

CHESAPEAKE BAY COMMISSION 2015

POLICY FOR THE BAY

# THE COMMISSION IN ACTION 2015



FOR 25 YEARS, RETIRED SEN. BERNIE FOWLER HAS WADED INTO THE PATUXENT RIVER EACH YEAR TO MEASURE WATER CLARITY. FOWLER IS THE MARYLAND CITIZEN REPRESENTATIVE

CHESAPEAKE BAY PROGRAM



MARYLAND DEL. TAWANNA GAINES BRINGS UNDERS OF APPROPRIATIONS TO HER WORK WITH THE COM



DAVE HARRP

MEMBERS CONSIDER DATA SHOWING SOME RIVERS IMPROVING BUT OTHERS DEGRADING



PENNSYLVANIA SEN. RICH ALLOWAY (TH CENTRAL PENNSYLVANIA



DAVE HARRP

GEOLOGIST ROBERT WALTER POINTS OUT DELETERIOUS EFFECTS OF HISTORIC MILL DAMS TO PENNSYLVANIA REPS. KEITH GILLESPIE AND MIKE STURLA AND AGRICULTURE SECRETARY RUSSELL REDDING



DAVE HARRP

DAVE HARRP

MARYLAND'S DNR SECRETARY MARK BELTON AND SEN. NANCY KING LEARN THE IMPORTANCE OF FISHERIES STOCK ASSESSMENTS

2015 CO



DAVE HARP



DAVE HARP

MARYLAND DEL. BARBARA FRUSH, CITIZEN REPRESENTATIVES WARREN ELLIOTT (PA.) AND JOHN REYNOLDS (VA.), PENNSYLVANIA DIR. MAREL KING AND NAVY CAPT. PAT RIOS COMPARE STORMWATER CONTROL OPTIONS



(THIRD FROM RIGHT) ORGANIZED 200 VOLUNTEERS TO PLANT 1,147 TREES THROUGHOUT SOUTH



VIRGINIA FOREVER

VIRGINIA SEN. EMMETT HANGER PRESENTS KEYNOTE ADDRESS AT VIRGINIA FOREVER'S ANNUAL MEETING



COMMISSION CHAIRMAN SCOTT LINGAMFELTER



PENNSYLVANIA REP. MIKE STURLA, EXECUTIVE DIRECTOR ANN SWANSON, VIRGINIA DEL. SCOTT LINGAMFELTER AND MARYLAND DEL. MAGGIE MCINTOSH MODEL "LEAST-COST" OPTIONS TO REDUCE POLLUTION

DAVE HARP

# A BROAD PERSPECTIVE

## MARYLAND



SENATOR "MAC" MIDDLETON  
CHAIRMAN

## PENNSYLVANIA



REPRESENTATIVE GARTH EVERETT  
VICE-CHAIR

## VIRGINIA

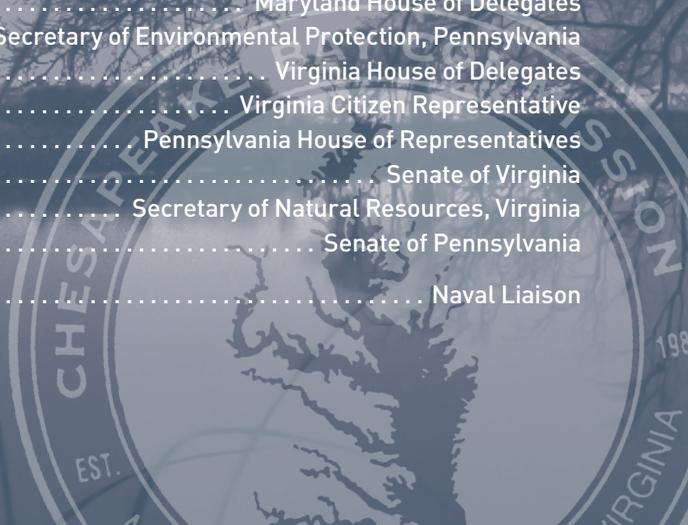


DELEGATE SCOTT LINGAMFELTER  
VICE-CHAIR

Throughout the Commission's 35-year history, its members have worked in partnership to address the Chesapeake Bay's management challenges, relying on a careful scientific understanding of the Bay's restoration needs to overcome differences of party, background and culture in their home districts. This multi-disciplinary policy perspective and statesmanship are among the Commission's greatest strengths.

## 2016 MEMBERS

- ❖ The Hon. Thomas McLain "Mac" Middleton, *Chairman* ..... Maryland State Senate
- ❖ The Hon. Garth D. Everett, *Vice-Chair* ..... Pennsylvania House of Representatives
- ❖ The Hon. L. Scott Lingamfelter, *Vice-Chair* ..... Virginia House of Delegates
  
- The Hon. Richard L. Alloway II ..... Senate of Pennsylvania
- The Hon. Mark J. Belton ..... Secretary of Natural Resources, Maryland
- The Hon. David L. Bulova ..... Virginia House of Delegates
- The Hon. G. Warren Elliott ..... Pennsylvania Citizen Representative
- The Hon. Bernie Fowler ..... Maryland Citizen Representative
- The Hon. Barbara A. Frush ..... Maryland House of Delegates
- ❖ The Hon. Tawanna P. Gaines ..... Maryland House of Delegates
- The Hon. Keith Gillespie ..... Pennsylvania House of Representatives
- The Hon. Emmett W. Hanger, Jr. .... Senate of Virginia
- The Hon. Nancy J. King ..... Maryland State Senate
- The Hon. Maggie McIntosh ..... Maryland House of Delegates
- The Hon. John H. Quigley ..... Secretary of Environmental Protection, Pennsylvania
- The Hon. Margaret B. Ransone ..... Virginia House of Delegates
- The Hon. John J. Reynolds ..... Virginia Citizen Representative
- ❖ The Hon. P. Michael Sturla ..... Pennsylvania House of Representatives
- ❖ The Hon. Frank W. Wagner ..... Senate of Virginia
- The Hon. Molly Ward ..... Secretary of Natural Resources, Virginia
- The Hon. Gene Yaw ..... Senate of Pennsylvania
  
- Rear Admiral John C. Scorby, Jr. .... Naval Liaison
  
- ❖ Members of the Executive Committee



# TRANSLATING SCIENCE INTO POLICY

**T**HE CHESAPEAKE BAY COMMISSION IS A TRI-STATE LEGISLATIVE ADVISORY body created in the 1980's to advise the General Assemblies of Maryland, Pennsylvania and Virginia on matters of Baywide concern. The Commission's mandate is to address a broad range of issues, taking into account the pollution sources, land uses and other human impacts that threaten the health of the Bay and its watershed. The Commission serves as a crucial link between understanding the science of the Chesapeake Bay and advancing state and federal policies to ensure the watershed's protection.

The Commission's targeted geographic focus on Maryland, Pennsylvania and Virginia recognizes that these states constitute over 80 percent of the watershed's land and contribute nearly 90 percent of the nitrogen and phosphorus pollution flowing to the Bay. Commission members, with the assistance of staff in each state, craft, coordinate and secure passage of laws and policies within and across the states. This essential policy role, predicated on sound science, raises the bar for legislative leadership by balancing the complex ecological, social and economic concerns that challenge the Bay's future.

Twenty-one members (seven each from Maryland, Pennsylvania and Virginia) define the Commission's identity and determine its priorities. Fifteen members are state legislators from both chambers, three are cabinet-level secretaries representing their governors, and three are citizen representatives. Each Commission member contributes his or her own unique perspective, knowledge and expertise, representing a diverse range of interests cultivated in an atmosphere of bi-partisanship.

# LIVESTOCK AND STREAMS

## THE SCIENCE

**M**aryland, Virginia and Pennsylvania are home to 3.5 million hooved animals, including dairy and beef cattle, pigs, horses, sheep and goats. Animal production in the three states has advanced dramatically over the last century, yet the tradition of watering livestock in streams persists.

Unimpeded, livestock defecate in streams and trample river banks and bottoms. This destroys natural vegetation and aquatic habitat, increases water temperature and releases large amounts of sediment, nutrients and bacteria that foul local waters and contribute to the impairment of the Chesapeake Bay. Diseases such as mastitis, which can reduce milk production, are transmitted in streams polluted with livestock waste, and muddy stream areas make animals prone to leg injuries.

Nevertheless, only 20 to 40 percent of the Bay's livestock areas exclude animals from streams, far short of the commitments made by Pennsylvania, Maryland and Virginia in their Watershed Implementation Plans, which rely on this practice to achieve 14 percent of the phosphorus and 20 percent of the sediment reductions needed to meet the Chesapeake Bay Total Maximum Daily Load.

At a minimum, livestock exclusion practices include off-stream watering areas and hardened stream crossings. Adding a fence can reduce four to five times more pollution. Several Virginia studies showed that fenced livestock exclusion caused bacteria levels to drop more than 100-fold in one year, and that fencing paired with alternative water sources reduced stream bank erosion by 77 percent and phosphorus loading by 81 percent.

## THE POLICY

**I**n May 2015 the Commission released a report titled "Healthy Livestock, Healthy Streams," highlighting the impacts of livestock pollution and recommending simple policy solutions. Its findings were shared with state and federal lawmakers,

agency heads and Bay Program partners in a series of briefings and featured presentations.

Based on the findings, the Commission will seek opportunities in the next Farm Bill to enhance the U.S. Department of Agriculture's Environmental Quality Incentives Program and Conservation Reserve

Enhancement Program, two significant sources of stream exclusion and riparian buffer support.

In Pennsylvania, the report prompted the Commonwealth to submit an \$8 million proposal to USDA's Regional Conservation Partnership Program. The Commission facilitated the proposal's development, bringing together 14 partners who would provide the 50 percent match needed to saturate three small watersheds with livestock exclusion. While not selected, efforts to secure federal funding are ongoing.

In Virginia, the Agricultural Cost-Share Program, which covered up to 100 percent of stream exclusion costs, quickly outpaced available funding. Commission members are working to appropriate the dollars needed to meet farmer demand.



BEFORE LIVESTOCK EXCLUSION:  
3,850 BACTERIA COLONIES



AFTER ONE YEAR OF LIVESTOCK EXCLUSION:  
25 BACTERIA COLONIES

BOBBY WHITESCARVER (ALL THREE PHOTOS)



WATERING DEVICES ATTRACT LIVESTOCK  
AWAY FROM STREAMS

# PHOSPHORUS AND SOILS

## THE SCIENCE

**P**hosphorus is essential for plant growth, important to cell division and development of new tissue. When farmers use commercial fertilizer, phosphorus can be applied precisely at the rate and time appropriate for the crop. But when litter or manure is used, phosphorus is often over-applied because of the manure's variability in nutrient content and rate of release.

Phosphorus binds to soil particles, reducing its mobility, but that binding capacity is finite. After many years of phosphorus over-application, the soil becomes saturated. Additional phosphorus, unable to bind to the soil, is transported through surface and ground water and becomes a source of pollution to local streams and the Chesapeake Bay.

Phosphorus saturation has contributed to the increase in phosphorus loads to the Bay over the past ten years, despite an 8 percent reduction in nitrogen over the same period. Fortunately, phosphorus saturation can be reversed. Successive seasons of growing crops without further phosphorus application will, over time, reduce phosphorus levels in the soil.

Several field-level management tools, known as "phosphorus indexes" (PIs) have been developed by land grant universities to assess the source, transport, and application of manure and fertilizer to guide farmers' use of phosphorus. The tools evaluate a combination of soil tests, management practices, environmental conditions, and hydrologic (water transport) characteristics, score the risk of phosphorus loss, and recommend specific phosphorus applications to crops.

## THE POLICY

**A**s the scientific understanding of phosphorus has evolved, state-specific management tools have improved. In June 2015, Maryland adopted a new phosphorus index called the Phosphorus Management Tool (PMT). Senator Mac Middleton and Delegate Maggie McIntosh assisted in Maryland's PMT implementation efforts by convening critical stakeholders and advocating for alternative uses of manure that would minimize the economic impact of the tool's adoption.

The Virginia and Pennsylvania PIs have not been recently updated to address phosphorus saturation. In an effort to educate policymakers on the status of phosphorus management, the Commission released

a white paper comparing the defining features of each member state's assessment tool. The Commission is using the report to inform policy leaders as they work with academic experts to reduce the impact of phosphorus pollution on the Bay.

The report makes clear that any policies to reduce the risk of phosphorus loss from

manure and litter must also consider the viability of manure management options, such as transport, storage, and uses other than land application.

In Pennsylvania, Commission staff shared its expertise on legislation to promote the use of manure-to-energy technology, a promising alternative to land application of manure.



A HEALTHY SOIL CLOD



CAREFUL MANURE APPLICATION IS NEEDED ON SLOPING FIELDS



CHESAPEAKE BAY PROGRAM (TOP PHOTO)

# OYSTERS AND RESTORATION

## THE SCIENCE

The native Eastern Oyster, *Crassostrea virginica*, plays a pivotal role in the Chesapeake Bay's ecosystem by filtering millions of gallons of water, providing important habitat for crabs, fish and benthic organisms, and serving as a pillar of the Bay's economic health.

Oysters provide a valuable "clean up" service. Excess nutrients from wastewater, stormwater and agriculture have broadened the Bay's "dead zone," killing marine life. Oysters filter algae and sediment and convert nitrogen to a relatively harmless gas through denitrification, providing cleaner, clearer water. Scientists report that an acre of oysters can remove 3,000 pounds of nitrogen a year, the highest denitrification rate of any animal anywhere.

Thankfully, after being nearly decimated by disease, poor water quality, sedimentation, and overharvesting, the Chesapeake Bay's oysters are making a comeback. This resurgence is due to a four-pronged approach: selectively breeding oysters that grow more rapidly and are more resistant to pathogens; encouraging oyster aquaculture through more streamlined permitting, low-interest loans and technical support; securing federal and state funds to complete large-scale restoration projects; and engaging local citizens and nonprofit groups in oyster gardening.

As one question is answered, another emerges. Scientists and fisheries managers are now addressing a critical question of balance between protection of restored areas so that a disease-resistant population can grow and propagate for the future, and harvesting to maintain an industry's infrastructure and economic base. As the science advances, so too will the policy.

## THE POLICY

Since signing the 2014 Chesapeake Bay Watershed Agreement, the Chesapeake Bay Commission has supported the work of Maryland and Virginia to restore oysters to ten tributaries by 2025. Both states, working with federal and non-profit partners, are managing the wild oyster fishery, increasing aquaculture, rehabilitating oyster bar habitat, and creating oyster sanctuaries.

Many of these efforts are based on a 2009 Programmatic Environmental Impact Statement (EIS) which took six years to complete and involved Maryland, Virginia and the Army Corp of Engineers. The study looked at introducing a non-native species into the Bay; ultimately the research led to a path that would restore the Bay's oysters using native populations. The Commission helped to secure funding for the EIS and subsequent state policy changes that advanced the aquaculture industry.

In 2015, the Commission Chair, Virginia Delegate Scott Lingamfelter, championed legislation to strengthen the Virginia Marine Resource Commission's enforcement authority, establishing civil penalties, license revocations, and loss of fishing privileges for those committing oyster larceny.

This success complements legislation carried in prior years by Commission members to address poaching on oyster restoration sites, thereby protecting the public investment in oyster seeding programs. To promote sustainability, Commission members in Maryland and Virginia also sponsored complementary legislation, requested by watermen, to increase the oyster inspection tax to fund planting of oyster seed and shell on working bottom in the Potomac River.

SETTING TANKS PRODUCE SPAT ON SHELL FOR RESEARCH, RESTORATION AND EDUCATION



UNICES HORN POINT HATCHERY

RESEARCHERS DOCUMENT AN ABUNDANCE OF FISH ON RESTORED OYSTER REEFS



NOAA

# MICROBEADS AND FOOD CHAINS

## THE SCIENCE

**M**icrobeads are tiny particles of plastics — polyethylene, polypropylene, and polystyrene — used as abrasives in hundreds of personal care products including soap, body wash, cosmetics and toothpaste. Typically less than a millimeter in diameter, billions of microbeads easily pass through wastewater treatment plants. Those that are captured accumulate in biosolids and can run off in surface water after they are applied to land. Regardless of the pathway, these substances are a growing source of water pollution. Unlike other microplastics, such as those resulting from the degradation of plastic bottles, bags and other litter, microbeads are designed to be washed down the drain and end up in the water.

Small enough to be ingested by aquatic filter feeders and bottom scavengers, microbeads have been found in the guts of mussels and crabs, as well as the fish and birds that eat them. Microbeads cause harmful inflammation and blockages in the digestive tracts of living organisms, and can adsorb toxins, passing them to higher levels of the food chain, causing liver toxicity and disrupting endocrine systems. They can persist in the environment for decades.

The best solution to microbead pollution is to reduce or eliminate the source. A number of major manufacturers are responding to scientific evidence and public pressure and have agreed to replace microbeads with biodegradable plastics or natural alternatives such as pumice, apricot kernels or walnut husks, sea salt, or oatmeal. However, not all manufacturers are following suit, making additional state and federal action necessary.

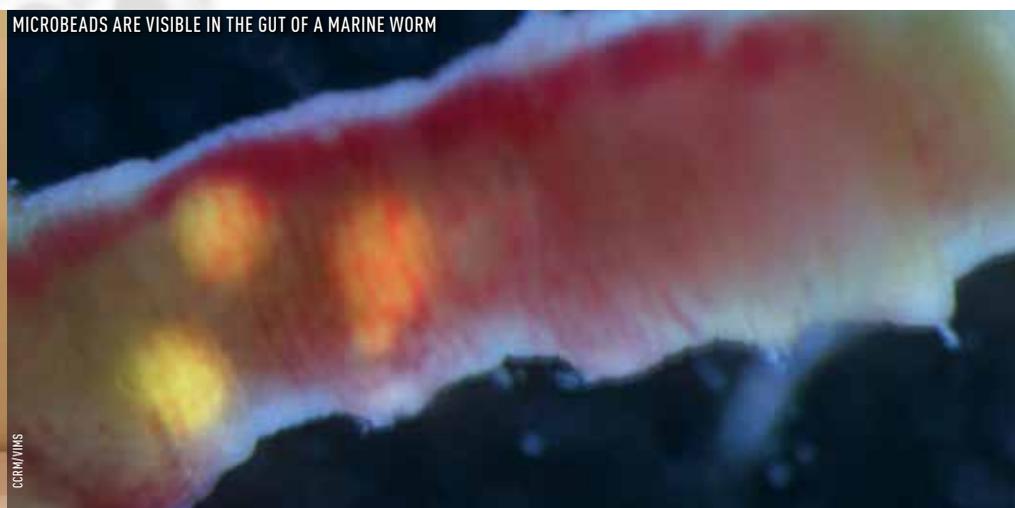
## THE POLICY

**I**n 2015, Maryland Delegate Barbara Frush and her Commission colleagues successfully strengthened legislation banning the manufacture and sale of microbeads in personal care products. Virginia Commission member Delegate David Bulova introduced a bill prohibiting the sale of certain microbead-containing products. Pennsylvania Commission members Senator Richard Alloway, Senator Gene Yaw and Representative Keith Gillespie are also sponsoring legislation to restrict microbead use.

This multi-state effort helped influence the 114th U.S. Congress to ban microbeads in certain skin care products nationwide. Signed by the President in December, the Microbead-Free Waters Act will phase out their manufacture and use starting in 2017. Although a significant step forward, the Act narrowly applies to “rinse-off cosmetics” and toothpaste, leaving room for Commission members to pursue action on other personal care products.

The Commission called on the Bay Program’s Scientific and Technical Advisory Committee to convene experts and compile research findings on the fate, transport, and environmental risk of the breadth of microplastic products and the cost of their removal from drinking water and wastewater. A report of the Committee is expected in early 2016.

As a signatory to the 2014 Chesapeake Bay Watershed Agreement, the Commission championed the goal of ensuring that “the Bay and its rivers are free of effects of toxic contaminants on living resources and human health” and will continue to play a leadership role on microplastics and other emerging contaminants.



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**Chesapeake Bay Commission**  
*Policy for the Bay*