Hurricane Ida Impacts to Coastwide Reference Monitoring System (CRMS) Sites

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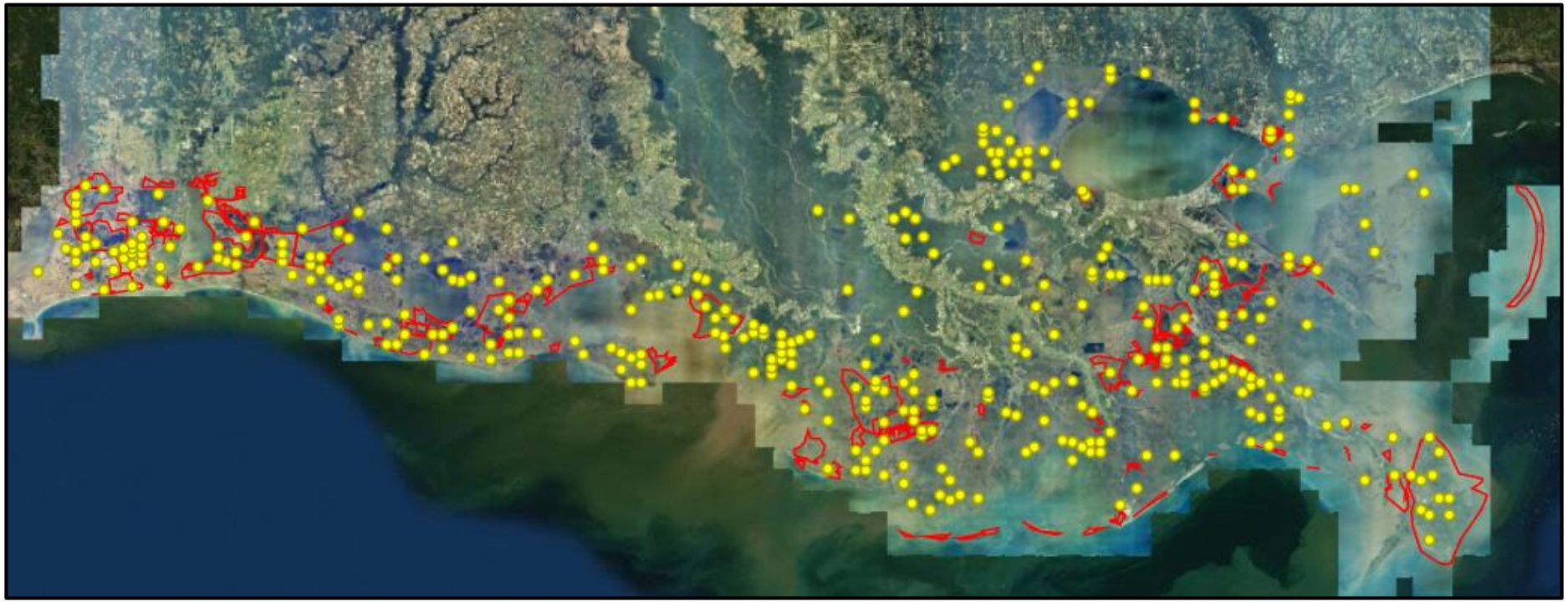
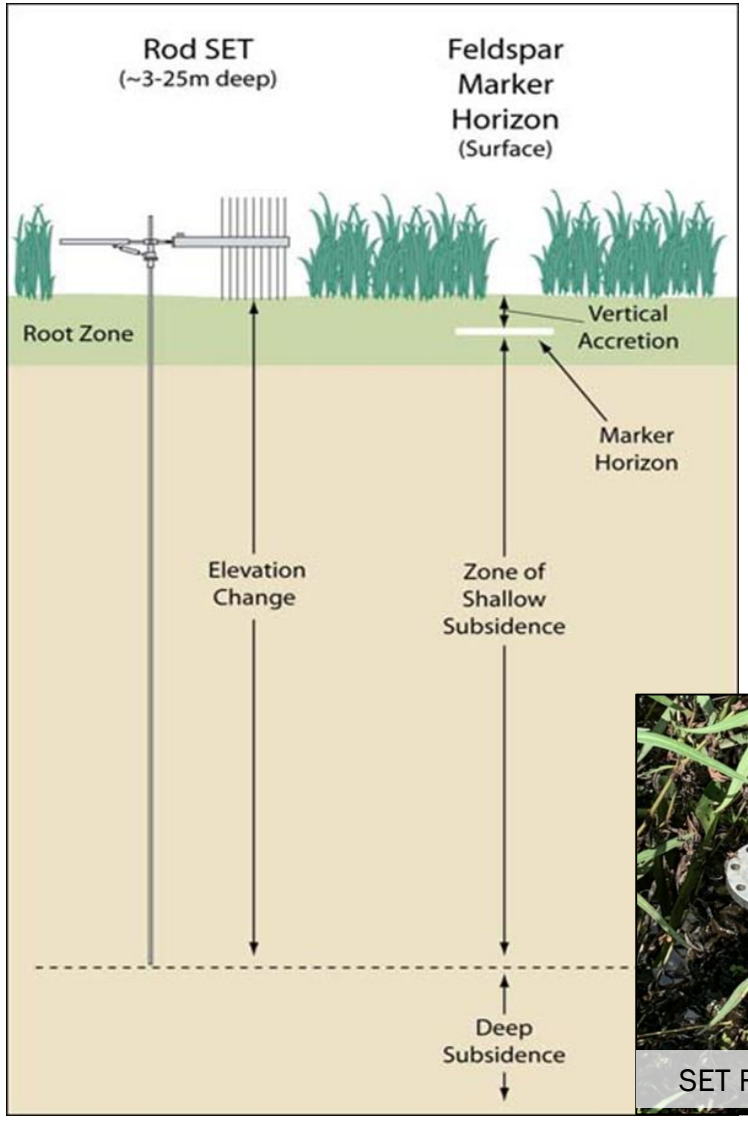
Coastwide Reference Monitoring System (CRMS)

- 389 Monitoring sites across coastal Louisiana
- Measures:
  - Water Level
  - Salinity
  - Vegetation
  - Elevation
  - Vertical Accretion
  - Surface Elevation Change
  - Soil Characteristics
  - Land Change
- Publically available dataset with continuous data since 2006
- **Funded by CWPPRA and NRDA**



https://lacoast.gov/crms_viewer/Map/CRMSViewer

CRMS Station Infrastructure

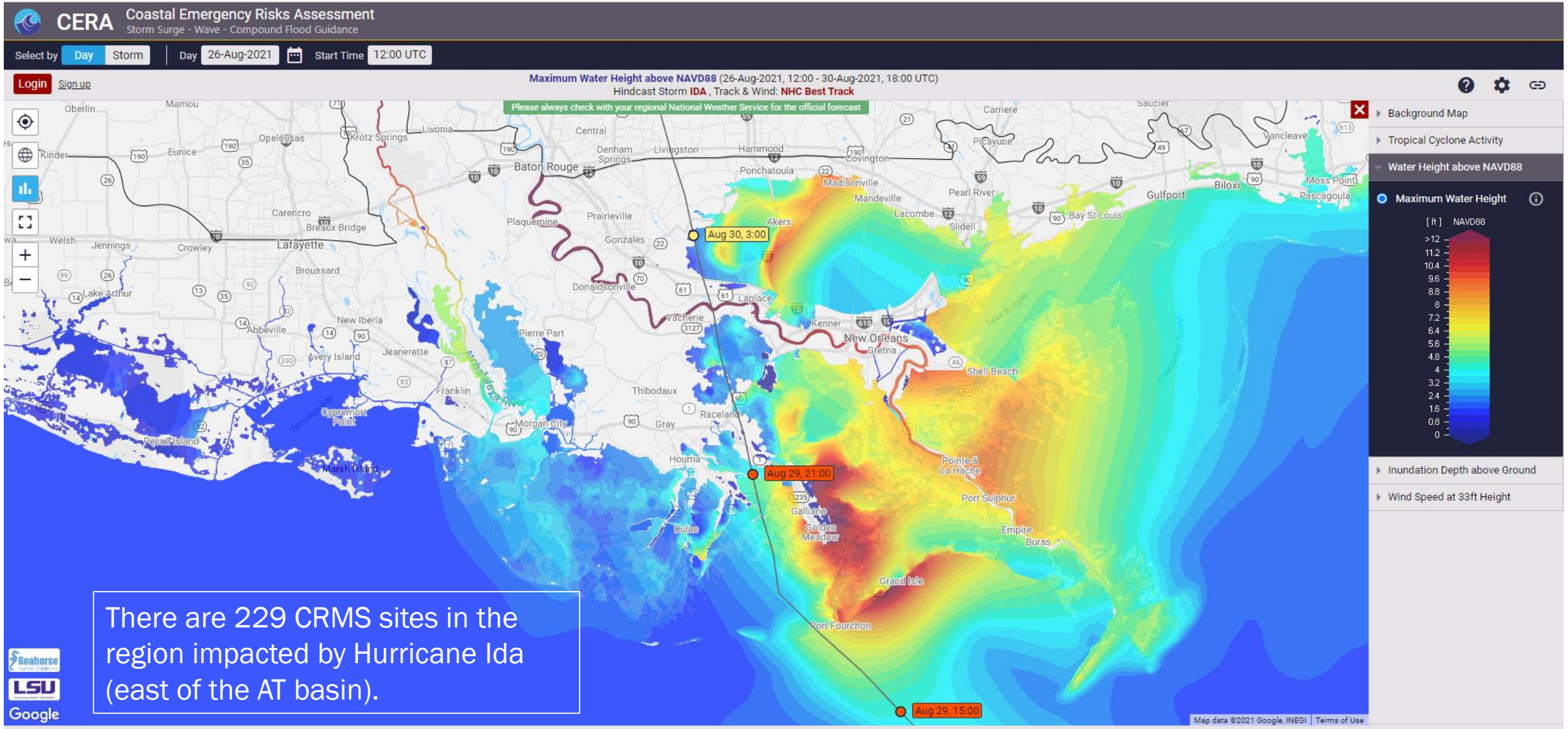



SET Rod

Boardwalk where accretion and elevation change are measured.

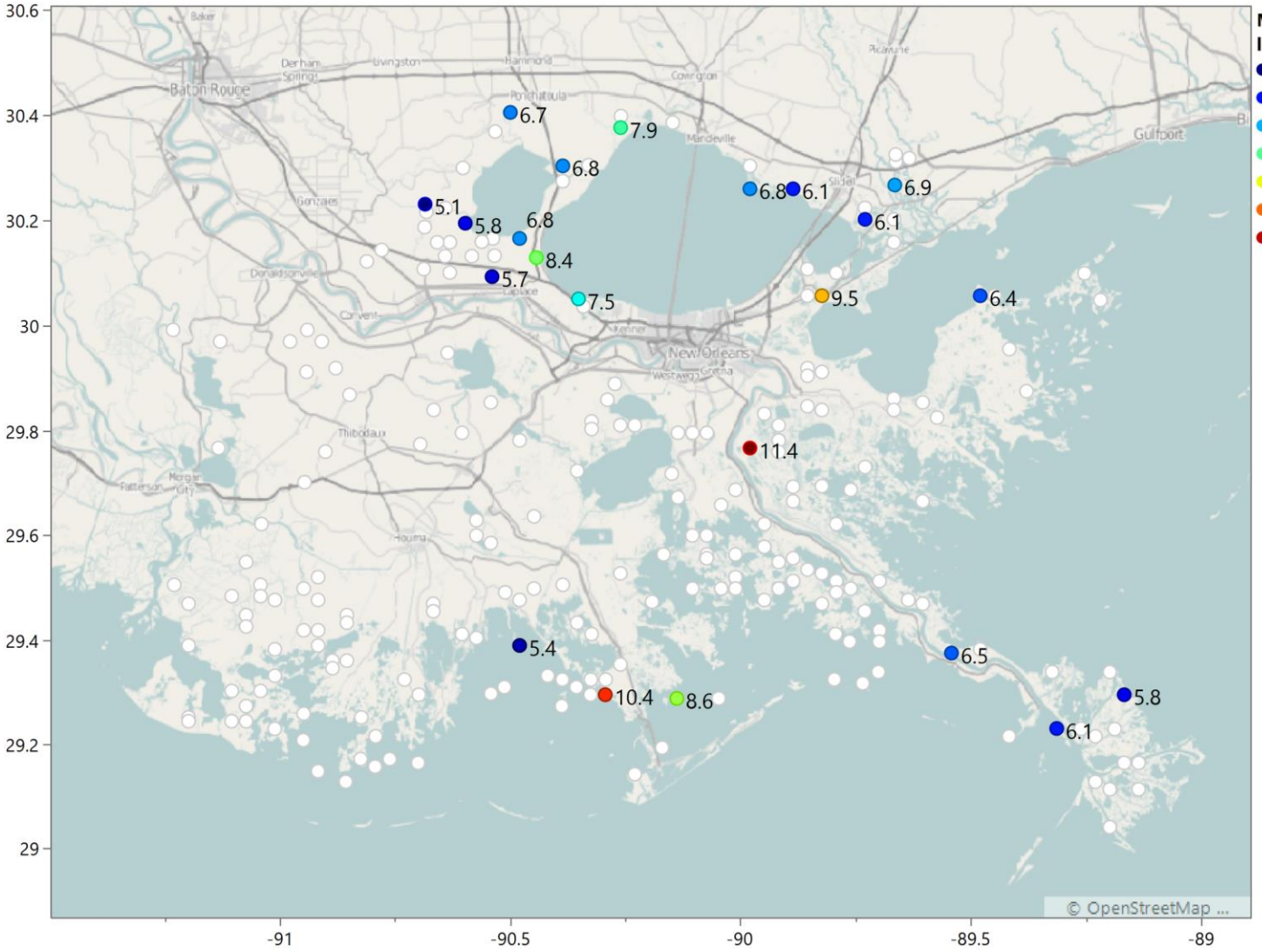
Hydro station records hourly water level, salinity and temperature.

Hurricane Ida Water Elevation at landfall



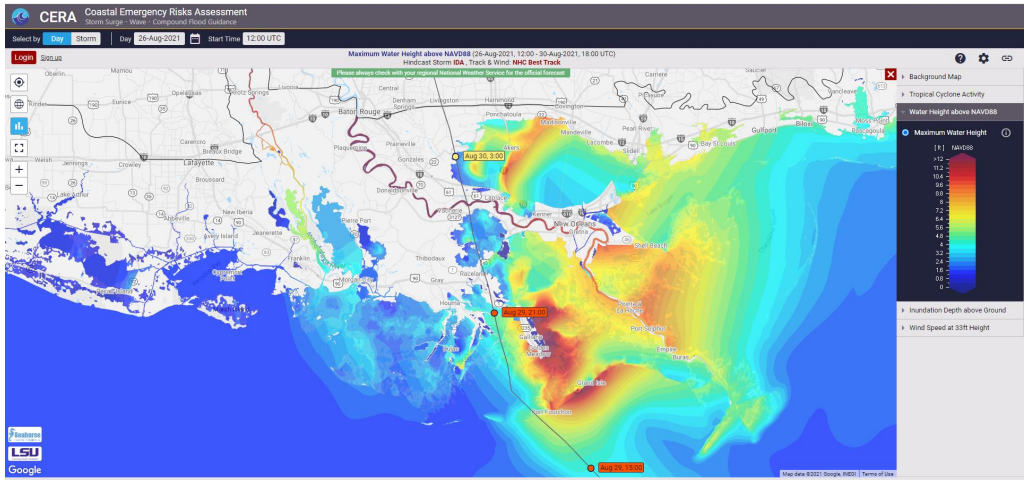
There are 229 CRMS sites in the region impacted by Hurricane Ida (east of the AT basin).

Preliminary Hurricane Ida Storm Surge Peaks

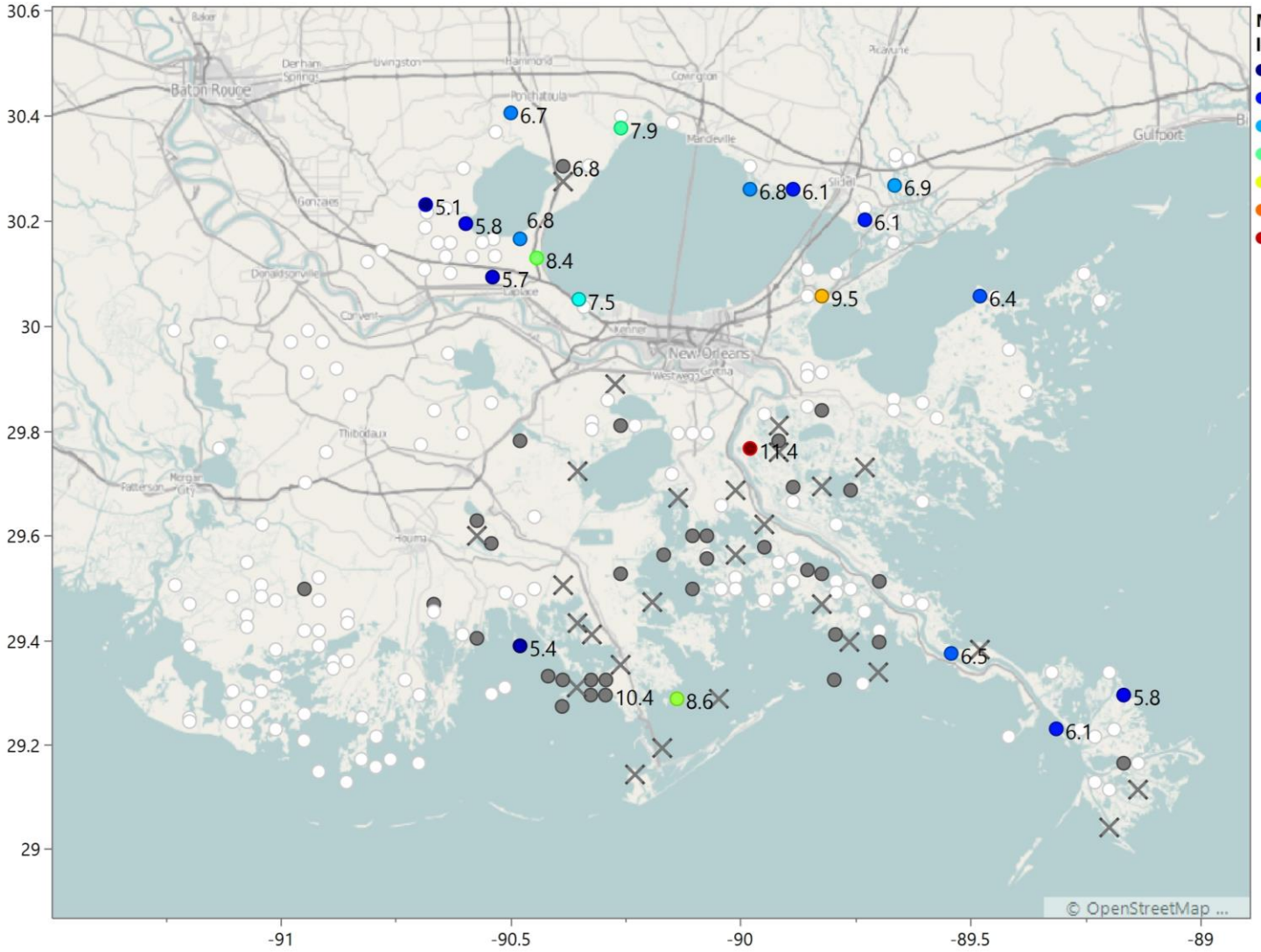


So far, the highest H. Ida peak observed at CRMS sites was 11.4' at CRMS0125.

Additional data will be available as data are recovered from damaged instruments and QA/QC'd.



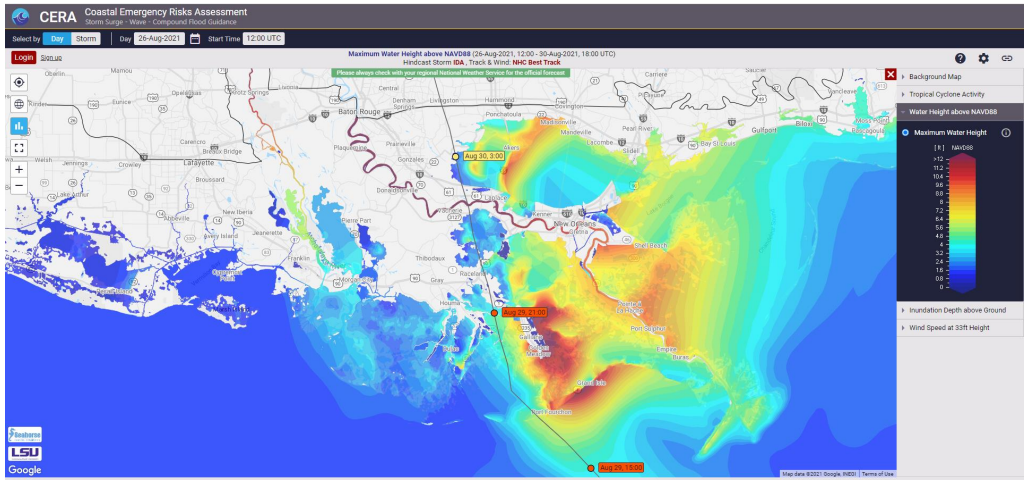
Preliminary Hurricane Ida Storm Surge Peaks



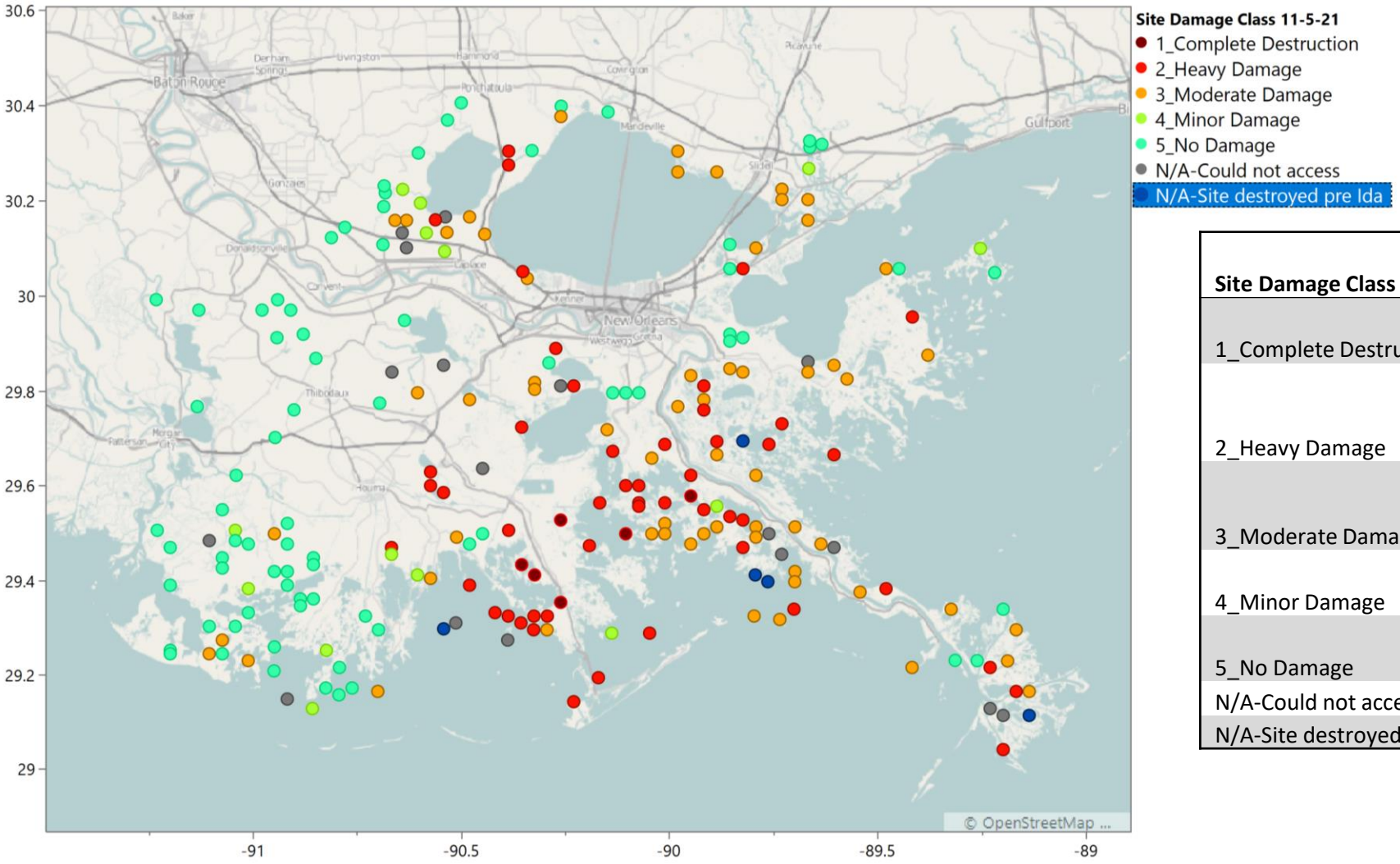
Many of the hydro stations in the impacted area were lost or damaged.

Most hydrology equipment was re-deployed on the first site visit post storm.

In time, data will reveal where new hydrologic connections have been made.

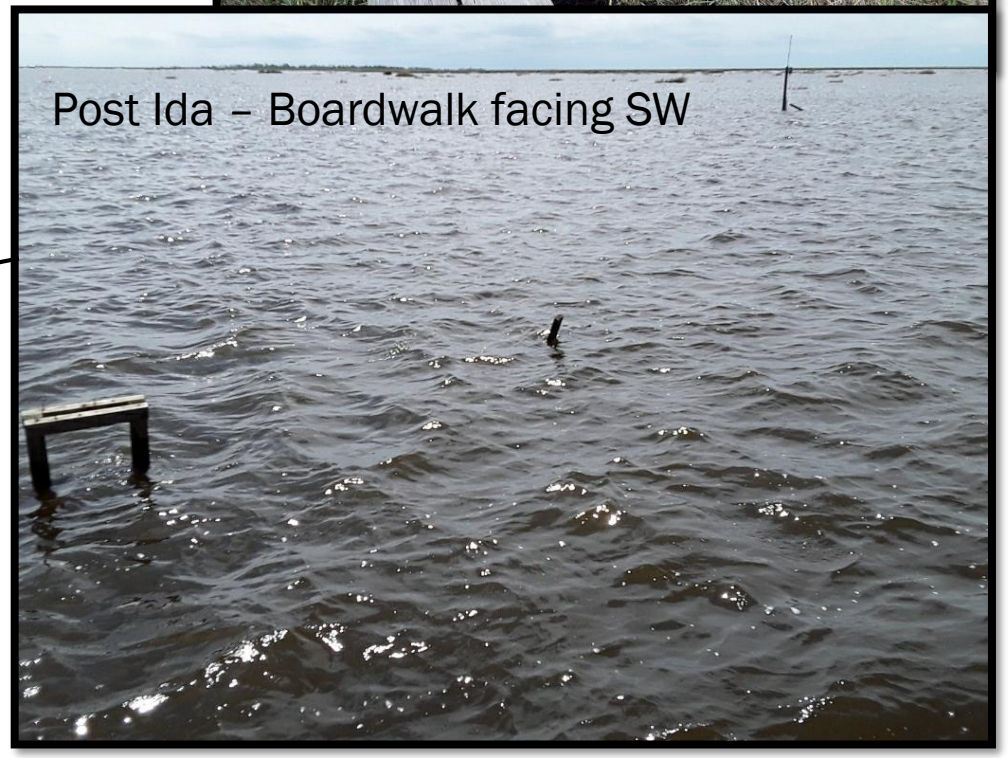


Damage to CRMS Sites from Hurricane Ida



Site Damage Class	N Sites	% Region (229 sites)	Defintion
1_Complete Destruction	6	3	Boardwalk, hydro station, and vegetation are all gone
2_Heavy Damage	49	21	Missing or broken hydro station, major boardwalk damage
3_Moderate Damage	61	27	Leaning hydro station, sonde damage, moderate boardwalk damage
4_Minor Damage	14	6	No hydro station damage, minor boardwalk damage
5_No Damage	77	34	No damage to CRMS equipment
N/A-Could not access	17	7	Inacessible on first trip
N/A-Site destroyed pre Ida	5	2	Site destroyed before H. Ida

Damage to CRMS Sites from Hurricane Ida



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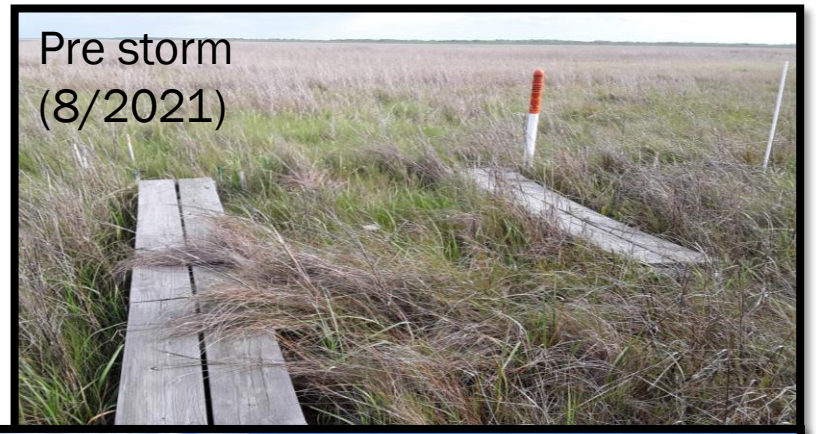
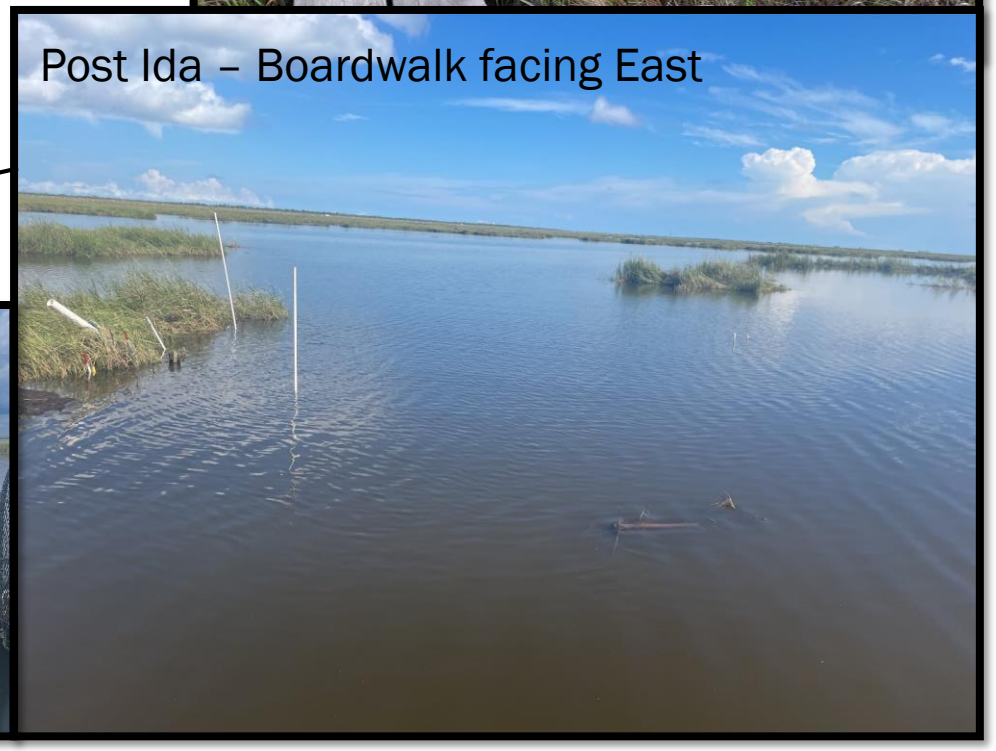


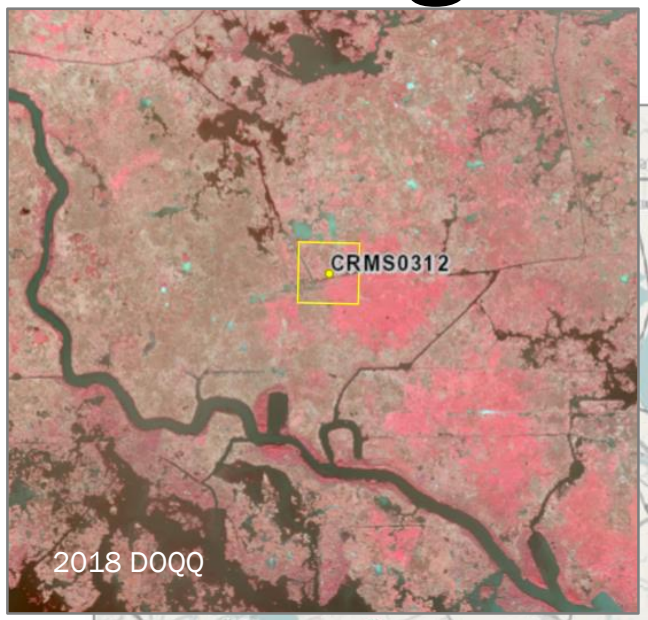


Damage to CRMS Sites from Hurricane Ida

Sites west of Bayou Lafourche were heavily impacted, particularly those closest to the protection levee.

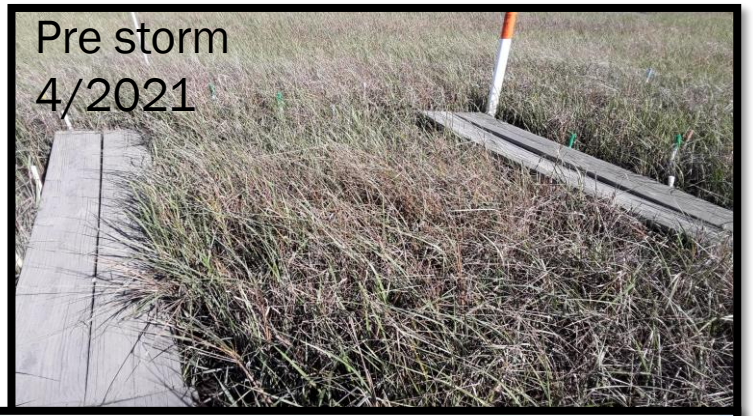
Pre storm (4/2021)

Damage to CRMS Sites from Hurricane Ida



Damage to CRMS Sites from Hurricane Ida

Sites in Lower Terrebonne saw damage to hydro equipment and boardwalks and thick mineral sediment deposition.



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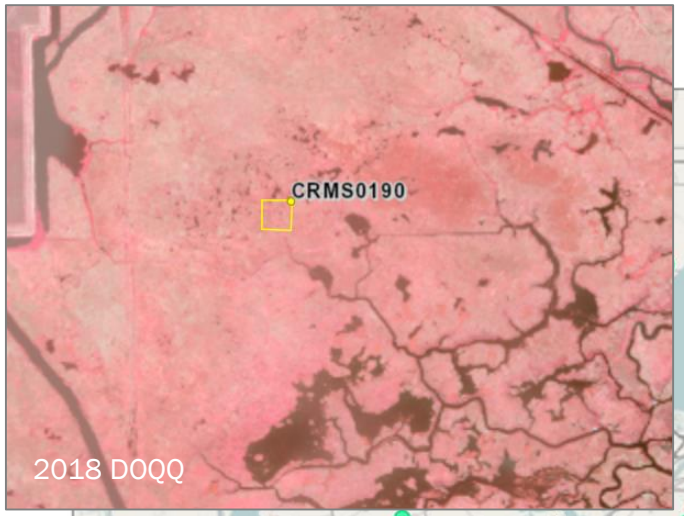
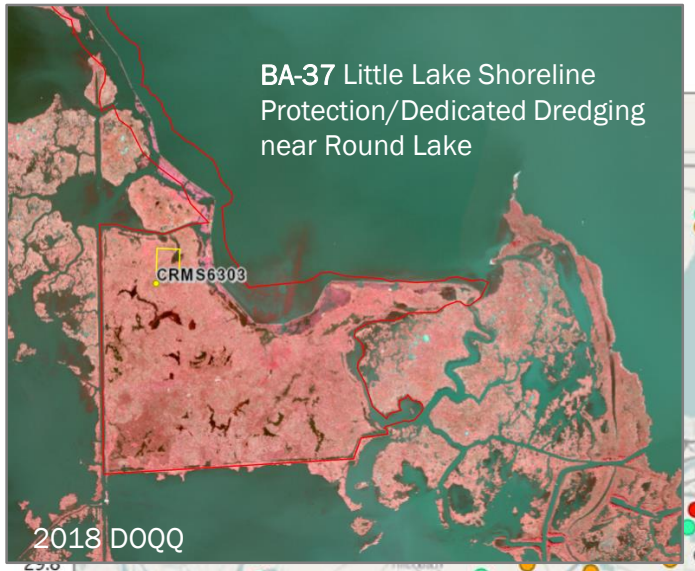


The large expanse of fresh marsh north and west of Little Lake was destroyed.

Damage to CRMS Sites from Hurricane Ida

Pre storm 2/2021

Damage to CRMS Sites from Hurricane Ida

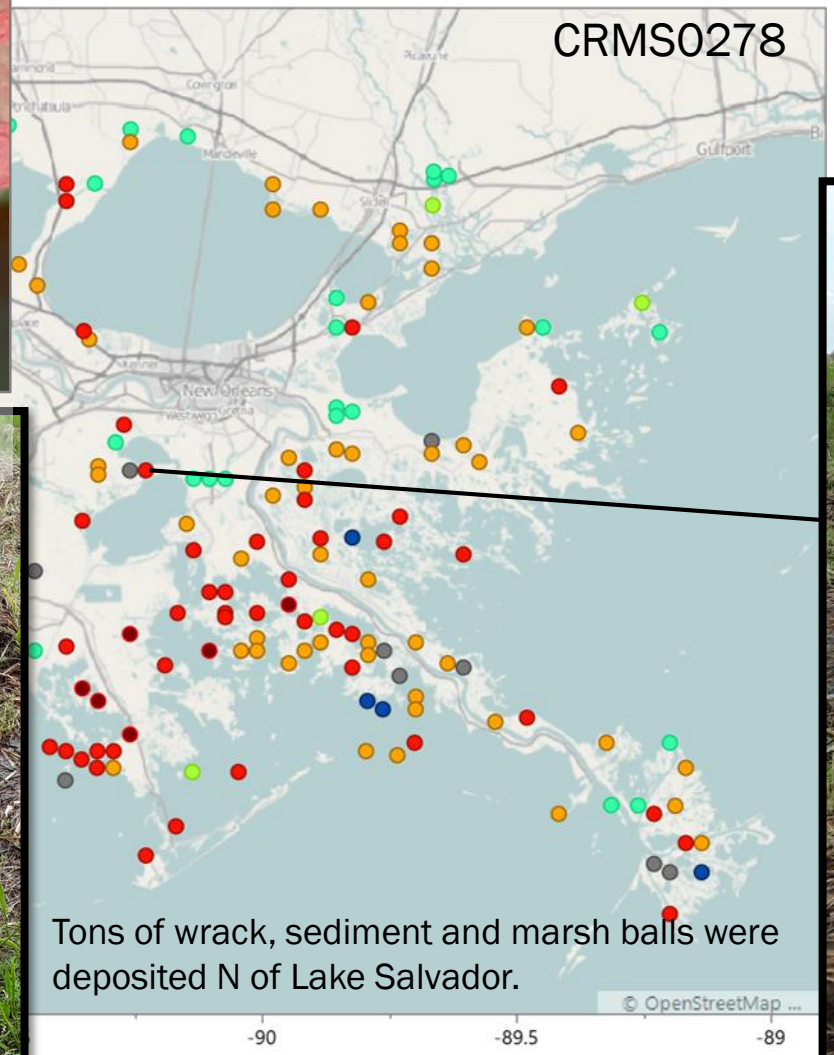


The marshes in the BA-37 marsh creation area did relatively well given location and storm intensity.

Damage to CRMS Sites from Hurricane Ida

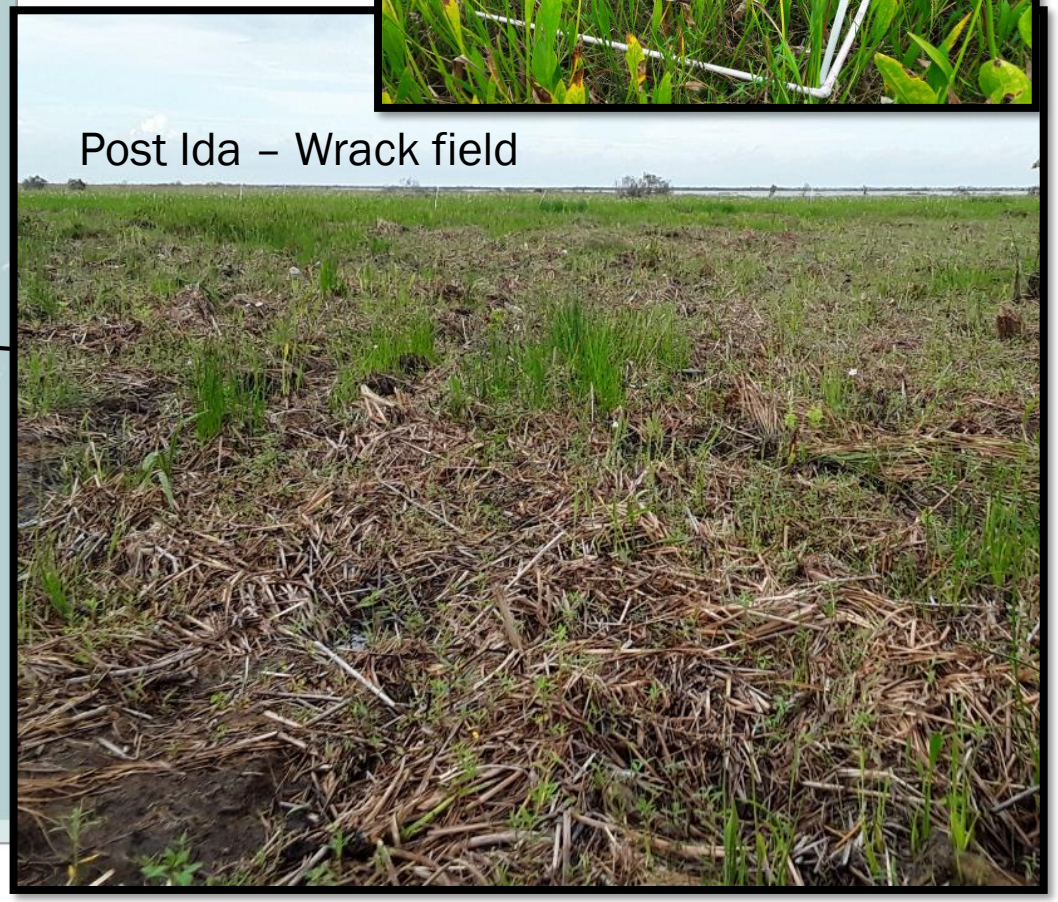
Wrack and marsh balls were deposited east of Bayou Rigolettes.

Damage to CRMS Sites from Hurricane Ida



Tons of wrack, sediment and marsh balls were deposited N of Lake Salvador.

Pre storm (8/2021)



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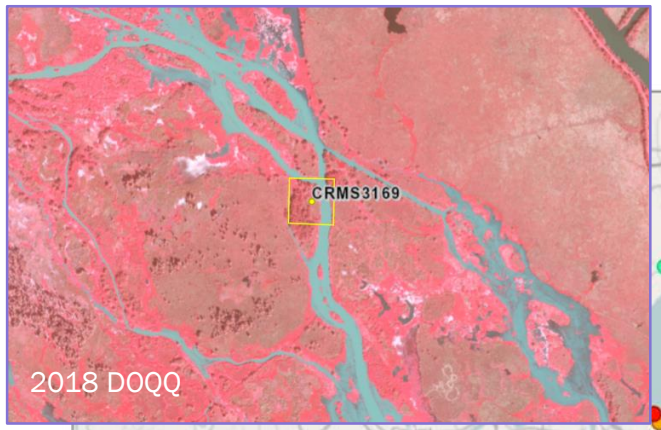

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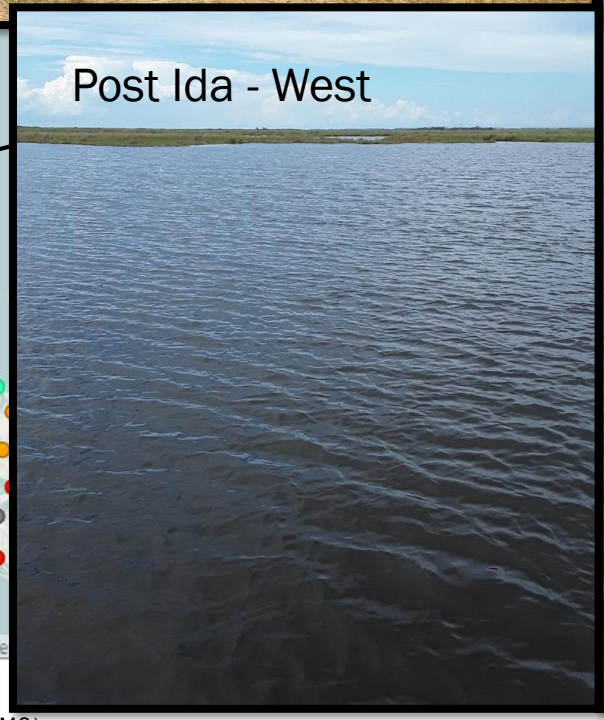

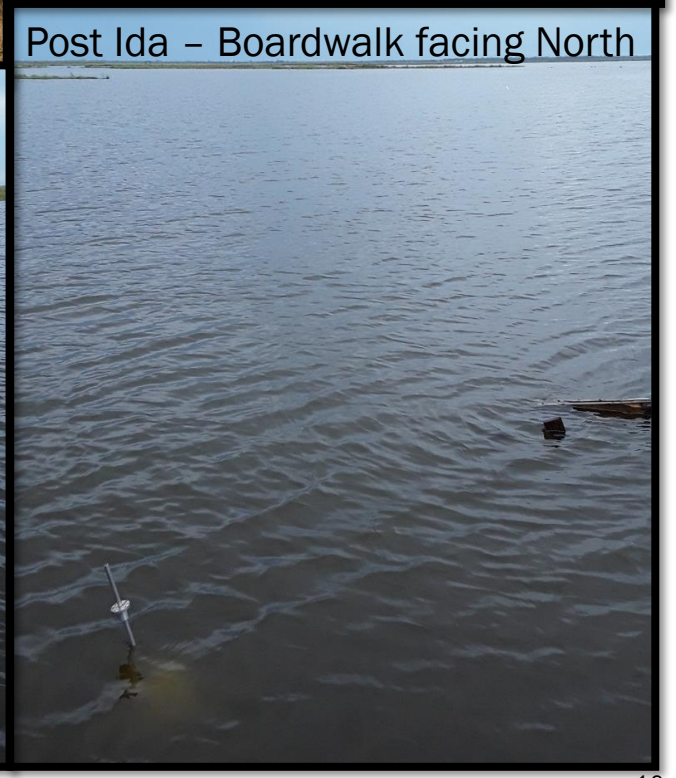

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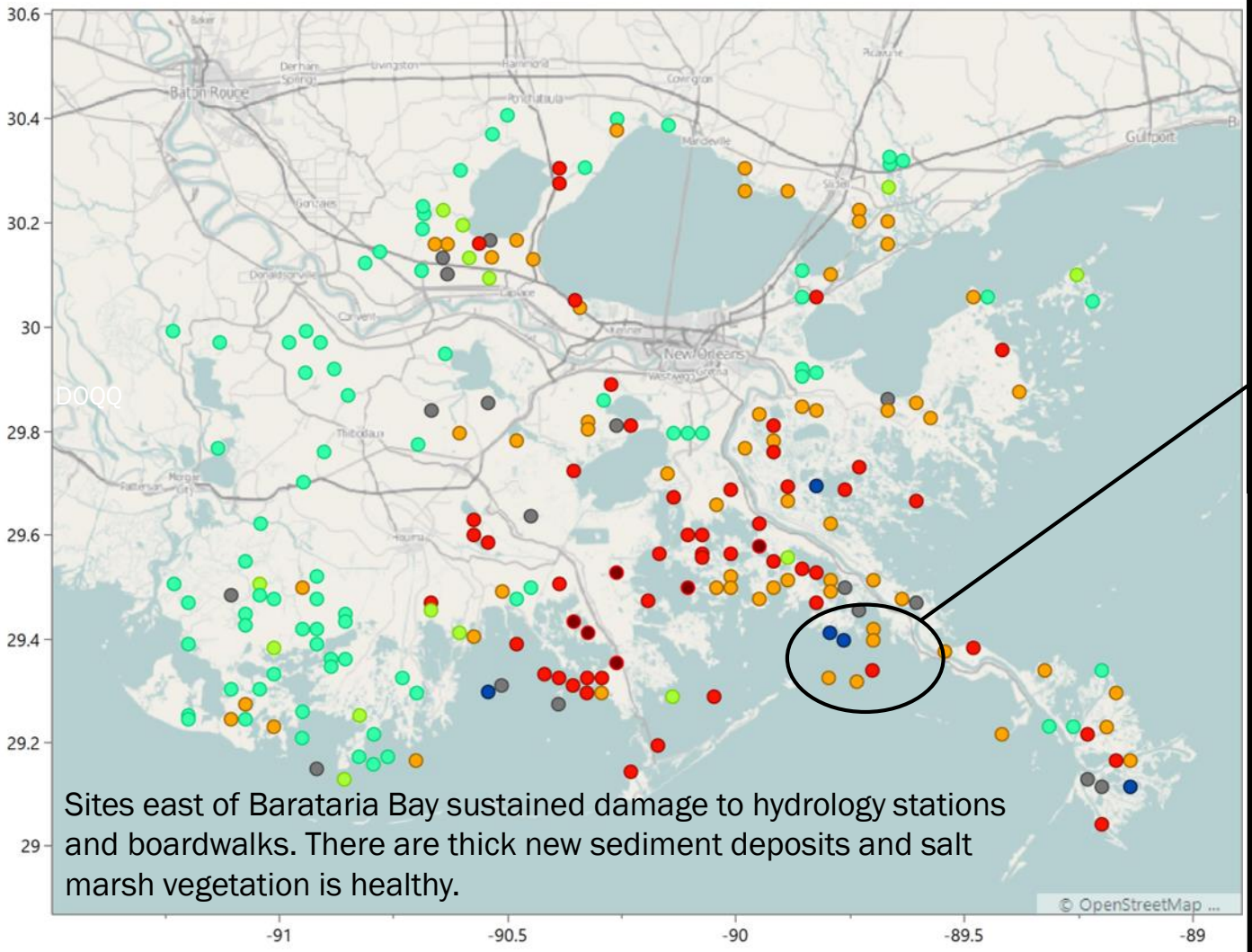
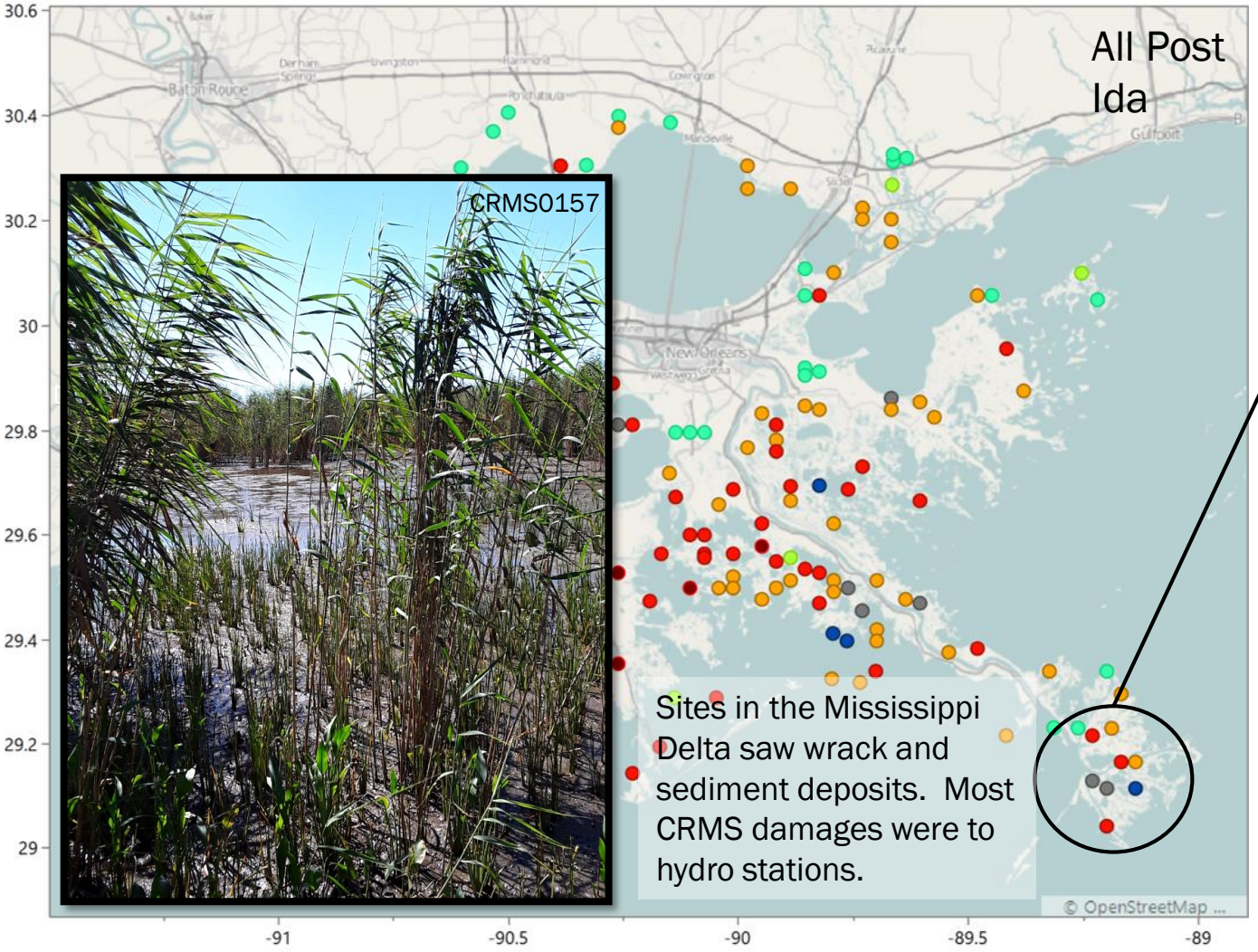


Sites east of Barataria Bay sustained damage to hydrology stations and boardwalks. There are thick new sediment deposits and salt marsh vegetation is healthy.

Damage to CRMS Sites from Hurricane Ida



Damage to CRMS Sites from Hurricane Ida

Sites in Breton Sound were salt burned and saw damage to hydro stations and boardwalks.

All Post Ida

Damage to CRMS Sites from Hurricane Ida

Sites along Lake Pontchartrain saw 3' thick marsh ball deposition. Access is still restricted in parts of the Maurepas swamp due to tree damage.

CRMS Monitoring - Next Steps

- Hydrology stations were repaired as they are discovered during the damage assessment phase. Storm data are being QA/QC'd and loaded into the publically available database (CIMS and CRMS).

- **Regularly scheduled CRMS monitoring will capture Hurricane Ida impacts.**
  - Vertical Accretion and Surface Elevation Change are measured every spring. Storm erosion and deposition will be evident.
  - Vegetation was measured at most stations pre-storm and will be measured again next summer.
  - A coastwide flight was already on the schedule for this year. That imagery is being collected now. Land change will be quantified at each CRMS site and data will be available for project level analyses.