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Chesapeake Submerged Aquatic Vegetation Data Management and Analysis Project Summary

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by

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Chesapeake SAV Data Management and Analysis Project Summary

Introduction

The goal of this project was to develop a single, authoritative dataset of historical SAV coverages for the Chesapeake Bay. This is essential for the management of living resources and water quality in the Bay, and is required by the 1992 amendments to the 1987 Chesapeake Bay Agreement which states "the distribution and abundance of SAV as documented by Baywide and other aerial surveys will be used as an initial measure of progress in the restoration of living resources and water quality." A three-tiered strategy has been adopted to evaluate restoration efforts. The first tier (Tier I) requires restoration of all areas shown to support SAV by the aerial surveys of 1971, 1974, 1978, 1979, 1980, 1981, 1984, 1985, 1986, 1987, 1989, or 1990. Tier II requires restoration of all possible SAV habitat within one meter or less of water. Tier III requires restoration of all possible SAV habitat within two meters or less of water. This project has verified the quality of the existing historical SAV survey data, recreated Tier I based on the data, and put in place a spatial data management system that will facilitate the annual evaluation of restoration progress.

Verifying the historical dataset proved to be far more time consuming and problematic than was expected. In total 756 map sheets were processed and 423 had to be corrected. 1:24,000 or 1:12,000 scale physical maps were located for most of the historical data; however, the maps for the Maryland portion of the 1984 survey and several quadrangles from other years were not located. A detailed written procedure was followed to plot the digital data, check it by physical overlay on the maps, and correct significant errors. The process revealed a distinct difference between the work completed by Computer Sciences Corporation (CSC), an EPA contractor, for the Northern Bay and the work completed at VIMS for the Southern Bay. Though a description of CSC's procedures does not appear to exist, it seems that the digitizing was done in 'point mode,' rather that 'stream mode', the method used by VIMS. The placement of vertices on each digital line segment is inconsistent and more widely spaced than those on VIMS' line segments. This results in quite blocky beds that, in many instances, required redigitizing to meet the standards imposed by the verification process. In addition to checking each quadrangle for coding and positional errors, all beds that intersected the quadrangle boundary were adjusted to agree with the adjacent quadrangle. The completed product was then inserted into a consistent Arc/Info library that will ease distribution and facilitate analysis of the entire dataset.

Correcting the Historical Data

The steps used to verify the historical data are reproduced in Appendix A, and will be only briefly described here. The first step was to plot the digital SAV data for each map on translucent paper at the same scale as the original map with photointerpreted SAV beds. Since few of the base maps had scales of exactly 1:24,000 or 1:12,000 due to map material, age, or reproduction techniques, the software was designed to transform the digital data to match the corner latitude and longitude tic marks on the quadrangles. The paper plot with SAV beds was then placed over the original SAV

map on a light table and the plotted SAV beds were checked for differences from the original SAV beds. Any differences from the original map were corrected, a new plot was made, and it was given to a second person who verified that all errors had been corrected. The second person then compared the newly calculated SAV bed areas to the pre-correction bed areas and also to the bed areas computed by the VIMS PRIME minicomputer for the annual distribution and abundance reports to check for unexplained anomalies. All changes are documented on a 'check sheet' filed in a set of binders in the VIMS SAV Mapping Lab. A brief summary of the major changes to the dataset are given below.

The 1971 and 1974 datasets, covering only a portion of the Southern Bay, were originally photo-interpreted by VIMS together on a single set of paper USGS quadrangles. In 1987, when the maps were first digitized, the 1974 data was traced onto a set of stable mylar maps to facilitate the digitizing process. Therefore, as part of the data correction process, the mylars were first compared to the originals paper quads and then used to check the digital data. Major discrepancies were resolved by reviewing the original photography. Only five 1971 maps and two 1974 maps required edits, all to correct positional errors.

The 1978 dataset required a significant amount of re-digitizing and editing to pass the quality control check. No original maps or photography were located for the Northern Bay; therefore, artwork mylars were used to check the digital files. Only the water-side of the beds were drawn on the artwork, and this side was obscured on some beds by text or symbols (see Figure 1). Even with these constraints, 79 maps were found to contain clear errors and were corrected. The artwork mylar for the Langford Creek quadrangle was also missing; therefore, the check for this quadrangle was limited to a comparison with the printed report. Since the shore-side of the beds is not clearly delimited on the artwork mylars, it is impossible to completely determine the inland extent of many beds. In some instances, knowledge of the area and historical SAV growth justified the removal or reduction of beds that had been incorrectly digitized extending up small creeks or into inland ponds. In addition, many small beds and islands within larger beds were missing from the digital files and had to be added.

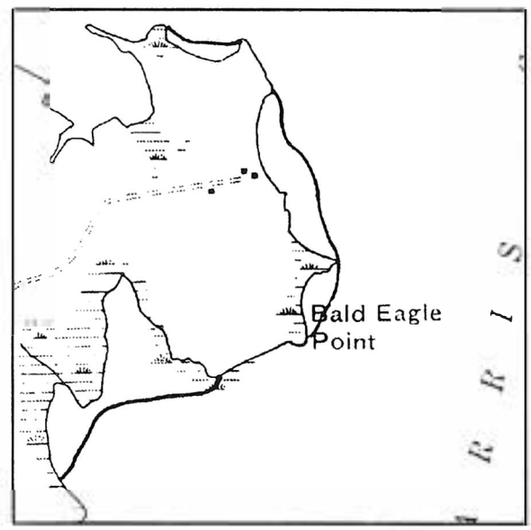


Figure 1. The shore side of beds was not drawn on 1978 Northern Bay maps.

No data were verified for 1979. Data exist for only 26 quadrangles for the Northern Bay but no physical maps have been located. Though mapped and published, the photography for the Southern Bay was flown so late in the season that it was deemed unrepresentative and, therefore, was not digitized.

The 1980 and 1981 datasets, covering the Southern Bay, were photo-interpreted onto paper USGS quadrangles. These quadrangles, which had been folded and degraded with use over the years, complicated the verification process. When possible, digitizing was restricted to a portion of the quadrangle that did not contain a fold, and only the latitude and longitude tics on the same side of the fold were used. All 22 maps for 1980, and 20 maps for 1981 required some modification to meet the quality control standards. In many places the linework appears to have been previously edited to replace the consistently spaced vertices with fewer, more widely spaced vertices, significantly altering the shape of the beds (see Figure 2).

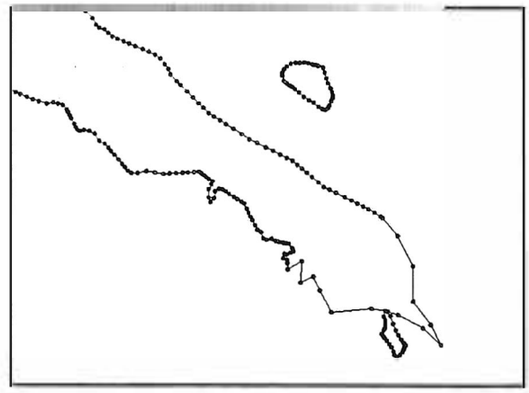


Figure 2. The 1980 bed was edited (note the change in vertex density)

No large-scale maps were found for the Northern Bay for 1984, therefore, it could only be checked by comparison with the maps in the printed report. In addition, there is no digital data for nine quadrangles (Edgewood, Middle River, Gunpowder Neck, Widewater, Piney Point, St. Marys City, Point No Point, St. George Island, and Point Lookout). On one map, Church Creek, the beds were so far out of place that it was possible to move them on the screen to a position that more closely matches the report map. The Southern Bay was photo-interpreted on paper maps that had been folded, but were in slightly better shape than the 1980 and 1981 maps. Of these 29 maps, 28 contained positional errors that had to be corrected.

In 1985, the photography for the Northern Bay was acquired at a scale of 1:12,000 and was mapped onto mylar quarter-quadrangles. The Southern Bay photography was mapped onto 1:24,000 scale mylar quadrangles. In several instances the map border was obscured during the production of the Northern Bay maps causing several of the quarter-quadrangles to be mis-aligned when they were initially digitized. In addition, these maps contain a significant amount of overlapping area containing duplicate renderings of the same beds. In several cases not all quarter-quadrangles were mapped (see Figure 3) even though they clearly contain SAV. Many of the Southern Bay maps were also mis-registered and required complete redigitizing. In all, 71 Northern Bay maps and 29 Southern Bay maps were corrected.

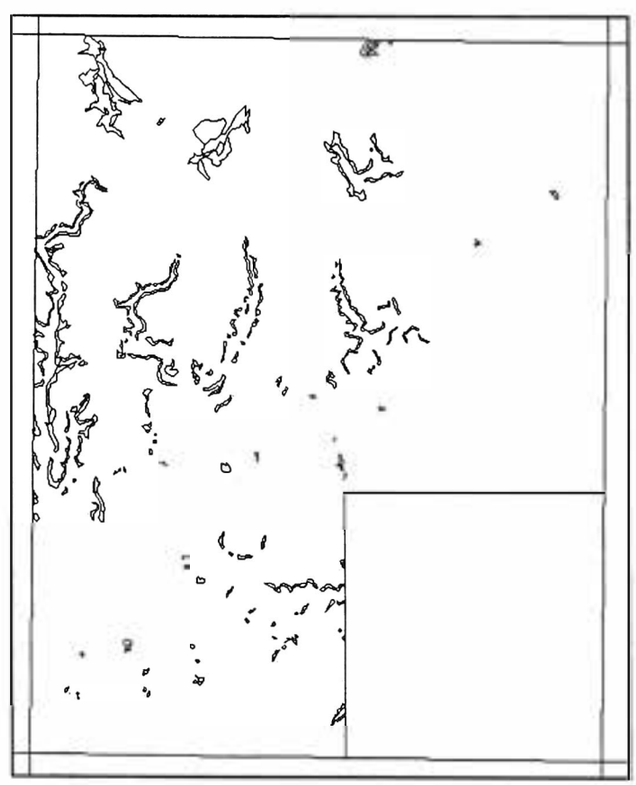


Figure 3. SE portion of the Church Creek quadrangle was not mapped.

In 1986, mylar quarter-quadrangles were used for the Potomac River only. Unfortunately, on many of these maps the corners were trimmed, destroying the registration marks, making the registration process much more difficult. In some cases the positions of additional points had to be determined from the master USGS 7.5 minute quadrangles and used to register the map. As in 1984, there is no digital data for three quadrangles (Edgewood, Middle River, Gunpowder Neck) since they were not flown. The remainder of the Bay was mapped on mylar 1:24,000 scale quadrangles. Many of the Northern Bay maps were digitized very coarsely and required complete redigitizing (see Figure 4). No large-scale maps were found for the Gibson Island quadrangle, so, for this quadrangle, the check was restricted to a comparison with the map published in the report. A total of 66 maps were corrected.

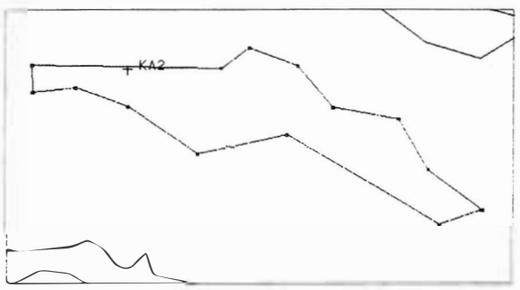


Figure 4a. Original 1986 bed

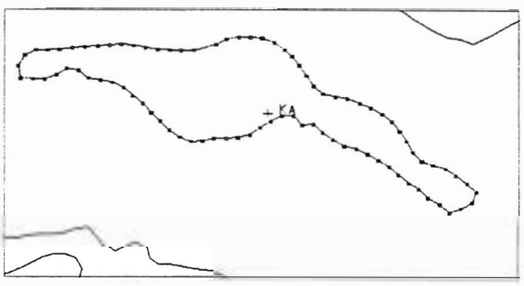


Figure 4b. Corrected 1986 Bed

In 1987, VIMS began interpreting and digitizing the entire Bay onto mylar 1:24,000 scale USGS 7.5 minute quadrangles. Twenty-one 1987 maps, twenty-six 1989 maps, and only one 1990 map were corrected during the verification process.

Edgematching

After checking all the digital data, the data for each year were combined and the quadrangle edges were scanned for errors in alignment and contiguity. This process is described in the operators manual which is attached as Appendix B and is illustrated by Figure 5 below. Errors that fell outside the criteria specified in the manual were corrected on the map sheets, referring to the photography if necessary, and then digitized from the sheets to modify the erroneous portions of the digital data. In most cases, these changes, documented on the edgematching check sheets and area comparison sheets stored at the VIMS SAV Mapping Lab, do not significantly alter the total SAV area calculations produced by the data verification step.

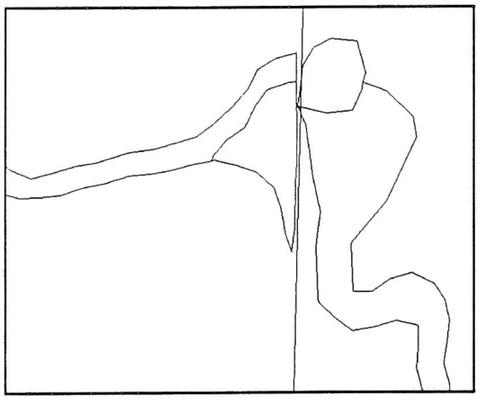


Figure 5a. Before edgematching

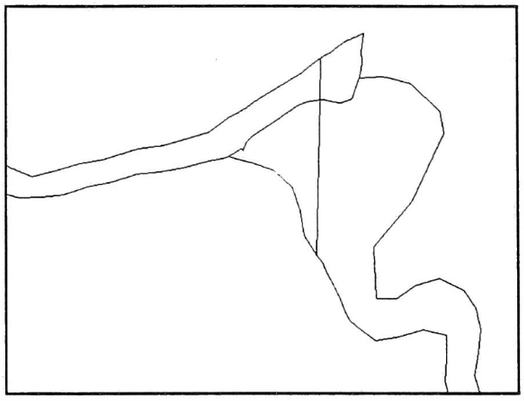


Figure 5b. After edgematching

New Area Totals and Tier I

The corrected datasets were then combined to create Tier I. All of the SAV beds were used, including those for 1979. The files were first merged into a single coverage that retained all the bed borders from each year. This coverage was used to identify the source of every portion of Tier I and to investigate large areas that were contributed by only one year. Finally the interior lines were dissolved to produce the final Tier I coverage.

Tables 1 through 4 present the newly computed SAV area totals and detail the changes that have been made. In Table 1, the new total SAV area is given for each segment for each year and for Tier I. Segments for which data is missing or is incomplete are designated by "nd". Table 2 compares these new totals to those recently reported in the 1971-1991 Trends Report. Table 3 lists the area of SAV in each USGS quadrangle for each year. Table 4 compares these areas to the areas which had been published in the annual SAV distribution reports.

Surprisingly, the total area of Tier I was increased by only 6 hectares as a result of the verification process. There are, however, changes in the distribution of Tier I. The portion of Tier I in the TF2 segment is 114 hectares smaller due partially to several enclosed water areas that were erroneously classified as SAV and partially to a better alignment of fringe beds between years. The new area of Tier I is 29 hectares larger in segment LE2 and 78 hectares larger in segment RET5 due to the addition of Dahlgren and Norge quadrangles that were left out of the original Tier I. In general, the SAV distribution from 1978 has the most impact on Tier I, contributing solely 5,008 hectares of SAV, almost twice the area contributed by the 1990 beds, the next largest contributor. In many areas of the Northern Bay, where SAV has not since been mapped, fringe beds were identified in 1978, using a float plane for low-level observation. Eight quadrangles of Tier I contain SAV contributed by the 1978 survey only. An additional 1,105 hectares of Tier I is contributed by the 26 Northern Bay quadrangles for 1979. Though no documentation was found for this data, it was plotted and checked against the 1978 distribution and the USGS shorelines. Some 1979 maps appear to contain

areas that were not mapped. Also, a line was missing from the Gunpowder Neck quadrangle resulting in a large portion of the shore being included in an SAV bed.

Summary

All the corrected and edgematched datasets have been placed in separate layers of an Arc/Info library. This eliminates the need to refer to USGS quadrangle map sheets and makes the data behave like a single seamless map. Since many of the spatial analysis tools do not operate on library layers, the data is also maintained in a single large Arc/Info coverage for each year. This library forms the cornerstone of the new SAV spatial data management system and will soon be joined by a second library containing Tier I, Tier II, Tier III, and the areas excluded from Tier II and Tier III. The next step in the SAV Data Management Project, after creating Tier II and III, will be to facilitate distribution of the data via a WWW page, an FTP site, and, possibly, a direct NFS connection.

Table 1. Chesapeake Bay SAV coverage and Tier I by CBP segment and year (hectares)

Segment	Tier I	1971	1974	1978	1979	1980	1981	1984	1985	1986	1987	1989	1990	1991
CB1	3078	nd	nd	834	220	nd	nd	2170	2039	2349	2217	1945	1773	1681
CB2	140	nd	nd	15	nd	nd	nd	16	51	17	66	18	19	32
CB3	845	nd	nd	576	nd	nd	nd	385	450	177	251	100	36	23
CB4	138	nd	nd	79	nd	nd	nd	18	54	13	6	2	5	2
CB5	6351	nd	nd	2103	nd	1490	1791	nd	3486	3771	3909	4667	4952	4799
CB6	786	nd	nd	299	nd	181	230	311	335	329	262	406	509	553
CB7	4560	nd	nd	2267	nd	1634	2184	2704	2699	2780	2705	3027	3098	3725
CB8	71	nd	nd	0	nd	nd	0	38	37	43	40	38	29	24
WT1	23	nd	nd	1	nd	nd	nd	nd	12	nd	14	0	0	0
WT2	350	nd	nd	197	nd	nd	nd	nd	48	nd	36	25	87	82
WT3	347	nd	nd	107	216	nd	nd	nd	78	nd	38	8	3	8
WT4	0	nd	nd	0	nd	nd	nd	0	0	0	0	0	0	0
WT5	50	nd	nd	49	nd	nd	nd	0	0	0	0	0	0	0
WT6	237	nd	nd	141	192	nd	nd	10	5	4	0	0	0	0
WT7	188	nd	nd	134	nd	nd	nd	0	0	0	0	0	0	0
WT8	73	nd	nd	73	nd	nd	nd	0	2	0	0	0	0	0
TF1	6	nd	nd	1	nd	nd	nd	0	6	0	0	0	0	0
RET1	15	nd	nd	3	nd	nd	nd	0	0	9	3	0	0	0
LE1	128	nd	nd	25	nd	nd	nd	14	54	8	38	3	0	0
TF2	2984	nd	nd	0	nd	nd	nd	620	1376	1611	1578	1304	1639	2044
RET2	1815	nd	nd	312	nd	nd	nd	nd	437	390	505	1277	1366	1468
LE2	311	nd	nd	145	nd	nd	nd	nd	50	37	29	40	51	83
TF3	0	0	0	0	nd	0	0	0	0	0	0	0	0	0
RET3	0	0	0	0	nd	0	0	0	0	0	0	0	0	0
LE3	1752	1160	33	76	nd	1	1	18	12	11	182	610	399	315
TF4	0	0	0	0	nd	0	0	0	0	0	0	0	0	0
RET4	0	0	0	0	nd	0	0	0	0	0	0	0	0	0
LE4	306	245	31	20	nd	20	20	36	34	29	43	56	80	66
WE4	5844	3187	2773	2841	nd	2445	2542	2879	2989	2964	3060	3844	4175	4488
TF5	0	0	0	0	nd	0	0	0	0	0	0	0	0	0
RET5	91	0	0	89	nd	0	0	0	0	14	0	0	0	0
LE5	16	0	8	9	nd	0	0	0	0	0	3	4	3	3
ET1	8	nd	nd	6	nd	nd	nd	0	0	2	0	0	0	0
ET2	465	nd	nd	1	nd	nd	nd	14	46	7	7	197	363	269
ET3	165	nd	nd	6	nd	nd	nd	20	27	33	34	90	39	30
ET4	1517	nd	nd	1050	nd	nd	nd	417	367	161	286	75	32	34
ET5	187	nd	nd	94	nd	nd	nd	0	37	9	0	0	0	0
ET6	0	nd	nd	0	nd	nd	nd	0	0	0	0	0	0	0
ET7	0	nd	nd	0	nd	nd	nd	0	0	0	0	0	0	0
ET8	275	nd	nd	77	nd	nd	nd	0	72	140	139	88	103	114
ET9	364	nd	nd	179	0	nd	nd	0	148	166	94	143	127	176
ET10	0	nd	nd	0	nd	nd	nd	0	0	0	0	0	0	0
EE1	2517	nd	nd	1376	nd	nd	nd	87	396	253	897	830	389	68
EE2	3597	nd	nd	1977	nd	nd	nd	86	1763	445	353	866	188	112
EE3	6420	nd	nd	1598	nd	nd	nd	2211	2763	3412	3318	4490	4827	5428
Totals*	46021	4592	2844	16760	628	5771	6769	12055	19873	19187	20118	24152	24292	25625

*Total of mapped area only

Table 2. SAV area and Tier I corrections by CBP Segment and year (hectares)

	Tier I				1971				1974			
Segment	New	Trends*	Difference	%	New	Trends*	Difference	%	New	Trends*	Difference	%
CB1	3078	3101	-23	-1%	nd				nd			
CB2	140	139	1	1%	nd				nd			
CB3	845	817	28	3%	nd				nd			
CB4	138	103	35	34%	nd				nd			
CB5	6351	6309	42	1%	nd				nd			
CB6	786	783	3	0%	nd				nd			
CB7	4560	4624	-64	-1%	nd				nd			
CB8	71	86	-15	-17%	nd				nd			
WT1	23	24	-1	-3%	nd				nd			
WT2	350	353	-3	-1%	nd				nd			
WT3	347	349	-2	-0%	nd				nd			
WT4	0	0	0	0%	nd				nd			
WT5	50	53	-3	-5%	nd				nd			
WT6	237	240	-3	-1%	nd				nd			
WT7	188	189	-1	-1%	nd				nd			
WT8	73	78	-5	-6%	nd				nd			
TF1	6	6	0	8%	nd				nd			
RET1	15	16	-1	-7%	nd				nd			
LE1	128	132	-4	-3%	nd				nd			
TF2	2984	3098	-114	-4%	nd				nd			
RET2	1815	1847	-32	-2%	nd				nd			
LE2	311	282	29	10%	nd				nd			
TF3	0	0	0	0%	0		0	0%	0		0	0%
RET3	0	0	0	0%	0		0	0%	0		0	0%
LE3	1752	1714	38	2%	1160	1123	37	3%	33	33	-0	-1%
TF4	0	0	0	0%	0	0	0	0%	0	0	0	0%
RET4	0	0	0	0%	0	0	0	0%	0	0	0	0%
LE4	306	309	-3	-1%	245	245	-0	-0%	31	31	-0	-1%
WE4	5844	5902	-58	-1%	3187	3197	-10	-0%	2773	2777	-4	-0%
TF5	0	0	0	0%	0	0	0	0%	0	0	0	0%
RET5	91	13	78	602%	0	0	0	0%	0	0	0	0%
LE5	16	16	-0	-1%	0	8	-8	-100%	8	10	-2	-23%
ET1	8	7	1	8%	nd				nd			
ET2	465	467	-2	-0%	nd				nd			
ET3	165	167	-2	-1%	nd				nd			
ET4	1517	1506	11	1%	nd				nd			
ET5	187	191	-4	-2%	nd				nd			
ET6	0	0	0	0%	nd				nd			
ET7	0	0	0	0%	nd				nd			
ET8	275	271	4	1%	nd				nd			
ET9	364	363	1	0%	nd				nd			
ET10	0	0	0	0%	nd				nd			
EE1	2517	2474	43	2%	nd				nd			
EE2	3597	3646	-49	-1%	nd				nd			
EE3	6420	6340	80	1%	nd				nd			
Totals	46021	46015	6	0%	4592	4573	19	0%	2844	2851	-7	-0%

* From the 1971 - 1991 SAV Trends Report

Table 2. SAV area and Tier I corrections by CBP Segment and year (hectares) (Continued)

	1978				1980				1981			
Segment	New	Trends*	Difference	%	New	Trends*	Difference	%	New	Trends*	Difference	%
CB1	834	838	-4	-0%	nd				nd			
CB2	15	16	-1	-5%	nd				nd			
CB3	576	577	-1	-0%	nd				nd			
CB4	79	77	2	3%	nd				nd			
CB5	2103	2120	-17	-1%	1490	nd			1791	nd		
CB6	299	300	-1	-0%	181	179	2	1%	230	231	-1	-0%
CB7	2267	2282	-15	-1%	1634	1630	4	0%	2184	2195	-11	-1%
CB8	0		0	0%	nd				0	nd		
WT1	1	1	-0	-49%	nd				nd			
WT2	197	200	-3	-2%	nd				nd			
WT3	107	113	-6	-5%	nd				nd			
WT4	0	0	0	0%	nd				nd			
WT5	49	52	-3	-6%	nd				nd			
WT6	141	146	-5	-3%	nd				nd			
WT7	134	136	-2	-2%	nd				nd			
WT8	73	78	-5	-6%	nd				nd			
TF1	1	1	-0	-17%	nd				nd			
RET1	3	4	-1	-14%	nd				nd			
LE1	25	26	-1	-5%	nd				nd			
TF2	0	0	0	0%	nd				nd			
RET2	312	281	31	11%	nd				nd			
LE2	145	107	38	35%	nd				nd			
TF3	0		0	0%	0		0	0%	0	0	0	0%
RET3	0		0	0%	0		0	0%	0	0	0	0%
LE3	76	75	1	1%	1	1	0	45%	1	1	0	46%
TF4	0	0	0	0%	0	0	0	0%	0	0	0	0%
RET4	0	0	0	0%	0	0	0	0%	0	0	0	0%
LE4	20	30	-10	-34%	20	19	1	3%	20	20	0	1%
WE4	2841	2880	-39	-1%	2445	2457	-12	-0%	2542	2540	2	0%
TF5	0	0	0	0%	0	0	0	0%	0	0	0	0%
RET5	89	0	89	0%	0	0	0	0%	0	0	0	0%
LE5	9	0	9	0%	0	0	0	0%	0	0	0	0%
ET1	6	5	1	10%	nd				nd			
ET2	1	1	0	49%	nd				nd			
ET3	6	6	0	7%	nd				nd			
ET4	1050	1074	-24	-2%	nd				nd			
ET5	94	100	-6	-6%	nd				nd			
ET6	0	0	0	0%	nd				nd			
ET7	0	0	0	0%	nd				nd			
ET8	77	83	-6	-8%	nd				nd			
ET9	179	197	-18	-9%	nd				nd			
ET10	0	0	0	0%	nd				nd			
EE1	1376	1439	-63	-4%	nd				nd			
EE2	1977	1999	-22	-1%	nd				nd			
EE3	1598	1645	-47	-3%	nd				nd			
Totals	16760	16889	-129	-1%	5771	4286	1485	35%	6769	4987	1782	36%

* From the 1971 - 1991 SAV Trends Report

Table 2. SAV area and Tier I corrections by CBP Segment and year (hectares) (Continued)

	1984				1985				1986			
Segment	New	Trends*	Difference	%	New	Trends*	Difference	%	New	Trends*	Difference	%
CB1	2170	2181	-11	-1%	2039	2051	-12	-1%	2349	2365	-16	-1%
CB2	16	15	1	9%	51	52	-1	-1%	17	18	-1	-5%
CB3	385	385	0	0%	450	446	4	1%	177	178	-1	-1%
CB4	18	17	1	8%	54	54	-0	-0%	13	12	1	5%
CB5	nd	3131			3486	3511	-25	-1%	3771	3877	-106	-3%
CB6	311	309	2	1%	335	338	-3	-1%	329	330	-1	-0%
CB7	2704	2686	18	1%	2699	2708	-9	-0%	2780	2796	-16	-1%
CB8	38	38	0	1%	37	36	1	4%	43	36	7	20%
WT1	nd	2			12	12	0	1%	nd	0		
WT2	nd	0			48	47	1	2%	nd	0		
WT3	nd	0			78	78	0	0%	nd	0		
WT4	0	0	0	0%	0	0	0	0%	0	0	0	0%
WT5	0	0	0	0%	0	0	0	0%	0	0	0	0%
WT6	10	10	-0	-5%	5	6	-1	-15%	4	5	-1	-22%
WT7	0	0	0	0%	0	0	0	0%	0	1	-1	-88%
WT8	0	0	0	0%	2	3	-1	-27%	0	1	-1	-59%
TF1	0	0	0	0%	6	6	-0	-6%	0	0	0	0%
RET1	0	0	0	0%	0	0	0	0%	9	10	-1	-9%
LE1	14	14	0	2%	54	55	-1	-2%	8	9	-1	-8%
TF2	620	622	-2	-0%	1376	1398	-22	-2%	1611	1618	-7	-0%
RET2	nd	222			437	442	-5	-1%	390	430	-40	-9%
LE2	nd	56			50	51	-1	-2%	37	37	-0	-1%
TF3	0	0	0	0%	0	0	0	0%	0	0	0	0%
RET3	0	0	0	0%	0	0	0	0%	0	0	0	0%
LE3	18	17	1	7%	12	12	-0	-1%	11	12	-1	-10%
TF4	0	0	0	0%	0	0	0	0%	0	0	0	0%
RET4	0	0	0	0%	0	0	0	0%	0	0	0	0%
LE4	36	34	2	5%	34	32	2	7%	29	29	0	2%
WE4	2879	2859	20	1%	2989	3003	-14	-0%	2964	2974	-10	-0%
TF5	0	0	0	0%	0	0	0	0%	0	0	0	0%
RET5	0	0	0	0%	0	0	0	0%	14	13	1	7%
LE5	0	0	0	0%	0	0	0	0%	0	0	0	0%
ET1	0	0	0	0%	0	0	0	0%	2	3	-1	-33%
ET2	14	14	-0	-2%	46	47	-1	-1%	7	8	-1	-9%
ET3	20	20	0	0%	27	27	0	2%	33	33	0	1%
ET4	417	418	-1	-0%	367	372	-5	-1%	161	164	-3	-2%
ET5	0	0	0	0%	37	36	1	2%	9	10	-1	-10%
ET6	0	0	0	0%	0	0	0	0%	0	0	0	0%
ET7	0	0	0	0%	0	0	0	0%	0	0	0	0%
ET8	0	0	0	0%	72	73	-1	-1%	140	143	-3	-2%
ET9	0	0	0	0%	148	153	-5	-4%	166	169	-3	-2%
ET10	0	0	0	0%	0	0	0	0%	0	0	0	0%
EE1	87	88	-1	-1%	396	400	-4	-1%	253	255	-2	-1%
EE2	86	86	-0	-0%	1763	1778	-15	-1%	445	459	-14	-3%
EE3	2211	2207	4	0%	2763	2753	10	0%	3412	3427	-15	-0%
Totals	12055	15431	-3376	-22%	19873	19980	-107	-1%	19187	19422	-235	-1%

* From the 1971 - 1991 SAV Trends Report

Table 2. SAV area and Tier I corrections by CBP Segment and year (hectares) (Continued)

	1987				1989				1990			
Segment	New	Trends*	Difference	%	New	Trends*	Difference	%	New	Trends*	Difference	%
CB1	2217	2228	-11	-0%	1945	1954	-9	-0%	1773	1781	-8	-0%
CB2	66	67	-1	-1%	18	19	-1	-5%	19	19	-0	-1%
CB3	251	251	-0	-0%	100	99	1	1%	36	36	0	1%
CB4	6	7	-1	-9%	2	3	-1	-19%	5	5	-0	-2%
CB5	3909	3982	-73	-2%	4667	4693	-26	-1%	4952	4980	-28	-1%
CB6	262	263	-1	-0%	406	408	-2	-0%	509	512	-3	-1%
CB7	2705	2719	-14	-1%	3027	3040	-13	-0%	3098	3111	-13	-0%
CB8	40	34	6	18%	38	37	1	2%	29	29	0	0%
WT1	14	15	-1	-5%	0	0	0	0%	0	0	0	0%
WT2	36	36	-0	-0%	25	25	-0	-2%	87	87	-0	-1%
WT3	38	37	1	3%	8	8	-0	-1%	3	3	-0	-0%
WT4	0	0	0	0%	0	0	0	0%	0	0	0	0%
WT5	0	0	0	0%	0	0	0	0%	0	0	0	0%
WT6	0	1	-1	-74%	0	0	0	0%	0	0	0	0%
WT7	0	0	0	0%	0	0	0	0%	0	0	0	0%
WT8	0	0	0	0%	0	0	0	0%	0	0	0	0%
TF1	0	0	0	0%	0	0	0	0%	0	0	0	0%
RET1	3	5	-2	-34%	0	0	0	0%	0	0	0	0%
LE1	38	39	-1	-1%	3	4	-1	-30%	0	0	0	0%
TF2	1578	1582	-4	-0%	1304	1306	-2	-0%	1639	1642	-3	-0%
RET2	505	507	-2	-0%	1277	1274	3	0%	1366	1368	-2	-0%
LE2	29	31	-2	-5%	40	41	-1	-1%	51	52	-1	-1%
TF3	0	0	0	0%	0	0	0	0%	0	0	0	0%
RET3	0	0	0	0%	0	0	0	0%	0	0	0	0%
LE3	182	184	-2	-1%	610	612	-2	-0%	399	401	-2	-0%
TF4	0	0	0	0%	0	0	0	0%	0	0	0	0%
RET4	0	0	0	0%	0	0	0	0%	0	0	0	0%
LE4	43	43	0	1%	56	56	0	1%	80	79	1	1%
WE4	3060	3071	-11	-0%	3844	3863	-19	-1%	4175	4192	-17	-0%
TF5	0	0	0	0%	0	0	0	0%	0	0	0	0%
RET5	0	0	0	0%	0	0	0	0%	0	0	0	0%
LE5	3	3	-0	-1%	4	4	-0	-4%	3	3	-0	-9%
ET1	0	1	-1	-66%	0	0	0	0%	0	0	0	0%
ET2	7	8	-1	-9%	197	198	-1	-1%	363	364	-1	-0%
ET3	34	35	-1	-2%	90	91	-1	-1%	39	40	-1	-2%
ET4	286	288	-2	-1%	75	75	-0	-0%	32	33	-1	-4%
ET5	0	0	0	0%	0	0	0	0%	0	0	0	0%
ET6	0	0	0	0%	0	0	0	0%	0	0	0	0%
ET7	0	0	0	0%	0	0	0	0%	0	0	0	0%
ET8	139	139	0	0%	88	88	-0	-0%	103	103	-0	-0%
ET9	94	96	-2	-2%	143	145	-2	-1%	127	129	-2	-1%
ET10	0	0	0	0%	0	0	0	0%	0	0	0	0%
EE1	897	899	-2	-0%	830	833	-3	-0%	389	390	-1	-0%
EE2	353	353	0	0%	866	867	-1	-0%	188	188	-0	-0%
EE3	3318	3311	7	0%	4490	4506	-16	-0%	4827	4849	-22	-0%
Totals	20118	20235	-117	-1%	24152	24249	-97	-0%	24292	24396	-104	-0%

* From the 1971 - 1991 SAV Trends Report

Table 2. SAV area and Tier I corrections by CBP Segment and year (hectares) (Continued)

Segment	1991 New	Trends*	Difference	%
CB1	1681	1691	-10	-1%
CB2	32	29	3	10%
CB3	23	22	1	4%
CB4	2	2	0	13%
CB5	4799	4810	-11	-0%
CB6	553	554	-1	-0%
CB7	3725	3743	-18	-0%
CB8	24	24	-0	-1%
WT1	0	0	0	0%
WT2	82	81	1	1%
WT3	8	8	-0	-1%
WT4	0	0	0	0%
WT5	0	0	0	0%
WT6	0	0	0	0%
WT7	0	0	0	0%
WT8	0	0	0	0%
TF1	0	0	0	0%
RET1	0	0	0	0%
LE1	0	0	0	0%
TF2	2044	2049	-5	-0%
RET2	1468	1472	-4	-0%
LE2	83	84	-1	-1%
TF3	0	0	0	0%
RET3	0	0	0	0%
LE3	315	316	-1	-0%
TF4	0	0	0	0%
RET4	0	0	0	0%
LE4	66	66	-0	-1%
WE4	4488	4505	-17	-0%
TF5	0	0	0	0%
RET5	0	0	0	0%
LE5	3	3	-0	-9%
ET1	0	0	0	0%
ET2	269	271	-2	-1%
ET3	30	31	-1	-3%
ET4	34	34	-0	-1%
ET5	0	0	0	0%
ET6	0	0	0	0%
ET7	0	0	0	0%
ET8	114	115	-1	-1%
ET9	176	177	-1	-1%
ET10	0	0	0	0%
EE1	68	68	-0	-0%
EE2	112	112	-0	-0%
EE3	5428	5461	-33	-1%
Totals	25625	25728	-103	-0%

* From the 1971 - 1991 SAV Trends Report

Table 3. Chesapeake Bay SAV coverage by USGS quadrangle and year by (hectares)

No.	USGS Quadrangle Name	1971	1974	1978	1980	1981	1984	1985	1986	1987	1989	1990	1991
1	Conowingo Dam, Md.-Pa.	nd	nd	-	nd	nd	-	0	0	-	0	-	0
2	Aberdeen, Md.	nd	nd	-	nd	nd	0	8	5	4	1	2	9
3	Havre de Grace, Md.	nd	nd	834	nd	nd	1767	1629	1989	1855	1835	1769	1653
4	North East, Md.	nd	nd	5	nd	nd	14	35	7	6	105	147	75
5	Elkton, Md.-Del.	nd	nd	1	nd	nd	-	0	0	0	5	40	25
6	White Marsh, Md.	nd	nd	-	nd	nd	-	0	0	0	0	-	0
7	Edgewood, Md.	nd	nd	11	nd	nd	nd(2)	8	nd(4)	1	0	0	0
8	Perryman, Md.	nd	nd	0	nd	nd	2	8	0	3	0	0	0
9	Spesutie, Md.	nd	nd	1	nd	nd	408	437	371	380	188	51	87
10	Earleville, Md.	nd	nd	4	nd	nd	6	14	9	5	98	166	155
11	Cecilton, Md.	nd	nd	-	nd	nd	0	0	0	0	0	-	0
12	Baltimore East, Md.	nd	nd	-	nd	nd	0	0	0	0	0	-	0
13	Middle River, Md.	nd	nd	75	nd	nd	nd(2)	77	nd(4)	22	4	1	5
14	Gunpowder Neck, Md.	nd	nd	245	nd	nd	nd(2)	141	nd(4)	91	34	90	84
15	Hanesville, Md.	nd	nd	10	nd	nd	6	11	9	42	13	6	4
16	Betterton, Md.	nd	nd	7	nd	nd	8	16	8	19	1	4	1
17	Galena, Md.	nd	nd	1	nd	nd	12	1	11	8	3	8	4
18	Curtis Bay, Md.	nd	nd	45	nd	nd	0	0	0	0	0	0	0
19	Sparrows Point, Md.	nd	nd	8	nd	nd	0	7	0	0	0	0	0
20	Swan Point, Md.	nd	nd	31	nd	nd	27	15	3	2	5	6	4
21	Rock Hall, Md.	nd	nd	116	nd	nd	37	17	6	5	19	12	10
22	Chestertown, Md.	nd	nd	13	nd	nd	0	2	0	0	0	0	0
23	Round Bay, Md.	nd	nd	132	nd	nd	0	0	0	0	0	0	0
24	Gibson Island, Md.	nd	nd	146	nd	nd	10	17	4	0	0	0	0
25	Love Point, Md.	nd	nd	11	nd	nd	0	5	0	0	0	0	0
26	Langford Creek, Md.	nd	nd	1193	nd	nd	646	631	291	498	139	48	42
27	Centreville, Md.	nd	nd	36	nd	nd	0	0	0	1	0	0	0
28	Washington West, Md.-D.C.-Va.	nd	nd	-	nd	nd	0	0	0	0	0	0	4
29	Washington East, D.C.-Md.	nd	nd	-	nd	nd	0	0	0	0	0	0	0
30	South River, Md.	nd	nd	13	nd	nd	0	0	0	0	0	0	0
31	Annapolis, Md.	nd	nd	25	nd	nd	0	0	0	0	0	0	0
32	Kent Island, Md.	nd	nd	539	nd	nd	32	59	34	338	327	133	2
33	Queenstown, Md.	nd	nd	497	nd	nd	109	115	54	201	129	56	4
34	Alexandria, Va.-D.C.-Md.	nd	nd	-	nd	nd	168	528	496	470	369	400	454
35	Deale, Md.	nd	nd	77	nd	nd	0	3	1	0	0	0	0
36	Claiborne, Md.	nd	nd	407	nd	nd	55	408	165	137	382	139	59
37	St. Michaels, Md.	nd	nd	402	nd	nd	12	262	63	232	172	63	4
38	Easton, Md.	nd	nd	7	nd	nd	0	22	0	0	0	0	0
39	Fort Belvoir, Va.-Md.	nd	nd	-	nd	nd	2	2	7	19	64	105	160
40	Mt. Vernon, Md.-Va.	nd	nd	-	nd	nd	450	845	1092	1058	335	358	526
41	Lower Marlboro, Md.	nd	nd	-	nd	nd	0	0	0	0	0	0	0
42	North Beach, Md.	nd	nd	0	nd	nd	0	19	0	0	0	0	-
43	Tilghman, Md.	nd	nd	473	nd	nd	10	288	39	85	231	12	13
44	Oxford, Md.	nd	nd	674	nd	nd	28	379	51	6	96	19	6
45	Trappe, Md.	nd	nd	55	nd	nd	0	41	0	0	0	0	0
46	Preston, Md.	nd	nd	0	nd	nd	0	0	0	0	0	0	0
47	Quantico, Va.-Md.	nd	nd	-	nd	nd	0	8	19	46	534	694	805
48	Indian Head, Va.-Md.	nd	nd	-	nd	nd	0	0	8	18	183	304	356
49	Benedict, Md.	nd	nd	2	nd	nd	0	0	4	1	0	0	0
50	Prince Frederick, Md.	nd	nd	0	nd	nd	0	0	0	0	0	0	-
51	Hudson, Md.	nd	nd	371	nd	nd	10	264	195	168	332	97	63
52	Church Creek, Md.	nd	nd	202	nd	nd	17	388	144	49	19	6	2
53	Cambridge, Md.	nd	nd	48	nd	nd	0	0	0	0	0	0	0

Table 3. Chesapeake Bay SAV coverage by USGS quadrangle and year by (hectares)

No.	USGS Quadrangle Name	1971	1974	1978	1980	1981	1984	1985	1986	1987	1989	1990	1991
54	East New Market, Md.	nd	nd	1	nd	nd	0	1	0	0	0	0	0
55	Widewater, Va.- Md.	nd	nd	0	nd	nd	5	41	33	39	467	615	648
56	Nanjemoy, Md.	nd	nd	30	nd	nd	39	117	100	109	152	127	140
57	Mathias Point, Md.- Va.	nd	nd	228	nd	nd	157	239	215	283	349	285	290
58	Popes Creek, Md.	nd	nd	-	nd	nd	0	0	0	0	6	5	20
59	Mechanicsville, Md.	nd	nd	11	nd	nd	0	0	7	2	0	0	0
60	Broomes Island, Md.	nd	nd	4	nd	nd	7	28	4	21	0	0	0
61	Cove Point, Md.	nd	nd	3	nd	nd	6	4	1	5	0	0	0
62	Taylors Island, Md.	nd	nd	0	nd	nd	12	54	11	48	17	58	30
63	Golden Hill, Md.	nd	nd	0	nd	nd	1	13	1	3	3	4	9
64	Passapatanzy, Md.-Va.	nd	nd	-	nd	nd	0	0	0	0	0	0	0
65	King George, Va.-Md.	nd	nd	2	nd	nd	21	26	23	16	52	53	64
66	Dahlgren, Va.-Md.	nd	nd	74	nd	nd	4	2	2	14	65	52	58
67	Colonial Beach North, Md.-Va.	nd	nd	89	nd	nd	31	16	19	18	28	46	47
68	Rock Point, Md.	nd	nd	20	nd	nd	0	0	0	0	0	0	0
69	Leonardtown, Md.	nd	nd	2	nd	nd	0	0	0	0	0	0	0
70	Hollywood, Md.	nd	nd	0	nd	nd	0	0	1	5	0	0	0
71	Solomons Island, Md.	nd	nd	9	nd	nd	2	22	2	8	3	0	0
72	Barren Island, Md.	nd	nd	0	nd	nd	0	264	181	270	301	298	122
73	Honga, Md.	nd	nd	127	nd	nd	6	196	194	629	774	1005	863
74	Wingate, Md.	nd	nd	2	nd	nd	10	104	93	172	369	400	461
75	Nanticoke, Md.	nd	nd	0	nd	nd	0	0	0	0	5	0	0
76	Colonial Beach South, Va.-Md.	nd	nd	8	nd	nd	21	0	0	0	0	0	0
77	Stratford Hall, Va.-Md.	nd	nd	5	nd	nd	3	0	0	0	0	0	0
78	St. Clements Island, Va.-Md.	nd	nd	0	nd	nd	0	0	0	0	0	0	0
79	Piney Point, Md.-Va.	nd	nd	0	nd	nd	nd(3)	1	2	0	0	0	0
80	St. Marys City, Md.	nd	nd	0	nd	nd	nd(3)	25	16	11	0	0	0
81	Point No Point, Md.	nd	nd	0	nd	nd	nd(3)	21	0	0	0	0	-
82	Richland Point, Md.	nd	nd	1	nd	nd	1	25	4	43	24	31	21
83	Bloodsworth Island, Md.	nd	nd	65	nd	nd	23	301	385	554	686	700	801
84	Deal Island, Md.	nd	nd	6	nd	nd	0	20	62	60	27	39	24
85	Monie, Md.	nd	nd	6	nd	nd	0	3	20	25	18	18	7
86	Champlain, Va.	-	-	-	-	-	-	0	-	-	-	-	0
87	Machodoc, Va.	nd	nd	-	nd	nd	-	0	0	0	0	0	0
88	Kinsale, Va.-Md.	nd	nd	-	nd	nd	-	0	0	0	0	0	0
89	St. George Island, Va.-Md.	nd	nd	0	nd	nd	nd(3)	12	7	6	3	0	2
90	Point Lookout, Md.	nd	nd	0	nd	nd	nd(3)	8	1	0	0	0	0
91	Kedges Straits, Md.	nd	nd	173	nd	nd	367	467	639	693	788	877	887
92	Terrapin Sand Point, Md.	nd	nd	287	nd	nd	187	180	209	118	218	258	261
93	Marion, Md.	nd	nd	264	nd	nd	1	226	247	160	198	192	306
94	Mount Landing, Va.	-	-	-	-	-	-	-	-	-	-	-	-
95	Tappahannock, Va.	-	-	-	-	-	-	-	-	-	-	-	-
96	Lottsburg, Va.	nd	nd	-	nd	nd	-	-	0	0	0	0	0
97	Heathsville, Va.-Md.	nd	nd	-	nd	nd	-	-	0	0	0	0	0
98	Burgess, Va.-Md.	nd	nd	-	nd	nd	-	-	0	0	0	0	0
99	Ewell, Md.-Va.	nd	nd	1497	1351	1492	2255	2110	2309	2011	2375	2412	2568
100	Great Fox Island, Va.-Md.	nd	nd	496	255	624	937	1068	1361	1093	1383	1371	1419
101	Crisfield, Md.-Va.	nd	nd	7	nd	nd	115	78	179	123	203	227	318
102	Saxis, Va.-Md.	nd	nd	-	nd	nd	-	-	-	0	2	1	1
103	Dunnsville, Va.	-	-	-	-	-	-	-	-	-	-	-	-
104	Morattico, Va.	-	-	-	-	-	-	0	-	0	0	0	0
105	Lively, Va.	-	-	-	-	-	-	0	-	0	0	0	0
106	Reedville, Va.	nd	nd	225	13	38	109	51	71	87	157	227	243

Table 3. Chesapeake Bay SAV coverage by USGS quadrangle and year by (hectares)

No.	USGS Quadrangle Name	1971	1974	1978	1980	1981	1984	1985	1986	1987	1989	1990	1991
107	Tangier Island, Va.	nd	nd	359	176	349	484	466	500	370	535	570	596
108	Chesconessex, Va.	nd	nd	466	525	622	745	829	917	912	971	953	1050
109	Parksley, Va.	nd	nd	81	58	163	263	243	317	236	320	339	483
110	Urbanna, Va.	81	0	-	-	-	-	-	-	36	201	16	5
111	Irvington, Va.	122	0	5	-	-	9	9	7	96	245	221	165
112	Fleets Bay, Va.	nd	199	134	17	96	160	121	132	234	333	381	392
113	Nandua Creek, Va.	nd	nd	187	163	262	342	346	373	378	410	365	442
114	Pungoteague, Va.	nd	nd	407	336	568	713	691	707	701	794	824	976
115	West Point, Va.	-	-	-	-	-	-	-	-	-	-	0	-
116	Saluda, Va.	-	-	-	-	-	-	-	0	0	19	2	0
117	Wilton, Va.	288	7	10	0	0	0	0	0	27	43	49	16
118	Deltaville, Va.	594	23	57	0	0	7	1	1	19	81	91	108
119	Jamesville, Va.	nd	nd	397	234	293	365	330	403	421	498	509	621
120	Toano, Va.	-	-	-	-	-	-	-	-	-	-	-	-
121	Gressitt, Va.	-	-	-	-	-	-	-	-	-	-	-	-
122	Ware Neck, Va.	155	182	251	123	174	207	171	169	193	277	303	322
123	Mathews, Va.	255	60	64	31	36	32	35	37	58	110	196	261
124	Franktown, Va.	nd	nd	508	347	358	395	420	441	391	436	485	627
125	Westover, Va.	-	-	-	-	-	-	-	-	-	-	0	-
126	Charles City, Va.	-	-	-	-	-	-	-	-	-	-	-	-
127	Brandon, Va.	-	-	-	-	-	-	-	nd(5)	-	0	-	0
128	Norge, Va.	-	-	89	-	-	-	-	14	-	-	-	-
129	Williamsburg, Va.	-	-	-	-	-	-	-	-	-	-	-	-
130	Clay Bank, Va.	158	13	-	0	0	-	-	-	-	0	1	0
131	Achilles, Va.	710	730	792	565	617	759	696	694	745	952	997	1010
132	New Point Comfort, Va.	821	963	1099	926	954	1077	1150	1157	1049	1271	1399	1449
133	Cape Charles, Va.	nd	nd	316	207	255	313	324	255	261	271	319	362
134	Cheriton, Va.	nd	nd	86	50	49	58	65	73	73	73	71	83
135	Savedge, Va.	-	-	-	-	-	-	-	-	-	-	-	-
136	Claremont, Va.	-	-	-	-	-	-	-	-	-	-	-	-
137	Surry, Va.	-	-	-	-	-	-	-	-	-	-	-	0
138	Hog Island, Va.	-	-	-	-	-	-	-	-	-	-	-	0
139	Yorktown, Va.	4	0	2	0	0	0	0	0	1	2	2	1
140	Poquoson West, Va.	505	368	208	180	198	222	241	237	293	416	540	555
141	Poquoson East, Va.	940	443	531	650	598	695	782	761	749	995	1008	1152
142	Elliotts Creek, Va.	nd	nd	45	8	nd	18	9	20	9	16	28	68
143	Townsend, Va.	nd	nd	43	nd	nd	5	17	14	11	13	2	1
144	Bacons Castle, Va.	-	-	-	-	-	-	-	-	-	-	-	-
145	Mulberry Island, Va.	-	-	-	-	-	-	-	-	-	-	-	-
146	Newport News North, Va.	-	-	-	-	-	-	-	-	0	-	-	-
147	Hampton, Va.	296	307	222	171	215	234	284	270	285	305	342	381
148	Benns Church, Va.	nd	nd	-	-	-	-	-	0	-	-	-	-
149	Newport News South, Va.	nd	nd	2	0	0	0	0	-	0	0	0	0
150	Norfolk North, Va.	nd	nd	-	-	-	-	-	-	0	0	0	0
151	Little Creek, Va.	nd	nd	-	-	-	0	0	-	0	0	0	0
152	Cape Henry, Va.	nd	nd	nd(1)	-	-	38	37	43	40	38	28	24
153	Chuckatuck, Va.	nd	nd	-	-	-	-	-	-	-	-	-	-
154	Bowers Hill, Va.	nd	nd	-	-	-	-	-	-	-	-	-	-
155	Norfolk South, Va.	nd	nd	-	-	-	-	-	-	-	-	-	-
156	Kempsville, Va.	nd	nd	-	-	-	-	-	-	-	-	-	-
157	Princess Anne, Va.	nd	nd	-	-	-	-	-	-	-	0	1	0
158	Wye Mills, Md.	nd	nd	-	nd	nd	-	2	-	-	0	0	0
159	Bristol, Md.	nd	nd	-	nd	nd	-	6	0	0	0	0	0

Table 3. Chesapeake Bay SAV coverage by USGS quadrangle and year by (hectares)

No.	USGS Quadrangle Name	1971	1974	1978	1980	1981	1984	1985	1986	1987	1989	1990	1991
160	Fowling Creek, Md.	nd	nd	-	nd	nd	-	0	0	-	0	0	0
161	Port Tobacco, Md.	nd	nd	-	nd	nd	-	0	2	5	12	12	13
162	Charlotte Hall, Md.	nd	nd	-	nd	nd	-	0	0	0	0	0	9
163	Mardela Springs, Md.	nd	nd	-	nd	nd	-	0	0	0	0	0	0
164	Wetipquin, Md.	nd	nd	-	nd	nd	-	0	0	0	0	0	0
165	Selbyville, Md.	nd	nd	nd	nd	nd	nd	nd	0	0	0	0	0
166	Assawoman Bay, Md.	nd	nd	nd	nd	nd	nd	nd	0	0	0	0	1
167	Berlin, Md.	nd	nd	nd	nd	nd	nd	nd	0	7	5	6	11
168	Ocean City, Md.	nd	nd	nd	nd	nd	nd	nd	0	8	3	20	18
169	Public Landing, Md.	nd	nd	nd	nd	nd	nd	nd	0	0	0	0	0
170	Tingles Island, Md.	nd	nd	nd	nd	nd	nd	nd	850	1018	822	993	1066
171	Girdle Tree, Md.-Va.	nd	nd	nd	nd	nd	nd	nd	0	0	0	0	0
172	Boxiron, Md.-Va.	nd	nd	nd	nd	nd	nd	nd	686	665	653	634	672
173	Whittington Point, Md.-Va.	nd	nd	nd	nd	nd	nd	nd	189	208	163	240	364
174	Chincoteague West, Va.	nd	nd	nd	nd	nd	nd	nd	0	0	1	0	1
175	Chincoteague East, Va.	nd	nd	nd	nd	nd	nd	nd	403	400	665	598	613
176	Anacostia, D.C.-Md.	nd	nd	-	nd	nd	-	-	-	0	0	0	0
177	East of New Point Comfort, Va.	0	1	2	0	0	1	2	1	0	1	0	0
178	Bethel Beach, Va.	0	0	1	0	0	0	0	0	0	0	0	0
179	Goose Island, Va.	nd	nd	40	61	76	177	159	160	128	213	203	227
180	Horseshoe Point, Md.	nd	nd	1	nd	nd	0	0	0	0	0	0	0

- Quadrangle was not photographed and assumed to have no SAV.

nd Quadrangle not mapped.

1) Quadrangle was not photographed in 1978 but most likely had SAV in 1978 based on data collected in subsequent years.
2) Quadrangle was not photographed in 1984 due to airspace restrictions over Aberdeen Proving Grounds.
3) Quadrangle was not photographed in 1984 due to airspace restrictions over Patuxent NAS.
4) Quadrangle was not photographed in 1986 due to airspace restrictions over Aberdeen Proving Grounds.
5) Quadrangle was not photographed in 1986 but SAV presence verified by ground truth surveys.

Table 4. SAV area corrections by USGS quadrangle and year (hectares)

		1971				1974				1978			
No.	USGS Quadrangle Name	New	Report	Diff.	%	New	Report	Diff.	%	New	Report	Diff.	%
1	Conowingo Dam, Md.-Pa.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
2	Aberdeen, Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
3	Havre de Grace, Md.	nd	0	0	0%	nd	0	0	0%	834	804	31	4%
4	North East, Md.	nd	0	0	0%	nd	0	0	0%	5	6	-0	-7%
5	Elkton, Md.-Del.	nd	0	0	0%	nd	0	0	0%	1	1	-0	-18%
6	White Marsh, Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
7	Edgewood, Md.	nd	0	0	0%	nd	0	0	0%	11	10	0	1%
8	Perryman, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
9	Spesutie, Md.	nd	0	0	0%	nd	0	0	0%	1	1	-0	-25%
10	Earleville, Md.	nd	0	0	0%	nd	0	0	0%	4	5	-1	-16%
11	Cecilton, Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
12	Baltimore East, Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
13	Middle River, Md.	nd	0	0	0%	nd	0	0	0%	75	90	-15	-17%
14	Gunpowder Neck, Md.	nd	0	0	0%	nd	0	0	0%	245	201	44	22%
15	Hanesville, Md.	nd	0	0	0%	nd	0	0	0%	10	9	1	7%
16	Betterton, Md.	nd	0	0	0%	nd	0	0	0%	7	6	0	4%
17	Galena, Md.	nd	0	0	0%	nd	0	0	0%	1	1	-0	-16%
18	Curtis Bay, Md.	nd	0	0	0%	nd	0	0	0%	45	33	12	35%
19	Sparrows Point, Md.	nd	0	0	0%	nd	0	0	0%	8	11	-2	-20%
20	Swan Point, Md.	nd	0	0	0%	nd	0	0	0%	31	30	1	4%
21	Rock Hall, Md.	nd	0	0	0%	nd	0	0	0%	116	127	-11	-9%
22	Chestertown, Md.	nd	0	0	0%	nd	0	0	0%	13	12	0	3%
23	Round Bay, Md.	nd	0	0	0%	nd	0	0	0%	132	137	-5	-4%
24	Gibson Island, Md.	nd	0	0	0%	nd	0	0	0%	146	139	7	5%
25	Love Point, Md.	nd	0	0	0%	nd	0	0	0%	11	12	-1	-8%
26	Langford Creek, Md.	nd	0	0	0%	nd	0	0	0%	1193	1255	-62	-5%
27	Centreville, Md.	nd	0	0	0%	nd	0	0	0%	36	39	-3	-6%
28	Washington West, Md.-D.C.-Va.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
29	Washington East, D.C.-Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
30	South River, Md.	nd	0	0	0%	nd	0	0	0%	13	15	-2	-13%
31	Annapolis, Md.	nd	0	0	0%	nd	0	0	0%	25	27	-2	-8%
32	Kent Island, Md.	nd	0	0	0%	nd	0	0	0%	539	514	26	5%
33	Queenstown, Md.	nd	0	0	0%	nd	0	0	0%	497	492	5	1%
34	Alexandria, Va.-D.C.-Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
35	Deale, Md.	nd	0	0	0%	nd	0	0	0%	77	62	15	25%
36	Claiborne, Md.	nd	0	0	0%	nd	0	0	0%	407	421	-14	-3%
37	St. Michaels, Md.	nd	0	0	0%	nd	0	0	0%	402	366	36	10%
38	Easton, Md.	nd	0	0	0%	nd	0	0	0%	7	1	5	446%
39	Fort Belvoir, Va.-Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
40	Mt. Vernon, Md.-Va.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
41	Lower Marlboro, Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
42	North Beach, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
43	Tilghman, Md.	nd	0	0	0%	nd	0	0	0%	473	478	-5	-1%
44	Oxford, Md.	nd	0	0	0%	nd	0	0	0%	674	563	111	20%
45	Trappe, Md.	nd	0	0	0%	nd	0	0	0%	55	65	-9	-14%
46	Preston, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
47	Quantico, Va.-Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
48	Indian Head, Va.-Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
49	Benedict, Md.	nd	0	0	0%	nd	0	0	0%	2	2	0	7%
50	Prince Frederick, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
51	Hudson, Md.	nd	0	0	0%	nd	0	0	0%	371	377	-6	-2%
52	Church Creek, Md.	nd	0	0	0%	nd	0	0	0%	202	209	-7	-3%

Table 4. SAV area corrections by USGS quadrangle and year (hectares)

		1971				1974				1978			
No.	USGS Quadrangle Name	New	Report	Diff.	%	New	Report	Diff.	%	New	Report	Diff.	%
53	Cambridge, Md.	nd	0	0	0%	nd	0	0	0%	48	49	-1	-3%
54	East New Market, Md.	nd	0	0	0%	nd	0	0	0%	1	0	1	0%
55	Widewater, Va.- Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
56	Nanjemoy, Md.	nd	0	0	0%	nd	0	0	0%	30	28	2	6%
57	Mathias Point, Md.- Va.	nd	0	0	0%	nd	0	0	0%	228	194	33	17%
58	Popes Creek, Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
59	Mechanicsville, Md.	nd	0	0	0%	nd	0	0	0%	11	14	-3	-21%
60	Broomes Island, Md.	nd	0	0	0%	nd	0	0	0%	4	5	-1	-11%
61	Cove Point, Md.	nd	0	0	0%	nd	0	0	0%	3	3	-0	-10%
62	Taylors Island, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
63	Golden Hill, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
64	Passapatanzy, Md.-Va.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
65	King George, Va.-Md.	nd	0	0	0%	nd	0	0	0%	2	2	-0	-2%
66	Dahlgren, Va.-Md.	nd	0	0	0%	nd	0	0	0%	74	8	66	788%
67	Colonial Beach North. Md.-Va.	nd	0	0	0%	nd	0	0	0%	89	87	1	2%
68	Rock Point, Md.	nd	0	0	0%	nd	0	0	0%	20	23	-3	-14%
69	Leonardtown, Md.	nd	0	0	0%	nd	0	0	0%	2	2	-0	-13%
70	Hollywood, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
71	Solomons Island, Md.	nd	0	0	0%	nd	0	0	0%	9	11	-1	-10%
72	Barren Island, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
73	Honga, Md.	nd	0	0	0%	nd	0	0	0%	127	127	0	0%
74	Wingate, Md.	nd	0	0	0%	nd	0	0	0%	2	3	-0	-15%
75	Nanticoke, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
76	Colonial Beach South, Va.-Md.	nd	0	0	0%	nd	0	0	0%	8	62	-54	-87%
77	Stratford Hall, Va.-Md.	nd	0	0	0%	nd	0	0	0%	5	6	-1	-13%
78	St. Clements Island, Va.-Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	28%
79	Piney Point, Md.-Va.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
80	St. Marys City, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
81	Point No Point, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
82	Richland Point, Md.	nd	0	0	0%	nd	0	0	0%	1	1	0	13%
83	Bloodsworth Island, Md.	nd	0	0	0%	nd	0	0	0%	65	66	-1	-2%
84	Deal Island, Md.	nd	0	0	0%	nd	0	0	0%	6	3	3	87%
85	Monie, Md.	nd	0	0	0%	nd	0	0	0%	6	9	-3	-30%
86	Champlain, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
87	Machodoc, Va.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
88	Kinsale, Va.-Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
89	St. George Island, Va.-Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
90	Point Lookout, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
91	Kedges Straits, Md.	nd	0	0	0%	nd	0	0	0%	173	156	17	11%
92	Terrapin Sand Point, Md.	nd	0	0	0%	nd	0	0	0%	287	314	-28	-9%
93	Marion, Md.	nd	0	0	0%	nd	0	0	0%	264	289	-26	-9%
94	Mount Landing, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
95	Tappahannock, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
96	Lottsburg, Va.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
97	Heathsville, Va.-Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
98	Burgess, Va.-Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
99	Ewell, Md.-Va.	nd	0	0	0%	nd	0	0	0%	1497	1483	13	1%
100	Great Fox Island, Va.-Md.	nd	0	0	0%	nd	0	0	0%	496	541	-45	-8%
101	Crisfield, Md.-Va.	nd	0	0	0%	nd	0	0	0%	7	7	-1	-9%
102	Saxis, Va.-Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
103	Dunnsville, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
104	Morattico, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%

Table 4. SAV area corrections by USGS quadrangle and year (hectares)

No.	USGS Quadrangle Name	1971 New	1971 Report	1971 Diff.	1971 %	1974 New	1974 Report	1974 Diff.	1974 %	1978 New	1978 Report	1978 Diff.	1978 %
105	Lively, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
106	Reedville, Va.	nd	0	0	0%	nd	0	0	0%	225	230	-6	-3%
107	Tangier Island, Va.	nd	0	0	0%	nd	0	0	0%	359	405	-46	-11%
108	Chesconessex, Va.	nd	0	0	0%	nd	0	0	0%	466	483	-17	-4%
109	Parksley, Va.	nd	0	0	0%	nd	0	0	0%	81	80	0	0%
110	Urbanna, Va.	81	85	-3	-4%	0	0	0	0%	-	0	0	0%
111	Irvington, Va.	122	113	8	7%	0	0	0	0%	5	5	-0	-2%
112	Fleets Bay, Va.	nd	0	0	0%	199	198	1	1%	134	133	1	1%
113	Nandua Creek, Va.	nd	0	0	0%	nd	0	0	0%	187	185	2	1%
114	Pungoteague, Va.	nd	0	0	0%	nd	0	0	0%	407	402	5	1%
115	West Point, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
116	Saluda, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
117	Wilton, Va.	288	296	-8	-3%	7	8	-1	-6%	10	10	-0	-2%
118	Deltaville, Va.	594	543	51	9%	23	23	-0	-1%	57	59	-3	-4%
119	Jamesville, Va.	nd	0	0	0%	nd	0	0	0%	397	406	-9	-2%
120	Toano, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
121	Gressitt, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
122	Ware Neck, Va.	155	154	2	1%	182	189	-7	-4%	251	256	-5	-2%
123	Mathews, Va.	255	340	-85	-25%	60	61	-1	-1%	64	64	-0	-0%
124	Franktown, Va.	nd	0	0	0%	nd	0	0	0%	508	504	4	1%
125	Westover, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
126	Charles City, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
127	Brandon, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
128	Norge, Va.	-	0	0	0%	-	0	0	0%	89	46	43	92%
129	Williamsburg, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
130	Clay Bank, Va.	158	113	44	39%	13	12	0	4%	-	0	0	0%
131	Achilles, Va.	710	745	-35	-5%	730	742	-11	-2%	792	798	-6	-1%
132	New Point Comfort, Va.	821	725	95	13%	963	966	-3	-0%	1099	1096	3	0%
133	Cape Charles, Va.	nd	0	0	0%	nd	0	0	0%	316	321	-5	-2%
134	Cheriton, Va.	nd	0	0	0%	nd	0	0	0%	86	85	1	1%
135	Savedge, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
136	Claremont, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
137	Surry, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
138	Hog Island, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
139	Yorktown, Va.	4	0	4	0%	0	0	0	0%	2	2	0	2%
140	Poquoson West, Va.	505	489	15	3%	368	368	0	0%	208	210	-2	-1%
141	Poquoson East, Va.	940	946	-6	-1%	443	436	7	2%	531	517	14	3%
142	Elliotts Creek, Va.	nd	0	0	0%	nd	0	0	0%	45	45	1	1%
143	Townsend, Va.	nd	0	0	0%	nd	0	0	0%	43	43	0	0%
144	Bacons Castle, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
145	Mulberry Island, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
146	Newport News North, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
147	Hampton, Va.	296	296	1	0%	307	306	0	0%	222	218	4	2%
148	Benns Church, Va.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
149	Newport News South, Va.	nd	0	0	0%	nd	0	0	0%	2	2	-0	-8%
150	Norfolk North, Va.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
151	Little Creek, Va.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
152	Cape Henry, Va.	nd	0	0	0%	nd	0	0	0%	nd(1)	0	0	0%
153	Chuckatuck, Va.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
154	Bowers Hill, Va.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
155	Norfolk South, Va.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
156	Kempsville, Va.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%

Table 4. SAV area corrections by USGS quadrangle and year (hectares)

No.	USGS Quadrangle Name	1971 New	1971 Report	1971 Diff.	1971 %	1974 New	1974 Report	1974 Diff.	1974 %	1978 New	1978 Report	1978 Diff.	1978 %
157	Princess Anne, Va.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
158	Wye Mills, Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
159	Bristol, Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
160	Fowling Creek, Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
161	Port Tobacco, Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
162	Charlotte Hall, Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
163	Mardela Springs, Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
164	Wetipquin, Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
165	Selbyville, Md.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
166	Assawoman Bay, Md.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
167	Berlin, Md.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
168	Ocean City, Md.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
169	Public Landing, Md.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
170	Tingles Island, Md.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
171	Girdle Tree, Md.-Va.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
172	Boxiron, Md.-Va.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
173	Whittington Point, Md.-Va.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
174	Chincoteague West, Va.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
175	Chincoteague East, Va.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
176	Anacostia, D.C.-Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
177	East of New Point Comfort, Va.	0	0	0	0%	1	0	1	0%	2	0	2	0%
178	Bethel Beach, Va.	0	0	0	0%	0	0	0	0%	1	0	1	0%
179	Goose Island, Va.	nd	0	0	0%	nd	0	0	0%	40	0	40	0%
180	East of Deael	nd	0	0	0%	nd	0	0	0%	1	0	1	0%
	Totals	4928	4845	83	2%	3296	3309	-13	-0%	16760	16622	137	1%

- Quadrangle was not photographed and assumed to have no SAV.

nd Quadrangle not mapped.

1) Quadrangle was not photographed in 1978 but most likely had SAV in 1978 based on data collected in subsequent years.
2) Quadrangle was not photographed in 1984 due to airspace restrictions over Aberdeen Proving Grounds.
3) Quadrangle was not photographed in 1984 due to airspace restrictions over Patuxent NAS.
4) Quadrangle was not photographed in 1986 due to airspace restrictions over Aberdeen Proving Grounds.
5) Quadrangle was not photographed in 1986 but SAV presence verified by ground truth surveys.

Table 4. SAV area corrections by USGS quadrangle and year (hectares) (Continued)

No.	USGS Quadrangle Name	1980 New	1980 Report	1980 Diff.	1980 %	1981 New	1981 Report	1981 Diff.	1981 %	1984 New	1984 Report	1984 Diff.	1984 %
1	Conowingo Dam. Md.-Pa.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
2	Aberdeen, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
3	Havre de Grace, Md.	nd	0	0	0%	nd	0	0	0%	1767	1742	25	1%
4	North East, Md.	nd	0	0	0%	nd	0	0	0%	14	13	0	3%
5	Elkton, Md.-Del.	nd	0	0	0%	nd	0	0	0%		0	0	0%
6	White Marsh, Md.	nd	0	0	0%	nd	0	0	0%		0	0	0%
7	Edgewood, Md.	nd	0	0	0%	nd	0	0	0%	nd(2)	50	-50	-100%
8	Perryman, Md.	nd	0	0	0%	nd	0	0	0%	2	2	0	19%
9	Spesutie, Md.	nd	0	0	0%	nd	0	0	0%	408	411	-4	-1%
10	Earleville, Md.	nd	0	0	0%	nd	0	0	0%	6	3	2	63%
11	Cecilton, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
12	Baltimore East, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
13	Middle River, Md.	nd	0	0	0%	nd	0	0	0%	nd(2)	0	0	0%
14	Gunpowder Neck. Md.	nd	0	0	0%	nd	0	0	0%	nd(2)	184	-184	-100%
15	Hanesville, Md.	nd	0	0	0%	nd	0	0	0%	6	5	0	5%
16	Betterton, Md.	nd	0	0	0%	nd	0	0	0%	8	6	2	33%
17	Galena, Md.	nd	0	0	0%	nd	0	0	0%	12	12	1	5%
18	Curtis Bay, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
19	Sparrows Point, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
20	Swan Point, Md.	nd	0	0	0%	nd	0	0	0%	27	19	8	43%
21	Rock Hall, Md.	nd	0	0	0%	nd	0	0	0%	37	30	7	23%
22	Chestertown, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
23	Round Bay, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
24	Gibson Island, Md.	nd	0	0	0%	nd	0	0	0%	10	8	2	25%
25	Love Point, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
26	Langford Creek, Md.	nd	0	0	0%	nd	0	0	0%	646	600	46	8%
27	Centreville, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
28	Washington West, Md.-D.C.-Va.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
29	Washington East, D.C.-Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
30	South River, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
31	Annapolis, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
32	Kent Island, Md.	nd	0	0	0%	nd	0	0	0%	32	26	6	24%
33	Queenstown, Md.	nd	0	0	0%	nd	0	0	0%	109	89	20	22%
34	Alexandria, Va.-D.C.-Md.	nd	0	0	0%	nd	0	0	0%	168	160	7	4%
35	Deale, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
36	Claiborne, Md.	nd	0	0	0%	nd	0	0	0%	55	52	3	5%
37	St. Michaels, Md.	nd	0	0	0%	nd	0	0	0%	12	11	1	7%
38	Easton, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
39	Fort Belvoir, Va.-Md.	nd	0	0	0%	nd	0	0	0%	2	1	1	98%
40	Mt. Vernon, Md.-Va.	nd	0	0	0%	nd	0	0	0%	450	420	30	7%
41	Lower Marlboro, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
42	North Beach, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
43	Tilghman, Md.	nd	0	0	0%	nd	0	0	0%	10	7	3	39%
44	Oxford, Md.	nd	0	0	0%	nd	0	0	0%	28	23	5	20%
45	Trappe, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
46	Preston, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
47	Quantico, Va.-Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
48	Indian Head, Va.-Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
49	Benedict, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
50	Prince Frederick, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
51	Hudson, Md.	nd	0	0	0%	nd	0	0	0%	10	4	5	117%
52	Church Creek, Md.	nd	0	0	0%	nd	0	0	0%	17	9	7	81%

Table 4. SAV area corrections by USGS quadrangle and year (hectares) (Continued)

No.	USGS Quadrangle Name	1980 New	1980 Report	1980 Diff.	1980 %	1981 New	1981 Report	1981 Diff.	1981 %	1984 New	1984 Report	1984 Diff.	1984 %
53	Cambridge, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
54	East New Market, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
55	Widewater, Va.- Md.	nd	0	0	0%	nd	0	0	0%	5	5	0	6%
56	Nanjemoy, Md.	nd	0	0	0%	nd	0	0	0%	39	31	8	25%
57	Mathias Point, Md.- Va.	nd	0	0	0%	nd	0	0	0%	157	121	36	30%
58	Popes Creek, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
59	Mechanicsville, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
60	Broomes Island, Md.	nd	0	0	0%	nd	0	0	0%	7	4	2	50%
61	Cove Point, Md.	nd	0	0	0%	nd	0	0	0%	6	4	2	65%
62	Taylors Island, Md.	nd	0	0	0%	nd	0	0	0%	12	9	3	41%
63	Golden Hill, Md.	nd	0	0	0%	nd	0	0	0%	1	0	1	181%
64	Passapatanzy, Md.-Va.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
65	King George, Va.-Md.	nd	0	0	0%	nd	0	0	0%	21	13	7	55%
66	Dahlgren, Va.-Md.	nd	0	0	0%	nd	0	0	0%	4	3	2	68%
67	Colonial Beach North, Md.-Va.	nd	0	0	0%	nd	0	0	0%	31	26	6	22%
68	Rock Point, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
69	Leonardtown, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
70	Hollywood, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
71	Solomons Island, Md.	nd	0	0	0%	nd	0	0	0%	2	1	1	103%
72	Barren Island, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
73	Honga, Md.	nd	0	0	0%	nd	0	0	0%	6	5	1	25%
74	Wingate, Md.	nd	0	0	0%	nd	0	0	0%	10	9	1	15%
75	Nanticoke, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
76	Colonial Beach South, Va.-Md.	nd	0	0	0%	nd	0	0	0%	21	11	9	84%
77	Stratford Hall, Va.-Md.	nd	0	0	0%	nd	0	0	0%	3	2	1	57%
78	St. Clements Island, Va.-Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
79	Piney Point, Md.-Va.	nd	0	0	0%	nd	0	0	0%	nd(3)	0	0	0%
80	St. Marys City, Md.	nd	0	0	0%	nd	0	0	0%	nd(3)	0	0	0%
81	Point No Point, Md.	nd	0	0	0%	nd	0	0	0%	nd(3)	0	0	0%
82	Richland Point, Md.	nd	0	0	0%	nd	0	0	0%	1	0	0	103%
83	Bloodsworth Island, Md.	nd	0	0	0%	nd	0	0	0%	23	18	5	25%
84	Deal Island, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
85	Monie, Md.	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
86	Champlain, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
87	Machodoc, Va.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
88	Kinsale, Va.-Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
89	St. George Island, Va.-Md.	nd	0	0	0%	nd	0	0	0%	nd(3)	0	0	0%
90	Point Lookout, Md.	nd	0	0	0%	nd	0	0	0%	nd(3)	0	0	0%
91	Kedges Straits, Md.	nd	0	0	0%	nd	0	0	0%	367	366	1	0%
92	Terrapin Sand Point, Md.	nd	0	0	0%	nd	0	0	0%	187	187	-0	-0%
93	Marion, Md.	nd	0	0	0%	nd	0	0	0%	1	0	1	0%
94	Mount Landing, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
95	Tappahannock, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
96	Lottsburg, Va.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
97	Heathsville, Va.-Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
98	Burgess, Va.-Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
99	Ewell, Md.-Va.	1351	1351	1	0%	1492	1382	110	8%	2255	2309	-54	-2%
100	Great Fox Island, Va.-Md.	255	246	9	4%	624	304	320	105%	937	808	129	16%
101	Crisfield, Md.-Va.	nd	0	0	0%	nd	0	0	0%	115	113	2	1%
102	Saxis, Va.-Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
103	Dunnsville, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
104	Morattico, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%

Table 4. SAV area corrections by USGS quadrangle and year (hectares) (Continued)

No.	USGS Quadrangle Name	1980 New	1980 Report	1980 Diff.	1980 %	1981 New	1981 Report	1981 Diff.	1981 %	1984 New	1984 Report	1984 Diff.	1984 %
105	Lively, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
106	Reedville, Va.	13	14	-1	-6%	38	36	1	3%	109	109	1	1%
107	Tangier Island, Va.	176	239	-63	-26%	349	375	-26	-7%	484	614	-130	-21%
108	Chesconessex, Va.	525	526	-2	-0%	622	597	25	4%	745	809	-64	-8%
109	Parksley, Va.	58	58	-0	-1%	163	144	19	13%	263	265	-2	-1%
110	Urbanna, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
111	Irvington, Va.	-	0	0	0%	-	0	0	0%	9	9	-0	-3%
112	Fleets Bay, Va.	17	18	-1	-4%	96	97	-1	-1%	160	155	5	3%
113	Nandua Creek, Va.	163	169	-6	-3%	262	263	-2	-1%	342	345	-4	-1%
114	Pungoteague, Va.	336	340	-3	-1%	568	521	48	9%	713	717	-4	-0%
115	West Point, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
116	Saluda, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
117	Wilton, Va.	0	0	0	0%	0	0	0	0%	0	0	0	0%
118	Deltaville, Va.	0	0	0	11%	0	0	0	0%	7	7	0	3%
119	Jamesville, Va.	234	242	-8	-3%	293	278	15	6%	365	367	-2	-1%
120	Toano, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
121	Gressitt, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
122	Ware Neck, Va.	123	121	2	2%	174	171	4	2%	207	203	4	2%
123	Mathews, Va.	31	31	0	1%	36	36	0	1%	32	30	2	6%
124	Franktown, Va.	347	355	-7	-2%	358	325	33	10%	395	395	0	0%
125	Westover, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
126	Charles City, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
127	Brandon, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
128	Norge, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
129	Williamsburg, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
130	Clay Bank, Va.	0	0	0	0%	0	0	0	0%	-	0	0	0%
131	Achilles, Va.	565	564	1	0%	617	547	70	13%	759	741	18	2%
132	New Point Comfort, Va.	926	920	5	1%	954	859	96	11%	1077	1093	-16	-1%
133	Cape Charles, Va.	207	205	2	1%	255	253	2	1%	313	308	5	2%
134	Cheriton, Va.	50	52	-2	-4%	49	43	6	13%	58	56	2	4%
135	Savedge, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
136	Claremont, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
137	Surry, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
138	Hog Island, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
139	Yorktown, Va.	0	0	0	0%	0	0	0	0%	0	0	-0	-8%
140	Poquoson West, Va.	180	182	-2	-1%	198	197	1	1%	222	217	5	3%
141	Poquoson East, Va.	650	645	4	1%	598	596	2	0%	695	687	8	1%
142	Elliotts Creek, Va.	8	8	-0	-5%	nd	0	0	0%	18	14	4	27%
143	Townsend, Va.	nd	0	0	0%	nd	0	0	0%	5	5	-0	-2%
144	Bacons Castle, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
145	Mulberry Island, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
146	Newport News North, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
147	Hampton, Va.	171	174	-3	-1%	215	219	-3	-2%	234	233	1	1%
148	Benns Church, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
149	Newport News South, Va.	0	0	0	0%	0	0	0	0%	0	0	0	0%
150	Norfolk North, Va.	-	0	0	0%	-	0	0	0%	_	0	0	0%
151	Little Creek, Va.	-	0	0	0%	-	0	0	0%	0	0	0	0%
152	Cape Henry, Va.	-	0	0	0%	-	0	0	0%	38	28	11	38%
153	Chuckatuck, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
154	Bowers Hill, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
155	Norfolk South, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
156	Kempsville, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%

Table 4. SAV area corrections by USGS quadrangle and year (hectares) (Continued)

No.	USGS Quadrangle Name	1980 New	1980 Report	1980 Diff.	1980 %	1981 New	1981 Report	1981 Diff.	1981 %	1984 New	1984 Report	1984 Diff.	1984 %
157	Princess Anne, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
158	Wye Mills, Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
159	Bristol, Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
160	Fowling Creek, Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
161	Port Tobacco, Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
162	Charlotte Hall, Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
163	Mardela Springs, Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
164	Wetipquin, Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
165	Selbyville, Md.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
166	Assawoman Bay, Md.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
167	Berlin, Md.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
168	Ocean City, Md.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
169	Public Landing, Md.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
170	Tingles Island, Md.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
171	Girdle Tree, Md.-Va.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
172	Boxiron, Md.-Va.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
173	Whittington Point, Md.-Va.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
174	Chincoteague West, Va.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
175	Chincoteague East, Va.	nd	0	0	0%	nd	0	0	0%	nd	0	0	0%
176	Anacostia, D.C.-Md.	nd	0	0	0%	nd	0	0	0%	-	0	0	0%
177	East of New Point Comfort, Va.	0	0	0	0%	0	0	0	0%	1	0	1	0%
178	Bethel Beach, Va.	0	0	0	0%	0	0	0	0%	0	0	0	0%
179	Goose Island, Va.	61	0	61	0%	76	0	76	0%	177	0	177	0%
180	East of Deael	nd	0	0	0%	nd	0	0	0%	0	0	0	0%
	Totals	6449	6460	-11	-0%	8038	7242	796	11%	15475	15343	131	1%

- Quadrangle was not photographed and assumed to have no SAV.

nd Quadrangle not mapped.

1) Quadrangle was not photographed in 1978 but most likely had SAV in 1978 based on data collected in subsequent years.
2) Quadrangle was not photographed in 1984 due to airspace restrictions over Aberdeen Proving Grounds.
3) Quadrangle was not photographed in 1984 due to airspace restrictions over Patuxent NAS.
4) Quadrangle was not photographed in 1986 due to airspace restrictions over Aberdeen Proving Grounds.
5) Quadrangle was not photographed in 1986 but SAV presence verified by ground truth surveys.

Table 4. SAV area corrections by USGS quadrangle and year (hectares) (Continued)

No.	USGS Quadrangle Name	1985 New	1985 Report	1985 Diff.	1985 %	1986 New	1986 Report	1986 Diff.	1986 %	1987 New	1987 Report	1987 Diff.	1987 %
1	Conowingo Dam, Md.-Pa.	0	0	0	0%	0	0	0	0%	-	0	0	0%
2	Aberdeen, Md.	8	6	2	31%	5	6	-0	-8%	4	4	0	1%
3	Havre de Grace, Md.	1629	2048	-419	-20%	1989	1977	11	1%	1855	1858	-2	-0%
4	North East, Md.	35	29	5	18%	7	7	0	1%	6	6	0	0%
5	Elkton, Md.-Del.	0	0	0	0%	0	0	0	0%	0	0	0	0%
6	White Marsh, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
7	Edgewood, Md.	8	6	2	30%	nd(4)	0	0	0%	1	1	0	8%
8	Perryman, Md.	8	5	3	71%	0	0	0	0%	3	3	-0	-7%
9	Spesutie, Md.	437	624	-187	-30%	371	370	1	0%	380	380	1	0%
10	Earleville, Md.	14	12	2	21%	9	10	-0	-3%	5	5	-0	-0%
11	Cecilton, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
12	Baltimore East, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
13	Middle River, Md.	77	77	1	1%	nd(4)	0	0	0%	22	22	0	1%
14	Gunpowder Neck, Md.	141	148	-7	-5%	nd(4)	0	0	0%	91	91	0	0%
15	Hanesville, Md.	11	10	1	14%	9	8	1	12%	42	42	-0	-1%
16	Betterton, Md.	16	13	3	26%	8	8	-0	-5%	19	20	-0	-2%
17	Galena, Md.	1	1	0	27%	11	11	0	2%	8	8	-0	-1%
18	Curtis Bay, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
19	Sparrows Point, Md.	7	6	1	23%	0	0	0	0%	0	0	0	0%
20	Swan Point, Md.	15	10	5	45%	3	3	-0	-2%	2	2	-0	-1%
21	Rock Hall, Md.	17	15	3	18%	6	6	0	1%	5	5	-0	-0%
22	Chestertown, Md.	2	2	-0	-1%	0	0	0	0%	0	0	0	0%
23	Round Bay, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
24	Gibson Island, Md.	17	16	0	3%	4	4	-0	-4%	0	0	-0	-0%
25	Love Point, Md.	5	4	1	15%	0	0	0	0%	0	0	0	0%
26	Langford Creek, Md.	631	652	-21	-3%	291	295	-4	-1%	498	499	-1	-0%
27	Centreville, Md.	0	0	0	0%	0	1	-0	-13%	1	1	-0	-0%
28	Washington West, Md.-D.C.-Va.	0	0	0	0%	0	0	0	0%	0	0	0	0%
29	Washington East, D.C.-Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
30	South River, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
31	Annapolis, Md.	0	0	0	70%	0	0	-0	-0%	0	0	0	0%
32	Kent Island, Md.	59	55	4	7%	34	31	3	10%	338	323	16	5%
33	Queenstown, Md.	115	108	8	7%	54	37	17	48%	201	217	-16	-7%
34	Alexandria, Va.-D.C.-Md.	528	521	7	1%	496	496	0	0%	470	471	-0	-0%
35	Deale, Md.	3	2	1	39%	1	1	-0	-11%	0	0	0	0%
36	Claiborne, Md.	408	392	15	4%	165	165	-0	-0%	137	137	-0	-0%
37	St. Michaels, Md.	262	246	16	7%	63	64	-1	-2%	232	232	0	0%
38	Easton, Md.	22	14	7	50%	0	0	0	0%	0	0	0	0%
39	Fort Belvoir, Va.-Md.	2	2	0	20%	7	7	0	2%	19	19	-0	-1%
40	Mt. Vernon, Md.-Va.	845	895	-50	-6%	1092	1080	12	1%	1058	1057	2	0%
41	Lower Marlboro, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
42	North Beach, Md.	19	19	0	2%	0	0	0	0%	0	0	0	0%
43	Tilghman, Md.	288	281	7	3%	39	37	1	3%	85	85	-0	-0%
44	Oxford, Md.	379	368	11	3%	51	52	-0	-1%	6	6	0	0%
45	Trappe, Md.	41	33	8	25%	0	0	0	0%	0	0	0	0%
46	Preston, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
47	Quantico, Va.-Md.	8	7	2	26%	19	19	0	0%	46	46	-0	-0%
48	Indian Head, Va.-Md.	0	0	0	99%	8	8	0	4%	18	18	0	0%
49	Benedict, Md.	0	0	0	0%	4	4	-0	-4%	1	1	-0	-1%
50	Prince Frederick, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
51	Hudson, Md.	264	240	24	10%	195	194	1	1%	168	168	-0	-0%
52	Church Creek, Md.	388	349	39	11%	144	142	2	2%	49	49	-0	-0%

Table 4. SAV area corrections by USGS quadrangle and year (hectares) (Continued)

No.	USGS Quadrangle Name	1985 New	1985 Report	1985 Diff.	1985 %	1986 New	1986 Report	1986 Diff.	1986 %	1987 New	1987 Report	1987 Diff.	1987 %
53	Cambridge, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
54	East New Market, Md.	1	1	0	41%	0	0	0	0%	0	0	0	0%
55	Widewater, Va.- Md.	41	39	3	7%	33	39	-7	-17%	39	39	-0	-0%
56	Nanjemoy, Md.	117	107	11	10%	100	103	-3	-3%	109	108	0	0%
57	Mathias Point, Md.- Va.	239	231	8	3%	215	211	5	2%	283	284	-1	-0%
58	Popes Creek, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
59	Mechanicsville, Md.	0	0	0	0%	7	8	-0	-5%	2	2	-0	-0%
60	Broomes Island, Md.	28	25	4	15%	4	4	0	2%	21	20	0	2%
61	Cove Point, Md.	4	2	1	58%	1	1	-0	-2%	5	5	-0	-0%
62	Taylors Island, Md.	54	62	-8	-13%	11	12	-1	-10%	48	47	0	0%
63	Golden Hill, Md.	13	11	2	20%	1	1	0	4%	3	3	0	0%
64	Passapatanzy, Md.-Va.	0	0	0	0%	0	0	0	0%	0	0	0	0%
65	King George, Va.-Md.	26	27	-1	-2%	23	23	0	1%	16	16	-0	-0%
66	Dahlgren, Va.-Md.	2	2	-0	-3%	2	2	-0	-3%	14	14	0	0%
67	Colonial Beach North, Md.-Va.	16	16	1	5%	19	18	0	1%	18	18	-0	-0%
68	Rock Point, Md.	0	0	0	32%	0	0	0	0%	0	0	0	0%
69	Leonardtown, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
70	Hollywood, Md.	0	0	0	0%	1	1	-0	-5%	5	5	-0	-0%
71	Solomons Island, Md.	22	16	6	42%	2	3	-0	-9%	8	8	-0	-0%
72	Barren Island, Md.	264	265	-1	-0%	181	177	4	2%	270	270	0	0%
73	Honga, Md.	196	193	3	2%	194	194	-0	-0%	629	632	-3	-0%
74	Wingate, Md.	104	98	6	6%	93	91	2	3%	172	172	-0	-0%
75	Nanticoke, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
76	Colonial Beach South, Va.-Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
77	Stratford Hall, Va.-Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
78	St. Clements Island, Va.-Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
79	Piney Point, Md.-Va.	1	1	1	115%	2	2	0	13%	0	0	0	0%
80	St. Marys City, Md.	25	29	-4	-13%	16	17	-0	-2%	11	10	0	0%
81	Point No Point, Md.	21	17	5	30%	0	0	0	0%	0	0	0	0%
82	Richland Point, Md.	25	24	1	2%	4	4	-0	-1%	43	42	0	0%
83	Bloodsworth Island, Md.	301	225	75	34%	385	385	-0	-0%	554	556	-2	-0%
84	Deal Island, Md.	20	17	3	21%	62	60	1	2%	60	60	-0	-0%
85	Monie, Md.	3	0	3	0%	20	19	1	6%	25	25	-0	-0%
86	Champlain, Va.	0	0	0	0%	-	0	0	0%	-	0	0	0%
87	Machodoc, Va.	0	0	0	0%	0	0	0	0%	0	0	0	0%
88	Kinsale, Va.-Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
89	St. George Island, Va.-Md.	12	9	3	37%	7	7	0	4%	6	6	-0	-0%
90	Point Lookout, Md.	8	6	2	36%	1	1	0	19%	0	0	0	0%
91	Kedges Straits, Md.	467	475	-8	-2%	639	638	1	0%	693	693	0	0%
92	Terrapin Sand Point, Md.	180	180	-1	-1%	209	209	-1	-0%	118	93	24	26%
93	Marion, Md.	226	223	3	1%	247	243	4	2%	160	160	0	0%
94	Mount Landing, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
95	Tappahannock, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
96	Lottsburg, Va.	-	0	0	0%	0	0	0	0%	0	0	0	0%
97	Heathsville, Va.-Md.	-	0	0	0%	0	0	0	0%	0	0	0	0%
98	Burgess, Va.-Md.	-	0	0	0%	0	0	0	0%	0	0	0	0%
99	Ewell, Md.-Va.	2110	2130	-20	-1%	2309	2324	-15	-1%	2011	2013	-2	-0%
100	Great Fox Island, Va.-Md.	1068	1074	-6	-1%	1361	1362	-2	-0%	1093	1090	3	0%
101	Crisfield, Md.-Va.	78	79	-1	-1%	179	180	-1	-1%	123	123	0	0%
102	Saxis, Va.-Md.	-	0	0	0%	-	0	0	0%	0	0	0	0%
103	Dunnsville, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
104	Morattico, Va.	0	0	0	0%	-	0	0	0%	0	0	0	0%

Table 4. SAV area corrections by USGS quadrangle and year (hectares) (Continued)

No.	USGS Quadrangle Name	1985 New	1985 Report	1985 Diff.	1985 %	1986 New	1986 Report	1986 Diff.	1986 %	1987 New	1987 Report	1987 Diff.	1987 %
105	Lively, Va.	0	0	0	0%	-	0	0	0%	0	0	0	0%
106	Reedville, Va.	51	51	-1	-1%	71	71	-0	-0%	87	88	-1	-1%
107	Tangier Island, Va.	466	614	-148	-24%	500	652	-152	-23%	370	499	-129	-26%
108	Chesconessex, Va.	829	827	1	0%	917	920	-3	-0%	912	912	0	0%
109	Parksley, Va.	243	241	2	1%	317	318	-1	-0%	236	236	1	0%
110	Urbanna, Va.	-	0	0	0%	-	0	0	0%	36	36	-0	-0%
111	Irvington, Va.	9	8	0	3%	7	8	-0	-0%	96	97	-1	-1%
112	Fleets Bay, Va.	121	121	0	0%	132	133	-1	-0%	234	236	-2	-1%
113	Nandua Creek, Va.	346	351	-5	-1%	373	376	-3	-1%	378	379	-1	-0%
114	Pungoteague, Va.	691	692	-1	-0%	707	706	1	0%	701	697	4	1%
115	West Point, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
116	Saluda, Va.	-	0	0	0%	0	0	0	0%	0	0	0	0%
117	Wilton, Va.	0	0	0	0%	0	0	0	0%	27	27	-0	-0%
118	Deltaville, Va.	1	1	0	23%	1	1	0	35%	19	19	-0	-1%
119	Jamesville, Va.	330	327	3	1%	403	404	-1	-0%	421	420	2	0%
120	Toano, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
121	Gressitt, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
122	Ware Neck, Va.	171	172	-1	-1%	169	169	0	0%	193	194	-2	-1%
123	Mathews, Va.	35	37	-3	-8%	37	37	-0	-1%	58	58	-0	-1%
124	Franktown, Va.	420	420	0	0%	441	442	-1	-0%	391	393	-2	-0%
125	Westover, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
126	Charles City, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
127	Brandon, Va.	-	0	0	0%	nd(5)	0	0	0%	-	0	0	0%
128	Norge, Va.	-	0	0	0%	14	14	0	2%	-	0	0	0%
129	Williamsburg, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
130	Clay Bank, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
131	Achilles, Va.	696	710	-14	-2%	694	703	-9	-1%	745	755	-10	-1%
132	New Point Comfort, Va.	1150	1155	-4	-0%	1157	1155	2	0%	1049	1049	0	0%
133	Cape Charles, Va.	324	329	-6	-2%	255	255	-1	-0%	261	266	-5	-2%
134	Cheriton, Va.	65	64	1	1%	73	73	-0	-0%	73	74	-1	-1%
135	Savedge, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
136	Claremont, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
137	Surry, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
138	Hog Island, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
139	Yorktown, Va.	0	0	0	25%	0	0	-0	-8%	1	1	-0	-0%
140	Poquoson West, Va.	241	238	3	1%	237	236	1	0%	293	291	3	1%
141	Poquoson East, Va.	782	785	-3	-0%	761	762	-1	-0%	749	752	-4	-0%
142	Elliotts Creek, Va.	9	8	1	10%	20	20	-0	-1%	9	9	-0	-1%
143	Townsend, Va.	17	18	-1	-5%	14	14	-0	-1%	11	12	-1	-11%
144	Bacons Castle, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
145	Mulberry Island, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
146	Newport News North, Va.	-	0	0	0%	-	0	0	0%	0	0	0	0%
147	Hampton, Va.	284	287	-3	-1%	270	270	-0	-0%	285	287	-2	-1%
148	Benns Church, Va.	-	0	0	0%	0	0	0	0%	-	0	0	0%
149	Newport News South, Va.	0	0	0	0%	-	0	0	0%	0	0	0	0%
150	Norfolk North, Va.	-	0	0	0%	-	0	0	0%	0	0	0	0%
151	Little Creek, Va.	0	0	0	0%	-	0	0	0%	0	0	0	0%
152	Cape Henry, Va.	37	37	1	2%	43	43	-0	-0%	40	41	-0	-1%
153	Chuckatuck, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
154	Bowers Hill, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
155	Norfolk South, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
156	Kempsville, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%

Table 4. SAV area corrections by USGS quadrangle and year (hectares) (Continued)

No.	USGS Quadrangle Name	1985 New	1985 Report	1985 Diff.	1985 %	1986 New	1986 Report	1986 Diff.	1986 %	1987 New	1987 Report	1987 Diff.	1987 %
157	Princess Anne, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
158	Wye Mills, Md.	2	1	1	57%	-	0	0	0%	-	0	0	0%
159	Bristol, Md.	6	1	5	429%	0	0	0	0%	0	0	0	0%
160	Fowling Creek, Md.	0	0	0	0%	0	0	0	0%	-	0	0	0%
161	Port Tobacco, Md.	0	0	0	0%	2	1	1	56%	5	6	-0	-4%
162	Charlotte Hall, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
163	Mardela Springs, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
164	Wetipquin, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
165	Selbyville, Md.	nd	0	0	0%	0	0	0	0%	0	0	0	0%
166	Assawoman Bay, Md.	nd	0	0	0%	0	0	0	0%	0	0	0	0%
167	Berlin, Md.	nd	0	0	0%	0	0	0	0%	7	7	-0	-0%
168	Ocean City, Md.	nd	0	0	0%	0	0	0	0%	8	8	-0	-0%
169	Public Landing, Md.	nd	0	0	0%	0	0	0	0%	0	0	0	0%
170	Tingles Island, Md.	nd	0	0	0%	850	852	-2	-0%	1018	1021	-3	-0%
171	Girdle Tree, Md.-Va.	nd	0	0	0%	0	0	0	0%	0	0	0	0%
172	Boxiron, Md.-Va.	nd	0	0	0%	686	688	-2	-0%	665	665	-0	-0%
173	Whittington Point, Md.-Va.	nd	0	0	0%	189	190	-1	-1%	208	208	-0	-0%
174	Chincoteague West, Va.	nd	0	0	0%	0	0	0	0%	0	0	0	0%
175	Chincoteague East, Va.	nd	0	0	0%	403	404	-0	-0%	400	401	-1	-0%
176	Anacostia, D.C.-Md.	-	0	0	0%	-	0	0	0%	0	0	0	0%
177	East of New Point Comfort, Va.	2	0	2	0%	1	0	1	0%	0	0	0	0%
178	Bethel Beach, Va.	0	0	0	0%	0	0	0	0%	0	0	0	0%
179	Goose Island, Va.	159	0	159	0%	160	0	160	0%	128	0	128	0%
180	East of Deael	0	0	0	0%	0	0	0	0%	0	0	0	0%
	Totals	19873	20292	-419	-2%	21316	21299	17	0%	22423	22432	-9	-0%

- Quadrangle was not photographed and assumed to have no SAV.

nd Quadrangle not mapped.

1) Quadrangle was not photographed in 1978 but most likely had SAV in 1978 based on data collected in subsequent years.
2) Quadrangle was not photographed in 1984 due to airspace restrictions over Aberdeen Proving Grounds.
3) Quadrangle was not photographed in 1984 due to airspace restrictions over Patuxent NAS.
4) Quadrangle was not photographed in 1986 due to airspace restrictions over Aberdeen Proving Grounds.
5) Quadrangle was not photographed in 1986 but SAV presence verified by ground truth surveys.

Table 4. SAV area corrections by USGS quadrangle and year (hectares) (Continued)

No.	USGS Quadrangle Name	1989 New	1989 Report	1989 Diff.	1989 %	1990 New	1990 Report	1990 Diff.	1990 %	1991 New	1991 Report	1991 Diff.	1991 %
1	Conowingo Dam, Md.-Pa.	0	0	0	0%	-	0	0	0%	0	0	0	0%
2	Aberdeen, Md.	1	1	0	1%	2	2	-0	-0%	9	9	0	0%
3	Havre de Grace, Md.	1835	1836	-1	-0%	1769	1770	-1	-0%	1653	1653	-0	-0%
4	North East, Md.	105	106	-0	-0%	147	147	0	0%	75	75	-0	-0%
5	Elkton, Md.-Del.	5	6	-0	-5%	40	40	0	0%	25	25	-0	-0%
6	White Marsh, Md.	0	0	0	0%	-	0	0	0%	0	0	0	0%
7	Edgewood, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
8	Perryman, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
9	Spesutie, Md.	188	188	0	0%	51	51	-0	-0%	87	87	0	0%
10	Earleville, Md.	98	98	-0	-0%	166	167	-1	-0%	155	155	-0	-0%
11	Cecilton, Md.	0	0	0	0%	-	0	0	0%	0	0	0	0%
12	Baltimore East, Md.	0	0	0	0%	-	0	0	0%	0	0	0	0%
13	Middle River, Md.	4	4	-0	-0%	1	1	-0	-0%	5	4	1	21%
14	Gunpowder Neck, Md.	34	35	-0	-0%	90	90	0	0%	84	84	-0	-0%
15	Hanesville, Md.	13	13	-0	-0%	6	6	-0	-0%	4	4	0	0%
16	Betterton, Md.	1	1	-0	-1%	4	4	0	0%	1	1	0	0%
17	Galena, Md.	3	3	-0	-0%	8	8	-0	-0%	4	4	-0	-0%
18	Curtis Bay, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
19	Sparrows Point, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
20	Swan Point, Md.	5	5	-0	-0%	6	6	-0	-0%	4	4	-0	-0%
21	Rock Hall, Md.	19	19	0	0%	12	12	-0	-0%	10	10	-0	-0%
22	Chestertown, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
23	Round Bay, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
24	Gibson Island, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
25	Love Point, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
26	Langford Creek, Md.	139	139	-0	-0%	48	48	-0	-0%	42	42	0	0%
27	Centreville, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
28	Washington West, Md.-D.C.-Va.	0	0	0	0%	0	0	0	0%	4	4	-0	-0%
29	Washington East, D.C.-Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
30	South River, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
31	Annapolis, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
32	Kent Island, Md.	327	327	-0	-0%	133	133	-0	-0%	2	2	-0	-1%
33	Queenstown, Md.	129	128	0	0%	56	56	0	0%	4	4	0	1%
34	Alexandria, Va.-D.C.-Md.	369	368	1	0%	400	400	1	0%	454	454	0	0%
35	Deale, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
36	Claiborne, Md.	382	382	0	0%	139	139	0	0%	59	59	0	0%
37	St. Michaels, Md.	172	172	0	0%	63	63	0	0%	4	4	-0	-0%
38	Easton, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
39	Fort Belvoir, Va.-Md.	64	63	1	1%	105	105	0	0%	160	160	0	0%
40	Mt. Vernon, Md.-Va.	335	335	0	0%	358	358	-0	-0%	526	526	-0	-0%
41	Lower Marlboro, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
42	North Beach, Md.	0	0	0	0%	0	0	0	0%	-	0	0	0%
43	Tilghman, Md.	231	231	0	0%	12	12	0	0%	13	13	0	0%
44	Oxford, Md.	96	96	0	0%	19	19	0	0%	6	6	-0	-0%
45	Trappe, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
46	Preston, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
47	Quantico, Va.-Md.	534	533	1	0%	694	694	0	0%	805	806	-1	-0%
48	Indian Head, Va.-Md.	183	184	-1	-0%	304	304	0	0%	356	355	0	0%
49	Benedict, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
50	Prince Frederick, Md.	0	0	0	0%	0	0	0	0%	-	0	0	0%
51	Hudson, Md.	332	331	1	0%	97	97	-0	-0%	63	63	0	0%
52	Church Creek, Md.	19	19	-0	-0%	6	6	-0	-0%	2	2	-0	-0%

Table 4. SAV area corrections by USGS quadrangle and year (hectares) (Continued)

No.	USGS Quadrangle Name	1989 New	1989 Report	1989 Diff.	1989 %	1990 New	1990 Report	1990 Diff.	1990 %	1991 New	1991 Report	1991 Diff.	1991 %
53	Cambridge, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
54	East New Market, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
55	Widewater, Va.- Md.	467	467	0	0%	615	615	-0	-0%	648	648	-0	-0%
56	Nanjemoy, Md.	152	150	2	2%	127	127	1	0%	140	141	-1	-1%
57	Mathias Point, Md.- Va.	349	347	3	1%	285	285	-0	-0%	290	290	0	0%
58	Popes Creek, Md.	6	6	0	0%	5	5	-0	-0%	20	20	-0	-0%
59	Mechanicsville, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
60	Broomes Island, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
61	Cove Point, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
62	Taylors Island, Md.	17	16	1	4%	58	58	-0	-0%	30	30	-0	-0%
63	Golden Hill, Md.	3	2	0	1%	4	4	0	0%	9	9	-0	-0%
64	Passapatanzy, Md.-Va.	0	0	0	0%	0	0	0	0%	0	0	0	0%
65	King George, Va.-Md.	52	52	0	0%	53	53	0	1%	64	64	-0	-0%
66	Dahlgren, Va.-Md.	65	65	0	0%	52	52	-0	-0%	58	58	0	0%
67	Colonial Beach North, Md.-Va.	28	28	0	0%	46	46	-0	-0%	47	47	0	0%
68	Rock Point, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
69	Leonardtown, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
70	Hollywood, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
71	Solomons Island, Md.	3	3	-0	-1%	0	0	0	0%	0	0	0	0%
72	Barren Island, Md.	301	301	-0	-0%	298	300	-2	-1%	122	122	0	0%
73	Honga, Md.	774	774	1	0%	1005	1006	-1	-0%	863	862	1	0%
74	Wingate, Md.	369	369	-0	-0%	400	400	-0	-0%	461	460	0	0%
75	Nanticoke, Md.	5	5	-0	-0%	0	0	0	0%	0	0	0	0%
76	Colonial Beach South, Va.-Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
77	Stratford Hall, Va.-Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
78	St. Clements Island, Va.-Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
79	Piney Point, Md.-Va.	0	0	0	0%	0	0	0	0%	0	0	0	0%
80	St. Marys City, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
81	Point No Point, Md.	0	0	0	0%	0	0	0	0%	-	0	0	0%
82	Richland Point, Md.	24	24	-0	-0%	31	31	-0	-0%	21	21	0	0%
83	Bloodsworth Island, Md.	686	687	-1	-0%	700	700	-1	-0%	801	802	-0	-0%
84	Deal Island, Md.	27	27	-0	-0%	39	39	-0	-0%	24	24	0	0%
85	Monie, Md.	18	18	-0	-0%	18	18	-0	-0%	7	7	0	0%
86	Champlain, Va.	-	0	0	0%	-	0	0	0%	0	0	0	0%
87	Machodoc, Va.	0	0	0	0%	0	0	0	0%	0	0	0	0%
88	Kinsale, Va.-Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
89	St. George Island, Va.-Md.	3	3	-0	-0%	0	0	0	0%	2	2	-0	-0%
90	Point Lookout, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
91	Kedges Straits, Md.	788	781	7	1%	877	876	0	0%	887	885	2	0%
92	Terrapin Sand Point, Md.	218	218	-0	-0%	258	257	1	0%	261	261	0	0%
93	Marion, Md.	198	200	-2	-1%	192	192	-0	-0%	306	306	-0	-0%
94	Mount Landing, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
95	Tappahannock, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
96	Lottsburg, Va.	0	0	0	0%	0	0	0	0%	0	0	0	0%
97	Heathsville, Va.-Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
98	Burgess, Va.-Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
99	Ewell, Md.-Va.	2375	2424	-48	-2%	2412	2447	-34	-1%	2568	2606	-38	-1%
100	Great Fox Island, Va.-Md.	1383	1382	1	0%	1371	1372	-1	-0%	1419	1421	-2	-0%
101	Crisfield, Md.-Va.	203	202	1	0%	227	226	0	0%	318	319	-1	-0%
102	Saxis, Va.-Md.	2	2	0	1%	1	1	-0	-0%	1	1	0	0%
103	Dunnsville, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
104	Morattico, Va.	0	0	0	0%	0	0	0	0%	0	0	0	0%

Table 4. SAV area corrections by USGS quadrangle and year (hectares) (Continued)

No.	USGS Quadrangle Name	1989 New	1989 Report	1989 Diff.	1989 %	1990 New	1990 Report	1990 Diff.	1990 %	1991 New	1991 Report	1991 Diff.	1991 %
105	Lively, Va.	0	0	0	0%	0	0	0	0%	0	0	0	0%
106	Reedville, Va.	157	158	-0	-0%	227	227	-0	-0%	243	243	0	0%
107	Tangier Island, Va.	535	696	-161	-23%	570	752	-182	-24%	596	782	-186	-24%
108	Chesconessex, Va.	971	972	-1	-0%	953	954	-1	-0%	1050	1053	-2	-0%
109	Parksley, Va.	320	320	0	0%	339	340	-1	-0%	483	483	-0	-0%
110	Urbanna, Va.	201	201	1	0%	16	16	-0	-1%	5	5	0	0%
111	Irvington, Va.	245	245	-0	-0%	221	221	-0	-0%	165	165	-0	-0%
112	Fleets Bay, Va.	333	335	-2	-1%	381	382	-0	-0%	392	392	-0	-0%
113	Nandua Creek, Va.	410	406	3	1%	365	366	-1	-0%	442	442	1	0%
114	Pungoteague, Va.	794	795	-1	-0%	824	825	-0	-0%	976	976	-0	-0%
115	West Point, Va.	-	0	0	0%	0	0	0	0%	-	0	0	0%
116	Saluda, Va.	19	19	0	0%	2	2	-0	-0%	0	0	0	0%
117	Wilton, Va.	43	43	-0	-0%	49	49	0	0%	16	16	-0	-0%
118	Deltaville, Va.	81	81	-0	-0%	91	90	0	0%	108	108	0	0%
119	Jamesville, Va.	498	496	1	0%	509	510	-0	-0%	621	622	-0	-0%
120	Toano, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
121	Gressitt, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
122	Ware Neck, Va.	277	278	-1	-0%	303	304	-1	-0%	322	322	-0	-0%
123	Mathews, Va.	110	110	-0	-0%	196	196	-0	-0%	261	261	0	0%
124	Franktown, Va.	436	436	0	0%	485	485	-1	-0%	627	628	-0	-0%
125	Westover, Va.	-	0	0	0%	0	0	0	0%	-	0	0	0%
126	Charles City, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
127	Brandon, Va.	0	0	0	0%	-	0	0	0%	0	0	0	0%
128	Norge, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
129	Williamsburg, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
130	Clay Bank, Va.	0	0	0	0%	1	1	-0	-0%	0	0	0	0%
131	Achilles, Va.	952	958	-6	-1%	997	997	-0	-0%	1010	1011	-1	-0%
132	New Point Comfort, Va.	1271	1274	-2	-0%	1399	1399	0	0%	1449	1449	0	0%
133	Cape Charles, Va.	271	272	-1	-0%	319	319	-0	-0%	362	362	-0	-0%
134	Cheriton, Va.	73	73	-0	-1%	71	71	1	1%	83	83	0	0%
135	Savedge, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
136	Claremont, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
137	Surry, Va.	-	0	0	0%	-	0	0	0%	0	0	0	0%
138	Hog Island, Va.	-	0	0	0%	-	0	0	0%	0	0	0	0%
139	Yorktown, Va.	2	2	0	1%	2	17	-15	-90%	1	1	0	1%
140	Poquoson West, Va.	416	412	4	1%	540	541	-1	-0%	555	555	0	0%
141	Poquoson East, Va.	995	995	0	0%	1008	1008	0	0%	1152	1151	0	0%
142	Elliotts Creek, Va.	16	16	0	0%	28	28	0	0%	68	68	0	0%
143	Townsend, Va.	13	13	0	0%	2	2	-0	-0%	1	1	-0	-0%
144	Bacons Castle, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
145	Mulberry Island, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
146	Newport News North, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
147	Hampton, Va.	305	304	1	0%	342	342	0	0%	381	381	0	0%
148	Benns Church, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
149	Newport News South, Va.	0	0	0	0%	0	0	0	0%	0	0	0	0%
150	Norfolk North, Va.	0	0	0	0%	0	0	0	0%	0	0	0	0%
151	Little Creek, Va.	0	0	0	0%	0	0	0	0%	0	0	0	0%
152	Cape Henry, Va.	38	36	1	3%	28	28	-0	-0%	24	24	0	0%
153	Chuckatuck, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
154	Bowers Hill, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
155	Norfolk South, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%
156	Kempsville, Va.	-	0	0	0%	-	0	0	0%	-	0	0	0%

Table 4. SAV area corrections by USGS quadrangle and year (hectares) (Continued)

No.	USGS Quadrangle Name	1989 New	1989 Report	1989 Diff.	1989 %	1990 New	1990 Report	1990 Diff.	1990 %	1991 New	1991 Report	1991 Diff.	1991 %
157	Princess Anne, Va.	0	0	0	0%	1	1	-0	-0%	0	0	0	0%
158	Wye Mills, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
159	Bristol, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
160	Fowling Creek, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
161	Port Tobacco, Md.	12	12	0	1%	12	12	-0	-1%	13	13	-0	-1%
162	Charlotte Hall, Md.	0	0	0	0%	0	0	0	0%	9	9	-0	-0%
163	Mardela Springs, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
164	Wetipquin, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
165	Selbyville, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
166	Assawoman Bay, Md.	0	0	0	0%	0	0	0	0%	1	1	-0	-0%
167	Berlin, Md.	5	5	-0	-0%	6	6	-0	-0%	11	11	-0	-0%
168	Ocean City, Md.	3	3	0	0%	20	20	-0	-1%	18	18	-0	-0%
169	Public Landing, Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
170	Tingles Island, Md.	822	821	1	0%	993	994	-0	-0%	1066	1066	0	0%
171	Girdle Tree, Md.-Va.	0	0	0	0%	0	0	0	0%	0	0	0	0%
172	Boxiron, Md.-Va.	653	654	-0	-0%	634	636	-3	-0%	672	673	-1	-0%
173	Whittington Point, Md.-Va.	163	162	1	1%	240	240	-0	-0%	364	364	0	0%
174	Chincoteague West, Va.	1	0	1	0%	0	0	0	0%	1	1	-0	-13%
175	Chincoteague East, Va.	665	666	-1	-0%	598	599	-0	-0%	613	613	0	0%
176	Anacostia, D.C.-Md.	0	0	0	0%	0	0	0	0%	0	0	0	0%
177	East of New Point Comfort, Va.	1	0	1	0%	0	0	0	0%	0	0	0	0%
178	Bethel Beach, Va.	0	0	0	0%	0	0	0	0%	0	0	0	0%
179	Goose Island, Va.	213	0	213	0%	203	0	203	0%	227	0	227	0%
180	East of Deael	0	0	0	0%	0	0	0	0%	0	0	0	0%
	Totals	26464	26445	19	0%	26782	26826	-44	-0%	28370	28370	1	0%

- Quadrangle was not photographed and assumed to have no SAV.

nd Quadrangle not mapped.

1) Quadrangle was not photographed in 1978 but most likely had SAV in 1978 based on data collected in subsequent years.
2) Quadrangle was not photographed in 1984 due to airspace restrictions over Aberdeen Proving Grounds.
3) Quadrangle was not photographed in 1984 due to airspace restrictions over Patuxent NAS.
4) Quadrangle was not photographed in 1986 due to airspace restrictions over Aberdeen Proving Grounds.
5) Quadrangle was not photographed in 1986 but SAV presence verified by ground truth surveys.

Historic SAV Correction Procedure

Historic SAV maps are those that were surveyed from 1971 to 1989. Presently, the data can be found in two forms; hard copy mylar and paper maps, and digital Arc/Info coverages with polygon and point topology. Due to a variety of errors found in some of the digital files, the entire historic SAV digital data set is being systematically checked for polygon, position, and labeling errors. Following is the accepted prodedure for locating and correcting these errors using the original hard copy (i.e. mylar or paper) maps.

Fill out the top half of a change sheet for each map to be checked (Quad., Original map source, initials and date), and mark all subsequent changes on these sheets. **These change sheets are the definitive documentation for this historic data, and must be accurate and up-to-date!**

I. PLOT THE DATA - Make a preliminary check plot. This step should be done directly before checking to reduce errors in the plot due to shrinkage of the paper.

A. Firmly tape down the map to be checked on the digitizing board.
B. Go to usual Arc workspace (usually <home>/sav) and enter Arc.
C. From the Arc prompt, run the setup: Arc: **&stat sav**
D. From the Arc prompt, run templot.aml: Arc**: &run templot <cover>** [*<cover>* is the full name of the cover to be plotted ex. ab00287]

Technical Note: This preliminary check creates a temporary coverage (tempcov/) in /savdata/epa/scratch/<user>/, where <user> is the username of the operator. If the <user> directory does not **exist in** the directory /savdata/epa/scratch, it must be created manually in UNIX (**mkdir <user>**).

1. The program will display the following lines and prompt you to enter four tics:
Creating /SAVDATA/EPA/SCRATCH/<USER>/TEMPCOV
Digitize a minimum of 4 tics (from digitizer).
Signal end of tic input with Tic-ID = 0
Tic-ID: [enter the four tics clockwise from the lower left corner]

2. You will then be prompted to enter an initial boundary:
Define the initial boundary
Enter the box: [enter two points on the map that define opposite corners of a square - the position of this square is irrelevant as the cover is discarded soon after it is plotted]

3. The plot will automatically be sent to the plotter (refer to the plotter instruction sheet).

II. FIRST CHECK - Check the plot against the original map by overlaying it on the digitizing board or a light table and comparing the SAV bed lines on the plot with those on the original map. Tic marks on the plot may not line up exactly with those on the original map; match to the closest edge. Use the comparator (eyepiece) with the millimeter grid scale to check for errors of the following magnitude:

A. *Paper maps* - 1 hectare (20 square mm, or 80 squares on the comparator) of continuous whitespace visible between the lines of the plot and the lines of the original paper map. Areas

should be overestimated where there is a question.

B. *Mylar maps* - 0.5 hectare (10 square mm, or 40 squares on the comparator) of continuous whitespace visible between the lines of the plot and the lines of the original paper map. Areas should be overestimated where there is a question.

Check the AB list (see *Check AB List, III*) and identify any area errors. If errors are present, they must be corrected (see *Correcting Errors, IV*). If no errors are present, continue to the second check (see *Second Check, V*).

III. CHECK AB LIST - Generate and check a list comparing digital area data with original Prime area data.

A. Generate an AB list to check the areas of the digital data with numbers from the original Prime data:

Arc: **&run abc <cover>** [<*cover*> is the name of the coverage you are working with - ex. &run abc ab00287)]

B. The list will be printed on the laser printer in the SAV Mapping Lab (savLP1).

C. The following constitutes area errors based on AB List numbers:
beds < 5ha: Percent difference of greater than 15%
beds 5ha-200ha: Area difference of greater than 1ha AND percent difference of greater than 1%
beds > 200ha: Area difference of greater than 5ha

Occasionally, due to an exceptionally small or large size of a bed, AB List will show an area error, but the plot will line up on the original map without an error. In this case, the plot should be considered correct, and a notation made on the AB list to that effect.

If no errors are present on the plot, or on AB list, check the NO EDITS NEEDED box on the change sheet, and give the plot, map, AB list, and change sheet to the second checker (see *Second Check V*). If errors are present, they must be corrected (see *Correcting Errors, IV*).

IV. CORRECTING ERRORS - errors in the historic data set should be corrected using the menu system developed for that purpose.

A. Make sure the plot to be corrected is firmly taped to the digitizing board.

B. From the "Arc:" prompt, run the stat_sav program (this step is not necessary if it was done at the beginning of the Arc session, and you have not exited from Arc since then), and start the menu system:

Arc: **&stat sav**

Arc: **&r go <year>** [<*year*> is the last two numbers of the year you are working with - ex. Arc: &run go 80].

Menu system for correcting historic SAV bed errors:

FILE

Get: Get a cover from the list of all covers for that year

Backcovs: Pick a cover to be a background cover (you shouldn't have to use this)

Command Line: Enter commands from the keyboard instead of menus (&return to go back to the menus)
New Year: Pick a new year to work with without having to go out and come back in again
Quit: Quit the system and return to the Arc: prompt

REGISTER TICS - Register the tics of the cover you are working with. ALWAYS DO THIS BEFORE BEGINNING EDITING!! Registration only needs to be done once for each sheet as long as the map isn't moved on the digitizing tablet, and as long as you don't leave Arc (you can leave Arcedit and then go back, but you can't leave Arc and then go back without re-registering the tics).

EDIT

Digitize Arcs: starts digitizing mode and waits for input from the digitizer
Edit Arcs: pops up a menu for editing arcs on the screen:
Done: ends Edit Arcs menu system (be sure to save first)
Save: saves changes
Draw: draws or re-draws the screen (same as Ctrl-r)
Oops: undoes the last command
Add: add arcs from the mouse instead of the digitizer.
Move: moves an arc - prompts you to select an arc, give a from point, and a to point.
Split: splits an arc - prompts you to select an arc, and then point to where to split it.
Del_one: delete one arc - prompts you to select an arc, an then deletes it
Del_many: delete many arcs - prompts you to select many arcs (9 to quit), and then deletes them
Del_pseudo: gets rid of those annoying extra green diamonds on the screen (leaves only one per polygon)
Extend: extends an arc to another (existing) arc - prompts you to select an arc to extend, and then the max. distance to search for an arc to extend to. The arc will always extend in a straight line to the closest arc within that distance.
Vert_drw: draws all the vertices of an arc - prompts you to select an arc, then draws all the vertices for that arc. Useful if you want to split an arc on a vertex.
Edit Labels: pops up a menu for editing labels and attributes:
Save: saves changes
Done: ends Edit Labels menu system (be sure to save first)
Draw: draws or re-draws the screen (same as Ctrl-r)
Add: add labels with the mouse.
Move: moves a label - prompts you to select a label, then give a from point and a to point.
Delete: deletes a label - prompts you to select a label, then deletes it.
Oops: undoes the last command
Label: assign a bed label to a label point - you shouldn't have to do this for any of the historic stuff.
Check Area: checks the area of a polygon - prompts you to enter the bed-id, then gives you the total area for that bed. You must have BUILDed the cover first.
Edit Attrib.: change the bed-id or Attributes field of label points - prompts you to select a label point, then gives you the current bed-id and attributes, then promts you to enter a new bed-id and attributes. These values must be typed in fully, even if one of the items hasn't changed.

SAVE

Saves any changes and then lets you resume editing.

BUILD

Builds the cover you are working on and saves the changes - this must be done before the bed areas are checked.

DRAW

Draws or re-draws the current cover on the screen (can also use Ctrl-r)

Common Arcedit commands (for editing from the "Arcedit:" command line)

coordinate mouse (coo mou) - enter input from the mouse and keyboard
coordinate digitizer (coo dig) - enter input from the digitizer

oops - undoes the last command - subsequent oops's will continue to un-do previous commands
save - save changes

editfeature (**ef**) **<feature>** - choose a feature to edit; **<feature>** is either arc or label
add - add a feature

select (**sel**) - select a feature
select many (**sel man**) - select many features (9 to quit selecting)
select all (**sel all**) - selects all the features in the cover
unselect (**unsel**) - remove a feature from the selected set
unselect many (**unsel man**) - remove many features from the selected set
unsel all (**unsel all**) - unselects all the selected features (i.e. no features are now selected)

(use the following commands after **select** to operate on the selected features)
delete - delete the selected feature(s)
move - moves the selected feature(s) - prompts for a from point and a to point
split - splits the selected feature at the specified point
extend (**ex**) - [editfeature must be arc] - extends the selected arc(s) in a straight line the specified distance.
list <item...item> - used after **select** to list the values of <item> of the selected features (ex. ***ef label***; ***select many; list bed-id area*** - lists the bed-ids and areas for the selected label points).

Technical Note: All corrections made in Arc/Info are applied to a copy of the original digital data file in the directory /savdata/epa/correct<year>. The original digital data file is located in the directory / savdata/epa/work<year>.

After all the corrections are made and the changes are saved, do the following:

A. Return to the "Arc:" prompt and run AB list to check area numbers (see *Run AB List, III*).
B. Make another check plot (see *Plot the Data, I*) and verify corrections against the original paper or mylar map.
C. When corrections are completed, give the change sheet, map, latest plot, and latest AB list to the second checker (see *Second Check, V*).

V. SECOND CHECK - The second checker's job is to check the final plot and AB list for errors that might have been missed, and to verify completion of the change sheet.

A. If errors are present on the plot or AB list, mark them on the change sheet, and return the whole bundle to the first checker for further corrections.
B. If no errors are present, enter initials and date on the change sheet, and mark the AB List Checked box.
C. The change sheet and AB list are then filed in the notebook provided for that purpose, and the quad is marked off on the "Final Check" inventory sheet.

ERROR DEFINITIONS

Source of
original map

SAV Report

1. Errors should be determined by the best judgement of the operator based on the position of the beds in relation to shoreline features of the map.
2. Mislabeled beds should be corrected with the right label definitions.

Paper Maps:

1. One hectare (approximately 20 square mm) of contiguous white space visible between the plot bed and the original map bed constitutes an error.
2. Small beds (1-5 ha) that are out of position by 1mm or more along their entire perimeter should also be corrected.
3. Beds less than one hectare in area should only be corrected if there is no overlap between the plot and the original map (i.e. the bed is entirely out of position).

Due to the deteriorated condition of the original paper maps, areas should be overestimated when there is a question.

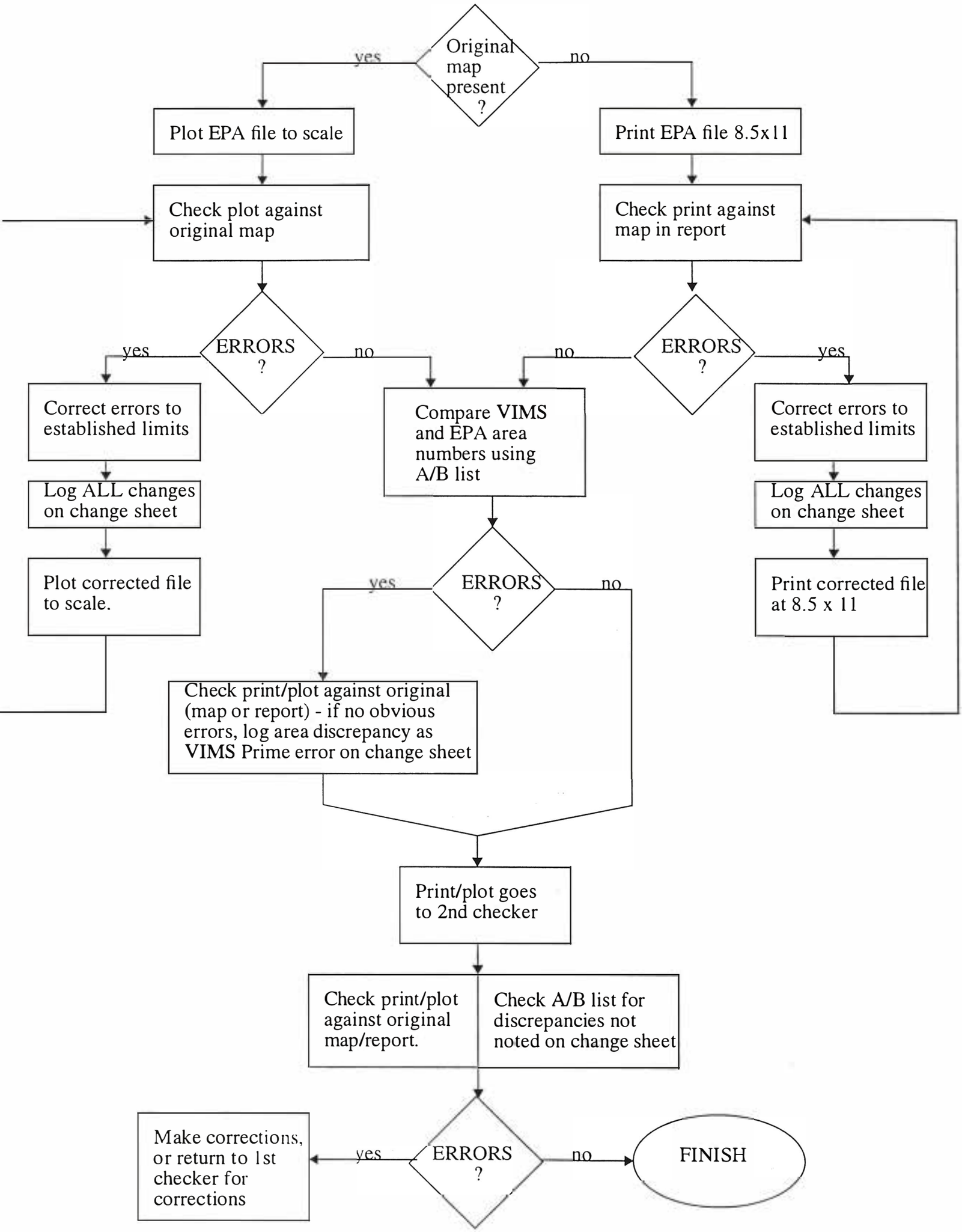
3. Mislabeled beds should be corrected with the right label definitions.

Mylar Maps:

1. Half a hectare (approximately 10 square mm) of contiguous whitespace visible between the plot bed and the original map bed constitutes an error.
2. Small beds (1-5 ha) that are out of position by 1mm or more along their entire perimeter should also be corrected.
3. Beds less than one hectare in area should only be corrected if there is no overlap between the plot and the original map (i.e. the bed is entirely out of position).

Areas should be overestimated when there is a question of whether there is an error or not.

3. Mislabeled beds should be corrected with the right label definitions.


Original map present ?
yes
no
Plot EPA file to scale
Print EPA file 8.5x11
Check plot against original map
Check print against map in report
ERRORS ?
yes
no
ERRORS ?
no
yes
Correct errors to established limits
Log ALL changes on change sheet
Plot corrected file to scale.
Compare VIMS and EPA area numbers using A/B list
Correct errors to established limits
Log ALL changes on change sheet
Print corrected file at 8.5 x 11
ERRORS ?
yes
no
Check print/plot against original (map or report) - if no obvious errors, log area discrepancy as VIMS Prime error on change sheet
Print/plot goes to 2nd checker
Check print/plot against original map/report.
Check A/B list for discrepancies not noted on change sheet
Make corrections, or return to 1st checker for corrections
ERRORS ?
yes
no
FINISH

Appendix B - SAV Edgematching System User Guide

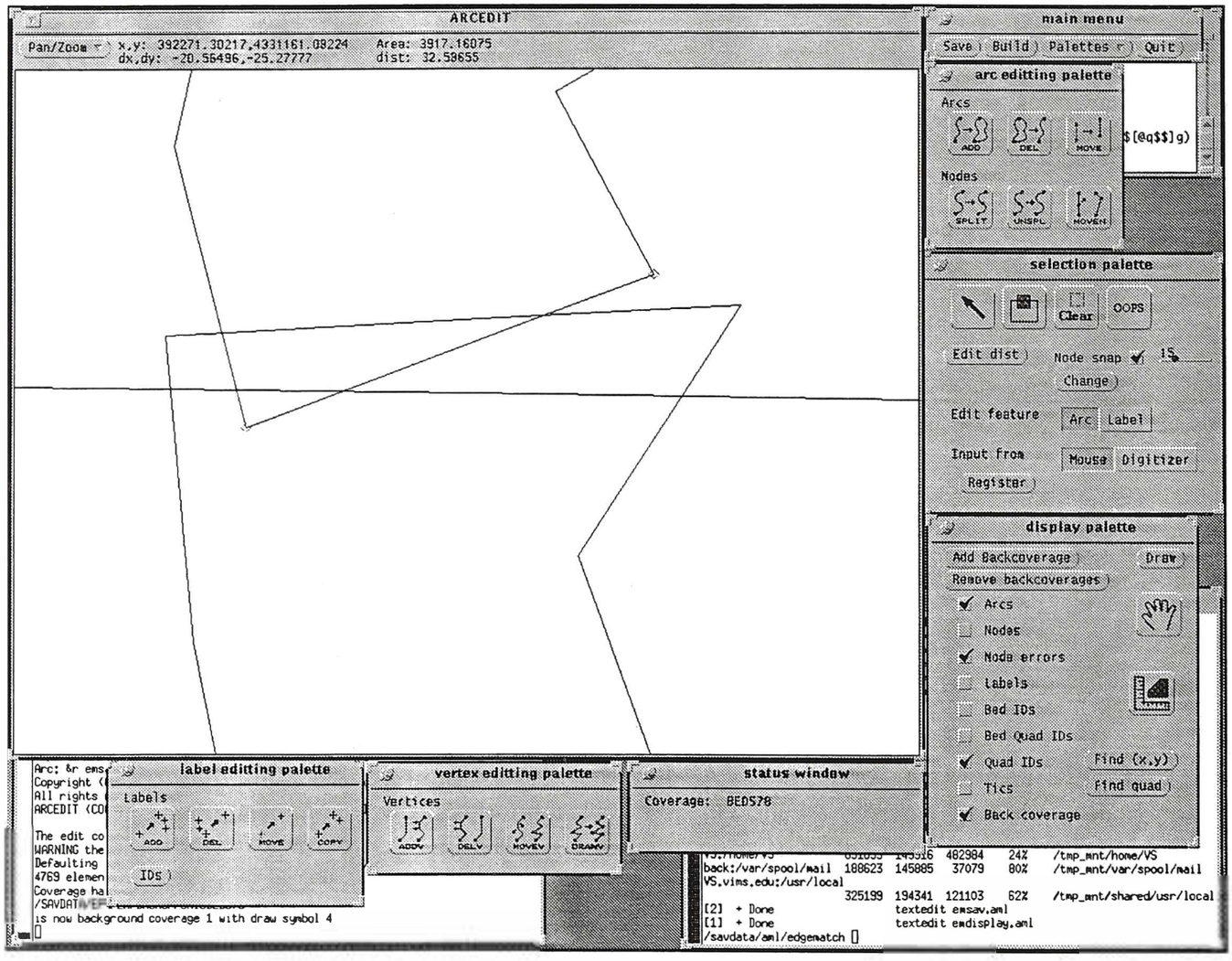


Figure 1. The Edgematching System with all the palettes shown

Contents

1. Starting the system

Start in a command window.

Change to the sav directory.
```
/sci0/jenny cd sav
```

* If you didn't just login, first type 'cd' to change to your home directory.
```
/sci0/jenny/em cd
/sci0/jenny cd sav
```

Start Arc/Info Version 7.
```
/sci0/jenny/sav arc7
```

Tell Arc/Info that we will be edgematching.
```
Arc: setupem
```

Start the edgematching system for year you are working on.
```
/sci0/jenny  &r emsav 90
```

This will bring up the edgematching system. (See Figure 1)

2. The edgematching procedure.

Through edgematching, we combine a year's worth of SAV quad maps, making sure that bed boundaries are consistent across quad boundaries. This is done by placing the beds from all the maps into a single file, adding the map boundaries, and correcting the beds that cross boundaries. The procedures outlined below help to keep track of progress and ensure that the minimum amount to change is made to the original digitized beds.

You will need two items to begin: a copy of the edgematching map and an edgematching check sheet. (Copies of these are attached to this instruction set.)

Start the system as outlined in the previous section.

Type Control-E in the map window to zoom to the northern-most quads.

* Other movement options are:

Ctrl O Zoom out from the center
Ctrl I Zoom in to the center
Ctrl E Zoom in to a box
Ctrl A Pan (move the screen center to the point indicated)

Click on the Node errors box on the display palette. (This makes nodes easier to see and highlights any dangles that may occur).

Make sure to pay attention to the textual dialogue from Arc/Info at the bottom of the screen. If

any function is not working as expected, this dialogue may contain an error message indicating what's wrong.

Select a quad boundary and use the movement keys to scan along it for beds.

If a bed crosses the boundary (or should cross the boundary but doesn't), fix it according the instructions outlined in the next section.

Once the boundary section has been completely fixed (or if it has no beds), use a highlighter to mark it off on the edgematching map.

Select another border and do it again until the map is finished.

After each session, save, quit, and make a backup copy.

```
Arc:  &r embackup 90
```

3. Edgematching a bed.

There are three types of beds that need to be edgematched.

A) Beds that can be fixed without referring to the map.

B) Beds that can be fixed after referring to the map.

C) Beds that need additional input.

To identify which category a bed falls into, first identify the points on the border where the beds should intersect. This is done by locating where the two sides currently cross the boundary and splitting the distance between them. If a bed doesn't cross the border, visually extend the side of the bed to cross the border and use that location instead to find the new crossing (see Figure 2). Next measure how far each of the corners is from this point. (Click the left button on one end, move the arrow to the other end, and read off the distance from the top of the screen. See Figure 3)

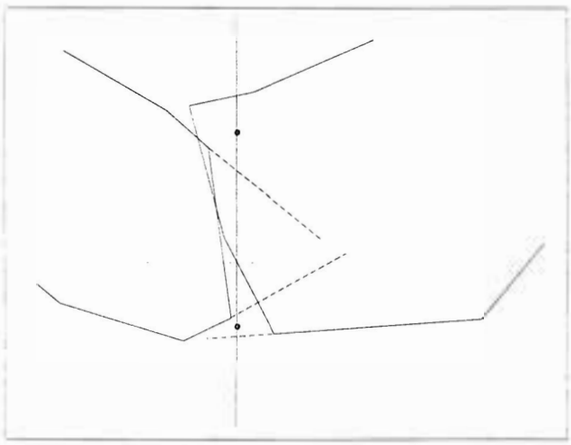


Figure 2. Finding the new crossing points

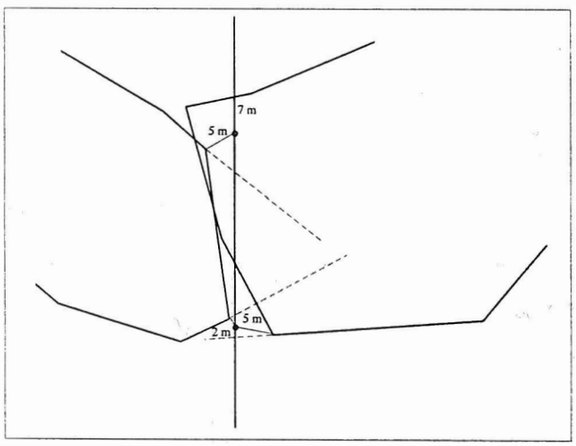


Figure 3. Measuring distances

* Many beds are curved at the edge. Instead of creating a small dent in the bed, extend the

straight side.

If all of the corners are within 15 meters from the new point, just fix them on the screen. (See Figure 4.)

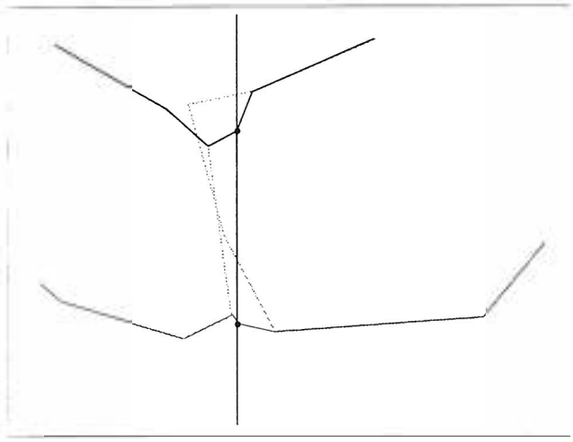


Figure 4. Edgematched beds.

If any of the corners are farther than 15 meters, pull out the maps and check to see if the beds line up on the maps. If so, and the corners are within 20 meters, digitize a small line to identify where the crossing should be and snap the corner to it. If the corners are greater than 20 meters away from the crossing, redigitize the minimum amount of the bed necessary to match the beds. (Remember that these beds should have already been fixed to somewhat match the originals, so make the smallest changes possible!)

If the beds do not line up on the maps, put the map aside and ask the photo-interpreter to take a look at it. When he has time to look at them, make sure that he adjusts the maps so that they do edgematch. Be careful to take into account the quality of the original maps. Adjacent maps may not line up exactly! Also, use L brackets as the map corners if they exist.

4. Special cases

A. A portion of a bed overlaps the edge, but there is no bed on the other side.

If the bed extends at least 15 meters over the edge and the portion over the bed is bigger than 500 meters squared (0.05 hectares), add it to the adjacent quad as a new bed. Otherwise, remove the portion that extends over the border. (See Figure 5.)

* To measure area click on the L-shaped ruler under the hand on the display palette. The use the left button to draw a polygon around the area. Press Control-Right button to close the polygon and read the answer from the textual dialogue.

B. A corner extends over the edge.

If the length of edge between the two lines of the corner is less than 5 meters, move the corner to the middle of the edge. Otherwise, delete the portion of the corner that extends over the edge. (See Figure 6.)

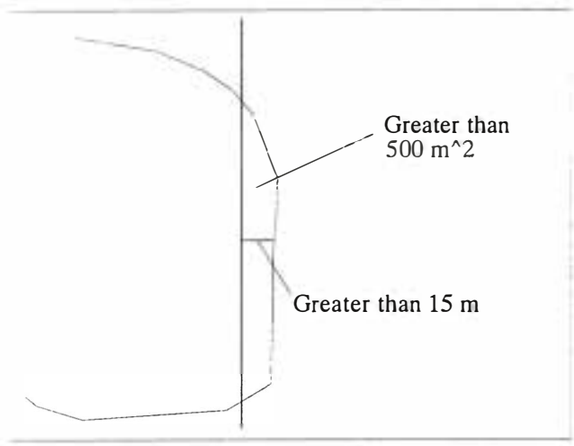


Figure 5. When to make a new bed.

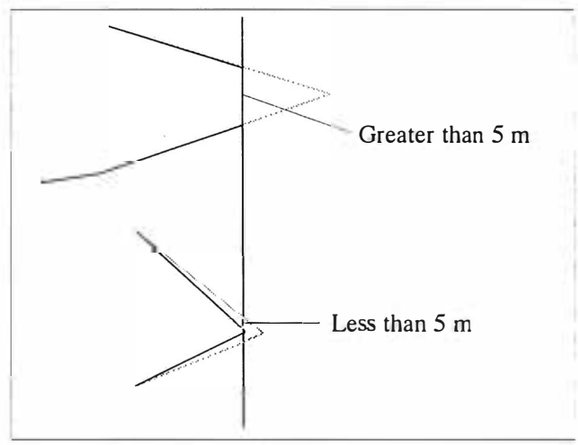


Figure 6. Fixing a corner

5. How to fix it.

A. Fixing a bed on the screen.

Check the selection palette to make sure that input is from the mouse and that the edit feature is arc.

Press the split button on the arc editing palette.

* Note that the split function is new and improved! You no longer have to select the line first and now you can keep splitting until you hit Control-Right Button.

Press the left mouse button to split the bed lines and edge where necessary. If possible split the lines so that a dangle remains for you to work with. (See Figure 7). This will minimize the effect on the rest of the bed.

Press the right mouse button while holding down the control key to stop splitting (you can also hit a '9' on the keyboard).

Press the arrow on the selection palette.

Select all the line pieces that should be deleted with the left button.

Press the right mouse button while holding down the control key to stop selecting (you can also hit a '9' on the keyboard).

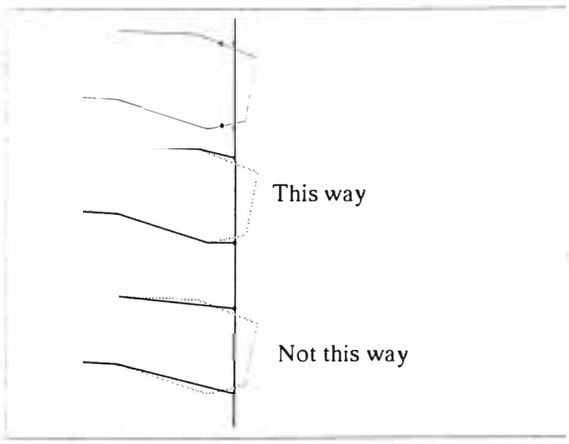


Figure 7. Where to split the lines.

Press the delete key on the arc editing palette to delete the lines that have been selected

Press the move node (MOVEN) button on the arc editing palette.

Press the left button on the endpoint that you want to move.

* If the endpoint is not blackened, press the middle button until either the endpoint is blackened or Arc/Info tells you "No more points to select." If you get this message, try making the edit distance smaller.

When the endpoint is selected, hold the shift key down and press the left button (or press '4' on the keyboard).

Point to the place to move the endpoint to and press the left button.

* If you get a dangle, try setting the node snap distance larger or zooming in. If it jumps to another node, try setting the node snap distance smaller.

Continue within the move function (no need to exit) until all endpoints have been moved.

Press the right mouse button while holding down the control key to stop selecting (you can also hit a '9' on the keyboard).

* Make sure that the quad boundaries are within 0.5 m of the original lines in the background. (Make sure that 'back coverage' is checked on the display palette.) If the border has moved, snap it back to match the original.

Press the save button on the main menu after each quad, or every 15 minutes, whichever comes first.

B. Fixing a bed on the digitizer.

Click on 'input from digitizer' on the selection palette to switch from the mouse to the digitizer.

Type the name of the map in the box when prompted.

Use the digitizer to enter the tics to register the map.

```
Tic: 1E1
Tic: 2E1
Tic: 3E1
Tic: 4E1
Tic: OE
```

If the RMS error is above 0.004 for mylar maps or 0.010 for paper maps, press the register button and re-register.

Use the add button on the arc editing menu to add new arcs. Minimize the amount digitized. In many cases, just digitize a short arc to indicate where the crossing should be and then snap the arcs on the screen to this point. **If you digitize more than 100 meters of bed, plot the quad using '&r emplot <quad>' or '&r emfitplot <quad>' at the Arc: prompt.**

Click on 'input from mouse' when you are done adding to switch back to the mouse.

6. What to put on the check sheet

Only make a note on the check sheet if a correction exceeded the 15 meter threshold. Be sure to indicate which beds (two letter codes are fine) were affected on both quads. Therefore most corrections should be documented in two places. A bed that was corrected without needing additional input could be noted: 'Bed AA digitized to match bed ZA on 135.' A bed that required additional input could be noted: 'Bed AA adjusted by JJ was digitized to match bed ZA on 135.' If a plot was required, write 'Plotted' on the check sheet.

7. What do all the buttons do?

The edgematching system provides buttons for many functions that are used seldomly in edgematching. They are arranged into seven palettes based on function.

Main Menu - The main menu provides the basic file functions, pulls up any of the palettes if they get closed, and lets you escape the system.

Arc Editing Palette - The arc editing palette provides the line editing functions.

Selection Palette - The selection palette lets you select features and adjust the edit distance, node snap and input device.

Label editing palette - The label editing palette provides the label editing functions.

Vertex Editing Palette - The vertex editing palette provides the vertex editing functions to manipulate the shape of a line.

Display Palette - The Display palette controls what is visible on the display and provides the area calculator. Most changes will not take effect until after the draw button is pushed.

Status window - The status window notifies you of errors and keeps track of the which year is being edited.