

SCANA Services Inc:

Limited Fish Community Assessment of
Mayo Creek 2007 - 2008

August 2008

Milton Quattlebaum
August 14, 2008

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Introduction

Mayo Creek is located in Fairfield County of South Carolina. Mayo Creek is a typical piedmont region creek which transverses 3.7 miles through a mixed hardwood forest before flowing into the Broad River. Fish collections were made to expand fish community data collected in Mayo Creek by Tetra Tech NUS from July 2006 to April 2007. Since the 2007 sampling event, beaver activity has occurred in area of sampling location MC 11 causing pools to form in place of the free flowing stream habitat of 2007.

Methods

A limited fish community assessment was conducted on Mayo Creek in 2007 and 2008. Eight sample locations (MC 7 – MC 14) along Mayo Creek were sampled using minnow traps which were allowed to fish overnight. Stations MC 7 – MC 10 were sampled on May 24, 2007 to May 25, 2007 and May 20, 2008 to May 21, 2008. Stations MC 11 – MC 14 were sampled on July 31, 2007 to August 1, 2007 and May 27, 2008 to May 28, 2008. MC A is a water quality only site which is located at the bridge over Mayo Creek on Parr Road.

Minnow traps were constructed of 1/4" (6.4 mm) square vinyl dipped wire mesh. Trap dimension were 16" (42 cm) long and 9" (23 cm) wide with a 7/8" (22 mm) entrance hole. Traps were set in locations that allowed the trap to be fully submerged in the creek.

All fish were identified to species and measured to the nearest millimeter. A few individual specimens were retained for verification.

Endangered, Threatened, and Species of Concern

No endangered, threatened, or species of concern fish were collected during the study. None of the fish collected was federal or state listed as endangered or threatened. All fish collected were representative of the piedmont lakes, rivers, and streams.

Results

A total of 58 fish representing 3 species were captured during the study period (Table 1). Redbreast sunfish comprised (82.8%), bluehead chub (10.3%), and creek chub (6.7%) of the fish collected during the sample period (Table 2).

Water quality data for Mayo Creek is presented in (Table 2). Temperatures ranged from 15.94 – 22.59°C and dissolved oxygen results ranged from 5.94 – 9.43 mg/l during the study period (Table 2). The 5.94 mg/l result collected at MC 11 on May 28, 2008 can be attributed beaver dams being constructed in sample area since the 2007 sample period.

Observation

Mayo Creek's fish community is representative of the typical piedmont stream of South Carolina. Dissolved oxygen data indicates Mayo Creek is capable of supporting a varied fish community.

Figure 1. Mayo Creek Water Quality Sample Locations.

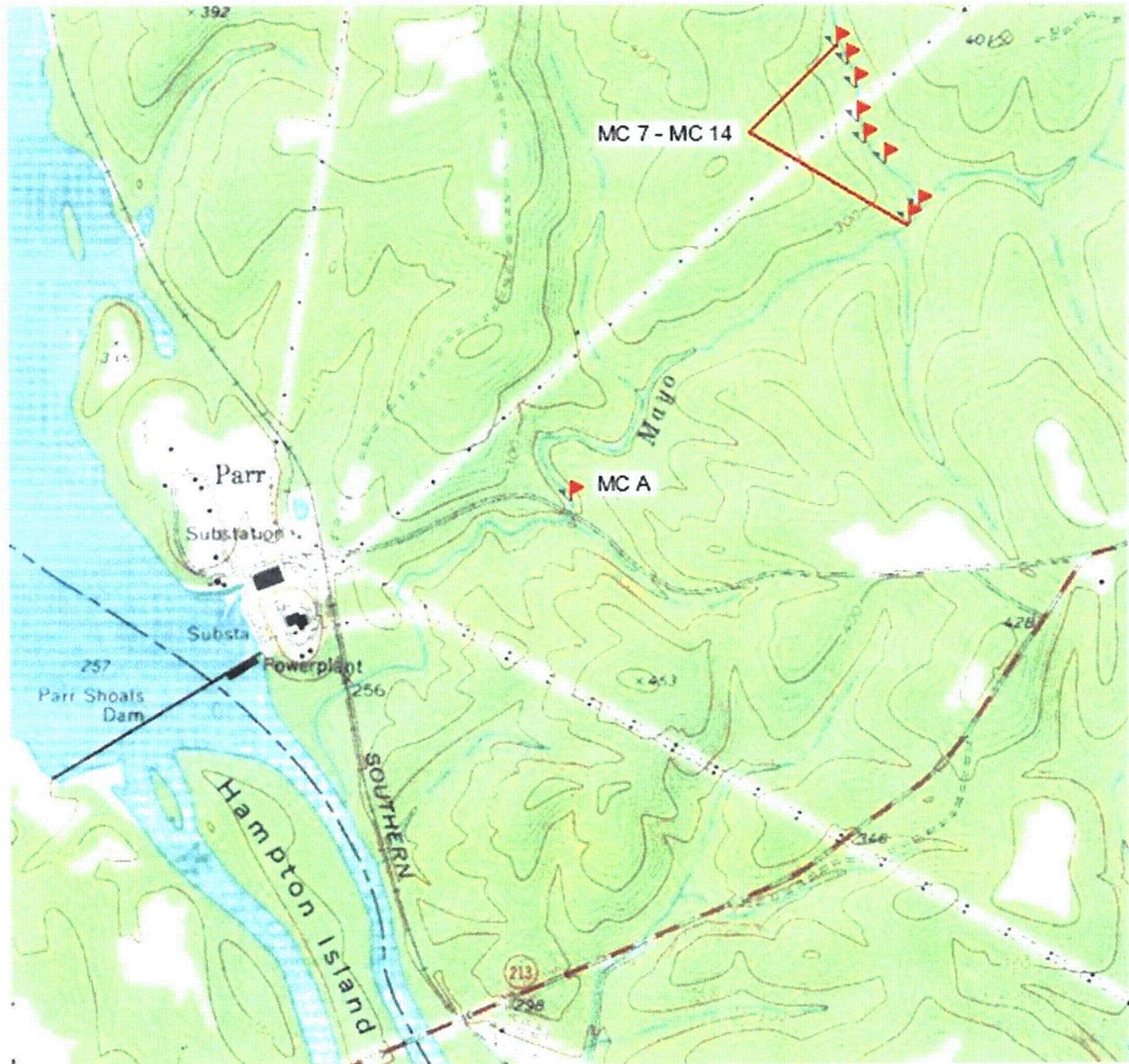


Figure 2. Mayo Creek Fish Population Assessment Sample Locations.

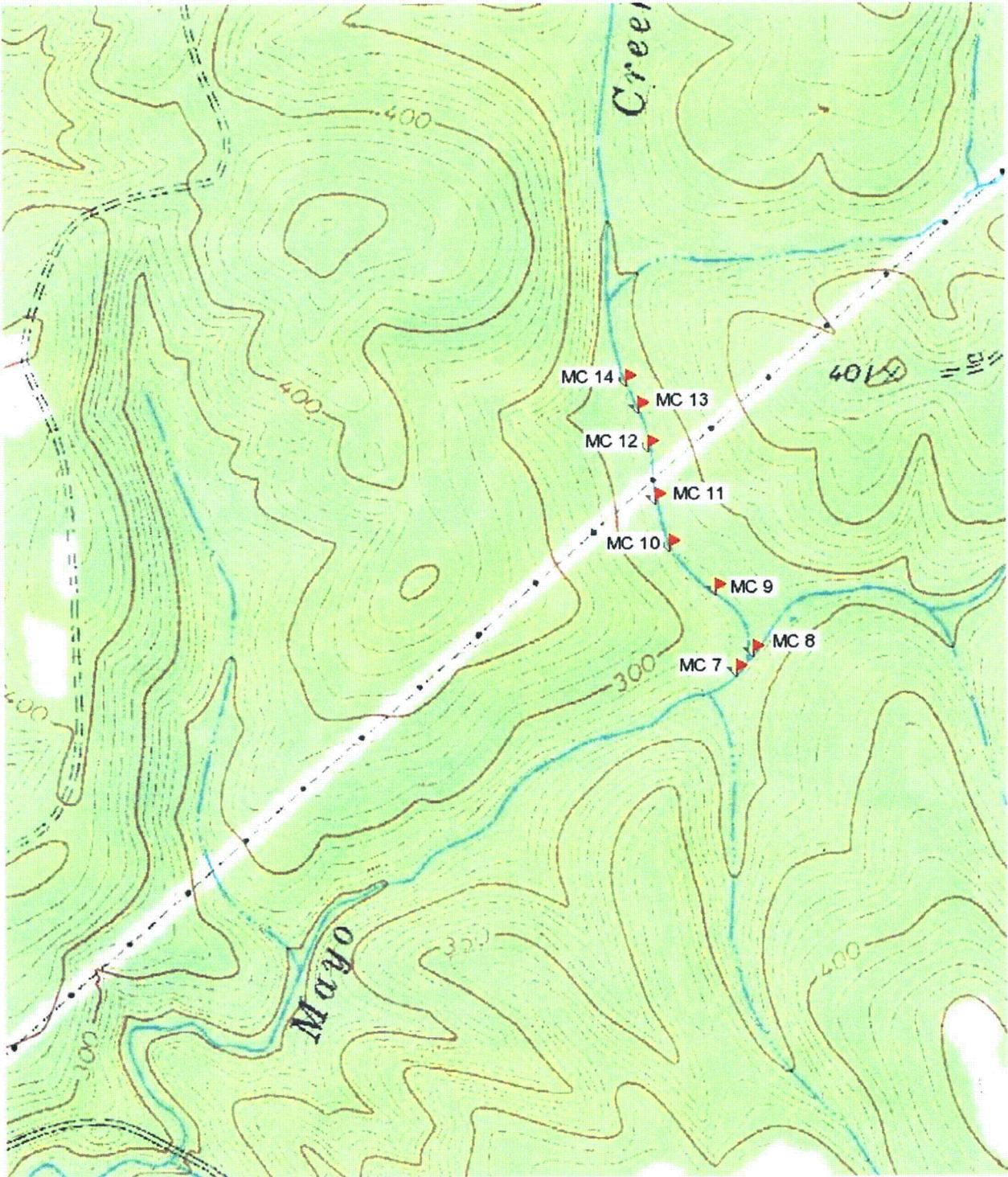


Table 1. Fish Species collected in Mayo Creek.

Location	Date	bluehead chub	creek chub	redbreast
MC 7	5/24/07	0	0	0
MC 7	5/21/08	0	0	8
MC 8	5/24/07	2	0	8
MC 8	5/21/08	0	1	4
MC 9	5/24/07	0	0	0
MC 9	5/21/08	0	0	3
MC 10	5/24/07	0	0	7
MC 10	5/21/08	0	0	9
MC 11	7/31/07	2	0	1
MC 11	5/28/08	0	0	0
MC 12	7/31/07	2	0	0
MC 12	5/28/08	0	1	0
MC 13	7/31/07	0	0	0
MC 13	5/28/08	0	0	5
MC 14	7/31/07	0	0	2
MC 14	5/28/08	0	2	1
Total / Relative Abundance		6 / 10.3%	4 / 6.7%	48 / 82.8%

Table 2. Water Quality Data Mayo Creek.

Station	Year	Temperature (° C)	pH	Dissolved Oxygen (mg/l)
MC 7	2007	15.94	6.94	9.43
MC 7	2008	18.39	7.41	8.28
MC 8	2007	16.1	7.12	9.16
MC8	2008	17.68	7.23	7.87
MC 9	2007	17.0	7.19	9.24
MC 9	2008	18.71	7.19	7.41
MC 10	2007	17.33	7.12	9.29
MC 10	2008	19.03	7.08	7.16
MC 11	2007	22.59	6.79	8.87
MC 11	2008	20.80	7.12	5.94
MC 12	2007	22.02	6.83	8.09
MC 12	2008	20.73	7.21	7.88
MC 13	2007	22.13	6.89	8.08
MC 13	2008	20.16	7.22	8.12
MC 14	2007	22.36	6.92	8.14
MC 14	2008	20.19	7.24	8.30
MC A ¹	2008	19.58	7.49	8.81
MC A ²	2008	22.01	7.37	8.81

Notes:

MC A¹- Collected on May 21, 2008.

MC A² - Collected on May 28, 2008.

Table 3. Total Dissolved Solids (TDS) and Total Suspended Solid (TSS) Mayo Creek.

Location	Date	TDS (mg/L)	TSS (mg/L)
MC 7	7/31/07	110	2
MC 7	5/21/08	11	4
MC 8	7/31/07	119	2
MC 8	5/21/08	102	2
MC 9	7/31/07	115	2
MC 9	5/21/08	110	4.5
MC 10	7/31/07	109	3
MC 10	5/21/08	116	9
MC 11	7/31/07	115	2
MC 11	5/28/08	105	5
MC 12	7/31/07	115	3
MC 12	5/28/08	90	13
MC 13	7/31/07	116	1
MC 13	5/28/08	81	7
MC 14	7/31/07	112	1
MC 14	5/28/08	85	5
MC A	7/31/07	112	2
MC A	5/21/08	104	2
MC A	5/28/08	106	3

Table 4. GPS Coordinates for Mayo Creek Sample Stations.

Location	GPS Coordinates
MC 7	N 34° 16' 23.9" W 081° 18' 34.1"
MC 8	N 34° 16' 24.2" W 081° 18' 34.1"
MC 9	N 34° 16' 27.5" W 081° 18' 35.6"
MC 10	N 34° 16' 29.6" W 081° 18' 38.1"
MC 11	N 34° 16' 31.9" W 081° 18' 40.9"
MC 12	N 34° 16' 35.7" W 081° 18' 41.1"
MC 13	N 34° 16' 37.1" W 081° 18' 41.6"
MC14	N 34° 16' 37.6" W 081° 18' 41.5"
MC A	N 34° 15' 55.3" W 081° 19' 14.4"



Central Laboratory (P-08)
 2102 North Lake Drive
 Columbia, SC 29212
 Tel: (803)217-9384
 Fax: (803) 217-9911

August 04, 2008

REPORT TO:
 Steve Summer P05

Listed below are the summarized results of the analysis of samples submitted to Central Lab:

Sample ID	Description	Sample Date/Time	Parameter	Result	MDL	Units
AA74955	MC 14 - TDS	7/31/07 11:50	Total Dissolved Solid, SM 2540	112	2.0	mg/L
AA74957	MC 13 - TDS	7/31/07 11:35	Total Dissolved Solid, SM 2540	116	2.0	mg/L
AA74959	MC 12 - TDS	7/31/07 11:20	Total Dissolved Solid, SM 2540	115	2.0	mg/L
AA74961	MC 11 - TDS	7/31/07 11:00	Total Dissolved Solid, SM 2540	115	2.0	mg/L
AA74963	MC 10 - TDS	7/31/07 12:05	Total Dissolved Solid, SM 2540	109	2.0	mg/L
AA74965	MC 9 - TDS	7/31/07 12:15	Total Dissolved Solid, SM 2540	115	2.0	mg/L
AA74967	MC 8 - TDS	7/31/07 12:20	Total Dissolved Solid, SM 2540	119	2.0	mg/L
AA74969	MC 7 - TDS	7/31/07 12:25	Total Dissolved Solid, SM 2540	110	2.0	mg/L
AA74971	MC A - TDS	7/31/07 13:00	Total Dissolved Solid, SM 2540	112	2.0	mg/L

Complete single sample reports are available upon request. Please call the lab at (803) 217-9384 if there are any questions concerning these results.

Approved by: Sheryl K. Shelton



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August 04, 2008

REPORT TO:
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Sample ID	Description	Sample Date/Time	Parameter	Result	MDL	Units
AA74956	MC 14 - TSS	7/31/07 11:50	Total Suspended Solids, 254C	1	1	mg/L
AA74958	MC 13 - TSS	7/31/07 11:35	Total Suspended Solids, 254C	1	1	mg/L
AA74960	MC 12 - TSS	7/31/07 11:20	Total Suspended Solids, 254C	3	1	mg/L
AA74962	MC 11 - TSS	7/31/07 11:00	Total Suspended Solids, 254C	2	1	mg/L
AA74964	MC 10 - TSS	7/31/07 12:05	Total Suspended Solids, 254C	3	1	mg/L
AA74966	MC 9 - TSS	7/31/07 12:15	Total Suspended Solids, 254C	2	1	mg/L
AA74968	MC 8 - TSS	7/31/07 12:20	Total Suspended Solids, 254C	2	1	mg/L
AA74970	MC 7 - TSS	7/31/07 12:25	Total Suspended Solids, 254C	2	1	mg/L
AA74972	MC A - TSS	7/31/07 13:00	Total Suspended Solids, 254C	2	1	mg/L

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Approved by: Sheryl K Shelton



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August 04, 2008

REPORT TO:

Steve Summer P05

Listed below are the summarized results of the analysis of samples submitted to Central Lab:

Sample ID	Description	Sample Date/Time	Parameter	Result	MDL	Units
AA79224	VCS NewNucDev MC7 TSS	5/21/08 11:21	Total Suspend. Solids SM254	4	1	mg/L
AA79226	VCS NewNucDev MC8 TSS	5/21/08 11:35	Total Suspend. Solids SM254	2	1	mg/L
AA79228	VCS NewNucDev MC9 TSS	5/21/08 11:47	Total Suspend. Solids SM254	4.5	1	mg/L
AA79230	VCS NewNucDev MC10 TSS	5/21/08 12:00	Total Suspend. Solids SM254	9	1	mg/L
AA79232	VCS NewNucDev MCA DwnStrm TSS	5/21/08 12:35	Total Suspend. Solids SM254	2	1	mg/L

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Approved by:



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August 04, 2008

REPORT TO:
Steve Summer P05

Listed below are the summarized results of the analysis of samples submitted to Central Lab:

Sample ID	Description	Sample Date/Time	Parameter	Result	MDL	Units
AA79223	VCS NewNucDev MC7 TDS	5/21/08 11:21	Total Dissolved Solid-SM254C	111	2.0	mg/L
AA79225	VCS NewNucDev MC8 TDS	5/21/08 11:35	Total Dissolved Solid-SM254C	102	2.0	mg/L
AA79227	VCS NewNucDev MC9 TDS	5/21/08 11:47	Total Dissolved Solid-SM254C	110	2.0	mg/L
AA79229	VCS NewNucDev MC10 TDS	5/21/08 12:00	Total Dissolved Solid-SM254C	116	2.0	mg/L
AA79231	VCS NewNucDev MCA DwnStrm TL	5/21/08 12:35	Total Dissolved Solid-SM254C	104	2.0	mg/L

Complete single sample reports are available upon request. Please call the lab at (803) 217-9384 if there are any questions concerning these results.

Approved by: Sheryl K. Shelton



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May 29, 2008

REPORT TO:

Steve Summer P05

Listed below are the summarized results of the analysis of samples submitted to Central Lab:

Sample ID	Description	Sample Date/Time	Parameter	Result	MDL	Units
AA79301	New Nuclear MC11 TSS	5/28/08 11:47	Total Suspend. Solids SM254	5	1	mg/L
AA79303	New Nuclear MC12 TSS	5/28/08 12:02	Total Suspend. Solids SM254	13	1	mg/L
AA79305	New Nuclear MC13 TSS	5/28/08 12:15	Total Suspend. Solids SM254	7	1	mg/L
AA79307	New Nuclear MC14 TSS	5/28/08 12:37	Total Suspend. Solids SM254	5	1	mg/L
AA79309	New Nuclear MCA DwnStrm TSS	5/28/08 13:30	Total Suspend. Solids SM254	3	1	mg/L

Complete single sample reports are available upon request. Please call the lab at (803) 217-9384 if there are any questions concerning these results.

Approved by: _____



Central Laboratory (P-08)
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June 02, 2008

REPORT TO:
Steve Summer P05

Listed below are the summarized results of the analysis of samples submitted to Central Lab:

Sample ID	Description	Sample Date/Time	Parameter	Result	MDL	Units
AA79300	New Nuclear MC11 TDS	5/28/08 11:47	Total Dissolved Solid-SM254C	105	2.0	mg/L
AA79302	New Nuclear MC12 TDS	5/28/08 12:02	Total Dissolved Solid-SM254C	90	2.0	mg/L
AA79304	New Nuclear MC13 TDS	5/28/08 12:15	Total Dissolved Solid-SM254C	81	2.0	mg/L
AA79306	New Nuclear MC14 TDS	5/28/08 12:37	Total Dissolved Solid-SM254C	85	2.0	mg/L
AA79308	New Nuclear MCA DwnStrm TDS	5/28/08 13:30	Total Dissolved Solid-SM254C	106	2.0	mg/L

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Approved by: Sheryl Shelton