



The Queen Anne's Chronicle

CELEBRATING QUEEN ANNE'S COUNTY

INFORMING THE CITIZENS

PROMISE AND PERIL: THE SOILS AND SEAS OF QUEEN ANNE'S COUNTY

QAC'S BROWN GOLD – ITS PRODUCTIVE LAND

By DIANE SHIELDS

What is it about Queen Anne's County that makes our largest business, agriculture, number one in Maryland for the production of corn, wheat, and soybeans? What is it that has allowed the QAC farm sector to be resilient in the face of plant disease and market changes and to succeed with a variety of different crops over the centuries?

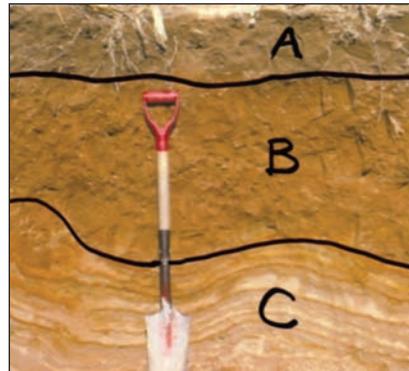
The answer is two-fold: the natural productivity of our soils, and the large acreage of our land that is in agriculture.

These two factors go hand-in-hand. The beneficial properties of the soils and their wide distribution allow most of the land in the County to be used for intensive grain production. And an overall land use pattern in which agriculture predominates allows us to have an agricultural community that is a genuine "community". Productive commercial agriculture functions effectively when it is not surrounded and interspersed with incompatible land uses.

Prime Farmland

Queen Anne's County has approximately

130,000 acres of "Prime Farmland" soils, or about 55% of the county's total land area of 238,337 acres. Small areas of the county, primarily along the Northern boundary adjacent to the Chester River, are sandy soils



QAC's Brown Gold. The A horizon is topsoil, or plow layer -- organic accumulation and tillage. The B horizon is subsoil -- clays, iron oxides, and development of soil structure. A and B are enriched by wind-deposited silt-sized particles from the last glacial advance (12,000 to 15,000 years ago). The C horizon is substratum -- here, sandier sediments laid down during an earlier interglacial warm period. (Unicorn loam soil, named for QAC's Unicorn Lake area. Photo Credit -- USDA/NCRS.)

that are Prime Farmland only if they are irrigated.

"Prime Farmland" is a category of soils defined by the US Department of Agriculture

continued on Page 6

SEA LEVEL RISE – PLANNING FOR WHAT'S COMING

In the last century, the sea level of the Chesapeake Bay rose about a foot. That was twice the global average, in major part because the land around the Bay is slowly sinking.

In the present century, the consensus forecast is for the rate of sea level rise in the Bay to accelerate -- another foot or so of rise by mid-century, then two more feet by the century's end.

Consequences

A rising sea level in the Bay has numerous major consequences. It intensifies coastal flooding from storm surge; increases shoreline erosion; causes salt-water intrusion into fresh-water aquifers; and submerges tidal wetlands and other low-lying areas.

As Rona Kobell reports in the January 2012 *Chesapeake Bay Journal*, the consequences of sea level rise are already being felt in the Bay's most vulnerable locations:

"Imagine living in a neighborhood where people check the tide gauges to figure out where they should park their cars. A place where front yards sprout wetland plants and smell like marsh grass, where city leaders

debate spending millions of dollars to raise yet another street, and where prospective homeowners consult computerized flood maps to determine if it's safe to buy a house.

"It may sound like science fiction, but it's the brutal reality in Norfolk and many neighborhoods in the half-dozen other cities that make up the Hampton Roads area. The ground in these areas near where the Chesapeake meets the ocean is slowly subsiding. That, coupled with sea-level rise, is bringing record flooding and destruction to these coastal neighborhoods. The flooding is happening faster than many ever imagined, and every solution to fix it is expensive."

Tom Horton wrote a year ago in *Urbanite Baltimore Magazine* about similar problems farther up the Bay:

"The southern and eastern portions of Dorchester are already depopulating. Abandoned dwellings are a common sight, as are homes being jacked several feet in the air as a last resort. Earthen berms surround many yards, and driveways sport humps of earth pushed up for parking cars during frequent high water. Well before century's end, the 338,000-acre county could lose an astounding 25,000 acres of forest and

continued on Page 2

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QUEEN ANNE'S COUNTY LAND USE, 2010

Agriculture: 143,057 acres

Forest: 60,873 acres

Wetland: 3,613 acres

Residential: 24,581 acres

Commercial: 1,280 acres

Industrial: 288 acres

Other Developed/Institutional/

Transportation: 3,992 acres

Natural Resource Lands: 207,543 acres

All Lands: 237,685 acres

Developed Lands: 30,142 acres

(Water: 88,167 acres)

Natural Resource Lands Converted to Developed Lands, 2002-2010: 2,371 acres

Source: MDP 2010 Land Use/Land Cover, Queen Anne's County,
www.mdp.state.d.us (click on "Our Work", then "Land Use/Land Cover")

Sea Level Rise, continued from Page 1

60,000 acres of wetlands—more than 100 square miles of prime recreational areas, wildlife habitat, and commercial timberland.

“This very likely sea level rise also profoundly changes or eliminates many of the bay’s islands—Smith, Tangier, Bloodsworth, Hooper; also much of Talbot’s neck region and parts of Kent Island.”

“Parts of Kent Island”

That last reference by Horton brings the sea level rise issue home to Queen Anne’s County – so the *Chronicle* decided to take a look at our local situation. What’s the threat to QAC, especially Kent Island, and what are we doing to plan for it?

Our first inquiry went to DNR’s Chesapeake & Coastal Program, for maps that would show QAC lands vulnerable to sea level rise and storm surge. They responded promptly, and we reproduce their maps on this page.

Looking at DNR’s storm surge maps, we quickly realized that they show the areas in the County that would be inundated today by various heights of surge – but they do not show what would be inundated in storms if sea level were one to three feet higher, as it will be. Going back to DNR for such maps, we hit a wall. A senior official responded:

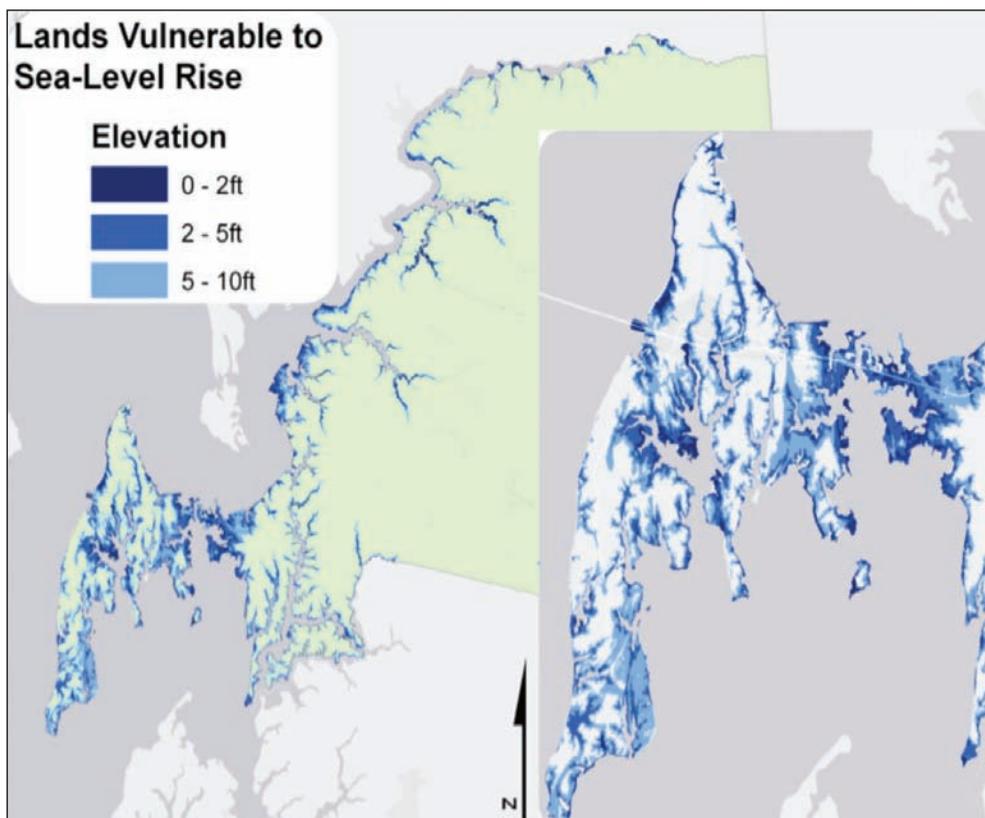
“As much as I would love to give a ‘future’ storm surge map, unfortunately I don’t have access to those models or data yet. The way the storm surge models are created utilizes a lot of tides and currents data that would change based on sea level, so the process of showing how storm surge would affect Kent Island with increased sea level ends up being a lot more complicated than just overlaying the layers.

“A professor at UMCES actually proposed doing this exact modeling for the Chesapeake but wasn’t able to secure the funding for the research. Climate change is still such a controversial issue the funding isn’t always there, even though we desperately need the information to effectively communicate risk.”

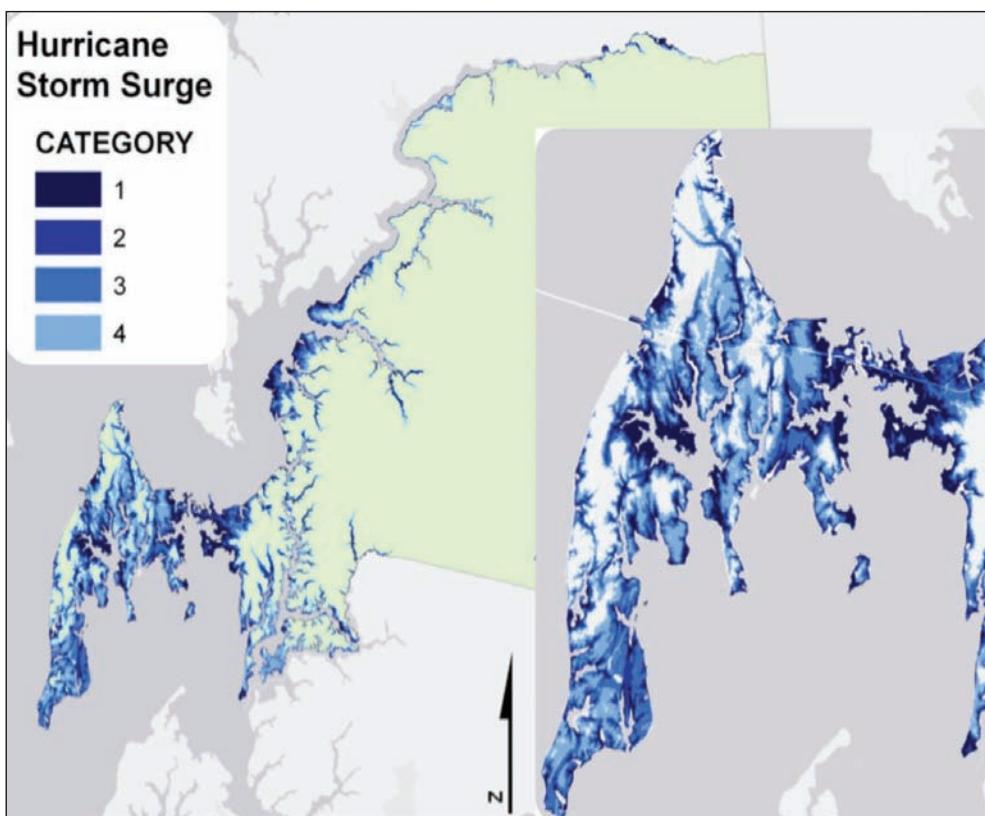
Planning: State and Local Levels

Even though Maryland doesn’t yet have the maps it needs, there have been useful beginnings of plans for the coming sea level rise.

In 2007 Governor O’Malley created the



The Map depicts three sea-level rise (SLR) scenarios. 0-2 ft represents a good estimate of SLR by 2050. 2-5 ft is in the range for 2100. 5-10 ft is an “extreme” scenario for 2100, assuming greater glacial melt. Source: Chesapeake and Coastal Program, Maryland Department of Natural Resources.



The four “Hurricane Storm Surge” categories, expressed in feet above sea level, are: (1) 4-5 feet, (2) 6-8 feet, (3) 9-12 feet, and (4) 13-18 feet. Because storms in the same wind speed category can produce very different surge heights, this map should be read only as a depiction of County lands covered by surges of the various heights indicated -- not as predictions that these, rather than higher or lower surges, will accompany any particular storm. Source: Chesapeake and Coastal Program, Maryland Department of Natural Resources.

Maryland Commission on Climate Change, and its Adaptation and Response Working Group swiftly (August 2008) issued an in-depth report on **Sea-level Rise and Coastal Storms**. The Report’s first recommendation was to “**Require** the integration of coastal erosion, coastal storm, and sea-level rise adaptation and response planning strategies into existing state and local policies and programs”.

Pursuing that lead, we went to the local level and discovered that our neighbor across the Bridge, Anne Arundel County, using a grant from the Chesapeake & Coastal Program, has completed, and issued just this past November, an impressive Sea Level Rise Strategic Plan. The Plan comprehensively assesses the impacts of projected sea level rise on the full range of the county’s resources: properties, structures, roads, utilities, private wells and septic systems, marinas, parklands, and archeological and historic resources.

The Anne Arundel assessment found that about 9,000 acres of its lands (out of a total of 266,000 acres) were vulnerable to sea level rise. Although this is only a small percentage of the county’s lands, this vulnerable acreage contains, among other assets, over 2,000 residential structures and 35 miles of roads. Accordingly, the Plan says, “the total value of properties at risk is not insignificant at nearly \$3 billion under the 0-2 foot scenario and over \$4.1 billion in the 0-5 foot scenario”.

Planning: Queen Anne’s County

Queen Anne’s County has not so far accomplished anything like the Anne Arundel study, but citizens and planners have not been oblivious to the challenge of sea level rise and storm surge.

One impressive example of attentiveness to the problem is the 2010 Queenstown Community Plan. Reviewing the scientific data and focusing on the increased impacts from storm surge with sea level rise, the Plan “directs future development to occur outside of areas flooded by a Category III storm (9 to 12 feet storm surge)”. Lacking adequate maps from federal or state sources, the Town itself “identified potential flood zones based on identification of land areas less than 12 feet above normal sea level using

continued on Page 3

COMMON QUEEN ANNE'S PLANT MASQUERADES AS BAD MEAT!

When skunk cabbage emerges in our wetlands in March, it appears as a hooded four- to six-inch spiral shape with a narrow opening on one side. Its color is that of old, gone-bad meat -- an overall darkish or mottled red, with a little yellow-green. This hooded shape is modified leaf, functioning like a bud protecting a flower, and is called a spathe.

The spathe is warm, and for about two weeks, it is 15 to 35 degrees warmer than the air temperature, whether day or night. That remarkable warmth doesn't just help the plant melt its way up through frozen ground, the heat it produces also serves to spread the plant's unpleasant fetid odor up into the air. (The Latin name for skunk cabbage is *symplocarpus foetidus*, owing to its odor).

Why?

Dark or mottled red with some yellow-green . . . warm . . . fetid odor -- why would nature make this plant, an early sign of spring's awakening, resemble decomposing flesh?

The answer seems to be that the skunk cabbage pollinators are often carrion-feeding insects (like the aptly-named flesh flies) and are among the few pollinators out in early spring. Attracted to the nasty odor and to the warmth

of the spathe, they descend its narrow opening and pollinate the flower head, barely visible down inside the spathe.

Other Strange Habits

Besides being heat-producing and foul-smelling, the skunk cabbage has other unusual characteristics. Its leaves, which can be 1½ to 2 feet long and 1 to 1½ feet wide, are all rolled up inside each other and unroll rapidly; each leaf unrolls revealing another leaf inside, which in turn unrolls revealing another leaf. Once all the leaves are fully open, they quickly decay by developing holes, going limp and slimy, and then dissolving.

By August, the skunk cabbage seems to have disappeared. But not really, because at the base of the dissolved leaves are a number of different size buds -- each destined to become a different generation of spathe. Each skunk cabbage plant has within it many of its future generations.

It is very nearly impossible to dig a skunk cabbage out of the earth. It has a mass of roots growing in all directions, some as thick as a pencil, that are contractile -- they grow and then they contract. By contracting they pull the plant further into the ground, so that each year the plant grows downward and is

more anchored in the ground. Old plants, with root structures that some say are as much as 100 years old, are deeper in the ground than young plants.

Making Use of Skunk Cabbage

Skunk cabbage is not to be eaten raw because its roots are toxic and the leaves burn your mouth. In the past, the leaves, which are smelly when broken or torn, have been dried and have had various uses. Early colonists used skunk cabbage as a contraceptive, thinking that taking it three times a day for three weeks would cause sterility. It was used, as the drug "dracontium," and listed in the United States Pharmacopoeia for 60 years during the 19th century, for the treatment of rheumatism, respiratory diseases, epilepsy, and nervous disorders. Native Americans used it to treat skin wounds and inhaled its vapors to alleviate headaches.

Although humans now seem to have shied away from using skunk cabbage medicinally, it remains of value to some animals as well as to those early insect pollinators. Bears and wild turkeys are said to eat the buds and leaves of skunk cabbage. In fact, one observer notes that Swedish settlers in Pennsylvania called the plant "bear-weed" because bears like its buds and leaves so much.

A warbler who loves our moist thickets, the common yellowthroat, has been known to nest in the leaves of skunk cabbage. And the beautiful Wood Ducks and our Bob Whites, or Quail, enjoy eating the seeds of skunk cabbage which appear in August when the plant's fruit head, surrounded by quickly disappearing leaves, releases many round, berry-like fruits.

All in all, a fascinating, if often over-looked, part of our landscape.



- Courtesy John O'Neill

Sea Level Rise, continued from Page 2

fine-scale topography data".

The County's 2010 Comprehensive Plan, finalized shortly before the Queenstown Plan, reaches the same conclusion about new development in areas vulnerable to the growing threat to life and property from storm surge. With the objective of protecting "sensitive areas", the Plan provides that the County should, "[t]o accommodate storm surges, rising sea level, and climate change, prevent development in mapped flood zones for category 3 storms . . ." (page 2-22)

Other provisions in the Comprehensive Plan also call for steps to meet the challenge of sea level rise and storm surge -- for example: "[n]o more major residential subdivision should be permitted in Critical Areas" (page 8-22), and new public infrastructure should be designed and located "so that it is not adversely impacted by flooding or sea level rise" (page 8-21).

Questions and Answers

After almost 40 years, there's reason to hope that we're finally on a serious timetable to restore the water quality of the Bay (as the *Chronicle* will report in the next issue). We are nowhere near as far along in planning how, in the face of sea level rise, we can continue to live safely and affordably on the shores of the Bay.

But in the last few years the first planning steps have been

taken, and more are on the way. As with the Bay clean-up effort, at the end of the day it won't be the plans that are the problem -- it will be us, the citizens, and our attachment to what we want for ourselves in the here and now.

Will we adhere to plans like those in the 2010 Comprehensive Plan -- for example, that we must "prevent development" below the 12-foot elevation in areas vulnerable to flooding? Or will we continue to find ways to make exceptions for a steady stream of new projects in these areas?

Will we decide, as citizens, not to shift onto our grandchildren the enormous costs of trying to defend, against the rising seas, the homes and other structures in harm's way? Or will we just let tomorrow take care of tomorrow and enjoy today's benefits of continuing to build at the water's edge?

These are some of the obvious questions. The answers to them are not so clear.

Rona Kobell and Tom Horton, distinguished environmental reporters for the Baltimore Sun, now write regularly for the premier publication covering Bay-related developments, the Chesapeake Bay Journal, accessible at www.bayjournal.com. Additional information on State and local planning for sea level rise can be found at www.dnr.state.md.us/CoastSmart/



Osprey Pointe at the Narrows, Route 18, high tide, October 2011. "Buyers go out there and see existing buildings and a lot of water. . . . We need an entrance and some roads and some infill to get rid of the water." Osprey Pointe partner Paul Zanecki, as quoted in *Star Democrat*, Friday, January 20, 2012.

-- Chronicle photo

EDITORIAL: CONVENIENT PUBLIC COMMENT TIMES RE-INSTATED

In the September/October issue of the *Chronicle*, we expressed concern that the time for “Press and Public Comment” had been moved from the beginning of each County Commissioners’ meeting to a varying time somewhere near the end of a meeting.

This re-scheduling made it very difficult for citizens to have their chance to be heard. It required citizens to miss work (for morning meetings) or get home very late (for evening meetings) in order to express support for, or voice concerns about, a matter of importance to them -- *before* the matter was discussed, and possibly resolved, by the Commissioners.

So it was good news to read the following in the minutes of the Commissioners’ meeting of January 10:

“On a motion made by Commissioner Simmons, seconded by Commissioner Dunmyer the Board unanimously adopted . . . [T]hat press and public comments would be allowed at the beginning of the meeting: [and] That for the months of January, February, and March 2012 on weeks when there is not a regularly scheduled Board of Commissioners meeting, there be a special budget session . . . open to the public, and televised, but no normal public comment period will be allowed. . . .”

We applaud the Commissioners’ decision to restore Press and Public Comment to a time in their regular meetings that is convenient for the public and at a point in the meeting when citizens’ input is timely for the other items on the agenda.



Queen Anne's County Bluebirds in Early Spring, Female Left, Male Right
Photo Credits – David Godfrey

The Queen Anne's Chronicle

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Chris Pupke – Chairman of the Board
Jay Falstad – Executive Director

Mary Campbell – Editor

Queen Anne's Conservation Association (QACA), a nonprofit 501(c)(3) corporation, is the Eastern Shore's oldest conservation organization. Its mission is to promote stewardship of Queen Anne's County's natural resources and to protect its rural character and small towns while encouraging the management of prudent and sustainable growth.

Queen Anne's Conservation Association

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COMMISSIONERS' MEETINGS

Here are a few items, mostly related to governance and land use, summarized from the approved minutes of the County Commissioners’ meetings.

December 13, 2011. The Commissioners:

- Following a closed session, unanimously agreed on appointments to twelve boards and commissions, including:
 - *PLANNING COMMISSION*: Jim Moran, Cherae Ensor, and Shannon McClellan, Esq., for terms expiring at the end of 2015;
 - *BOARD OF [ZONING] APPEALS*: Howard Dean and Craig McGinnes, for terms expiring at the end of 2014; and
 - *ECONOMIC DEVELOPMENT COMMISSION*: Jody Schulz and Steve Donovan, for terms expiring at the end of 2014.

Other boards and commissions to which appointments were made were: *Commission on Aging; Drug and Alcohol Council; Animal Control Commission; Council for Children and Youth; Employee Awards Committee; Kent Narrows Development Foundation; Parks and Recreation Advisory Board; Plumbing Board; and Sustainable Communities Council.*

- Agreed to establish a Narrows Pointe tax district to allow homeowners there to apply for a loan from the State, to be paid off annually over a number of years, to rehabilitate and protect their eroding shoreline.
- Heard a County financial update from Finance Director Jonathan Seeman and Budget Analyst Jeff Rank.
- Adopted 3-2 (Dunmyer and Simmons opposed) Ordinance No. 11-22, amending the Adequate Public Facilities Ordinance (APFO) to revise the level of service standards for schools and for transportation facilities.
- Heard an update from Mary Margaret Revell Goodwin on War of 1812 Star-Spangled Banner National Historic

Trail signs for the Eastern Shore.

- Agreed to award contract to Drill Tech, Inc., in the amount of \$472,750, to replace and enlarge the 32 year-old iron pipe carrying raw sewage under Cox Creek.

January 10, 2012. The Commissioners:

- Met in closed session with counsel to discuss the lawsuit brought by the Chesapeake Bay Foundation and others challenging the November rezonings from agricultural to commercial of four properties designated to remain rural-agricultural in the 2010 Comprehensive Plan (see *Chronicle*, Jan/Feb 2012, p. 3).
- Agreed to appoint Commissioner Arentz as Commission President and Commissioner Dumenil as Vice President for 2012.
- Re-instated the practice of having press and public comment at the beginning of regularly scheduled Board of Commissioners meetings (see *Chronicle* Editorial in this issue).
- Signed Rural Legacy grant applications for acreage in the Lands End and Foreman Branch areas.
- Approved an amendment to a conservation easement to allow a landowner to replace existing utilities with solar panels/arrays to be utilized by the landowner and not sold to a utility company.
- Agreed to award a contract in the amount of \$131,931 to replace two sewer collection station emergency generators (of the seven still in service from the system's original construction in 1980) and one generator (from 1986) at the Business Park water treatment plant.

January 19, 2012. The Commissioners:

- Held a budget work session that included consideration of the General Fund Expenditure Forecast for FY2013 to

continued on Page 5

PLANNING COMMISSION

On **January 12**, the Planning Commission welcomed new members Shannon McClellan and Cherae Ensor. (Former members Myron Richardson and Mary Kerr completed their terms in December 2011.) Elected as officers for 2012 were Barry Waterman, Chairman; Jim Moran, Vice Chairman; Sheila Tolliver, Secretary.

The Commission approved amendments to a 14-lot subdivision, Osprey Pointe (see photo, page 3 of this issue), Chairman Waterman recusing himself. One amendment permitted creation of a private road to serve the development. A second amendment, from which Commissioner Tolliver dissented, eliminated a condition that the proposed homes meet energy-efficiency standards previously proffered by the applicant.

Also approved were amendments to the site plan for the Ellendale residential development on Kent Island, eliminating three alleyways and reorienting garages from the rear to the front on 66 of the units.

The Commissioners were briefed on the County Commissioners’ economic development initiatives and on wind turbines.

At their meeting on **February 9**, the Planning Commission approved a major subdivision on Cemetery Road in Grasonville, which will create 14 lots, three of which will be open space, served by a new public road. The project anticipates development of 11 single-family homes, five of which will be age-restricted unless the Adequate Public Facilities Ordinance (APFO) is revised as a majority of the County Commissioners have proposed.

The Commission reviewed preliminary plans for a commercial building in Matapeake Business Park on Kent Island proposed by the Miltec Company, an expanding manufacturing business.

The Commission reviewed a proposed text amendment that would 1) double the number of apartment units permitted per acre in certain zoning districts, and 2) expand the zoning code's definition of “institutional uses” to include assisted living programs, elderly housing, and residential care facilities. The expanded definition would permit these additional uses in any zoning district which permits institutional use.

Planning staff provided a briefing on the Watershed Implementation Plan identifying the steps to be taken to meet federal (EPA) standards for reduction of nutrient loads into Bay watersheds.

OWL SEASON

By JANE SCOTT

It is late winter and the Great Horned owls are nesting. For the past few weeks, you may have heard their resonant “hoo-hoo-hoos” on still winter nights as they began their courting rituals. If you listened very carefully, you may even have detected a slight difference in tone; the male’s call is lower than the females.

Great Horned Owls are imposing birds. They are about two feet high with a wingspan of nearly five feet. They also have prominent “ear tufts” although these have nothing to do with the bird’s hearing. As in many birds of prey, the females are larger than the males. While Great Horned Owls are found throughout North America, they were given the Latin name, *Bubo virginianus*, because they were first described in Virginia in 1788 by a German botanist named Johann Gmelin.

Owl Habits

Great Horned owls are opportunists when it comes to building nests, often commandeering one once occupied by a red tailed hawk, crow or heron. Occasionally they may move into an empty building or a tree cavity. The female produces from two to four eggs that she alone incubates until they hatch sometime this month. When the owlets are about six weeks old, they hop out of the nest to perch on a nearby branch, although they will not actually fly for another three or four weeks. The family stays loosely in touch until fall, when the young fly off to find their own territories. The parents may stay in the same area for years.

While Great Horned owls can be secretive, they are also creatures of habit. I used to see one almost every afternoon roosting in the same tree along a wooded path where I walked my dogs. The tree was thickly hung with vines and no doubt the owl thought he was well hidden. And so he would have been in summer, but in winter you could clearly see his silhouette. The tree was close to the path and, as I walked beneath it, he gazed down at me with his luminous yellow eyes. If I simply kept quiet, he never budged, but if I called to the dogs or made some other noise, he would immediately take off and fly into the woods.

All owls are predators and Great Horned owls are no exception. They eat all kinds of small mammals and birds as well as frogs and fish. They may even snatch a cat or chicken if given the opportunity. One way to know if one is around your neck of the woods is to look for so-called “owl pellets” at the base of a tree: regurgitated bundles of bone and fur that they cough up after a meal.

Legends of Owls

No piece about owls would be complete without some mention of the wealth of legends that surround them. Throughout history people have projected their fears and hopes onto owls, seeing them variously as guardians, prophets of doom, and oracles. There are images of owls in Paleolithic cave paintings, Egyptian



QAC Resident Great Horned Owl

Photo credit – David Godfrey

hieroglyphics, ancient Indian petroglyphs, and Greek and Roman mythology. They are even in the Bible; “I am a brother to dragons and a companion to owls” cries Job in his misery.

Those that relied upon owls to protect them from evil ranged from the ancient Greeks to North American Indian tribes. Athene, the goddess of both wisdom and darkness, choose the owl as her favorite bird, the Pawnees summoned them for help in war, and the bravest Sioux warriors wore a cap of their feathers.

The Ojibwas and Apaches had a different view; they saw the owl as a symbol of evil and death. The Romans, too, thought the owl foretold only evil and dreaded it. The death of Julius Caesar was supposedly foretold by an owl; “yesterday, the bird of night did sit, even at noonday upon the market place, hooting and shrieking,” says Casca in Shakespeare’s *Julius Caesar*.

Yet owls were also seen as wise. Remember the nursery rhyme about the “wise old owl who lived in an oak, the more he saw, the less he spoke,” and how about “wo!” in Winnie the Pooh? In Arthurian legend there is always an owl perched on the shoulder of the sorcerer, Merlin. And last but not least, we have all the owls that help the wizards in the Harry Potter books, particularly Hedwig, who delivers the mail.

Owls in the Night

What is it about an owl that causes us to give it such supernatural powers? Is it their calls? While there may be something spooky about the soft hoot of a Great Horned owl, to me it is the whinny of a screech owl in the night that really conjures up images of ghosts.

That owls can see in the dark may be the root of their reputation for prophecy. Unlike other birds, an owl’s eyes are in the front of its head, which gives the bird an oddly human look. Owls can’t roll their eyes, but they can twist their heads around to peer behind them; an ability that could have given rise to the idea that they are omniscient. And then there are their formidable talons and the eerie silence of their flight. This is due to the unique construction of their flight feathers. The leading edge of an owl’s primaries is stiff, while the trailing edges have soft edges. Also the surface of their wings is covered with soft down. All of these attributes work to reduce both noise and turbulence, allowing them to swoop down on their prey seemingly out of nowhere -- a talent that could easily remind one of both the fragility of life and the fickleness of fate.

Jane Scott, a writer and illustrator, is the author of Between Ocean and Bay: A Natural History of Delmarva (Tidewater Publishers, 1991), and Field and Forest, A Guide to Native Landscapes for Gardeners and Naturalist (Blackburn Press, 2002) as well as other works. She traces her roots in Delaware back to the 1730’s and now lives on the Eastern Shore.

Commissioners’ Meetings, continued from Page 4

FY2016 and Capital Project Submissions for FY2013

January 24, 2012. The Commissioners:

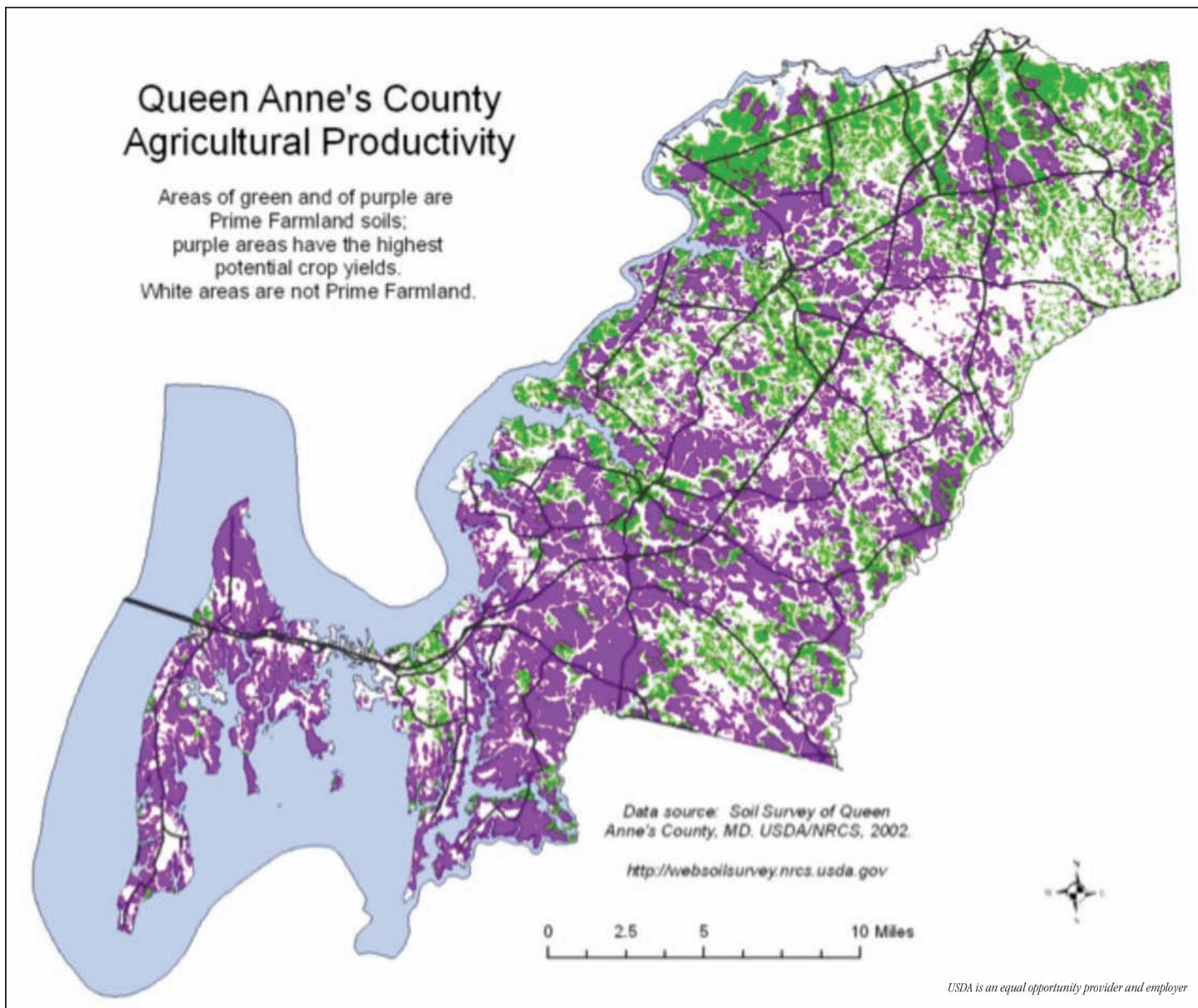
- Voted 3-2 (Dunmyer and Simmons opposed) to send a letter to the Ethics Commission concerning a former member of an advisory board.
- Appointed Patrick E. Thompson of Foster, Braden & Thompson, LLP, of Stevensville, as County Attorney for a one year term.
- Directed the Department of Public Works to apply for State grant funding for the design and installation of a sewer trunk line to service the communities identified with uncorrectable failing septic systems on Southern Kent Island.
- Proclaimed January as National Mentoring Month and the Character Counts! Pillar of the Month for February as “Respect”.
- Held hearings on, and adopted, ordinances relating to the new Grasonville Gateway and Medical Center zoning district and implementation of the Grasonville Community Plan, and added, subject to MDP concurrence, 52 properties to the Grasonville Growth Area.
- Received updates from the Planning Commission and Forestry Board.
- Recognized the lifetime accomplishments of Mary Margaret Revell Goodwin, Executive Director of the Eastern Shore 1812 Consortium.

“THE VISION WE SHARE”

The VISION is to continue the ethic that the County remains a quintessential rural community with the overall character of the County preserved as:

- *A predominantly rural county with small towns connected by creeks and county roads through fields and forest – **a great place to live;***
- *A county that encourages agriculture, seafood and maritime industries, tourism and outdoor sports, small business and high tech enterprise – **a good place to work;***
- *A county that is a faithful steward of its natural and cultural heritage – **a good neighbor for the Bay and other Eastern Shore counties;***
- *A county in which development does not impair the quality of life enjoyed by all – **a community that protects the expectations and opportunities of all its citizens;***
- *A county that supports the **highest quality of education** that seeks to fully prepare its citizens for the future.*

(Queen Anne’s County 2010 Comprehensive Plan, “Overall Community Vision”, page 2)



Brown Gold, continued from Page 1

(USDA) as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops.

Prime farmland has an adequate water supply from precipitation or irrigation, a favorable temperature and growing season, few rocks, is deep to bedrock, and level to gently sloping. Its soils are permeable to water and air. It is not excessively eroded, saturated with water for long periods, or flooded often during the growing season.

Farmland of Statewide Importance

Approximately 67,000 acres in Queen Anne's County, 28% of the total land area, are considered "Farmland of Statewide Importance". These soils nearly meet the requirements for Prime Farmland, and they can economically produce high yields of crops when treated and managed according to acceptable farming methods.

In Queen Anne's County, like much of the Coastal Plain of Maryland, most of the soils that are designated Farmland of Statewide Importance have seasonally high water tables, and have been drained in order to produce agricultural crops. Other such areas are strongly sloping but can be cropped if protected from soil erosion.

Remarkably, then, only about 16% of the county's land mass does not qualify as either Prime Farmland or Farmland of Statewide Importance. These areas include urban and suburban developments, tidal marshes, floodplains, and steeper slopes.

Soil Classifications

Have you heard the term "Class 1 soils"? This is a reference to Land Capability Class (LCC), another USDA classification system. Prime Farmland, for example, consists of class 1 and class 2 soils, only. What do these numbered soil classes refer to?

LCC is a way of grouping soils primarily on the basis of their capability to produce common

cultivated crops and pasture plants without deteriorating over time. "Capability classes" are designated by the numbers 1 through 8. As the numbers get greater, they indicate progressively greater limitations and narrower choices for practical use.

"Capability subclasses" are soil groups within one class. They are designated by adding a small letter, "e," "w," "s," or "c," to the class numeral -- for example, "2e". The letter "e" shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; "w" shows that water in or on the soil interferes with plant growth; "s" shows that the soil is limited mainly because it is shallow, droughty, or stony; and "c," used in only some parts of the United States, shows that the chief limitation is a climate that is very cold or very dry.

Queen Anne's County has 12,700 acres of class 1 soils and 117,550 acres of class 2.

What is Soil? (And PLEASE don't call it dirt!)

Soil is the transition between living and

non-living Earth. It is a product of the "parent material" (mineral or organic matter), weathered over time, acted upon by living and decomposing plants and animals, climate, and its position on the landscape.

The surface layer of soil, or "topsoil", is where all the biological activity takes place. Organic material accumulates at the surface as plants die, drop their leaves, and decompose. That organic matter holds nutrients and water that are slowly released as it breaks down further into "humus". The topsoil is also where a huge number of microorganisms and other critters live, and where a plant's roots grow and gather food. Without the topsoil, a plant trying to grow in the relatively sterile subsoil will struggle to survive and will not be healthy.

Depending on all of the variables, soils develop a distinctive set of layers or "soil horizons", the pattern and arrangement of which is a soil "type". Some soil types have properties that make them best at supporting plants, others at supporting built structures like roads and buildings, and yet others at supporting ecosystems.

Soil Texture

One of the key properties of a soil is its texture, which is determined by the percentage of different sized soil particles (sand -- the largest, clay -- the smallest, and silt -- intermediate size).

- A soil that is mostly coarse particles with a little bit of silt would be called a *loamy sand* texture.
- A soil with mostly fine particles would be a *clay loam*, or a *silty clay* if it had very little sand at all.
- The term *loam*, that many people interpret as a good garden soil, is a mixture of almost equal percentages of the three size particles - sand, silt, and clay.

Soil types vary considerably across a landscape, and in the Coastal Plain the variations occur in intricate patterns because of the mode of deposition of parent material, and the influences of wind and water over time. (See accompanying article.) The northern third of the Delmarva Peninsula is fortunate in having a blanket of silt-enriched soil overlying much coarser sand and gravel.

Many of the soils in Queen Anne's County have a surface texture of loam or silt loam. This

continued on Page 7

HOW THE BROWN GOLD CAME TO QUEEN ANNE'S COUNTY

The Delmarva Peninsula, including Queen Anne's County, is part of the Mid-Atlantic Coastal Plain. The geologic formations below the surface consist of a series of unconsolidated sediments that were deposited by water, in various marine and estuarine environments, over a period of about 150 million years.

As the geologic episodes progressed, they resulted in a wedge of sediments overlying the hard crystalline "basement rock". The sediments at the current Atlantic shoreline around Ocean City, MD, are over 5,000 feet thick.

The sediments become gradually thinner towards the northwest, until they pinch out at the "Fall Line", which demarcates the edge of the Coastal Plain and the beginning of the Piedmont. That line approximately follows Interstate Route 95, and represents an ancient high stand of sea level.

Here in Queen Anne's County, the Coastal Plain sediments are about 2,000 feet thick over hard basement rock.

Role of the Glaciers

The "Ice Age", from 1.8 million years ago to about 12,000 years ago, was a time of four glacial advances and three interglacial periods. The changing climates resulted in periods of cold where the Earth's poles were covered in ice, and periods of warm, where the ice caps melted and glaciers retreated.

During the periods of glacial advance, in our area of the globe the ice cover reached down through the North American continent as far south as middle Pennsylvania. When the ice cover is large, as it was with these advances, the water in the rivers and oceans is held in the ice, so sea levels drop drastically. As the climate warms again, the ice melts, and sea level rises and covers areas of land once exposed to the air.

While the last glaciation was at its maximum, the area of the present Chesapeake Bay was a broad land "flat" with the Susquehanna River cutting through it. During the earlier warm period, that flat had been the floor of the Bay, with fine silt and clay sediments accumulating under the water. During that last glacial advance, when the sediments under the Bay were exposed as sea levels dropped, strong arctic winds blew out of the northwest, lifted the sediments, and deposited them on higher areas of land.

This was the mechanism that created the "silt blanket" that lies over much of Queen Anne's County and the northwestern Delmarva Peninsula. Once this silt blanket was laid down, about 10,000 to 12,000 thousand years ago, the major portion of the soils of QAC began to form.

Soil Formation

The process of soil formation began with the "parent material" -- the unconsolidated coarse sediments covered by their new "silt blanket" -- which was then weathered by the actions of chemical, physical, and biological processes.

Fungi and microorganisms contributed to the weathering process, and eventually allowed plants to get a foothold and grow. The plant roots found their way into the sediments, further decomposed the parent material, and animals small and large began to mix and aerate the material. As they died, the plants and animals decomposed into organic matter, an extremely important part of the soil structure. Cycles of wetting and drying, ample precipitation, relatively level topography, and the moderate climate and seasons -- all contributed to the properties of the soils of Queen Anne's County.

But it is that fortunate blanket of silt, with its high water-holding capacity and mineral nutrients, that makes the soils of Queen Anne's County so capable of producing the wide variety of crops and fibers necessary for our population and ecosystem.

Our great good fortune should be appreciated!

-- DIANE SHIELDS

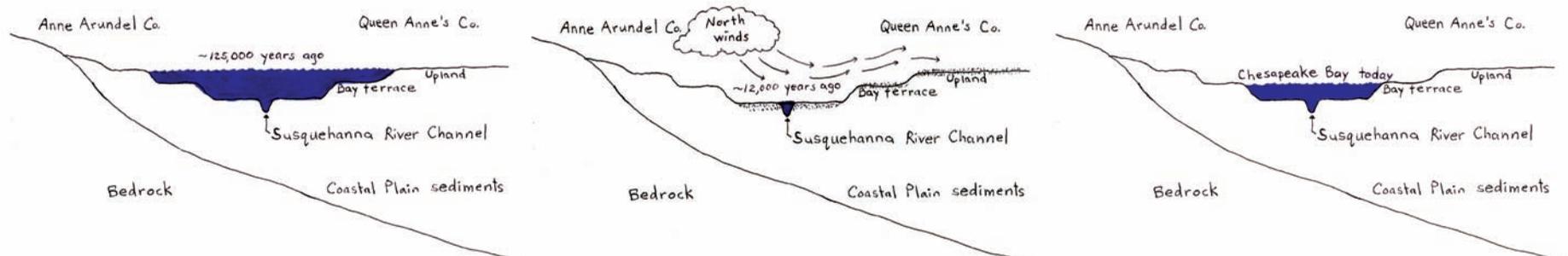
LEARNING ABOUT YOUR SOIL

You may want to learn about the soil types on your property -- for example, whether or not you have Class 1 or Prime Farmland soils -- by visiting the Web Soil Survey (<http://websoilsurvey.nrcs.usda.gov>).

The Web Soil Survey tool can be challenging to use, without some guidance at first. Good instructions are on the web site, but for personalized assistance, call:

- Centreville Natural Resources Conservation Service Field Office (410-758-1671 x3)
- Maryland State Soil Scientist, Amanda Moore, Annapolis (443-482-2913)
- Maryland Resource Soil Scientist, James Brewer, Easton (410-822-1577)
- Diane Shields, Soil Scientist, Dover, DE (302-678-4172)

You can also pick up a hard copy of the soil survey, or a CD, at the Centreville Field Office.



Brown Gold, continued from Page 6

is significant because it is part of what makes our soils so productive. Silty soils are tremendously productive of grain crops, while vegetable growers prefer more sandy soils because they warm up more quickly in the spring time.

Soils in Our Future

Soil surveys -- maps showing the pattern and location of the various soil types and detailed properties and interpretative uses of soil types -- have been completed over nearly all of the US. I was in charge of updating the USDA soil survey for Queen Anne's County, beginning in

1991, to put soils information in a digital format for Geographic Information Systems (GIS). In addition to the digitizing, we collected extensive data in the field to bring the early soil maps and data up to modern standards.

Having grown up in Southeastern Pennsylvania, I saw the farmlands and rich soils of that area changed into roads, buildings, and shopping centers. That is happening now in many areas of the Eastern Shore, and in parts of Queen Anne's County.

There are not many large areas of

productive farmland remaining in close proximity to the urban corridor of the Northeastern United States. The Delmarva Peninsula is one of the last.

Having brown gold in our backyard, with the ability to grow food locally, is both our opportunity to produce food and fiber for a rapidly increasing population, and our own food security for the future.

Diane Shields, who lives in Centreville, is a senior soil scientist with the USDA's Natural Resources Conservation Service in

Dover, Delaware. Besides early work in Utah, she has mapped or updated maps of eleven Coastal Plain counties in Maryland, Virginia and Delaware. She holds a B.S. in Environmental Resources Management from Pennsylvania State University and a M.S. in Soil Science from Oregon State University. Personal views expressed in this article are the author's alone and do not represent those of any other individual or organization.

WHAT DOES THE LEE-IRENE SEDIMENT DUMP MEAN FOR THE BAY?

That milky brown area in the NASA image from September 13, 2011 is the enormous sediment plume unleashed on the Bay by the drenching rains of Tropical Storm Lee after Hurricane Irene.

About 4 million tons of sediment, including much nitrogen and phosphorous, were scoured out from behind the Conowingo Dam ten miles up-river from the mouth of the Susquehanna, as the river reached major flood stage and every dam gate was flung open.

The Lee-Irene flows from the Susquehanna were the second highest since Agnes in 1972 (topped only by a major snow melt in 1996). What will be the effects, short and long term, of this event?

The Near Term Consequences

Sediment can shade underwater grasses by decreasing water clarity and can bury oysters and other marine life on the bottom of the Bay. Dr. Beth McGee of the Chesapeake Bay Foundation says there's good news in the fact that the sediment dump occurred in September when many of the Bay grasses were starting to die back – rather than in June, when Agnes struck and truly devastated Bay grasses in their growing season.

The news about oysters, says Dr. McGee, may not be so good: "Impacts on oysters, already at a fraction of historic levels, may be substantial. In addition to the potential for oyster reefs to be buried by sediments, in the northern part of the Bay there is evidence of higher oyster mortality presumably due to the drop in salinity caused by the influx of freshwater."

And there's potentially more bad news. Scientists suspect, according to Dr. McGee, that the nitrogen and phosphorus in the sediment plume, plus the raw sewage from sewer systems overwhelmed by the rains, may result in a more severe oxygen-starved "dead zone" in the Bay this coming summer. (Before Irene arrived, a combination of high riverflows, high-nutrient loads, and hot weather had

led to a record dead zone last summer in parts of the Bay.)

The Longer Term Problem

The total amount of sediment behind the Conowingo Dam is on the order of 130 million tons, with about 3 million more tons arriving every year. Of that, 1 million tons sloshes over the gates and 2 tons are retained in the "reservoir".

On those figures, the U.S. Geological Survey estimates that the Dam's storage capacity will be filled up in 15-20 years – at which point all of the annual 3 tons of sediment, with all its nitrogen and phosphorus, will pass down the River into the Bay. (Ironically, the 4-ton scouring of the reservoir by Lee-Irene bought us – but at what price? – two extra years before Conowingo's full capacity is reached.)

By 2025, EPA's new "pollution diet" for the Bay calls for large reductions in sediments, nitrogen, and phosphorus reaching the Bay. There will be no way to stay on this diet if not long after 2025 the Susquehanna will be dumping into the Bay, not less than, but twice as much as, its current contribution of pollutants. And, of course, as long as the Conowingo sediment stockpile sits there and grows, the Bay is at constant risk of another Agnes, snow melt, or Lee-Irene kind of catastrophic overflow.

So, it is widely agreed, doing nothing about the threat lying behind the Conowingo is not an option. But what should be done?

A three-year study of the problem has been launched by the Army Corps, Maryland's MDE and DNR, and the Nature Conservancy. Maybe we could slow the sediment build-up by better controlling upstream run-off. Maybe there could be some controlled releases of sand that could then be used to rebuild sand flats for wildlife habitat downstream on the 10-mile stretch before the Susquehanna reaches the Bay. Maybe there could be some dredging – but the expense would be enormous (estimated at about \$50 million per year to keep pace with the annual build-up).

Other options and combinations of options will no doubt be explored in the study. At this point, only one thing can be known for sure: this is not a small problem.



Satellite imagery of the Chesapeake Bay, September 13, 2011
-- NASA/GSFC, Rapid Response

LEE-IRENE SEDIMENT PLUME: UP CLOSE

In the immediate aftermath of Lee-Irene, environmental historian and estuarine ecologist Kent Mountford piloted his boat *Nimble* through the C & D Canal and down the Bay to his home on the Patuxent:

"I reached Turkey Point, where the effects of the vast Susquehanna Basin began. Here, the water turned the color of milk chocolate, giving the light reflected from the miles-wide Bay a strange hue. . . . A storm's 'first flush' takes out the largest quantities of materials, which had happened above and over Conowingo Dam in the last few days.

"I stopped *Nimble* a couple of times on the Sassafras River, starting near Worton Point, to measure transparency with the coastal oceanographer's standard Secchi disk, a flat disk about 8 inches in diameter, painted with alternate white and black quadrants. The disk was barely 3 centimeters below the surface when I lost sight of it, about 1/23 of what one would normally expect here in the summer.

"I noted, as the day's wind died, that the quiet water allowed sediment to begin settling out and left a layer of clearer water at the very surface -- this is what sedimentation is, after all. It was like looking down on the top of "brown clouds" several centimeters below the surface. . . .

"A few miles north of the Bay Bridge, there were significant "fronts" of debris too dense to navigate through -- in some cases hundreds of feet long. As I sailed laterally to go around them, there was a visual change in water quality, first as a reflective difference, which upon closer inspection revealed a sharp front between highly turbid and clearer water. I saw a sharp demarcation like this on the Patuxent after Agnes back in 1972, but never encountered it again until this storm.

"From there on, the fields of debris, different from "fronts" or lines athwart the Bay, became more extensive. . . . The direct human debris was shameful to see: flip-flops, children's toys, battery boxes, boat parts, barrels, automobile tires on rims, foam-filled traffic control devices, cups, dental floss picks, untold plastic water bottles, and likely millions of Styrofoam fragments. . . .

"My course, navigating for Cove Point and entry to the Patuxent, transected the main channel from Eastern to Western Shore. Debris was less common until I reached the middle of the main Bay channel, where more appeared. Serious hazards were here. 104 statute miles below the Susquehanna at Havre de Grace, MD, I encountered 200-pound stumps borne south on the tongue of the ending ebb tide."

These brief excerpts are from Dr. Mountford's much fuller account in the November 2011 issue of the Chesapeake Bay Journal. The Journal's outstanding Web site, www.bayjournal.com, is provided as a public service by Chesapeake Media Service Inc., and its content is made possible by support from EPA, NOAA, private foundations, and individuals.

A Calendar Of Verses

MARCH: FALCON

I caught this morning morning's minion,
kingdom of daylight's dauphin, dapple-dawn-drawn Falcon, in his riding
Of the rolling level underneath him steady air, and striding
High there . . . the hurl and gliding
Rebuffed the big wind. My heart in hiding
Stirred for a bird, -- the achieve of, the mastery of the thing! . . .

— G. M. Hopkins

APRIL: MOONLIGHT

The waxing moon goes early
And the waning moon comes late
But the moon I love most dearly
Throughout the night-time waits

For us to go out walking
Across the silver lands
As we are softly talking
And walking hand in hand

— Anon.

