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March 1990

Land Use for the Chesapeake Bay Watershed Model

U.S. Environmental Protection Agency
Region III Information Resource
Center (3PM52)
841 Chestnut Street
Philadelphia, PA 19107



**Chesapeake
Bay
Program**

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LIST OF TABLES

<u>No.</u>	<u>Title</u>	<u>Page</u>
1	1978 Land Use by County	9
2	1985 Land Use by County	13
3	1978 Land Use for Watershed Model by Segments Above the Fall Line	17
4	1978 Land Use for Watershed Model by Segments Below the Fall Line	18
5	1985 Land Use for Watershed Model by Segments Above the Fall Line	19
6	1985 Land Use for Watershed Model by Segments Below the Fall Line	20
7	KRER and SLSUR Parameters Calculated from the 1982 NRI Report	21
8	Percent of Each County in Bay Model Segments	27
9-A	% Urban Land in Various Categories by Segment Above the Fall Line	38
9-B	% Urban Land in Various Categories by Segment Below the Fall Line	39
10	% of Conservation Tillage and Conventional Tillage by County - 1985	40
11	Forest Land Acreage	44

(NOTE: Maps showing Bay Basin Model Segments appear on pages 6 and 7.)

INTRODUCTION

This report documents the methods used to refine and update land use data for the new Chesapeake Bay Watershed Model.

The origin of this work goes back to January 1983 when Northern Virginia Planning District C, Annandale, Virginia, issued a report documenting its work in developing a basin model for the Chesapeake Bay Program. The proprietary nature of the NVPDC model and the fact that its operation required an IBM mainframe system led the Chesapeake Bay Program Modeling Subcommittee to recommend transfer of the Basin Model to the DEC VAX computer at the Chesapeake Bay Liaison Office (CBLO). The Hydrological Simulation Program-FORTRAN (HSPF) was available on the VAX computer. In June 1985, the Implementation Committee accepted the recommendations of the Modeling Subcommittee to update, convert and transfer the model to the CBLO computer.

It became apparent during the conversion process that a reevaluation of the 1978 land use data used in the Basin Model would be required. This process began in January 1986.

Appendix B of the report, "Chesapeake Bay: A Framework For Action," includes the statement: "It is difficult, if not impossible, to derive precise land-use statistics for the Chesapeake Bay basin." The difficulties have not diminished, but much work has been done, as this report shows, to improve the accuracy of the land use data employed by the model.

LAND USE

There is no uniform system or method in place to collect land use data in the Chesapeake Bay basin. Maryland has its Maryland Geographic Information System (MAGI) for the early seventies and 1985. The USGS Land Use and Land Cover System is available for 1972-73. Both of these systems have been utilized in developing the 1978 and 1985 data sets, but they did not constitute a uniform method of determining land use.

Several other sources of information on land use at the county level have been used throughout the basin. The Census Bureau has collected statistics on agricultural land use since the 1800s. The U.S. Forest Service has conducted state forestry surveys since the 1940s. More recently, the Soil Conservation Service (SCS) of the U.S. Department of Agriculture carried out the National Resources Inventory. In addition, SCS periodically conducts a "Work Load Analysis" based, in part, on land use in a county.

LAND USE FOR 1978

Although obtaining reliable land use data for the Chesapeake Bay Basin was a seemingly impossible task, preliminary 1978 land use data were determined by utilizing several existing data sets.

The CENSUS OF AGRICULTURE FOR 1978 AND 1982, VOLUME 1, GEOGRAPHIC AREA SERIES, published for each State the by U. S. Department of Commerce, Bureau of the Census, provided data on land area, cropland, and pasture. The 1982 Ag Census was used to determine the total land area of each county in the basin. Combining several cropland categories from the 1978 Ag Census produced cropland acreage figures by county. The same was done for pasture land.

Woodland land use was derived from USDA Forest Service "Timber Surveys." The latest publication available was used to obtain a woodland acreage figure. All "Other Land" in the Ag Census was added to the woodland acreage to create a land use as similar as possible to the definition used in the watershed model.

Neither the Ag Census nor the Timber Surveys accounts for urban land. Urban land area was determined by the subtracting the above uses from the total acreage of each county. Any negative numbers became zero and were taken from the woodland acreage.

The resulting preliminary 1978 land use data set was sent to State offices of SCS for revision and/or confirmation. All States made revisions. Each State used its own methods to determine land use data. Sources included "work load analysis" studies, National Resources Inventory data, State planning agencies, and local county field offices of the SCS. The new data set (Table 1), gives county-by-county breakdowns for four categories of land use: Cropland, Pasture, Woodland and Urban.

SCS Personnel assisting in developing the 1978 data set were:

David Benner, Assistant State Conservationist, Delaware
Jeffery Loser, State Resource Conservationist, Maryland
Phillip Nelson, Assistant State Conservationist, New York
Robert Heidecker, State Resource Conservationist, Pennsylvania
Willis Miller, Assistant State Conservationist, Virginia
Bruce Julian, State Resource Conservationist, Virginia
Ken Carter, Soil Conservationist, Virginia
Dixie Shreve, State Resource Conservationist, West Virginia
Ernest L. Moody, District Conservationist, District of Columbia

LAND USE FOR 1985

To develop the 1985 land use data set, the 1978 data were sent to SCS State offices, along with an update of cropland and pasture from the 1982 Ag Census. States processed and updated the land use to 1985 (Table 2), using the same four categories employed for the 1978 data. Pennsylvania data were updated by the Department of Environmental Resources.

SCS Personnel assisting with the 1985 data were:

David Benner, Assistant State Conservationist, Delaware
Jeffery Loser, State Resource Conservationist, Maryland
Phillip Nelson, Assistant State Conservationist, New York
Robert Heidecker, State Resource Conservationist, Pennsylvania
Timothy Murphy, Hydraulic Engineer, Pennsylvania
Bruce Julian, State Resource Conservationist, Virginia
Dixie Shreve, State Resource Conservationist, West Virginia
Ernest L. Moody, District Conservationist, District of Columbia

CROPLAND TILLAGE

The NVPDC watershed model divided cropland into two categories: low-till (representing no-tilled cropland) and high-till (fall-plowed, conventional-tilled cropland). Tillage data sets to depict low-till and high-till land uses in the HSPF watershed model were derived in two ways.

County-level tillage information for the 1985 land use data set was obtained from the Conservation Tillage Information Center, West Lafayette, Indiana. The Center, now called the Conservation Technology Information Center (CTIC), is a clearinghouse for information on soil conservation, water conservation, and water quality practices on cropland. Established as a special project of the National Association of Conservation Districts, CTIC is administered in cooperation with the agricultural industry, governmental agencies, private foundations and organizations, and farmers. CTIC conducts a county-by-county survey each year of acreage of crops grown under different tillage systems. Its data for 1985 were the basis for the low-till and high-till cropland acres in the 1985 land use data set. CTIC tillage data were processed to eliminate any duplication due to double cropping. The percentage of cropland under conservation tillage was calculated for each county (Table 10).

A different approach was necessary to construct the 1978 land use data set. The Conservation Tillage Information Center was not yet in existence at that time, but SCS was providing annual estimates of no-till and minimum-till acres on a State basis to the NO-TILL FARMER magazine.

Tillage figures SCS agronomists sent to the magazine for 1978 were used as baseline data for the data set for that year. These were statewide totals. Estimates of the proportion of conservation tillage for each State in the Chesapeake watershed were established in discussions with the people listed below. The following table shows the percentage of conservation tillage used for 1978 for each of these States:

<u>STATE</u>	<u>% CONSERVATION TILLAGE</u>
DE	41
MD	33
NY	5
PA	17
VA	28
WV	37

People contacted for assistance to construct the 1978 tillage data were:

Bruce Julian	CTIC
Dave Schultz	SCS, National Agronomist
Bob Hiedecker	SCS, State Resource Conservationist, PA
John Spitzer	SCS, Agronomist, PA
Willis Miller	SCS, Assistant State Conservationist, VA
Orland Parks	SCS, Agronomist, WV
Fred Gaffney	SCS, Agronomist, NY
Jeffery Loser	SCS, State Resource Conservationist, MD and DE
John Minnick	SCS, Agronomist, MD and DE

Compared to the tillage figures used in the NVPDC model, those derived for the HSPF model more nearly reflect spring-plowed, conventional-tilled and conservation-tilled cropland.

Water Acres

During the Phase I recalibration of the HSPF model the decision was made to account for water acreage, a category not included in the NVPDC model. Water acreage data were obtained from the USGS Land Use/Land Cover compiled from NASA high-altitude aerial photographs and National High-Altitude Photography (NHAP) program photographs. This information is in the Geographic Information System (GIS) at CBLO. The GIS was used to find the acreage of water in each segment except for segments 10 and 20 in New York, where data were not available. The National Resources Inventory (NRI) was used to determine water acreage in those segments.

Manure Acres

The original watershed model did not address the potential nutrient loads going into the streams or the Bay from animal wastes. Manure acres is a method that will allow the model to simulate the nutrients from manure produced in a segment. These acres do not denote animal concentrations; neither do they represent manure piles or manure stacking facilities.

Tons of manure produced were calculated from the livestock numbers in the 1982 Ag Census. This tonnage was divided by a "compromise animal unit" production of 15 tons of manure per animal unit. Total animal units were divided by a "compromise animal density" of 145 animals per acre, yielding the number of manure acres. In the model, these manure acres will receive a higher loading rate that would indicate a feed lot. These manure acres are deducted from pasture acreage; as manure is stored and treated through the implementation program these acres will revert to pasture acres for modeling. This will allow the model to track agricultural waste storage practices and show changes which may occur.

Land Use by Model Segment

In converting county land use data to HSPF Model Segment data, the assumption was made that all land uses are evenly distributed within a county. The land uses are then proportioned by percent of the county in each segment (Tables 3, 4, 5 and 6). The GIS system at CBLO was used to estimate county acreage in each segment, as shown in Table 8.

Urban Land Sub-Categories

The GIS system was used to break urban land into sub-categories similar to those used in the NVPDC model. The 1972 data were used to determine percentages for industrial, commercial, residential, institutional, and transportation categories (Tables 9-A and 9-B). The model, however, will simulate only one urban land use based on area-weighted parameters for the five sub-categories.

Land Use Parameters

During the Phase I Recalibration of the Chesapeake Bay Watershed Model it became apparent that some of the parameters associated with land use should be refined. Each of these parameters is discussed below.

COVER = Land surface cover parameter

COVER represents the fraction of land surface covered by canopy, crop residue, etc., and therefore protected from raindrop erosion. It is used to determine the unprotected fraction of the land surface, which is used in the generation of sediment fines that can be transported by runoff as part of the erosion process. The twelve monthly values used in the model represent the land cover on the first day of the month.

Proposed New Values:

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
FOREST (all segments)												
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PASTURE												
(1)	.60	.60	.60	.75	.95	.98	.98	.95	.95	.75	.70	.65
(2)	.63	.60	.65	.78	.95	.98	.98	.94	.95	.77	.72	.67
(3)	.65	.60	.70	.80	.95	.98	.98	.93	.95	.80	.75	.70
URBAN (all segments)												
	.93	.93	.93	.93	.96	.96	.96	.96	.96	.93	.93	.93
HIGH-TILL CROPLAND												
(1)	.40	.35	.35	.40	0.0	.30	.80	.95	.90	.65	.55	.50
(2)	.40	.40	.35	.35	.10	.40	.80	.95	.90	.70	.60	.50
(3)	.40	.45	.45	0.0	.25	.45	.85	.95	.85	.75	.60	.50
LOW-TILL CROPLAND												
(1)	.50	.45	.45	.45	.50	.65	.95	.95	.95	.65	.60	.55
(2)	.53	.50	.50	.47	.57	.70	.95	.95	.95	.70	.62	.57
(3)	.55	.55	.55	.50	.65	.80	.95	.95	.95	.75	.65	.60

(The numbers in parenthesis represent regional areas that are similar.)

SLSUR = Land slope for overland flow

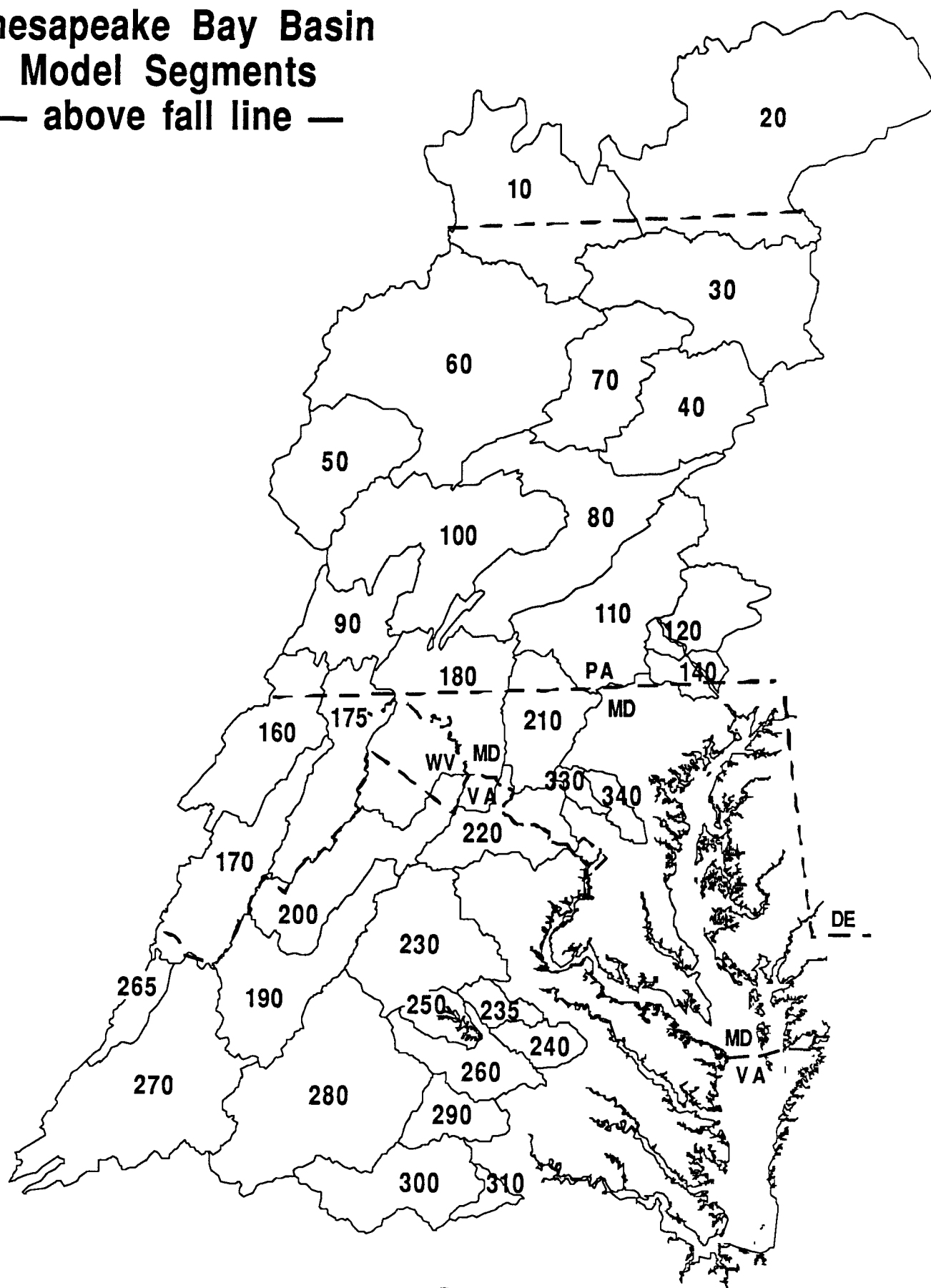
SLSUR represents the slope for overland flow which impacts the hydrology and the sediment erosion simulation in the model.

These data were obtained from the National Resources Inventory (NRI). The NRI data set is a compilation of sample points throughout the nation. Only those points in the basin were used to determine an average slope for each land use (cropland, woodland and pasture) in each segment. Erosion parameters were not collected for urban points. Values obtained from NRI data for cropland will be used for urban areas.

KRER = Coefficient in the soil fines detachment equation

KRER, in conjunction with the COVER parameter, controls the amount of fine sediment detached by raindrop impact and thus available to be transported by overland flow. KRER is usually estimated by assuming it is equal to the Universal Soil Loss Equation (USLE) "K," but this value could be adjusted in the calibration process (Table 7).

Chesapeake Bay Basin Model Segments — above fall line —



Chesapeake Bay Basin Model Sub-Basins — below fall line —

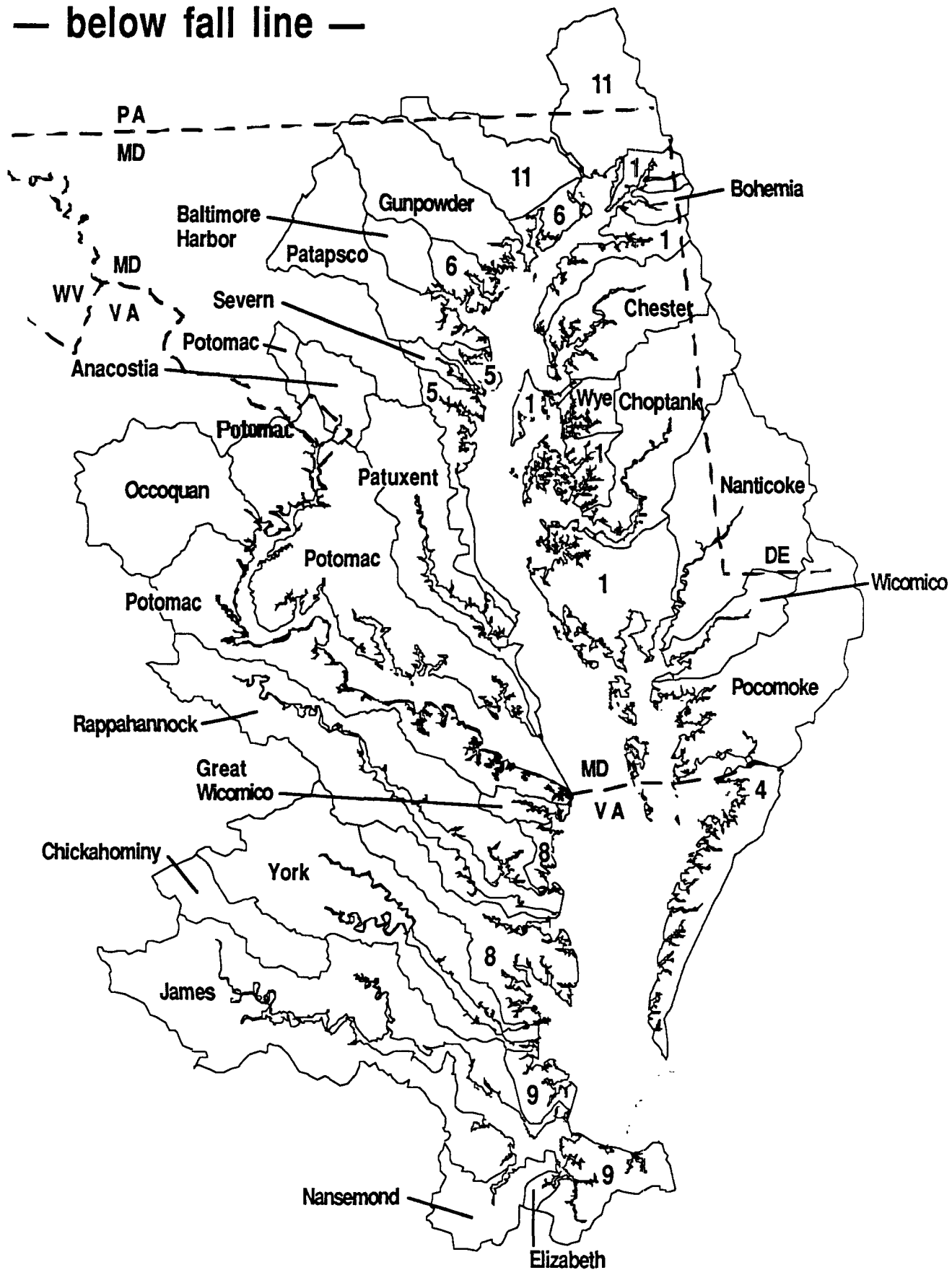


TABLE 1

1978 LAND USE BY COUNTY

Final figures for 1978 land use as presented by the State Offices of SCS after their revisions of the original data from the Agricultural Census and Timber Surveys. TOTAL ACS. is the total land acreage of the county as listed in the Agricultural Census. CROPLAND is land used for a harvestable crop. PASTURE is land with permanent grass cover, used to graze animals. WOODLAND includes land in forest, orchards, nurseries, or idle land. In some cases, this category also includes wetlands. URBAN represents land that has been developed for roads or residential, commercial, industrial and other uses.

<u>STATE</u>	<u>COUNTY</u>	<u>TOTAL ACS.</u>	<u>CROPLAND</u>	<u>PASTURE</u>	<u>WOODLAND</u>	<u>URBAN</u>
DC	WASHINGTON	37760	0	0	3200	34560
DE	KENT	380633	194000	8800	149833	28000
DE	NEW CASTLE	253222	101893	6184	71145	74000
DE	SUSSEX	602848	293682	10665	260295	38206
MD	ALLEGANY	269286	28000	35000	183286	23000
MD	ANNE ARUNDEL	267756	23217	5798	126010	112731
MD	BALTIMORE	433881	62700	29800	147560	193821
MD	CALVERT	136467	25000	3500	87967	20000
MD	CAROLINE	205305	102564	3188	77920	21633
MD	CARROLL	289267	136000	49000	81267	23000
MD	CECIL	230112	60000	14158	87991	67963
MD	CHARLES	289011	40363	5000	193000	50648
MD	DORCHESTER	379660	110000	2500	257160	10000
MD	FREDERICK	424140	163000	54000	137140	70000
MD	GARRETT	420371	45100	30992	305779	38500
MD	HARFORD	286489	69600	34658	138673	43558
MD	HOWARD	160640	33644	20600	52396	54000
MD	KENT	178137	107765	5947	53152	11273
MD	MONTGOMERY	317081	75000	27000	95081	120000
MD	PRINCE GEORGES	311686	32811	10650	134686	133539
MD	QUEEN ANNES	237990	133908	5147	66127	32808
MD	SOMERSET	216582	39064	2060	172062	3396
MD	ST MARYS	238425	53000	7000	126425	52000
MD	TALBOT	165516	92392	3509	45404	24211
MD	WASHINGTON	291180	105200	48100	98280	39600
MD	WICOMICO	242624	74279	2735	121780	43830
MD	WORCESTER	303910	78680	4635	210595	10000
NY	ALLEGANY	660550	94357	49881	421500	94812
NY	BROOME	455366	54272	36960	279400	84734
NY	CHEMUNG	262854	32141	15582	158000	57131
NY	CHENANGO	574278	98270	70360	340300	65348
NY	CORTLAND	320185	73900	49611	158100	38574
NY	DELAWARE	921395	98706	97530	624300	100859
NY	HERKIMER	906528	92257	59432	388100	366739
NY	LIVINGSTON	404928	160846	36286	120100	87696
NY	MADISON	419968	122263	51245	196200	50260
NY	ONEIDA	780064	139974	78355	413200	148535

Table 1 contd. - 1978 LAND USE BY COUNTY

<u>STATE</u>	<u>COUNTY</u>	<u>TOTAL ACS.</u>	<u>CROPLAND</u>	<u>PASTURE</u>	<u>WOODLAND</u>	<u>URBAN</u>
NY	ONONDAGA	502060	116558	26200	199900	159402
NY	ONTARIO	412185	159371	24094	142700	86020
NY	OTSEGO	642432	114835	78994	369500	79103
NY	SCHOHARIE	399328	79781	38345	256700	24502
NY	SCHUYLER	210784	38527	16146	122200	33911
NY	STEUBEN	893574	200683	84580	478100	130211
NY	TIOGA	332275	61538	30792	193600	46345
NY	TOMPKINS	305184	69041	18216	171500	46427
NY	YATES	216928	74265	10943	84000	47720
PA	ADAMS	333318	135100	37700	141618	18900
PA	BEDFORD	650636	138900	57000	438536	16200
PA	BERKS	550880	228400	39500	220080	62900
PA	BLAIR	337414	52400	12800	246514	25700
PA	BRADFORD	737350	233600	104200	374950	24600
PA	CAMBRIA	442284	60700	44900	300384	36300
PA	CAMERON	254976	1000	900	248900	4176
PA	CENTRE	707891	88700	33900	553291	32000
PA	CHESTER	484851	143400	81900	106951	152600
PA	CLEARFIELD	735289	54500	47300	596889	36600
PA	CLINTON	570464	29800	7000	521464	12200
PA	COLUMBIA	310988	103600	12800	168388	26200
PA	CUMBERLAND	349836	131100	24300	139236	55200
PA	DAUPHIN	337785	91700	18200	173985	53900
PA	ELK	531142	8604	3625	506913	12000
PA	FRANKLIN	495078	164800	54100	238978	37200
PA	FULTON	280012	59500	17300	195412	7800
PA	HUNTINGDON	561433	86000	37200	424033	14200
PA	INDIANA	530656	96100	63400	342656	28500
PA	JUNIATA	250649	62300	11600	163149	13600
PA	LACKAWANNA	295104	32700	17700	190604	54100
PA	LANCASTER	609356	322000	69300	129756	88300
PA	LEBANON	232019	96400	17700	94819	23100
PA	LUZERNE	570220	53800	9700	441620	65100
PA	LYCOMING	791852	109500	35100	620652	26600
PA	MCKEAN	626342	13700	16300	575942	20400
PA	MIFFLIN	264128	50000	16100	186228	11800
PA	MONTOUR	83852	42600	3500	29952	7800
PA	NORTHUMBERLAND	294848	122400	11800	136748	23900
PA	PERRY	356217	76900	12800	252117	14400
PA	POTTER	692064	39700	50900	588364	13100
PA	SCHUYLKILL	500179	83600	10400	373979	32200
PA	SNYDER	210656	69700	9100	120156	11700
PA	SOMERSET	686944	132000	69300	453144	32500
PA	SULLIVAN	288614	14467	9140	261992	3015
PA	SUSQUEHANNA	528614	113300	57000	336314	22000
PA	TIOGA	723974	113700	102000	491274	17000
PA	UNION	202835	57800	6800	129835	8400
PA	WAYNE	467993	67800	42300	324293	33600

Table 1 contd. - 1978 LAND USE BY COUNTY

<u>STATE</u>	<u>COUNTY</u>	<u>TOTAL ACS.</u>	<u>CROPLAND</u>	<u>PASTURE</u>	<u>WOODLAND</u>	<u>URBAN</u>
PA	WYOMING	255609	36900	10000	198809	9900
PA	YORK	579788	240700	80600	189888	68600
VA	ACCOMACK	304435	79319	1697	213819	9600
VA	ALBEMARLE	470828	45025	76899	330274	18630
VA	ALLEGHANY	290315	10152	9328	263730	7105
VA	AMELIA	228409	38825	12171	175098	2315
VA	AMHERST	306246	23211	52504	213475	12056
VA	APPOMATTOX	215078	33403	24399	154276	3000
VA	ARLINGTON	16614	0	0	0	16614
VA	AUGUSTA	643096	115236	147352	357156	23352
VA	BATH	344051	8063	19735	312812	3441
VA	BEDFORD	482617	75008	81994	321119	4496
VA	BOTETOURT	348550	40716	48108	250712	9014
VA	BUCKINGHAM	373401	35173	38678	294545	5005
VA	CAMPBELL	355040	56930	41002	222808	34300
VA	CAROLINE	342694	36271	7279	283014	16130
VA	CHARLES CITY	116128	14371	1000	98071	2686
VA	CHESAPEAKE CITY	270656	46579	1114	173612	49351
VA	CHESTERFIELD	282828	9656	2242	217538	53392
VA	CLARKE	114137	32061	40663	40271	1142
VA	CRAIG	211084	7187	20023	172874	1000
VA	CULPEPER	244480	47810	57863	136484	2323
VA	CUMBERLAND	191712	28240	27481	133011	2980
VA	DINWIDDIE	339129	52135	11185	254201	21608
VA	ESSEX	168051	40214	4228	119678	3931
VA	FAIRFAX	266590	12061	5330	122252	126407
VA	FAUQUIER	416569	98835	101249	205617	10868
VA	FLUVANNA	185510	22742	14936	139853	7979
VA	FREDERICK	271532	59311	51046	154412	6763
VA	FREDERICKBURG	3904	0	0	0	3904
VA	GILES	231654	32434	30412	165800	3008
VA	GLOUCESTER	144121	18074	1174	112864	12009
VA	GOOCHLAND	180032	28178	14827	143961	3066
VA	GREENE	100371	9672	19088	70569	6042
VA	HAMPTON	32838	0	0	0	32838
VA	HANOVER	299155	69228	10827	194896	24204
VA	HENRICO	190828	37739	3636	101142	48311
VA	HIGHLAND	266112	9859	47682	207571	1000
VA	ISLE OF WRIGHT	204454	60433	6749	127250	10022
VA	JAMES CITY	101292	19314	1577	67707	12694
VA	KING AND QUEEN	202982	25679	1874	173179	2250
VA	KING GEORGE	115244	20531	8067	81235	5411
VA	KING WILLIAM	177766	37506	5665	129043	3127
VA	LANCASTER	85043	18014	662	56462	9905
VA	LOUDOUN	333497	97739	98960	128727	8071
VA	LOUISA	317804	36863	13685	251215	16041
VA	MADISON	205913	33067	51845	117561	3440

Table 1 contd. - 1978 LAND USE BY COUNTY

<u>STATE</u>	<u>COUNTY</u>	<u>TOTAL ACS.</u>	<u>CROPLAND</u>	<u>PASTURE</u>	<u>WOODLAND</u>	<u>URBAN</u>
VA	MATHEWS	55776	12675	0	41097	2004
VA	MIDDLESEX	85728	20490	1145	60176	3917
VA	MONTGOMERY	254073	42218	68802	130300	12753
VA	NELSON	303590	22380	28202	243021	9987
VA	NEW KENT	136256	13364	1426	116222	5244
VA	NEWPORT NEWS	41786	0	0	0	41786
VA	NORFOLK	33926	0	0	0	33926
VA	NORTHAMPTON	144601	59094	1151	80741	3615
VA	NORTHUMBERLAND	118105	35107	955	76623	5420
VA	NOTTOWAY	202502	23411	20288	134110	24693
VA	ORANGE	218822	33883	40301	138438	6200
VA	PAGE	200345	30093	29714	131691	8847
VA	PORTSMOUTH	19123	0	0	0	19123
VA	POWHATAN	167161	15179	13549	132165	6268
VA	PRINCE EDWARD	226252	32878	24059	161308	6007
VA	PRINCE GEORGE	176620	32679	3837	132061	8043
VA	PRINCE WILLIAM	218494	32604	33039	105975	46876
VA	RAPPAHANNOCK	170969	17565	40641	111053	1710
VA	RICHMOND	123334	27469	1047	90839	3979
VA	ROANOKE	197470	7670	21887	131827	36086
VA	ROCKBRIDGE	389382	57532	55413	266468	9969
VA	ROCKINGHAM	557355	84404	108825	353054	11072
VA	SHENANDOAH	327833	40787	60884	220781	5381
VA	SPOTSYLVANIA	262470	35338	11139	201372	14621
VA	STAFFORD	173510	19948	5965	136711	10886
VA	SUFFOLK	261868	62888	3487	169839	25654
VA	SURRY	180057	35227	3261	137509	4060
VA	VIRGINIA BEACH	163795	51922	1567	64614	45692
VA	WARREN	139052	13046	28999	90518	6489
VA	WESTMORELAND	145049	41196	2129	93754	7970
VA	YORK	157900	1799	1000	38425	116676
WV	BERKELEY	205734	46600	28300	104835	25999
WV	GRANT	307392	22863	46353	229065	9111
WV	HAMPSHIRE	412454	21580	64350	302580	23944
WV	HARDY	374144	20900	50600	290827	11817
WV	JEFFERSON	133964	57713	28482	31120	16649
WV	MINERAL	210784	23064	22366	156468	8886
WV	MONROE	302816	35000	74856	188520	4440
WV	MORGAN	146956	15269	7440	115796	8451
WV	PENDLETON	446764	21730	80895	338243	5896

TABLE 2

1985 LAND USE BY COUNTY

Final figures for 1985 land use as presented by the State Offices of SCS after their revisions of the original data from the Agricultural Census and Timber Surveys. TOTAL ACS. is the total land acreage of the county as listed in the Agricultural Census. CROPLAND is land used for a harvestable crop. PASTURE is land with permanent grass cover, used to graze animals. WOODLAND includes land in forest, orchards, nurseries, or idle land. In some cases, this category also includes wetlands. URBAN represents land that has been developed for roads or residential, commercial, industrial and other uses.

<u>STATE</u>	<u>COUNTY</u>	<u>TOTAL ACS.</u>	<u>CROPLAND</u>	<u>PASTURE</u>	<u>WOODLAND</u>	<u>URBAN</u>
DC	WASHINGTON	37760	0	0	3100	34660
DE	KENT	380633	196000	6000	148633	30000
DE	NEW CASTLE	253222	97660	5800	69762	69762
DE	SUSSEX	602848	290000	4800	260048	48000
MD	ALLEGANY	269286	20000	45000	181186	23100
MD	ANNE ARUNDEL	267756	17500	6200	112756	131300
MD	BALTIMORE	433881	62700	29800	122661	218720
MD	CALVERT	136467	24000	3100	73367	36000
MD	CAROLINE	205305	105180	3000	75125	22000
MD	CARROLL	289267	136100	43200	84967	25000
MD	CECIL	230112	60900	13280	87932	68000
MD	CHARLES	289011	38000	5000	191011	55000
MD	DORCHESTER	379660	110000	2000	257410	10250
MD	FREDERICK	424140	163000	54000	135140	72000
MD	GARRETT	420371	45100	30992	305779	38500
MD	HARFORD	286489	69600	26100	146289	44500
MD	HOWARD	160640	32800	21600	50240	56000
MD	KENT	178137	109600	4000	52637	11900
MD	MONTGOMERY	317081	70000	24000	98081	125000
MD	PRINCE GEORGES	311686	32811	4000	115875	159000
MD	QUEEN ANNES	237990	131000	5000	66990	35000
MD	SOMERSET	216582	40000	2000	171082	3500
MD	ST MARYS	238425	46000	7500	132125	52800
MD	TALBOT	165516	95000	3500	42016	25000
MD	WASHINGTON	291180	105200	48100	96680	41200
MD	WICOMICO	242624	70000	2200	125924	44500
MD	WORCESTER	303910	85315	4635	203500	10460
NY	ALLEGANY	660550	92630	42056	429500	96364
NY	BROOME	455366	52601	31406	285900	85459
NY	CHEMUNG	262854	31444	12365	161200	57845
NY	CHENANGO	574278	93092	56600	358300	66286
NY	CORTLAND	320185	76158	42589	162100	39338
NY	DELAWARE	921395	94219	85399	638300	103477
NY	HERKIMER	906528	93273	51900	392100	369255
NY	LIVINGSTON	404928	163622	28448	124100	88758
NY	MADISON	419968	123466	46842	199200	50460
NY	ONEIDA	780064	147285	71944	412300	148535

Table 2 contd. - 1985 LAND USE BY COUNTY

<u>STATE</u>	<u>COUNTY</u>	<u>TOTAL ACS.</u>	<u>CROPLAND</u>	<u>PASTURE</u>	<u>WOODLAND</u>	<u>URBAN</u>
NY	ONONDAGA	502060	115755	23719	202900	159686
NY	ONTARIO	412185	158702	16579	149700	87204
NY	OTSEGO	642432	114001	64691	384500	79240
NY	SCHOHARIE	399328	72390	34060	267700	25178
NY	SCHUYLER	210784	38885	16088	121900	33911
NY	STEUBEN	893574	199629	67076	494100	132769
NY	TIOGA	332275	61355	27301	196600	47019
NY	TOMPKINS	305184	66418	17176	174700	46890
NY	YATES	216928	66806	8691	93000	48431
PA	ADAMS	333318	172856	40985	98930	20547
PA	BEDFORD	650636	146232	59073	428541	16789
PA	BERKS	550880	249071	41830	193369	66610
PA	BLAIR	337414	57625	13509	239155	27124
PA	BRADFORD	737350	244809	108827	358022	25692
PA	CAMBRIA	442284	73873	53672	271347	43392
PA	CAMERON	254976	994	4769	244574	4640
PA	CENTRE	707891	93130	35275	546188	33298
PA	CHESTER	484851	153545	86607	83329	161370
PA	CLEARFIELD	735289	58738	50150	587595	38805
PA	CLINTON	570464	31504	7207	519193	12560
PA	COLUMBIA	310988	114043	13466	155915	27564
PA	CUMBERLAND	349836	139100	25338	127839	57559
PA	DAUPHIN	337785	97467	19345	163684	57290
PA	ELK	531142	7744	3723	507334	12341
PA	FRANKLIN	495078	185093	59217	210050	40718
PA	FULTON	280012	61461	17751	192797	8003
PA	HUNTINGTON	561433	95023	40491	410462	15456
PA	INDIANA	530656	104874	68688	326216	30877
PA	JUNIATA	250649	65121	12010	159438	14080
PA	LACKAWANNA	295104	36737	19410	179629	59328
PA	LANCASTER	609356	353196	75220	85097	95843
PA	LEBANON	232019	104655	18960	83660	24744
PA	LUZERNE	570220	65191	11036	419929	74065
PA	LYCOMING	791852	114133	35993	614449	27277
PA	MCKEAN	626342	20483	20998	558581	26280
PA	MIFFLIN	264128	51608	16618	183723	12179
PA	MONTOUR	83852	45825	3739	25957	8332
PA	NORTHUMBERLAND	294848	132725	12754	123538	25832
PA	PERRY	356217	79863	13293	248106	14955
PA	POTTER	692064	42291	51621	584867	13286
PA	SCHUYLKILL	500179	95335	11476	357838	35530
PA	SNYDER	210656	72808	9425	116306	12117
PA	SOMERSET	686944	142290	72880	437596	34179
PA	SULLIVAN	288614	13208	6227	266255	2925
PA	SUSQUEHANNA	528614	124098	62049	318518	23949
PA	TIOGA	723974	126348	110812	468345	18469
PA	UNION	202835	62714	7240	123937	8944
PA	WAYNE	467993	71572	44326	316886	35210

Table 2 contd. - 1985 LAND USE BY COUNTY

<u>STATE</u>	<u>COUNTY</u>	<u>TOTAL ACS.</u>	<u>CROPLAND</u>	<u>PASTURE</u>	<u>WOODLAND</u>	<u>URBAN</u>
PA	WYOMING	255609	41851	11250	191369	11138
PA	YORK	579788	262103	85494	159426	72765
VA	ACCOMACK	304435	84273	4214	205415	10533
VA	ALBEMARLE	470828	40588	75089	332827	22324
VA	ALLEGHANY	290313	11166	13196	258846	7105
VA	AMELIA	228409	44080	13023	168301	3005
VA	AMHERST	306246	31236	55380	203026	16604
VA	APPOMATTOX	215078	31902	28814	151275	3087
VA	ARLINGTON	16614	0	0	0	16614
VA	AUGUSTA	643096	142573	133473	336715	30335
VA	BATH	344051	18002	13002	308046	5001
VA	BEDFORD	482617	84933	87930	304758	4996
VA	BOTETOURT	348550	46072	53084	239378	10016
VA	BUCKINGHAM	373401	38041	42045	288310	5005
VA	CAMPBELL	355040	64188	40118	212623	38111
VA	CAROLINE	342694	38493	3049	285022	16130
VA	CHARLES CITY	116128	16467	2254	94422	2985
VA	CHESAPEAKE CITY	270656	59594	2483	142777	65802
VA	CHESTERFIELD	282828	9848	3586	200960	68434
VA	CLARKE	114137	30036	40048	38046	6007
VA	CRAIG	211084	17008	26010	167066	1000
VA	CULPEPER	244480	50098	57112	127250	10020
VA	CUMBERLAND	191712	30793	35760	122179	2980
VA	DINWIDDIE	339129	45017	15006	255097	24009
VA	ESSEX	168051	50121	3931	110068	3931
VA	FAIRFAX	266590	9020	7015	91202	159353
VA	FAUQUIER	416569	113882	99896	189804	12987
VA	FLUVANNA	185510	19947	18950	138634	7979
VA	FREDERICK	271532	60118	53103	149293	9018
VA	FREDERICKSBURG	3904	0	0	0	3904
VA	GILES	231654	26074	30085	172487	3008
VA	GLOUCESTER	144121	23019	5005	100084	16013
VA	GOOCHLAND	180032	25952	17955	128893	7232
VA	GREENE	100371	10464	19979	58939	10989
VA	HAMPTON	32838	0	0	0	32838
VA	HANOVER	299155	61991	6948	191885	38331
VA	HENRICO	190828	24113	5676	96624	64415
VA	HIGHLAND	266112	15006	42018	208088	1000
VA	ISLE OF WIGHT	204454	64142	10023	120267	10022
VA	JAMES CITY	101292	10750	1229	72387	16926
VA	KING AND QUEEN	202982	33997	2000	163985	3000
VA	KING GEORGE	115244	22047	10021	77163	6013
VA	KING WILLIAM	177766	40351	6152	127788	3475
VA	LANCASTER	85043	17009	2000	55028	11006
VA	LOUDOUN	333497	102845	91861	108836	29955
VA	LOUISA	317804	41104	23058	237601	16041
VA	MADISON	205913	35006	51478	115311	4118

Table 2 contd. - 1985 LAND USE BY COUNTY

<u>STATE</u>	<u>COUNTY</u>	<u>TOTAL ACS.</u>	<u>CROPLAND</u>	<u>PASTURE</u>	<u>WOODLAND</u>	<u>URBAN</u>
VA	MATHEWS	55776	8426	1359	43764	2227
VA	MIDDLESEX	85728	19135	2589	60087	3917
VA	MONTGOMERY	254073	44013	80023	113032	17005
VA	NELSON	303590	25964	39946	227693	9987
VA	NEW KENT	136256	15795	2746	111888	5827
VA	NEWPORT NEWS	41786	0	0	0	41786
VA	NORFOLK	33926	0	0	0	33926
VA	NORTHAMPTON	144601	54225	2008	84351	4017
VA	NORTHUMBERLAND	118105	36800	3011	72271	6023
VA	NOTTOWAY	202502	27077	27078	123654	24693
VA	ORANGE	218822	34972	37969	135889	9992
VA	PAGE	200345	31397	28407	131570	8971
VA	PORTSMOUTH	19123	0	0	0	19123
VA	POWHATAN	167161	25870	16915	117411	6965
VA	PRINCE EDWARD	226252	39043	28031	153171	6007
VA	PRINCE GEORGE	176620	27883	7507	130505	10725
VA	PRINCE WILLIAM	218494	34270	16880	104842	62502
VA	RAPPAHANNOCK	170969	17751	39239	109308	4671
VA	RICHMOND	123334	31828	1989	85538	3979
VA	ROANOKE	197470	16038	18043	115274	48115
VA	ROCKBRIDGE	389382	61535	49429	259252	19166
VA	ROCKINGHAM	557355	86054	127081	332212	12008
VA	SHENANDOAH	327833	40578	64072	213572	9611
VA	SPOTSYLVANIA	262470	34894	13771	194310	19495
VA	STAFFORD	173510	20592	10580	127823	14515
VA	SUFFOLK	261868	61969	4997	140929	53973
VA	SURRY	180057	34999	5000	135998	4060
VA	VIRGINIA BEACH	163795	41948	1998	58926	60923
VA	WARREN	139052	9270	39141	83431	7210
VA	WESTMORELAND	145049	43833	2989	90257	7970
VA	YORK	157900	2998	999	31980	121923
WV	BERKELEY	205734	27403	23187	97664	57480
WV	GRANT	307392	20984	54961	222342	9105
WV	HAMPSHIRE	412454	5302	63627	318134	25391
WV	HARDY	374144	21246	50585	290358	11955
WV	JEFFERSON	133964	38458	20895	25937	48674
WV	MINERAL	210784	12393	23940	164957	9494
WV	MONROE	302816	35000	74856	188520	4440
WV	MORGAN	146956	11602	4834	116018	14502
WV	PENDLETON	446764	21886	69856	349230	5792

LAND USE BY SEGMENTS

Tables 3, 4, 5 and 6 show land uses assigned to each segment of the Watershed Model. Figures are based on the percentage of each county in each segment. Land uses were assumed to be uniform throughout the county. Cropland is subdivided into L-T CROP (low-till and conservation tillage) and H-T CROP (high-till or conventional tillage). Water acres were determined using the Geographic Information System (GIS) and the USGS Land Use/Land Cover 1973 data set. Manure acres (MNR.AC.) were developed from Pasture acres to address animal waste potential; they do not represent acres of feed lots or barn yards.

TABLE 3

1978 LAND USE FOR WATERSHED MODEL BY SEGMENTS ABOVE THE FALL LINE

<u>SEGMENT</u>	<u>L-T CROP</u>	<u>H-T CROP</u>	<u>PASTURE</u>	<u>FOREST</u>	<u>URBAN</u>	<u>WATER</u>	<u>TOTAL</u>
10	28773	302094	173167	983020	195166	12275	1694496
20	36350	538141	348338	1801531	415518	54215	3194093
30	52552	256578	137022	917530	96302	101681	1561666
40	37330	182258	27868	606552	87279	13399	954686
50	15485	75605	66438	702078	51492	2887	913985
60	39157	191180	129542	2282166	75545	10139	2727730
70	27322	133397	33193	619741	31334	6549	851537
80	68158	332770	72587	840430	127406	21501	1462853
90	20024	97765	48239	404779	15459	13616	599882
100	48194	235299	83559	1104338	71235	5163	1547788
110	80790	392208	120337	487473	137764	11426	1229997
120	40569	198070	54526	113293	67634	1246	475338
140	14684	63850	24016	60534	25383	283	188749
160	29617	71759	96053	613088	47759	5004	863279
170	18824	32946	156374	715033	22549	2336	948061
175	23610	56527	103336	576678	42264	2398	804813
180	125353	338933	227588	769893	133525	8949	1604241
190	46553	119707	209681	624487	34456	3520	1038403
200	46032	109447	187623	529160	25467	2113	899842
210	72788	175332	81309	207108	79659	5178	621373
220	43349	102428	112726	233989	117952	872	611317
230	48091	123664	225719	605450	21438	2240	1026602
235	5893	15155	6590	127011	8723	1202	164574
240	6639	17072	4583	176614	9510	1799	216217
250	7870	20237	19987	152844	9084	3884	213905
260	21026	54066	19878	347320	28603	701	471594
265	1826	4695	23461	191039	1778	0	222798
270	48219	122295	234581	1416456	43329	1841	1866722
280	54593	140382	240602	1404995	62754	9784	1913110
290	11737	30182	26184	239999	15020	4366	327487
300	29950	77014	67645	557906	30465	1180	764160
310	3200	8229	3228	73640	9704	3235	101237
330	5991	12163	8659	25842	29422	3182	85258
340	6674	13549	10576	49475	48372	9221	137867

TABLE 4

**1978 LAND USE FOR WATERSHED MODEL BY SEGMENTS
BELOW THE FALL LINE**

<u>SEGMENT</u>	<u>L-T CROP</u>	<u>H-T CROP</u>	<u>PASTURE</u>	<u>FOREST</u>	<u>URBAN</u>	<u>WATER</u>	<u>TOTAL</u>
ANACOSTIA 1	4868	9882	5100	36363	47243	620	104075
BALT HARBOR 2	2465	5004	3550	17578	23089	268	51954
BOHEMIA 3	3769	6930	2003	13402	10909	1044	38057
CHESTER 4	50380	99192	6938	77166	28197	6374	268246
CHICKAHOMINY 5	8183	21042	3408	99882	24238	428	157180
CHOPTANK 6	64057	122277	6619	138861	38905	2153	372871
COASTAL 1	65420	131691	10567	251251	49060	44750	552738
COASTAL 11	36184	107394	53474	170576	103529	189	471345
COASTAL 4	16665	42852	1223	125576	5634	14481	206431
COASTAL 5	5112	10380	3113	70942	47302	6429	143278
COASTAL 6	6239	12668	9286	39724	25854	1477	95247
COASTAL 8	13985	35962	2259	206305	14348	10642	283501
COASTAL 9	7608	19563	947	64232	120981	5850	219180
ELIZABETH 7	578	1486	51	7630	8759	0	18504
GREAT WICOMICO 1	3227	8298	315	25287	1821	2648	41596
GUNPOWDER 1	17284	36268	24026	101320	112480	391	291770
JAMES 1	29071	74748	11523	545432	127606	24767	813147
NANSEMOND 1	9622	24743	2642	85101	10912	3172	136193
NANTICOKE 2	86035	136344	7947	239196	41937	0	511460
OCCOQUAN 2	17619	45307	64116	157769	41363	2210	328384
PATAPSCO 2	26311	53419	31414	93442	71727	1235	277548
PATUXENT 1	16979	34473	9937	182924	103524	8259	356096
POCOMOKE 1	40162	79304	5871	331017	22869	1423	480646
POTOMAC 1	55949	127022	36756	659184	263918	24079	1166908
RAPPAHANNOCK 1	34691	89205	13390	441834	33287	15381	627788
SEVERN 1	834	1693	631	13713	12267	1232	30369
WICOMICO 1	12381	24987	1490	80388	18171	0	137416
WYE 1	10318	20948	1197	15413	7849	2221	57945
YORK 1	25235	64890	11507	419092	51098	17003	588825

TABLE 5

**1985 LAND USE FOR WATERSHED MODEL BY SEGMENTS
ABOVE THE FALL LINE**

<u>SEGMENT</u>	<u>L-T CR.</u>	<u>H-T CR.</u>	<u>PASTURE</u>	<u>FOREST</u>	<u>URBAN</u>	<u>MNR.AC.</u>	<u>WATER</u>	<u>TOTAL</u>
10	32937	305220	159393	984938	199187	546	12275	1694496
20	36476	536502	300732	1844310	420461	1397	54215	3194093
30	52848	280785	145583	875001	105210	554	101685	1561665
40	73853	170595	29589	570931	96136	184	13399	954688
50	20672	80994	73056	679540	56731	104	2887	913984
60	97751	146937	139191	2254498	78824	391	10139	2727731
70	70531	99683	31726	610012	32814	223	6549	851539
80	205774	221920	75974	802377	134620	689	21501	1462854
90	68177	56732	50179	394793	16180	205	13616	599881
100	122974	179918	87857	1076335	74940	599	5163	1547786
110	282540	244480	127368	416256	146910	1018	11426	1229997
120	117776	143624	57851	80692	73096	1052	1246	475338
140	49445	35571	24253	52115	26872	211	283	188749
160	33880	52577	108525	614346	48740	208	5004	863279
170	14275	33713	147919	726540	22927	350	2336	948061
175	30049	35605	105767	584313	46443	237	2398	804813
180	301676	151734	220115	722664	198101	1001	8949	1604241
190	130850	56381	211244	594668	40625	1114	3520	1038403
200	84257	59131	200243	503065	50154	878	2113	899842
210	202378	61250	79158	189716	83164	529	5178	621373
220	133503	15617	105838	209156	146032	299	872	611317
230	109971	73687	223842	577312	38857	694	2240	1026602
235	8782	12294	7359	123800	11106	32	1202	164574
240	21015	4585	2330	176769	9702	16	1799	216217
250	11660	18013	22208	146892	11153	95	3884	213905
260	45850	28034	23941	335375	37553	140	701	471594
265	8199	3719	19158	189339	2350	31	0	222798
270	171234	36704	232915	1364448	58967	613	1841	1866720
280	108669	93733	269574	1356569	74187	595	9784	1913110
290	25912	21022	32608	222413	21071	95	4366	327487
300	64945	58106	80824	525824	33036	245	1180	764160
310	2653	8218	4185	71259	11673	14	3235	101237
330	14213	3090	8470	25606	30668	30	3182	85258
340	12231	6883	10524	45387	53586	36	9221	137867

TABLE 6

**1985 LAND USE FOR WATERSHED MODEL BY SEGMENTS
BELOW THE FALL LINE**

<u>SEGMENT</u>	<u>L-T CR.</u>	<u>H-T CR.</u>	<u>PASTURE</u>	<u>FOREST</u>	<u>URBAN</u>	<u>MNR.AC.</u>	<u>WATER</u>	<u>TOTAL</u>
ANACOSTIA	7933	6230	3527	33308	52442	16	620	104075
BALT HARBOR	4621	2848	3538	14612	26055	12	268	51954
BOHEMIA	7165	3526	1867	13354	11089	12	1044	38057
CHESTER	121262	27763	5483	77240	30044	82	6374	268246
CHICKAHOMINY	16566	6739	4004	96481	32942	20	428	157180
CHOPTANK	106668	82667	5772	135173	40276	161	2153	372871
COASTAL 1	137885	60978	9053	249573	50373	126	44750	552738
COASTAL 11	94845	55257	49178	164399	107100	378	189	471345
COASTAL 4	24017	35419	2641	123651	6204	19	14481	206431
COASTAL 5	6977	6120	3139	62007	58593	13	6429	143278
COASTAL 6	13609	5298	7626	38912	28291	34	1477	95247
COASTAL 8	11713	39417	7134	197054	17525	16	10642	283501
COASTAL 9	20780	5901	1350	54841	130440	17	5850	219180
ELIZABETH	1434	1188	111	6276	9493	1	0	18504
GREAT WICOMICO	3202	8872	989	23861	2023	2	2648	41596
GUNPOWDER	34409	19368	22781	88338	126398	86	391	291770
JAMES	48895	46659	18229	525519	149020	58	24767	813147
NANSEMOND	19630	15272	3843	73812	20441	22	3172	136193
NANTICOKE	142287	77674	4252	239890	46993	364	0	511460
OCCOQUAN	58269	11130	50267	150755	55594	161	2210	328384
PATAPSCO	50641	27686	29176	88664	80015	131	1235	277548
PATUXENT	15170	32674	7085	163992	128881	35	8259	356096
POCOMOKE	81636	41809	5303	326226	23929	320	1423	480646
POTOMAC	67154	111450	38268	628468	297355	134	24079	1166908
RAPPAHANNOCK	40834	96099	17055	422678	35685	55	15381	627788
SEVERN	1341	563	672	12270	14288	3	1231	30369
WICOMICO	12270	23563	1143	81851	18478	110	0	137416
WYE	20534	10605	1158	15138	8274	16	2221	57945
YORK	48799	49057	12590	401542	59765	69	17003	588825

TABLE 7

KRER AND SLSUR PARAMETERS CALCULATED FROM THE 1982 NRI REPORT

Values for KRER and SLSUR were developed from National Resources Inventory (NRI) data (see page 6). KRER, in conjunction with the COVER parameter, controls the amount of fine sediment detached by raindrop impact and therefore subject to transport by overland flow. KRER is usually estimated by assuming it is equal to the Universal Soil Loss Equation (USLE) "K." SLSUR represents the slope for overland flow which impacts the hydrology and the sediment erosion simulation in the model.

<u>SEGMENT</u>	<u>COVER</u>	<u>KRER</u>	<u>SLSUR</u>
10	CROPLAND	0.292986	7
10	PASTURE	0.275837	10
10	WOODLAND	0.248348	21
20	CROPLAND	0.280609	7
20	PASTURE	0.278687	9
20	WOODLAND	0.239777	16
30	CROPLAND	0.263221	9
30	PASTURE	0.251017	11
30	WOODLAND	0.221805	19
40	CROPLAND	0.259466	9
40	PASTURE	0.262105	11
40	WOODLAND	0.217020	20
50	CROPLAND	0.281636	9
50	PASTURE	0.305984	10
50	WOODLAND	0.235281	18
60	CROPLAND	0.268435	8
60	PASTURE	0.277695	12
60	WOODLAND	0.224713	22
70	CROPLAND	0.264476	8
70	PASTURE	0.266909	10
70	WOODLAND	0.218769	21
80	CROPLAND	0.269946	7
80	PASTURE	0.289552	9
80	WOODLAND	0.215810	20
90	CROPLAND	0.261671	9
90	PASTURE	0.280597	12
90	WOODLAND	0.217315	21

Table 7 contd. - KRER AND SLSUR PARAMETERS

<u>SEGMENT</u>	<u>COVER</u>	<u>KRER</u>	<u>SLSUR</u>
100	CROPLAND	0.276866	8
100	PASTURE	0.297909	10
100	WOODLAND	0.219489	21
110	CROPLAND	0.289945	7
110	PASTURE	0.313437	8
110	WOODLAND	0.242941	16
120	CROPLAND	0.294686	7
120	PASTURE	0.326712	7
120	WOODLAND	0.261039	15
140	CROPLAND	0.318660	6
140	PASTURE	0.342181	8
140	WOODLAND	0.309689	13
160	CROPLAND	0.269864	9
160	PASTURE	0.267534	14
160	WOODLAND	0.217881	24
170	CROPLAND	0.301944	8
170	PASTURE	0.288510	15
170	WOODLAND	0.223534	28
175	CROPLAND	0.291111	8
175	PASTURE	0.297163	12
175	WOODLAND	0.228066	24
180	CROPLAND	0.301521	7
180	PASTURE	0.307696	8
180	WOODLAND	0.236405	20
190	CROPLAND	0.319525	7
190	PASTURE	0.302658	11
190	WOODLAND	0.271341	22
200	CROPLAND	0.320924	6
200	PASTURE	0.311193	9
200	WOODLAND	0.254876	21
210	CROPLAND	0.312563	6
210	PASTURE	0.319852	8
210	WOODLAND	0.267874	16
220	CROPLAND	0.323050	6
220	PASTURE	0.313443	7
220	WOODLAND	0.294768	12

Table 7 contd. - KRER AND SLSUR PARAMETERS

<u>SEGMENT</u>	<u>COVER</u>	<u>KRER</u>	<u>SLSUR</u>
230	CROPLAND	0.319368	6
230	PASTURE	0.302833	9
230	WOODLAND	0.296482	14
235	CROPLAND	0.313148	5
235	PASTURE	0.318214	7
235	WOODLAND	0.300160	8
240	CROPLAND	0.269316	3
240	PASTURE	0.277000	7
240	WOODLAND	0.247727	8
250	CROPLAND	0.311739	5
250	PASTURE	0.315227	7
250	WOODLAND	0.316196	7
260	CROPLAND	0.292652	5
260	PASTURE	0.299250	7
260	WOODLAND	0.286011	10
265	CROPLAND	0.301818	4
265	PASTURE	0.279867	17
265	WOODLAND	0.243094	30
270	CROPLAND	0.298379	9
270	PASTURE	0.288083	15
270	WOODLAND	0.250814	27
280	CROPLAND	0.302300	7
280	PASTURE	0.292397	11
280	WOODLAND	0.282525	16
290	CROPLAND	0.272089	4
290	PASTURE	0.272065	6
290	WOODLAND	0.272376	7
300	CROPLAND	0.274301	6
300	PASTURE	0.282655	8
300	WOODLAND	0.270773	9
310	CROPLAND	0.267263	5
310	PASTURE	0.276410	7
310	WOODLAND	0.260672	6
330	CROPLAND	0.340491	7
330	PASTURE	0.338106	8
330	WOODLAND	0.336328	10

Table 7 contd. - KRER AND SLSUR PARAMETERS

<u>SEGMENT</u>	<u>COVER</u>	<u>KRER</u>	<u>SLSUR</u>
340	CROPLAND	0.343118	6
340	PASTURE	0.329896	8
340	WOODLAND	0.326581	9
ANACOSTIA	CROPLAND	0.346738	7
ANACOSTIA	PASTURE	0.333108	8
ANACOSTIA	WOODLAND	0.331762	8
BALT HARBOR	CROPLAND	0.344800	8
BALT HARBOR	PASTURE	0.357424	11
BALT HARBOR	WOODLAND	0.336767	15
BOHEMIA	CROPLAND	0.351976	4
BOHEMIA	PASTURE	0.361556	5
BOHEMIA	WOODLAND	0.340920	6
CHESTER	CROPLAND	0.319674	2
CHESTER	PASTURE	0.316286	5
CHESTER	WOODLAND	0.301727	3
CHICKAHOMINY	CROPLAND	0.280825	4
CHICKAHOMINY	PASTURE	0.271154	5
CHICKAHOMINY	WOODLAND	0.282376	7
CHOPTANK	CROPLAND	0.297615	1
CHOPTANK	PASTURE	0.292222	1
CHOPTANK	WOODLAND	0.297619	1
COASTAL 1	CROPLAND	0.333519	2
COASTAL 1	PASTURE	0.352623	4
COASTAL 1	WOODLAND	0.330539	3
COASTAL 11	CROPLAND	0.316625	6
COASTAL 11	PASTURE	0.345908	8
COASTAL 11	WOODLAND	0.311150	13
COASTAL 4	CROPLAND	0.246895	1
COASTAL 4	PASTURE	0.280000	1
COASTAL 4	WOODLAND	0.233433	1
COASTAL 5	CROPLAND	0.323143	5
COASTAL 5	PASTURE	0.272500	4
COASTAL 5	WOODLAND	0.311130	8
COASTAL 6	CROPLAND	0.338394	6
COASTAL 6	PASTURE	0.357231	9
COASTAL 6	WOODLAND	0.336128	14

Table 7 contd. - KRER AND SLSUR PARAMETERS

<u>SEGMENT</u>	<u>COVER</u>	<u>KRER</u>	<u>SLSUR</u>
COASTAL 8	CROPLAND	0.263602	3
COASTAL 8	PASTURE	0.233684	3
COASTAL 8	WOODLAND	0.243301	7
COASTAL 9	CROPLAND	0.300625	0
COASTAL 9	PASTURE	0.333333	0
COASTAL 9	WOODLAND	0.248220	3
ELIZABETH	CROPLAND	0.258759	1
ELIZABETH	PASTURE	0.217000	1
ELIZABETH	WOODLAND	0.218788	1
GREAT WICOMICO	CROPLAND	0.269920	3
GREAT WICOMICO	PASTURE	0.253750	7
GREAT WICOMICO	WOODLAND	0.245016	11
GUNPOWDER	CROPLAND	0.318519	7
GUNPOWDER	PASTURE	0.338971	9
GUNPOWDER	WOODLAND	0.319703	15
JAMES	CROPLAND	0.259246	2
JAMES	PASTURE	0.297397	3
JAMES	WOODLAND	0.286310	5
LAKE ANNA	CROPLAND	0.311739	5
LAKE ANNA	PASTURE	0.315227	7
LAKE ANNA	WOODLAND	0.316196	7
NANSEMOND	CROPLAND	0.261087	1
NANSEMOND	PASTURE	0.249412	1
NANSEMOND	WOODLAND	0.247565	2
NANTICOKE	CROPLAND	0.256896	1
NANTICOKE	PASTURE	0.281081	1
NANTICOKE	WOODLAND	0.266865	1
OCCOQUAN	CROPLAND	0.319859	5
OCCOQUAN	PASTURE	0.305932	7
OCCOQUAN	WOODLAND	0.288588	11
PATAPSCO	CROPLAND	0.322228	7
PATAPSCO	PASTURE	0.334198	9
PATAPSCO	WOODLAND	0.328095	12
PATUXENT	CROPLAND	0.342258	4
PATUXENT	PASTURE	0.319538	5
PATUXENT	WOODLAND	0.322410	7

Table 7 contd. - KRER AND SLSUR PARAMETERS

<u>SEGMENT</u>	<u>COVER</u>	<u>KRER</u>	<u>SLSUR</u>
POCOMOKE	CROPLAND	0.256404	1
POCOMOKE	PASTURE	0.291667	1
POCOMOKE	WOODLAND	0.260974	1
POTOMAC	CROPLAND	0.320783	5
POTOMAC	PASTURE	0.317523	8
POTOMAC	WOODLAND	0.304991	9
RAPPAHANNOCK	CROPLAND	0.274881	3
RAPPAHANNOCK	PASTURE	0.302667	6
RAPPAHANNOCK	WOODLAND	0.259802	9
SEVERN	CROPLAND	0.328261	6
SEVERN	PASTURE	0.255882	4
SEVERN	WOODLAND	0.301441	8
WICOMICO	CROPLAND	0.260238	1
WICOMICO	PASTURE	0.292069	1
WICOMICO	WOODLAND	0.265895	1
WYE	CROPLAND	0.331582	1
WYE	PASTURE	0.298000	1
WYE	WOODLAND	0.322885	2
YORK	CROPLAND	0.261699	3
YORK	PASTURE	0.255135	4
YORK	WOODLAND	0.254965	9

TABLE 8

PERCENT OF EACH COUNTY IN BAY MODEL SEGMENTS

Counties in the Chesapeake Bay basin and the percentage of each in the various model segments. Percentages were determined through use of the GIS system at the Chesapeake Bay Liaison Office.

<u>STATE</u>	<u>COUNTY</u>	<u>MODEL SEGMENT</u>	<u>PERCENT IN SEGMENT</u>
DC	WASHINGTON	220	.049
DC	WASHINGTON	ANACOSTIA	.225
DC	WASHINGTON	POTOMAC	.652
DC	WASHINGTON	POTOMAC RIVER	.074
DE	KENT	CHESTER	.052
DE	KENT	CHOPTANK	.165
DE	KENT	NANTICOKE	.124
DE	NEW CASTLE	BOHEMIA	.027
DE	NEW CASTLE	CHESTER	.026
DE	NEW CASTLE	COASTAL 1	.044
DE	SUSSEX	NANTICOKE	.454
DE	SUSSEX	POCOMOKE	.045
DE	SUSSEX	WICOMICO	.002
MD	ALLEGANY	160	.607
MD	ALLEGANY	175	.393
MD	ANNE ARUNDEL	340	.136
MD	ANNE ARUNDEL	CHESAPEAKE BAY	.027
MD	ANNE ARUNDEL	COASTAL 5	.360
MD	ANNE ARUNDEL	PATAPSCO	.206
MD	ANNE ARUNDEL	PATUXENT	.158
MD	ANNE ARUNDEL	SEVERN	.113
MD	BALTIMORE	BALT HARBOR	.134
MD	BALTIMORE	CHESAPEAKE BAY	.007
MD	BALTIMORE	COASTAL 11	.020
MD	BALTIMORE	COASTAL 6	.096
MD	BALTIMORE	GUNPOWDER	.610
MD	BALTIMORE	PATAPSCO	.133
MD	BALTIMORE CITY	BALT HARBOR	.527
MD	BALTIMORE CITY	CHESAPEAKE BAY	.004
MD	BALTIMORE CITY	COASTAL 6	.374
MD	BALTIMORE CITY	PATAPSCO	.095
MD	CALVERT	CHESAPEAKE BAY	.001
MD	CALVERT	COASTAL 5	.282
MD	CALVERT	PATUXENT	.710
MD	CALVERT	PATUXENT RIVER	.007
MD	CAROLINE	CHESAPEAKE BAY	.003
MD	CAROLINE	CHOPTANK	.812
MD	CAROLINE	NANTICOKE	.185
MD	CARROLL	110	.017
MD	CARROLL	210	.480
MD	CARROLL	GUNPOWDER	.078

Table 8 contd. - PERCENT OF EACH COUNTY IN BAY MODEL SEGMENTS

<u>STATE</u>	<u>COUNTY</u>	<u>MODEL SEGMENT</u>	<u>PERCENT IN SEGMENT</u>
MD	CARROLL	PATAPSCO	.425
MD	CECIL	140	.015
MD	CECIL	BOHEMIA	.131
MD	CECIL	CHESAPEAKE BAY	.013
MD	CECIL	COASTAL 1	.298
MD	CECIL	COASTAL 11	.508
MD	CECIL	SUSQ RIVER	.013
MD	CHARLES	PATUXENT	.057
MD	CHARLES	PATUXENT RIVER	.001
MD	CHARLES	POTOMAC	.929
MD	CHARLES	POTOMAC RIVER	.013
MD	DORCHESTER	CHESAPEAKE BAY	.055
MD	DORCHESTER	CHOPTANK	.074
MD	DORCHESTER	COASTAL 1	.690
MD	DORCHESTER	NANTICOKE	.182
MD	FREDERICK	180	.217
MD	FREDERICK	210	.739
MD	FREDERICK	220	.044
MD	GARRETT	160	.353
MD	HARFORD	140	.106
MD	HARFORD	CHESAPEAKE BAY	.028
MD	HARFORD	COASTAL 11	.593
MD	HARFORD	COASTAL 6	.175
MD	HARFORD	GUNPOWDER	.088
MD	HARFORD	SUSQ RIVER	.010
MD	HOWARD	330	.258
MD	HOWARD	340	.464
MD	HOWARD	PATAPSCO	.278
MD	KENT	CHESAPEAKE BAY	.027
MD	KENT	CHESTER	.567
MD	KENT	COASTAL 1	.405
MD	MONTGOMERY	210	.073
MD	MONTGOMERY	220	.564
MD	MONTGOMERY	330	.130
MD	MONTGOMERY	ANACOSTIA	.116
MD	MONTGOMERY	POTOMAC	.113
MD	MONTGOMERY	POTOMAC RIVER	.005
MD	PRINCE GEORGES	330	.004
MD	PRINCE GEORGES	340	.081
MD	PRINCE GEORGES	ANACOSTIA	.181
MD	PRINCE GEORGES	PATUXENT	.418
MD	PRINCE GEORGES	PATUXENT RIVER	.005
MD	PRINCE GEORGES	POTOMAC	.310
MD	PRINCE GEORGES	POTOMAC RIVER	.002
MD	QUEEN ANNES	CHESAPEAKE BAY	.108
MD	QUEEN ANNES	CHESTER	.549
MD	QUEEN ANNES	CHOPTANK	.180
MD	QUEEN ANNES	COASTAL 1	.022

Table 8 contd. - PERCENT OF EACH COUNTY IN BAY MODEL SEGMENTS

<u>STATE</u>	<u>COUNTY</u>	<u>MODEL SEGMENT</u>	<u>PERCENT IN SEGMENT</u>
MD	QUEEN ANNES	WYE	.141
MD	SOMERSET	CHESAPEAKE BAY	.077
MD	SOMERSET	POCOMOKE	.746
MD	SOMERSET	WICOMICO	.178
MD	ST MARYS	CHESAPEAKE BAY	.002
MD	ST MARYS	PATUXENT	.257
MD	ST MARYS	POTOMAC	.720
MD	ST MARYS	POTOMAC RIVER	.021
MD	TALBOT	CHESAPEAKE BAY	.039
MD	TALBOT	CHOPTANK	.392
MD	TALBOT	COASTAL 1	.449
MD	TALBOT	WYE	.120
MD	WASHINGTON	175	.092
MD	WASHINGTON	180	.907
MD	WICOMICO	CHESAPEAKE BAY	.013
MD	WICOMICO	NANTICOKE	.345
MD	WICOMICO	POCOMOKE	.254
MD	WICOMICO	WICOMICO	.388
MD	WORCESTER	POCOMOKE	.640
MD	WORCESTER	WICOMICO	.001
NY	ALLEGANY	10	.082
NY	BROOME	20	.882
NY	CHEMUNG	10	.779
NY	CHEMUNG	20	.137
NY	CHENANGO	20	.997
NY	CORTLAND	20	.931
NY	DELAWARE	20	.193
NY	HERKIMER	20	.064
NY	LIVINGSTON	10	.028
NY	MADISON	20	.485
NY	ONEIDA	20	.040
NY	ONONDAGA	20	.065
NY	ONTARIO	10	.004
NY	OTSEGO	20	.974
NY	SCHOHARIE	20	.064
NY	SCHUYLER	10	.256
NY	SCHUYLER	20	.118
NY	STEUBEN	10	.888
NY	TIOGA	10	.002
NY	TIOGA	20	.998
NY	TOMPKINS	20	.207
NY	YATES	10	.039
PA	ADAMS	110	.519
PA	ADAMS	180	.060
PA	ADAMS	210	.421
PA	BEDFORD	100	.028
PA	BEDFORD	160	.132
PA	BEDFORD	175	.160

Table 8 contd. - PERCENT OF EACH COUNTY IN BAY MODEL SEGMENTS

<u>STATE</u>	<u>COUNTY</u>	<u>MODEL SEGMENT</u>	<u>PERCENT IN SEGMENT</u>
PA	BEDFORD	90	.680
PA	BERKS	110	.071
PA	BERKS	120	.035
PA	BLAIR	100	.961
PA	BLAIR	50	.014
PA	BLAIR	90	.024
PA	BRADFORD	10	.151
PA	BRADFORD	20	.086
PA	BRADFORD	30	.752
PA	BRADFORD	70	.011
PA	CAMBRIA	100	.002
PA	CAMBRIA	50	.443
PA	CAMERON	60	1
PA	CENTRE	100	.075
PA	CENTRE	50	.161
PA	CENTRE	60	.559
PA	CENTRE	70	.010
PA	CENTRE	80	.195
PA	CHESTER	120	.019
PA	CHESTER	COASTAL 11	.175
PA	CLEARFIELD	50	.745
PA	CLEARFIELD	60	.158
PA	CLINTON	60	.999
PA	COLUMBIA	40	.952
PA	COLUMBIA	70	.042
PA	COLUMBIA	80	.006
PA	CUMBERLAND	110	.325
PA	CUMBERLAND	180	.006
PA	CUMBERLAND	80	.669
PA	DAUPHIN	110	.347
PA	DAUPHIN	80	.653
PA	ELK	60	.318
PA	FRANKLIN	100	.041
PA	FRANKLIN	180	.779
PA	FRANKLIN	210	.002
PA	FRANKLIN	80	.178
PA	FULTON	100	.251
PA	FULTON	175	.056
PA	FULTON	180	.608
PA	FULTON	90	.085
PA	HUNTINGDON	100	.804
PA	HUNTINGDON	90	.195
PA	INDIANA	50	.086
PA	JUNIATA	100	.919
PA	JUNIATA	80	.081
PA	LACKAWANNA	30	.859
PA	LANCASTER	110	.171
PA	LANCASTER	120	.602

Table 8 contd. - PERCENT OF EACH COUNTY IN BAY MODEL SEGMENTS

<u>STATE</u>	<u>COUNTY</u>	<u>MODEL SEGMENT</u>	<u>PERCENT IN SEGMENT</u>
PA	LANCASTER	140	.085
PA	LANCASTER	COASTAL 11	.112
PA	LANCASTER	SUSQ RIVER	.026
PA	LEBANON	110	.757
PA	LEBANON	120	.053
PA	LEBANON	80	.042
PA	LUZERNE	30	.174
PA	LUZERNE	40	.677
PA	LYCOMING	30	.001
PA	LYCOMING	40	.004
PA	LYCOMING	60	.610
PA	LYCOMING	70	.384
PA	MCKEAN	60	.022
PA	MIFFLIN	100	.948
PA	MIFFLIN	80	.052
PA	MONTOUR	40	.368
PA	MONTOUR	70	.632
PA	NORTHUMBERLAND	40	.453
PA	NORTHUMBERLAND	70	.231
PA	NORTHUMBERLAND	80	.316
PA	PERRY	100	.312
PA	PERRY	180	.002
PA	PERRY	80	.686
PA	POTTER	10	.043
PA	POTTER	60	.579
PA	SCHUYLKILL	110	.172
PA	SCHUYLKILL	40	.108
PA	SCHUYLKILL	80	.237
PA	SNYDER	100	.030
PA	SNYDER	40	.016
PA	SNYDER	70	.005
PA	SNYDER	80	.950
PA	SOMERSET	160	.111
PA	SOMERSET	90	.022
PA	SULLIVAN	30	.064
PA	SULLIVAN	40	.101
PA	SULLIVAN	60	.013
PA	SULLIVAN	70	.822
PA	SUSQUEHANNA	20	.360
PA	SUSQUEHANNA	30	.640
PA	TIOGA	10	.573
PA	TIOGA	30	.011
PA	TIOGA	60	.416
PA	UNION	60	.003
PA	UNION	70	.723
PA	UNION	80	.274
PA	WAYNE	20	.042
PA	WAYNE	30	.038

Table 8 contd. - PERCENT OF EACH COUNTY IN BAY MODEL SEGMENTS

<u>STATE</u>	<u>COUNTY</u>	<u>MODEL SEGMENT</u>	<u>PERCENT IN SEGMENT</u>
PA	WYOMING	30	.986
PA	WYOMING	70	.013
PA	YORK	110	.690
PA	YORK	120	.093
PA	YORK	140	.173
PA	YORK	COASTAL 11	.031
PA	YORK	GUNPOWDER	.010
PA	YORK	SUSQ RIVER	.003
VA	ACCOMACK	CHESAPEAKE BAY	.020
VA	ACCOMACK	COASTAL 4	.422
VA	ACCOMACK	POCOMOKE	.079
VA	ALBEMARLE	190	.005
VA	ALBEMARLE	230	.006
VA	ALBEMARLE	260	.011
VA	ALBEMARLE	280	.978
VA	ALEXANDRIA	POTOMAC	.992
VA	ALEXANDRIA	POTOMAC RIVER	.008
VA	ALLEGHANY	265	.026
VA	ALLEGHANY	270	.974
VA	AMELIA	300	.942
VA	AMELIA	310	.058
VA	AMHERST	270	.294
VA	AMHERST	280	.706
VA	APPOMATTOX	280	.431
VA	APPOMATTOX	300	.292
VA	ARLINGTON	220	.002
VA	ARLINGTON	POTOMAC	.992
VA	ARLINGTON	POTOMAC RIVER	.006
VA	AUGUSTA	170	.003
VA	AUGUSTA	190	.739
VA	AUGUSTA	270	.258
VA	AUGUSTA	280	.001
VA	BATH	265	.374
VA	BATH	270	.626
VA	BEDFORD	270	.074
VA	BEDFORD	280	.070
VA	BOTETOURT	270	.883
VA	BUCKINGHAM	280	.942
VA	BUCKINGHAM	300	.058
VA	CAMPBELL	280	.181
VA	CAROLINE	235	.102
VA	CAROLINE	240	.553
VA	CAROLINE	260	.096
VA	CAROLINE	RAPPAHANNOCK	.224
VA	CAROLINE	RAPP RIVER	.003
VA	CAROLINE	YORK	.022
VA	CHARLES CITY	CHICKAHOMINY	.105
VA	CHARLES CITY	JAMES	.884

Table 8 contd. - PERCENT OF EACH COUNTY IN BAY MODEL SEGMENTS

<u>STATE</u>	<u>COUNTY</u>	<u>MODEL SEGMENT</u>	<u>PERCENT IN SEGMENT</u>
VA	CHARLES CITY	JAMES RIVER	.010
VA	CHESAPEAKE CITY	COASTAL 9	.178
VA	CHESAPEAKE CITY	ELIZABETH	.048
VA	CHESAPEAKE CITY	NANSEMOND	.003
VA	CHESTERFIELD	290	.035
VA	CHESTERFIELD	300	.114
VA	CHESTERFIELD	310	.104
VA	CHESTERFIELD	320	.005
VA	CHESTERFIELD	JAMES	.735
VA	CHESTERFIELD	JAMES RIVER	.007
VA	CLARKE	180	.201
VA	CLARKE	200	.797
VA	CLARKE	220	.001
VA	COLONIAL HEIGHTS	JAMES	1
VA	CRAIG	270	.871
VA	CULPEPER	230	1
VA	CUMBERLAND	280	.489
VA	CUMBERLAND	290	.169
VA	CUMBERLAND	300	.341
VA	DINWIDDIE	310	.170
VA	DINWIDDIE	320	.016
VA	DINWIDDIE	JAMES	.037
VA	ESSEX	240	.004
VA	ESSEX	COASTAL 8	.098
VA	ESSEX	RAPPAHANNOCK	.868
VA	ESSEX	RAPP RIVER	.026
VA	ESSEX	YORK	.004
VA	FAIRFAX	220	.289
VA	FAIRFAX	OCCOQUAN	.267
VA	FAIRFAX	POTOMAC	.440
VA	FAIRFAX	POTOMAC RIVER	.004
VA	FALLS CHURCH	POTOMAC	1
VA	FAUQUIER	200	.002
VA	FAUQUIER	220	.232
VA	FAUQUIER	230	.435
VA	FAUQUIER	OCCOQUAN	.326
VA	FAUQUIER	POTOMAC	.004
VA	FLUVANNA	260	.004
VA	FLUVANNA	280	.996
VA	FREDERICK	175	.013
VA	FREDERICK	180	.727
VA	FREDERICK	200	.260
VA	FREDERICKSBURG	RAPPAHANNOCK	1
VA	GILES	270	.033
VA	GLOUCESTER	CHESAPEAKE BAY	.024
VA	GLOUCESTER	COASTAL 8	.638
VA	GLOUCESTER	YORK	.331

Table 8 contd. - PERCENT OF EACH COUNTY IN BAY MODEL SEGMENTS

<u>STATE</u>	<u>COUNTY</u>	<u>MODEL SEGMENT</u>	<u>PERCENT IN SEGMENT</u>
VA	GLOUCESTER	YORK RIVER	.008
VA	GOOCHLAND	260	.044
VA	GOOCHLAND	280	.216
VA	GOOCHLAND	290	.740
VA	GREENE	190	.013
VA	GREENE	230	.393
VA	GREENE	280	.593
VA	HAMPTON	CHESAPEAKE BAY	.020
VA	HAMPTON	COASTAL 9	.759
VA	HAMPTON	JAMES	.202
VA	HAMPTON	JAMES RIVER	.019
VA	HANOVER	260	.567
VA	HANOVER	290	.001
VA	HANOVER	CHICKAHOMINY	.145
VA	HANOVER	YORK	.287
VA	HENRICO	290	.147
VA	HENRICO	CHICKAHOMINY	.496
VA	HENRICO	JAMES	.355
VA	HENRICO	JAMES RIVER	.002
VA	HIGHLAND	170	.235
VA	HIGHLAND	265	.344
VA	HIGHLAND	270	.421
VA	ISLE OF WIGHT	JAMES	.336
VA	ISLE OF WIGHT	JAMES RIVER	.004
VA	ISLE OF WIGHT	NANSEMOND	.149
VA	JAMES CITY	JAMES	.767
VA	JAMES CITY	JAMES RIVER	.005
VA	JAMES CITY	YORK	.225
VA	JAMES CITY	YORK RIVER	.004
VA	KING AND QUEEN	240	.069
VA	KING AND QUEEN	COASTAL 8	.224
VA	KING AND QUEEN	RAPPAHANNOCK	.003
VA	KING AND QUEEN	YORK	.703
VA	KING AND QUEEN	YORK RIVER	.001
VA	KING GEORGE	POTOMAC	.619
VA	KING GEORGE	POTOMAC RIVER	.014
VA	KING GEORGE	RAPPAHANNOCK	.345
VA	KING GEORGE	RAPP RIVER	.023
VA	KING WILLIAM	240	.023
VA	KING WILLIAM	260	.003
VA	KING WILLIAM	YORK	.971
VA	KING WILLIAM	YORK RIVER	.004
VA	LANCASTER	CHESAPEAKE BAY	.018
VA	LANCASTER	COASTAL 8	.140
VA	LANCASTER	GREAT WICOMICO	.007
VA	LANCASTER	RAPPAHANNOCK	.812
VA	LANCASTER	RAPP RIVER	.023
VA	LOUDOUN	180	.239

Table 8 contd. - PERCENT OF EACH COUNTY IN BAY MODEL SEGMENTS

<u>STATE</u>	<u>COUNTY</u>	<u>MODEL SEGMENT</u>	<u>PERCENT IN SEGMENT</u>
VA	LOUDOUN	200	.010
VA	LOUDOUN	220	.703
VA	LOUDOUN	OCCOQUAN	.049
VA	LOUISA	250	.265
VA	LOUISA	260	.670
VA	LOUISA	280	.035
VA	LOUISA	290	.005
VA	LOUISA	LAKE ANNA	.026
VA	LYNCHBURG	280	1
VA	MADISON	190	.003
VA	MADISON	230	.997
VA	MATHEWS	CHESAPEAKE BAY	.069
VA	MATHEWS	COASTAL 8	.931
VA	MIDDLESEX	CHESAPEAKE BAY	.006
VA	MIDDLESEX	COASTAL 8	.413
VA	MIDDLESEX	RAPPAHANNOCK	.557
VA	MIDDLESEX	RAPP RIVER	.023
VA	MONTGOMERY	270	.059
VA	NELSON	190	.008
VA	NELSON	270	.004
VA	NELSON	280	.987
VA	NEW KENT	CHICKAHOMINY	.167
VA	NEW KENT	JAMES	.359
VA	NEW KENT	YORK	.474
VA	NEWPORT NEWS	COASTAL 9	.106
VA	NEWPORT NEWS	JAMES	.872
VA	NEWPORT NEWS	JAMES RIVER	.022
VA	NORFOLK	CHESAPEAKE BAY	.003
VA	NORFOLK	COASTAL 9	.972
VA	NORFOLK	JAMES RIVER	.025
VA	NORTHAMPTON	CHESAPEAKE BAY	.011
VA	NORTHAMPTON	COASTAL 4	.400
VA	NORTHUMBERLAND	CHESAPEAKE BAY	.017
VA	NORTHUMBERLAND	COASTAL 8	.143
VA	NORTHUMBERLAND	GREAT WICOMICO	.320
VA	NORTHUMBERLAND	POTOMAC	.497
VA	NORTHUMBERLAND	POTOMAC RIVER	.011
VA	NORTHUMBERLAND	RAPPAHANNOCK	.013
VA	NOTTOWAY	300	.508
VA	NOTTOWAY	310	.036
VA	ORANGE	230	.582
VA	ORANGE	235	.013
VA	ORANGE	250	.357
VA	ORANGE	260	.018
VA	ORANGE	280	.028
VA	ORANGE	LAKE ANNA	.003
VA	PAGE	190	.942
VA	PAGE	200	.053

Table 8 contd. - PERCENT OF EACH COUNTY IN BAY MODEL SEGMENTS

<u>STATE</u>	<u>COUNTY</u>	<u>MODEL SEGMENT</u>	<u>PERCENT IN SEGMENT</u>
VA	PAGE	230	.005
VA	PETERSBURG	JAMES	.992
VA	PORTSMOUTH	COASTAL 9	.423
VA	PORTSMOUTH	ELIZABETH	.317
VA	PORTSMOUTH	JAMES RIVER	.052
VA	PORTSMOUTH	NANSEMOND	.209
VA	POWHATAN	290	.731
VA	POWHATAN	300	.239
VA	POWHATAN	JAMES	.030
VA	PRINCE EDWARD	300	.963
VA	PRINCE GEORGE	JAMES	1.01
VA	PRINCE GEORGE	JAMES RIVER	.008
VA	PRINCE WILLIAM	220	.001
VA	PRINCE WILLIAM	OCCOQUAN	.796
VA	PRINCE WILLIAM	POTOMAC	.196
VA	PRINCE WILLIAM	POTOMAC RIVER	.006
VA	RAPPAHANNOCK	190	.004
VA	RAPPAHANNOCK	230	.996
VA	RICHMOND	GREAT WICOMICO	.001
VA	RICHMOND	POTOMAC	.001
VA	RICHMOND	RAPPAHANNOCK	.995
VA	RICHMOND	RAPP RIVER	.002
VA	RICHMOND CITY	290	.050
VA	RICHMOND CITY	CHICKAHOMINY	.043
VA	RICHMOND CITY	JAMES	.907
VA	ROANOKE	270	.102
VA	ROCKBRIDGE	270	.999
VA	ROCKINGHAM	170	.013
VA	ROCKINGHAM	190	.562
VA	ROCKINGHAM	200	.424
VA	ROCKINGHAM	280	.001
VA	SHENANDOAH	175	.013
VA	SHENANDOAH	200	.987
VA	SPOTSYLVANIA	230	.103
VA	SPOTSYLVANIA	235	.472
VA	SPOTSYLVANIA	240	.027
VA	SPOTSYLVANIA	250	.111
VA	SPOTSYLVANIA	260	.107
VA	SPOTSYLVANIA	LAKE ANNA	.037
VA	SPOTSYLVANIA	RAPPAHANNOCK	.144
VA	STAFFORD	230	.142
VA	STAFFORD	POTOMAC	.705
VA	STAFFORD	POTOMAC RIVER	.005
VA	STAFFORD	RAPPAHANNOCK	.148
VA	SUFFOLK	ELIZABETH	.001
VA	SUFFOLK	JAMES	.033
VA	SUFFOLK	JAMES RIVER	.002
VA	SUFFOLK	NANSEMOND	.339

Table 8 contd. - PERCENT OF EACH COUNTY IN BAY MODEL SEGMENTS

<u>STATE</u>	<u>COUNTY</u>	<u>MODEL SEGMENT</u>	<u>PERCENT IN SEGMENT</u>
VA	SURRY	JAMES	.411
VA	SURRY	JAMES RIVER	.002
VA	VIRGINIA BEACH	CHESAPEAKE BAY	.011
VA	VIRGINIA BEACH	COASTAL 9	.418
VA	WARREN	190	.373
VA	WARREN	200	.621
VA	WARREN	230	.005
VA	WESTMORELAND	POTOMAC	.694
VA	WESTMORELAND	POTOMAC RIVER	.016
VA	WESTMORELAND	RAPPAHANNOCK	.275
VA	WESTMORELAND	RAPP RIVER	.015
VA	WILLIAMSBURG	JAMES	.566
VA	WILLIAMSBURG	YORK	.434
VA	YORK	CHESAPEAKE BAY	.006
VA	YORK	COASTAL 9	.356
VA	YORK	JAMES	.099
VA	YORK	YORK	.516
VA	YORK	YORK RIVER	.023
WV	BERKELEY	180	1
WV	GRANT	160	.512
WV	GRANT	170	.488
WV	HAMPSHIRE	160	.039
WV	HAMPSHIRE	170	.273
WV	HAMPSHIRE	175	.686
WV	HAMPSHIRE	180	.003
WV	HARDY	160	.004
WV	HARDY	170	.441
WV	HARDY	175	.519
WV	HARDY	200	.036
WV	JEFFERSON	180	.536
WV	JEFFERSON	200	.464
WV	MINERAL	160	1
WV	MONROE	270	.149
WV	MORGAN	175	.454
WV	MORGAN	180	.546
WV	PENDLETON	170	.996
WV	PENDLETON	270	.004

URBAN LAND SUB-CATEGORIES

GIS system data for 1972 were utilized to divide urban land into sub-categories similar to those used in the NVPDC model. Tables 9-A and 9-B show the percentage of each model segment designated as residential, commercial, industrial, transportation, institutional, and impervious surface.

TABLE 9-A

% URBAN LAND IN VARIOUS CATEGORIES BY SEGMENT ABOVE THE FALL LINE

<u>SEGMT</u>	<u>RESIDENT</u>	<u>COMMERCIAL</u>	<u>INDUSTRIAL</u>	<u>TRANSPORT</u>	<u>INSTITUT</u>	<u>IMPERVIOUS</u>
10	69	18	4	0	10	36
20	90	10	0	0	0	31
30	36	39	4	12	9	52
40	24	58	3	4	11	61
50	66	5	3	15	11	31
60	49	12	5	19	15	37
70	48	18	5	19	10	41
80	63	19	1	11	6	39
90	43	8	3	37	9	39
100	66	11	4	8	11	35
110	54	18	5	10	12	39
120	64	17	2	8	8	37
140	96	0	3	1	0	27
160	71	8	11	7	1	36
170	69	14	4	2	11	34
175	50	15	4	26	6	42
180	71	5	20	1	3	37
190	81	8	1	6	3	31
200	76	5	12	5	2	38
210	65	6	3	25	1	36
220	66	12	0	14	6	35
230	91	4	2	1	3	28
235	65	17	1	15	2	36
240	58	14	3	18	7	38
250	83	6	4	1	5	30
260	67	8	1	23	2	36
265	82	13	5	0	0	35
270	73	5	3	16	4	33
280	80	8	3	6	3	32
290	73	9	0	10	8	32
300	74	14	1	9	3	36
310	95	5	0	0	0	28
330	90	7	0	0	3	29
340	39	38	3	11	9	51

TABLE 9-B

% URBAN LAND IN VARIOUS CATEGORIES BY SEGMENT BELOW THE FALL LINE

<u>SEGMENT</u>	<u>RESIDENT</u>	<u>COMMERCIAL</u>	<u>INDUSTRIAL</u>	<u>TRANSPORT</u>	<u>INSTITUT</u>	<u>IMPERVIOUS</u>
ANACOSTIA	38	43	2	4	13	51
BALT HARB	49	43	3	1	4	52
BOHEMIA	75	20	0	0	5	36
CHESTER	86	12	1	0	1	32
CHICKAH	71	12	1	14	2	35
CHOPTANK	81	15	1	0	3	34
COAST 1	83	10	0	2	5	31
COAST 11	67	23	3	5	2	42
COAST 4	77	12	4	4	3	34
COAST 5	75	13	1	3	9	33
COAST 6	40	38	2	6	14	48
COAST 8	88	8	1	2	1	30
COAST 9	44	39	1	4	12	48
ELIZABETH	86	6	0	8	0	31
GRT WICO	92	7	0	1	0	29
GUNPOWD	38	58	4	0	0	62
JAMES	68	16	5	7	4	38
LAKE ANNA	39	61	0	0	0	62
NANSEMOND	85	5	0	6	5	28
NANTICOKE	89	7	3	0	1	30
OCCAQUAN	78	14	1	4	3	34
PATAPSCO	46	28	7	0	18	42
PATUXENT	83	12	1	3	2	33
POCOMOKE	81	11	5	0	3	34
POTOMAC	69	20	1	4	7	38
RAPPAHAN	76	12	2	5	4	34
SEVERN	79	5	1	0	15	26
WICOMICO	82	10	2	3	3	32
WYE	93	6	0	0	1	32
YORK	65	20	4	8	4	40

TABLE 10

% OF CONSERVATION TILLAGE AND CONVENTIONAL TILLAGE BY COUNTY - 1985

Percentage of conservation tillage in each county was developed from the 1985 Conservation Tillage Information Center Report.

<u>STATE/COUNTY</u>		<u>PERCENT CONSERVATION TILLAGE</u>	<u>PERCENT CONVENTIONAL TILLAGE</u>
DE	KENT	70.8	29.2
DE	NEW CASTLE	66.3	33.7
DE	SUSSEX	74.7	25.3
MD	ALLEGANY	28.9	71.1
MD	ANNE ARUNDEL	70.4	29.6
MD	BALTIMORE	61.9	38.1
MD	CALVERT	36.4	63.6
MD	CAROLINE	45.1	54.9
MD	CARROLL	63.3	36.7
MD	CECIL	67.3	32.7
MD	CHARLES	17.1	82.9
MD	DORCHESTER	59.2	40.8
MD	FREDERICK	85.9	14.1
MD	GARRETT	30.1	69.9
MD	HARFORD	76.3	23.7
MD	HOWARD	73.0	27.0
MD	KENT	97.5	2.5
MD	MONTGOMERY	91.7	8.3
MD	PRINCE GEORGES	6.6	93.4
MD	QUEEN ANNES	69.1	30.9
MD	SOMERSET	68.9	31.1
MD	ST MARYS	46.5	53.5
MD	TALBOT	60.5	39.5
MD	WASHINGTON	73.7	26.3
MD	WICOMICO	24.2	75.8
MD	WORCESTER	81.0	19.0
NY	ALLEGANY	3.4	96.6
NY	BROOME	13.2	86.8
NY	CHEMUNG	7.4	92.6
NY	CHENANGO	2.7	97.3
NY	CORTLAND	6.4	93.6
NY	DELAWARE	1.3	98.7
NY	HERKIMER	7.8	92.2
NY	LIVINGSTON	9.0	91.0
NY	MADISON	1.9	98.1
NY	ONANDAGA	14.4	85.6
NY	ONEIDA	5.4	94.6
NY	ONTARIO	12.1	87.9
NY	OTSEGO	0.5	99.5
NY	SCHOHARIE	5.0	95.0

Table 10 contd. - % OF CONSERVATION TILLAGE AND CONVENTIONAL TILLAGE

<u>STATE/COUNTY</u>		<u>PERCENT CONSERVATION TILLAGE</u>	<u>PERCENT CONVENTIONAL TILLAGE</u>
NY	SCHUYLER	3.1	96.9
NY	STEUBEN	5.1	94.9
NY	TIOGA	2.3	97.7
NY	TOMPKINS	16.8	83.2
NY	YATES	13.9	86.1
PA	ADAMS	72.7	27.3
PA	BEDFORD	57.5	42.5
PA	BERKS	46.1	53.9
PA	BLAIR	24.3	75.7
PA	BRADFORD	2.2	97.8
PA	CAMBRIA	7.1	92.9
PA	CAMERON	0.0	100.0
PA	CENTRE	49.4	50.6
PA	CHESTER	68.3	31.7
PA	CLEARFIELD	18.9	81.1
PA	CLINTON	36.2	63.8
PA	COLUMBIA	25.0	75.0
PA	CUMBERLAND	65.7	34.3
PA	DAUPHIN	19.9	80.1
PA	ELK	0.4	99.6
PA	FRANKLIN	56.3	43.7
PA	FULTON	52.4	47.6
PA	HUNTINGDON	44.4	55.6
PA	INDIANA	26.4	73.6
PA	JUNIATA	29.6	70.4
PA	LACKAWANNA	37.1	62.9
PA	LANCASTER	42.9	57.1
PA	LEBANON	25.4	74.6
PA	LUZERNE	21.1	78.9
PA	LYCOMING	62.5	37.5
PA	MCKEAN	0.7	99.3
PA	MIFFLIN	46.0	54.0
PA	MONTOUR	31.1	68.9
PA	NORTHUMBERLAND	43.8	56.2
PA	PERRY	63.4	36.6
PA	POTTER	1.2	98.8
PA	SCHUYLKILL	40.8	59.2
PA	SNYDER	46.4	53.6
PA	SOMERSET	42.4	57.6
PA	SULLIVAN	10.8	89.2
PA	SUSQUEHANNA	29.8	70.2
PA	TIOGA	27.5	72.5
PA	UNION	37.4	62.6
PA	WAYNE	48.9	51.1
PA	WYOMING	29.1	70.9
PA	YORK	65.5	34.5

Table 10 contd. - % OF CONSERVATION TILLAGE AND CONVENTIONAL TILLAGE

STATE/COUNTY	PERCENT CONSERVATION TILLAGE	PERCENT CONVENTIONAL TILLAGE
VA ACCOMACK	33.6	66.4
VA ALBEMARLE	25.7	74.3
VA ALLEGHANY	100.0	0.0
VA AMELIA	52.7	47.3
VA AMHERST	46.7	53.3
VA APPOMATTOX	32.9	67.1
VA ARLINGTON		
VA AUGUSTA	73.0	27.0
VA BATH	91.4	8.6
VA BEDFORD	64.4	35.6
VA BOTETOURT	84.8	15.2
VA BUCKINGHAM	79.4	20.6
VA CAMPBELL	27.2	72.8
VA CAROLINE	90.9	9.1
VA CHARLES CITY	63.3	36.7
VA CHESAPEAKE CITY	54.5	45.5
VA CHESTERFIELD	25.3	74.7
VA CLARKE	73.4	26.6
VA CRAIG	73.1	26.9
VA CULPEPER	68.6	31.4
VA CUMBERLAND	90.1	9.9
VA DINWIDDIE	4.5	95.5
VA ESSEX	37.0	63.0
VA FAIRFAX	53.7	46.3
VA FAUQUIER	80.6	19.4
VA FLUVANNA	69.6	30.4
VA FREDERICK	58.3	41.7
VA GILES	99.8	0.2
VA GLOUCESTER	24.7	75.3
VA GOOCHLAND	57.5	42.5
VA GREENE	44.1	55.9
VA HANOVER	67.0	33.0
VA HENRICO	77.5	22.5
VA HIGHLAND	37.4	62.6
VA ISLE OF WIGHT	44.5	55.5
VA JAMES CITY	61.7	38.3
VA KING AND QUEEN	40.0	60.0
VA KING GEORGE	55.0	45.0
VA KING WILLIAM	48.8	51.2
VA LANCASTER	20.7	79.3
VA LOUDOUN	93.2	6.8
VA LOUISA	58.0	42.0
VA MADISON	39.6	60.4
VA MATHEWS	9.3	90.7
VA MIDDLESEX	7.4	92.6
VA MONTGOMERY	67.2	32.8

Table 10 contd. - % OF CONSERVATION TILLAGE AND CONVENTIONAL TILLAGE

STATE/COUNTY	PERCENT CONSERVATION TILLAGE	PERCENT CONVENTIONAL TILLAGE
VA NELSON	55.0	45.0
VA NEW KENT	66.9	33.1
VA NORTHAMPTON	50.4	49.6
VA NORTHUMBERLAND	26.6	73.4
VA NOTTOWAY	81.5	18.5
VA ORANGE	24.8	75.2
VA PAGE	76.7	23.3
VA POWHATAN	40.5	59.5
VA PRINCE EDWARD	38.4	61.6
VA PRINCE GEORGE	24.0	76.0
VA PRINCE WILLIAM	86.8	13.2
VA RAPPAHANNOCK	66.3	33.7
VA RICHMOND	9.2	90.8
VA ROANOKE	49.2	50.8
VA ROCKBRIDGE	100.0	0.0
VA ROCKINGHAM	59.2	40.8
VA SHENANDOAH	32.8	67.2
VA SPOTSYLVANIA	30.6	69.4
VA STAFFORD	68.0	32.0
VA SUFFOLK CITY	64.2	35.8
VA SURRY	66.9	33.1
VA VIRGINIA BEACH	100.0	0.0
VA WARREN	71.8	28.2
VA WESTMORELAND	20.5	79.5
VA YORK	26.5	73.5
WV BERKELEY	65.4	34.6
WV GRANT	32.1	67.9
WV HAMPSHIRE	47.2	52.8
WV HARDY	13.9	86.1
WV JEFFERSON	90.4	9.6
WV MINERAL	34.8	65.2
WV MONROE	47.3	52.7
WV MORGAN	27.3	72.7
WV PENDLETON	30.8	69.2

FOREST LAND USE

Forest acreages for 1950, 1978 and 1985 were compiled from 1950 Timber Survey Data in the CBLO Cultural File and 1978 and 1985 County Land Use Data submitted by SCS State Offices.

The CBLO Cultural File for 1950 does not include data for all counties in the basin. Because the 1978 and 1985 data are for use in the watershed model, woodland numbers for some counties may include some idle land and/or wetlands. These land uses have similar loading characteristics and the model has a limited number of land uses available.

These data, the best available at this time, give a good indication of changes from 1978 to 1985. Since 1950 data are limited, however, it is difficult to show total changes for the basin over the last 40 years. Constructing a complete 1950 data set from the original 1950 Timber Survey information would require an inordinate amount of time.

As an indicator of trends in the Bay basin, a 1989 report from Virginia shows a 4 percent increase in forest land between 1956 and 1976 and a 2 percent decrease from 1976 to 1986. Virginia projects an additional 2 percent decline from 1986 to 1996.

TABLE 11

FOREST LAND ACREAGE

<u>STATE</u>	<u>COUNTY</u>	<u>1950</u>	<u>1978</u>	<u>1985</u>
DC	WASHINGTON	0	3200	3100
DE	KENT	0	50943	50535
DE	NEW CASTLE	0	6830	6697
DE	SUSSEX	0	130148	130024
MD	ALLEGANY	198000	183286	181186
MD	ANNE ARUNDEL	174000	126010	112756
MD	BALTIMORE	174000	147560	122661
MD	CALVERT	92000	87967	73367
MD	CAROLINE	85000	77920	75125
MD	CARROLL	78000	81267	84967
MD	CECIL	84280	85703	85646
MD	CHARLES	215000	193000	191011
MD	DORCHESTER	164000	257160	257410
MD	FREDERICK	142000	137140	135140
MD	GARRETT	126900	107940	107940
MD	HARFORD	103000	138673	146289
MD	HOWARD	51000	52396	50240
MD	KENT	43000	53152	52637
MD	MONTGOMERY	74000	95081	98081

Table 11 contd. - FOREST LAND ACREAGE

<u>STATE</u>	<u>COUNTY</u>	<u>1950</u>	<u>1978</u>	<u>1985</u>
MD	PRINCE GEORGES	188000	134686	115875
MD	QUEEN ANNES	78000	66127	66990
MD	SOMERSET	92000	172062	171082
MD	ST MARYS	156000	126425	132125
MD	TALBOT	47000	45404	42016
MD	WASHINGTON	106000	98280	96680
MD	WICOMICO	129000	121780	125924
MD	WORCESTER	97800	134991	130444
NY	ALLEGANY	0	34563	35219
NY	BROOME	0	246431	252164
NY	CHEMUNG	0	144728	147659
NY	CHENANGO	0	339279	357225
NY	CORTLAND	0	147191	150915
NY	DELAWARE	0	120490	123192
NY	HERKIMER	0	24838	25094
NY	LIVINGSTON	0	3363	3475
NY	MADISON	0	95157	96612
NY	ONEIDA	0	16528	16492
NY	ONONDAGA	0	12993	13188
NY	ONTARIO	0	571	599
NY	OTSEGO	0	359893	374503
NY	SCHOHARIE	0	16429	17133
NY	SCHUYLER	0	45703	45591
NY	STEUBEN	0	424553	438761
NY	TIOGA	0	193600	196600
NY	TOMPKINS	0	35501	36163
NY	YATES	0	3276	3627
PA	ADAMS	146200	141618	98930
PA	BEDFORD	388700	438536	428541
PA	BERKS	17550	23328	20497
PA	BLAIR	192300	246514	239155
PA	BRADFORD	312800	374950	358022
PA	CAMBRIA	103600	133671	120749
PA	CAMERON	243600	248900	244574
PA	CENTRE	492400	553291	546188
PA	CHESTER	0	20642	16082
PA	CLEARFIELD	486540	538991	530598
PA	CLINTON	509000	521464	519193
PA	COLUMBIA	139800	168388	155915
PA	CUMBERLAND	219400	139236	127839
PA	DAUPHIN	154600	173985	163684
PA	ELK	159635	161198	161332
PA	FRANKLIN	184700	238978	210050
PA	FULTON	178200	195412	192797

Table 11 contd. - FOREST LAND ACREAGE

<u>STATE</u>	<u>COUNTY</u>	<u>1950</u>	<u>1978</u>	<u>1985</u>
PA	HUNTINGDON	404700	424033	410462
PA	INDIANA	0	29468	28055
PA	JUNIATA	146300	163149	159438
PA	LACKAWANNA	158865	163729	154301
PA	LANCASTER	87115	125863	82544
PA	LEBANON	60570	80691	71195
PA	LUZERNE	309760	375819	357360
PA	LYCOMING	561400	620652	614449
PA	MCKEAN	0	12671	12289
PA	MIFFLIN	172700	186228	183723
PA	MONTOUR	28800	29952	25957
PA	NORTHUMBERLAND	93400	136748	123538
PA	PERRY	213500	252117	248106
PA	POTTER	335460	365962	363787
PA	SCHUYLKILL	156050	193347	185002
PA	SNYDER	126200	120156	116306
PA	SOMERSET	74900	60268	58200
PA	SULLIVAN	239300	261992	266255
PA	SUSQUEHANNA	264800	336314	318518
PA	TIOGA	427100	491274	468345
PA	UNION	109000	129835	123937
PA	WAYNE	0	25943	25351
PA	WYOMING	146500	198809	191369
PA	YORK	137100	189888	159426
VA	ACCOMACK	64554	133851	128590
VA	ALBEMARLE	295400	330274	332827
VA	ALLEGHANY	250500	263730	258846
VA	AMELIA	164600	175098	168301
VA	AMHERST	221000	213475	203026
VA	APPOMATTOX	109130	111542	109372
VA	ARLINGTON	0	0	0
VA	AUGUSTA	352400	357156	336715
VA	BATH	302800	312812	308046
VA	BEDFORD	61860	46241	43885
VA	BOTETOURT	208362	221379	211371
VA	BUCKINGHAM	295500	294545	288310
VA	CAMPBELL	44060	40328	38485
VA	CAROLINE	328560	283014	285022
VA	CHARLES CITY	87300	98071	94422
VA	CHESAPEAKE CITY	0	42188	34695
VA	CHESTERFIELD	227400	217538	200960
VA	CLARKE	35200	40271	38046
VA	CRAIG	146370	150573	145514
VA	CULPEPER	115800	136484	127250
VA	CUMBERLAND	134700	133011	122179
VA	DINWIDDIE	69780	56433	56632
VA	ESSEX	211000	119678	110068

Table 11 contd. - FOREST LAND ACREAGE

<u>STATE</u>	<u>COUNTY</u>	<u>1950</u>	<u>1978</u>	<u>1985</u>
VA	FAIRFAX	145300	122252	91202
VA	FAUQUIER	166500	205617	189804
VA	FLUVANNA	120700	139853	138634
VA	FREDERICK	145800	154412	149293
VA	GILES	0	5471	5692
VA	GLOUCESTER	96100	112864	100084
VA	GOOCHLAND	132300	143961	128893
VA	GREENE	62200	70569	58939
VA	HANOVER	209600	194896	191885
VA	HENRICO	79400	101142	96624
VA	HIGHLAND	196400	207571	208088
VA	ISLE OF WIGHT	71640	0	58450
VA	JAMES CITY	67600	67707	72387
VA	KING AND QUEEN	156400	173179	163985
VA	KING GEORGE	74300	81235	77163
VA	KING WILLIAM	131300	129043	127788
VA	LANCASTER	56400	56462	55028
VA	LOUDOUN	98400	128727	108836
VA	LOUISA	228300	251215	237601
VA	MADISON	119700	117561	115311
VA	MATHEWS	29500	41097	43764
VA	MIDDLESEX	107600	60176	60087
VA	MONTGOMERY	0	7688	6669
VA	NELSON	221000	243021	227693
VA	NEW KENT	109200	116222	111888
VA	NORTHAMPTON	22860	50867	53141
VA	NORTHUMBERLAND	75000	76623	72271
VA	NOTTOWAY	71450	72956	67268
VA	ORANGE	143100	138438	135889
VA	PAGE	128900	131691	131570
VA	POWHATAN	131400	132165	117411
VA	PRINCE EDWARD	166500	155340	147504
VA	PRINCE GEORGE	0	132061	130505
VA	PRINCE WILLIAM	135800	105975	104842
VA	RAPPAHANNOCK	96500	111053	109308
VA	RICHMOND	76800	90839	85538
VA	ROANOKE	10890	13446	11758
VA	ROCKBRIDGE	252600	266468	259252
VA	ROCKINGHAM	307400	353054	332212
VA	SHENANDOAH	185800	220781	213572
VA	SPOTSYLVANIA	193500	201372	194310
VA	STAFFORD	131500	136711	127823
VA	SUFFOLK	98340	64029	53130
VA	SURRY	40560	58716	58071
VA	VIRGINIA BEACH	0	28624	26104
VA	WARREN	79420	90518	83431
VA	WESTMORELAND	90200	93754	90257

VA	YORK	76500	38425	31980
WV	BERKELEY	0	104835	97664
WV	GRANT	0	229065	222342
WV	HAMPSHIRE	0	302580	318134
WV	HARDY	0	290827	290358
WV	JEFFERSON	0	31120	25937
WV	MINERAL	0	156468	164957
WV	MONROE	0	28089	28089
WV	MORGAN	0	115796	116018
WV	PENDLETON	0	338243	349230

STATE TOTALS

DE	0	187921	187256
MD	2697980	2724010	2655592
NY	0	2265087	2334212
PA	8182545	9294010	8882059
VA	9066936	9473539	9105497
WV	0	1597023	1612729

REFERENCES

Information, Conservation Tillage Data, sent from Bruce Julian, Conservation Technology Information Center, November 1986

Northern Virginia Planning District C, "Chesapeake Bay Basin Model," Final Report prepared for U.S. Environmental Protection Agency, January 1983

U.S. Department of Commerce, Bureau of the Census, 1980. 1978 Census of Agriculture, Volume 1, Geographic Area Series

U.S. Department of Commerce, Bureau of the Census, 1984. 1982 Census of Agriculture, Volume 1, Geographic Area Series

U.S. Department of Agriculture, Forest Service, Forest Statistics for New York, 1980, Resource Bulletin NE-71, Broomall, PA, 1982

U.S. Department of Agriculture, Forest Service, Forest Statistics for Pennsylvania 1980, Resource Bulletin NE-65, Broomall, PA, 1980

U.S. Department of Agriculture, Forest Service, Forest Resources of West Virginia. Resource Bulletin NE-56, Broomall, PA, 1978

U.S. Department of Agriculture, Forest Service, The Timber Resources of Delaware. Resource Bulletin NE-32, Broomall, PA, 1974

U.S. Department of Agriculture, Forest Service, Virginia's Timber, 1977. Resource Bulletin SE-44, Asheville, NC, 1978

U.S. Department of Agriculture, Soil Conservation Service, Animal Waste Management Field Manual. U.S. Government Printing Office, 1975.

U.S. Department of Agriculture, Soil Conservation Service, Soil Interpretations Records (SCS-SOI-5 data) file; and the National Resources Inventory (NRI).

U.S. Environmental Protection Agency, Chesapeake Bay: A Framework for Action, Region 3, Philadelphia, PA, 1983