CHESAPEAKE ENVIRONMENTAL PROTECTION ASSOCIATION, INC.
P.O. Box 117, Galesville, Maryland 20765

NEWSLETTER **Spring 2015**

PRESIDENT'S MESSAGE

By Al Tucker, President, 2015

In this issue we focus on what to expect from climate change and perhaps, most importantly, on what to expect from rising seas. As both Gary Antonides and Bill Klepczynski point out in their articles, the impact on Maryland will not only be severe from an environmental point of view, but the personal, economic and social upheaval on those directly affected is difficult to comprehend.

Pacific islanders are facing the devastating effects of rising seas right now. A small increase in sea level is magnified by a storm surge during a hurricane, bringing devastation and leaving lasting damage to infrastructure. But, you don't have to go to the Pacific to see the changes; hurricanes Katrina and Sandy brought these visions of devastation closer to home.

Sea levels on the Northeast Coast, as Gary points out, are rising faster than average. The rise in Maryland is predicted to claim more land than the national average due to local conditions that make the shoreline particularly vulnerable to soil erosion and land subsidence. Maryland is the fourth most vulnerable state with an estimated 6.1 per cent of its land likely to be inundated by a rise in sea level. Currently, an estimated 30 per cent of the state's coastline undergoes erosion, and an average of 260 acres are lost each year with the southeastern counties most vulnerable to storm surges and inundation.

In Hampton Roads, the rise has been 14 inches since 1930, making the region the second most vulnerable population in the U.S. after Galveston, TX. Over 1.6 million people are affected, and projections for Norfolk Naval Base - the world's largest naval base - predict that the main road into the naval base will be underwater for 2-3 hours a day by 2040.

In Maryland the primary impact will be felt on the Eastern Shore, especially Dorchester County. Flooding will result in the loss of thousands of acres. In Dorchester County alone almost half of the county will be subject to flooding and permanent inundation. Dorchester County does not have the financial resources to harden its shores and, hence, faces the decision to retreat, either by property buy-outs or abandonment.

IN THIS ISSUE

The Western Shore will not be immune. Populated areas like Shadyside and Deale will face similar decisions. For an expected 5 ft surge, economic losses are predicted for Anne Arundel County alone to approach $4.1B and to affect approximately 18,900 properties.

In 2011 Anne Arundel County prepared a "Sea Level Rise Strategic Plan". It relies fairly heavily on the Critical Area overlay as the basis for protection. This plan can give you a pretty good idea of what to expect in a populated county like Anne Arundel. Basic infrastructure in areas like Deale and Shadyside is quite vulnerable, especially wells and septic systems, which will be contaminated by saltwater.

The fundamental question facing the county and property owners will be how to adapt and prepare for the inevitable next storm. What does it involve? State and local governments must commit time and resources to assure planning and information dissemination. The Georgetown Climate Center has proposed model legislation for Maryland. Since Maryland is a home rule state, adapting to sea level rise would be achieved by the adoption of land-use legislation, enacted at the county level. In other words, the financial burden falls to the county level. The land-use regulations envision two zones, one for retreating and the other for resiliency:

1. Conservation Zone: designed to facilitate retreat—to protect natural resources and provide for the gradual relocation of development from highly vulnerable areas. This zone could include areas with sensitive natural resources and not suitable for hard-shoreline protection (seawalls or bulkheads).

2. Accommodation Zone: designed to allow for continued development while requiring that structures be sited and built to be more resilient to impacts. This zone could include areas with intense to moderate existing development, some ecologically sensitive resources, and limited viability for hard-shoreline armoring.

In the Conservation Zone, communities could:

Downzone permitted uses: Limit development and redevelopment to low-density and low intensity uses, such as agricultural, recreational, or open space uses.

Increase setbacks: Require that structures be set back on the lot as far landward on a site as feasible ("maximum practicable setbacks").

Limit the size & height of structures: Permit only smaller structures that will be more easily relocated, will put fewer people at risk, and will minimize the economic consequences of floods.

Restrict rebuilding: Prohibit redevelopment of storm-damaged structures in highly vulnerable areas or prohibit redevelopment of repetitive loss structures.

In the Accommodation Zone, communities could:

Downzone permitted uses: Limit new development of critical facilities or require that more intense uses obtain special use permits.

Increase setbacks: Apply erosion-based setbacks or tiered setbacks for waterfront properties. Tiered setbacks require that larger structures be set back farther from the water line than smaller structures.

Increase structure elevation: Require that structures be elevated higher to account for projected sea level rise over the life of the structure (e.g., 3 feet of rise over 60 years).

Limit the size and height of structures: Permit only smaller structures, but allow for structures to exceed height limits where they are elevated to provide flood protection.

You have to ask yourself if you would support and accept these regulations limiting your land use. The conundrum is that, if you do, are you accepting the implied decrease in property value? If storms come, are you prepared to accept the consequences? When you read the following articles you will have to ask yourselves if you are prepared. If you are one of the unlucky ones directly affected, what are your plans? If you are one of the lucky upland ones, how much are you willing to contribute? Given the inevitable rise of the seas, everyone will be affected.

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1. Sea Level Rise Strategic Plan Anne Arundel County http://dnr.maryland.gov/CoastSmart/pdfs/AASLRStrategicPlan_final.pdf

2. Georgetown Climate Center Report, ZONING FOR SEA-LEVEL RISE: A Model Sea-Level Rise Ordinance and Case Study of Implementation Barriers in Maryland, 2012, http://www.georgetownclimate.org/sites/www.georgetownclimate.org/files/Zoning%20for%20Sea-Level%20Rise%20Executive%20Summary%20Final.pdf

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SEA LEVEL RISE IN MARYLAND

By Gary Antonides

Sea levels are rising globally, but for several reasons they are rising about twice as fast in Maryland. Thermal expansion due to higher temperatures, and ice melting from land masses cause the sea levels to rise everywhere. Maryland is located just south of where glaciers stood during the ice age. The glaciers depressed the earth's crust under them, but also caused a bulge in the earth's crust just south of where they were located. Maryland was part of that bulge. Since the glaciers melted, the land where the glaciers were is rebounding and the land where the bulge was is subsiding. It is also expected that, as shorelines erode in the Chesapeake Bay, tides and storm surges will find it easier to travel up the Bay.

A more controversial cause of increased rise is described in http://www.climatecentral.org/news/east-coast-faces-rising-seas-from-slowing-gulf-stream-15587. It says that global warming is slowing the flow of the Gulf Stream as it moves north and then east toward northern Europe. At present, the Gulf Stream keeps the mid-Atlantic coastal sea level (including Chesapeake Bay) a meter or so lower than the rest of the ocean as it pulls water away from the coast. A study in the February 2013 *Journal of Geophysical Research: Oceans* ties the measured rise in sea level in this area not due to other causes to a measured simultaneous slowdown in the flow of the Gulf Stream. (More on ocean currents in the next article.)

In http://www.umces.edu/sea-level, the University of Maryland estimated in 2013 that the sea level rise between 2000 and 2050 in Maryland would be about 1.4 feet, but could be as high as 2.1 feet. Between 2000 and 2100, it is expected to be 3.7 feet, but could be as high as 5.7 feet. The differences between the expected and high numbers are due to inaccuracies in the model and not knowing if we are going to effectively reduce greenhouse gasses. It seems that, as new estimates are made, they are usually higher, so it makes sense to prepare for the higher numbers, particularly since storms are expected to be more severe due to global warming.

It is instructive to look at what other areas are doing about this. http://www.washingtonpost.com/national/health-science/after-sandy-new-york-aims-to-fortify-itself-against-next-big-storm-climate-change/2013/07/14/8c8c2eca-e9d9-11e2-a301-ea5a8116d211_story_1.html describes New York's response to Hurricane Sandy. Under a $19.5 billion blueprint, New York outlined plans to fortify itself not only against the next big storm but against rising sea levels. The 438-page plan, which involves a neighborhood-by-neighborhood survey of potential problems along 520 miles of coastline, vaults New York to the forefront of U.S. resilience planning, experts said, along with the 2012, $50 billion plan for the gulf coast of Louisiana.

Still, many are waiting to see whether New York will follow through. That depends on how committed they are and whether the city can find the money.

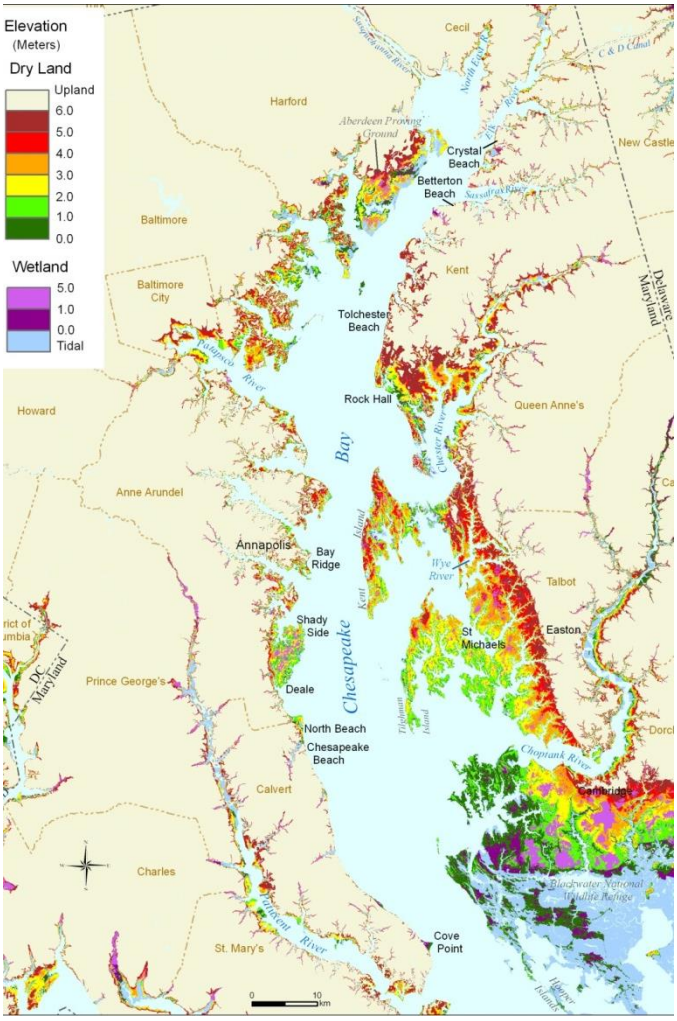
Many states and localities are preparing such plans. The five counties around low-lying Miami must determine how they can respond to rising waters. In Norfolk, there is talk of retreating from neighborhoods that flood regularly.

Still, the sheer scope of what New York hopes to protect is staggering. Under the FEMA maps last issued in 1983, 33 square miles of the city, or 11 percent of its land, were in danger of flooding in a 100-year storm. Preliminary 2013 maps have increased that to 48 square miles. By the 2050s, 72 square miles (24 percent) will face that danger because of sea-level rise. The city has more waterfront than Miami, Boston, Los Angeles and San Francisco combined.

The plan calls for an array of solutions. On Staten Island's eastern shore, for example, the city wants to build levees and floodwalls, some 15 to 20 feet high. On Newtown Creek, surge barriers would be built that would close during storms to keep water out of Long Island City. Other places would get dunes, breakers, or new wetlands. The city would offer $1.2 billion in loans or grants to help people retrofit homes against floods, mostly by elevating them and reinforcing walls.

One thing the city won't do, said Seth W. Pinsky, president of the New York City Economic Development Corp., is retreat

from the waterfront, where hugely expensive structures exist. It is not a sure thing that these plans will be executed, but according to those who study climate change, they must be.



http://maps.risingsea.net/CCSP/F.13_UpperChesapeake1m_north_Titus_and_Wang_2008.jpg shows the above map with the elevations near shorelines. Note that the elevations are in meters, and the maximum expected rise between 2000 and 2100 (about 5.7 ft.) would correspond to the dark and light green areas. The yellow, orange and reds will not be below sea level, but will be increasingly vulnerable to storm surges.

A 2011 report for Maryland's Department of Natural Resources by Anne Arundel's Department of Planning and Zoning, (http://dnr.maryland.gov/CoastSmart/pdfs/AASLRStrategicPlan_final.pdf) evaluates the County's vulnerabilities to sea level rise, and recommends remedial actions. It lists eight items:

Flooding of Structures – Remedies include elevating the structure, relocation, and strengthening the foundation.

Roads – Most vulnerable roads are local. Rt. 214 could be a problem. Remedies are to use other roads or elevate road.

Wells – Water wells can flood with brackish water. Remedies are flood proof caps and higher standpipes.

Septic Systems – No remedies were given, but public sewer systems will be required in some cases.

Marinas – Fixed docks may have to be rebuilt. Associated marina structures may also be vulnerable.

Public Parks

Archaeological and Historic Resources

Wetlands – Wetland conservation should be higher priority.

A study was done for the City of Annapolis in 2011 (http://www.annapolis.gov/Government/Departments/PlZon/CDAC/Presentation/Copy%20of%20SEA%20RISE%20STUDY%20Report%20City%20Dock%203-31-11.pdf) recommending methods of mitigating sea level rise around the city dock area. That report notes that the 100 year flood level is about what actually happened during Hurricane Isabel, which was a surge of about 8 feet. It also notes that the surge from a Category 4 hurricane combined with a high tide could result in about a 15 foot rise. It suggested the use of a combination of floodwalls and portable cofferdams along the 4500 feet of vulnerable waterfront. Portable cofferdams are basically plastic tubes up to 100 feet long and up to 8 feet high that can be filled with water in place. Flooding causes storm drains to back up, resulting in flooding behind the floodwalls and cofferdams, necessitating large pumps to keep the storm drains operating.

The report also describes "dry flood proofing" of buildings which keeps the water out. That requires a strong structure (masonry) and sealable doors and windows. Normally that will only work for water up to about 3 feet deep. "Wet flood proofing" is also an option, where water gets into crawl spaces, basements, etc. and drains out as the water subsides.

The Federal Emergency Management Agency (FEMA) will award grants for "Hazard Mitigation" for future events as well as for disaster relief after the fact. For example, it will award a grant for 75% of the cost of elevating a home in the 100-year floodplain. There are certain conditions, one of which is that a project's potential savings must be more than the cost of the project. FEMA works with local governments who submit applications on behalf of property owners. The Maryland Emergency Management Agency (MEMA) has funded 227 property acquisitions and elevations over the past decade.

https://news.maryland.gov/mema/2015/03/25/mema-works-with-local-and-federal-partners-to-secure-2-4-million-in-funding-for-mitigation-projects-around-maryland/MEMA Works with Local and Federal Partners to Secure $2.4 Million in Funding for Mitigation Projects Around Maryland
March 25, 2015 reports that federal funds made available as a result of Hurricane Sandy will help pay for eight disaster mitigation projects around the state. MEMA worked with local officials to prepare grant applications to FEMA, which approved the projects in February.

FEMA will be providing $1.8 million in Hazard Mitigation Grant Program funds, covering 75 percent of the total cost of the projects. Here is a list of the projects being funded by county:

Baltimore - Elevate 5 residential structures in Essex and Middle River. Purchase and install a permanent generator at the Middle River Volunteer Fire Department.

Calvert - Elevate 7 residential structures in North Beach, Lusby, and Broomes Island

Carroll - Purchase and install a generator at the Union Bridge Volunteer Fire Company

Dorchester - Elevate a residential structure in Cambridge

Harford - Elevate a residential structure in Aberdeen

Queen Anne's - Purchase and demolish two residential structures in Millington

Worchester - Elevate a residential structure in Ocean City.

Additional information on MEMA's mitigation grant and preparedness programs can be found at http://mema.maryland.gov

As inconvenient as these measures are, we won't have to go to the extremes that some of the towns along our big rivers and

coastlines do, such as building houses on high stilts, as in the photo below, and installing high floodwalls.

THE IMPORTANCE OF OCEAN CURRENTS ON CLIMATE CHANGE

By Bill Klepczynski

The Earth's temperature depends on the balance between energy entering and leaving the planet's system. When incoming energy from the sun is absorbed by the Earth system, Earth warms. When the sun's energy is reflected back into space, Earth avoids warming. When energy is released back into space, Earth cools. Many factors, both natural and human, can cause changes in Earth's energy balance, including:

- Changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere
- Variations in the sun's energy reaching Earth
- Changes in the reflectivity of Earth's atmosphere and surface

Estimates for changes in the above factors go into the making of ***models*** that are used to make predictions for long term climate change. Climate change is both a function of man's contributions as well as contributions from a plethora of natural phenomena. The ***estimates of the values of the factors*** that go into a model are ***critical to the accuracy of the predictions*** that result from the adopted model.

Local climate is also influenced by a host of other interacting factors, including **latitude**, **elevation**, **nearby water**, **ocean currents**, **topography**, **vegetation**, **prevailing winds and geothermal effects**. Changes in these factors must also be included in ***the models.***

Because **ocean currents** circulate water worldwide, they have a significant impact on the movement of energy and moisture between the oceans and the atmosphere. As a result, they are important to the world's weather. The Gulf Stream for example is a warm current that originates in the Gulf of Mexico and moves north and towards Europe. Since it is full of warm water, the sea surface temperatures are warm, which keeps places like Europe warmer than other areas at similar latitudes. *Ocean currents also have a large effect on climate change*.

There are two main classifications of ocean currents:

Surface currents are those found in the upper 400 meters (1,300 feet) of the ocean which makes up about 10% of all the water in the ocean. Surface currents are mostly caused by the wind because it creates friction as it moves over the water. This friction forces the water to move in a circular pattern, creating gyres (large systems of rotating ocean currents). In the northern hemisphere, gyres move clockwise and in the southern they spin counterclockwise. The speed of surface currents is greatest closer to the ocean's surface and decreases with increasing depth.

Because surface currents travel over long distances, the Coriolis force also plays a role in their movement and deflects them, further aiding in the creation of their circular pattern.

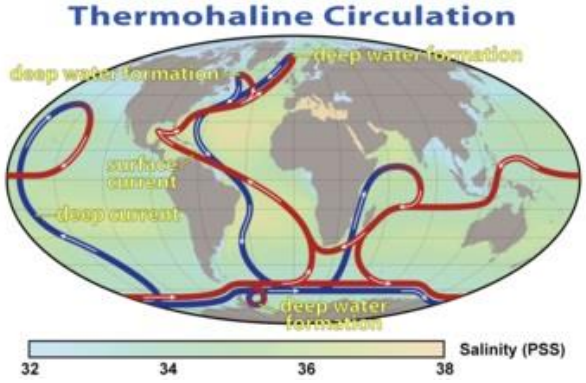
Deep water currents are found below 400 meters which constitutes about 90% of the ocean volume. Gravity plays a role in the creation of deep water currents, mainly caused by density differences in the water.

Density differences are a function of temperature and salinity. Cold water or more saline water is more dense and tends to sink. Deep water currents are part of the large scale ocean circulation, called Thermohaline circulation (THC), that is driven by global density gradients created by surface heat and freshwater fluxes. THC is known as the *Global Conveyor Belt* because its circulation moves seawater throughout the ocean.

Wind patterns associated with these circulation cells drive surface currents which push the surface water towards the higher latitudes where the air is colder. This, along with evaporation, cools the water. Evaporation also results in saltier water. The combined effect is to make it dense, which causes it to sink to the bottom of the ocean, forming what is known as North Atlantic Deep Water in the north and Antarctic Bottom Water in the south. Driven by this sinking and the upwelling that occurs in lower latitudes, as well as the driving force of the winds on surface water, the ocean currents act to circulate water throughout the entire ocean.

When global warming is added into the equation, changes occur, especially in the regions where deep water is formed. With the warming of the oceans and subsequent melting of glaciers and the polar ice caps, more and fresher water is released into the high latitude regions where deep water is formed. This extra water that gets thrown into the chemical mix dilutes the contents of the water arriving from lower latitudes, reducing the density of the surface water. Consequently the water sinks more slowly than it normally would.

Because some deep water current formations in the Arctic and Antarctica are linked, deep water currents formed in the Arctic can be traced south to Antarctica and deep water currents formed in the Weddell Sea in the Antarctic can be traced as far north as Ireland. Consequently, *a change in the Antarctic deep water formation may have an impact on the circulation of the North Atlantic.*



In this schematic of the path of the thermohaline circulation. blue paths represent deep water currents, while red paths represent surface currents.

One of the factors affecting ocean currents and climate change is found in the Antarctic, and this particular factor, geothermal activity, is one of the more difficult to estimate.

Antarctica is a land of ice. But below the West Antarctic Ice Sheet you'll find fire as well, in the form of subglacial volcanoes. Now, a new study finds that these subglacial volcanoes and other geothermal "hotspots" are contributing to the melting of Thwaite's Glacier, a major river of ice that flows into Antarctica's Pine Island Bay. Areas of the glacier that sit near geologic features thought to be volcanic are melting faster than regions farther away from hotspots, said Dustin Schroeder, the study's lead author and a geophysicist at the University of Texas at Austin.

Researchers have long known that volcanoes lurk under the ice of West Antarctica. This is a *seismically active region*, where East and West Antarctica are drifting apart. In 2013, a team of scientists even found a new volcano beneath the West Antarctic Ice Sheet.

West Antarctica is also hemorrhaging ice due to climate change, and recent studies have suggested there is no way to reverse the retreat of West Antarctic glaciers. However, the *timing* of this retreat is still in question, Schroeder said — it could take hundreds of years, or thousands. It's important to understand which, given that *meltwater from the West Antarctic Ice Sheet contributes directly to sea level rise*.

Scientists use **computer models** to try to predict the future of the ice sheet, but *their lack of understanding of subglacial geothermal energy* has been *a glaring gap* in these models. Measuring geothermal activity under the ice sheet is so difficult that researchers usually just enter one, uniform estimate for the contributions of geothermal heat to melting, Schroeder said. Of course, volcanism isn't uniform. Geothermal hotspots influence melting more in some areas than in others. "It's the most complex thermal environment you might imagine," study coauthor Don Blankenship, a geophysicist at University of Texas Austin, said. "And then, you plop the most critical dynamically unstable ice sheet on planet Earth in the middle of this thing, and then you try to model it. *It's virtually impossible*."

To unravel the complexity, the researchers built on a previous study they published in 2013 that mapped out the system of channels that flows beneath Thwaite's Glacier, a fast flowing glacier that scientists say is especially vulnerable to global warming.

Using data from airborne radar, the researchers were able to figure out where these subglacial streams were too full to be explained by flow from upstream. The swollen streams revealed spots of unusually high melt, Schroeder said. Next, they checked out the subglacial geology in the region and found that fast melting spots *were disproportionately clustered near confirmed West Antarctic volcanoes*, suspected volcanoes or other presumed hotspots. "There's a pattern of hotspots," Schroeder said. "One of them is next to Mount Takahe, which is a volcano that actually sticks out of the ice sheet."

The extra melt caused by subglacial volcanoes could lubricate the ice sheet from beneath, hastening its flow toward the sea, Schroeder said. To understand how much the *volcanic melt* contributes to this flow — and what that means for the future of the West Antarctic Ice Sheet — glaciologists and climate scientists will have to include the new, finer-grained findings in their models. Schroeder and his colleagues also plan to expand their study to other glaciers in the region. "Anywhere in the West Antarctic Ice Sheet is going to be a candidate for high melt areas," he said.

Given the difficulty of estimating geothermal contributions, and perhaps those of other natural factors, to sea level rise, the question is raised: "How much are natural factors contributing to sea level rise in relation to man's contributions?" That needs to be answered as better models are developed.

MARYLAND'S GENERAL ASSEMBLY DEALS WITH ENVIRONMENTAL MATTERS DURING ITS 2015 SESSION

By Rich Romer, Chairman, CEPA Legislative Committee

The annual 90 day session of Maryland's General Assembly wrapped up at midnight on Monday, April 13th. This was the first session of the four year General Assembly elected last November, which has the largest Republican representation in both houses in many years although the GOP is still a minority, and with a rare Republican Governor. The session was dominated by Budget issues driven by Governor Hogan's commitment to balance the budget and avoid any increases in taxes and fees.

The legislation imposing storm water fees, which passed in the 2014 session, and was inaccurately characterized as a "Rain Tax", was rescinded almost unanimously. In a related action, the Anne Arundel County Council, by a 3 to 4 against vote, defeated an attempt to rescind the storm water fees imposed last year. CEPA President Al Tucker corresponded with the County Council expressing the Associations' opposition to the proposed elimination of the fees. CEPA Board Member Sally Hornor, PhD testified against rescinding the fees and was delighted with the outcome.

Working with Governor Hogan, a joint task force comprised of the state's agricultural community and the major environmental groups, including CBF, developed and promulgated a Phosphorus Management Tool which will result in reduced phosphorus runoff into the Bay. Implementing legislation had been developed and proposed, but was placed on hold when it became clear that Executive Branch action was going to successfully address the long standing problem.

The General Assembly blocked an attempted roll back of the standards governing pollutants contained in storm water runoff.

A bill passed both houses expanding the ease with which communities can implement solar energy projects. An amendment relaxing Clean Energy standards was defeated.

After considering a number of proposals on fracking in Maryland, which covered the spectrum of uncontrolled permission to abolition, the General Assembly imposed a 2 ½ year moratorium on fracking. The moratorium impacts Western Maryland more than other jurisdictions but applies to the entire state since target shale formations can be found all around Maryland including Southern Maryland.

The offshore wind harvesting project proposed for the Atlantic Ocean east of Ocean City was prohibited at the request of the U.S. Navy's Patuxent Naval Test Center which expressed their concern that the wind turbines would interfere with the operation of Test Range radars.

CEPA is working on legislation to be introduced in the General Assembly's 2017 session which would direct implementation of the recommendations of MDE's 2006 Wolman Report on source water and provide funding in the FY2018 Budget.

PROFILE OF A TRUSTEE

RICHARD A. ROMER

Having grown up by the side of San Francisco Bay in Burlingame, California, it is only natural that Rich Romer would settle where he could see water. For the past 16 years, he has lived in the northern Calvert County municipality of North Beach and is a committed advocate for the Chesapeake Bay.

After graduating from Stanford University, Rich entered the U.S. Air Force for a 25 year career, retiring in 1987 as a Colonel. He served four overseas assignments in the Pacific, including a combat tour in Vietnam, and acquired a Master's Degree in Logistics Management. After his Air Force retirement, Rich spent another 10 years as a Defense consultant which included a two year contract to work in China.

Since fully retiring in 1995, Rich has remained active. He is the Contributing Editor of a weekly paper, *The VOICE of Southern Maryland,* which covers Calvert and Southern Anne Arundel Counties. He reports on county and municipal government, local politics, human interest, and general news. He appears regularly on the Cambridge, MD radio station WCEM (1240AM) during their daily show, *New School*.

In 2006, Rich and one of his neighbors formed the North Beach Publishing Company, LLP. They have written and published the World War II memoirs of two local veterans--*Radioman for the Artillery*, which recounts Larry Hatch's 33 months of combat in Italy and *Three Brothers of the Greatest Generation,* Ed Finch's story of his and his two older brothers' experiences in the U.S. Navy aboard destroyers. The books go on to describe who these veterans became after, and because of, the war. More WWII memoirs are in the works.

An active boater all his life, Rich served as Commander of the 300 member Annapolis Sail and Power Squadron. He was responsible for bringing their Boater Safety Course to southern Anne Arundel and northern Calvert Counties. He currently owns and operates 30 foot Wellcraft Express Cruiser berthed in Chesapeake Beach. He has been an active oyster farmer and helped bring attention to Dominion Energy's creation of an artificial oyster reef in the Bay west of the Little Choptank.

Rich is in his tenth year as a member of the CEPA Board of Trustees and is currently Vice President. He serves as a member of the Planning Committee and chaired the committee which developed an updated set of By-Laws for the organization. He has organized and chaired two of CEPA's public forums--the first dealt with the adverse impact of proliferating impervious surface on the health of the Bay, and the second focused on the issue of ground water quantity and quality as development overwhelms this area.

Asked about his commitment to improving the health of the Bay, Rich said, "CEPA is a unique organization. The Trustees bring a synergistic blend of expertise which allows the organization to focus quickly on critical issues. The role we have taken in monitoring the PST landfill in Harwood insures that any pollution of the ground water will be detected and remedied. We are becoming increasingly active in identifying good practices and encouraging their adoption to protect the the Bay and its tributaries. When CEPA speaks to government agencies, they are compelled to listen. CEPA has a credibility to which other environmental organizations can only aspire."

To join CEPA, please fill out the form below and send it with your check to:
CEPA, PO Box 117, Galesville, MD 20765,
or join online at www.cepaonline.org.

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