



SURVEY SUMMARY

NCWRC – Inland Fisheries Division – Coastal Region



Black River Fisheries Resources Survey Summary, 2020

NEED

The Black River, a tributary of the Cape Fear River is classified as “Outstanding Resource Waters” by the NC Division of Water Resources. The Black River contains a variety of fish species, including Largemouth Bass, Bluegill, Whitefin Shiner, and Channel Catfish. Statewide effort is underway to determine the distribution of black bass species, levels of hybridization between black bass species, and the frequency of introgression between Florida Bass and Largemouth Bass. As part of this statewide effort, black bass sampling in the Black River was conducted to determine the introgression of Largemouth Bass and Florida Bass alleles. Sampling is also necessary to monitor the status and demographic characteristics of inland game fish species and evaluate the Black River’s unique fisheries resources.

OBJECTIVES

1. Evaluate the status of sport fish species in the Black River, including Largemouth Bass.
2. Collect fin clips to determine frequency of Florida Bass and Largemouth Bass alleles.

METHODS

Personnel: April Boggs and Kyle Rachels – District 4 Fisheries Biologists

Waterbody: Black River – 12 sampling sites (Table 1).

Fish Sampling Gear: Boat-Mounted Electrofishing (7.5 GPP, 120 PPS, 4.5-5.5 kW)

Other Gear Utilized: YSI meter to measure water temperature (°C), conductivity ($\mu\text{S}/\text{cm}$), dissolved oxygen (mg/L), % saturation, salinity (ppt).

Species of Primary Interest: Largemouth Bass; sunfish; catfish

Sample Date(s): August – September 2020

Funding Source: Federal Aid in Sport Fish Restoration and agency license receipts.

Project Name in BIODIE Fish: D4 Rivers

Citation:

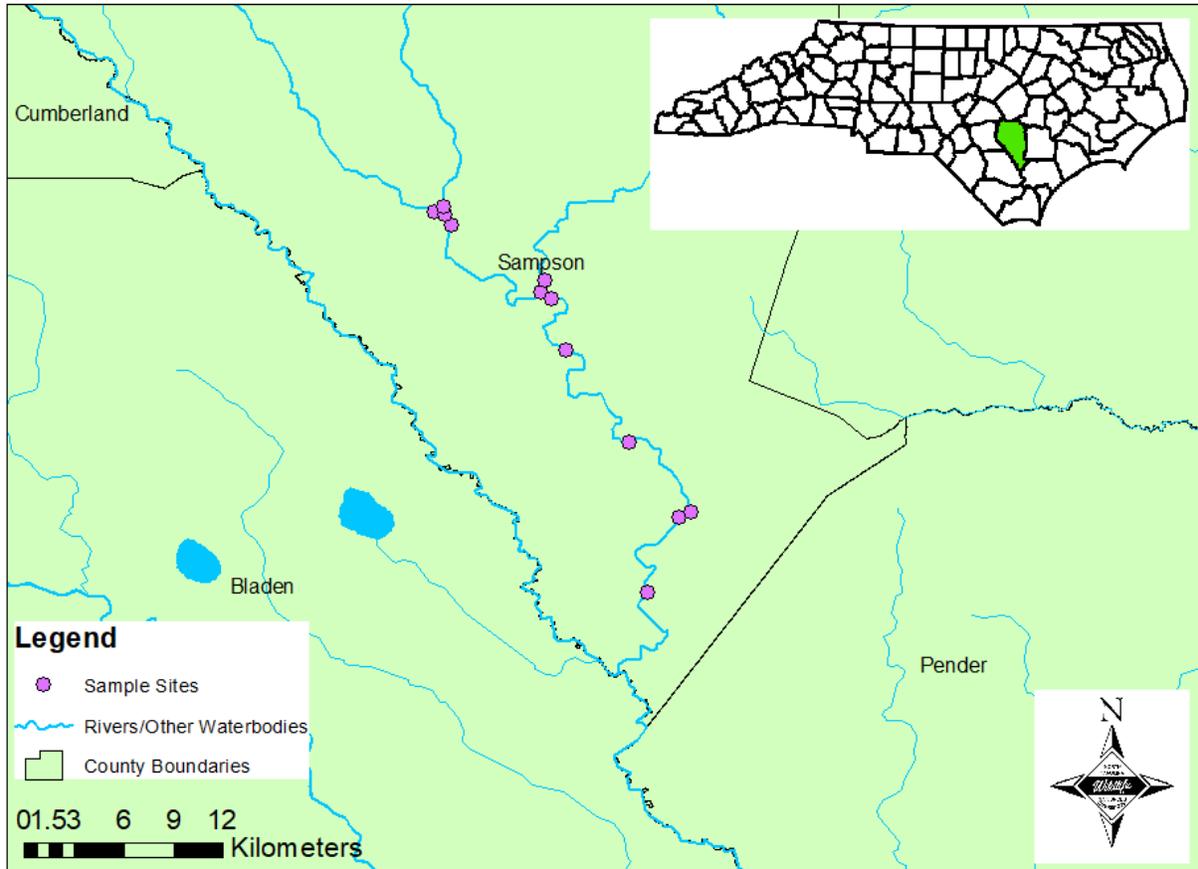
Boggs, A., and K. Rachels. 2022. Black River Sport Fish Stock Assessment, 2020. North Carolina Wildlife Resources Commission, Federal Aid in Sport Fish Restoration, survey summary, Raleigh.



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STUDY AREA



BIOLOGICAL OBSERVATIONS

Total Catch. During August and September of 2020, we sampled 12 sites for a total of 3.36 h using boat-mounted electrofishing (Table 1). Sampling resulted in the collection of 452 fish from 25 species (Table 2). One hybrid sunfish and one *Notropis* spp. could not be identified to the species level. Inland Game Fish comprised 124 individuals of 8 species and 27% of the total catch. The most abundant species, Coastal Shiner, accounted for 46% of the total catch. Bluegill were the most abundant inland game fish and comprised 12% of the total catch. No species of greatest conservation need were observed.

Largemouth Bass. Sampling yielded 29 Largemouth Bass, with fin clips collected from 26 individuals. Overall mean catch per unit effort (CPUE) (SE) was 8.11 (2.37) fish/h. Largemouth Bass comprised 6.4% of the total number of fish collected from the Black River (Table 2). Total length ranged from 62 mm to 454 mm, with a mean of 224 mm (Table 2). Length frequency for Largemouth Bass varied greatly, with 75 mm to 100 mm being the modal size class (Figure 1). Genetic analysis of 27 fin clips indicates the Largemouth Bass population contains substantial



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introgression of Florida Largemouth Bass alleles, with a mean Florida Bass allele frequency of 75% (greater than 95% is considered pure Florida Bass). No pure (>95%) Florida Bass or Largemouth Bass were present in the sample. Genetic analysis did not indicate the presence of first generation (F1) hybrids.

Sunfish. Five species of sunfish were captured during sampling events, including Bluegill (n = 53), Redbreast Sunfish (n = 18), Redear Sunfish (n = 16), Spotted Sunfish (n = 1), and Warmouth (n = 1). One hybrid sunfish was also captured. Bluegill overall mean CPUE (SE) was 14 fish/h. Redbreast Sunfish overall mean CPUE (SE) was 4.81 (1.77) fish/h. Redear Sunfish overall mean CPUE (SE) was 3.97 (1.97) fish/h. Modal size classes for Bluegill included the 150–160mm, 160–170mm, and 170–180mm length groups (Figure 2).

Catfish. Two non-native species of ictalurids—Channel Catfish (n = 21) and Flathead Catfish (n = 9)—accounted for 7% of the total catch (Table 2), but native species of ictalurids were not collected.

MANAGEMENT RECOMMENDATIONS

1. Investigate occupancy of any native ictalurids.
2. Continue periodic monitoring fisheries resources at least once every three to five years.
3. Implement NCWRC coastal region hurricane response plan following hurricane-induced fish kills when needed.



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TABLE 1. Sampling details for the 2020 Black River Fisheries Resource Assessment. Discharge data was collected from USGS gage number 02106500 near Tomahawk, NC.

Sample date	Site name	Waterbody	Latitude	Longitude	Boating access area	Effort (s)	Discharge (CFS)
8/20/2020	GHC20	Great Coharie	34.83594500	-78.36439100	Wright Bridge	1023	-
8/20/2020	GHC19*	Great Coharie	34.83126100	-78.36384800	Wright Bridge	672	-
8/20/2020	GHC18	Great Coharie	34.82576200	-78.35993500	Wright Bridge	940	-
8/20/2020	LC	Little Coharie	34.83270000	-78.36920000	Wright Bridge	818	-
8/27/2020	BLK79	Black River	34.66987137	-78.22998559	Hunts Bluff	959	1090
8/27/2020	BLK78*	Black River	34.66721109	-78.23648588	Hunts Bluff	1051	1090
8/27/2020	BLK69	Black River	34.62619750	-78.25376685	Hunts Bluff	985	1090
9/3/2020	BLK101	Black River	34.75790001	-78.29775170	Ivanhoe	960	650
9/3/2020	BLK88	Black River	34.70757558	-78.26378545	Ivanhoe	1294	650
9/9/2020	BLK108	Black River	34.78597252	-78.30607305	Private landing	1077	650
9/9/2020	SXR1	Six Runs Creek	34.79572400	-78.30910200	Private landing	1239	-
9/9/2020	SXR0*	Six Runs Creek	34.78963600	-78.31194400	Private landing	1067	-

*Only catfish were targeted at these sites



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TABLE 2. Summary statistics of inland game fish and nongame fish collected during 2020 boat electrofishing survey on the Black River.

Species	Number collected	Percent of total (%)	Mean total length (mm)	Minimum total length (mm)	Maximum total length (mm)
Inland game fish					
American Shad	1	0.2	70	70	70
Black Crappie	4	0.9	391	216	348
Bluegill	53	11.7	153	62	212
Hybrid Sunfish	1	0.2	200	200	200
Largemouth Bass	29	6.4	224	62	454
Redbreast Sunfish	18	4.0	135	40	226
Redear Sunfish	16	3.5	199	44	236
Spotted Sunfish	1	0.2	128	128	128
Warmouth	1	0.2	166	166	166
Subtotal	124	27.4			
Nongame fish					
American Eel	14	3.1	355	70	600
Bowfin	6	1.3	618	490	702
Channel Catfish	21	4.6	220	64	650
Coastal Shiner	206	45.6	45	30	76
Common Carp	1	0.2	738	738	738
Creek Chubsucker	1	0.2	88	88	88
Dusky Shiner	8	1.8	63	34	86
Eastern Shiners	1	0.2	27	27	27
Flathead Catfish	9	2.0	342	76	650
Golden Shiner	1	0.2	64	64	64
Hogchoker	2	0.4	61	58	64
Longnose Gar	10	2.2	522	264	686
Piedmont Darter	5	1.1	58	46	74
Pirate Perch	5	1.1	61	46	74
Sandbar Shiner	5	1.1	68	50	92
Spotted Sucker	5	1.1	174	76	450
Tessellated Darter	2	0.4	42	42	42
Whitefin Shiner	26	5.8	72	56	98
Subtotal	328	72.6			
Total	452	100			



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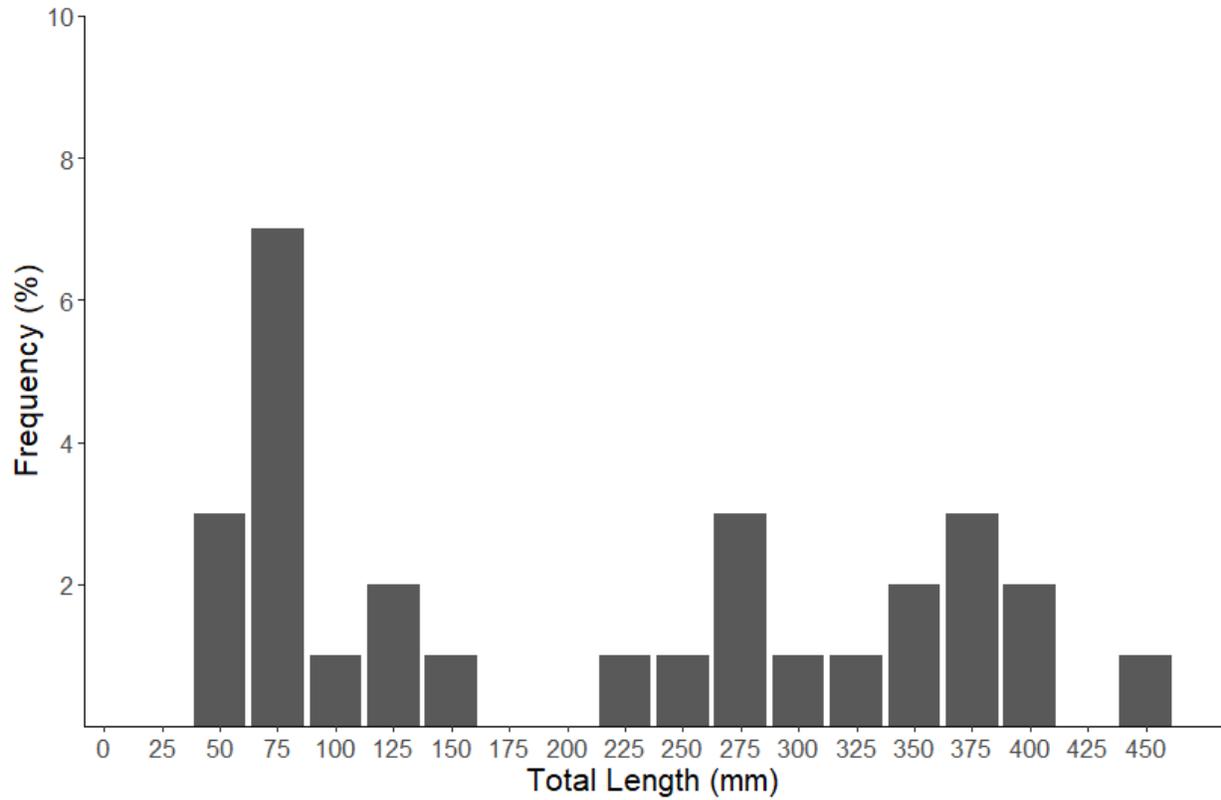


FIGURE 1. Length frequency for Largemouth Bass (n = 29) captured from the Black River, 2020.



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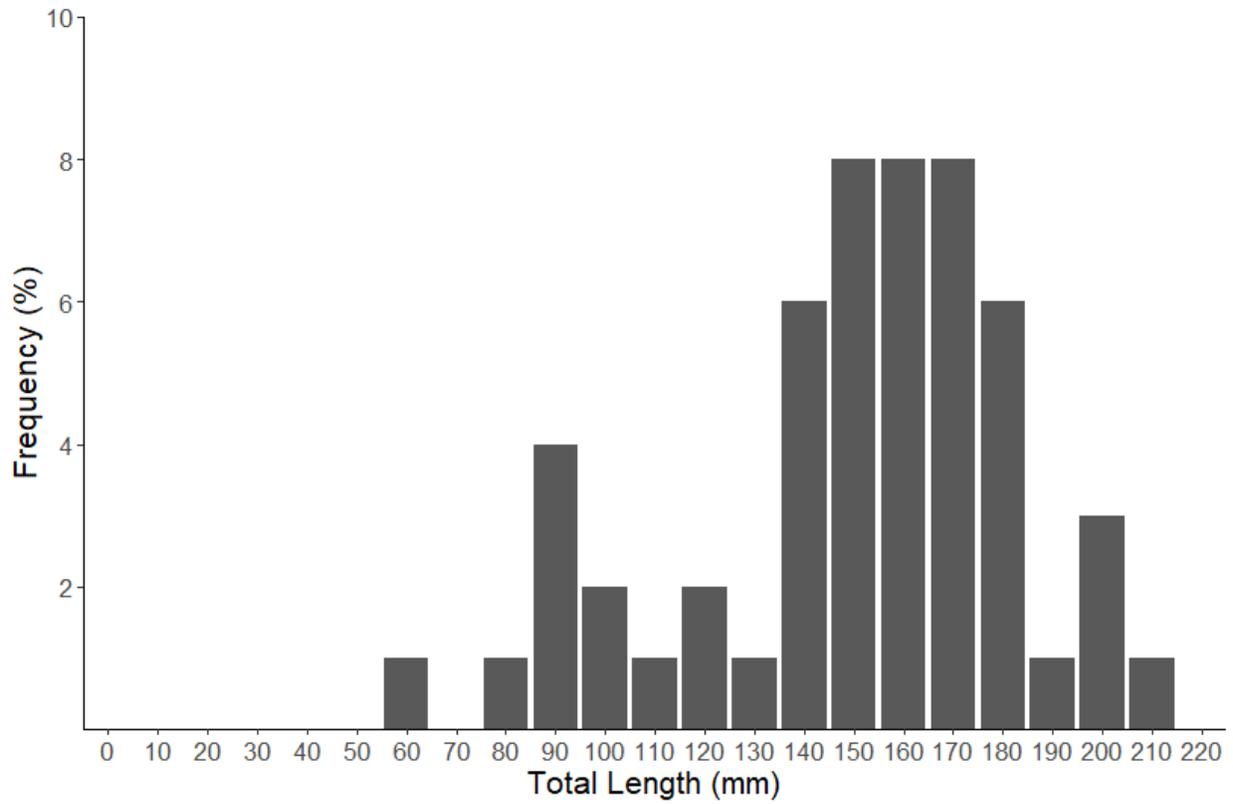


FIGURE 2. Length frequency for Bluegill (n = 53) captured from the Black River, 2020.