

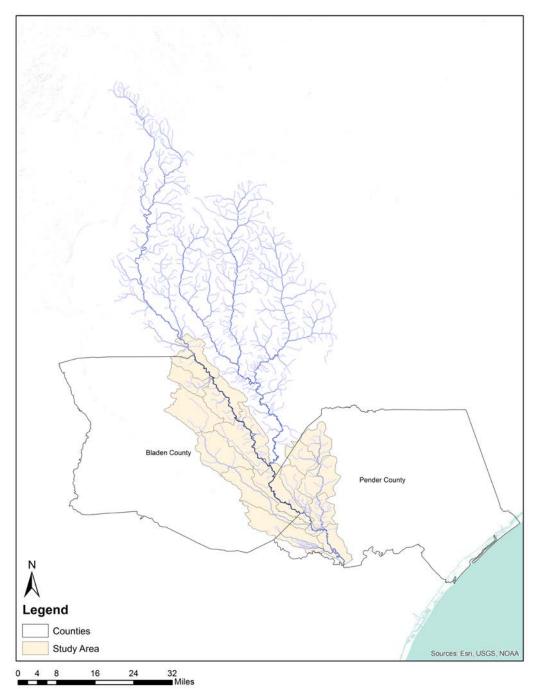


Progress Update: Assessing Aquatic Connectivity in the Black River Watershed

Rebeckah Hollowell *Environmental Scientist* Moffatt & Nichol

Danielle Darkangelo Executive Director Cape Fear Resource Conservation & Development

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Assessing Aquatic Connectivity in the Cape Fear River Basin

- Long-Term Plan: Assessing Aquatic Connectivity across the Cape Fear River Basin
- **Current Pilot Project:** lower Black River watershed based on priorities by partners
- Cape Fear Resource Conservation & Development (CFRC&D) has completed stream crossing assessments of 200 culverts and preliminary engineering of retrofitting one barrier within the lower Black River watershed of Bladen and Pender Counties

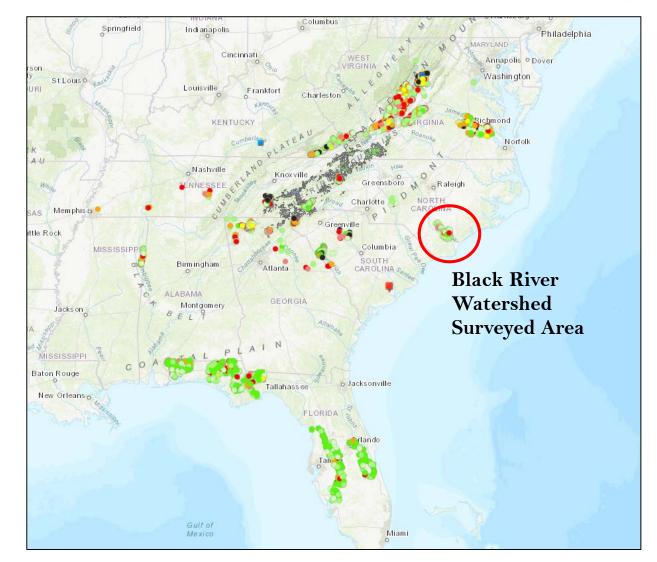
Goal 1: Restore Access to Historic Migratory Fish Habitat

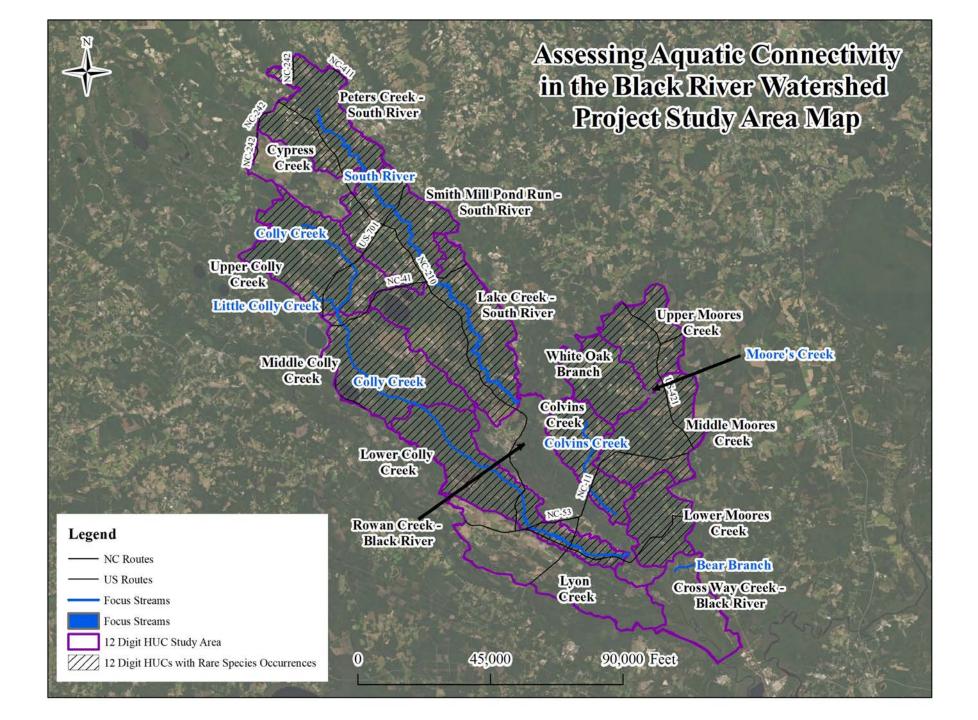
WHAT ARE THE PROBLEMS?	WHAT WILL THE PARTNERSHIP DO TO ADDRESS THE PROBLEMS?	WHAT WILL THE RESULTS OF THE PARTNERSHIP'S WORK BE?
PROBLEM 1: Obstructions block or impede migratory fish access to historic spawning and nursery habitat.	STRATEGY 1A: Modify obstructions to fish passage in the Cape Fear River mainstem and monitor passage.	TARGET 1A: Safe, timely, effective passage for all anadromous species is restored at Lock and Dam 1. Designs for safe, timely, effective passage are completed and initiated at Lock and Dams 2 and 3 within five years.
CAPE FEAR	STRATEGY 1B: Modify obstructions to fish passage in tributaries of the Cape Fear River Basin	TARGET 1B: At least five obstructions on tributaries are removed or modified within five years.
	ear River Partnership 5-Year Implementat /capefearriverpartnership.com/implement	

PARTY

SARP Stream Crossing Surveys & Barrier Prioritization Tool

		tream	Crossing Sur	vey	DATA ENT BY REWEWED BY	ENTRY DATE	
DATA	Crossing Code				Local ID (Optional)		
	Date Observed Instructions. Lead Observer						
	Town/County Stream						
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Impacts of Hurricane Florence

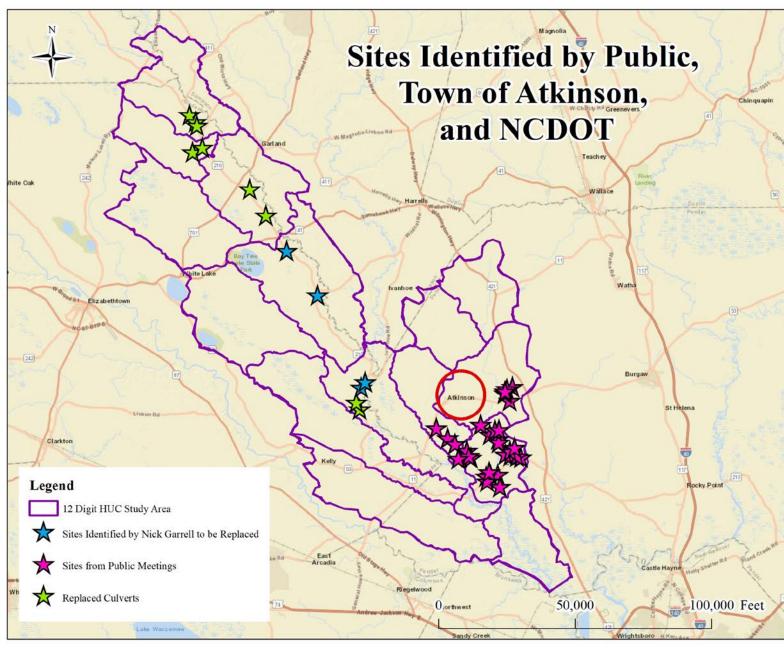
- According to the National Hurricane Center, during Hurricane Florence, "high water levels in the Cape Fear River backed up the <u>Black River</u> <u>and Moores Creek</u>, leading to exceptional flooding in the Currie and Canetuck communities. The town of Atkinson was isolated by high water." (Stewart and Berg, 2019).
- Two weeks after Hurricane Florence, parts of 270 roads remained closed due to high water or flood damage and nearly 3,000 sites still needed repairs.
- Project schedule shifted due to high water levels.
- Project priorities were placed on local feedback on the need to assess for flood impacts to local communities.



Hurricane Florence flooding on a road in Bladen County



Public Information meeting in Bladen County



Extensive Flooding Post-Florence

Assessing Aquatic Connectivity in the Black River Watershed **Pender Results** with Flood Data

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30,000 Feet

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15'000

Legend

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0

777

Barrier Type O Insignificant Barrier O Minor Barrier

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Bladen County

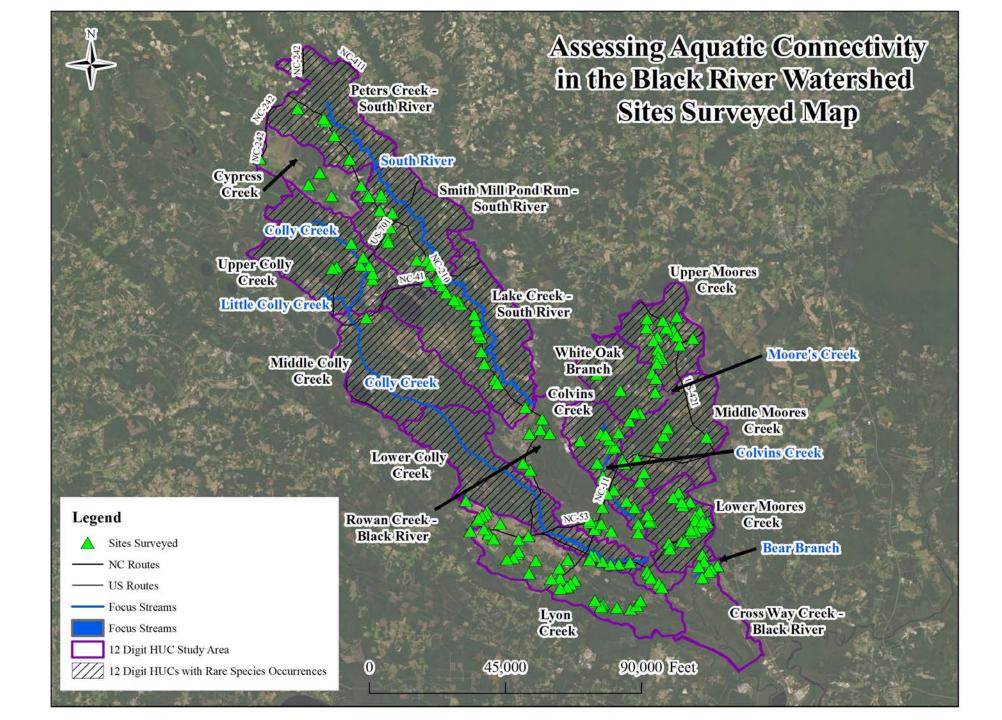
Pender County - National Hydrography Data

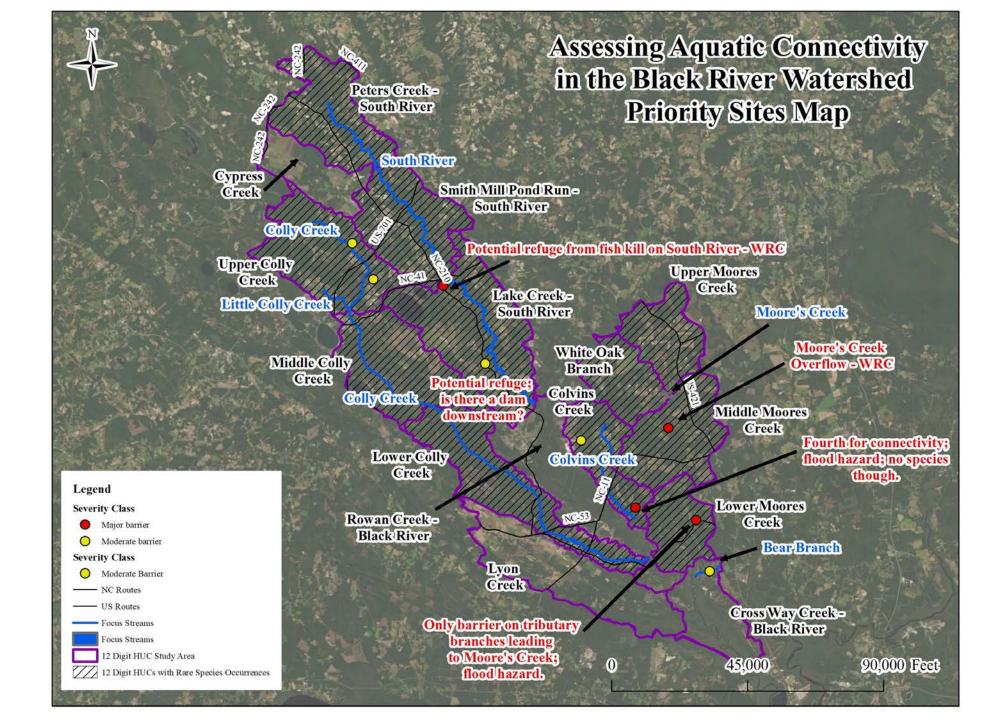
2 Digit HUC Study Area

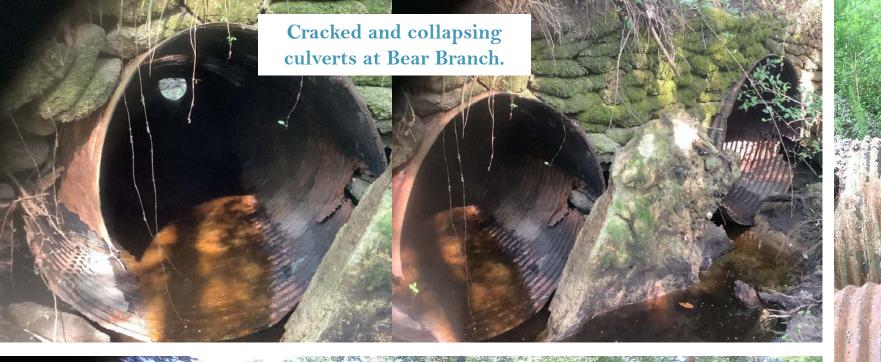
12 Digit HUCs with Rare Species Occurrences Pender County Post Hurricanes 2018 Flooded Areas

- NC Routes - US Routes

Completed SARP Protocol Results







Moores Creek Overflow – dry culverts creating a severe barrier.



Mutual Benefits to Aquatic Connectivity and Community Resiliency

- Most culverts were designed with principal objective of moving water across a road alignment.
- In the past, little consideration was given to ecosystem processes such as the natural hydrology, sediment transport, fish and wildlife passage, or the movement of woody debris.





- By restoring high priority culverts, aquatic connectivity will be improved along with hydrology and sediment transport.
- Supports community resiliency!

Partners and Roles



Stream Crossing Protocol and Barrier Prioritization Tool





Protocol Review



Project Lead



moffatt & nichol

Field Assessment/ Engineering and Design



Culvert Prioritization



Community and Staff Support





Technical Support

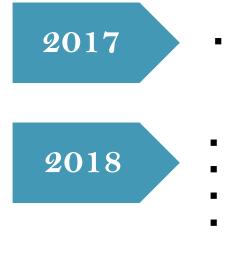


Rare Species Historical Observations



Leverage Resources

Project Schedule & Next Steps



2019

Grant Award & Project Initiated

- March SARP Stream Crossing Survey Training
- August Contract agreement signed & Notice to Proceed
- **September** Hurricane Florence
- Fall GIS Data Collection and Map Preparation
- January Project Team Meeting
- **February** Public Information Meetings in Bladen and Pender Counties
- June & July Field assessments of 200 culverts
- Fall Barrier ranking, ground truthing, and preliminary engineering & design of top 3 severe barriers
- 2020
- **Spring** Pilot project completion with final report
- **Summer -** Acquire funding for culvert modification/retrofit implementation
- Fall Conduct engineering/design/permitting of top severe barrier

Implementation Funding Opportunities

- National Fish and Wildlife Foundation (NFWF) Emergency Coastal Resilience Fund (ECRF) 2019 Grant
- Environmental Enhancement Grant (EEG) Program
- Atlantic Coastal Fish Habitat Partnership FY2020 Funds
- Disaster Mitigation Funding











Recommendations

- Acquisition of funding to retrofit the most severe barriers
- Expand use of Barrier Prioritization Tool to other watersheds within Cape Fear River Basin
- Continue stream crossing assessments to other counties adjacent to Bladen and Pender Counties
- Coordination with state agencies and municipalities to identify additional watersheds to explore surveying for barriers
- County staff to work with state and federal floodplain staff to more accurately access flooding impacts
- Seek funding for supporting community resilience

Questions?

Dawn York Senior Coastal Planner & Scientist

Moffatt & Nichol: Wilmington Office (910) 218-7087 dyork@moffattnichol.com

Danielle Darkangelo *Executive Director*

Cape Fear RC&D: (919) 607-9996 director@capefearrcd.org Rebeckah Hollowell Environmental Scientist

Moffatt & Nichol: Raleigh Office (984) 239-2765 rhollowell@moffattnichol.com