

What will happen to the ecosystems and communities of the eastern coastal plain over the next century?

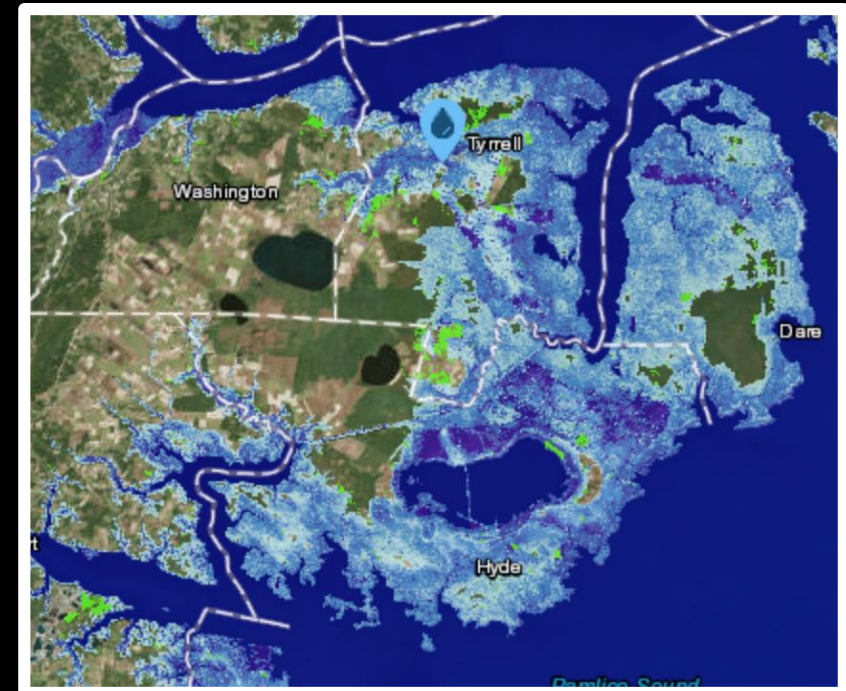
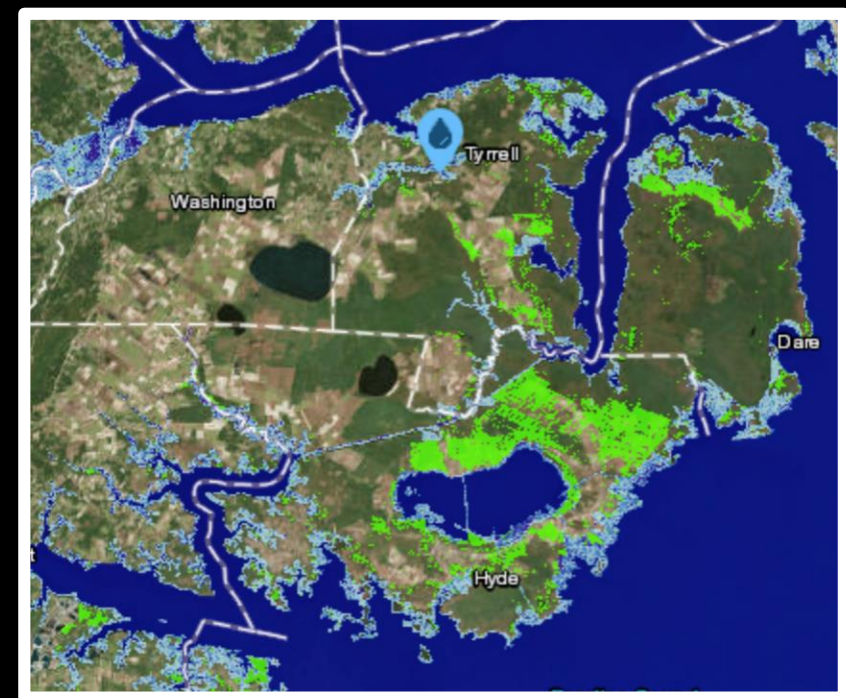
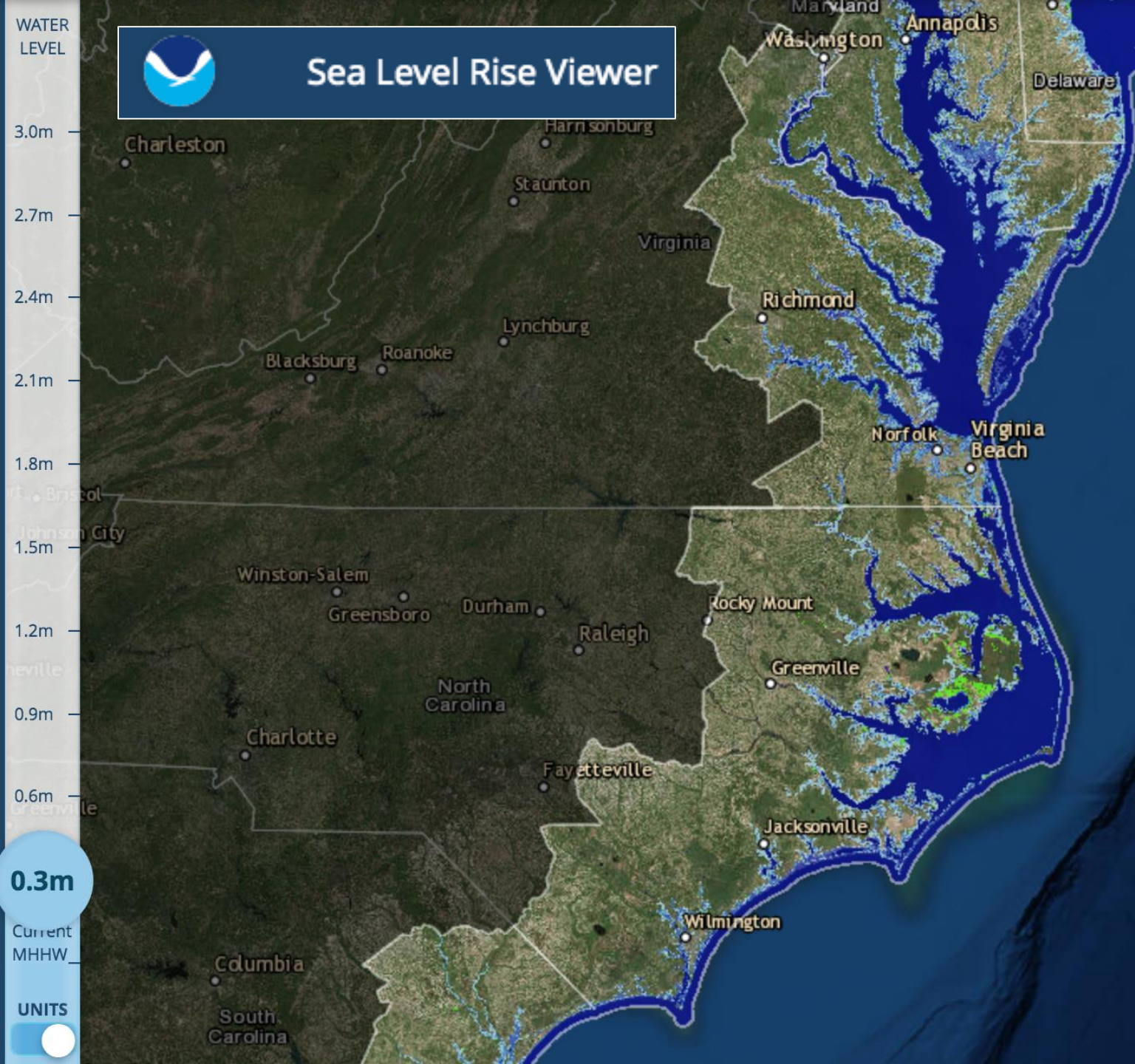


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graph LR; A[Vulnerability] --> B[Impact]; B --> C[Response]
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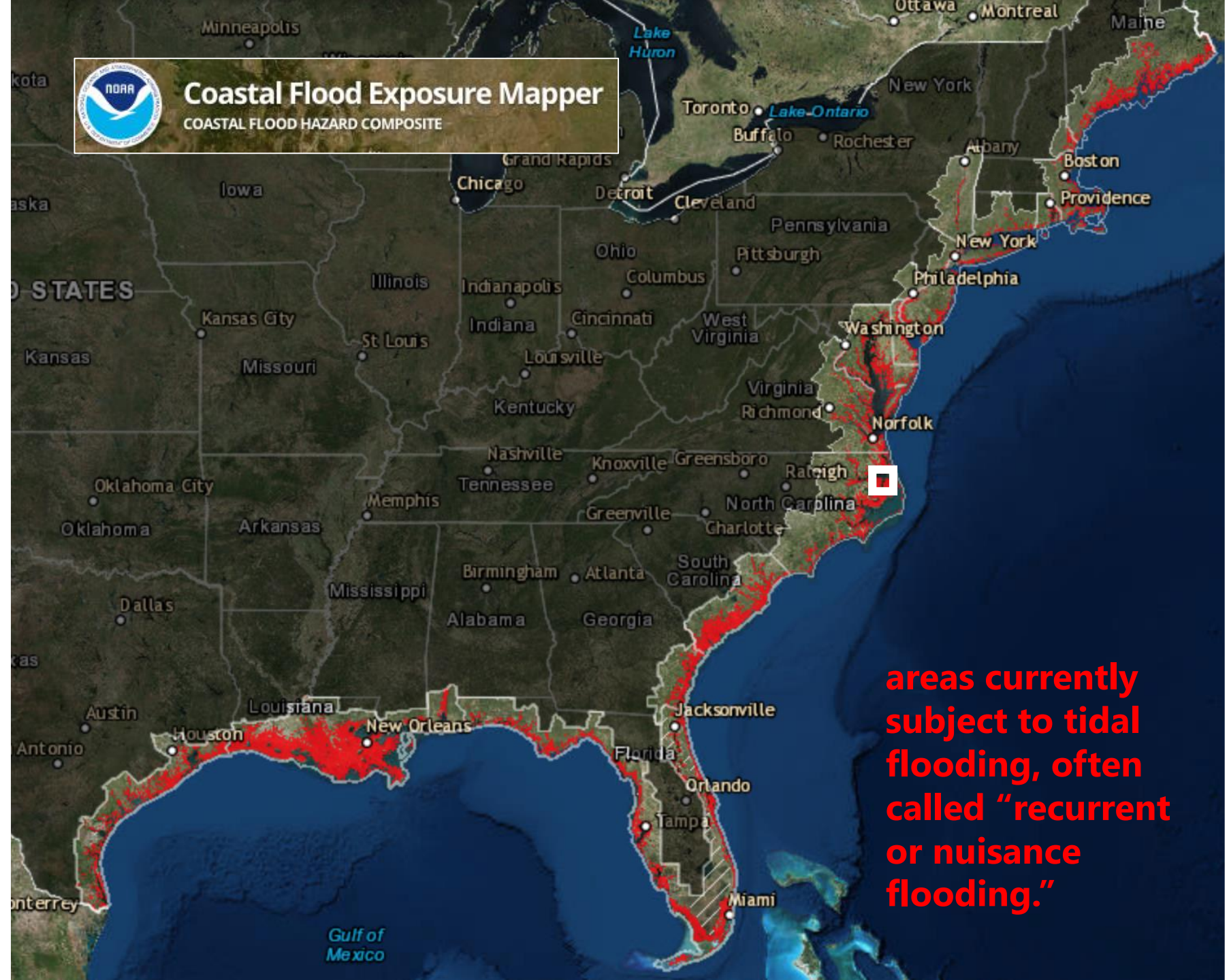
Vulnerability

Impact

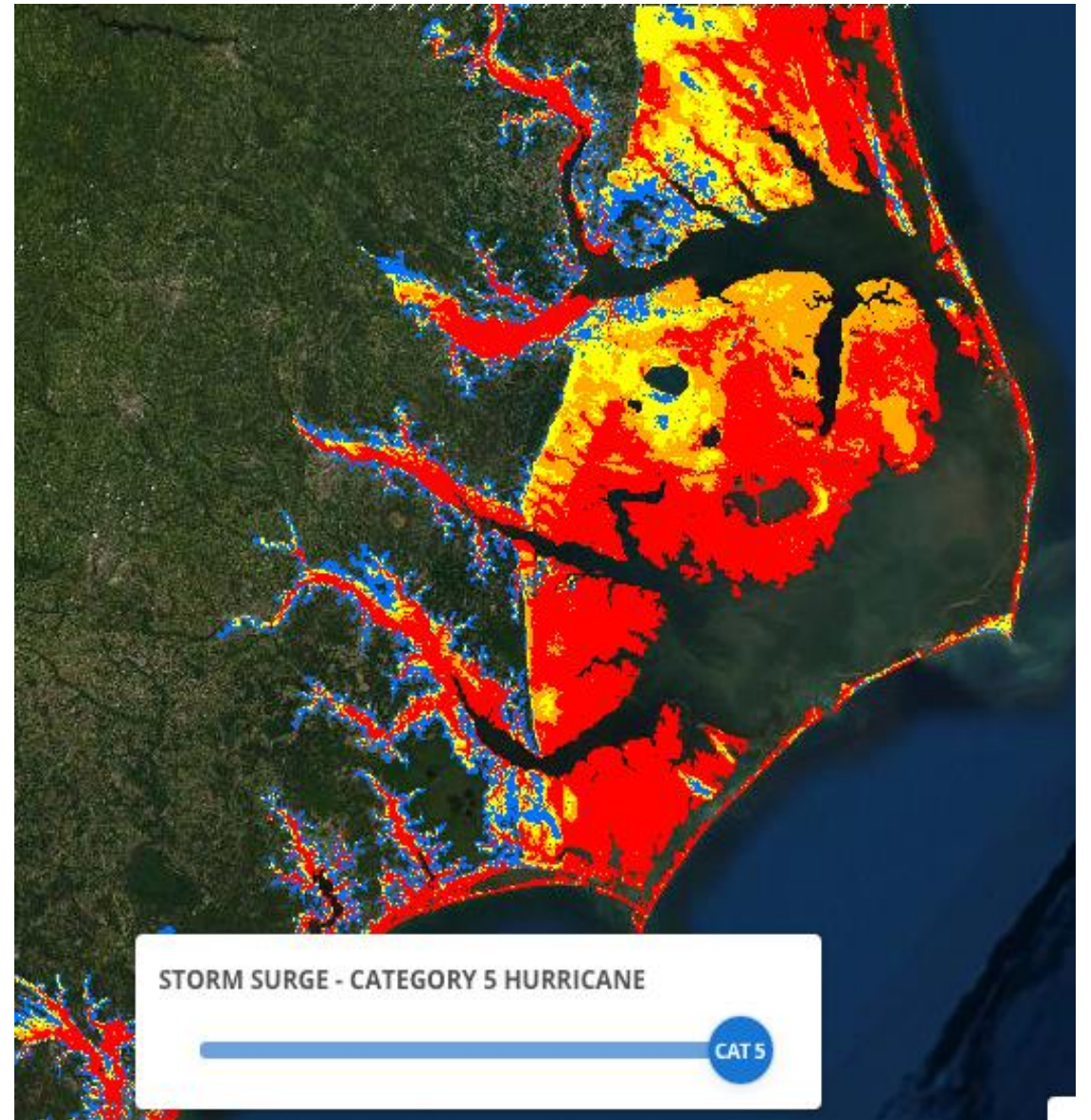
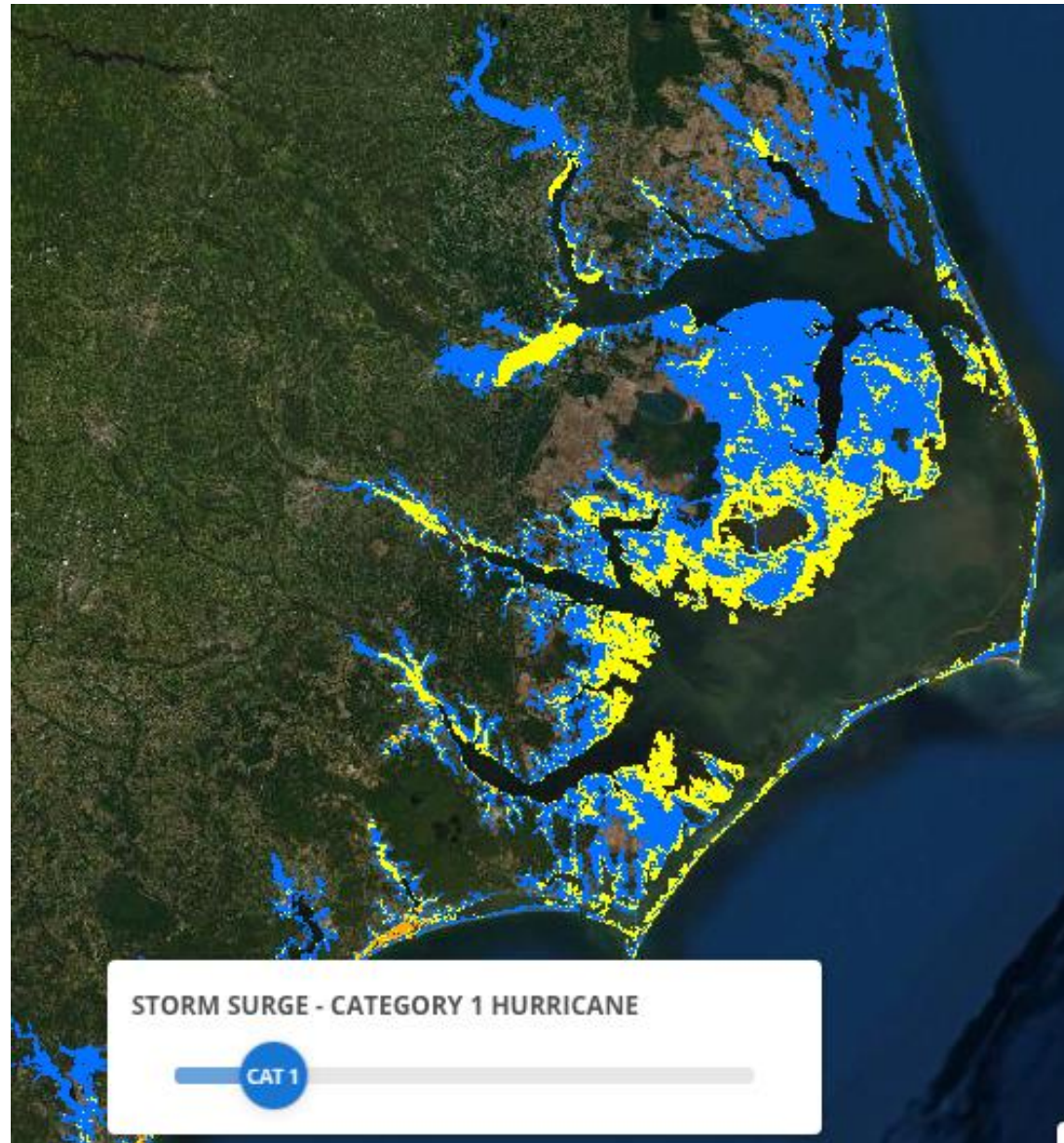
Response



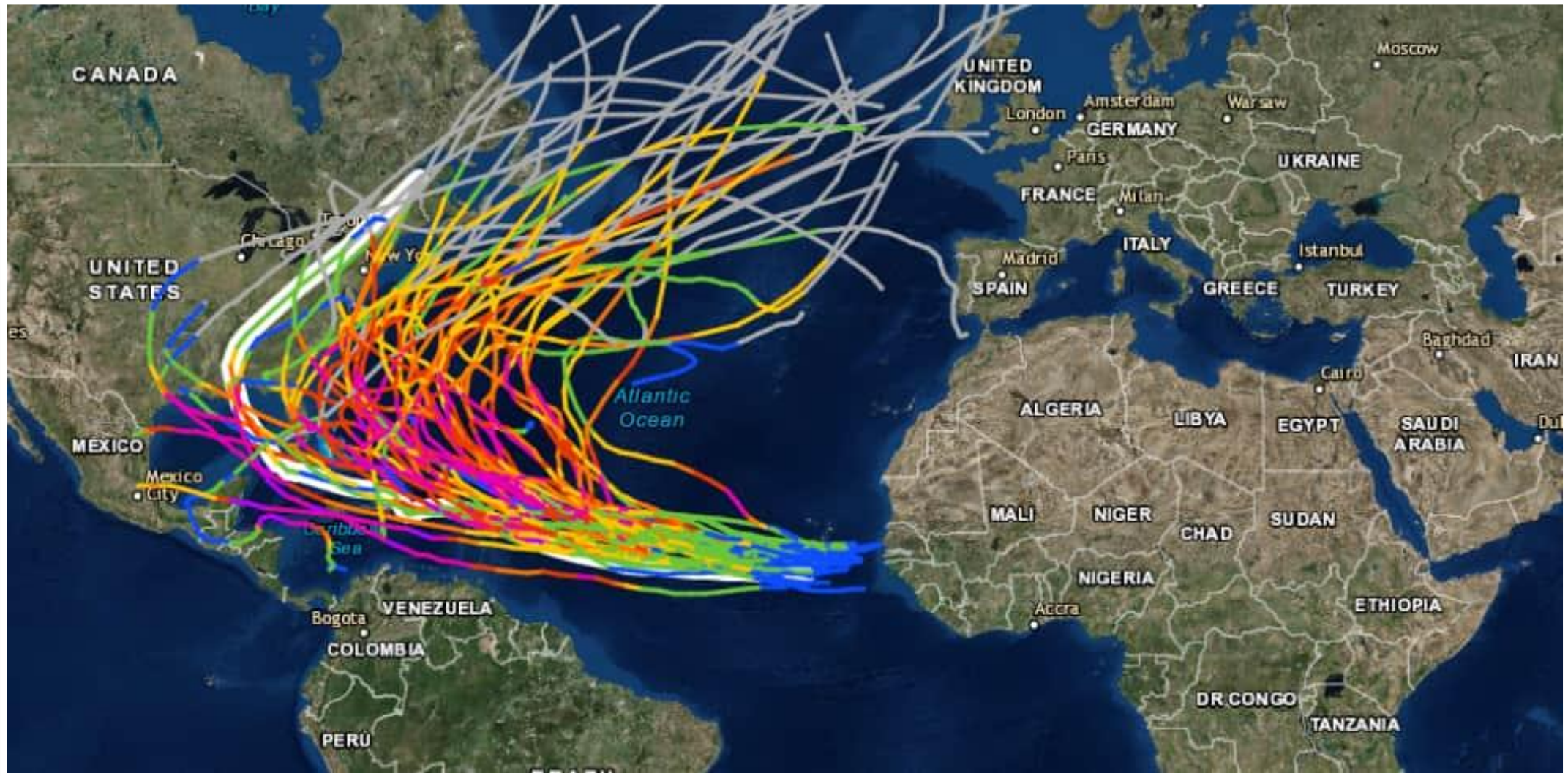
We don't
have
to wait



areas currently
subject to tidal
flooding, often
called "recurrent
or nuisance
flooding."

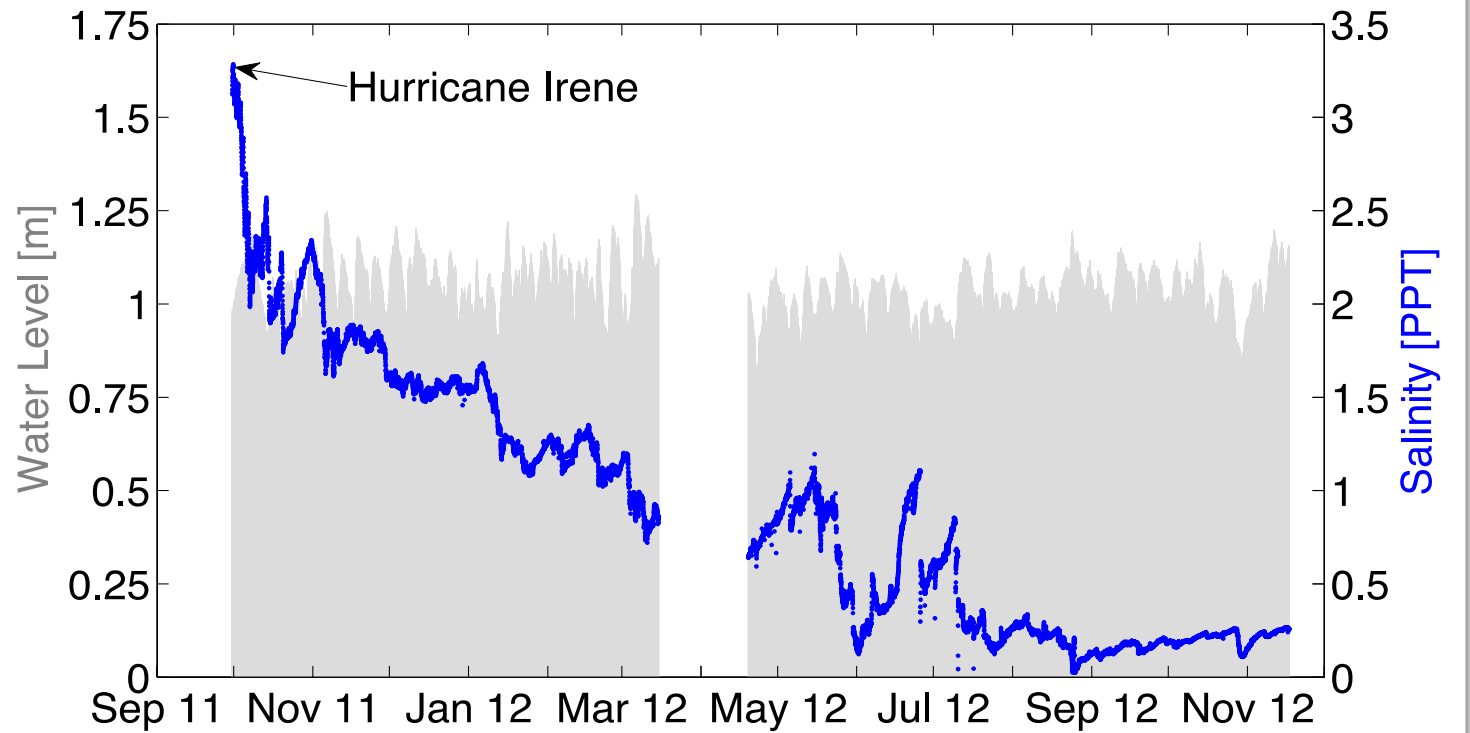
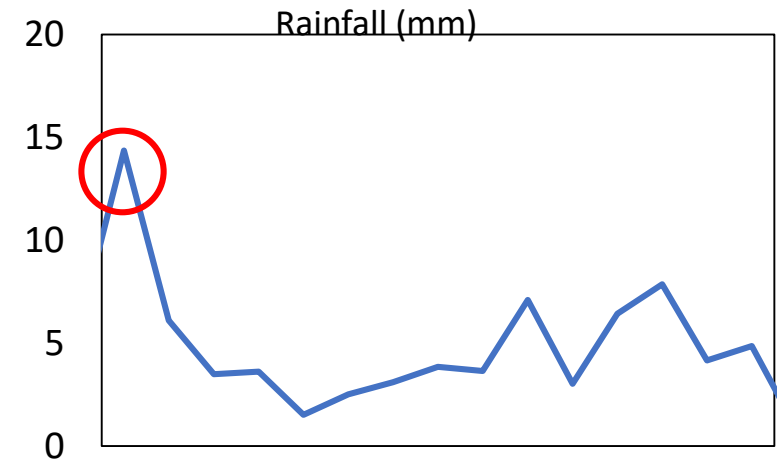


Hurricane Tracks 1851-2016



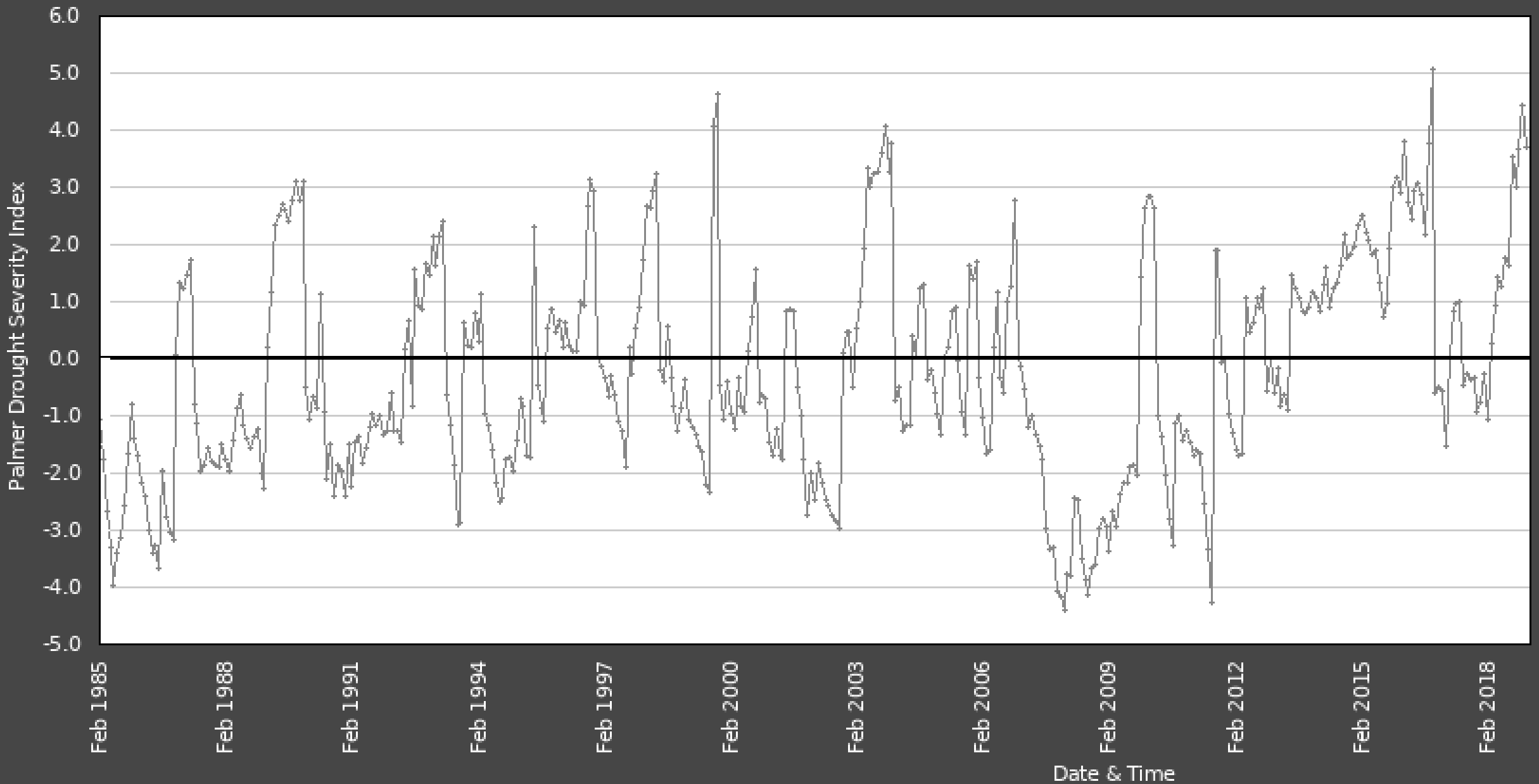
Category 4 and 5 hurricane tracks from 1851-2016 in the East Atlantic ocean basin.

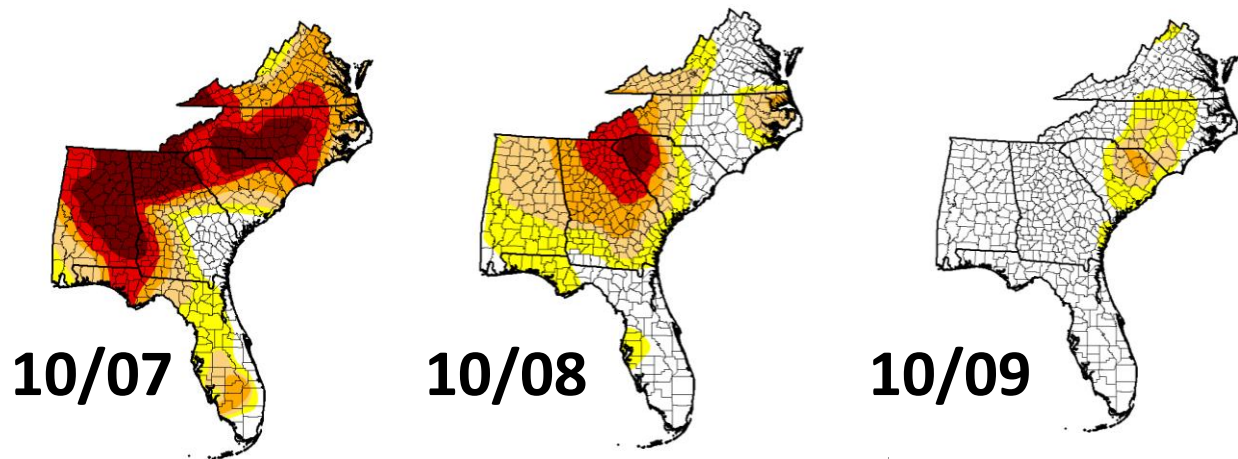
<https://oceanservice.noaa.gov/news/historical-hurricanes/>



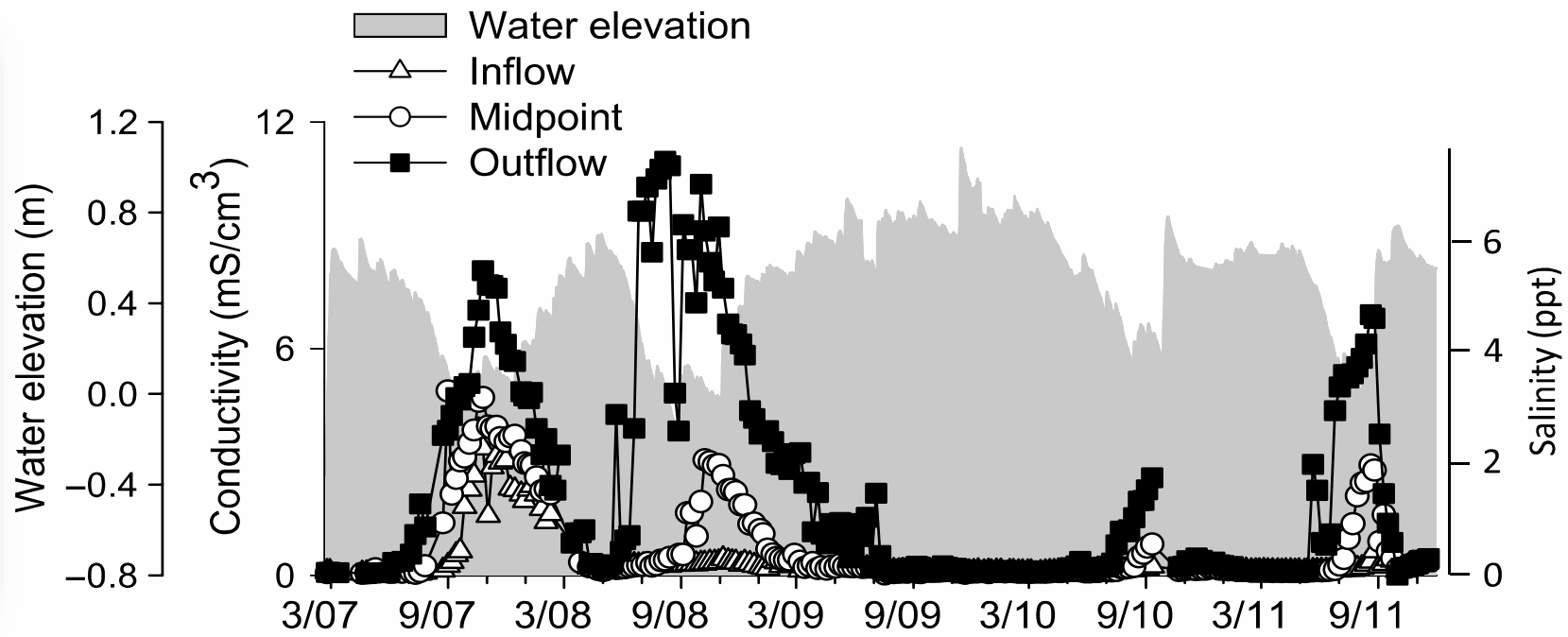
PALMER DROUGHT SEVERITY INDEX FOR THE CENTRAL COASTAL PLAINS OF NC

from Feb 1985 through Jan 2019

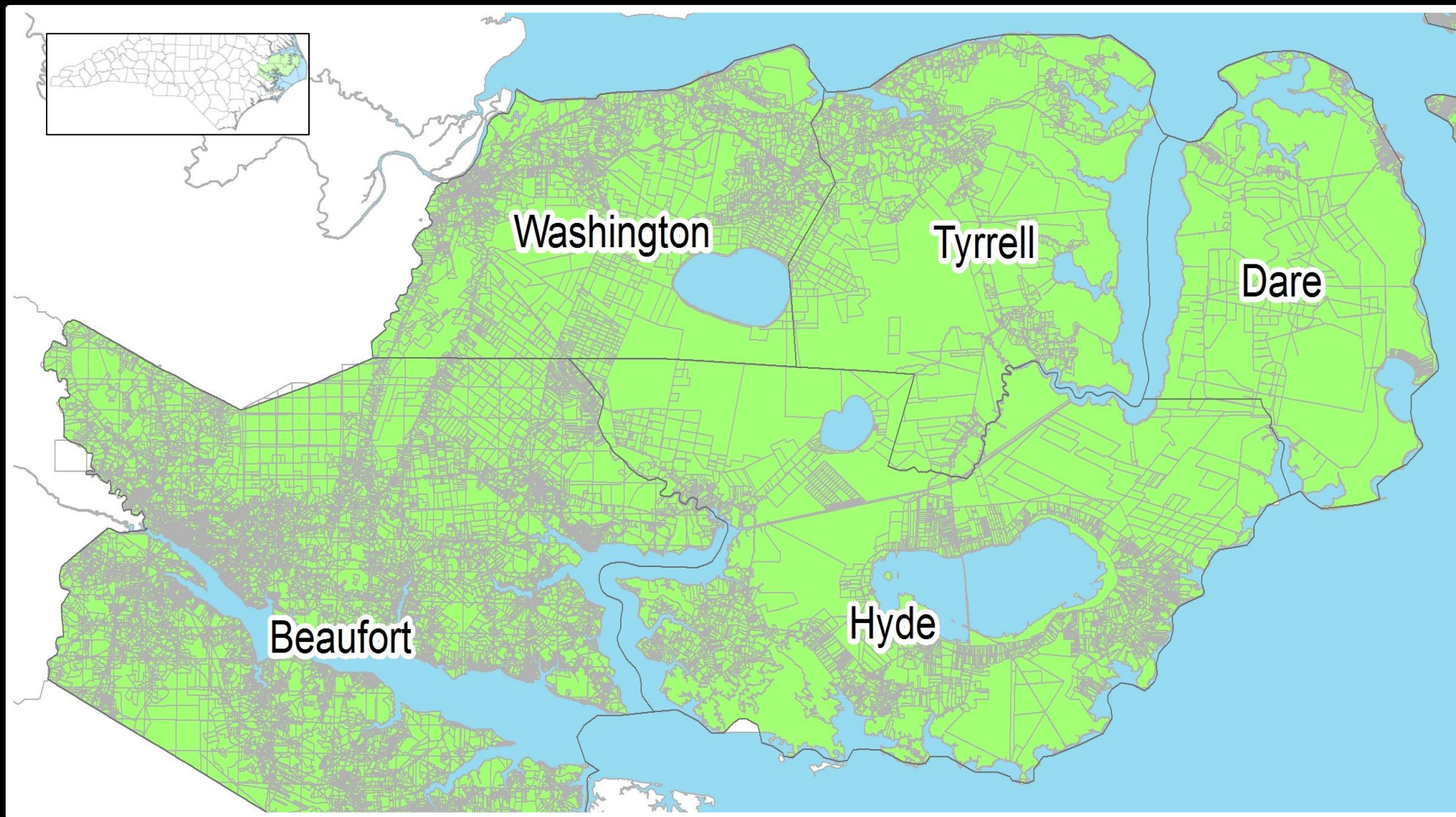


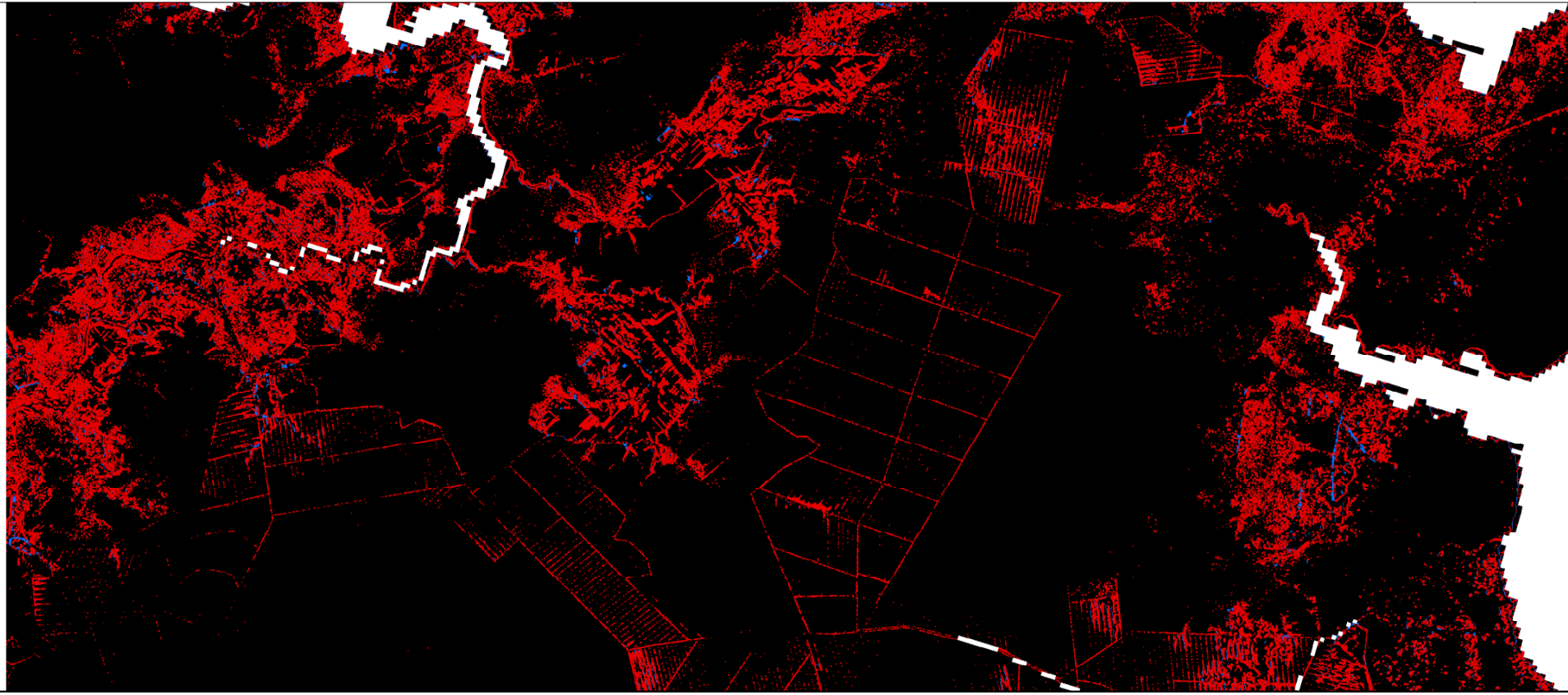


Timberlake Wetland Observatory



Extreme hyperconnectivity





Bhattachan, A, et al. 2018. Evaluating the effects of land-use change and future climate change on vulnerability of coastal landscapes to saltwater intrusion. *Elem Sci Anth*, 6: 62. DOI: <https://doi.org/10.1525/elementa.316>

Abi Bhattachan

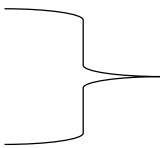


Gradual Sea Level Rise + Episodic Salt Water Intrusion

Saltwater intrusion in coastal landscapes: the leading edge of climate change

Highly heterogeneous exposure

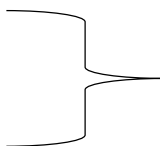
- hydrologic connectivity
- hydrologic management



Magnitude &
Duration

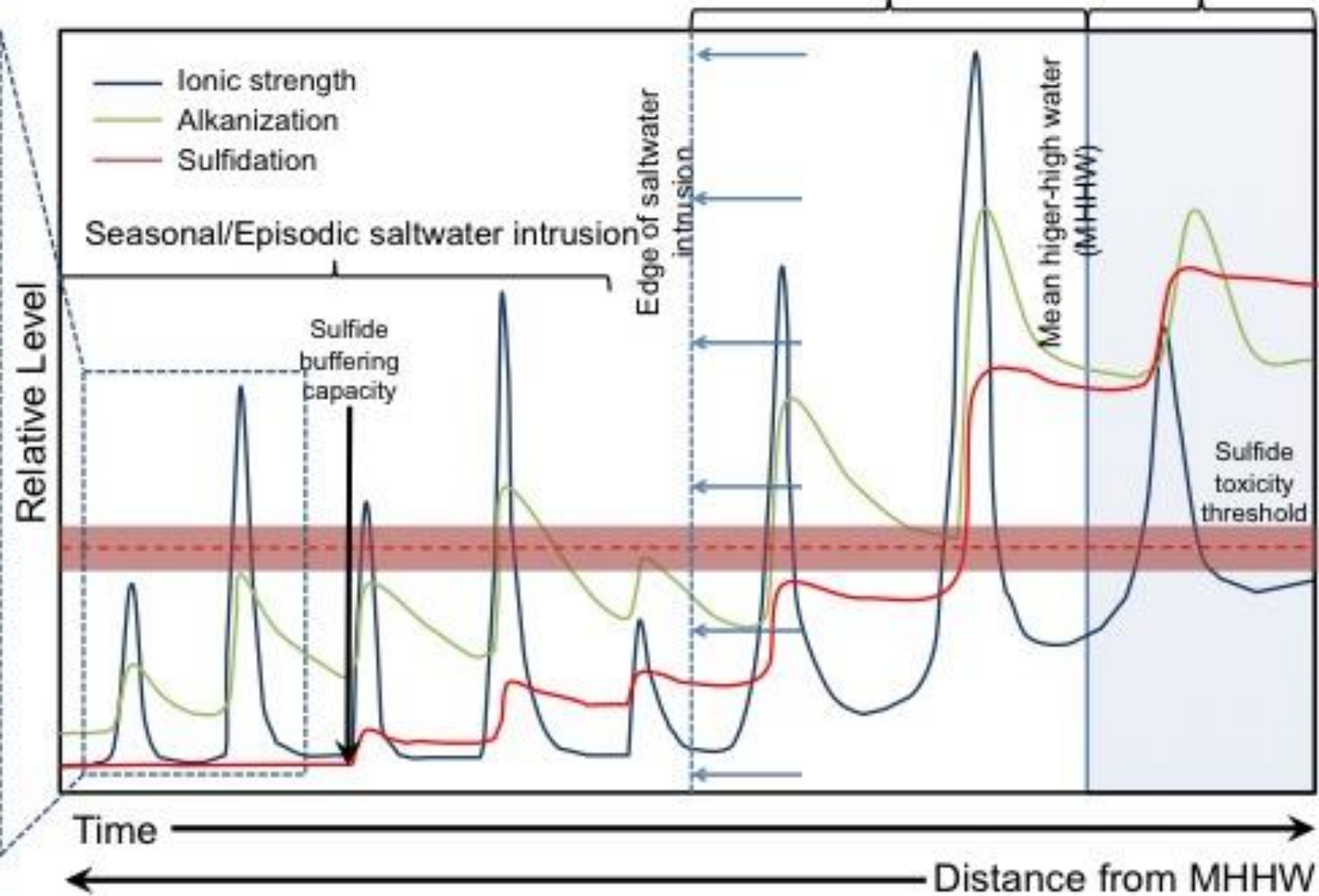
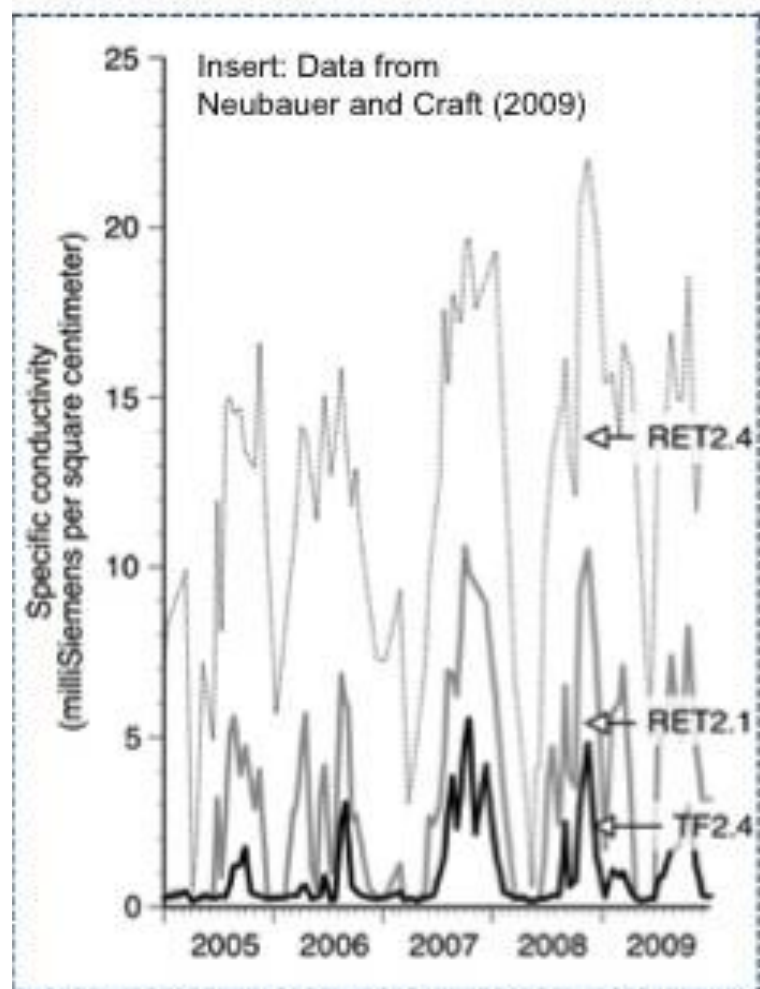
Heterogeneous landscapes

- modern land use
- land use legacies



Element
Interactions

Saltwater – a complex mixture



What will happen to the ecosystems and communities of the US coastal plain over the next century?



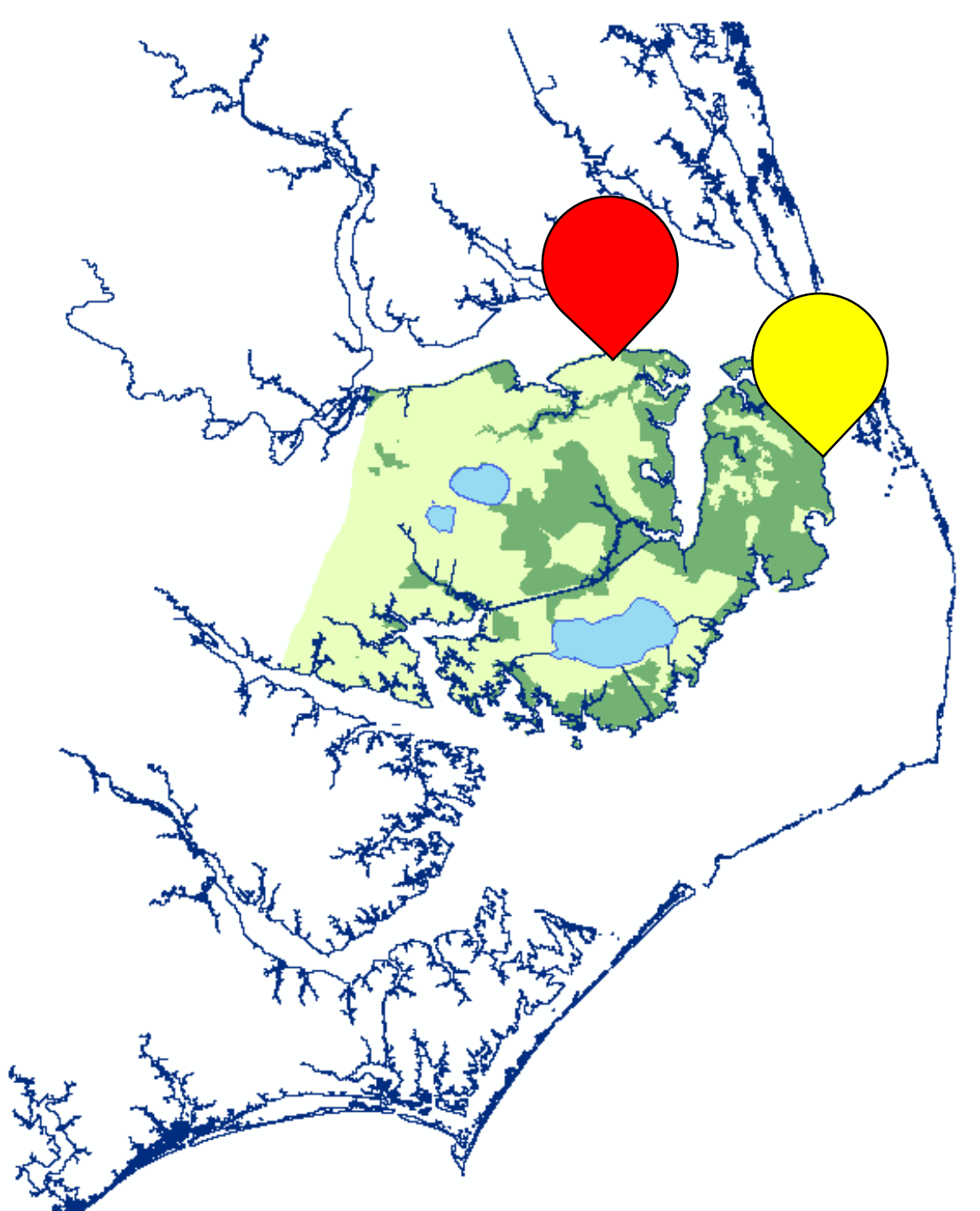
Vulnerability

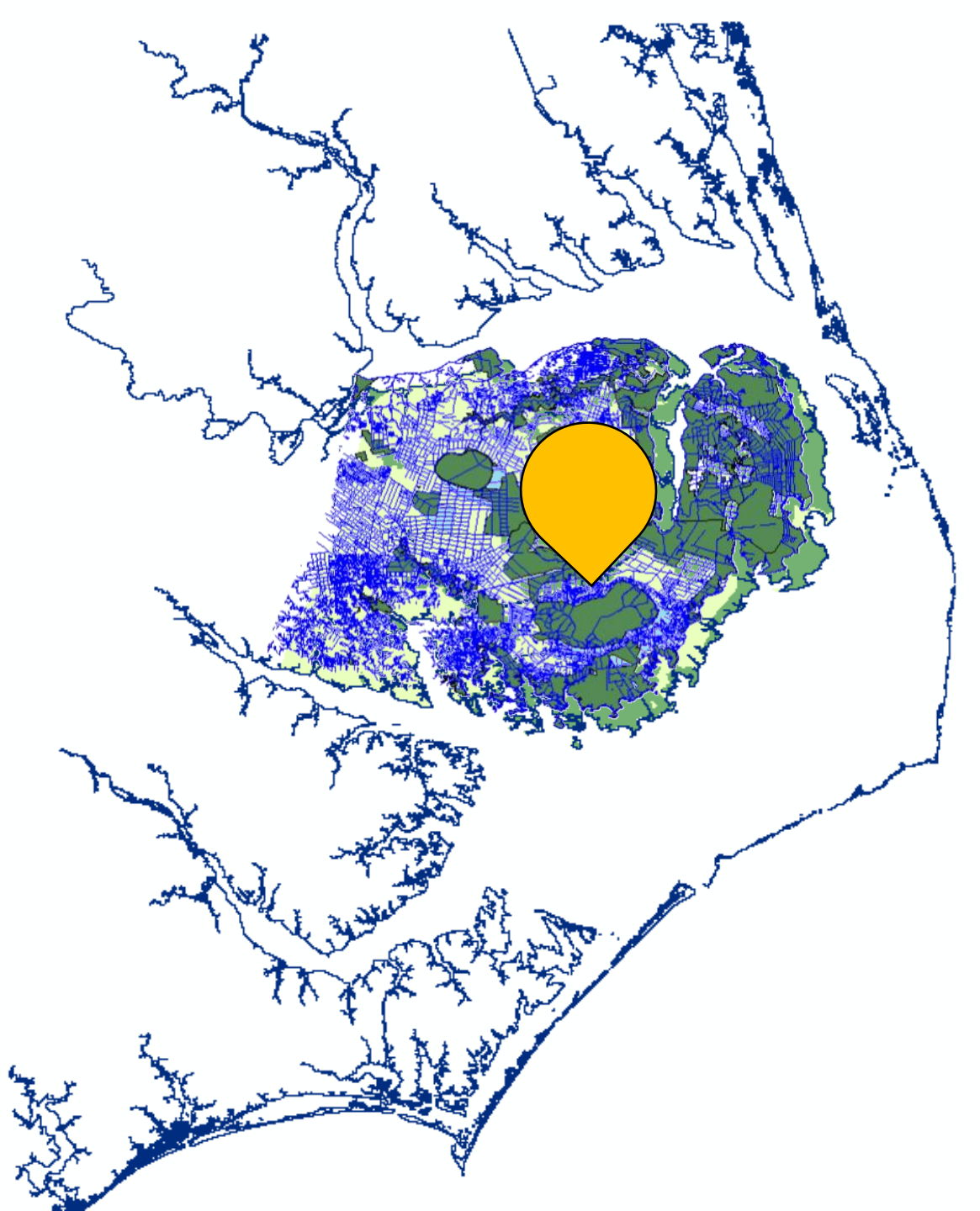
Impact

Response

Eroding coastal margins already obvious

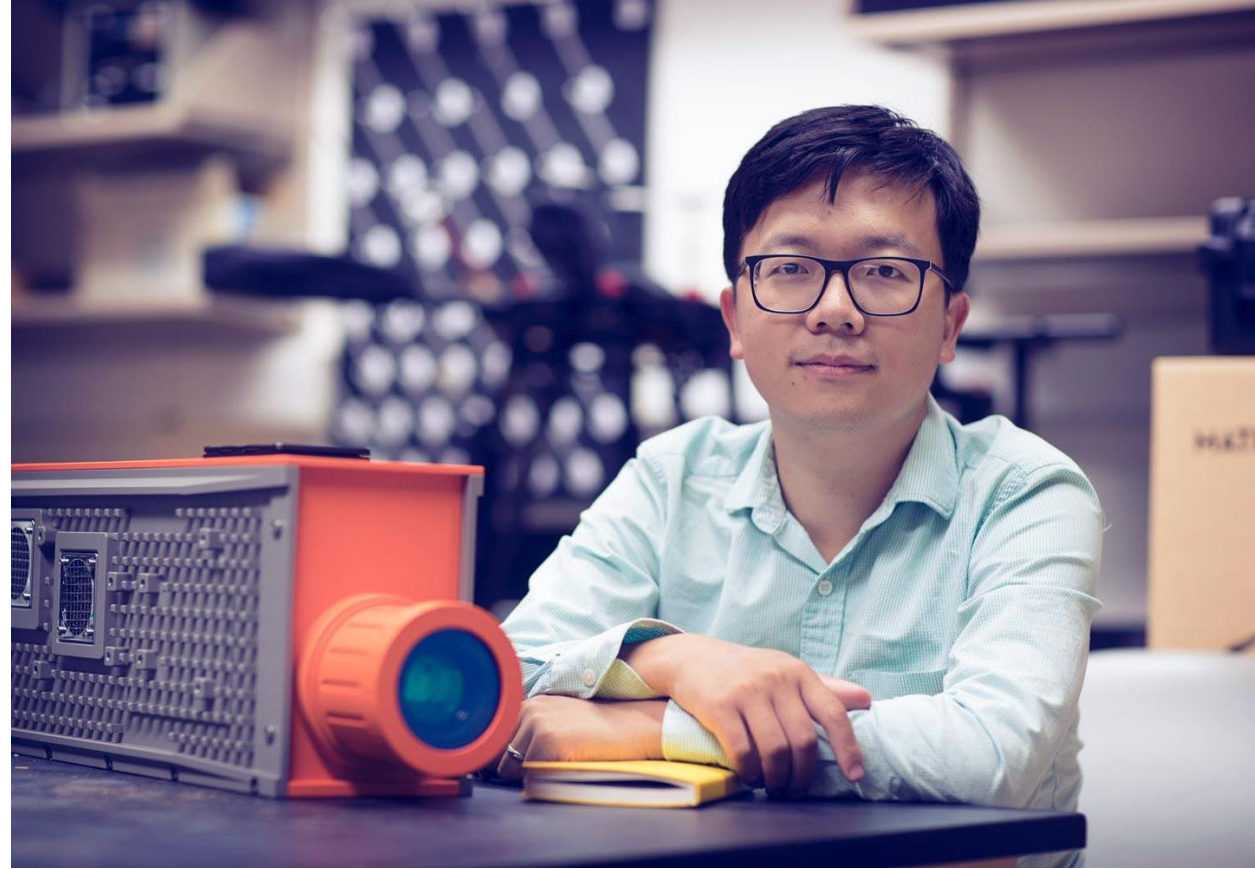






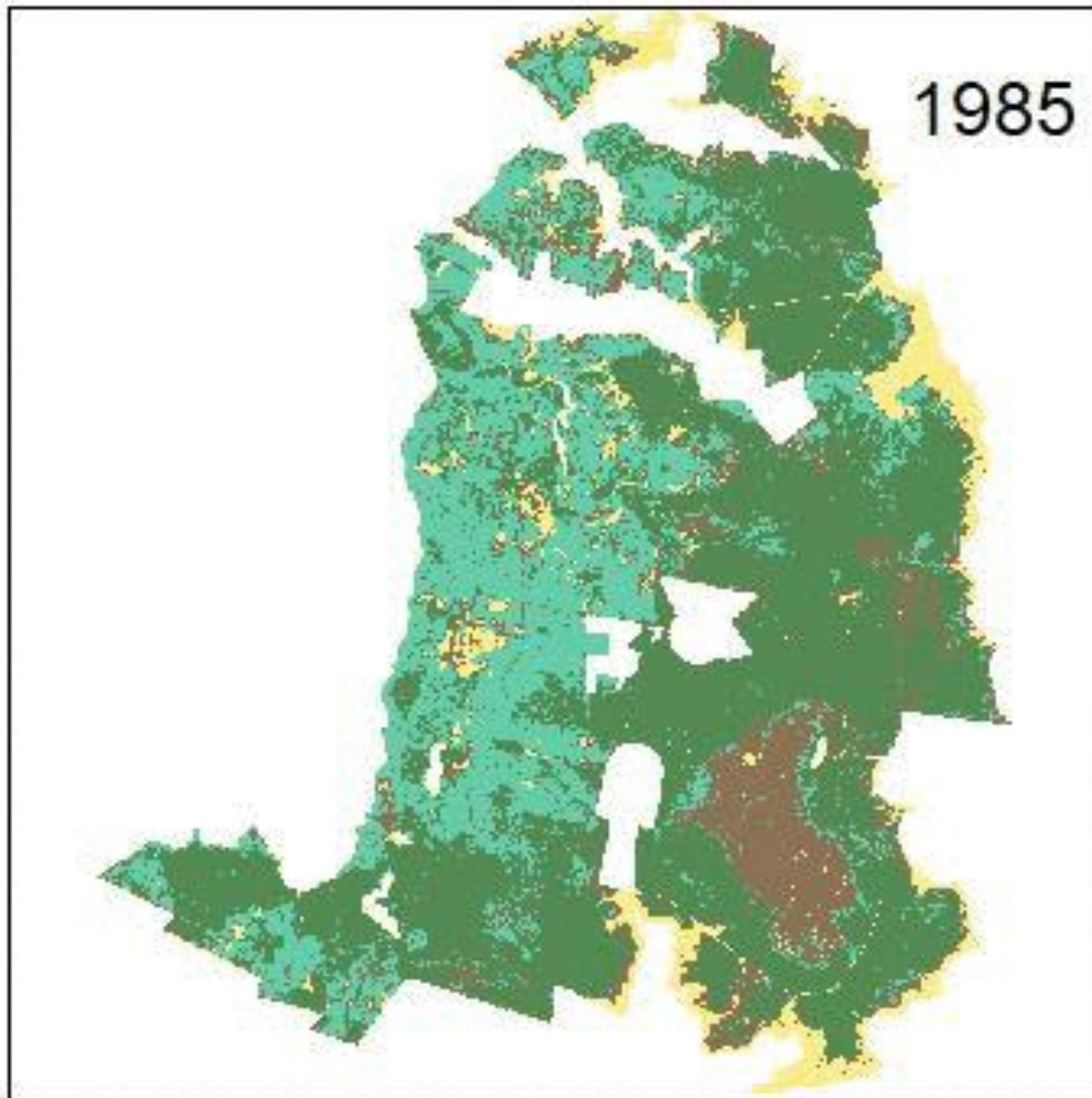


Emily Ury
Duke



Xi Yang
UVA

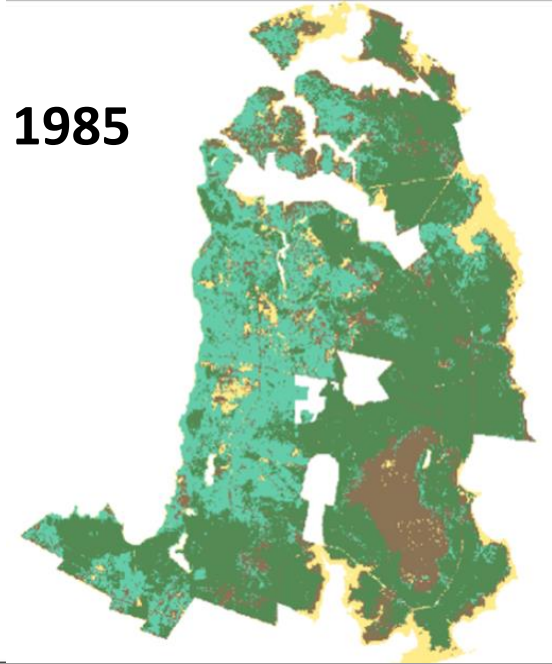
1985



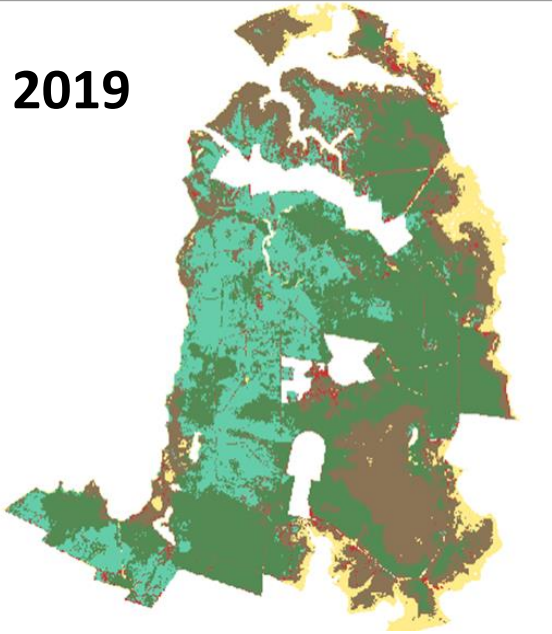
class

- water
- marsh
- shrub
- burn
- ghost
- pine
- mixed

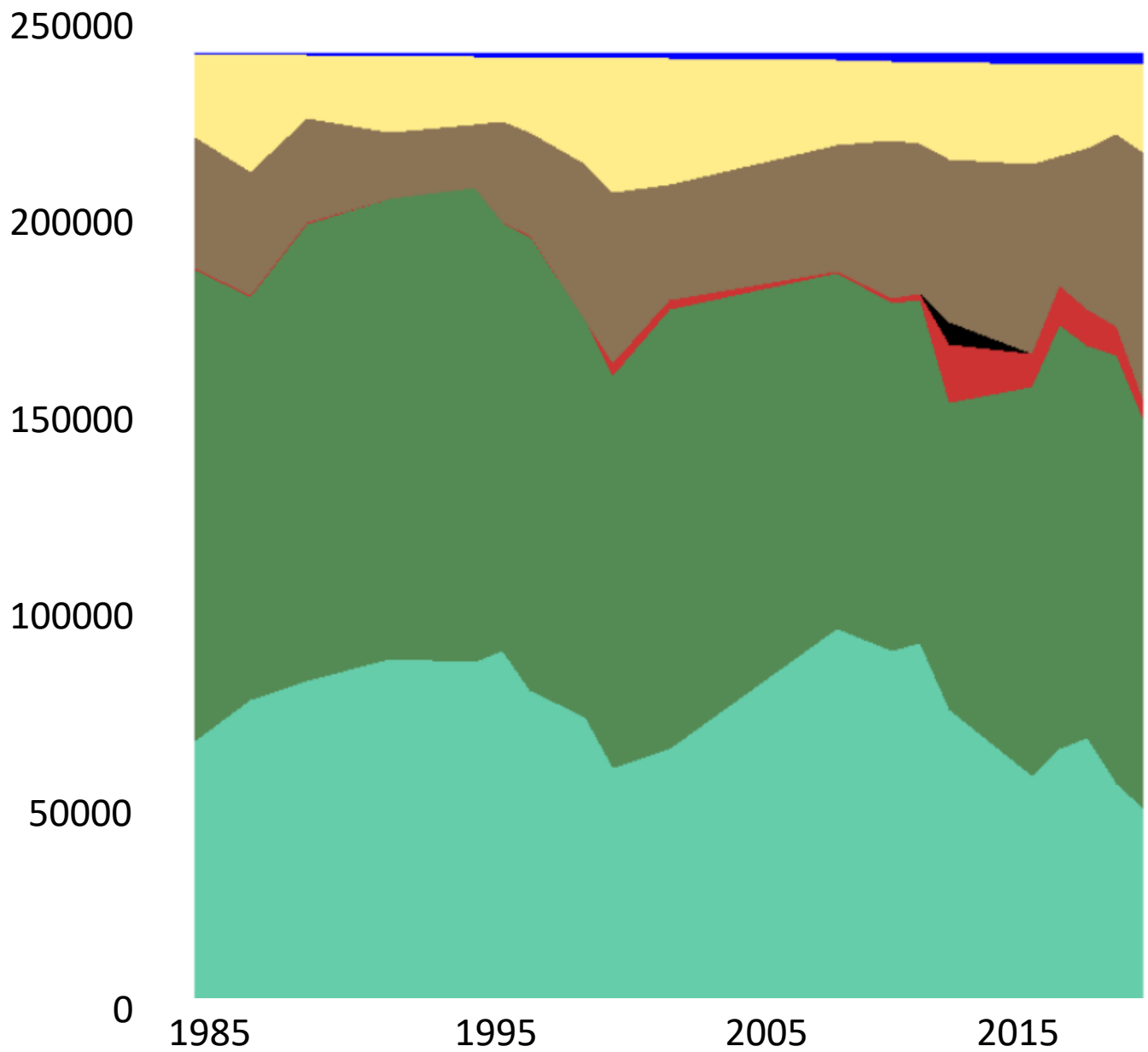
1985



2019

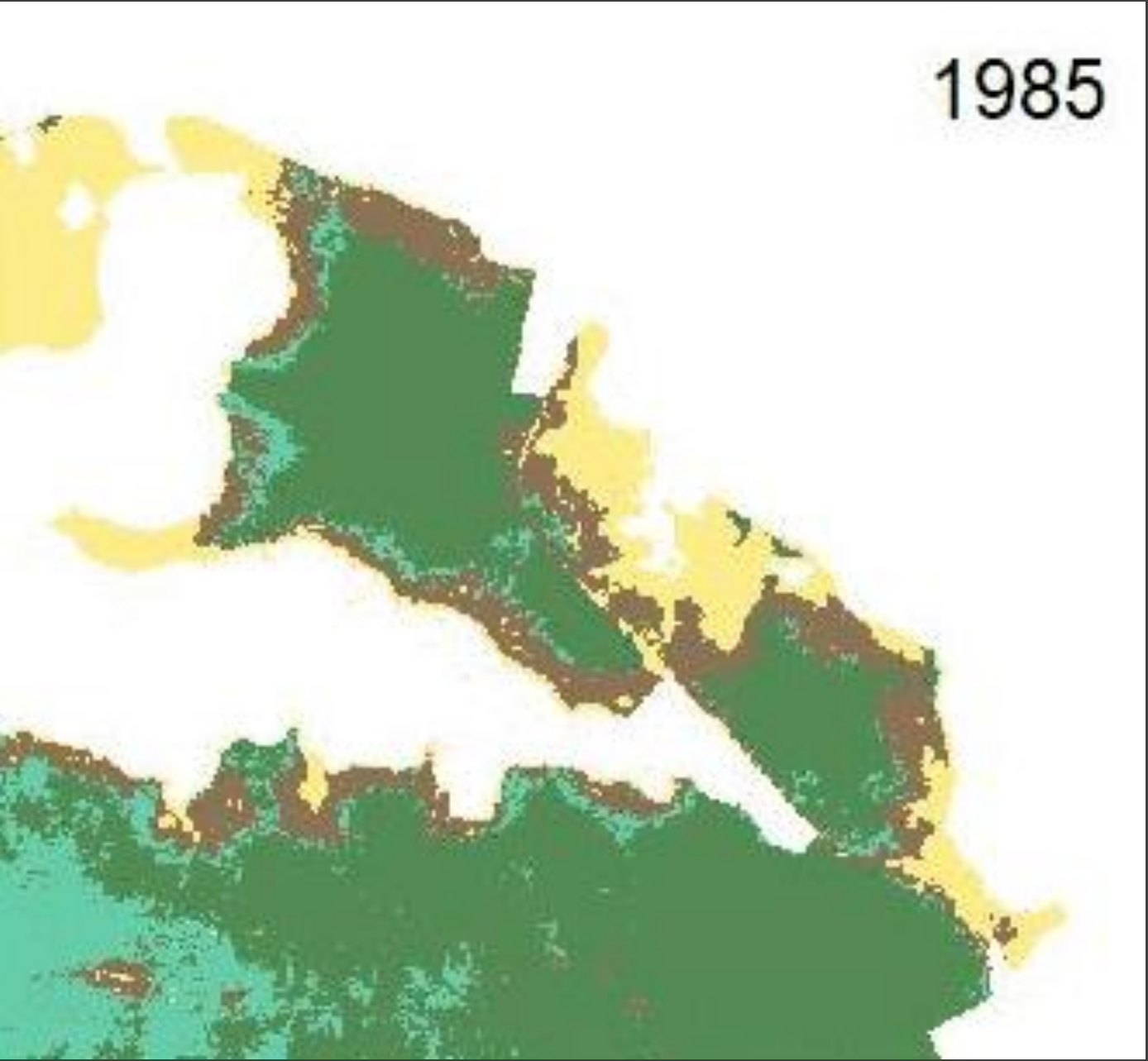
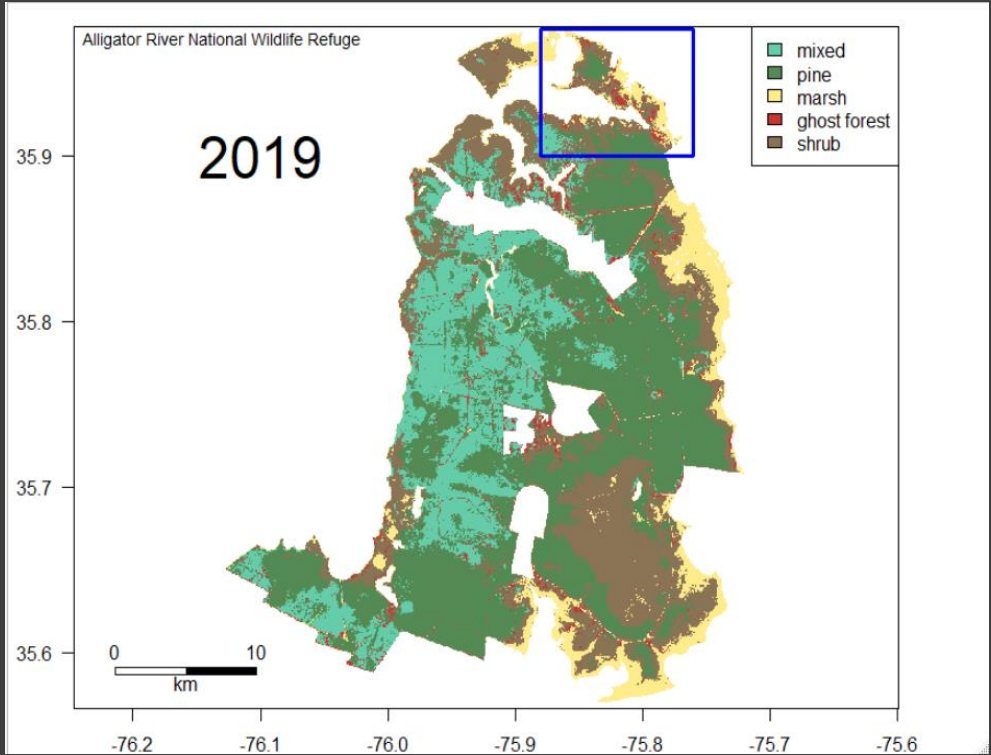


ACRES



YEAR

- class
- water
 - marsh
 - shrub
 - burn
 - ghost
 - pine
 - mixed



NC Ortho 2010



NC Ortho 2012



NC Ortho 2016



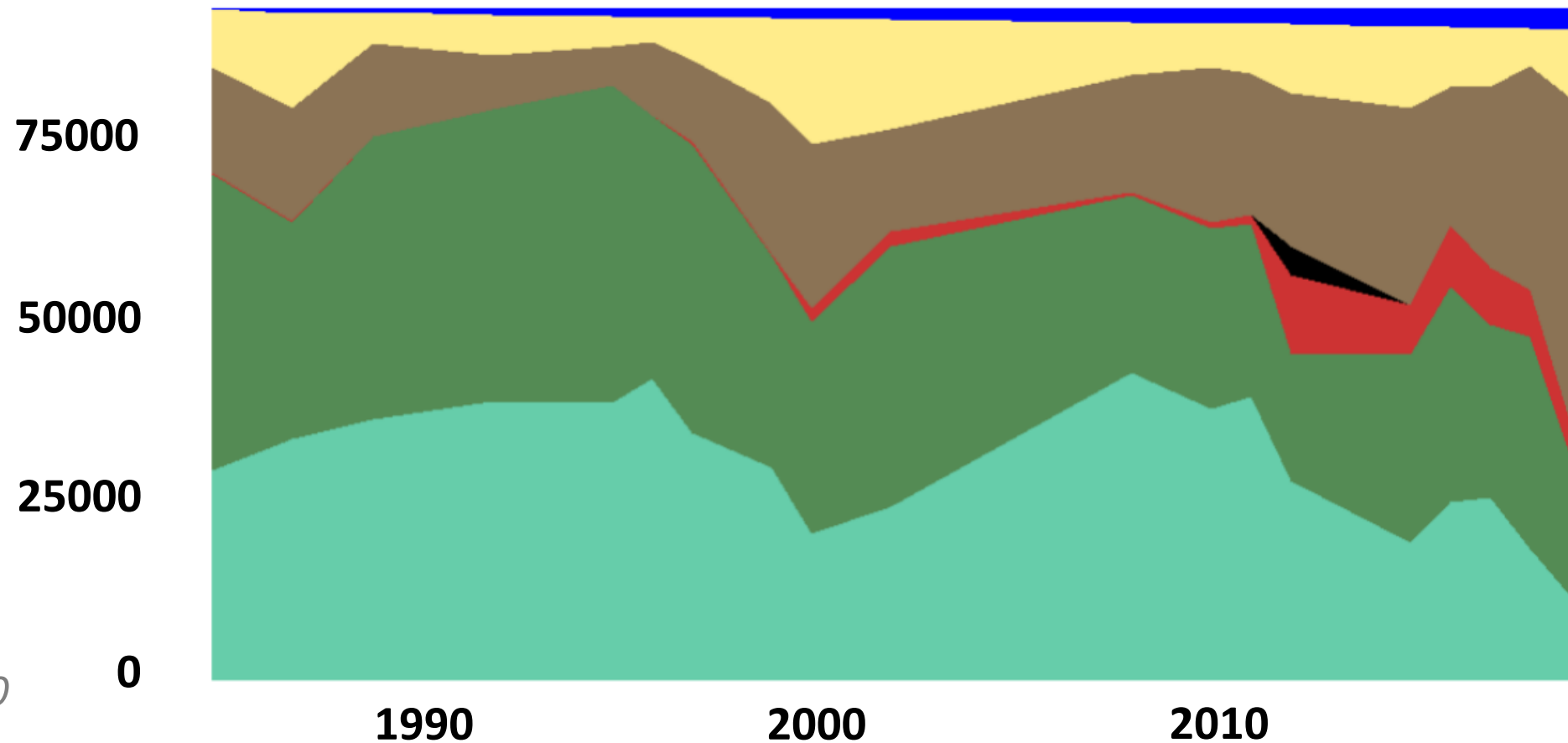
Google 2017



Palmer Drought Severity Index



Acres Of Change



Emily Ury *In Prep*

What will happen to the ecosystems and communities of the US coastal plain over the next century?



Vulnerability

Impact

Response

