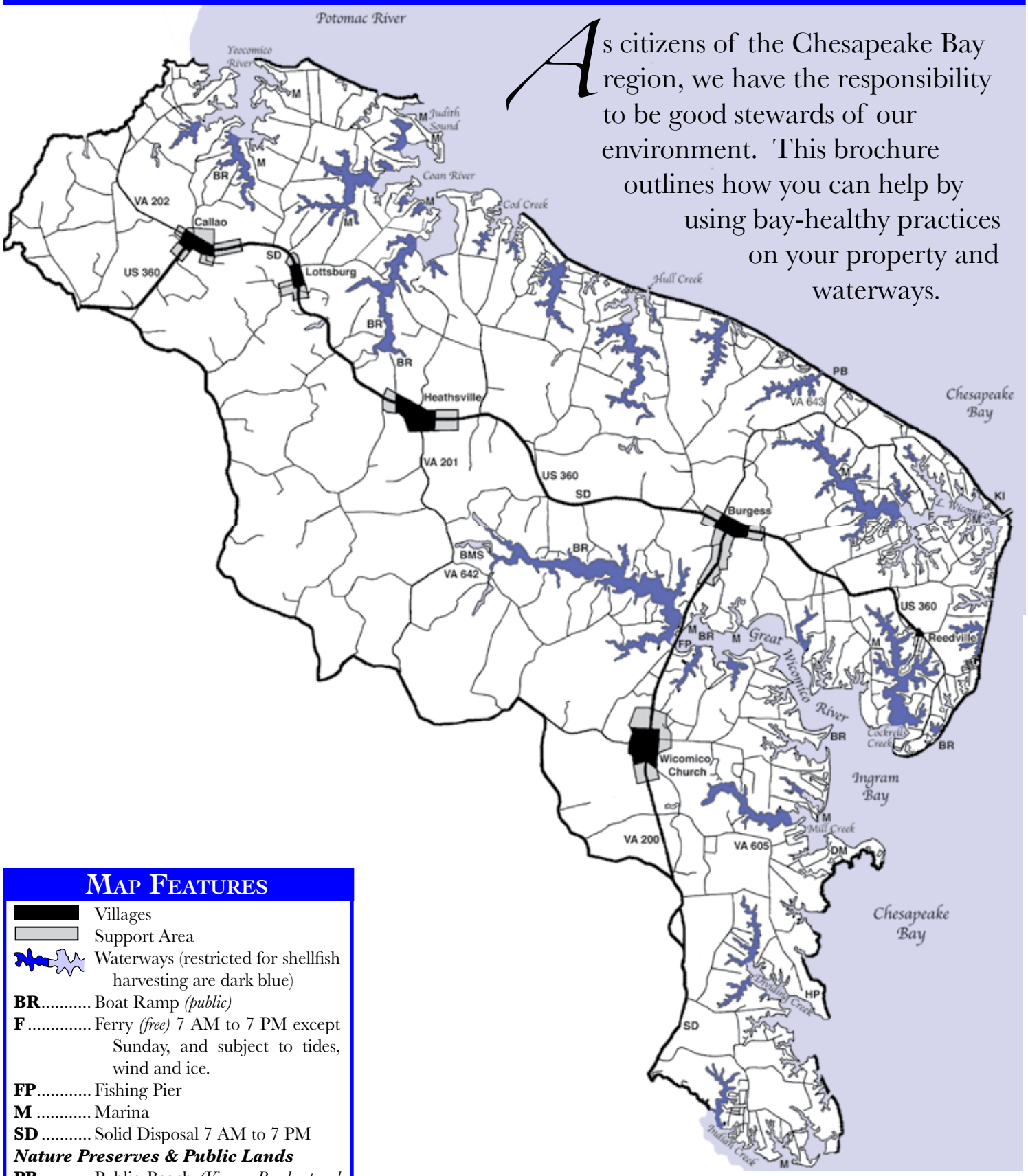
How You Can Help Northumberland County Grow with Order & Beauty

– a Stewardship Guide for Homeowners

Published by NAPS – Northumberland Association for Progressive Stewardship

NORTHUMBERLAND COUNTY MAP



As citizens of the Chesapeake Bay region, we have the responsibility to be good stewards of our environment. This brochure outlines how you can help by using bay-healthy practices on your property and waterways.

Map Features

- Villages
- Support Area
- Waterways (restricted for shellfish harvesting are dark blue)

BR..... Boat Ramp *(public)*
F ..... Ferry *(free)* 7 AM to 7 PM except Sunday, and subject to tides, wind and ice.
FP..... Fishing Pier
M ..... Marina
SD ..... Solid Disposal 7 AM to 7 PM

Nature Preserves & Public Lands

PB ..... Public Beach *(Virmar Beach at end of VA 643)*
BMS ..... Bush Mill Stream *(off VA 642)*
DM ..... Dameron Marsh *(take VA 605 to 606 to 693*
HP..... Hughlett Point *(off VA 605)*
KI..... Kohl's Island *(no access by land)*

IMPAIRED WATERWAYS – *Our biggest environmental challenge*

Why are our waterways impaired?

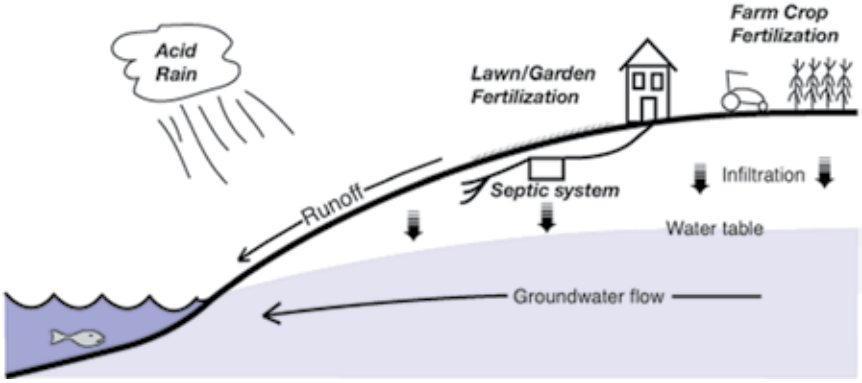
High levels of the **nutrients** nitrate and phosphate are the reason for the pollution

Where do the nutrients originate?

- Agricultural fertilization
- Homeowner practices, including septic systems and lawn and garden fertilization
- Acid rain from combustion (electricity, engines)

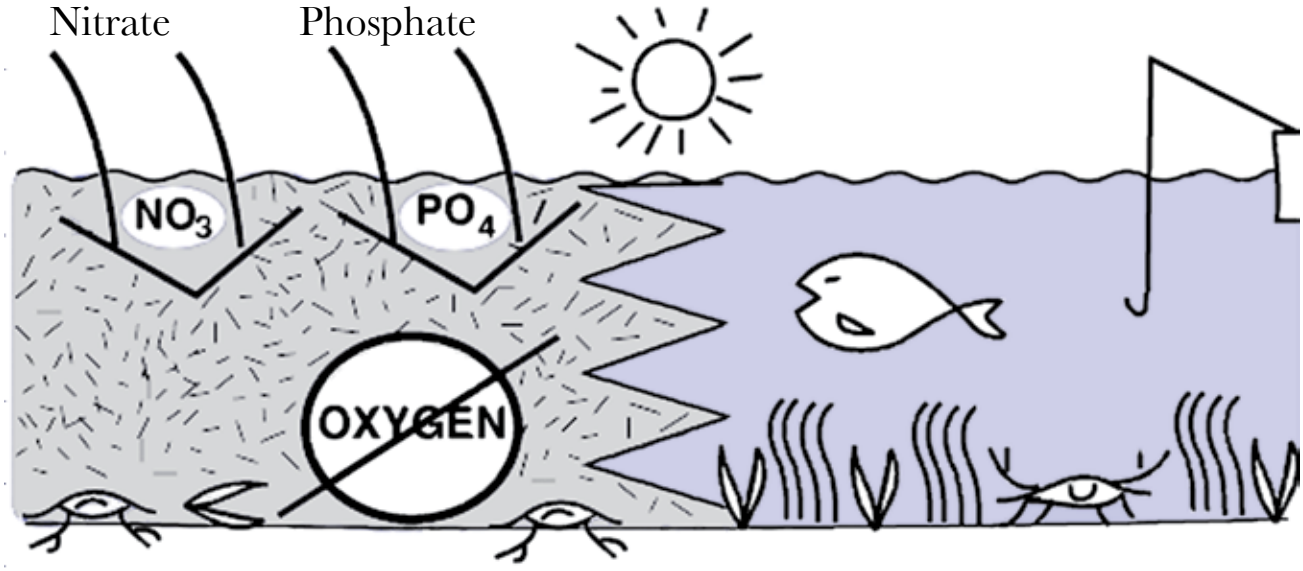
How do the nutrients contaminate waterways?

- Infiltration of rain dissolves pollutants and becomes groundwater
- Acid rain supplies about 5 pounds of nitrate per acre each year
- Groundwater flows toward and discharges into the nearest waterway
- Runoff from impervious roofs and paving, especially the "first flush" contributes pollution
- Sediment enters the water



What are the consequences of adding too much nitrate and phosphate to the water?

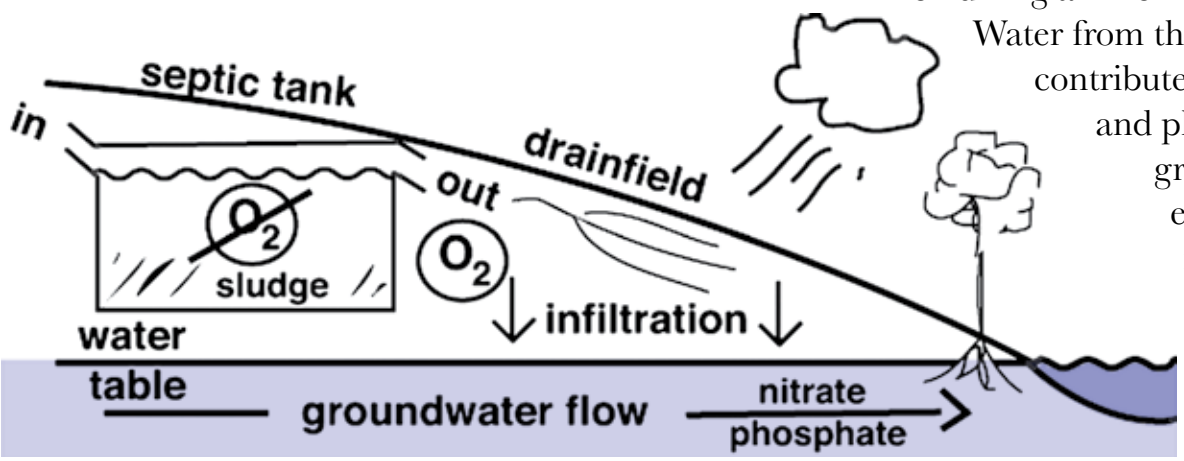
Rapid growth of tiny suspended algae *(phytoplankton)* is promoted. The algae cloud the water and, along with sediment, reduce light penetration. Submerged Aquatic Vegetation *(SAV* or *sea grass)* cannot receive enough light to grow, produce oxygen and provide habitat and sanctuary for marine organisms. Dissolved oxygen is consumed as bacteria decompose the dead algae. Animal life is stressed and "Dead Zones" or even fish kills can result if too much oxygen is consumed, especially in summer.



HOW DOES A SEPTIC SYSTEM FUNCTION?

The septic tank allows solid particles to settle out so that bacteria can decompose some of the organic particles. Trapping particles *(sludge)* in the septic tank keeps them from clogging the drain field. The water exiting the septic tank contains no dissolved oxygen gas *(O_2)*. It contains odoriferous reduced nitrogen and sulfur compounds like ammonia and hydrogen sulfide along with disease-causing *(pathogenic)* microbes.

The drain field oxidizes the water from the septic tank, killing pathogenic microbes and oxidizing ammonia to nitrate (NO_3^-). Water from the drain field contributes nutrients (nitrate and phosphate) to the groundwater, and eventually to the nearest waterway if plants do not utilize them.



SEPTIC SYSTEM MAINTENANCE TIPS:	WHY?
✘ MINIMIZE solids that go down the drain. Do not use a garbage grinder.	Fewer solids in the septic tank mean fewer solids can escape to clog the drain field.
✘ MINIMIZE the use of water. Do not bother with unnecessary commercial "additives."	The less that goes in, the less comes out, leaving more time for microbes to break down the particles of organic matter.
✘ NEVER pour harsh chemicals like bleach or solvents down the drain, or put plastic in the toilet.	Harsh chemicals can kill the microbes that are responsible for all the chemical reactions that break down the organic matter. Plastic can clog the pipes.
✘ DO NOT plant trees so they shade the septic system. Don't drive or park on it.	The roots of trees can clog the pipes, and compaction can break the pipes.
✔ DO plant deep-rooted trees between the drain field and the nearest waterway.	The roots will remove some of the nitrate and phosphate from the groundwater.

Have your septic system inspected every 5 years and the septic tank pumped if it contains more than about *20%* solids *(sludge)*. Unless plants remove the nitrate and phosphate from the water that comes out of your septic system, it all goes in the creeks. Your septic system returns the fertilizer used to grow the food you eat to the environment.

LANDSCAPING – *Tips for wise establishment and maintenance*

BayScaping, or conservation landscaping, is an environmentally friendly way to landscape your property.

DO	DO NOT
Use native plants to encourage beneficial insects and birds, and to reduce the need for water, pesticides and fertilizer.	Plant invasive species, or use asphalt or concrete rather than permeable material such as gravel.
Use many different kinds of plants, especially those with exceptional wildlife value.	Plant "mono-cultures" that are susceptible to disease and pests.
Conserve water. Use trickle or drip irrigation. Water infrequently, but thoroughly.	Water in the middle of the day or plant species that demand lots of water.
Plant trees to shade the house, but especially between the septic system and the nearest water.	Plant trees so that their canopy shades the septic system at noon or the roots can clog the drain field pipes.
Minimize lawns, which require maintenance and money for chemicals and fertilization. Be sure to fertilize only at the correct time of year.	Over-fertilize or use pesticides on a regular basis, especially near the water. Fertilize based on soil tests and get Co-op Extension Pub. 430-011.
Plan for how much time and money you want to spend on maintenance.	Purchase cheap plants on the spur-of-the moment.

Do you want to cut down trees?

The Bay Act prohibits removal of trees within 100 feet of the water unless they are diseased or leaning dangerously. Pruning is permitted, and permission from the County must be requested to thin and establish narrow sight-lines or access paths to the water. Trees perform a valuable function because their roots remove nitrate and phosphate from the groundwater. Pruned of their lower limbs, they frame the view of the water and shade the house in summer, reducing air conditioning bills. The goal should be a stand of mature trees with an overlapping leaf canopy and an under-story of grass and shrubs within 100 feet of the water.

Want more information about BayScaping? Excellent publications are available from the **Alliance for the Chesapeake Bay** (see p. 9), the **U. S. Fish and Wildlife Service** (804-693-6694 or http://northeast.fws.gov/va.htm), the **Va. Cooperative Extension,** especially for soil test information (beside the library), or the **Virginia Institute of Marine Science** (VIMS) at www.vims.edu.

SHORELINES – *A special responsibility for waterfront property owners*

Global sea level is rising about 2 mm each year, and the Northern Neck of Virginia is subsiding at about the same rate. This transforms into an effective rise of sea level of 4 mm each year, about 1.6 inches each decade, or about 5 feet since Jamestown was founded. Rising sea level inevitably causes EROSION.

Marsh grasses can help stabilize shorelines **if**: Substrate is available above mid tide, Full sunlight reaches the substrate for at least half the day, and Wave energy is not too great.

Hard stabilization is more permanent, but there are pluses and minuses.

Bulkhead permits trees close to the water so that roots can remove nutrients from the groundwater. But, unlike **rip-rap**, bulkhead can reflect waves back into the water and exacerbate erosion.

Marsh grass like this common cordgrass (Spartina alterniflora) will not grow below mid tide or in the shade. Note how shade from the fallen tree on the right has prevented grass growth.

Trees leaning dangerously toward the water should be removed before they fall and the root ball compromises the bank.

Trees in the water should be removed if they prevent marsh grass from flourishing.

Property owners are responsible for maintaining their shorelines. If you have questions about your shoreline, contact NAPS.

Boaters should always proceed at NO WAKE speed near shorelines to avoid causing erosion. Never make waves larger than nature makes.

Spring 2005, one year after installation

Fall 2005, after two summers' growth

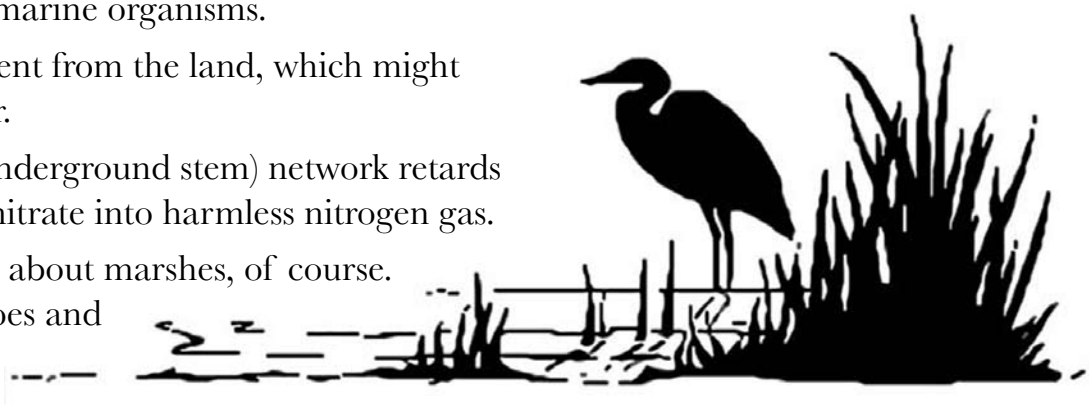
An eroding cliff on Cockrells Creek was stabilized with coconut logs in the spring of 2004, marsh grass was planted on the beach in front of the logs, and vegetation was planted on the cliff. The shoreline was stabilized in two years without using rip-rap or bulkhead. To see another site stabilized with marsh grass, go to the NAPS web site: www.napsva.org.

MARSHES – *Healthy marsh grasses foster healthy waterways*

Marshes are a kind of wetland common to all our brackish tidal creeks. The responsibility for marsh maintenance lies with the property owner, whose ownership extends to mean low tide. The State owns the water below low tide.

Here are some good things about marshes:

- They are the most productive ecosystems on Earth, producing more organic material per unit of area than tropical rainforests or the best mechanized agriculture.
- The fast-growing plants produce abundant food in the form of "detritus" for a large number of organisms, but few organisms actually eat the living plants.
- The dense plant network provides shelter for nesting and breeding (nursery habitat) for a large number of birds and marine organisms.
- The plants trap sediment from the land, which might contaminate the water.
- The dense rhizome (underground stem) network retards erosion and converts nitrate into harmless nitrogen gas.



There are some bad things about marshes, of course. They can breed mosquitoes and they can smell bad.

The most important thing you can do is to admit as much sunlight as possible to your marsh. Prune back all overhanging tree limbs and shrubs. Leave the roots of the shrubs in place if they have become established on a steep bank and they will try to grow back and continue to help stabilize the bank. Trash and debris should be removed, especially if it interferes with growth of the marsh grass. The grass will flourish if it is provided with light and space to grow, and maybe a little fertilizer.

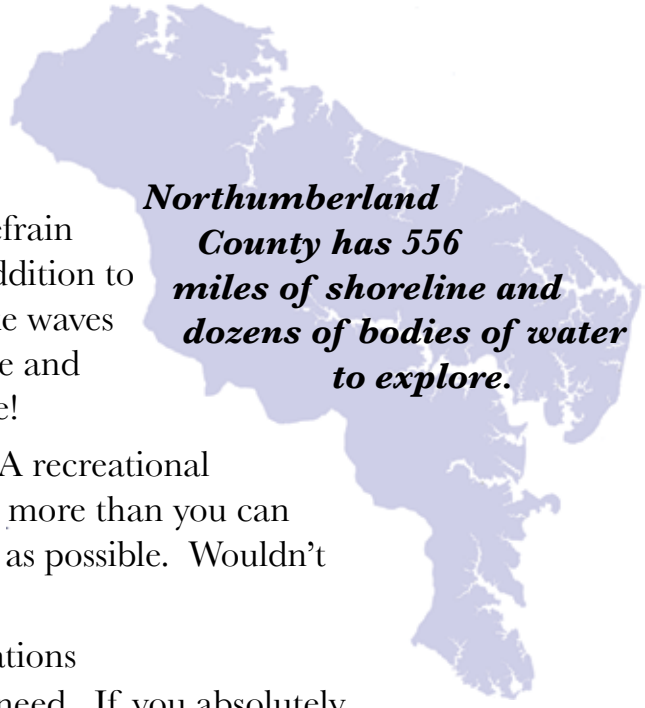
In 1999 (above), the pier was not visible from the house because of a dense stand of Phragmites. After two years, spraying the Phragmites in fall with a herbicide and planting marsh grass in spring, a lush, healthy marsh has been established (right).

Many marshes are being invaded by a non-native grass, called ***Phragmites***. It usually occurs at the landward edge of the marsh and can be recognized by its very tall, bamboo-like stalks and its large, feathery seed-head in the fall. *Phragmites* has little food value for wildlife and its dense stands keep more desirable grasses from growing. If you think you have a stand of this invasive plant, contact NAPS and we will help you get rid of it and replace it with a healthy, diverse marsh.

ENJOYING THE WATER – *Responsible boating and harvesting seafood*

NEVER THROW ANYTHING IN THE WATER. It is illegal. Organic material (fish carcasses, grass clippings, crab debris) adds nutrients to the water as it decomposes.

BOATERS should respect the privacy of citizens and refrain from speeding and making noise in small creeks. In addition to the racket, boat wakes exacerbate erosion. Never make waves larger than nature makes. Take a boating safety course and have your boat inspected by the Coast Guard – it's free!



Northumberland County has 556 miles of shoreline and dozens of bodies of water to explore.

CRABBERS can tend two crab pots without a license. A recreational license allows an individual to tend 5 pots. Never take more than you can use. Return as many female crabs (sooks) to the water as possible. Wouldn't you rather eat her sons next year?

FISHERMEN should always obey the (changing) regulations (http://mrc.state.va.us) and never catch more than they need. If you absolutely insist on "catch-and-release" fishing, use only barbless circle hooks, which greatly increase the likelihood that the fish will survive landing, especially if not handled roughly or played too long.

OYSTERS can be grown at your pier and provide great meals. Oysters are filter-feeders. They grow by feeding on the tiny algae that are responsible for the green turbid water characteristic of local creeks. Oysters once filtered the entire volume of Chesapeake Bay in a few days. Today, with reduced oyster populations and much more abundant algae in the water, it takes about a year for oysters to filter a "Bay-sized" volume of water.

The headwaters of all local waterways are impaired, and restricted for the harvesting of shellfish (dark blue areas on the map – p. 1) because of high coliform bacterial levels. Restricted areas are continually being updated and available at www.vdh.virginia.gov/shellfish.

It's easy to become an oyster gardener, and fun for everyone. Look for the seminars in local newspapers, or see p. 10 for a contact, and learn about oyster gardening at www.deq.virginia.gov/coastal/.

DOMESTIC WATER – *Where we get it, and what it's like*

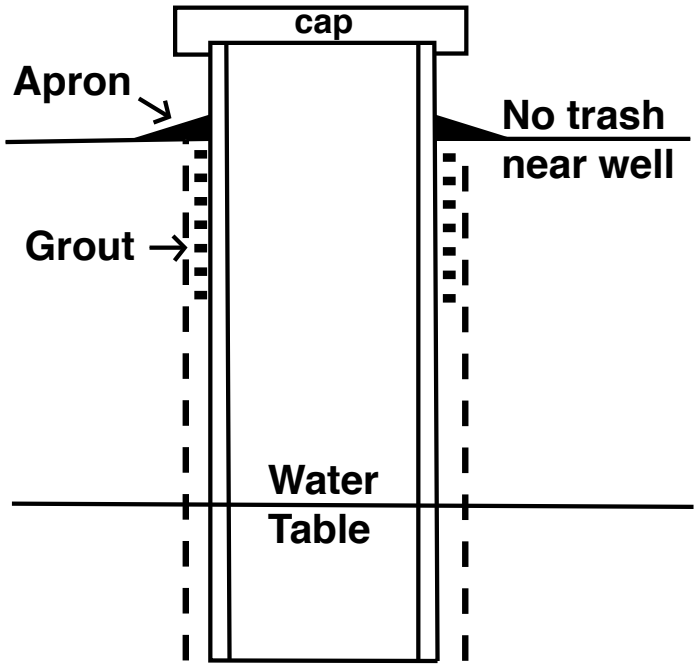
Shallow or "**dug**" wells tap the water table aquifer. The quantity of water is usually sufficient for a family. The water is typically acid, with a pH of about 5, and corrosion of copper pipes is common. Shallow wells can also contain enough iron to cause staining. Nitrate levels are commonly high enough to be dangerous to infants. Additional problems are caused if:

Organic material enters the well. If this happens, oxygen will be removed and the well can turn "sour" and contain dissolved iron and hydrogen sulfide.

Bacteria enter the well. Prevent bacterial contamination by keeping the area around the well free of trash, debris, pets and birds.

Need help? Contact www.saifwater.org.

The cap must be firmly sealed to keep light and particles out.



Grout and/or an apron must prevent water flowing down the outside of the well.

The two **artesian** aquifers are both being "mined" unsustainably. Local consumption is only partly responsible for regional declines in water levels in both aquifers.

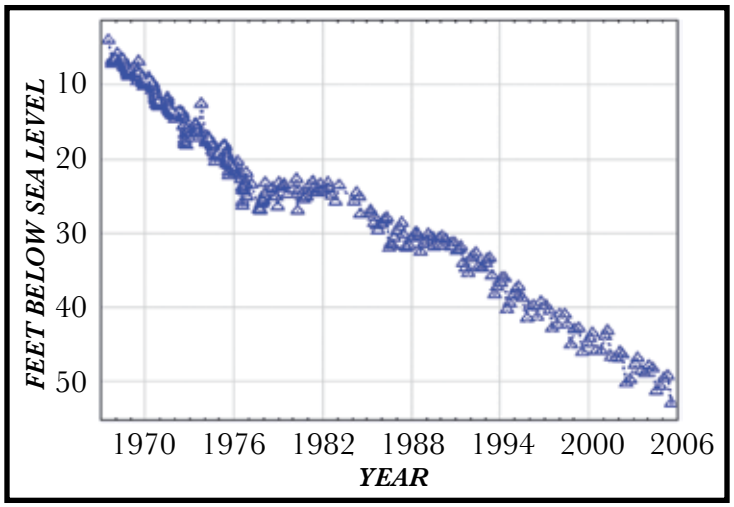
The shallow artesian aquifer, at about *350* feet, is also being tapped in Maryland. The water level in the aquifer declines more than *100* feet between the MD-VA state line and Solomon's Island, MD. Wells in Virginia have already gone dry as a result. See www.napsva.org for more information.

The deep artesian aquifer, below about *600* feet, is used by most citizens. Water levels are being lowered more than one foot each year and decline toward West Point, where the paper mill discards *20,000,000* gallons each day.

What should we do?

CONSERVE, CONSERVE and CONSERVE. Don't waste water! Minimizing water down the drain increases the efficiency of septic systems.

The sodium concentration in both artesian aquifers is more than the maximum recommended for people on a sodium-restricted diet. Fluoride levels are also high.



Water level measurements in Kilmarnock have declined more than 50 feet since 1965. Water once flowed out of wells 30 feet above sea level in the early 1900's. The water level is now about 55 feet below sea level.

WANT TO KNOW MORE? – *Useful links and resources*

Need more information? Here are some useful places to start:

Alliance for the Chesapeake Bay (www.alliancechesbay.org) publishes the ***Bay Journal***, available free in printed form and online at www.bayjournal.com. The *Bay Journal* is a must for anyone concerned about issues and events that affect Chesapeake Bay. If you have a question about the Bay, search the *Bay Journal* web site for articles.

Chesapeake Bay Foundation (www.cbf.org) is the largest non-governmental organization promoting a healthy Chesapeake Bay.

Chesapeake Bay Program is a multi-governmental interstate partnership with the Environmental Protection Agency, reached at www.chesapeakebay.net or 1-800-YOURBAY, and the Chesapeake Bay Commission is another tri-state legislative effort at www.chesbay.state.va.us.

U. S. Fish and Wildlife Service, reached at http://northeast.fws.gov/va.htm.

Northern Neck-Chesapeake Bay Regional Partnership www.northernneck.us

There are three local newspapers:

Northumberland Echo – 580-3444, echo@rivnet.net

Rappahannock Record – 435-1701, mail@rrecord.com

Northern Neck News – 333-6397, necknews@3n.net

Northumberland County

County meetings are held monthly and agendas are published in local newspapers. The Board of Supervisors meets the second Thursday and the Planning Commission meets the third Thursday of each month. Citizens are encouraged to attend and participate. You can always contact the County Administrator at 580-7666 or get information from the county web site at www.co.northumberland.va.us.

County Resources

Heathsville

County Administrator	*580-7666*
County Historical Society	*580-8581*
Hughlett's Tavern	*580-7900*
Public Library	*580-5051*
Va. Cooperative Extension	*580-5694*

Reedville

Fishermen's Museum	*453-6529*

Want to adopt-a-highway? Call 1-800-PRIDE-VA (774-3382), or www.virginiadot.org.

County ordinances, including the Chesapeake Bay Act, zoning ordinances and the County Comprehensive Plan are available on the county web site. Copies are also on reserve at the Public Library (580-5051 or www.nplva.org), and the library card catalog is available online.

There are three nature preserves in the County: Bush Mill Stream (off VA 642), Dameron Marsh (take VA 605 to 606 to 693 and turn right on the gravel road), and Hughlett Point (off VA 605). Guided tours are regularly scheduled and advertised in local newspapers. More guides and monitors are always needed. More information is available at www.state.va.us/dcr/dnh. Kohl's Island, owned by the Virginia Outdoors Foundation, is accessible only by water.

Recycle paper, glass, plastic and cardboard at Solid Disposal sites, 7 AM to 7 PM. The Horsehead site accepts oil and batteries, and yard trash/wood on Tue, Fri and Sat AM.

ABOUT *NAPS – Northumberland Association for Progressive Stewardship*

NAPS, the Northumberland Association for Progressive Stewardship, (Box 567, Heathsville, VA 22473) was founded in 1989, with a motto of helping Northumberland County grow with order and beauty. Our goals are to:

- Improve environmental quality in Chesapeake Bay and its tributaries.
- Foster and preserve Northumberland County's unique quality of life.
- Promote responsible land use policies and monitor land use.
- Prevent and/or reduce all forms of pollution.
- Develop educational programs to achieve NAPS' goals.

The NAPS web site, **www.napsva.org**, has links to other organizations, events of interest to citizens and Stewardship Tips submitted to three local newspapers. Local volunteer organizations that may be of interest include:

Audubon Society .....(www.northernneckaudubon.org)

Chesapeake Bay Garden Club .....(www.cbgc.us)

Oyster Grower's Association.....**(Contact Don Beard at 438-6563)**

Reedville Fishermen's Museum...(www.rfmuseum.org)

Virginia Native Plant Society .....(www.vnps.org)

Master Gardeners.....**(Contact the County Extension Service at 580-5694)**

Women's Club .....**(Contact Judy Rossi at reedvillerossi@direcway.com)**

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Join NAPS NOW!

NAPS Membership Application

Please print this page, fill out application, cut page at dotted lines, place into No. 10 envelope with a check made out to "NAPS," and mail to:

NAPS
P.O. Box 567
Heathsville, VA 22473

(Please pass this application along to interested parties.)

Name(s) _____

Address _____

City _____ State _____ Zip_____

Phone (____) _____ Fax (____) _____

Email _____

Membership Category* (check one):

❑ Individual $15 ❑ Sustaining $100
❑ Family $25 ❑ Patron $250
❑ Student $1 ❑ Business $ _____ (min. $50)

* *The Internal Revenue Service has determined that NAPS qualifies as a tax-exempt organization under section 501 (c) (3) of the code. As such, dues and contributions to NAPS may be deductible by donor for tax purposes.*

I would like to participate in:

_____ Adopt-A-Highway
_____ Environmental Education
_____ Finance
_____ Fund Raising
_____ Grass Planting
_____ Monitoring County Boards
_____ Membership
_____ NAPS Exhibits
_____ Phragmites Problems
_____ Publicity and Newsletter
_____ Special Events Coordination
_____ Any Project Assignments
_____ Other _____