

Appendix 4G. Functional group richness and abundance metrics for benthic macroinvertebrate samples collected at the study sites in Surry County, North Carolina, 2004-2007.

Transect	Collection Date	Functional group richness								Functional group percentage richness								Functional group abundance								Functional group percentage abundance											
		Parasites	Predators	Omnivores	Collector-gatherers	Filtering-collectors	Scrapers	Shredders	Piercers		Parasites	Predators	Omnivores	Collector-gatherers	Filtering-collectors	Scrapers	Shredders	Piercers	Total functional group richness		Parasites	Predators	Omnivores	Collector-gatherers	Filtering-collectors	Scrapers	Shredders	Piercers		Parasites	Predators	Omnivores	Collector-gatherers	Filtering-collectors	Scrapers	Shredders	Piercers
Hogan Creek at secondary road 2038 near Siloam, North Carolina (control site)																																					
A	03/24/2004	0	3	0	13	4	4	4	0	0	10.7	0	46.4	14.3	14.3	14.3	0	100	0	12	0	82	19	7	84	0	0	5.88	0	40.2	9.31	3.43	41.2	0	100		
B	03/24/2004	0	7	0	9	5	6	3	0	0	23.3	0	30.0	16.7	20.0	10.0	0	100	0	30	0	94	86	28	40	0	0	10.8	0	33.8	30.9	10.1	14.4	0	100		
C	03/24/2004	0	4	0	5	8	4	4	0	0	16.0	0	20.0	32.0	16.0	16.0	0	100	0	33	0	106	57	16	67	0	0	11.8	0	38.0	20.4	5.73	24.0	0	100		
D	03/24/2004	0	7	0	9	8	10	3	0	0	18.9	0	24.3	21.6	27.0	8.1	0	100	0	22	0	125	46	38	43	0	0	8.03	0	45.6	16.8	13.9	15.7	0	100		
E	03/24/2004	0	8	0	10	6	6	4	0	0	23.5	0	29.4	17.6	17.6	11.8	0	100	0	39	0	118	69	22	45	0	0	13.3	0	40.3	23.5	7.51	15.4	0	100		
A	02/16/2005	0	6	0	10	6	3	3	0	0	21.4	0	35.7	21.4	10.7	10.7	0	100	0	42	0	254	27	5	4	0	0	12.7	0	76.5	8.13	1.51	1.20	0	100		
B	02/16/2005	0	7	0	11	3	6	4	0	0	22.6	0	35.5	9.7	19.4	12.9	0	100	0	30	0	214	26	37	6	0	0	9.58	0	68.4	8.31	11.8	1.92	0	100		
C	02/16/2005	0	10	0	11	7	6	5	0	0	25.6	0	28.2	17.9	15.4	12.8	0	100	0	58	0	219	22	15	12	0	0	17.8	0	67.2	6.75	4.60	3.68	0	100		
D	02/16/2005	0	8	0	12	3	9	4	0	0	22.2	0	33.3	8.3	25.0	11.1	0	100	0	42	0	242	23	16	8	0	0	12.7	0	73.1	6.95	4.83	2.42	0	100		
E	02/16/2005	0	6	0	13	3	4	4	0	0	20.0	0	43.3	10	13.3	13.3	0	100	0	25	0	251	23	15	7	0	0	7.79	0	78.2	7.17	4.67	2.18	0	100		
A	03/08/2006	0	3	0	9	3	6	2	0	0	13.0	0	39.1	13.0	26.1	8.70	0	100	0	39.9	0	259	29.6	27.4	3.42	0	0	11.1	0	72.1	8.25	7.62	0.95	0	100		
B	03/08/2006	0	9	0	11	5	7	1	0	0	27.3	0	33.3	15.2	21.2	3.03	0	100	0	63.9	0	319	168	115	2.13	0	0	9.55	0	47.8	25.2	17.2	0.32	0	100		
C	03/08/2006	1	7	0	7	3	5	3	0	3.85	26.9	0	26.9	11.5	19.2	11.5	0	100	3.56	44.5	0	449	40.9	21.4	5.34	0	0.63	7.89	0	79.5	7.26	3.79	0.95	0	100		
D	03/08/2006	0	5	0	9	6	5	3	0	0	17.9	0	32.1	21.4	17.9	10.7	0	100	0	29.0	0	360	30.4	27.5	7.25	0	0	6.39	0	79.2	6.71	6.07	1.60	0	100		
E	03/08/2006	0	10	0	11	5	4	1	0	0	32.3	0	35.5	16.1	12.9	3.23	0	100	0	55.0	0	531	144	73.3	13.7	0	0	6.72	0	65.0	17.6	8.96	1.68	0	100		
A	03/20/2007	0	8	0	9	5	9	3	0	0	23.5	0	26.5	14.7	26.5	8.82	0	100	0	32.1	0	227	39.6	31.0	8.56	0	0	9.49	0	67.1	11.7	9.18	2.53	0	100		
B	03/20/2007	0	8	0	6	5	6	1	0	0	30.8	0	23.1	19.2	23.1	3.85	0	100	0	20	0	241	47	19	6	0	0	6.01	0	72.4	14.1	5.71	1.80	0	100		
C	03/20/2007	0	3	0	8	3	5	1	0	0	15.0	0	40.0	15.0	25.0	5.0	0	100	0	13	0	150	18	36	2	0	0	5.94	0	68.5	8.22	16.4	0.91	0	100		
D	03/20/2007	0	4	0	12	6	6	2	0	0	13.3	0	40.0	20.0	20.0	6.67	0	100	0	57.8	0	279	44.3	41.8	11.1	0	0	13.3	0	64.3	10.2	9.63	2.55	0	100		
E	03/20/2007	0	9	0	9	5	5	0	0	0	32.1	0	32.1	17.9	17.9	0	0	100	0	80	0	602	333	70	0	0	0	7.37	0	55.5	30.7	6.49	0.00	0	100		

Appendix 4G. Functional group richness and abundance metrics for benthic macroinvertebrate samples collected at the study sites in Surry County, North Carolina, 2004-2007--continued

Transect	Collection Date	Functional group richness								Functional group percentage richness								Functional group abundance								Functional group percentage abundance											
		Parasites	Predators	Omnivores	Collector-gatherers	Filtering-collectors	Scrapers	Shredders	Piercers	Parasites	Predators	Omnivores	Collector-gatherers	Filtering-collectors	Scrapers	Shredders	Piercers	Total functional group richness	Parasites	Predators	Omnivores	Collector-gatherers	Filtering-collectors	Scrapers	Shredders	Piercers	Parasites	Predators	Omnivores	Collector-gatherers	Filtering-collectors	Scrapers	Shredders	Piercers	Total functional group abundance		
Bull Creek at Ash Hill, North Carolina (BMP site)																																					
A	03/24/2004	0	5	0	16	5	4	4	0	0	14.7	0	47.1	14.7	11.8	11.8	0	100	0	22	0	69	70	35	78	0	0	8.03	0	25.2	25.5	12.8	28.5	0	100		
B	03/24/2004	0	6	0	9	5	4	3	0	0	22.2	0	33.3	18.5	14.8	11.1	0	100	0	8	0	121	31	22	101	0	0	2.83	0	42.8	11.0	7.77	35.7	0	100		
C	03/24/2004	0	7	0	13	4	2	2	0	0	25.0	0	46.4	14.3	7.14	7.14	0	100	0	31	0	99	47	9	74	0	0	11.9	0	38.1	18.1	3.46	28.5	0	100		
D	03/24/2004	0	4	0	8	7	2	2	0	0	17.4	0	34.8	30.4	8.70	8.70	0	100	0	10	0	98	97	18	59	0	0	3.55	0	34.8	34.4	6.38	20.9	0	100		
E	03/24/2004	0	5	0	8	7	2	2	0	0	20.8	0	33.3	29.2	8.33	8.33	0	100	0	20	0	68	69	25	75	0	0	7.78	0	26.5	26.8	9.73	29.2	0	100		
A	02/16/2005	0	7	0	18	9	7	4	0	0	15.6	0	40.0	20.0	15.6	8.9	0	100	0	47	0	204	78	41	8	0	0	12.4	0	54.0	20.6	10.8	2.12	0	100		
B	02/16/2005	1	9	0	14	5	4	4	0	2.70	24.3	0	37.8	13.5	10.8	10.8	0	100	2	31	0	212	47	25	27	0	0.58	9.01	0	61.6	13.7	7.27	7.85	0	100		
C	02/16/2005	1	5	0	17	8	3	2	0	2.78	13.9	0	47.2	22.2	8.3	5.6	0	100	1	36	0	185	79	30	10	0	0.29	10.6	0	54.3	23.2	8.80	2.93	0	100		
D	02/16/2005	1	8	0	17	8	4	2	0	2.5	20.0	0	42.5	20.0	10.0	5	0	100	3	40	0	202	87	25	27	0	0.78	10.4	0	52.6	22.7	6.51	7.03	0	100		
E	02/16/2005	1	6	0	13	6	6	5	0	2.70	16.2	0	35.1	16.2	16.2	13.5	0	100	1	29	0	180	69	16	21	0	0.32	9.18	0	57.0	21.8	5.06	6.65	0	100		
A	03/08/2006	0	7	0	11	4	7	2	0	0	22.6	0	35.5	12.9	22.6	6.45	0	100	0	108	0	468	122	127	14.4	0	0	12.9	0	55.7	14.6	15.1	1.71	0	100		
B	03/08/2006	1	9	0	10	7	5	2	0	2.94	26.5	0	29.4	20.6	14.7	5.88	0	100	2.40	134	0	430	166	103	12.0	0	0.28	15.9	0	50.7	19.5	12.2	1.42	0	100		
C	03/08/2006	1	6	0	10	5	4	0	0	3.85	23.1	0	38.5	19.2	15.4	0	0	100	1	64	0	163	68	46	0	0	0.29	18.7	0	47.7	19.9	13.5	0.00	0	100		
D	03/08/2006	1	5	0	6	6	7	1	0	3.85	19.2	0	23.1	23.1	26.9	3.85	0	100	2.13	80.9	0	435	63.9	78.8	4.26	0	0.32	12.2	0	65.4	9.62	11.9	0.64	0	100		
E	03/08/2006	1	7	0	13	5	4	1	0	3.23	22.6	0	41.9	16.1	12.9	3.23	0	100	6.86	158	0	659	123	161	10.3	0	0.61	14.1	0	58.9	11.0	14.4	0.92	0	100		
A	03/21/2007	0	8	2	15	5	6	4	0	0	20.0	5.00	37.5	12.5	15.0	10	0	100	0	66	8	366	248	58	16	0	0	8.66	1.05	48.0	32.5	7.61	2.10	0	100		
B	03/21/2007	1	6	2	14	7	5	2	0	2.70	16.2	5.41	37.8	18.9	13.5	5.41	0	100	2	82	10	358	236	50	14	0	0.27	10.9	1.33	47.6	31.4	6.65	1.86	0	100		
C	03/21/2007	1	5	0	17	6	5	2	0	2.78	13.9	0	47.2	16.7	13.9	5.56	0	100	16	96	0	780	260	132	56	0	1.19	7.16	0	58.2	19.4	9.85	4.18	0	100		
D	03/21/2007	1	8	1	12	8	3	3	0	2.78	22.2	2.78	33.3	22.2	8.3	8.33	0	100	4	74	2	374	164	64	18	0	0.57	10.6	0.29	53.4	23.4	9.14	2.57	0	100		
E	03/21/2007	0	8	0	11	6	3	4	0	0	25.0	0	34.4	18.8	9.4	12.5	0	100	0	96	0	410	152	36	18	0	0	13.5	0	57.6	21.3	5.06	2.53	0	100		

Appendix 4G. Functional group richness and abundance metrics for benthic macroinvertebrate samples collected at the study sites in Surry County, North Carolina, 2004-2007--continued

Transect	Collection Date	Functional group richness									Functional group percentage richness									Functional group abundance									Functional group percentage abundance									
		Parasites	Predators	Omnivores	Collector-gatherers	Filtering-collectors	Scrapers	Shredders	Piercers		Parasites	Predators	Omnivores	Collector-gatherers	Filtering-collectors	Scrapers	Shredders	Piercers	Total functional group richness		Parasites	Predators	Omnivores	Collector-gatherers	Filtering-collectors	Scrapers	Shredders	Piercers		Parasites	Predators	Omnivores	Collector-gatherers	Filtering-collectors	Scrapers	Shredders	Piercers	Total functional group abundance
Pauls Creek near Pine Ridge, North Carolina (In-stream restoration and BMP site)																																						
A	03/23/2004	0	9	0	13	4	6	2	0	0	26.5	0	38.2	11.8	17.6	5.88	0	100	0	32	0	178	44	15	6	0	0	11.6	0	64.7	16.0	5.45	2.18	0	100			
B	03/23/2004	0	5	0	11	4	3	2	0	0	20.0	0	44.0	16.0	12.0	8.00	0	100	0	9	0	158	44	16	2	0	0	3.93	0	69.0	19.2	6.99	0.87	0	100			
C	03/23/2004	0	7	0	11	6	5	4	0	0	21.2	0	33.3	18.2	15.2	12.1	0	100	0	17	0	205	18	23	17	0	0	6.07	0	73.2	6.43	8.21	6.07	0	100			
D	03/23/2004	0	8	0	9	3	3	6	0	0	27.6	0	31.0	10.3	10.3	20.7	0	100	0	28	0	130	87	26	18	0	0	9.69	0	45.0	30.1	9.00	6.23	0	100			
E	03/23/2004	0	7	0	13	3	4	4	0	0	22.6	0	41.9	9.7	12.9	12.9	0	100	0	20	0	180	40	31	12	0	0	7.07	0	63.6	14.1	11.0	4.24	0	100			
A	02/17/2005	0	3	0	6	5	2	3	0	0	15.8	0	31.6	26.3	10.5	15.8	0	100	0	16	0	111	9	48	4	0	0	8.51	0	59.0	4.79	25.5	2.13	0	100			
B	02/17/2005	0	7	0	11	3	5	4	0	0	23.3	0	36.7	10.0	16.7	13.3	0	96.8	0	29	0	220	7	65	5	0	0	8.90	0	67.5	2.15	19.9	1.53	0	99.7			
C	02/17/2005	0	7	0	9	3	6	2	0	0	25.9	0	33.3	11.1	22.2	7.41	0	96.4	0	35	0	172	11	61	2	0	0	12.5	0	61.2	3.91	21.7	0.71	0	99.6			
D	02/17/2005	0	8	0	9	4	4	2	0	0	29.6	0	33.3	14.8	14.8	7.41	0	96.4	0	30	0	253	11	57	5	0	0	8.43	0	71.1	3.09	16.0	1.40	0	99.4			
E	02/17/2005	0	8	0	15	4	5	4	0	0	22.2	0	41.7	11.1	13.9	11.1	0	97.3	0	29	0	220	9	44	7	0	0	9.39	0	71.2	2.91	14.2	2.27	0	99.7			
A	03/09/2006	0	6	0	10	7	8	2	0	0	18.2	0	30.3	21.2	24.2	6.06	0	100	0	80	0	422	52	122	4	0	0	11.8	0	62.1	7.65	17.9	0.59	0	100			
B	03/09/2006	0	6	0	8	7	5	4	0	0	20.0	0	26.7	23.3	16.7	13.3	0	100	0	140	0	421	24.0	122	10.9	0	0	19.5	0	58.7	3.34	17.0	1.52	0	100			
C	03/09/2006	0	5	0	9	5	7	2	0	0	17.9	0	32.1	17.9	25.0	7.14	0	100	0	86	0	452	22	94	4	0	0	13.1	0	68.7	3.34	14.3	0.61	0	100			
D	03/09/2006	1	5	0	10	6	6	1	0	3.45	17.2	0	34.5	20.7	20.7	3.45	0	96.7	1.88	69.6	0	421	37.6	62.0	5.64	0	0.31	11.6	0	70.4	6.29	10.4	0.94	0	99.1			
E	03/09/2006	0	7	0	7	6	5	3	0	0	25.0	0	25.0	21.4	17.9	10.7	0	100	0	240	0	1540	192	75.4	27.4	0	0	11.6	0	74.3	9.24	3.63	1.32	0	100			
A	03/21/2007	0	8	0	3	1	4	1	0	0	47.1	0	17.6	5.88	23.5	5.88	0	100	0	25	0	47	15	11	1	0	0	25.3	0	47.5	15.2	11.1	1.01	0	100			
B	03/21/2007	0	7	0	10	4	5	1	0	0	25.9	0	37.0	14.8	18.5	3.70	0	100	0	47	0	101	18	27	2	0	0	24.1	0	51.8	9.23	13.8	1.03	0	100			
C	03/21/2007	0	7	0	7	4	5	3	0	0	26.9	0	26.9	15.4	19.2	11.5	0	100	0	29	0	85	16	34	3	0	0	17.4	0	50.9	9.58	20.4	1.80	0	100			
D	03/21/2007	0	7	0	12	4	7	1	0	0	22.6	0	38.7	12.9	22.6	3.23	0	100	0	34	0	197	31	46	1	0	0	11.0	0	63.8	10.0	14.9	0.32	0	100			
E	03/21/2007	1	6	0	7	4	3	1	0	4.55	27.3	0	31.8	18.2	13.6	4.55	0	100	1	24	0	96	11	11	1	0	0.69	16.7	0	66.7	7.64	7.64	0.69	0	100			