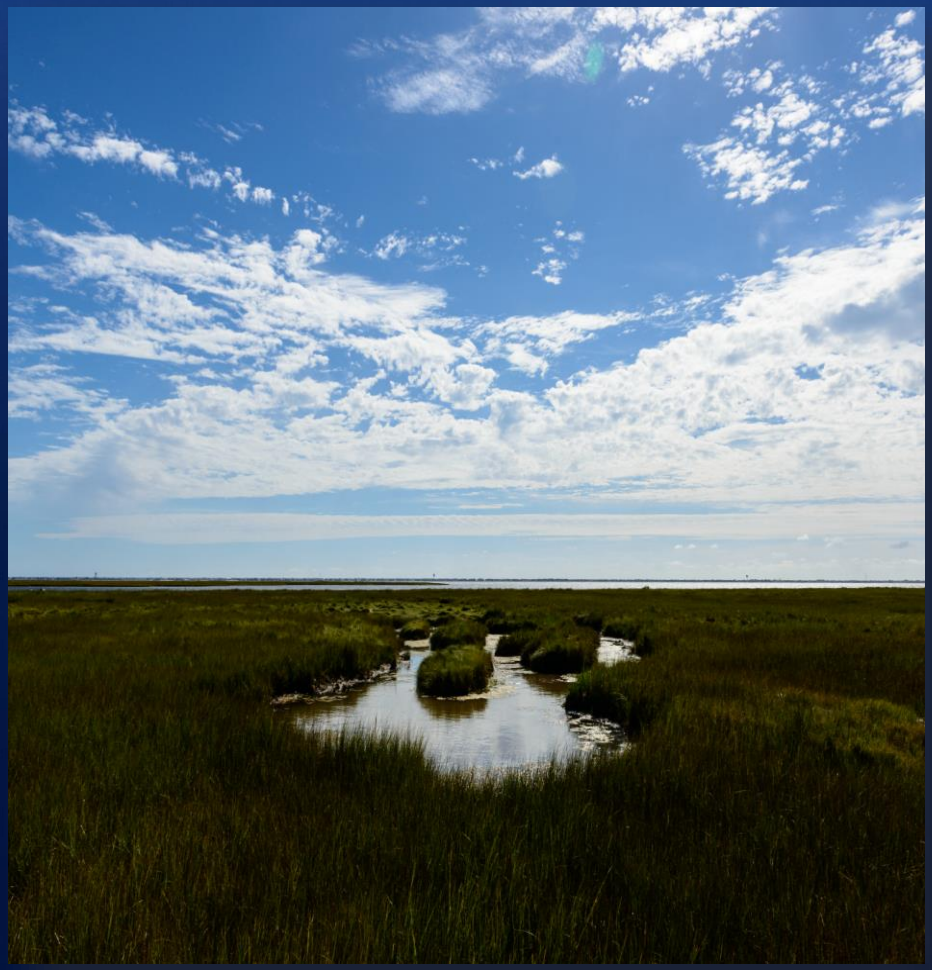
Coastal Zone Soil Survey (CZSS) Deficiencies



CZSS Data Deficiencies

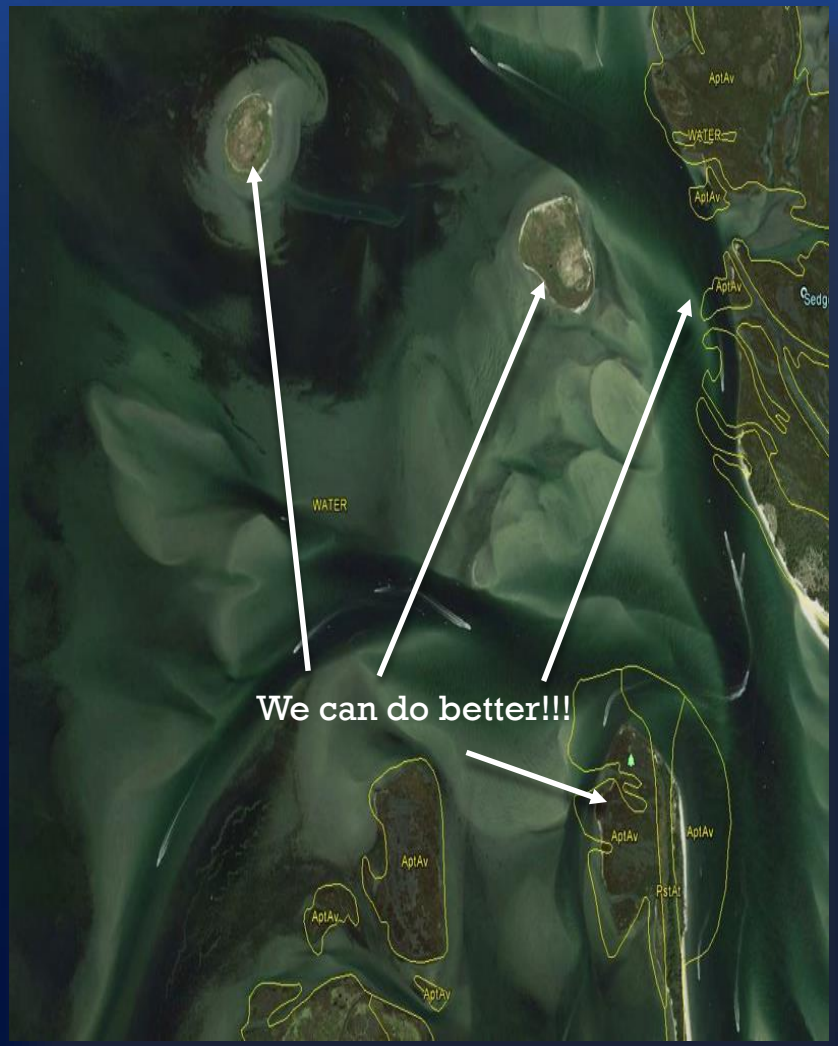
What are the CZSS issues / problems / deficiencies to be improved?

- **1 – Spatial deficiencies / shoreline loss (erosion)**
- **2 – Outdated mapunit design**
- **3 – Field documentation data deficiency**
- **4 – Soil interpretation issues**
- **5 – New soil series concepts for subaqueous areas and outdated subaerial series concepts**

As a member of the National Cooperative Soil Survey (NCSS), the USDA-Natural Resources Conservation Service (NRCS) is the lead federal agency for the mapping and interpretations of the nation's soil resources.

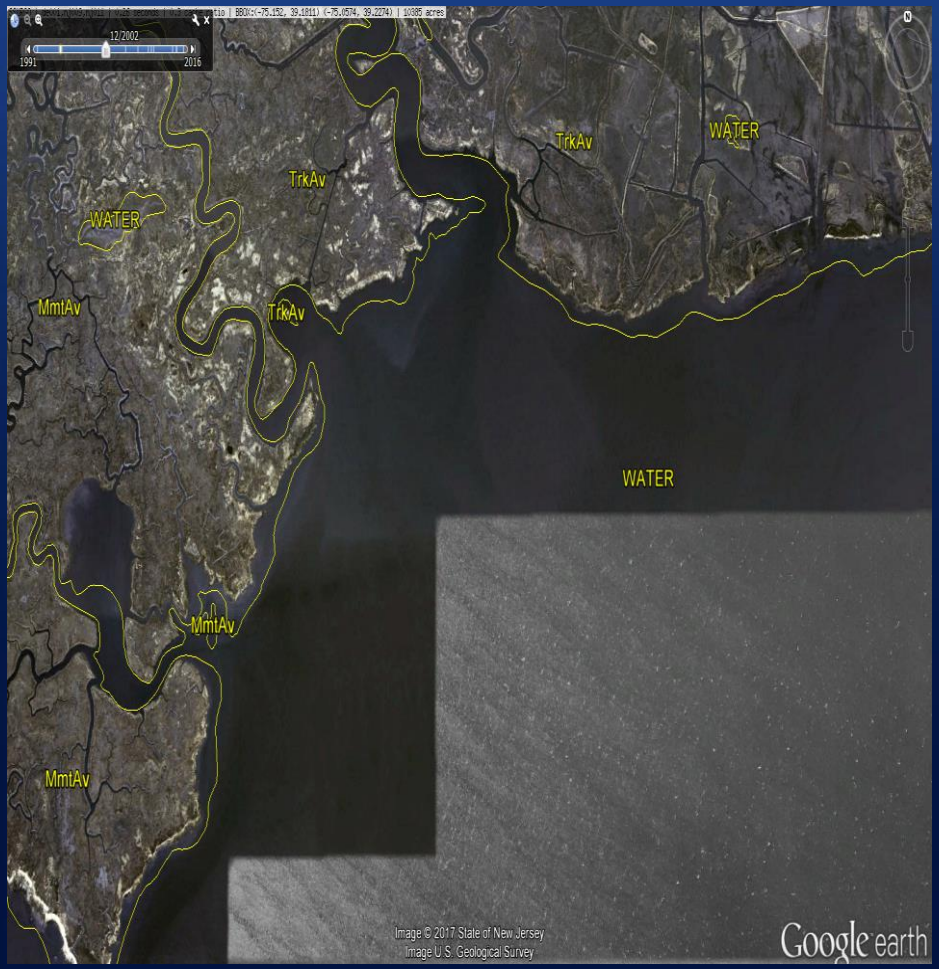
The well established standards, techniques, and protocols used to map and interpret the nation's soil resources have been recently applied to subaqueous soil survey projects.

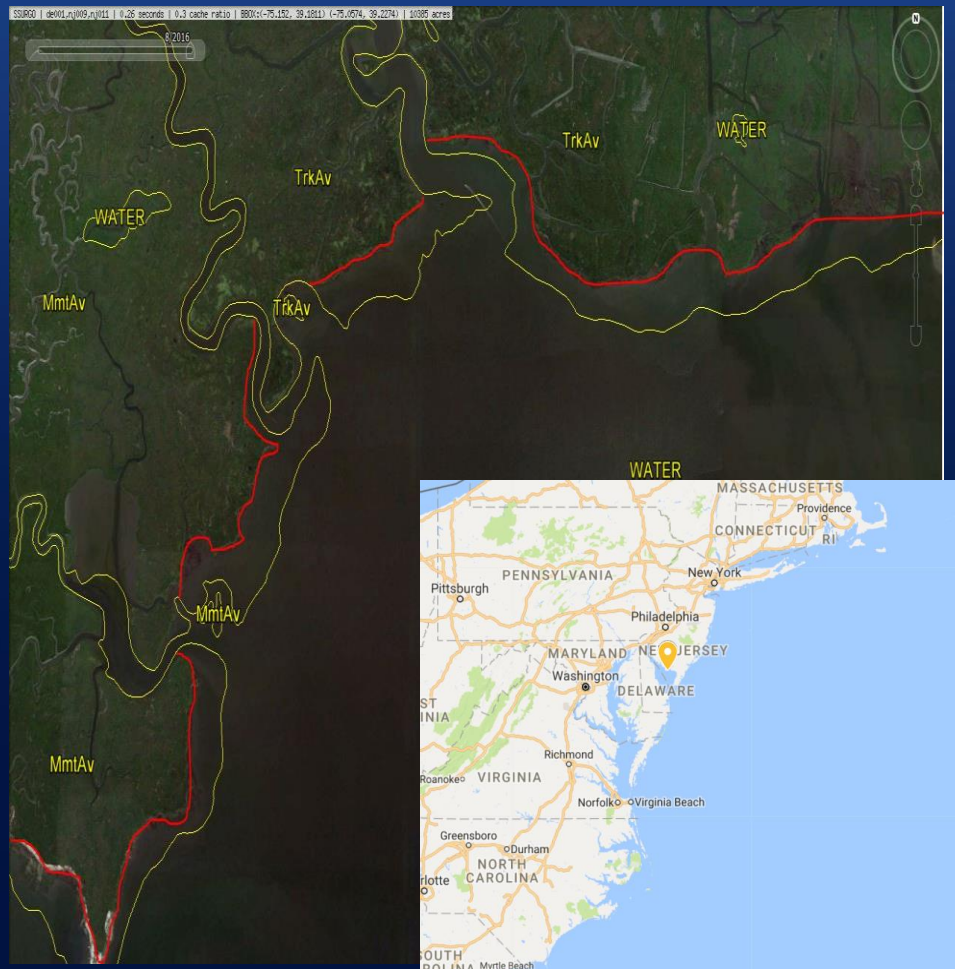
COASTAL ZONE SOIL SURVEY – SPATIAL MAPPING DEFICIENCIES



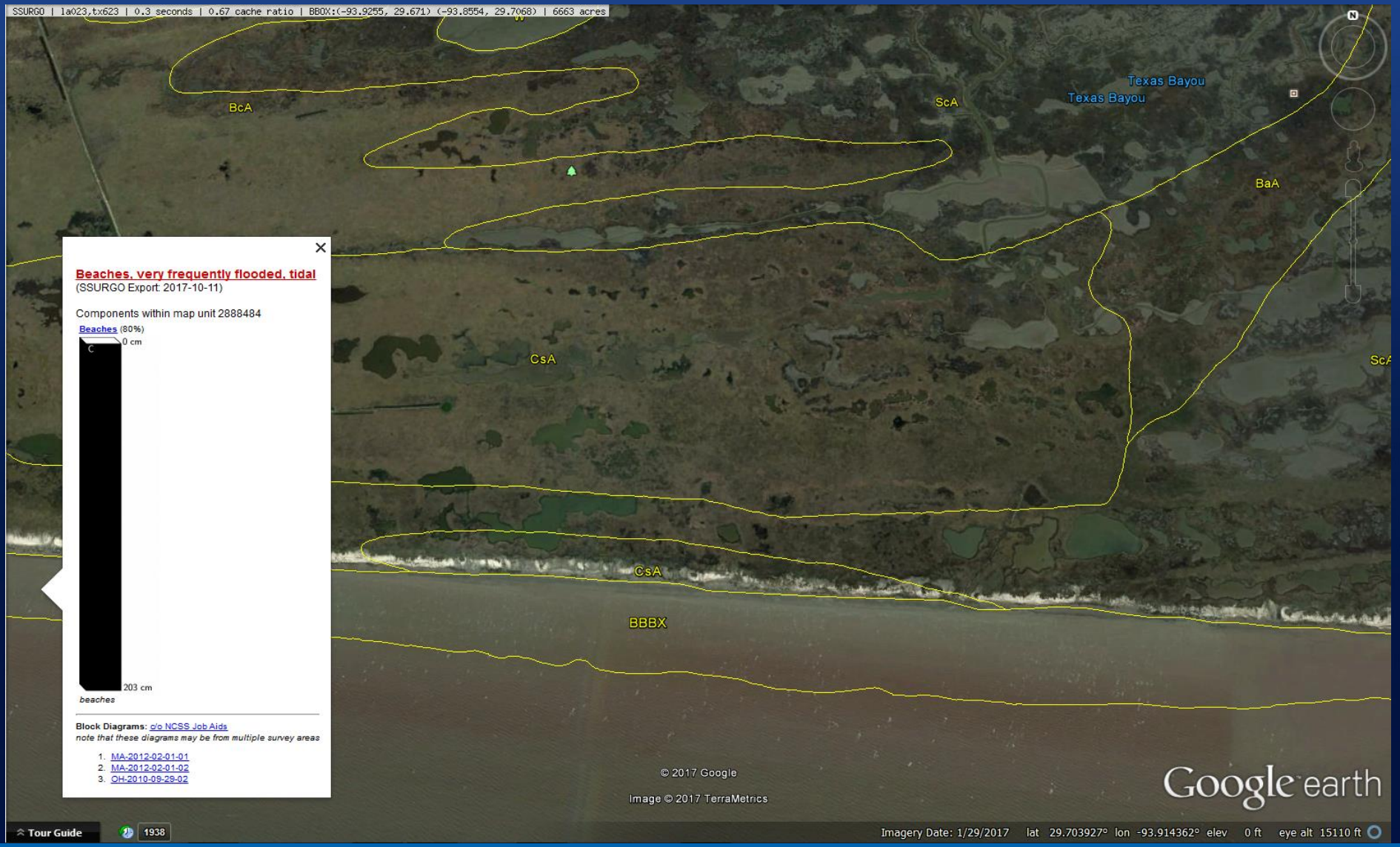
CZSS – SHORELINE CHANGE – SPATIAL DEFICIENCY (DELAWARE BAY, NJ)

(NOAA NATIONAL SHORELINE CUSP)





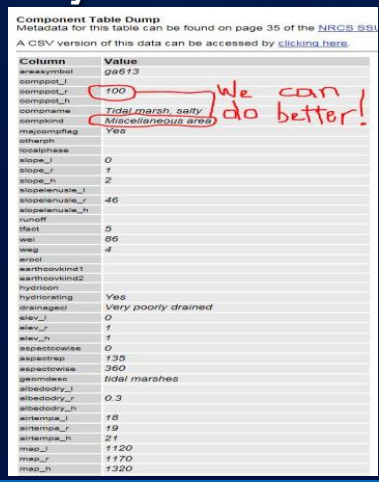
CZSS – SHORELINE CHANGE – SPATIAL DEFICIENCY (LA / TX BORDER)



Subaqueous

2 - INADEQUATE / OUTDATED MAPUNIT DESIGN

- The mapping unit does not help a user understand the actual soil conditions at this particular location. This is due to the scale of the soil survey mapping, past user need, and / or lack of demand for accurate soils information.
- Mapunit design was either a complex, association, undifferentiated, or miscellaneous area / land unit.
- These mapunits often lack soil series concepts and soil horizon data limiting their soil interpretation and the information they convey to users.


Component Table Dump
Metadata for this table can be found on page 35 of the NRCS SSU
A CSV version of this data can be accessed by clicking here.

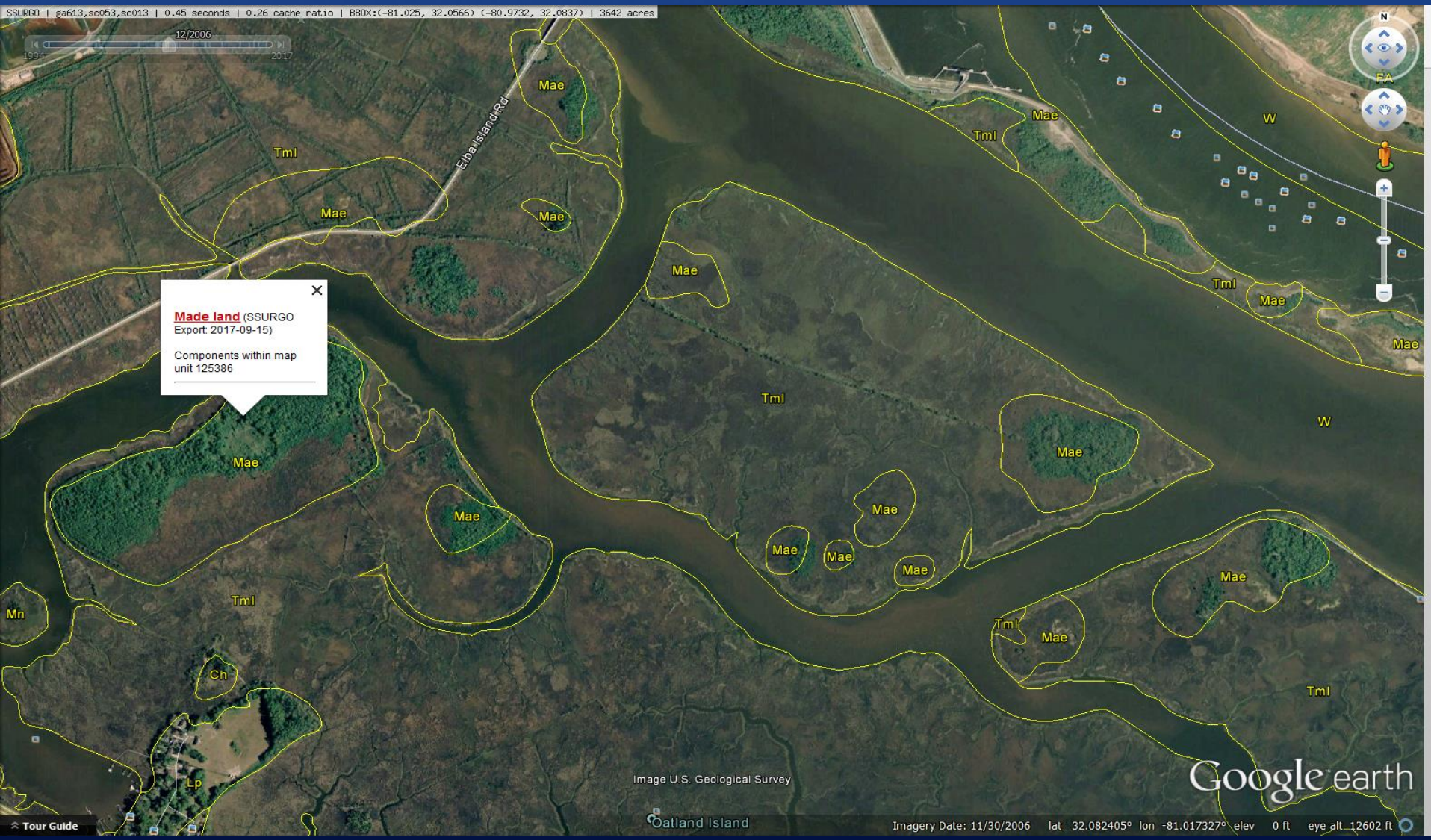
Column	Value
areasymbol	ga613
comppct_l	
comppct_r	100
comppct_h	
compname	Tidal marsh, salty
compkind	Miscellaneous area
majcompflag	Yes
otherph	
localphase	
slope_l	0
slope_r	1
slope_h	2
slopelenusle_l	
slopelenusle_r	46
slopelenusle_h	
runoff	
tfact	5
wei	86
weg	4
erocl	
earthcovkind1	
earthcovkind2	
hydricon	
hydricrating	Yes
drainagecl	Very poorly drained
elev_l	0
elev_r	1
elev_h	1
aspectccwise	0
aspectrep	135
aspectcwise	360
geomdesc	tidal marshes
albedodry_l	
albedodry_r	0.3
albedodry_h	
airtempa_l	18
airtempa_r	19
airtempa_h	21
map_l	1120
map_r	1170
map_h	1320

We can do better!

Subaqueous

INADEQUATE / OUTDATED MAPUNIT DESIGN

INADEQUATE / OUTDATED MAPUNIT DESIGN



SALT MARSH - OPEN MARSH WATER MANAGEMENT (OMWM) – MU DESIGN - NJ

COASTAL ZONE SOIL SURVEY – SALT MARSH

- AptAv – What is it? Does this adequately capture the soils of all the salt marshes in soil mapping unit? Does this mapunit take into account the OMWM sites? We (NRCS) do not have documentation for this mapunit. Where's the D? Can we correlate these soils to project success and failure?
- Appoquinimink – Thapto-histic Sulfaquents (40%)
- Transquaking – Typic Sulfihemists (30%)
- Mispillion – Terric Sulfihemists (25%)

Map Unit Composition

Map units consist of 1 or more soil types, commonly referred to as "components".

Component Name
Soil Type 1 **Appoquinimink**
Soil Type 2 **Transquaking**
Soil Type 3 **Mispillion**
Soil Type 4 **Hammonton**

*Note: links to horizon data marked with an * are approximate.*

Map Unit Data What is a Map Unit?

Cartographic information about this map unit.

Map Unit Name:	*Appoquinimink-Transquaking-Mispillion complex, 0 to 1 percent slopes, very frequently flooded*
Map Unit Type:	*Complex*
Map Unit Symbol:	*AptAv*
Map Unit Area:	*acres (26606ac. total in survey area)*

Raw Map Unit Data

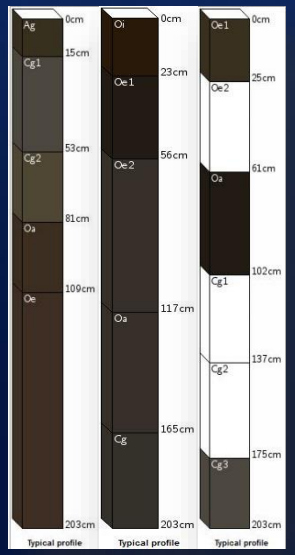
Raw Component Data (All Components)

Map Unit Aggregated Data

Generalized soils information within this map unit.

Farmland Class:	*Farmland of unique importance*
Available Water Storage (0-100cm):	*31.72 cm*
Max Flood Freq:	*Very frequent*
Drainage Class (Dominant Condition):	*Very poorly drained*
Drainage Class (Wettest Component):	*Very poorly drained*
Hydric Conditions:	*95*
[Annual] Min. Water Table Depth:	*n/a*
[April-June] Min. Water Table Depth:	*n/a*
Min Bedrock Depth:	*n/a*

Raw Aggregated Map Unit Data



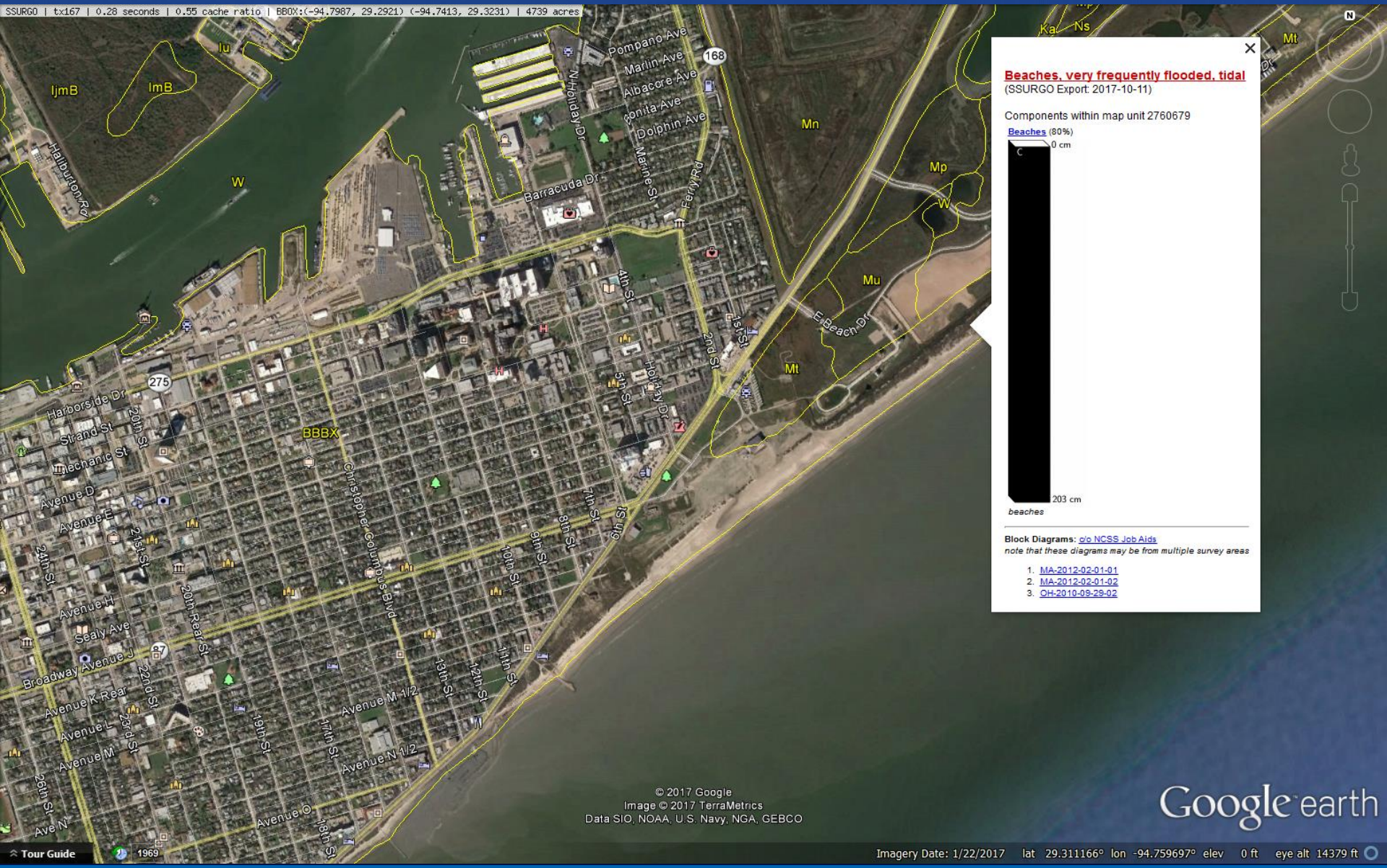
SALT MARSH - OPEN MARSH WATER MANAGEMENT (OMWM)

- 4 COMPONENTS of these systems in which we (NRCS) have little data for:

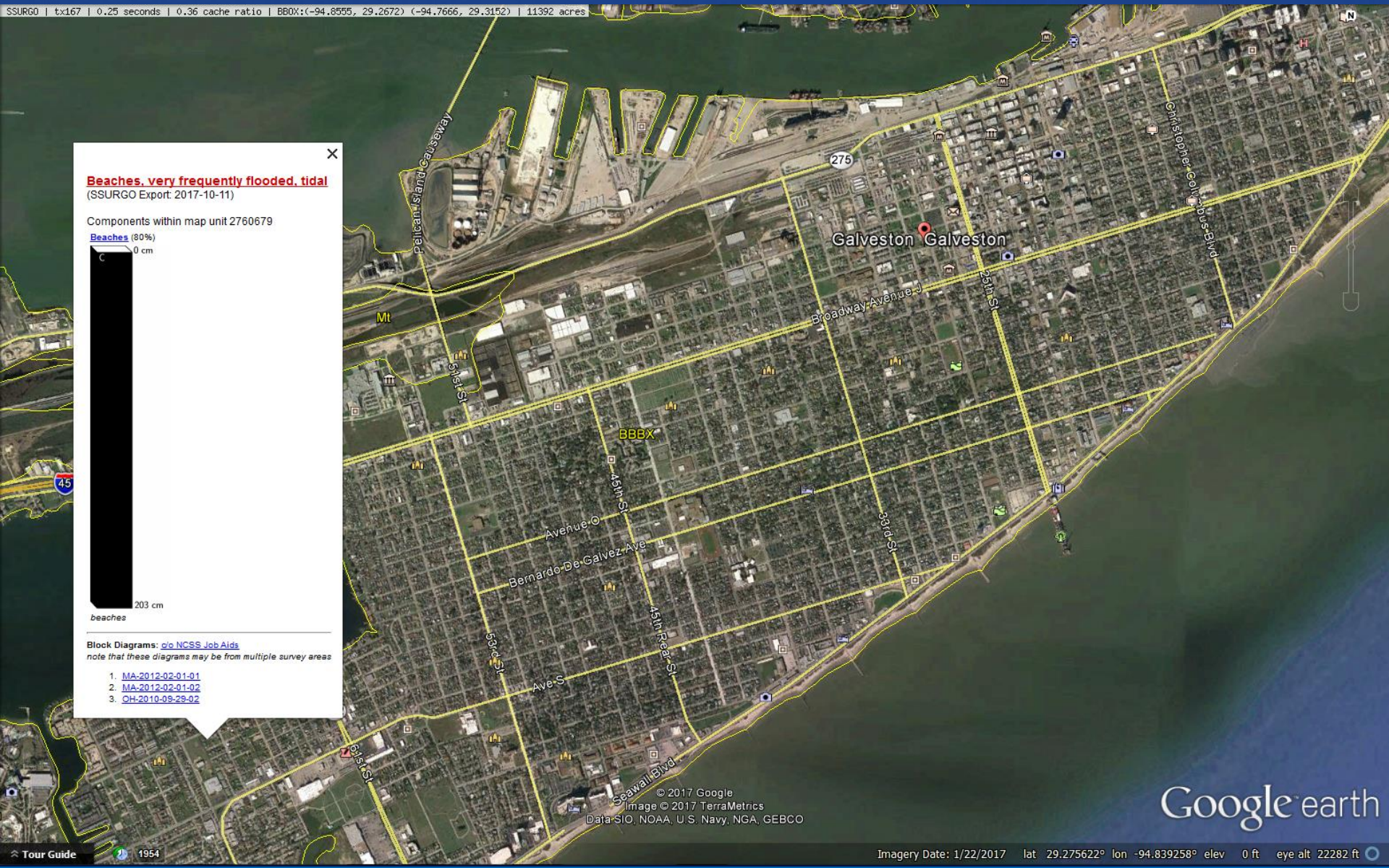
1. Water – subaqueous soil component
2. Marsh – spoil placement soil component
3. Marsh – undisturbed salt marsh soil component
4. The Marsh OMWM island

INADEQUATE / OUTDATED MAPUNIT DESIGN

INADEQUATE / OUTDATED MAPUNIT DESIGN



INADEQUATE / OUTDATED MAPUNIT DESIGN

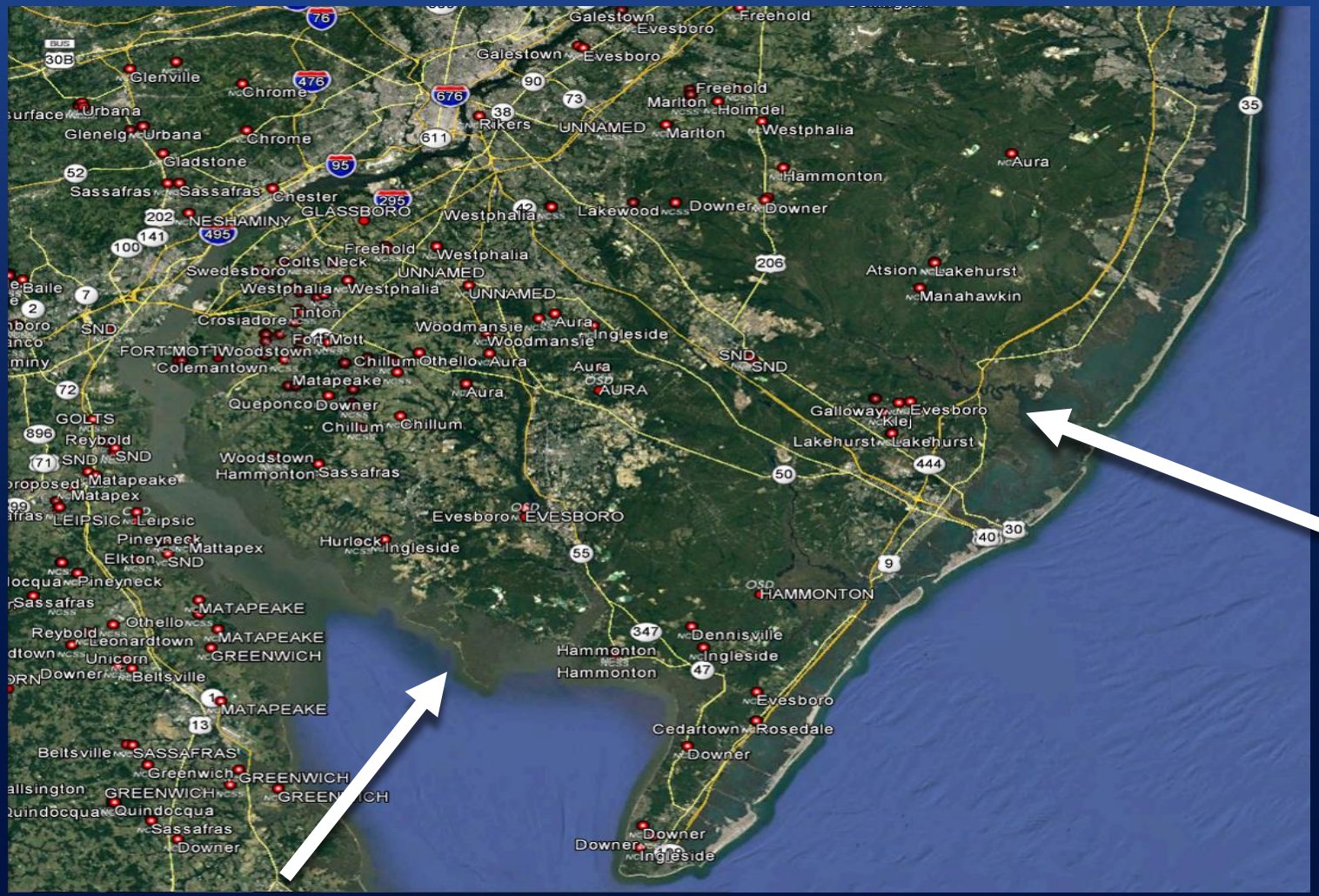


Subaqueous

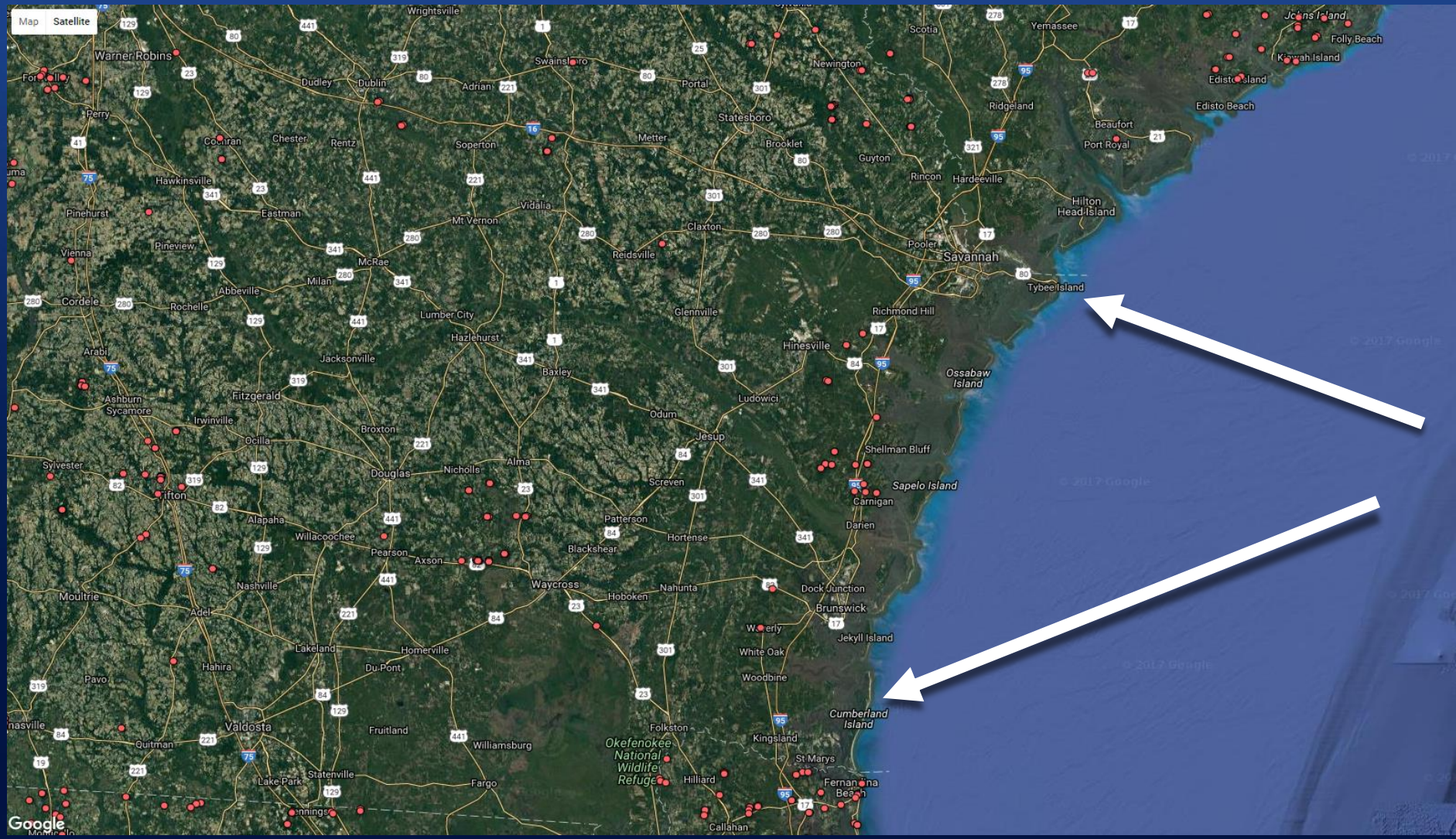
3 - FIELD DATA DOCUMENTATION DEFICIENCY

- Not only have the mapunits been poorly designed but they also haven't had adequate field investigation or data to support the poor design.
- Examples of field data include transects, field notes, pedon descriptions, and soil survey laboratory data (University or Kellogg Lab).
- The field data will help attach soil series concepts to these mapunits helping convey more useful information for our NCSS customers / users.

FIELD DATA DOCUMENTATION DEFICIENCY



KSSL DATA DOCUMENTATION DEFICIENCY

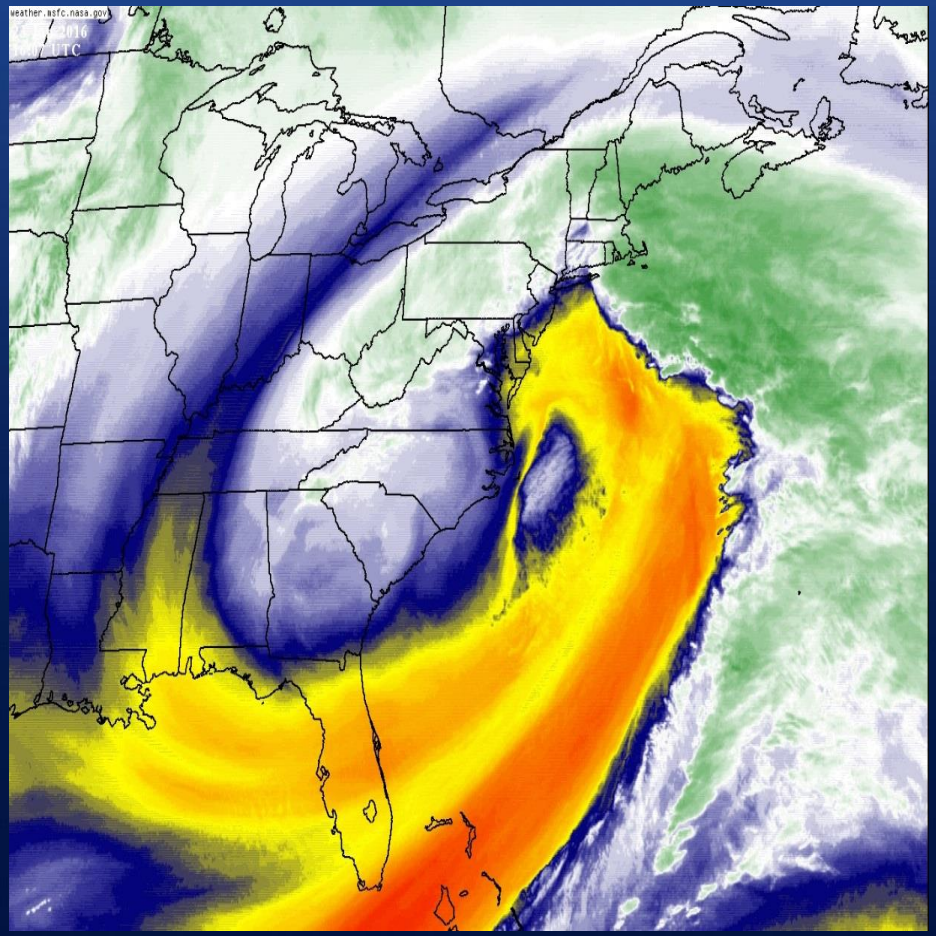


KSSL DATA DOCUMENTATION DEFICIENCY

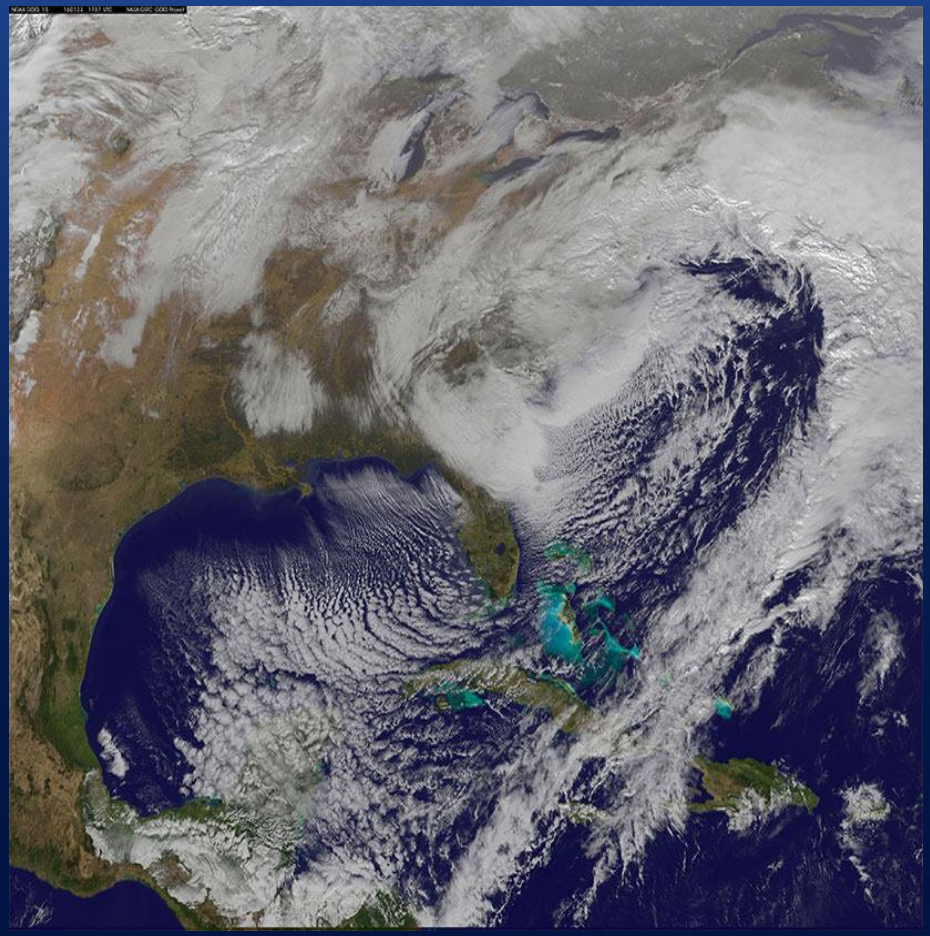
4 – COASTAL ZONE SOIL SURVEY INTERPRETATION ISSUES

- Flooding – some of our soil survey products do accurately reflect current flooding frequencies in many coastal zone areas. Many areas have "none" representing an area that currently floods several times a year
- Residential Development / Dwellings w/ or without basements = many of our current soil survey products grossly misrepresent areas that shouldn't be used for residential development / human habitation.

CZSS INTERPRETATIONS - WINTER STORM JONAS



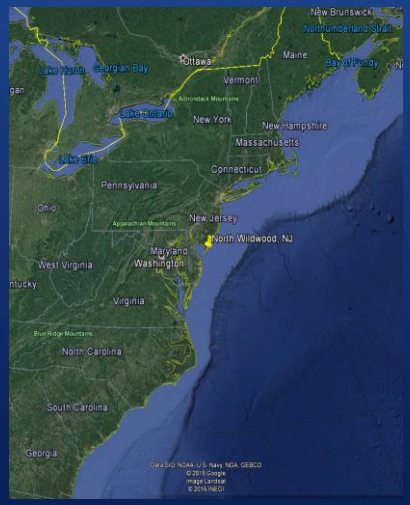
NASA water vapor image of Winter Storm Jonas.

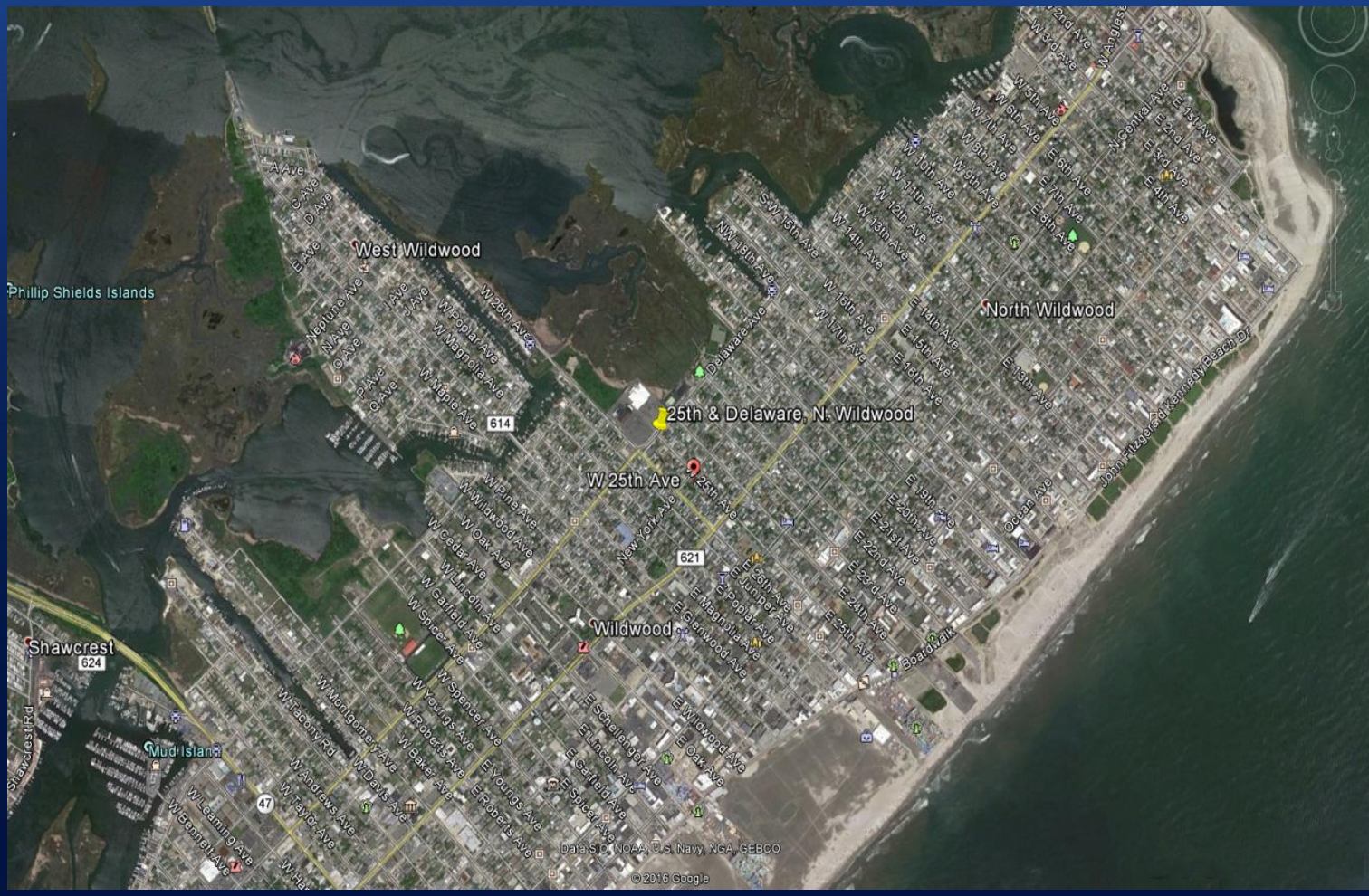


NASA/NOAA visible satellite image of Winter Storm Jonas.

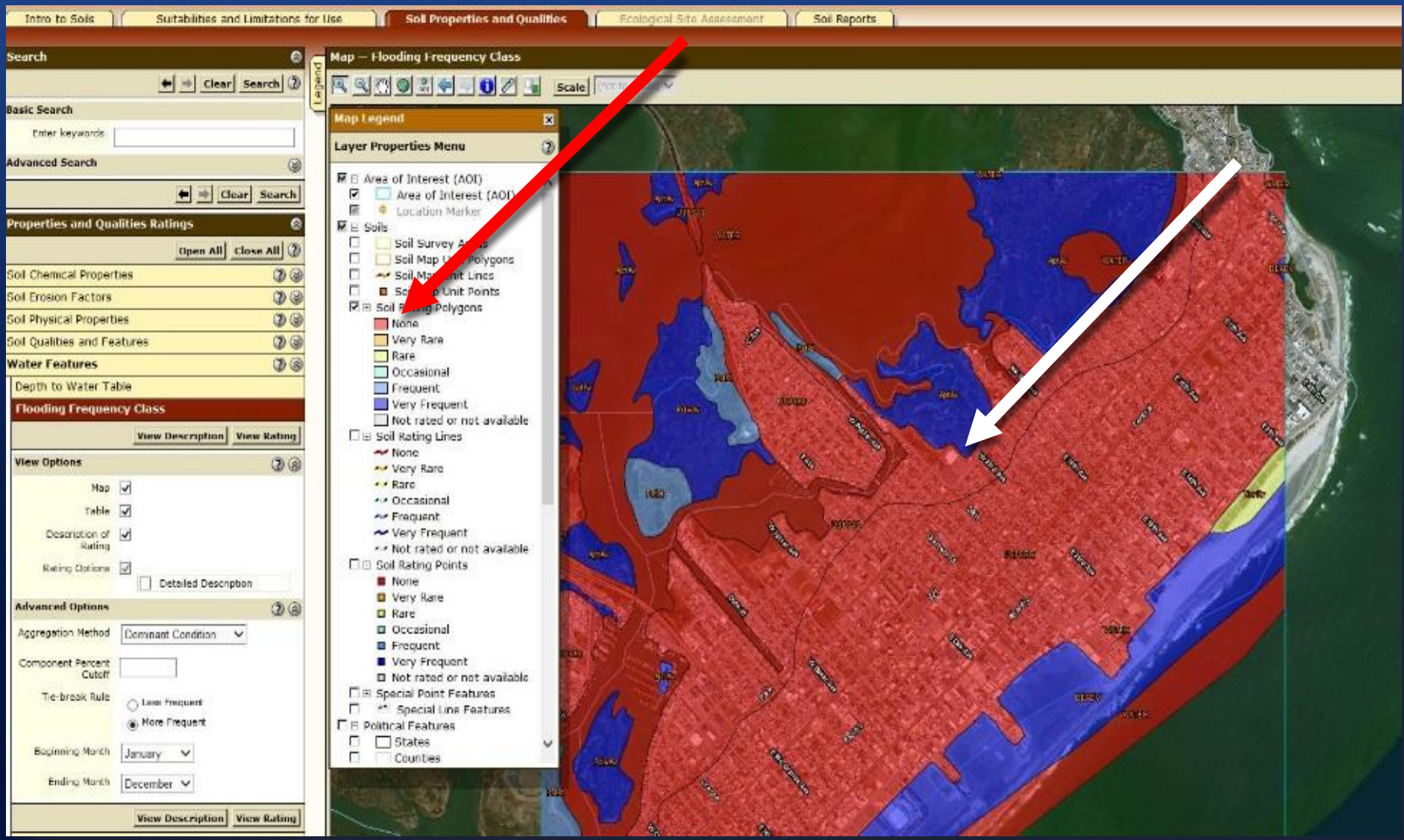
CZSS INTERPRETATIONS - WINTER STORM JONAS

25TH AVE. & DELAWARE AVE. N WILDWOOD, NJ



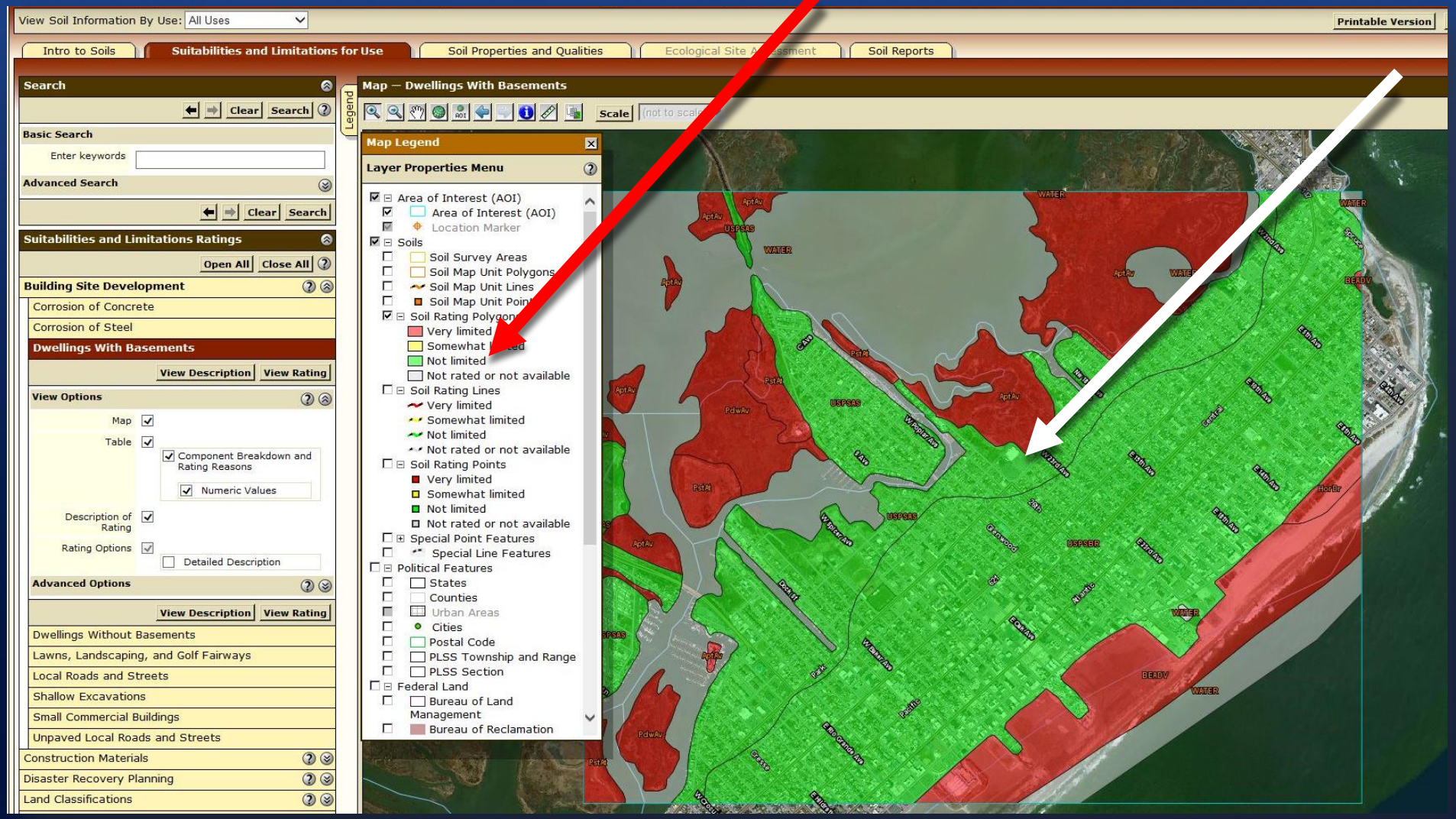


FLOODING - WINTER STORM JONAS (NONE)



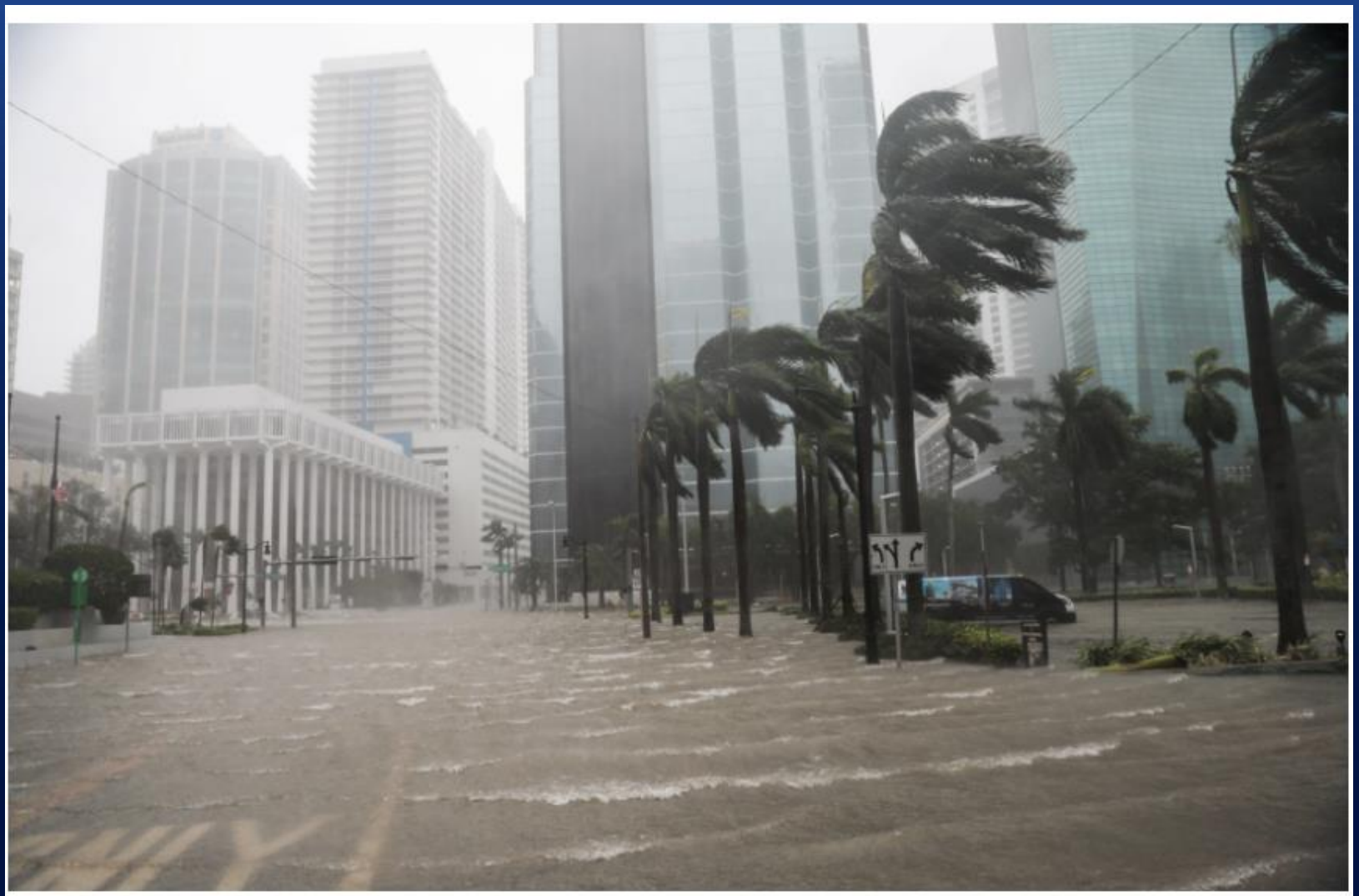
Subaqueous

DWELLINGS W/ - WINTER STORM JONAS



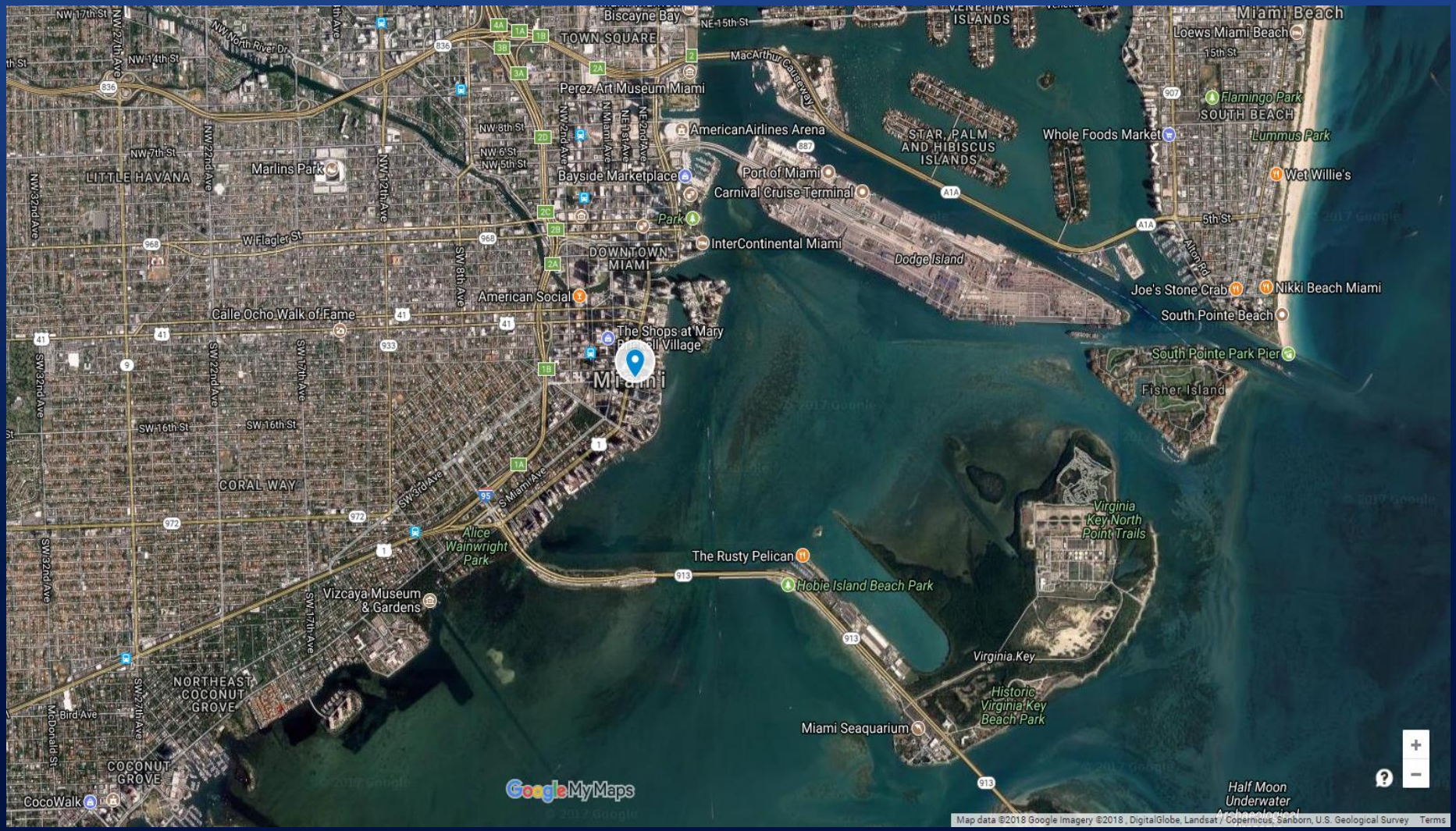
Subaqueous

FLOODING – HURRICANE IRMA (MIAMI, FL)



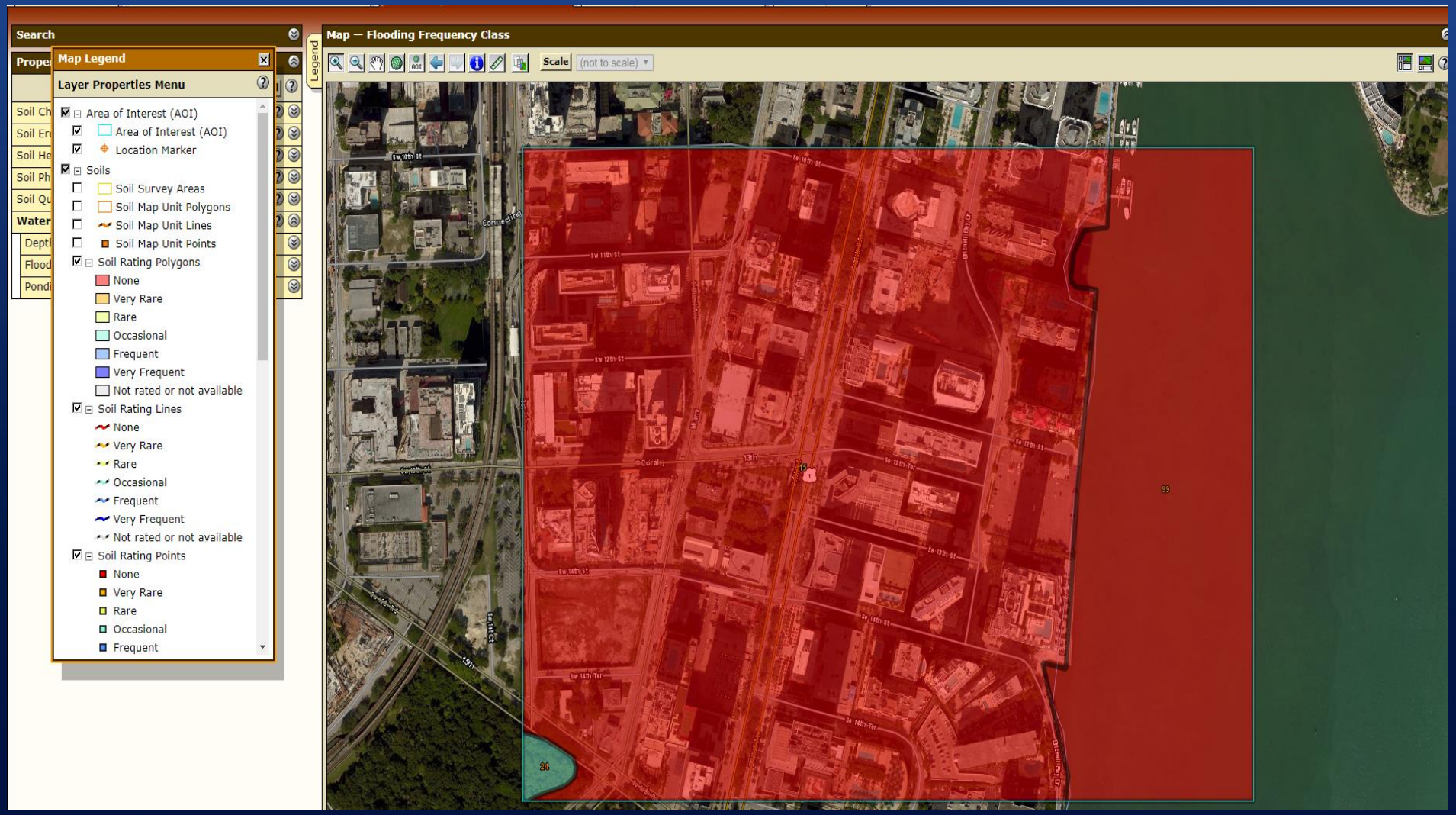
Flooding in the Brickell neighborhood as Hurricane Irma passed Miami on Sunday. PHOTO: STEPHEN YANG/REUTERS

FLOODING – HURRICANE IRMA (MIAMI, FL)



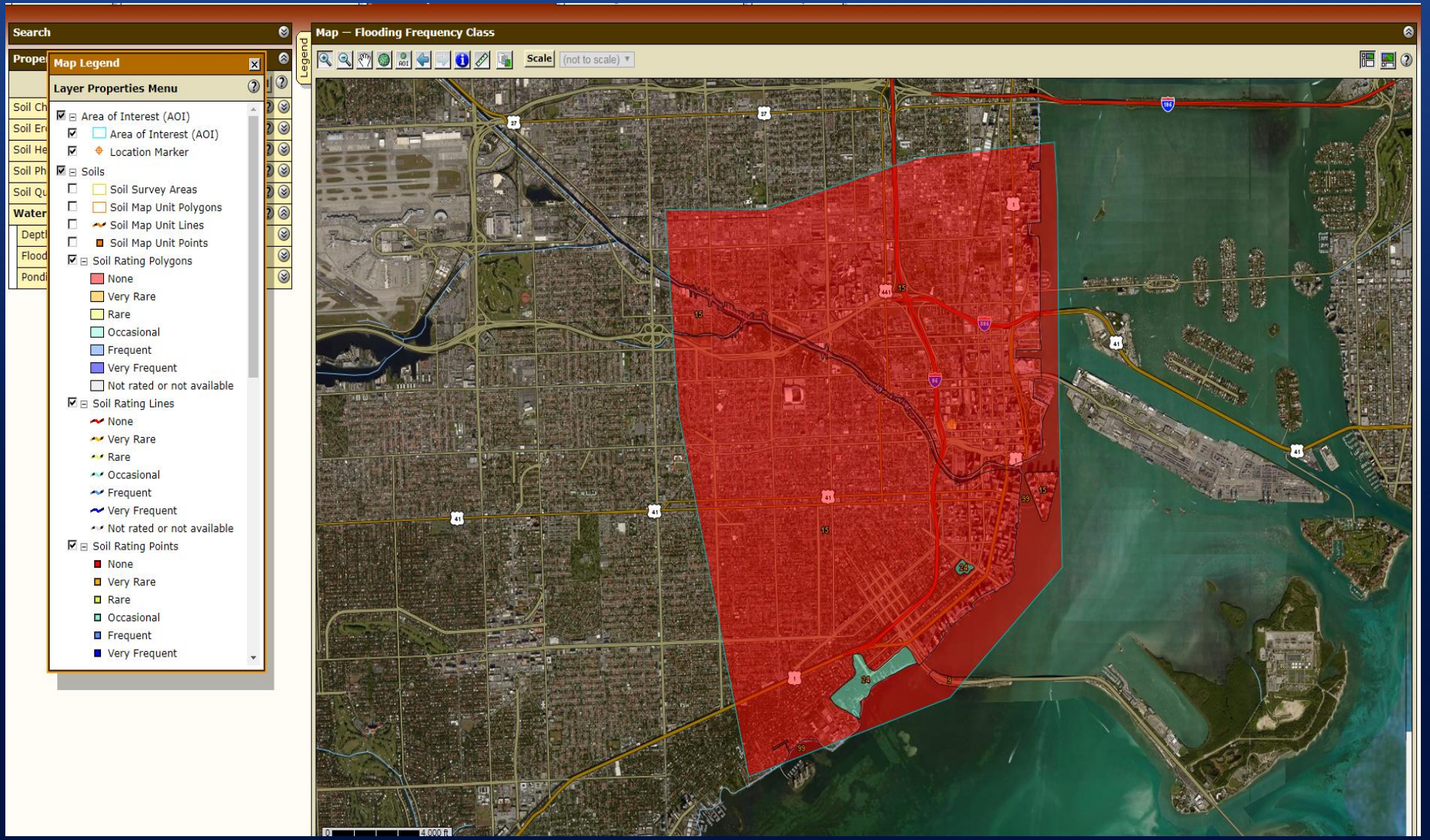
Subaqueous

FLOODING – HURRICANE IRMA (MIAMI, FL)

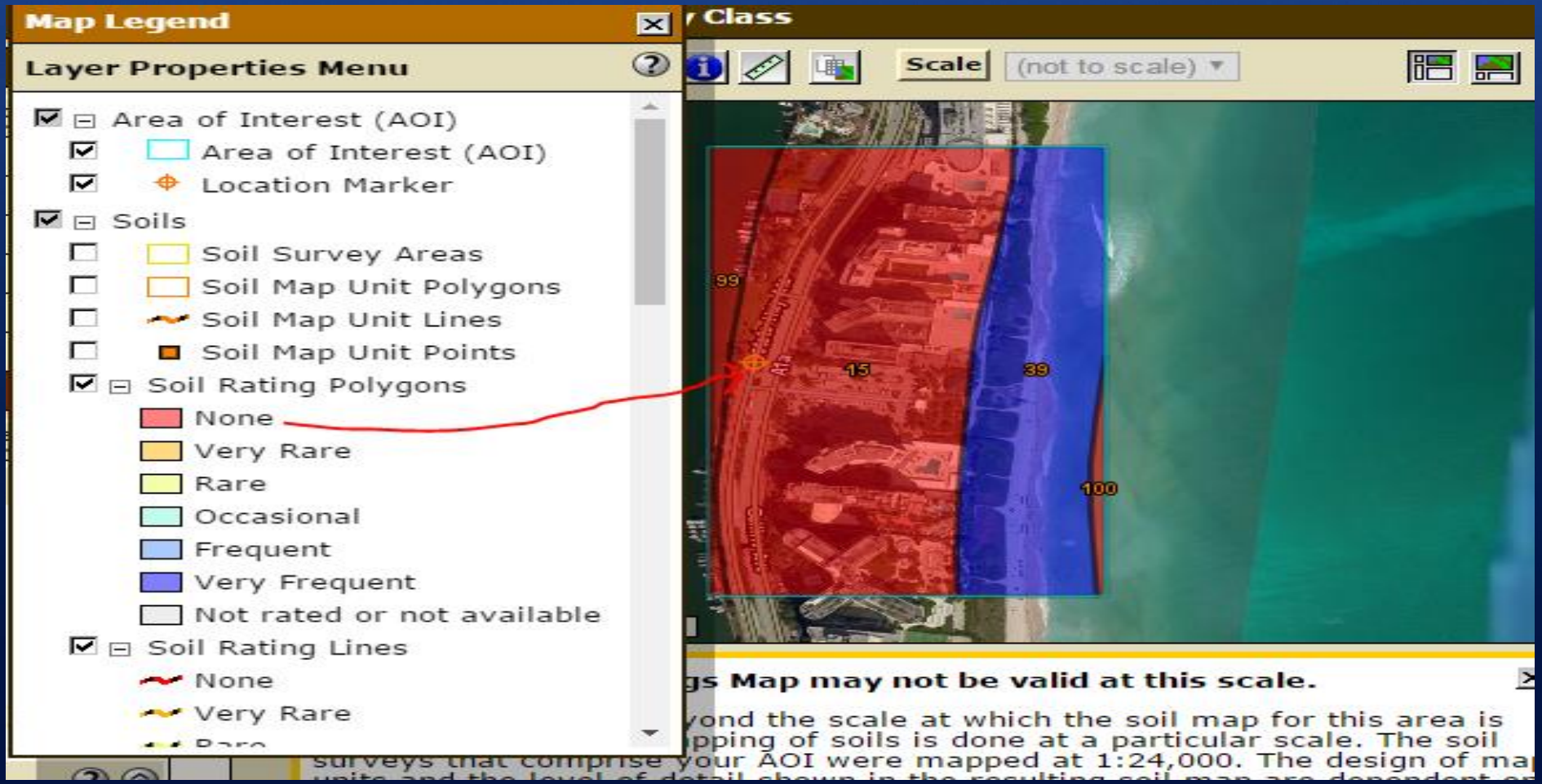


Subaqueous

FLOODING – HURRICANE IRMA (MIAMI, FL)



FLOODING – MIAMI, FL



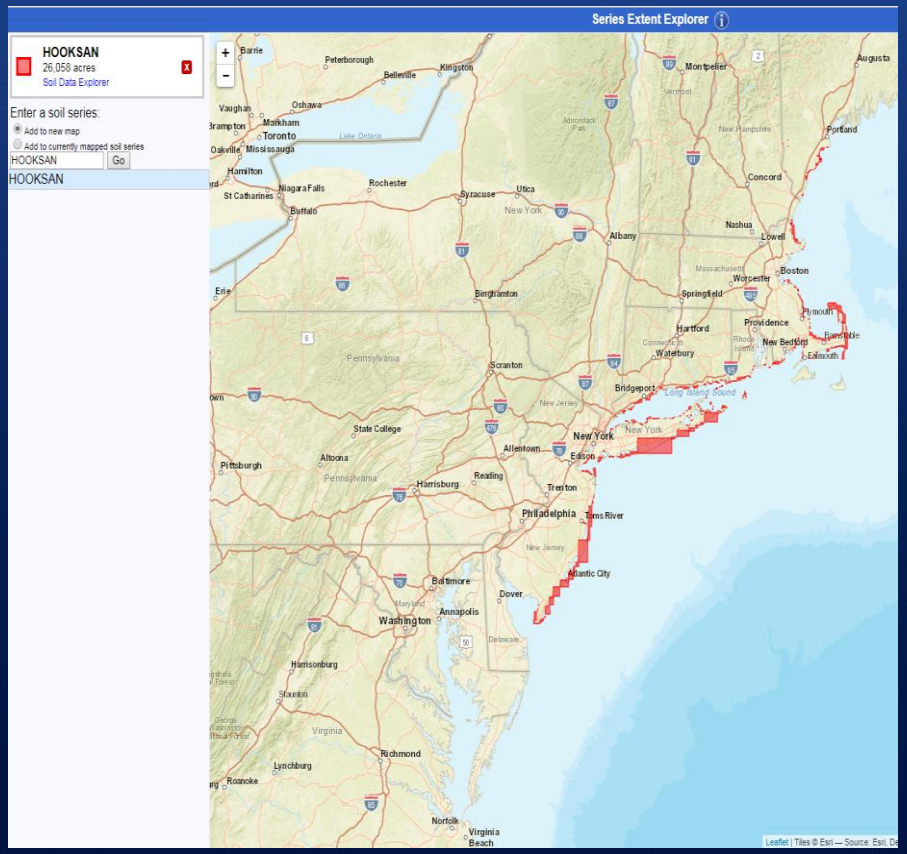
https://www.npr.org/2016/05/10/476071206/as-waters-rise-miami-beach-builds-higher-streets-and-political-willpower

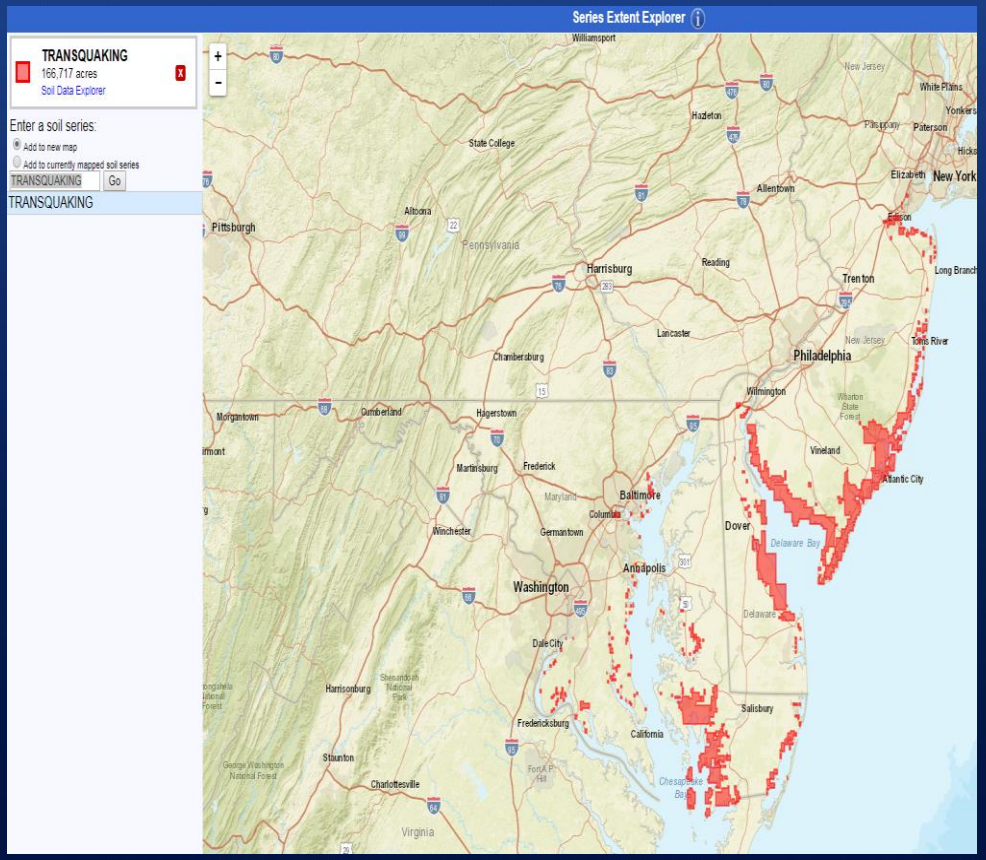
5 – NEW SUBAQUEOUS SOIL SERIES & OUTDATED SERIES CONCEPTS

- Many soil series concepts over-extended their original mapping region with a few used as substitutes for a soil series to be developed later in the mapping and soil survey update process but the job was never completed (Klej, Askecksy, Atsion, etc.)
- We now have the capability to accurately map and correlate the correct soils on a regional office / mapping basis.
- We also now have the capability to accurately map and inventory subaqueous soil areas providing state of the art soil interpretations.

SOIL SERIES MAPPED CORRECTLY

https://casoilresource.lawr.ucdavis.edu/see/

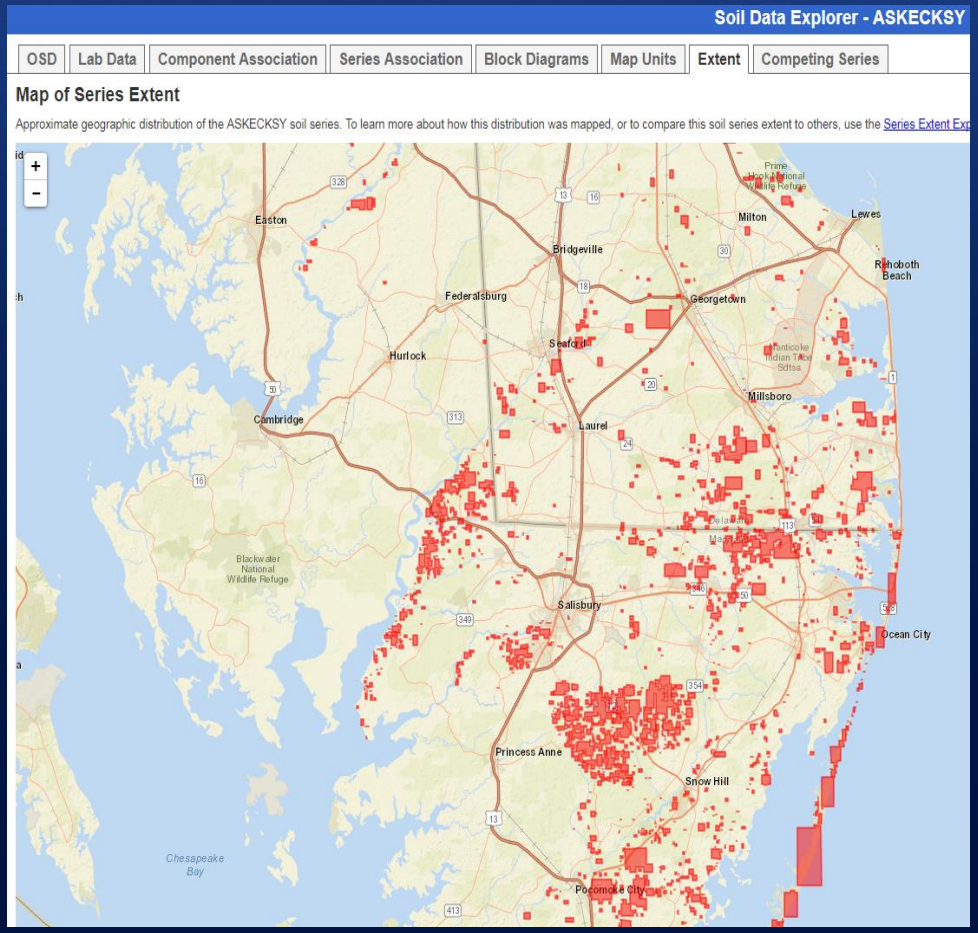


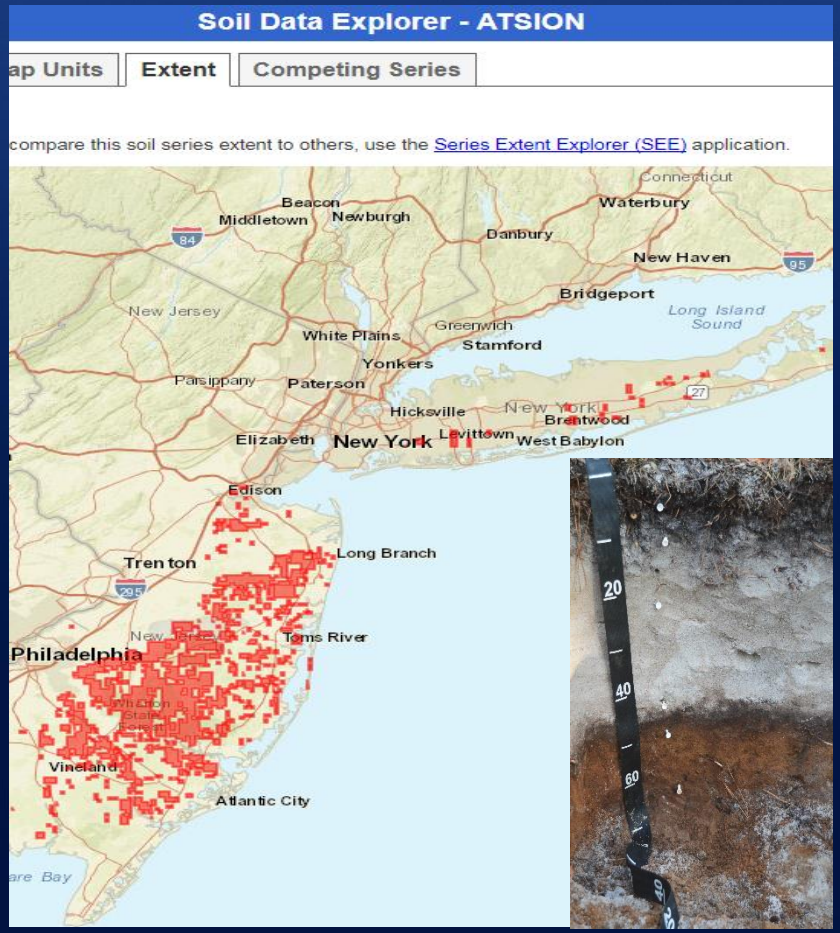


Subaqueous

SOIL SERIES OVER-EXTENDED ASKECKSY / ATSION

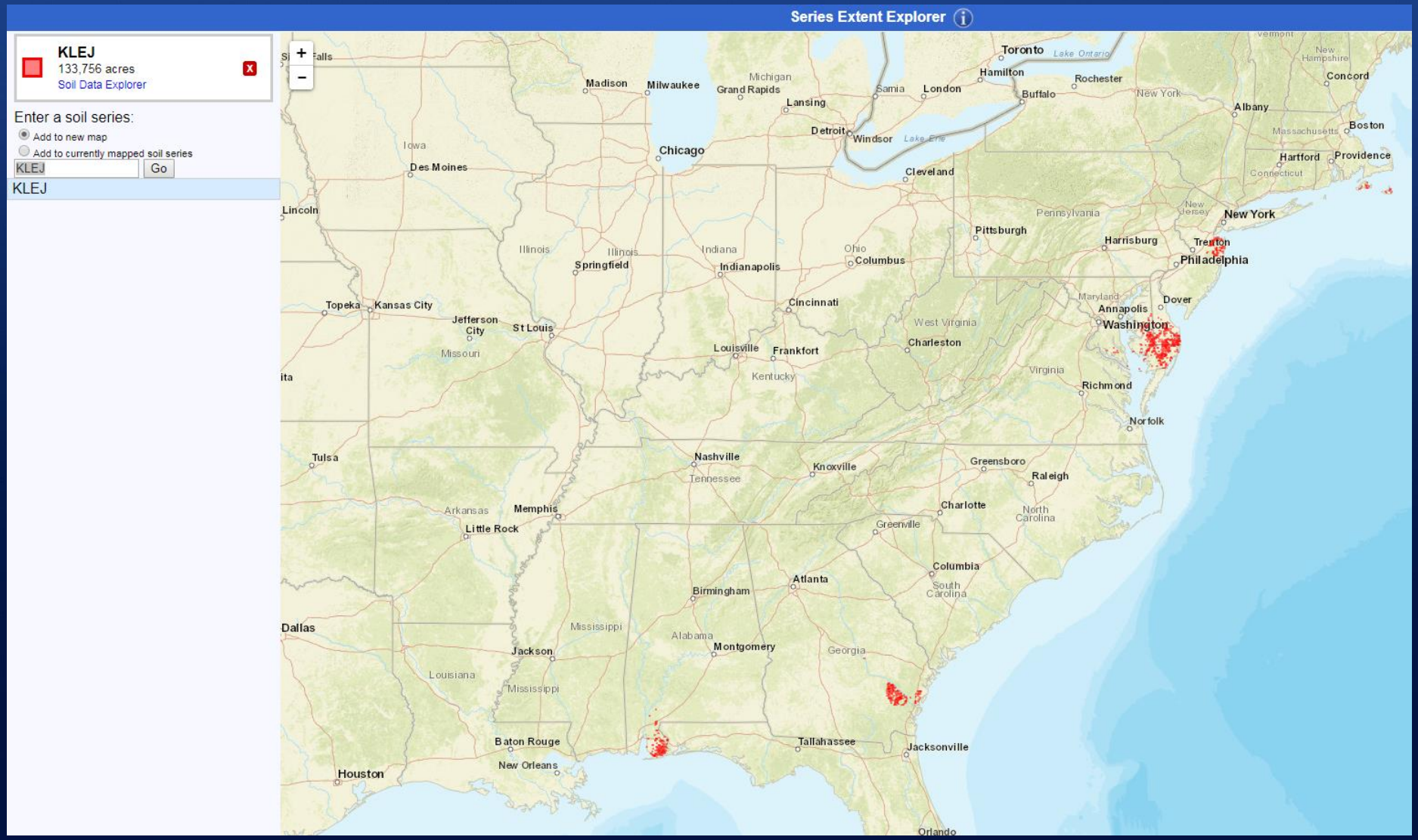
https://casoilresource.lawr.ucdavis.edu/see/





Subaqueous

SOIL SERIES OVEREXTENSION - KLEJ



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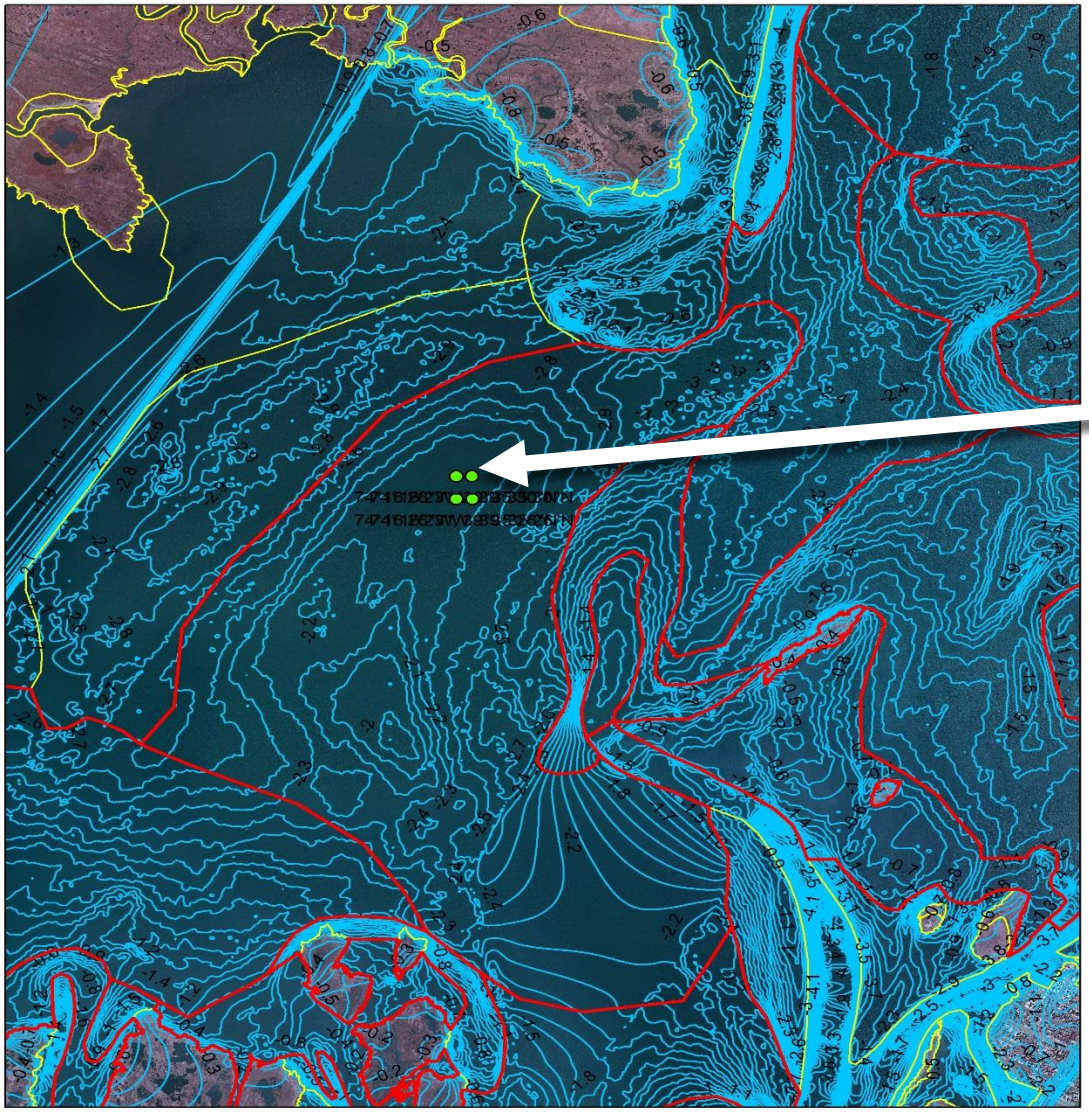
0
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2015NJ029013
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Subaqueous