



Backgrounder

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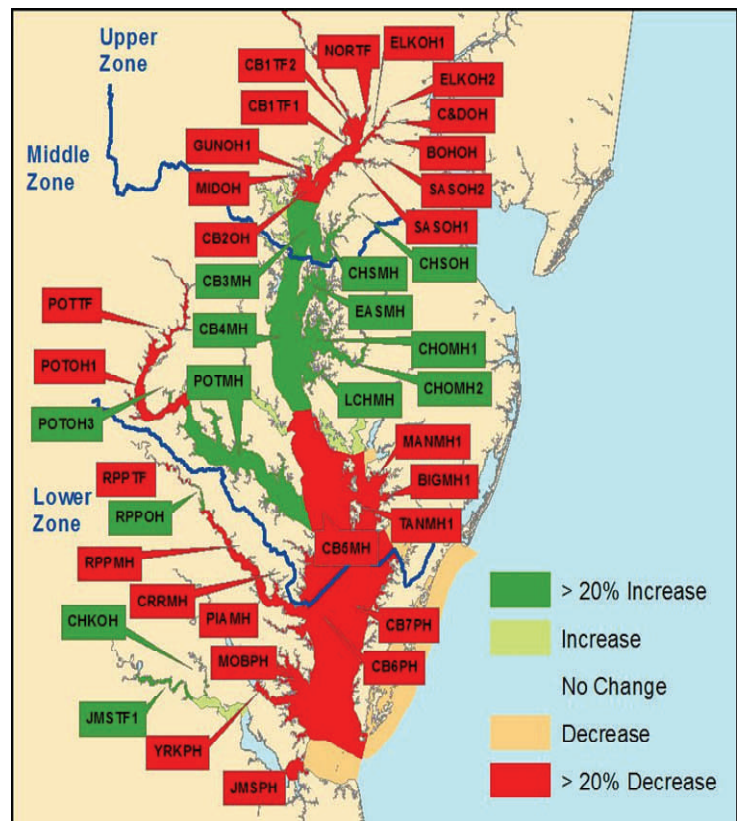
Underwater Bay Grasses in the Chesapeake Bay and Rivers in 2011

In 2011, 57,956 acres of underwater bay grasses in Chesapeake Bay and its tributaries were mapped via aerial survey. However, while the entire Bay was flown, some portions of the Bay were not mapped since SAV signatures were masked by excess turbidity present months after the passage of Hurricane Irene and Tropical Storm Lee.

The regions that were not mapped are contained within nine CBP segments including: the Middle, Upper and Western Branch of the Patuxent River, the Middle and Upper Potomac River, Piscataway Creek and the Anacostia River. In 2010, these areas had 5,393 acres of SAV (or 7% of the 2010 total). Based on the 2010 figure, an estimate of 5,119 additional acres have been added to reach the 2011 estimated Bay-wide total of 63,074 acres — a 21 percent (16,590 acre) decrease from 79,675 acres in 2010. All direct comparisons to previous years in this report are restricted to only those regions that were mapped in both 2010 and 2011.

The 16,590 acre decrease in Bay-wide SAV coverage in 2011 follows a 6,249 acre decrease in 2010. It reflects strong declines in the Upper (8,066 acres) and Lower (7,221 acres) Bay zones, with a smaller decline in the Middle Bay zone (1,305 acres). Losses in the Lower Bay zone reflect the dieback of eelgrass in 2010 due to the extremely high summertime temperatures that occurred after these areas were surveyed. A resurgence of widgeon-grass, particularly in Eastern Bay and the Choptank River helped to offset the loss of eelgrass in the Middle Bay zone. Freshwater SAV species in the Upper Bay were strongly affected by Hurricane Irene and Tropical Storm Lee which increased river flow and sediment loads in this region for almost two months.

Bay grass distribution was mapped from black and white aerial photographs that were taken between May and December 2011, at a scale of 1:24,000, encompassing 173 flight lines.



UPPER BAY ZONE

- (21 CBP segments extending from the Chesapeake Bay Bridge north)
- SAV decreased 38% from 21,353 acres in 2010 to 13,287 acres in 2011.
- **Three of the 21 segments increased** by at least 20 percent and by at least 12 acres from 2010 totals:
 - ↑ 279% Upper Central Chesapeake Bay 203 acres (2010) vs. 769 (2011)
 - 237% Lower Chester River 84 acres (2010) vs. 284 (2011)
 - 100% Middle Chester River 0 acres (2010) vs. 17 acres (2011)
- **Twelve of the 21 segments decreased** by at least 20 percent and by at least 12 acres from 2010 totals:
 - ↓ 41% Northern Chesapeake Bay Segment 1 845 acres (2010) vs. 497 acres (2011)
 - 36% Northern Chesapeake Bay Segment 2 13,272 acres (2010) vs. 8,478 acres (2011)
 - 53% Northeast River 227 acres (2010) vs. 109 acres (2011)
 - 94% Elk River Segment 1 1900 acres (2010) vs. 116 acres (2011)
 - 94% Elk River Segment 2 474 acres (2010) vs. 30 acres (2011)
 - 74% Bohemia River 210 acres (2010) vs. 54 acres (2011)
 - 100% Chesapeake & Delaware Canal 15 acres (2010) vs. 0 acres (2011)
 - 28% Upper Chesapeake Bay 581 acres (2010) vs. 420 acres (2011)
 - 46% Sassafras River Segment 1 783 acres (2010) vs. 423 acres (2011)
 - 26% Sassafras River Segment 2 126 acres (2010) vs. 94 acres (2011)
 - 42% Gunpowder River Segment 1 857 acres (2010) vs. 492 acres (2011)
 - 53% Middle River 657 acres (2010) vs. 311 acres (2011)
- One of the 21 segments remained Unvegetated in 2011.

Acres of SAV: Upper Zone		
Segment	2010	2011
Northern Chesapeake Bay		
<i>Northern Chesapeake Bay Segment 1</i>	<i>845.96</i>	<i>496.91</i>
<i>Northern Chesapeake Bay Segment 2</i>	<i>13272.75</i>	<i>8,479.33</i>
Northeast River	228.38	108.31
Elk River		
<i>Elk River Segment 1</i>	<i>1900.72</i>	<i>115.47</i>
<i>Elk River Segment 2</i>	<i>475.29</i>	<i>29.48</i>
Bohemia River	208.93	53.89
Chesapeake & Delaware Canal	15.74	0.00
Upper Chesapeake Bay	581.43	421.22
Sassafras River		
<i>Sassafras River Segment 1</i>	<i>783.59</i>	<i>421.82</i>
<i>Sassafras River Segment 2</i>	<i>127.01</i>	<i>93.51</i>
Bush River	236.11	278.49
Gunpowder river		
<i>Gunpowder River Segment 1</i>	<i>857.03</i>	<i>492.91</i>
<i>Gunpowder River Segment 2</i>	<i>872.97</i>	<i>893.15</i>
Middle River	658.28	311.83
Back River	0.02	10.58
Upper Central Chesapeake Bay	202.58	767.45
Patapsco River	0.00	3.63
Magothy River	1.75	7.86
Lower Chester River	84.12	283.48
Middle Chester River	0.00	17.94
Upper Chester River	0.00	0.00
UPPER ZONE TOTALS	21,352.63	13,287.25

MIDDLE BAY ZONE

- (51 segments south of the Bay Bridge to the Rappahanock River and Pocomoke Sound)
- SAV decreased 4 percent from 12,162 acres in 2010 to 28,749 acres in 2011.

- **Seven of the 44 segments (or mapped portions) increased** by at least 20 percent and by at least 12 acres from 2010 totals:

↑	100%	Middle Central Chesapeake Bay	0 acres (2010) vs. 69 acres (2011)
	287%	Eastern Bay	423 acres (2010) vs. 1,633 acres (2011)
	599%	Mouth of the Choptank River	405 acres (2010) vs. 2,827 acres (2011)
	100%	Lower Choptank River	0 acres (2010) vs. 44 acres (2011)
	179%	Little Choptank River	171 acres (2010) vs. 477 acres (2011)
	78%	Lower Potomac River	208 acres (2010) vs. 368 acres (2011)
	559%	Middle Potomac River Segment 3	7 acres (2010) vs. 35 acres (2011)

- **Six of the 44 segments (or mapped portions) decreased** by at least 20 % and by at least 12 acres from 2010 totals:

↓	26%	Lower Central Chesapeake Bay	2,829 acres (2010) vs. 2,088 acres (2011)
	22%	Tangier Sound Segment 1	13,571 acres (2010) vs. 10,623 acres (2011)
	39%	Manokin River Segment 1	872 acres (2010) vs. 534 acres (2011)
	29%	Big Annemessex River Segment 1	949 acres (2010) vs. 672 acres (2011)
	25%	Middle Potomac River Segment 1	3,778 acres (2010) vs. 2,829 acres (2011)
	23%	Upper Potomac River	1,475 acres (2010) vs. 1,132 acres (2011)

- Fifteen of the 44 segments remained unvegetated in 2011.

Acres of SAV: Middle Zone		
Segment	2010	2011
Middle Central Chesapeake Bay	0.00	68.18
Eastern Bay	421.69	1,633.00
Mouth of the Choptank River	404.12	2,825.90
Lower Choptank River	0.00	44.73
Middle Choptank River	0.00	0.00
Upper Choptank River	0.00	0.00
Little Choptank River	170.85	476.63
Severn River	174.78	192.18
South River	0.00	0.00
Rhode River	0.00	0.00
West River	0.00	0.00
Lower Central Chesapeake Bay		
Lower Central Chesapeake Bay (MD)	432.07	701.30
Lower Central Chesapeake Bay (VA)	2398.57	1,386.86
Honga River	2174.82	2,592.53
Fishing Bay	138.48	156.45

**Acres of SAV: Middle Zone
(Continued)**

Lower Nanticoke River	0.00	0.00
Middle Nanticoke River	0.00	0.00
Upper Nanticoke River	0.00	0.00
Wicomico River	0.00	0.00
Tangier Sound		
<i>Tangier Sound Segment 1</i>	7907.40	6,141.25
<i>Tangier Sound Segment 1</i>	5663.22	4,482.48
<i>Tangier Sound Segment 2</i>	4.65	3.36
Manokin River		
<i>Manokin River Segment 1</i>	871.16	534.08
<i>Manokin River Segment 2</i>	12.90	6.57
Big Annemessex River		
<i>Big Annemessex River Segment 1</i>	949.22	671.42
<i>Big Annemessex River Segment 2</i>	0.00	1.16
Lower Pocomoke River		
<i>Lower Pocomoke River (MD)</i>	151.45	133.27
<i>Lower Pocomoke River (VA)</i>	1932.50	1,598.31
Middle Pocomoke River	0.00	0.00
Upper Pocomoke River	0.00	0.00
Lower Patuxent River		
<i>Lower Patuxent River Segment 1</i>	17.89	21.57
<i>Lower Patuxent River Segment 2</i>	0.00	0.00
<i>Lower Patuxent River Segment 3</i>	0.00	0.00
<i>Lower Patuxent River Segment 4</i>	0.00	0.00
<i>Lower Patuxent River Segment 5</i>	0.00	0.00
<i>Lower Patuxent River Segment 6</i>	0.00	0.00
Middle Patuxent River	66.15	0.00
Upper Patuxent River	147.94	0.00
Western Branch of the Patuxent River	1.26	0.00
Lower Potomac River		
<i>Lower Potomac River (MD)</i>	207.18	364.61
<i>Lower Potomac River (VA)</i>	0.00	4.10
Middle Potomac River		
<i>Middle Potomac River Segment 1 (MD)</i>	1060.79	727.05
<i>Middle Potomac River Segment 1 (VA)</i>	2912.07	2,102.68
<i>Middle Potomac River Segment 2 (MD)</i>	136.92	84.81
<i>Middle Potomac River Segment 3 (MD)</i>	82.11	232.90
Upper Potomac River		
<i>Upper Potomac River (DC)</i>	61.11	0.00
<i>Upper Potomac River (MD)</i>	1883.99	468.08
<i>Upper Potomac River (VA)</i>	3778.06	663.49
Mattawoman Creek	759.91	704.39
Piscataway Creek	522.96	0.00
Anacostia River (DC)	0.00	0.00
MIDDLE ZONE TOTALS*	35,446.20	29,023.34

*NOTE: Portions of the middle zone were not fully mapped in 2011 due to excess turbidity in the fall. Estimated additional acreage in this zone is 5,119 based on acreages mapped last year.

LOWER BAY ZONE (28 segments south of Rappahannock River and Pocomoke Sound to mouth of the Bay)

- SAV decreased 32 percent from 22,865 acres in 2010 to 15,645 acres in 2011.
- **Three of the 28 segments increased** by at least 20% and by at least 12 acres from 2010 totals:
 - ↑ 313% Middle Rappahannock River 5 acres (2010) vs. 22 acres (2011)
 - 41% Chickahominy River 764 acres (2010) vs. 1080 acres (2011)
 - 35% Upper James River Segment 1 398 acres (2010) vs. 536 acres (2011)
- **Nine of the 28 segments decreased** by at least 20% and by at least 12 acres from 2010 totals:
 - ↓ 39% Western Lower Chesapeake Bay 531 acres (2010) vs. 324 acres (2011)
 - 41% Eastern Lower Chesapeake Bay 7,495 acres (2010) vs. 4,426 acres (2011)
 - 47% Lower Rappahannock River 1,470 acres (2010) vs. 781 acres (2011)
 - 68% Corrotoman River 571 acres (2010) vs. 183 acres (2011)
 - 32% Upper Rappahannock River 445 acres (2010) vs. 299 acres (2011)
 - 60% Piankatank River 489 acres (2010) vs. 195 acres (2011)
 - 29% Mobjack Bay 8,123 acres (2010) vs. 5,768 acres (2011)
 - 45% Lower York River 625 acres (2010) vs. 346 acres (2011)
 - 51% Mouth of the James River 477 acres (2010) vs. 235 acres (2011)

- Eleven of the 28 segments remained unvegetated in 2011.

Acres of SAV: Lower Zone		
Segment	2010	2011
Western Lower Chesapeake Bay	530.62	324.58
Eastern Lower Chesapeake Bay	7494.90	4,424.68
Lower Rappahannock River	1471.05	779.85
Corrotoman River	571.22	183.03
Middle Rappahannock River	5.44	22.39
Upper Rappahannock River	444.18	300.09
Piankatank River	488.14	194.92
Mobjack Bay	8123.44	5,766.31
Lower York River	625.44	345.31
Middle York River	0.00	0.00
Lower Mattaponi River	0.00	0.00
Upper Mattaponi River	493.01	507.81
Lower Pamunkey River	0.00	0.00
Upper Pamunkey River	937.46	897.53
Mouth of the James River	477.24	234.56
Lower James River	0.00	0.00
Lower Elizabeth River	0.00	0.00
Western Branch of the Elizabeth River	0.00	0.00
South Branch of the Elizabeth River	0.00	0.00
Eastern Branch of the Elizabeth River	0.00	0.00
Lafayette River	0.00	0.00
Chickahominy River	764.26	1,080.44
Middle James River	18.85	30.10
Upper James River	0.00	
Upper James River Segment 1	396.88	536.50
Upper James River Segment 2	0.00	0.00
Appomattox River	0.00	0.00
Mouth of the Chesapeake Bay	8.11	4.92
Lynnhaven & Broad Bays	15.02	12.01
LOWER ZONE TOTALS	22,865.26	15,645.05