



Hurricanes and Hyde County, NC: A Catalyst for Flood Resilience Planning

Jess Whitehead, NC Sea Grant
[@JCWClimate](#)

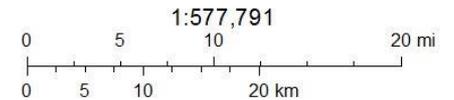
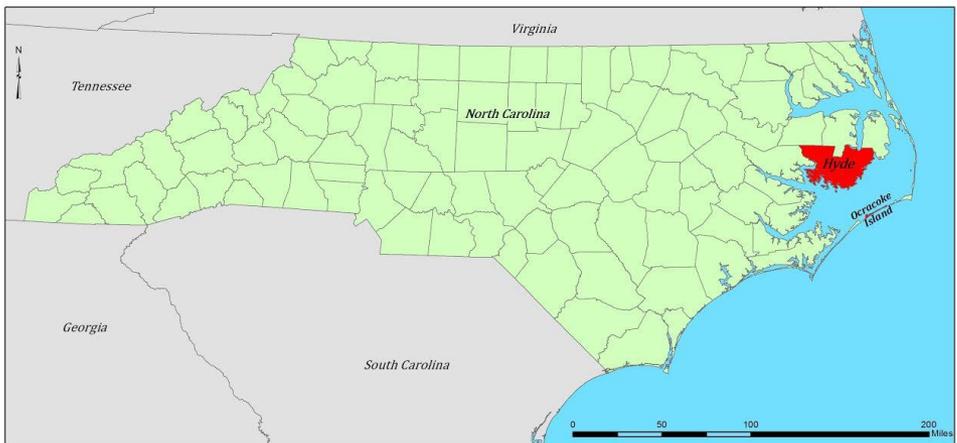
Jason Evans, Stetson University
[@JevansPhd](#)

14 April 2016

Southeast and Caribbean Climate Outreach
Community of Practice Meeting



Hyde County, North Carolina



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, AeroGrid, IGN, IGP, swisstopo, and the

Historical Hurricane Tracks

Search Hurricanes By

Location	Name/Year	Ocean Basin
Hyde County, NC, USA		
0	Nautical Miles	<input checked="" type="checkbox"/> Show search area

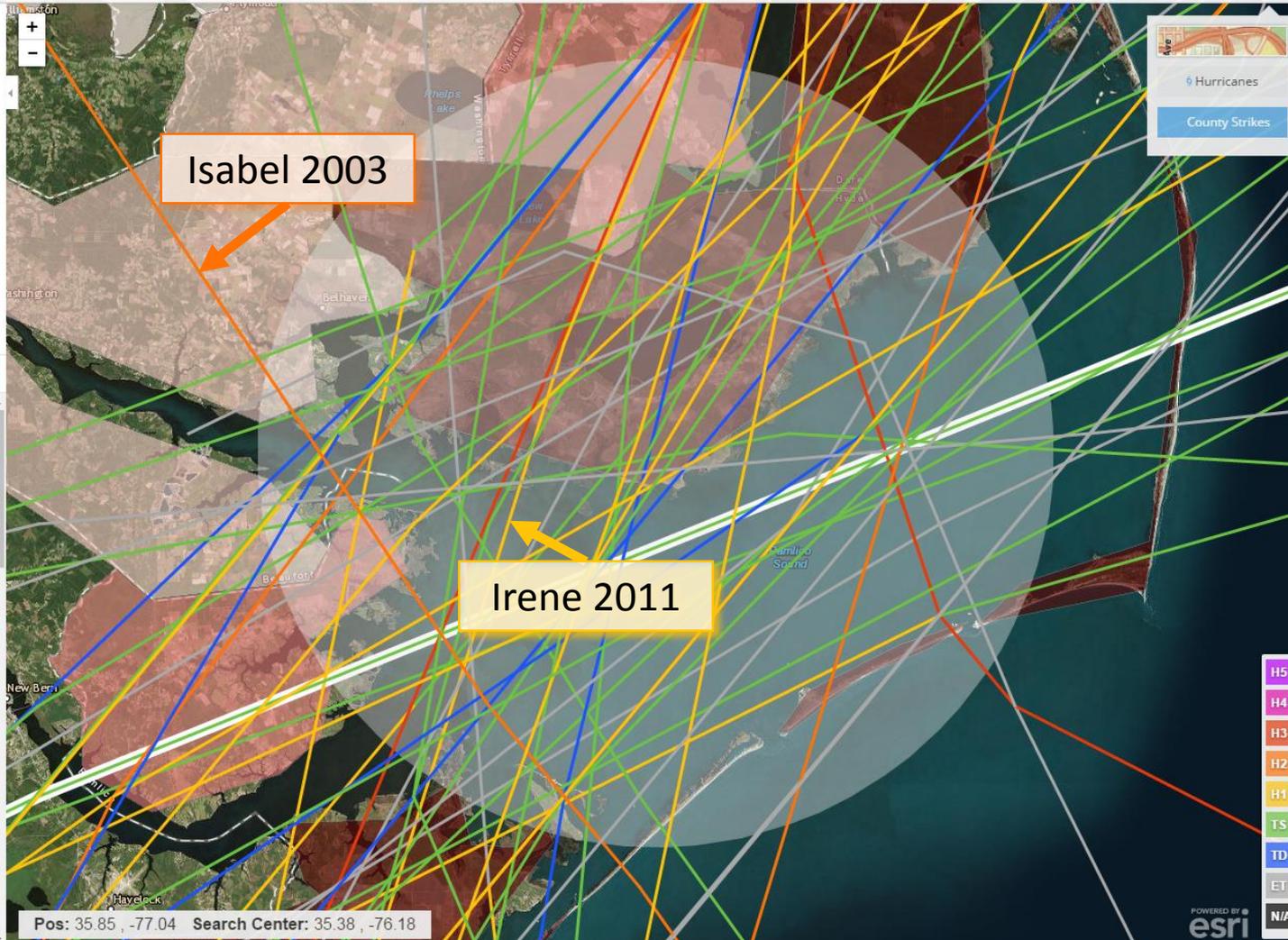
Refine Search

Search through the storms below Advanced Filters

Results (51) Selected My Storms (0)

Sort By Year (Asc.)

+	UNNAMED 1852	Oct 06, 1852 to Oct 11, 1852
+	UNNAMED 1856	Aug 19, 1856 to Aug 21, 1856
+	UNNAMED 1856	Aug 25, 1856 to Sep 03, 1856
+	UNNAMED 1857	Sep 06, 1857 to Sep 18, 1857
+	UNNAMED 1861	Nov 01, 1861 to Nov 03, 1861
+	UNNAMED 1879	Aug 13, 1879 to Aug 20, 1879
+	UNNAMED 1880	Sep 06, 1880 to Sep 11, 1880
+	UNNAMED 1885	Aug 21, 1885 to Aug 28, 1885
+	UNNAMED 1888	Oct 08, 1888 to Oct 12, 1888
+	UNNAMED 1893	Sep 27, 1893 to Oct 05, 1893
+	UNNAMED 1894	Sep 18, 1894 to Oct 01, 1894
+	UNNAMED 1899	Aug 03, 1899 to Sep 04, 1899
+	UNNAMED 1900	Oct 10, 1900 to Oct 15, 1900
+	UNNAMED 1901	Jul 04, 1901 to Jul 13, 1901
+	UNNAMED 1908	Jul 24, 1908 to Aug 03, 1908



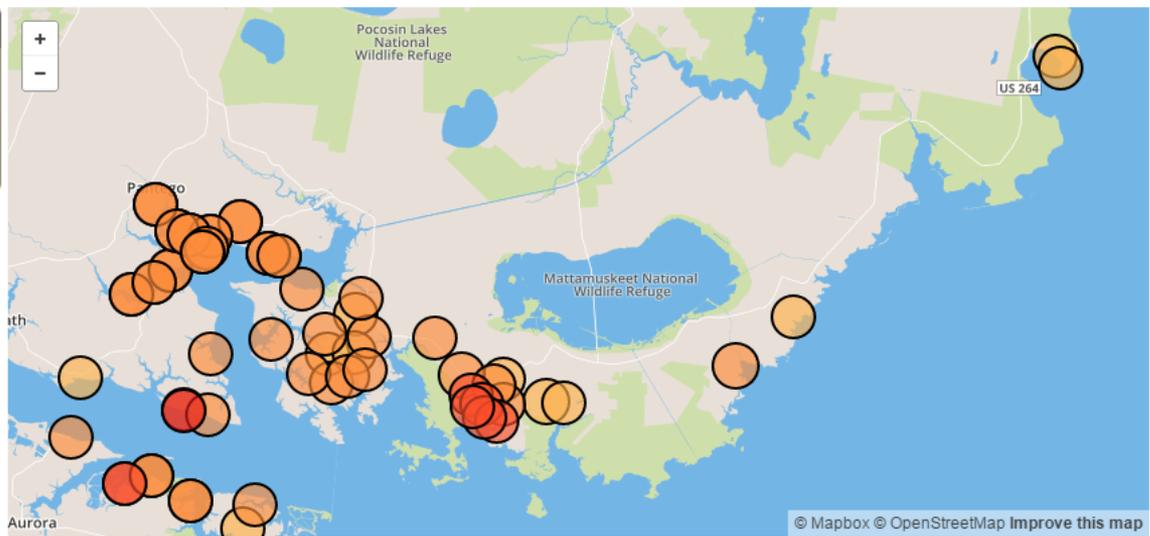
Hurricanes
County Strikes

H5
H4
H3
H2
H1
TS
TD
ET
N/A

Search By Storm Name & Year

Isabel

2003



<< first < prev 4 5 6 7 8 9 10 11 12 13 next > last >>

Storm Name	Year	Longitude	Latitude	Storm Tide(ft)	Storm Tide(m)	Surge(ft)	Surge(m)	Location	Basin	State
Isabel	2003	-75.5043	35.3441			4.20	1.28		U.S. Atlantic Coast	NC
Isabel	2003	-76.6668	35.3455			4.40	1.34	544 Lewis Rd. Spring Creek NC	U.S. Atlantic Coast	NC
Isabel	2003	-76.6668	35.3455			4.40		544 Lewis Rd. Spring Creek NC	U.S. Atlantic Coast	NC
Isabel	2003	-76.7491	35.3773			5.00	1.52	Route 306 South Aurora NC Ferry loading dock	U.S. Atlantic Coast	NC
Isabel	2003	-76.3137	35.3912			7.10	2.16	1378 Oyster Creek Rd. Swan Quarter NC 27885	U.S. Atlantic Coast	NC
								Swan	U.S.	

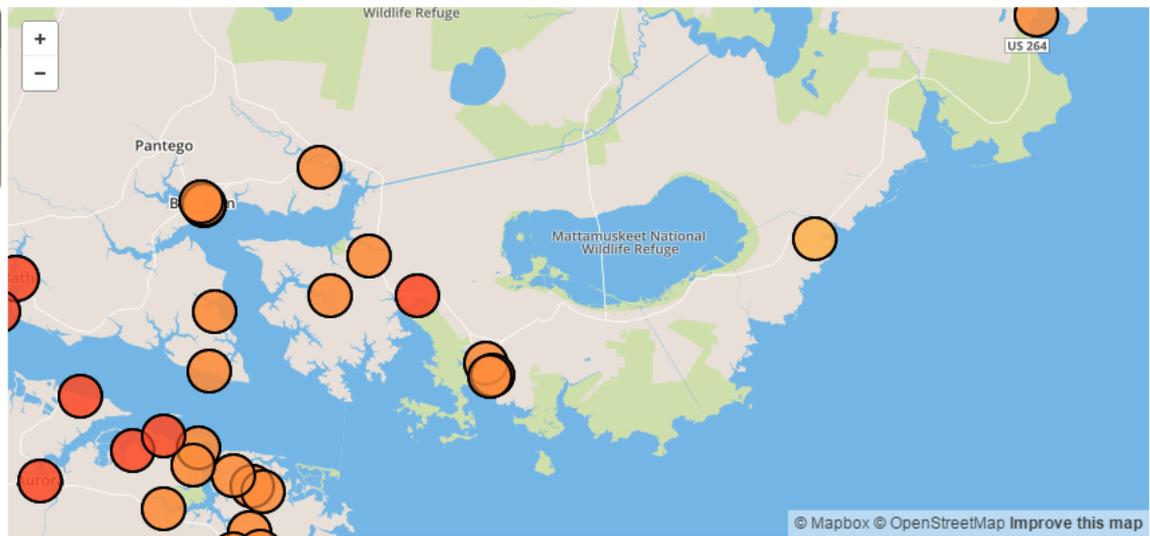
Peak Isabel (2003):

- Swan Quarter coastal storm surge water line 7.6 ft
- Engelhard coastal stillwater seed line 4.2 ft

Search By Storm Name & Year

Irene

2011



<< first < prev 4 5 6 7 8 9 10 11 12 13 next > last >>

Storm Name	Year	Longitude	Latitude	Storm Tide(ft)	Storm Tide(m)	Surge(ft)	Surge(m)	Location	Basin	State
Irene	2011	-76.6938	35.3312	8.31				Beaufort	U.S. Atlantic Coast	NC
Irene	2011	-76.6274	35.3329	7.32				Beaufort	U.S. Atlantic Coast	NC
Irene	2011	-76.6628	35.3434	9.23				Beaufort	U.S. Atlantic Coast	NC
Irene	2011	-75.5007	35.3473	7.27				Dare	U.S. Atlantic Coast	NC
Irene	2011	-75.512	35.3502	7.05				Dare	U.S. Atlantic Coast	NC
Irene	2011	-75.5126	35.3511	6.75				Dare	U.S. Atlantic Coast	NC
Irene	2011	-75.5114	35.3516	6.96				Dare	U.S. Atlantic Coast	NC

Peak Irene (2011):

- Swan Quarter water level 5.7 ft
- Engelhard high water mark 2.8 ft

June 10th 1868 we had a very heavy fall of rain more than I
have seen since the year 1842 it stood over the top of my potatoe
ridges & this is the 16th day of June & the water stands over my corn
ridges yet & I fear it will kill the corn & rot my potatoes it yet stands
in my potatoe patch & the tide keeps up so the water does not go off
the roads are yet under in many places, the Savannah under
& the Bridges flooded off in many places, the Juniper Bay road under
& Bridges flooded off so the people do not pass with horses yet nearly all
the Donnell farm is under water yet & on the 9th day of June at night

"This note was found on the inside cover page of Will Book 9 which encompasses 1858-1867. The author of this writing is unknown but it could have been George Washington Swindell, Sr. who was Clerk of Court in 1868. He was born in 1828 and would have been age 14 when he refers to the heavy rainfall in 1842. He died in 1902. The east boundary of the 13,000+ acre Donnell Farm ran parallel to Juniper Bay Road." – Kay Midgett Sheppard, 2011

www.ncgenweb.us/hyde/misc/1868hydeflood.htm



(GA SG 2013)



(GA SG 2013)



(GA SG 2013)



(GA SG 2013)



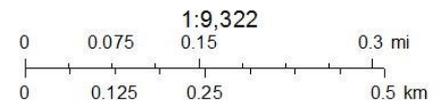
(GA SG 2013)



Spencer Heritage Farms Statewide DOQQs (1993)



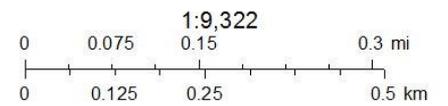
July 23, 2015



Spencer Heritage Farms NAIP Imagery (2006)



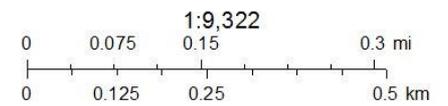
July 23, 2015



Spencer Heritage Farms NAIP Imagery (2012)

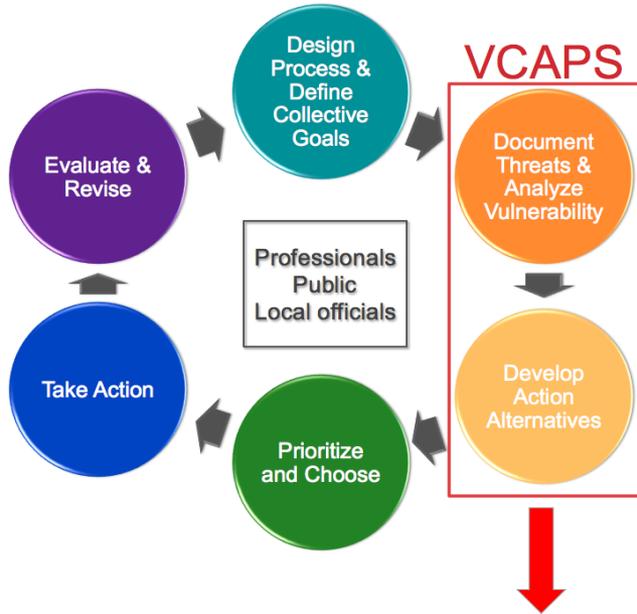


July 23, 2015

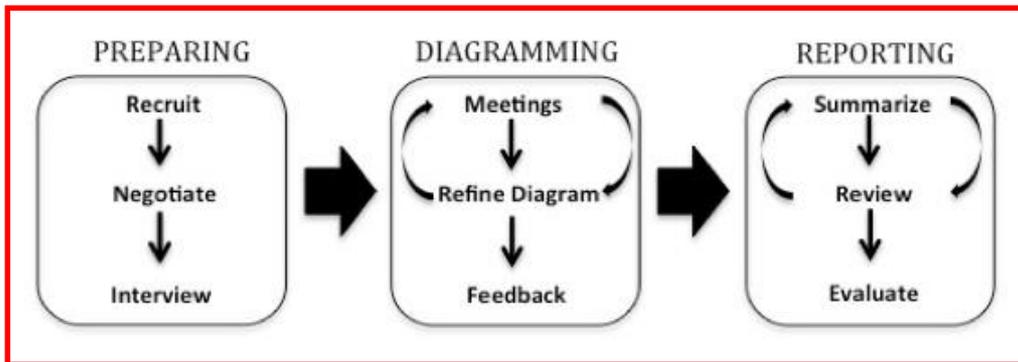


Hyde County Flood Resilience Planning Process

- National Sea Grant Office Coastal Climate Adaptation Initiative funding
- Vulnerability, Consequences, and Adaptation Planning Scenario (VCAPS) Process
 - Interviews
 - Group diagramming
- GIS-based cost-benefit analysis
 - Additional public meetings
 - Investigations of options as needed (ex. elevation data collection)

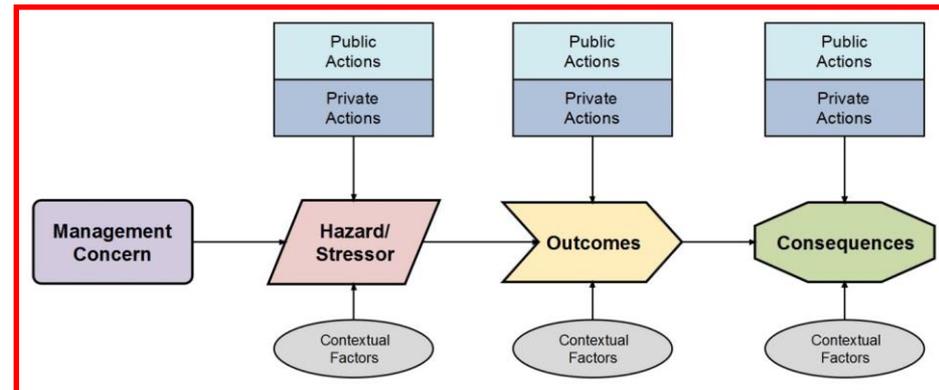


VCAPS supports initial phases of hazard and climate change planning and implementation...



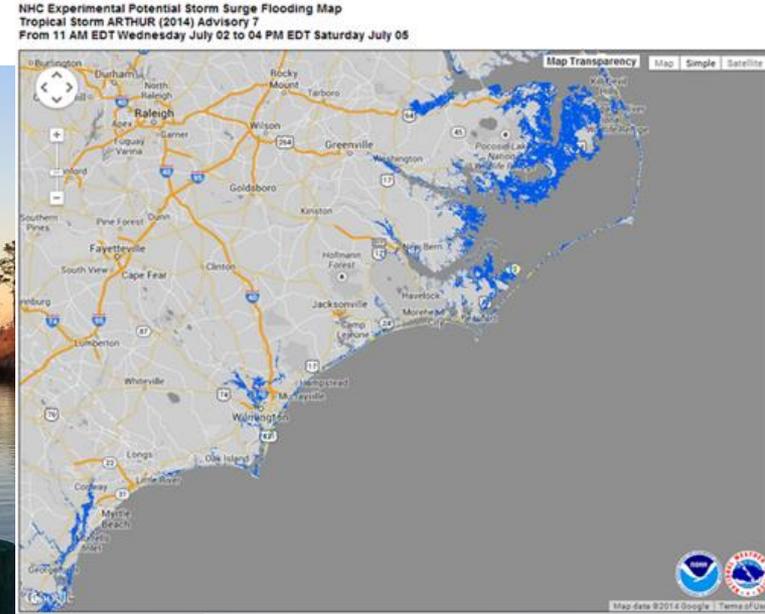
...through group discussion and learning...

...supported by real-time diagramming.



July 1, 2014 VCAPS Session – as Hurricane Arthur approached

- Mainly focused on structures
- Strong desire for Community Rating System (CRS) points
- Ecosystem issues integrated
 - Agriculture and salinity intrusion
 - Seafood industry
- Adaptations require transformation
 - Tailwater recovery
 - Improve grant applications for wastewater engineering assistance
 - Regulatory flexibility and coordination



*(NC Dept. of
Agriculture &
Consumer
Services 2014)*



VCAPS: 48 Actions Identified

- Reduce CRS score
- Elevate structures
- Develop locally tailored residents' guide to flood response and recovery
- Investigate farmers' options for salt water intrusion
- Improve grant applications for wastewater engineering assistance



Helping Hyde County act to increase resilience

- Refining cost-benefit analysis
 - Farmers' meeting on dike option concerns
- Developing locally tailored flood resiliency guide
- Documenting steps for Community Rating System (CRS) points following sister project experience in St. Mary's, GA
- Hyde County pursuing new partnerships with NC DCM to explore developing mainland water management plan





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