FRIENDS OF THE SHENANDOAH RIVER NEWSLETTER Fall 2015

President's Message

FOSR has had a busy year!

We have been making progress on many initiatives. Here are a few highlights:

- **Friends of the Middle River has joined with the Friends of the Shenandoah River. While FOMR will be a part of FOSR, the FOMR organization will remain a separate, organizationally independent group that has its own activities and goals. Joe McCue, the FOMR Steering Committee Chair, has joined the FOSR Board of Directors.**
- **Together with FOMR, we have established an *E. coli* satellite testing program in the Upper Middle River area of Augusta County. We can now quickly perform specific *E. coli* tests within the local watershed.**
- **The FOSR Board is actively increasing its participation in community outreach, education and water quality related advocacy. For the last 25 years, FOSR has maintained the foremost volunteer non-profit water quality test lab on the East Coast, with a DEQ and EPA Level 3 certification. We are now moving to expand the role of the lab and the FOSR organization within the greater Shenandoah watershed.**

We need you!

As I mentioned, FOSR will be increasing its outreach, advocacy, and public education activities. To accomplish this, we need help with the formation of proactive, effective committees that will

(continued on Page 4)

Water Quality versus Corn Production in the Shenandoah Valley

A white paper for SWCDs as they anticipate advocating for cost-share funds at the 2016 General Assembly

By Bernard C. Nagelvoort, Member, VASWCD Legislative Committee; Chair, LF-SWCD Legislative Committee; Board Member, Friends of the Shenandoah River, September 2015

As leaders in efforts to clean up water quality in the Chesapeake Bay under terms of the current EPA TMDL (supported by six states and the District of Columbia), it is important that Soil and Water Conservation Districts throughout the Bay watershed have substantial knowledge of major factors impacting those efforts. It is the purpose of this paper to describe and discuss one of those likely major factors, the Federal Renewable Fuel Standard (RFS).

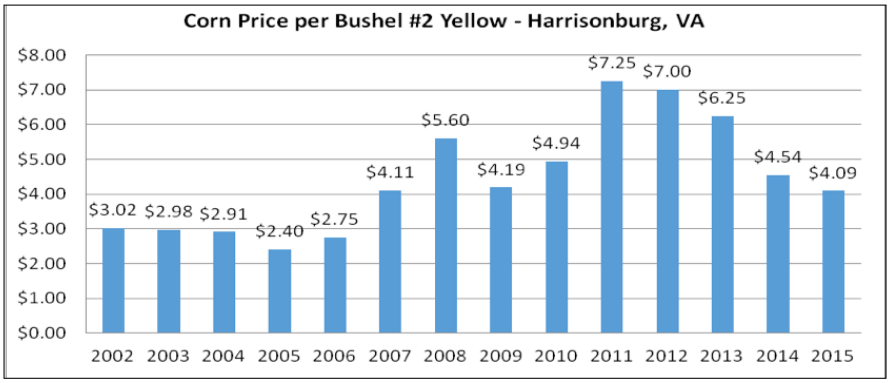
Developed initially in 2005 and expanded in the Energy Independence and Security Act of 2007, the Renewable Fuel Standard seeks to reduce both greenhouse gas emissions and US dependence on oil imports by establishing increasing quantities of renewable fuels that must be blended into transportation fuels.[i] In its earlier years the act sought to achieve the production of 12.96 billion gallons of renewable transportation fuels in 2010 with a longer term objective of 36 billion gallons produced for such use by 2022. By 2011 35% of the US corn crop was utilized for this purpose. The impact on corn production and prices was profound.[ii] The tables below illustrate this impact. They are focused on the counties in Virginia and Pennsylvania with substantial corn production in the Bay watershed and karst (carbonate) geology. (It is recognized that rainfall timing, while not considered here, along with crop rotation, i.e., corn/soybeans, have a

Corn acreage and bushels produced
Shenandoah and Rockingham Counties, VA, Lancaster and York Counties, PA
USDA Census of Ag - 1997, 2002, 2007, 2012 Percent change from 1997

	Shenandoah County, VA				Rockingham County, VA			
	Acres	% Change from 1997	Bushels	% Change from 1997	Acres	% Change from 1997	Bushels	% Change from 1997
1997	5,592	-	544,847	-	12,782	-	1,365,326	-
2002	5,605	0%	382,122	-30%	11,737	-8%	937,513	-31%
2007	8,987	61%	1,130,808	108%	14,155	11%	1,701,405	25%
2012	7,812	40%	1,048,210	92%	17,349	36%	2,270,746	66%
Accum		40%		92%		36%		66%
	Lancaster Co, Pa				**York Co, PA**			
	Acres	% Change from 1997	Bushels	% Change from 1997	Acres	% Change from 1997	Bushels	% Change from 1997
1997	94505	-	11,454,290	-	71,288	-	5,859,533	-
2002	69829	-26%	4,694,401	-59%	74,270	4%	4,994,491	-15%
2007	101981	8%	16,092,245	40%	88,448	24%	11,672,612	98%
2012	101005	7%	15,034,403	31%	68,654	-4%	9,056,521	55%
Accum		7%		31%		-4%		55%

(Continued on Page 2)

(Continued from Page 1)



significant impact on total production from year to year.)

While the implications for the Chesapeake Bay from these numbers are not immediately obvious to the general public, Soil and Water Conservation District Board and staff members will recognize that the unusual sharply increased acreage in corn production stimulated by high corn prices comes at an environmental cost. Some marginal land for a corn crop – with poorer soils and increased slopes subject to more runoff than occurs on the better land normally utilized for corn – was likely planted to corn with an increase in nitrogen, phosphorus, and sediment entering surface waters.

At the same time, a substantial amount of nitrogen in the nitrate form in fertilizer will have leached to groundwater where corn is grown on marginal lands, perhaps more than from better corn ground. It may also be true that efforts to optimize corn production stimulated by high prices may have encouraged the use of more nitrogen fertilizer per acre than would otherwise have been utilized.

In the use of nitrogen fertilizer there is normally a percentage of that fertilizer which reaches groundwater as a result of rainfall and snowmelt. A three-year study by the US Geological Survey dated 1993 in Lancaster County, PA, determined that about 38% of nitrate nitrogen fertilizer reached groundwater even with the proper implementation of Nutrient Management Plans.[iii] While the Nutrient Management Plans resulted in the use of fewer pounds of fertilizer, the same percentage of the fertilizer nitrogen that was applied to the crop reached groundwater.

In the Shenandoah Valley, part of the Chesapeake Bay watershed via the Potomac River and its Shenandoah River tributary, two water quality monitoring sources indicate little progress in recent years in reducing nitrate levels leaving Virginia to flow to the Bay. This is occurring despite substantial upgrades in both municipal and industrial waste water treatment systems and very successful efforts by local SWCDs to encourage the voluntary installation of Best Management Practices throughout the Valley in this period.

At the USGS monitoring station at Front Royal on the South Fork of the Shenandoah River, flow-adjusted data for total nitrogen indicate a reduction of 5% over the past ten years. At the USGS monitoring station at Strasburg on the North Fork, no significant change is indicated in this period. A Friends of the Shenandoah River monitoring station at the Route 7 bridge in Clarke County indicates a substantial increase in nitrate levels over this period on a basis that does not include an adjustment for river flow levels[iv].

The conclusion of this report is that the dramatic increase in corn production in the US and in the Chesapeake Bay watershed as a result of the Renewable Fuels Standard encouragement of corn production during the past nine years has seriously hampered efforts to reduce nitrate levels in the Bay. It also strongly suggests that without substantial reductions in nitrogen loads to Bay watershed rivers and streams by municipal and industrial sources in those years along with the installation of substantial numbers of BMPs by Soil and Water Conservation Districts, the Bay problems would be much worse than they are now.

The author of this report does not conclude that the objective of the Renewable Fuels Standard is inappropriate, but does conclude that use of corn as a biofuel source introduces serious environmental problems and is ill-conceived from that perspective as well as its substantial negative impact on food prices. Creating this mandate to produce biofuels while adding to water quality degradation in the process is a powerful illustration of "robbing Peter to pay Paul."

It remains to be seen whether current lower corn prices currently will result in reduced corn acreage and significant related reduction in nitrogen fertilizer usage. The next USDA census of agriculture will not occur until 2017 with results not available for several years thereafter to provide related evidence. If no change is made in the Renewable Fuels Standard there may be even greater pressure for more corn production as achievement of the 36 billion gallon objective for 2022 is sought.

For the Chesapeake Bay, if the Renewable Fuels Standard is not changed to reduce the encouragement of the use of corn for the production of ethanol, it will be a dramatic challenge to achieve the desired nitrogen reduction to meet Bay TMDL goals in the future. While the current emphasis in Virginia for Soil and Water Conservation Districts is the exclusion of livestock from surface waters, an important effort in itself to reduce nitrogen, phosphorus, and sediment from entering the Bay, much greater emphasis will need to be placed in the future on other BMPs related to the reduction of nitrogen reaching groundwater from corn production. Winter cover crops and nutrient side dressing would seem to be the BMPs requiring much additional attention if voluntary measures continue to be the only means for reducing agriculture's continuing negative impact on Chesapeake Bay water quality.

[i] Methanol Institute. Methanol: The Clear Alternative for Transportation – April 2011, also, The Renewable Fuel Standard: a Path Forward, by James H. Stock, April 2015, Center for Energy Policy, Columbia University.
[ii] Virginia USDA Agricultural Statistics
[iii] USGS, Water Resource Investigations Report 97-4048
[iv] FOSR.org., Monitoring Data & Maps, Water Date Query, site FC-08

President's Message (continued from Page 1)

increase the strength and value of the organization. These committees will fill critical needs and help grow the organization and expand its visibility and public awareness by increasing the presence and active participation in watershed communities, local, regional and Chesapeake Bay-wide stakeholder meetings, workshops, and related and regulatory agency activities.

The committees we will be establishing now are:

Education
Increase public awareness of Friends of the Shenandoah by providing interpretation of our water-quality data and antidotes to water quality problems, and produce and distribute a quarterly newsletter.
- Create educational workshops and seminars
- Prepare direct mailing campaigns
- Develop and implement an activity plan for representing FOSR at regional river-related and environmental events and community activities

Membership
- Create and implement outreach programs to current membership
- Target programs to substantially increase the FOSR/FOMR membership base

Public Relations
Help prepare and implement a plan to increase the visibility of the FOSR organization.
- Prepare appropriate press releases regarding FOSR activities and events
- Initiate interviews and stories with local press
- Help manage social media messaging, including Facebook and Twitter
- Help create a coordinated campaign aimed at state and local agencies and elected officials
- Actively seek the participation of partner watershed groups

In keeping with our goal of increasing the relevancy and value of FOSR, we are also looking for two people to help with the following volunteer positions. These positions will provide immediate impact on the organization's ability to grow.

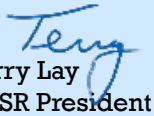
Volunteer Laboratory Administrator
The lab administrator will assist Karen Andersen with the various administrative tasks and related activities. Specific duties will include:
- Provide information to the water monitors, and FOSR partners regarding laboratory operations, schedules and training dates, and other lab-specific operational activity
- Follow up on lab-related questions or requests
- Help create and distribute reports and other lab-related documents

This is an exciting position than can evolve to fit the skills and interests of the volunteer.

Volunteer Coordinator
The volunteer coordinator will help the FOSR Board with organization-wide volunteer practices, including:
- Help develop and maintain the volunteer opportunities within FOSR
- Recommend the most efficient use of volunteers to support FOSR activities
- Help develop and manage volunteer policies, procedures and standards of volunteer service
- Evaluate all aspects of volunteer programs to ensure effectiveness and recommend changes as appropriate

On behalf of the FOSR Board, I would like to thank each of you for your support in 2015 and your continuing support in the years to come.

Best Regards,



Terry Lay
FOSR President

Join the Team

If you would like to join the team of volunteer water monitors, assist in the lab or in another way please contact Karen Andersen at kandersen@fosr.org or (540) 665-1286.

To support the Friends of the Shenandoah River in their efforts including the long-term volunteer water quality monitoring program, please visit our website or send donations to:

Friends of the Shenandoah River, Attention: Karen Andersen
1460 University Drive, Winchester, VA 22601

FOSR
FRIENDS OF THE SHENANDOAH RIVER

www.fosr.org

Friends of the Middle River Cleanup

September 12, 13, 16

Volunteers from FOMR, students from James Madison University and Mary Baldwin College, and staff from Virginia Eagle Distributing, combined efforts to clean 7 1/2 miles of Middle River and 3/4 mile of Lewis Creek.

Working in teams in canoes and on the shoreline, the cleanup participants spent three days removing a wide range of rubbish from the Middle River. The debris collected during the cleanup included

- 214 tires!
- washing machine tub
- refrigerator
- gravestone.

Using canoes as barges, volunteers walked the river, picking up debris as they moved downstream. A total of 60 volunteers worked in the water, while four others helped at the debris drop-off point. JMU students helped in a section with the largest concentration of tires. MBC students focused their efforts on a section of Lewis Creek located within the Staunton city limits.

FOMR's corporate sponsor, Virginia Eagle Distributing, not only allowed FOMR to place a large roll-off container as a drop-off point at their facility in Verona, they also put 18 volunteers in the river for the cleanup.

Ready to unload more trash

Cleanup crews moving down the Middle River

There were a lot of tires!!

FOMR would like to thank:

- James Madison students Kelcy Jackson, Jesmine Roberts-Torres, Audrey Siebels, Grant Rybnicky, Joshua Schmidt, and Jessica Troutman who worked with the "Tire Crews."
- Tom Yeago of the Lewis Creek Advisory Committee in Staunton and Mary Baldwin students Tevenah Charlemagne, Choi Eunbee, Linda Hoach, Breanna Rodriguez-Jeff, Carla Cisneros, Melissa Lovretich, Madison Bergstrom, Jazzlyn Manning, Kayla and Bria Shelton.
- *Daily News Leader* reporter Traci Moyer and friend John and photographer Mike Tripp.
- Master Naturalists Sue Eckroth and Peggy Plass.
- VDGIF volunteers Paul Bugas and Justin Heflin.
- 18 Virginia Eagle Distributing volunteers organized by Crystal Heinz and Cameron Pritt. They found the gravestone.
- FOMR volunteers Dave Mangun, Roger Robinson, Neil Tucker, Sarah & Chad Rhinehart, Joe Thompson, Marion Bittinger, Antonio Martinez, Jordan Bowman, Ken Knorr, Reese & Pamela Bull, Bill Cranor, Pete Aaslestad, Tom Rodriquez, Janet Joseph, Ginny Hoffman, John Griffin, Debra Obenschain, Joe Grossman, Charlie Huppuch and Joe McCue.

FRIENDS OF THE SHENANDOAH RIVER

2016 Water Quality Monitoring Calendar

Thank you to all our volunteers for your dedication to FOSR and to the Shenandoah River.

Water samples are to be collected on the highlighted Friday between 7:00 AM and the scheduled drop-off time for your location. For information or assistance please contact the FOSR Lab Director, Karen Andersen, at 540.665.1286 or kandersen@fosr.org.

January

Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

February

Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29					

March

Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

April

Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

May

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

June

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

July

Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

August

Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

September

Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

October

Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

November

Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

December

Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

2015 Citizens Water Quality Monitoring Conference

The Friends of the Shenandoah River was very pleased to host the 2015 Citizens Water Quality Monitoring Conference in early August with a theme of "Protecting water quality from Virginia, Maryland, Pennsylvania, Delaware, West Virginia and beyond." The event was held at Shenandoah University and it was a rousing success. There were over 100 participants, representing a wide range of Federal, State, and County agencies, with the majority of the attendees from nonprofit and volunteer organizations from the states around the Chesapeake Bay region.

The conference was organized by Virginia's Department of Environmental Quality. DEQ recognizes and appreciates citizen water quality groups because DEQ often doesn't have either the funding or the manpower to maintain a constant monitoring effort itself. As a vital partner, DEQ works closely with FOSR to maintain the integrity of the FOSR monitoring and testing programs.

The agenda included a wide range of fascinating workshops, with the focus on the following:

- Ways volunteers produce meaningful results to help make sound water quality decisions.
- Collaboration with and networking among monitoring groups from other states.
- Building a unified, multi-state volunteer program never before seen in the Chesapeake Bay watershed.

Some of the agenda topics were:

Chesapeake Bay Volunteer Monitoring Network
First stakeholder meeting on the new Chesapeake Bay watershed wide volunteer monitoring.

How Agencies Use Volunteer Data
Learn ways state and local governments can use volunteer water quality data to make more informed decisions and assessments of water quality.

Effective Communication of Data to the Public
Have a lot of data but it is flying over the heads of your audience? Learn strategies when communicating your results to the public and other organizations.

Organizing and Maintaining a Monitoring Program
Learn from a volunteer group how to maintain a monitoring program over multiple years. Topics include how to retain volunteers and diversifying funds in a competitive environment.

FOSR Lab Tour
Our lab director, Ms. Karen Andersen, gave a great tour of our Level 3 Certified laboratory (and also saved everyone from starvation when there was a catering snafu!). Her agenda item was: "Tour one of the most advanced volunteer laboratories in Virginia. See how nutrients, bacteria, field measurements, and other tests are done." We are very proud of the laboratory and its certification, as both DEQ and the EPA use our lab results as part of their own reports on water quality.

The conference also included a canoe trip on the Shenandoah guided by our president, Terry Lay. It was a stormy afternoon, but fortunately the rain held off and Terry led the group of 25 participants on a very scenic route down the river.

It was great to get everybody together to compare stories and techniques concerning water quality monitoring highlights and we want to thank all the participants.