

**Summary of 2001, 2008, and 2011 Hunting Creek Fish Inventories,
Enoree Ranger District, Sumter National Forest, South Carolina**



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Introduction

In spring 2011, the Sumter National Forest (SNF) requested assistance from the USDA Forest Service, Southern Research Station, Center for Aquatic Technology Transfer (CATT) with fish inventories in Hunting Creek (Figure 1). The CATT deployed a crew leader and three technicians to the Enoree Ranger District on the SNF from August 2 to 3, 2011 to document species presence in Hunting Creek prior to a South Carolina Department of Transportation (SCDOT) stream channel mitigation project. The SCDOT plans to install wetlands and modify the main channel from the US-176 bridge downstream to Forest Service property (Jeanne Riley, personal communication). Previous fish collections in Hunting Creek were made by the South Carolina Department of Natural Resources (SCDNR) in 2001 and the CATT in 2008 (Krause et al. 2008). Though these collections were made to meet other objectives, the combined data documents fish species presence in the mainstem of Hunting Creek downstream of the bridge on road US-176.

Methods

Site Selection

There were two 100 m fish sampling sites; one upstream on SCDOT land and one downstream on National Forest land (Figure 1). In 2011 the downstream site was shifted 100 m upstream because the original downstream site was nearly dry.

Fish Inventory

Fish sampling was conducted with backpack electrofishers using 3-pass depletions and block nets. In 2001 the upstream site was sampled by SCDNR and the Forest Service using one backpack electrofisher. In 2008 and 2011 samples were collected by the CATT. We used a single Smithroot DC unit at the upstream site and two Appalachian Aquatics (125v AC) units at the downstream site in 2008, and two Appalachian Aquatics (125v AC) units at both sites in 2011. In 2011, block nets were not necessary due to the low flow; shallow water and natural breaks blocked the upstream sample site area and the downstream sample site was isolated and non-flowing. After each pass we recorded the number of fish per species captured. We paused at least one hour between each pass to allow the water to clear. Fish were released upon completion of sampling.

Results

A total of 22 fish species was detected across all sample years and sites (Table 1). In 2001 a total of 15 species were collected at the upstream site. In 2008 we collected a total of 16 species; 14 at the

upstream site and 13 at the downstream site (Table 1). In 2011 we collected a total of 20 species; 14 species at the upstream and downstream site (Table 1).

Eight species were present across all sample years and sites: yellow bullhead, creek chubsucker, tessellated darter, redbreast sunfish, green sunfish, swallowtail shiner, sandbar shiner, and creek chub (Table 1). Species captured at only one sample site and year included: white sucker, Santee chub, highback chub, bluegill, largemouth bass, and golden shiner (Table 1). The rest of the species captured were present at both sample sites, but not during all sample years or were present during multiple sample years, but not at both sample sites. These species include: flat bullhead, flier, bluespotted sunfish, redbfin pickerel, eastern mosquitofish, striped jumprock, bluehead chub, and greenhead shiner (Table 1). No threatened or endangered fish species were captured in Hunting Creek. These data can be used to describe current stream condition and serve as a baseline for future comparisons.

Data Availability

The summer 2008 and 2011 fish data are stored in a Microsoft Access database, which is kept at the CATT and an offsite backup (O:\RD\SRS\Site\BlacksburgVA\Admin\CATT Center for Aquatic Technology Transfer\National Forest System\ACCESS Databases), and a copy has been provided to the SNF. We will support the migration of this data into the USFS database tool, Natural Resource Information System Aquatic Surveys (NRIS AqS), as needed. In the interim, we are working with the SNF to develop custom queries and reports for the MS Access database. Jeanne Riley, SNF Fish Biologist, received a copy of all data in electronic format. Past reports are available on the CATT website: www.srs.fs.usda.gov/catt.

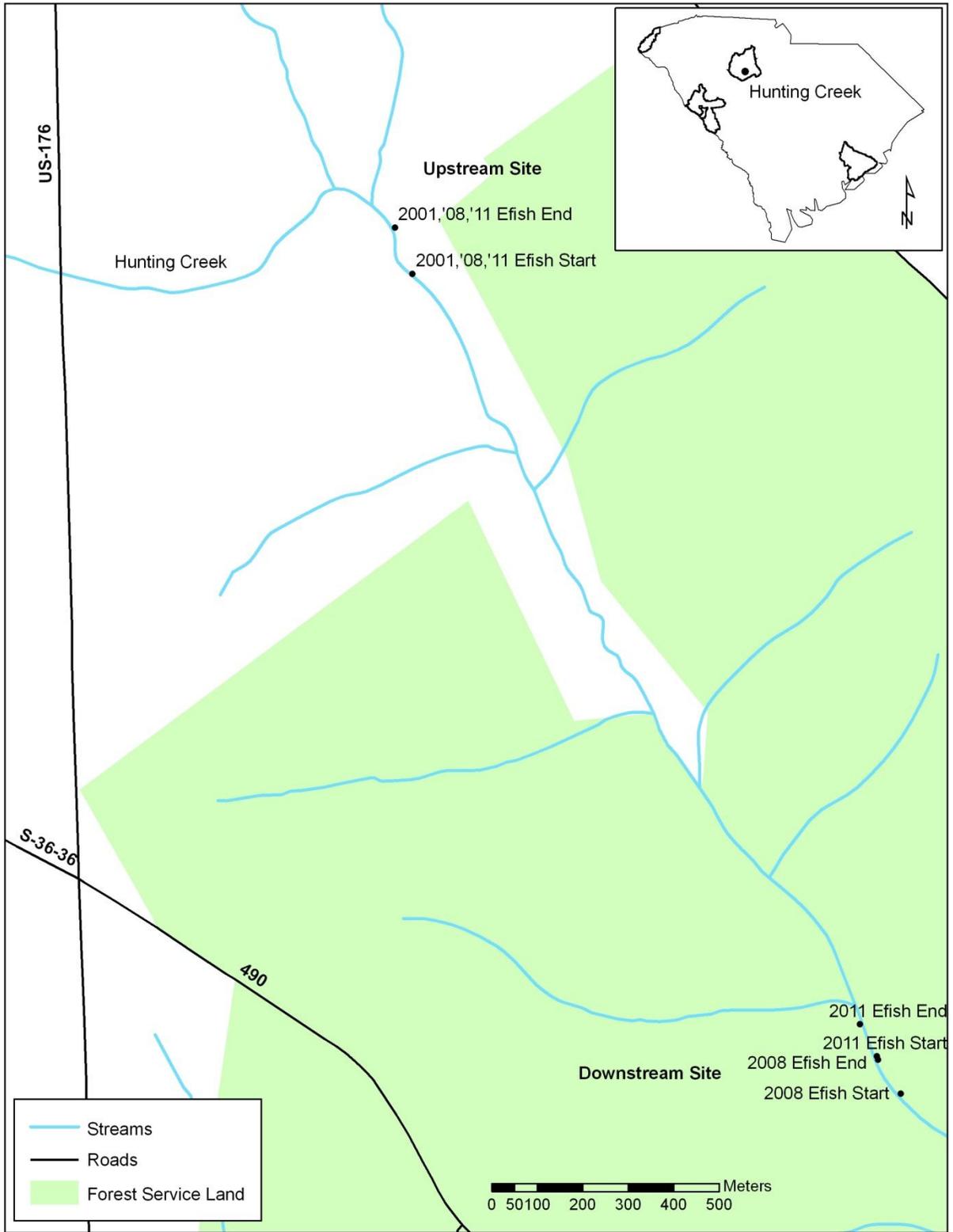


Figure 1. Upstream and downstream electrofishing sites on Hunting Creek (Enoree Ranger District, SC).

Table 1. Presence/absence of fish species captured at the upstream and downstream sites in Hunting Creek 2001, 2008, and 2011. Bold indicates fish found at all sites and sample intervals.

Scientific Name	Common Name	Upstream Site			Downstream Site	
		2001	2008	2011	2008	2011
Ameiurus natalis	Yellow bullhead	✓	✓	✓	✓	✓
Ameiurus platycephalus	Flat bullhead	✓		✓		
Catostomus commersonii	White sucker					✓
Centrarchus macropterus	Flier		✓			✓
Cyprinella Zanema	Santee chub	✓				
Enneacanthus gloriosus	Bluespotted sunfish				✓	✓
Erimyzon oblongus	Creek chubsucker	✓	✓	✓	✓	✓
Esox americanus americanus	Redfin pickerel	✓	✓		✓	✓
Etheostoma olmstei	Tessellated darter	✓	✓	✓	✓	✓
Gambusia holbrooki	Eastern mosquitofish	✓			✓	✓
Hybopsis hypsinotus	Highback chub			✓		
Lepomis auritus	Redbreast sunfish	✓	✓	✓	✓	✓
Lepomis cyanellus	Green sunfish	✓	✓	✓	✓	✓
Lepomis macrochirus	Bluegill			✓		
Micropterus salmoides	Largemouth bass					✓
Moxostoma rupiscartes	Striped jumprock	✓	✓	✓		
Nocomis leptocephalus	Bluehead chub	✓	✓	✓	✓	
Notemigonus crysoleucas	Golden shiner		✓			
Notropis chlorocephalus	Greenhead shiner	✓	✓	✓	✓	
Notropis procne	Swallowtail shiner	✓	✓	✓	✓	✓
Notropis scepcticus	Sandbar shiner	✓	✓	✓	✓	✓
Semotilus atromaculatus	Creek chub	✓	✓	✓	✓	✓
	<i>Species Count</i>	<i>15</i>	<i>14</i>	<i>14</i>	<i>13</i>	<i>14</i>

Literature Cited

- Dolloff, C. A., D. G. Hankin, and G. H. Reeves. 1993. [Basinwide estimation of habitat and fish populations in streams](#). General Technical Report SE-83. Asheville, North Carolina: U.S. Department of Agriculture, Southeastern Forest Experiment Station.
- Krause, C., C. Roghair and C. Dolloff. 2008. [Summary of stream habitat and fish inventories on the Enoree Ranger District of the Sumter National Forest, South Carolina 2008](#). Unpublished File Report. Blacksburg, VA: U.S. Department of Agriculture, Southern Research Station, Center for Aquatic Technology Transfer. 37 pp.
- Kwak, T. J. 1991. Modular microcomputer software to estimate fish population parameters, production rates and associated variance. *Ecology of Freshwater Fish* 1:73-75.
- LeMaster, E. L. 2008. Environmental Assessment, Hunting Creek Stream Enhancements. Enoree Ranger District, Sumter National Forest: U.S. Department of Agriculture, Forest Service.

Appendix

Table A1. Counts of fish captured at the upstream and downstream sites in Hunting Creek 2001, 2008, and 2011.

Common Name	Scientific Name	Upstream Site					Downstream Site			
		2001 Total	2008 Total	2011		2008 Total	2011		Total	
				Adults	Age-0	Total		Adults	Age-0	Total
Bluegill	<i>Lepomis macrochirus</i>	0	0	7	0	7	0	0	0	0
Bluehead chub	<i>Nocomis leptocephalus</i>	156	106	102	6	108	28	0	0	0
Bluespotted sunfish	<i>Enneacanthus gloriosus</i>	0	0	0	0	0	1	3	0	3
Creek chub	<i>Semotilus atromaculatus</i>	13	104	148	32	180	42	0	1	1
Creek chubsucker	<i>Erimyzon oblongus</i>	9	86	82	42	124	12	33	31	64
Eastern mosquitofish	<i>Gambusia holbrooki</i>	1	0	0	0	0	19	53	229	282
Flat bullhead	<i>Ameiurus platycephalus</i>	2	0	1	0	1	0	0	0	0
Flier	<i>Centrarchus macropterus</i>	0	1	0	0	0	0	2	0	2
Golden shiner	<i>Notemigonus crysoleucas</i>	0	1	0	0	0	0	0	0	0
Green sunfish	<i>Lepomis cyanellus</i>	7	12	54	0	54	21	27	11	38
Greenhead shiner	<i>Notropis chlorocephalus</i>	15	4	102	0	102	23	0	0	0
Highback chub	<i>Hybopsis hysinotus</i>	0	0	1	0	1	0	0	0	0
Largemouth bass	<i>Micropterus salmoides</i>	0	0	0	0	0	0	2	0	2
Redbreast sunfish	<i>Lepomis auritus</i>	66	202	305	8	313	73	73	33	106
Redfin pickerel	<i>Esox americanus americanus</i>	4	11	0	0	0	8	9	0	9
Sandbar shiner	<i>Notropis szepticus</i>	36	32	29	1	30	17	1	0	1
Santee chub	<i>Cyprinella zanema</i>	3	0	0	0	0	0	0	0	0
Striped jumprock	<i>Moxostoma rupiscartes</i>	8	6	2	0	2	0	0	0	0
Swallowtail shiner	<i>Notropis procne</i>	64	64	65	0	65	32	14	0	14
Tessellated darter	<i>Etheostoma olmstedi</i>	53	29	50	1	51	8	2	0	2
White sucker	<i>Catostomus commersonii</i>	0	0	0	0	0	0	1	0	1
Yellow bullhead	<i>Ameiurus natalis</i>	1	3	4	0	4	3	0	1	1

Table A2. 2008 counts of fish (adult and age-0) captured in each of 3 electrofishing passes through 100 m of stream at the upstream and downstream site in Hunting Creek. Population estimates with 95% confidence intervals are also shown for species that had descending depletions (Kwak, 1991).

Common Name	Scientific Name	Upstream Site					Downstream Site				
		Count of Fish			Population Estimate		Count of Fish			Population Estimate	
		Pass 1	Pass 2	Pass 3	N	±	Pass 1	Pass 2	Pass 3	N	±
Bluehead chub	<i>Nocomis leptcephalus</i>	55	44	7	119	9	22	4	2	28	1
Bluespotted sunfish	<i>Enneacanthus gloriosus</i>	0	0	0	NA	NA	0	0	1	NA	NA
Creek chub	<i>Semotilus atromaculatus</i>	69	20	15	112	7	28	11	3	44	3
Creek chubsucker	<i>Erimyzon oblongus</i>	67	11	8	88	3	10	2	0	12	0
Eastern mosquitofish	<i>Gambusia holbrooki</i>	0	0	0	NA	NA	10	7	2	22	5
Flier	<i>Centrarchus macropterus</i>	0	0	1	NA	NA	0	0	0	NA	NA
Golden shiner	<i>Notemigonus crysoleucas</i>	0	1	0	NA	NA	0	0	0	NA	NA
Green sunfish	<i>Lepomis cyanellus</i>	2	6	4	NA	NA	14	4	3	23	3
Redbreast sunfish	<i>Lepomis auritus</i>	120	54	28	226	13	36	21	16	102	19
Redfin pickerel	<i>Esox americanus americanus</i>	9	2	0	11	0	3	4	1	NA	NA
Sandbar shiner	<i>Notropis scepcticus</i>	15	14	3	38	7	10	5	2	19	3
Striped jumprock	<i>Moxostoma rupiscartes</i>	5	1	0	6	0	0	0	0	NA	NA
Swallowtail shiner	<i>Notropis procne</i>	29	25	10	85	16	17	9	6	40	9
Tessellated darter	<i>Etheostoma olmstedi</i>	13	11	5	40	12	7	0	1	NA	NA
Yellow bullhead	<i>Ameiurus natalis</i>	2	0	1	NA	NA	1	0	2	NA	NA
Yellowfin shiner	<i>Notropis lutipinnis</i>	4	0	0	NA	NA	19	4	0	23	1

Table A3. 2011 counts of fish (adult and age-0) captured in each of 3 electrofishing passes through 100 m of stream at the upstream and downstream site in Hunting Creek. Population estimates with 95% confidence intervals are also shown for species that had descending depletions (Kwak, 1991).

Common Name	Scientific Name	Upstream Site					Downstream Site				
		Count of Fish			Population Estimate		Count of Fish			Population Estimate	
		Pass 1	Pass 2	Pass 3	N	±	Pass 1	Pass 2	Pass 3	N	±
Bluegill	<i>Lepomis macrochirus</i>	7	0	0	NA	NA	0	0	0	NA	NA
Bluehead chub	<i>Nocomis leptocephalus</i>	21	58	29	NA	NA	0	0	0	NA	NA
Bluespotted sunfish	<i>Enneacanthus gloriosus</i>	0	0	0	NA	NA	1	2	0	NA	NA
Creek chub	<i>Semotilus atromaculatus</i>	106	50	24	202	12	1	0	0	NA	NA
Creek chubsucker	<i>Erimyzon oblongus</i>	67	44	13	141	11	34	21	9	76	10
Eastern mosquitofish	<i>Gambusia holbrooki</i>	0	0	0	NA	NA	92	111	79	NA	NA
Flat bullhead	<i>Ameiurus platycephalus</i>	0	0	1	NA	NA	0	0	0	NA	NA
Flier	<i>Centrarchus macropterus</i>	0	0	0	NA	NA	2	0	0	NA	NA
Green sunfish	<i>Lepomis cyanellus</i>	17	24	13	NA	NA	30	8	0	38	1
Greenhead shiner	<i>Notropis chlorocephalus</i>	47	46	9	123	13	0	0	0	NA	NA
Highback chub	<i>Hybopsis hypsinotus</i>	1	0	0	NA	NA	0	0	0	NA	NA
Largemouth bass	<i>Micropterus salmoides</i>	0	0	0	NA	NA	1	1	0	NA	NA
Redbreast sunfish	<i>Lepomis auritus</i>	185	89	39	348	15	32	33	41	NA	NA
Redfin pickerel	<i>Esox americanus americanus</i>	0	0	0	NA	NA	5	3	1	10	3
Sandbar shiner	<i>Notropis szepticus</i>	14	8	8	NA	NA	1	0	0	NA	NA
Striped jumprock	<i>Moxostoma rupiscartes</i>	2	0	0	NA	NA	0	0	0	NA	NA
Swallowtail shiner	<i>Notropis procne</i>	23	20	22	NA	NA	7	7	0	NA	NA
Tessellated darter	<i>Etheostoma olmstedii</i>	23	19	9	71	16	1	1	0	NA	NA
White sucker	<i>Catostomus commersonii</i>	0	0	0	NA	NA	1	0	0	NA	NA
Yellow bullhead	<i>Ameiurus natalis</i>	2	1	1	NA	NA	0	1	0	NA	NA

Table A4. GPS coordinates recorded at the downstream (start) and upstream (end) extent of fish inventory reaches in Hunting Creek.

Site	GPS (UTM NAD83)	
	Sample Reach Start	Sample Reach End
Upstream Site (2001, 2008, 2011)	17 S 447571 3811412	17 S 447533 3811513
Downstream Site (2008)	17 S 448645 3809612	17 S 448595 3809687
Downstream Site (2011)	17 S 448592 3809694	17 S 448555 3809764