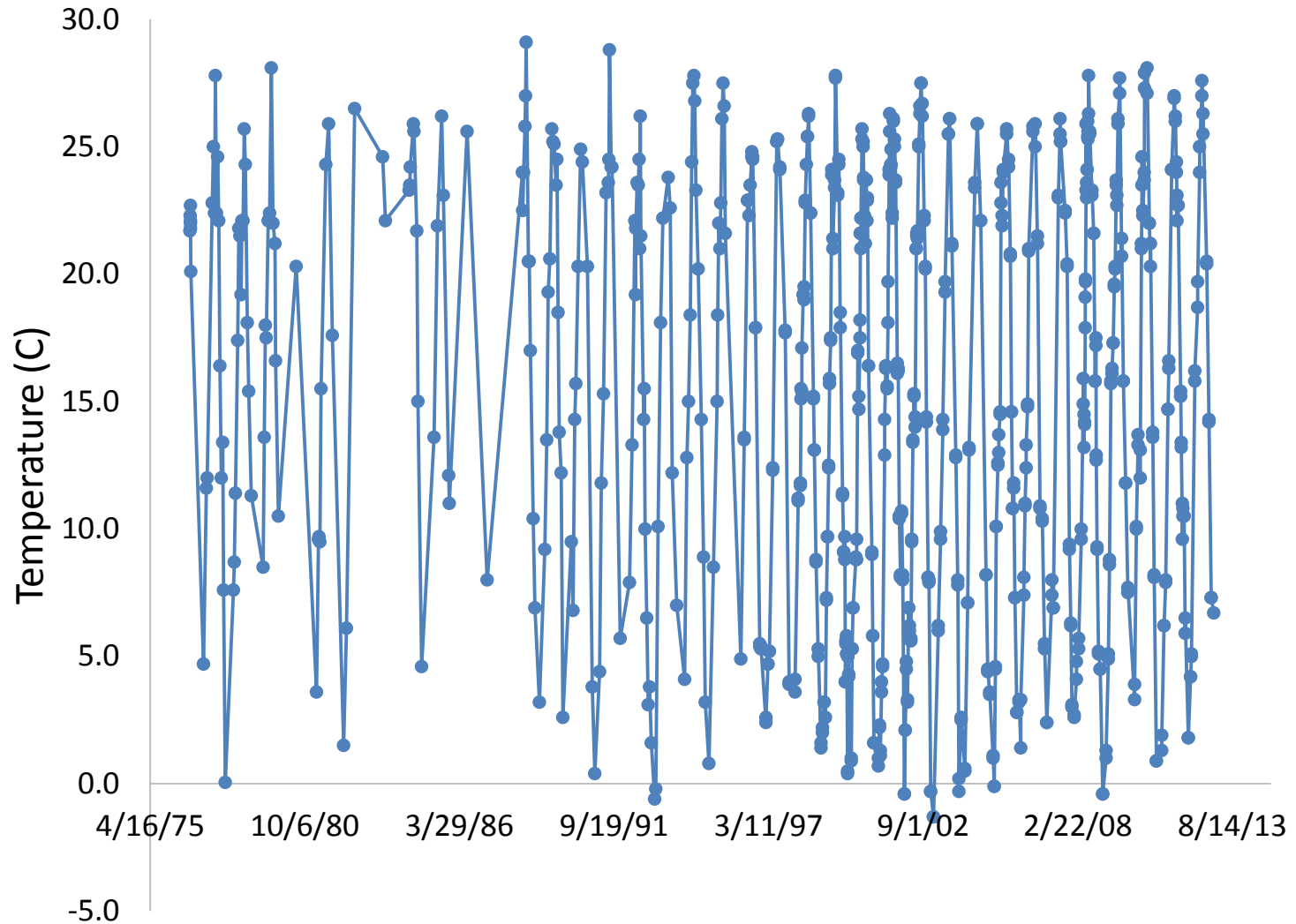


Sea Level, Montauk

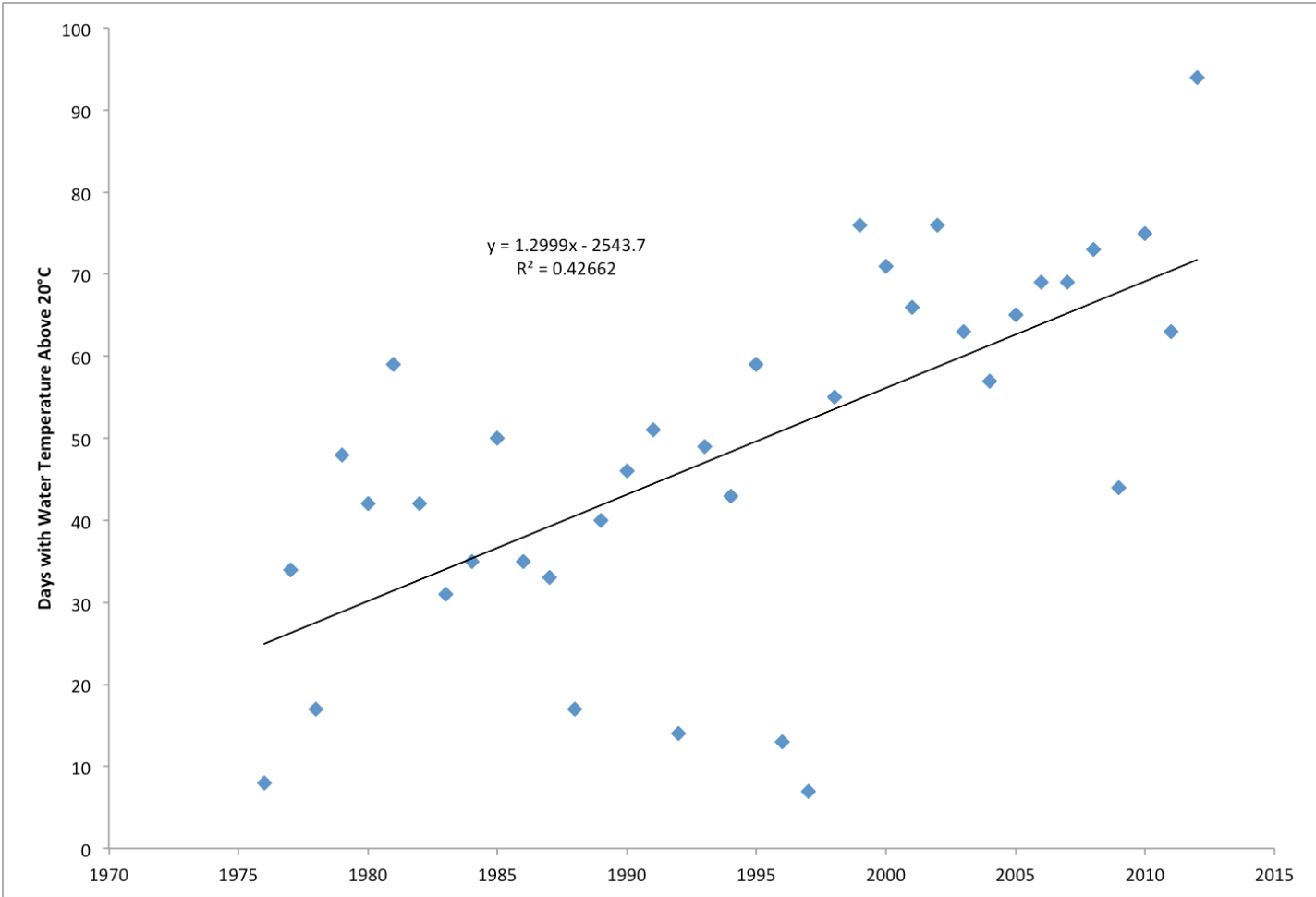


CLIMATE CHANGE?

Temperature, Great South Bay 1976-2012

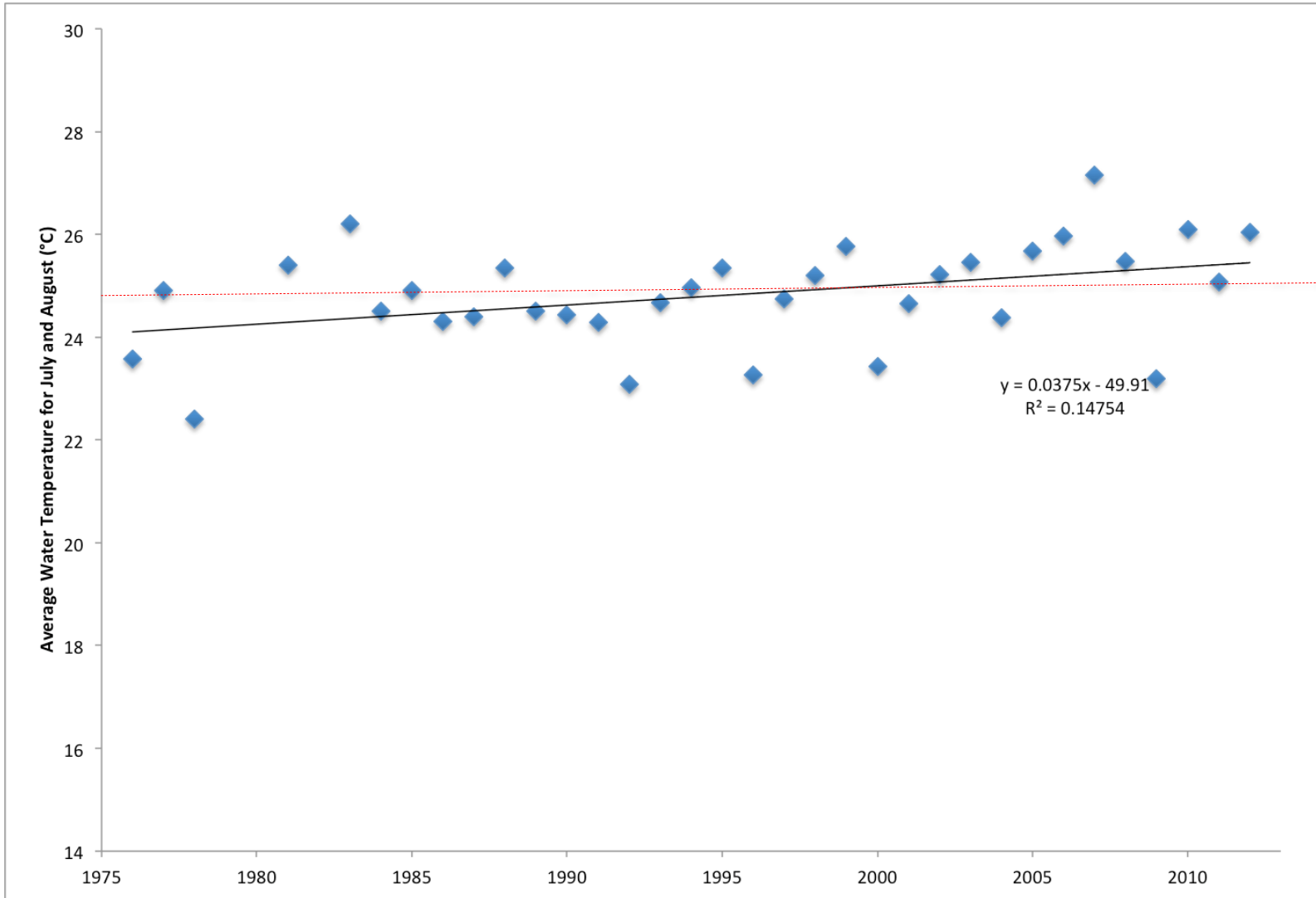


Number of days with water temperature > 20°C, Long Island Sound



Annual degree days greater than 20°C recorded at the Millstone power station in southeast Connecticut.

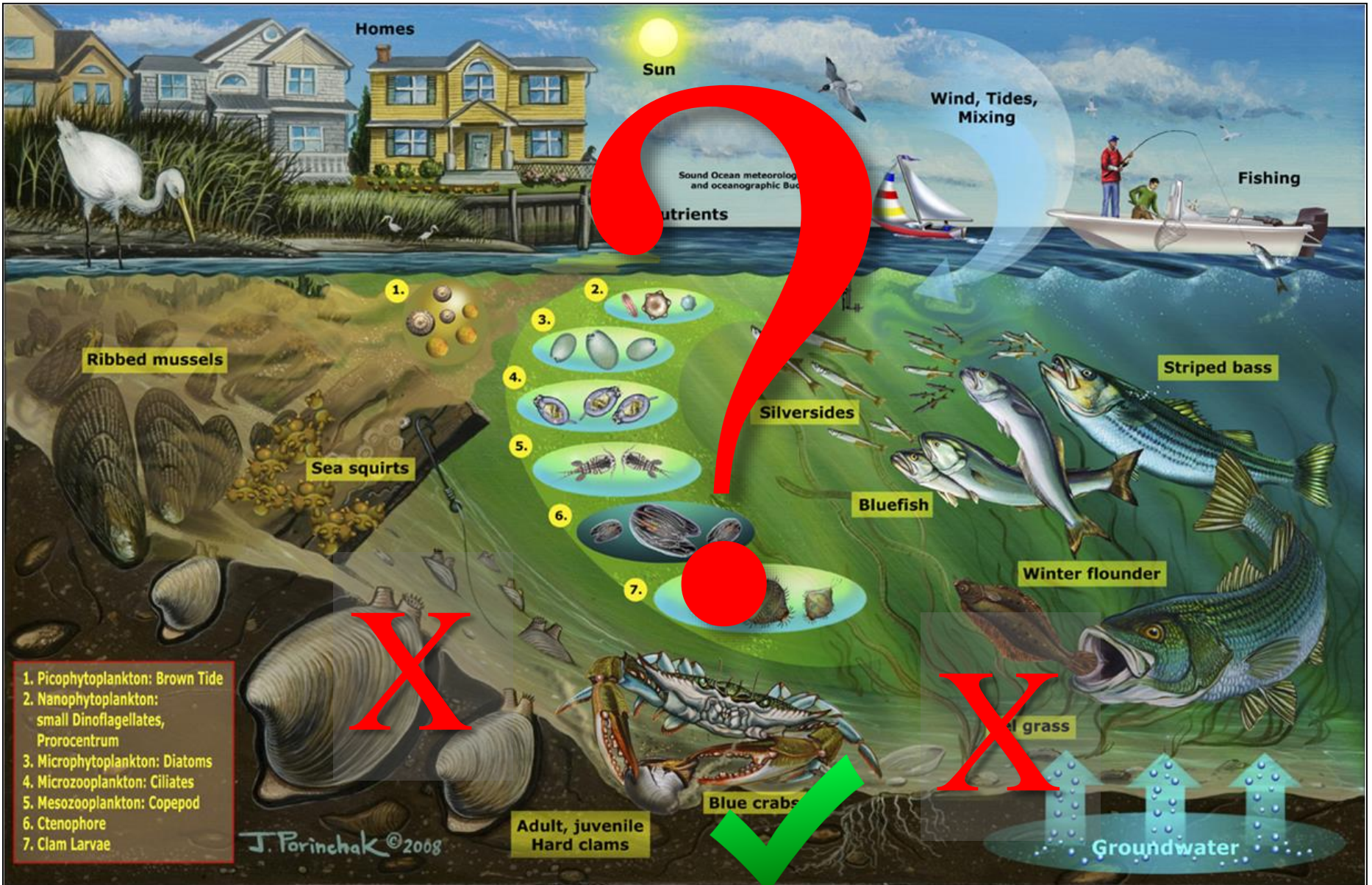
July and August temperatures in Great Peconic Bay



Maximal
thermal
tolerance
of
eelgrass,
hard clams

Annual average water temperature for readings taken in July and August for Suffolk County site 060130 at Great Peconic Bay.

The fate of NY marine ecosystems under climate change?



Conclusions:

- The NYSRISE monitoring dashboard serves as a clearinghouse for all NYS coastal water monitoring data.
- Assessment of the monitoring data set has revealed multiple strengths and vulnerabilities for NYC and Long Island.
- Use of the dashboard has revealed long term impacts of climate change: Sea level rise and water warming.
- The dashboard could be exploited for further studies to assess climate change impacts on NY's coastal ecosystems.