TOTAL MAXIMUM DAILY LOADS
UPPER ANACOSTIA RIVER
LOWER ANACOSTIA RIVER
DISTRICT OF COLUMBIA

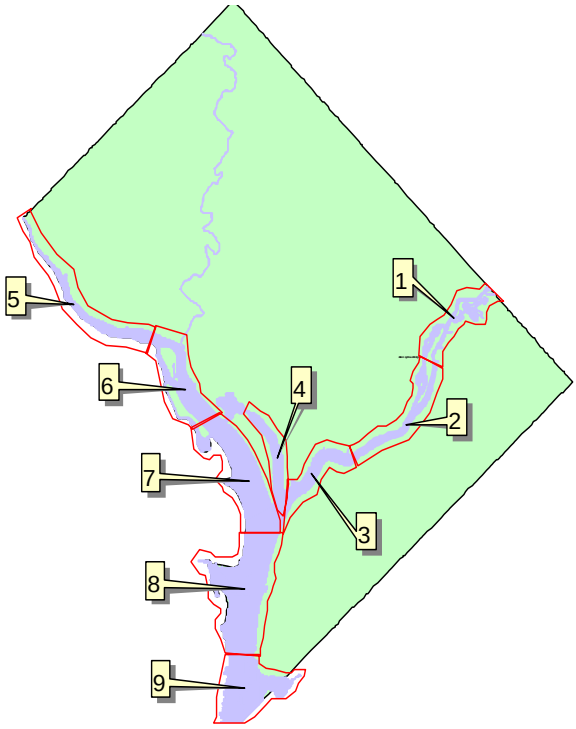
TOTAL SUSPENDED SOLIDS

APPENDIX A

DEPARTMENT OF HEALTH
ENVIRONMENTAL HEALTH ADMINISTRATION
BUREAU OF ENVIRONMENTAL QUALITY
WATER QUALITY DIVISION
WATER QUALITY CONTROL BRANCH

OCTOBER, 2001

Figure 1
SAV Shoreline Survey Site Map



1 - Upper Anacostia
2 - Midddle Anacostia
3 - Lower Anacostia
4 - Washington Ship Channel
5 - Upper Potomac
6 - Middle Potomac (Roosevelt Island Area)
7 - Middle Potomac (Upper National Airport Area)
8 - Lower Potomac (Lower National Airport Area)
9 - Lower Potomac (Blue Plains, Oxon Cove Area)

Figure 2
Relative Abundance of all Fish Species vs. SAV Cover Density at Electrofishing Site P2E

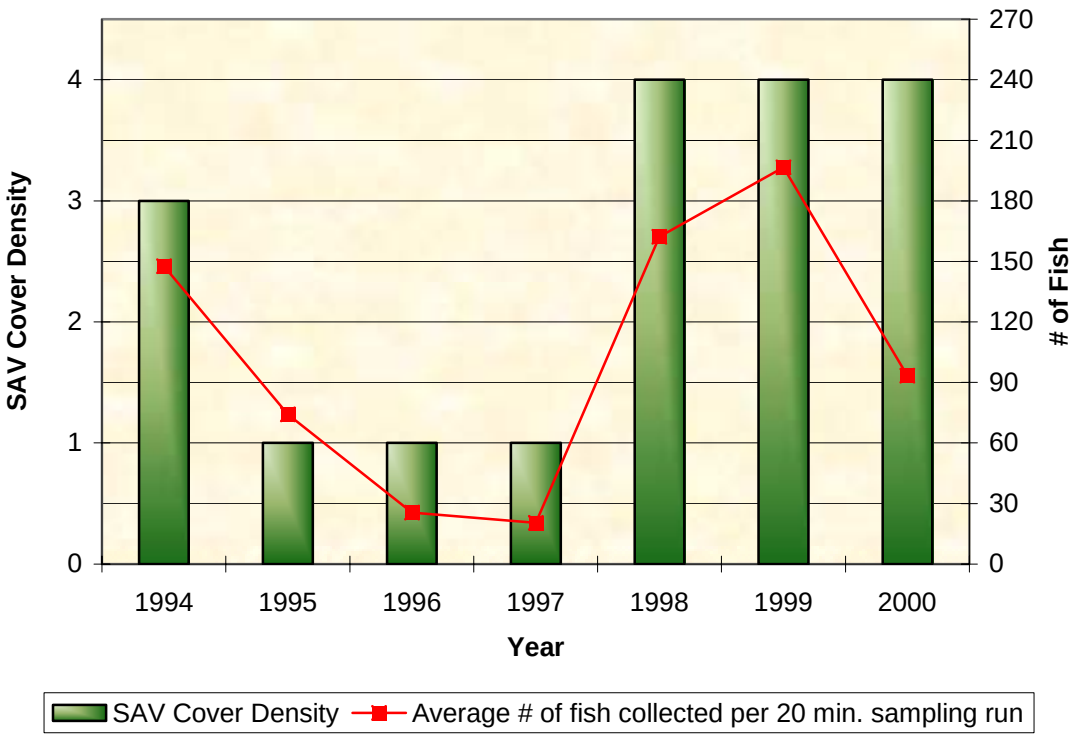


Figure 3
Relative Abundance of all Fish Species vs SAV Cover Density at Electrofishing Site P3E

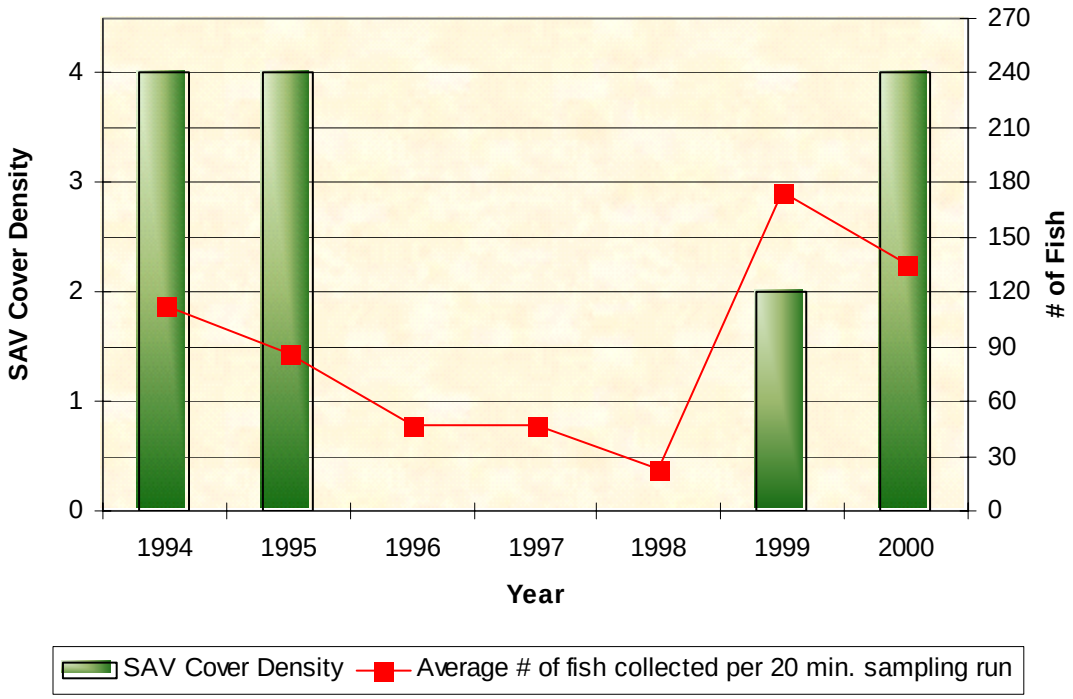


Figure 4
Relative Abundance of Harvestable Largemouth Bass vs. SAV Cover Density at Electrofishing Site P2E

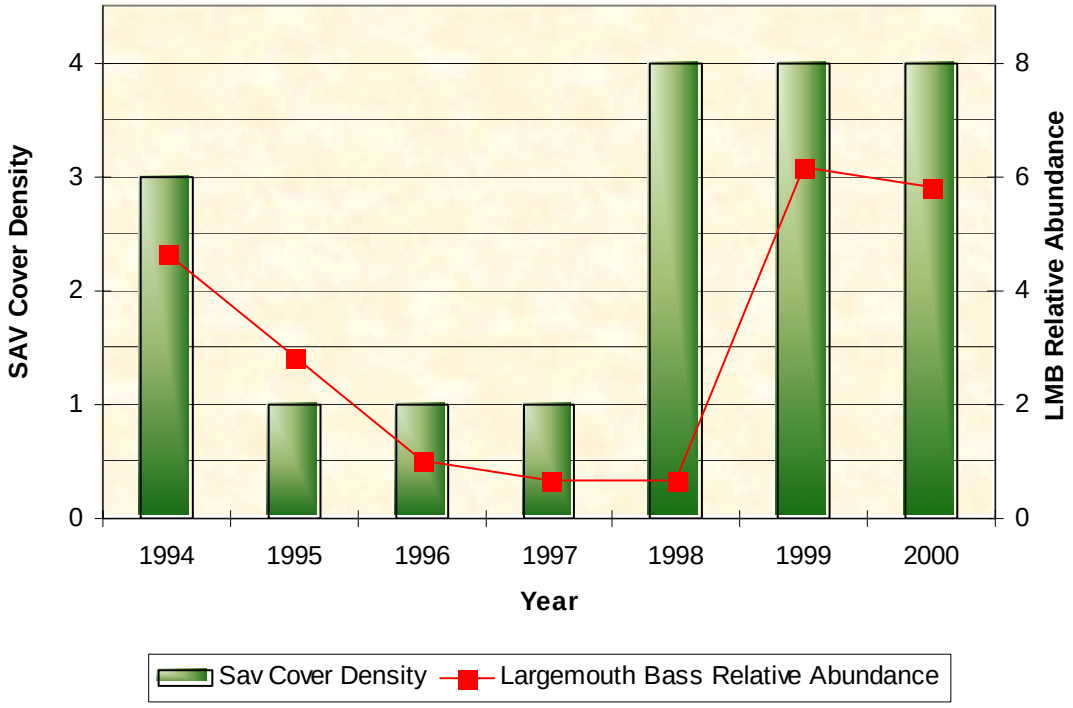


Figure 5
Relative Abundance of all Largemouth Bass vs. SAV Cover Density at Electrofishing Site P3E

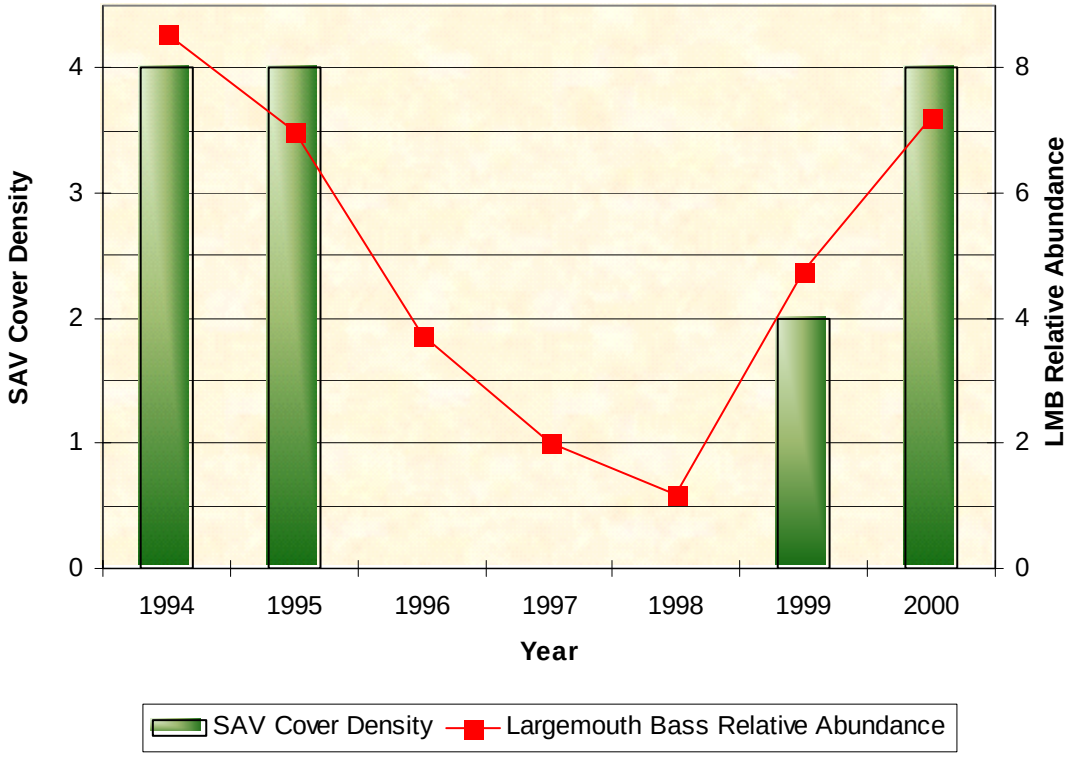
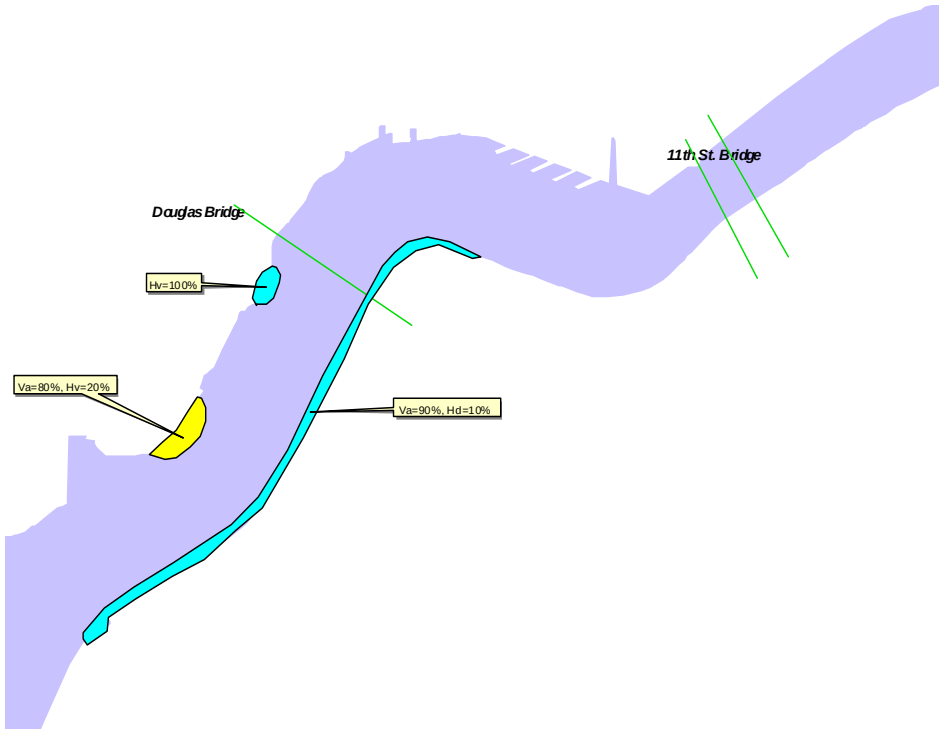


Figure 6: Lower Anacostia (Section 3)



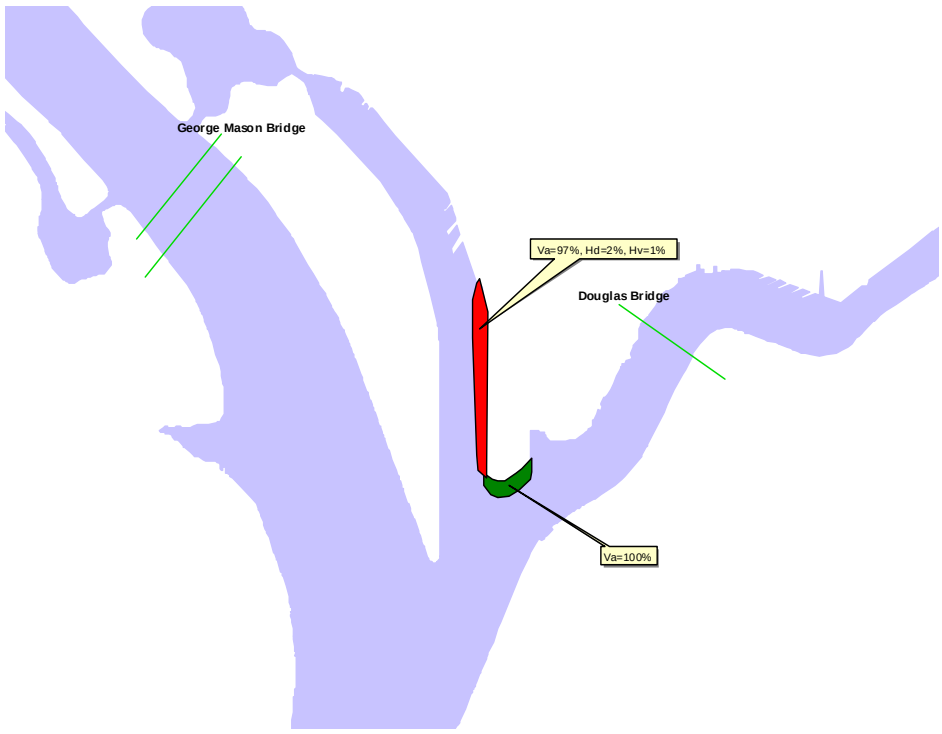
SAV Cover Density Percentage-2000

- 0 - 10
- 10 - 40
- 40 - 70
- 70 - 100

Hv = Hydrilla verticillata
Va = Vallisneria americana
Cd = Ceratophyllum demersum
Ms = Myriophyllum spicatum
Hd = Heteranthera dubia
Ng = Najas guadalupensis
Nm = Najas minor

N

Figure 7: Washington Ship Channel (Section 4)



SAV Cover Density Percentage-2000

- 0 - 10
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- 70 - 100

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Ms = Myriophyllum spicatum
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Nm = Najas minor

N

Figure 8
Land Use in the Anacostia Watershed

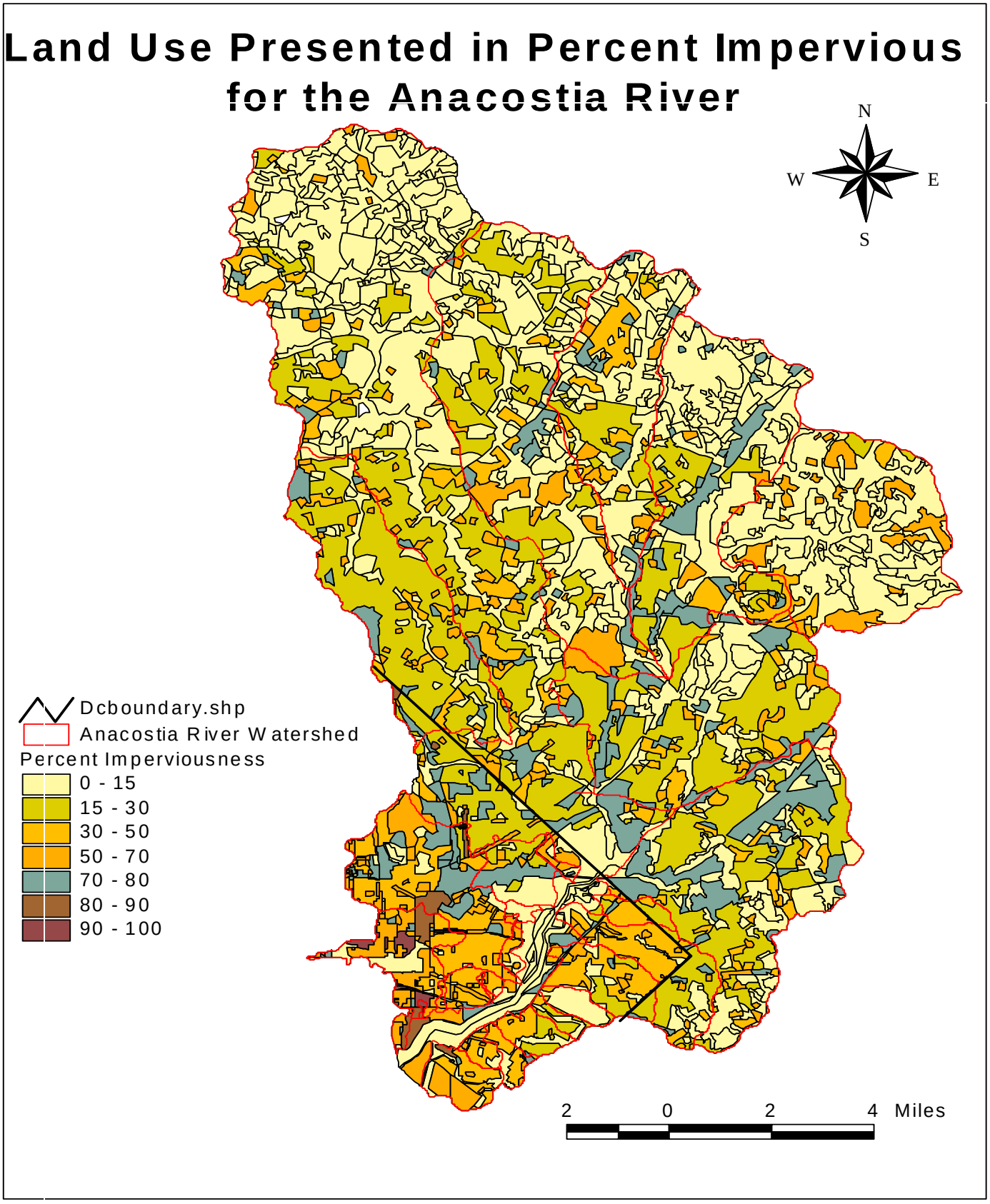


Figure 9

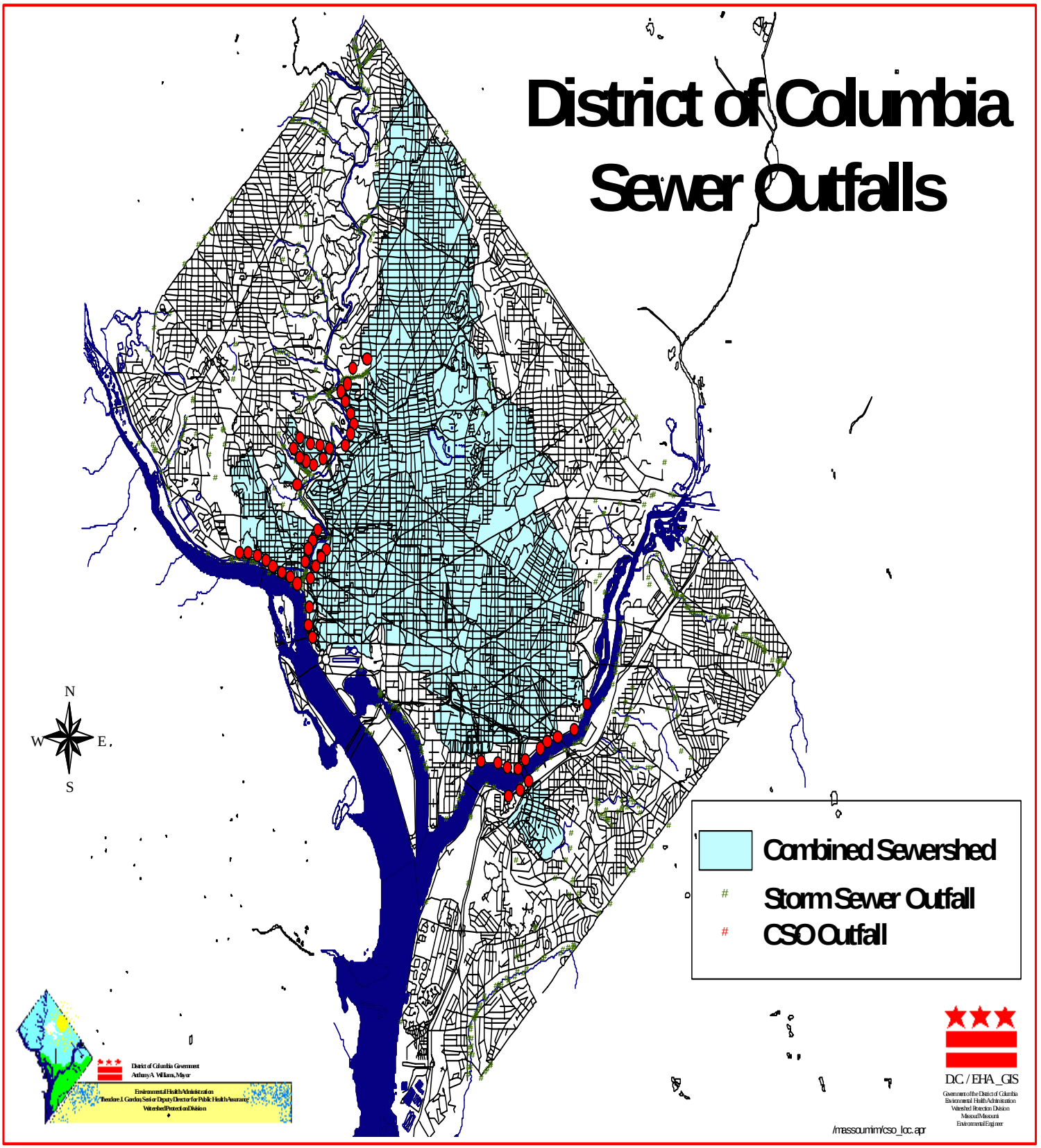

District of Columbia
Sewer Outfalls
N
W
E
S
Combined Sewershed
Storm Sewer Outfall
CSO Outfall
District of Columbia Government
Anthony A. Williams, Mayor
Environmental Health Administration
Theodore J. Gordon, Senior Deputy Director for Public Health Assurance
Watershed Protection Division
D.C. / EHA_GIS
Government of the District of Columbia
Environmental Health Administration
Watershed Protection Division
Masood Massoumi
Environmental Engineer
/massoumim/cso_loc.apr

Figure 10
Segments Used in the Anacostia River
TAM/WASP Model

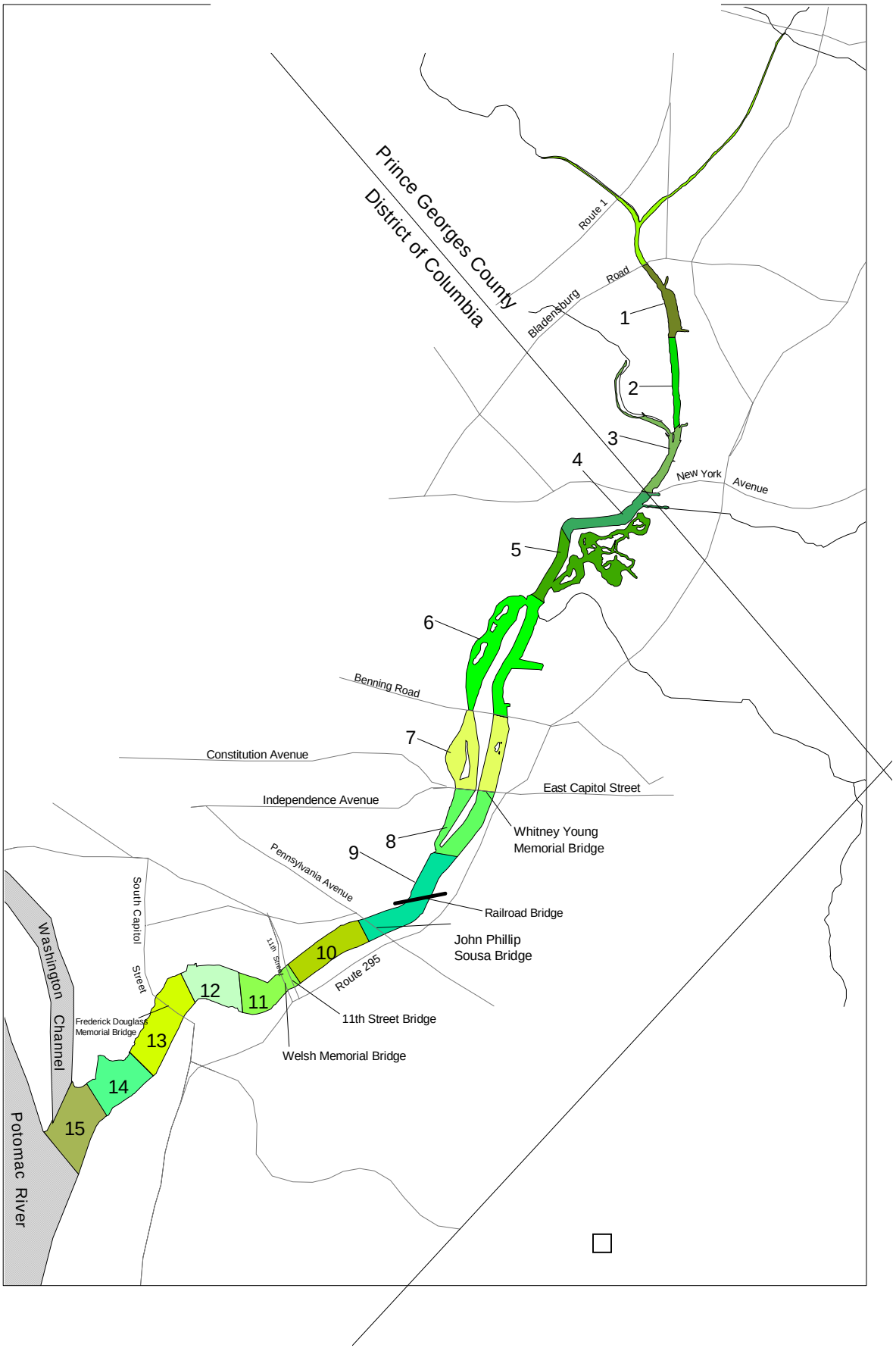


Figure 11
Segments Used in the Anacostia
River TAM/WASP Model

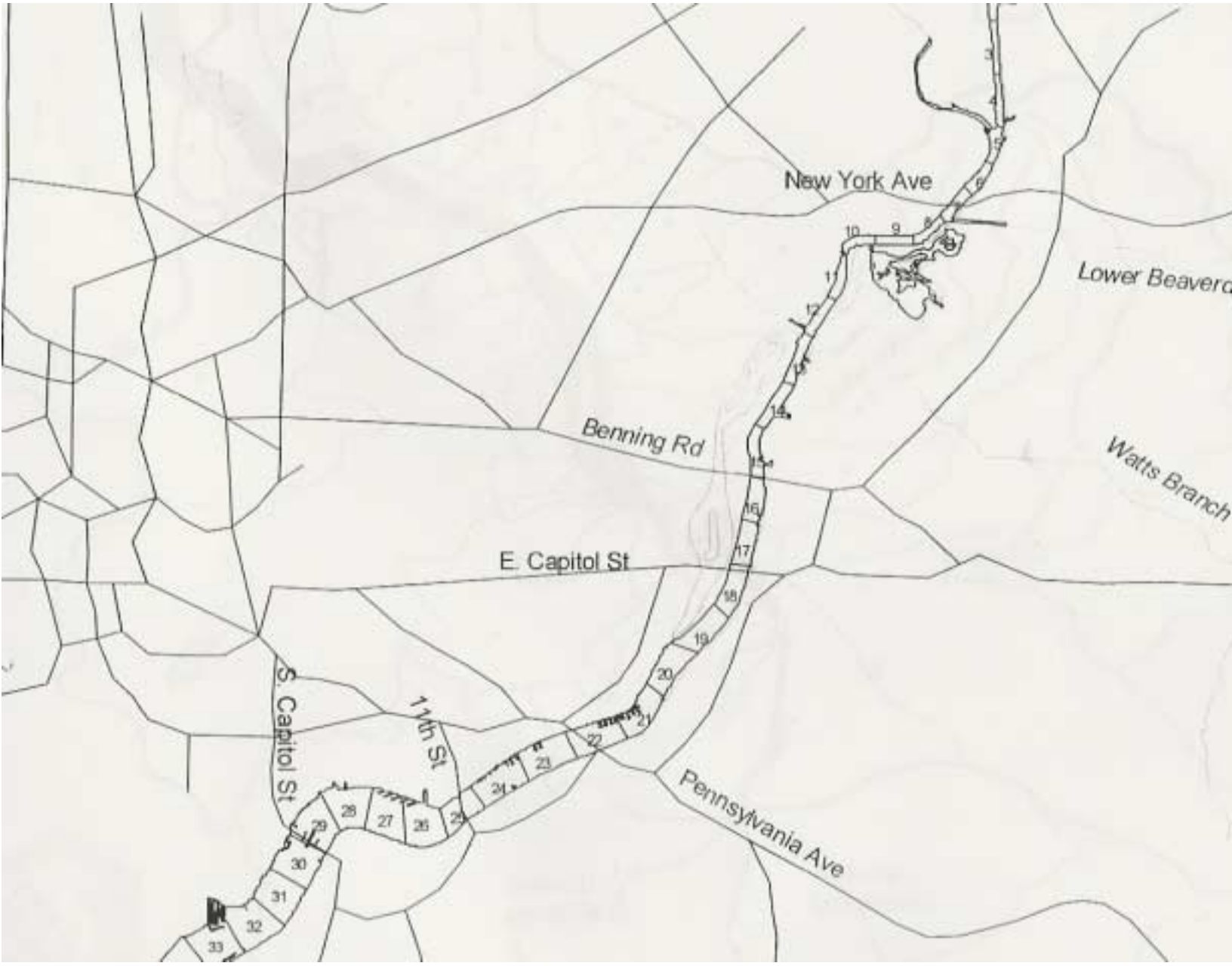


Figure 12
Calibration Summer Secchi Depth Results

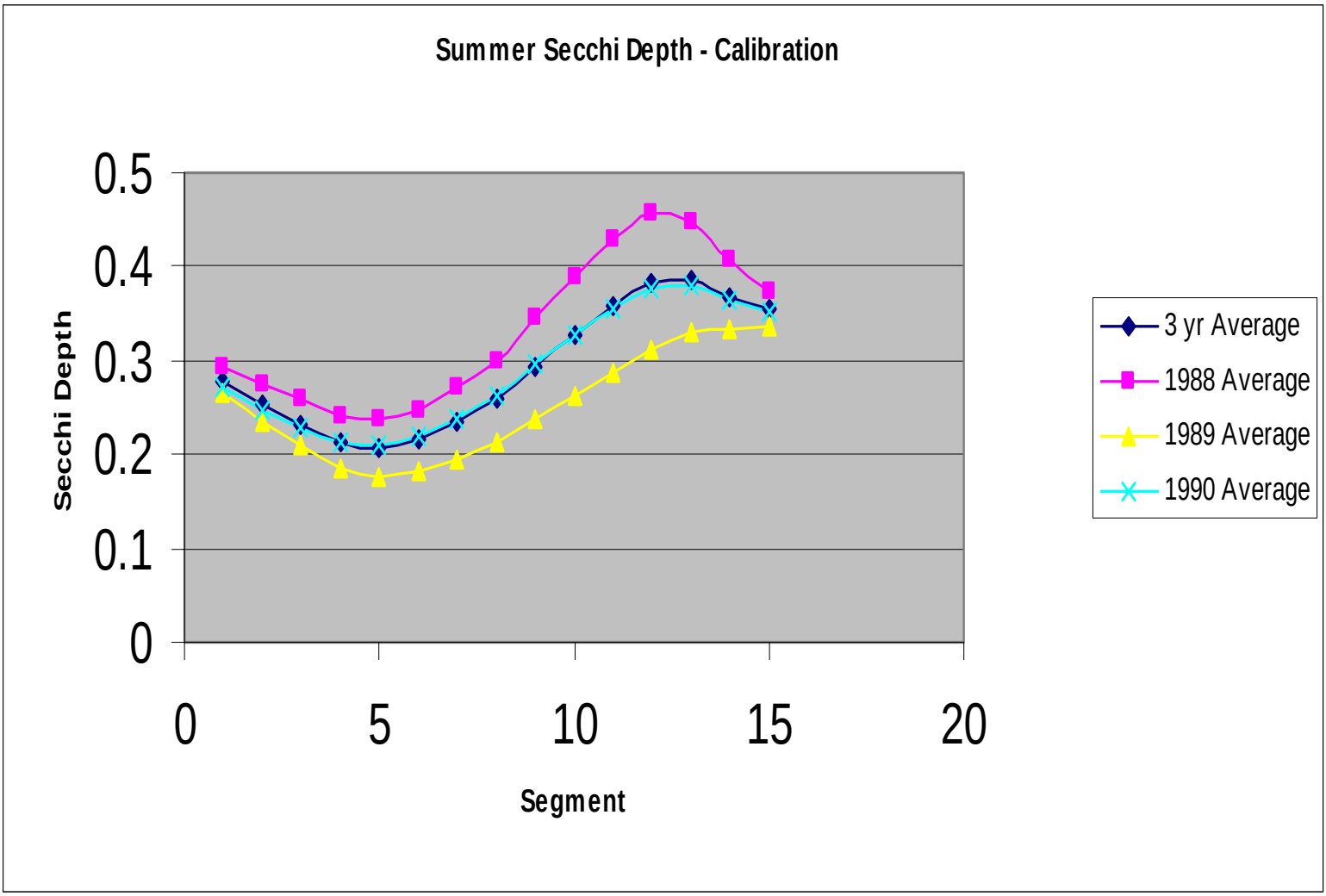


Figure 13
Calibration summer Chlorophyll a Results

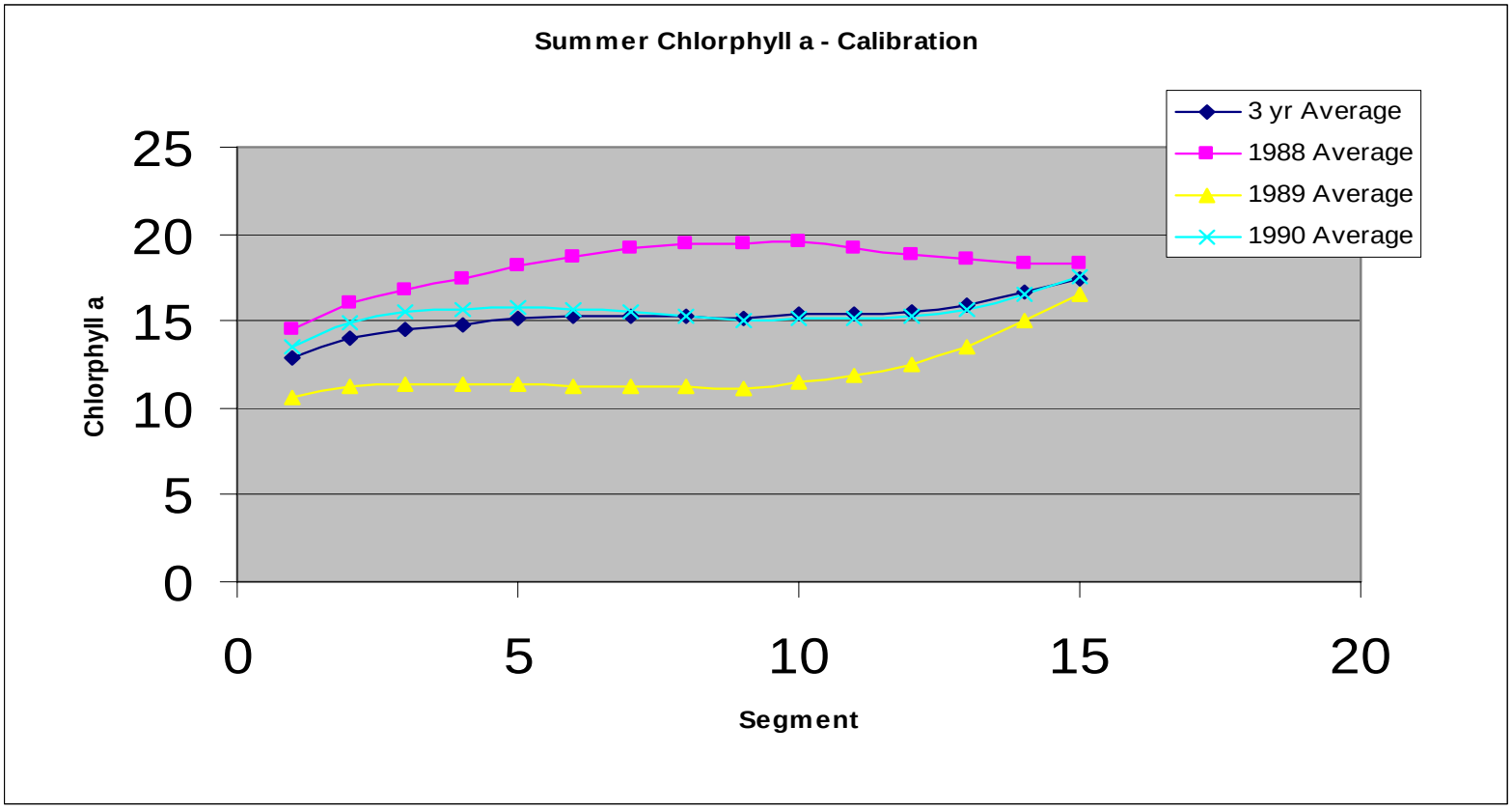


Figure 14

Yearly Calibration Load Tables

1988 TSS Totals

Month	SSTRIBS	UPSTREAM	LBD	WATTS	CSO
January	105301	2369830	80613	56728	47234
February	70564	2656611	36498	38777	23327
March	63864	1725704	44323	34702	19665
April	52057	1299342	26586	28602	10976
May	132506	5026577	57000	70345	71757
June	21260	255501	7113	11877	2012
July	95970	1032965	26305	50879	135745
August	52971	1650075	23118	28721	23852
September	39855	682211	17612	21568	7936
October	42105	546645	16041	22762	16005
November	180697	2780162	105038	95147	111981
December	30417	604631	11868	16838	417

1989 TSS Totals

Month	SSTRIBS	UPSTREAM	LBD	WATTS	CSO
January	71329	1102201	37214	38820	13008
February	77324	2273888	43158	41740	22263
March	129486	3905255	119268	70315	27680
April	87873	1690265	43334	48308	31376
May	273696	10646421	215467	144391	248691
June	154778	4068273	81095	83929	189189
July	134344	2846976	67368	73034	165479
August	27146	263545	7761	15185	5236
September	285307	2017257	124057	145448	148056
October	206663	3849363	170232	109153	111020
November	72752	1654320	38348	39105	80903
December	68914	220956	15648	36625	11225

1990 TSS Totals

Month	SSTRIBS	UPSTREAM	LBD	WATTS	CSO
January	86835	3710862	76692	47373	63874
February	22912	880441	10455	13091	326
March	62192	1549566	31088	33993	42794
April	114036	3289157	66759	61688	63499
May	146135	4511037	103985	78523	78044
June	109255	615247	32049	56323	63216
July	83727	2417543	31191	45219	87989
August	205830	3482835	87435	109980	181467
September	9473	225648	2835	5498	18792
October	106182	2161057	50581	55944	102036
November	69751	1344124	56198	36928	54023
December	156533	3570580	80538	83517	84350

Figure 15
Final TMDL Scenario
Summer Secchi Results

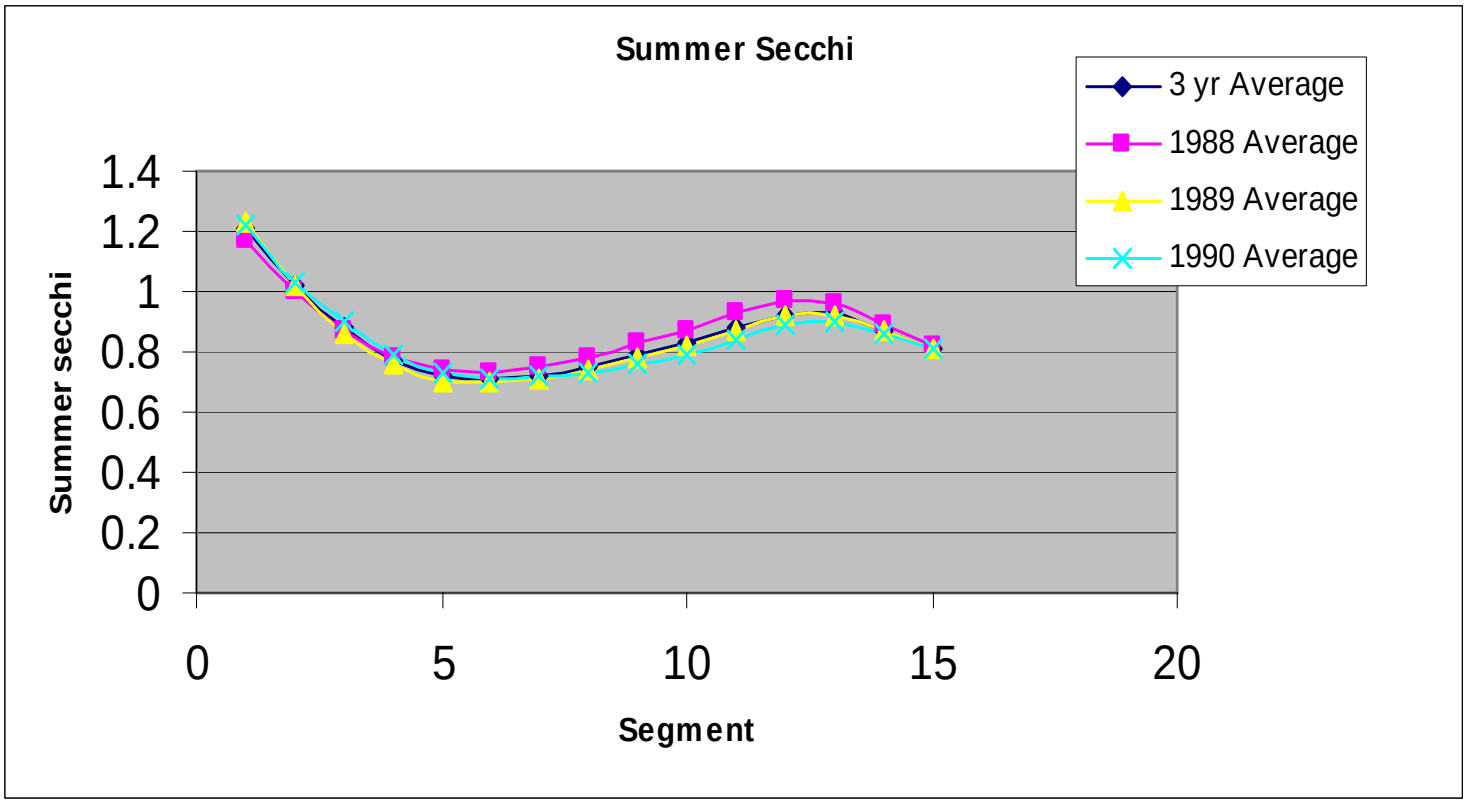


Figure 16
Final TMDL Scenario
Summer Chlorophyll a Results

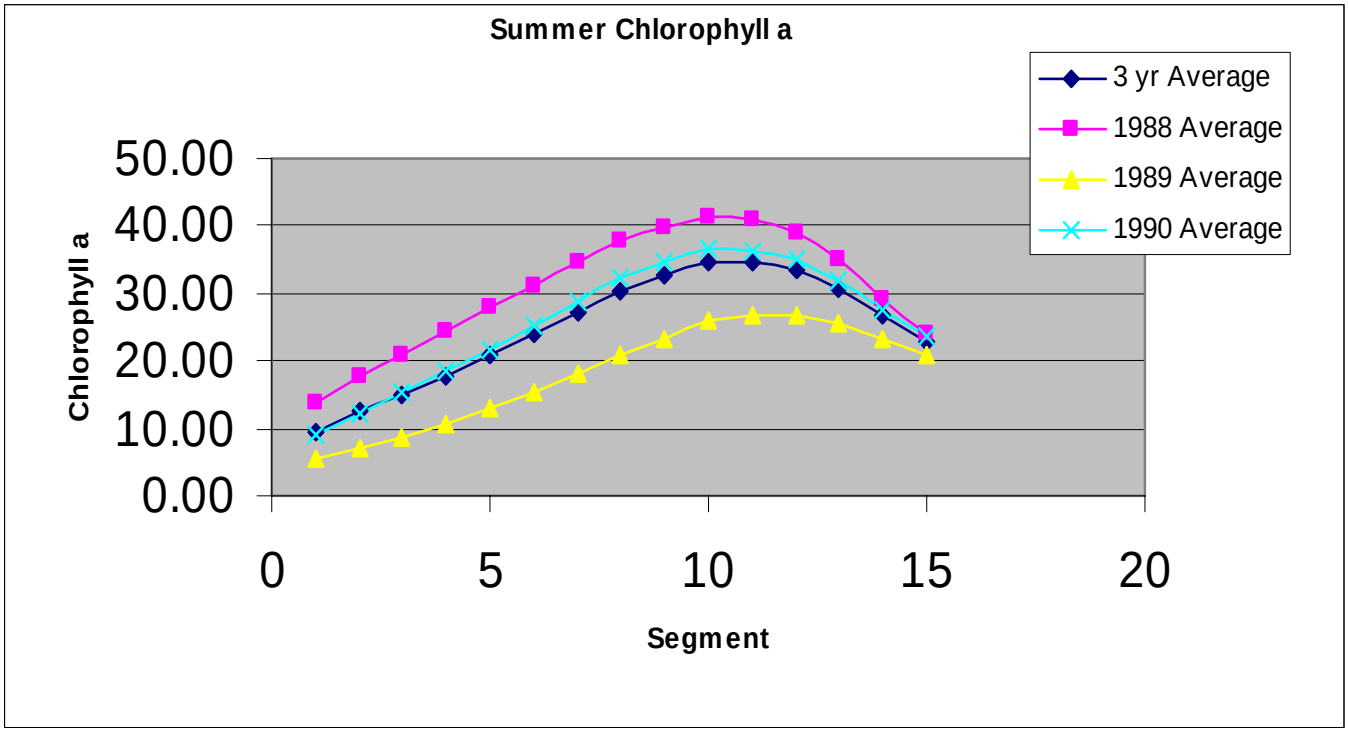


Figure 17
Final TMDL Scenario
Average Secchi Depth and Chlorophyll a Results
Secchi Depth

Segment	3 yr Average	1988 Average	1989 Average	1990 Average
1	1.206471	1.170257	1.225999	1.223159
2	1.017445	1.003724	1.015956	1.032654
3	0.877702	0.874463	0.86272	0.895925
4	0.774877	0.779757	0.756425	0.788449
5	0.722254	0.736897	0.701061	0.728804
6	0.713385	0.732537	0.695084	0.712533
7	0.724285	0.749397	0.70836	0.715098
8	0.748279	0.777799	0.735621	0.731416
9	0.789526	0.825626	0.779033	0.763921
10	0.828167	0.871533	0.818201	0.794766
11	0.878759	0.926019	0.868776	0.841481
12	0.923914	0.967953	0.916224	0.887565
13	0.926414	0.955953	0.924178	0.899112
14	0.872889	0.885864	0.874584	0.85822
15	0.813481	0.818822	0.814393	0.807229
Average	0.809686	0.83568	0.799328	0.794049
Segment 4-15 Average	0.81	0.84	0.80	0.79

Chlorophyll a

Segment	3 yr Average	1988 Average	1989 Average	1990 Average
1	9.47	13.92	5.32	9.16
2	12.43	17.78	7.13	12.37
3	14.93	20.88	8.76	15.17
4	17.78	24.26	10.68	18.40
5	20.80	27.78	12.84	21.78
6	24.00	31.30	15.34	25.35
7	27.27	34.74	18.12	28.93
8	30.25	37.74	20.89	32.12
9	32.66	39.93	23.41	34.63
10	34.70	41.53	25.89	36.68
11	34.60	40.80	26.62	36.38
12	33.60	39.07	26.65	35.09
13	30.88	35.13	25.49	32.01
14	26.64	29.27	23.19	27.47
15	22.87	24.12	21.02	23.48
Average	24.85824	30.54966	18.08961	25.93545
Segment 4-15 Average	28.00	33.81	20.84	29.36

Figure 18
TSS Results for D.C. Controls Only

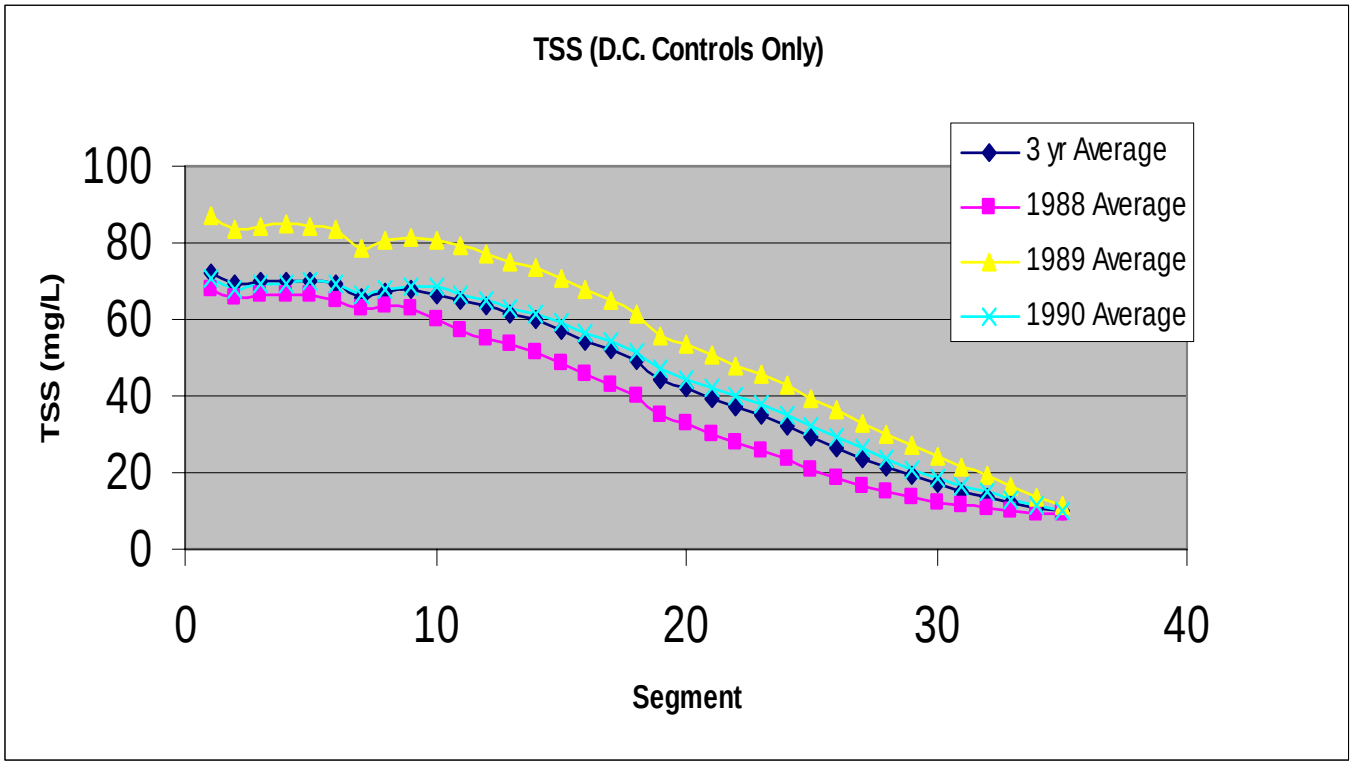
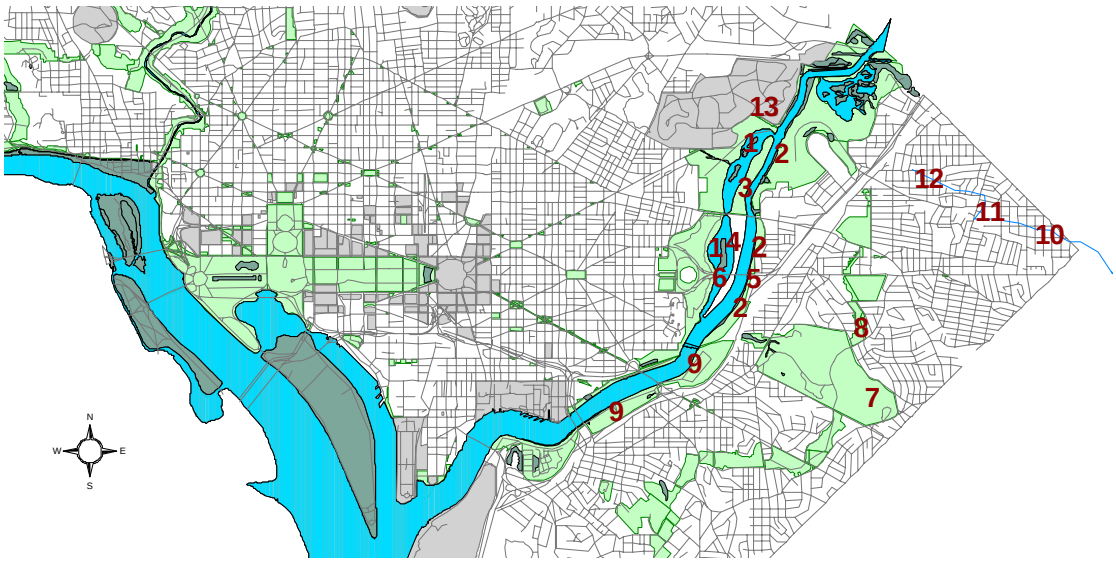


Figure 19

Anacostia Watershed Restoration Project Sites



1. **Kingman Lake (USACE)**
2. **River Fringe Wetland (USACE)**
3. **Kingman Island (USACE/DC)**
4. **Bridge & Boat Ramp Construction (USN)**
5. **River Terrace Storm Water Retrofit**
6. **RFK Stormwater Retrofit**
7. **Fort Dupont BMP (USGS/NPS)**
8. **Fort Chaplin Restoration (USGS/NPS)**
9. **Lower Anacostia Park (USACE/NPS)**
10. **Watts Branch Sections A-L**
11. **Watts Branch Sections AA-CC (NRCS/USFWS)**
12. **Watts Branch Gauge Station (USGS)**
13. **Hickey Run BMP (USDA)**

Prepared by: Caroline Molivadas
DC Department of Health
Data Source: USEPA Office of Water, National Park Service, National Capital Park & Planning Commision, ADC Map Metro Washington DC, DC Environmental Health Administration GIS

Kingman.apr 10-15-01

US Army Corp of Engineers (USACE)
Government of the District of Columbia (DC)
United States Navy (USN)
National Park Service (NPS)
Natural Resource Conservation Service (NRCS)
US Department of Agriculture (USDA)
US Geological Service (USGS)
US Fish & Wildlife Service (USFWS)

Figure 20
BMP for the Anacostia Watershed (D.C. Only)

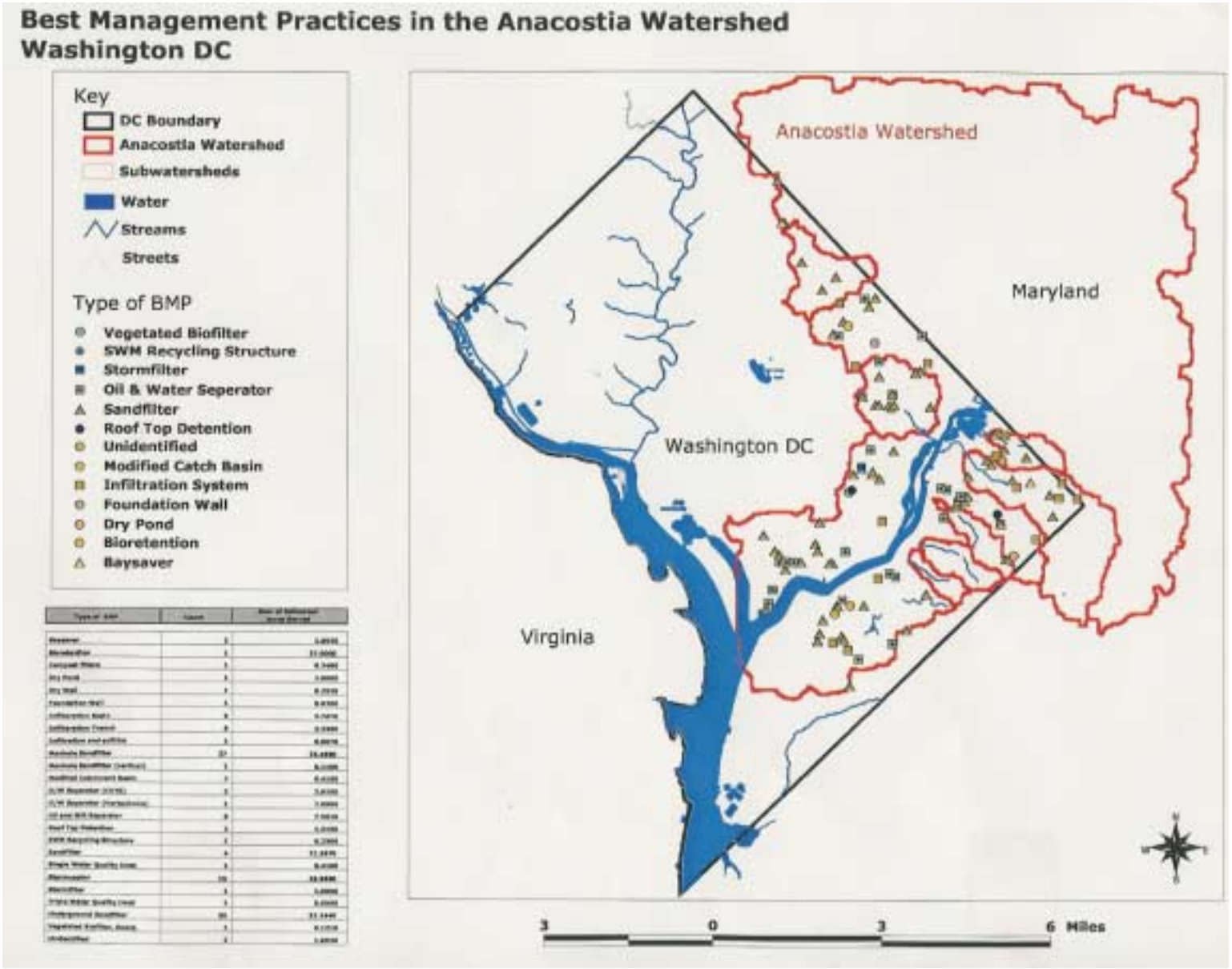


Figure 21
BMP's In the Anacostia Watershed

Best Management Practices in the Anacostia Watershed, District of Columbia

Summary BMP Data for the DC Portion of the Anacostia Watershed			
Type of BMP	*Reference#*	*Count*	*Sum of Estimated Acres*
Baysaver	1	2	1.8520
Bioretention	2	1	37.0000
Compost filters	3	1	0.2400
Dry Pond	4	1	1.0000
Dry Well	5	1	0.2520
Infiltration Basin	6	5	2.7670
Infiltration Trench	7	8	2.2380
Infiltration and exfiltration device	8	1	0.6070
Manhole Sandfilter	9	37	23.4690
Manhole Sandfilter (vertical)	10	1	0.1100
Modified Catchment Manhole	11	2	0.4150
Oil and Grit O/W Seperator (CVTS)	12	2	2.9150
Oil and Grit O/W Seperator (Vortechnics)	13	1	1.0900
Oil and Grit Separator (Generic)	14	8	7.5610
Roof Top Detention	15	2	1.3150
Single Water Quality Inlet	16	1	0.4160
Stormceptor	17	15	19.9680
Stormfilter	18	1	1.0900
Triple Water Quality Inlet	19	1	0.6500
Underground Sandfilter	20	30	31.1440
Sandfilter	21	4	21.5670
Vegetated Biofilter,Swales	22	1	0.1210
Totals		**126**	**157.6660**