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TECHNICAL MEMO

Maryland Biological Stream Survey (MBSS) Round 3 (2007-2009) Population Estimates

1. INTRODUCTION

The Maryland Biological Stream Survey (MBSS) is a statewide sampling program of the Maryland Department of Natural Resources (DNR). It is a comprehensive program to assess the status of biological resources in Maryland's non-tidal streams; quantify the extent to which acidic deposition affects critical biological resources in the state; examine which other water chemistry, physical habitat, and land use factors are important in explaining stream conditions; provide a statewide inventory of stream biota; establish a benchmark for long-term monitoring; and target future local-scale assessments and mitigation measures needed to restore degraded biological resources.

Following pilot and demonstration projects in 1993 and 1994, the MBSS began its first "round" of sampling to characterize stream conditions and inventory resources statewide. While the MBSS monitors Maryland streams every year in support of multiple objectives, each statewide round of sampling focuses on random sites that provide probability-based estimates of conditions and resources with known confidence. These estimates are computed for the entire state as well as small geographic regions and watersheds. Round 1 of the MBSS was conducted in 1995-1997; Round 2 was conducted in 2000-2004; and Round 3 of the MBSS was conducted in 2007-2009. During Round 3 of sampling (2007-2009), the MBSS sampled 252 randomly-selected stream sites distributed throughout Maryland, including the three primary ecoregions—Highlands (coldwater and warmwater), Eastern Piedmont, and Coastal Plain.

Fish sampling in MBSS consists of biologists identifying the numbers and species of fish present in a 75-meter stream segment using a double-pass electrofishing technique. This double-pass technique provides a depletion factor that can be used to improve estimates of fish population size when species have different capture efficiencies based on their behavior and habitats.

Maryland has a diverse freshwater fish fauna including 96 species living across the Highlands, Eastern Piedmont, and Coastal Plain regions of the state. Monitoring by the MBSS provides a robust inventory of the distribution and abundance of Maryland fishes based on estimates from its probability-based design. This report describes the methods and results of estimating fish populations in Maryland streams from the data collected by the MBSS in Round 3 (2007-2009). Results from previous rounds are discussed for comparison.

2. METHODS

Fish populations were estimated by double-pass removal sampling using methods similar to those described by Heimbuch et al. (1997). The procedure corrects for bias introduced by variation in the probability of capture among sites to allow pooling of data over several sample sites. Such pooling can use data more effectively than traditional double-pass removal estimators for surveys with only two removal passes at individual sites, because it reduces the number of estimates that fail when an equal or greater number of fish are captured on the second pass than on the first. For this analysis, data were pooled across samples within primary sampling units (PSUs), which correspond to one or more MDE 8-digit watersheds. To estimate the abundance of a species, the number of fish captured on the first and second passes was pooled and then scaled to the total distance of streams within each PSU as:

$$\hat{x}_1 = \frac{M}{m} \sum_{s=1}^m x_{1s}$$

and

$$\hat{x}_2 = \frac{M}{m} \sum_{s=1}^m x_{2s}$$

where x_{1s} and x_{2s} are the number of fish collected in the first and second passes in stream segment s ($s = 1, 2, 3, \dots, m$), m is the number of 75-m stream segments sampled, and M is the number of 75-m segments within the PSU as estimated using MBSS stream network (1:100,000-scale map).

The bias-corrected estimator of abundance within a PSU (\hat{N}^*) was calculated as:

$$\hat{N}^* = \frac{\hat{x}_1}{(\hat{x}_1 - \hat{x}_2)} (1 + \beta^2)$$

where

$$\beta^2 = \frac{\frac{1}{m} \sum_{s=1}^m \beta_s^2 \delta_s}{\left(\frac{1}{m} \sum_{s=1}^m \beta_s \delta_s \right)^2} - 1$$

$$\beta_s = 1 - \left(\frac{x_{2s}}{x_{1s} + 1} \right)$$

and $\delta_s = 1$ if $0 \leq \hat{p}_s \leq 1$ or 0 otherwise, and

$$m^* = \sum_{s=1}^M \hat{a}_s$$

Two modifications were made to the procedure described by Heimbuch et al. (1997). First, if an estimate failed (i.e., $\hat{x}_2 \geq \hat{x}_1$), then \hat{N}^* was assigned as the total number of fish captured, scaled to the total stream distance in the PSU ($\hat{x}_1 + \hat{x}_2$). Second, final estimates of abundance and associated variance were calculated using the jackknife procedure. The jackknife consisted of calculating the estimates a number of times equal to the number of segments sampled, but omitting one observation from each calculation. The jackknife mean and variance were then calculated as described by Efron (1982).

Crayfish can also be collected in the double-pass electrofishing technique, thus the same method was used to estimate crayfish populations.

When game fish species are collected by the MBSS double-pass electrofishing technique, the length of the fish is recorded. The length of the fish was used to determine if the fish was of harvestable size given Maryland game fish size limits (Table 1). The size limits listed in Table 1 corresponding to regulations during Round 1 sampling (1995-1997) and were used in this report for comparability among rounds. The population estimates on game fish were calculated on the number of fish of harvestable size using the same methods described above.

Table 1. Maryland game fish size limits for harvest in Maryland.	
Species	Minimum Size Limit
Brook trout	6 inches = 152.4 mm
Brown trout	6 inches = 152.4 mm
Chain pickerel	14 inches = 355.6 mm
Largemouth bass	12 inches = 304.8 mm
Rainbow trout	6 inches = 152.4 mm
Smallmouth bass	12 inches = 304.8 mm
Walleye	15 inches = 381 mm

Density of fish, crayfish, and game fish were calculated by dividing the estimated abundance by the number of stream miles in the PSU.

3. ROUND 3 RESULTS

During the 2007-2009 MBSS, a total of 84 species were collected as part of the core MBSS sampling program (Table 2). Fish were sampled during the summer using intensive two-pass

electrofishing of 75-m stream segments to provide an accurate characterization of species presence and numbers. Estimates of fish abundance are derived from species-specific electrofishing depletion results. The core MBSS fish sampling comprised 216 probability-based (random) sites on all 1st through 4th-order nontidal streams in Maryland. This provides the most accurate (but not a complete) characterization of fish distributions in the State. Six stations were dropped from the analysis because they were the only sites in their PSU. There were two stations in the Town Creek PSU where no fish were captured, thus this PSU was also deleted from analysis.

Of the 84 fish species collected during random sampling in 2007-2009, three were new species not captured in the 2000-2004 MBSS sampling: Banded darter (*Etheostoma zonale*), Oriental weatherfish (*Misgurnus anguillicaudatus*), and Walleye (*Sander vitreus*). None of these three fish species were found in the 1995-1997 MBSS sampling either.

Based on estimates calculated from randomly selected MBSS sites during 2007-2009, there are approximately 136 million fish in 1st-4th order streams in Maryland (Table 2). The five most abundant species included Blacknose dace (*Rhinichthys atratulus*), Blue ridge sculpin (*Cottus caeruleomentum*), Tessellated darter (*Etheostoma olmstedi*), Eastern mosquitofish (*Gambusia holbrooki*), and Bluntnose minnow (*Pimephales notatus*). The rate of experimental failure is defined as when the catch on the second pass exceeded the catch on the first pass (i.e., no depletion in numbers). When examining the rate of experimental failure by individual sites, 56 fish species failed with an average rate of 1.29% (Table 3). Pooling sites to the primary sampling unit (PSU), 50 fish species failed with an average rate of 1.94%. Pooling the data to the region level decreases the number of fish species that failed to 14 with an average rate of 4.5%.

To determine the probability of capture, the estimated fish abundance as shown in Table 2 was divided by the estimated fish abundance based on data from the first pass only. On average, the probability of capture was 50.6% (Table 4). Fifty (50) % of the fish species found in the MBSS Round 3 data exceeded 50% probability of capture, which indicates that the estimator is biased. Fish species with higher probability of capture were, on average, found at more sites than fish species with lower probability of capture.

Table 2. Statewide population estimates for fish species collected by the MBSS during 2007-2009

Fish Species	Population Estimate	Standard Error of Population	Fish Species	Population Estimate	Standard Error of Population
Alewife	538	538	Least brook lamprey	537,377	179,149
American brook lamprey	107,079	100,131	Lepomis hybrid	8,537	7,231
American eel	2,246,407	326,094	Logperch	62,686	53,190
Banded darter	39,726	46,810	Longnose dace	7,099,992	1,613,611
Banded killifish	748,841	467,837	Margined madtom	2,141,229	1,195,249
Banded sunfish	55,302	29,969	Mottled sculpin	649,115	141,294
Black crappie	12,460	9,283	Mummichog	135,404	89,769
Blacknose dace	26,748,736	4,224,242	Northern hogsucker	732,504	240,847
Blue ridge sculpin	12,496,064	2,350,694	Notropis sp.	5,382	5,382
Bluegill	1,920,525	490,252	Oriental weatherfish	722	722
Bluespotted sunfish	1,526,979	999,075	Pearl dace	24,981	10,615
Bluntnose minnow	7,904,038	3,176,470	Pirate perch	551,040	203,914
Brook trout	174,495	40,978	Potomac sculpin	1,707,664	621,424
Brown bullhead	387,117	187,890	Pumpkinseed	632,174	155,583
Brown trout	601,432	411,036	Rainbow darter	164,403	159,890
Central stoneroller	5,495,304	2,084,710	Rainbow trout	16,708	9,167
Chain pickerel	87,986	54,440	Redbreast sunfish	1,582,273	339,644
Channel catfish	4,487	4,087	Redfin pickerel	406,772	178,145
Checkered sculpin	6,724	6,724	River chub	1,550,528	401,957
Comely shiner	27,803	23,311	Rock bass	71,918	26,330
Common carp	1,577	1,577	Rosyface shiner	655,339	342,775
Common shiner	4,148,622	2,176,252	Rosyside dace	4,686,381	961,122
Creek chub	4,190,093	1,087,436	Satinfin shiner	1,360,515	753,727
Creek chubsucker	564,384	213,188	Sea lamprey	665,115	355,095
Cutlip minnow	1,283,305	236,461	Shield darter	148,363	106,056
Cyprinid (unknown)	6,724	6,724	Silverjaw minnow	241,433	134,043
Eastern mosquitofish	8,000,064	7,067,128	Smallmouth bass	723,969	257,845
Eastern mudminnow	3,533,464	795,773	Spotfin shiner	464,352	148,968
Fallfish	1,425,035	460,771	Spottail shiner	1,844,488	726,008
Fantail darter	2,921,590	766,268	Sunfish (hybrid)	5,274	4,598
Fathead minnow	9,025	9,025	Swallowtail shiner	898,313	287,920
Gizzard shad	10,944	10,420	Swamp darter	11,076	7,653
Glassy darter	14,486	14,486	Tadpole madtom	533,911	380,671
Golden redbhorse	315	315	Tessellated darter	8,643,460	7,551,283
Golden shiner	1,193,319	734,601	Walleye	631	631
Goldfish	7,485	7,485	Warmouth	6,794	4,499
Green sunfish	562,838	101,836	Western blacknose dace	199,835	67,222
Greenside darter	2,937,727	1,367,516	White catfish	737	526
Ironcolor shiner	45,288	45,288	White sucker	4,853,842	659,992
Johnny darter	168,377	134,955	Yellow bullhead	483,568	282,993
Largemouth bass	158,686	32,881	Yellow perch	18,830	17,085

Table 3. Rate of experimental failure (catch in the second pass exceeds that of the first pass) at the individual site, primary sampling unit (PSU), ecoregion (Highlands [coldwater and warmwater], Eastern Piedmont, and Coastal Plain), and statewide

Species	Individual Site	PSU	Region	State-wide	Species	Individual Site	PSU	Region	State-wide
Alewife					Least brook lamprey	5.1%	9.5%	25.0%	
American brook lamprey					Lepomis hybrid				
American eel	2.8%	1.2%			Logperch				
Banded darter	0.5%				Longnose dace	1.4%	2.4%		
Banded killifish	0.9%	1.2%			Margined madtom	3.7%	7.1%		
Banded sunfish	0.9%	2.4%			Mottled sculpin				
Black crappie					Mummichog	0.5%	1.2%		
Blacknose dace	2.8%	1.2%			Northern hogsucker	1.4%	2.4%		
Blue ridge sculpin					Notropis sp.				
Bluegill	5.6%	7.1%			Oriental weatherfish	0.5%	1.2%	25.0%	100.0%
Bluespotted sunfish	0.9%	2.4%			Pearl dace				
Bluntnose minnow	0.5%	1.2%			Pirate perch	4.2%	6.0%		
Brook trout					Potomac sculpin	0.5%			
Brown bullhead	3.7%	6.0%			Pumpkinseed	3.2%	6.0%		
Brown trout	0.5%	1.2%			Rainbow darter				
Central stoneroller	0.9%	1.2%			Rainbow trout				
Chain pickerel	0.9%	2.4%			Redbreast sunfish	0.5%	1.2%		
Channel catfish					Redfin pickerel	0.9%			
Checkered sculpin					River chub	1.4%	1.2%		
Comely shiner	0.9%	2.4%	50.0%	100.0%	Rock bass	1.4%	3.6%		
Common carp					Rosyface shiner	1.4%			
Common shiner	1.9%	3.6%			Rosyside dace	1.9%	2.4%		
Creek chub	4.6%	2.4%			Satinfin shiner	0.9%	2.4%	25.0%	
Creek chubsucker	1.9%	2.4%			Sea lamprey	1.9%	4.8%	25.0%	100.0%
Cutlip minnow	1.9%	3.6%			Shield darter	2.3%	4.8%	25.0%	
Cyprinid (unknown)					Silverjaw minnow				
Eastern mosquitofish	2.8%	3.6%			Smallmouth bass	0.9%	1.2%		
Eastern mudminnow	4.6%	7.1%	25.0%		Spotfin shiner				
Fallfish	1.9%	2.4%			Spottail shiner	0.9%			
Fantail darter					Sunfish (hybrid)	0.5%	1.2%		
Fathead minnow					Swallowtail shiner	2.8%	3.6%		
Gizzard shad	0.5%	1.2%	25.0%	100.0%	Swamp darter	0.9%	2.4%	25.0%	100.0%
Glassy darter					Tadpole madtom	3.2%	6.0%	25.0%	100.0%
Golden redbhorse	0.5%	1.2%	25.0%	100.0%	Tessellated darter	4.6%	4.8%		
Golden shiner	3.7%	6.0%			Walleye				
Goldfish					Warmouth	0.5%			
Green sunfish	5.1%	6.0%			Western blacknose dace				
Greenside darter	0.9%	2.4%			White catfish				
Ironcolor shiner	0.5%	1.2%	25.0%	100.0%	White sucker	3.2%	3.6%		
Johnny darter					Yellow bullhead	3.2%	6.0%	25.0%	
Largemouth bass	1.9%	4.8%			Yellow perch	0.5%	1.2%	25.0%	100.0%

Table 4. Probability of capture for each fish species found in the MBSS Round 3 sampling

Species	# of Sites Present	Probability of Capture	Species	# of Sites Present	Probability of Capture
Alewife	1	100.0%	Blue ridge sculpin	36	49.0%
Common carp	1	100.0%	Warmouth	3	48.8%
White catfish	2	100.0%	Lepomis hybrid	3	48.6%
Western blacknose dace	3	85.8%	Fallfish	37	48.6%
Glassy darter	1	84.1%	Checkered sculpin	1	48.1%
Rainbow trout	5	83.5%	Cyprinid (unknown)	1	48.1%
Notropis sp.	1	83.3%	Banded sunfish	6	46.4%
Brook trout	7	80.2%	Least brook lamprey	26	46.4%
Largemouth bass	45	76.2%	Redfin pickerel	29	45.4%
Brown trout	16	75.0%	Rosyface shiner	10	45.0%
Spotfin shiner	15	74.1%	Silverjaw minnow	6	44.4%
Blacknose dace	138	69.0%	Redbreast sunfish	49	44.2%
Johnny darter	3	68.4%	Smallmouth bass	21	43.8%
Golden shiner	31	68.2%	Comely shiner	2	42.3%
Bluntnose minnow	28	65.8%	Swamp darter	3	42.1%
Goldfish	1	64.7%	Sunfish (hybrid)	2	41.4%
Mottled sculpin	5	64.2%	American brook lamprey	3	41.3%
Spottail shiner	20	61.6%	Black crappie	5	41.2%
Central stoneroller	31	61.5%	Banded killifish	18	40.1%
Fathead minnow	1	61.2%	Eastern mudminnow	71	38.7%
Rosyside dace	62	60.5%	Greenside darter	17	38.5%
Cutlip minnow	36	60.5%	Yellow perch	3	37.9%
Swallowtail shiner	33	59.8%	Pirate perch	20	37.3%
Creek chubsucker	42	59.8%	Mummichog	8	34.8%
River chub	23	59.1%	Yellow bullhead	31	34.1%
Green sunfish	56	58.5%	Gizzard shad	2	33.7%
Northern hogsucker	27	57.8%	Ironcolor shiner	1	33.3%
Pumpkinseed	59	57.7%	Chain pickerel	11	32.2%
Rock bass	13	57.2%	Common shiner	34	31.3%
Creek chub	105	57.1%	Bluespotted sunfish	14	31.1%
Longnose dace	64	56.5%	Rainbow darter	4	26.4%
Potomac sculpin	19	56.0%	Logperch	2	23.6%
American eel	98	55.8%	Satinfin shiner	21	21.5%
Fantail darter	29	55.7%	Banded darter	2	18.3%
Pearl dace	4	53.7%	Sea lamprey	14	18.1%
White sucker	79	53.4%	Tessellated darter	96	17.5%
Channel catfish	2	51.6%	Margined madtom	39	15.8%
Shield darter	9	50.2%	Tadpole madtom	13	14.5%
Bluegill	94	50.1%	Eastern mosquitofish	25	6.3%
Walleye	1	50.0%	Golden redbhorse	1	0.0%
Brown bullhead	33	49.9%	Oriental weatherfish	1	0.0%

In MBSS Round 3, the Elk River tributary basin had the highest estimated fish density and the North Branch Potomac River had the lowest density (Table 5, Figure 1). The Elk River tributary basin also had the highest estimated fish density in the MBSS Round 2 sampling, when the West Chesapeake Bay tributary basin had the lowest.

Table 5. Estimated fish density, standard error of the population (SE), and number of sites (N) for each basin in each MBSS round of sampling (2007-2009 = Round 3; 2000-2004 = Round 2; 1995-1997 = Round 1)

Tributary Basin	2007-2009			2000-2004			1995-1997		
	N	Density	SE	N	Density	SE	N	Density	SE
Ocean Coastal	3	6,793	3,192	9	4,337	2,975			
Pocomoke River	12	2,104	535	46	6,842	2,764	28	7,403	2,529
Nanticoke River	12	5,386	1,632	56	8,302	4,909	17	2,755	1,800
Choptank River	9	4,373	1,945	35	9,608	4,006	37	7,311	4,655
Chester River	15	14,427	2,654	72	17,625	10,153	39	13,225	9,274
Elk River	9	44,879	24,593	37	20,291	10,827	18	10,638	7,449
Susquehanna River	9	27,912	7,665	49	12,280	4,437	35	6,820	2,425
Bush River	9	12,388	2,812	39	10,516	5,160	19	9,174	5,573
Gunpowder River	12	16,969	2,939	57	10,559	3,461	45	7,182	3,162
Patapsco River	21	20,344	3,224	117	10,465	2,743	126	11,548	5,896
West Chesapeake Bay	9	2,740	882	33	1,675	891	32	3,561	4,808
Patuxent River	24	5,822	886	97	8,415	2,795	80	11,291	3,669
Lower Potomac River	27	3,999	784	126	6,247	2,323	50	5,515	2,342
Washington Metro Potomac River	18	10,448	1,454	77	12,034	5,897	70	7,148	3,516
Middle Potomac River	15	26,739	4,039	89	14,544	8,918	107	8,103	3,015
Upper Potomac River	21	20,253	3,836	123	7,068	2,495	65	13,980	5,641
North Branch Potomac River	18	2,035	157	72	6,281	2,092	57	5,444	4,461
Youghiogheny River	9	4,244	1,058	36	5,296	1,890	80	6,822	3,492

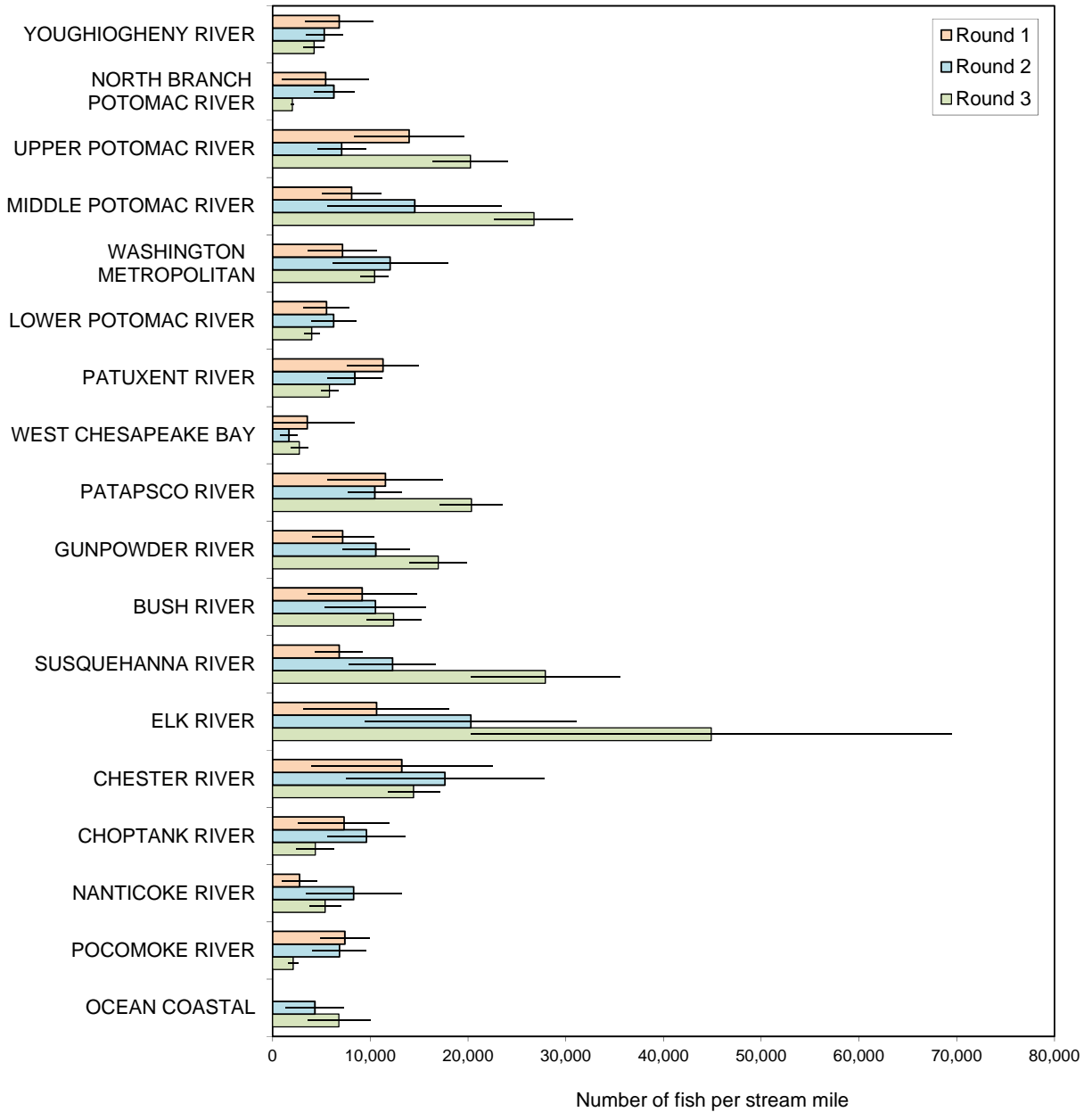


Figure 1. The estimated number of fish per stream mile (+/-standard error of the population) for each basin in Round 1 (1995-1997), Round 2 (2000-2004), and Round 3 (2007-2009).

Abundance estimates were calculated for game fish species that were of harvestable size. Only five game fish species were collected with individuals being of harvestable size (Table 6). About 40% of the total statewide estimated abundance for the three trout species collected is of harvestable size. Harvestable-sized largemouth bass abundance is about 2% of the total estimated abundance and harvestable chain pickerel abundance is about 1% of the total estimated abundance.

Harvestable Sized Game Fish Species	Estimated Abundance	SE	Density (#/stream mile)
Brook Trout	70,630	32,287	7.7
Brown Trout	242,089	160,833	26.3
Rainbow Trout	1,269	1,269	0.7
Chain Pickerel	3,341	629	0.1
Largemouth Bass	6,577	3,830	0.4

In Round 3 of the MBSS, 12 different crayfish species were collected during electrofishing sampling at 225 sites (Table 7). *Orconectes virilis* had the highest statewide estimated abundance, followed by *Orconectes rusticus* and *Orconectes limosus*. Probability of capture is much lower in crayfish than in fish species. Pooling the crayfish data to the PSU level only excludes one crayfish species from failure (Table 8), however, pooling the crayfish data to the region level excludes five species from failure. Crayfish do not tend to stun as well as fish during electrofishing, thus the low probability of capture and high rate of experimental failure.

Crayfish Species	# of Sites Found At	Estimated Abundance	SE	Density (#/ stream mile)	Probability of Capture
<i>Cambarus acuminatus</i>	2	2,403	1,201	0.3	0.0%
<i>Cambarus bartonii bartonii</i>	57	349,572	90,969	38.0	39.6%
<i>Cambarus carinirostris</i>	5	178,302	98,348	19.4	21.5%
<i>Cambarus diogenes</i>	17	23,602	9,772	2.6	56.7%
<i>Cambarus</i> sp.	1	358	358	0.04	0.0%
<i>Fallicambarus fodiens</i>	2	6,155	5,060	0.7	31.9%
<i>Orconectes limosus</i>	53	1,139,355	290,765	123.8	25.1%
<i>Orconectes obscurus</i>	8	619,210	338,609	67.3	43.4%
<i>Orconectes rusticus</i>	4	2,562,365	1,846,947	278.4	42.1%
<i>Orconectes virilis</i>	67	22,145,811	14,248,671	2406.4	14.9%
<i>Procambarus clarkii</i>	21	188,718	102,000	20.5	24.2%
<i>Procambarus</i> sp.	23	133,223	20,422	14.5	40.1%

Table 8. Rate of experimental failure (catch in the second pass exceeds that of the first pass) at the individual site, primary sampling unit (PSU), ecoregion (Highlands [coldwater and warmwater], Eastern Piedmont, and Coastal Plain), and statewide								
Crayfish Species	Site Level		PSU Level		Region Level		State Level	
	# Times Fail	% Fail	# Times Fail	% Fail	# Times Fail	% Fail	# Times Fail	% Fail
<i>Cambarus acuminatus</i>	2	1.0%	1	1.2%	1	33.3%	1	100.0%
<i>Cambarus bartonii bartonii</i>	17	8.9%	10	12.3%				
<i>Cambarus carinirostris</i>	2	1.0%						
<i>Cambarus diogenes</i>	7	3.7%	6	7.4%				
<i>Cambarus sp.</i>	1	0.5%	1	1.2%	1	33.3%	1	100.0%
<i>Fallicambarus fodiens</i>	2	1.0%	2	2.5%	1	33.3%	1	100.0%
<i>Orconectes limosus</i>	11	5.8%	6	7.4%				
<i>Orconectes obscurus</i>	2	1.0%	2	2.5%				
<i>Orconectes rusticus</i>	3	1.6%	1	1.2%	1	33.3%	1	100.0%
<i>Orconectes virilis</i>	18	9.4%	6	7.4%	1	33.3%		
<i>Procambarus clarkii</i>	8	4.2%	5	6.2%	1	33.3%		
<i>Procambarus sp.</i>	10	5.2%	7	8.6%	1	33.3%	1	100.0%

4. COMPARISON WITH OTHER MBSS ROUNDS

Fish population estimate as described for Round 3 of the MBSS were previously calculated for MBSS Rounds 1 and 2. Before estimates are compared among rounds, it is important to consider the effects that the different stream network and survey design used in Round 1 may have on comparisons with Rounds 2 and 3. To investigate this, we did the following analysis on Round 2, the most intensive MBSS sampling round.

Round 1 sites were selected using the stream network on a 1:250,000-scale map, whereas sites selected in Round 2 and 3 used the more detailed 1:100,000-scale map which includes smaller streams. To determine the effect of using different map scales on estimating fish populations, we compared results from all Round 2 sites (i.e., on the 1:100,000-scale map) with the subset of R2 sites that also occur on the larger streams included in the 1:250,000-scale map. The differences in statewide stream miles and number of sites are shown in Table 9. Note that the percent increase in stream miles from the 1:250,000-scale map to the 1:100,000-scale map ranged from 0% to 48% in the 18 basins (Figure 2).

Table 9. Number of stream miles and sites per MBSS Round.		
MBSS Round	Stream Miles	Sites
R2 1:100,000-scale streams	9,117	1,170
R2 1:250,000-scale streams	8,010	864
Difference	-12% difference	-26% difference

Contrary to expectation, the estimate of fish abundance statewide did not decrease with the decrease in stream miles. In fact, the statewide fish population estimate for the 1:250,000-scale streams was higher as shown in Table 10.

Table 10. Estimated fish population abundance statewide in Maryland for all sites selected on each map scale during MBSS Round2.		
Map Scale	Fish Abundance	Standard Error of the Population
R2 1:100,000-scale streams	91,251,865	6,536,775
R2 1:250,000-scale streams	99,076,181	7,840,633
Difference	+8% difference	

Figure 3 shows this general increase in fish population estimates from the 1:100,000-scale streams to the 1:250,000-scale streams. Only 4 out of the 18 basins had higher abundances (Youghiogheny, Patuxent, Susquehanna, and Choptank). At the same time, 15 of the 18 basins showed higher standard errors with the 1:250,000-scale streams.

Table 11 shows the same pattern for fish population estimates by fish species statewide. Seventy-two (72) of the 91 fish species had increased abundances using sites selected by the 1:250,000-scale map and 71 out of 91 species had increased variability using sites selected by the 1:250,000-scale map.

The cause of this unexpected increase in fish abundance estimates with the fewer stream miles in the 1:250,000-scale map is the result of higher per-stream-mile fish abundance numbers at that scale. Because the 1:250,000-scale map has larger size streams (i.e., the smallest streams on the 1:100,000-scale map have been removed), the product of these higher per mile numbers with the lower number streams can still result in higher overall estimates.

This illustrates the pitfalls of comparing population estimates or stream condition estimates among MBSS rounds when the stream maps are different. Differences may be confounded by inclusion of different stream sizes or types in the comparison. Not explored here, but another potential effect is the greater proportion of higher-order streams sampled in Round 1 compared to the later rounds (i.e. the Round 1 design selected sites with equal probability within stream order in basins, while Rounds 2 and 3 selected sites from stream orders in proportion to their occurrence within PSUs). Therefore, inter-round comparisons should be limited to the same stream network on the same map scale. This can be achieved by excluding streams not sampled by Round1 from other rounds before comparing results with Round 1.

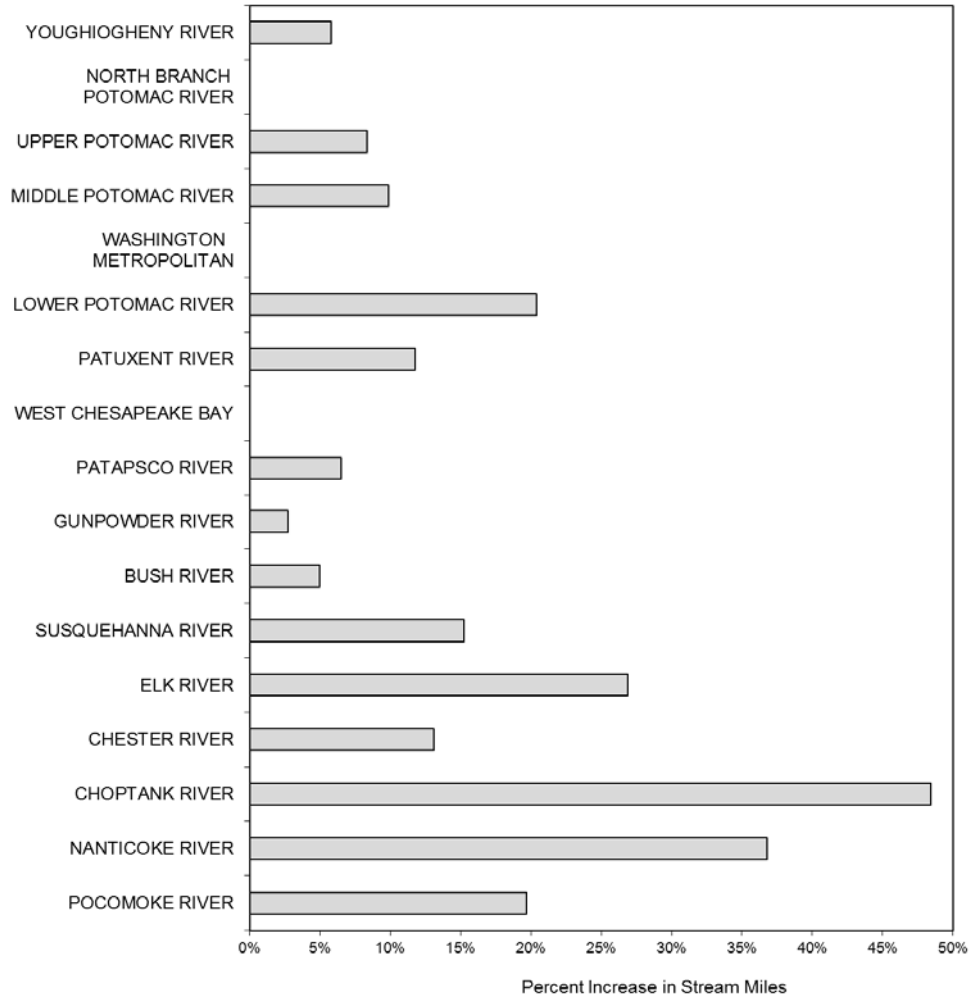


Figure 2. Estimated percent increase of stream miles from 1:250,000-scale map used in selecting Round 1 MBSS sites to 1:100,000-scale map used in Round 2 and Round 3

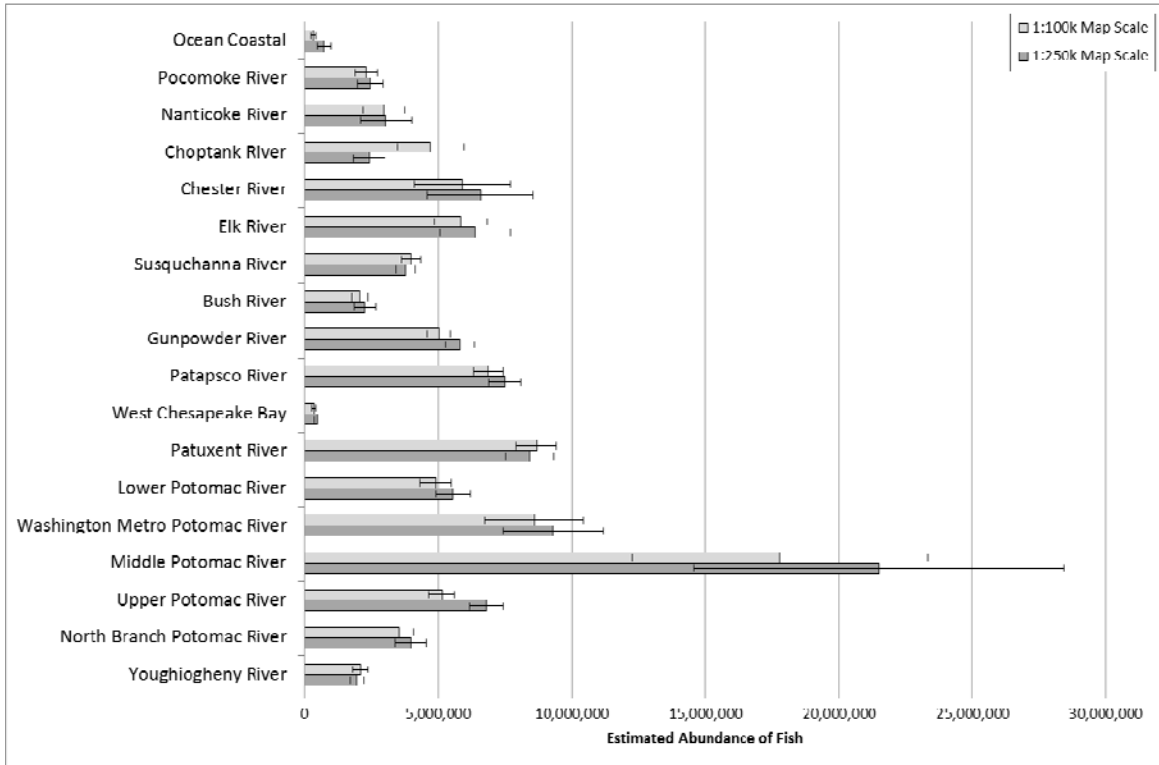


Figure 3. Estimated fish populations (+/- standard error of the population) during MBSS Round 2 using sites selected on a 1:100,000-scale map and 1:250,000-scale map

Table 11. Statewide population estimates for fish species collected by the MBSS during Round 2 (2000-2004) using sites selected by a 1:250,000-scale map and 1:100,000-scale map.

Fish Species	1:250,000-scale		1:100,000-scale	
	Population Estimate	Standard Error of the Population	Population Estimate	Standard Error of the Population
ALEWIFE	33,525	31,495	32,405	31,480
AMERICAN BROOK LAMPREY	9,114	3,013	16,085	8,853
AMERICAN EEL	2,334,379	382,020	1,885,854	237,320
BANDED KILLIFISH	123,766	52,060	109,101	47,412
BANDED SUNFISH	84,161	39,596	83,702	43,633
BLACK CRAPPIE	18,315	9,888	15,048	8,031
BLACKNOSE DACE	15,306,188	854,813	14,343,129	798,493
BLUE RIDGE SCULPIN	8,245,889	945,631	7,341,496	830,343
BLUEBACK HERRING	5,388	3,378	2,588	2,360
BLUEGILL	1,989,089	333,477	1,630,342	240,248
BLUESPOTTED SUNFISH	480,555	104,768	494,446	108,404
BLUNTNOSE MINNOW	7,958,399	3,233,198	6,522,897	2,652,632
BROOK TROUT	438,723	70,805	407,262	69,942
BROWN BULLHEAD	423,880	282,403	460,987	488,224
BROWN TROUT	314,907	125,672	247,316	93,617
CENTRAL STONEROLLER	1,503,295	338,435	1,275,817	285,890
CHAIN PICKEREL	77,107	11,689	68,680	11,043
CHANNEL CATFISH	4,255	2,554	3,724	2,270
CHECKERED SCULPIN	84,216	57,011	60,251	41,524
COMELY SHINER	18,455	10,051	13,053	7,129
COMMON CARP	2,903	1,189	2,777	1,073
COMMON SHINER	1,104,116	198,065	982,909	177,389
CREEK CHUB	3,592,251	301,109	3,524,739	289,317
CREEK CHUBSUCKER	793,024	179,291	687,579	115,343
CUTLIP MINNOW	0	0	513,129	67,232
CUTTHROAT TROUT	164	164	117	117
CYPRINID (UNKNOWN)	335	335	270	270
CYPRINID HYBRID	2,357	1,478	2,034	1,227
EASTERN MUDMINNOW	10,562,906	1,901,644	12,498,604	2,140,057
EASTERN SILVERY MINNOW	65,803	55,698	65,493	55,693
FALLFISH	1,137,995	286,477	1,178,279	294,751
FANTAIL DARTER	2,582,313	503,918	2,137,230	424,363
FATHEAD MINNOW	74,114	26,775	87,984	32,852
FLIER	7,691	5,978	6,588	5,197
GIZZARD SHAD	15,539	6,526	17,342	7,319
GLASSY DARTER	26,758	25,442	27,602	23,244
GOLDEN REDHORSE	14,702	8,759	12,539	7,714
GOLDEN SHINER	996,339	253,288	748,061	151,793
GOLDFISH	2,713	952	2,984	1,024
GREEN SUNFISH	1,051,406	276,539	1,000,153	255,245

Table 11. (Continued)				
Fish Species	1:250,000-scale		1:100,000-scale	
	Population Estimate	Standard Error of the Population	Population Estimate	Standard Error of the Population
GREENSIDE DARTER	3,401,335	6,026,149	2,658,390	4,767,241
INLAND SILVERSIDE	3,342	3,342	1,108	1,108
IRONCOLOR SHINER	5,520	5,520	4,800	4,800
JOHNNY DARTER	31,301	15,987	31,958	16,142
LARGEMOUTH BASS	273,859	39,406	236,345	31,312
LEAST BROOK LAMPREY	1,398,335	647,866	1,218,006	444,019
LEPOMIS HYBRID	6,187	2,499	5,047	2,085
LOGPERCH	1,328	1,328	1,342	1,342
LONGEAR SUNFISH	23,143	9,411	16,114	6,551
LONGNOSE DACE	2,954,885	399,080	2,524,940	313,648
MARGINED MADTOM	912,770	617,816	733,458	408,676
MOSQUITOFISH	465,038	195,154	376,892	164,792
MOTTLED SCULPIN	673,210	181,975	687,961	186,349
MUD SUNFISH	8,259	4,939	9,128	3,377
MUMMICHOG	213,847	100,170	197,474	96,245
NORTHERN HOGSUCKER	288,699	71,367	265,115	62,861
NOTROPIS SP.	7,641	7,210	5,731	5,347
PEARL DACE	192,162	152,985	134,983	110,418
PIRATE PERCH	2,103,636	1,323,933	1,549,770	905,638
POTOMAC SCULPIN	1,738,353	429,162	1,504,276	394,846
PUMPKINSEED	1,020,090	167,056	893,175	164,911
RAINBOW DARTER	329,431	104,012	249,336	82,811
RAINBOW TROUT	16,312	6,082	14,514	4,793
REDBREAST SUNFISH	903,543	118,042	771,869	104,004
REDFIN PICKEREL	656,063	142,768	570,126	129,532
RIVER CHUB	1,556,886	1,057,873	1,208,206	780,994
ROCK BASS	233,314	53,531	190,134	43,192
ROSYFACE SHINER	222,477	97,403	183,922	82,316
ROSYSIDE DACE	2,860,587	251,387	2,768,643	252,152
SATINFIN SHINER	416,562	126,771	366,824	97,017
SEA LAMPREY	294,319	158,862	312,474	144,423
SHIELD DARTER	65,532	25,312	60,567	23,125
SHORTHEAD REDHORSE	104	104	118	118
SILVERJAW MINNOW	626,015	384,622	515,093	313,406
SMALLMOUTH BASS	326,178	59,278	275,775	49,812
SPOTFIN SHINER	576,865	246,850	444,668	198,406
SPOTTAIL SHINER	2,593,250	1,784,184	2,454,881	1,771,155
STRIPED BASS	1,917	937	1,857	952
STRIPED SHINER	0	0	190	190
SUNFISH (HYBRID)	0	0	270	270
SUNFISH (UNKNOWN)	3,521	3,521	2,929	2,929
SWALLOWTAIL SHINER	1,007,457	242,665	897,541	199,182

Table 11. (Continued)				
Fish Species	1:250,000-scale		1:100,000-scale	
	Population Estimate	Standard Error of the Population	Population Estimate	Standard Error of the Population
SWAMP DARTER	11,829	5,362	9,734	3,742
TADPOLE MADTOM	234,835	172,850	202,218	133,798
TESSELLATED DARTER	5,218,017	633,981	4,907,866	612,645
WARMOUTH	40,783	22,174	34,429	18,597
WHITE CATFISH	262	262	301	301
WHITE PERCH	2,031	978	1,791	862
WHITE SUCKER	3,326,394	331,134	2,967,035	281,078
YELLOW BULLHEAD	293,903	118,577	258,624	91,832
YELLOW PERCH	13,715	4,994	13,321	5,210

5. REFERENCES

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- Heimbuch, D.G., H.T. Wilson, S.B. Weisberg, J.H. Vølstad, and P.F. Kazyak. 1997. Estimating fish abundance in stream surveys by using double-pass removal sampling. Transactions of the American Fisheries Society 126: 795-803.

Appendix Table 1. Statewide population estimates for fish species collected by the MBSS during 2007-2009										
Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
ALEWIFE	208	538	538	1	0	1	100.00%	0.1	0.1	9,203
AMERICAN BROOK LAMPREY	208	107,079	100,131	49	24	3	41.30%	11.6	10.9	9,203
AMERICAN EEL	208	2,246,407	326,094	1568	540	91	55.80%	244.1	35.4	9,203
BANDED DARTER	208	39,726	46,810	23	17	2	18.30%	4.3	5.1	9,203
BANDED KILLIFISH	208	748,841	467,837	223	107	17	40.10%	81.4	50.8	9,203
BANDED SUNFISH	208	55,302	29,969	40	23	5	46.40%	6	3.3	9,203
BLACK CRAPPIE	208	12,460	9,283	17	10	5	41.20%	1.4	1	9,203
BLACKNOSE DACE	208	26,748,736	4,224,242	15631	4239	134	69.00%	2,906.40	459	9,203
BLUE RIDGE SCULPIN	208	12,496,064	2,350,694	4547	2135	35	49.00%	1,357.80	255.4	9,203
BLUEGILL	208	1,920,525	490,252	1740	698	92	50.10%	208.7	53.3	9,203
BLUESPOTTED SUNFISH	208	1,526,979	999,075	347	131	13	31.10%	165.9	108.6	9,203
BLUNTNOSE MINNOW	208	7,904,038	3,176,470	2968	821	28	65.80%	858.8	345.1	9,203
BROOK TROUT	208	174,495	40,978	98	20	7	80.20%	19	4.5	9,203
BROWN BULLHEAD	208	387,117	187,890	224	112	31	49.90%	42.1	20.4	9,203
BROWN TROUT	208	601,432	411,036	221	56	16	75.00%	65.3	44.7	9,203
CENTRAL STONEROLLER	208	5,495,304	2,084,710	2266	767	31	61.50%	597.1	226.5	9,203
CHAIN PICKEREL	208	87,986	54,440	28	20	10	32.20%	9.6	5.9	9,203
CHANNEL CATFISH	208	4,487	4,087	8	3	2	51.60%	0.5	0.4	9,203
CHECKERED SCULPIN	208	6,724	6,724	2	1	1	48.10%	0.7	0.7	9,203
COMELY SHINER	208	27,803	23,311	7	10	2	42.30%	3	2.5	9,203
COMMON CARP	208	1,577	1,577	5	0	1	100.00%	0.2	0.2	9,203
COMMON SHINER	208	4,148,622	2,176,252	1199	363	34	31.30%	450.8	236.5	9,203
CREEK CHUB	208	4,190,093	1,087,436	3320	918	104	57.10%	455.3	118.2	9,203
CREEK CHUBSUCKER	208	564,384	213,188	344	113	41	59.80%	61.3	23.2	9,203
CUTLIP MINNOW	208	1,283,305	236,461	660	252	36	60.50%	139.4	25.7	9,203
CYPRINID (UNKNOWN)	208	6,724	6,724	2	1	1	48.10%	0.7	0.7	9,203
EASTERN MOSQUITOFISH	208	8,000,064	7,067,128	942	740	24	6.30%	869.2	767.9	9,203
EASTERN MUDMINNOW	208	3,533,464	795,773	1879	1022	66	38.70%	383.9	86.5	9,203
FALLFISH	208	1,425,035	460,771	757	345	37	48.60%	154.8	50.1	9,203
FANTAIL DARTER	208	2,921,590	766,268	1076	330	29	55.70%	317.4	83.3	9,203
FATHEAD MINNOW	208	9,025	9,025	11	4	1	61.20%	1	1	9,203
GIZZARD SHAD	208	10,944	10,420	11	23	2	33.70%	1.2	1.1	9,203
GLASSY DARTER	208	14,486	14,486	13	2	1	84.10%	1.6	1.6	9,203

Appendix Table 1. Statewide population estimates for fish species collected by the MBSS during 2007-2009										
Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
GOLDEN REDHORSE	208	315	315	0	1	1	0.00%	0	0	9,203
GOLDEN SHINER	208	1,193,319	734,601	1614	465	30	68.20%	129.7	79.8	9,203
GOLDFISH	208	7,485	7,485	9	3	1	64.70%	0.8	0.8	9,203
GREEN SUNFISH	208	562,838	101,836	401	201	56	58.50%	61.2	11.1	9,203
GREENSIDE DARTER	208	2,937,727	1,367,516	584	255	17	38.50%	319.2	148.6	9,203
IRONCOLOR SHINER	208	45,288	45,288	8	16	1	33.30%	4.9	4.9	9,203
JOHNNY DARTER	208	168,377	134,955	76	21	3	68.40%	18.3	14.7	9,203
LARGEMOUTH BASS	208	158,686	32,881	206	53	43	76.20%	17.2	3.6	9,203
LEAST BROOK LAMPREY	208	537,377	179,149	289	242	25	46.40%	58.4	19.5	9,203
LEPOMIS HYBRID	208	8,537	7,231	9	4	3	48.60%	0.9	0.8	9,203
LOGPERCH	208	62,686	53,190	47	34	2	23.60%	6.8	5.8	9,203
LONGNOSE DACE	208	7,099,992	1,613,611	2925	1037	63	56.50%	771.5	175.3	9,203
MARGINED MADTOM	208	2,141,229	1,195,249	312	238	38	15.80%	232.7	129.9	9,203
MOTTLED SCULPIN	208	649,115	141,294	266	88	5	64.20%	70.5	15.4	9,203
MUMMICHOG	208	135,404	89,769	111	60	8	34.80%	14.7	9.8	9,203
NORTHERN HOGSUCKER	208	732,504	240,847	375	138	26	57.80%	79.6	26.2	9,203
NOTROPIS SP.	208	5,382	5,382	6	1	1	83.30%	0.6	0.6	9,203
ORIENTAL WEATHERFISH	208	722	722	0	1	1	0.00%	0.1	0.1	9,203
PEARL DACE	208	24,981	10,615	10	3	4	53.70%	2.7	1.2	9,203
PIRATE PERCH	208	551,040	203,914	194	159	17	37.30%	59.9	22.2	9,203
POTOMAC SCULPIN	208	1,707,664	621,424	861	277	19	56.00%	185.5	67.5	9,203
PUMPKINSEED	208	632,174	155,583	605	208	57	57.30%	68.7	16.9	9,203
RAINBOW DARTER	208	164,403	159,890	39	23	4	26.40%	17.9	17.4	9,203
RAINBOW TROUT	208	16,708	9,167	10	2	5	83.50%	1.8	1	9,203
REDBREAST SUNFISH	208	1,582,273	339,644	794	262	48	44.20%	171.9	36.9	9,203
REDFIN PICKEREL	208	406,772	178,145	200	84	26	45.40%	44.2	19.4	9,203
RIVER CHUB	208	1,550,528	401,957	847	295	23	59.10%	168.5	43.7	9,203
ROCK BASS	208	71,918	26,330	47	25	13	57.20%	7.8	2.9	9,203
ROSYFACE SHINER	208	655,339	342,775	292	152	10	45.00%	71.2	37.2	9,203
ROSYSIDE DACE	208	4,686,381	961,122	3114	965	60	60.50%	509.2	104.4	9,203
SATINFIN SHINER	208	1,360,515	753,727	560	240	20	21.50%	147.8	81.9	9,203
SEA LAMPREY	208	665,115	355,095	131	138	14	18.10%	72.3	38.6	9,203
SHIELD DARTER	208	148,363	106,056	82	49	9	50.20%	16.1	11.5	9,203

Appendix Table 1. Statewide population estimates for fish species collected by the MBSS during 2007-2009

Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
SILVERJAW MINNOW	208	241,433	134,043	53	24	6	44.40%	26.2	14.6	9,203
SMALLMOUTH BASS	208	723,969	257,845	223	99	20	43.80%	78.7	28	9,203
SPOTFIN SHINER	208	464,352	148,968	312	68	15	74.10%	50.5	16.2	9,203
SPOTTAIL SHINER	208	1,844,488	726,008	1095	322	20	61.60%	200.4	78.9	9,203
SUNFISH (HYBRID)	208	5,274	4,598	2	2	2	41.40%	0.6	0.5	9,203
SWALLOWTAIL SHINER	208	898,313	287,920	679	237	32	59.80%	97.6	31.3	9,203
SWAMP DARTER	208	11,076	7,653	4	5	3	42.10%	1.2	0.8	9,203
TADPOLE MADTOM	208	533,911	380,671	64	68	12	14.50%	58	41.4	9,203
TESSELLATED DARTER	208	8,643,460	7,551,283	2046	1149	95	17.50%	939.2	820.5	9,203
WALLEYE	208	631	631	1	1	1	50.00%	0.1	0.1	9,203
WARMOUTH	208	6,794	4,499	4	3	3	48.80%	0.7	0.5	9,203
WESTERN BLACKNOSE DACE	208	199,835	67,222	271	38	3	85.80%	21.7	7.3	9,203
WHITE CATFISH	208	737	526	3	0	2	100.00%	0.1	0.1	9,203
WHITE SUCKER	208	4,853,842	659,992	2743	984	78	53.40%	527.4	71.7	9,203
YELLOW BULLHEAD	208	483,568	282,993	173	95	30	34.10%	52.5	30.7	9,203
YELLOW PERCH	208	18,830	17,085	8	11	3	37.90%	2	1.9	9,203

Appendix Table 2. Regional population estimates for fish species collected by the MBSS during 2007-2009

Region	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density
COASTAL	ALEWIFE	92	538	538	1	0	1	100.00%	0	0
	AMERICAN BROOK LAMPREY	92	107,079	100,131	49	24	3	41.30%	28	27
	AMERICAN EEL	92	1,312,463	241,910	1000	366	67	56.10%	349	64
	BANDED KILLIFISH	92	121,824	157,916	111	46	10	23.30%	32	42
	BANDED SUNFISH	92	55,302	29,969	40	23	5	46.40%	15	8
	BLACK CRAPPIE	92	12,460	9,283	17	10	5	41.20%	3	2
	BLACKNOSE DACE	92	1,610,801	338,605	2030	545	33	73.20%	428	90
	BLUE RIDGE SCULPIN	92	20,691	20,691	11	3	1	72.70%	6	6
	BLUEGILL	92	1,625,526	481,711	1640	653	56	49.90%	432	128
	BLUESPOTTED SUNFISH	92	1,526,979	999,075	369	147	14	31.10%	406	266
	BLUNTNOSE MINNOW	92	256,357	256,357	162	37	1	75.90%	68	68
	BROWN BULLHEAD	92	340,200	185,982	218	107	25	47.50%	90	49
	CENTRAL STONEROLLER	92	6,131	7,225	6	3	2	35.00%	2	2
	CHAIN PICKEREL	92	85,079	54,362	29	21	10	31.10%	23	14
	CHANNEL CATFISH	92	421	421	2	0	1	100.00%	0	0
	COMELY SHINER	92	5,043	5,043	4	6	1	40.00%	1	1
	COMMON SHINER	92	44,138	44,138	77	9	1	88.00%	12	12
	CREEK CHUB	92	225,458	58,877	232	52	16	58.40%	60	16
	CREEK CHUBSUCKER	92	556,292	213,055	346	111	40	60.00%	148	57
	CUTLIP MINNOW	92	9,996	6,731	10	0	3	100.00%	3	2
	EASTERN MOSQUITOFISH	92	7,986,557	7,067,115	1019	811	24	6.10%	2,123	1,879
	EASTERN MUDMINNOW	92	3,530,250	795,767	1929	1057	69	38.70%	939	212
	FALLFISH	92	303,273	115,442	177	81	17	45.80%	81	31
	FATHEAD MINNOW	92	9,025	9,025	11	4	1	61.20%	2	2
	GIZZARD SHAD	92	538	538	1	0	1	100.00%	0	0
	GLASSY DARTER	92	14,486	14,486	13	2	1	84.10%	4	4
GOLDEN SHINER	92	1,154,353	734,094	1702	468	28	68.40%	307	195	

Appendix Table 2. Regional population estimates for fish species collected by the MBSS during 2007-2009

Region	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density
COASTAL	GOLDFISH	92	7,485	7,485	9	3	1	64.70%	2	2
	GREEN SUNFISH	92	217,778	54,875	148	81	26	47.00%	58	15
	IRONCOLOR SHINER	92	45,288	45,288	8	16	1	33.30%	12	12
	LARGEMOUTH BASS	92	97,525	26,826	151	43	24	75.80%	26	7
	LEAST BROOK LAMPREY	92	535,499	179,139	293	251	25	46.60%	142	48
	LEPOMIS HYBRID	92	322	322	1	0	1	100.00%	0	0
	LONGNOSE DACE	92	158,138	82,085	190	72	6	61.10%	42	22
	MARGINED MADTOM	92	125,511	48,928	65	39	14	47.20%	33	13
	MUMMICHOG	92	127,933	89,615	93	56	5	32.30%	34	24
	NOTROPIS SP.	92	5,382	5,382	6	1	1	83.30%	1	1
	PIRATE PERCH	92	551,040	203,914	203	171	19	37.30%	146	54
	PUMPKINSEED	92	577,629	153,967	572	193	45	57.40%	154	41
	RAINBOW TROUT	92	545	545	1	0	1	100.00%	0	0
	REDBREAST SUNFISH	92	783,175	250,948	373	138	23	41.60%	208	67
	REDFIN PICKEREL	92	406,772	178,145	213	86	28	45.40%	108	47
	ROSYSIDE DACE	92	356,165	155,376	396	147	10	53.20%	95	41
	SATINFIN SHINER	92	948,537	734,809	129	77	9	8.10%	252	195
	SEA LAMPREY	92	529,287	350,234	82	59	8	13.80%	141	93
	SILVERJAW MINNOW	92	60,567	60,567	11	8	1	21.80%	16	16
	SMALLMOUTH BASS	92	10,412	10,412	5	2	1	57.70%	3	3
	SPOTFIN SHINER	92	195,942	111,957	161	26	6	78.40%	52	30
	SPOTTAIL SHINER	92	359,826	171,495	342	91	10	70.10%	96	46
	SWALLOWTAIL SHINER	92	170,219	73,424	176	60	13	66.10%	45	20
	SWAMP DARTER	92	11,076	7,653	4	5	3	42.10%	3	2
TADPOLE MADTOM	92	533,911	380,671	75	96	13	14.50%	142	101	
TESSELLATED DARTER	92	1,288,720	277,252	801	342	50	45.80%	343	74	
WARMOUTH	92	6,794	4,499	4	3	3	48.80%	2	1	

Appendix Table 2. Regional population estimates for fish species collected by the MBSS during 2007-2009

Region	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density
COASTAL	WHITE CATFISH	92	421	421	2	0	1	100.00%	0	0
	WHITE SUCKER	92	253,510	123,279	169	65	12	53.40%	67	33
	YELLOW BULLHEAD	92	98,991	37,933	84	50	15	56.80%	26	10
	YELLOW PERCH	92	18,830	17,085	8	11	3	37.90%	5	5
COLD	BLACKNOSE DACE	18	602,382	439,820	630	82	11	83.40%	685	500
	BLUE RIDGE SCULPIN	18	21,397	21,397	11	5	1	54.50%	24	24
	BLUEGILL	18	596	596	1	0	1	100.00%	1	1
	BLUNTNOSE MINNOW	18	103,105	177,551	1	0	1	49.00%	117	202
	BROOK TROUT	18	173,934	40,974	97	20	6	80.20%	198	47
	BROWN BULLHEAD	18	578	578	1	0	1	100.00%	1	1
	BROWN TROUT	18	14,132	12,379	8	0	2	100.00%	16	14
	CENTRAL STONEROLLER	18	17,724	17,724	28	0	1	100.00%	20	20
	CHAIN PICKEREL	18	2,907	2,907	3	1	1	65.30%	3	3
	COMMON SHINER	18	9,555	9,555	14	1	1	92.70%	11	11
	CREEK CHUB	18	589,950	420,171	765	136	9	82.00%	671	478
	FANTAIL DARTER	18	43,676	30,092	28	5	1	71.00%	50	34
	JOHNNY DARTER	18	168,377	134,955	76	21	3	68.40%	191	153
	LARGEMOUTH BASS	18	578	578	1	0	1	100.00%	1	1
	LONGNOSE DACE	18	36,418	27,550	23	2	3	94.80%	41	31
	MOTTLED SCULPIN	18	649,115	141,294	266	88	5	64.20%	738	161
	NORTHERN HOGSUCKER	18	11,138	8,264	7	2	2	56.10%	13	9
	RIVER CHUB	18	12,233	12,233	5	0	1	100.00%	14	14
	ROCK BASS	18	1,266	1,266	1	1	1	50.00%	1	1
	WESTERN BLACKNOSE DACE	18	199,835	67,222	271	38	3	85.80%	227	76
WHITE SUCKER	18	144,365	88,735	165	21	5	83.50%	164	101	
YELLOW BULLHEAD	18	633	633	0	1	1	0.00%	1	1	

Appendix Table 2. Regional population estimates for fish species collected by the MBSS during 2007-2009

Region	Species	# Samples in PSU	Abn Estimate	Standard Error of Population	Total # Pass 1	Total # Pass 2	# of Sites Present In	Probability of Capture	Density (#/stream mile)	SE Density	Stream Miles
EASTERN PIEDMONT	AMERICAN EEL	60	925,215	218,579	586	183	27	55.10%	456	108	2,027
	BANDED DARTER	60	39,726	46,810	23	17	2	18.30%	20	23	2,027
	BANDED KILLIFISH	60	8,627	5,377	12	5	4	77.30%	4	3	2,027
	BLACKNOSE DACE	60	6,113,521	1,197,162	5238	1813	57	57.90%	3,016	591	2,027
	BLUE RIDGE SCULPIN	60	8,109,025	1,590,924	3561	1785	22	46.10%	4,001	785	2,027
	BLUEGILL	60	237,312	89,487	143	61	23	47.70%	117	44	2,027
	BLUNTNOSE MINNOW	60	509,535	247,362	345	133	8	61.50%	251	122	2,027
	BROOK TROUT	60	561	561	1	0	1	100.00%	0	0	2,027
	BROWN BULLHEAD	60	45,603	26,688	21	9	6	66.90%	22	13	2,027
	BROWN TROUT	60	584,067	410,837	211	56	13	74.20%	288	203	2,027
	CENTRAL STONEROLLER	60	1,236,291	788,811	897	295	13	61.90%	610	389	2,027
	CHANNEL CATFISH	60	4,065	4,065	6	3	1	46.50%	2	2	2,027
	COMMON CARP	60	1,577	1,577	5	0	1	100.00%	1	1	2,027
	COMMON SHINER	60	3,579,324	2,164,279	868	294	21	25.10%	1,766	1,068	2,027
	CREEK CHUB	60	2,429,148	974,038	1854	590	51	47.60%	1,198	481	2,027
	CREEK CHUBSUCKER	60	8,092	7,523	4	4	2	47.00%	4	4	2,027
	CUTLIP MINNOW	60	882,101	186,118	475	202	26	56.20%	435	92	2,027
	EASTERN MOSQUITOFISH	60	13,508	13,508	20	2	1	89.80%	7	7	2,027
	EASTERN MUDMINNOW	60	3,214	3,214	1	2	1	33.30%	2	2	2,027
	FALLFISH	60	1,071,517	444,665	554	259	16	48.70%	529	219	2,027
	GIZZARD SHAD	60	10,406	10,406	10	23	1	30.30%	5	5	2,027
	GOLDEN REDHORSE	60	315	315	0	1	1	0.00%	0	0	2,027
	GOLDEN SHINER	60	5,038	5,038	4	2	1	47.10%	2	2	2,027
GREEN SUNFISH	60	66,779	23,784	74	69	12	49.90%	33	12	2,027	
GREENSIDE DARTER	60	3,455	2,102	7	2	2	63.90%	2	1	2,027	
LARGEMOUTH BASS	60	35,828	14,325	38	11	13	67.40%	18	7	2,027	

Appendix Table 2. Regional population estimates for fish species collected by the MBSS during 2007-2009

Region	Species	# Samples in PSU	Abn Estimate	Standard Error of Population	Total # Pass 1	Total # Pass 2	# of Sites Present In	Probability of Capture	Density (#/stream mile)	SE Density	Stream Miles
EASTERN PIEDMONT	LEAST BROOK LAMPREY	60	1,878	1,878	0	2	1	0.00%	1	1	2,027
	LEPOMIS HYBRID	60	8,216	7,224	8	4	2	46.60%	4	4	2,027
	LOGPERCH	60	62,686	53,190	47	34	2	23.60%	31	26	2,027
	LONGNOSE DACE	60	2,584,550	1,026,539	1136	458	34	42.10%	1,275	506	2,027
	MARGINED MADTOM	60	862,954	494,002	170	134	19	20.30%	426	244	2,027
	MUMMICHOG	60	7,471	5,257	18	4	3	77.10%	4	3	2,027
	NORTHERN HOGSUCKER	60	390,266	110,770	211	98	17	47.10%	193	55	2,027
	ORIENTAL WEATHERFISH	60	722	722	0	1	1	0.00%	0	0	2,027
	POTOMAC SCULPIN	60	137,069	80,296	111	53	2	49.10%	68	40	2,027
	PUMPKINSEED	60	44,084	21,777	30	15	8	55.30%	22	11	2,027
	RAINBOW TROUT	60	2,799	1,979	2	1	2	74.90%	1	1	2,027
	REDBREAST SUNFISH	60	567,363	210,943	311	94	18	36.20%	280	104	2,027
	RIVER CHUB	60	1,172,780	304,719	600	204	18	60.40%	579	150	2,027
	ROCK BASS	60	26,924	15,620	17	7	5	63.40%	13	8	2,027
	ROSYFACE SHINER	60	495,634	304,325	205	124	8	38.50%	245	150	2,027
	ROSYSIDE DACE	60	3,342,085	826,389	2264	785	41	52.60%	1,649	408	2,027
	SATINFIN SHINER	60	411,458	167,806	431	162	10	52.30%	203	83	2,027
	SEA LAMPREY	60	135,828	58,554	49	79	6	35.10%	67	29	2,027
	SHIELD DARTER	60	147,170	106,050	82	48	8	50.60%	73	52	2,027
	SMALLMOUTH BASS	60	160,750	61,182	88	39	12	48.30%	79	30	2,027
	SPOTFIN SHINER	60	18,282	13,746	40	12	2	69.00%	9	7	2,027
	SPOTTAIL SHINER	60	806,996	637,999	422	165	5	42.80%	398	315	2,027
SWALLOWTAIL SHINER	60	539,913	206,960	388	148	17	53.10%	266	102	2,027	
TESSELLATED DARTER	60	7,258,478	7,545,964	1223	796	37	12.10%	3,581	3,723	2,027	
WALLEYE	60	631	631	1	1	1	50.00%	0	0	2,027	
WHITE CATFISH	60	315	315	1	0	1	100.00%	0	0	2,027	

Appendix Table 2. Regional population estimates for fish species collected by the MBSS during 2007-2009

Region	Species	# Samples in PSU	Abn Estimate	Standard Error of Population	Total # Pass 1	Total # Pass 2	# of Sites Present In	Probability of Capture	Density (#/stream mile)	SE Density	Stream Miles
EASTERN PIEDMONT	WHITE SUCKER	60	2,868,350	542,112	1537	692	39	41.80%	1,415	267	2,027
	YELLOW BULLHEAD	60	4,997	3,222	8	2	4	87.40%	2	2	2,027
HIGHLAND	AMERICAN EEL	38	8,729	6,370	4	1	2	78.20%	4	3	2,313
	BANDED KILLIFISH	38	618,390	440,347	156	74	4	42.90%	267	190	2,313
	BLACKNOSE DACE	38	18,422,033	4,012,846	8040	1887	36	71.80%	7,966	1,735	2,313
	BLUE RIDGE SCULPIN	38	4,344,951	1,730,270	964	342	11	54.40%	1,879	748	2,313
	BLUEGILL	38	57,091	17,105	40	16	13	65.60%	25	7	2,313
	BLUNTNOSE MINNOW	38	7,035,041	3,151,433	2460	651	18	66.00%	3,042	1,363	2,313
	BROWN BULLHEAD	38	736	736	1	0	1	100.00%	0	0	2,313
	BROWN TROUT	38	3,233	3,233	2	0	1	100.00%	1	1	2,313
	CENTRAL STONEROLLER	38	4,235,158	1,929,619	1335	469	15	61.20%	1,831	834	2,313
	CHECKERED SCULPIN	38	6,724	6,724	2	1	1	48.10%	3	3	2,313
	COMELY SHINER	38	22,759	22,759	3	4	1	42.90%	10	10	2,313
	COMMON SHINER	38	515,605	223,450	240	59	11	68.80%	223	97	2,313
	CREEK CHUB	38	945,538	231,856	508	151	29	65.50%	409	100	2,313
	CUTLIP MINNOW	38	391,207	145,700	175	50	7	69.10%	169	63	2,313
	CYPRINID (UNKNOWN)	38	6,724	6,724	2	1	1	48.10%	3	3	2,313
	FALLFISH	38	50,245	35,447	26	5	4	63.80%	22	15	2,313
	FANTAIL DARTER	38	2,877,914	765,677	1048	325	28	55.50%	1,244	331	2,313
	GOLDEN SHINER	38	33,929	26,824	37	13	2	61.30%	15	12	2,313
	GREEN SUNFISH	38	278,281	82,424	179	51	18	69.50%	120	36	2,313
	GREENSIDE DARTER	38	2,934,273	1,367,514	577	253	15	38.40%	1,269	591	2,313
LARGEMOUTH BASS	38	24,754	12,489	16	1	6	90.30%	11	5	2,313	
LONGNOSE DACE	38	4,320,887	1,241,959	1576	505	20	64.60%	1,868	537	2,313	
MARGINED MADTOM	38	1,152,764	1,087,285	77	65	5	8.90%	498	470	2,313	
NORTHERN HOGSUCKER	38	331,101	213,703	157	38	7	70.50%	143	92	2,313	

Appendix Table 2. Regional population estimates for fish species collected by the MBSS during 2007-2009											
Region	Species	# Samples in PSU	Abn Estimate	Standard Error of Population	Total # Pass 1	Total # Pass 2	# of Sites Present In	Probability of Capture	Density (#/stream mile)	SE Density	Stream Miles
HIGHLAND	PEARL DACE	38	24,981	10,615	10	3	4	53.70%	11	5	2,313
	POTOMAC SCULPIN	38	1,570,594	616,214	750	224	17	56.60%	679	266	2,313
	PUMPKINSEED	38	10,461	5,097	10	2	4	82.50%	5	2	2,313
	RAINBOW DARTER	38	164,403	159,890	39	23	4	26.40%	71	69	2,313
	RAINBOW TROUT	38	13,364	8,934	7	1	2	84.70%	6	4	2,313
	REDBREAST SUNFISH	38	231,735	88,803	110	30	7	72.60%	100	38	2,313
	RIVER CHUB	38	365,515	261,851	242	91	4	53.60%	158	113	2,313
	ROCK BASS	38	43,729	21,158	29	17	7	53.60%	19	9	2,313
	ROSYFACE SHINER	38	159,704	157,736	87	28	2	65.50%	69	68	2,313
	ROSYSIDE DACE	38	988,132	465,506	541	60	10	89.60%	427	201	2,313
	SATINFIN SHINER	38	520	520	0	1	1	0.00%	0	0	2,313
	SHIELD DARTER	38	1,193	1,193	0	1	1	0.00%	1	1	2,313
	SILVERJAW MINNOW	38	180,866	119,579	42	16	5	52.00%	78	52	2,313
	SMALLMOUTH BASS	38	552,807	250,265	130	58	7	42.20%	239	108	2,313
	SPOTFIN SHINER	38	250,128	97,303	111	30	7	71.10%	108	42	2,313
	SPOTTAIL SHINER	38	677,667	301,055	331	66	5	79.50%	293	130	2,313
	SUNFISH (HYBRID)	38	5,274	4,598	2	2	2	41.40%	2	2	2,313
	SWALLOWTAIL SHINER	38	188,181	186,210	115	29	2	73.30%	81	81	2,313
	TESSELLATED DARTER	38	96,262	58,597	22	11	8	40.90%	42	25	2,313
	WHITE SUCKER	38	1,587,617	344,431	872	206	22	71.50%	686	149	2,313
YELLOW BULLHEAD	38	378,948	280,420	85	50	11	27.50%	164	121	2,313	

Appendix Table 3. MDE6 Watershed population estimates for fish species collected by the MBSS during 2007-2009

MDE6 Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Bush River	AMERICAN EEL	9	18,762	104	27	8	4	58.10%	95	1	196.96354
	BANDED KILLIFISH	9	964	31	2	0	1	100.00%	5	0	196.96354
	BANDED SUNFISH	9	18,678	92	22	11	1	45.50%	95	0	196.96354
	BLACK CRAPPIE	9	1,545	28	2	2	1	50.00%	8	0	196.96354
	BLACKNOSE DACE	9	422,385	477	445	135	6	53.80%	2,144	2	196.96354
	BLUE RIDGE SCULPIN	9	1,095,679	604	696	432	4	33.30%	5,563	3	196.96354
	BLUEGILL	9	16,983	86	18	7	3	43.70%	86	0	196.96354
	BLUNTNOSE MINNOW	9	175,391	300	167	74	2	51.50%	890	2	196.96354
	BROWN BULLHEAD	9	1,739	34	3	1	2	66.70%	9	0	196.96354
	COMMON SHINER	9	117,866	304	171	35	3	78.40%	598	2	196.96354
	CREEK CHUB	9	143,162	328	205	49	6	75.40%	727	2	196.96354
	CREEK CHUBSUCKER	9	1,774	34	3	1	1	65.30%	9	0	196.96354
	CUTLIP MINNOW	9	34,806	152	43	14	2	66.80%	177	1	196.96354
	EASTERN MUDMINNOW	9	13,747	77	15	10	2	42.80%	70	0	196.96354
	FALLFISH	9	163,228	314	182	67	3	60.30%	829	2	196.96354
	GOLDEN SHINER	9	3,809	52	7	2	2	71.00%	19	0	196.96354
	GREEN SUNFISH	9	2,125	28	2	1	2	36.40%	11	0	196.96354
	LONGNOSE DACE	9	93,391	236	106	40	4	59.50%	474	1	196.96354
	MARGINED MADTOM	9	2,249	33	2	1	1	48.10%	11	0	196.96354
	MUMMICHOG	9	76,282	117	35	27	2	17.90%	387	1	196.96354
	NORTHERN HOGSUCKER	9	34,324	152	43	13	1	67.70%	174	1	196.96354
	PUMPKINSEED	9	10,556	62	10	6	2	36.60%	54	0	196.96354
	REDFIN PICKEREL	9	17,074	65	11	7	2	24.90%	87	0	196.96354
	RIVER CHUB	9	57,085	216	86	16	2	81.50%	290	1	196.96354
ROSYFACE SHINER	9	9,925	93	16	2	1	87.20%	50	0	196.96354	
ROSYSIDE DACE	9	179,702	373	266	58	4	77.40%	912	2	196.96354	

Appendix Table 3. MDE6 Watershed population estimates for fish species collected by the MBSS during 2007-2009

MDE6 Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Bush River	SATINFIN SHINER	9	1,622	40	3	0	1	100.00%	8	0	196.96354
	SMALLMOUTH BASS	9	5,407	40	3	2	1	30.00%	27	0	196.96354
	SWALLOWTAIL SHINER	9	22,336	93	16	9	1	38.70%	113	0	196.96354
	TADPOLE MADTOM	9	386	0	0	1	1	0.00%	2	0	196.96354
	TESSELLATED DARTER	9	76,621	163	51	29	4	34.60%	389	1	196.96354
	WHITE SUCKER	9	455,153	349	228	71	4	26.70%	2,311	2	196.96354
Chester River	AMERICAN EEL	13	393,649	424	236	105	11	45.70%	1,175	1	334.8854
	BANDED KILLIFISH	13	211	15	1	0	1	100.00%	1	0	334.8854
	BLACK CRAPPIE	13	9,082	50	12	8	1	27.80%	27	0	334.8854
	BLUEGILL	13	833,912	619	1026	412	9	46.00%	2,490	2	334.8854
	BLUESPOTTED SUNFISH	13	133,635	217	37	24	1	35.10%	399	1	334.8854
	BROWN BULLHEAD	13	59,884	139	80	62	4	32.20%	179	0	334.8854
	CHAIN PICKEREL	13	51,183	118	11	8	1	27.30%	153	0	334.8854
	CHANNEL CATFISH	13	421	21	2	0	1	100.00%	1	0	334.8854
	CREEK CHUBSUCKER	13	128,039	280	84	30	9	61.40%	382	1	334.8854
	EASTERN MOSQUITOFISH	13	259,344	124	47	44	6	5.90%	774	0	334.8854
	EASTERN MUDMINNOW	13	1,034,353	550	470	359	13	29.30%	3,089	2	334.8854
	FALLFISH	13	51,225	172	47	12	3	57.90%	153	1	334.8854
	FATHEAD MINNOW	13	9,025	74	11	4	1	61.20%	27	0	334.8854
	GOLDEN SHINER	13	148,103	327	412	92	6	72.10%	442	1	334.8854
	GREEN SUNFISH	13	32,218	122	33	32	4	46.30%	96	0	334.8854
	LARGEMOUTH BASS	13	57,955	197	109	36	5	67.00%	173	1	334.8854
	LEAST BROOK LAMPREY	13	165,512	283	77	65	5	48.40%	494	1	334.8854
	LEPOMIS HYBRID	13	322	18	1	0	1	100.00%	1	0	334.8854
	MARGINED MADTOM	13	10,925	68	4	5	2	41.90%	33	0	334.8854
	PIRATE PERCH	13	220,637	253	61	66	5	29.10%	659	1	334.8854
PUMPKINSEED	13	88,147	207	136	40	8	48.50%	263	1	334.8854	

Appendix Table 3. MDE6 Watershed population estimates for fish species collected by the MBSS during 2007-2009

MDE6 Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Chester River	REDBREAST SUNFISH	13	274,178	246	54	23	4	22.00%	819	1	334.8854
	REDFIN PICKEREL	13	186,519	285	71	34	4	43.70%	557	1	334.8854
	ROSYSIDE DACE	13	773	0	0	1	1	0.00%	2	0	334.8854
	SATINFIN SHINER	13	116,157	69	15	14	1	4.20%	347	0	334.8854
	SEA LAMPREY	13	5,076	50	2	1	1	50.00%	15	0	334.8854
	SWALLOWTAIL SHINER	13	322	0	0	1	1	0.00%	1	0	334.8854
	SWAMP DARTER	13	6,345	50	2	3	1	40.00%	19	0	334.8854
	TADPOLE MADTOM	13	384,518	220	46	51	5	12.60%	1,148	1	334.8854
	TESSELLATED DARTER	13	169,042	293	145	58	11	50.80%	505	1	334.8854
	WHITE CATFISH	13	421	21	2	0	1	100.00%	1	0	334.8854
YELLOW PERCH	13	211	15	1	0	1	100.00%	1	0	334.8854	
Choptank River	AMERICAN EEL	4	12,757	91	5	2	3	65.50%	26	0	491.76
	BLUEGILL	4	22,094	85	5	5	3	32.90%	45	0	491.76
	BLUESPOTTED SUNFISH	4	912,050	275	40	35	2	8.30%	1,855	1	491.76
	CREEK CHUBSUCKER	4	226,984	336	60	30	2	49.90%	462	1	491.76
	EASTERN MUDMINNOW	4	302,478	397	94	44	4	52.20%	615	1	491.76
	FALLFISH	4	39,942	150	12	9	2	56.70%	81	0	491.76
	GOLDEN SHINER	4	15,096	75	3	5	1	37.50%	31	0	491.76
	GREEN SUNFISH	4	4,836	49	3	3	1	50.00%	10	0	491.76
	IRONCOLOR SHINER	4	45,288	123	8	16	1	33.30%	92	0	491.76
	LARGEMOUTH BASS	4	1,887	43	1	0	1	100.00%	4	0	491.76
	MARGINED MADTOM	4	18,870	75	3	7	1	30.00%	38	0	491.76
	PIRATE PERCH	4	126,429	242	31	36	2	46.30%	257	0	491.76
	PUMPKINSEED	4	18,870	106	6	2	2	60.00%	38	0	491.76
	REDBREAST SUNFISH	4	5,661	43	1	2	2	33.30%	12	0	491.76
	REDFIN PICKEREL	4	24,741	144	11	2	2	83.90%	50	0	491.76
	TADPOLE MADTOM	4	135,864	150	12	9	2	16.70%	276	0	491.76

Appendix Table 3. MDE6 Watershed population estimates for fish species collected by the MBSS during 2007-2009

MDE6 Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Choptank River	TESSELLATED DARTER	4	228,327	282	42	31	2	34.70%	464	1	491.76
	YELLOW BULLHEAD	4	8,492	75	3	1	1	66.70%	17	0	491.76
Elk River	ALEWIFE	9	538	23	1	0	1	100.00%	2	0	289.29
	AMERICAN EEL	9	233,372	342	160	66	8	50.10%	807	1	289.29
	BANDED KILLIFISH	9	6,876	79	10	1	3	89.60%	24	0	289.29
	BANDED SUNFISH	9	2,817	0	0	3	1	0.00%	10	0	289.29
	BLACK CRAPPIE	9	538	23	1	0	1	100.00%	2	0	289.29
	BLACKNOSE DACE	9	66,688	178	51	27	4	47.40%	231	1	289.29
	BLUE RIDGE SCULPIN	9	1,221,188	668	576	306	4	36.60%	4,221	2	289.29
	BLUEGILL	9	255,597	322	191	97	7	40.60%	884	1	289.29
	BROWN BULLHEAD	9	13,712	81	12	7	3	47.90%	47	0	289.29
	COMMON SHINER	9	246,917	449	245	42	5	81.80%	854	2	289.29
	CREEK CHUB	9	285,718	399	265	115	5	55.80%	988	1	289.29
	CREEK CHUBSUCKER	9	3,281	57	6	0	3	100.00%	11	0	289.29
	CUTLIP MINNOW	9	80,965	214	70	26	5	56.40%	280	1	289.29
	EASTERN MOSQUITOFISH	9	7,034,320	485	437	411	1	3.30%	24,316	2	289.29
	EASTERN MUDMINNOW	9	101,873	186	64	38	2	33.80%	352	1	289.29
	GIZZARD SHAD	9	538	23	1	0	1	100.00%	2	0	289.29
	GOLDEN SHINER	9	723,583	708	933	266	4	69.40%	2,501	2	289.29
	GOLDFISH	9	7,485	70	9	3	1	64.70%	26	0	289.29
	GREEN SUNFISH	9	28,954	98	18	9	2	33.40%	100	0	289.29
	LARGEMOUTH BASS	9	14,974	98	16	5	5	63.80%	52	0	289.29
	LEAST BROOK LAMPREY	9	37,023	87	14	14	3	20.30%	128	0	289.29
	LONGNOSE DACE	9	834,678	334	129	80	4	13.40%	2,885	1	289.29
	MARGINED MADTOM	9	314,284	201	50	42	5	12.80%	1,086	1	289.29
MUMMICHOG	9	538	0	0	1	1	0.00%	2	0	289.29	
NORTHERN HOGSUCKER	9	67,422	191	49	32	5	53.90%	233	1	289.29	

Appendix Table 3. MDE6 Watershed population estimates for fish species collected by the MBSS during 2007-2009

MDE6 Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Elk River	PUMPKINSEED	9	220,465	374	259	85	4	63.50%	762	1	289.29
	REDBREAST SUNFISH	9	237,474	255	98	37	5	27.40%	821	1	289.29
	REDFIN PICKEREL	9	939	31	1	0	1	100.00%	3	0	289.29
	RIVER CHUB	9	137,610	267	76	34	3	51.90%	476	1	289.29
	ROSYFACE SHINER	9	55,871	97	10	9	2	16.80%	193	0	289.29
	ROSYSIDE DACE	9	134,439	319	171	41	4	75.90%	465	1	289.29
	SATINFIN SHINER	9	183,600	284	97	49	4	44.10%	635	1	289.29
	SEA LAMPREY	9	36,519	147	23	9	2	59.10%	126	1	289.29
	SMALLMOUTH BASS	9	46,775	162	37	21	4	55.80%	162	1	289.29
	SPOTTAIL SHINER	9	694,518	543	378	145	3	42.50%	2,401	2	289.29
	SWALLOWTAIL SHINER	9	138,953	285	105	38	6	58.30%	480	1	289.29
	TESSELLATED DARTER	9	4,620,222	513	404	283	8	5.70%	15,971	2	289.29
	WHITE SUCKER	9	778,340	527	387	234	6	35.70%	2,691	2	289.29
YELLOW BULLHEAD	9	4,973	57	6	2	1	64.90%	17	0	289.29	
Gunpowder River	AMERICAN EEL	11	167,245	212	44	17	7	26.90%	350	0	477.85
	BLACKNOSE DACE	11	1,364,198	912	1201	426	11	61.00%	2,855	2	477.85
	BLUE RIDGE SCULPIN	11	1,746,599	871	294	138	3	43.40%	3,655	2	477.85
	BLUEGILL	11	49,824	200	17	3	3	80.40%	104	0	477.85
	BLUNTNOSE MINNOW	11	77,835	176	12	18	1	40.00%	163	0	477.85
	BROOK TROUT	11	561	24	1	0	1	100.00%	1	0	477.85
	BROWN BULLHEAD	11	16,216	114	5	1	1	80.00%	34	0	477.85
	BROWN TROUT	11	547,945	639	161	40	3	74.40%	1,147	1	477.85
	CENTRAL STONEROLLER	11	116,925	260	26	11	1	57.70%	245	1	477.85
	COMMON SHINER	11	381,915	233	21	19	2	14.30%	799	0	477.85
	CREEK CHUB	11	1,056,452	543	535	185	10	27.90%	2,211	1	477.85
	CUTLIP MINNOW	11	155,884	293	52	29	4	54.90%	326	1	477.85
	FALLFISH	11	139,830	288	32	13	1	59.40%	293	1	477.85

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Gunpowder River	LARGEMOUTH BASS	11	4,886	35	2	3	4	24.70%	10	0	477.85
	LONGNOSE DACE	11	567,207	509	127	61	5	45.60%	1,187	1	477.85
	MARGINED MADTOM	11	18,162	88	3	4	1	42.90%	38	0	477.85
	NORTHERN HOGSUCKER	11	20,756	102	4	4	1	50.00%	43	0	477.85
	REDBREAST SUNFISH	11	2,595	51	1	0	1	100.00%	5	0	477.85
	RIVER CHUB	11	228,349	385	58	20	2	65.00%	478	1	477.85
	ROSYSIDE DACE	11	795,402	553	495	206	8	38.50%	1,665	1	477.85
	SEA LAMPREY	11	14,139	65	8	19	1	29.60%	30	0	477.85
	SHIELD DARTER	11	7,784	51	1	2	1	33.30%	16	0	477.85
	SMALLMOUTH BASS	11	21,621	114	5	2	1	60.00%	45	0	477.85
	SWALLOWTAIL SHINER	11	3,142	56	6	0	2	100.00%	7	0	477.85
	TESSELLATED DARTER	11	225,394	260	76	58	5	30.00%	472	1	477.85
WHITE SUCKER	11	377,676	448	161	63	7	53.20%	790	1	477.85	
Lower Potomac River	AMERICAN EEL	21	209,308	367	185	53	16	64.30%	266	0	788.296136
	BANDED KILLIFISH	21	2,494	35	2	1	1	50.00%	3	0	788.296136
	BLACKNOSE DACE	21	258,727	452	391	75	10	78.90%	328	1	788.296136
	BLUEGILL	21	257,223	441	185	42	15	75.60%	326	1	788.296136
	BLUESPOTTED SUNFISH	21	32,754	169	25	3	4	87.30%	42	0	788.296136
	BROWN BULLHEAD	21	19,731	127	28	4	4	82.40%	25	0	788.296136
	CHAIN PICKEREL	21	7,580	68	7	3	4	60.40%	10	0	788.296136
	CREEK CHUB	21	67,939	240	72	12	3	84.60%	86	0	788.296136
	CREEK CHUBSUCKER	21	57,238	211	53	12	9	77.80%	73	0	788.296136
	EASTERN MOSQUITOFISH	21	15,291	77	6	5	4	38.60%	19	0	788.296136
	EASTERN MUDMINNOW	21	687,604	630	687	266	16	57.70%	872	1	788.296136
	FALLFISH	21	22,402	144	27	3	5	93.00%	28	0	788.296136
GOLDEN SHINER	21	19,265	124	21	5	5	80.30%	24	0	788.296136	

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Lower Potomac River	GREEN SUNFISH	21	9,250	65	4	5	4	45.60%	12	0	788.296136
	LARGEMOUTH BASS	21	5,990	72	6	1	5	86.50%	8	0	788.296136
	LEAST BROOK LAMPREY	21	226,008	329	144	116	11	47.90%	287	0	788.296136
	MARGINED MADTOM	21	49,182	157	34	18	7	50.30%	62	0	788.296136
	MUMMICHOG	21	748	27	1	0	1	100.00%	1	0	788.296136
	NOTROPIS SP.	21	5,382	67	6	1	1	83.30%	7	0	788.296136
	PIRATE PERCH	21	9,467	63	6	7	4	41.40%	12	0	788.296136
	PUMPKINSEED	21	89,823	234	86	35	9	61.20%	114	0	788.296136
	REDBREAST SUNFISH	21	186,130	299	126	51	6	48.10%	236	0	788.296136
	REDFIN PICKEREL	21	9,360	97	9	0	3	100.00%	12	0	788.296136
	ROSYSIDE DACE	21	243,299	375	257	102	5	57.70%	309	0	788.296136
	SEA LAMPREY	21	309,261	169	39	37	3	9.20%	392	0	788.296136
	SPOTTAIL SHINER	21	29,251	144	26	8	3	71.20%	37	0	788.296136
	SWALLOWTAIL SHINER	21	80,583	254	86	19	5	80.20%	102	0	788.296136
	TADPOLE MADTOM	21	4,160	46	2	2	2	50.00%	5	0	788.296136
	TESSELLATED DARTER	21	220,993	321	146	47	15	46.70%	280	0	788.296136
	WARMOUTH	21	6,794	58	4	3	3	48.80%	9	0	788.296136
	WHITE SUCKER	21	5,774	51	7	8	2	44.70%	7	0	788.296136
	YELLOW BULLHEAD	21	1,929	36	1	1	2	67.70%	2	0	788.296136
	YELLOW PERCH	21	1,611	40	2	0	1	100.00%	2	0	788.296136
Middle Potomac River	AMERICAN EEL	14	8,729	83	4	1	2	78.20%	7	0	1223.080765
	BANDED KILLIFISH	14	587,750	490	121	68	2	40.80%	481	0	1223.080765
	BLACKNOSE DACE	14	10,170,070	2,761	3802	810	14	74.90%	8,315	2	1223.080765
	BLUE RIDGE SCULPIN	14	3,404,179	1,424	685	250	4	59.60%	2,783	1	1223.080765
	BLUEGILL	14	10,564	86	6	1	3	69.20%	9	0	1223.080765
	BLUNTNOSE MINNOW	14	5,680,929	1,878	1556	491	10	62.10%	4,645	2	1223.080765

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Middle Potomac River	CENTRAL STONEROLLER	14	4,139,419	1,588	1261	453	10	60.90%	3,384	1	1223.080765
	COMELY SHINER	14	22,759	99	3	4	1	42.90%	19	0	1223.080765
	COMMON SHINER	14	402,773	511	181	46	7	64.80%	329	0	1223.080765
	CREEK CHUB	14	335,883	511	187	31	12	77.70%	275	0	1223.080765
	CUTLIP MINNOW	14	136,877	322	70	16	3	76.00%	112	0	1223.080765
	FALLFISH	14	49,715	178	25	5	3	63.40%	41	0	1223.080765
	FANTAIL DARTER	14	2,087,609	1,060	553	186	10	53.90%	1,707	1	1223.080765
	GREEN SUNFISH	14	136,367	324	57	12	7	77.00%	111	0	1223.080765
	GREENSIDE DARTER	14	1,884,288	1,040	544	228	7	57.40%	1,541	1	1223.080765
	LARGEMOUTH BASS	14	20,753	135	10	1	3	88.40%	17	0	1223.080765
	LONGNOSE DACE	14	2,223,013	1,175	659	226	10	62.10%	1,818	1	1223.080765
	MARGINED MADTOM	14	1,152,028	321	77	64	4	8.90%	942	0	1223.080765
	NORTHERN HOGSUCKER	14	74,583	228	24	7	4	69.70%	61	0	1223.080765
	POTOMAC SCULPIN	14	621,256	623	153	55	3	62.50%	508	1	1223.080765
	RAINBOW DARTER	14	163,668	206	38	23	3	26.10%	134	0	1223.080765
	REDBREAST SUNFISH	14	226,228	406	104	28	5	72.70%	185	0	1223.080765
	RIVER CHUB	14	365,515	443	242	91	4	53.60%	299	0	1223.080765
	ROCK BASS	14	23,010	100	6	4	3	43.50%	19	0	1223.080765
	ROSYFACE SHINER	14	159,704	323	87	28	2	65.50%	131	0	1223.080765
	ROYSIDE DACE	14	781,265	841	399	42	5	90.60%	639	1	1223.080765
	SATINFIN SHINER	14	520	0	0	1	1	0.00%	0	0	1223.080765
	SHIELD DARTER	14	1,193	0	0	1	1	0.00%	1	0	1223.080765
	SILVERJAW MINNOW	14	165,713	298	37	13	4	53.50%	135	0	1223.080765
	SMALLMOUTH BASS	14	547,665	479	123	57	4	41.90%	448	0	1223.080765
SPOTFIN SHINER	14	224,076	398	99	27	5	70.70%	183	0	1223.080765	
SPOTTAIL SHINER	14	67,058	249	36	3	3	92.20%	55	0	1223.080765	

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Middle Potomac River	SWALLOWTAIL SHINER	14	188,181	371	115	29	2	73.30%	154	0	1223.080765
	TESSELLATED DARTER	14	89,849	184	15	10	6	37.60%	73	0	1223.080765
	WHITE SUCKER	14	649,006	653	361	90	9	65.60%	531	1	1223.080765
	YELLOW BULLHEAD	14	360,899	311	76	40	5	26.80%	295	0	1223.080765
Nanticoke River	AMERICAN EEL	7	223,985	363	138	48	5	58.90%	626	1	357.8359
	BLUE RIDGE SCULPIN	7	20,691	123	11	3	1	72.70%	58	0	357.8359
	BLUEGILL	7	39,324	164	31	11	5	68.00%	110	0	357.8359
	BLUESPOTTED SUNFISH	7	434,811	563	232	62	2	73.00%	1,215	2	357.8359
	BROWN BULLHEAD	7	66,746	239	47	7	4	85.70%	187	1	357.8359
	CHAIN PICKEREL	7	7,433	52	2	4	2	36.80%	21	0	357.8359
	CREEK CHUBSUCKER	7	18,357	111	11	4	4	67.40%	51	0	357.8359
	EASTERN MOSQUITOFISH	7	981	0	0	1	1	0.00%	3	0	357.8359
	EASTERN MUDMINNOW	7	587,949	498	262	142	7	42.10%	1,643	1	357.8359
	GOLDEN SHINER	7	102,144	277	56	14	1	75.00%	285	1	357.8359
	LARGEMOUTH BASS	7	7,296	74	4	1	1	75.00%	20	0	357.8359
	LEAST BROOK LAMPREY	7	14,711	87	12	15	2	51.20%	41	0	357.8359
	MARGINED MADTOM	7	17,784	98	7	3	2	53.80%	50	0	357.8359
	PIRATE PERCH	7	69,119	128	23	14	4	23.70%	193	0	357.8359
	PUMPKINSEED	7	36,628	177	25	4	4	86.00%	102	0	357.8359
	REDBREAST SUNFISH	7	130,084	216	34	21	2	35.80%	364	1	357.8359
	REDFIN PICKEREL	7	99,894	161	33	20	7	26.10%	279	0	357.8359
	SEA LAMPREY	7	4,104	64	3	0	1	100.00%	11	0	357.8359
	SWAMP DARTER	7	479	0	0	1	1	0.00%	1	0	357.8359
	TADPOLE MADTOM	7	479	0	0	1	1	0.00%	1	0	357.8359
TESSELLATED DARTER	7	15,200	117	10	1	1	90.00%	42	0	357.8359	
YELLOW BULLHEAD	7	29,070	117	10	5	2	47.10%	81	0	357.8359	

Appendix Table 3. MDE6 Watershed population estimates for fish species collected by the MBSS during 2007-2009

MDE6 Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
North Branch Potomac River	BLACKNOSE DACE	12	865,602	767	677	139	8	68.00%	1,528	1	566.448
	BLUE RIDGE SCULPIN	12	21,397	108	11	5	1	54.50%	38	0	566.448
	BLUEGILL	12	596	24	1	0	1	100.00%	1	0	566.448
	BROOK TROUT	12	140,941	334	82	17	3	79.30%	249	1	566.448
	CREEK CHUB	12	276,590	406	161	54	5	59.50%	488	1	566.448
	FANTAIL DARTER	12	57,276	169	18	8	2	50.00%	101	0	566.448
	GREEN SUNFISH	12	32,729	138	12	5	1	58.30%	58	0	566.448
	POTOMAC SCULPIN	12	29,940	154	15	3	2	79.70%	53	0	566.448
	ROSYSIDE DACE	12	6,364	56	2	1	1	50.00%	11	0	566.448
	WHITE SUCKER	12	22,910	138	12	2	1	83.30%	40	0	566.448
Ocean Coastal	AMERICAN EEL	2	35,513	141	25	11	1	56.00%	479	2	74.13
	BANDED SUNFISH	2	7,273	80	8	1	1	87.50%	98	1	74.13
	CREEK CHUBSUCKER	2	3,978	63	5	0	1	100.00%	54	1	74.13
	EASTERN MUDMINNOW	2	303,266	275	95	71	2	24.90%	4,091	4	74.13
	PIRATE PERCH	2	99,788	211	56	31	1	44.60%	1,346	3	74.13
	REDFIN PICKEREL	2	12,728	56	4	3	1	25.00%	172	1	74.13
	TESSELLATED DARTER	2	41,025	123	19	12	1	36.80%	553	2	74.13
Patapsco River	AMERICAN EEL	19	103,612	266	195	55	6	68.10%	158	0	657.7846
	BANDED KILLIFISH	19	25,480	119	30	16	2	55.40%	39	0	657.7846
	BLACKNOSE DACE	19	3,069,919	1,350	2371	823	18	59.40%	4,667	2	657.7846
	BLUE RIDGE SCULPIN	19	3,979,696	1,459	1968	898	8	53.50%	6,050	2	657.7846
	BLUEGILL	19	12,971	88	12	5	6	59.10%	20	0	657.7846
	BLUNTNOSE MINNOW	19	219,703	426	138	23	1	82.70%	334	1	657.7846
	BROWN TROUT	19	7,709	88	9	0	4	100.00%	12	0	657.7846
	CENTRAL STONEROLLER	19	963,585	778	679	235	6	62.80%	1,465	1	657.7846
	COMMON SHINER	19	79,342	265	59	7	2	88.40%	121	0	657.7846

Appendix Table 3. MDE6 Watershed population estimates for fish species collected by the MBSS during 2007-2009

MDE6 Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Patapsco River	CREEK CHUB	19	708,634	692	646	183	14	67.60%	1,077	1	657.7846
	CREEK CHUBSUCKER	19	14,197	93	18	7	1	61.10%	22	0	657.7846
	CUTLIP MINNOW	19	193,546	362	108	32	4	67.80%	294	1	657.7846
	EASTERN MOSQUITOFISH	19	541,209	410	348	241	2	31.00%	823	1	657.7846
	GOLDEN SHINER	19	63,919	223	103	23	1	77.70%	97	0	657.7846
	GREEN SUNFISH	19	3,605	60	4	0	3	100.00%	5	0	657.7846
	LARGEMOUTH BASS	19	14,051	109	17	2	2	84.20%	21	0	657.7846
	LONGNOSE DACE	19	684,814	677	467	139	6	67.00%	1,041	1	657.7846
	MARGINED MADTOM	19	2,886	38	2	1	1	50.00%	4	0	657.7846
	MUMMICHOG	19	54,973	177	71	28	3	56.90%	84	0	657.7846
	NORTHERN HOGSUCKER	19	77,078	193	29	14	3	48.10%	117	0	657.7846
	ORIENTAL WEATHERFISH	19	722	0	0	1	1	0.00%	1	0	657.7846
	PUMPKINSEED	19	13,600	111	16	2	3	90.90%	21	0	657.7846
	REDBREAST SUNFISH	19	75,144	229	142	31	5	69.90%	114	0	657.7846
	RIVER CHUB	19	52,374	174	23	9	1	57.80%	80	0	657.7846
	ROCK BASS	19	8,349	81	9	2	1	77.80%	13	0	657.7846
	ROSYDACE	19	1,054,493	828	588	184	8	65.00%	1,603	1	657.7846
	SATINFIN SHINER	19	191,000	346	323	109	3	62.60%	290	1	657.7846
	SMALLMOUTH BASS	19	2,886	38	2	1	1	50.00%	4	0	657.7846
	SWALLOWTAIL SHINER	19	95,951	213	90	47	5	47.40%	146	0	657.7846
TESSELLATED DARTER	19	322,466	315	136	75	7	30.90%	490	0	657.7846	
WHITE SUCKER	19	744,123	581	471	171	8	45.40%	1,131	1	657.7846	
Patuxent River	AMERICAN BROOK LAMPREY	23	105,062	205	45	24	2	40.20%	102	0	1032.1986
	AMERICAN EEL	23	129,394	276	82	27	9	58.90%	125	0	1032.1986
	BLACK CRAPPIE	23	937	31	1	0	1	100.00%	1	0	1032.1986
	BLACKNOSE DACE	23	1,357,707	928	1162	364	18	63.40%	1,315	1	1032.1986

Appendix Table 3. MDE6 Watershed population estimates for fish species collected by the MBSS during 2007-2009

MDE6 Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Patuxent River	BLUEGILL	23	167,963	239	82	36	13	33.90%	163	0	1032.1986
	BLUESPOTTED SUNFISH	23	937	0	0	1	1	0.00%	1	0	1032.1986
	BLUNTNOSE MINNOW	23	3,167	46	3	1	2	66.70%	3	0	1032.1986
	BROWN BULLHEAD	23	168,286	234	27	18	3	32.60%	163	0	1032.1986
	BROWN TROUT	23	4,257	55	4	1	3	71.50%	4	0	1032.1986
	CENTRAL STONEROLLER	23	141,182	288	159	41	4	58.60%	137	0	1032.1986
	CHAIN PICKEREL	23	1,875	31	1	1	1	50.00%	2	0	1032.1986
	COMMON SHINER	23	78,016	208	54	23	4	55.30%	76	0	1032.1986
	CREEK CHUB	23	197,760	317	164	38	12	50.90%	192	0	1032.1986
	CREEK CHUBSUCKER	23	50,206	161	34	14	5	51.90%	49	0	1032.1986
	CUTLIP MINNOW	23	40,038	144	23	9	6	51.80%	39	0	1032.1986
	EASTERN MOSQUITOFISH	23	93,183	194	40	22	4	40.30%	90	0	1032.1986
	EASTERN MUDMINNOW	23	280,563	224	33	18	7	17.90%	272	0	1032.1986
	FALLFISH	23	552,863	455	258	157	10	37.50%	536	0	1032.1986
	GLASSY DARTER	23	14,486	110	13	2	1	84.10%	14	0	1032.1986
	GOLDEN SHINER	23	707	27	1	0	1	100.00%	1	0	1032.1986
	GREEN SUNFISH	23	104,871	216	69	43	10	44.60%	102	0	1032.1986
	LARGEMOUTH BASS	23	5,829	76	8	0	5	100.00%	6	0	1032.1986
	LEAST BROOK LAMPREY	23	73,926	199	36	19	3	53.50%	72	0	1032.1986
	LEPOMIS HYBRID	23	8,216	62	8	4	2	46.60%	8	0	1032.1986
	LONGNOSE DACE	23	279,212	351	161	89	9	44.10%	271	0	1032.1986
	MARGINED MADTOM	23	136,448	144	29	23	5	15.30%	132	0	1032.1986
	NORTHERN HOGSUCKER	23	20,723	112	16	6	2	61.00%	20	0	1032.1986
	PUMPKINSEED	23	27,980	148	13	4	5	78.80%	27	0	1032.1986
	RAINBOW TROUT	23	1,407	27	1	1	1	50.00%	1	0	1032.1986
	REDBREAST SUNFISH	23	59,895	211	45	8	5	74.30%	58	0	1032.1986
RIVER CHUB	23	136,775	318	126	31	5	74.10%	133	0	1032.1986	

Appendix Table 3. MDE6 Watershed population estimates for fish species collected by the MBSS during 2007-2009

MDE6 Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Patuxent River	ROCK BASS	23	1,638	29	1	1	1	50.00%	2	0	1032.1986
	ROSYFACE SHINER	23	258,048	324	128	76	1	40.60%	250	0	1032.1986
	ROSYSIDE DACE	23	668,237	618	450	162	12	57.10%	647	1	1032.1986
	SATINFIN SHINER	23	37,089	142	22	17	3	54.10%	36	0	1032.1986
	SEA LAMPREY	23	15,388	115	14	2	1	85.30%	15	0	1032.1986
	SHIELD DARTER	23	109,607	241	71	36	3	52.80%	106	0	1032.1986
	SMALLMOUTH BASS	23	14,793	118	17	1	1	94.10%	14	0	1032.1986
	SPOTTAIL SHINER	23	9,373	53	3	2	1	30.00%	9	0	1032.1986
	SWALLOWTAIL SHINER	23	226,625	401	187	46	4	71.10%	220	0	1032.1986
	TESSELLATED DARTER	23	1,062,436	679	552	297	13	43.40%	1,029	1	1032.1986
	WHITE SUCKER	23	230,240	310	116	62	11	41.80%	223	0	1032.1986
YELLOW BULLHEAD	23	4,603	51	3	1	2	56.00%	4	0	1032.1986	
Pocomoke River	AMERICAN EEL	7	104,446	263	65	22	1	66.20%	309	1	338.23
	BANDED SUNFISH	7	26,534	104	10	8	2	40.80%	78	0	338.23
	BLUEGILL	7	94,669	215	40	20	3	49.00%	280	1	338.23
	BLUESPOTTED SUNFISH	7	5,882	46	2	3	2	36.10%	17	0	338.23
	BROWN BULLHEAD	7	12,004	86	6	3	3	61.00%	35	0	338.23
	CHAIN PICKEREL	7	17,008	65	4	3	1	25.00%	50	0	338.23
	CREEK CHUBSUCKER	7	30,373	144	19	6	2	68.40%	90	0	338.23
	EASTERN MOSQUITOFISH	7	3,756	61	3	0	1	100.00%	11	0	338.23
	EASTERN MUDMINNOW	7	120,401	207	44	25	7	35.70%	356	1	338.23
	GOLDEN SHINER	7	77,983	177	37	40	5	40.00%	231	1	338.23
	GREEN SUNFISH	7	26,055	112	10	7	2	48.10%	77	0	338.23
	LARGEMOUTH BASS	7	1,252	35	1	0	1	100.00%	4	0	338.23
	LEAST BROOK LAMPREY	7	20,197	80	6	13	1	31.60%	60	0	338.23
	MARGINED MADTOM	7	25,725	108	11	6	1	45.50%	76	0	338.23
	PIRATE PERCH	7	25,601	134	17	5	1	70.60%	76	0	338.23

Appendix Table 3. MDE6 Watershed population estimates for fish species collected by the MBSS during 2007-2009

MDE6 Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Pocomoke River	PUMPKINSEED	7	35,118	119	13	10	4	40.50%	104	0	338.23
	REDBREAST SUNFISH	7	2,126	33	1	1	1	50.00%	6	0	338.23
	REDFIN PICKEREL	7	41,928	177	44	11	5	75.00%	124	1	338.23
	SWAMP DARTER	7	4,252	46	2	1	1	50.00%	13	0	338.23
	TADPOLE MADTOM	7	8,504	65	4	4	1	50.00%	25	0	338.23
	TESSELLATED DARTER	7	5,669	65	4	1	1	75.00%	17	0	338.23
	YELLOW BULLHEAD	7	5,008	35	1	3	1	25.00%	15	0	338.23
	YELLOW PERCH	7	17,008	73	5	11	1	31.30%	50	0	338.23
Susquehanna River	AMERICAN EEL	9	453,485	536	232	74	6	63.30%	1,397	2	324.6854
	BANDED DARTER	9	39,726	85	23	17	2	18.30%	122	0	324.6854
	BLACKNOSE DACE	9	527,108	539	666	193	8	55.10%	1,623	2	324.6854
	BLUE RIDGE SCULPIN	9	65,863	194	27	11	3	57.10%	203	1	324.6854
	BLUEGILL	9	48,596	136	38	23	3	38.00%	150	0	324.6854
	BLUNTNOSE MINNOW	9	32,833	87	24	17	1	23.00%	101	0	324.6854
	BROWN BULLHEAD	9	20,697	118	10	4	2	67.30%	64	0	324.6854
	BROWN TROUT	9	24,156	122	37	15	3	61.70%	74	0	324.6854
	CENTRAL STONEROLLER	9	14,599	102	33	8	2	71.30%	45	0	324.6854
	CHANNEL CATFISH	9	4,065	43	6	3	1	46.50%	13	0	324.6854
	COMMON CARP	9	1,577	40	5	0	1	100.00%	5	0	324.6854
	COMMON SHINER	9	2,675,267	660	318	168	5	16.30%	8,240	2	324.6854
	CREEK CHUB	9	141,953	236	81	35	6	39.10%	437	1	324.6854
	CUTLIP MINNOW	9	369,827	428	167	90	5	49.60%	1,139	1	324.6854
	FALLFISH	9	307,581	418	126	48	5	56.70%	947	1	324.6854
	GIZZARD SHAD	9	10,406	56	10	23	1	30.30%	32	0	324.6854
	GOLDEN REDHORSE	9	315	0	0	1	1	0.00%	1	0	324.6854
	GREEN SUNFISH	9	20,690	100	28	34	3	47.90%	64	0	324.6854
	GREENSIDE DARTER	9	3,455	47	7	2	2	63.90%	11	0	324.6854

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MDE6 Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Susquehanna River	LARGEMOUTH BASS	9	2,733	40	5	2	1	57.70%	8	0	324.6854
	LOGPERCH	9	62,686	122	47	34	2	23.60%	193	0	324.6854
	LONGNOSE DACE	9	110,629	266	129	46	5	63.80%	341	1	324.6854
	MARGINED MADTOM	9	388,926	322	84	63	6	26.70%	1,198	1	324.6854
	NORTHERN HOGSUCKER	9	169,962	253	70	29	5	37.70%	523	1	324.6854
	PUMPKINSEED	9	16,300	86	8	8	4	45.60%	50	0	324.6854
	RAINBOW TROUT	9	1,392	37	1	0	1	100.00%	4	0	324.6854
	REDBREAST SUNFISH	9	202,514	222	37	20	4	24.40%	624	1	324.6854
	RIVER CHUB	9	560,587	557	231	94	5	55.40%	1,727	2	324.6854
	ROCK BASS	9	16,937	99	7	4	3	57.50%	52	0	324.6854
	ROSYFACE SHINER	9	171,791	260	51	37	4	39.40%	529	1	324.6854
	ROSYSIDE DACE	9	519,881	424	322	133	6	34.60%	1,601	1	324.6854
	SATINFIN SHINER	9	29,065	91	6	4	1	28.70%	90	0	324.6854
	SEA LAMPREY	9	85,170	148	18	51	3	25.80%	262	0	324.6854
	SHIELD DARTER	9	29,779	118	10	10	4	46.70%	92	0	324.6854
	SMALLMOUTH BASS	9	69,268	147	24	12	4	31.10%	213	0	324.6854
	SPOTFIN SHINER	9	18,282	112	40	12	2	69.00%	56	0	324.6854
	SPOTTAIL SHINER	9	100,312	204	30	16	1	41.60%	309	1	324.6854
	SWALLOWTAIL SHINER	9	81,699	99	12	12	2	11.90%	252	0	324.6854
	TESSELLATED DARTER	9	1,332,644	399	258	170	8	11.90%	4,104	1	324.6854
WALLEYE	9	631	18	1	1	1	50.00%	2	0	324.6854	
WHITE CATFISH	9	315	18	1	0	1	100.00%	1	0	324.6854	
WHITE SUCKER	9	327,798	441	213	108	6	59.20%	1,010	1	324.6854	
YELLOW BULLHEAD	9	1,261	25	2	2	2	50.00%	4	0	324.6854	
Upper Potomac River	BANDED KILLIFISH	16	30,640	160	35	6	2	83.30%	42	0	728.49075
	BLACKNOSE DACE	16	6,151,342	2,024	2976	765	15	66.60%	8,444	3	728.49075

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MDE6 Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Upper Potomac River	BLUE RIDGE SCULPIN	16	542,435	269	81	27	3	13.30%	745	0	728.49075
	BLUEGILL	16	35,357	138	24	15	7	53.70%	49	0	728.49075
	BLUNTNOSE MINNOW	16	1,432,894	1,072	890	156	7	80.20%	1,967	1	728.49075
	BROWN BULLHEAD	16	736	27	1	0	1	100.00%	1	0	728.49075
	BROWN TROUT	16	3,233	57	2	0	1	100.00%	4	0	728.49075
	CENTRAL STONEROLLER	16	20,147	131	32	5	3	85.50%	28	0	728.49075
	CHECKERED SCULPIN	16	6,724	57	2	1	1	48.10%	9	0	728.49075
	COMMON SHINER	16	94,698	293	53	5	2	90.50%	130	0	728.49075
	CREEK CHUB	16	223,311	310	143	69	12	43.00%	307	0	728.49075
	CUTLIP MINNOW	16	252,148	405	103	34	3	65.20%	346	1	728.49075
	CYPRINID (UNKNOWN)	16	6,724	57	2	1	1	48.10%	9	0	728.49075
	FALLFISH	16	530	23	1	0	1	100.00%	1	0	728.49075
	FANTAIL DARTER	16	439,324	506	320	82	12	58.20%	603	1	728.49075
	GOLDEN SHINER	16	8,480	80	12	3	1	75.00%	12	0	728.49075
	GREEN SUNFISH	16	89,557	238	100	31	6	63.40%	123	0	728.49075
	GREENSIDE DARTER	16	1,046,191	205	30	25	6	4.00%	1,436	0	728.49075
	LARGEMOUTH BASS	16	2,650	51	5	0	2	100.00%	4	0	728.49075
	LONGNOSE DACE	16	1,858,484	1,128	801	247	6	68.40%	2,551	2	728.49075
	MARGINED MADTOM	16	736	0	0	1	1	0.00%	1	0	728.49075
	NORTHERN HOGSUCKER	16	256,518	426	133	31	3	70.70%	352	1	728.49075
	PEARL DACE	16	24,981	116	10	3	4	53.70%	34	0	728.49075
	POTOMAC SCULPIN	16	682,778	583	480	126	8	49.80%	937	1	728.49075
	PUMPKINSEED	16	3,061	48	4	1	2	76.00%	4	0	728.49075
	RAINBOW DARTER	16	736	27	1	0	1	100.00%	1	0	728.49075
	RAINBOW TROUT	16	13,364	106	7	1	2	84.70%	18	0	728.49075
	REDBREAST SUNFISH	16	4,417	51	5	2	1	60.00%	6	0	728.49075
ROCK BASS	16	20,719	116	23	13	4	64.80%	28	0	728.49075	

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MDE6 Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Upper Potomac River	SMALLMOUTH BASS	16	5,143	63	7	1	3	76.60%	7	0	728.49075
	SPOTFIN SHINER	16	26,052	139	12	3	2	74.50%	36	0	728.49075
	SPOTTAIL SHINER	16	610,609	691	295	63	2	78.10%	838	1	728.49075
	SUNFISH (HYBRID)	16	736	0	0	1	1	0.00%	1	0	728.49075
	TESSELLATED DARTER	16	3,141	48	4	1	1	74.10%	4	0	728.49075
	WHITE SUCKER	16	847,068	809	471	100	9	77.30%	1,163	1	728.49075
	YELLOW BULLHEAD	16	8,230	75	7	3	5	67.50%	11	0	728.49075
Washington Metro Potomac River	AMERICAN BROOK LAMPREY	18	2,017	45	4	0	1	100.00%	3	0	714.6289
	AMERICAN EEL	18	88,090	253	112	25	8	72.80%	123	0	714.6289
	BANDED KILLIFISH	18	94,426	111	22	15	5	13.10%	132	0	714.6289
	BLACK CRAPPIE	18	358	19	1	0	1	100.00%	1	0	714.6289
	BLACKNOSE DACE	18	2,243,080	1,302	1762	437	16	75.60%	3,139	2	714.6289
	BLUE RIDGE SCULPIN	18	398,338	515	198	65	4	66.60%	557	1	714.6289
	BLUEGILL	18	44,626	159	32	8	9	56.30%	62	0	714.6289
	BLUNTNOSE MINNOW	18	281,286	461	178	41	4	75.40%	394	1	714.6289
	BROWN BULLHEAD	18	5,154	49	4	2	1	47.10%	7	0	714.6289
	CENTRAL STONEROLLER	18	81,722	238	48	14	4	69.50%	114	0	714.6289
	COMELY SHINER	18	5,043	45	4	6	1	40.00%	7	0	714.6289
	COMMON SHINER	18	62,272	216	83	17	3	75.00%	87	0	714.6289
	CREEK CHUB	18	225,580	417	198	36	14	77.10%	316	1	714.6289
	CREEK CHUBSUCKER	18	20,420	127	32	7	2	79.00%	29	0	714.6289
	CUTLIP MINNOW	18	19,214	133	24	2	4	92.60%	27	0	714.6289
	EASTERN MOSQUITOFISH	18	34,198	158	40	9	4	73.10%	48	0	714.6289
	EASTERN MUDMINNOW	18	12,721	99	18	3	2	76.80%	18	0	714.6289
	FALLFISH	18	97,720	156	47	31	4	25.00%	137	0	714.6289
	FANTAIL DARTER	18	337,381	467	185	54	5	64.80%	472	1	714.6289

Appendix Table 3. MDE6 Watershed population estimates for fish species collected by the MBSS during 2007-2009											
MDE6 Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Washington Metro Potomac River	GREEN SUNFISH	18	71,581	209	61	19	11	60.80%	100	0	714.6289
	GREENSIDE DARTER	18	3,793	62	3	0	2	100.00%	5	0	714.6289
	LARGEMOUTH BASS	18	15,672	125	19	0	6	100.00%	22	0	714.6289
	LONGNOSE DACE	18	412,146	494	323	107	11	59.30%	577	1	714.6289
	MARGINED MADTOM	18	3,026	55	6	0	1	100.00%	4	0	714.6289
	MUMMICHOG	18	2,864	38	4	4	1	50.00%	4	0	714.6289
	POTOMAC SCULPIN	18	373,690	451	213	93	6	54.50%	523	1	714.6289
	PUMPKINSEED	18	18,698	104	14	3	6	58.10%	26	0	714.6289
	REDBREAST SUNFISH	18	175,826	345	146	38	7	67.70%	246	0	714.6289
	ROSYSIDE DACE	18	302,527	435	164	35	6	62.50%	423	1	714.6289
	SATINFIN SHINER	18	801,462	239	94	46	6	7.10%	1,122	0	714.6289
	SEA LAMPREY	18	195,459	157	24	19	2	12.60%	274	0	714.6289
	SILVERJAW MINNOW	18	75,720	137	16	11	2	24.70%	106	0	714.6289
	SMALLMOUTH BASS	18	10,412	78	5	2	1	57.70%	15	0	714.6289
	SPOTFIN SHINER	18	195,942	392	161	26	6	78.40%	274	1	714.6289
	SPOTTAIL SHINER	18	323,046	484	323	82	6	72.70%	452	1	714.6289
	SUNFISH (HYBRID)	18	4,539	47	2	1	1	48.10%	6	0	714.6289
	SWALLOWTAIL SHINER	18	50,167	144	53	26	3	41.20%	70	0	714.6289
	TESSELLATED DARTER	18	121,709	282	151	50	9	65.30%	170	0	714.6289
	WHITE SUCKER	18	196,250	358	131	38	9	65.40%	275	1	714.6289
YELLOW BULLHEAD	18	58,470	185	64	36	8	58.80%	82	0	714.6289	
West Chesapeake Bay	AMERICAN EEL	6	64,060	178	58	26	4	49.30%	306	1	209.53
	BLACKNOSE DACE	6	80,346	185	67	35	3	42.80%	383	1	209.53
	BLUEGILL	6	30,225	132	32	13	2	57.70%	144	1	209.53
	BLUESPOTTED SUNFISH	6	6,909	70	11	3	1	71.30%	33	0	209.53
	BROWN BULLHEAD	6	1,635	0	0	3	2	0.00%	8	0	209.53

Appendix Table 3. MDE6 Watershed population estimates for fish species collected by the MBSS during 2007-2009

MDE6 Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
West Chesapeake Bay	CREEK CHUBSUCKER	6	9,538	92	19	2	2	89.20%	46	0	209.53
	EASTERN MOSQUITOFISH	6	17,782	107	21	7	1	64.40%	85	1	209.53
	EASTERN MUDMINNOW	6	88,509	210	97	46	4	49.60%	422	1	209.53
	GOLDEN SHINER	6	4,781	43	4	5	2	39.50%	23	0	209.53
	LARGEMOUTH BASS	6	2,180	33	2	2	1	50.00%	10	0	209.53
	PUMPKINSEED	6	49,459	70	9	8	2	9.90%	236	0	209.53
	RAINBOW TROUT	6	545	23	1	0	1	100.00%	3	0	209.53
	REDFIN PICKEREL	6	13,590	85	16	7	1	52.70%	65	0	209.53
	SPOTTAIL SHINER	6	10,322	47	4	3	1	21.10%	49	0	209.53
	SWALLOWTAIL SHINER	6	10,355	70	9	10	1	47.40%	49	0	209.53
	TESSELLATED DARTER	6	108,722	134	33	26	3	16.50%	519	1	209.53
WHITE SUCKER	6	75,139	104	20	16	1	14.50%	359	0	209.53	
Youghiogheny River	BLACKNOSE DACE	8	171,562	378	60	10	3	83.40%	432	1	397.33725
	BROOK TROUT	8	32,992	166	15	3	3	83.70%	83	0	397.33725
	BROWN BULLHEAD	8	578	24	1	0	1	100.00%	1	0	397.33725
	BROWN TROUT	8	14,132	119	8	0	2	100.00%	36	0	397.33725
	CENTRAL STONEROLLER	8	17,724	133	28	0	1	100.00%	45	0	397.33725
	CHAIN PICKEREL	8	2,907	44	3	1	1	65.30%	7	0	397.33725
	COMMON SHINER	8	9,555	94	14	1	1	92.70%	24	0	397.33725
	CREEK CHUB	8	527,112	665	663	111	5	83.90%	1,327	2	397.33725
	GOLDEN SHINER	8	25,449	120	25	10	1	56.80%	64	0	397.33725
	JOHNNY DARTER	8	168,377	339	76	21	3	68.40%	424	1	397.33725
	LARGEMOUTH BASS	8	578	24	1	0	1	100.00%	1	0	397.33725
	LONGNOSE DACE	8	36,418	186	23	2	3	94.80%	92	0	397.33725
	MOTTLED SCULPIN	8	649,115	646	266	88	5	64.20%	1,634	2	397.33725
NORTHERN HOGSUCKER	8	11,138	79	7	2	2	56.10%	28	0	397.33725	

Appendix Table 3. MDE6 Watershed population estimates for fish species collected by the MBSS during 2007-2009

MDE6 Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Youghiogheny River	PUMPKINSEED	8	3,468	59	6	0	1	100.00%	9	0	397.33725
	RIVER CHUB	8	12,233	111	5	0	1	100.00%	31	0	397.33725
	ROCK BASS	8	1,266	25	1	1	1	50.00%	3	0	397.33725
	WESTERN BLACKNOSE DACE	8	199,835	414	271	38	3	85.80%	503	1	397.33725
	WHITE SUCKER	8	144,365	347	165	21	5	83.50%	363	1	397.33725
	YELLOW BULLHEAD	8	633	0	0	1	1	0.00%	2	0	397.33725

PSU Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Aberdeen Proving Ground/ Swan Creek	AMERICAN EEL	3	16,352	8,160	52.00%	22	8	3	303	151	54
	BANDED SUNFISH	3	18,678	18,678	45.50%	22	11	1	346	346	54
	BLACK CRAPPIE	3	1,545	1,545	50.00%	2	2	1	29	29	54
	BLACKNOSE DACE	3	12,073	12,073	16.00%	5	4	1	224	224	54
	BLUEGILL	3	15,361	17,513	37.70%	15	7	2	284	324	54
	BROWN BULLHEAD	3	1,739	1,159	66.70%	3	1	2	32	21	54
	CREEK CHUB	3	1,607	1,607	48.10%	2	1	1	30	30	54
	CREEK CHUBSUCKER	3	1,774	1,774	65.30%	3	1	1	33	33	54
	EASTERN MUDMINNOW	3	11,819	11,819	45.80%	14	7	1	219	219	54
	GOLDEN SHINER	3	3,809	2,863	71.00%	7	2	2	71	53	54
	GREEN SUNFISH	3	2,125	2,533	36.40%	2	1	2	39	47	54
	MUMMICHOG	3	75,318	75,318	17.40%	34	26	1	1,395	1,395	54
	PUMPKINSEED	3	10,556	8,161	36.60%	10	6	2	195	151	54
	REDFIN PICKEREL	3	17,074	19,963	24.90%	11	7	2	316	370	54
	TADPOLE MADTOM	3	386	386	0.00%	0	1	1	7	7	54
TESSELLATED DARTER	3	386	386	100.00%	1	0	1	7	7	54	
Anacostia River	AMERICAN EEL	3	42,448	37,052	67.90%	24	7	3	253	221	167.95
	BANDED KILLIFISH	3	7,570	7,570	79.30%	5	1	1	45	45	167.95
	BLACKNOSE DACE	3	116,837	92,755	95.60%	93	4	2	696	552	167.95
	BLUEGILL	3	6,628	4,906	72.50%	4	1	2	39	29	167.95
	BLUNTNOSTE MINNOW	3	256,357	256,357	75.90%	162	37	1	1,526	1,526	167.95
	CREEK CHUB	3	1,201	1,201	100.00%	1	0	1	7	7	167.95
	CUTLIP MINNOW	3	4,805	4,805	100.00%	4	0	1	29	29	167.95
	EASTERN MOSQUITOFISH	3	12,013	12,013	40.00%	4	6	1	72	72	167.95
	EASTERN MUDMINNOW	3	3,604	3,604	33.30%	1	2	1	21	21	167.95
	FALLFISH	3	2,403	2,403	50.00%	1	1	1	14	14	167.95

PSU Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Anacostia River	GREEN SUNFISH	3	13,762	10,819	52.40%	6	3	2	82	64	167.95
	LARGEMOUTH BASS	3	8,409	8,409	100.00%	7	0	1	50	50	167.95
	LONGNOSE DACE	3	4,805	4,805	100.00%	4	0	1	29	29	167.95
	PUMPKINSEED	3	11,112	11,112	64.90%	6	2	1	66	66	167.95
	REDBREAST SUNFISH	3	128,381	128,381	63.60%	68	23	1	764	764	167.95
	SATINFIN SHINER	3	723,997	723,997	3.20%	19	18	1	4,311	4,311	167.95
	SEA LAMPREY	3	184,928	184,928	11.70%	18	15	1	1,101	1,101	167.95
	SILVERJAW MINNOW	3	60,567	60,567	21.80%	11	8	1	361	361	167.95
	SMALLMOUTH BASS	3	10,412	10,412	57.70%	5	2	1	62	62	167.95
	SPOTFIN SHINER	3	170,831	111,399	76.70%	109	22	2	1,017	663	167.95
	SPOTTAIL SHINER	3	167,170	163,577	72.60%	101	26	2	995	974	167.95
	SWALLOWTAIL SHINER	3	4,805	4,805	50.00%	2	2	1	29	29	167.95
	TESSELLATED DARTER	3	34,839	34,839	41.40%	12	17	1	207	207	167.95
	WHITE SUCKER	3	92,481	92,481	74.00%	57	14	1	551	551	167.95
YELLOW BULLHEAD	3	6,486	6,486	74.10%	4	1	1	39	39	167.95	
Antietam Creek	BANDED KILLIFISH	3	1,616	1,616	100.00%	1	0	1	7	7	225.98
	BLACKNOSE DACE	3	5,611,090	1,897,001	65.10%	2260	656	3	24,830	8,395	225.98
	BLUE RIDGE SCULPIN	3	511,525	517,616	8.50%	27	23	2	2,264	2,291	225.98
	BLUEGILL	3	13,739	13,739	47.10%	4	2	1	61	61	225.98
	BLUNTNOSE MINNOW	3	1,250,939	1,084,927	79.20%	613	124	2	5,536	4,801	225.98
	BROWN TROUT	3	3,233	3,233	100.00%	2	0	1	14	14	225.98
	CHECKERED SCULPIN	3	6,724	6,724	48.10%	2	1	1	30	30	225.98
	COMMON SHINER	3	94,698	49,282	90.50%	53	5	2	419	218	225.98
	CREEK CHUB	3	53,339	47,839	27.30%	9	11	2	236	212	225.98
	CUTLIP MINNOW	3	251,088	118,346	65.00%	101	34	2	1,111	524	225.98
	CYPRINID (UNKNOWN)	3	6,724	6,724	48.10%	2	1	1	30	30	225.98
FANTAIL DARTER	3	224,121	122,296	46.90%	65	30	3	992	541	225.98	

Appendix Table 4. PSU population estimates for fish species collected by the MBSS during 2007-2009											
PSU Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Antietam Creek	GREENSIDE DARTER	3	1,040,987	1,151,870	3.70%	24	22	2	4,607	5,097	225.98
	LONGNOSE DACE	3	1,835,970	932,374	68.60%	779	242	3	8,124	4,126	225.98
	NORTHERN HOGSUCKER	3	239,540	208,697	68.80%	102	30	2	1,060	924	225.98
	PEARL DACE	3	22,872	10,592	49.50%	7	3	2	101	47	225.98
	POTOMAC SCULPIN	3	94,219	90,054	27.40%	16	10	2	417	399	225.98
	RAINBOW TROUT	3	13,364	8,934	84.70%	7	1	2	59	40	225.98
	SPOTFIN SHINER	3	26,052	14,845	74.50%	12	3	2	115	66	225.98
	SPOTTAIL SHINER	3	610,609	299,490	78.10%	295	63	2	2,702	1,325	225.98
	WHITE SUCKER	3	779,803	313,705	76.90%	371	85	3	3,451	1,388	225.98
YELLOW BULLHEAD	3	3,233	3,233	50.00%	1	1	1	14	14	225.98	
Assawoman/Isle of Wight/ Sinepuxent/Newport/ Chincoteague Bays	AMERICAN EEL	2	35,513	35,513	56.00%	25	11	1	479	479	74.13
	BANDED SUNFISH	2	7,273	7,273	87.50%	8	1	1	98	98	74.13
	CREEK CHUBSUCKER	2	3,978	3,978	100.00%	5	0	1	54	54	74.13
	EASTERN MUDMINNOW	2	303,266	207,011	24.90%	95	71	2	4,091	2,793	74.13
	PIRATE PERCH	2	99,788	99,788	44.60%	56	31	1	1,346	1,346	74.13
	REDFIN PICKEREL	2	12,728	12,728	25.00%	4	3	1	172	172	74.13
	TESSELLATED DARTER	2	41,025	41,025	36.80%	19	12	1	553	553	74.13
Back River	AMERICAN EEL	3	65,574	35,065	73.80%	156	39	3	1,511	808	43.41
	BANDED KILLIFISH	3	1,862	1,862	33.30%	2	4	1	43	43	43.41
	BLACKNOSE DACE	3	202,509	11,527	67.00%	437	136	3	4,665	266	43.41
	CREEK CHUB	3	56,331	30,235	66.10%	120	37	2	1,298	696	43.41
	MUMMICHOG	3	6,507	5,168	81.10%	17	3	2	150	119	43.41
	REDBREAST SUNFISH	3	44,888	26,854	81.60%	118	21	2	1,034	619	43.41
	SATINFIN SHINER	3	129,701	103,782	66.00%	276	88	2	2,988	2,391	43.41
	SWALLOWTAIL SHINER	3	60,138	44,066	28.90%	56	40	3	1,385	1,015	43.41
	WHITE SUCKER	3	96,447	41,549	64.00%	199	63	3	2,222	957	43.41

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PSU Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Bodkin Creek/Baltimore Harbor	AMERICAN EEL	2	30,880	30,880	48.40%	31	16	1	688	688	44.91
	BANDED KILLIFISH	2	23,618	23,618	57.10%	28	12	1	526	526	44.91
	BLACKNOSE DACE	2	187,272	187,272	78.80%	306	65	1	4,170	4,170	44.91
	BLUEGILL	2	3,374	2,410	100.00%	7	0	2	75	54	44.91
	CREEK CHUBSUCKER	2	14,197	14,197	61.10%	18	7	1	316	316	44.91
	EASTERN MOSQUITOFISH	2	541,209	537,353	31.00%	348	241	2	12,051	11,965	44.91
	GOLDEN SHINER	2	63,919	63,919	77.70%	103	23	1	1,423	1,423	44.91
	LARGEMOUTH BASS	2	3,374	3,374	100.00%	7	0	1	75	75	44.91
	MUMMICHOG	2	48,466	48,466	53.70%	54	25	1	1,079	1,079	44.91
	PUMPKINSEED	2	5,577	5,577	77.80%	9	2	1	124	124	44.91
	REDBREAST SUNFISH	2	3,470	3,470	83.30%	6	1	1	77	77	44.91
	TESSELLATED DARTER	2	63,832	63,832	52.90%	70	33	1	1,421	1,421	44.91
WHITE SUCKER	2	23,329	23,329	45.50%	22	12	1	519	519	44.91	
Breton/St. Clements Bays	AMERICAN EEL	3	52,122	26,598	77.30%	50	11	2	463	236	112.66
	BLUEGILL	3	2,417	1,395	100.00%	3	0	2	21	12	112.66
	CHAIN PICKEREL	3	806	806	0.00%	0	1	1	7	7	112.66
	CREEK CHUBSUCKER	3	806	806	100.00%	1	0	1	7	7	112.66
	EASTERN MOSQUITOFISH	3	1,611	1,611	100.00%	2	0	1	14	14	112.66
	EASTERN MUDMINNOW	3	108,047	59,199	35.80%	48	29	3	959	525	112.66
	GOLDEN SHINER	3	806	806	100.00%	1	0	1	7	7	112.66
	GREEN SUNFISH	3	4,028	2,132	40.00%	2	3	2	36	19	112.66
	LARGEMOUTH BASS	3	1,611	1,611	50.00%	1	1	1	14	14	112.66
	LEAST BROOK LAMPREY	3	71,704	66,929	48.30%	43	46	2	636	594	112.66
	MARGINED MADTOM	3	806	806	100.00%	1	0	1	7	7	112.66
	PIRATE PERCH	3	4,834	3,692	33.30%	2	4	2	43	33	112.66
	PUMPKINSEED	3	3,223	3,223	50.00%	2	2	1	29	29	112.66
REDBREAST SUNFISH	3	40,775	35,748	47.40%	24	12	2	362	317	112.66	

Appendix Table 4. PSU population estimates for fish species collected by the MBSS during 2007-2009											
PSU Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Breton/St. Clements Bays	SEA LAMPREY	3	296,634	296,634	8.40%	31	27	1	2,633	2,633	112.66
	SPOTTAIL SHINER	3	26,261	26,261	73.60%	24	6	1	233	233	112.66
	SWALLOWTAIL SHINER	3	17,178	14,825	89.10%	19	2	2	152	132	112.66
	TESSELLATED DARTER	3	34,578	14,311	53.60%	23	9	2	307	127	112.66
	YELLOW PERCH	3	1,611	1,611	100.00%	2	0	1	14	14	112.66
Brighton Dam	BLACKNOSE DACE	3	278,719	223,473	29.50%	117	67	3	2,833	2,272	98.37
	BLUEGILL	3	704	704	0.00%	0	1	1	7	7	98.37
	BLUNTNOSE MINNOW	3	3,167	2,111	66.70%	3	1	2	32	21	98.37
	BROWN TROUT	3	2,619	2,160	53.70%	2	1	2	27	22	98.37
	CENTRAL STONEROLLER	3	89,760	31,332	51.00%	65	18	2	912	319	98.37
	COMMON SHINER	3	5,256	2,680	80.30%	6	1	2	53	27	98.37
	CREEK CHUB	3	14,319	10,660	54.10%	11	3	3	146	108	98.37
	CUTLIP MINNOW	3	704	704	100.00%	1	0	1	7	7	98.37
	FALLFISH	3	18,753	18,325	45.00%	12	6	2	191	186	98.37
	LARGEMOUTH BASS	3	1,407	1,407	100.00%	2	0	1	14	14	98.37
	LONGNOSE DACE	3	20,495	10,446	82.40%	24	4	3	208	106	98.37
	MARGINED MADTOM	3	31,270	13,063	24.80%	11	8	2	318	133	98.37
	NORTHERN HOGSUCKER	3	5,981	5,981	47.10%	4	2	1	61	61	98.37
	RAINBOW TROUT	3	1,407	1,407	50.00%	1	1	1	14	14	98.37
	REDBREAST SUNFISH	3	704	704	100.00%	1	0	1	7	7	98.37
	RIVER CHUB	3	24,267	11,899	55.10%	19	8	2	247	121	98.37
	ROSYIDE DACE	3	58,344	49,097	68.70%	57	17	3	593	499	98.37
	SHIELD DARTER	3	4,222	2,438	33.30%	2	4	2	43	25	98.37
	TESSELLATED DARTER	3	36,473	32,593	27.00%	14	12	3	371	331	98.37
	WHITE SUCKER	3	10,555	3,656	40.00%	6	9	3	107	37	98.37
YELLOW BULLHEAD	3	704	704	100.00%	1	0	1	7	7	98.37	
Broad Creek	BANDED DARTER	3	39,726	46,810	18.30%	23	17	2	901	1,062	44.07

Appendix Table 4. PSU population estimates for fish species collected by the MBSS during 2007-2009

PSU Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Broad Creek	BLACKNOSE DACE	3	196,640	103,065	75.70%	472	105	3	4,462	2,339	44.07
	BLUEGILL	3	28,898	28,898	34.90%	32	19	1	656	656	44.07
	BLUNTNOSE MINNOW	3	32,833	32,833	23.00%	24	17	1	745	745	44.07
	BROWN BULLHEAD	3	315	315	0.00%	0	1	1	7	7	44.07
	BROWN TROUT	3	19,365	19,365	55.40%	34	14	1	439	439	44.07
	CENTRAL STONEROLLER	3	14,599	9,739	71.30%	33	8	2	331	221	44.07
	CHANNEL CATFISH	3	4,065	4,065	46.50%	6	3	1	92	92	44.07
	COMMON CARP	3	1,577	1,577	100.00%	5	0	1	36	36	44.07
	COMMON SHINER	3	4,405	4,938	28.60%	4	4	2	100	112	44.07
	CREEK CHUB	3	11,976	11,976	65.80%	25	8	1	272	272	44.07
	CUTLIP MINNOW	3	22,019	22,019	53.00%	37	16	1	500	500	44.07
	FALLFISH	3	946	546	33.30%	1	2	2	21	12	44.07
	GIZZARD SHAD	3	10,406	10,406	30.30%	10	23	1	236	236	44.07
	GOLDEN REDHORSE	3	315	315	0.00%	0	1	1	7	7	44.07
	GREEN SUNFISH	3	19,298	16,800	44.10%	27	34	2	438	381	44.07
	GREENSIDE DARTER	3	3,455	2,102	63.90%	7	2	2	78	48	44.07
	LARGEMOUTH BASS	3	2,733	2,733	57.70%	5	2	1	62	62	44.07
	LOGPERCH	3	62,686	53,190	23.60%	47	34	2	1,422	1,207	44.07
	LONGNOSE DACE	3	48,868	34,880	57.40%	89	36	2	1,109	791	44.07
	MARGINED MADTOM	3	8,264	8,874	38.20%	10	6	2	188	201	44.07
	NORTHERN HOGSUCKER	3	22,067	14,467	44.30%	31	12	2	501	328	44.07
	PUMPKINSEED	3	1,312	1,312	48.10%	2	1	1	30	30	44.07
	REDBREAST SUNFISH	3	631	631	100.00%	2	0	1	14	14	44.07
	RIVER CHUB	3	14,764	17,129	21.40%	10	10	2	335	389	44.07
	ROCK BASS	3	315	315	0.00%	0	1	1	7	7	44.07
ROSYFACE SHINER	3	946	946	100.00%	3	0	1	21	21	44.07	
ROSYSIDE DACE	3	68,418	68,418	60.40%	131	48	1	1,552	1,552	44.07	

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PSU Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Broad Creek	SHIELD DARTER	3	315	315	0.00%	0	1	1	7	7	44.07
	SMALLMOUTH BASS	3	12,366	11,937	28.10%	11	7	2	281	271	44.07
	SPOTFIN SHINER	3	18,282	13,746	69.00%	40	12	2	415	312	44.07
	TESSELLATED DARTER	3	68,510	36,223	51.10%	111	51	2	1,555	822	44.07
	WALLEYE	3	631	631	50.00%	1	1	1	14	14	44.07
	WHITE CATFISH	3	315	315	100.00%	1	0	1	7	7	44.07
	WHITE SUCKER	3	66,907	24,813	31.60%	67	33	2	1,518	563	44.07
	YELLOW BULLHEAD	3	1,261	834	50.00%	2	2	2	29	19	44.07
Bush River/Bynum Run	AMERICAN EEL	3	2,410	2,410	100.00%	5	0	1	36	36	67.39
	BANDED KILLIFISH	3	964	964	100.00%	2	0	1	14	14	67.39
	BLACKNOSE DACE	3	250,016	283,921	40.90%	212	80	2	3,710	4,213	67.39
	BLUE RIDGE SCULPIN	3	317,110	317,110	29.80%	196	125	1	4,706	4,706	67.39
	CREEK CHUB	3	32,704	31,265	66.30%	45	14	2	485	464	67.39
	CUTLIP MINNOW	3	482	482	0.00%	0	1	1	7	7	67.39
	EASTERN MUDMINNOW	3	1,928	1,928	25.00%	1	3	1	29	29	67.39
	LONGNOSE DACE	3	19,760	19,760	70.70%	29	8	1	293	293	67.39
	MUMMICHOG	3	964	964	50.00%	1	1	1	14	14	67.39
	ROSYIDE DACE	3	54,500	54,500	70.80%	80	22	1	809	809	67.39
	TESSELLATED DARTER	3	14,619	14,619	49.50%	15	7	1	217	217	67.39
	WHITE SUCKER	3	313,677	313,677	4.30%	28	26	1	4,655	4,655	67.39
Casselman River	BROOK TROUT	3	5,809	4,863	54.50%	5	2	2	66	55	88.49
	BROWN TROUT	3	1,899	1,899	100.00%	3	0	1	21	21	88.49
	CENTRAL STONEROLLER	3	17,724	17,724	100.00%	28	0	1	200	200	88.49
	CHAIN PICKEREL	3	2,907	2,907	65.30%	3	1	1	33	33	88.49
	COMMON SHINER	3	9,555	9,555	92.70%	14	1	1	108	108	88.49
	CREEK CHUB	3	483,567	416,876	82.70%	632	109	3	5,465	4,711	88.49
	JOHNNY DARTER	3	34,406	16,270	71.80%	39	9	2	389	184	88.49

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Casselman River	LONGNOSE DACE	3	9,507	5,898	79.90%	12	2	2	107	67	88.49
	MOTTLED SCULPIN	3	121,283	68,491	67.30%	129	38	3	1,371	774	88.49
	NORTHERN HOGSUCKER	3	3,798	3,798	100.00%	6	0	1	43	43	88.49
	ROCK BASS	3	1,266	1,266	50.00%	1	1	1	14	14	88.49
	WESTERN BLACKNOSE DACE	3	199,835	67,222	85.80%	271	38	3	2,258	760	88.49
	WHITE SUCKER	3	110,826	88,414	87.40%	153	19	2	1,252	999	88.49
	YELLOW BULLHEAD	3	633	633	0.00%	0	1	1	7	7	88.49
Catoctin Creek	AMERICAN EEL	3	5,478	5,478	65.30%	3	1	1	33	33	166.77
	BLACKNOSE DACE	3	880,261	705,545	81.20%	599	110	3	5,278	4,231	166.77
	BLUNTNOSE MINNOW	3	309,316	307,527	49.00%	127	59	2	1,855	1,844	166.77
	CENTRAL STONEROLLER	3	227,643	224,072	79.10%	151	30	2	1,365	1,344	166.77
	COMMON SHINER	3	170,050	170,050	68.10%	97	29	1	1,020	1,020	166.77
	CREEK CHUB	3	39,928	32,770	89.60%	30	3	3	239	196	166.77
	CUTLIP MINNOW	3	71,346	71,346	73.60%	44	11	1	428	428	166.77
	FALLFISH	3	29,385	29,385	85.30%	21	3	1	176	176	166.77
	FANTAIL DARTER	3	131,027	52,120	71.00%	78	22	3	786	313	166.77
	GREENSIDE DARTER	3	165,589	163,801	39.60%	55	30	2	993	982	166.77
	LONGNOSE DACE	3	111,810	52,177	52.30%	49	21	2	670	313	166.77
	MARGINED MADTOM	3	1,085,630	1,085,630	6.90%	63	56	1	6,510	6,510	166.77
	NORTHERN HOGSUCKER	3	25,924	25,924	46.00%	10	5	1	155	155	166.77
	RAINBOW DARTER	3	161,588	159,875	25.10%	34	23	2	969	959	166.77
	REDBREAST SUNFISH	3	70,276	70,276	61.10%	36	13	1	421	421	166.77
	RIVER CHUB	3	257,000	257,000	47.30%	102	49	1	1,541	1,541	166.77
	ROCK BASS	3	4,772	4,772	100.00%	4	0	1	29	29	166.77
ROSYFACE SHINER	3	157,723	157,723	65.00%	86	28	1	946	946	166.77	
ROSYSIDE DACE	3	34,597	34,597	100.00%	29	0	1	207	207	166.77	

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Catoctin Creek	SHIELD DARTER	3	1,193	1,193	0.00%	0	1	1	7	7	166.77
	SILVERJAW MINNOW	3	22,594	22,594	21.10%	4	3	1	135	135	166.77
	SMALLMOUTH BASS	3	49,284	49,284	38.70%	16	9	1	296	296	166.77
	SPOTFIN SHINER	3	95,214	95,214	57.60%	46	18	1	571	571	166.77
	SPOTTAIL SHINER	3	17,299	17,299	82.80%	12	2	1	104	104	166.77
	SWALLOWTAIL SHINER	3	186,200	186,200	73.00%	114	29	1	1,117	1,117	166.77
	TESSELLATED DARTER	3	3,579	3,579	33.30%	1	2	1	21	21	166.77
	YELLOW BULLHEAD	3	276,694	276,694	20.70%	48	35	1	1,659	1,659	166.77
Conewago Creek /Double Pipe Creek	BLACKNOSE DACE	2	905,774	757,440	79.70%	267	54	2	3,594	3,005	252.05
	BLUNTNOSE MINNOW	2	2,704	2,704	100.00%	1	0	1	11	11	252.05
	CREEK CHUB	2	192,314	192,314	75.90%	54	13	1	763	763	252.05
	GREEN SUNFISH	2	12,168	12,168	66.70%	3	1	1	48	48	252.05
Conococheague	BANDED KILLIFISH	2	29,024	29,024	82.40%	34	6	1	443	443	65.51
	BLACKNOSE DACE	2	53,658	32,460	64.20%	49	16	2	819	495	65.51
	BLUNTNOSE MINNOW	2	50,448	42,012	85.00%	61	9	2	770	641	65.51
	CREEK CHUB	2	12,900	4,113	87.20%	16	2	2	197	63	65.51
	FANTAIL DARTER	2	62,937	61,531	65.90%	59	20	2	961	939	65.51
	GREEN SUNFISH	2	1,406	1,406	50.00%	1	1	1	21	21	65.51
	GREENSIDE DARTER	2	703	703	100.00%	1	0	1	11	11	65.51
	LONGNOSE DACE	2	11,248	11,248	25.00%	4	3	1	172	172	65.51
	PEARL DACE	2	2,109	703	100.00%	3	0	2	32	11	65.51
	ROCK BASS	2	5,155	2,343	81.80%	6	1	2	79	36	65.51
	SMALLMOUTH BASS	2	703	703	100.00%	1	0	1	11	11	65.51
	WHITE SUCKER	2	5,062	5,062	83.30%	6	1	1	77	77	65.51
	YELLOW BULLHEAD	2	1,406	1,406	100.00%	2	0	1	21	21	65.51
Corsica River/ Southeast Creek	AMERICAN EEL	2	112,399	74,546	17.20%	25	16	2	1,561	1,035	72
	BLUEGILL	2	773	773	0.00%	0	1	1	11	11	72

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Corsica River/ Southeast Creek	CREEK CHUBSUCKER	2	18,926	18,926	28.60%	7	5	1	263	263	72
	EASTERN MOSQUITOFISH	2	3,090	3,090	50.00%	2	2	1	43	43	72
	EASTERN MUDMINNOW	2	439,663	153,617	21.10%	120	86	2	6,106	2,134	72
	FALLFISH	2	26,706	26,706	63.60%	22	8	1	371	371	72
	GOLDEN SHINER	2	13,905	12,360	38.90%	7	11	2	193	172	72
	GREEN SUNFISH	2	15,643	15,643	44.40%	9	5	1	217	217	72
	LEAST BROOK LAMPREY	2	4,120	4,120	75.00%	4	1	1	57	57	72
	MARGINED MADTOM	2	773	773	100.00%	1	0	1	11	11	72
	PIRATE PERCH	2	98,880	98,880	12.50%	16	14	1	1,373	1,373	72
	PUMPKINSEED	2	27,810	27,810	16.70%	6	5	1	386	386	72
	REDBREAST SUNFISH	2	4,828	4,828	80.00%	5	1	1	67	67	72
	REDFIN PICKEREL	2	4,828	4,828	80.00%	5	1	1	67	67	72
	ROSYSIDE DACE	2	773	773	0.00%	0	1	1	11	11	72
	TADPOLE MADTOM	2	9,270	9,270	25.00%	3	9	1	129	129	72
TESELLATED DARTER	2	59,725	55,090	69.80%	54	16	2	830	765	72	
Deer Creek	AMERICAN EEL	3	415,793	134,891	62.30%	186	63	3	2,136	693	194.63
	BLACKNOSE DACE	3	113,212	109,308	35.70%	29	18	2	582	562	194.63
	BLUE RIDGE SCULPIN	3	65,863	37,767	57.10%	27	11	3	338	194	194.63
	BLUEGILL	3	19,698	18,100	42.40%	6	4	2	101	93	194.63
	BROWN BULLHEAD	3	20,381	20,381	68.30%	10	3	1	105	105	194.63
	BROWN TROUT	3	4,176	4,176	100.00%	3	0	1	21	21	194.63
	COMMON SHINER	3	2,668,402	2,122,590	16.20%	310	164	2	13,710	10,906	194.63
	CREEK CHUB	3	88,608	112,696	26.70%	17	11	2	455	579	194.63
	CUTLIP MINNOW	3	330,588	90,075	49.70%	118	58	3	1,699	463	194.63
	FALLFISH	3	306,635	41,055	56.70%	125	46	3	1,575	211	194.63
	GREEN SUNFISH	3	1,392	1,392	100.00%	1	0	1	7	7	194.63
	LONGNOSE DACE	3	47,876	23,335	66.90%	23	6	2	246	120	194.63

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Deer Creek	MARGINED MADTOM	3	378,817	367,460	26.10%	71	57	3	1,946	1,888	194.63
	NORTHERN HOGSUCKER	3	147,895	63,579	36.70%	39	17	3	760	327	194.63
	PUMPKINSEED	3	12,528	8,693	44.40%	4	5	2	64	45	194.63
	RAINBOW TROUT	3	1,392	1,392	100.00%	1	0	1	7	7	194.63
	REDBREAST SUNFISH	3	201,884	120,433	24.10%	35	20	3	1,037	619	194.63
	RIVER CHUB	3	545,823	136,049	56.40%	221	84	3	2,804	699	194.63
	ROCK BASS	3	16,622	13,096	58.60%	7	3	2	85	67	194.63
	ROSYFACE SHINER	3	170,845	136,742	39.10%	48	37	3	878	703	194.63
	ROSYSIDE DACE	3	290,174	471,493	13.00%	27	25	2	1,491	2,423	194.63
	SATINFIN SHINER	3	29,065	29,065	28.70%	6	4	1	149	149	194.63
	SEA LAMPREY	3	76,560	50,247	25.50%	14	41	2	393	258	194.63
	SHIELD DARTER	3	29,464	8,593	47.20%	10	9	3	151	44	194.63
	SMALLMOUTH BASS	3	56,902	48,361	31.80%	13	5	2	292	248	194.63
	SPOTTAIL SHINER	3	100,312	100,312	41.60%	30	16	1	515	515	194.63
	SWALLOWTAIL SHINER	3	9,744	9,744	42.90%	3	4	1	50	50	194.63
TESSELLATED DARTER	3	273,312	215,989	21.90%	43	28	3	1,404	1,110	194.63	
WHITE SUCKER	3	212,307	142,838	70.20%	107	35	3	1,091	734	194.63	
Dividing Creek/ Nassawango Creek	AMERICAN EEL	2	104,446	104,446	66.20%	65	22	1	1,054	1,054	99.07
	BANDED SUNFISH	2	21,526	21,526	44.40%	9	5	1	217	217	99.07
	BLUESPOTTED SUNFISH	2	2,126	2,126	100.00%	2	0	1	21	21	99.07
	BROWN BULLHEAD	2	1,063	1,063	100.00%	1	0	1	11	11	99.07
	CHAIN PICKEREL	2	17,008	17,008	25.00%	4	3	1	172	172	99.07
	CREEK CHUBSUCKER	2	24,739	24,739	68.80%	16	5	1	250	250	99.07
	EASTERN MUDMINNOW	2	15,414	13,288	62.10%	9	4	2	156	134	99.07
	GOLDEN SHINER	2	46,772	46,772	47.70%	21	23	1	472	472	99.07
	LEAST BROOK LAMPREY	2	20,197	20,197	31.60%	6	13	1	204	204	99.07
	MARGINED MADTOM	2	25,725	25,725	45.50%	11	6	1	260	260	99.07

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Dividing Creek/ Nassawango Creek	PIRATE PERCH	2	25,601	25,601	70.60%	17	5	1	258	258	99.07
	PUMPKINSEED	2	6,378	6,378	50.00%	3	3	1	64	64	99.07
	REDBREAST SUNFISH	2	2,126	2,126	50.00%	1	1	1	21	21	99.07
	REDFIN PICKEREL	2	4,784	4,784	66.70%	3	1	1	48	48	99.07
	SWAMP DARTER	2	4,252	4,252	50.00%	2	1	1	43	43	99.07
	TADPOLE MADTOM	2	8,504	8,504	50.00%	4	4	1	86	86	99.07
	TESSELLATED DARTER	2	5,669	5,669	75.00%	4	1	1	57	57	99.07
	YELLOW PERCH	2	17,008	17,008	31.30%	5	11	1	172	172	99.07
Eastern Bay/Kent Narrows/ Lower Chester River/ Langford/Kent Island	AMERICAN EEL	3	35,295	15,536	46.00%	77	36	2	1,199	528	29.44
	BANDED KILLIFISH	3	211	211	100.00%	1	0	1	7	7	29.44
	BLACK CRAPPIE	3	9,082	9,082	27.80%	12	8	1	308	308	29.44
	BLUEGILL	3	284,221	124,933	63.20%	853	310	3	9,654	4,244	29.44
	BROWN BULLHEAD	3	54,306	62,792	29.90%	77	61	2	1,845	2,133	29.44
	CHANNEL CATFISH	3	421	421	100.00%	2	0	1	14	14	29.44
	CREEK CHUBSUCKER	3	5,724	2,754	69.90%	19	4	2	194	94	29.44
	EASTERN MOSQUITOFISH	3	5,021	6,439	25.20%	6	4	2	171	219	29.44
	EASTERN MUDMINNOW	3	68,813	19,771	36.40%	119	75	3	2,337	672	29.44
	FALLFISH	3	3,792	3,792	100.00%	18	0	1	129	129	29.44
	GOLDEN SHINER	3	102,151	95,338	80.20%	389	75	2	3,470	3,238	29.44
	GREEN SUNFISH	3	7,795	5,999	37.80%	14	23	2	265	204	29.44
	LARGEMOUTH BASS	3	30,943	16,590	64.00%	94	32	3	1,051	564	29.44
	LEAST BROOK LAMPREY	3	5,899	5,899	21.40%	6	22	1	200	200	29.44
	PUMPKINSEED	3	26,299	21,055	74.50%	93	22	2	893	715	29.44
	TESSELLATED DARTER	3	11,817	10,513	71.30%	40	11	2	401	357	29.44
	WHITE CATFISH	3	421	421	100.00%	2	0	1	14	14	29.44
	YELLOW PERCH	3	211	211	100.00%	1	0	1	7	7	29.44

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PSU Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Evitts Creek	BLACKNOSE DACE	3	106,234	9,883	88.90%	356	38	3	2,864	266	37.09
	CREEK CHUB	3	15,758	10,487	80.80%	48	9	2	425	283	37.09
Fifteen Mile Creek	BLACKNOSE DACE	3	193,148	110,192	89.70%	298	30	3	2,375	1,355	81.34
	CENTRAL STONEROLLER	3	1,745	1,745	33.30%	1	2	1	21	21	81.34
	CREEK CHUB	3	43,378	29,731	57.70%	43	14	2	533	366	81.34
	FANTAIL DARTER	3	30,236	26,686	84.60%	44	6	2	372	328	81.34
	GREEN SUNFISH	3	1,745	1,745	100.00%	3	0	1	21	21	81.34
	POTOMAC SCULPIN	3	152,027	82,104	59.30%	155	42	2	1,869	1,009	81.34
	TESSELLATED DARTER	3	3,141	3,141	74.10%	4	1	1	39	39	81.34
WHITE SUCKER	3	5,817	5,817	70.00%	7	2	1	72	72	81.34	
Fishing Bay /Transquaking River	AMERICAN EEL	3	76,816	63,547	39.90%	64	25	3	1,147	949	66.97
	BLUEGILL	3	8,338	7,630	86.20%	15	2	2	125	114	66.97
	BROWN BULLHEAD	3	5,451	3,446	70.30%	8	2	2	81	51	66.97
	CREEK CHUBSUCKER	3	3,114	3,454	46.20%	3	1	2	46	52	66.97
	EASTERN MUDMINNOW	3	104,479	65,999	49.10%	107	50	3	1,560	986	66.97
	LEAST BROOK LAMPREY	3	11,975	11,975	40.00%	10	15	1	179	179	66.97
	PIRATE PERCH	3	19,871	11,989	41.00%	17	9	3	297	179	66.97
	PUMPKINSEED	3	479	479	0.00%	0	1	1	7	7	66.97
	REDFIN PICKEREL	3	24,944	13,126	34.60%	18	11	3	372	196	66.97
	SWAMP DARTER	3	479	479	0.00%	0	1	1	7	7	66.97
TADPOLE MADTOM	3	479	479	0.00%	0	1	1	7	7	66.97	
Georges Creek	BLACKNOSE DACE	3	2,385	2,385	100.00%	4	0	1	29	29	83.35
	BLUEGILL	3	596	596	100.00%	1	0	1	7	7	83.35
	CREEK CHUB	3	33,770	33,770	49.40%	28	13	1	405	405	83.35
Gilbert Swamp	AMERICAN EEL	2	39,805	39,805	83.00%	53	9	1	685	685	58.1
	BANDED KILLIFISH	2	2,494	2,494	50.00%	2	1	1	43	43	58.1
	BLACKNOSE DACE	2	13,094	9,353	33.30%	7	6	2	225	161	58.1

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Gilbert Swamp	BLUEGILL	2	3,741	1,247	66.70%	4	1	2	64	21	58.1
	EASTERN MUDMINNOW	2	15,276	15,276	85.70%	21	3	1	263	263	58.1
	LARGEMOUTH BASS	2	1,247	1,247	100.00%	2	0	1	21	21	58.1
	LEAST BROOK LAMPREY	2	1,247	1,247	50.00%	1	1	1	21	21	58.1
	MARGINED MADTOM	2	1,247	1,247	100.00%	2	0	1	21	21	58.1
	PUMPKINSEED	2	5,612	5,612	33.30%	3	2	1	97	97	58.1
	SWALLOWTAIL SHINER	2	7,482	7,482	50.00%	6	6	1	129	129	58.1
	TESSELLATED DARTER	2	81,055	69,832	10.80%	14	12	2	1,395	1,202	58.1
	YELLOW BULLHEAD	2	624	624	0.00%	0	1	1	11	11	58.1
Gunpowder River/Lower Gunpowder Falls/ Bird River/ Middle River-Browns	AMERICAN EEL	3	121,337	146,335	7.50%	15	11	3	1,438	1,734	84.37
	BLACKNOSE DACE	3	258,135	185,443	45.80%	196	103	3	3,060	2,198	84.37
	BROWN TROUT	3	3,017	3,017	100.00%	5	0	1	36	36	84.37
	CREEK CHUB	3	678,989	903,242	5.10%	57	49	3	8,048	10,706	84.37
	CUTLIP MINNOW	3	7,240	7,240	41.70%	5	7	1	86	86	84.37
	LARGEMOUTH BASS	3	1,207	1,207	100.00%	2	0	1	14	14	84.37
	LONGNOSE DACE	3	19,700	16,653	64.30%	21	5	2	233	197	84.37
	ROSYSIDE DACE	3	92,372	91,467	43.10%	66	34	2	1,095	1,084	84.37
	TESSELLATED DARTER	3	24,160	28,719	30.00%	12	7	2	286	340	84.37
	WHITE SUCKER	3	7,068	7,068	76.80%	9	2	1	84	84	84.37
Gwynns Falls	AMERICAN EEL	2	2,165	2,165	100.00%	3	0	1	32	32	67.26
	BLACKNOSE DACE	2	218,366	216,923	53.90%	163	75	2	3,246	3,225	67.26
	BLUEGILL	2	1,443	1,443	100.00%	2	0	1	21	21	67.26
	BROWN TROUT	2	2,165	2,165	100.00%	3	0	1	32	32	67.26
	CENTRAL STONEROLLER	2	27,417	18,759	71.10%	27	9	2	408	279	67.26
	CREEK CHUB	2	56,542	56,542	93.20%	73	5	1	841	841	67.26

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Gwynns Falls	CUTLIP MINNOW	2	6,597	6,597	87.50%	8	1	1	98	98	67.26
	GREEN SUNFISH	2	1,443	1,443	100.00%	2	0	1	21	21	67.26
	LONGNOSE DACE	2	174,044	137,969	40.60%	98	57	2	2,587	2,051	67.26
	MARGINED MADTOM	2	2,886	2,886	50.00%	2	1	1	43	43	67.26
	NORTHERN HOGSUCKER	2	1,443	1,443	50.00%	1	1	1	21	21	67.26
	ORIENTAL WEATHERFISH	2	722	722	0.00%	0	1	1	11	11	67.26
	PUMPKINSEED	2	1,443	1,443	100.00%	2	0	1	21	21	67.26
	REDBREAST SUNFISH	2	26,786	25,343	48.50%	18	9	2	398	377	67.26
	ROCK BASS	2	8,349	8,349	77.80%	9	2	1	124	124	67.26
	ROSYIDE DACE	2	66,705	66,705	75.70%	70	17	1	992	992	67.26
	SATINFIN SHINER	2	61,300	61,300	55.30%	47	21	1	911	911	67.26
	SMALLMOUTH BASS	2	2,886	2,886	50.00%	2	1	1	43	43	67.26
	SWALLOWTAIL SHINER	2	4,509	4,509	80.00%	5	1	1	67	67	67.26
TESSELLATED DARTER	2	75,397	16,955	24.90%	26	17	2	1,121	252	67.26	
Honga River/ Little Choptank/ Lower Choptank	AMERICAN EEL	2	806	806	100.00%	1	0	1	11	11	75.14
	BLUEGILL	2	3,224	3,224	50.00%	2	2	1	43	43	75.14
	EASTERN MUDMINNOW	2	53,196	49,972	27.30%	18	12	2	708	665	75.14
	GREEN SUNFISH	2	4,836	4,836	50.00%	3	3	1	64	64	75.14
Jones Falls	BLACKNOSE DACE	3	234,731	47,891	51.30%	279	99	3	3,891	794	60.33
	CREEK CHUB	3	124,061	25,204	67.20%	193	53	3	2,056	418	60.33
	ROSYIDE DACE	3	1,295	1,295	33.30%	1	2	1	21	21	60.33
Liberty Reservoir	BLACKNOSE DACE	3	1,270,347	878,431	51.80%	500	240	3	6,904	4,774	184
	BLUE RIDGE SCULPIN	3	2,206,618	960,765	54.40%	912	413	3	11,992	5,222	184
	BLUEGILL	3	1,316	1,316	0.00%	0	1	1	7	7	184
	BLUNTNOSE MINNOW	3	219,703	219,703	82.70%	138	23	1	1,194	1,194	184
	BROWN TROUT	3	1,316	1,316	100.00%	1	0	1	7	7	184

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Liberty Reservoir	CENTRAL STONEROLLER	3	151,071	73,929	61.80%	71	26	2	821	402	184
	COMMON SHINER	3	62,533	62,533	90.50%	43	4	1	340	340	184
	CREEK CHUB	3	349,866	278,273	65.80%	175	57	3	1,901	1,512	184
	CUTLIP MINNOW	3	165,014	85,780	69.40%	87	25	2	897	466	184
	GREEN SUNFISH	3	1,316	1,316	100.00%	1	0	1	7	7	184
	LONGNOSE DACE	3	270,399	143,669	73.00%	150	39	2	1,470	781	184
	NORTHERN HOGSUCKER	3	74,789	74,789	47.50%	27	13	1	406	406	184
	PUMPKINSEED	3	6,580	6,580	100.00%	5	0	1	36	36	184
	RIVER CHUB	3	52,374	52,374	57.80%	23	9	1	285	285	184
	ROSYIDE DACE	3	761,499	430,238	70.70%	409	116	2	4,139	2,338	184
	TESSELLATED DARTER	3	112,953	81,745	32.60%	28	15	2	614	444	184
WHITE SUCKER	3	476,560	199,826	31.80%	115	67	2	2,590	1,086	184	
Little Conococheague/ Licking Creek	BLACKNOSE DACE	2	37,999	13,395	85.10%	61	9	2	769	271	49.41
	BLUE RIDGE SCULPIN	2	30,910	30,910	92.60%	54	4	1	626	626	49.41
	BLUEGILL	2	10,070	530	47.40%	9	10	2	204	11	49.41
	BLUNTNOSSE MINNOW	2	114,243	89,302	91.90%	198	16	2	2,312	1,807	49.41
	CENTRAL STONEROLLER	2	17,667	17,667	90.00%	30	3	1	358	358	49.41
	CREEK CHUB	2	36,982	25,322	40.10%	28	20	2	748	512	49.41
	CUTLIP MINNOW	2	1,060	1,060	100.00%	2	0	1	21	21	49.41
	FALLFISH	2	530	530	100.00%	1	0	1	11	11	49.41
	FANTAIL DARTER	2	71,009	71,009	85.10%	114	17	1	1,437	1,437	49.41
	GOLDEN SHINER	2	8,480	8,480	75.00%	12	3	1	172	172	49.41
	GREEN SUNFISH	2	53,000	53,000	50.00%	50	25	1	1,073	1,073	49.41
	GREENSIDE DARTER	2	2,650	2,650	100.00%	5	0	1	54	54	49.41
	LARGEMOUTH BASS	2	2,650	530	100.00%	5	0	2	54	11	49.41
	LONGNOSE DACE	2	3,180	3,180	100.00%	6	0	1	64	64	49.41

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Little Conococheague/ Licking Creek	NORTHERN HOGSUCKER	2	16,978	16,978	96.80%	31	1	1	344	344	49.41
	POTOMAC SCULPIN	2	1,060	1,060	50.00%	1	1	1	21	21	49.41
	PUMPKINSEED	2	1,590	1,590	100.00%	3	0	1	32	32	49.41
	REDBREAST SUNFISH	2	4,417	4,417	60.00%	5	2	1	89	89	49.41
	ROCK BASS	2	11,660	11,660	45.50%	10	12	1	236	236	49.41
	SMALLMOUTH BASS	2	2,120	2,120	100.00%	4	0	1	43	43	49.41
	WHITE SUCKER	2	47,665	17,514	80.10%	72	12	2	965	354	49.41
YELLOW BULLHEAD	2	2,120	2,120	50.00%	2	2	1	43	43	49.41	
Little Gunpowder Falls	AMERICAN EEL	3	13,476	6,678	73.80%	19	4	3	184	91	73.22
	BLACKNOSE DACE	3	536,353	186,494	66.00%	676	224	3	7,325	2,547	73.22
	COMMON SHINER	3	524	524	0.00%	0	1	1	7	7	73.22
	CREEK CHUB	3	250,971	89,545	67.40%	323	104	3	3,428	1,223	73.22
	CUTLIP MINNOW	3	28,992	24,795	34.30%	19	11	2	396	339	73.22
	LARGEMOUTH BASS	3	524	524	0.00%	0	1	1	7	7	73.22
	LONGNOSE DACE	3	11,901	9,646	61.60%	14	5	2	163	132	73.22
	RIVER CHUB	3	524	524	100.00%	1	0	1	7	7	73.22
	ROSYIDE DACE	3	351,870	5,562	60.00%	403	153	3	4,806	76	73.22
	SEA LAMPREY	3	14,139	14,139	29.60%	8	19	1	193	193	73.22
	SWALLOWTAIL SHINER	3	3,142	1,571	100.00%	6	0	2	43	21	73.22
	TESSELLATED DARTER	3	131,182	31,815	20.40%	51	37	2	1,792	435	73.22
WHITE SUCKER	3	77,647	2,279	64.10%	95	33	3	1,060	31	73.22	
Little Patuxent River	AMERICAN EEL	3	27,414	19,542	58.60%	15	5	2	183	130	149.78
	BLACKNOSE DACE	3	115,180	115,180	77.20%	83	18	1	769	769	149.78
	BLUEGILL	3	4,285	4,285	100.00%	4	0	1	29	29	149.78
	BROWN BULLHEAD	3	1,071	1,071	0.00%	0	1	1	7	7	149.78
	CREEK CHUB	3	14,880	14,880	36.00%	5	3	1	99	99	149.78
	CREEK CHUBSUCKER	3	7,499	7,499	42.90%	3	4	1	50	50	149.78

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Little Patuxent River	CUTLIP MINNOW	3	18,440	18,440	52.30%	9	4	1	123	123	149.78
	EASTERN MUDMINNOW	3	3,214	3,214	33.30%	1	2	1	21	21	149.78
	FALLFISH	3	21,601	26,929	24.80%	5	4	2	144	180	149.78
	GREEN SUNFISH	3	6,428	6,428	33.30%	2	4	1	43	43	149.78
	LEPOMIS HYBRID	3	1,071	1,071	100.00%	1	0	1	7	7	149.78
	LONGNOSE DACE	3	26,783	25,193	48.00%	12	13	2	179	168	149.78
	MARGINED MADTOM	3	2,143	2,143	100.00%	2	0	1	14	14	149.78
	PUMPKINSEED	3	1,071	1,071	0.00%	0	1	1	7	7	149.78
	REDBREAST SUNFISH	3	40,703	35,215	73.70%	28	4	2	272	235	149.78
	RIVER CHUB	3	5,357	5,357	100.00%	5	0	1	36	36	149.78
	ROSYSIDE DACE	3	283,797	283,797	69.10%	183	53	1	1,895	1,895	149.78
	SATINFIN SHINER	3	4,919	4,919	65.30%	3	1	1	33	33	149.78
	SWALLOWTAIL SHINER	3	51,402	51,402	47.90%	23	11	1	343	343	149.78
	TESSELLATED DARTER	3	190,536	184,331	40.50%	72	41	2	1,272	1,231	149.78
WHITE SUCKER	3	140,405	170,376	25.90%	34	28	2	937	1,138	149.78	
Little Youghiogheny/ Deep Creek Lake	BLACKNOSE DACE	3	1,156	1,156	100.00%	2	0	1	14	14	80.82
	BROWN BULLHEAD	3	578	578	100.00%	1	0	1	7	7	80.82
	CREEK CHUB	3	11,741	11,741	88.60%	18	2	1	145	145	80.82
	GOLDEN SHINER	3	25,449	25,449	56.80%	25	10	1	315	315	80.82
	LARGEMOUTH BASS	3	578	578	100.00%	1	0	1	7	7	80.82
	PUMPKINSEED	3	3,468	3,468	100.00%	6	0	1	43	43	80.82
	WHITE SUCKER	3	1,734	1,734	100.00%	3	0	1	21	21	80.82
Loch Raven Reservoir	AMERICAN EEL	2	32,431	32,431	80.00%	10	2	1	134	134	241.82
	BLACKNOSE DACE	2	385,151	379,962	57.90%	86	36	2	1,593	1,571	241.82
	BLUE RIDGE SCULPIN	2	1,744,266	207,015	43.40%	292	137	2	7,213	856	241.82
	BLUEGILL	2	48,702	11,342	79.90%	15	3	2	201	47	241.82
	BLUNTNOSTE MINNOW	2	77,835	77,835	40.00%	12	18	1	322	322	241.82

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Loch Raven Reservoir	BROWN BULLHEAD	2	16,216	16,216	80.00%	5	1	1	67	67	241.82
	BROWN TROUT	2	544,928	410,319	74.30%	156	40	2	2,253	1,697	241.82
	CENTRAL STONEROLLER	2	116,925	116,925	57.70%	26	11	1	484	484	241.82
	COMMON SHINER	2	381,392	381,392	14.30%	21	18	1	1,577	1,577	241.82
	CREEK CHUB	2	23,351	18,162	22.20%	2	7	2	97	75	241.82
	CUTLIP MINNOW	2	119,652	119,652	60.70%	28	11	1	495	495	241.82
	FALLFISH	2	139,830	139,830	59.40%	32	13	1	578	578	241.82
	LARGEMOUTH BASS	2	2,595	2,595	0.00%	0	1	1	11	11	241.82
	LONGNOSE DACE	2	535,606	535,606	44.60%	92	51	1	2,215	2,215	241.82
	MARGINED MADTOM	2	18,162	18,162	42.90%	3	4	1	75	75	241.82
	NORTHERN HOGSUCKER	2	20,756	20,756	50.00%	4	4	1	86	86	241.82
	REDBREAST SUNFISH	2	2,595	2,595	100.00%	1	0	1	11	11	241.82
	RIVER CHUB	2	227,825	227,825	64.90%	57	20	1	942	942	241.82
	ROSYDICE DACE	2	345,933	345,933	15.00%	20	17	1	1,431	1,431	241.82
	SHIELD DARTER	2	7,784	7,784	33.30%	1	2	1	32	32	241.82
	SMALLMOUTH BASS	2	21,621	21,621	60.00%	5	2	1	89	89	241.82
TESSELLATED DARTER	2	70,052	70,052	48.10%	13	14	1	290	290	241.82	
WHITE SUCKER	2	292,400	82,246	49.70%	56	28	2	1,209	340	241.82	
Lower Elk River/ Bohemia River/ Upper Elk River/ Back Creek/Little Elk Creek	AMERICAN EEL	3	132,881	67,189	50.90%	72	32	2	1,012	512	131.28
	BANDED KILLIFISH	3	939	939	100.00%	1	0	1	7	7	131.28
	BANDED SUNFISH	3	2,817	2,817	0.00%	0	3	1	21	21	131.28
	BLACKNOSE DACE	3	12,207	9,530	30.80%	4	9	2	93	73	131.28
	BLUE RIDGE SCULPIN	3	931,757	368,923	30.60%	304	196	2	7,097	2,810	131.28
	BLUEGILL	3	1,878	1,878	50.00%	1	1	1	14	14	131.28
	COMMON SHINER	3	176,196	112,861	87.40%	164	18	2	1,342	860	131.28

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PSU Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Lower Elk River/ Bohemia River/ Upper Elk River/ Back Creek/Little Elk Creek	CREEK CHUB	3	7,512	7,512	100.00%	8	0	1	57	57	131.28
	CUTLIP MINNOW	3	25,614	24,206	44.00%	12	6	2	195	184	131.28
	LARGEMOUTH BASS	3	1,878	1,878	50.00%	1	1	1	14	14	131.28
	LEAST BROOK LAMPREY	3	1,878	1,878	0.00%	0	2	1	14	14	131.28
	LONGNOSE DACE	3	812,868	797,892	11.80%	102	73	2	6,192	6,078	131.28
	MARGINED MADTOM	3	289,884	313,895	10.00%	31	23	2	2,208	2,391	131.28
	NORTHERN HOGSUCKER	3	43,194	22,556	45.70%	21	25	2	329	172	131.28
	REDBREAST SUNFISH	3	173,490	160,161	10.80%	20	16	2	1,322	1,220	131.28
	REDFIN PICKEREL	3	939	939	100.00%	1	0	1	7	7	131.28
	RIVER CHUB	3	137,018	69,585	52.10%	76	33	2	1,044	530	131.28
	ROSYFACE SHINER	3	55,871	85,015	16.80%	10	9	2	426	648	131.28
	ROSYSIDE DACE	3	1,878	1,878	100.00%	2	0	1	14	14	131.28
	SATINFIN SHINER	3	152,916	110,202	42.40%	69	37	2	1,165	839	131.28
	SEA LAMPREY	3	36,519	25,094	59.10%	23	9	2	278	191	131.28
	SMALLMOUTH BASS	3	26,292	19,674	42.90%	12	16	2	200	150	131.28
	SPOTTAIL SHINER	3	544,838	611,905	35.30%	205	94	2	4,150	4,661	131.28
	SWALLOWTAIL SHINER	3	94,684	90,508	55.50%	56	25	2	721	689	131.28
TESSELLATED DARTER	3	4,053,812	7,441,144	1.70%	72	71	2	30,879	56,681	131.28	
WHITE SUCKER	3	368,447	199,945	35.90%	141	83	2	2,807	1,523	131.28	
Lower Monocacy River	AMERICAN EEL	3	3,251	3,251	100.00%	1	0	1	7	7	454.57
	BLACKNOSE DACE	3	6,253,154	3,307,601	74.30%	1429	344	3	13,756	7,276	454.57
	BLUE RIDGE SCULPIN	3	2,969,596	1,575,379	57.80%	528	208	3	6,533	3,466	454.57
	BLUEGILL	3	6,503	6,503	50.00%	1	1	1	14	14	454.57
	BLUNTNOSE MINNOW	3	2,730,231	2,730,231	63.80%	536	180	1	6,006	6,006	454.57
	CENTRAL STONEROLLER	3	546,996	298,468	86.80%	146	19	2	1,203	657	454.57
	COMELY SHINER	3	22,759	22,759	42.90%	3	4	1	50	50	454.57

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Lower Monocacy River	COMMON SHINER	3	130,125	125,249	47.50%	19	9	2	286	276	454.57
	CREEK CHUB	3	26,011	21,320	50.00%	4	4	2	57	47	454.57
	FANTAIL DARTER	3	1,295,272	706,782	56.20%	224	84	2	2,849	1,555	454.57
	GREEN SUNFISH	3	32,513	32,513	70.00%	7	2	1	72	72	454.57
	GREENSIDE DARTER	3	198,034	198,034	83.70%	51	8	1	436	436	454.57
	LONGNOSE DACE	3	571,254	478,639	64.90%	114	37	2	1,257	1,053	454.57
	NORTHERN HOGSUCKER	3	47,619	33,959	81.90%	12	2	2	105	75	454.57
	POTOMAC SCULPIN	3	322,879	164,124	67.50%	67	21	2	710	361	454.57
	ROCK BASS	3	16,257	16,257	20.00%	1	4	1	36	36	454.57
	ROSYIDE DACE	3	628,854	448,876	91.00%	176	15	2	1,383	987	454.57
	SILVERJAW MINNOW	3	112,834	112,834	51.90%	18	8	1	248	248	454.57
	TESSELLATED DARTER	3	45,157	45,157	36.00%	5	3	1	99	99	454.57
	WHITE SUCKER	3	104,343	43,774	96.60%	31	1	3	230	96	454.57
	BLUEGILL	3	3,199	3,199	79.30%	5	1	1	45	45	70.97
	BROWN BULLHEAD	3	508	508	0.00%	0	1	1	7	7	70.97
	EASTERN MUDMINNOW	3	16,345	17,725	43.50%	14	5	3	230	250	70.97
	GOLDEN SHINER	3	21,195	13,596	35.90%	15	10	3	299	192	70.97
	GREEN SUNFISH	3	1,015	1,015	0.00%	0	2	1	14	14	70.97
	PUMPKINSEED	3	2,031	1,015	50.00%	2	2	2	29	14	70.97
	REDFIN PICKEREL	3	21,494	11,566	73.20%	31	8	3	303	163	70.97
Lower Susquehanna River/Octoraro Creek/Conowingo Dam Susquehanna River	AMERICAN EEL	3	37,692	20,858	75.10%	46	11	3	438	243	85.99
	BLACKNOSE DACE	3	217,256	97,430	46.70%	165	70	3	2,527	1,133	85.99
	BROWN TROUT	3	615	615	0.00%	0	1	1	7	7	85.99
	COMMON SHINER	3	2,460	2,460	100.00%	4	0	1	29	29	85.99
	CREEK CHUB	3	41,368	13,007	58.00%	39	16	3	481	151	85.99
	CUTLIP MINNOW	3	17,220	17,220	42.90%	12	16	1	200	200	85.99

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Lower Susquehanna River/Octoraro Creek/Conowingo Dam Susquehanna River	LONGNOSE DACE	3	13,886	13,886	75.30%	17	4	1	161	161	85.99
	MARGINED MADTOM	3	1,845	1,845	100.00%	3	0	1	21	21	85.99
	PUMPKINSEED	3	2,460	2,460	50.00%	2	2	1	29	29	85.99
	ROSYIDE DACE	3	161,289	37,947	62.50%	164	60	3	1,876	441	85.99
	SEA LAMPREY	3	8,610	8,610	28.60%	4	10	1	100	100	85.99
	SWALLOWTAIL SHINER	3	71,955	71,955	7.70%	9	8	1	837	837	85.99
	TESSELLATED DARTER	3	990,823	1,043,777	6.50%	104	91	3	11,523	12,139	85.99
	WHITE SUCKER	3	48,585	48,585	49.40%	39	40	1	565	565	85.99
Lower Wicomico/Monie Bay/Wicomico Creek/Wicomico River Head	BLUEGILL	2	12,747	12,747	46.20%	6	7	1	139	139	91.4
	CHAIN PICKEREL	2	1,961	1,961	0.00%	0	2	1	21	21	91.4
	EASTERN MOSQUITOFISH	2	981	981	0.00%	0	1	1	11	11	91.4
	EASTERN MUDMINNOW	2	105,515	65,805	37.20%	40	25	2	1,154	720	91.4
	PUMPKINSEED	2	8,007	8,007	85.70%	7	1	1	88	88	91.4
	REDFIN PICKEREL	2	63,733	61,772	12.30%	8	8	2	697	676	91.4
Lower Winters Run/Atkisson Reservoir	BLACKNOSE DACE	3	160,297	58,599	76.90%	228	51	3	2,121	775	75.58
	BLUE RIDGE SCULPIN	3	778,569	458,017	34.70%	500	307	3	10,302	6,060	75.58
	BLUEGILL	3	1,622	1,622	100.00%	3	0	1	21	21	75.58
	BLUNTNOSE MINNOW	3	175,391	76,010	51.50%	167	74	2	2,321	1,006	75.58
	COMMON SHINER	3	117,866	101,877	78.40%	171	35	3	1,560	1,348	75.58
	CREEK CHUB	3	108,850	13,362	78.50%	158	34	3	1,440	177	75.58
	CUTLIP MINNOW	3	34,324	34,324	67.70%	43	13	1	454	454	75.58
	FALLFISH	3	163,228	129,739	60.30%	182	67	3	2,160	1,717	75.58
	LONGNOSE DACE	3	73,631	33,864	56.50%	77	32	3	974	448	75.58
	MARGINED MADTOM	3	2,249	2,249	48.10%	2	1	1	30	30	75.58
	NORTHERN HOGSUCKER	3	34,324	34,324	67.70%	43	13	1	454	454	75.58

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Lower Winters Run/Atkisson Reservoir	RIVER CHUB	3	57,085	55,472	81.50%	86	16	2	755	734	75.58
	ROSYFACE SHINER	3	9,925	9,925	87.20%	16	2	1	131	131	75.58
	ROSYSIDE DACE	3	125,203	15,319	80.30%	186	36	3	1,657	203	75.58
	SATINFIN SHINER	3	1,622	1,622	100.00%	3	0	1	21	21	75.58
	SMALLMOUTH BASS	3	5,407	5,407	30.00%	3	2	1	72	72	75.58
	SWALLOWTAIL SHINER	3	22,336	22,336	38.70%	16	9	1	296	296	75.58
	TESSELLATED DARTER	3	61,616	44,137	30.70%	35	22	2	815	584	75.58
Magothy/Severn River	WHITE SUCKER	3	141,477	73,558	76.40%	200	45	3	1,872	973	75.58
	AMERICAN EEL	3	63,612	30,598	49.70%	58	25	3	835	402	76.2
	BLACKNOSE DACE	3	59,100	59,100	41.50%	45	24	1	776	776	76.2
	BLUEGILL	3	30,225	14,056	57.70%	32	13	2	397	184	76.2
	BROWN BULLHEAD	3	1,635	944	0.00%	0	3	2	21	12	76.2
	EASTERN MOSQUITOFISH	3	17,782	17,782	64.40%	21	7	1	233	233	76.2
	EASTERN MUDMINNOW	3	9,793	6,579	27.80%	5	7	2	129	86	76.2
	GOLDEN SHINER	3	2,725	2,725	20.00%	1	4	1	36	36	76.2
	LARGEMOUTH BASS	3	2,180	2,180	50.00%	2	2	1	29	29	76.2
	PUMPKINSEED	3	49,459	82,985	9.90%	9	8	2	649	1,089	76.2
	RAINBOW TROUT	3	545	545	100.00%	1	0	1	7	7	76.2
	SPOTTAIL SHINER	3	10,322	10,322	21.10%	4	3	1	135	135	76.2
	SWALLOWTAIL SHINER	3	10,355	10,355	47.40%	9	10	1	136	136	76.2
	TESSELLATED DARTER	3	107,827	106,463	16.70%	33	24	2	1,415	1,397	76.2
WHITE SUCKER	3	75,139	75,139	14.50%	20	16	1	986	986	76.2	
Marshyhope Creek	AMERICAN EEL	2	147,169	144,433	68.80%	74	23	2	1,154	1,133	127.51
	BLUE RIDGE SCULPIN	2	20,691	20,691	72.70%	11	3	1	162	162	127.51
	BLUEGILL	2	18,240	4,560	75.00%	10	2	2	143	36	127.51
	BLUESPOTTED SUNFISH	2	434,811	401,979	73.00%	232	62	2	3,410	3,153	127.51
	BROWN BULLHEAD	2	61,295	53,087	87.00%	39	5	2	481	416	127.51

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Marshyhope Creek	CHAIN PICKEREL	2	5,472	5,472	50.00%	2	2	1	43	43	127.51
	CREEK CHUBSUCKER	2	15,243	9,771	71.80%	8	3	2	120	77	127.51
	EASTERN MUDMINNOW	2	377,955	328,707	41.60%	115	67	2	2,964	2,578	127.51
	GOLDEN SHINER	2	102,144	102,144	75.00%	56	14	1	801	801	127.51
	LARGEMOUTH BASS	2	7,296	7,296	75.00%	4	1	1	57	57	127.51
	LEAST BROOK LAMPREY	2	2,736	2,736	100.00%	2	0	1	21	21	127.51
	MARGINED MADTOM	2	17,784	15,048	53.80%	7	3	2	139	118	127.51
	PIRATE PERCH	2	49,248	49,248	16.70%	6	5	1	386	386	127.51
	PUMPKINSEED	2	28,142	15,830	87.50%	18	2	2	221	124	127.51
	REDBREAST SUNFISH	2	130,084	124,612	35.80%	34	21	2	1,020	977	127.51
	REDFIN PICKEREL	2	11,218	8,482	85.40%	7	1	2	88	67	127.51
	SEA LAMPREY	2	4,104	4,104	100.00%	3	0	1	32	32	127.51
	TESSELLATED DARTER	2	15,200	15,200	90.00%	10	1	1	119	119	127.51
	YELLOW BULLHEAD	2	29,070	26,334	47.10%	10	5	2	228	207	127.51
	AMERICAN EEL	2	19,909	12,076	65.60%	10	3	2	164	99	121.7
	BLACKNOSE DACE	2	52,566	52,566	91.90%	37	3	1	432	432	121.7
	BLUEGILL	2	160,141	160,141	75.00%	92	23	1	1,316	1,316	121.7
	BLUESPOTTED SUNFISH	2	20,057	20,057	84.60%	13	2	1	165	165	121.7
	CREEK CHUB	2	45,861	45,861	93.90%	33	2	1	377	377	121.7
	CREEK CHUBSUCKER	2	7,833	0	100.00%	6	0	2	64	0	121.7
	EASTERN MOSQUITOFISH	2	11,750	11,750	33.30%	3	2	1	97	97	121.7
	EASTERN MUDMINNOW	2	34,596	29,374	86.80%	23	3	2	284	241	121.7
	FALLFISH	2	6,528	1,306	100.00%	5	0	2	54	11	121.7
	GREEN SUNFISH	2	5,222	2,611	50.00%	2	2	2	43	21	121.7
	LARGEMOUTH BASS	2	2,611	0	100.00%	2	0	2	21	0	121.7
	LEAST BROOK LAMPREY	2	62,664	62,664	50.00%	24	12	1	515	515	121.7
PUMPKINSEED	2	2,611	2,611	50.00%	1	1	1	21	21	121.7	

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	ROYSIDE DACE	2	60,960	60,960	87.80%	41	5	1	501	501	121.7
	TESSELLATED DARTER	2	8,159	8,159	80.00%	5	1	1	67	67	121.7
	YELLOW BULLHEAD	2	1,306	1,306	100.00%	1	0	1	11	11	121.7
Middle Chester River	AMERICAN EEL	3	29,869	31,578	16.20%	15	12	3	664	702	44.99
	BLUEGILL	3	5,825	5,349	77.30%	14	3	2	129	119	44.99
	CREEK CHUBSUCKER	3	2,073	143	46.60%	3	2	3	46	3	44.99
	EASTERN MOSQUITOFISH	3	251,233	410,984	5.00%	39	38	3	5,584	9,135	44.99
	EASTERN MUDMINNOW	3	44,149	28,437	48.80%	67	34	3	981	632	44.99
	GOLDEN SHINER	3	322	322	100.00%	1	0	1	7	7	44.99
	LEPOMIS HYBRID	3	322	322	100.00%	1	0	1	7	7	44.99
	PUMPKINSEED	3	25,154	13,387	38.40%	30	13	3	559	298	44.99
	REDBREAST SUNFISH	3	2,975	2,975	64.90%	6	2	1	66	66	44.99
	SATINFIN SHINER	3	116,157	116,157	4.20%	15	14	1	2,582	2,582	44.99
	SWALLOWTAIL SHINER	3	322	322	0.00%	0	1	1	7	7	44.99
	TADPOLE MADTOM	3	7,238	2,786	40.00%	9	11	2	161	62	44.99
	TESSELLATED DARTER	3	25,147	20,161	20.50%	16	11	3	559	448	44.99
Middle Patuxent River	AMERICAN EEL	2	19,711	19,711	78.90%	19	4	1	258	258	76.32
	BLACKNOSE DACE	2	102,666	24,042	66.20%	83	26	2	1,345	315	76.32
	BLUEGILL	2	29,093	9,028	64.70%	23	8	2	381	118	76.32
	BROWN TROUT	2	1,638	1,638	100.00%	2	0	1	21	21	76.32
	COMMON SHINER	2	72,367	72,367	53.20%	47	22	1	948	948	76.32
	CREEK CHUB	2	14,859	117	60.60%	11	3	2	195	2	76.32
	CUTLIP MINNOW	2	14,742	14,742	33.30%	6	4	1	193	193	76.32
	FALLFISH	2	398,125	398,125	36.00%	175	112	1	5,217	5,217	76.32
	LARGEMOUTH BASS	2	819	819	100.00%	1	0	1	11	11	76.32
	LONGNOSE DACE	2	214,221	214,221	38.60%	101	62	1	2,807	2,807	76.32
	MARGINED MADTOM	2	99,099	99,099	9.10%	11	10	1	1,298	1,298	76.32

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Middle Patuxent River	NORTHERN HOGSUCKER	2	14,742	14,742	66.70%	12	4	1	193	193	76.32
	REDBREAST SUNFISH	2	11,700	11,700	70.00%	10	3	1	153	153	76.32
	RIVER CHUB	2	106,364	106,364	77.00%	100	23	1	1,394	1,394	76.32
	ROCK BASS	2	1,638	1,638	50.00%	1	1	1	21	21	76.32
	ROSYFACE SHINER	2	258,048	258,048	40.60%	128	76	1	3,381	3,381	76.32
	ROSYSIDE DACE	2	165,087	155,259	39.70%	80	46	2	2,163	2,034	76.32
	SATINFIN SHINER	2	8,736	8,736	75.00%	8	2	1	114	114	76.32
	SHIELD DARTER	2	105,385	105,385	53.60%	69	32	1	1,381	1,381	76.32
	SMALLMOUTH BASS	2	14,793	14,793	94.10%	17	1	1	194	194	76.32
	SWALLOWTAIL SHINER	2	151,807	151,807	78.80%	146	31	1	1,989	1,989	76.32
	TESSELLATED DARTER	2	521,347	521,347	38.00%	242	150	1	6,831	6,831	76.32
	WHITE SUCKER	2	28,431	28,431	77.80%	27	6	1	373	373	76.32
	AMERICAN EEL	3	25,011	23,640	30.10%	15	9	2	356	337	70.19
	BLUEGILL	3	1,506	1,506	100.00%	3	0	1	21	21	70.19
	BROWN BULLHEAD	3	502	502	100.00%	1	0	1	7	7	70.19
	CREEK CHUBSUCKER	3	2,008	2,008	50.00%	2	2	1	29	29	70.19
	EASTERN MUDMINNOW	3	186,051	149,015	15.60%	58	37	3	2,651	2,123	70.19
	FATHEAD MINNOW	3	9,025	9,025	61.20%	11	4	1	129	129	70.19
	GREEN SUNFISH	3	8,780	8,780	57.20%	10	4	1	125	125	70.19
	LEAST BROOK LAMPREY	3	12,048	12,048	50.00%	12	12	1	172	172	70.19
PIRATE PERCH	3	7,230	8,154	48.60%	7	2	2	103	116	70.19	
REDFIN PICKEREL	3	4,016	4,016	100.00%	8	0	1	57	57	70.19	
TESSELLATED DARTER	3	25,083	26,144	36.00%	18	11	2	357	372	70.19	
Nanjemoy Creek	AMERICAN EEL	3	47,392	24,810	45.60%	35	16	2	549	288	86.27
	BLUEGILL	3	18,968	14,136	58.50%	18	7	2	220	164	86.27
	BLUESPOTTED SUNFISH	3	2,297	1,894	53.70%	2	1	2	27	22	86.27
	BROWN BULLHEAD	3	11,988	7,756	77.20%	15	3	2	139	90	86.27

Appendix Table 4. PSU population estimates for fish species collected by the MBSS during 2007-2009											
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Nanjemoy Creek	CHAIN PICKEREL	3	5,280	2,470	58.40%	5	2	2	61	29	86.27
	CREEK CHUBSUCKER	3	8,589	8,589	64.70%	9	3	1	100	100	86.27
	EASTERN MUDMINNOW	3	6,887	5,145	89.60%	10	1	2	80	60	86.27
	GOLDEN SHINER	3	617	617	100.00%	1	0	1	7	7	86.27
	LEAST BROOK LAMPREY	3	34,348	19,319	43.10%	24	13	2	398	224	86.27
	MARGINED MADTOM	3	11,704	6,921	31.60%	6	7	2	136	80	86.27
	PUMPKINSEED	3	67,464	40,255	64.90%	71	24	2	782	467	86.27
	REDBREAST SUNFISH	3	85,851	42,730	33.10%	46	23	2	995	495	86.27
	SEA LAMPREY	3	4,936	4,936	25.00%	2	6	1	57	57	86.27
	TESSELLATED DARTER	3	15,270	8,510	64.70%	16	5	2	177	99	86.27
	WARMOUTH	3	2,468	1,234	50.00%	2	2	2	29	14	86.27
WHITE SUCKER	3	617	617	0.00%	0	1	1	7	7	86.27	
Northeast River/Furnace Bay	AMERICAN EEL	3	49,339	9,270	42.00%	35	12	3	596	112	82.85
	BANDED KILLIFISH	3	4,862	4,862	85.30%	7	1	1	59	59	82.85
	BLACKNOSE DACE	3	54,481	23,660	51.10%	47	18	2	658	286	82.85
	BLUE RIDGE SCULPIN	3	289,430	198,733	55.70%	272	110	2	3,493	2,399	82.85
	BLUEGILL	3	14,544	10,993	53.00%	13	5	3	176	133	82.85
	BROWN BULLHEAD	3	2,465	2,465	48.10%	2	1	1	30	30	82.85
	COMMON SHINER	3	70,721	25,904	67.90%	81	24	3	854	313	82.85
	CREEK CHUB	3	270,722	142,963	54.30%	248	112	3	3,268	1,726	82.85
	CREEK CHUBSUCKER	3	593	593	100.00%	1	0	1	7	7	82.85
	CUTLIP MINNOW	3	55,351	20,432	62.10%	58	20	3	668	247	82.85
	GOLDEN SHINER	3	5,038	5,038	47.10%	4	2	1	61	61	82.85
	LARGEMOUTH BASS	3	9,610	7,680	61.70%	10	3	2	116	93	82.85
	LONGNOSE DACE	3	21,810	11,076	73.40%	27	7	2	263	134	82.85
	MARGINED MADTOM	3	24,400	6,643	46.20%	19	19	3	295	80	82.85
	NORTHERN HOGSUCKER	3	24,228	7,164	68.50%	28	7	3	292	86	82.85

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Northeast River/Furnace Bay	PUMPKINSEED	3	18,548	18,548	41.50%	13	7	1	224	224	82.85
	REDBREAST SUNFISH	3	63,984	39,917	72.20%	78	21	3	772	482	82.85
	RIVER CHUB	3	593	593	0.00%	0	1	1	7	7	82.85
	ROSYDACE	3	132,561	33,268	75.60%	169	41	3	1,600	402	82.85
	SATINFIN SHINER	3	23,199	23,199	48.50%	19	9	1	280	280	82.85
	SMALLMOUTH BASS	3	20,483	12,287	72.30%	25	5	2	247	148	82.85
	SPOTTAIL SHINER	3	149,680	149,680	68.50%	173	51	1	1,807	1,807	82.85
	SWALLOWTAIL SHINER	3	38,892	15,410	59.40%	39	13	3	469	186	82.85
	TESSELLATED DARTER	3	508,321	331,190	35.70%	306	193	3	6,135	3,997	82.85
WHITE SUCKER	3	402,955	167,871	35.20%	239	148	3	4,864	2,026	82.85	
Patapsco River Lower North Branch	AMERICAN EEL	3	4,993	4,993	100.00%	5	0	1	36	36	139.63
	BLACKNOSE DACE	3	562,616	369,584	74.20%	418	102	3	4,029	2,647	139.63
	BLUE RIDGE SCULPIN	3	424,441	209,326	52.50%	223	101	2	3,040	1,499	139.63
	BLUEGILL	3	5,992	5,992	33.30%	2	4	1	43	43	139.63
	CENTRAL STONEROLLER	3	9,987	9,987	30.00%	3	2	1	72	72	139.63
	CREEK CHUB	3	38,524	31,740	57.00%	22	9	2	276	227	139.63
	LONGNOSE DACE	3	46,903	46,903	76.70%	36	8	1	336	336	139.63
	ROSYDACE	3	37,177	37,177	83.30%	31	5	1	266	266	139.63
Patuxent River (Lower)	AMERICAN EEL	3	2,083	2,083	100.00%	1	0	1	7	7	291.28
	BLACKNOSE DACE	3	119,240	60,079	85.60%	49	6	2	409	206	291.28
	BLUEGILL	3	4,167	4,167	50.00%	1	1	1	14	14	291.28
	BROWN BULLHEAD	3	165,801	165,801	32.70%	26	16	1	569	569	291.28
	EASTERN MUDMINNOW	3	261,352	324,746	14.30%	18	10	2	897	1,115	291.28
	LEAST BROOK LAMPREY	3	31,250	31,250	33.30%	5	10	1	107	107	291.28
	PUMPKINSEED	3	21,152	21,152	88.60%	9	1	1	73	73	291.28
Patuxent River (Middle)	AMERICAN EEL	3	20,900	20,900	23.70%	7	5	1	211	211	98.83
	BLACKNOSE DACE	3	310,975	149,946	65.20%	287	95	3	3,147	1,517	98.83

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Patuxent River (Middle)	BLUEGILL	3	36,936	36,936	17.20%	9	7	1	374	374	98.83
	BROWN BULLHEAD	3	1,414	1,414	50.00%	1	1	1	14	14	98.83
	CREEK CHUBSUCKER	3	38,946	24,074	49.00%	27	10	2	394	244	98.83
	EASTERN MUDMINNOW	3	8,484	8,484	50.00%	6	6	1	86	86	98.83
	GOLDEN SHINER	3	707	707	100.00%	1	0	1	7	7	98.83
	GREEN SUNFISH	3	5,147	4,129	82.40%	6	1	2	52	42	98.83
	PUMPKINSEED	3	2,941	2,941	48.10%	2	1	1	30	30	98.83
	TESSELLATED DARTER	3	25,168	25,168	59.00%	21	8	1	255	255	98.83
Patuxent River (Upper)	AMERICAN BROOK LAMPREY	3	99,981	99,981	38.40%	41	23	1	763	763	131.03
	AMERICAN EEL	3	55,522	54,119	60.80%	36	13	2	424	413	131.03
	BLACK CRAPPIE	3	937	937	100.00%	1	0	1	7	7	131.03
	BLACKNOSE DACE	3	144,948	144,948	75.70%	117	27	1	1,106	1,106	131.03
	BLUEGILL	3	9,517	9,517	88.60%	9	1	1	73	73	131.03
	BLUESPOTTED SUNFISH	3	937	937	0.00%	0	1	1	7	7	131.03
	CHAIN PICKEREL	3	1,875	1,875	50.00%	1	1	1	14	14	131.03
	CREEK CHUBSUCKER	3	937	937	100.00%	1	0	1	7	7	131.03
	CUTLIP MINNOW	3	4,687	4,687	100.00%	5	0	1	36	36	131.03
	EASTERN MOSQUITOFISH	3	32,304	29,921	46.40%	16	9	2	247	228	131.03
	EASTERN MUDMINNOW	3	3,749	2,480	100.00%	4	0	2	29	19	131.03
	FALLFISH	3	26,245	26,245	42.90%	12	16	1	200	200	131.03
	GLASSY DARTER	3	14,486	14,486	84.10%	13	2	1	111	111	131.03
	GREEN SUNFISH	3	6,789	6,789	82.80%	6	1	1	52	52	131.03
	LARGEMOUTH BASS	3	1,875	1,875	100.00%	2	0	1	14	14	131.03
	LEAST BROOK LAMPREY	3	1,875	1,875	100.00%	2	0	1	14	14	131.03
	LONGNOSE DACE	3	5,624	5,624	33.30%	2	4	1	43	43	131.03
	PUMPKINSEED	3	1,875	1,875	50.00%	1	1	1	14	14	131.03
REDBREAST SUNFISH	3	6,789	6,789	82.80%	6	1	1	52	52	131.03	

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Patuxent River (Upper)	SATINFIN SHINER	3	23,433	23,433	44.00%	11	14	1	179	179	131.03
	SEA LAMPREY	3	15,388	15,388	85.30%	14	2	1	117	117	131.03
	SPOTTAIL SHINER	3	9,373	9,373	30.00%	3	2	1	72	72	131.03
	SWALLOWTAIL SHINER	3	7,967	7,967	47.10%	4	2	1	61	61	131.03
	TESSELLATED DARTER	3	116,384	58,671	56.40%	70	29	2	888	448	131.03
	WHITE SUCKER	3	13,123	13,123	50.00%	7	7	1	100	100	131.03
	YELLOW BULLHEAD	3	3,899	3,899	48.10%	2	1	1	30	30	131.03
Piscataway Creek	AMERICAN BROOK LAMPREY	3	2,017	2,017	100.00%	4	0	1	29	29	70.49
	AMERICAN EEL	3	17,363	5,564	75.50%	26	5	3	246	79	70.49
	BANDED KILLIFISH	3	1,009	504	100.00%	2	0	2	14	7	70.49
	BLACKNOSE DACE	3	194,605	103,563	68.70%	265	80	2	2,761	1,469	70.49
	BLUEGILL	3	15,760	15,760	16.00%	5	4	1	224	224	70.49
	COMELY SHINER	3	5,043	5,043	40.00%	4	6	1	72	72	70.49
	COMMON SHINER	3	44,138	44,138	88.00%	77	9	1	626	626	70.49
	CREEK CHUB	3	16,393	6,602	46.10%	15	4	3	233	94	70.49
	CREEK CHUBSUCKER	3	20,062	20,062	80.40%	32	6	1	285	285	70.49
	CUTLIP MINNOW	3	504	504	100.00%	1	0	1	7	7	70.49
	EASTERN MOSQUITOFISH	3	8,677	4,475	93.00%	16	1	2	123	63	70.49
	EASTERN MUDMINNOW	3	9,117	9,117	94.00%	17	1	1	129	129	70.49
	FALLFISH	3	95,317	75,049	24.30%	46	30	3	1,352	1,065	70.49
	GREEN SUNFISH	3	26,088	22,757	69.60%	36	10	3	370	323	70.49
	LARGEMOUTH BASS	3	2,522	1,334	100.00%	5	0	2	36	19	70.49
	LONGNOSE DACE	3	134,275	81,578	62.00%	165	60	2	1,905	1,157	70.49
	MARGINED MADTOM	3	3,026	3,026	100.00%	6	0	1	43	43	70.49
	PUMPKINSEED	3	1,009	1,009	100.00%	2	0	1	14	14	70.49
	REDBREAST SUNFISH	3	39,064	25,374	76.20%	59	13	3	554	360	70.49
	SATINFIN SHINER	3	36,929	6,287	69.70%	51	15	3	524	89	70.49

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Piscataway Creek	SEA LAMPREY	3	10,530	10,530	28.70%	6	4	1	149	149	70.49
	SPOTFIN SHINER	3	16,519	8,239	85.50%	28	4	2	234	117	70.49
	SPOTTAIL SHINER	3	143,710	42,033	73.00%	208	52	3	2,039	596	70.49
	TESSELLATED DARTER	3	44,541	13,182	78.10%	69	15	3	632	187	70.49
	WHITE SUCKER	3	15,478	8,311	88.00%	27	3	2	220	118	70.49
	YELLOW BULLHEAD	3	27,677	21,354	67.40%	37	12	3	393	303	70.49
Port Tobacco River	AMERICAN EEL	3	2,993	3,362	36.90%	3	2	2	58	65	51.48
	BLACKNOSE DACE	3	110,347	70,261	74.10%	222	49	3	2,143	1,365	51.48
	BLUEGILL	3	1,842	1,842	100.00%	5	0	1	36	36	51.48
	CREEK CHUB	3	22,078	9,865	65.10%	39	10	2	429	192	51.48
	CREEK CHUBSUCKER	3	5,864	4,869	56.50%	9	4	2	114	95	51.48
	EASTERN MOSQUITOFISH	3	368	368	100.00%	1	0	1	7	7	51.48
	EASTERN MUDMINNOW	3	9,651	9,651	80.20%	21	4	1	187	187	51.48
	FALLFISH	3	5,994	5,994	73.70%	12	3	1	116	116	51.48
	LEAST BROOK LAMPREY	3	14,741	14,189	47.50%	19	9	2	286	276	51.48
	ROSYDICE DACE	3	163,643	107,473	46.10%	205	93	3	3,179	2,088	51.48
	SEA LAMPREY	3	7,691	7,691	28.70%	6	4	1	149	149	51.48
	TESSELLATED DARTER	3	10,889	10,889	23.70%	7	5	1	212	212	51.48
	WHITE SUCKER	3	5,157	5,157	50.00%	7	7	1	100	100	51.48
	Potomac R WA Co/Marsh Run/ Tonoloway/Little Tonoloway	BLACKNOSE DACE	3	166,785	57,413	75.90%	172	35	3	1,621	558
BLUEGILL		3	9,228	4,561	71.70%	9	2	3	90	44	102.87
BROWN BULLHEAD		3	736	736	100.00%	1	0	1	7	7	102.87
CENTRAL STONEROLLER		3	736	736	100.00%	1	0	1	7	7	102.87
CREEK CHUB		3	57,737	30,651	30.60%	24	15	3	561	298	102.87
FANTAIL DARTER		3	33,776	30,178	26.10%	12	5	3	328	293	102.87
GREEN SUNFISH		3	13,866	12,772	63.70%	12	4	2	135	124	102.87

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Potomac R WA Co/Marsh Run/ Tonoloway/Little Tonoloway	GREENSIDE DARTER	3	736	736	0.00%	0	1	1	7	7	102.87
	MARGINED MADTOM	3	736	736	0.00%	0	1	1	7	7	102.87
	POTOMAC SCULPIN	3	422,108	484,392	50.90%	292	68	2	4,103	4,709	102.87
	PUMPKINSEED	3	1,471	1,471	50.00%	1	1	1	14	14	102.87
	RAINBOW DARTER	3	736	736	100.00%	1	0	1	7	7	102.87
	SUNFISH (HYBRID)	3	736	736	0.00%	0	1	1	7	7	102.87
	WHITE SUCKER	3	1,471	1,471	100.00%	2	0	1	14	14	102.87
	YELLOW BULLHEAD	3	1,471	736	100.00%	2	0	2	14	7	102.87
Potomac River (Frederick County)	BLACKNOSE DACE	3	601,942	240,093	85.50%	990	143	3	8,277	3,302	72.72
	BLUEGILL	3	2,080	2,080	100.00%	4	0	1	29	29	72.72
	BLUNTNOSE MINNOW	3	63,236	34,844	78.10%	95	18	3	870	479	72.72
	CENTRAL STONEROLLER	3	28,696	10,088	52.60%	29	7	3	395	139	72.72
	COMMON SHINER	3	20,203	20,203	79.80%	31	6	1	278	278	72.72
	CREEK CHUB	3	51,595	36,767	89.70%	89	9	3	709	506	72.72
	FALLFISH	3	520	520	100.00%	1	0	1	7	7	72.72
	FANTAIL DARTER	3	81,778	59,365	84.60%	133	20	2	1,125	816	72.72
	GREEN SUNFISH	3	8,854	4,799	76.30%	13	3	2	122	66	72.72
	GREENSIDE DARTER	3	8,462	8,462	73.70%	12	3	1	116	116	72.72
	LARGEMOUTH BASS	3	520	520	100.00%	1	0	1	7	7	72.72
	LONGNOSE DACE	3	16,976	4,358	67.40%	22	4	3	233	60	72.72
	MARGINED MADTOM	3	520	520	0.00%	0	1	1	7	7	72.72
	NORTHERN HOGSUCKER	3	1,040	1,040	100.00%	2	0	1	14	14	72.72
	RAINBOW DARTER	3	2,080	2,080	100.00%	4	0	1	29	29	72.72
	REDBREAST SUNFISH	3	7,239	7,239	64.70%	9	3	1	100	100	72.72
	RIVER CHUB	3	104,553	50,013	69.10%	139	41	2	1,438	688	72.72
	ROSYDICE DACE	3	117,814	67,136	85.60%	194	27	2	1,620	923	72.72
SATINFIN SHINER	3	520	520	0.00%	0	1	1	7	7	72.72	

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Potomac River (Frederick County)	SILVERJAW MINNOW	3	1,560	1,560	100.00%	3	0	1	21	21	72.72
	SMALLMOUTH BASS	3	520	520	100.00%	1	0	1	7	7	72.72
	SPOTFIN SHINER	3	520	520	100.00%	1	0	1	7	7	72.72
	TESSELLATED DARTER	3	520	520	100.00%	1	0	1	7	7	72.72
	WHITE SUCKER	3	146,829	84,168	79.70%	225	43	3	2,019	1,157	72.72
	YELLOW BULLHEAD	3	5,720	5,720	100.00%	11	0	1	79	79	72.72
Potomac River (Lower North Branch)	BLACKNOSE DACE	2	728,203	76,529	64.20%	294	98	2	4,911	516	148.27
	CREEK CHUB	2	227,062	40,385	59.60%	85	32	2	1,531	272	148.27
	FANTAIL DARTER	2	57,276	0	50.00%	18	8	2	386	0	148.27
	GREEN SUNFISH	2	32,729	32,729	58.30%	12	5	1	221	221	148.27
	POTOMAC SCULPIN	2	29,940	26,758	79.70%	15	3	2	202	180	148.27
	ROSYSIDE DACE	2	6,364	6,364	50.00%	2	1	1	43	43	148.27
Potomac River AL Co/Sideling Hill Creek	WHITE SUCKER	2	22,910	22,910	83.30%	12	2	1	155	155	148.27
	BLACKNOSE DACE	3	88,662	87,827	85.50%	136	19	2	1,137	1,126	77.98
	BLUEGILL	3	2,320	2,320	48.10%	2	1	1	30	30	77.98
	BLUNTNOSSE MINNOW	3	17,263	17,263	58.10%	18	7	1	221	221	77.98
	CREEK CHUB	3	18,975	18,975	67.60%	23	7	1	243	243	77.98
	FANTAIL DARTER	3	17,245	17,245	84.10%	26	4	1	221	221	77.98
	GREEN SUNFISH	3	19,539	19,539	97.00%	34	1	1	251	251	77.98
	GREENSIDE DARTER	3	1,115	1,115	0.00%	0	2	1	14	14	77.98
	LONGNOSE DACE	3	8,086	8,086	82.80%	12	2	1	104	104	77.98
	POTOMAC SCULPIN	3	13,364	13,364	66.80%	16	5	1	171	171	77.98
	ROCK BASS	3	3,904	3,904	100.00%	7	0	1	50	50	77.98
	SMALLMOUTH BASS	3	2,320	2,320	48.10%	2	1	1	30	30	77.98
Potomac River MO Co	WHITE SUCKER	3	7,250	7,250	100.00%	13	0	1	93	93	77.98
	BLACKNOSE DACE	3	767,529	364,495	72.90%	513	127	3	5,033	2,390	152.51
	BLUE RIDGE SCULPIN	3	10,009	10,009	87.20%	8	1	1	66	66	152.51

Appendix Table 4. PSU population estimates for fish species collected by the MBSS during 2007-2009											
PSU Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Potomac River MO Co	BLUEGILL	3	9,819	5,000	100.00%	9	0	2	64	33	152.51
	BLUNTNOSE MINNOW	3	18,703	18,703	75.80%	13	3	1	123	123	152.51
	CENTRAL STONEROLLER	3	14,523	14,523	60.10%	8	3	1	95	95	152.51
	COMMON SHINER	3	3,273	3,273	33.30%	1	2	1	21	21	152.51
	CREEK CHUB	3	114,854	70,066	78.80%	83	17	2	753	459	152.51
	CUTLIP MINNOW	3	2,182	2,182	100.00%	2	0	1	14	14	152.51
	FANTAIL DARTER	3	213,329	207,777	61.90%	121	37	2	1,399	1,362	152.51
	GREEN SUNFISH	3	8,370	6,965	39.10%	3	2	2	55	46	152.51
	GREENSIDE DARTER	3	1,091	1,091	100.00%	1	0	1	7	7	152.51
	LONGNOSE DACE	3	116,675	116,675	67.30%	72	22	1	765	765	152.51
	POTOMAC SCULPIN	3	9,455	9,455	57.70%	5	2	1	62	62	152.51
	PUMPKINSEED	3	1,091	1,091	0.00%	0	1	1	7	7	152.51
	REDBREAST SUNFISH	3	1,091	1,091	100.00%	1	0	1	7	7	152.51
	ROSYSIDE DACE	3	73,055	37,163	83.60%	56	9	2	479	244	152.51
	SILVERJAW MINNOW	3	15,153	15,153	36.00%	5	3	1	99	99	152.51
	SUNFISH (HYBRID)	3	4,539	4,539	48.10%	2	1	1	30	30	152.51
	TESSELLATED DARTER	3	3,273	3,273	100.00%	3	0	1	21	21	152.51
	WHITE SUCKER	3	12,780	12,780	76.80%	9	2	1	84	84	152.51
YELLOW BULLHEAD	3	9,819	9,819	22.20%	2	7	1	64	64	152.51	
Potomac River Upper North Branch	BLACKNOSE DACE	2	28,780	3,316	84.80%	23	3	2	291	34	98.91
	BLUE RIDGE SCULPIN	2	21,397	21,397	54.50%	11	5	1	216	216	98.91
	BROOK TROUT	2	17,931	17,931	76.90%	13	3	1	181	181	98.91
Potomac Upper Tidal/Oxon Creek	AMERICAN EEL	3	28,280	14,268	78.50%	62	13	2	565	285	50.04
	BANDED KILLIFISH	3	85,847	155,931	6.30%	15	14	2	1,716	3,116	50.04
	BLACK CRAPPIE	3	358	358	100.00%	1	0	1	7	7	50.04
	BLACKNOSE DACE	3	105,141	8,467	62.00%	182	68	3	2,101	169	50.04
	BLUEGILL	3	6,218	5,824	28.80%	5	3	2	124	116	50.04

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Potomac Upper Tidal/Oxon Creek	CENTRAL STONEROLLER	3	6,131	7,225	35.00%	6	3	2	123	144	50.04
	CREEK CHUB	3	20,039	6,816	87.50%	49	6	3	400	136	50.04
	CREEK CHUBSUCKER	3	358	358	0.00%	0	1	1	7	7	50.04
	LARGEMOUTH BASS	3	358	358	100.00%	1	0	1	7	7	50.04
	LONGNOSE DACE	3	13,434	5,314	50.60%	19	8	2	268	106	50.04
	MUMMICHOG	3	2,864	2,864	50.00%	4	4	1	57	57	50.04
	PUMPKINSEED	3	1,432	947	100.00%	4	0	2	29	19	50.04
	REDBREAST SUNFISH	3	7,290	5,752	88.40%	18	2	2	146	115	50.04
	SATINFIN SHINER	3	40,536	40,445	21.20%	24	13	2	810	808	50.04
	SPOTFIN SHINER	3	8,592	7,544	100.00%	24	0	2	172	151	50.04
	SWALLOWTAIL SHINER	3	45,361	50,866	40.20%	51	24	2	907	1,017	50.04
	TESSELLATED DARTER	3	27,130	25,006	72.60%	55	14	2	542	500	50.04
	WHITE SUCKER	3	1,074	1,074	100.00%	3	0	1	21	21	50.04
YELLOW BULLHEAD	3	11,456	10,401	50.00%	16	16	2	229	208	50.04	
Prettyboy Reservoir	BLACKNOSE DACE	3	184,559	126,669	73.90%	243	63	3	2,353	1,615	78.44
	BLUE RIDGE SCULPIN	3	2,334	2,334	48.10%	2	1	1	30	30	78.44
	BLUEGILL	3	1,122	1,122	100.00%	2	0	1	14	14	78.44
	BROOK TROUT	3	561	561	100.00%	1	0	1	7	7	78.44
	CREEK CHUB	3	103,143	53,379	83.20%	153	25	2	1,315	681	78.44
	LARGEMOUTH BASS	3	561	561	0.00%	0	1	1	7	7	78.44
	ROSYSIDE DACE	3	5,227	2,483	64.40%	6	2	2	67	32	78.44
	WHITE SUCKER	3	561	561	100.00%	1	0	1	7	7	78.44
Rock Creek/Cabin John Creek	BLACKNOSE DACE	3	160,660	35,385	66.80%	177	54	3	1,895	417	84.76
	BLUEGILL	3	4,851	4,851	100.00%	8	0	1	57	57	84.76
	BLUNTNOSTE MINNOW	3	606	606	100.00%	1	0	1	7	7	84.76
	BROWN BULLHEAD	3	5,154	5,154	47.10%	4	2	1	61	61	84.76
	CREEK CHUB	3	15,356	4,698	55.30%	14	4	3	181	55	84.76

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Rock Creek/Cabin John Creek	CUTLIP MINNOW	3	11,722	11,722	87.90%	17	2	1	138	138	84.76
	EASTERN MOSQUITOFISH	3	13,508	13,508	89.80%	20	2	1	159	159	84.76
	GREEN SUNFISH	3	12,102	7,713	45.10%	9	3	2	143	91	84.76
	LARGEMOUTH BASS	3	3,032	3,032	100.00%	5	0	1	36	36	84.76
	LONGNOSE DACE	3	20,243	16,642	56.90%	19	7	2	239	196	84.76
	POTOMAC SCULPIN	3	137,069	80,296	49.10%	111	53	2	1,617	947	84.76
	PUMPKINSEED	3	1,213	1,213	100.00%	2	0	1	14	14	84.76
	ROSYIDE DACE	3	102,024	75,398	14.30%	24	18	2	1,204	890	84.76
	SPOTTAIL SHINER	3	12,165	12,165	69.80%	14	4	1	144	144	84.76
	TESSELLATED DARTER	3	11,926	9,252	61.00%	12	4	2	141	109	84.76
	WHITE SUCKER	3	18,585	8,306	52.20%	16	7	2	219	98	84.76
YELLOW BULLHEAD	3	3,032	3,032	100.00%	5	0	1	36	36	84.76	
Rocky Gorge Dam	BLACKNOSE DACE	3	205,342	34,456	68.10%	355	113	3	3,730	626	55.05
	BLUEGILL	3	72,319	80,150	16.90%	31	15	3	1,314	1,456	55.05
	CENTRAL STONEROLLER	3	51,422	27,589	72.00%	94	23	2	934	501	55.05
	COMMON SHINER	3	394	394	100.00%	1	0	1	7	7	55.05
	CREEK CHUB	3	42,908	35,154	84.40%	92	14	3	779	639	55.05
	CUTLIP MINNOW	3	1,465	1,208	53.70%	2	1	2	27	22	55.05
	FALLFISH	3	22,399	9,605	38.70%	22	9	2	407	174	55.05
	GREEN SUNFISH	3	23,954	13,273	50.90%	31	28	3	435	241	55.05
	LARGEMOUTH BASS	3	787	787	100.00%	2	0	1	14	14	55.05
	LEPOMIS HYBRID	3	7,144	7,144	38.60%	7	4	1	130	130	55.05
	LONGNOSE DACE	3	12,089	8,590	71.60%	22	6	2	220	156	55.05
	MARGINED MADTOM	3	3,937	3,937	50.00%	5	5	1	72	72	55.05
	RIVER CHUB	3	787	787	100.00%	2	0	1	14	14	55.05
	ROSYIDE DACE	3	48,916	11,105	62.80%	78	29	3	889	202	55.05
TESSELLATED DARTER	3	43,155	24,182	50.20%	55	26	2	784	439	55.05	

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Rocky Gorge Dam	WHITE SUCKER	3	17,550	11,399	51.60%	23	10	2	319	207	55.05
S Branch Patapsco	BLACKNOSE DACE	3	394,078	250,827	57.50%	268	106	3	3,333	2,121	118.24
	BLUE RIDGE SCULPIN	3	1,348,637	1,016,823	52.20%	833	384	3	11,406	8,600	118.24
	BLUEGILL	3	846	846	100.00%	1	0	1	7	7	118.24
	BROWN TROUT	3	4,228	3,049	100.00%	5	0	2	36	26	118.24
	CENTRAL STONEROLLER	3	775,111	775,111	63.10%	578	198	1	6,555	6,555	118.24
	COMMON SHINER	3	16,809	16,809	80.50%	16	3	1	142	142	118.24
	CREEK CHUB	3	83,310	47,545	64.00%	63	22	3	705	402	118.24
	CUTLIP MINNOW	3	21,935	21,935	50.10%	13	6	1	186	186	118.24
	GREEN SUNFISH	3	846	846	100.00%	1	0	1	7	7	118.24
	LARGEMOUTH BASS	3	10,677	10,677	79.20%	10	2	1	90	90	118.24
	LONGNOSE DACE	3	193,469	193,469	80.00%	183	35	1	1,636	1,636	118.24
	NORTHERN HOGSUCKER	3	846	846	100.00%	1	0	1	7	7	118.24
	ROSYIDE DACE	3	187,816	135,282	34.70%	77	44	3	1,588	1,144	118.24
	SWALLOWTAIL SHINER	3	31,304	31,304	78.30%	29	6	1	265	265	118.24
	TESSELLATED DARTER	3	70,284	21,048	14.40%	12	10	2	594	178	118.24
WHITE SUCKER	3	147,787	141,486	77.20%	135	29	2	1,250	1,197	118.24	
Sassafras River/Stillpond-Fairlee	ALEWIFE	3	538	538	100.00%	1	0	1	7	7	75.16
	AMERICAN EEL	3	51,152	15,422	55.70%	53	22	3	681	205	75.16
	BANDED KILLIFISH	3	1,075	1,075	100.00%	2	0	1	14	14	75.16
	BLACK CRAPPIE	3	538	538	100.00%	1	0	1	7	7	75.16
	BLUEGILL	3	239,175	53,453	39.80%	177	91	3	3,182	711	75.16
	BROWN BULLHEAD	3	11,246	9,196	47.80%	10	6	2	150	122	75.16
	CREEK CHUB	3	7,485	7,485	64.70%	9	3	1	100	100	75.16
	CREEK CHUBSUCKER	3	2,688	1,423	100.00%	5	0	2	36	19	75.16
	EASTERN MOSQUITOFISH	3	7,034,320	7,034,320	3.30%	437	411	1	93,591	93,591	75.16

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Sassafras River/Stillpond-Fairlee	EASTERN MUDMINNOW	3	101,873	100,271	33.80%	64	38	2	1,355	1,334	75.16
	GIZZARD SHAD	3	538	538	100.00%	1	0	1	7	7	75.16
	GOLDEN SHINER	3	718,545	714,970	69.50%	929	264	3	9,560	9,513	75.16
	GOLDFISH	3	7,485	7,485	64.70%	9	3	1	100	100	75.16
	GREEN SUNFISH	3	28,954	33,074	33.40%	18	9	2	385	440	75.16
	LARGEMOUTH BASS	3	3,487	2,050	77.10%	5	1	2	46	27	75.16
	LEAST BROOK LAMPREY	3	35,145	44,176	21.40%	14	12	2	468	588	75.16
	MUMMICHOG	3	538	538	0.00%	0	1	1	7	7	75.16
	PUMPKINSEED	3	201,917	108,742	65.50%	246	78	3	2,686	1,447	75.16
	SATINFIN SHINER	3	7,485	7,485	64.70%	9	3	1	100	100	75.16
	SWALLOWTAIL SHINER	3	5,377	5,377	100.00%	10	0	1	72	72	75.16
	TESSELLATED DARTER	3	58,088	23,453	24.10%	26	19	3	773	312	75.16
	WHITE SUCKER	3	6,937	6,937	54.30%	7	3	1	92	92	75.16
	YELLOW BULLHEAD	3	4,973	4,973	64.90%	6	2	1	66	66	75.16
Savage River	BROOK TROUT	2	123,011	24,387	79.70%	69	14	2	929	184	132.41
	PUMPKINSEED	2	2,841	2,841	100.00%	2	0	1	21	21	132.41
Seneca Creek	BLACKNOSE DACE	3	898,309	75,960	80.00%	532	104	3	4,756	402	188.88
	BLUE RIDGE SCULPIN	3	388,328	232,745	66.10%	190	64	3	2,056	1,232	188.88
	BLUEGILL	3	1,351	1,351	100.00%	1	0	1	7	7	188.88
	BLUNTNOSE MINNOW	3	5,620	5,620	48.10%	2	1	1	30	30	188.88
	CENTRAL STONEROLLER	3	61,068	61,068	75.20%	34	8	1	323	323	188.88
	COMMON SHINER	3	14,861	14,861	45.50%	5	6	1	79	79	188.88
	CREEK CHUB	3	57,737	49,525	84.20%	36	5	2	306	262	188.88
	FANTAIL DARTER	3	124,052	54,586	69.70%	64	17	3	657	289	188.88
	GREEN SUNFISH	3	11,258	6,171	84.00%	7	1	2	60	33	188.88
	GREENSIDE DARTER	3	2,702	2,702	100.00%	2	0	1	14	14	188.88
	LARGEMOUTH BASS	3	1,351	1,351	100.00%	1	0	1	7	7	188.88

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Seneca Creek	LONGNOSE DACE	3	122,714	108,898	48.40%	44	10	3	650	577	188.88
	POTOMAC SCULPIN	3	227,165	115,250	57.70%	97	38	3	1,203	610	188.88
	ROSYSIDE DACE	3	127,447	89,886	89.00%	84	8	2	675	476	188.88
	WHITE SUCKER	3	55,853	48,992	46.00%	19	12	2	296	259	188.88
South River/West River	AMERICAN EEL	3	448	448	0.00%	0	1	1	7	7	62.57
	BLACKNOSE DACE	3	21,246	18,169	46.40%	22	11	2	340	290	62.57
	BLUESPOTTED SUNFISH	3	6,909	6,909	71.30%	11	3	1	110	110	62.57
	CREEK CHUBSUCKER	3	9,538	8,875	89.20%	19	2	2	152	142	62.57
	EASTERN MUDMINNOW	3	78,715	66,452	52.30%	92	39	2	1,258	1,062	62.57
	GOLDEN SHINER	3	2,056	2,056	65.30%	3	1	1	33	33	62.57
	REDFIN PICKEREL	3	13,590	13,590	52.70%	16	7	1	217	217	62.57
	TESSELLATED DARTER	3	895	895	0.00%	0	2	1	14	14	62.57
St. Mary's River	AMERICAN EEL	2	36,492	12,572	47.10%	23	11	2	524	180	69.66
	BLACKNOSE DACE	2	15,737	15,737	95.00%	20	1	1	226	226	69.66
	BLUEGILL	2	17,375	2,724	77.40%	18	4	2	249	39	69.66
	BROWN BULLHEAD	2	1,495	1,495	50.00%	1	1	1	21	21	69.66
	CHAIN PICKEREL	2	1,495	1,495	100.00%	2	0	1	21	21	69.66
	EASTERN MUDMINNOW	2	10,892	6,407	68.60%	10	4	2	156	92	69.66
	GOLDEN SHINER	2	14,720	14,720	81.30%	16	3	1	211	211	69.66
	LEAST BROOK LAMPREY	2	19,435	13,455	46.20%	12	14	2	279	193	69.66
	MARGINED MADTOM	2	34,385	31,395	52.20%	24	11	2	494	451	69.66
	MUMMICHOG	2	748	748	100.00%	1	0	1	11	11	69.66
	NOTROPIS SP.	2	5,382	5,382	83.30%	6	1	1	77	77	69.66
	PIRATE PERCH	2	2,243	2,243	33.30%	1	2	1	32	32	69.66
	PUMPKINSEED	2	6,229	6,229	60.00%	5	2	1	89	89	69.66
	REDBREAST SUNFISH	2	59,504	25,773	70.30%	56	16	2	854	370	69.66
SPOTTAIL SHINER	2	2,990	1,495	50.00%	2	2	2	43	21	69.66	

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	SWALLOWTAIL SHINER	2	55,923	45,458	81.50%	61	11	2	803	653	69.66
	TESSELLATED DARTER	2	51,325	15,146	81.60%	56	10	2	737	217	69.66
Tuckahoe Creek	AMERICAN EEL	2	11,951	8,177	63.20%	4	2	2	68	46	175.89
	BLUEGILL	2	18,870	15,096	30.00%	3	3	2	107	86	175.89
	BLUESPOTTED SUNFISH	2	912,050	904,502	8.30%	40	35	2	5,185	5,142	175.89
	CREEK CHUBSUCKER	2	226,984	180,753	49.90%	60	30	2	1,290	1,028	175.89
	EASTERN MUDMINNOW	2	249,282	52,764	57.50%	76	32	2	1,417	300	175.89
	FALLFISH	2	39,942	9,121	56.70%	12	9	2	227	52	175.89
	GOLDEN SHINER	2	15,096	15,096	37.50%	3	5	1	86	86	175.89
	IRONCOLOR SHINER	2	45,288	45,288	33.30%	8	16	1	257	257	175.89
	LARGEMOUTH BASS	2	1,887	1,887	100.00%	1	0	1	11	11	175.89
	MARGINED MADTOM	2	18,870	18,870	30.00%	3	7	1	107	107	175.89
	PIRATE PERCH	2	126,429	107,559	46.30%	31	36	2	719	612	175.89
	PUMPKINSEED	2	18,870	11,322	60.00%	6	2	2	107	64	175.89
	REDBREAST SUNFISH	2	5,661	1,887	33.30%	1	2	2	32	11	175.89
	REDFIN PICKEREL	2	24,741	17,193	83.90%	11	2	2	141	98	175.89
	TADPOLE MADTOM	2	135,864	105,672	16.70%	12	9	2	772	601	175.89
	TESSELLATED DARTER	2	228,327	179,265	34.70%	42	31	2	1,298	1,019	175.89
YELLOW BULLHEAD	2	8,492	8,492	66.70%	3	1	1	48	48	175.89	
Upper Chester River	AMERICAN EEL	2	191,075	60,187	69.10%	104	32	2	1,616	509	118.27
	BLUEGILL	2	541,587	419,763	36.60%	156	98	2	4,579	3,549	118.27
	BLUESPOTTED SUNFISH	2	133,635	133,635	35.10%	37	24	1	1,130	1,130	118.27
	BROWN BULLHEAD	2	5,076	5,076	50.00%	2	1	1	43	43	118.27
	CHAIN PICKEREL	2	51,183	51,183	27.30%	11	8	1	433	433	118.27
	CREEK CHUBSUCKER	2	99,308	96,770	67.70%	53	17	2	840	818	118.27
	EASTERN MUDMINNOW	2	295,677	290,601	45.50%	106	127	2	2,500	2,457	118.27
	FALLFISH	2	20,727	20,727	42.90%	7	4	1	175	175	118.27

Appendix Table 4. PSU population estimates for fish species collected by the MBSS during 2007-2009											
PSU Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Upper Chester River	GOLDEN SHINER	2	31,725	31,725	60.00%	15	6	1	268	268	118.27
	LARGEMOUTH BASS	2	27,012	16,860	70.50%	15	4	2	228	143	118.27
	LEAST BROOK LAMPREY	2	143,446	130,756	48.70%	55	30	2	1,213	1,106	118.27
	MARGINED MADTOM	2	10,152	10,152	37.50%	3	5	1	86	86	118.27
	PIRATE PERCH	2	114,527	83,437	42.10%	38	50	2	968	706	118.27
	PUMPKINSEED	2	8,883	1,269	100.00%	7	0	2	75	11	118.27
	REDBREAST SUNFISH	2	266,375	162,547	20.50%	43	20	2	2,252	1,374	118.27
	REDFIN PICKEREL	2	177,675	161,813	41.40%	58	33	2	1,502	1,368	118.27
	SEA LAMPREY	2	5,076	5,076	50.00%	2	1	1	43	43	118.27
	SWAMP DARTER	2	6,345	6,345	40.00%	2	3	1	54	54	118.27
	TADPOLE MADTOM	2	368,010	365,472	11.70%	34	31	2	3,112	3,090	118.27
TESSELLATED DARTER	2	47,270	16,180	45.60%	17	9	2	400	137	118.27	
Upper Monocacy River	BANDED KILLIFISH	3	587,750	439,386	40.80%	121	68	2	2,122	1,586	276.97
	BLACKNOSE DACE	3	1,528,940	657,268	67.00%	517	159	3	5,520	2,373	276.97
	BLUE RIDGE SCULPIN	3	434,582	434,582	71.60%	157	42	1	1,569	1,569	276.97
	BLUEGILL	3	1,981	1,981	100.00%	1	0	1	7	7	276.97
	BLUNTNOST MINNOW	3	2,575,443	1,107,075	61.30%	797	234	3	9,299	3,997	276.97
	CENTRAL STONEROLLER	3	3,336,084	1,892,031	55.50%	935	397	3	12,045	6,831	276.97
	COMMON SHINER	3	82,395	47,508	81.70%	34	2	3	297	172	276.97
	CREEK CHUB	3	26,036	11,285	76.10%	10	2	3	94	41	276.97
	CUTLIP MINNOW	3	65,531	46,114	78.60%	26	5	2	237	166	276.97
	FALLFISH	3	19,810	19,810	30.00%	3	2	1	72	72	276.97
	FANTAIL DARTER	3	579,532	97,614	40.30%	118	60	3	2,092	352	276.97
	GREEN SUNFISH	3	82,832	32,384	81.30%	34	6	3	299	117	276.97
	GREENSIDE DARTER	3	1,512,204	690,763	55.80%	426	187	3	5,460	2,494	276.97
	LARGEMOUTH BASS	3	20,233	12,394	88.10%	9	1	2	73	45	276.97
LONGNOSE DACE	3	1,522,973	644,694	61.70%	474	164	3	5,499	2,328	276.97	

Appendix Table 4. PSU population estimates for fish species collected by the MBSS during 2007-2009											
PSU Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Upper Monocacy River	MARGINED MADTOM	3	65,878	59,955	42.10%	14	7	2	238	216	276.97
	POTOMAC SCULPIN	3	298,377	298,377	57.10%	86	34	1	1,077	1,077	276.97
	REDBREAST SUNFISH	3	148,713	53,611	78.60%	59	12	3	537	194	276.97
	RIVER CHUB	3	3,962	3,962	50.00%	1	1	1	14	14	276.97
	ROCK BASS	3	1,981	1,981	100.00%	1	0	1	7	7	276.97
	ROSYFACE SHINER	3	1,981	1,981	100.00%	1	0	1	7	7	276.97
	SILVERJAW MINNOW	3	28,725	28,725	82.80%	12	2	1	104	104	276.97
	SMALLMOUTH BASS	3	497,860	245,343	42.20%	106	48	2	1,798	886	276.97
	SPOTFIN SHINER	3	128,342	13,476	80.30%	52	9	3	463	49	276.97
	SPOTTAIL SHINER	3	49,759	25,308	95.50%	24	1	2	180	91	276.97
	SWALLOWTAIL SHINER	3	1,981	1,981	100.00%	1	0	1	7	7	276.97
	TESSELLATED DARTER	3	40,592	36,889	39.00%	8	5	3	147	133	276.97
	WHITE SUCKER	3	397,834	87,820	52.30%	105	46	3	1,436	317	276.97
	YELLOW BULLHEAD	3	78,484	43,919	42.90%	17	5	3	283	159	276.97
Upper Pocomoke River	BANDED SUNFISH	2	5,008	5,008	25.00%	1	3	1	43	43	116.71
	BLUEGILL	2	91,470	88,966	47.90%	35	19	2	784	762	116.71
	BLUESPOTTED SUNFISH	2	3,756	3,756	0.00%	0	3	1	32	32	116.71
	BROWN BULLHEAD	2	10,433	10,433	60.00%	5	2	1	89	89	116.71
	CREEK CHUBSUCKER	2	5,634	5,634	66.70%	3	1	1	48	48	116.71
	EASTERN MOSQUITOFISH	2	3,756	3,756	100.00%	3	0	1	32	32	116.71
	EASTERN MUDMINNOW	2	88,642	73,618	29.70%	21	16	2	760	631	116.71
	GOLDEN SHINER	2	10,016	10,016	12.50%	1	7	1	86	86	116.71
	GREEN SUNFISH	2	25,040	25,040	50.00%	10	5	1	215	215	116.71
	LARGEMOUTH BASS	2	1,252	1,252	100.00%	1	0	1	11	11	116.71
	PUMPKINSEED	2	26,709	26,709	37.50%	8	5	1	229	229	116.71
	REDFIN PICKEREL	2	15,650	15,650	80.00%	10	2	1	134	134	116.71
	YELLOW BULLHEAD	2	5,008	5,008	25.00%	1	3	1	43	43	116.71

Appendix Table 4. PSU population estimates for fish species collected by the MBSS during 2007-2009											
PSU Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Western Branch	AMERICAN BROOK LAMPREY	3	5,081	5,081	74.10%	4	1	1	39	39	131.54
	AMERICAN EEL	3	3,764	2,490	100.00%	4	0	2	29	19	131.54
	BLACKNOSE DACE	3	80,637	23,551	82.90%	71	12	3	613	179	131.54
	BLUEGILL	3	10,943	2,679	43.00%	5	3	3	83	20	131.54
	CREEK CHUB	3	110,794	33,405	38.20%	45	15	3	842	254	131.54
	CREEK CHUBSUCKER	3	2,823	2,823	100.00%	3	0	1	21	21	131.54
	EASTERN MOSQUITOFISH	3	60,879	56,706	37.10%	24	13	2	463	431	131.54
	EASTERN MUDMINNOW	3	3,764	3,764	100.00%	4	0	1	29	29	131.54
	FALLFISH	3	65,739	75,059	45.80%	32	10	2	500	571	131.54
	GREEN SUNFISH	3	62,553	13,866	36.10%	24	9	3	476	105	131.54
	LARGEMOUTH BASS	3	941	941	100.00%	1	0	1	7	7	131.54
	LEAST BROOK LAMPREY	3	40,801	40,801	66.90%	29	9	1	310	310	131.54
	PUMPKINSEED	3	941	941	100.00%	1	0	1	7	7	131.54
	ROSYSIDE DACE	3	112,093	92,332	43.70%	52	17	3	852	702	131.54
	SWALLOWTAIL SHINER	3	15,448	15,448	85.30%	14	2	1	117	117	131.54
	TESSELLATED DARTER	3	129,372	103,046	56.70%	78	31	2	984	783	131.54
WHITE SUCKER	3	20,176	11,725	88.60%	19	2	2	153	89	131.54	
Wicomico River	AMERICAN EEL	3	3,124	1,562	100.00%	6	0	2	43	21	72.82
	BLACKNOSE DACE	3	66,984	22,819	81.60%	105	16	3	920	313	72.82
	BLUEGILL	3	3,645	2,270	100.00%	7	0	2	50	31	72.82
	BROWN BULLHEAD	3	6,248	6,248	100.00%	12	0	1	86	86	72.82
	CREEK CHUBSUCKER	3	2,083	2,083	100.00%	4	0	1	29	29	72.82
	EASTERN MOSQUITOFISH	3	1,562	1,562	0.00%	0	3	1	21	21	72.82
	EASTERN MUDMINNOW	3	486,837	453,601	58.20%	544	219	3	6,686	6,229	72.82
	FALLFISH	3	521	521	100.00%	1	0	1	7	7	72.82
	GOLDEN SHINER	3	2,083	2,083	50.00%	2	2	1	29	29	72.82

Appendix Table 4. PSU population estimates for fish species collected by the MBSS during 2007-2009											
PSU Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
	LARGEMOUTH BASS	3	521	521	100.00%	1	0	1	7	7	72.82
	LEAST BROOK LAMPREY	3	21,868	21,868	50.00%	21	21	1	300	300	72.82
	PIRATE PERCH	3	2,391	2,391	65.30%	3	1	1	33	33	72.82
	PUMPKINSEED	3	3,645	2,270	42.90%	3	4	2	50	31	72.82
	TESSELLATED DARTER	3	13,811	6,814	79.20%	21	4	2	190	94	72.82
Youghiogheny River	BLACKNOSE DACE	2	170,406	165,513	83.30%	58	10	2	747	726	228.03
	BROOK TROUT	2	27,183	27,183	90.00%	10	1	1	119	119	228.03
	BROWN TROUT	2	12,233	12,233	100.00%	5	0	1	54	54	228.03
	CREEK CHUB	2	31,805	31,805	100.00%	13	0	1	139	139	228.03
	JOHNNY DARTER	2	133,970	133,970	67.60%	37	12	1	588	588	228.03
	LONGNOSE DACE	2	26,912	26,912	100.00%	11	0	1	118	118	228.03
	MOTTLED SCULPIN	2	527,832	123,584	63.50%	137	50	2	2,315	542	228.03
	NORTHERN HOGSUCKER	2	7,340	7,340	33.30%	1	2	1	32	32	228.03
	RIVER CHUB	2	12,233	12,233	100.00%	5	0	1	54	54	228.03
	WHITE SUCKER	2	31,805	7,340	69.20%	9	2	2	139	32	228.03
Zekiah Swamp	AMERICAN EEL	3	7,473	1,817	69.60%	5	1	3	51	12	145.42
	BLUEGILL	3	49,094	27,973	80.50%	38	7	3	338	192	145.42
	BLUESPOTTED SUNFISH	3	10,400	10,400	100.00%	10	0	1	72	72	145.42
	CREEK CHUBSUCKER	3	32,064	28,993	77.80%	24	5	2	220	199	145.42
	EASTERN MUDMINNOW	3	15,419	13,878	67.50%	10	3	2	106	95	145.42
	FALLFISH	3	9,360	9,360	100.00%	9	0	1	64	64	145.42
	GOLDEN SHINER	3	1,040	1,040	100.00%	1	0	1	7	7	145.42
	MARGINED MADTOM	3	1,040	1,040	100.00%	1	0	1	7	7	145.42
	PUMPKINSEED	3	1,040	1,040	100.00%	1	0	1	7	7	145.42
	REDFIN PICKEREL	3	9,360	3,120	100.00%	9	0	3	64	21	145.42
	ROSYIDE DACE	3	18,696	18,696	61.20%	11	4	1	129	129	145.42
	TADPOLE MADTOM	3	4,160	2,752	50.00%	2	2	2	29	19	145.42

Appendix Table 4. PSU population estimates for fish species collected by the MBSS during 2007-2009											
PSU Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Zekiah Swamp	TESSELLATED DARTER	3	5,907	2,787	70.40%	4	1	3	41	19	145.42
	WARMOUTH	3	4,326	4,326	48.10%	2	1	1	30	30	145.42

Harvestable Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Brook Trout	208	70,630	32,287	79.83%	40	8	7	7.67	3.51	9,203
Brown Trout	208	242,089	160,833	85.79%	108	12	14	26.30	17.48	9,203
Chain Pickerel	208	1,269	1,269	100.00%	1	0	1	0.14	0.14	9,203
Largemouth Bass	208	3,341	629	100.00%	4	0	4	0.36	0.07	9,203
Rainbow Trout	208	6,577	3,830	89.30%	5	1	4	0.71	0.42	9,203

Appendix Table 6. Regional population estimates for harvestable fish species collected by the MBSS during 2007-2009											
Region	Harvestable Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
COASTAL	Chain Pickerel	92	1,269	1,269	100.00%	1	0	1	0.337365056	0.337365056	3,762
	Largemouth Bass	92	2,749	211	100.00%	3	0	3	0.730736079	0.056005967	3,762
	Rainbow Trout	92	545	545	100.00%	1	0	1	0.144888854	0.144888854	3,762
COLD	Brook Trout	18	70,069	32,283	79.67%	39	8	6	79.67179474	36.70693415	879
	Brown Trout	18	6,792	5,249	100.00%	5	0	2	7.72285957	5.967916511	879
EASTERN PIEDMONT	Brook Trout	60	561	561	100.00%	1	0	1	0.27676541	0.27676541	2,027
	Brown Trout	60	233,680	160,739	85.28%	102	12	11	115.2846056	79.29955557	2,027
	Largemouth Bass	60	593	593	100.00%	1	0	1	0.292387938	0.292387938	2,027
	Rainbow Trout	60	2,799	1,979	74.86%	2	1	2	1.381031441	0.976551346	2,027
HIGHLAND	Brown Trout	38	1,616	1,616	100.00%	1	0	1	0.698912495	0.698912495	2,313
	Rainbow Trout	38	3,233	3,233	100.00%	2	0	1	1.39782499	1.39782499	2,313

MDE6Name	Harvestable Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Chester River	Chain Pickerel	13	1,269	1,269	100.00%	1	0	1	3.79	3.79	335
	Largemouth Bass	13	2,749	211	100.00%	3	0	3	8.21	0.63	335
Elk River	Largemouth Bass	9	593	593	100.00%	1	0	1	2.05	2.05	289
Gunpowder River	Brook Trout	11	561	561	100.00%	1	0	1	1.17	1.17	478
	Brown Trout	11	216,090	160,563	84.24%	74	11	3	452.21	336.01	478
North Branch Potomac River	Brook Trout	12	60,373	31,377	78.21%	34	7	3	106.58	55.39	566
Patapsco River	Brown Trout	19	5,296	3,202	100.00%	6	0	3	8.05	4.87	658
	Brown Trout	23	3,045	1,783	100.00%	4	0	3	2.95	1.73	1,032
	Rainbow Trout	23	1,407	1,407	50.00%	1	1	1	1.36	1.36	1,032
Susquehanna River	Brown Trout	9	9,249	6,571	96.29%	18	1	2	28.49	20.24	325
	Rainbow Trout	9	1,392	1,392	100.00%	1	0	1	4.29	4.29	325
Upper Potomac River	Brown Trout	16	1,616	1,616	100.00%	1	0	1	2.22	2.22	728
	Rainbow Trout	16	3,233	3,233	100.00%	2	0	1	4.44	4.44	728
West Chesapeake Bay	Rainbow Trout	6	545	545	100.00%	1	0	1	2.60	2.60	210
Youghiogheny River	Brook Trout	8	9,696	7,592	88.76%	5	1	3	24.40	19.11	397
	Brown Trout	8	6,792	5,249	100.00%	5	0	2	17.09	13.21	397

PSUNAME	Harvestable Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Antietam Creek	Brown Trout	3	1,616	1,616	100.00%	1	0	1	7.15	7.15	226
	Rainbow Trout	3	3,233	3,233	100.00%	2	0	1	14.31	14.31	226
Brighton Dam	Brown Trout	3	1,407	704	100.00%	2	0	2	14.31	7.15	98
	Rainbow Trout	3	1,407	1,407	50.00%	1	1	1	14.31	14.31	98
Broad Creek	Brown Trout	3	5,073	5,073	93.24%	15	1	1	115.12	115.12	44
Casselman River	Brook Trout	3	2,356	1,943	53.73%	2	1	2	26.63	21.95	88
	Brown Trout	3	1,899	1,899	100.00%	3	0	1	21.46	21.46	88
Deer Creek	Brown Trout	3	4,176	4,176	100.00%	3	0	1	21.46	21.46	195
	Rainbow Trout	3	1,392	1,392	100.00%	1	0	1	7.15	7.15	195
Eastern Bay/Kent Narrows/Lower Chester River/Langford/Kent Island	Largemouth Bass	3	211	211	100.00%	1	0	1	7.16	7.16	29
	Brown Trout	3	3,017	3,017	100.00%	5	0	1	35.76	35.76	84
Gwynns Falls	Brown Trout	2	1,443	1,443	100.00%	2	0	1	21.45	21.45	67
Liberty Reservoir	Brown Trout	3	1,316	1,316	100.00%	1	0	1	7.15	7.15	184
Loch Raven Reservoir	Brown Trout	2	213,073	160,535	84.02%	69	11	2	881.12	663.86	242
Magothy/Severn River	Rainbow Trout	3	545	545	100.00%	1	0	1	7.15	7.15	76
Middle Patuxent River	Brown Trout	2	1,638	1,638	100.00%	2	0	1	21.46	21.46	76
Northeast River/Furnace Bay	Largemouth Bass	3	593	593	100.00%	1	0	1	7.15	7.15	83
Potomac River Upper North Branch	Brook Trout	2	3,183	3,183	100.00%	3	0	1	32.18	32.18	99
Prettyboy Reservoir	Brook Trout	3	561	561	100.00%	1	0	1	7.15	7.15	78
S Branch Patapsco	Brown Trout	3	2,537	2,537	100.00%	3	0	1	21.46	21.46	118
Savage River	Brook Trout	2	57,190	31,215	77.00%	31	7	2	431.92	235.75	132
Upper Chester River	Chain Pickerel	2	1,269	1,269	100.00%	1	0	1	10.73	10.73	118
	Largemouth Bass	2	2,538	0	100.00%	2	0	2	21.46	0.00	118
Youghiogheny River	Brook Trout	2	7,340	7,340	100.00%	3	0	1	32.19	32.19	228
	Brown Trout	2	4,893	4,893	100.00%	2	0	1	21.46	21.46	228

Appendix Table 9. Statewide population estimates for crayfish species collected by the MBSS during 2007-2009										
Crayfish	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
CAMBARUS ACUMINATUS	225	2,403	1,201	0.00%	0	2	2	0.26	0.13	9,203
CAMBARUS BARTONII BARTONII	225	349,572	90,969	39.61%	167	123	57	37.98	9.88	9,203
CAMBARUS CARINIROSTRIS	225	178,302	98,348	21.49%	29	20	5	19.37	10.69	9,203
CAMBARUS DIOGENES	225	23,602	9,772	56.74%	27	16	17	2.56	1.06	9,203
CAMBARUS SP.	225	358	358	0.00%	0	1	1	0.04	0.04	9,203
FALLICAMBARUS FODIENS	225	6,155	5,060	31.86%	2	4	2	0.67	0.55	9,203
ORCONNECTES LIMOSUS	225	1,139,355	290,765	25.06%	431	357	53	123.80	31.59	9,203
ORCONNECTES OBSCURUS	225	619,210	338,609	43.37%	209	168	8	67.28	36.79	9,203
ORCONNECTES RUSTICUS	225	2,562,365	1,846,947	42.13%	574	685	4	278.41	200.68	9,203
ORCONNECTES VIRILIS	225	22,145,811	14,248,671	14.90%	2745	1881	67	2,406.26	1,548.19	9,203
PROCAMBARUS CLARKII	225	188,718	102,000	24.19%	61	51	21	20.51	11.08	9,203
PROCAMBARUS SP.	225	133,223	20,422	40.11%	73	77	23	14.48	2.22	9,203

Appendix Table 10. Regional population estimates for crayfish species collected by the MBSS during 2007-2009											
Region	Crayfish	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
COASTAL	CAMBARUS ACUMINATUS	95	2,403	1,201	0.00%	0	2	2	0.64	0.32	3,762
	CAMBARUS BARTONII BARTONII	95	6,889	3,029	52.25%	14	7	6	1.83	0.81	3,762
	CAMBARUS DIOGENES	95	23,602	9,772	56.74%	27	16	17	6.27	2.60	3,762
	CAMBARUS SP.	95	358	358	0.00%	0	1	1	0.10	0.10	3,762
	FALLICAMBARUS FODIENS	95	6,155	5,060	31.86%	2	4	2	1.64	1.35	3,762
	ORCONECTES LIMOSUS	95	548,338	208,626	29.13%	248	208	37	145.78	55.46	3,762
	ORCONECTES VIRILIS	95	1,523	1,244	0.00%	0	2	2	0.40	0.33	3,762
	PROCAMBARUS CLARKII	95	188,403	102,000	24.23%	61	50	20	50.09	27.12	3,762
	PROCAMBARUS SP.	95	132,590	20,412	39.82%	72	77	22	35.25	5.43	3,762
COLD	CAMBARUS BARTONII BARTONII	21	64,359	36,970	39.95%	39	20	11	73.18	42.04	879
	CAMBARUS CARINIROSTRIS	21	178,302	98,348	21.49%	29	20	5	202.74	111.83	879
	ORCONECTES OBSCURUS	21	114,015	109,232	43.71%	74	38	2	129.64	124.20	879
	ORCONECTES VIRILIS	21	386,053	1,168,595	8.14%	6	3	1	438.96	1,328.75	879
	PROCAMBARUS SP.	21	633	633	100.00%	1	0	1	0.72	0.72	879
EASTERN PIEDMONT	CAMBARUS BARTONII BARTONII	66	113,093	53,337	32.77%	53	41	24	55.79	26.31	2,027
	ORCONECTES LIMOSUS	66	590,497	202,532	21.23%	182	149	15	291.32	99.92	2,027
	ORCONECTES VIRILIS	66	13,217,203	13,062,157	8.30%	1353	1015	38	6,520.61	6,444.12	2,027
	PROCAMBARUS CLARKII	66	315	315	0.00%	0	1	1	0.16	0.16	2,027
HIGHLAND	CAMBARUS BARTONII BARTONII	43	165,231	63,675	43.63%	61	55	16	71.45	27.53	2,313
	ORCONECTES LIMOSUS	43	520	520	100.00%	1	0	1	0.22	0.22	2,313
	ORCONECTES OBSCURUS	43	505,195	320,507	43.29%	135	130	6	218.45	138.59	2,313
	ORCONECTES RUSTICUS	43	2,562,365	1,846,947	42.13%	574	685	4	1,107.98	798.63	2,313
	ORCONECTES VIRILIS	43	8,541,033	5,571,273	25.41%	1386	861	26	3,693.20	2,409.05	2,313

MDE6Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Bush River	CAMBARUS BARTONII BARTONII	9	5,474	3,262	52.55%	6	5	3	27.79	16.56	197
	ORCONNECTES LIMOSUS	9	8,067	8,067	28.74%	6	4	1	40.95	40.95	197
	ORCONNECTES VIRILIS	9	260,947	96,897	30.66%	148	101	3	1,324.85	491.96	197
	PROCAMBARUS SP.	9	1,545	1,545	0.00%	0	4	1	7.85	7.85	197
Chester River	CAMBARUS DIOGENES	14	4,124	2,710	33.34%	6	9	4	12.32	8.09	335
	ORCONNECTES LIMOSUS	14	294,623	191,480	16.23%	87	65	8	879.77	571.78	335
	PROCAMBARUS CLARKII	14	14,551	13,386	63.50%	14	5	3	43.45	39.97	335
	PROCAMBARUS SP.	14	14,196	5,135	50.97%	12	11	7	42.39	15.33	335
Choptank River	ORCONNECTES LIMOSUS	6	55,430	47,759	40.85%	21	24	3	112.72	97.12	492
	PROCAMBARUS CLARKII	6	15,885	15,885	23.68%	7	5	1	32.30	32.30	492
	PROCAMBARUS SP.	6	81,770	16,499	40.00%	42	39	3	166.28	33.55	492
Elk River	ORCONNECTES LIMOSUS	9	367,415	169,464	17.72%	95	88	7	1,270.06	585.79	289
	PROCAMBARUS SP.	9	7,468	7,468	36.00%	5	3	1	25.81	25.81	289
Gunpowder River	CAMBARUS BARTONII BARTONII	12	45,243	40,452	28.81%	13	10	7	94.68	84.65	478
	ORCONNECTES LIMOSUS	12	152,866	106,289	20.42%	59	41	4	319.90	222.43	478
	ORCONNECTES VIRILIS	12	420,154	402,642	12.86%	40	33	6	879.26	842.61	478
Lower Potomac River	CAMBARUS BARTONII BARTONII	22	5,344	2,605	52.90%	12	5	5	6.78	3.30	788
	CAMBARUS DIOGENES	22	4,256	2,632	46.51%	3	3	4	5.40	3.34	788
	ORCONNECTES LIMOSUS	22	132,169	65,266	47.04%	98	78	11	167.66	82.79	788
	PROCAMBARUS CLARKII	22	16,351	16,280	30.84%	5	6	5	20.74	20.65	788
Middle Potomac River	CAMBARUS BARTONII BARTONII	17	59,776	47,693	49.50%	11	9	5	48.87	38.99	1,223
	ORCONNECTES LIMOSUS	17	520	520	100.00%	1	0	1	0.43	0.43	1,223
	ORCONNECTES OBSCURUS	17	411,414	314,032	44.98%	88	75	2	336.38	256.75	1,223

Appendix Table 11. MDE6 Watershed population estimates for crayfish species collected by the MBSS during 2007-2009

MDE6Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
	ORCONNECTES RUSTICUS	17	1,986,943	1,791,544	41.48%	416	587	2	1,624.54	1,464.78	1,223
	ORCONNECTES VIRILIS	17	6,432,107	5,553,365	25.01%	822	546	13	5,258.94	4,540.47	1,223
Nanticoke River	FALLICAMBARUS FODIENS	7	4,903	4,903	40.00%	2	3	1	13.70	13.70	358
	ORCONNECTES LIMOSUS	7	1,368	1,368	100.00%	1	0	1	3.82	3.82	358
	PROCAMBARUS CLARKII	7	958	958	50.00%	1	1	1	2.68	2.68	358
	PROCAMBARUS SP.	7	15,872	5,760	38.36%	9	13	4	44.36	16.10	358
North Branch Potomac River	CAMBARUS BARTONII BARTONII	17	106,322	50,766	32.04%	44	26	12	187.70	89.62	566
	ORCONNECTES OBSCURUS	17	1,591	1,591	100.00%	1	0	1	2.81	2.81	566
Ocean Coastal	PROCAMBARUS CLARKII	3	1,061	1,061	100.00%	2	0	1	14.31	14.31	74
	PROCAMBARUS SP.	3	530	530	0.00%	0	1	1	7.15	7.15	74
Patapsco River	CAMBARUS BARTONII BARTONII	21	12,979	10,593	52.79%	7	6	5	19.73	16.10	658
	ORCONNECTES VIRILIS	21	9,876,146	12,651,718	7.88%	776	546	17	15,014.25	19,233.83	658
	PROCAMBARUS CLARKII	21	321	321	100.00%	1	0	1	0.49	0.49	658
Patuxent River	CAMBARUS BARTONII BARTONII	21	5,015	3,531	35.39%	2	4	3	4.86	3.42	1,032
	CAMBARUS DIOGENES	21	8,078	8,095	55.35%	5	1	3	7.83	7.84	1,032
	ORCONNECTES LIMOSUS	21	51,198	26,738	51.62%	32	24	7	49.60	25.90	1,032
	ORCONNECTES VIRILIS	21	2,456,836	3,217,289	5.62%	270	243	8	2,380.20	3,116.93	1,032
	PROCAMBARUS CLARKII	21	26,319	19,798	35.71%	10	18	3	25.50	19.18	1,032
Pocomoke River	FALLICAMBARUS FODIENS	7	1,252	1,252	0.00%	0	1	1	3.70	3.70	338
	ORCONNECTES LIMOSUS	7	8,504	8,504	12.50%	1	7	1	25.14	25.14	338
	PROCAMBARUS CLARKII	7	112,958	96,505	14.47%	21	15	5	333.97	285.32	338
	PROCAMBARUS SP.	7	11,209	5,145	36.35%	4	6	5	33.14	15.21	338
Susquehanna River	CAMBARUS BARTONII BARTONII	9	43,671	32,743	27.66%	25	17	5	134.50	100.85	325
	ORCONNECTES LIMOSUS	9	36,937	19,012	37.69%	10	5	3	113.76	58.55	325
	ORCONNECTES VIRILIS	9	147,963	169,178	18.11%	85	74	2	455.71	521.05	325

Appendix Table 11. MDE6 Watershed population estimates for crayfish species collected by the MBSS during 2007-2009

MDE6Name	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
	PROCAMBARUS CLARKII	9	315	315	0.00%	0	1	1	0.97	0.97	325
Upper Potomac River	CAMBARUS BARTONII BARTONII	18	49,100	21,576	59.59%	41	32	8	67.40	29.62	728
	ORCONNECTES OBSCURUS	18	47,903	46,315	44.12%	36	48	2	65.76	63.58	728
	ORCONNECTES RUSTICUS	18	575,422	448,980	44.38%	158	98	2	789.88	616.32	728
	ORCONNECTES VIRILIS	18	1,950,456	1,076,838	27.09%	516	287	10	2,677.39	1,478.18	728
Washington Metro Potomac River	CAMBARUS ACUMINATUS	18	2,403	1,201	0.00%	0	2	2	3.36	1.68	715
	CAMBARUS BARTONII BARTONII	18	16,649	10,364	36.62%	6	9	4	23.30	14.50	715
	CAMBARUS SP.	18	358	358	0.00%	0	1	1	0.50	0.50	715
	ORCONNECTES LIMOSUS	18	10,570	7,441	57.69%	11	5	4	14.79	10.41	715
	ORCONNECTES OBSCURUS	18	44,287	44,287	24.64%	10	7	1	61.97	61.97	715
	ORCONNECTES VIRILIS	18	601,202	638,854	14.09%	88	51	8	841.28	893.97	715
West Chesapeake Bay	CAMBARUS DIOGENES	9	7,143	3,961	77.92%	11	3	5	34.09	18.90	210
	ORCONNECTES LIMOSUS	9	19,688	7,237	24.91%	9	16	2	93.96	34.54	210
Youghiogheny River	CAMBARUS CARINIROSTRIS	6	178,302	98,348	21.49%	29	20	5	448.74	247.52	397
	ORCONNECTES OBSCURUS	6	114,015	109,232	43.71%	74	38	2	286.95	274.91	397
	PROCAMBARUS SP.	6	633	633	100.00%	1	0	1	1.59	1.59	397

PSU NAME	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Aberdeen Proving Ground/ Swan Creek	CAMBARUS BARTONII BARTONII	3	1,545	1,545	50.00%	2	2	1	28.62	28.62	54
	ORCONNECTES LIMOSUS	3	8,067	8,067	28.74%	6	4	1	149.38	149.38	54
	PROCAMBARUS SP.	3	1,545	1,545	0.00%	0	4	1	28.62	28.62	54
Anacostia River	CAMBARUS ACUMINATUS	3	2,403	1,201	0.00%	0	2	2	14.31	7.15	168
	ORCONNECTES LIMOSUS	3	1,201	1,201	100.00%	1	0	1	7.15	7.15	168
	ORCONNECTES VIRILIS	3	1,201	1,201	0.00%	0	1	1	7.15	7.15	168
Antietam Creek	ORCONNECTES OBSCURUS	3	1,616	1,616	100.00%	1	0	1	7.15	7.15	226
	ORCONNECTES RUSTICUS	3	575,422	448,980	44.38%	158	98	2	2,546.34	1,986.81	226
	ORCONNECTES VIRILIS	3	1,269,599	982,836	24.57%	193	122	3	5,618.19	4,349.22	226
Assawoman/Isle of Wight/ Sinepuxent/Newport/ Chincoteague Bays	PROCAMBARUS CLARKII	3	1,061	1,061	100.00%	2	0	1	14.31	14.31	74
	PROCAMBARUS SP.	3	530	530	0.00%	0	1	1	7.15	7.15	74
Back River	CAMBARUS BARTONII BARTONII	3	310	310	100.00%	1	0	1	7.15	7.15	43
	ORCONNECTES VIRILIS	3	133,010	168,278	6.30%	27	23	3	3,064.04	3,876.48	43
Bodkin Creek/Baltimore Harbor	ORCONNECTES VIRILIS	3	321	321	0.00%	0	1	1	7.16	7.16	45
	PROCAMBARUS CLARKII	3	321	321	100.00%	1	0	1	7.16	7.16	45
Breton/St. Clements Bays	CAMBARUS DIOGENES	3	2,999	2,473	53.73%	2	1	2	26.62	21.95	113
	ORCONNECTES LIMOSUS	3	62,842	62,842	50.00%	39	39	1	557.80	557.80	113
Brighton Dam	CAMBARUS BARTONII BARTONII	3	1,407	1,407	50.00%	1	1	1	14.31	14.31	98
	ORCONNECTES VIRILIS	3	194,119	86,481	34.07%	94	95	3	1,973.36	879.14	98
Broad Creek	CAMBARUS BARTONII BARTONII	3	9,128	7,376	38.00%	11	5	2	207.13	167.36	44
	ORCONNECTES VIRILIS	3	147,963	169,178	18.11%	85	74	2	3,357.45	3,838.85	44
	PROCAMBARUS CLARKII	3	315	315	0.00%	0	1	1	7.16	7.16	44
Bush River/Bynum Run	CAMBARUS BARTONII BARTONII	3	1,446	1,446	33.33%	1	2	1	21.46	21.46	67
Casselman River	CAMBARUS CARINIROSTRIS	3	34,337	44,172	16.59%	9	7	2	388.03	499.18	88
	ORCONNECTES OBSCURUS	3	109,122	109,122	41.19%	71	38	1	1,233.16	1,233.16	88

Appendix Table 12. PSU population estimates for crayfish species collected by the MBSS during 2007-2009											
PSU NAME	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
	PROCAMBARUS SP.	3	633	633	100.00%	1	0	1	7.15	7.15	88
Catoctin Creek	CAMBARUS BARTONII BARTONII	3	7,755	6,642	46.15%	3	1	3	46.50	39.83	167
Catoctin Creek	ORCONECTES OBSCURUS	3	122,086	122,086	34.20%	35	21	1	732.06	732.06	167
	ORCONECTES VIRILIS	3	1,158,158	2,024,065	8.14%	79	73	3	6,944.64	12,136.87	167
Conewago Creek/ Double Pipe Creek	ORCONECTES OBSCURUS	2	289,328	289,328	49.53%	53	54	1	1,147.90	1,147.90	252
	ORCONECTES VIRILIS	2	27,040	27,040	100.00%	10	0	1	107.28	107.28	252
Conococheague	ORCONECTES VIRILIS	2	220,547	185,505	54.19%	170	77	2	3,366.62	2,831.71	66
Corsica River/ Southeast Creek	CAMBARUS DIOGENES	2	773	773	0.00%	0	1	1	10.73	10.73	72
	ORCONECTES LIMOSUS	2	173,813	173,813	13.33%	30	26	1	2,414.06	2,414.06	72
	PROCAMBARUS CLARKII	2	13,353	13,353	63.64%	11	4	1	185.46	185.46	72
	PROCAMBARUS SP.	2	3,090	3,090	50.00%	2	2	1	42.92	42.92	72
Deer Creek	ORCONECTES LIMOSUS	3	36,937	19,012	37.69%	10	5	3	189.78	97.68	195
Dividing Creek/ Nassawango Creek	ORCONECTES LIMOSUS	2	8,504	8,504	12.50%	1	7	1	85.84	85.84	99
	PROCAMBARUS SP.	2	3,189	1,063	33.33%	1	2	2	32.19	10.73	99
Eastern Bay/Kent Narrows/ Lower Chester River/ Langford/Kent Island	CAMBARUS DIOGENES	3	2,528	2,528	41.67%	5	7	1	85.87	85.87	29
	ORCONECTES LIMOSUS	3	62,411	67,998	11.14%	33	25	2	2,119.93	2,309.71	29
	PROCAMBARUS CLARKII	3	876	876	48.08%	2	1	1	29.77	29.77	29
Evitts Creek	CAMBARUS BARTONII BARTONII	3	2,156	2,422	36.92%	3	2	2	58.12	65.29	37
Fifteen Mile Creek	CAMBARUS BARTONII BARTONII	3	31,992	19,700	45.45%	25	30	3	393.31	242.19	81
Fishing Bay/ Transquaking River	PROCAMBARUS CLARKII	3	958	958	50.00%	1	1	1	14.31	14.31	67
	PROCAMBARUS SP.	3	7,664	5,069	43.75%	7	9	2	114.45	75.70	67
Georges Creek	CAMBARUS BARTONII BARTONII	3	12,115	3,703	88.60%	18	2	3	145.35	44.42	83
Gilbert Swamp	ORCONECTES LIMOSUS	3	22,806	12,360	45.57%	25	13	2	392.53	212.74	58
Gunpowder River/ Lower Gunpowder Falls/Bird River/Middle River-Browns	CAMBARUS BARTONII BARTONII	3	1,207	1,207	100.00%	2	0	1	14.30	14.30	84
	ORCONECTES LIMOSUS	3	7,843	7,843	30.77%	4	9	1	92.96	92.96	84
	ORCONECTES VIRILIS	3	1,810	1,810	33.33%	1	2	1	21.45	21.45	84
Gwynns Falls	ORCONECTES VIRILIS	3	73,521	33,125	39.25%	60	32	3	1,093.01	492.46	67
Honga River/Little	PROCAMBARUS CLARKII	3	15,885	15,885	23.68%	7	5	1	211.40	211.40	75

Appendix Table 12. PSU population estimates for crayfish species collected by the MBSS during 2007-2009											
PSU NAME	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Choptank/Lower Choptank											
Jones Falls	CAMBARUS BARTONII BARTONII	3	1,295	748	33.33%	1	2	2	21.47	12.39	60
Jones Falls	ORCONNECTES VIRILIS	3	6,564	4,988	65.76%	10	3	2	108.80	82.67	60
Liberty Reservoir	CAMBARUS BARTONII BARTONII	3	10,528	10,528	50.00%	4	4	1	57.22	57.22	184
	ORCONNECTES VIRILIS	3	8,901,314	12,635,160	4.94%	334	252	3	48,376.71	68,669.35	184
Little Conococheague/Licking Creek	ORCONNECTES VIRILIS	2	82,531	13,843	48.81%	76	34	2	1,670.31	280.16	49
Little Gunpowder Falls	CAMBARUS BARTONII BARTONII	3	11,812	16,855	22.17%	5	4	2	161.32	230.20	73
	ORCONNECTES LIMOSUS	3	145,022	105,999	19.86%	55	32	3	1,980.64	1,447.67	73
Little Patuxent River	CAMBARUS BARTONII BARTONII	3	3,214	3,214	33.33%	1	2	1	21.46	21.46	150
	ORCONNECTES LIMOSUS	3	25,712	22,574	41.67%	10	14	2	171.67	150.72	150
Loch Raven Reservoir	CAMBARUS BARTONII BARTONII	3	29,981	36,723	28.85%	5	3	2	123.98	151.86	242
	ORCONNECTES VIRILIS	3	401,795	402,467	11.62%	27	22	2	1,661.54	1,664.33	242
Lower Elk River/Bohemia River/Upper Elk River/Back Creek/Little Elk Creek	ORCONNECTES LIMOSUS	3	134,152	124,407	18.20%	26	36	2	1,021.88	947.65	131
Lower Monocacy River	CAMBARUS BARTONII BARTONII	3	52,021	47,228	50.00%	8	8	2	114.44	103.90	455
	ORCONNECTES VIRILIS	3	1,228,442	511,565	66.17%	250	64	3	2,702.43	1,125.38	455
	PROCAMBARUS CLARKII	3	6,538	4,422	77.65%	10	2	2	92.12	62.31	71
	PROCAMBARUS SP.	3	508	508	100.00%	1	0	1	7.15	7.15	71
Lower Susquehanna River/Octoraro Creek/Conowingo Dam Susquehanna River	CAMBARUS BARTONII BARTONII	3	34,543	31,902	24.93%	14	12	3	401.73	371.01	86
Lower Wicomico/Monie Bay/Wicomico Creek/Wicomico River Head	FALLICAMBARUS FODIENS	2	4,903	4,903	40.00%	2	3	1	53.64	53.64	91
Lower Winters Run/Atkisson Reservoir	CAMBARUS BARTONII BARTONII	3	2,483	2,483	65.33%	3	1	1	32.85	32.85	76
Lower Winters Run/Atkisson Reservoir	ORCONNECTES VIRILIS	3	260,947	96,897	30.66%	148	101	3	3,452.71	1,282.09	76
Magothy/Severn River	CAMBARUS DIOGENES	3	545	545	0.00%	0	1	1	7.15	7.15	76
	ORCONNECTES LIMOSUS	3	19,688	7,237	24.91%	9	16	2	258.37	94.97	76
Marshyhope Creek	ORCONNECTES LIMOSUS	2	1,368	1,368	100.00%	1	0	1	10.73	10.73	128

Appendix Table 12. PSU population estimates for crayfish species collected by the MBSS during 2007-2009											
PSU NAME	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
	PROCAMBARUS SP.	2	8,208	2,736	33.33%	2	4	2	64.37	21.46	128
Mattawoman Creek	PROCAMBARUS CLARKII	2	1,306	1,306	100.00%	1	0	1	10.73	10.73	122
Middle Chester River	CAMBARUS DIOGENES	3	322	322	100.00%	1	0	1	7.15	7.15	45
	ORCONECTES LIMOSUS	3	1,930	1,114	50.00%	3	3	2	42.90	24.77	45
	PROCAMBARUS CLARKII	3	322	322	100.00%	1	0	1	7.15	7.15	45
	PROCAMBARUS SP.	3	1,197	987	53.73%	2	1	2	26.61	21.94	45
Middle Patuxent River	ORCONECTES LIMOSUS	3	11,869	11,869	55.20%	12	5	1	155.51	155.51	76
	ORCONECTES VIRILIS	3	31,341	13,689	29.62%	17	10	2	410.65	179.36	76
Miles River/Wye River	CAMBARUS DIOGENES	3	502	502	0.00%	0	1	1	7.15	7.15	70
	ORCONECTES LIMOSUS	3	5,020	5,020	30.00%	3	2	1	71.52	71.52	70
	PROCAMBARUS SP.	3	6,024	869	41.67%	5	7	3	85.82	12.39	70
Nanjemoy Creek	CAMBARUS BARTONII BARTONII	3	617	617	100.00%	1	0	1	7.15	7.15	86
	ORCONECTES LIMOSUS	3	15,579	8,352	47.52%	12	12	2	180.59	96.82	86
	PROCAMBARUS CLARKII	3	3,085	1,632	20.00%	1	4	2	35.76	18.92	86
Northeast River/Furnace Bay	ORCONECTES LIMOSUS	3	228,961	115,035	16.83%	65	48	3	2,763.56	1,388.47	83
Patapsco River Lower North Branch	ORCONECTES VIRILIS	3	112,427	72,053	30.20%	34	44	2	805.18	516.03	140
Patuxent River (Middle)	CAMBARUS DIOGENES	3	707	707	100.00%	1	0	1	7.15	7.15	99
	ORCONECTES LIMOSUS	3	1,414	1,414	50.00%	1	1	1	14.31	14.31	99
Patuxent River (Upper)	ORCONECTES LIMOSUS	3	7,499	7,499	50.00%	4	4	1	57.23	57.23	131
	PROCAMBARUS CLARKII	3	7,499	6,147	37.50%	3	5	2	57.23	46.91	131
Piscataway Creek	ORCONECTES LIMOSUS	3	8,653	7,308	52.46%	9	4	2	122.75	103.67	70
Port Tobacco River	CAMBARUS BARTONII BARTONII	3	4,727	2,531	46.75%	6	2	3	91.82	49.16	51
	CAMBARUS DIOGENES	3	737	737	50.00%	1	1	1	14.31	14.31	51
Port Tobacco River	ORCONECTES LIMOSUS	3	6,976	6,976	21.12%	4	3	1	135.50	135.50	51
Potomac R WA Co/ Marsh Run/Tonoloway/ Little Tonoloway	CAMBARUS BARTONII BARTONII	3	6,805	6,805	64.86%	6	2	1	66.15	66.15	103
	ORCONECTES VIRILIS	3	377,779	398,760	14.99%	77	54	3	3,672.39	3,876.35	103
Potomac River	ORCONECTES LIMOSUS	3	520	520	100.00%	1	0	1	7.15	7.15	73

Appendix Table 12. PSU population estimates for crayfish species collected by the MBSS during 2007-2009											
PSU NAME	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
(Frederick County)	ORCONNECTES VIRILIS	3	150,424	71,227	66.72%	193	63	3	2,068.51	979.45	73
Potomac River (Lower North Branch)	CAMBARUS BARTONII BARTONII	2	44,548	35,002	21.43%	6	6	2	300.45	236.07	148
Potomac River (Lower North Branch)	ORCONNECTES OBSCURUS	2	1,591	1,591	100.00%	1	0	1	10.73	10.73	148
Potomac River AL Co/ Sideling Hill Creek	CAMBARUS BARTONII BARTONII	3	2,231	1,475	100.00%	4	0	2	28.61	18.92	78
	ORCONNECTES OBSCURUS	3	46,286	46,286	42.17%	35	48	1	593.57	593.57	78
Potomac River MO Co	CAMBARUS BARTONII BARTONII	3	7,637	7,637	28.57%	2	5	1	50.08	50.08	153
	ORCONNECTES OBSCURUS	3	44,287	44,287	24.64%	10	7	1	290.38	290.38	153
	ORCONNECTES VIRILIS	3	488,304	633,731	7.60%	34	25	2	3,201.78	4,155.34	153
Potomac River Upper North Branch	CAMBARUS BARTONII BARTONII	3	35,661	35,661	21.82%	11	8	1	360.54	360.54	99
Potomac Upper Tidal/ Oxon Creek	CAMBARUS SP.	3	358	358	0.00%	0	1	1	7.15	7.15	50
	ORCONNECTES LIMOSUS	3	716	716	50.00%	1	1	1	14.31	14.31	50
Prettyboy Reservoir	CAMBARUS BARTONII BARTONII	3	2,244	1,484	25.00%	1	3	2	28.61	18.92	78
	ORCONNECTES VIRILIS	3	16,550	11,716	40.68%	12	9	3	210.98	149.36	78
Rock Creek/Cabin John Creek	CAMBARUS BARTONII BARTONII	3	2,257	1,861	53.73%	2	1	2	26.63	21.96	85
	ORCONNECTES VIRILIS	3	55,478	53,659	37.16%	34	19	3	654.53	633.07	85
Rocky Gorge Dam	CAMBARUS BARTONII BARTONII	3	394	394	0.00%	0	1	1	7.15	7.15	55
	ORCONNECTES VIRILIS	3	2,231,376	3,216,098	2.81%	159	138	3	40,533.62	58,421.39	55
S Branch Patapsco	CAMBARUS BARTONII BARTONII	3	846	846	100.00%	1	0	1	7.15	7.15	118
	ORCONNECTES VIRILIS	3	648,988	619,746	40.52%	311	191	3	5,488.74	5,241.42	118
Sassafras River/ Stillpond-Fairlee	ORCONNECTES LIMOSUS	3	4,301	2,845	50.00%	4	4	2	57.23	37.85	75
	PROCAMBARUS SP.	3	7,468	7,468	36.00%	5	3	1	99.36	99.36	75
Savage River	CAMBARUS BARTONII BARTONII	3	10,417	7,752	45.45%	5	6	2	78.67	58.54	132
	CAMBARUS BARTONII BARTONII	3	6,755	6,755	40.00%	2	3	1	35.76	35.76	189
	ORCONNECTES VIRILIS	3	56,219	60,327	48.06%	20	6	2	297.64	319.39	189
South River/West River	CAMBARUS DIOGENES	3	448	448	0.00%	0	1	1	7.15	7.15	63
St. Mary's River	ORCONNECTES LIMOSUS	2	9,967	1,993	52.50%	7	6	2	143.08	28.62	70
Town Creek	CAMBARUS BARTONII BARTONII	2	8,073	5,382	100.00%	6	0	2	64.38	42.92	125

Appendix Table 12. PSU population estimates for crayfish species collected by the MBSS during 2007-2009											
PSU NAME	Species	Number of Samples	Abundance Estimate	Standard Error of Population Abundance	Total # in 1st Pass	Total # in 2nd Pass	# of Sites Present In	Probability of Capture	Density (# per stream mile)	Standard Error of Population Density	Stream Miles
Tuckahoe Creek	ORCONNECTES LIMOSUS	3	55,430	47,759	40.85%	18	12	2	315.14	271.53	176
	PROCAMBARUS SP.	3	81,770	16,499	40.00%	26	26	2	464.89	93.80	176
Upper Chester River	ORCONNECTES LIMOSUS	3	51,449	42,469	29.60%	18	9	2	435.03	359.10	118
	PROCAMBARUS SP.	3	3,885	3,885	65.33%	3	1	1	32.85	32.85	118
Upper Monocacy River	ORCONNECTES RUSTICUS	3	1,986,943	1,791,544	41.48%	416	587	2	7,173.86	6,468.37	277
	ORCONNECTES VIRILIS	3	3,868,044	5,145,436	14.85%	290	346	3	13,965.57	18,577.59	277
Upper Pocomoke River	FALLICAMBARUS FODIENS	2	1,252	1,252	0.00%	0	1	1	10.73	10.73	117
	PROCAMBARUS CLARKII	2	106,420	96,404	10.59%	9	12	2	911.83	826.01	117
	PROCAMBARUS SP.	2	7,512	5,008	33.33%	2	4	2	64.36	42.91	117
West Chesapeake Bay	CAMBARUS DIOGENES	3	6,150	3,898	90.50%	11	1	3	86.92	55.08	71
Western Branch	CAMBARUS DIOGENES	3	7,371	8,064	51.06%	4	1	2	56.04	61.31	132
	ORCONNECTES LIMOSUS	3	4,705	2,490	100.00%	5	0	2	35.77	18.93	132
	PROCAMBARUS CLARKII	3	18,820	18,820	35.00%	7	13	1	143.07	143.07	132
Wicomico River	CAMBARUS DIOGENES	3	521	521	0.00%	0	1	1	7.15	7.15	73
	ORCONNECTES LIMOSUS	3	12,959	5,858	40.18%	10	5	2	177.97	80.46	73
Wills Creek	CAMBARUS BARTONII BARTONII	3	1,425	823	33.33%	1	2	2	21.46	12.39	66
Youghiogheny River	CAMBARUS CARINIROSTRIS	3	143,965	87,870	22.66%	20	13	3	631.34	385.34	228
	ORCONNECTES OBSCURUS	3	4,893	4,893	100.00%	3	0	1	21.46	21.46	228
Zekiah Swamp	ORCONNECTES LIMOSUS	3	1,040	1,040	100.00%	1	0	1	7.15	7.15	145
	PROCAMBARUS CLARKII	3	11,960	16,145	26.09%	3	2	2	82.24	111.02	145

Appendix Table 13. Round 2 (2000-2004) blacknose dace and western blacknose dace statewide population abundance estimates.		
Species	Abundance	Standard Error of the Population
BLACKNOSE DACE	13,961,830	793,184
WESTERN BLACKNOSE DACE	381,299	91,921

Appendix Table 14. Stream miles for Round 2 (2000-2004) using map scale 1:100K and 1:250k.				
PSU NAME	Basin	1:100K PSUMILES	1:250K PSUMILES	% Reduction
Aberdeen Proving Ground/Swan Creek	BUSH RIVER	54.0	51.3	4.99%
Anacostia River	WASHINGTON METROPOLITAN	167.9	167.9	0.00%
Antietam Creek	UPPER POTOMAC RIVER	226.0	207.1	8.34%
Assawoman/Isle of Wight/Sinexpent/Newport/Chincoteague Bays	OCEAN COASTAL	74.1	74.1	0.00%
Back River	PATAPSCO RIVER	43.4	40.6	6.52%
Bodkin Creek/Baltimore Harbor	PATAPSCO RIVER	44.9	42.0	6.52%
Breton/St. Clements Bays	LOWER POTOMAC RIVER	112.7	89.7	20.41%
Brighton Dam	PATUXENT RIVER	98.4	86.8	11.74%
Broad Creek	SUSQUEHANNA RIVER	44.1	37.4	15.24%
Bush River/Bynum Run	BUSH RIVER	67.4	64.0	4.99%
Casselman River	YOUGHIOGHENY RIVER	88.5	83.4	5.79%
Catoctin Creek	MIDDLE POTOMAC RIVER	166.8	150.3	9.87%
Conewago Creek/Double Pipe Creek	MIDDLE POTOMAC RIVER	252.1	227.2	9.87%
Conococheague	UPPER POTOMAC RIVER	65.5	60.0	8.34%
Corsica River/Southeast Creek	CHESTER RIVER	72.0	62.6	13.11%
Deer Creek	SUSQUEHANNA RIVER	194.6	165.0	15.24%
Dividing Creek/Nassawango Creek	POCOMOKE RIVER	99.1	79.6	19.67%
Eastern Bay/Kent Narrows/Lower Chester River/Langford/Kent Island	CHESTER RIVER	29.4	25.6	13.11%
Evitts Creek	NORTH BRANCH POTOMAC RIVER	37.1	37.1	0.00%
Fifteen Mile Creek	UPPER POTOMAC RIVER	81.3	74.6	8.34%
Fishing Bay/Transquaking River	NANTICOKE RIVER	67.0	42.3	36.81%
Georges Creek	NORTH BRANCH POTOMAC RIVER	83.4	83.4	0.00%
Gilbert Swamp	LOWER POTOMAC RIVER	58.1	46.2	20.41%
Gunpowder River/Lower Gunpowder Falls/Bird River/Middle River-Browns	GUNPOWDER RIVER	84.4	82.1	2.74%
Gwynns Falls	PATAPSCO RIVER	67.3	62.9	6.52%
Honga River/Little Choptank/Lower Choptank	CHOPTANK RIVER	75.1	38.8	48.42%
Jones Falls	PATAPSCO RIVER	60.3	56.4	6.52%

Appendix Table 14. Stream miles for Round 2 (2000-2004) using map scale 1:100K and 1:250k.				
PSU NAME	Basin	1:100K PSUMILES	1:250K PSUMILES	% Reduction
Liberty Reservoir	PATAPSCO RIVER	184.0	172.0	6.52%
Little Conococheague/Licking Creek	UPPER POTOMAC RIVER	49.4	45.3	8.34%
Little Gunpowder Falls	GUNPOWDER RIVER	73.2	71.2	2.74%
Little Patuxent River	PATUXENT RIVER	149.8	132.2	11.74%
Little Youghiogheny/Deep Creek Lake	YOUGHIOGHENY RIVER	80.8	76.1	5.79%
Loch Raven Reservoir	GUNPOWDER RIVER	241.8	235.2	2.74%
Lower Elk River/Bohemia River/Upper Elk River/Back Creek/ Little Elk Creek	ELK RIVER	131.3	96.0	26.90%
Lower Monocacy River	MIDDLE POTOMAC RIVER	454.6	409.7	9.87%
Lower Pocomoke River	POCOMOKE RIVER	71.0	57.0	19.67%
Lower Susquehanna River/Octoraro Creek/Conowingo Dam Susquehanna River	SUSQUEHANNA RIVER	86.0	72.9	15.24%
Lower Wicomico/Monie Bay/Wicomico Creek/Wicomico River Head	NANTICOKE RIVER	91.4	57.8	36.81%
Lower Winters Run/Atkisson Reservoir	BUSH RIVER	75.6	71.8	4.99%
Magothy/Severn River	WEST CHESAPEAKE BAY	76.2	76.2	0.00%
Marshyhope Creek	NANTICOKE RIVER	127.5	80.6	36.81%
Mattawoman Creek	LOWER POTOMAC RIVER	121.7	96.9	20.41%
Middle Chester River	CHESTER RIVER	45.0	39.1	13.11%
Middle Patuxent River	PATUXENT RIVER	76.3	67.4	11.74%
Miles River/Wye River	CHESTER RIVER	70.2	61.0	13.11%
Nanjemoy Creek	LOWER POTOMAC RIVER	86.3	68.7	20.41%
Nanticoke River	NANTICOKE RIVER	72.0	45.5	36.81%
Northeast River/Furnace Bay	ELK RIVER	82.9	60.6	26.90%
Patapsco River Lower North Branch	PATAPSCO RIVER	139.6	130.5	6.52%
Patuxent River (Lower)	PATUXENT RIVER	291.3	257.1	11.74%
Patuxent River (Middle)	PATUXENT RIVER	98.8	87.2	11.74%
Patuxent River (Upper)	PATUXENT RIVER	131.0	115.6	11.74%
Piscataway Creek	WASHINGTON METROPOLITAN	70.5	70.5	0.00%
Pocomoke Sound/Tangier Sound/Big Annemessex/Manokin River	POCOMOKE RIVER	51.5	41.4	19.67%
Port Tobacco River	LOWER POTOMAC RIVER	51.5	41.0	20.41%

Appendix Table 14. Stream miles for Round 2 (2000-2004) using map scale 1:100K and 1:250k.				
PSU NAME	Basin	1:100K PSUMILES	1:250K PSUMILES	% Reduction
Potomac Lower Tidal/Potomac Middle Tidal	LOWER POTOMAC RIVER	70.2	55.9	20.41%
Potomac R WA Co/Marsh Run/Tonoloway/Little Tonoloway	UPPER POTOMAC RIVER	102.9	94.3	8.34%
Potomac River (Frederick County)	MIDDLE POTOMAC RIVER	72.7	65.5	9.87%
Potomac River (Lower North Branch)	NORTH BRANCH POTOMAC RIVER	148.3	148.3	0.00%
Potomac River AL Co/Sideling Hill Creek	UPPER POTOMAC RIVER	78.0	71.5	8.34%
Potomac River MO Co	WASHINGTON METROPOLITAN	152.5	152.5	0.00%
Potomac River Upper North Branch	NORTH BRANCH POTOMAC RIVER	98.9	98.9	0.00%
Potomac Upper Tidal/Oxon Creek	LOWER POTOMAC RIVER	50.0	39.8	20.41%
Prettyboy Reservoir	GUNPOWDER RIVER	78.4	76.3	2.74%
Rock Creek/Cabin John Creek	WASHINGTON METROPOLITAN	84.8	84.8	0.00%
Rocky Gorge Dam	PATUXENT RIVER	55.1	48.6	11.74%
S Branch Patapsco	PATAPSCO RIVER	118.2	110.5	6.52%
Sassafras River/Stillpond-Fairlee	ELK RIVER	75.2	54.9	26.90%
Savage River	NORTH BRANCH POTOMAC RIVER	132.4	132.4	0.00%
Seneca Creek	WASHINGTON METROPOLITAN	188.9	188.9	0.00%
South River/West River	WEST CHESAPEAKE BAY	62.6	62.6	0.00%
St. Mary's River	LOWER POTOMAC RIVER	69.7	55.4	20.41%
Town Creek	UPPER POTOMAC RIVER	125.4	114.9	8.34%
Tuckahoe Creek	CHOPTANK RIVER	175.9	90.7	48.42%
Upper Chester River	CHESTER RIVER	118.3	102.8	13.11%
Upper Choptank River	CHOPTANK RIVER	240.7	124.2	48.42%
Upper Monocacy River	MIDDLE POTOMAC RIVER	277.0	249.6	9.87%
Upper Pocomoke River	POCOMOKE RIVER	116.7	93.8	19.67%
West Chesapeake Bay	WEST CHESAPEAKE BAY	70.8	70.8	0.00%
Western Branch	PATUXENT RIVER	131.5	116.1	11.74%
Wicomico River	LOWER POTOMAC RIVER	72.8	58.0	20.41%
Wills Creek	NORTH BRANCH POTOMAC RIVER	66.4	66.4	0.00%
Youghiogheny River	YOUGHIOGHENY RIVER	228.0	214.8	5.79%

Appendix Table 14. Stream miles for Round 2 (2000-2004) using map scale 1:100K and 1:250k.				
PSU NAME	Basin	1:100K PSUMILES	1:250K PSUMILES	% Reduction
Zekiah Swamp	LOWER POTOMAC RIVER	145.4	115.7	20.41%