

**Public Comments submitted to the
Virginia Department of Environmental Quality
For the Northumberland County No Discharge Zone Application**

Public Comment:

Sent: Thursday, June 02, 2011 2:51 PM

To: Smigo, Margaret (DEQ)

Subject: boat controls

Margaret,

I attended your recent meeting in Heathsville. While lacking objections to the controls for Cranes Creek and related Northumberland Creeks, at least insofar as I lack boats that create the problems, I do believe that these efforts amount to spitting into the wind in light of the opposition to EPA's nitrogen efforts advanced by Virginia's agricultural industry and the Virginia's pleading poverty regarding upgrading treatment plants.

I am 72. I'm not from Virginia and proud of it given the Commonwealth's continual failure to seek to protect the Bay. This pains me sufficiently that I am contemplating moving.

Twice in the past week I intended to go fishing in the Bay. I cancelled twice owing to the absence of fish. It appears as if Bay's waterways and creeks are to be devoted to those who wish to race personal water crafts about.

I will volunteer to test water, with the proviso, as I mentioned previously, that all of this amounts literally to nothing if the highly subsidized and wasteful agricultural industry continues to have its way.,
Bill Fleischman, 804-580-5255.

DEQ Response:

Thu 7/21/2011 10:36 AM

Greetings Mr. Fleischman,

This is a follow-up message in response to your comments for the Northumberland County NDZ Application. Your comments and DEQ's response will be submitted to EPA with the application. Thank you for your offer to volunteer to test water. DEQ understands that you have been contacted by the appropriate personnel. Regarding the absence of fish owing to personal water craft traffic, the Commonwealth of Virginia acknowledges the issue of nuisance noise from personal water craft. The Virginia Department of Game and Inland Fisheries provides a section titled, "Courtesy on the Water" in the Virginia Boater Education Course, which encourages personal water craft operators to minimize noise and vary their operating areas. While the DEQ designates No Discharge Zones to protect existing shell fish beds, the Virginia Institute of Marine Science, the Nature Conservancy's Chesapeake Bay Program and others have ongoing efforts to restore shellfish beds in the Northern Neck of Virginia. These restored beds will provide habitat for game species such as striped bass, or rockfish. Regarding the agricultural industry's nitrogen contributions to the Chesapeake Bay watershed, DEQ acknowledges that designation of No Discharge Zones cannot be the sole tool used to reduce nutrient inputs. No Discharge Zones are primarily designated to protect sensitive shell fish beds from direct and proximal discharges of bacteria and other constituents of treated sewage.

Best Regards, Liz McKercher

Public Comment:

Sent: Thursday, June 02, 2011 8:34 AM

To: Smigo, Margaret (DEQ)

Subject: NDZ Meeting Northumberland Cty

Margaret - I attended the meeting last Tuesday regarding the NDZ application for Northumberland. Too bad it was sparsely attended. Don't know whether that is indicative of apathy or recognition of the inevitability of more laws.

A couple of points:

My question about cost of a pumpout was answered that the cost was fixed at five dollars for places that used govt grant money to install the equipment. A friend of mine went to Buzzard's Point Marina (one listed in your NDZ draft application) last week and paid eight dollars. Big problem given that IF the cost is NOT controlled you will have minimal compliance. Same for arriving at a listed pumpout facility to find that it is not operating. I suggest that you require every pumpout facility to post a sticker prominently at the point of use listing the govt approved cost and a telephone number of a govt office to call in the event the facility is not operable or the cost is higher than listed.

IF you really want compliance you should pay boat owners to use the facility. The cost to the boater in time and money (ie, fuel) to seek out a facility is NOT insignificant. This may not be as radical as it sounds. I know of many communities that maintain free (to the boater) pumpout facilities or pumpout vessels.

Although I cannot comment on the accuracy of your numbers regarding the pollutants released from a holding tank, I can say that a sanitation engineer that I know stated that, although the 'point source' readings of nitrogen, phosphorus, etc. may seem high they are insignificant when compared to the amounts released by water treatment plants. Eliminating all the waste from all the boats using the Bay may make everyone feel better but will in all probability not solve the Bay's problems.

Bob Norman

DEQ Response:

Response: Thu 7/21/2011 11:05 AM

Greetings Mr. Norman,

This is a follow-up message in response to your comments for the Northumberland County NDZ Application. Your comments and DEQ's response will be submitted to EPA with the application. Thank you for sharing your idea to post pump out prices prominently. DEQ agrees that this would be very convenient for boaters, but DEQ does not have the authority to require marinas to post pump out costs. The Virginia Department of Health (VDH) provides a list of marinas by county. Currently calling the marinas prior to your arrival is the most reliable way to verify cost and availability. Here is the VDH web page for Northumberland County:

<http://www.vdh.state.va.us/EnvironmentalHealth/ONSITE/MARINA/pumpoutdata/county/northumberland.htm>

DEQ confirmed that the Buzzard's Point Marina charges \$8 for pump out services rather than \$5. DEQ will correct the draft application accordingly. Thank you for providing this useful correction.

Thank you for your suggestion to facilitate free pump out services. This is a good idea and one that is implemented by the Hampton Roads Sanitation District, the Virginia Department of Health and the City of Virginia Beach in the Lynn Haven River watershed.

DEQ acknowledges that boats are just one source of nutrients in the Chesapeake Bay. An NDZ is a watershed stewardship tool that can reduce bacteria levels in tidal waters.

Best Regards, Liz McKercher

Public Comment:

Sent: Sunday, June 05, 2011 10:22 AM

To: Smigo, Margaret (DEQ)

Subject: NDZ Northumberland County

We live on Cockrell's Creek in Reedville, Va. My wife and I attended your presentation on May 31st at the Heathsville Courthouse. We are 100 % in support of the NDZ as proposed for Northumberland County. Thank you for bringing this part of the solution to water pollution to the public.

Dick and Patti Doyle
226 Crowder Point Drive
Reedville, Va. 22539
804-453-3084

DEQ Response:

Sent: Tuesday, June 07, 2011 11:21 AM

To: Patti and Dick Doyle

Cc: McKercher, Elizabeth (DEQ)

Subject: RE: NDZ Northumberland County

Good Morning Mr. and Mrs. Doyle,
DEQ appreciates your attendance at the public meeting and support of the proposed NDZs in Northumberland County. Support of the application by local citizens is critically important for EPA approval. We thank you for your time and commitment to the improvement of water quality in tidal tributaries like Cockrell Creek.

Best Regards,

Margaret Smigo
VA DEQ Piedmont Regional
TMDL Coordinator

Public Comment:

Public comments, Northumberland County NDZ draft application

There already exists an established boundary between Virginia waters and the Potomac River, namely the Virginia State Line. The Virginia State Line should be the boundary of the NDZ. There is no reason to establish a different boundary anywhere as this can only lead to confusion and unnecessary bureaucracy when the difference in the area of the NDZ defined by the Virginia State line or some other boundary fabricated by DEQ is trivial. Additionally, if all water draining into the Potomac River from Virginia is designated as a NDZ, water bodies DEQ has ignored would be included. It is true that creeks like Hacks, Cubitt and Presley currently have openings too shallow for vessels that might have MSDs, but

the same is not true of Hull Creek. The possibility exists that the entrances to these creeks might be dredged in the future or that vessels with heads already exist in them. It is easier to include all bodies of water adjacent to the Potomac now than to return to this laborious process. Given the large number of pump-out stations along the Potomac, it is certain "...that adequate facilities for the safe and sanitary removal and treatment of sewage from all vessels are reasonably available ..." (USC § 1322. Marine sanitation devices (f) (3).

Dr. Lynton S. Land, PO Box 539, Ophelia VA 22530 (804) 453-6605 voice and fax
Formally submitted 06/06/11 by email
Judith Lang/ Lynton Land [jandl@nnwifi.com]

DEQ Response:

Thu 7/21/2011 11:28 AM

Greetings Dr. Land,

This is a follow-up message in response to your comments for the Northumberland County NDZ Application. Your comments and DEQ's response will be submitted to EPA with the application. DEQ acknowledges that multiple boundaries can be confusing to boaters. However, due to some comments against NDZ designations in general, DEQ will extend boundaries to the state line only where the extension will specifically extend protection over current or proposed shellfish beds.

Thank you for confirming the lack of accessibility in Hacks, Cubitt and Presley creeks. Regarding Hull Creek, DEQ has received local input that medium sized boats can only get in/out of the mouth within an hour or two of high tide and that a 17 foot boat would have difficulty navigating the channel without assistance from an experienced captain. These limitations may create an undue burden on boaters who cannot leave Hull Creek and would present a challenge to provide adequate enforcement of an NDZ in Hull Creek. For these reasons, DEQ has decided to remove Hull Creek from the NDZ application.

Thank you for your on-going participation in DEQ's TMDL related issues.

Best Regards, Liz McKercher

Public Comment:

Sent: Saturday, June 11, 2011 11:59 AM

To: McKercher, Elizabeth (DEQ)

Subject: RE: Update: Draft Application for Designation of No Discharge Zones in Northumberland County

Importance: High

The new proposal is redundant to existing statutes, and any additions will only increase bureaucratic payrolls. Save Virginia, save the tax base, make people responsible.
John Bieg

DEQ Response:

Sent: Saturday, June 11, 2011 10:57 PM

To: John Bieg

Cc: Smigo, Margaret (DEQ)

Subject: RE: Update: Draft Application for Designation of No Discharge Zones in Northumberland County

Thank you for your comment Mr. Bieg. I will include your comment in the public record.

Best Regards, Liz McKercher

Public Comment:

Sent: Monday, June 13, 2011 10:30 PM
To: Smigo, Margaret (DEQ)
Subject: Comment on application for NDZ

Comment:

It has been illegal to discharge untreated sewage in US waters for almost 40 years. Devices which virtually eliminate bacteria from effluent have been legal. Without evidence that these devices and their treated effluents are inadequate, without evidence that boaters contribute significantly to the Bay's problems in general and without consideration for burdens upon boaters, you are demanding that these devices be banned. This measure would burden boaters' enjoyment of our nation's maritime heritage for arbitrary goals and likely unmeasurable benefits.

I urge that the application be disallowed.
Eric Jacobson, 72 Kildeer Lane, Lottsburg, Va 22511, tel. 804 529-5003

DEQ Response:

Thu 7/21/2011 11:32 AM

Greetings Mr. Eric Jacobson,

This is a follow-up message in response to your comments for the Northumberland County NDZ Application. Your comments and DEQ's response will be submitted to EPA with the application. DEQ acknowledges that some MSDs emit low levels of bacteria. Design, operation, maintenance and salinity can affect treatment within the device and MSDs are not equal in performance. Direct depositions of bacteria and nutrients, as opposed to those resulting from land-based runoff, can have a greater localized impact on water quality in sensitive shellfish resource areas.

An NDZ is a watershed stewardship tool that can be effective for improving water quality and given the extent of impairments for bacteria, SAV and DO; the General Assembly and DEQ have determined that they are necessary and beneficial. NDZs in Virginia have proven to be an effective means of reducing bacteria levels in tidal waters in combination with other water quality improvement measures. For example, in the Lynnhaven River condemned shellfish waters are now open for the first time in decades. Additionally, MSDs are designed and certified to technology based limits that meet recreational use Water Quality Standards but are inconsistent with the more conservative shellfish Water Quality Standards.

Best Regards, Liz McKercher

Public Comment:

Sent: Monday, June 20, 2011 10:30 AM
To: Smigo, Margaret (DEQ)
Subject: Comments re: Northumberland NDZ application

Dear Ms. Smigo,

Please accept my comments in favor of the Northumberland NDZ application. Eliminating the contribution of partially treated sewage from marine sanitation devices will go far towards achieving compliance with water quality standards in these small creeks. I am also in favor of the extension of the Yeocomico River boundary to the state line to protect oyster beds. This will not only have a direct benefit to the oysters but an indirect effect on water quality from the filtration they provide.

Thank you for allowing me to submit comments and be on record for the approval of this application.

Sincerely,
Denise Mosca

DEQ Response:

Sent: Monday, June 20, 2011 11:10 AM
To: 'Denise Mosca'
Cc: McKercher, Elizabeth (DEQ)
Subject: RE: Comments re: Northumberland NDZ application
Good Morning Ms. Mosca,

DEQ greatly appreciates your comment of support for the Northumberland NDZ application as well as your support for the extension of the Yeocomico River NDZ boundary. Your comments will be incorporated into the submittal which will be sent to EPA for approval.

Best Regards,

Margaret Smigo
VA DEQ Piedmont Regional
TMDL Coordinator

Public Comment:

Public Comment is Embedded in DEQ Response Below

DEQ Response:

July 21, 2011

Mr. Dale T. Weatherstone
Managing Director Ft. Lauderdale Operations
Raritan Engineering Company, Inc.
3101 S.W. 2nd Avenue
Ft. Lauderdale, Florida 33315
954-525-0378 ext. 300
Fax: 954-764-4370
Dalew@raritaneng.com

Dear Mr. Weatherstone:

Thank you for your comments, dated June 24, 2011, regarding the Northumberland County NDZ application and process.

Enclosed are staff responses to your requests.

I appreciate your company's efforts to participate in the process.

Sincerely,

David S. Lazarus
Watershed Program Manager
Office of Water Quality Programs

Enclosures

Cc: Mark Alling
Margaret Smigo
charlene@raritaneng.com

**Northumberland County NDZ Application
Comments for Mr. Weatherstone, Raritan Engineering and DEQ Responses**

Under Certification of Need: DEQ claims that “while terrestrial pollution is a threat to these marine natural resources, vessel pollution is direct and proximate to oyster grounds, and therefore may have a more immediate impact on local water quality.

Comment: In all waters of Virginia and the United States it is a violation of State and Federal law to discharge untreated waste into any waters within the state. A Federal NDZ is only a ban on the use of Type I and II MSD’s that treat waste by destroying the bacteria that DEQ is addressing. The most popular device used by recreational vessels under 65 ft. is Electro Scan (formerly Lectra Scan) which treats waste water with bacterial reductions 100 times greater than EPA standards. As most boats use raw water for flushing, the treated discharge water returns cleaner than receiving waters.

Response: DEQ acknowledges that some MSDs may emit low levels of bacteria. Design, operation, maintenance and salinity affect performance and all MSDs are not equal in performance. While some devices are more environmentally protective than others, the Federal law does not allow states to exempt those more protective devices. Direct depositions of bacteria and nutrients have a greater impact on water quality in sensitive shellfish resource areas. DEQ acknowledges that type I and II MSDs are required to discharge effluent that generally meets the water quality standard for recreation. An EPA study in 2007 determined that the vast majority of effluent discharged from an Electro scan MSD had low levels of fecal coliform bacteria. However, EPA also experienced uncharacteristically high samples which exhibited greater than 24,000 MPN/100 ml. This reflects the issue that design, operation, maintenance and, in some MSDs, salinity affect performance of MSDs.

Comment: The current existing laws “prohibit the discharge” of untreated human waste. Banning the only alternative that is clean, safe and will not cause water quality impairment in already impaired waters in the form of current USCG approved MSD’s is not a logical nor effective means of attempting to improve water quality. Enforcement of existing laws and regulations is what is needed.

Response: NDZs are designated as one tool to protect shellfish growing waters from treated and untreated boat waste. While it is illegal to discharge raw waste per the Clean Water Act, NDZs elevate the message to the public that dumping is illegal and that because the waters are sensitive to pollution, it is necessary to prohibit discharges from MSDs to achieve reductions in sensitive water bodies.

Enforcement of existing laws and regulations can improve within NDZs. Local residents become aware of the prohibition and will report violations. Also, because a physical barrier to the use of the y-valve or toilet is required, it is easier for law enforcement officials to visually identify violations.

It is a watershed stewardship tool that can be effective for improving water quality and given the extent of impairments for bacteria, SAV and DO, the DEQ has determined that they are necessary and beneficial. NDZs in Virginia have proven to be an effective means of reducing bacteria levels in tidal waters, for example in the Lynnhaven River where historically closed shellfish waters are now open for the first time in decades. Additionally, MSDs are designed and certified to technology based limits that meet recreational use Water Quality Standards but are inconsistent with the lower shellfish Water Quality Standards.

Monitoring: DEQ states that “although many sources potentially contribute to declining water quality in these waters, it should be **assumed** that discharges from vessels anchored, docked,

moored, or operating within them, have the potential to be contributory sources to the overall bacterial load.”

Comment: First, these statements are speculative with no basis in scientific factor evidence with regard to vessels equipped with approved USCG Type I or II treatment technology. Has DEQ conducted any DNA analysis of the bacterial found in the listed impaired creeks to establish the source? If this has been done and human bacteria found, it should not be “assumed” that said bacteria comes from boats, particularly inasmuch as there are so many low lying septic systems and an estimated human population of **25,551 people** that may reside adjacent to the water bodies that DEQ intends to be a NDZ for boat MSD’s.

Comment: According to a study conducted in the mid 1990’s to determine non point sources of bacteria done by Professor George Simmons, Virginia Polytech, on the eastern shore of Virginia, the high fecal coliform and ecoli levels were attributed to wildlife, not human. The bacteria was identified via DNA fingerprinting and other means. Has DEQ conducted similar tests in the tidal creeks slated for NDZ designation? What is the percentage or ratio of animal sources versus human sources.

Response: Yes, DEQ uses bacteria source tracking to identify the probable source of fecal bacteria. Pollution budgets (aka TMDLs) have been developed for nine watersheds within Northumberland County. The relative percentages are available online by looking at the TMDLs. See Table 1 for a summary by watershed. See, <https://www.deq.virginia.gov/TMDLDataSearch/ReportSearch.aspx> and search by the water body name or county name in Table 1 to review the full TMDL report. Some water bodies exhibit a prominent bacterial load from wildlife and others do not. For example, Cloverdale Creek receives an estimated 45% of its bacterial load from wildlife and only 21% from humans. Conversely, Mill Creek receives an estimated 6% of its bacterial load from wildlife sources and 25% from human sources. Irrespective of relative pollutant loads, many pollution budgets identify the need to completely eliminate all sources of human bacteria. That translates to a 100% reduction in human bacteria sources to meet water quality standards. The table below presents overall percentages of animals sources versus human sources.

Summary of Bacteria Sources*	<i>Source of Fecal Coliform Bacteria (Percent of total fecal coliform load)</i>			
	<i>Wildlife</i>	<i>Human</i>	<i>Livestock</i>	<i>Pets</i>
<i>Waterbody Name</i>				
<i>Cockrell Creek</i>	12	42	38	8
<i>Dividing Creek and Prentice Cove (averaged)</i>	34	35	15	17
<i>Greater Wicomico (five waterbodies averaged)</i>	15	37	25	19
<i>Mill Creek, Ball Creek, Cloverdale Creek (three waterbodies averaged)</i>	29	24	31	28

Owens Pond (two waterbodies averaged)	49	23	17	12
Coan River (5 sampling stations averaged)	8*	58	9	4
	*An additional 21% was attributed to birds, primarily from naturally occurring populations of waterfowl.			
Cod, Presley, Hull, Rodgers, Bridgeman, Cubbitt and Hack Creeks (averaged)	31	23	29	34
Little Wicomico River Watershed	10*	59	9	3
	*An additional 18% was attributed to birds, primarily from naturally occurring populations of waterfowl.			
Mill Creek, UT to Kissinger Millpond	5	2	91	1
*For more specific percentages, by water body, read the TMDL report at https://www.deq.virginia.gov/TMDLDataSearch/ReportSearch.aspx				

The Cockrell Creek TMDL calls for a 100% reduction in human and livestock bacteria sources to meet the pollution budget. Dividing Creek TMDL calls for 100% reduction in human, livestock and pet bacteria sources to meet the pollution budget. The Greater Wicomico TMDL calls for a range of 48-100% reduction in human bacteria sources across the five water bodies included in the TMDL. The Mill Creek TMDL calls for 100% reductions in human and livestock bacteria sources to meet the pollution budget. The Owens Pond TMDL calls for 100% reduction in human bacteria sources for each of the three water bodies discussed in the report. The Coan River TMDL calls for zero to 65% reductions in human bacterial loads. Little Wicomico TMDL calls for zero to 52% reductions in human bacterial loads. The Mill Creek to Kissinger Millpond TMDL calls for zero reduction in human bacteria sources and a 40% reduction in livestock bacteria sources.

Comment: EPA effluent standards for Type I & II MSD's do not require that current devices address nutrients, COD or BOD other than reductions of TSS because of so few vessels that would be using these devices when compared to all other point and non point sources which contribute over 99% of the above. An example of how few nutrients are released using the Raritan Electro Scan (see USEPA "evaluation of improved Type I Marine Sanitation Devices – Performance Evaluation Report published January 2010). See pages 4-14.

Table 4-8, total Kjeldahl nitrogen – Electro Scan and page 4-16, to table 4-10, total phosphorus – Electro Scan.

Effect of Discharge From Electro Scan						
			Flush Volume			
			Gallon	100 Gallon	500 Gallon	1000 Gallon
	Mg/l*	kg/G	Lb/G	Lb/100 G	Lb/500 G	Lb. 1000 G
Total Kjeldahl Nitrogen	45	0.00017	0.000375	0.0170325	1.18769815	0.3753963
Total Phosphate	2.2	8.33E-6	184E-05	0.0008327	0.0009176354	0.018352708

*average of 10 day test table 4-8 to 4-10 as per "Evaluation of Type I Marine Sanitation Devices" report by EPA

To put the MSD nutrient discharge into proper perspective see:

http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/FinalBayTMDL/CBayFinalTMDLExecSumSection1through3final.pdf

See 3rd paragraph contained in the above link to Chesapeake Bay/Final Bay TMDL Executive Summary Section 1 through 3 – The TMDL – The largest ever developed by EPA – Specifically, the TMDL sets by watershed limits of **185.9 Million Pounds** of nitrogen, **12.5 Million Pounds** of Phosphorus and **6.45 Billion Pounds** of sediment **Per Year!** Boat toilets with Electro Scan devices use on average ½ - ¾ gallon per flush. The amount (wt.) of the total nitrogen for 10,000 gallons of treated waste is **3.75 Pounds** and the amount of phosphorus for 10,000 gallons of treated waste is **0.18 Pounds**.

Monitoring: DEQ further states that "Depending on the Type of MSD, wastewater discharges from marine vessels may also contain additional pollutants, such as protozoa (e.g., Giardia), viruses (e.g., Norovirus), and deodorants or sanitizing chemicals (e.g. Formaldehyde) that are potentially harmful to humans, wildlife, and the environment."

Comments: This is not only incorrect it is misleading. The only "MSD" that could potentially discharge some of the things the DEQ contends is a Type III MSD or holding tanks which if that is the case is and has been, regardless of NDZ designation, a violation of state and federal laws. USCG Type I & II MSD's Do Not discharge these elements but rather eliminate harmful bacteria and even viruses which POTW's (Publicly Owned Treatment Works) are not required to do. DEQ's desire to require a 100% dependence on the only system that can, if done illegally, cause problems in favor of accepting other forms of technology that would otherwise prevent this is counter to DEQ's and the public's desire for unimpaired water.

DEQ, through it's public comments and statements to the media has caused financial damage to our company, Raritan Engineering Company, Inc. by using false and misleading assumptions and incorrect information in describing the operation and effectiveness of our product(s). This also impairs the further development and improvements in technology that could result in even better environmental protection. Furthermore, NDZ's result in boaters not investing in Type I or II systems for fear they will be banned causing them to in many cases discharge raw holding tank sewage into waters not yet equipped with pump outs.

Final Comments: DEQ reports that there are 1035 vessels from 26 ft. to over 40 ft. in Northumberland County, VA.

DEQ lists 11 creeks to be designated as NDZ's so of these the NDZ would address 94.09 boats 26 ft to 40 ft per creek that must find a pump out, and not be allowed to use a Type I MSD such as the Electro Scan.

DEQ states that the 11 creeks to be designated as NDZ's consist of a total of 14,500 acres. This means that there will be 14 acres of creek waters per boat.

DEQ lists the collective square miles of the 11 creeks to be designated as NDZ's to be 22.63 square miles and DEQ lists the collective shoreline distance for the 11 creeks to be 307.68 miles. The 10 pump out facilities listed by DEQ to provide services to all boats over this vast area, appear to be woefully inadequate. Based on these facts it appears that the exiting pump outs will not be reasonably available or adequate. What is DEQ's plan when one or more

pump outs is out of order? These are mechanical systems that will have mechanical breakdowns occasionally.

According to the National Marine Manufacturers Association (NMMA) in a letter sent to the USEPA office of water November 9, 2010 that “use patterns should be evaluated when considering MSD regulations of recreational boats.” Boats in the US were used an average of 29 days in 2009. Boats smaller than 13 feet were used an average of 21 days, boats 14 feet to 29 feet were used an average of 31 days, and boats 30 feet and larger were used an average of 34 days. (NMMA, 2009 statistical abstract (table 1.17k).

Based on the number of boats (1035 26 to over 40 ft) and the low average use patterns of recreational boats and the comparative large area of waters targeted by DEQ to be NDZ's it is unrealistic to expect any water quality improvement as a result of NDZ's and it may actually result in unnecessary pollution from boats forced to empty holding tanks when pump outs are not functioning or not accessible. This can be avoided in an environmentally safe, clean and intelligent way by not removing the only rational alternatives to a one size fits all approach.

Response: DEQ acknowledges that complying with NDZs can require additional planning by boaters. Because NDZs are only applicable in limited areas usage of MSD technology is supported by DEQ and may be used in all non-NDZ waters.

Also, DEQ acknowledges pump outs may be less available in certain areas despite being generally available across Northumberland County. Nationwide data suggest that the EPA formula to determine adequate pump out availability does confirm adequate pump outs in NDZs.

EPA surveyed 958 boaters during 2003 to evaluate NDZs across the United States. When asked if they had trouble using a pump out during the 2003 boating season, the reply included the following: 9% said Yes, 74% said No, and 17% said they did not attempt to use a pump out. When asked if they had trouble using a pump out the last time they were in an NDZ the reply included the following: 3% said Yes, 70% said No, and 27% said they did not try to use a pump out the last time they were in an NDZ. Source: Final No Discharge Zone Evaluation, 2004. See, <http://water.epa.gov/polwaste/vwd/ndzdocument.cfm>. To designate only the most enforceable and practical No Discharge Zones, DEQ and the NNPDC removed four creeks from the application prior to the public notice of the draft. This was done because Hull, Hacks, Cubitt, and Presley creeks do not provide a pump out within the water body, and they are relatively difficult to navigate at the mouth.

DEQ encourages Raritan Engineering Company, Inc. to continue to be a front runner in MSD technology by developing a hybrid Electro Scan that can provide immediate treatment and discharge in Non-NDZ areas, but can delay discharges when the vessel is in an NDZ for later on-board treatment or pump out.

Public Comment:

Date: Tue, 28 Jun 2011 13:13:24 -0400

To: margaret.smigo@deq.virginia.gov

Subject: Northumberland County NDZ draft application comment

Public Comment on Northumberland County NDZ draft application
June 28, 2011

We are in strong support of establishing No Discharge Zones (NDZ) in the proposed Northumberland county tributaries. In particular, we are interested in improving water quality and protecting our economically viable oyster industry in the Northern Neck.

Generally, we would support NDZ designation in the Northumberland county Potomac tributaries at the State line because this would provide consistency throughout the State, help to protect all of our marine resources, reduce the opportunity for detrimental algae blooms and reduce the incidence of bacterial accumulation. Additionally, if NDZ's were located at the State line in the Potomac tributaries, then education would be more consistent and less confusing for impacted user groups.

Specifically, we suggest that the NDZ line in the Yeocomico River be moved to the mouth of the river. A new NDZ should be designated from Lynch's Point to Thicket Point, if not the State line. The Yeocomico River supports a very viable and productive oyster industry that harvests tens of thousands of bushels of oysters each year. The Yeocomico River realizes tens of thousands of bushels of seed oysters planted each and every year, which provides the foundation for such a productive oyster industry. Of particular concern is the northern shore toward the mouth of the Yeocomico River that currently has thousands of bushels of oysters planted and continues to be a very productive oyster ground. There are two pieces of oyster ground that have been permitted for oyster aquaculture through the State and encompasses a very productive area. Additionally, on the southern shore of the Yeocomico River there is Public Ground #112 (Northumberland county) that was planted by the State with seed oysters and was subsequently harvested by watermen in 2008.

It is further important that there is a clear understanding of the ineffectiveness of the marine sanitation device in relation to public health standards. The Virginia Department of Health, Division of Shellfish Sanitation is responsible for determining shellfish ground condemnations and has set strict standards to protect public health that marine sanitation devices are incapable of realizing. This discrepancy that undermines the Health Department's effort to protect our shellfish resource as well as public health is unacceptable. Exacerbating the problem of marine sanitation devices is that nutrients (nitrogen and phosphorous) are not eliminated nor treated during discharge. These elements are responsible for detrimental algal blooms that deprive shellfish as well as other marine organisms of oxygen, potentially leading to an increase in "dead zones".

Lastly, we do not have a scientific data set available for the Yeocomico River that supports a "high flushing system" presumably to dilute the bacterial and nutrient loading from marine sanitation devices. Despite the lack of flow data we can assume, within reason, that the main stem Potomac River has a much higher rate of flushing compared to the mouth of the Yeocomico River.

In summary, we strongly support implementation of NDZ's in Virginia's waterways. Particular to this application, we strongly support moving the proposed NDZ line to the mouth of the Yeocomico River to protect the vast amount of economically and ecologically important oyster grounds. Additionally, marine sanitation devices, in general, should not be discharged unless in main stem major tributaries or the main stem Chesapeake Bay due to its overall ineffectiveness. From the current proposed NDZ line to the mouth of the Yeocomico River is a shorter distance to travel (i.e. less fuel and thus cost) compared

to the approved pump out locations at marina facilities. The potential impact of any further shellfish condemnations in the Yeocomico River would have deep negative consequences for the economy and jobs, the oyster industry as well as the ecology of the tributary.

Respectfully submitted by:
A.J. Erskine
Bevans Oyster Company
Cowart Seafood Corporation
June 28, 2011

DEQ Response:

Tue 6/28/2011 1:41 PM

AJ,

Thank you for your comments regarding the Northumberland County NDZ draft application. Your comment will be incorporated into the final application for submittal to EPA.

Best Regards, Liz

Liz McKercher

Watershed Coordinator, Virginia Department of Environmental Quality

Public Comment:

OLVERSON'S LODGE CREEK MARINA, INC.

P.O. Box D
Callao, VA 22435

Phone: 800-529-5071
: 804-529-6868
Email: marina@olversemarina.com

- To:** Margaret Smigo – Northumberland County NDZ draft application
- From:** Olverson's Lodge Creek Marina, Inc. Frederick A. Olverson individually.
- Date:** 6/29/2011
- Ref:** Comments as to Proposed Virginia No Discharge Zones Application for Federal No Discharge Zones for all Counties.
1. That the pump out facilities at Marina locations in all the waters in Virginia, covering a broad area, do not pump out vessels from 1st November of any year to 1st April of any year (5 months) as they are winterized and non-operable in the aforesaid time period.
That the five Marinas in Northumberland County, because of freezing weather almost daily, as set out in the application, do not pump out boats in the winter months; That Olverson's Lodge Creek Marina, the largest Marina in the Northern Neck of Virginia (5 waterfront Counties) winterizes its pump and water lines.
 2. That No Discharge Zones (NDZ's) prohibit the use of EPA approved and Coast Guard certified Type 1. and Type 2. onboard treatment devices; that the effect of a No Discharge Zone is outlaw the use of a legal onboard treatment system.
 3. That the EPA's professional evaluation of Type 1. Marine Sanitation Devices show that shell fish beds are considered safe with an average fecal coliform per 100 mi of 14; That the EPA funded testing showed that the Electronsca treatment device was 99.99% effective; that in almost all cases the waste discharge from an Electronsca device is cleaner than the water that the vessel is floating in.
Why outlaw its use in any of the Virginia waters?
 4. That one questions why the State of Virginia would desire to outlaw the use of a legal onboard treatment system when the State of Virginia now endorses the Electronsca device per a state representative at the Northumberland County Public Hearing.
 5. That from 1st November to 1st April on any calendar year is a peak boating time as boaters can fish for Rockfish until 31st of December; that there are also thousands of boats on the Inland Waterways anchoring in Virginia waters from 1st November to 1st April each year, sailing/motoring to Florida and beyond.

Olverson's Lodge Creek Marina, Inc.
by Frederick A. Olverson, Pres. Frederick A. Olverson
F.A. Olverson – President Olverson's Lodge Creek Marina, Inc. and F.A. Olverson individually.

DEQ Response:

Thu 7/21/2011 11:52 AM

Greetings Mr. Olverson,

This is a follow-up message in response to your comments for the Northumberland County NDZ Application. Your comments and DEQ's response will be submitted to EPA with the application. Because NDZs are only applicable in limited areas, usage of MSD technology is supported by DEQ and may be used in all non-NDZ waters. DEQ believes that management of sensitive tidal waters through the implementation of NDZs will help balance multiple uses of the water bodies in question and ultimately improve water quality. DEQ acknowledges that some MSDs may emit low levels of bacteria. Design, operation, maintenance and salinity affect performance and all MSDs are not equal in performance. Direct depositions of bacteria and nutrients have a greater impact on water quality in sensitive shellfish resource areas. DEQ acknowledges that type I and II MSDs are required to discharge effluent that generally meets the water quality standard for recreation. An EPA study in 2007 determined that the vast majority of effluent discharged from an Electro scan MSD had low levels of fecal coliform bacteria. However, EPA also experienced uncharacteristically high samples which exhibited greater than 24,000 MPN/100 ml. This reflects the issue that design, operation, maintenance and, in some MSDs, salinity effect performance of MSDs.

Thank you for participating in the NDZ process.

Best Regards, Liz McKercher

Public Comment:

*Public Comment is Embedded in DEQ Response Below
Comments and responses included multiple attachments. Please contact
Elizabeth.mckercher@deq.virginia.gov, 804-698-4291 to obtain copies of the attachments.*

DEQ Response:

August 12, 2011

Mr. Tom Neale
Boaters for Clean Waters
P.O. Box 631
Lancaster, VA 22503
tomneale@juno.com

Dear Mr. Neale:

Thank you for your comments, dated June 29, 2011, regarding the Northumberland County NDZ application and process. Pursuant to your request, DEQ will notify you of any pending State Water Control Board action.

Enclosed are staff responses to your requests.

I appreciate your group's efforts to participate in the process.

Sincerely,

David S. Lazarus
Watershed Program Manager
Office of Water Quality Programs

Enclosures

Cc: Mark Alling
Margaret Smigo
Jefferson Reynolds

**Northumberland County NDZ Application Comments and DEQ Responses
Mr. Tom Neale**

Neale Comment:

To: VA DEQ, VA Water Control Board and US EPA
From: Tom Neale, PO Box 631, 532 Mastons Wharf Road Lancaster, VA 22503
Phone: 804 462 6208
Re: Northumberland County Virginia NDZ Petition, prepared by VA DEQ and NNPDC

I request to speak before the Virginia Water Control Board concerning this petition.

Identification

I live on a tributary in the Northern Neck. I travel thousands of miles per year on boats and fish, swim and dive in local area waters. I passionately desire clean water. This DEQ petition will cause more pollution not less, and it ignores real causes of pollution. Following are comments in opposition.

Preliminary Statement

DEQ procedure and the law requires that DEQ conduct a public hearing prior to designation of waters as NDZ. DEQ in a recent comment states that it may designate additional waters in Northumberland County. These waters were not included in the draft petition and were not presented to the public at the public hearing for this county. Such designation of these additional waters, if it occurs, is in violation of DEQ rules of procedure as well as other Virginia law.

The presentation of this petition to the EPA will be tantamount to making false statements to a Federal agency for the purpose of obtaining a rule making decision. See discussion below.

Research has been conducted in a manner to manipulate a predetermined desired result as to whether there are adequate pumpouts and whether there is need for an NDZ. Fundamental

conclusions presented in the petition are the result not of fact but of assumption and an EPA formula which creates fiction to support the desired conclusion and is in direct contradiction to 33 USC 1322 (f) (3). They are also the result of misstatements of facts so egregious that they must be assumed to be deliberate. This raises potential liability issues.

DEQ Response to Preliminary Statement:

The No Discharge Zone (NDZ) designation process in Virginia requires a public meeting and a public comment period. It also requires the applications to be reviewed by the State Water Control Board and Secretary of Natural Resources pursuant to the attached guidance document.

Regarding additional waters being designated, but not included in the Northumberland County application, the following modifications are being considered due to public comment:

- *Extension of the NDZ boundary for the Yeocomico River to the mouth of the Yeocomico River or up to ½ mile to the Virginia state line.*

DEQ alerted 147 stakeholders and public meeting attendees to this potential boundary modification and solicited additional input particular to the Yeocomico. Because the Yeocomico constitutes the county boundary between Northumberland and Westmoreland counties, DEQ also discussed this potential modification during the Westmoreland County NDZ public meeting. DEQ encouraged attendees who have an interest in the Yeocomico River to submit comments for the Northumberland County NDZ application. See the power point presentation at: <http://www.deq.virginia.gov/export/sites/default/tmdl/ndz/drafts/westmorelanddeq1.pdf> No additional water bodies are proposed for designation.

DEQ received two general public comments requesting that all NDZs be extended to the Virginia state line to eliminate redundancy and confusion. In addition, DEQ received one comment specifically requesting additional protection of oyster beds in the Yeocomico by extending the NDZ boundary. The comment states,

“Specifically, we suggest that the NDZ line in the Yeocomico River be moved to the mouth of the river. A new NDZ should be designated from Lynch’s Point to Thicket Point, if not the State line. The Yeocomico River supports a very viable and productive oyster industry that harvests tens of thousands of bushels of oysters each year. The Yeocomico River realizes tens of thousands of bushels of seed oysters planted each and every year, which provides the foundation for such a productive oyster industry. Of particular concern is the northern shore toward the mouth of the Yeocomico River that currently has thousands of bushels of oysters planted and continues to be a very productive oyster ground. There are two pieces of oyster ground that have been permitted for oyster aquaculture through the State and encompasses a very productive area. Additionally, on the southern shore of the Yeocomico River there is Public Ground #112 (Northumberland county) that was planted by the State with seed oysters and was subsequently harvested by watermen in 2008.”

Neale Comment:

Information Specific to the Petition

1. There is not an adequate number of pumpouts in the area. 33 USC 1322 (f) (3) states inter alia: “... except that no such prohibition shall apply until the Administrator determines that adequate facilities

for the safe and sanitary removal and treatment of sewage from **all** vessels are reasonably available for such water to which such prohibition would apply.”

2. The designated creeks and rivers will require many boats to travel great distances between to obtain pumpouts, in open potentially difficult waters. Distances and weather will often make it impossible for boats with holding tanks needing pumpout to obtain same, resulting in increased dumping of large amounts of raw sewage from holding tanks into the water.

DEQ Response to 1 and 2:

For the Northumberland County application, five tributaries to the Potomac River or Chesapeake Bay are included in the application. Four of the five tributaries provide pump out and dump station services within the tributary (i.e. without navigating into the River or Bay.) The fifth tributary system provides non-NDZ area at the mouth where type I and II MSDs may be discharged.

Nationwide data suggest that the EPA formula to determine adequate pump out availability does generally provide for adequate pump outs in NDZs. EPA surveyed 958 boaters during 2003 to evaluate NDZs across the United States. When asked if they had trouble using a pump out during the 2003 boating season, the reply included the following: 9% said “Yes”, 74% said “No”, and 17% said they “did not attempt to use a pump out.” When asked if they had trouble using a pump out the last time they were in an NDZ the reply included the following: 3% said “Yes”, 70 % said “No”, and 27% said they “did not try to use a pump out the last time they were in an NDZ.” (Source: Final No Discharge Zone Evaluation, 2004. See, <http://water.epa.gov/polwaste/vwd/ndzdocument.cfm>)

In order to designate only the most enforceable and practical No Discharge Zones, DEQ and the Northern Neck Planning District Commission (NNPDC) removed four creeks from the application prior to the public notice of the draft. This was done because Hull, Hacks, Cubitt, and Presley creeks do not provide a pump out within the water body, and they are relatively difficult to navigate at the mouth.

Neale Comment:

3. There is strong public opposition to the petition. DEQ fails to admit that the Northern Neck Planning District Commission upon which it relies for public support is not a governmental agency, has no authority to speak for citizens and was paid by DEQ \$125,000.00 of Federal Stimulus funds to support the petition.

DEQ Response to 3:

Public comments have been submitted in support of and against NDZs in Northumberland County. Seven comments were submitted in support of the NDZ application for Northumberland County. Five comments were submitted against the NDZ application. Two additional comments questioned the effectiveness of NDZs in general, but supported the Northumberland NDZ application in principle.

DEQ contracted the NNPDC to prepare applications for NDZ designations in the four counties, because the NNPDC could impart local knowledge and provide sufficient personnel and expertise to the project. DEQ’s Office of Watershed Programs routinely contracts with educational institutions, Planning District Commissions, and private consulting firms to complete projects when contracting allows for optimal use of expertise and resources.

A Planning District Commission is a political subdivision of the Commonwealth chartered under the Regional Cooperation Act by the local government of each planning district. The purpose of Planning District Commissions is set out in the Code of Virginia, §15.2-4207, which in part states, "It is the purpose of the planning district commission to encourage and facilitate local government cooperation and state-local cooperation in addressing on a regional basis problems of greater than local significance."

Comment:

4. DEQ has flagrantly ignored § [62.1-44.33](#) of the Code of Virginia, as amended, which only authorizes NDZ petitions of tidal **creeks** and provides that a petition for any creek be premised upon a finding that said action will improve the impairment of said creek. DEQ is proceeding against rivers, including waters that, according to DEQ's impairment maps, are not impaired. DEQ makes no factual statements and offers no proof that said NDZ designation will improve the impairment of any that are.

DEQ Response to 4:

The terms "tributary", "tidal creek" and "river" are used interchangeably in the Code of Virginia to represent the areal extent of tidal influence for certain water bodies. The terms creek and river are used interchangeably in the Code and in mapping. For example certain named creeks, are designated as Scenic Rivers in §10.1-400 (e.g. Goose Creek and Catoctin Creek). The Virginia Code (See, § [10.1-400](#). Definitions) defines "River" as "a flowing body of water, or a section or portion thereof".

DEQ is directed by the Code of Virginia to premise NDZ designations on improvement of impaired tidal creeks. DEQ's program is primarily premised on addressing tidally influenced areas where water quality is impaired. However, NDZs are not limited to the boundaries of the impairment by the Code of Virginia or Section 312 of the Clean Water Act. Federal guidelines also allow States to designate NDZs under the Clean Water if any State determines that the protection and enhancement of the quality of some or all of the waters within such State require greater environmental protection.

Neale Comment:

5. DEQ erroneously states in its petition, with no documentation or proof, that Type 1 MSDs add chemicals to the water and that boaters put chemicals into them. When requested to provide in writing brands of Type 1 MSDs that do this, they could not do so. In fact, no Type 1 adds chemicals to the water and boaters do not use these or other chemicals with Type 1 devices. There is no need to do so because they treat on a flush by flush basis and to do so would harm the devices. However boaters do frequently add chemicals, including formaldehyde, to holding tanks to control smell and other issues. These chemicals are dumped into the water when pumpouts aren't available and dumped into the ground water when they are. But this is the only method that DEQ wants to use.

Holding tanks create dangerous gasses including hydrogen sulfide which has been found by OSHA to be very dangerous. See attached OSHA Fact sheet.

DEQ Response to 5:

To clarify, it is common for boaters to use additives for holding tanks and sanitation piping, not Type I and II MSDs. Holding tanks are a separate issue from Type I and II MSDs irrespective of the brand.

Information related to treatment efficiency, nutrients, and additional pollutants is from the EPA "Evaluation of Improved Type I Marine Sanitation Devices-Performance Evaluation Report" published in January 2010, and the Wildlife and Sport Fish Restoration Program Toolkit (by the US Fish and Wildlife Service). In its summary of the Clean Vessel Act, the Tool kit states, "Chemical additives such as chlorine and formaldehyde are used to disinfect or control odors of on-board sewage. There is little indication that these chemicals have any harmful effects on the environment. The holding tank chemicals in use today are generally biodegradable and, if even marginally diluted, have little effect on treatment systems. No heavy metals or other severe, lingering toxics can be expected. However, some discussion of possible problems should be mentioned here. Of the two major disinfectant chemicals used-chlorine and formaldehyde- only chlorine has been shown to be toxic in the aquatic environment. While formaldehyde is considered a toxic substance, it is completely miscible in water and is readily degradable. While a direct link between MSD holding tank disinfectants and effects on the environment has not been documented, the presence of these chemicals in sufficient concentrations may be of concern (JRB Associates, 1981). Use of these chemicals as directed by the manufacturer should not result in problems. However, since the amounts of chemicals added are controlled by the boat owner or operator, excess use may occur."

DEQ does not dispute the need to be diligent and safe in proximity to Hydrogen Sulfide gas, especially if working in unventilated areas.

Neale Comment:

6. This petition would reduce, from two to one, the methodology available to boaters for handling sewage. The one to be outlawed in designated waters uses advanced technology rather than dumping and is the most effective. The most commonly used Type 1 device, the Electro Scan, was tested by the EPA and its effluent was found to be cleaner than the water usually around the boat. These findings showed a reduction in FCU to almost nonexistent levels and a reduction in BOD to levels, as quantified in ambient waters, to insignificant levels. DEQ has knowingly and misleadingly misrepresented this test. See full EPA test findings at www.epa.gov/nrmrl/pubs/600r10008/600r10008.pdf . See also attached analyses entitled: **Performance of the Electro Scan As Demonstrated by EPA Test Project Number 0214.00.020, EPA Test Table 4.1, and Executive Summary, unsanitized, of EPA test.**

This test stated that a product, Thermo Pure, performed less than satisfactory. Neither I nor any other boater with whom I have spoken have ever seen such product in use and a survey of the major marine retail catalogues shows that it is not listed therein for sale. This product is not relevant to this determination.

DEQ Response to 6:

DEQ understands that holding tanks can be retrofitted for high treatment systems such as Electro Scan MSDs. Because NDZs are only applicable in limited areas, usage of MSD technology is supported by DEQ and may be used in all non-NDZ waters. DEQ believes that management of sensitive tidal waters through the implementation of NDZs will help balance multiple uses of the water bodies in question and ultimately improve water quality. DEQ acknowledges that some MSDs may emit only low levels of bacteria. While some devices are more environmentally protective than others, the Federal law does not allow states to exempt those more protective devices for use in NDZs.

Design, operation, maintenance and salinity affect performance and all MSDs are not equal in performance. Direct depositions of bacteria and nutrients have a more immediate impact on water quality in sensitive shellfish resource areas. DEQ acknowledges that type I and II MSDs are required to discharge effluent that generally meets the water quality standard for recreation. However, this still exceeds the water quality standard for shellfish consumption. DEQ is aware of the EPA study in 2007, which determined that the vast majority of effluent discharged from an Electro Scan MSD had low levels of fecal coliform bacteria.

Neale Comment:

7. DEQ was asked to provide, over signature, information upon which it relied to support its general allegations. DEQ did not provide information, instead supplying assumptions and deliberately evasive statements, with no signature of person(s) responsible. Some of the responses are so obviously evasive and erroneous that intent to misinform must be assumed. See attached **Information Request and DEQ Response: Analysis**

DEQ Response to 7:

Thank you for your follow-up questions. DEQ has addressed your questions in the attached document titled, "DEQ Response to Mr. Neale's Information Request/Response Analysis July, 2011." Additional clarifications and enhancements have been inserted into the document.

Neale Comment:

8. Many areas (such as in New England) that were designated NDZ years ago now have shellfish warnings posted for periods of heavy boating warning to avoid taking shellfish because of pollution from those boats which have only holding tanks and cannot use Type 1 MSDs. The NDZ is a failed solution. These instances are documented in relevant USCG Notices to Mariners.

DEQ Response to 8:

In Virginia and elsewhere, administrative closures of shellfish beds are ongoing in the vicinity of marinas where pollution sources may unpredictably contaminate growing areas and adjacent to sewage treatment plant outfalls. Marinas may be a pollution source due to gray water and petroleum entering the water, in addition to bacteria sources.

DEQ recognizes that discharges of vessel sewage are not the sole source of shellfish condemnations. It appears that scientists in New England still view NDZ designations as a useful tool. See, <http://www.gpo.gov/fdsys/pkg/FR-2011-07-06/html/2011-16879.htm> for a public notice of a newly proposed NDZ (aka NDA) in Massachusetts.

DEQ discussed the comments regarding New England NDZs with Ann Rodney, EPA contact for NDZs in New England. Ms. Rodney reports that, similar to Virginia, buffers are in place around marinas in New England where shellfishing is prohibited. These buffers are in place due to shellfish sanitation guidelines, which do not change irrespective of NDZ designations. Ms. Rodney reports that NDZs are not a failed solution in New England. She states that there is no guarantee that MSDs are working properly because there is no monitoring of these devices while in use. She also stated that many older vessels still have their original MSD on board, and are two to three decades old. Ms. Rodney was not aware of any recent shellfish closures within NDZs, which were directly attributed to boats using holding tanks.

Other references cite shellfish closures in New England in recent years as being due to the following: one expansive closure due to bacteria from an extraordinary rainfall/runoff event; multiple closures due to toxins from algal blooms especially red tide; and multiple conservation closures implemented by municipalities to protect shellfish resources from over-harvest. DEQ can find no information linking recent shellfish closures in New England to high bacteria loads in NDZs.

References:

<http://www.seafoodsource.com/newsarticledetail.aspx?id=616>;
http://www.cop.noaa.gov/news/fs/ne_hab_200505.aspx)
<http://www.mainewardenassociation.org/id24.html>
<http://www.fda.gov/Food/FoodSafety/Product-SpecificInformation/Seafood/FederalStatePrograms/NationalShellfishSanitationProgram/ucm046988.htm>

Neale Comment:

9. This petition, by its own express terms, only “assumes” that pollution in the affected waters comes from boaters. It offers no evidence other than *assumptions* and DEQ failed to provide basis in fact for its assumptions when requested in writing.

10. DEA [sic, recte DEQ] does not address pollution sources from shore although it acknowledges they exist. Most of the creeks that EPA considers to be impaired have low lying shorelines with many residential dwellings and old septic systems.

DEQ Response to 9 & 10:

DEQ acknowledges that NDZs are just one tool for overall watershed stewardship. An estimated 8,875 vessels utilize the Northumberland County tidal waters. DEQ believes that management of sensitive tidal waters through the implementation of NDZs will help balance multiple uses of the water bodies in question and ultimately improve water quality.

Pollution budgets (aka TMDLs) have been developed for nine watersheds within Northumberland County. The TMDLs are available online. See, <https://www.deq.virginia.gov/TMDLDataSearch/ReportSearch.jsp> and search by the water body name in Table 1 to review the full TMDL report. Bacteria source tracking employed in TMDL development identifies human waste in these watersheds. Boats are one source of human waste. Working to eliminate boat discharges as a potential source of pollution is expected to improve water quality and allow stakeholders to focus on land-based pollution sources. Vessel pollution is a direct source of fecal material including bacteria, nitrogen, phosphorus and biochemical oxygen demand to the water body, in or near oyster grounds and/or surface or bottom aquaculture activities. Such direct deposit does not undergo the level of bacterial die-off that land based non-point source (NPS) bacterial loads undergo. This relationship is consistent in all fate and transport bacteria models. The parallel is the impact of cattle direct deposition in the stream vs. land deposition and transport.

DEQ, the Department of Conservation and Recreation, as well as local governments, are actively working across the Commonwealth to address onshore sources. The Virginia Department of Health performs routine shoreline surveys, which report and address on shore sources. See, <http://www.vdh.state.va.us/EnvironmentalHealth/Shellfish/closureSurvey/index.htm#Survey>

Neale Comment:

11. A direct consequence of this and other conduct of DEQ is to discourage public purchase and development of technology that provides a better solution than the outhouse technology proposed by DEQ.

DEQ Response to 11:

DEQ does not discourage MSD manufacturers to continue development of MSD technology. Engineers can innovate and accommodate NDZs by developing hybrid MSDs that can provide immediate treatment and immediate discharge in Non-NDZ areas, but can hold waste and delay treated discharges when the vessel is in an NDZ.

Neale Comment:

Information Regarding NDZs in General

1. An NDZ deprives the boater of the most effective way to avoid discharging sewage. That is a certified working onboard treatment device.
2. There are far more malfunction opportunities in a pumpout system than with a certified onboard treatment device.
3. It is already illegal to discharge sewage into our waters.
4. No Discharge Zones (NDZ) generally cause more, not less pollution.
5. For several years DEQ has waged a campaign to mislead the public. News media and the public have been repeatedly given misleading information by DEQ as to facts and issues.
6. There are now two methods of dealing with sewage from boats: EPA certified onboard treatment devices and pumpouts. An NDZ eliminates one of those methods in the area. This causes more pollution because:
 - a. Some boats cannot access pumpouts. Reasons include lack of availability, pumpout breakdowns, insufficient room to navigate to pumpouts, not enough water depth, bad weather, distance.
 - b. Most boats with toilets experience times when the holding tank is full and there is no pumpout available.
 - c. In both the above cases, a properly working certified onboard treatment device allows the boater to discharge treated effluent rather than illegally dump sewage.
 - d. A properly working certified onboard treatment device treats sewage as well as or better than many public treatment centers.
 - e. Pumpouts around the water often dump large concentrated amounts of sewage into septic tanks near the water.
 - f. That sewage often contains chemicals that must be added to the boat tank to stabilize smell and gas buildup. Those chemicals are injurious to septic tanks and surrounding waters into which they leach.

DEQ Response: The summary of issues has been addressed in the responses contained in this document.

DEQ Response to Mr. Neale's Information Request/Response Analysis
August, 2011

Note: Comments submitted for the Lancaster County NDZ application by Mr. Tom Neale for Boaters for Clean Waters are listed below. DEQ responded to Mr. Neale's public comments for the Lancaster County NDZ application and Mr. Neale provided follow-up questions and statements, which were submitted with public comments for the Westmoreland and Northumberland County NDZ applications. Subsequent pages provide the initial comment by Mr. Neale, the initial DEQ response, Mr. Neale's follow-up question/statement, and DEQ's second response.

Initial Public Comment by Mr. Neale:

1. Upon what facts to you base the following statement? Provide the specific source for said facts. "While terrestrial pollution is a threat to these marine natural resources, vessel pollution is direct and proximate to oyster grounds, and therefore has a larger impact." (From 1.7 of Petition)

Initial DEQ Response:

- 1) *Vessel pollution is a direct source of fecal material including bacteria, viruses, parasites, nitrogen, phosphorus and biochemical oxygen demand to the waterbody, in or near oyster grounds and/or surface or bottom aquaculture activities. Such direct deposit does not undergo the level of bacterial die-off that land based non-point source (NPS) bacterial loads undergo. This relationship is consistent in all fate and transport bacteria models. The parallel is the impact of cattle direct deposition in the stream vs. land deposition and transport.*

Mr. Neale's follow-up question or statement:

The question called for facts. The answer provides only theory.

August, 2011 DEQ's follow-up response:

Mr. Neale,

The application actually states, "While terrestrial pollution is a threat to these marine natural resources, vessel pollution is direct and proximate to oyster grounds, and therefore may have a more immediate impact on local water quality". The facts supporting this statement include the following: 1) Vessels are able to discharge treated sewage directly over shellfish beds into an anaerobic environment (no reference needed), 2) Such direct deposition does not undergo the level of bacterial die-off that land based non-point source (NPS) bacterial loads undergo. Distance provides time for bacteria die-off and nutrient assimilation (Chow et al. 1972). Aerobic environments allow for more efficient assimilation and treatment of sewage (Eckenfelder et al.) due to the greater energy available in aerobic environments for biochemical mechanisms to breakdown waste.

Chow, Ven T., Rolf Eliassen, and Ray K. Lindley (eds). 1972. Wastewater Engineering: collection, treatment, and disposal. McGraw-Hill Book Company, New York. 782 pgs. (See pages 390-391 regarding the kinetics of biological growth and longer treatment times.)

Eckenfelder, W.W., J.B. Patoczka, and G.W. Pulliam. Anaerobic Versus Aerobic Treatment in the U.S.A. A Ware Incorporated. See, <http://www.google.com/url?sa=t&source=web&cd=1&ved=OCBUQFjAA&url=http%3A%2F%2Fwww.patoczka.net%2FJurek%2520Pages%2FPapers%2FAnaerobic%2520vs%2520Aerobic%2520Treatment.pdf&ei=tFMXTvfoEMvOgAerx6EK&usg=AFQjCNGK4e1Hel6TR-HX8jzpBnoVaaDE3Q>

Initial Public Comment by Mr. Neale:

2. What steps are being taken to stop terrestrial pollution which is a threat to these marine natural resources, as you say in 1.7 of Petition.

Initial DEQ Response:

- 2) DEQ developed TMDLs (approved by EPA and SWCB) for shellfish impairments in Lancaster County for Tabbs, Dymer, Antipoison, Carter, Greenvale, Beach, Lancaster, Mulberry, Deep, Oyster and Mosquito Creeks and the Corrotoman River watershed. These TMDL studies may be viewed on the DEQ TMDL website <https://www.deq.virginia.gov/TMDLDataSearch/ReportSearch.aspx> by entering Lancaster in the City/County search tool. A pollution budget was developed for each impairment. Local Greenvale Creek stakeholders developed an Implementation Plan (IP) for that shellfish impairment that, when implemented, will lead to bacterial reductions. IPs for other impaired waters have not yet been completed. The Clean Marina Program is active in the county, and the Virginia Department of Health (VDH) monitors approximately 150 shellfish bacterial stations in Lancaster County monthly. In addition, shoreline surveys are revised every 5-8 years.

Mr. Neale's follow-up question or statement:

Answer gives only one concrete step taken for one creek to curb land pollution and that step is only a plan.

August, 2011 DEQ's follow-up response:

Mr. Neale,

Pollution budgets (aka TMDLs) have been developed for multiple watersheds within Lancaster, Northumberland, Westmoreland counties. The TMDLs are available online. See, <https://www.deq.virginia.gov/TMDLDataSearch/ReportSearch.aspx> and search by the water body name in Table 1 to review the full TMDL report. DEQ, the Department of Conservation and Recreation, as well as local governments, are actively working across the Commonwealth to address onshore sources such as storm water. The Virginia Department of Health performs routine shoreline surveys, which report and address on shore sources. See, <http://www.vdh.state.va.us/EnvironmentalHealth/Shellfish/closureSurvey/index.htm#Survey>

Initial Public Comment by Mr. Neale:

3. Upon what facts to you base the following statement? Provide the specific source for said facts. "Bottlenose dolphins utilize these waters, as well as Harbor Porpoises,....Kemps-Ridley, loggerhead and green sea turtles" utilize these waters. (From 2.2 of the petition.)

Initial DEQ Response:

- 3) The source of this information is the Virginia Department of Game and Inland fisheries: - http://vafwis.org/fwis/?Menu=Home._By+Place%20Name

Mr. Neale's follow-up question or statement:

Question asks for facts. The web site only gives "potential" habitats or "likely" habitats with no specific observation references.

August, 2011 DEQ's follow-up response:

Mr. Neale,

[The Marine Mammals Of Virginia](#) by Blaylock, Virginia Institute of Marine Science and [Sea Turtles in Virginia](#) by the Virginia Department of Game and Inland Fisheries. Field guides such as these and the VAFWIS cited above are developed based on site-specific collections or occurrences. Habitat data at locations where species are collected may also be used to predict other possible locations of the species.

Initial Public Comment by Mr. Neale:

4. Upon what facts do you base the following statement? Provide the specific source for said statement and provide the brand name(s) of Type 1 MSDs to which you are referring.. “In addition, the average marine sanitation device provides minimal, if any, treatment for chemical or biological oxygen demand, phosphorus, or nitrogen.” (From 2.3 of the petition.)
5. What is your definition, including brand names, of “the average marine sanitation device?”
6. What specific brand(s) of Type 1 MSDs discharge formaldehyde into the water?
7. What specific brand(s) of Type 1 MSDs discharge the pollutants to which you refer in the following statement, and in what amounts. “Depending on the type of MSD, wastewater discharges from marine vessels may also contain additional pollutants, such as protozoa (e.g., *giardia*), viruses (e.g., *norovirus*), and deodorants or sanitizing chemicals (e.g., formaldehyde) that are potentially harmful to humans, wildlife, and the environment.” (From 2.3 of the Petition.)

Initial DEQ Response:

4-7) The majority of the literature and marine sanitation device (MSD) studies focus on the two major brands of equipment: Electro Scan and Thermopure-2. It is common for users to supplement types I, II, and III MSDs with ammonia or formaldehyde based deodorizers/disinfectants as additional treatment. Information related to treatment efficiency, nutrients, and additional pollutants is from the EPA “Evaluation of Improved Type I Marine Sanitation Devices-Performance Evaluation Report” published in January 2010, and the Fish and Wildlife Service document found at: [HTTP://wsfrprograms.fws.gov/subpages/tookitfiles/cv](http://wsfrprograms.fws.gov/subpages/tookitfiles/cv).

Mr. Neale’s follow-up question or statement:

The question asks for the specific brands to which you refer. You give none. The website cannot be found. The EPA report published does not state that information. The fact that “studies focus” on the Electro Scan and the Thermopure-2 is not a statement that either brand emits chemicals or does the other things that you claim. Neither adds chemicals or formaldehyde to the waters. Users do not place these chemicals or others in the units. To do so would void the warranty and serve no purpose. Users on holding tanks, which you advocate to the exclusion of Type 1s do add these chemicals for smell reduction and ferment control during storage.

August, 2011 DEQ’s follow-up response:

The Fish and Wildlife Service document is attached.

DEQ acknowledges that the concentrations of constituents in MSD discharges likely vary widely among brands, makes, models, maintenance, and operators. To clarify, it is common for boaters to use additives for holding tanks and sanitation piping, not Type I and II MSDs. Holding tanks are a separate issue from Type I and II MSDs irrespective of the brand. While it is illegal to discharge raw waste per the Clean Water Act, NDZs elevate the message to the public that dumping is illegal.

DEQ does not have data relating to specific MSD brands other than the previously cited EPA report. DEQ is proposing NDZs as one tool to address impairments in tidal watersheds. DEQ cites the study of the Electro Scan and the Thermopure-2 as an example of how an otherwise highly effective MSD can discharge in excess of Water Quality Standards due to malfunction or operator error.

The term, “the average marine sanitation device” used in the Northumberland application refers to MSDs that comply with the U.S. Coast Guard design specifications for treatment.

Initial Public Comment by Mr. Neale:

8. State the number of those units in use in the covered waters and state the basis for your conclusion.

Initial DEQ Response:

8) *The number of MSDs in Lancaster County waterbodies is an estimate. The Department of Environmental Quality (DCQ) relies on the EPA formula (current NDZ Guidance) for calculating the estimated number of MSDs.*

Mr. Neale's follow-up question or statement:

An estimate should not be used to facilitate the extinction of one of the two ways of dealing with onboard sewage. EPA formulas produce estimates only and are not fact. Outlawing technology dealing with onboard sewage without facts can increase pollution and result in erroneous assessment of adequate pumpouts.

August, 2011 DEQ's follow-up response:

The Code of Virginia at §62.1-44.33(B) requires, "an affirmative determination from the EPA that there are adequate facilities for the removal of sewage from vessels". Using the formula enables EPA to make this determination as required by 33 U.S.C. § 1322(f)(3).

DEQ recognizes that overboard discharge of untreated sewage, a Clean Water Act violation, may currently occur throughout the Chesapeake Bay region. These violations can occur irrespective of NDZ designation. DEQ believes that heightened enforcement capabilities, due to across-the-board enforcement of the NDZ for all boats, will deter illegal dumping of onboard sewage proximal to sensitive shellfish beds.

NDZs designated in Virginia in recent years have resulted in an increased number of pump-outs. In the Lynnhaven River NDZ, the Cavalier Golf and Yacht Club reported 154 pump-outs in 2006 (pre-NDZ) and 299 pump-outs in 2007 (post-NDZ). In the Deltaville area, three major marinas report a doubling of pump-outs in the first year of NDZ designation in Broad and Jackson creeks and Fishing Bay. DEQ acknowledges that complying with NDZs can require additional planning by boaters. DEQ believes that management of sensitive tidal waters through the implementation of NDZs will help balance multiple uses of the water bodies in question and ultimately improve water quality.

Initial Public Comment by Mr. Neale:

9. With regard to the following statement "While terrestrial pollution is a threat to these marine natural resources, vessel pollution is direct and proximate to oyster grounds, and therefore may have a more immediate impact on local water quality. Trends over the past decade have shown that bacteria levels in these waters are increasing, resulting in expanded shellfish condemnations." what data proves that vessel pollution actually does rather than "may" have a more immediate impact. What is the increase in the number of residential homes along the shores during "past decade" to which you refer. (Statement from 2.4 of the petition)

Initial DEQ Response:

9) *See the response to questions #1 & 2. The approved TMDLs draw the conclusion that boat discharges are a potential bacteria source in these impaired waters. VDH long term monthly data, VDH shoreline surveys, and local land use and population data were used in determining the pollution budgets.*

Mr. Neale's follow-up question or statement:

See above analysis of your response to questions 1 & 2. You provide no data that boat pollution has caused increased water impairment and you fail to answer the question as to increased number of homes on the shores in the time period you reference.

August, 2011 DEQ's follow-up response:

Although shellfish condemnations have expanded, DEQ does not have data relating to vessel discharges or MSD brands. DEQ is proposing NDZs as one tool to address impairments in tidal watersheds. Boats are one source of

human waste. Working to eliminate boat discharges as a potential source of pollution within shellfish condemnation areas is expected to improve water quality and allow stakeholders to focus on land-based pollution sources.

The Virginia Department of Game and Inland Fisheries reports increased state boating registrations in Northern Neck counties from 1997 to 2007. Westmoreland, Northumberland, and Lancaster statistics are provided below.

Number of Active Boating Registrations by Year on December 31

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Westmoreland	3,490	3,509	3,495	3,484	3,545	3,630	3,645	3,701	3,832	3,916	4,026
Northumberland	4,626	4,625	4,758	4,842	4,934	5,126	5,180	5,253	5,430	5,568	5,725
Lancaster	3,039	3,082	3,128	3,192	3,233	3,324	3,352	3,401	3,480	3,544	3,601

Source: www.dgif.virginia.gov/boating/2007-accident-report.pdf

DEQ does not have specific data documenting the increased number of homes on the shorelines of Westmoreland, Lancaster, and Northumberland counties. DEQ acknowledges that shoreline development likely also contributes to water quality degradation. The change in number of housing units for a county from 2000 to 2009 is available through the U.S. Census. For example, in Northumberland County 8,057 housing units were reported in 2000 and 9,511 housing units were reported in 2009. In Lancaster County 7,190 housing units were reported in 2000 and 7,372 housing units were reported in 2009. See, <http://quickfacts.census.gov/qfd/states/51/51133.html> to look up more Northern Neck statistics.

Pollution budgets (aka TMDLs) have been developed for multiple watersheds within Westmoreland, Lancaster, and Northumberland counties. The TMDLs are available online. See, <https://www.deq.virginia.gov/TMDLDataSearch/ReportSearch.aspx> and search by the water body name or county name in Table 1 to review the full TMDL report. These reports include an analysis of point source and non-point source pollution. The reports rely on data from Virginia Department of health shoreline surveys. See, <http://www.vdh.state.va.us/EnvironmentalHealth/Shellfish/closureSurvey/index.htm>

Initial Public Comment by Mr. Neale:

10. What percentage of fecal bacteria referred to in statement below came from discharge from boats? Upon what facts to you base the following statement? Provide the specific source for said facts.: “Bacterial source-tracking (BST) data collected as a component of the Shellfish TMDLs for the subject waters suggest that, averaged annually, approximately between 3% (Taylor Creek) and 66% percent (Antipoison and Davenport Creeks) of the fecal bacteria in these waters were of human origin. Other sources include wildlife, pets, and livestock. (From 2.4 of the Petition)

Initial DEQ Response:

10) *Bacteria source tracking (BST) human percent contribution of the magnitude in the 66 percent range for Antipoison / Davenport Creeks or 32 percent for the East Branch Corrotoman River indicates that more than one bacteria source is present in the impairment. The likely sources are failed septic systems, and boat discharges. The 2006 VDH Sanitary Survey documented only 2 septic failures and 6 no facilities (straight pipes) in the East Branch Corrotoman River watershed. None of the septic failures and only two of the no facilities were within a half-mile of tidal water. Boat discharges are one logical source of the human component in the Corrotoman River. Refer to the BST portion of the TMDLs for Antipoison Creek and Corrotoman River referenced in the website link in response #2.*

Mr. Neale’s follow-up question or statement:

You fail to provide percentage that came from boats.

August, 2011 DEQ's follow-up response:

This statistic is not available to DEQ. Boat discharges are one source of human sewage.

Initial Public Comment by Mr. Neale:

11. What is the percentage of human origin fecal bacteria that is found in each of the other designated bodies of water from bacterial source tracking?
12. Who performs what tests in your bacterial source tracking determinations? Provide copies of said test results and procedure and names and contact information for persons conducting said tests .

Initial DEQ Response:

11) Refer to in the website link in response #2. Select the final report for each TMDL and refer to the BST sections of the reports. Other than Taylor and Antipoison Creeks, average BST human percentages in Shellfish Use Impairments in Lancaster County were 65% in Indian Creek, 26% in Dymmer Creek, 18% in Tabbs Creek, 37% in West Branch Carter Creek, 18% in Central Branch Carter Creek, 20% in East Branch Carter Creek, 33% in West Branch Corrotoman River, 29% in Senior Creek, 24% in Ewells Prong, 27% in Millenbeck Prong, 25% in Hills Creek, 26% in Bells Creek, 32% in East Branch Corrotoman River, 16% in Myer Creek, 20% in Greenvale Creek, 14% in Beach Creek, 16% in Lancaster Creek, 18% in Mulberry Creek, 13% in Deep Creek, 54% in Oyster Creek, and 62% in Mosquito Creek. BST is one current technology for estimating differentiation of sources. DEQ used this along with VDH shoreline surveys, land use and population data for determining pollution budgets in the TMDLs.

12) The BST samples were collected, under the supervision of Rob Whittman, who worked for VDH at that time. MapTech, Inc. performed the BST analysis for bacterial impairments. Contact Phillip McClellan, president, 1715 Pratt Drive, Blacksburg, VA 24060, phone 540-961-7864.

Mr. Neale's follow-up question or statement:

You fail to provide test results and procedure.

August, 2011 DEQ's follow-up response:

Mr. Neale,

DEQ provides this data on a side bar of the TMDL homepage (<http://www.deq.virginia.gov/tmdl/homepage.html>). See, [BST Analyses to support Virginia's TMDLs](#). The previously named individuals at MapTech, Inc. are also good resources to gain a full understanding of the BST analysis procedures.

You can follow the links below for the data and procedure.

- o [/032009bst.pdf](#)
- o [/082008bst.pdf](#)
- o [/092007_phase5bst.pdf](#)
- o [/092007_phase6bst.pdf](#)
- o [/102006bst.pdf](#)
- o [/122005bst.pdf](#)
- o [/122006bst.pdf](#)

Initial Public Comment by Mr. Neale:

13. What specific steps has DEQ or any other agency (and name said agency) of the Commonwealth taken to stop the ground source pollution in the areas in which you seek NDZ designation?

Initial DEQ Response:

- 13) See response #2.

Mr. Neale's follow-up question or statement:

See above Analysis of response # 2.

August, 2011 DEQ's follow-up response:

Mr. Neale,

Pollution budgets (aka TMDLs) have been developed for multiple watersheds within Lancaster, Northumberland, Westmoreland counties. The TMDLs are available online. See, <https://www.deq.virginia.gov/TMDLDataSearch/ReportSearch.aspx> and search by the water body name in Table 1 to review the full TMDL report. DEQ, the Department of Conservation and Recreation, as well as local governments, are actively working across the Commonwealth to address onshore sources such as storm water. The Virginia Department of Health performs routine shoreline surveys, which report and address on shore sources. See, <http://www.vdh.state.va.us/EnvironmentalHealth/Shellfish/closureSurvey/index.htm#Survey>

Initial Public Comment by Mr. Neale:

14. Upon what do you rely in support of your statement, "The Commonwealth of Virginia believes the waters addressed in this application are appropriate candidates for designation as a *No Discharge Zone*." (5 of the petition) Provide names and positions of officials who have said that the Commonwealth of Virginia so believes, provide copies of any documents asserting said beliefs, and times and dates of said statements.

Initial DEQ Response:

- 14) See response #2. Also see the Va. Code Section 62.1-44.33, which authorizes the State Water Control Board (SWCB) to pursue the designation of impaired tidal creeks as NDZs.

Mr. Neale's follow-up question or statement:

This is totally unresponsive. Further, 62.1-44.33 refers to impaired tidal creeks only (not rivers) and NDZ designation is to be premised on a finding that such would improve the impairment.

Also, see above Analysis of response # 2.

August, 2011 DEQ's follow-up response:

Mr. Neale,

The terms "tributary", "tidal creek" and "river" are all used interchangeably in the Code of Virginia to represent the areal extent of tidal influence for certain water bodies. . The terms creek and river are used interchangeably in the Code and in mapping. For example certain named creeks, are designated as Scenic Rivers in §10.1-400 (e.g. Goose Creek and Catoctin Creek). The Virginia Code (See, § [10.1-400](#). Definitions) defines "River" as "a flowing body of water, or a section or portion thereof".

DEQ is directed by the Code of Virginia to premise NDZ designations on improvement of impaired tidal creeks. DEQ's program is primarily premised on addressing tidally influenced areas where water quality is impaired. However, NDZs are not limited to the boundaries of the impairment by the Code of Virginia or Section 312 of the Clean Water Act. Federal guidelines also allow states to designate NDZs under the Clean Water if any State determines that the protection and enhancement of the quality of some or all of the waters within such State require greater environmental protection.

For more information regarding the impairments of water bodies related to the NDZ application in the Northern Neck, please see **The Final 2008 Water Quality Assessment Integrated Report for Virginia** and fact sheets at <http://www.deq.virginia.gov/wqa/ir2008.html#factsheets>

Initial Public Comment by Mr. Neale:

15. Provide full details of any request by Lancaster County for the petition to declare certain Lancaster County waters as NDZ. Including name and position of requesting official(s) and/or authority(s), time of request and copy of any document containing said request.
16. Provide full details of any request by the Northern Neck Planning District Commission for the petition to declare certain Lancaster County waters as NDZ. Including name and position of requesting official(s) and/or authority(s), time of request and copy of any document containing said request.

Initial DEQ Response:

15 & 16) Multiple communications have occurred between county leadership, NNPDC, DCR, VDH, and DEQ. Most NN localities have been supportive but neutral in these efforts. Starting in 2007, three presentations have been given to the Rappahannock River Basin Commission, one to the Board of Supervisor of Westmoreland and Northumberland Counties (April 10, 2008). Concerning Lancaster County, in an email communication between Mr. William Pennell and Jeff Chanat (DEQ), dated February 23, 2009, Mr. Pennell stated "Please know that we will do whatever we can to assist in this project." The communication cites VA GA Bill 1774 and the pursuit of No Discharge Zones in the Northern Neck. Additionally, Mr. Jerry Davis, Executive Director of the NNPDC, has monthly meetings with the County Administrators and has kept them apprised of the regional NDZ effort. No negative communications have been received following those meetings.

Mr. Neale's follow-up question or statement:

You fail to state that you paid \$125,000 (or more) in Federal Stimulus money to NNPDC, that NNPDC is not a governmental agency and represents on one. Your presentations to various bodies do not constitute an endorsement by any such body. Your presentations have included false and misleading information, including but not limited to statements made by your agent at a Rappahannock River Basin Commission meeting in the September of 2010. The statement that a county is "supportive but neutral" is self contradictory and deliberately deceptive, as is your reference to a 2001 letter from Mr. Pennell who very recently told you, when you asked him for a letter of support, that only the Board of Supervisors could endorse your position. Further you are misleading in that you fail to admit that you called the Chairman of the Lancaster Board of Supervisors and demanded a letter of support from that body and he told you that none was forthcoming unless the board so authorized it and that you'd already had a public hearing which approximately 40 people attended in opposition and that your agents attempted to prevent them from stating their positions.

August, 2011 DEQ's follow-up response:

DEQ contracted the NNPDC to prepare applications for NDZ designations in the four counties, because the NNPDC could impart local knowledge and provide sufficient personnel and expertise to the project. DEQ's Office of Watershed Programs routinely contracts with educational institutions, Planning District Commissions, and private consulting firms to complete projects when contracting allows for optimal use of expertise and resources. A Planning District Commission is a political subdivision of the Commonwealth chartered under the Regional Cooperation Act by the local government of each planning district. The purpose of Planning District Commissions is set out in the Code of Virginia, §15.2-4207, which in part states, "It is the purpose of the planning district commission to encourage and facilitate local government cooperation and state-local cooperation in addressing on a regional basis problems of greater than local significance."

To clarify regarding discussions with Mr. Pennell, Mr. Pennell offered personal support and indicated that the Board of Supervisors had not drafted a formal endorsement.

During the Lancaster County public meeting, DEQ attempted to facilitate a discussion to allow exploration of all sides of the proposed NDZ designation. DEQ aimed to provide an equivalent amount of time for each person who wished to speak.

For the Lancaster NDZ application, DEQ received numerous public comments from individuals and organizations representing a vast range of perspectives. Comments were submitted by boaters, oyster growers, scientists, and area residents who swim in the water bodies in question. DEQ received 18 written public comments in support of the Lancaster NDZ application and 14 against the application.

Initial Public Comment by Mr. Neale:

17. Under what statutory or other authority do you petition to have the Eastern and Western Branches of the Corrotoman River declared to be No Discharge Zones.

Initial DEQ Response:

17) Va. Code Section 62.1-44.33 and the Federal Clean Water Act.

Mr. Neale's follow-up question or statement:

Said act refers to impaired tidal creeks only, it requires that an NDZ designation be premised on the fact that such would improve the impairment, and your Mr. David Paylor told Delegate Albert Pollard on February 11, 2011 that DEQ was only going after the shallow headwaters of the Corrotoman branches.

August, 2011 DEQ Response:

The terms "tributary", "tidal creek and "river" are used interchangeably in portions of the Code of Virginia to represent the areal extent of tidal influence for certain water bodies. The terms creek and river are used interchangeably in the Code and in mapping. For example certain named creeks, are designated as Scenic Rivers in §10.1-400 (e.g. Goose Creek and Catoctin Creek). The Virginia Code (See, § [10.1-400](#). Definitions) defines "River" as "a flowing body of water, or a section or portion thereof".

DEQ is directed by the Code of Virginia to premise NDZ designations on improvement of impaired tidal creeks. DEQ's program is primarily premised on addressing tidally influenced areas where water quality is impaired. However, NDZs are not limited to the boundaries of the impairment by the Code of Virginia or Section 312 of the Clean Water Act. Federal guidelines also allow States to designate NDZs under the Clean Water if any State determines that the protection and enhancement of the quality of some or all of the waters within such State require greater environmental protection.

Staff is aware of the February 2011, meeting between Mr. Paylor and Delegate Pollard. It is staff understanding that the discussion focused on the eastern and western branches of the Corrotoman as originally described in the Lancaster NDZ application. The Lancaster application only proposes NDZ designation for the eastern and western branches, not the main stem of the Corrotoman. Staff received no direction from Director Paylor to modify the proposed NDZ boundaries for the eastern and western branches of the Corrotoman.

There is a lack of clarity over terminology on this issue. DEQ premises NDZ designations on impaired tidal water bodies. Often these water bodies are shallow and slow-flushing, and waste material from onshore and offshore sources cannot be diluted via flushing. These shallow, slow-flushing tidal water bodies are often navigable by motored vessels. A headwater stream or wetland is typically up-gradient from the shallow tidal area and is more typically navigable by canoe, not motored vessels. Headwater streams are predominantly non-tidal.

Figure 1 presents the tidal flushing characterization for the Corrotoman. Figure 2 presents headwater wetlands and streams for the eastern branch of the Corrotoman as an illustration of the headwater concept.

Figure 1. Tidal flushing characterization for the Corrotoman. The Corrotoman is entirely a slow-flushing system.

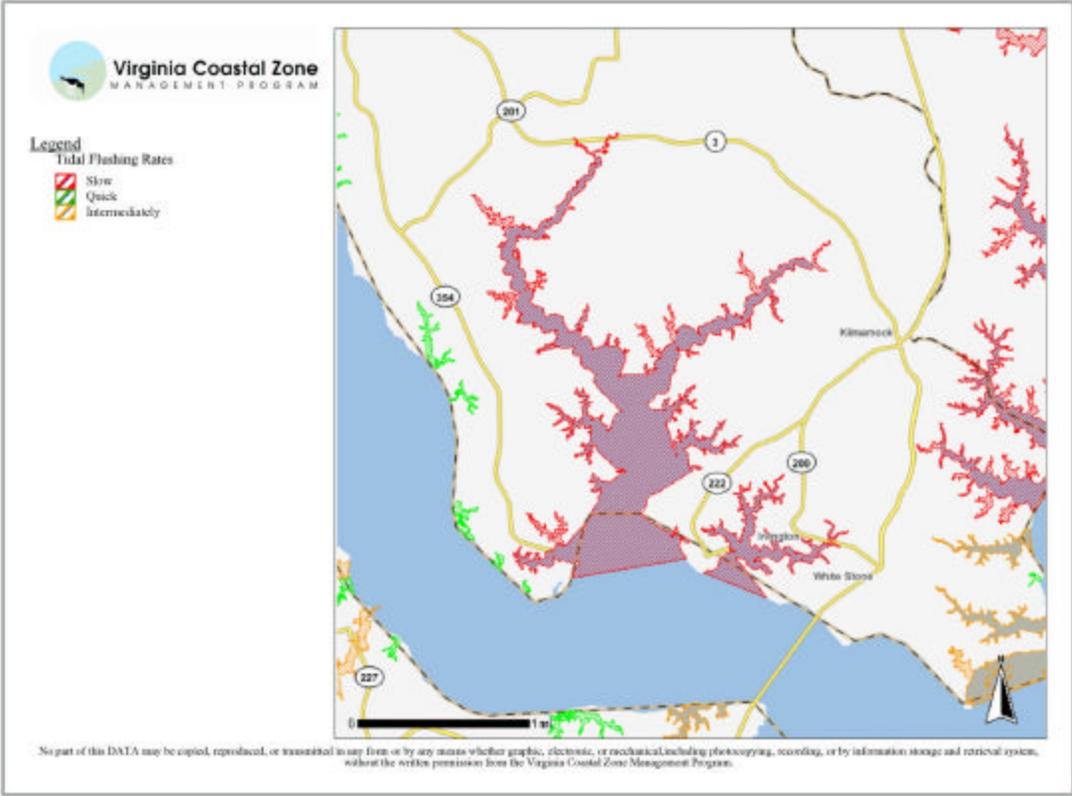
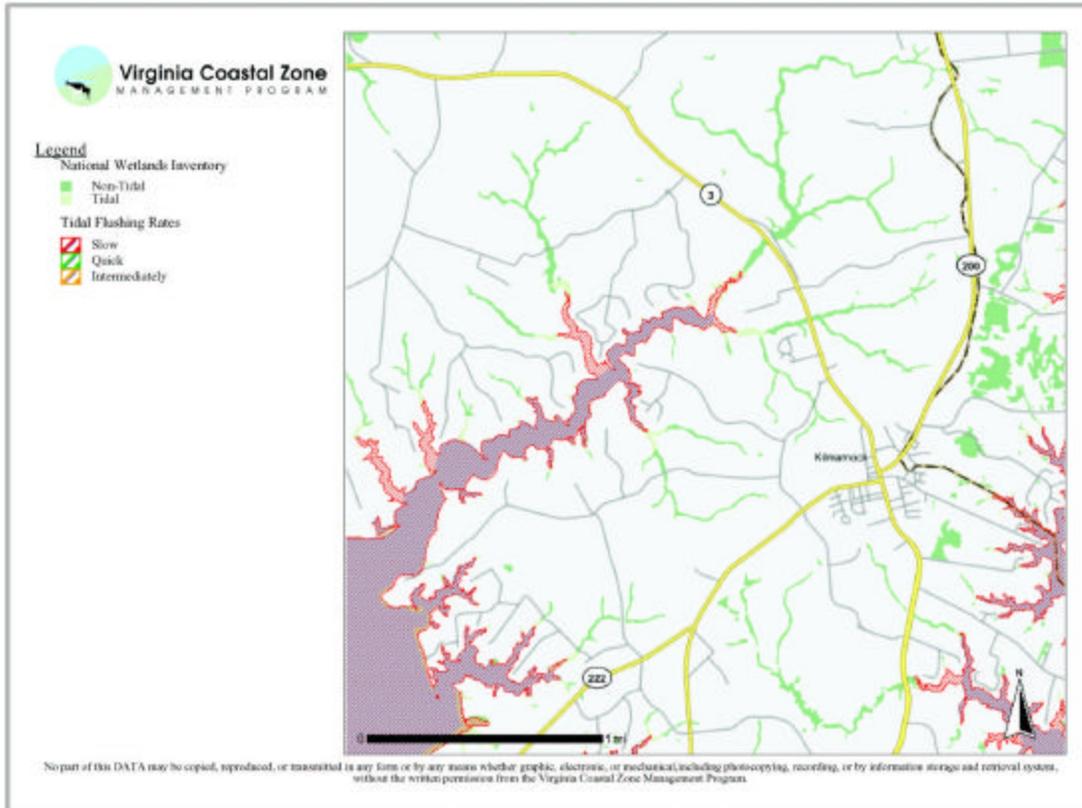


Figure 2. Headwater wetlands and streams for the eastern branch of the Corrotoman. The headwater complexes are shown in green.



Initial Public Comment by Mr. Neale:

18. What is the name of and contact information for the person at EPA to whom you are required to submit your NDZ petition for Lancaster County.

Initial DEQ Response:

18) Mr. Michael Hoffman, US EPA, Region III, 1650 Arch Street, Philadelphia, PA 19103

No follow-up question was submitted by Mr. Neale for question #18.

Attachment
DEQ Guidance Document
Attachment
U.S. Fish and Wildlife Service Document

Public Comment:

Sent: Wed 6/29/2011 9:36 AM

To: Smigo, Margaret (DEQ)

Subject: NDZ

6/29/11

Dear Ms. Smigo,

I am writing to urge that the Department of Environmental Quality include Jarvis Creek in Northumberland County, Va. as a NO DISCHARGE ZONE (NDZ).

For most of my 61 years, I have enjoyed spending some time on the waters of Jarvis Creek. As a teen, I spent most of my summers from 1964-69 visiting family who lived on Jarvis Creek. The creek was full of oysters, crabs, and rockfish. When I moved to the family farm in 1972 and began commercially crabbing and fishing, Jarvis Creek was still vibrant.

For over 15 years now, most of Jarvis Creek has been condemned for shellfish harvest due to high fecal coliform bacteria levels. The bacteria is attributed to wildlife, although no specific studies have been done.

As a commercial waterman, I have been raising oysters in Jarvis Creek as part of the crab disaster relief program. I had hoped to sell many of these oysters. Since most of the creek is condemned for shellfish harvest during peak oyster demand times, I am very limited as to when I can market oysters. I am happy to help raise oysters to help improve water quality, but since I have just leased 12 acres of Jarvis Creek for oyster production, I need to market some oysters, too.

The local Shellfish Sanitation office in White Stone that monitors the creeks, tells me that most of Jarvis Creek does not receive enough flushing to keep bacteria levels down.

If this creek can not sufficiently flush out bacteria now, it should NEVER be a discharge zone for more bacteria!

I again urge the DEQ to designate Jarvis Creek a NO DISCHARGE ZONE!

Thank you.

Ida Hall

DEQ Response:

Wed 6/29/2011 2:01 PM

Good Morning Ms. Hall,

Thank you for your comments of support for the Northumberland NDZ draft application and specifically your request of the inclusion of Jarvis Creek for designation. The current draft NDZ document does include Jarvis Creek. Your comments will be included in the final document presented to EPA for review. Thank you again for your participation in the comment period Ms. Hall and for your commitment to efforts aimed at improving water quality in the Northern Neck.

Best Regards,

Margaret Smigo

Public Comment:

Sent: Thursday, June 30, 2011 11:20 AM

To: Smigo, Margaret (DEQ)

Subject: Northumberland NDZ draft application

Margaret,

I am working with Skip Kramb and the Dividing Creek Association of Water Quality Monitors and have found that when we have a raft up of recreational boaters in our creek, specifically Prentice Creek, the ecoli counts increase 600% and more.

I am a recreational boater and anchor out frequently and find that our porta potty type sanitary system is easy and convenient. We use an enzyme in the holding tank and have no odor. We dump the holding tank into our septic serviced toilet at the end of short trips. Most marinas where we have stayed will allow us to dump our porta potty in their (municipal serviced) toilets and there is NO effluent into the Bay. It is NOT a hardship for a boater to properly take care of their waste.

My husband, Ernest, and I fully support a Bay-wide No Discharge Zone but every little bit helps. Please consider our request to extend the NDZ to all of Northumberland County.

Thank you,
Ann Harvey Flynn
Ernest Howard Flynn

DEQ Response:

Thu 7/21/2011 12:00 PM

Greetings Mr. and Mrs. Flynn,

Thank you for your comments of support for the Northumberland NDZ draft application. Your comments and DEQ's response will be included with the application for final submittal to EPA. DEQ appreciates your report of useful empirical data.

To designate only the most enforceable and practical No Discharge Zones, DEQ and the NNPDC removed four creeks from the application prior to the public notice of the draft. This was done because Hull, Hacks, Cubitt, and Presley creeks do not provide a pump out within the water body, and they are relatively difficult to navigate at the mouth.

Thank you again for your participation in the NDZ process.

Best Regards, Liz McKercher

Public Comment:

June 30, 2011

Margaret Smigo
Piedmont Regional TMDL Coordinator
4949-A Cox Road

Glen Allen, VA 23060

RE: Northumberland County No Discharge Zone

The Chesapeake Bay Foundation (CBF) is the largest conservation organization dedicated solely to saving the Chesapeake Bay watershed. Our motto, *Save the Bay*, defines the organization's mission and commitment to reducing pollution, improving fisheries, and protecting and restoring natural resources such as wetlands, forests, and underwater grasses. CBF has approximately 80,600 members in Virginia.

CBF believes implementation of no discharge zones as currently proposed in Northumberland County waterways would help the county meet the quantifiable nutrient and sediment reductions that will be required by Phase II of Chesapeake Bay Watershed Implementation Plans.

In its efforts to restore the Bay and its tributaries, CBF has been focused on reducing nutrients (nitrogen and phosphorus), identified as the primary source of impairment for these waters. Solids, sometimes referred to as sediments, are also a significant source of concern throughout the watershed. The current Chesapeake Bay Total Maximum Daily Load focuses clean-up actions on these three pollutants, which cause a variety of problems for the Chesapeake Bay that can limit recreational and economic development opportunities.

Excess nutrients are responsible for producing algae blooms that block much needed sunlight from passing through the water, stunting vital underwater grasses, and also create low oxygen conditions as the algae die and decompose. Solids also reduce light passing through the water and can lead to the sedimentation (covering) of various benthic habitats, including oyster habitat.

Currently, the most readily available marine sanitation devices (MSD) on the market offer no reduction in the nutrient load in the waste stream. In addition, current MSDs treat solids, which will eventually become sediments, only through maceration and do not remove them as is the case with more advanced wastewater treatment techniques.

Because of this, making the proposed waterways in Northumberland County no-discharge zones and ensuring that all wastes are treated with more advanced wastewater treatment techniques will only help in the ongoing efforts to restore these waterways. CBF believes that the timing of this proposed No Discharge Zone is fortuitous in that it could improve waterway quality, expand water-related economic opportunities, and also help Northumberland County meet its nutrient reduction requirements.

Sincerely,
Chris Moore
Hampton Roads Scientist
Chesapeake Bay Foundation

DEQ Response:

Thu 7/21/2011 1:07 PM

Greetings Mr. Moore,

This is a follow-up message in response to your comments for the Northumberland County NDZ Application. Your comments will be submitted to EPA with the application.

DEQ especially appreciates the specific comments you provided on behalf of the Chesapeake Bay Foundation regarding the nutrient and solids reductions needed in Chesapeake Bay tributaries.

Best Regards, Liz McKercher

Public Comment:



July 26, 2011

David S. Lazarus
Watershed Program Manager
Office of Water Quality Programs
P.O. Box 1105
Richmond, VA 23218
David.Lazarus@deq.virginia.gov

Subject: Northumberland County NDZ Application

Dear Mr. Lazarus:

Thank you for responding to my comments regarding the above NDZ application but as these responses were received after the comment period had expired I feel it is my obligation to comment on those responses that lack clarity, general accuracy, or contain technical inaccuracies that need to be addressed. I therefore request that these additional comments be included in the official record as if they were submitted within the official comment period.

DEQ Response #1

Response: DEQ acknowledges that some MSDs may emit low levels of bacteria. Design, operation, maintenance and salinity affect performance and all MSDs are not equal in performance. While some devices are more environmentally protective than others, the Federal law does not allow states to exempt those more protective devices. Direct depositions of bacteria and nutrients have a greater impact on water quality in sensitive shellfish resource areas. DEQ acknowledges that type I and II MSDs are required to discharge effluent that generally meets the water quality standard for recreation. An EPA study in 2007 determined that the vast majority of effluent discharged from an Electro scan MSD had low levels of fecal coliform bacteria. However, EPA also experienced uncharacteristically high samples which exhibited greater than 24,000 MPN/100 ml. This reflects the issue that design, operation, maintenance and, in some MSDs, salinity affect performance of MSDs.

RARITAN ENGINEERING COMPANY, INC.

MAIN PLANT & GENERAL OFFICE: 530 Orange St., Millville, NJ 08332 USA

856-825-4900 • FAX: 856-825-4409 • E-mail: info@raritaneng.com • World Wide Web: www.raritaneng.com

SOUTHERN PLANT & OFFICE: 3101 SW Second Ave., Fort Lauderdale, FL 33315 • 954-525-0378 • FAX: 954-764-4370



Comment

The reference to the EPA study in 2007 was the ‘Evaluation of Improved Type I Marine Sanitation Devices (MSD’s) Performance Evaluation Report.’” During the testing phase of the Raritan Electro Scan (EST) Type I MSD the testing facility allowed the automatic salt feed system to deplete its salt content. They admitted this in the official report. This is an accessory item manufactured by Raritan to provide a salt brine mixture directly into the treatment device as a primary or supplemental source of salt needed by the Electro Scan to produce the appropriate amount of hypochlorous acid (free chloride) to eliminate the bacteria in wastewater prior to discharge. The testing facility did not inter phase their electric sewage discharge pump to the automatic operating circuit of the EST which, as is the case on a vessel, once the EST control sensed low treatment the EST would shut down, provide the necessary system status analysis on the LCD read out panel and disarm the toilet circuit to prevent raw waste from entering the treatment tank. Because the testing staff did not do this raw sewage sludge (used by the EPA test facility) was being forced into the EST and passed through the system untreated. This is the reason for the two anomalies where the reported effluent had two ecoli results showing >24,000 mpn/100 on 4/19/07. These testing errors were supposed to be eliminated from the conclusions but never were. On a real vessel application this would not have occurred. Furthermore, vessel operators would not want to flush wastewater into their Type I investment if it failed as this would not only clog the system, preventing said flushing, but would also damage the system.

DEQ is either intentionally citing this error in the EPA tests as a means to shed a bad light on our product or DEQ staff have failed to correctly analyze and interpret the EPA test report. The Electro Scan has certain safeguards built into the design that minimize the potential of misuse and improper discharge. DEQ’s statement that federal law does not allow states to exempt devices that out perform EPA’s Type I bacterial reduction standards by 100 times or more should be one more reason that this should be handled on a state level. The EPA’s pump out NDZ program has never been universally acceptable or practical. To work properly 100 percent of all vessels must use pump outs 100 percent of the time. Based on where the pump outs are dispersed in Northumberland County and elsewhere in the Northern Neck of Virginia it is obvious this will not work and one begs to wonder why DEQ is insistent on pushing for a vessel sanitation policy that is questionable, problematic and contains serious environmental risks when a viable, tested and proven form of technology exists and is the best alternative to a flawed policy. As to the notion of direct depositions of bacteria and nutrients in shellfish waters from Type I and II MSD’s being a concern, there is no mentioned concern of the discharge from a Type III MSD, which is required equipment in a NDZ and which would be a discharge of

RARITAN ENGINEERING COMPANY, INC.

MAIN PLANT & GENERAL OFFICE: 530 Orange St., Millville, NJ 08332 USA

856-825-4900 • FAX: 856-825-4409 • E-mail: info@raritaneng.com • World Wide Web: www.raritaneng.com

SOUTHERN PLANT & OFFICE: 3101 SW Second Ave., Fort Lauderdale, FL 33315 • 954-525-0378 • FAX: 954-764-4370



large amounts of totally untreated raw sewage, probably with chemicals added, rather than the one flush only discharge of effluent treated to far better standards than the shellfish standards, without chemicals. Any minimal amount of bacteria or nutrients associated with Type I or II MSD's are subject to immediate dilution especially when a vessel is underway. A Type III discharge is concentrated sewage that can result in significant local pollution regardless of dilution. The direct deposit concept ignores the fact that there is immediate dissolution in the water of the single highly treated flush of our product and the fact that any shellfish are considerably below a discharge outlet of a floating vessel.

DEQ Response #2

Response: NDZs are designated as one tool to protect shellfish growing waters from treated and untreated boat waste. While it is illegal to discharge raw waste per the Clean Water Act, NDZs elevate the message to the public that dumping is illegal and that because the waters are sensitive to pollution, it is necessary to prohibit discharges from MSDs to achieve reductions in sensitive water bodies.

Enforcement of existing laws and regulations can improve within NDZs. Local residents become aware of the prohibition and will report violations. Also, because a physical barrier to the use of the y-valve or toilet is required, it is easier for law enforcement officials to visually identify violations.

It is a watershed stewardship tool that can be effective for improving water quality and given the extent of impairments for bacteria, SAV and DO, the DEQ has determined that they are necessary and beneficial. NDZs in Virginia have proven to be an effective means of reducing bacteria levels in tidal waters, for example in the Lynnhaven River where historically closed shellfish waters are now open for the first time in decades. Additionally, MSDs are designed and certified to technology based limits that meet recreational use Water Quality Standards but are inconsistent with the lower shellfish Water Quality Standards.

Comment

DEQ can elevate the message to the public that dumping your holding tank is, and has been, illegal without destroying a means of technology that accomplishes the goal of promoting clean water. The statement that NDZ's have been effective in Virginia is not based on facts or evidence. The Lynnhaven River, prior to the installation of improvements to the shore side sewage system and waste treatment facilities, was heavily

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polluted with high bacteria levels that prohibited shellfishing. This problem was cleaned up only after the Land based improvements took place and even after NDZ implementation there were numerous reports of pump outs not being available or accessible. The Raritan Electro Scan exceeds shellfish water bacterial standards even prior to dilution and is allowed on thousands of boats under 65 feet worldwide included in many areas where shellfish harvesting is permitted. Some of these areas are in Florida, Mississippi, Alabama, Louisiana, Texas, Washington State, Oregon and coastal waters of Canada. By using devices such as the Raritan Electro Scan the geometric mean fecal coliform concentrations would never exceed 14 fcu/100 ml in any 30 sample testing method. If there are elevated fecal bacteria counts it would not be attributable to boats with these systems. In the case of the listed impaired waters in Virginia there is evidence of known problems that account for the impairment and these known problems are being set aside in favor of addressing a perceived or possible problem by which the creation of NDZ's will not improve the situation or be cause for reopening those impaired waters to shellfish harvesting. Old dated septic tank systems in these low lying areas combined with domestic and non-domestic animal waste is the bulk of the problem. DEQ cites only its "assumption" and no evidence that the source of impairment if from boats.

Response #3

Response: Yes, DEQ uses bacteria source tracking to identify the probable source of fecal bacteria. Pollution budgets (aka TMDLs) have been developed for nine watersheds within Northumberland County. The relative percentages are available online by looking at the TMDLs. See Table 1 for a summary by watershed. See, <https://www.deq.virginia.gov/TMDLDataSearch/ReportSearch.aspx> and search by the water body name or county name in Table 1 to review the full TMDL report. Some water bodies exhibit a prominent bacterial load from wildlife and others do not. For example, Cloverdale Creek receives an estimated 45% of its bacterial load from wildlife and only 21% from humans. Conversely, Mill Creek receives an estimated 6% of its bacterial load from wildlife sources and 25% from human sources. Irrespective of relative pollutant loads, many pollution budgets identify the need to completely eliminate all sources of human bacteria. That translates to a 100% reduction in human bacteria sources to meet water quality standards. The table below presents overall percentages of animals sources versus human sources.

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Summary of Bacteria Sources*	Source of Fecal Coliform Bacteria (Percent of total fecal coliform load)			
	<i>Wildlife</i>	<i>Human</i>	<i>Livestock</i>	<i>Pets</i>
<i>Waterbody Name</i>				
<i>Cockrell Creek</i>	12	42	38	8
<i>Dividing Creek and Prentice Cove (average)</i>	34	35	15	17
<i>Greater Wicomico (five waterbodies averaged)</i>	15	37	25	19
<i>Mill Creek, Ball Creek Cloverdale Creek (three waterbodies averaged)</i>	29	24	31	28
<i>Owens Pond (two waterbodies averaged)</i>	49	23	17	12
	8*	58	9	4
	<i>*An additional 21% was attributed to birds, primarily from naturally occurring populations of waterfowl.</i>			
<i>Cod, Presley, Hull, Rodgers, Bridgeman, Cubbitt and Hack Creeks (averaged)</i>	31	23	29	34
	10*	59	9	3
	<i>*An additional 18% was attributed to birds, primarily from naturally occurring populations of waterfowl.</i>			
<i>Mill Creek, UT to Kissinger Millpond</i>	5	2	91	1

**For more specific percentages, by water body, read the TMDL report at <https://deq.virginia.gov/TMDLDataSearch/ReportSearch.aspx>*

The Cockrell Creek TMDL calls for a 100% reduction in human and livestock bacteria sources to meet the pollution budget. Dividing Creek TMDL calls for 100% reduction in human, livestock and pet bacteria sources to meet the pollution budget. The Greater Wicomico TMDL calls for a range of 48-100% reduction in human bacteria sources across the five water bodies included in the TMDL. The Mill Creek TMDL calls for 100% reductions in human and livestock bacteria sources to meet the pollution budget. The Owens Pond TMDL calls for 100% reduction in human bacteria sources for each of the three water bodies discussed in the report. The Coan River TMDL calls for zero to 65% reductions in human bacterial loads. Little Wicomico TMDL calls for zero to 52% reductions in human bacterial loads. The Mill Creek to Kissinger Millpond TMDL calls

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for zero reduction in human bacteria sources and a 40% reduction in livestock bacteria sources.

Comment

The chart "Summary of Bacteria Sources" and subsequent explanation still does not reveal evidence that any of the high levels of human fecal bacteria is generated by vessels. Is DEQ assuming that the mere presence of vessels in these areas means that boats could be a problem? If this is true how many citations have been issued for illegal discharge? Law enforcement could have conducted inspections at any time without NDZ designation. And why is DEQ outlawing an effective technology based only on assumption?

DEQ Response #4

Response: DEQ acknowledges that complying with NDZs can require additional planning by boaters. Because NDZs are only applicable in limited areas usage of MSD technology is supported by DEQ and may be used in all non-NDZ waters.

Also, DEQ acknowledges pump outs may be less available in certain areas despite being generally available across Northumberland County. Nationwide data suggest that the EPA formula to determine adequate pump out availability does confirm adequate pump outs in NDZs. EPA surveyed 958 boaters during 2003 to evaluate NDZs across the United States. When asked if they had trouble using a pump out during the 2003 boating season, the reply included the following: 9% said Yes, 74% said No, and 17% said they did not attempt to use a pump out. When asked if they had trouble using a pump out the last time they were in an NDZ the reply included the following: 3% said Yes, 70 % said No, and 27% said they did not try to use a pump out the last time they were in an NDZ. Source: Final No Discharge Zone Evaluation, 2004. See, <http://water.epa.gov/polwaste/vwd/ndzdocument.cfm>. To designate only the most enforceable and practical No Discharge Zones, DEQ and the NNPDC removed four creeks from the application prior to the public notice of the draft. This was done because Hull, Hacks, Cubitt, and Presley creeks do not provide a pump out within the water body, and they are relatively difficult to navigate at the mouth.

DEQ encourages Raritan Engineering Company, Inc. to continue to be a front runner in MSD technology by developing a hybrid Electro Scan that can provide immediate treatment and discharge in Non-NDZ areas, but can delay discharges when the vessel is in an NDZ for later on-board treatment or pump out.

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Comment

DEQ's reference to the 2003 USEPA pump out survey in NDZ's is being used as a means of promoting NDZ's as a success story. This was a very unscientific poll conducted in areas with many marinas and where most if not all respondents kept their boats in marinas. There was no control or other scientifically valid testing criteria to assure that the information provided in the responses was factual. Boaters in a NDZ know what the penalties are if discharges occur so it is highly unlikely that anyone would report anything other than positive things. Also, many boats in the coastal regions of the US, particularly in the Northern Neck of Virginia, are not kept at marinas. In large waterfront urban areas such as those where the poll was conducted many boats are kept at marinas where mobile pump out boats can service boats without untying from the dock. It is in these settings that a holding tank – pump out policy may work but this is not the situation in the waters affected by this petition and the survey is irrelevant. Further a significant number of respondents said they had not used pump outs. Even one dumping of raw sewage is very detrimental to clean waters. The fact that even in these NDZ's many boaters dumped is additional reason to not have NDZ's. It is also a matter of record, recorded in USCG local Notices to Mariners, that in areas (such as those in Long Island Sound) which have long been NDZ where pump out only is allowed and Type I devices are not allowed, local health authorities close the water to shellfishing at times of high pleasure boating usage.

Pump out frequency is also a factor and is determined by vessel usage, amount of individuals on board and the capacity of the holding tank. The EPA uses a formula of 4 people that would use the toilet (head) 5 times per day per person. Toilet flush volume is also a factor. As a manufacturer of marine toilet systems for small boats to large yacht and commercial vessels we know that water consumption per flush varies. A small boat with a direct gravity flow down into a holding tank would take less than ½ gallon of water while larger boats with longer plumbing routs may take at least 1 gallon per flush. The useful capacity of a holding tank is never more than 90% of its rated capacity. The size (capacity) of holding tanks also vary depending on the size of the boat and how many persons the boat can accommodate. A 26 foot boat might have a 5 gallon porta potti while a 50 foot yacht may have a 40 – 60 gallon holding tank. It is not unrealistic to determine that many vessels will simply reach full tank conditions in the course of a day. Pump out distribution must be more that what the EPA considers reasonably adequate. DEQ's use of an EPA formula to achieve a forced result indicates a disregard for clean waters. Said formula is so flawed that it would even allow less than one pump out for many boats. This, if accepted means the necessity of direct dumping of raw sewage.

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MAIN PLANT & GENERAL OFFICE: 530 Orange St., Millville, NJ 08332 USA

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The review of pump outs in Northumberland County waters does not attain this level of adequacy and as such should be considered a factor and contributor to further impairment of those waters.

As to the concept of onboard treatment system and a holding system: many boats do not have the space to have both.

Sincerely,

A handwritten signature in black ink, appearing to read "Dale T. Weatherstone".

Dale T. Weatherstone
Managing Director of Florida Operations

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SOUTHERN PLANT & OFFICE: 3101 SW Second Ave., Fort Lauderdale, FL 33315 • 954-525-0378 • FAX: 954-764-4370

DEQ Response:

August 5, 2011

Mr. Dale T. Weatherstone
Managing Director Ft. Lauderdale Operations
Raritan Engineering Company, Inc.
3101 S.W. 2nd Avenue
Ft. Lauderdale, Florida 33315
954-525-0378 ext. 300
Fax: 954-764-4370
Dalew@raritaneng.com

Dear Mr. Weatherstone:

Thank you for your follow-up comments, dated July 26, 2011, regarding the Northumberland County NDZ application. DEQ believes that the initial responses to the comments were sufficient. However, DEQ intends to acknowledge your perspective by including your July 26 correspondence in the submittal to the U.S. Environmental Protection Agency.

I appreciate your company's efforts to participate in the process.

Sincerely,

David S. Lazarus
Watershed Program Manager
Office of Water Quality Programs

Cc: Mark Alling
Margaret Smigo
charlene@raritaneng.com

Northumberland County NDZ Application Comments for Mr. Weatherstone, Raritan Engineering and DEQ Responses

Under Certification of Need: DEQ claims that “while terrestrial pollution is a threat to these marine natural resources, vessel pollution is direct and proximate to oyster grounds, and therefore may have a more immediate impact on local water quality.

Comment: In all waters of Virginia and the United States it is a violation of State and Federal law to discharge untreated waste into any waters within the state. A Federal NDZ is only a ban on the use of Type I and II MSD’s that treat waste by destroying the bacteria that DEQ is addressing. The most popular device used by recreational vessels under 65 ft. is Electro Scan (formerly Lectra Scan) which treats waste water with bacterial reductions 100 times greater than EPA standards. As most boats use raw water for flushing, the treated discharge water returns cleaner than receiving waters.

Response: DEQ acknowledges that some MSDs may emit low levels of bacteria. Design, operation, maintenance and salinity affect performance and all MSDs are not equal in performance. While some devices are more environmentally protective than others, the Federal law does not allow states to exempt those more protective devices. Direct depositions of bacteria and nutrients have a greater impact on water quality in sensitive shellfish resource areas. DEQ acknowledges that type I and II MSDs are required to discharge effluent that generally meets the water quality standard for recreation. An EPA study in 2007 determined that the vast majority of effluent discharged from an Electro scan MSD had low levels of fecal coliform bacteria. However, EPA also experienced uncharacteristically high samples which exhibited greater than 24,000 MPN/100 ml. This reflects the issue that design, operation, maintenance and, in some MSDs, salinity affect performance of MSDs.

Comment: The current existing laws “prohibit the discharge” of untreated human waste. Banning the only alternative that is clean, safe and will not cause water quality impairment in already impaired waters in the form of current USCG approved MSD’s is not a logical nor effective means of attempting to improve water quality. Enforcement of existing laws and regulations is what is needed.

Response: NDZs are designated as one tool to protect shellfish growing waters from treated and untreated boat waste. While it is illegal to discharge raw waste per the Clean Water Act, NDZs elevate the message to the public that dumping is illegal and that because the waters are sensitive to pollution, it is necessary to prohibit discharges from MSDs to achieve reductions in sensitive water bodies.

Enforcement of existing laws and regulations can improve within NDZs. Local residents become aware of the prohibition and will report violations. Also, because a physical barrier to the use of the y-valve or toilet is required, it is easier for law enforcement officials to visually identify violations.

It is a watershed stewardship tool that can be effective for improving water quality and given the extent of impairments for bacteria, SAV and DO, the DEQ has determined that they are necessary and beneficial. NDZs in Virginia have proven to be an effective means of reducing bacteria levels in tidal waters, for example in the Lynnhaven River where historically closed shellfish waters are now open for the first time in decades. Additionally, MSDs are designed and certified to technology based limits that meet recreational use Water Quality Standards but are inconsistent with the lower shellfish Water Quality Standards.

Monitoring: DEQ states that “although many sources potentially contribute to declining water quality in these waters, it should be **assumed** that discharges from vessels anchored, docked, moored, or operating within them, have the potential to be contributory sources to the overall bacterial load.”

Comment: First, these statements are speculative with no basis in scientific factor evidence with regard to vessels equipped with approved USCG Type I or II treatment technology. Has DEQ conducted any DNA analysis of the bacteria found in the listed impaired creeks to establish the source? If this has been done and human bacteria found, it should not be “assumed” that said bacteria comes from boats, particularly inasmuch as there are so many low lying septic systems and an estimated human population of **25,551 people** that may reside adjacent to the water bodies that DEQ intends to be a NDZ for boat MSD’s.

Comment: According to a study conducted in the mid 1990’s to determine non point sources of bacteria done by Professor George Simmons, Virginia Polytech, on the eastern shore of Virginia, the high fecal coliform and ecoli levels were attributed to wildlife, not human. The bacteria was identified via DNA fingerprinting and other means. Has DEQ conducted similar tests in the tidal creeks slated for NDZ designation? What is the percentage or ratio of animal sources versus human sources.

Response: Yes, DEQ uses bacteria source tracking to identify the probable source of fecal bacteria. Pollution budgets (aka TMDLs) have been developed for nine watersheds within Northumberland County. The relative percentages are available online by looking at the TMDLs. See Table 1 for a summary by watershed. See, <https://www.deq.virginia.gov/TMDLDataSearch/ReportSearch.aspx> and search by the water body name or county name in Table 1 to review the full TMDL report. Some water bodies exhibit a prominent bacterial load from wildlife and others do not. For example, Cloverdale Creek receives an estimated 45% of its bacterial load from wildlife and only 21% from humans. Conversely, Mill Creek receives an estimated 6% of its bacterial load from wildlife sources and 25% from human sources. Irrespective of relative pollutant loads, many pollution budgets identify the need to completely eliminate all sources of human bacteria. That translates to a 100% reduction in human bacteria sources to meet water quality standards. The table below presents overall percentages of animals sources versus human sources.

Summary of Bacteria Sources*	Source of Fecal Coliform Bacteria (Percent of total fecal coliform load)			
	<i>Wildlife</i>	<i>Human</i>	<i>Livestock</i>	<i>Pets</i>
<i>Waterbody Name</i>				
<i>Cockrell Creek</i>	12	42	38	8
<i>Dividing Creek and Prentice Cove (averaged)</i>	34	35	15	17
<i>Greater Wicomico (five waterbodies averaged)</i>	15	37	25	19
<i>Mill Creek, Ball Creek, Cloverdale Creek (three waterbodies averaged)</i>	29	24	31	28
<i>Owens Pond (two waterbodies averaged)</i>	49	23	17	12
<i>Coan River (5 sampling stations averaged)</i>	8*	58	9	4
	<i>*An additional 21% was attributed to birds, primarily from naturally occurring populations of waterfowl.</i>			
<i>Cod, Presley, Hull, Rodgers, Bridgeman, Cubbitt and Hack Creeks (averaged)</i>	31	23	29	34
<i>Little Wicomico River Watershed</i>	10*	59	9	3
	<i>*An additional 18% was attributed to birds, primarily from naturally occurring populations of waterfowl.</i>			
<i>Mill Creek, UT to Kissinger Millpond</i>	5	2	91	1

*For more specific percentages, by water body, read the TMDL report at <https://www.deq.virginia.gov/TMDLDataSearch/ReportSearch.aspx>

The Cockrell Creek TMDL calls for a 100% reduction in human and livestock bacteria sources to meet the pollution budget. Dividing Creek TMDL calls for 100% reduction in human, livestock and pet bacteria sources to meet the pollution budget. The Greater Wicomico TMDL calls for a range of 48-100% reduction in human bacteria sources across the five water bodies included in the TMDL. The Mill Creek TMDL calls for 100% reductions in human and livestock bacteria sources to meet the pollution budget. The Owens Pond TMDL calls for 100% reduction in human bacteria sources for each of the three water bodies discussed in the report. The Coan River TMDL calls for zero to 65% reductions in human bacterial loads. Little Wicomico TMDL calls for zero to 52% reductions in human bacterial loads. The Mill Creek to Kissinger Millpond TMDL calls for zero reduction in human bacteria sources and a 40% reduction in livestock bacteria sources.

Comment: EPA effluent standards for Type I & II MSD's do not require that current devices address nutrients, COD or BOD other than reductions of TSS because of so few vessels that would be using these devices when compared to all other point and non point sources which contribute over 99% of the above. An example of how few

nutrients are released using the Raritan Electro Scan (see USEPA “evaluation of improved Type I Marine Sanitation Devices – Performance Evaluation Report published January 2010). See pages 4-14.

Table 4-8, total Kjeldahl nitrogen – Electro Scan and page 4-16, to table 4-10, total phosphorus – Electro Scan.

Effect of Discharge From Electro Scan						
			Flush Volume			
			Gallon	100 Gallon	500 Gallon	1000 Gallon
	Mg/l*	kg/G	Lb/G	Lb/100 G	Lb/500 G	Lb. 1000 G
Total Kjeldahl Nitrogen	45	0.00017	0.000375	0.0170325	1.18769815	0.3753963
Total Phosphate	2.2	8.33E-6	184E-05	0.0008327	0.0009176354	0.018352708
*average of 10 day test table 4-8 to 4-10 as per “Evaluation of Type I Marine Sanitation Devices” report by EPA						

To put the MSD nutrient discharge into proper perspective see:
http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/FinalBayTMDL/CBayFinalTMDLExecSummarySection1through3 final.pdf

See 3rd paragraph contained in the above link to Chesapeake Bay/Final Bay TMDL Executive Summary Section 1 through 3 – The TMDL – The largest ever developed by EPA – Specifically, the TMDL sets by watershed limits of **185.9 Million Pounds** of nitrogen, **12.5 Million Pounds** of Phosphorus and **6.45 Billion Pounds** of sediment **Per Year!** Boat toilets with Electro Scan devices use on average ½ - ¾ gallon per flush. The amount (wt.) of the total nitrogen for 10,000 gallons of treated waste is **3.75 Pounds** and the amount of phosphorus for 10,000 gallons of treated waste is **0.18 Pounds**.

Monitoring: DEQ further states that “Depending on the Type of MSD, wastewater discharges from marine vessels may also contain additional pollutants, such as protozoa (e.g., Giardia), viruses (e.g., Norovirus), and deodorants or sanitizing chemicals (e.g. Formaldehyde) that are potentially harmful to humans, wildlife, and the environment.”

Comments: This is not only incorrect it is misleading. The only “MSD” that could potentially discharge some of the things the DEQ contends is a Type III MSD or holding tanks which if that is the case is and has been, regardless of NDZ designation, a violation of state and federal laws. USCG Type I & II MSD’s Do Not discharge these elements but rather eliminate harmful bacteria and even viruses which POTW’s (Publicly Owned Treatment Works) are not required to do. DEQ’s desire to require a 100% dependence on the only system that can, if done illegally, cause problems in favor of accepting other forms of technology that would otherwise prevent this is counter to DEQ’s and the public’s desire for unimpaired water.

DEQ, through it’s public comments and statements to the media has caused financial damage to our company, Raritan Engineering Company, Inc. by using false

and misleading assumptions and incorrect information in describing the operation and effectiveness of our product(s). This also impairs the further development and improvements in technology that could result in even better environmental protection. Furthermore, NDZ's result in boaters not investing in Type I or II systems for fear they will be banned causing them to in many cases discharge raw holding tank sewage into waters not yet equipped with pump outs.

Final Comments: DEQ reports that there are 1035 vessels from 26 ft. to over 40 ft. in Northumberland County, VA.

DEQ lists 11 creeks to be designated as NDZ's so of these the NDZ would address 94.09 boats 26 ft to 40 ft per creek that must find a pump out, and not be allowed to use a Type I MSD such as the Electro Scan.

DEQ states that the 11 creeks to be designated as NDZ's consist of a total of 14,500 acres. This means that there will be 14 acres of creek waters per boat.

DEQ lists the collective square miles of the 11 creeks to be designated as NDZ's to be 22.63 square miles and DEQ lists the collective shoreline distance for the 11 creeks to be 307.68 miles. The 10 pump out facilities listed by DEQ to provide services to all boats over this vast area, appear to be woefully inadequate. Based on these facts it appears that the existing pump outs will not be reasonably available or adequate. What is DEQ's plan when one or more pump outs is out of order? These are mechanical systems that will have mechanical breakdowns occasionally.

According to the National Marine Manufacturers Association (NMMA) in a letter sent to the USEPA office of water November 9, 2010 that "use patterns should be evaluated when considering MSD regulations of recreational boats." Boats in the US were used an average of 29 days in 2009. Boats smaller than 13 feet were used an average of 21 days, boats 14 feet to 29 feet were used an average of 31 days, and boats 30 feet and larger were used an average of 34 days. (NMMA, 2009 statistical abstract (table 1.17k).

Based on the number of boats (1035 26 to over 40 ft) and the low average use patterns of recreational boats and the comparative large area of waters targeted by DEQ to be NDZ's it is unrealistic to expect any water quality improvement as a result of NDZ's and it may actually result in unnecessary pollution from boats forced to empty holding tanks when pump outs are not functioning or not accessible. This can be avoided in an environmentally safe, clean and intelligent way by not removing the only rational alternatives to a one size fits all approach.

Response: DEQ acknowledges that complying with NDZs can require additional planning by boaters. Because NDZs are only applicable in limited areas usage of MSD technology is supported by DEQ and may be used in all non-NDZ waters.

Also, DEQ acknowledges pump outs may be less available in certain areas despite being generally available across Northumberland County. Nationwide data suggest that the EPA formula to determine adequate pump out availability does confirm adequate pump outs in NDZs. EPA surveyed 958 boaters during 2003 to evaluate NDZs across the United States. When asked if they had trouble using a pump out during the 2003 boating season, the reply included the following: 9% said Yes, 74% said No, and 17% said they did not attempt to use a pump out. When asked if they had trouble using a pump out the last time they were in an NDZ the reply included the following: 3% said Yes, 70 % said No, and 27% said they did not try to use a pump out the last time they were in an NDZ. Source: Final No Discharge Zone Evaluation, 2004. See, <http://water.epa.gov/polwaste/vwd/ndzdocument.cfm>. To designate only the most enforceable and practical No Discharge Zones, DEQ and the NNPDC removed four creeks from the application prior to the public notice of the draft. This was done because Hull, Hacks, Cubitt, and Presley creeks do not provide a pump out within the water body, and they are relatively difficult to navigate at the mouth.

DEQ encourages Raritan Engineering Company, Inc. to continue to be a front runner in MSD technology by developing a hybrid Electro Scan that can provide immediate treatment and discharge in Non-NDZ areas, but can delay discharges when the vessel is in an NDZ for later on-board treatment or pump out.