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Naval Liaison (through September 2011) Naval Liaison (beginning November 2011)

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The Hon. Michael W. Brubaker, *Chairman*



The Hon. Mary Margaret Whipple, *Vice-Chairman*

The Hon. James W. Hubbard, *Vice-Chairman* he Chesapeake Bay Commission is a tri-state legislative commission created in 1980 to advise the members of the general assemblies of Maryland, Pennsylvania and Virginia on matters of Baywide concern. Twenty-one members define the Commission's identity, determine its direction and share its workload. Fifteen are state legislators, three are cabinet-level secretaries representing their governors, and three are citizen representatives. The full range of urban, suburban and rural life enjoyed throughout the watershed is represented on this bipartisan Commission, with each member contributing his or her unique perspective, knowledge and expertise.

Individually, the members represent distinct areas of the watershed and bring an intimate knowledge of the local residents and their specific social, economic and environmental challenges. Collectively, the members embrace the perspective of the full watershed and provide the least parochial and broadest political vantage of any lead partner of the Chesapeake Bay Program.

As a signatory to all the Chesapeake Bay Agreements and as an original member of the Chesapeake Executive Council and Chesapeake Bay Program, the Commission now enters its fourth decade promoting complementary Baywide laws, policies, budgets and programs at both the state and federal levels. The Commission excels at forging diverse partnerships and solutions representing multiple states and all levels of government, thus playing a vital role in uniting the watershed.

The new regulatory framework provided by the federal Chesapeake Bay Total Maximum Daily Load provides an important opportunity to accelerate the Bay restoration effort while pursuing approaches that are balanced and flexible, yet targeted. Wastewater treatment facilities, agricultural manure management and urban stormwater management present some of the most significant challenges and opportunities. Thus, in 2011, the Commission zeroed in on these sources, attempting to forge regulatory and legislative solutions that will deliver results.

As the Commission continues its work with the general assemblies, Congress and the stakeholder community, it will draw on the diverse strengths and experiences of its members and partners to promote effective protections for the Chesapeake Bay and its watershed.



deally, sound science and public policy would always work hand-in-hand to restore the Chesapeake Bay. In reality, policymakers are hard-pressed to keep up with the enormous amount of emerging scientific information related to the Bay restoration effort. The Chesapeake Bay Commission — which works with both top scientists and regional legislators — strives to improve its understanding of the ecosystem and help translate important scientific findings into political action.

New research, for example, is examining the relationship between land use, water quality and fisheries. Until recently, science had generally demonstrated that land use practices affect water quality, but had not detected a link between land use and the survival of fish. Research conducted over ten years by the Maryland Department of Natural Resources (DNR) found that increased use of agricultural best management practices in Caroline County, Md., was followed by better survival of a critical larval stage of striped bass in the adjacent Choptank River spawning area. Increased survival followed increased use of

FIGURE 1

Striped bass postlarval survival rate in Choptank River, Md., closely parallels implementation of best management practices.



FIGURE 2

Herring eggs and larvae decline in correlation to amount of impervious surface in three Maryland watersheds.





IATA SOURCE: Jim Uphoff, Maryland DNR Fisheries Service

practices designed to conserve soil, reduce contaminated runoff, and decrease pesticides and fertilizers. Two conservation practices that were widely adopted — conservation tillage and cover crops — showed a strong correlation with increased larval survival of striped bass (Figure 1).

It has long been known that paved surfaces and rooftops increase the flow of stormwater, altering natural flow regimes and ecological processes, increasing water temperature, and washing excess nutrients, oils, pesticides and road salts into waterways. Science now confirms the destructive effects of increased stormwater runoff on the spawning habitat of fish in Chesapeake Bay. In a study of three watersheds, the Maryland DNR found that the presence of herring eggs or larvae declined rapidly as the amount of impervious surface increased (Figure 2). The data indicated that when impervious surface reached 14 percent, herring eggs or larvae would rarely be found in spawning streams.

The Chesapeake Bay Commission has long worked to advance the use of best management practices on farmland and reduce stormwater runoff from developed land, but this emerging science bears an important message: Decisions about land use have a direct bearing on fish. Translating these findings into meaningful language for policymakers is a vital part of the Commission's work. In this example, science furthers the case for action by describing outcomes that most citizens can clearly understand. If we hope to protect life in Chesapeake Bay, we must align our land management policies with those that also protect our local streams. he Chesapeake Bay Commission works across state lines, recommending policies that protect the diverse land and water resources of the Bay ecosystem. While the goals are the same, the strategies for getting there often require different approaches in each state, dictated by unique environmental, cultural and economic conditions. Respect for those differences strengthens our unity. The following sampler of facts illustrates both the wide disparities and the common threads among our member states.



SOURCE: EPA Chesapeake Bay Program, Watershed Model 5.3.2

was a time of significant transition in the Chesapeake Bay restoration effort. In December 2010, the U.S. Environmental Protection Agency (EPA) finalized the Chesapeake Bay **Total Maximum Daily Load (TMDL)** — the Bay's "pollution diet" — and the Chesapeake Bay Program partners spent the next

year responding to this new regulatory phase of Bay protection. For the Chesapeake Bay Commission, the Bay Program's legislative arm, this meant finding new state and federal legislative and budgetary approaches that will translate into meaningful nutrient and sediment reductions.

In conjunction with the TMDL, the states published final Phase I **Watershed Implementation Plans (WIPs)**, which outline the steps they will take to achieve 60 percent of their nutrient and sediment reductions by 2017, with the remainder due by 2025. Subsequently, the states devoted much of 2011 to developing their Phase II WIPs, which focus on the engagement of local partners.

ACHIEVABLE TARGETS

The nutrient and sediment reductions needed by 2025 in order to reach the TMDL targets are comparable to the reductions that have been achieved so far in the Bay watershed since 1985.



*2017 Interim Target and 2025 Planning Target represent level of effort necessary to meet the TMDL.

As a direct response to reduction strategies outlined in each state WIP, the Commission heard from a panel of experts on the benefits of **urban nutrient management** to local water quality. After further consultations with both environmental and industry stakeholders, Commission members introduced legislation in all three member states to limit the application of nitrogen and phosphorus to lawns and require certification of professionals who apply fertilizer to turf grass. The legislation was adopted in Maryland and Virginia this year and awaits committee action in Pennsylvania. Other states, including Vermont and New Hampshire, are now following suit, expanding the Commission's influence nationwide.

These measures will help to significantly reduce nutrient loads from urban stormwater, the only sector whose loads continue to increase. Importantly, these reductions will be achieved at no cost to local governments, qualifying urban nutrient management as one of the most easily implemented and cost-effective methods to reduce urban stormwater pollution.

The region-wide interest in urban nutrient management also provided the theme of "Your Backyard to the Bay" for July's meeting of the **Chesapeake Executive Council**. Pennsylvania State Senator Mike Brubaker represented the Commission during this annual gathering of the region's governors and federal agency leaders. An agronomist by trade, Chairman Brubaker conveyed the critical importance of good nutrient and soil management in both agricultural and urban settings. The Commission facilitated the testing of soil samples provided by Executive Council members as a way to illustrate the importance of knowing the specific

needs of your soil before applying fertilizer. Based on the soil test results provided at the meeting, a number of Bay Program leaders vowed to change practices at their residences and adjacent public facilities.

The Commission continues to be a trusted source of guidance on **science-based policies**. In 2011, its reputation generated frequent public speaking requests throughout the region. Members and staff provided more than 100 high-level presentations to local, state and national organizations on critical policymaking issues — the TMDL often taking center stage. In November, Chairman Brubaker testified on implementation of the Phase II WIPs before the U.S. House Agriculture Committee's Subcommittee on Energy, Conservation and Forestry.

The Commission is a **valuable liaison** between its member states and federal partners; the second quarterly meeting, held each year in Washington, D.C., is devoted to federal issues. In 2011, the Commission briefed new federal legislators on the Chesapeake Bay restoration effort and presented a Baywide Congressional briefing on the TMDL and state WIPs. Commission members also delivered a set of requests in person to EPA Administrator Lisa Jackson, U. S. Department of Agriculture Secretary Tom Vilsack and U.S. Fish and Wildlife Service Regional Director Marvin Moriarity. These requests, which were published and widely circulated, focused on how the agencies could assist state and local partners in meeting their water quality goals.

With the region now subject to a TMDL, these water quality goals must not only be achieved, but maintained in perpetuity. Compliance will require states, local governments and citizens to participate in projects that either reduce nutrient and sediment pollution or prevent the pollution before it occurs. This challenge will be further multiplied by the 20 percent growth in population expected for the region. In response to *Conserving Chesapeake Landscapes*, a report jointly produced by the Commission and Chesapeake Conservancy in December 2010, the Commission zeroed in on **the role of land conservation in protecting water quality**, raising concerns that the preservation of natural landscapes is not currently factored into the TMDL.

In 2011 (with a sequel planned in 2012), the Commission convened Bay Program scientists and policy makers to scientifically quantify how natural landscapes affect water quality. Once the science is carefully documented, the Commission will launch a thorough analysis to determine how the water quality benefits of land conservation can be factored into the TMDL. The protection of forests and wetlands, especially in areas known to have the highest impact on water quality, will help minimize new sources of pollution; restoration

CHESAPEAKE BAY COMMISSION

RESEARCH REPORTS

The Commission produced two well-received research reports in the last year, *Manure to Energy: Sustainable Solutions for the Chesapeake Bay Region*, and *Conserving Chesapeake Landscapes: Protecting Our Investments, Securing Future Progress.*



Manure to Energy Sustainable Solutions for the Chesapeake Bay Region CHESAPEAKE LANDSCAPES Protecting Our Investmente

REPORT BY THE CHESAG

activities on conserved lands may also offer a secure source of nutrient **offsets for future development** that cannot reach the prescribed reductions onsite.

Both offsets for new development and the **trading of credits** to achieve nutrient reductions from existing activities can be important tools for TMDL compliance. By allowing the market to identify the most cost-effective pollution-reduction practices, offsets and trading have the potential to reduce the total cost of the TMDL to individuals, businesses and government.

To determine just how effective trading could be, the Commission launched a comprehensive research project in August 2011. In partnership with the economic research firm RTI International, and guided by an advisory panel of public and private experts, the project seeks to better understand the potential markets for nutrient trading and identify efficiencies and cost savings that trading might provide compared to strict implementation of the states' WIPs. The final report will be issued in 2012.

Promising sources of nutrient credits are **manure-to-energy systems** that employ anaerobic digestion or thermochemical technology to convert animal manure into usable heat or power provided that any nutrient-rich by-products that result from the process are properly managed. If deployed to the greatest advantage, these new technologies have the potential to improve farm income, reduce excess nutrients in our waterways, and provide a renewable domestic energy source.

In conjunction with its third quarterly meeting, the Commission, along with the Maryland Technology Development Corporation, Farm Pilot Project Coordination, Inc., and Chesapeake Bay Foundation, hosted a Manure-to-Energy Summit for the Chesapeake region. In the months leading up to the Summit, the project partners conducted interviews with farmers, technology providers, conservationists, policymakers, utilities and financiers regarding opportunities for action. **Fourteen different policy options** were identified within three categories: 1) improving market access; 2) financing for maximum benefit; and 3) marketing of by-products. A significant new report on these findings and recommendations, *Manure to Energy, Sustainable Solutions for the Chesapeake Bay Region*, was released in time for the January 2012 legislative sessions.

At its fourth quarterly meeting, the Commission returned to the subject of **local implementation**. The first day featured dialogue with six different local watershed associations from throughout the Chesapeake basin. Despite the diversity of the communities represented, some common

PUBLICATIONS 201

FEDERAL AGENCY REQUESTS

The Commission produced briefing documents for high-level meetings with the EPA, the U.S. Department of Agriculture and the U.S. Department of the Interior at which the Commission presented its "wish list" of agency actions and funding that would support the preservation of the Chesapeake and its watershed. themes emerged: the value of technical assistance and education, the need for solutions with economic benefit, and the ability to properly track and account for existing and future practices.

Tracking of practices has been an ongoing concern of the Commission and other partners, as compliance with the TMDL will be initially measured by levels of implementation rather than monitored water quality. This method overcomes the inherent challenges of regulating performance within a dynamic natural system. Many practices used to manage non-point source pollution will need to be in place for years before water quality benefits are directly observed in the water, due to legacy nutrients that have accumulated in soils and groundwater. Additionally, the actual nutrient and sediment loads to Chesapeake Bay vary from year to year based on flow. Regardless of the implementation of pollution reduction practices, years of high precipitation will result in relatively higher nutrient and sediment loads while years of relatively lower precipitation may provide a false sense of success.

Consequently, the Chesapeake Bay Program has developed state-of-the-art computer models to estimate changes in the ecosystem based on changes in population, land use, pollution management and other factors that can adjust for flow. Now in its fifth iteration over three decades, the **Chesapeake Bay Watershed Model** is the model specifically developed to predict progress. It is thus the model most closely tied to the TMDL.

Like any computer model, the quality of the output is dependent on the quality of the inputs. Improved data and proper verification were the goals of a Commission inquiry into the Watershed Model's utility. Working with partners from the Bay Program's Scientific and Technical Advisory Committee, the Commission concluded that different models can help to inform each other, especially in circumstances where the Watershed Model is limited, such as at the local scale. As the partners move forward to improve local planning and implementation under Phase II, the use of these additional modeling tools will become more critical. In 2012, the Commission will continue its support of **local-scale modeling tools** that will help individuals to make land management and pollution reduction decisions that matter.

Throughout its 31-year history, the Commission has been dedicated to finding and implementing sciencebased, cost-effective **solutions** for water quality that also make sense for our local communities. The Commission looks forward to continuing its work with public and private partners at all levels to achieve a restored Chesapeake Bay.

A NEW POLICY INITIATIVE

In conjunction with the Manure-to-Energy Summit, the Commission staff produced a technology summary for the attendees, titled *Promising Manure-to-Energy Technologies for the Chesapeake Bay Watershed*.



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Chesapeake Bay Commission *Policy for the Bay*

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