



SURVEY SUMMARY

NCWRC – Inland Fisheries Division – Coastal Region



Status of River Herring in Core Creek and Village Creek, Neuse River Basin, 2020

NEED

Due to stock depletion and low abundance, a moratorium on harvest of anadromous runs of Alewife and Blueback Herring has been in effect on North Carolina's coastal rivers since 2006. In the Neuse River basin, Core Creek and Village Creek have been sampled annually for river herring since 2007. These tributaries consistently support river herring spawning migrations and were selected to elucidate long-term trends in river herring abundance and size structure. Other tributaries have been intermittently surveyed to determine the distribution of river herring across the Neuse River basin. Despite recent increases in abundance, river herring populations in tributaries of the Neuse River are characterized by small fish (few Blueback Herring longer than 280 mm have been observed 2007–2014) at low levels of abundance. The purpose of this project is to monitor Alewife and Blueback Herring to document population metrics, evaluate the harvest moratorium, and aid in future recovery efforts in the Neuse River.

OBJECTIVES

1. Elucidate long-term trends in river herring abundance and size structure in the Neuse River basin by collecting weekly samples in Core Creek and Village Creek.
2. Maintain compliance with ASMFC which mandates an annual survey.
3. Determine the distribution of river herring across the Neuse River basin.

METHODS

Personnel: Todd VanMiddlesworth and Ben Ricks - District 2 Fisheries Biologists.

Waterbody: Neuse River - 4 primary sampling sites (2 each in Core Creek and Village Creek) sampled weekly; 1 exploratory sampling site (Contentnea Creek).

Fish Sampling Gear: Boat-Mounted Electrofishing, Smith-Root 7.5 GPP, 1000 V, 120 PPS, 6 A.

Other Gear Utilized: YSI water quality meter for water temperature (°C), dissolved oxygen (mg/L), % saturation, conductivity (µS/cm), salinity (ppt).

Species of Primary Interest: Alewife and Blueback Herring.

Sample Date(s): March 4, 10, 11, 19, and 23, 2020.

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

Project Name in BIODIE Fish: Neuse River Anadromous Spawning Stock Survey.



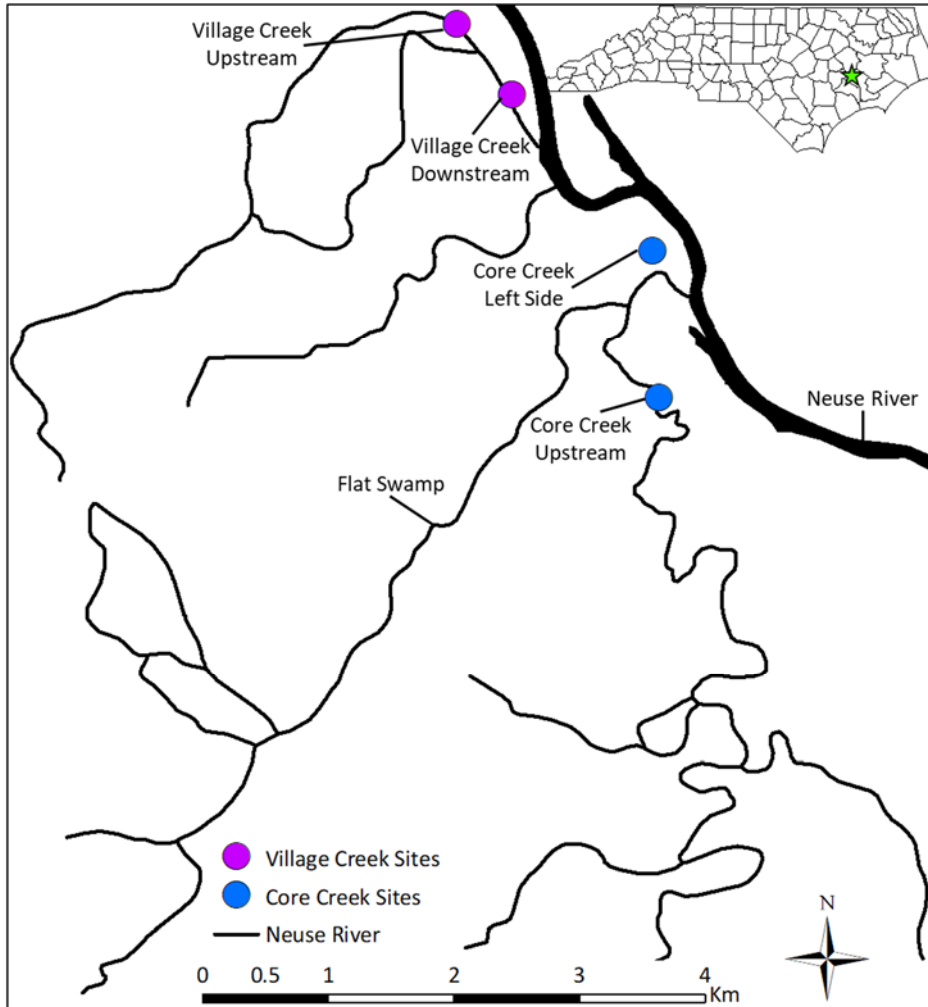
SURVEY SUMMARY
NCWRC – Inland Fisheries Division – Coastal Region



Citation:

VanMiddlesworth, T., and B. Ricks. 2020. Status of River Herring in Core Creek and Village Creek, Neuse River Basin, 2020. North Carolina Wildlife Resources Commission, Federal Aid in Sport Fish Restoration, survey summary, Raleigh.

STUDY AREA





SURVEY SUMMARY

NCWRC – Inland Fisheries Division – Coastal Region



BIOLOGICAL OBSERVATIONS

Due to survey disruptions necessitated by the Covid-19 pandemic, collections of river herring from the Neuse River Basin were reduced to the month of March; therefore, interpretation of results from 2020 should be cautioned when compared to previous sampling years. A total of 411 Blueback Herring was collected from Core Creek and Village Creek. Additionally, a single female Alewife (295 mm) was collected from an exploratory site in Contentnea Creek (Tables 1 and 2). A total of 217 Blueback Herring was collected in Village Creek, and 194 Blueback Herring were collected in Core Creek. Males were more numerous than females in our collections at Core Creek (males=121, females=73) and Village Creek (males=152, female=65; Table 3). At Core Creek, Blueback Herring ranged from 234 mm to 309 mm total length and averaged 267 mm, while Blueback Herring at Village Creek ranged from 239 mm to 307 mm and averaged 267 mm (Figures 1 and 2).

MANAGEMENT RECOMMENDATIONS

1. Maintain the current harvest moratorium on Alewife and Blueback Herring.
2. Continue river herring spawning surveys in Core Creek and Village Creek.
3. Continue to sample additional tributaries in the Neuse River to expand distribution and occurrence data.



SURVEY SUMMARY

NCWRC – Inland Fisheries Division – Coastal Region



TABLE 1. Sample site information for the March 2020 river herring survey in the Neuse River Basin. Note: All discharge data provided below was recorded on the USGS Fort Barnwell, NC, Neuse River gage number 02091814 located near the Maple Cypress Boating Access Area, and the USGS Goldsboro, NC, Neuse River gage number 02089000 located near the Stantonsburg Boating Access Area. Note: * represents an exploratory sampling site.

Sample date	Site name	Latitude	Longitude	USGS Gage	Discharge (CFS)
March 4	Core Creek Upstream	35.28586	-77.28737	02091814	7,440
March 4	Core Creek Left Side	35.29448	-77.28782	02091814	7,440
March 4	Village Creek Upstream	35.30770	-77.30178	02091814	7,440
March 4	Village Creek Downstream	35.30361	-77.29782	02091814	7,440
March 10	Core Creek Upstream	35.28586	-77.28737	02091814	5,110
March 10	Core Creek Left Side	35.29448	-77.28782	02091814	5,110
March 10	Village Creek Upstream	35.30770	-77.30178	02091814	5,110
March 10	Village Creek Downstream	35.30361	-77.29782	02091814	5,110
March 11	*NR-Contentnea104	35.60265	-77.84328	02089000	1,910
March 19	Core Creek Upstream	35.28586	-77.28737	02091814	3,030
March 19	Core Creek Left Side	35.29448	-77.28782	02091814	3,030
March 19	Village Creek Upstream	35.30770	-77.30178	02091814	3,030
March 19	Village Creek Downstream	35.30361	-77.29782	02091814	3,030
March 23	Core Creek Upstream	35.28586	-77.28737	02091814	2,460
March 23	Core Creek Left Side	35.29448	-77.28782	02091814	2,460
March 23	Village Creek Upstream	35.30770	-77.30178	02091814	2,460
March 23	Village Creek Downstream	35.30361	-77.29782	02091814	2,460



SURVEY SUMMARY
NCWRC – Inland Fisheries Division – Coastal Region



TABLE 2. Total number, percent of total number, minimum total length (mm), maximum total length (mm), and mean total length (mm) of Blueback Herring and Alewife collected by electrofishing in Core Creek and Village Creek, March 2020.

Species	Number collected	Percent collected (%)	Minimum total length (mm)	Maximum total length (mm)	Mean total length (mm)
Blueback Herring	411	99.8	234	309	267
Alewife	1	0.2		295	
Total	412	100			

TABLE 3. Summary statistics of all Blueback Herring collected by electrofishing in Core Creek and Village Creek, March 2020.

Sample date	Creek	Number	Percent (%)	CPUE (fish/h)	Males	Females	Water temperature (°C)
3/4/2020	Core	27	7	53.0	21	6	11.9
3/4/2020	Village	32	8	63.3	20	12	12.3
3/10/2020	Core	55	13	109.6	38	17	13.2
3/10/2020	Village	88	21	174.2	65	23	13.8
3/19/2020	Core	109	27	214.5	61	48	16.9
3/19/2020	Village	78	19	146.0	53	25	17.5
3/23/2020	Core	3	1	5.8	1	2	16.5
3/23/2020	Village	19	5	37.9	14	5	16.0
Total		411	100		273	138	



SURVEY SUMMARY
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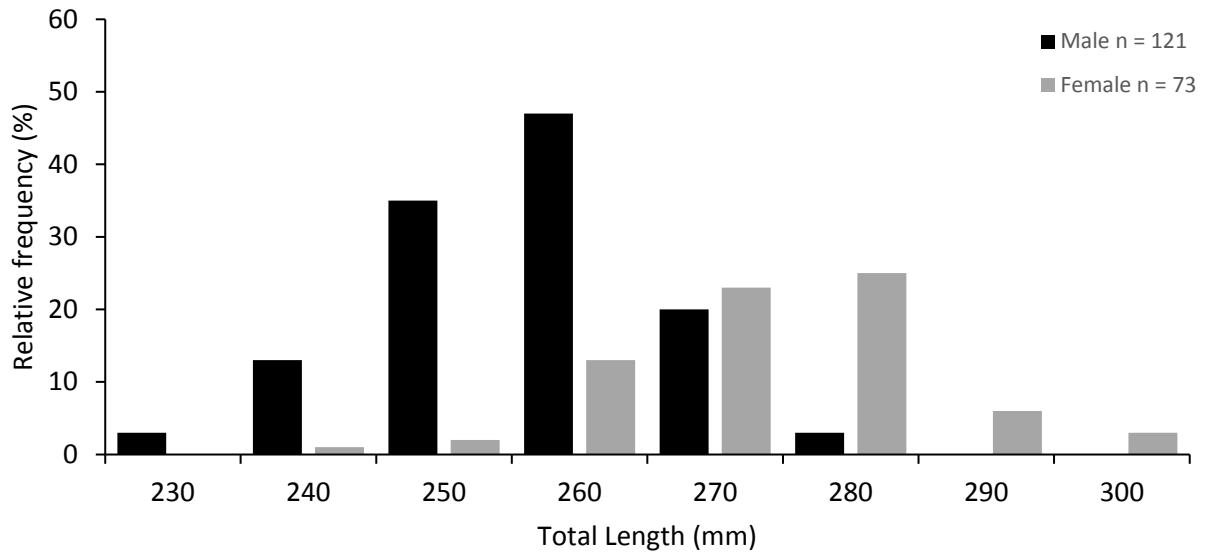


FIGURE 1. Length frequency distribution of male and female Blueback Herring from electrofishing surveys conducted in Core Creek, March 2020.

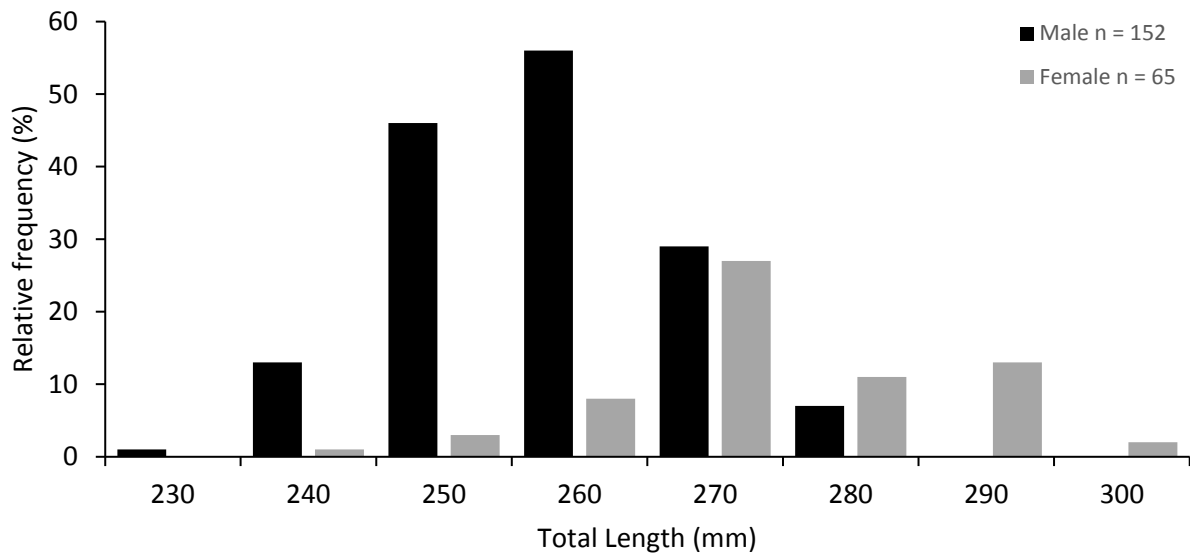


FIGURE 2. Length frequency distribution of male and female Blueback Herring from electrofishing surveys conducted in Village Creek, March 2020.