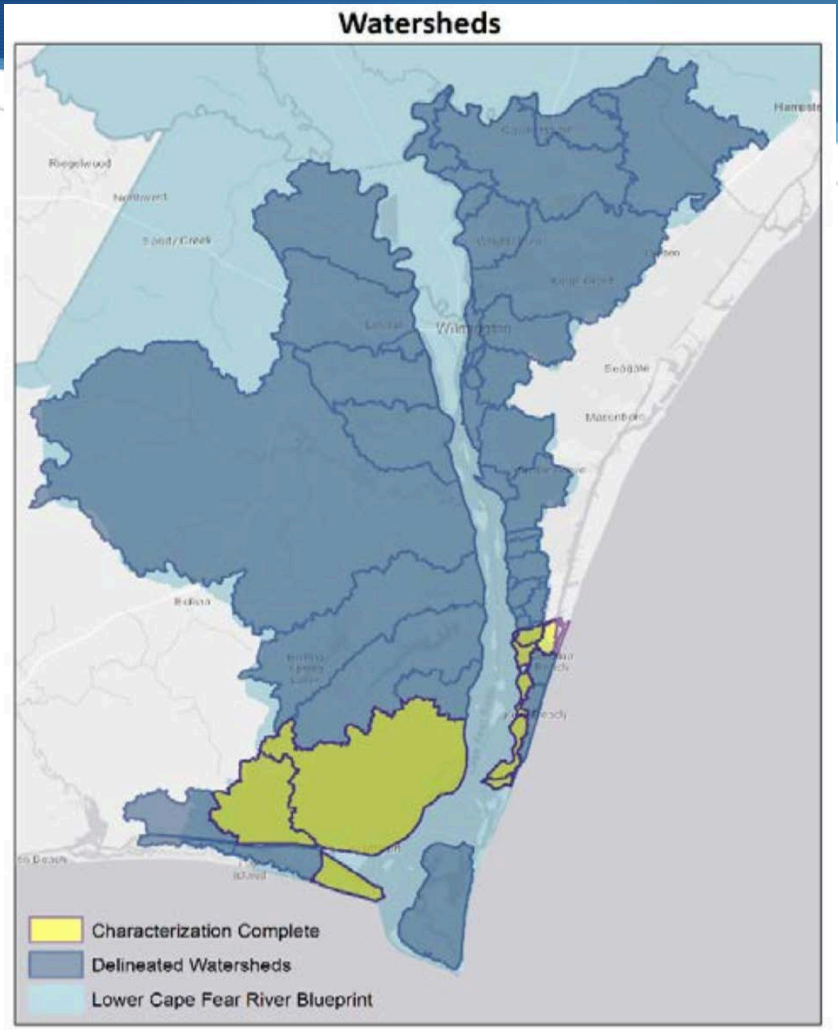
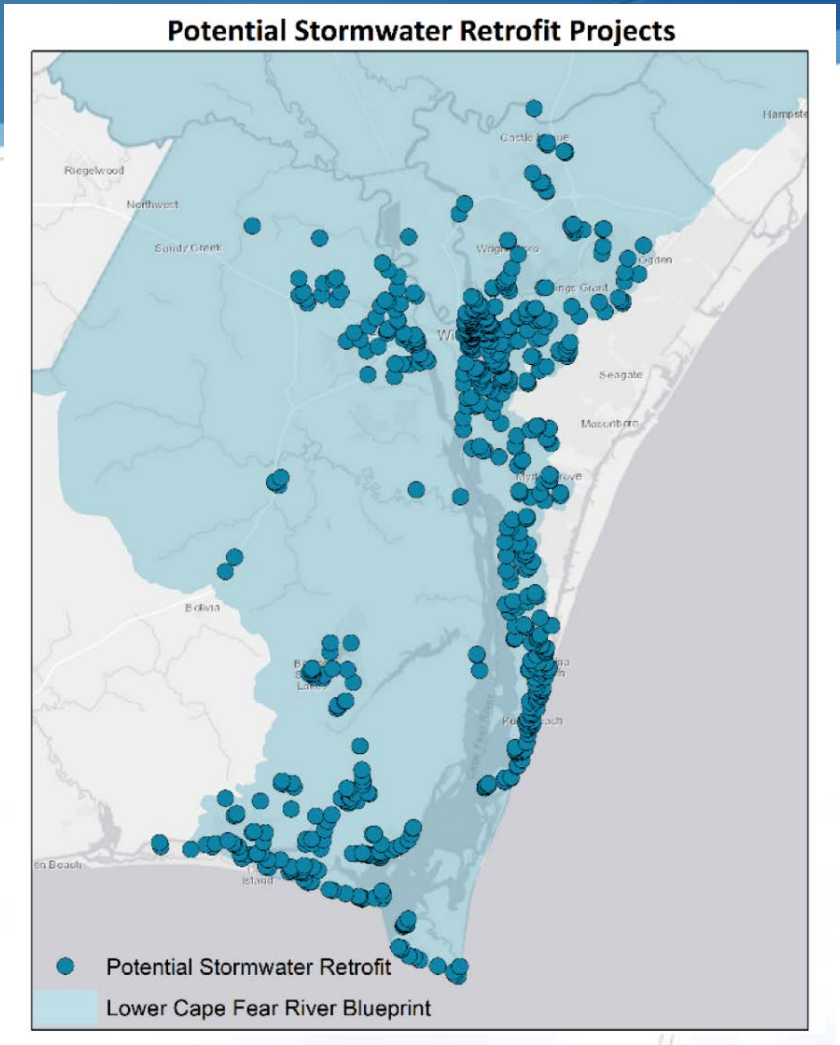
Shoreline Change Mapping

North Carolina Coastal Federation

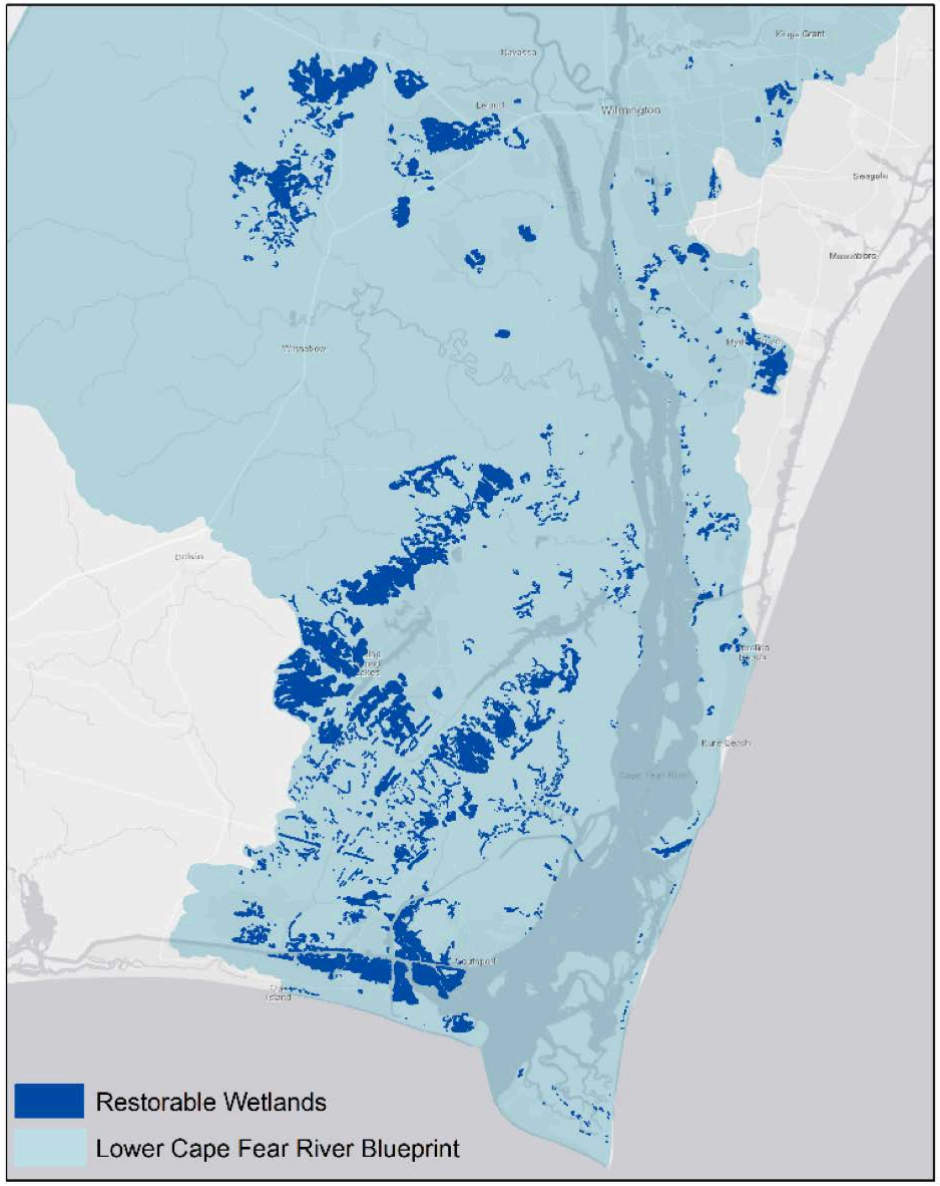
Kerri Allen and Sarah Chahin

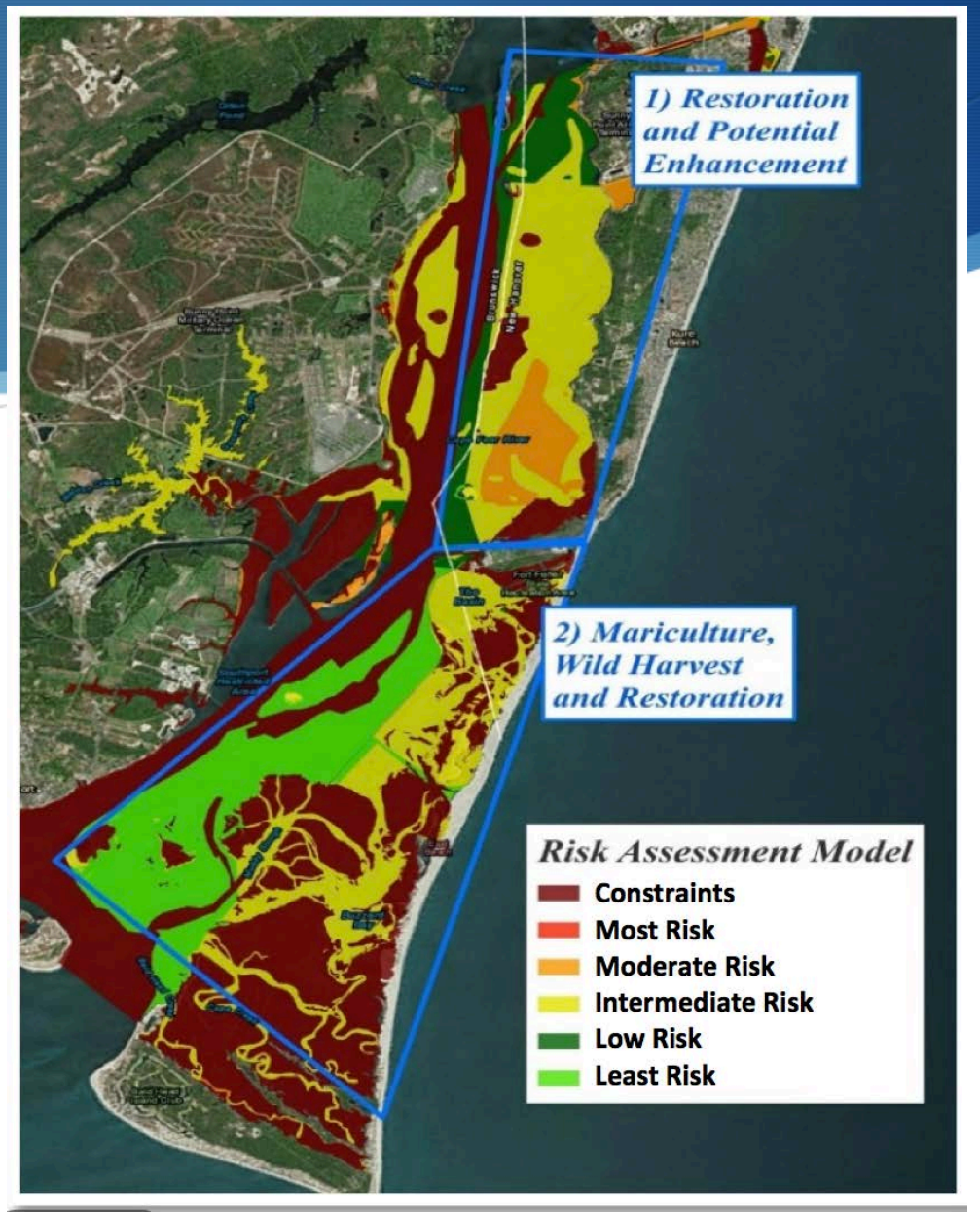
The Lower Cape Fear River Blueprint





Initial Wetland Restoration Site Assessment





A Tool for Selecting Living Shoreline Potential on the Lower Cape Fear River

Goals:

- Digitize shoreline from historic and modern imagery (i.e. 1990 and 2016)
- Show shoreline change between historic and modern imagery and identify areas experiencing erosion and accretion
- Use information derived to locate sites that have the potential for living shoreline projects on the Cape Fear River

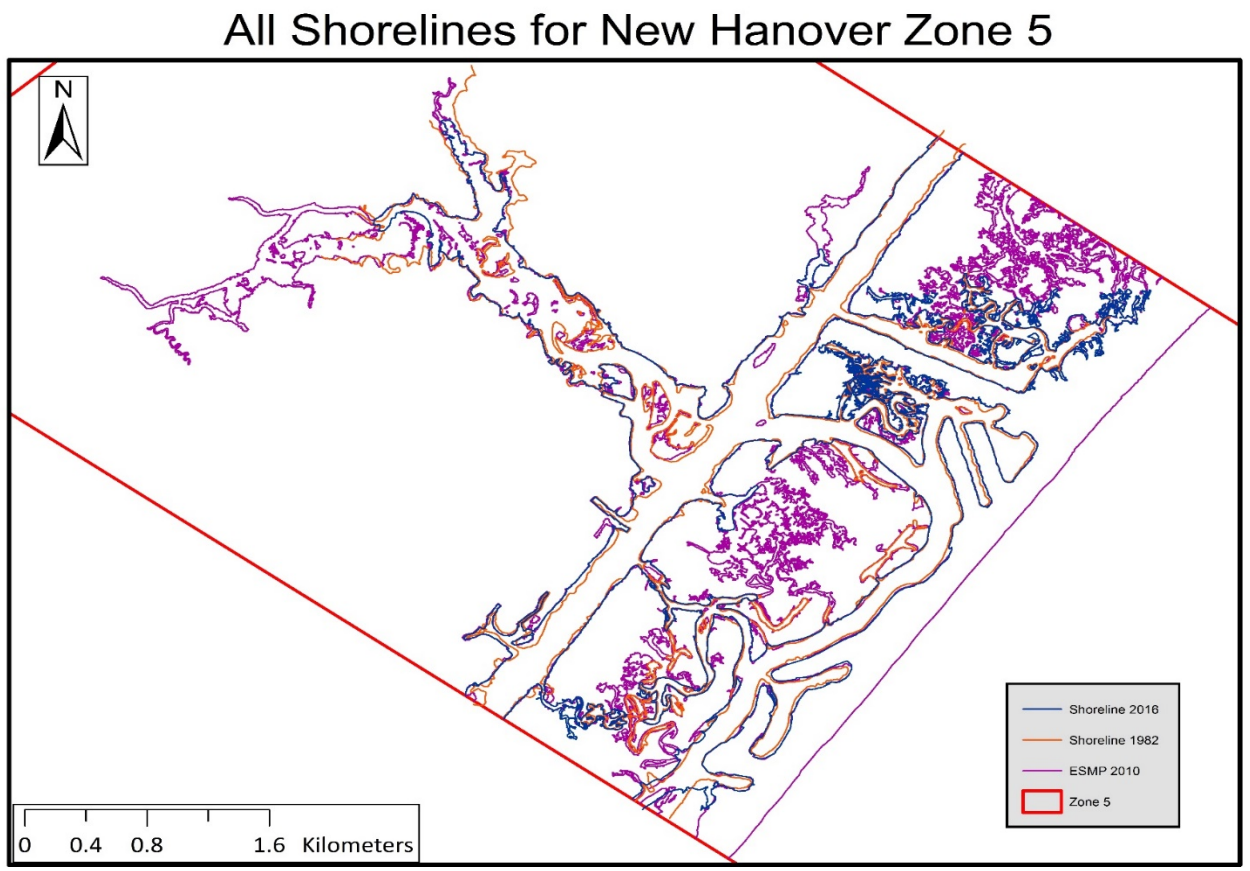
What data goes into your tool/effort?

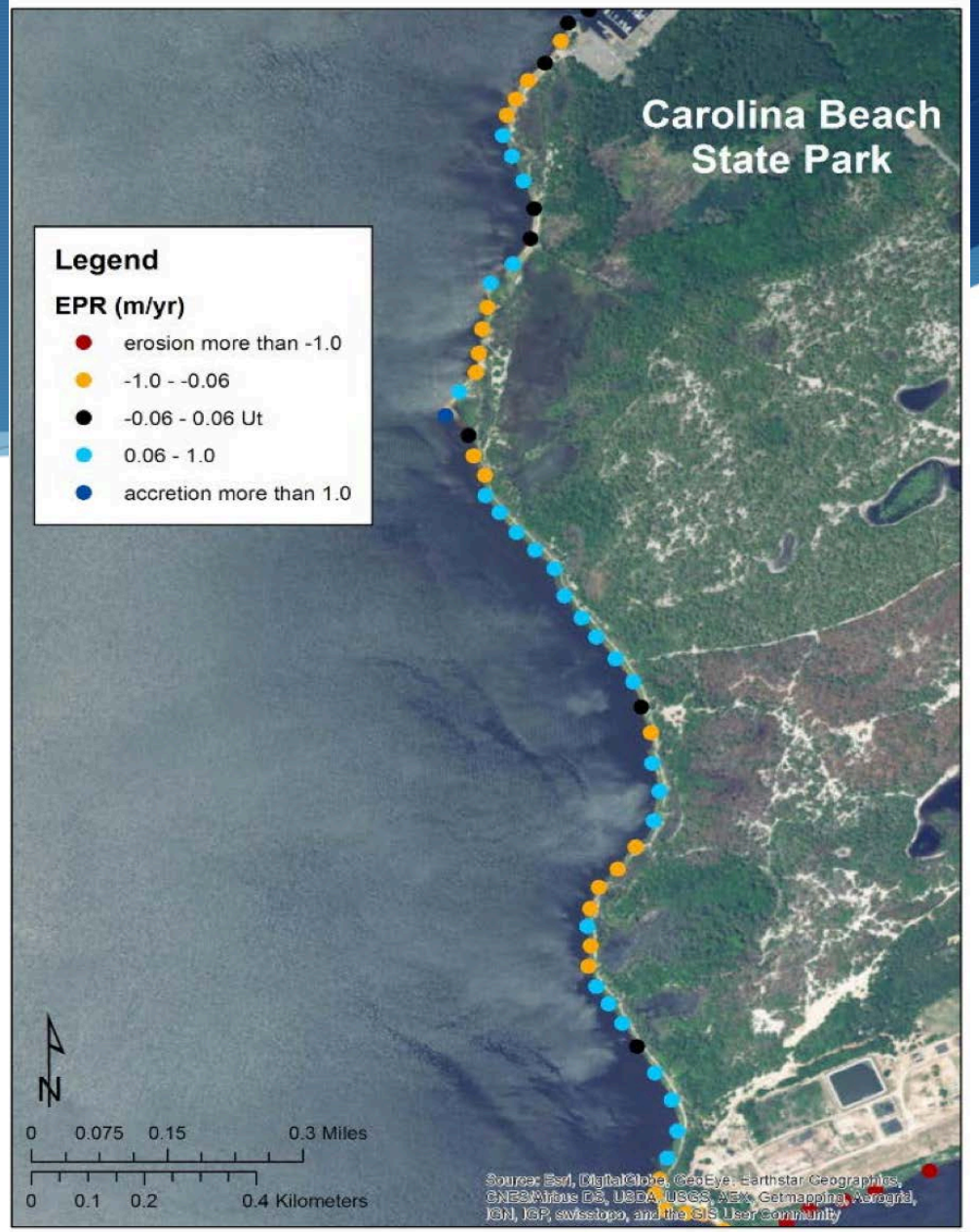
Data Layers

- Historical Imagery
- Modern Imagery
- Line Feature class for each year with attribute tables containing columns for shoreline type
- NC DEQ: ESMP (Estuarine Shoreline Mapping Project), most recent is 2010
- Page 23 of The Blueprint (helpful information)

Tool analytics

- Create new line feature class in the desired geodatabase and in the correct coordinate system
- Display on the map view, right-click and select “start editing”
- Open snapping toolbar, ensure “end snapping” turned on
- On the editor toolbar select “options” and under the “general” tab use the stream mode and add desired stream tolerance. When drawing the line feature right-click and select streaming or hit F8.
- Begin delineating shoreline and note shoreline type in attribute table while editing
- SAVE OFTEN!!
- Do for both the historic and modern imagery





UNCW's Shoreline and Sea-level Rise study maps illustrate shoreline changes between 1982 to 2016 for the LCFR study area shorelines.

1982 to 2010

Total # of transects	**612**
# of eroding transects / # of accreting transects	**486/120**
Mean net erosion / Mean net accretion	**-13.69 (m) / 12.75 (m)**
Mean net change	**-8.37 (m)**
Mean SCR	**-0.25 (m/yr)**

Shoreline 1982

OBJECTID *	SHAPE *	SHORE_TYPE	SHAPE_Length
4	Polyline	30	40812.810021
27	Polyline	40	1306.477536
32	Polyline	20	36291.315262

ESMP 2010

OBJECTID *	Shape *	SHORE_TYPE	Shape_Leng
2	Polyline M	30	218.87744
32	Polyline M	40	268.989718
1	Polyline M	20	383.473988

Shoreline 2016

OBJECTID *	SHAPE *	SHORE_TYPE	SHAPE_Length
1	Polyline	20	69608.153103
5	Polyline	30	12487.216399
14	Polyline	40	5440.457542

Use and Integration

- Describe if the tool/ effort can be used by others:

This tool can be used in city planning/zoning and for identifying areas in need of renourishment (i.e. beaches). It can also be used to identify wetlands in need of restoration and be used in planning for future sea-level rise.

- Describe if this tool/ effort could be incorporated into a bigger CFRP project:

This tool is being incorporated into the Lower Cape Fear River Blueprint Project, as well as local Watershed Management Plans.

- Describe if this tool/effort is complete or if there are on-going parts:

This tool is currently being used in The Blueprint to help identify priority sites for living shoreline projects.

Questions?

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