

# Chesapeake Bay Oyster Population Estimation

Monitoring Program: BASINS

State: VIRGINIA

Year: 2006

## Basins in Virginia

For convenience and ease of data presentation, the Chesapeake Bay tributaries in Virginia waters have been grouped into "Basins". The Basins used for Virginia in this project include: Potomac tributaries (includes Nomini Creek, Coan River, Yeocomico River), Great/Little Wicomico, Rappahannock (includes Corrotoman River), Piankatank, York/Mobjack Bay (includes East, North, Severn, Ware, and Perrin Rivers), Poquoson/Back, James (includes Elizabeth, Lafayette, and Nansemond Rivers), Lynnhaven, and Eastern Shore/Tangier (includes Tangier and Pocomoke Sounds as well as all tributaries on the Bay side of Virginia's Eastern Shore.)

## Data Types and Notes

**Note that bushels are reported as VIRGINIA bushels.** A Virginia bushel is 3003.9 cubic inches and thus differs from a US bushel (2150.4 cubic inches) or a Maryland bushel (2800.7 cubic inches).

**A. Fishery Independent data:** These data are primarily from the patent tong survey conducted jointly by the Virginia Marine Resources Commission and the Virginia Institute of Marine Science. A hydraulic patent tong deployed from the R/V *J.B. Baylor* collects a 1 m<sup>2</sup> sample of oysters and bottom material at each sampling location. The Lynnhaven River system was surveyed by Dr. Mark Luckenbach and Mr. P.G. Ross of the VIMS Eastern Shore Laboratory during 2005. Oyster populations in the Lynnhaven system were 1% of the estimated statewide grand totals for oyster abundance and biomass in 2005. Numbers and biomass for the Lynnhaven system in 2006 were estimated as 1% of the total numbers and biomass from all other categories in the absence of survey data.

### B. Fishery Dependent data

**NOTE: The data presented for Fishery Dependent Data are the total numbers available as of 2/8/2008. These data are NOT the final totals for 2006. These data will be updated again after the total numbers for 2006 are available.**

**B1. Public/Commercial effort** - The total number of bushels of oysters landed within the state of Virginia during 2006 as reported by commercial fishermen is estimated. These data were obtained from the Virginia Marine Resources Commission on 2/8/08. One bushel of oysters was assumed to contain 500 market oysters. A market oyster is 3 inches or 76 mm from its beak to its hinge (shell length).

**B2. Private effort** - The total number of bushels of oysters landed within the state of Virginia during 2006 as reported by private leaseholders is presented. These data were obtained from the Virginia Marine Resources Commission on 2/8/2008. One bushel of oysters was assumed to contain 500 market oysters. A market oyster is 3 inches or 76 mm from its beak to its hinge (shell length).

### C. Restoration Efforts

**C1. Reefs - unexploited sanctuaries** - These data are from annual dive surveys conducted on constructed oyster reefs by the Virginia Marine Resources Commission. For biomass (g dry tissue) calculations, shell lengths of 30, 50, and 76 mm were assigned to oyster spat, small oysters, and market oysters, respectively.

**C2. Replenishment - exploited shell plants and three dimensional structures** - These data are from the annual replenishment reports produced by the Virginia Marine Resources Commission Shellfish Replenishment program. Each year, the number of seed oysters per bushel is estimated by using the average number of oysters per bushel at the seed sources as determined by the VMRC annual dredge survey in that year. Seed oysters are assumed to have shell lengths of 40 mm.

### D. Oyster Aquaculture

**D1. Oyster gardening/planting** - Data on oyster planting activities by the Chesapeake Bay Foundation are provided courtesy of Mr. Tommy Leggett and the Chesapeake Bay Foundation and detail oyster planting by citizens, agencies, and the Chesapeake Bay Foundation on constructed reefs in Virginia waters. Biomass (g dry tissue) calculations assumed shell lengths between 15 and 60 mm depending upon the oyster source. This category also includes oysters planted on sanctuary reefs in the Great Wicomico River during 2006 as part of ongoing native oyster restoration efforts by the Virginia Institute of Marine Science, the Virginia Marine Resources Commission, NOAA Chesapeake Bay Office, Chesapeake Bay Foundation and the U.S. Army Corps of Engineers (see [www.vims.edu/mollusc/NORM](http://www.vims.edu/mollusc/NORM) for additional details).

# Chesapeake Bay Oyster Population Estimation - Basins

State: VIRGINIA

Year: 2006

	Potomac	Great/Little Wicomico	Rappahannock	Piankatank	York/Mobjack Bay	Poquoson/Back	James	Lynnhaven	Eastern Shore/Tangier		
<b>A. Fishery Independent survey</b>											
Average number of oysters/m2		181	14.3	25.5			62.4	#	45.3		
Average oyster biomass/m2		20.4	4.1	4.5			31.9	#	9.4		
Number of reefs surveyed		18	43	9			23		14		
Acres surveyed		80	508.7	180.3			5956		170		
Number of samples		133	301	100			421		101	1.66E+09	8.01E+08
<b>B. Fishery Dependent survey</b>											
<b>B1. Public/Commercial effort</b>											
Public VA landings (bushels x 1000)	35									1.75E+04	1.49E+04
<b>B2. Private effort</b>											
Private VA landings (bushels x 1000)	15									7.50E+03	6.39E+03
<b>C. Restoration efforts</b>											
<b>C1. Reefs/unexploited sanctuaries</b>											
Average number of oysters/m2	134	597	371	275	130	87	950	744	603		
Average oyster biomass/m2	86.7	178.7	94.1	54.7	51.7	31.2	373.3	306.2	125.5		
Number of reefs surveyed	6	2	14	4	4	2	10	8	9		
Acres surveyed	3	3	14	5	2.5	2	10	7.5	8.5	1.19E+08	3.92E+07
<b>C2. Replenishment/exploited ground</b>											
Average number of oysters/m2	65.9		80.9								
Average oyster biomass/m2	27.8		34.1								
Number of reefs surveyed	3		1								
Acres surveyed	22		6							7.84E+06	3.30E+06
<b>D. Oyster Aquaculture</b>											
<b>D1. Oyster gardening/planting</b>											
Total number of oysters/m2	139.6	593.3	1746	374.7	648.6	2.0	6.3	110.9	348.6		
Total oyster biomass/m2	5.48	539.3	139.7	14.71	52.71	1.1	3.4	19.4	56.9		
Number of reefs surveyed	1	3	2	2	2	1	6	3	1		
Acres surveyed	0.5	4	2	3	1.5	1	4	3	2	3.68E+07	1.11E+07
<b>Grand total number of oysters</b>										1.82E+09	
<b>Grand total oyster biomass</b>										8.55E+08	

# Numbers and biomass for Lynnhaven in 2006 were estimated as 1% of the total numbers and biomass from all other categories in the absence of survey data.