



Department of the Environment

Mapping of Clean Water State Revolving Fund Projects in Maryland

Andrew D. Sawyers, Ph.D.

Program Administrator

**Maryland Water Quality Financing
Administration (MWQFA)**





Maryland Water Quality Financing Administration (MWQFA)

MWQFA is responsible for the financial management of the following capital financing programs totaling more than ~\$225 Million annually:

1. Water Quality State Revolving Loan Fund (\$80M)
2. Drinking Water State Revolving Loan Fund (\$15M)
3. Bay Restoration (Wastewater) Fund (\$120M)
4. Bay Restoration (Septic) Fund (\$6M)
5. 2010 Trust Fund Non-Point Source Program (\$6M)





SRF Management in Maryland

- **Maximize loan and grant funds to attain and/or maintain compliance by financing upgrades to water & wastewater treatment plants and other eligible water quality and drinking water projects consistent with the Federal Clean Water Act and the Federal Safe Drinking Water Act**
- **MDE has identified that 66 Major WWTPs accounts for over 95% of the wastewater flow that discharges into the Chesapeake Bay**
- **Upgrades to the 66 facilities are estimated to reduce nitrogen loading to the Chesapeake Bay and its tributaries by 7.5 million pounds annually (~1/3 of the Chesapeake 2000 agreement goals) and ENR upgrades are currently estimated to cost \$1.2 billion**





SRF Management in Maryland

- **Reduction of non-point source pollution will contribute to reaching the Chesapeake 2000 agreement goals**
- **CWSRF objectives management tied strongly to a state WQ goal**
- **State Cap on the maximum nitrogen amount going into the Chesapeake Bay**
- **Facilities discharging into the Bay have CWSRF priority ranking**
- **Water Quality Limits Plan based on watersheds - State is divided into eight watershed sections**
- **MD mapped the watershed boundaries, streams within the watersheds, and WQ monitoring station**



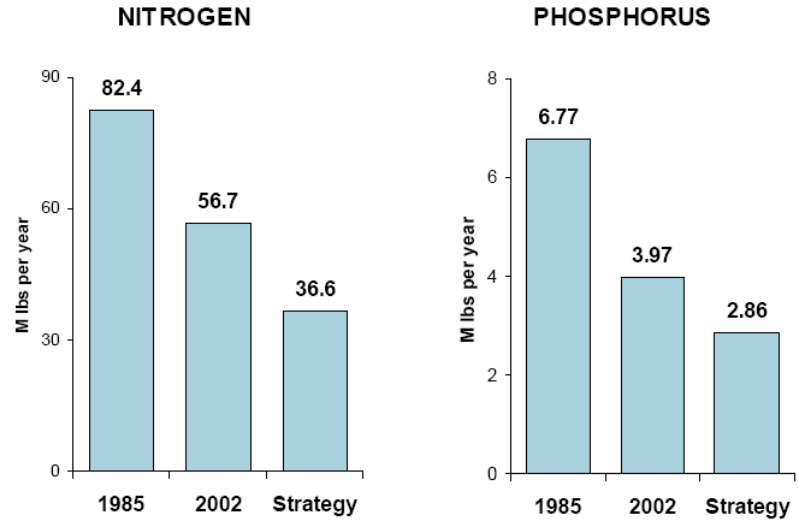
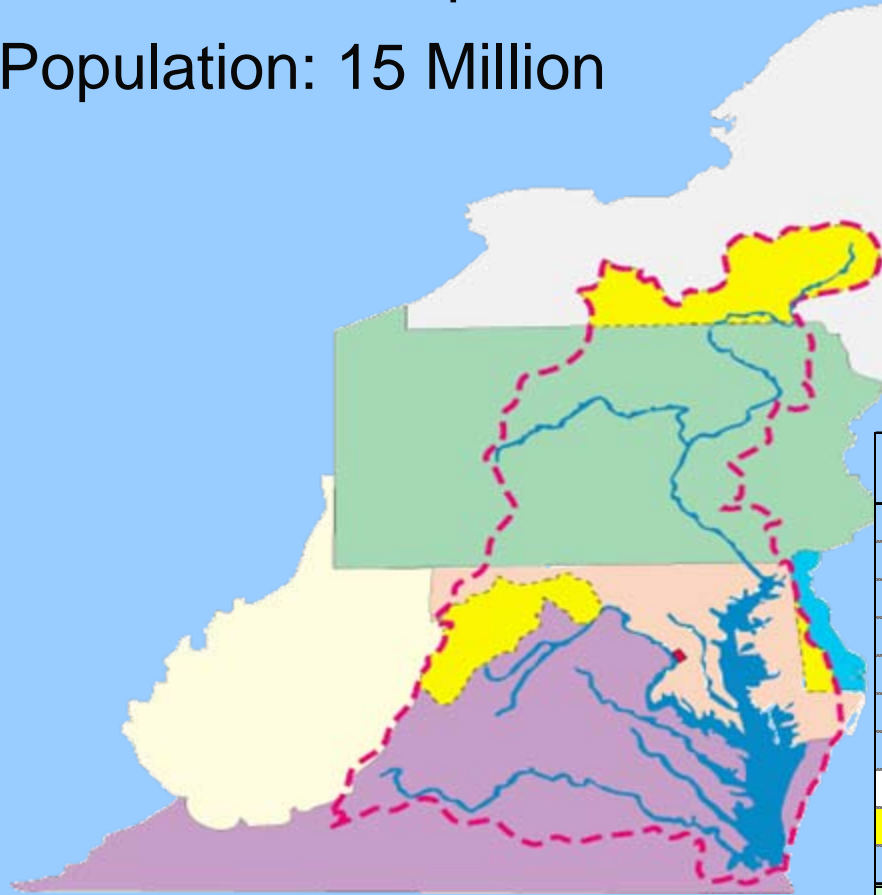


Chesapeake Bay Watershed

States: 6 States & Washington DC

Area: 64,000 Square Miles

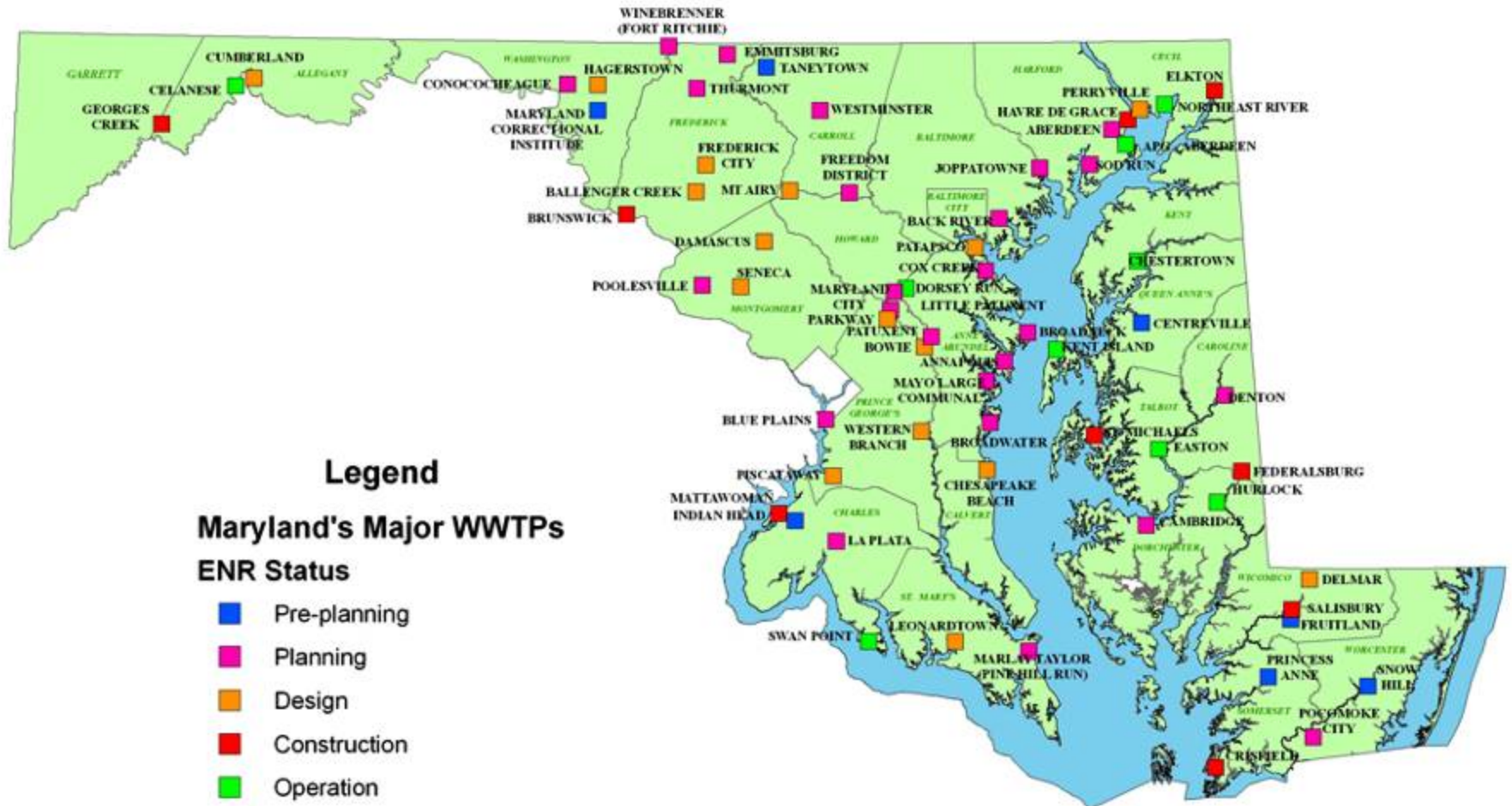
Population: 15 Million



| | Nitrogen Allocation (million pounds/year) | Phosphorus Allocation (million pounds/year) |
|-------------------------|--|--|
| PENNSYLVANIA | 72 | 2.3 |
| MARYLAND | 37 | 2.0 |
| VIRGINIA | 51 | 6.0 |
| DISTRICT OF COLUMBIA | 2 | 0.3 |
| NEW YORK | 13 | 0.6 |
| DELAWARE | 3 | 0.3 |
| WEST VIRGINIA | 5 | 0.4 |
| SUBTOTAL | 183 | 12.8 |
| CLEAR SKIES REDUCTION | -8 | |
| BASIN-WIDE TOTAL | 175 | 12.8 |

Maryland's Major Wastewater Treatment Plants

Current ENR Status



Martin O'Malley, Governor
 Anthony G. Brown, Lt. Governor
 Shari T. Wilson, Secretary
 Robert M. Summers, Ph.D., Deputy Secretary



Map Date -- 18 July 2008 Rev. 5

Click on map dots to view benefits of the project



SRF Management in Maryland

- 1. Reductions in plant loadings from a CWSRF project are linked to water quality improvements. For every CWSRF loan, MD tracks:**
 - Estimated current loadings**
 - Estimated loadings with advanced treatment**
 - Estimated loadings reductions associated with the CWSRF loan (calculated using a standard formula)**
- 2. Website map shows project status of all wastewater treatment plants discharging into the Bay**
- 3. CWSRF funds improvements at 60 of the 66 discharging plants**

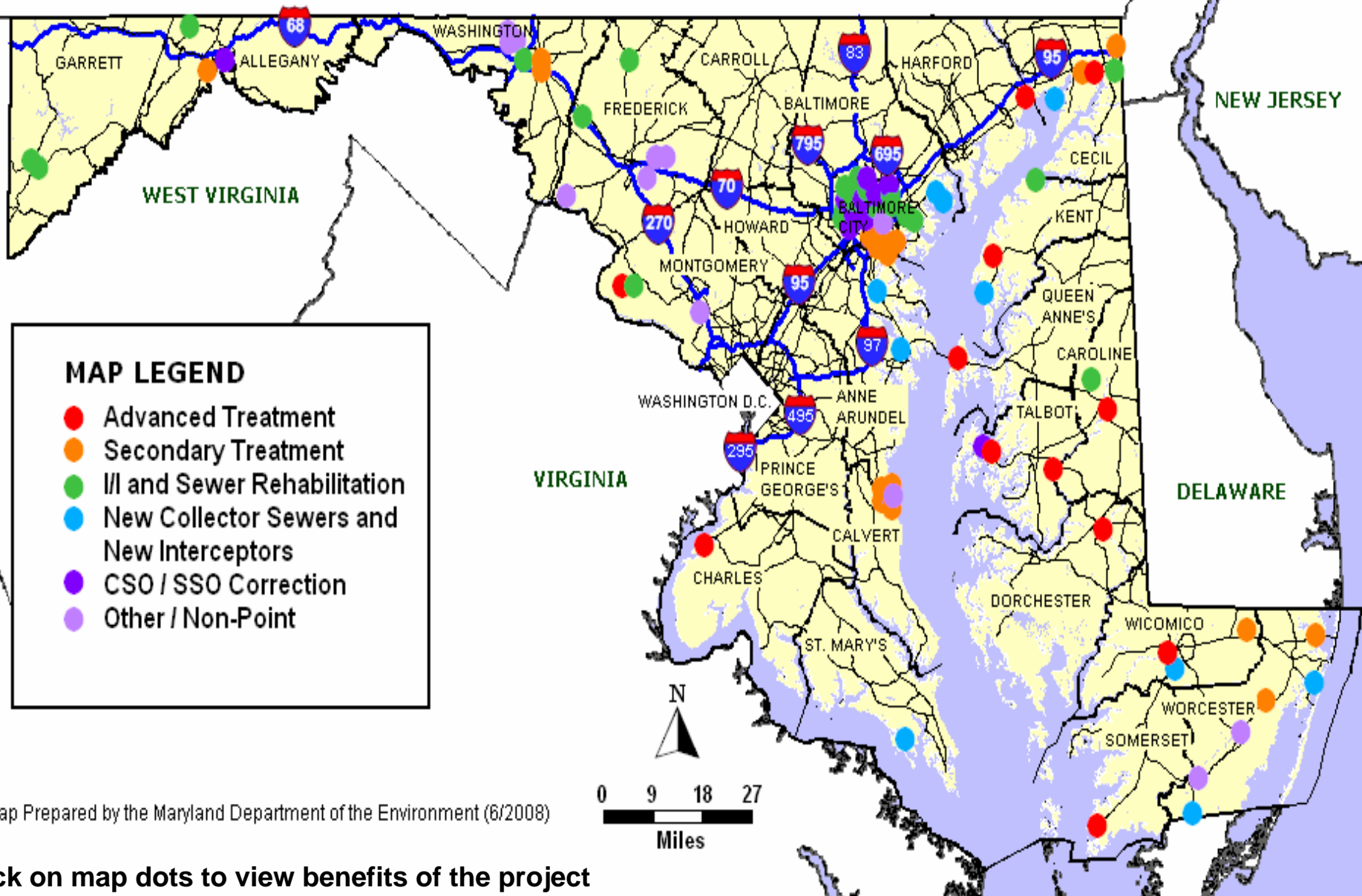




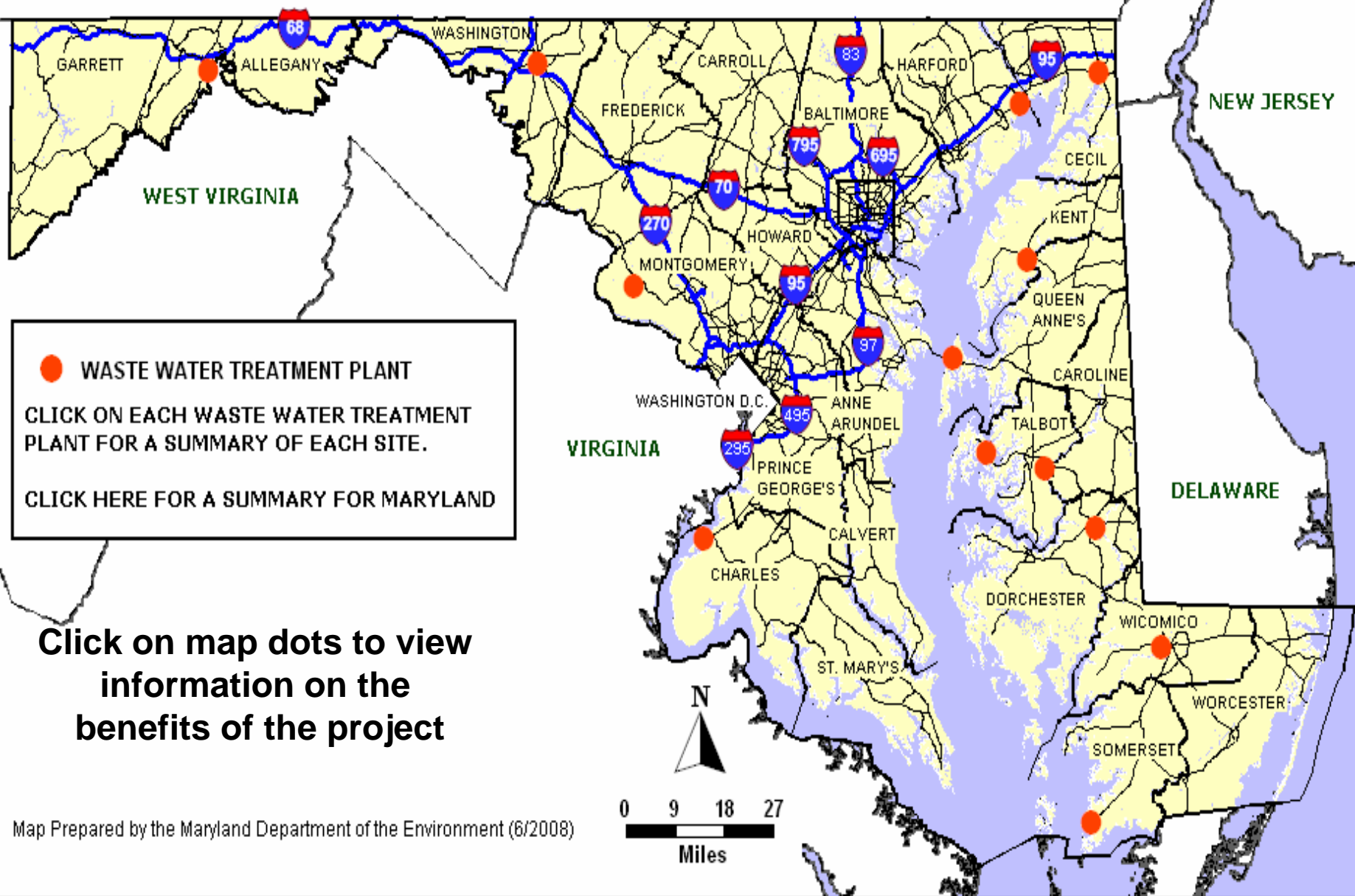
MD STATE REVOLVING LOAN FUNDING OF ENHANCED NUTRIENT REDUCTION PROJECTS

| ENR Project Names | SRF Loan Amount | Approved Design Capacity (mgd) | Est. Total Nitrogen (TN) without ENR. (lbs/yr.) | Total Approved TN After ENR. (lbs/yr) |
|--------------------------------------|-----------------------|--------------------------------|---|---------------------------------------|
| Hurlock WWTP BNR/ENR Upgrade | \$ 2,734,552 | 1.650 | 90,410 | 20,101 |
| Poolesville WWTP BNR Upgrade | \$ 1,250,000 | 0.725 | 39,745 | 9,137 |
| Easton WWTP BNR/ENR Upgrade | \$ 20,523,191 | 4.000 | 219,175 | 48,729 |
| Hagerstown WWTP BNR Phase II | \$ 7,100,000 | 8.000 | 438,350 | 97,458 |
| Kent Narrows WWTP ENR upgrade | \$ 18,252,291 | 3.000 | 164,381 | 36,547 |
| Crisfield WWTP BNR/ENR Upgrade | \$ 582,573 | 1.000 | 54,794 | 12,182 |
| Salisbury WWTP BNR/ENR Upgrade | \$ 42,009,341 | 8.500 | 465,747 | 103,549 |
| Indian Head WWTP BNR/ENR Upgrade | \$ 3,614,028 | 0.500 | 27,397 | 6,091 |
| St. Michaels WWTP BNR/ENR Upgrade | \$ 8,258,799 | 0.660 | 36,164 | 8,040 |
| Chestertown WWTP ENR Upgrade | \$ 3,452,160 | 0.900 | 49,314 | 18,273 |
| Elkton WWTP BNR/ ENR Upgrade | \$ 22,022,000 | 3.200 | 175,340 | 37,156 |
| Havre de Grace WWTP ENR/BNR Upgrade | \$ 26,328,354 | 3.300 | 180,820 | 27,715 |
| Celanese Waste Water ENR/BNR Upgrade | \$ 800,000 | 1.660 | 90,958 | 24,364 |
| Total | \$ 156,927,289 | 37.10 | 2,032,595 | 449,342 |

CLEAN WATER STATE REVOLVING FUND PROJECTS IN MARYLAND FISCAL YEARS 2005, 2006, 2007 and 2008



SRF AND ADVANCED NITROGEN TREATMENT FOR THE FISCAL YEARS 06, 07, 08





PROJECT FACTS & BENEFITS



Facts About...

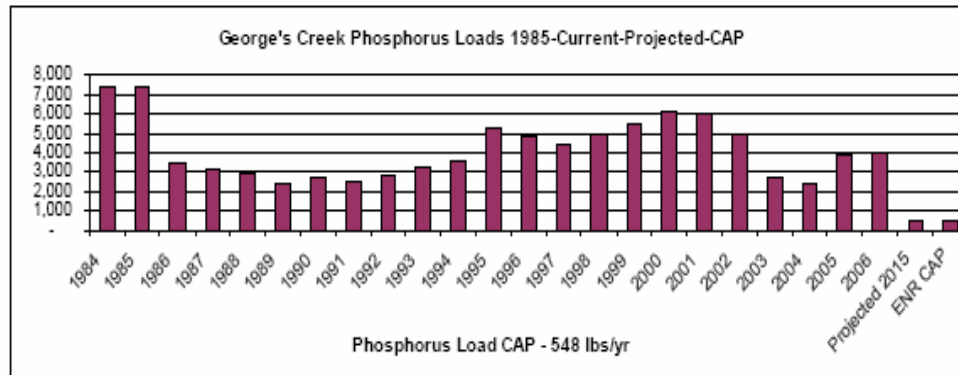
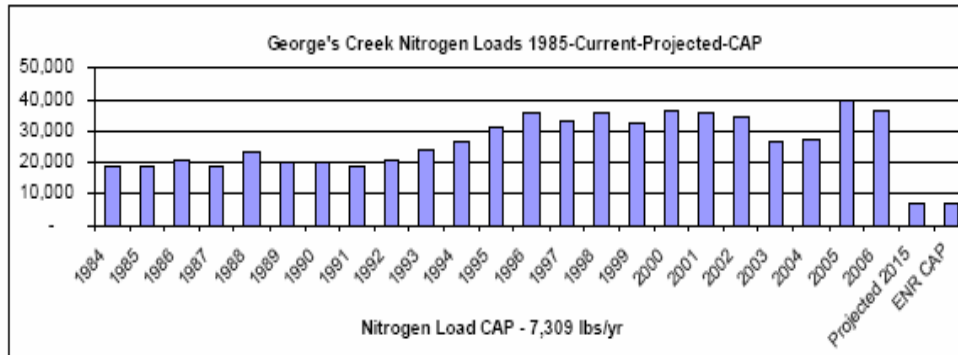
George's Creek Wastewater Treatment Plant

Facts About...

George's Creek Wastewater Treatment Plant Upgrade

PROJECT DESCRIPTION: The project involves upgrading the existing 0.6 million gallons per day (mgd) George's Creek Wastewater Treatment Plant (WWTP) with Biological Nutrient Removal (BNR) and Enhanced Nutrient Removal (ENR) technology. Upon completion of the upgrade, this WWTP will be capable of achieving an effluent with Total Nitrogen goal of 3 mg/l and a Total Phosphorus goal of 0.3 mg/l

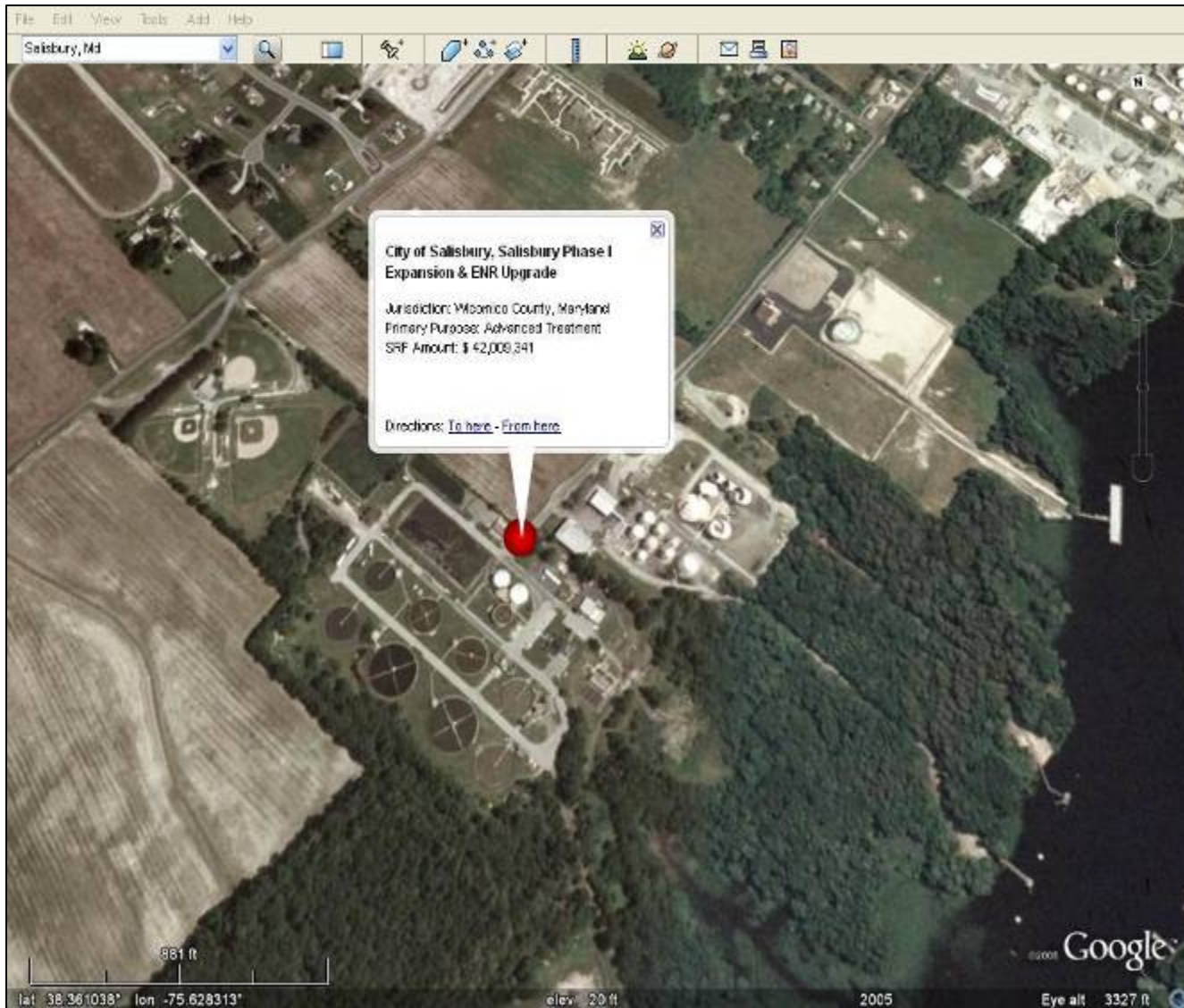
| | |
|---|-------------------|
| COUNTY: | Allegheny |
| JURISDICTION: | Allegheny DPW |
| LEGISLATIVE DISTRICT: | 1A |
| RECEIVING STREAM/BODIES OF WATER: | George's Creek |
| 8-DIGIT TRIBUTARY BASIN: | 02141004 |
| ESTIMATED POPULATION SERVED: | 7,000 people |
| CURRENT DESIGN CAPACITY (mgd): | 0.6 |
| PLANNED CAPACITY EXPANSION (mgd): | None at this time |
| TOTAL NITROGEN LOAD CAP (lbs/yr): | 7,309 |
| TOTAL PHOSPHORUS LOAD CAP (lbs/yr): | 548 |
| MILESTONES (future dates are subject to change): | |
| BNR/ENR Planning Start | 2002 |
| BNR/ENR Design Start | 2005 |
| BNR/ENR Construction Start | 2008 |
| BNR/ENR Construction Completion | 2009 |
| CURRENT ESTIMATED ENR PROJECT COST: | \$10,430,000 |



FOR MORE INFORMATION ABOUT THIS PROJECT, PLEASE CALL (410) 537-3717



Aerial Views of Specific Sites available using Google Earth – Salisbury WWTP

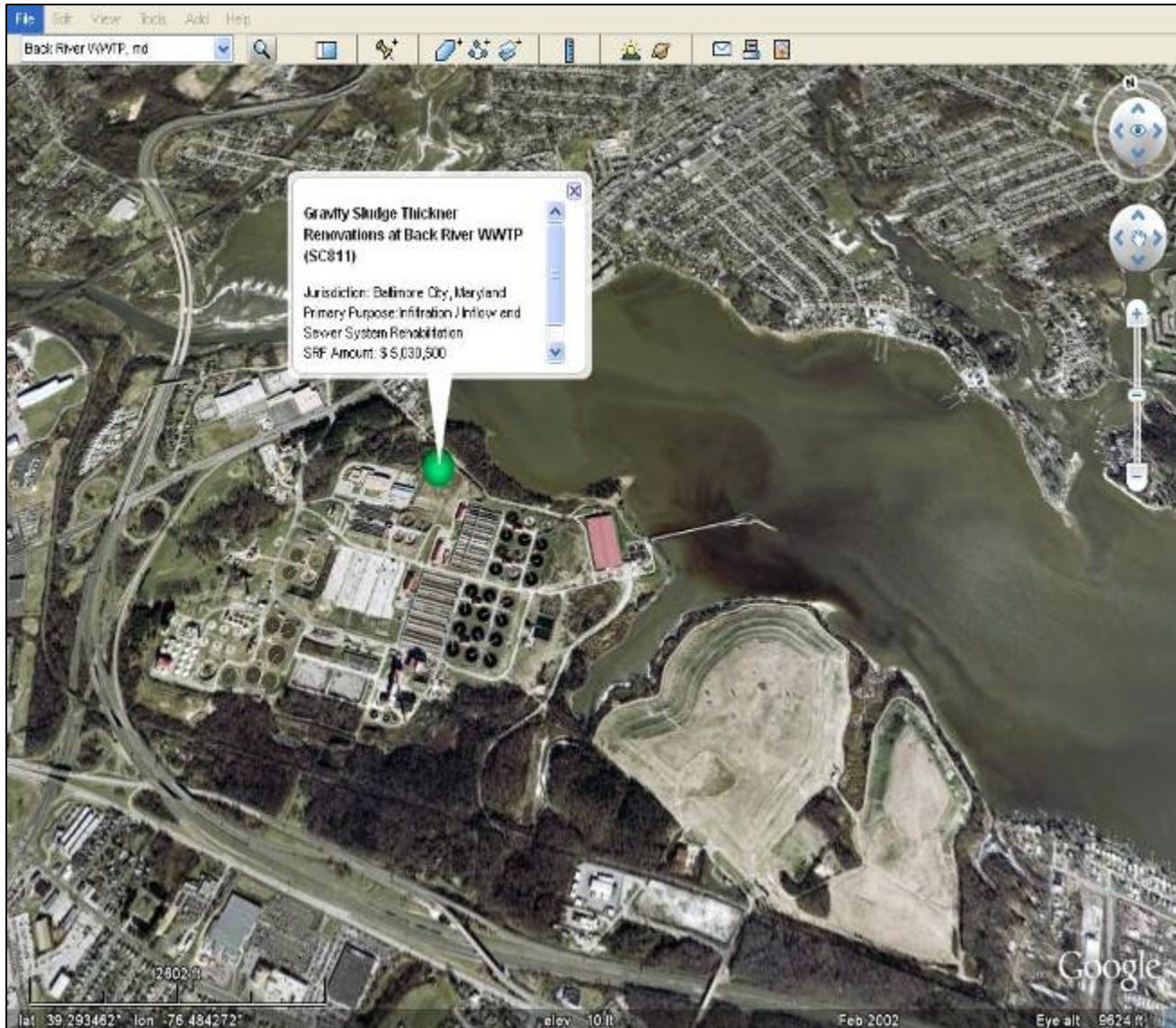


Latitude & Longitude coordinates of each site allows quick display of specific sites





Aerial Views of Specific Sites available using Google Earth



Latitude & Longitude coordinates of each site allows quick display of specific sites



MARYLAND BAY STAT EIGHT WATERSHED SECTIONS REPORT CARD

Future CW Benefits Integration

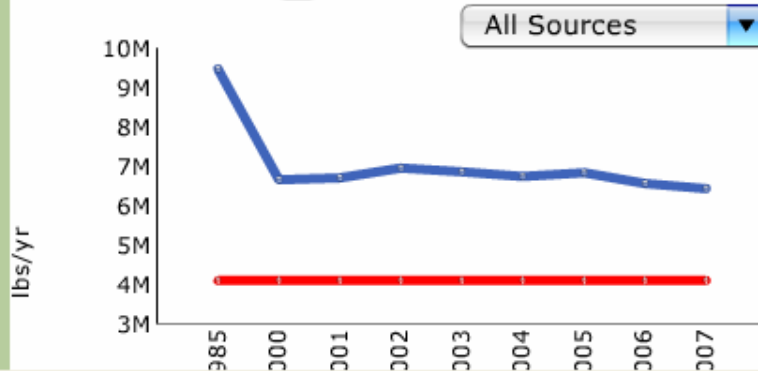


Current Health

Problem Sources

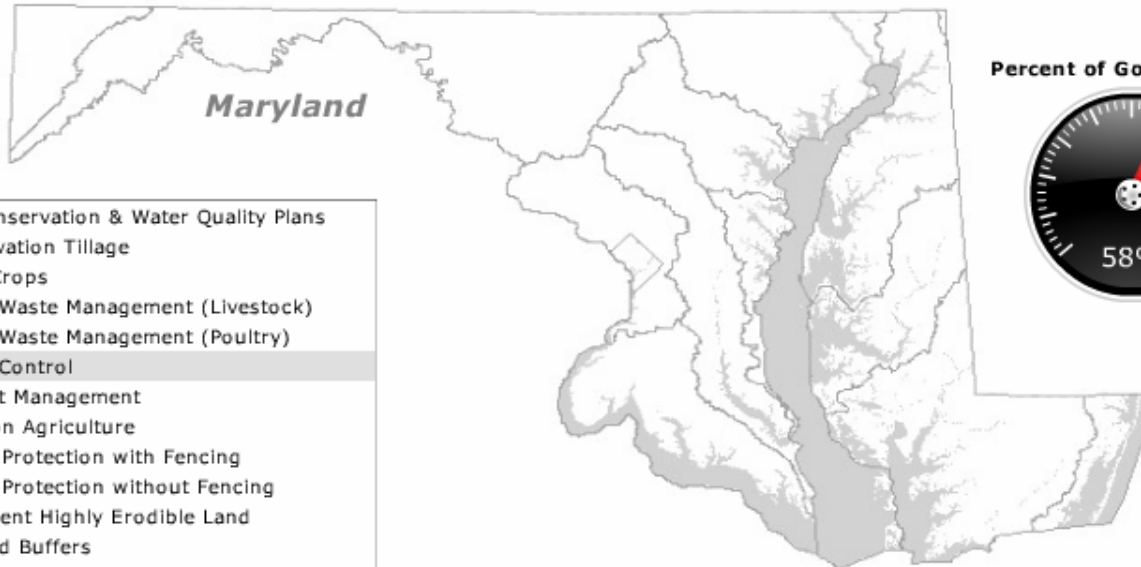
Solutions

If you cannot see the graph below, click here to download the Adobe Flash Player



Nitrogen: The primary nutrients polluting the Chesapeake Bay are nitrogen and phosphorous. High amounts of these nutrients increase the growth of algae. Algae become so abundant that the color of the water turns brownish or greenish. Sunlight is blocked from reaching other plants. When the algae die and decompose, oxygen dissolved in the water is used. Often, so much oxygen is used by decomposing algae that fish and other animals must move to areas with more oxygen. Plants and animals that cannot move may die.

MARYLAND BAY STAT EIGHT WATERSHED SECTIONS REPORT CARD Future CW Benefits Integration



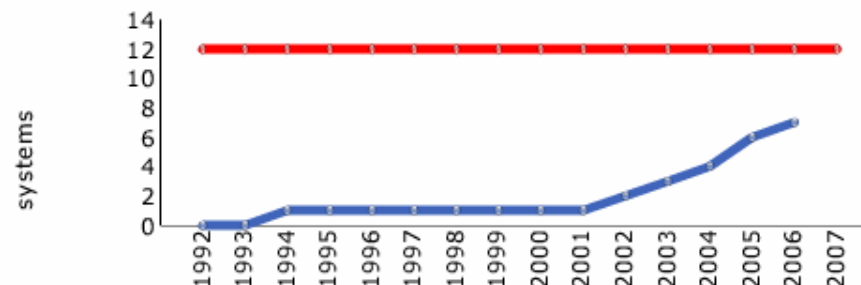
Percent of Goal Achieved



- Soil Conservation & Water Quality Plans
- Conservation Tillage
- Cover Crops
- Animal Waste Management (Livestock)
- Animal Waste Management (Poultry)
- Runoff Control**
- Nutrient Management
- Precision Agriculture
- Stream Protection with Fencing
- Stream Protection without Fencing
- Retirement Highly Erodible Land
- Forested Buffers
- Grassed Buffers
- Tree Planting
- Wetland Restoration
- Manure Transport
- Horse Pasture Management
- Stormwater Management
- Erosion & Sediment Control
- Septic Connections
- Septic Denitrification
- Land Conservation
- Forest Conservation
- Shore Erosion Control - Hardening
- Shore Erosion Control - Wetland Creation & Air Programs
- Point Sources - Enhanced Nutrient Removal

Lower Eastern Shore

*Click here for more information about
Runoff Control*





Strategic Use Maryland

- Tool for outreach, marketing & promotion
- Displays statewide project distribution
- Visual for legislators and policy-makers
- Provide statewide data to interested citizens
- Assist with targeting watersheds
- Provides interactive real time benefits data
- Provides framework for Bay Stat integration



Questions\Issues\Discussion

Andrew D. Sawyers, Ph.D.
Program Administrator
(MWQFA)
Asawyers@mde.state.md.us
410 537 3119