

**APPLICATION FOR A  
STATE-DESIGNATED, FEDERALLY-APPROVED  
NO DISCHARGE ZONE FOR  
CHESTER RIVER**

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## 1.0 INTRODUCTION AND BACKGROUND

Chester River Association and Maryland Department of Natural Resources are requesting that the State of Maryland designate the Chester River as a No Discharge Zone (NDZ) pursuant to the Clean Water Act, Section 312(f)(3). An NDZ is a body of water in which the discharge of vessel sewage, whether treated or not, is prohibited. Our organizations, marinas on the Chester, river related businesses, and recreational users, all believe that an NDZ will improve the health of the Chester River for everyone's benefit.

### 1.1 Current Status of Chester River Water Quality

Vessel sewage, like many other pollutants, can be harmful to the environment when it is not adequately treated, and it can lower water quality. Sewage contains high concentrations of nitrogen and phosphorous which are both nutrients that can lead to algal blooms and low dissolved oxygen concentrations that can affect the health of fish, shellfish, and submerged aquatic vegetation (SAV). Sewage also contains bacteria and viruses that can make shellfish unsuitable for human consumption and make our beaches unsafe for swimming. In addition, sewage lowers the clarity of the water blocking sunlight from reaching SAV.

The Chester River has poor water quality based on the water quality testing conducted by the Chester River Association. In an annual report card, the river frequently gets a grade around a 'C' meaning water quality tends to be mixed of healthy and unhealthy water, and parts are not suitable for most fish or shellfish. None of the sections of the main stem or tributaries have received a grade of 'A' as long as testing has occurred. The 2013 report card included 'D's in clarity and phosphorous, a 'C+' in dissolved oxygen, and a 'C' in nitrogen with an overall grade of 'C-'. Over the last seven years, the lower estuary averages a grade of 'D+', middle estuary averages a C, and upper estuary averages 'C-'. In 2013 in the lower estuary, one of the testing points, CM15 only had dissolved oxygen over 5.0 mg/L (the amount needed for most aquatic organisms to survive) 19% of the time, and the water clarity only exceeded the standard of 24 inches Secchi visibility 23% of the time. Other testing points had frequent failing dissolved oxygen and clarity as well.

A study by Maryland Department of Natural Resources showed that the tidal upper Chester failed in nitrogen, phosphorus, sediments, and water clarity. Total nitrogen and total phosphorus did not meet SAV habitat requirements in 2008, and although total suspended solid levels were labeled as 'fair', they still were too high to support SAV habitat requirements (Karrh, 2012). Bottom dissolved oxygen was usually high enough to support ecosystems. Tidal middle Chester failed in nitrogen, phosphorous, and water clarity. See attached study.

Tidal lower Chester failed in nitrogen and water clarity according to Maryland Department of Natural Resources standards (Karrh, 2012). In the lower Chester, total phosphorus and total suspended sediments meet habitat requirements, but their excessive algae, and summer bottom dissolved oxygen fell to below 3 mg/L July and August which is too low for most aquatic organisms to survive (Karrh, 2012). Corsica River has relatively healthy levels of nitrogen, but high levels total phosphorus. Total suspended solids are relatively good, but algal abundance and water clarity were poor. Summer bottom dissolved oxygen levels were fair, but were below 5 mg/L almost 50% of the time (Karrh, 2012).

Harmful algal blooms are common in the higher salinity portions of the Chester and Corsica Rivers. In 2005, there was a fish killed in the Corsica River with a bloom of *K. veniicum*,

and led to dissolved oxygen levels being between 0 and 2 mg/L. The toxin in the harmful algal bloom along with the low level of dissolved oxygen led to 50,000 fish deaths (Karrh, 2012). In general algal levels are low. The Chester currently supports very little SAV. No SAV has been found in the upper Chester from 2008 to 2010 despite the restoration goal of 307 acres (Karrh, 2012). In the lower Chester, there were 84 acres of SAV mapped in 2010 which is only 3% of the lower Chester restoration goal (Karrh, 2012).

Both Kent and Queen Anne's County public beaches have some of the highest number of beach closings due to bacteria in Maryland. This is discussed in detail in the 'Certification of Need' section. Sewage discharged from boats contributes to poor water quality, especially in poorly flushed embayments.

## **1.2 Marine Sanitation Devices**

Every boat with an installed marine head (toilet) must have a US Coast Guard approved Marine Sanitation Device (MSD). The US Coast Guard tests and certifies MSDs as Type I, Type II, or Type III. A Type I MSD means a device that, under the test conditions, produces an effluent with a fecal coliform bacteria count under 1,000 colony forming units per 100 milliliters and no visible floating solids. A Type II MSD means a device that produces an effluent with a fecal coliform bacteria count under 200 colony forming units per 100 milliliters and suspended solids under 150 milligrams per liter. Type III MSDs are holding tanks designed to prevent the overboard discharge of any sewage, treated or untreated; although, some Type III MSDs are equipped with a "y" valve that allows the operator to legally discharge stored sewage once the vessel is more than 3 miles offshore. Boats larger than 65 feet in length must use a Type II or Type III MSD, while boats under 65 feet can use a Type I, II, or III MSD.

Type I MSD masticates sewage and treats it with heat or chlorine to lower bacteria counts. However, these devices do nothing to reduce the amount of nutrients being released from the sewage, or the oxygen demand created by breaking down the organic matter of sewage. Nitrogen and phosphorous are both nutrients found in excreta, and ammonia is found in urine. All of these add nutrients to the water. Sewage is broken down by microbes that need oxygen to survive. As these microbes are breaking down the sewage, they use the dissolved oxygen in the water. This means there is less remaining for animals such as fish and shellfish.

Although Type I and II MSD reduce bacteria, their effluent may still have levels that can be dangerous for aquatic life and for human health. Between 5 and 10% of the population are carriers of *Endamoeba histolytica*, which causes amoebic dysentery, and 25% of the population are carriers of hookworm, ascarid, or tapeworms. Organisms found in excreta can cause diarrhea, infectious hepatitis, salmonella infection, bacillary dysentery and many more diseases (Sealand Technologies, 2001). In addition, there are no coast guard standards for *E. coli* or enterococci which are subgroups of fecal coliforms that are often linked with diseases.

The chemicals used to treat sewage on a boat can also be dangerous to the environment. Treatment chemicals include chlorine, quaternary ammonia, and formaldehyde. All of which are toxic to aquatic organisms. Because there is a risk that sewage and treatment from MSDs may negatively impact these sensitive areas, all vessel sewage, even if treated by a Type I or Type II MSD, is prohibited from being discharged in NDZs.

### **1.3 Restoration Efforts in the Chester**

Throughout the watershed, cities, organizations, and individuals have been working hard to address pollution. They have performed projects such as updating sewage treatment plants, fixing failing septs, decreasing runoff, implementing agricultural best management practices, tree plantings, creating buffers, and community outreach. Despite all the efforts to improve our water quality, there still remain significant problems. The existing efforts for river restoration do not include much outreach to boaters who are an important constituent. Boaters are one of the populations that benefit most from clean water, so it is only fitting that if farmers, homeowners, city planners, and other constituents are asked to contribute to the restoration, boaters also should be included.

#### **Improvements to Waste Water Treatment Plants and Septic Systems**

The Towns of Centreville, Chestertown, Kennedyville, Millington, Rock Hall, Sudlersville, and Worton in the Chester River watershed have made recent improvements to address land based sources of pollution. Point sources such as sewage treatment plants and septic systems are a significant cause of pollution to the Chester. Septic systems contribute more per person than sewage treatment plants, with the average person using municipal sewage contributing two pounds of nitrogen per year, while a person using a septic system contributes nine pounds. Ten percent of all nitrogen entering the Chester is attributed to residential septic systems (Sage Policy Group, 2012). It is important for towns to try to get people living in the surrounding area to convert from septic to municipal sewage. Also it is important for sewage treatment plants to be equipped with up to date technology.

In Centreville, the wastewater treatment plant (WWTP) currently serves over 3,500 people with 950 building connections. In 2004, it was upgraded to meet biological nutrient removal standards and increased its capacity from 500,000 to 542,000 gallons per day to better deal with wastewater (Queen Anne's County, 2011). The upgrade reduced loadings to less than one quarter the previous nitrogen and less than one fifth the previous phosphorous (Karrh, 2012). The facility discharges into Gravel Run, which is a tributary of the Corsica River, which runs into the Chester.

In 2008 Chestertown spent \$10.5 million on upgrades to their WWTP. The plant now has both biological and enhanced nutrient reduction technologies. The new upgrade also includes 2 oxidation wave aeration systems, screening, grit removal clarifiers, de-nitrification filters, sludge pumping, chemical feed systems, liquid chlorination and de-chlorination systems, a new control building, raw sewage pump station modifications, instrumentation, and control systems. The Chestertown WWTP processes over 900,000 gallons of effluent per day, has 2,300 connections, and services around 5,000 people (Wojton, 2009). The new plant has caused an 83% reduction in nitrogen, and a 90% reduction in phosphorous (MDE, 2006). The Chestertown WWTP discharges into the middle Chester River which is protected for shellfish harvesting (Wojton, 2009). The upgrade also included adding the region of Quaker Neck to the WWTP system.

Kennedyville WWTP underwent updates in 2006 to now have a capacity 60,000 gallons per day, and a sequencing batch reactor. The system has 120 connections servicing 300 people. The WWTP discharges into Morgan Creek which is a tributary of the Chester, and is classified as a Use I water and is protected for water contact recreation and aquatic life (Wojton, 2009).

Millington updated their plant in 2009 to biological nutrient reduction standards. It now includes 385 connections serving 920 people. It discharges into the upper Chester River which is

classified as a Use I water and is protected for water contact recreation and aquatic life (Wojton, 2009).

Rock Hall WWTP added three smaller regions between 2006 and 2007. There are now a total of 1,100 connections serving 2,700 people. The plant discharges into Chester River tributary of Gray's Inn Creek which is protected for shellfish harvesting (Wojton, 2009).

Sudlersville has recently improved their capacity from 160,000 to 250,000 gallons per day, and raised the standards of effluent up reach the enhanced nutrient removal standards. They use techniques including Biolac filtration and UV disinfection. In addition, 13 aerators have been installed in their two lagoons to add dissolved oxygen and reduce biological oxygen demand and two new baffles have been installed in each lagoon to lessen short circuiting of treatment flow (Queen Anne's County, 2011).

In 2010, the town of Worton upgraded their facility to meet enhanced nutrient removal requirements. They increased from 150,000 to 250,000 gallons per day. There are 385 connections serving 1065 people. Effluent is discharged into Morgan Creek which is classified as Use I water, and is protected for water contact and aquatic life (Wojton, 2009).

The Middle Chester Septic Repair program funded by the 2012 Trust Fund and includes the Chester River Association and several local partners working together to help homeowners upgrade their septic systems to the Best Available Technology. These improvements help to reduce the nitrogen from wastewater, and allow less of it to get to the river. Through this program 20 septic systems were repaired, most of which were in the critical area (Chester River Association, 2013). More projects were done in the Upper and Lower Chester as well through workshops sponsored by the Chester River Association to encourage homeowners to apply for funding to upgrade their systems.

### **Reductions in Agricultural Pollution**

Agriculture is another significant source of pollution. Since Kent and Queen Anne's Counties are both primarily agricultural, agriculture contributes 70% of nutrient and sediment loading (Sage Policy Group, 2012). However, many best management practices are in place, and more are being introduced. Farmers are using no-till cropping systems, plant cover crops, and use 'precision ag' techniques. Currently, the Chester River Association is supporting the use of 'Greenseeker' systems that help farmers apply nitrogen strategically, reducing nitrogen application by up to 20% (Chester River Association, 2013).

Also, the Chester River Association promotes the use of switch grass, a deep rooted plant native to Maryland, as a buffer to take up excess nutrients, and have already planted 700 hundred acres on marginal farm land. In 2011-2012, 53% of farmland in Kent County and 45% in Queen Anne's County had winter cover crops to prevent runoff of nutrients and sediment (Chester River Association, 2013). Farmers in Kent and Queen Anne's county have gained a reputation as state and national leaders in conservation practices (Sage Policy Group, 2012).

Many individual farms have implemented best management practices such as bio-retention ponds, fencing livestock out of streams, upgrading manure storage facilities, and using the best management practices for reducing fertilizer use.

### **Improvements by Watershed Organizations and Local Governments**

The Chester River Association has done many projects for improving stream health. These include four wetland reconstruction sites in Kent County, a living shoreline at Camp Pecometh in Queen Anne's County completed in 2013, tree plantings including over 1,200 trees

at Sudlersville Middle School campus in 2013-14, installation of 50 rain barrels in 2011, and many more projects (Chester River Association, 2013).

Another program for improving water quality is the Marylanders Grow Oysters program. Maryland homeowners who have docks in the correct salinity regime for oysters can take a cage full of oyster spat (baby oysters), and hang the cage off their dock above the ground from fall to spring to let the oysters grow without the risk of being covered with sediment. In the spring, the Chester River Association picks up all the oysters and takes them to an oyster sanctuary in Lankford Bay. Oysters are very important for filtering the water, removing toxins, and improving water clarity (Chester River Association, 2013).

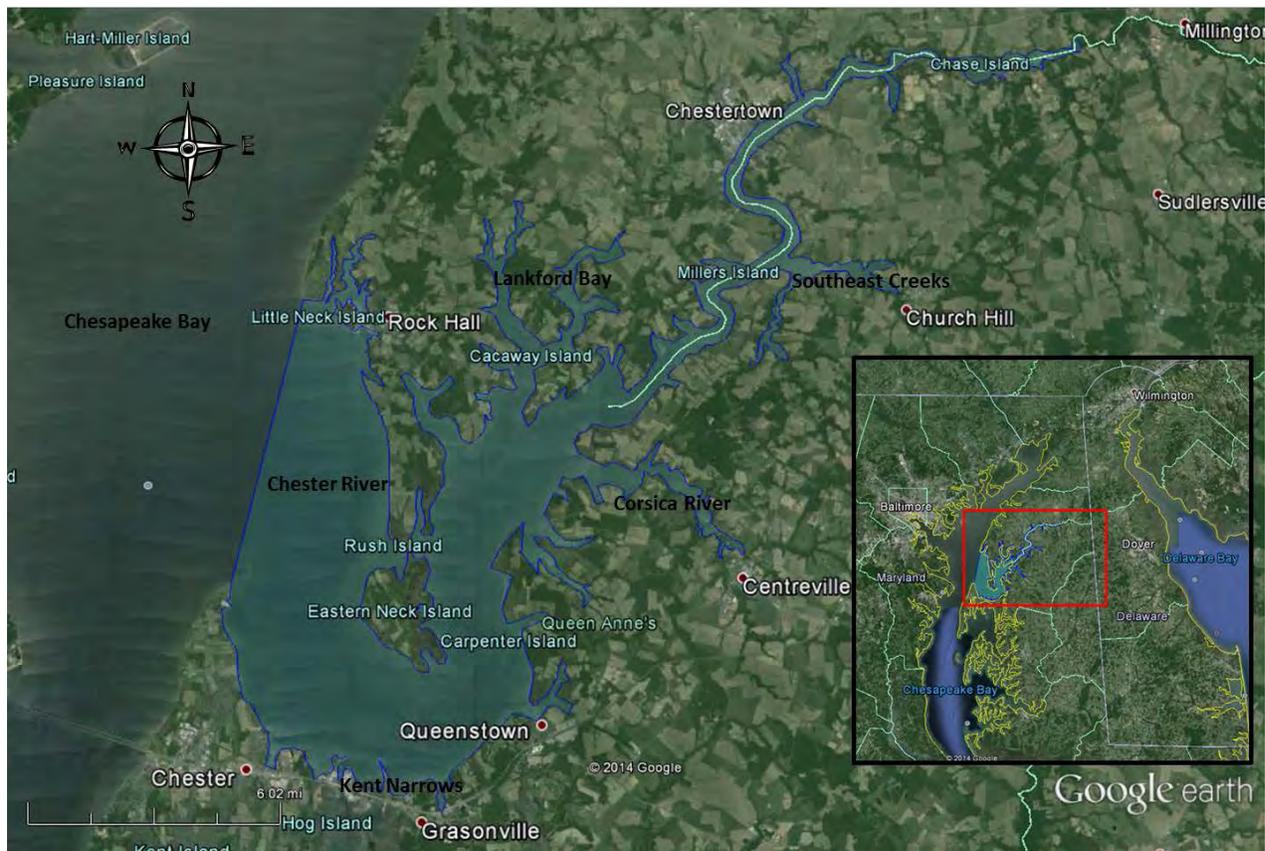
Corsica River Conservancy recently got large grants for a demonstration restoration project in a smaller, agricultural watershed. In 2010, a wooded wetland was built near Gravel Run, a living shoreline was built off of Windy Hill, and Symphony Village redesigned two storm water management ponds. In 2011, Centreville Wharf created a living shoreline and Coastal Plains Outfall storm water capture system. Over 350 residential rain gardens were implemented (Corsica River Conservancy, 2013).

The town of Chestertown recently built a series of step ponds to deal with polluted runoff from a shopping center. It prevents sediment, nutrients, and other pollutants from rapidly flowing into the Radcliffe Creek tributary during every rain event. In addition, the town is working to reduce stormwater runoff, and create new buildings with runoff consciously in mind.

## 2.0 PROPOSED NDZ BOUNDARIES

The no discharge zone will encompass the entirety of the Chester River and its tributaries. The distinction from the Chesapeake Bay will begin at 39° 8'54.48"N, 76° 16'37.11"W and extend down to 39° 2'23.56"N, 76° 18'8.89"W. From there it will continue east throughout any navigable waters including all tributaries and bays. Included within this zone are Lankford Bay, Corsica River, Southeast Creeks, and many smaller tributaries.

Figure 1: No Discharge Zone Boundaries



Black writing indicates names of bodies of water. White writing indicates names of towns. Blue writing indicates names of islands.

### **3.0 CERTIFICATION OF NEED**

The Chester River and the Chesapeake Bay which it drains into, are both classified as impaired by Maryland Department of Environment in 2012 (Stover, 2012). The river is an important economic driver for the region, providing jobs and revenue through tourism, commercial and recreational fishing, boating, and more, and clean water increases its value. Reducing the amount of boat sewage being discharged will help improve the health of the water, and protect the important ecological, economical, and cultural resources of the Chester River.

#### **Impairment of the Chester River**

The Chester River is a major tributary emptying into the Chesapeake Bay. According to standards set by the Clean Water Act, the Chesapeake Bay is classified as an impaired body of water because of low dissolved oxygen related to excess nutrients (Stephenson, 2004). This leads to dead zones that support little to no aquatic life. Both the Chesapeake Bay Agreement, which was signed by the Chesapeake Bay Commission, the EPA, and four states including Maryland, and the Maryland Coastal Bays Conservation and Management Plan developed under the National Estuary Program, support the use of NDZs as good measure for improving water quality in the Bay (Stephenson, 2004). Under the total daily maximum load qualifications, 100% of the Chester River is considered impaired for nutrients, sediment, bacteria or a combination.

The counties of Kent and Queen Anne's that surround the Chester River rank as the top two Maryland waterfront counties in terms of beach closings by percentage of beaches. Kent County has six public beaches all of which are monitored. Of these, three beaches were affected by a beach action in 2012 meaning that part of the beach did not pass the swimming water quality standards. One of the actions closed a beach for 8-30 days, and the other two closed the beach for over 30 days. 22.9% of swim season beach days were affected by a beach action. In Queen Anne's County, there are two beaches both of which are monitored. Both beaches were under action at some point during the swim season. All beach closings were due to elevated bacteria as evidenced by high levels of enterococci (Merritt, 2013). No other county in Maryland had as high a percentage of beaches affected by closings due to elevated bacteria. See appendix 1 for full results.

#### **Value of the Chester River**

The Chester River is a major regional economic driver. Based on a study by the Sage Policy Group in 2012, the Chester River supports \$86 million of annual local economic activity, 900 jobs, and \$26.7 million in annual labor income (Sage Policy Group, 2012).

Table 1: Annual Economic and Fiscal Impact Quantifiable Recreational Activities, Commercial Operations, and Increased Property Values on the Chester River for Kent and Queen Anne’s Counties

Type of Economic Impact	Employment	Labor Income (\$millions)	Business Sales (\$millions)
Impact 1: Recreational Boating and Fishing	52	\$1.6	\$4.3
Impact 2: Waterfowl Hunting	21	\$0.5	\$1.4
Impact 3: Annual Events and Attractions	190	\$5.3	\$14.7
Impact 4: Commercial Fishing	41	\$0.3	\$1.5
Impact 5: Marina Operations	47	\$1.6	\$5.5
Impact 6: Property Values	542	\$17.5	\$58.7
<b>Total Economic Impacts</b>	<b>893</b>	<b>\$26.7</b>	<b>\$86.2</b>
Type of Fiscal Impact			Revenues (\$millions)
Local Income Tax (Rate- 2.85%)			\$2.4
Kent County Property Tax (Rate- 1.022%)			\$2.7
Queen Anne’s County Property Tax (Rate- 0.8837%)			\$2.5
State Income Tax (Rate- 4.75%)			\$4.1
State Sales Tax (Rate- 6%)			\$2.6
State Property Tax (Rate- 0.112%)			\$0.6
<b>Total</b>			<b>\$14.9</b>

Source: Sage

Many of these industries are dependent on the Chester River having healthy, clean water. Many locals and tourists engage in recreational activities related to the river including paddling, boating, and recreational fishing. Between Kent and Queen Anne’s Counties, there are at least 9 river outfitters who rent or sell equipment for river related activities, and at least 43 charter boats for cruising, hunting, and fishing (see appendix 2 and appendix 3)

Results of the Sage Policy Group focus groups show that the Chester is a principal attraction for visitors and residents. Many residents moved to the communities near the Chester because they valued the natural resource based economy offering a rural feeling, and visitors often come for an escape to their urban lifestyles (Sage Policy Group, 2012). Respondents in the group also agreed that the water quality has worsened in the past 20-40 years. Pollution has negatively impacted commercial fishing, and some evidence suggests that pollution has been a factor in the decrease of the diving duck which once used to be very important for hunters (Sage Policy Group, 2012).

Parts of the Chester River watershed such as Chestertown in Kent County are very important for tourism. On the other side of the river, Queen Anne’s County Department of Tourism recorded \$76.4 million in sales with a total of 300,600 visitors in 2010 (Sage Policy Group, 2012). According to river outfitter shops, there has been a substantial increase in paddling from 1999 to 2004 (Sage Policy Group, 2012). Activities such as biking, hiking, camping, hunting, birding, boating, fishing, and sailing draw people to the area. In 2010, Kent and Queen Anne’s County gave out a combined total of 5,037 bay and coastal sport and resident senior fishing licenses (Sage Policy Group, 2012). Bay and Coastal Sport licenses are used for the Chesapeake Bay and its tributaries and the Atlantic Ocean. Resident senior licenses give a discount to Maryland residents over the age of 65 (Maryland DNR Fisheries). Other boaters use the Chester River for cruising, nature observation, sightseeing, waterskiing, tubing, racing, and

swimming. In 2010, there were 3,604 hunting permits issued for game birds including waterfowl like geese (Sage Policy Group, 2012). Eastern Neck National Wildlife Refuge which is an island near the mouth of the Chester River attracted 89,764 visitors in 2008 (Sage Policy Group, 2012). Especially since it is a wildlife refuge, good water quality is very important.

Many events use the Chester River. The largest of these is the Chestertown Tea Party which attracts 20,000 visitors and includes reenactments of the colonial resistance to British presence which occurs on the water. Downrigging weekend attracts another 10,000 and features boat rides, and many shore-side events. Other events include boat races attracting 800-1,000 each, and Chestertown Wildlife Festival which attracts 600 visitors (Sage Policy Group, 2012). Kent School hosts the "Osprey Triathlon" which includes a 2-mile kayak course on the river. Washington College sailing and crew teams host 5-6 sailing and rowing regattas each year in addition to practicing on the Chester. The Maryland high school state rowing championships take place on the river, and attract over 2,000 visitors. Maryland Swim for Life has courses of 1-5 miles, and a 2.4 Mile Triathlon Challenge swim. All events take place in the waters of the middle Chester starting at Rolph's Wharf Marina. There were 231 swimmers registered in 2013, and the event raised \$41,150 to go to help HIV/AIDS related organizations and the Chester River Association (Swim for Life, 2013). Washington College Center for Environment and Society hosts a Waterfront Festival which brings in over 3,000 people each year. Washington College is looking in the future to attract more students down to the waterfront with a multi-million dollar waterfront campus. Between 60 and 70 events including weddings, family reunions, and church services are held at the Hynson Pavilion which is owned by the college, and located on the waterfront. A bird banding station owned by Washington College is also located in the watershed, and it bands 15,000 birds each year some of whom need healthy water in the Chester River to make survive.

Commercial fishing both for fish and shellfish is an important part of the economy. In 2008, 1,032,666 pounds of crabs were caught in the Chester (Maryland DNR Fisheries). In 1990, 419,982 pounds of oysters were commercially harvested, but unfortunately there were only 4,205 pounds in 2003 (Maryland DNR Fisheries). Overharvesting along with poor water quality led to this decline. Oysters bring water through their bodies, and filter out algae and sediment. When there is sewage in the water or fecal coliforms, then the oysters filter that too, and it concentrates in their bodies which can contaminate them. Especially when eaten raw, this contamination can be passed on to humans who consume them. In 2004, 50,376 pounds of striped bass were harvested which is down from the 129,748 pounds in 1980 partly because of poor water quality (Maryland DNR Fisheries).

Clean water also is important for property values. Often when a house is closer to the river, the property value is higher. Sage Policy Group found that houses within 0-0.5 miles of the river had an added value of \$167,500, houses within 0.5-1 miles had an added value of \$7,700, and houses 1-2 miles had an added value of \$4,000. A study by the EPA found that for rural water front property, such as on the Chester, pollution abatement can increase property values by at least 10% (Sage Policy Group, 2012).

Some marinas are already taking initiative to be more environmentally friendly. Of the seventeen marinas with grant funded pumpout facilities in the proposed NDZ, five of them are certified as clean marinas by the Maryland Department of Natural Resources. This certification entails that marinas meet the rigorous pollution standards set by the Maryland Clean Marina Committee and the Maryland Department of Natural Resources (MDNR, 2013). All operators voluntarily adopted extra measures towards pollution control.

Table 2: Certified Clean Marinas

Name	# slips	Examples of clean practices
Castle Harbor Marina	348	Recycling of oil, gas, batteries, and anti-freeze, raising oysters, use PRP which is a bio-remediating absorbent for spills
Haven Harbour Marina	217	Closed loop system for washing hulls, zero tolerance for paint and chemicals entering water, recycling, reuse of oil and fuel for heating, environmental audits of boats, raising oysters, enhanced stormwater management
Mears Point Marina	540	Wash water recycling system, recycling, pumpout, spill response equipment
Piney Narrows Yacht Haven	278	Recycling of oil, gas, batteries, and anti-freeze, spill response kit, slip holder education, grass buffers, minimal in-water hull scrubbing
Spring Cove Marina	193	Recycling of oil, gas, batteries, and anti-freeze, fuel spill response kit, regular maintenance of grounds

Source: (Maryland Department of Natural Resources, 2016)

The designation of the Chester River as an NDZ will provide an additional means of protection from a diffuse, difficult to detect form of pollution to the area. The environment and economy will benefit significantly. The NDZ designation will be a useful selling point for the tourism industry and any other businesses that use the water, and ensure that the river is healthy enough for all uses.

## 4.0 IMPLEMENTATION OF NDZ

The Chester River meets the needs of an NDZ in terms of availability and accessibility of publicly available pumpout facilities in comparison to boat traffic. If designated as an NDZ, then Chester River Association would lead a targeted outreach campaign to educate boaters and the general public about the new designation, and the dangers of discharging sewage into the river.

### 4.1 Pumpout Facilities

Within the proposed NDZ, there are nineteen stationary and four mobile publicly available pumpout stations located at seventeen marinas or docks throughout the Chester River. Sixteen of the nineteen stationary units also have a method to empty portable toilets. All of the pumpout stations noted were funded with grants administered by DNR and all comply with local and state sanitary permitting requirements. It is estimated that between 2,700 and 4,700 boats use the Chester River each year based on estimations from Google earth and boat registrations. According to the EPA guidelines (EPA, Office of Water, 1994), the number of pumpout facilities is more than adequate for the number of boats that use the Chester while taking into account the size and facilities of the boats (see appendix 4). In addition, there are multiple publicly available pumpout facilities near the NDZ that boats can also use.

According to the Annotated Code of Maryland Environment Article §9-333 (pumpout law), “a marina that berths any vessel that is over 22 feet in length and has 50 or more slips shall have a pump-out facility and a waste reception facility\* on-site that is operable, adequate to handle any existing and increased follows, and accessible at reasonable times...[additionally]... a person may not construct any additional slips at an existing marina that is capable of berthing vessels 22 feet or larger that would result in a total capacity of more than 10 slips or construct a new marina that is capable of berthing vessels 22 feet or larger with more than 10 slips on the navigable waters of the State unless: there is a pump-out station on-site at the marina that is adequate to handle any existing and increased follows, and accessible at reasonable times.”

The Maryland Department of Natural Resources provides grant funding to marinas for the purchase and installation of marine sewage pumpout facilities. Supplemental funding for yearly pumpout operations and maintenance is also available, as is funding to upgrade or even replace existing pumpout facilities. Marinas that install these systems provide boaters with a proper method of disposing of their vessel waste and thus contribute to cleaning up Maryland waters. This program is funded by (75%) Federal Clean Vessel Act (CVA) with and (25%) from the Maryland Waterway Improvement Fund. Note that CVA rules limit the use of grant funded pumpouts to the general *recreational* boating public.

*\*The term “waste reception facility” refers to means to collect waste from portable toilets. This can be achieved by either a sanitary dump station or a wand attachment used on the pumpout hose. Most marinas prefer to have a wand attachment to comply.*

Figure 2: Publicly Available Pumpout Facilities within No Discharge Zone



Image from Google Earth

Figure 3: Close-up of Pumpout Stations in Rock Hall, MD

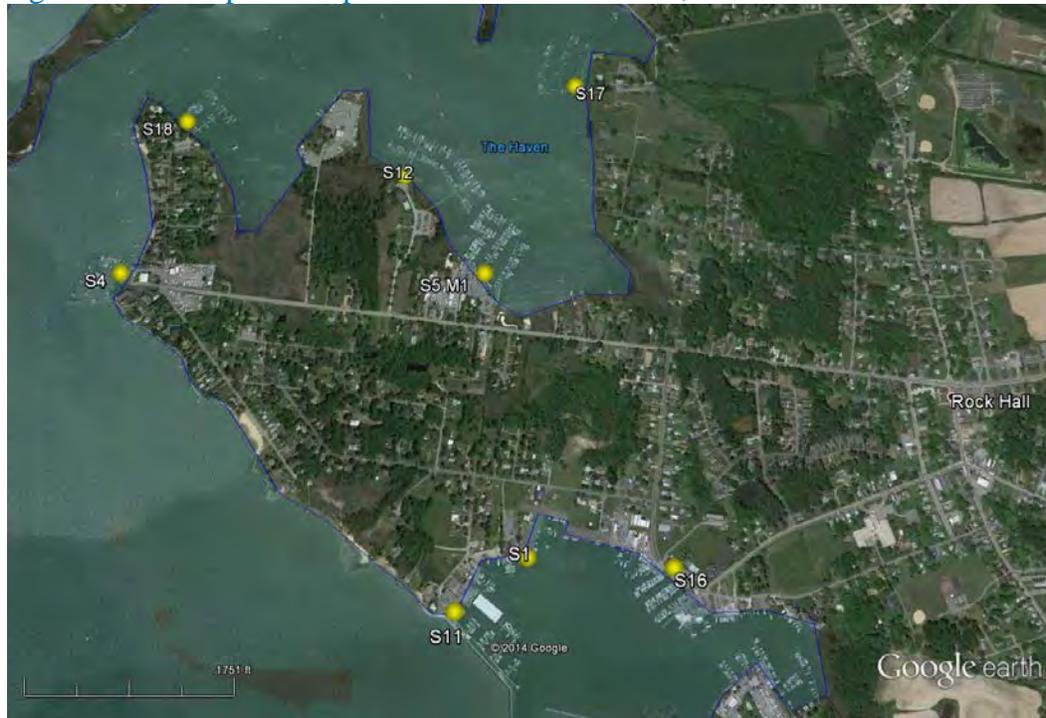


Image from Google Earth

Table 3: Number and Type of Publicly Available Pumpout Facilities by Marina

Pumpout Facilities	Number and Type of Waste Reception Facilities			
	Stationary Pumpout	Mobile Pumpout	Portable Toilet Disposal	Restrooms
Bayside Landing Park	1	0	0	yes
Castle Harbor Marina	1	0	1	yes
Chestertown Marina	1	0	1	yes
Gratitude Marina	1	0	1	yes
Haven Harbor Marina	1	1	1	yes
Kennersley Point Marina	1	0	1	yes
Lankford Bay Marina	1	0	1	yes
Long Cove Marina	1	0	1	yes
Mears Point Marina	2	0	1	yes
North Point Marina	1	0	1	yes
Osprey Point Marina	1	0	1	yes
Piney Narrows Yacht Haven	2	1	1	yes
Queenstown Harbor Community Pier	1	0	1	no
Rock Hall Landing Marina	1	0	1	yes
Sailing Emporium	1	2	1	yes
Spring Cove Marina	1	0	1	yes
Swan Creek Marina	1	0	1	yes
<b>TOTAL</b>	<b>19</b>	<b>4</b>	<b>16</b>	

For locations of each marina with a pumpout(s) see Figure 2 and Table 5.

Table 4: Operating Hours

<b>Pumpout Facility</b>	<b>Operating Hours in Season</b>	<b>Operating Hours Out of Season</b>
Bayside Landing Park	24-7	Closed
Castle Harbor Marina	24-7	Available
Chestertown Marina	9:00-5:00 daily	Available
Gratitude Marina	9:00-5:00 daily	Closed
Haven Harbor Marina	8:00-5:00 daily	Available
Kennersley Point Marina	8:00-5:00 daily	Closed
Lankford Bay Marina	24-7	Closed
Long Cove Marina	8:00-5:00 daily	Available
Mears Point Marina	8:30-7:00 daily	Available
North Point Marina	9:00-5:00 daily	Closed
Osprey Point Marina	24-7	Closed
Piney Narrows Yacht Haven	8:30-6:30 daily	Closed
Queenstown Harbor Community Pier	24-7	Closed
Rock Hall Landing Marina	9:00-5:00 daily	Closed
Sailing Emporium	8:00-5:00 daily	Available
Spring Cove Marina	24-7	Closed
Swan Creek Marina	24-7	Closed

Table 5: Contact Information for Marinas

<b>Pumpout Facility</b>	<b>Code on Map</b>	<b>Address</b>	<b>Phone Number</b>
Bayside Landing Park	S1	20927 Bayside Avenue Rock Hall, MD 21661	410-778-2600
Castle Harbor Marina	S2	301 Tackle Cir Chester, MD 21619	410-643-5599
Chestertown Marina	S3	207 S Water St Chestertown, MD 21620	410-778-0500
Gratitude Marina	S4	5924 Lawton Ave Rock Hall, MD 21661	410-639-7011
Haven Harbor Marina	S5,M1	20880 Rock Hall Ave Rock Hall, MD 21661	410-778-6687
Kennersley Point Marina	S6	223 Marina Ln Church Hill, MD 21623	410-758-2394
Lankford Bay Marina	S7	23002 McKinleyville Rd Rock Hall, MD 21661	410-778-1414
Long Cove Marina	S8	22589 Hudson Rd Rock Hall, MD 21661	410-778-6777
Mears Point Marina	S9, S10	428 Kent Narrow Way N Grasonville, MD 21638	410- 827-8888
North Point Marina	S11	5639 Walnut St Rock Hall, MD 21661	410-639-2907
Osprey Point Marina	S12	20786 Rock Hall Ave Rock Hall, MD 21661	410-639-2194
Piney Narrows Yacht Haven	S13, S14,M2	500 Piney Narrows Rd Chester, MD 21619	410- 643-6600
Queenstown Harbor Community Pier	S15	252 Harbor Lane Queenstown, MD 21658	301-343-5487
Rock Hall Landing Marina	S16	5657 S Hawthorne Ave Rock Hall, MD 21661	410-639-2224
Sailing Emporium		21144 Green Lane Rock Hall, MD 21661	410-778-1342
Spring Cove Marina	S17	21035 Spring Cove Rd Rock Hall, MD 21661	410-639-2110
Swan Creek Marina	S18	6043 Lawton Ave Rock Hall, MD 21661	410-639-7813

### 4.1.1 Accessibility of Pumpout Stations

The mean low water depth at pumpout facilities ranges from 3 feet to 10 feet, with the majority of facilities (7 of 17) having a mean low water depth of 6 feet. This means that any boat with a draft of over 10 feet will not be able to access any pumpout facility within the Chester at mean low tide. Alternatively, vessels with drafts under 10 feet will always be able to access a pumpout facility on the Chester.

Commercial vessels in the Chester include crabbing and fishing boats, charter fishing boats, and passenger vessels. The crabbing, fishing, and charter vessels will not be adversely affected by an NDZ because most of these commercial boats have drafts less than 10 feet. Larger passenger vessels that use the Chester year-round include The Chester River Packet (3 foot draft) and The Schooner Sultana (8 foot draft); both of which have holding tanks. Although federal CVA rules limit the use of grant funded pumpouts to recreational boaters, it is assumed that these commercial boats are getting served at these pumpouts when it does not interfere with serving the general recreational customers.

**Table 6: The Accessibility of Pumpouts at Mean Low Water**

<b>Pumpout Facility</b>	<b>Mean Low Water Depth</b>
Bayside Landing Park	5'
Castle Harbor Marina	6'
Chestertown Marina	10'
Gratitude Marina	7'
Haven Harbor Marina	6'
Kennersley Point Marina	3'
Lankford Bay Marina	7'
Long Cove Marina	6'
Mears Point Marina	6'
North Point Marina	6'
Osprey Point Marina	6'
Piney Narrows Yacht Haven	8'
Queenstown Harbor Community Pier	6'
Rock Hall Landing Marina	5'
Sailing Emporium	8'
Spring Cove Marina	5'
Swan Creek Marina	7'

No pumpout facilities are limited by height.

**Table 7: Vessel Waste Disposal Methods by Marina**

<b>Pumpout Facility</b>	<b>Disposal Method</b>	<b>Holding Tank Capacity (gallons)</b>
Bayside Landing Park	Direct sewage	N/A
Castle Harbor Marina	Direct sewage	N/A
Chestertown Marina	Direct sewage	N/A
Gratitude Marina	Holding tank	1,500
Haven Harbor Marina	Holding tank	1,500
Kennersley Point Marina	Holding tank	2,500
Lankford Bay Marina	Direct sewage	N/A
Long Cove Marina	Holding tank	1,000
Mears Point Marina	Direct sewage	N/A
North Point Marina	Holding tank	1,500
Osprey Point Marina	Holding tank	1,500
Piney Narrows Yacht Haven	Direct sewage	N/A
Queenstown Harbor Community Pier	Holding tank	1,000
Rock Hall Landing Marina	Holding tank	500
Sailing Emporium	Holding tank	1,200
Spring Cove Marina	Holding tank	7,500
Swan Creek Marina	Holding tank	2,000

*Pumpout facilities comply with local health department codes and are approved by Maryland Department of the Environment.*

There are several pumpout facilities that are not in the actual NDZ, but are within 10 miles by water, and could be used by some of the boaters who use the Chester (Maryland Department of Natural Resources, Boating Services Unit).

**Table 8: Pumpout facilities near the NDZ**

<b>Pumpout Facility</b>	<b>Hours of Operation in Season</b>	<b>Mean Low Water Depth</b>	<b>Distance from Chester River</b>
Bay Bridge Marina	8:30-5:00 daily	7'	5 miles
Blue Heron Marina	Mon-Fri 8:00-5:00	6'	
Clarks Landing	8:00-5:00 daily	6'	7 miles
Dominion Marina	8:00-6:00 daily	4'	7 miles
Island View Marina	8:00-6:30 daily	5'	7 miles
Kent Island Yacht Club	Tues-Sun 12:00-5:00	10'	0.5 miles
L.A. Thompson and Sons	5:00-5:00 daily	5'	6 miles
Lippincott Marine	8:00-5:00 daily	10'	1.5 miles
QAC Waterman's Boat Basin at Kent Narrows	24-7	4'	
Tolchester Marina	24-7	6'	5 miles
Wells Cove Marina	9:00-5:00 daily	5'	

## 4.2 Vessel Population

In absence of any concrete data, several attempts to estimate how many boats use the Chester were made. The first method of measuring boats was to use Google Earth from May 25, 2013. This happens to be the Saturday of Memorial Day weekend. Holiday weekends in the late spring and throughout summer tend to be some of the highest boat traffic. All boats on the water, at docks, at marinas, and located on land adjacent to marinas or docks were counted. The total number ended up being 2,705 boats.

The second method is using BoatInfoWorld.com which is a website that has a large database of documented boats that can be arranged by zip code, and includes size and primary use of the boats. The process started by looking up all the zip codes that border the Chester River.

Table 9A: Raw Numbers of Boats by Area Code from BoatInfoWorld.com

Zip code	Total Boats	Boats by Length				Boats by Type		
		<16	16-25	25-40	>40	Recreational	Commercial	Other
21666	235	0	1	159	75	165	33	37
21619	191	0	2	115	74	154	28	9
21638	139	0	0	95	44	92	31	16
21658	109	0	2	63	44	88	17	4
21617	106	0	0	72	34	70	30	6
21623	12	0	0	7	5	9	2	1
21628	3	0	0	2	1	2	1	0
21651	11	0	0	8	3	8	2	1
21620	141	0	0	95	46	103	27	11
21661	127	0	0	75	52	58	56	13
<b>TOTAL</b>	<b>1074</b>	<b>0</b>	<b>5</b>	<b>691</b>	<b>378</b>	<b>749</b>	<b>227</b>	<b>98</b>

Next, zip codes were given a percentage based on what percent of the zip code area falls into the Chester River watershed. Many of the zip codes had access to multiple waterways. For example, the zip code 21666 is on Kent Island which has a small portion of waterway facing the Chester River, but the majority of it is part of the Chesapeake Bay or the Eastern Bay.

Table 9B: Numbers of Boats Weighted by Percentage of zip code in Watershed

Zip code	% in Watershed	Total Boats	Boats by Length				Boats by Type		
			<16	16-25	25-40	>40	Rec.	Comm.	Other
21666	10%	23.50	0.00	0.10	15.90	7.50	16.50	3.30	3.70
21619	10%	19.10	0.00	0.20	11.50	7.40	15.40	2.80	0.90
21638	10%	13.90	0.00	0.00	9.50	4.40	9.20	3.10	1.60
21658	50%	54.50	0.00	1.00	31.50	22.00	44.00	8.50	2.00
21617	100%	106.00	0.00	0.00	72.00	34.00	70.00	30.00	6.00
21623	100%	12.00	0.00	0.00	7.00	5.00	9.00	2.00	1.00
21628	100%	3.00	0.00	0.00	2.00	1.00	2.00	1.00	0.00
21651	100%	11.00	0.00	0.00	8.00	3.00	8.00	2.00	1.00
21620	75%	105.75	0.00	0.00	71.25	34.50	77.25	20.25	8.25
21661	50%	63.50	0.00	0.00	37.50	26.00	29.00	28.00	6.50
<b>TOTAL</b>		<b>412.25</b>	<b>0.00</b>	<b>1.30</b>	<b>266.15</b>	<b>144.80</b>	<b>280.35</b>	<b>100.95</b>	<b>30.95</b>

After setting up the percent of land in the watershed, the fact that not all boats use this website was taken into account. The site has a total of 15,672 boats registered in Maryland (BoatInfoWorld.com, 2013). According to the National Marina Manufacturers Association, there are a total of 178,753 boats registered in Maryland (National Marine Manufacturers Association, 2013). This means that there are 11.4 times as many boats in Maryland than are registered on the website. All boat numbers were multiplied by 11.4 to create a more realistic picture. A weakness of this method is that not all boaters register their boats, and larger boats are more likely to register than small boats. Also, this only deals with resident boats even though some transient boats use the Chester, and some boats registered by the Chester might use other waters.

Table 9C: Numbers of Boats Weighted by NMMA Registered Boats (all numbers in 9B multiplied by 11.4)

Zip code	% in Water-shed	Total Boats	Boats by Length				Boats by Type		
			<16	16-25	25-40	>40	Rec.	Comm.	Other
21666	10%	267.90	0.00	1.14	181.26	85.50	188.10	37.62	42.18
21619	10%	217.74	0.00	2.28	131.10	84.36	175.56	31.92	10.26
21638	10%	158.46	0.00	0.00	108.30	50.16	104.88	35.34	18.24
21658	50%	621.30	0.00	11.40	359.10	250.80	501.60	96.90	22.80
21617	100%	1208.40	0.00	0.00	820.80	387.60	798.00	342.00	68.40
21623	100%	136.80	0.00	0.00	79.80	57.00	102.60	22.80	11.40
21628	100%	34.20	0.00	0.00	22.80	11.40	22.80	11.40	0.00
21651	100%	125.40	0.00	0.00	91.20	34.20	91.20	22.80	11.40
21620	75%	1205.55	0.00	0.00	812.25	393.30	880.65	230.85	94.05

21661	50%	723.90	0.00	0.00	427.50	296.40	330.60	319.20	74.10
<b>TOTAL</b>		<b>4699.65</b>	<b>0.00</b>	<b>14.82</b>	<b>3034.11</b>	<b>1650.72</b>	<b>3195.99</b>	<b>1150.83</b>	<b>352.83</b>

Table 10: Estimates for Total Number of Boats on the Chester

Google Earth	2,705
BoatInfoWorld.com	4,699.65

Using the inferred number of boats and sizes from the BoatInfoWorld.com, and the EPA No Discharge Zone Application Guidelines (EPA Office of Water, 1994), it can be assumed that the Chester River only needs 10 pumpout stations. This number is based on the Boater Sanitary Waste Reception Facility Requirements which creates a formula with the assumption that 45% of boats in Maryland between 26-40 feet having a holding tank, 100% of boats over 40 feet having a holding tank, weekend hours of operation being 30 hours per weekend, and maximum vessels per hour serviced by pumpout being four vessels per hour. With a total of 23 (19 stationary and 4 mobile) pumpout stations—16 of which also have portable toilet disposal methods—located throughout the river, there are more than adequate facilities if only 10 stations are required by the EPA standards (see appendix 4).

Even if the number from BoatWorldInfo.com is low, there are 23 pumpout stations and the EPA recommends that there is one pumpout for every 300-600 boats. If the lowest number is used, then the Chester has the pumpout capacity to support a total of 6,900 boats (300 boats x 23 pumpouts).

### **4.3 Enforcement Plan**

Enforcement plays an important role in the successful implementation of an NDZ. The prohibition on discharging boat sewage in an NDZ applies to all vessels, commercial and recreational, regardless of the Type of MSD on board. Enforcement of federal laws related to MSDs is the responsibility of the US Coast Guard. The USCG Sector Baltimore is authorized to impose a civil penalty not to exceed \$2,000 for each violation.

States also have the authority to enforce the prohibition of vessel sewage discharges in NDZs, pursuant to 33 USC 26 Section 1322(k). This means that Maryland Natural Resources Police can also enforce the provisions of NDZs.

#### State Enforcement: MDE and DNR

By state regulation, Maryland Department of the Environment (MDE) has primary responsibility for enforcement of NDZ regulations. Because MDE does not patrol waterways, it is anticipated that most of their enforcement actions will come from reported violations. Violations may be reported by a number of sources, including the Natural Resources Police, local health agencies, marina owners, and boaters.

MDE's enforcement authority is outlined in the Code of Maryland Regulations, Title 26.08.03.01, which prohibits:

“The discharge of sewage from vessels to the waters of the State, designated as restricted zones. These zones shall be designated:

- (j) whenever greater environmental protection and enhancement is required, and
- (k) according to the procedures outlined in the Federal Act.”

MDE has a number of enforcement provisions including criminal, civil, and administrative actions. When an DNZ citation is necessary, MDE will take an administrative action with fines not to exceed \$10,000 per violation, per day. DNR Natural Resources Police will assist MDE in investigating violation reports and will issue citations when necessary. Both agencies have agreed that a warning will be issued for first violations, with citations issued for subsequent offenses. The point of contact at MDE for NDZ enforcement is the Compliance Program, 410-537-3510.

### **4.4 Public Education**

The majority of efforts will go into education rather than enforcement. If people know the effect of dumping sewage they will be less likely to do it. People who are on the river usually value it either for its ecology, its aesthetic beauty, its recreational use or its resources like fish or oysters. The important piece will be to connect with what people value the river for, and show how their actions affect that. Also, it is important to educate people on all the options for using pumpout facilities. There are more than adequate pumpout stations in the Chester, so there should not be an excuse of excessive wait time or people being unable to find a pumpout. The cited pumpouts have been funded through the Clean Vessel Act and Maryland Waterway

Improvement Fund, and charge a fee of no more than \$5.00 for the first 50 gallons of sewage pumped plus an additional 10 cents per gallon for every gallon above 50.

Signs will be created denoting the NDZ, and will be funded through a grant applied for by Chester River Association through Chesapeake Bay Trust. See appendix 5 for proposed sign. Smaller, informational posters will be created that can be hung in marinas, boating supply shops, boating fuel stations, government buildings, etc. to briefly explain the NDZ. See appendix 6 for proposed sign. Frequently asked questions about an NDZ and why the Chester is one will be available for all stakeholders including residents who live around the Chester, boaters, elected officials, etc. who want more information. See appendix 7. Pamphlets will be created to explaining an NDZ, regulations, and the dangers of discharging sewage; including a list of pumpout facilities. New boaters will receive a pamphlet when they register their boat. Marinas will be given copies to hand out. DNR will provide buoys in Chestertown and Rock Hall to remind boaters that they are in an NDZ.

In addition to signs, Chester River Association and Maryland Department of Natural Resources will update their websites to include information about the NDZ. This will include all the rules and regulations, and a map of all the pumpout stations with charts of their hours of operation, depth, and costs. We will share this information with other boating related websites so that they can pass it onto their constituents as well.

An article will be published in the Chester River Notebook which is a monthly email newsletter. In addition, articles will be submitted to all regional newspapers and boating publications including Spin Sheet and Prop Talk magazines, Chesapeake Bay Magazine, Bay Weekly, the Star Democrat, Capital Gazette, Kent County Times, Queen Anne's County Recorder, Queen Anne's County News, Chestertown Spy, Queen Anne's Spy and the Active Captain boating blog. All the articles will serve the main purpose of education about the impact of NDZs. We will have a large mounted poster for display at Chester River Association events that will engage even more people in the discussion about the Chester River as an NDZ

In order to maintain consistency among other water-keepers groups in the region, we will consult on messages with other groups potentially considering applying for their waters to be designated as an NDZ. By having a uniform logo and message, we keep ideas consistent.

Outreach will also be done to the wider Chesapeake Bay community through a poster or presentation at the Chesapeake Bay Watershed Forum, Chesapeake Bay Yacht Club Association, and Marine Trades Association of Maryland annual conferences, the Annapolis Powerboat Show, and the Annapolis Sailboat Show. This will allow other interested groups to learn from our successes and failures and to potentially move forward on protecting designating their local waterways with extra protection.

Table 11: Proposed Timeline for Education and Outreach

<b>Project</b>	<b>Date (time after approval)</b>	<b>Audience</b>	<b>Specifics</b>
Update Chester River Association website NDZ page	within 1 week	general public, boating public	Information about NDZ; including a list of pumpout facilities
Informational sign for marinas	within 2 weeks	boating public	Informational sign posted at all marinas willing to participate. Appendix 6
Large mounted poster	within 2 weeks	general public	Large, mounted poster will be used at Chester River Association Events
Local publications	within 1 month	general public, boating public	Article about NDZ published in 3 or more local papers/newsletters
FAQs for public	within 1 month	general public	Distribute sheets of NDZ FAQ to places to be read by public. See appendix 7
Pamphlet for new boaters/boat registration packet	within 1 month	boating public	Explaining NDZ, including a list of pumpout facilities
Large signs displaying NDZ at marinas	within 3 months	boating public	Using a grant from Chesapeake Bay Trust to purchase signs for participating marinas. Appendix 5
Discussion of Chester as an NDZ in boating classes	within 3 months	boating public	Encourage teachers of local boating classes to teach a section specifically about NDZ
Watershed Forum Presentation	September after designation	general public other waters keeper groups	Reach out to other water keepers groups to help them learn from our successes and failures
Annapolis Boat Show	October after designation	boating public	Reach out to boaters who might use the Chester as well as educate boaters from all over about NDZ
Revaluation of further education needs	after 1 year	general public, boating public	See which groups might need have been missed by earlier education efforts and reevaluate methods of education

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## 6.0 APPENDICES

### Appendix 1: Beach Actions Taken in Maryland by County (Merritt, 2013)

County	BEACH Act Beaches			Actions During Swim Season			Actions Sorted by Duration							Swim Season Beach Days		
	No. of BEACH Act beaches	No. of monitored beaches	Percent of beaches monitored	Total length of monitored beaches (MI)	No. of monitored beaches with actions	No. of monitored beaches without actions	Percent of monitored beaches affected by a beach action	Total no. of beach actions	No. of actions of 1 day duration	No. of actions of 2 day duration	No. of actions of 3 - 7 day duration	No. of actions of 8 - 30 day duration	No. of actions greater than 30 day duration	No. of beach days (monitored beaches)	No. of days under a beach action (monitored beaches)	Percent days under a beach action
ANNE ARUNDEL	26	26	100.0%	1,757	1	25	3.8%	1	0	0	1	0	0	2,548	4	0.2%
BALTIMORE	3	3	100.0%	1,442	1	2	33.3%	1	0	0	1	0	0	294	3	1.0%
CALVERT	10	10	100.0%	1,328	1	9	10.0%	1	0	0	1	0	0	980	5	0.5%
CECIL	5	5	100.0%	1,491	1	4	20.0%	1	0	0	1	0	0	490	5	1.0%
KENT	6	6	100.0%	0,525	3	3	50.0%	3	0	0	0	1	2	523	120	22.9%
QUEEN ANNES	2	2	100.0%	0,250	2	0	100.0%	2	0	0	0	0	0	196	2	1.0%
SOMERSET	2	2	100.0%	0,325	0	2	0.0%	0	N/A	N/A	N/A	N/A	N/A	196	0	0.0%
ST MARY'S	3	3	100.0%	0,567	0	3	0.0%	0	N/A	N/A	N/A	N/A	N/A	294	0	0.0%
WORCESTER	10	10	100.0%	11,688	0	10	0.0%	0	N/A	N/A	N/A	N/A	N/A	980	0	0.0%
	<b>67</b>	<b>67</b>	<b>100.0%</b>	<b>19,373</b>	<b>9</b>	<b>58</b>	<b>13.4%</b>	<b>9</b>	<b>2</b>	<b>0</b>	<b>4</b>	<b>1</b>	<b>2</b>	<b>6,501</b>	<b>139</b>	<b>2.1%</b>

## Appendix 2: List of Paddling Outfitters on the Chester

### Paddling on Chester River

<b>Name</b>	<b>Phone/website</b>
Adventure Crafters	888-529-2563
Centreville Outdoors	410-991-8468
Chesapeake Bay Environmental Center	410-827-6694
Chester River Bike and Paddle	410-778-6940
Chester River Kayak Adventures	410-639-2001
Chester River Rowing Club	<a href="http://chesterriverrowingclub.com">chesterriverrowingclub.com</a>
Crystal Sunset Kayak Rentals	410-275-2925
Eastern Neck Boat Rentals	410-639-7100
Kent Island Family Kayak Rentals	410-362-2200

## Appendix 3: List of Fishing Charters on the Chester

### Fishing Charters on Chester River

<b>Boat Name</b>	<b>Captain</b>	<b>Phone</b>
Andiamo	Capt. Kevin (Doc) Strother	703-980-4460
Bayside Girls	Capt. Chuck Clark	410-630-7507
C & C Charters Maryland		410-827-7888
Capt. E. Meredith Boat Charter	Capt. E. Meredith	410-490-1281
Captain Jason Baker	Captain Jason Baker	410-490-5687
Captains Pride Charters		410-758-3107
Casey Michelle III	Capt. Brady Sweitzer	410-604-1311
CD Outdoors	C. Dollar	410-991-8468
Chesapeake Bay Sport Fishing, LLC		410-703-2760
Councill Charters	Capt. Brian Councill	410-708-4241
Ellen-R	Capt. Jeff Ruth	410-758-3235
Excalibur	Capt. Perry Davidson	410-310-0767
Fish Fear Us Charters	Capt Bob Ritchie	410-639-7063
Fish'N Party II Charters	Capt. Lenny Fletcher	410-708-6018
Gatling Guide Services	Capt Wayne Gatling	410-708-3273
Go Fish Charters		410-708-1258
Gunsmoke Charters Group	Capt Greg Jetton	410-639-7127
Intimidator	Capt. Richard Manley	410-639-7420
Jeffery (Jeff) Ruth - Charter	Capt. Jeff Ruth	410-758-3235
Kent Narrows Boat Rides		410-212-4070
Kentmorr Marina		410-643-0029
Lara Lynn VI	Capt. Wayne Gatling	410-708-3273
Lead Dog	Capt. Jason Seman	410-643-7600
Lead Dog Fishing Charters, LLC	Captain Brian Hardman	410-643-7600
Leisure Charters	Captain John Bilbrough	443-480-2937
Lucky Dog	Capt. Frank Updike	410-643-0588
Miss Asheri Charters	Capt Donnie Bayne	410-708-2714
Miss Carolyn II Charters	Capt T. Wayne Fletcher	410-708-3141
Miss Molly- Fishing Charters LLC	Captain John Sharp	410-758-0615
Misty Charters	Capt Chucky Price	410-639-7928
Montro Wright - Charter		410-490-2580
Queen Anne Marina		410-743-2021
Recoil Charters	Capt Gerry Haggerty	410-648-5224
Robert Brett Bradshaw - Charter	Robert Bradshaw	410-544-2403
Rock Bottom Charters	Capt Jimmy Price	410-708-6076
Rockaholic	Capt. Ron Jayne	410-648-5998
Sea Dux	Capt. Brian Councill	410-708-4241
Sea Witch Charters	Captain Carlton	410-708-0965
Southern Belle	Mike Sadler	410-643-1932
Southpaw	Capt. Jeffrey Eichler	410-827-6676
Tuna the Tide Charter Service	Capt. Marco	410-310-1200
Under Dog	Capt. Joe Arkuszkeski	410-643-7600
Virginia II	Capt. Robert Gears	410-708-8683

# Appendix 4: EPA Boater Sanitary Waste Reception Facility Requirements Worksheet

Based on page 4-34 of EPA application guidelines (EPA, Office of Water, 1994)

Exhibit 2

## Boater Sanitary Waste Reception Facility Requirements Worksheet

### Estimate of Required Pumpout Facilities

1	Enter # of vessels 26 – 40 ft. in length	3034.11	
2	Enter % of 26 – 40 ft. vessels w/holding tanks (see table below)	45 %	
	Calculate estimated # of 26 – 40 ft. vessels w/holding tanks	1365.35	
3	Enter # of vessels greater than 40 ft. in length	1650.72	
	Calculate estimated total # of vessels w/holding tanks	3016.07	
4	Enter estimated peak occupancy rate (i.e., on a holiday weekend; if unknown, use 40%)	40 %	
	Calculate estimated # of vessels requiring pumpout facilities	1206.43	
5	Enter average # of vessels served per hr. at pumpout (if unknown, use 4/hr.)	4	
6	Enter average # of hrs. of operation per weekend (if unknown, use 24 hrs. per weekend)	30.18	
	Calculate estimated # of vessels served per pumpout facility	120.72	
	Calculate estimated # of pumpout facilities required	10	

### Percent of Vessels with Holding Tanks by Coastal and Great Lakes State (See Step #2)

State	%	State	%	State	%
Alabama	24	Louisiana	17	North Carolina	16
Alaska	34	Maine	40	Ohio	41
California	38	Maryland	45	Oregon	49
Connecticut	52	Massachusetts	45	Pennsylvania	19
Delaware	25	Missouri	50	Rhode Island	43
Florida	33	Minnesota	50	South Carolina	11
Georgia	31	Mississippi	23	Texas	31
Hawaii	17	New Hampshire	37	Virginia	25
Illinois	41	New Jersey	6	Washington	46
Indiana	16	New York	52	Wisconsin	29

Source: "Clean Vessel Act: Pumpout Station and Dump Station Technical Guidelines," *Federal Register*, Vol. 59, No. 47, March 10, 1994; and "National Recreational Boating Survey: Sanitation Pumpout Questionnaire Tabulations," U.S. Department of Fish and Wildlife Service, January 1992.

Appendix 5: Metal Sign at Marinas

CHESTER RIVER  
IS A  
NO DISCHARGE ZONE

*Do Your Part to Protect Our River*

## Chester River is a No Discharge Zone

A No Discharge Zone means that all sewage, raw or treated, must be pumped out, and cannot be discharged into the water.

- It is **illegal** to dump any kind of sewage, even if it has been treated with a marine sanitation device
- Even treated sewage increases bacteria levels and causes **beach closings and shellfish contamination**
- Sewage uses oxygen in the water to break down which creates **dead zones** that have too little oxygen for animals to survive
- Sewage adds excess nutrients to water which can lead to **algal blooms**

*Do Your Part to Protect Our River*



# Frequently Asked Questions about No Discharge Zones

## 1. What is a No Discharge Zone (NDZ)?

An NDZ is a designated body of water where the discharge of any type of sewage, raw or treated, is prohibited in order to provide farther protection for ecologically or recreationally important waters.

## 2. What were practices in the Chester River before the NDZ?

Without an NDZ, boats can discharge sewage in the Chester River if it is first treated with a marine sanitation device (MSD). There are three types of MSD; Type I, such as an LectraSan, is used on boats under 65 feet, and it macerates and disinfects sewage so it has no more than 1,000 bacteria colony forming units per 100 mLs, and no visible floating solids. Type II reduces bacteria to under 200 per 100 mLs, and 150 milligrams of suspended solids, and Type III is a holding tank that prevents the discharge of sewage over board. Type I and II still allow for levels of bacteria to be discharged that can be harmful to human health, and there is no reduction in nutrients which are already too high on the Chester.

## 3. How many No Discharge Zones are there?

There are currently 134 NDZ spanning 26 states according to the EPA. These vary in size from one small bay or lake up to an entire state. Maryland currently has two NDZ- Herring Bay in Anne Arundel County, and Northern Coastal Bays on the Atlantic Coast.

## 4. Why are No Discharge Zones important?

NDZ protect the water from the harmful effects of sewage from boat discharges. Even treated sewage can contain high levels of nutrients, chemicals, and harmful pathogens.

Protect Public Health: Sewage can transmit diseases. Around 25% of the population are carriers of hookworm, tapeworms, or organisms found in excreta that can cause diarrhea, infectious hepatitis, salmonella infection, bacillary dysentery, and many more diseases. Bacteria can infect filter feeders like shellfish and make them unfit for human consumption. Sewage treated with MSDs still contains bacteria counts at least 5 to 70 times higher than state water quality standards.

Reduce Toxic Pollution: Chemicals used in treating and deodorizing sewage can be toxic to marine and estuarine organisms including chlorine, formaldehyde, and quaternary ammonia.

Reduce Nitrogen Loading: Sewage contains a lot of nitrogen which is a nutrient that can lead to harmful algal blooms which can lower the oxygen levels in the water and even

cause dead zones where no animals can live. Type I and II MSDs do nothing to reduce nitrogen.

Protects Coastal Economy: A clean Chester River is worth \$86 million and creates 900 jobs according to a study by Chester River Association. The Chester attracts people for boating, swimming, fishing, and paddling, and it increases property values.

Everybody Shares in Protecting Water Quality: NDZ help to compliment other water quality enhancement programs like the outreach to farmers for nitrogen reduction on fields, working with the town to better manage urban storm water and improve waste water treatment plants, and working with homeowners to establish best management practices on their property. It's only fair that boaters also put in their fair share.

Benefit Everyone: Nobody wants to swim, or boat in other peoples poop. Nobody wants to eat fish or oysters that have been contaminated with sewage.

**5. What do boaters do with their sewage when boating in an NDZ?**

While out on the water in an NDZ, boats store waste in a holding tank or type III MSD. Once they return to the marina or harbor, the sewage from the holding tank can be taken out using a pumpout facility or a pumpout boat. The pumpout operator will dispose of sewage at an approved treatment facility.

**6. Where can I learn more about No Discharge Zones?**

Maryland Department of Natural Resources:

<http://www.dnr.state.md.us/boating/pumpout/ndz.asp>

Chester River Association: website coming soon

*Do Your Part to Protect Our River*

### Appendix 8: Timetable of Marina Direct Mailing and Personal Visitation

<b>Marina</b>	<b>Location</b>	<b>Mailing Date</b>	<b>Mailing Received?</b>	<b>Personal Visit Date</b>	<b>Person Spoken With</b>
<b>Bayside Landing Park</b>	<b>Bayside Avenue Rock Hall, MD 21661</b>	<b>10/7/2014</b>	<b>No</b>	<b>10/10/2014</b>	<b>N/A</b>
<b>Castle Harbor Marina</b>	<b>301 Tackle Circle Chester, MD 21619</b>	<b>10/7/2014</b>	<b>No</b>	<b>10/9/2014</b>	<b>Desk Attendant</b>
<b>Chestertown Marina</b>	<b>211 S Water St Chestertown, MD 21620</b>	<b>10/7/2014</b>	<b>Yes</b>	<b>N/A</b>	<b>N/A</b>
<b>Gratitude Marina</b>	<b>5924 Lawton Ave Rock Hall, MD 21661</b>	<b>10/7/2014</b>	<b>Yes</b>	<b>10/10/2014</b>	<b>Dave McAleer- General Manager</b>
<b>Haven Harbor Marina</b>	<b>20880 Rock Hall Ave Rock Hall, MD 21661</b>	<b>10/7/2014</b>	<b>Yes</b>	<b>10/10/2014</b>	<b>Woodrow Loller- General Manager</b>
<b>Kennersley Point Marina</b>	<b>223 Marina Ln Church Hill, MD 21623</b>	<b>10/7/2014</b>	<b>Yes</b>	<b>10/10/2014</b>	<b>No one present- Left note</b>
<b>Lankford Bay Marina</b>	<b>23002 McKinleyville Rd Rock Hall, MD 21661</b>	<b>10/7/2014</b>	<b>Yes</b>	<b>10/10/2014</b>	<b>Douglas Edwards- General Manager</b>
<b>Long Cove Marina</b>	<b>22589 Hudson Rd Rock Hall, MD 21661</b>	<b>10/7/2014</b>	<b>Yes</b>	<b>10/10/2014</b>	<b>Desk Attendant</b>
<b>Mears Point Marina</b>	<b>428 Kent Narrow Way N Grasonville, MD 21638</b>	<b>10/7/2014</b>	<b>Yes</b>	<b>10/9/2014</b>	<b>Desk Attendant</b>
<b>North Point Marina</b>	<b>5639 Walnut St Rock Hall, MD 21661</b>	<b>10/7/2014</b>	<b>Yes</b>	<b>10/10/2014</b>	<b>Joe Campbell- Owner/Manager</b>

<b>Osprey Point Marina</b>	<b>20786 Rock Hall Ave Rock Hall, Md 21661</b>	<b>10/7/2014</b>	<b>Yes</b>	<b>10/10/2014</b>	<b>2 Desk Attendants-1 manager (name unknown)</b>
<b>Piney Narrows Yacht Haven</b>	<b>500 Piney Narrows Rd Chester, MD 21619</b>	<b>10/7/2014</b>	<b>Yes</b>	<b>10/9/2014</b>	<b>Desk Attendant</b>
<b>Queenstown Harbor Community Pier</b>	<b>252 Harbor Lane Queenstown, MD 21658</b>	<b>10/7/2014</b>	<b>Yes</b>	<b>10/9/2014</b>	<b>N/A</b>
<b>Rock Hall Landing Marina</b>	<b>5657 S Hawthorne Ave Rock Hall, MD 2166</b>	<b>10/7/2014</b>	<b>Yes</b>	<b>10/10/2014</b>	<b>Desk Attendant</b>
<b>Spring Cove Marina</b>	<b>21035 Spring Cove Rd Rock Hall, MD 21661</b>	<b>10/7/2014</b>	<b>Yes</b>	<b>10/10/2014</b>	<b>N/A</b>
<b>Swan Creek Marina</b>	<b>6043 Lawton Ave Rock Hall, MD 21661</b>	<b>10/7/2014</b>	<b>Yes</b>	<b>10/10/2014</b>	<b>Desk Attendant</b>

## Appendix 9: Marina Direct Mailing Sample

Albert Leavell  
Chester River Association  
400 S. Cross St. Suite 2  
Chestertown, MD 21620  
aleavell@chesterriverassociation.org

Marina address

Dear Insert Marina Here,

The Chester River Association and the Department of Natural Resources are working on an application to designate the Chester River as a no discharge zone. A no discharge zone (NDZ) is an area in which both treated *and* untreated sewage discharges from vessels are prohibited. In a time when everyone is being asked to reduce pollution to clean up our rivers and the Chesapeake Bay, this is an effort to eliminate one more source of nutrient and bacteria pollution from the Chester River.

Contained in this letter are a fact sheet and map regarding the no discharge zone. You can find more detailed information, including the full application, at <http://www.chesterriverassociation.org/programs/riverkeeper/no-discharge-zone>.

As part of the application process, we are collecting comments and concerns from the community. We have held public hearings in Chestertown and Rock Hall and will be holding a third hearing shortly. Once decided, the time, date, and location of this hearing will be posted on <http://www.chesterriverassociation.org/>.

Shortly after you receive this letter, I will personally stop by to follow up and see if you might have any questions or comments. Please feel free to email me with questions or to submit comments at [aleavell@chesterriverassociation.org](mailto:aleavell@chesterriverassociation.org). Thank you,

Albert Leavell  
Chester River Association

## **Appendix 10: Press Release by Chester River Association sent on September 15th, 2014 to Kent County News**

*Ran on September 18th, 25th of 2014 in The Star Democrat, Chestertown Spy and Kent-Island Bay Times Newspapers*

### **DNR And Chester River Association Hosting Public Meetings On Proposed No Discharge Zone For Chester River**

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**Chestertown, Md (September 15<sup>th</sup>, 2014)** – At the request of the Chester River Association, the Maryland Departments of Natural Resources and the Environment will apply to the Environmental Protection Agency (EPA) for designation of the Chester River and its tributaries as a No Discharge Zone (NDZ). Public comments will be accepted through October 2014 at the Chester River Association. The EPA regional administrator will make a determination within 90 days of receipt of the application. Following this, notice will appear in the Federal and Maryland Registers. If approved, the NDZ may take effect during the 2015 boating season.

A No Discharge Zone is an area in which both treated and untreated sewage discharges from vessels are prohibited. It is *already* illegal to discharge raw/untreated sewage within 3 miles of the U.S. Coast. Within NDZ boundaries, vessel operators are required to retain their sewage discharges onboard for disposal at sea (beyond three miles from shore) or onshore at a pumpout facility.

The Chester River is classified as impaired by Maryland Department of Environment because of low dissolved oxygen related to excess nutrients. Under the total daily maximum load qualifications, 100% of the Chester River is considered impaired for either nutrients, sediment, bacteria, or a combination. The river is an important economic driver for the region, providing jobs and revenue through tourism, commercial and recreational fishing, and boating. Providing greater environmental protection with an NDZ will help improve the health of the water and protect the important ecological, economical, and cultural resources of the Chester River.

Interested members of the public are invited to two public meetings to ask questions, provide comments, and learn more about the proposed Chester River NDZ. The first meeting will be at the Chestertown Town Hall Tuesday September 23 at 6 p.m. The second meeting will be at the Rock Hall Town Hall October 2, 2014 at 6 p.m.

The public may also send comments or questions to Albert Leavell of the Chester River Association at:

[aleavell@chesterriverassociation.org](mailto:aleavell@chesterriverassociation.org)

Chester River Association  
400 S. Cross St., Suite 2  
Chestertown, MD 21620  
410-810-7556

Information on an NDZ on the Chester River can be found at

<http://www.chesterriverassociation.org/programs/riverkeeper/no-discharge-zone>

Information on EPA designation of NDZ's can be found at

<http://water.epa.gov/polwaste/vwd/index.cfm> Information on vessel sewage laws and pumpout locations in Maryland is available at <http://www.dnr.state.md.us/boating/pumpout/>

###

**Appendix 11: Press Release Sent by the Maryland State Department of Natural Resources on September 12th, 2014 to Marine Trades Association of Maryland, Boat U.S. Foundation for Safety and Clean Water, Clean Marina newsletter and part of DNR news blasts**



For Immediate Release

**NEWS**

410.260.8020

[dnrnews@dnr.state.md.us](mailto:dnrnews@dnr.state.md.us)

**DNR HOSTING PUBLIC MEETINGS ON PROPOSED NO DISCHARGE ZONE FOR CHESTER RIVER**

In response to a request from the Chester River Association, the Maryland Departments of Natural Resources and the Environment plan to apply to the Environmental Protection Agency (EPA) for designation of the Chester River and its tributaries as a No Discharge Zone (NDZ).

A no discharge zone (NDZ) is an area in which both treated and untreated sewage discharges from vessels are prohibited. It is *already* illegal to discharge raw/untreated sewage within 3 miles of the U.S. Coast. Within NDZ boundaries, vessel operators are required to retain their sewage discharges onboard for disposal at sea (beyond three miles from shore) or onshore at a pumpout facility. If approved, the NDZ may take effect during the 2015 boating season.

Interested members of the public are invited to two public meetings to ask questions, provide comments, and learn more about the proposed Chester River NDZ. The first meeting will be at the Chestertown Town Hall Tuesday September 23 at 6 p.m. The second meeting will be at the Rock Hall Town Hall October 2, 2014 at 6 p.m.

The public may also to send comments or questions to Albert Leavell of the Chester River Association at:

[aleavell@chesterriverassociation.org](mailto:aleavell@chesterriverassociation.org)

Chester River Association  
400 S. Cross St., Suite 2  
Chestertown, MD 21620  
410-810-7556

Additional information on EPA designation of no discharge zones can be found at <http://water.epa.gov/polwaste/vwd/index.cfm> Information on vessel sewage laws and pumpout locations in Maryland is available at <http://www.dnr.state.md.us/boating/pumpout/>

## **Appendix 12: Newsletter to Chester River Association Members Regarding No Discharge Zone on September 18<sup>th</sup>, 2014**

*Received by 1,200 people with a 33% open rate*

### **Public Hearings on No Discharge Zone for the Chester River**

**Chestertown Town Hall  
Tuesday, Sept. 23, 6:00 pm**

**Rock Hall Town Hall  
Thursday, Oct. 2, 6:00 pm**

On behalf of the Chester River Association, the MD Department of Natural Resources will be submitting an application to the Environmental Protection Agency to designate the Chester River as a No Discharge Zone. EPA is required to respond within 90 days. If approved, the Zone will be in place for the 2015 boating season.

Interested members of the public are invited to two meetings to ask questions, provide comments, and learn more about the proposed No Discharge Zone. Comments will be accepted through October.

**Please send written comments to Albert Leavell at:**  
[aleavell@ChesterRiverAssociation.org](mailto:aleavell@ChesterRiverAssociation.org)

### **Why designate a No Discharge Zone?**

Currently, boats are allowed to discharge sewage into the river after treating it with a Marine Sanitation Device. However, these devices do not sufficiently rid the effluent of bacteria or nutrients. The alternative is to establish a No Discharge Zone and require boats to pump out their sewage at a pumpout station, where it is then taken to a waste water treatment plant. Pumpouts cost \$1 to \$6. Sufficient facilities exist on the Chester River to meet boaters' demands.

We are in a time when everyone is being held accountable and asked to reduce pollution to achieve cleaner water. By establishing a No Discharge Zone, we are asking boaters to do their part. In the effort for cleaner water, we believe that every action counts – we will never know which pound reduced pushes us over the threshold to a healthier river.

**To learn more, visit CRA's [No Discharge Zone](#) page**

## **Appendix 13: Newsletter to Chester River Association Members Regarding No Discharge Zone on October 23<sup>rd</sup>, 2014**

*Received by 1,200 people with a 33% open rate. Printed by Kent County News on October 23rd, 2014*

**No Discharge Zone Public Hearing**  
**Thursday, October 30**  
**6:00 - 7:00 pm**  
**Queenstown Town Office**  
7013 Main St.  
Queenstown, MD 21658

CRA and DNR are jointly hosting a third public hearing on our application to designate the Chester River as a No Discharge Zone. Please join us to learn about the designation, voice questions or concerns, and provide comments. Or, send comments to [ALeavell@ChesterRiverAssociation.org](mailto:ALeavell@ChesterRiverAssociation.org)

A No Discharge Zone is an area where it is illegal to discharge any sewage, treated or not, into the water. These areas are specifically outlined by the Environmental Protection Agency and provide further protection for ecologically or recreationally important waters.

[Learn more about a No Discharge Zone on the Chester.](#)

Many activities pollute our river. We are in a time when everyone is being asked to reduce their impact - farmers, homeowners, and towns alike. **We are asking boaters to be a part of the solution as well.** While boat sewage is not the primary source of pollution to the Chester River, every action counts and we will never know which pound of pollution reduced pushes us over the threshold to a healthier river.

**Please send your comments to**  
[ALeavell@ChesterRiverAssociation.org](mailto:ALeavell@ChesterRiverAssociation.org)

## **Appendix 14: NDZ Letter sent to Kent County Commissioners September 15th, 2014; read at meeting on September 16th, 2014**

September 15, 2014

The Honorable Kent County Commissioners  
Ronald H. Fithian, William W. Pickrum, and William A. Short  
400 High Street  
Chestertown, MD 12620

### **Re: No Discharge Zone on the Chester River**

Dear Commissioners Fithian, Pickrum, and Short:

The Chester River Association is writing to inform you of an effort we are undertaking with the Maryland Department of Natural Resources to establish the Chester River as a No Discharge Zone as part of our work to achieve a healthier river.

Currently, boats are allowed to discharge sewage into the river after treating it with a Marine Sanitation Device. However, these devices do not sufficiently rid the effluent of bacteria or nutrients. The alternative is to establish a No Discharge Zone and require boats to pump out their sewage at a pumpout station, where it is then taken to a waste water treatment plant. Pumpouts cost \$1 to \$6. Sufficient facilities exist on the Chester River to meet boaters' demands.

Chester River Association and DNR have jointly submitted an application to the Environmental Protection Agency and are holding two public hearings to accept comments: 1) Chestertown Town Hall, Sept. 23, 6:00 pm; and 2) Rock Hall Town Hall, Oct. 2, 6:00 pm. EPA is required to respond to our application in 90 days. If approved, the Zone will be in place for the 2015 boating season.

We are in a time when everyone is being held accountable and asked to reduce pollution to achieve cleaner water. By establishing a No Discharge Zone, we are asking boaters to do their part. In the effort for cleaner water, we believe that every action counts – we will never know which pound reduced pushes us over the threshold to a healthier river.

For more information on No Discharge Zones, please visit:  
<http://www.chesterriverassociation.org/programs/riverkeeper/no-discharge-zone>

Thank you,  
Isabel Junkin Hardesty  
Chester Riverkeeper  
Riverkeeper@ChesterRiverAssociation.org  
301-908-0355

**Appendix 15: NDZ Letter sent to Queen Anne's County Commissioners  
September 15th, 2014; read at meeting on September 23rd, 2014**

September 15, 2014

The Honorable Queen Anne's County Commissioners  
Philip L. Dumenil, James J. Moran, David L. Dunmyer, Bob Simmons, and Dave Olds  
107 N. Liberty St., Centreville, MD 21617

**Re: No Discharge Zone on the Chester River**

Dear Commissioners Dumenil, Moran, Dunmyer, Simmons, and Olds:

The Chester River Association is writing to inform you of an effort we are undertaking with the Maryland Department of Natural Resources to establish the Chester River as a No Discharge Zone as part of our work to achieve a healthier river.

Currently, boats are allowed to discharge sewage into the river after treating it with a Marine Sanitation Device. However, these devices do not sufficiently rid the effluent of bacteria or nutrients. The alternative is to establish a No Discharge Zone and require boats to pump out their sewage at a pumpout station, where it is then taken to a waste water treatment plant. Pumpouts cost \$1 to \$6. Sufficient facilities exist on the Chester River to meet boaters' demands.

Chester River Association and DNR have jointly submitted an application to the Environmental Protection Agency and are holding two public hearings to accept comments: 1) Chestertown Town Hall, Sept. 23, 6:00 pm; and 2) Rock Hall Town Hall, Oct. 2, 6:00 pm. EPA is required to respond to our application in 90 days. If approved, the Zone will be in place for the 2015 boating season.

We are in a time when everyone is being held accountable and asked to reduce pollution to achieve cleaner water. By establishing a No Discharge Zone, we are asking boaters to do their part. In the effort for cleaner water, we believe that every action counts – we will never know which pound reduced pushes us over the threshold to a healthier river.

For more information on No Discharge Zones, please visit:  
<http://www.chesterriverassociation.org/programs/riverkeeper/no-discharge-zone>

Thank you,  
Isabel Junkin Hardesty  
Chester Riverkeeper  
Riverkeeper@ChesterRiverAssociation.org  
301-908-0355

# Appendix 16: Queen Anne's County Commissioner Letter Supporting No Discharge Zones (October 14th, 2014)



Queen  
Anne's  
County

**County Commissioners:**  
James J. Moran, At Large  
David L. Dunmyer, District 1  
Bob Simmons, District 2  
Philip L. Dumenil, District 3  
Dave Olds, District 4

## BOARD OF COUNTY COMMISSIONERS

The Liberty Building  
107 North Liberty Street  
Centreville, MD 21617

Telephone: (410) 758-4098

Fax: (410) 758-1170

e-mail: [QACCommissioners&Administrator@qac.org](mailto:QACCommissioners&Administrator@qac.org)

County Administrator: *Gregg A. Todd*

Executive Assistant to County Commissioners: *Margie A. Houck*

County Attorney: *Patrick Thompson, Esquire*

October 14, 2014

Timothy D. Junkin  
Director, Midshore Riverkeeper Conservancy  
24 N. Harrison St.  
Easton, MD 21601

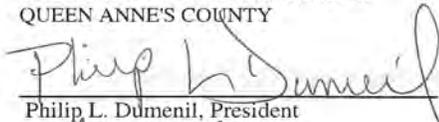
Dear Mr. Junkin,

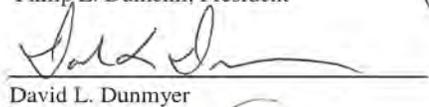
The Queen Anne's County Commissioners whole heartedly support the Chester River Association's goal of establishing the Chester River as a No Discharge Zone.

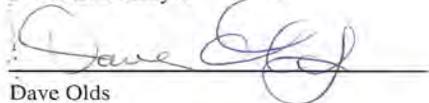
We agree with them: in that everyone is accountable for reducing pollution thereby improving the health of the Chester River and the entire Chesapeake Bay Watershed.

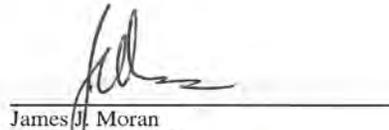
We applaud the efforts of the Chester River Association and DNR and request that the each of the watersheds included within the Midshore Riverkeeper Conservancy implement the same measures.

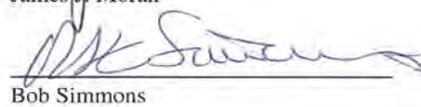
THE COUNTY COMMISSIONERS OF  
QUEEN ANNE'S COUNTY

  
Philip L. Dumenil, President

  
David L. Dunmyer

  
Dave Olds

  
James J. Moran

  
Bob Simmons

## Appendix 17: NDZ Fact Sheet distributed by Department of Natural Resources and Chester River Association

# Proposed Chester River No Discharge Zone

## Fact Sheet



**SUMMARY:** At the request of the Chester River Association, the Maryland Departments of Natural Resources and the Environment will apply to the Environmental Protection Agency (EPA) for designation of the Chester River and its tributaries as a No Discharge Zone (NDZ). Public comments will be accepted through October 2014 at the Chester River Association. The EPA regional administrator will make a determination within 90 days of receipt of the application. Following this, notice will appear in the Federal and Maryland Registers. If approved, the NDZ may take effect during the 2015 boating season.

### What is a No Discharge Zone (NDZ)?

A no discharge zone (NDZ) is an area in which both treated *and* untreated sewage discharges from vessels are prohibited. It is already illegal to discharge raw/untreated sewage within 3 miles of the U.S. Coast. Within NDZ boundaries, vessel operators are required to retain their sewage discharges onboard for disposal at sea (beyond three miles from shore) or onshore at a pumpout facility.

**How will the NDZ be enforced if it becomes law?** Both the Natural Resources Police and U.S. Coast Guard will be able to enforce it if they see violations on the water. The Maryland Department of the Environment will be authorized to issue civil penalties not to exceed \$10,000 per violation.

**Where Can Boaters Find a Pumpout Station? Are they reliable?** Chester River Association and DNR staff have inspected pumpouts in the proposed NDZ. We have found there to be 16 grant funded units available—either fixed at a pier or portable. These must be made available to the general boating public for no more than \$5 for the first 50 gallons. A list of grant funded pumpouts is available at [dnr.maryland.gov/boating/pumpout](http://dnr.maryland.gov/boating/pumpout). Boaters can report inoperable pumpouts to DNR at [pumpout@dnr.state.md.us](mailto:pumpout@dnr.state.md.us) or 410-260-8772.

**When Could the Proposed NDZ Become Effective?** During the 2015 boating season, pending EPA approval.

**Why Seek NDZ Designation?** The Chester River is classified as impaired by Maryland Department of Environment because of low dissolved oxygen related to excess nutrients. Under the total daily maximum load qualifications, 100% of the Chester River is considered impaired for either nutrients, sediment, bacteria or a combination. The river is an important economic driver for the region, providing jobs and revenue through tourism, commercial and recreational fishing, and boating. Providing greater environmental protection with an NDZ will help improve the health of the water, and protect the important ecological, economical, and cultural resources of the Chester River.

### PUBLIC MEETINGS SCHEDULED:

**Tuesday 23 September 6:00 p.m.**

**Chestertown Town Hall**

118 N. Cross Street, Chestertown, MD 21620

**Thursday 2 October 6:00 p.m.**

**Rock Hall Town Hall**

5585 N. Main Street Rock Hall, MD 21661

**Thursday 30 October 6:00 p.m.**

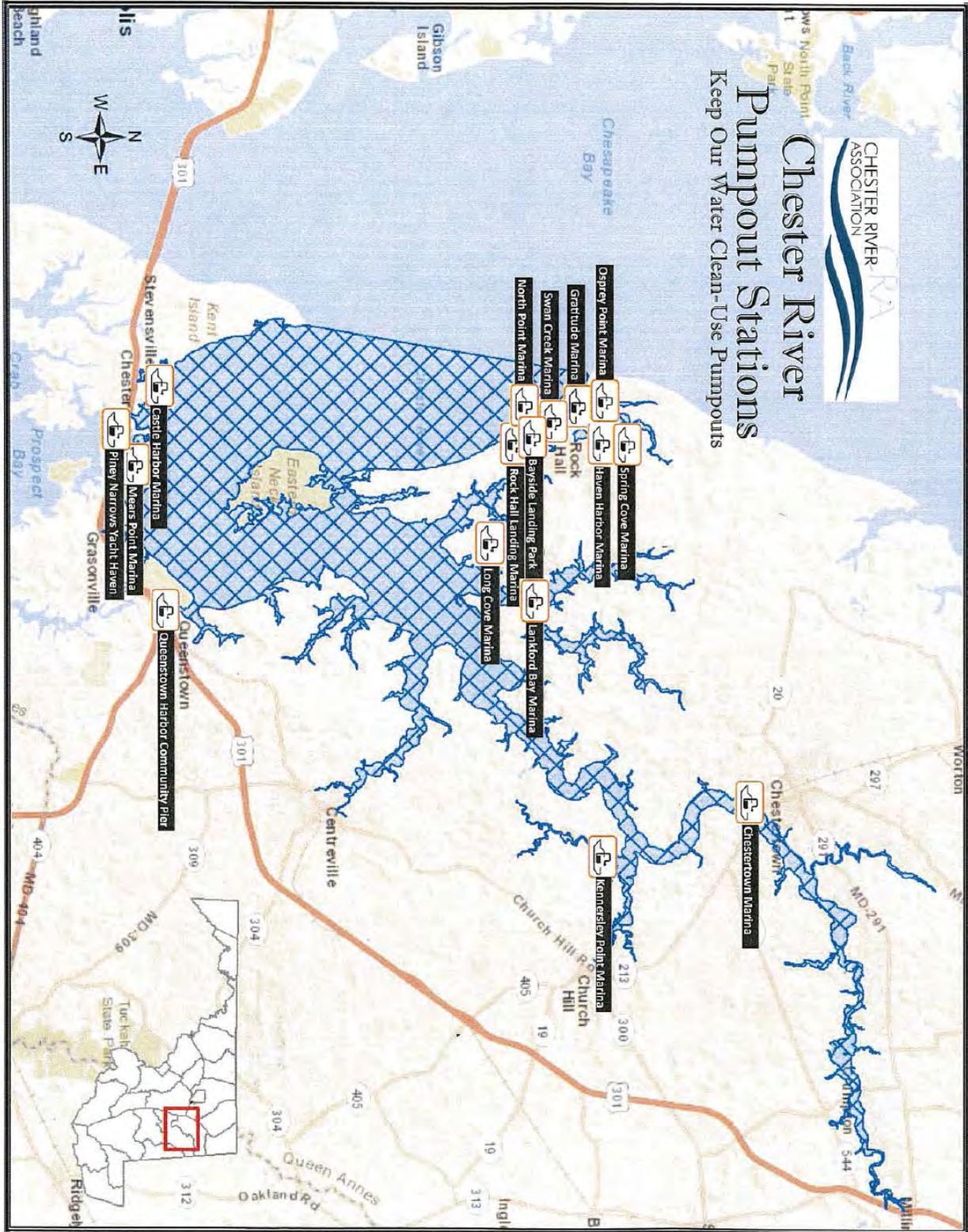
**Queenstown Town Office**

7013 Main Street, Queenstown, MD 21658

**Comments or Questions:** Albert Leavell 410-810-7556 or [aleavell@chesterriverassociation.org](mailto:aleavell@chesterriverassociation.org)

**Learn More:** <http://water.epa.gov/polwaste/vwd/index.cfm> ♦ [www.dnr.maryland.gov/boating/pumpout](http://www.dnr.maryland.gov/boating/pumpout)

**Appendix 18: Chester River Pumpout Stations Map distributed by Department of Natural Resources and Chester River Association**



## Appendix 19: Chestertown Public Meeting Minutes (9/23/2014)

September 23rd, 2014  
Chestertown No Discharge Zone Public Meeting  
Notes by Albert Leavell

### Attendees:

Isabel Hardesty & Albert Leavell-Chester River Association	Christine Burns Rebekah Hardy
Donna Morrow, Mark O'Malley & Christine Martinez- Department of Natural Resources	Janet Ruhl Vic Pfeiffer
Virgil Turner	Marcy Ramsey
Dan Divilio	Anna Wolgast
Suzanne Sullivan	Bob Ingersoll

At 6:01 p.m. DNR representative Donna Morrow called the meeting to order. Donna conducted a brief introduction with an overview of what a no discharge zone consisted of and what having one on the Chester River would entail. She outlined the types of marine sanitation devices and what the maintenance/upkeep of these devices is like.

At 6:05 p.m. Donna explained that under a NDZ, there could be no “treat and release.” She also explained that there were two other no discharge zones in Maryland, Herring Bay and an area west of Ocean City and south of Route 50. She explained that no discharge zones are designated when the areas are sensitive ecologically and there is strong support in the surrounding area.

At 6:07 p.m. Donna Morrow described how a no discharge zone was designated and what government entities were responsible (Federally listed by EPA, enforcement and violations by MDE/DNR). A waterway must have a satisfactory number of pumpout stations to be considered for the designation, which the Chester River adequately has.

At 6:11 p.m. Isabel Junkin, the Riverkeeper for Chester River Association, explained the process of how CRA found out about the possibility of a no discharge zone. She stated that it is the first time a NDZ had been done in years and much of the process on creating a no discharge zone was not clear. She stated that the bacteria in treated sewage effluent does not meet water quality standards set forth by Maryland and that the implementation of a no discharge zone would have no cost to the county, nor would it be prohibitive to boaters. She closed her statement by expressing that everyone is being asked to reduce pollution and that a no discharge zone would be a chance for the boating community to do its part.

A round of questioning was opened up to the public in attendance at 6:12 pm. Virgil Turner asked what the probability of this application would be to go through. Donna fielded the question and said that it stood a “pretty good chance.” She went on to explain that the EPA has 90 days to decide. Virgil then asked “If a boat does not have a toilet, does this affect them?” Donna replied that it does not. Lastly, Virgil asked if the NDZ would be permanent. Donna replied that only if a law was passed to repeal the designation would it be removed. She went on to state, “Once it is in. it is in.”

Marcy Ramsey asked “Where do you see the opposition to this cause?” Isabel Junkin answered “Watermen or Republicans.” She expanded that watermen tend to not have heads on their boats so this would not affect them as much. She also stated that Rock Hall may be less supportive of the initiative due to the presence of a large boating community. Isabel then speculated that charter boat fishermen would be against the regulation if they had marine sanitation devices onboard. Donna stated that boaters that have Type I or Type II marine sanitation devices would be against this regulation because it would require a different method for them to process their waste. She reasoned that the presence of Type I and Type II marine sanitation devices is rare and that she was not anticipating too much opposition. Janet Ruhl asked if Type I and Type II marine sanitation devices possess holding tank options. Donna Morrow replied that they usually do not have that capability. Janet Ruhl inquired if there was a sense of how much help a no discharge would be to the river. Isabel Junkin replied that no one was aware how prevalent Type I and Type II discharge was in the Chester River. Donna Morrow cited a survey compiled by DNR and said only a small percent of boaters have Type I or Type II marine sanitation devices. Isabel stated that it would be hard to grasp to what extent the no discharge zone would be preventing pollution but that it would be an easy step to take one form of pollutant out of the equation.

Rebekah Hardy asked how the word would be spread about the no discharge zone if the designation was approved. Isabel Junkin responded that Chester River Association has a completed grant from Chesapeake Bay Trust and would be distributing newsletters, press releases, pamphlets and posters. Donna Morrow stated there would be No Discharge Zone buoys placed near Rock Hall and the entrance to the Chester River.

Bob Ingersoll inquired whether there were any other river systems in the Chesapeake Bay that have a no discharge zone. Donna Morrow replied that there were two NDZs in Maryland established in 2001. Bob Ingersoll then asked if any other organizations were considering applying to make their waterways no discharge zones. Isabel Junkin responded that other organizations have expressed interest like the Midshore Riverkeeper Conservancy.

Suzanne Sullivan, a member of the Midshore River Conservancy confirmed this. Isabel stated that her organization had made a template on how to apply for an NDZ. Isabel Junkin stated the Sassafra River Association and Midshore Riverkeeper Conservancy are interested in using this template to apply for NDZ designation to make the process as easy as possible. Donna Morrow stated that the DNR staff was larger in 2001 so DNR was able to do NDZ applications independently. Now she says that DNR assists other interested organizations. Bob Ingersoll then asked if there was any crossover between what the no discharge zone would mitigate and the Kent County TMDL. Isabel Junkin responded that the no discharge zone would not credit any watershed implementation plan because it is difficult to assess how much boat sewage is contributing to pollution. Donna Morrow said that the Chester River is impaired for sediment and nutrients and that the no discharge zone would support those factors. After all questions were answered, Isabel Junkin opened the floor for comments in front of the room or to be written on notecards. No comments were made at this time and notecards containing written comments were collected and the meeting was adjourned at 6:33 p.m.

## **Appendix 20: Rock Hall Public Meeting Minutes (10/2/2014)**

October 2<sup>nd</sup> 2014

Rock Hall No Discharge Zone (NDZ) Public Meeting

Notes by Tim Trumbauer

### Attendees:

Isabel Junkin Hardesty, Riverkeeper-  
Chester River Association

Tim Trumbauer, Chester River Association

Doug & Barbara Edwards, Lankford Bay  
Marina

John Howartt, Dolphin Charters

Woody Loller, Harbor Haven Marina

Donna Morrow, Maryland DNR

Christie Martinez, Maryland DNR

Mark O'Malley, Maryland DNR

Jenny Lee, Kent County Natural Resource  
Conservation Services

### Minutes:

6:08 PM- Donna Morrow makes opening remarks. Explains CRA has prepared most of the package, but DNR must be the one that submits to the Federal Government. She apologizes for not getting the word out better. She explains boat sanitation regulations. MD currently has 2 no discharge zones established in 2001- Herring Bay and Coastal Bays. She explains that waters of the Chester River are impaired.

6:13 PM- Isabel Hardesty begins remarks. She explains why a NDZ is needed in the Chester River due to nutrient impairment. NDZ is asking boaters to be part of the pollution reduction process. She says we understand that some people were not aware of the meeting and can hold a second meeting.

6:16 PM- Open comments and questions

### Douglas Edwards-

- Owner and manager of Lankford Bay Marina.
- Just learned of meeting 10 hours ago. Said he called 4 other marinas in the area but no one knew about the meeting.
- Mr. Edwards asked about the number of LectaSans in the Chester River. Donna Morrow responded that there were approximately 2000 in the Bay based on a survey. Mr. Edwards says there may be 100 units in the Chester River. He says banning the use of LectaSans is like "spitting on a bonfire" and it is extra regulation.
- Mr. Edwards wants to know who will enforce the action. Ms. Morrow responds that DNR and Coast Guard will enforce. She says that a buoy will be placed at the mouth of the river and another buoy near Chestertown. She says that the first attempt at enforcement will be education and outreach. She says that MD DNR and the Coast Guard do not intend to board boats to enforce, but would check along with routine inspections.
- Mr. Edwards states that you are penalizing a small area. He says he thinks he has 3 boats with this type of system. He thinks these boats might move out of the River.

- Mr. Edwards says it is a nice idea but it won't "do didley". He wants the river cleaned up and he sees the river getting worse every year. He wants to make sure he is not labeled as not wanting to clean up the river. He says he has a clean boat wash with no discharge.
- Mr. Edwards states all small marinas are struggling and losing 2-3 boats will be devastating. He is afraid this will cause more problems than create solutions.

#### John Howartt-

- Lives in Rock Hall. Has Captains license- has been in and out of no discharge zones up and down the coast.
- Mr. Howartt comments that most boats that discharge have black water and gray water. Asks about gray water discharge. Donna responds that the Federal definition of no discharge is black water only.
- Mr. Howartt recommended that we contact everyone with LectaSans in the area and ask their input. He said the LectaSans were Coast Guard approved.
- Mr. Howartt wants data that shows what type of nutrient reduction would result from eliminating LectraSans.
- Mr. Howartt says that people will swing out to the bay and dump.
- Mr. Howartt says there are tons of boats in Rock Hall and he wants more outreach.
- Mr. Howartt wants to know the percentage of pollution from LectaSan. Jenny Lee quotes EPA document that details pollution and health hazards created by discharge from LectaSans and similar devices.
- Mr. Howartt states that we are going after the smallest polluter. Isabel Hardesty acknowledges that the overall percentage is low, but it is very concentrated. Ms. Hardesty comments that CRA is pursuing pollution reductions from all sources, including agriculture, septic, wastewater treatment plans, industry, etc.
- Mr. Howartt says that the whole thing doesn't make a lot of sense unless you want to drive people with LectaSans out of the Chester River. He says those with LectaSans are not going to go to Chestertown and spend their money.

#### Woody Loller-

- GM at Haven Harbor.
- Mr. Loller says that he is personally not opposed. He takes care of 300 boats and says there is only a handful with the LectroSan.
- Mr. Loller says creating a no discharge zone seems to have a minimal impact and asks about phase in and enforcement. Ms. Morrow responds
- Mr. Loller asks about grandfathering. Ms. Morrow responds that education is the first response. She says that a grandfather clause has never been considered. Mr. Loller remembered that there was a grandfather clause when they first started requiring holding tanks. Mr. Loller says a grandfather clause would be helpful.

#### John Howartt

- Mr. Howartt speaks again and asks about next steps. Ms. Morrow responds that we are in comment period. Comments will be submitted as part of the application. The application will go in regardless of comments, but Ms. Morrow says it is up to the EPA to approve the NDZ. She Restates that the DNR will have to submit the application.

- Mr. Howartt asks if there will be a hearing. Ms. Morrow responds that this is a hearing.
- Mr. Howartt says that you need to spell it out the proposed NDZ is not an NDZ as he understands it, it is a *no blackwater* discharge zone. Donna emphasizes that Maryland uses the Federal definition that discharge is blackwater only.
- Mr. Howartt asks if politicians were notified. Ms. Hardesty said that a notification was sent to Kent and Queen Anne's County commissioners and verbally they were supportive.

#### Open Discussion

- Ms. Morrow says DNR and CRA are accepting comments through October so application could be sent at the end of the year.
- Mr. Howartt asks how much pollution a LectroSan makes. Ms. Lee quotes the amounts of various pollutants discharged by LectaSans and quotes the water quality thresholds for the pollution. Mr. Howartt asks how much a pound is- Ms. Lee says it is about a liter.
- Mr. Edwards says that there is no way to determine the impact. He says that it is being presented as a huge impact, but ag and lawn fertilizer are much bigger problems. He says that the negative impact will outweigh the positive.
- Mr. Howartt asks if a survey could be sent to people who own LectaSans. Ms. Morrow states that it is difficult to know who owns a LectroSan as there are no public records.
- Ms. Hardesty thanks everyone for comments.
- Mr. Edwards asks about enforcement again. He says no one reads signs.
- Mr. Howartt says that everyone is for improving the waterway.
- Mr. Edwards suggests that we do another meeting at the Kent Island. Ms. Morrow and Ms. Hardesty respond favorably and say that is a possibility.
- Mr. Howartt asks if we are banning LectaSans. Ms. Morrow says the proposed NDZ does not ban any treatment devices, but does ban their use. She says while in the NDZ the head should be locked.
- Isabel again thanks everyone for coming and the meeting adjourns.

## Appendix 21: Queenstown Public Meeting Minutes (10/30/2014)

October 30<sup>th</sup>, 2014

Queenstown No Discharge Zone Public Meeting

Notes by Albert Leavell

### Attendees:

Isabel Hardesty & Albert Leavell-Chester  
River Association  
Donna Morrow, Mark O'Malley, &  
Christine Martinez-Department of Natural  
Resources  
Albert Leavell  
Tim Trumbauer  
John Howarth

Jeffrey A. Horstman  
Alex Wolf  
Tucker Moorshead  
Mike Hardesty  
John Foster  
Jenny Lee

### Minutes:

Donna Morrow called the meeting to order at 6:06 p.m. Mrs. Morrow gave a brief background of the definition of a No Discharge Zone. She covered each type of marine sanitation device and the laws already established regarding their use. She stated the marine sanitation devices do not treat nutrients, but do treat for bacteria. Mrs. Morrow explained that Type I and type II marine sanitation devices must have label stating its approval by coast guard. She described the presence of two no discharge zones already established in Maryland, Herring Bay and coastal area west of Ocean City and south of Route 50. Mrs. Morrow Explained the process of a No Discharge Zone and the presence of strong local support. Ultimately, she said the EPA makes the determination. The application will be submitted to EPA and prior to finalization, it will appear in the federal register. DNR's role is to be the applicant on record. She said the No Discharge Zone applications are not at the forefront of their initiatives due to low staffing. Mrs. Morrow explained that the Chester River Association cannot just send the application. DNR will vet the application and properly and send it in conjunction with Department of the Environment.

Isabel Hardesty began speaking at 6:12 p.m. She gave a synopsis on how the project started and why Chester River Association is seeking a no discharge zone. She said Chester River Association started the process one year ago. Mrs. Hardesty stated CRA feels no person should be allowed to discharge anything into any body of water because every nutrient has an impact because it's bad for wildlife, bad for water quality, and bad for human wealth. Mrs. Hardesty acknowledged that the majority of pollution in the Chester River watershed is agriculture. She gave a summary of CRA's agricultural initiatives and the need to address other impacts in other sectors of land and water use. She stated the No Discharge Zone was Chester River Association's way of asking the boating community to be a part of the effort to protect the Chester River. She described the application process as ongoing and not finalized. Mrs. Hardesty outlined the comment making process and asked each commenter to limit themselves to three minutes in the interest of time. She stated each comment will be included in the application that the EPA will then look at to help with their decision making regarding the No Discharge Zone.

At 6:16 p.m. the floor was opened for questions and comments from the audience. John Howarth referenced a copy of the application and said it described local business of being in strong support of the Chester River No Discharge Zone. He countered he was recently in a meeting with Rock Hall business and that they were not all supportive. He explained the talk at this meeting was on transient boaters and how it benefits Rock Hall business. Mr. Howarth expressed concern that transient boaters with Type I or Type II marine sanitation devices would not use the Chester River if the No Discharge Zone was passed and Rock Hall would lose important business. Mr. Howarth again referenced the application which stated the average person using municipal waste water treatment facilities contributes 2 pounds of nitrogen and that septic users contribute 9 pounds of nitrogen. He referenced an article from Boat U.S. entitled Boat Waste-Treatment Technology by Tom Neale which mentioned a study released by the EPA regarding LectraSans. He said that treated sewage from this system has less bacteria in its discharge than that of a wastewater treatment plant. Within the Boat U.S. article, Mr. Howarth said there was an estimation of a typical family of four spending 20 weekends aboard their vessel which led to nitrogen discharge of 3.6 ounces for the year. In comparison, the report stated the same amount of nitrogen is released from 11 ounces of lawn fertilizer.

Mr. Howarth referenced the application and its section on beach closure in Kent and Queen Anne's County due to high bacteria levels. He asked if the bacteria levels could be attributed to the treated sewage discharge of marine sanitation devices and if it were better levels or worse than wastewater treatment plants. Jenny Lee worked on the application and said she did not remember the exact number but the treated sewage has 10-100 more bacteria than wastewater treatment plants. Donna Morrow said that she suspects that there is a dilution factor in the municipal wastewater treatment plant. Isabel Hardesty says she would be interested in the actual amount or gallon to gallon to comparison. John Howarth responded that he believes the study is a gallon to gallon comparison. Mr. Howarth asked what would happen to the boats that are in the local marinas presently that have Type I or Type II MSDs if the No Discharge Zone were to come into effect. He added that the marina industry is hurting and that through discussions with some marinas, he found each has 3 -4 boats with Type I or Type II MSDs. Isabel Hardesty stated the boaters would have to stop using their Type I or Type II MSDs in the Chester River and the decision on how to address that would be up to the individual boater. Mr. Howarth asked if there could be a grandfather clause that would allow owners already with Type I or Type II MSDs. Donna Morrow answered that she is not aware of anything being done like that in other No Discharge Zones but that she would bundle it in with other questions for the application. Isabel Hardesty says the reason Chester River Association is pursuing the No Discharge Zone is because they do not want human waste in the river. John Howarth responded that discharging from a boat is the same thing as discharging human waste from a wastewater treatment plant. John Howarth asked if boaters discharging treated sewage actually decreases water quality and by what percentage. Isabel Hardesty stated that it does decrease water quality but a specific percentage could not be attributed to it. She said that a percentage pinpointing any sector's contribution to poor water quality is difficult because they all affect the water quality simultaneously. She explained that there are many different practices being done to improve water quality, but what can be attributed to a specific effort cannot be determined.

Mike Hardesty asked if there were other No Discharge Zones in the US and does it work or how do they handle it. Isabel Hardesty responded that there are many No Discharge Zones in the New England area that even include grey water discharge. She referenced a conversation with a supporter from Maine in a previous public meeting that spoke highly of its effect on the economy and on water quality.

Jeff Horstman identified himself as the Midshore Riverkeeper and stated that he did not think it is okay to put anything in the river that is not natural. He said a man putting fertilizer on his lawn and saying it is okay because it is only a small amount is similar to discharging treated sewage from a boat, it adds up. Mr. Horstman stated that the Chester River and the Wye River has 5 times as much nitrogen as what it should have.

Tucker Moorshead stated that the No Discharge Zone is a trivial exercise and looking at the numbers, it would make no difference. He said that there will be less boats in the Chester River if the No Discharge Zone was passed. He said that land owners on the water would be happy about this fact, but marinas would suffer. Mr. Moorshead mentioned that 50 years ago the Chester River was healthy and he said that what has changed in the watershed is that we grow corn. He concluded that unless we take the corn and stop the leeching of nutrients from it use, it is useless to do anything else.

Jenny Lee stated she uses the river frequently to kayak and many other recreationalist do similar activities on the water. She said that although touching the water will not instantly make you sick, she believed extended exposure could affect your health. She said the No Discharge initiative would keep everyone safe as they enjoy swimming and recreating on the water.

John Foster asked how many boats use the Chester River have Type I or Type II MSDs because most of the boats he was familiar with have holding tanks. Isabel Hardesty said that the only estimates she had were how many boats use the Chester River which were acquired through counting boats using satellite images and from boat registrations. She said that determining what kind of marine sanitation device they had onboard was not possible using those methods. Donna Morrow added that the same question came up in the Rock Hall public meeting. She estimated that there was a low number of Type I and Type II MSD users in the river but no statistics were available. Mrs. Morrow said that finding out how many boats have Type I or Type II MSDs would be problematic because the marina owners do not have actual figures. John Foster said that the marinas could at least give an estimate but Donna Morrow stated she would not want to put a loose guess in her application. John Foster then suggested that DNR should stop every boat in Queenstown, Lankford Bay, and the Corsica, working their way all the way up the river to find out the exact number of boats with Type I or Type II MSDs. Donna Morrow responded that DNR does not have the resources required for such a study. Mr. Foster said there should be tax breaks or monetary aid to help boat owners with Type I or Type II MSDs retrofit their boats. Mr. Foster said that every year a lot of crabbing and fishing bait is discharged into the Chester River. He stated the decomposition of this bait leads to excess nutrients in the river. Mr. Foster mentioned that years ago, he calculated the impact is 100s of pounds of nitrogen waste. Isabel Hardesty agreed that it was not a natural source of nutrients and thanked John Foster for his comments.

Mr. Foster stated that if Chester River Association were addressing those issues, he would march right along sit them but the No Discharge Initiative is messing with lives. Donna Morrow told the audience there was still time to submit comments. John Foster asked what the next steps in the No Discharge Process would be. Donna Morrow responded that DNR and Chester River Association would begin compiling all of the comments, debrief and reevaluate. Mr. Foster asked if there was a hard date set for the application submission. Donna Morrow replied that no hard date was set but by the beginning of next year she hoped to have it submitted. At 7:05 p.m. Isabel Hardesty thanked everyone for their comments and dismissed the meeting

## Appendix 22: Public Comments

Name	Comment	Date	Method of Contact
Linda Hendricksen	<p>“This is a refreshing post. Hopefully, common sense will dictate the decision to make the Chester River a NDZ. This is not rocket science. More times than I can count, when walking onto our pier at the mouth of the Chester River, I look down and say to my husband: "It looks like someone dumped their bilge, or waste into the river." Those of us living in the area for 60 or more years have seen the Chester river go from clean bath water with beautiful sea grass and plenty of sea life, to its present condition. Please help to stop the pollution and "change the tide" toward doing what is in the best interest of the environment and ultimately in the best interest of the human species.”</p>	9/19/2014	Email
Angie Cannon	<p>“I'm writing to express my support for this designation.”</p>	9/23/2014	Written Comment at Public Meeting
Gil Watson	<p>“I am totally in favor of making the Chester a NdZ as soon as possible.”</p>	9/22/2014	Email
Aimee Shafner	<p>“I support this initiative because I like swimming in hygienic places.”</p>	9/22/2014	Email
Marcy Ramsey	<p>“Yes, I highly support this effort!”</p>	9/23/2014	Written Comment at Public Meeting
Renee Bench	<p>“As a boater and a swimmer (in the River) I am in support for designating the Chester River as a no discharge zone. Please let me know what else I can do.”</p>	9/23/2014	Written comment at Public Meeting
Bob Ingersoll	<p>“I am entirely in favor of having a NDZ on the Chester River and all of the Chesapeake Bay Watershed.”</p>	9/23/2014	Written comment at Public Meeting
Vic Pfeiffer	<p>“I fully support the Chester River No Discharge Zone. I'm a resident of Chestertown, a boater, kayaker and river swimmer (when clean enough) and I believe that we need to do everything reasonable to clean the river's water-and this is one of them.”</p>	9/23/2014	Written Comment at Public Meeting
Rebekah Hardy	<p>“I fully support the NDZ application for the Chester River for its potential positive effects in our community, as well as the ripple effects of our success</p>	9/23/2014	Written Comment at Public

	on the whole Chesapeake Bay region.”		Meeting
Christine Burns	“My name is Christine Burns and I fully support the NDZ and I think this model should be applied throughout the Bay. It just makes sense.”	9/23/2014	Written Comment at Public Meeting
Suzanne Sullivan	“MRC (Midshore Riverkeeper Conservancy) fully supports CRA efforts to designate the Chester River a NDZ. MRC will be following in CRA's lead and submitting an application for the Miles River. An NDZ will help reduce pollution while fostering a sense of stewardship over local rivers. We support the idea that it is not okay to dump <u>anything</u> into a river, "treated" or not.”	9/23/2014	Written Comment at Public Meeting
Janet Ruhl	“I support the Chester River NDZ and believe it should be extended to the entire bay.”	9/23/2014	Written Comment at Public Meeting
Anna Wolgast	“I enthusiastically support the designation of the Chester River as a "no discharge zone" for boats. Marine sanitation devices do not adequately treat waste, particularly for nutrients. Nutrients are one of the principal pollutants impairing the river and targeted in the TMDL.”	9/23/2014	Written Comment at Public Meeting
John Howart	Summary of Mr. Howart's comment: Mr. Howart says that people will swing out to the bay and dump their sewage. Mr. Howart says there are tons of boats in Rock Hall and he wants more outreach. Mr. Howart states that we are going after the smallest polluter Mr. Howart says that the whole thing doesn't make a lot of sense unless you want to drive people with LectaSans out of the Chester River. He says those with LectaSans are not going to go to Chestertown and spend their money	10/02/2014	Comment at Public Meeting
Woodrow Loller	Summary of Mr. Loller's comment: Mr. Loller says that he is personally not opposed. He takes care of 300 boats and says there is only a handful with the LectroSan. Mr. Loller says creating a no discharge zone seems to have a minimal impact and asks about phase in and enforcement. Ms. Morrow responds Mr. Loller asks about grandfathering. Ms. Morrow responds that education is the first response. She says that a grandfather clause has never been considered. Mr. Loller remembered that there was a grandfather clause when they first started requiring holding tanks. Mr. Loller says a grandfather clause would be helpful	10/02/2014	Comment at Public Meeting

<p>Doug Edwards</p>	<p>Summary of Mr. Edwards’s opinion: Mr. Edwards states that you are penalizing a small area. He says he thinks he has 3 boats with this type of system. He thinks these boats might move out of the River. Mr. Edwards says it is a nice idea but it won’t “do didley”. He wants the river cleaned up and he sees the river getting worse every year. He wants to make sure he is not labeled as not wanting to clean up the river. He says he has a clean boat wash with no discharge. Mr. Edwards states all small marinas are struggling and losing 2-3 boats will be devastating. He is afraid this will cause more problems than create solutions.</p>	<p>10/02/2014</p>	<p>Comment at Public Meeting</p>
<p>Gren Whitman</p>	<p>“I was unpleasantly surprised two weeks ago! Surprise No. 1: Learning there are “Marine Sanitation Devices”; and Surprise No. 2: Learning a vessel with an “MSD” is permitted to discharge human wastewater—along with untreated bacteria and chemicals—into the water anywhere on the Chester River. Here’s my opinion: No wastewater discharge should be permitted from any boat anywhere. Wastewater discharges are permitted from land only after sophisticated and thorough treatment, and under close and daily scrutiny, from our Maryland Department of the Environment. No treatment system on any boat can meet the MDE’s requirements and standards for discharging treated wastewater, so why should less-adequately-treated wastewater discharges be permitted from a boat? Here’s my second opinion: If you can afford a boat with a toilet—afford to buy, store, maintain, and operate such a boat—you can easily afford to have your wastewater pumped out at a marina. My 24-foot sailboat has a Porta-Potty, which I empty out and clean <i>at my home</i>. Therefore, I support the CRA/DNR proposal to designate the Chester River as a No Discharge Zone. Thank you.”</p>	<p>10/2/2014</p>	<p>Email</p>
<p>Jeff Horstman</p>	<p>Summary of Mr. Horstman’s comment: Mr.Horstman identified himself as the Midshore Riverkeeper and stated that he did not think it is okay to put anything in the river that is not natural. He said a man putting fertilizer on his lawn and saying it is okay because it is only a small amount is similar to discharging treated sewage from a boat, it adds up. Mr. Horstman stated that the Chester River and the Wye River has 5 times as much nitrogen as what it should have.</p>	<p>10/30/2014</p>	<p>Comment at Public Meeting</p>

Tim Trumbauer	Summary of Mr. Trumbauer's comment: Mr. Trumbauer identified himself as an employee with the Chester River Association and stated he has a special place in his heart for old boats and he does not want to lose a single boat on the Chester River. Mr. Trumbauer said that he did a boat tour and many of the people said that they used to boat to Chestertown decades ago. He said that the No Discharge Zone could be seen as a positive for business and that it could be advertised so that people will want to start coming again. Mr. Trumbauer said increasing capacity at the Chestertown Marina is important to get boaters back on the Chester.	10/30/2014	Comment at Public Meeting
Jenny Lee	Summary of Ms. Lee's comment: Ms. Lee stated she uses the river frequently to kayak and many other recreationalist do similar activities on the water. She said that although touching the water will not instantly make you sick, she believed extended exposure could affect your health. She said the No Discharge initiative would keep everyone safe as they enjoy swimming and recreating on the water.	10/30/2014	Comment at Public Meeting
Tucker Moorshead	Summary of Mr. Moorshead comment: Mr. Moorshead stated that the No Discharge Zone is a trivial exercise and looking at the numbers, it would make no difference. He said that there will be fewer boats in the Chester River if the No Discharge Zone was passed. He said that land owners on the water would be happy about this fact, but marinas would suffer. Mr. Moorshead mentioned that 50-50 years ago the Chester River was healthy and he said that what has changed in the watershed is that we grow corn. He concluded that unless we take the corn and protect from the percolation that it leeches into the river, it is useless to do anything else.	10/30/2014	Comment at Public Meeting
John Foster	Summary of Mr. Foster's comment: Mr. Foster said there should be tax breaks or monetary aid to help boat owners with Type I or Type II MSDs retrofit their boats. John Foster said that the marinas could at least give an estimate but Donna Morrow stated she would not want to but a loose guess in her application.	10/30/2014	Comment at Public Meeting
Harry Keith	"I have only recently learned of your plans to designate the Chester River as a "No Discharge Zone" for boaters. While I realize that I have missed not only the public hearings, but the official comment period, I'm passing along my thoughts in the hopes of making a	11/2/2014	Email

	<p>difference. I'm a lifelong sailor on the Bay, and have seen and supported the efforts to improve the Bay. But I do not support efforts that are misguided, and accomplish little at great expense. For the reasons below, I oppose the designation. I have seen NO studies that attempt to quantify the value of designating the river a NDZ. While it is true that "everything counts" or "it could be bad" or other subject comments, an OBJECTIVE QUANTIFYING statement would be along the lines of "of the 8 zillion pounds of nutrients that reach the river each year, approximately .00001% results from boats." The lack of studies or other quantitative statements casts considerable doubt on the value of a NDZ zone, and makes it appear to be more "political" or "posturing" in nature. Despite the Chester River Association's comment that there are 16 pumpout stations on the river, it leaves unsaid that the majority do not have sufficient water depth for most sailboats (typical sailboats draw around 6 feet). Further, the existing pumpout stations are frequently broken (I've experienced that) or have long wait lines (they are often on a fuel dock, and I have spent over 30 min motoring in circles waiting to get a 5 minute pumpout). A bigger issue is not the pumpout stations on the river, but pumpout stations where a boater keeps their boat. Many, many parts of the Bay do not have pumpout stations near to areas where boats are kept. For instance, a friend of mine who keeps his sailboat on the Wye River, a convenient distance from the Chester, is about an hour trip each way from the nearest pumpout station (St. Michaels). If he were to remove his LectraSan and install a holding tank, it would add two hours each weekend just to pump out the tank. On Mill Creek off Whitehall Bay, there is a pumpout station -- that on the two occasions I've tried to use it when on friend's boats was inoperative -- they told me they would then need to motor the 90 minutes to Annapolis to get a pumpout. Perhaps the worst irony is that boats with LectraSans do treat the sewage. Maybe not as well as a holding tank with zero discharge, but they do. If a boat that is currently poorly supported by pumpout stations were to remove the LectraSan and install a holding tank, they become "trapped" by the holding tank. I have been on more than one boat that looked at a nearly full holding tank and the distance to the nearest pumpout, and pumped it</p>		
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	<p>overboard. An unfortunate and illegal solution, but a very real and unintended consequence of forcing boats to remove LectraSans. While as I mention in the next point I am not likely to install a holding tank, if I did, the reality is that since I do not have anything approaching "pumpout support" where I keep my boat I most assuredly would not be making the lengthy trip to get pumped out! This is not an inconsequential cost. Parts alone to make the conversion are well into the hundreds of dollars, and labor for a marine carpenter to make the modifications to retrofit a holding tank can run into the thousands. And of course, the LectraSan that is removed was installed at a cost of \$1500 plus labor -- a lost cost. It's easy to assume that boaters are rich and can and should pay any cost regardless of value, but the reality is that many boat owners are sailing older boats and operating on a very tight budget. On my 34' sailboat, worth about \$10,000, a \$3,000 expense to install a holding tank is not likely to happen, and I'll simply take the risk. Many boats are used for a very small number of days a year. A boat that is used for 6 weekends a year contributes very little to the environmental issues of the river, yet still incurs the very high costs. I applaud your desires and efforts to improve the Bay and your river. But I hope you will consider these comments as you move forward."</p>		
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## Appendix 23: Letters of Support for No Discharge Zone on the Chester River

June 25, 2014

Ms. Donna Morrow  
Maryland Department of Natural Resources  
Office of Boating Services  
580 Taylor Avenue  
Annapolis, MD 21401

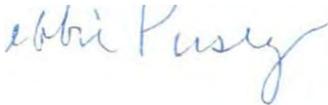
Dear Ms. Morrow,

It is our pleasure and privilege to support the proposal being submitted by the Chester River Association requesting that the Chester River become a no discharge zone.

The Corsica River Conservancy has been involved in watershed restoration efforts for over seven years. We are beginning to see positive results from these efforts in numerous areas. As a tributary of the Chester River, the Corsica River is affected by tidal changes which carry water from the Chester River into the Corsica River. Designating the Chester River a no discharge zone would help to ensure cleaner water by reducing bacteria and nutrients in the Chester and Corsica Rivers as well as all of the other creeks and tributaries in the Chester watershed.

In conclusion, we fully support the efforts to make the Chester River a no discharge zone. A healthy river helps all of us to better enjoy our beautiful waterways and helps support aquatic life and the environment in general. Please help pass the legislation to help protect our rivers.

Sincerely,



Debbie Pusey, President  
Corsica River Conservancy

# Maryland Swim for Life



June 24, 2014

Ms. Donna Morrow  
Maryland Department of Natural Resources  
Office of Boating Services  
580 Taylor Ave.  
Annapolis, Maryland 21401

Dear Ms. Morrow:

It is our pleasure to write a letter in support of the proposal of the Chester River becoming a no discharge zone being submitted by the Chester River Association.

The District of Columbia Aquatics Club (DCAC) will host the 23<sup>rd</sup> Annual Maryland Swim for Life on July 12th in Chestertown, Maryland. The *Maryland Swim for Life* is an open water swim competition and fundraising event to benefit Washington metropolitan HIV/AIDS non-profit organizations, as well as local watershed organizations that advocate for clean, local waters. *Maryland Swim for Life*, sanctioned by the United States Masters Swimming, begins and ends at Rolph's Wharf on the Chester River, one of the Chesapeake Bay's most beautiful tributaries. We have been grateful for the yearly assistance of the Maryland Department of Natural Resources patrol boat during our events.

*Maryland Swim for Life* supports a healthy Chester River, and we feel that a no discharge zone would help to ensure clean water by reducing bacteria and nutrients. After all the hard work of event planning and fundraising last year, our swimmers were faced with the tough personal decision to swim during an active Health Warning. Our event, where we have raised nearly \$40,000 for charity in each of the past 3 years, is in jeopardy of being canceled due to poor water quality. We hope to continue to fight for improved environmental quality in the Chester River watershed, but need to provide a safe environment for our participants.

In conclusion, we fully support the efforts to make the Chester River a no discharge zone. A healthy river helps all of us, and allows our campers to spend time on our beautiful river. Please help pass the legislation to help protect our river.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Jeter".

Robert Jeter  
Event Director  
23<sup>rd</sup> Annual Maryland Swim for Life  
District of Columbia Aquatics Club, Inc.

**About DCAC:** *The District of Columbia Aquatics Club (DCAC) is an entirely volunteer-run swim team and 501(c)(3) non-profit whose mission is to promote competitive and fitness swimming for LGBT swimmers and their friends in a team-oriented, professionally coached setting. DCAC, established in 1988, is dedicated to promoting the sport of swimming. With over 190 swimmers, DCAC ranks as one of the largest USMS teams in the Potomac Valley region, is one of the largest 50 teams in the U.S., and is one of the largest (primarily, but not exclusively) gay and lesbian teams in the world. DCAC's membership includes first time swimmers, as well as experienced competitive swimmers, including F1NA Masters World Record holders, and individual & relay USMS Top Ten and All-Americans swimmers. DCAC is a member of both United States Masters Swimming (USMS) and the International Gay and Lesbian Aquatics (IGLA). For additional information, visit [www.swimdcac.org](http://www.swimdcac.org).*

June 24, 2014

Ms. Donna Morrow  
Maryland Department of Natural Resources  
Office of Boating Services  
580 Taylor Ave.  
Annapolis, Maryland 21401

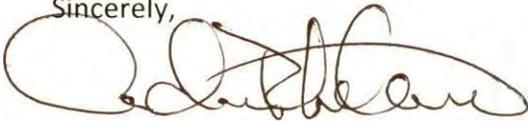
Dear Ms. Morrow:

It is our pleasure to write a letter in support of the proposal of the Chester River becoming a no discharge zone being submitted by the Chester River Association.

Echo Hill Outdoor School we supports a healthy Chester River, and we feel that a no discharge zone would help to ensure clean water by reducing bacteria and nutrients. The river is an important part of our award-winning program. We provide educational adventures on the Chester River throughout the year to hundreds of children and adults.

In conclusion, we fully support the efforts to make the Chester River a no discharge zone. A healthy river helps all of us, and allows Echo Hill Outdoor School to continue to provide quality river experiences. Please help pass the legislation to help protect our river.

Sincerely,



Andrew McCown  
Associate Director  
Echo Hill Outdoor School

ECHO HILL OUTDOOR SCHOOL 13655 BLOOMINGNECK RD. WORTON, MARYLAND 21678 410-348-5880 [www.ehos.org](http://www.ehos.org)

Participating Agency

June 20, 2014

Ms. Donna Morrow  
Maryland Department of Natural Resources  
Office of Boating Services  
580 Taylor Ave.  
Annapolis, Maryland 21401

Dear Ms. Morrow:

It is our pleasure to write a letter in support of the proposal of the Chester River becoming a no discharge zone being submitted by the Chester River Association.

Here at Camp Pecometh we support a healthy Chester River, and we feel that a no discharge zone would help to ensure clean water by reducing bacteria and nutrients. The river is an important part of our operation and campers and retreat guests frequently use it for recreational activities. We are a local testing site for Queen Anne's County and we have been negatively affected by beach closures due to high bacteria counts.

In conclusion, we fully support the efforts to make the Chester River a no discharge zone. A healthy river helps all of us, and allows our campers and retreat guests to spend time on our beautiful river. Please help pass the legislation to help protect our river.

           Sincerely,

R . Jack Shitama  
Executive Director  
Pecometh Camp & Retreat Ministries

136 Bookers Wharf Road • Centreville, MD 21617  
(410) 556-6900 • Fax: (410) 556-6901 • [www.pecometh.org](http://www.pecometh.org)

# CASTLEHARBOR MARINA



P.O. Box 248 • Chester, MD 21619 • (410) 643-5599 • Fax: (410) 643-3863  
**Web:** [www.castlemarina.wm](http://www.castlemarina.wm) • **Email:** [chm@castlemarina.com](mailto:chm@castlemarina.com)

June 23, 2014

Ms. Donna Morrow  
Maryland Department of Natural Resources  
Office of Boating Services  
580 Taylor Ave.  
Annapolis, Maryland 21401

Dear Ms. Morrow:

It is our pleasure to write a letter in support of the proposal of the Chester River becoming a no discharge zone being submitted by the Chester River Association.

Here at Castle Harbor Marina we support a healthy Chester River, and we feel that a no discharge zone would help to ensure clean water by reducing bacteria and nutrients. The Chester suffers from high nutrients and low dissolved oxygen leading to algal blooms and fish kills. The bacteria found in sewage can make water unsafe for people swimming or participating in other water related activities. Between the pumpout facilities at our marina and those of the many others on the river, there is adequate infrastructure in place to deal with all the boat sewage that needs to be pumped.

In conclusion, we fully support the efforts to make the Chester River a no discharge zone. A healthy river helps all of us, especially the boating community who spends so much time on our beautiful river.

Sincerely,

Betsy **Neitzey**  
Castle Harbor Marina

# Appendix 24: Study submitted by John Howarth at Queenstown Public Meeting on 10/30/2014

Source: Neal, Tom. "Boat Waste-Treatment Technology- Boat US Magazine." BoatUS News. Boat Owners Association of the United States. Apr. 2012. Web.

<http://www.boatus.com/magazine/2012/april/taking-care-of-business.asp#>

Boat Waste-Treatment Technology - BoatUS Magazine <http://www.boatus.com/magazine/2012/april/taking-care-of-business.asp>  
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## Boat Waste-Treatment Technology

By Tom Neale  
 Published: April/May 2012

*Developments in onboard waste-treatment technology have created a more effective MSD.*

Onboard treatment technology has developed significantly over the past two decades, far from the era of marine sanitation devices (MSDs) with performance and fail-safe protection issues, and systems that used chemicals. But starting in the 1990s, as pumpout stations began to proliferate, and additional No Discharge Zones (NDZs) were permanently established (where it is illegal to use MSD treatment systems), funding for MSD research and development dried up.

One American-owned company, Raritan Engineering based in Millville, New Jersey, continued to develop and improve their Lectra/San MSD, a treatment system based on technology first developed in the 1970s. New test results on their latest MSD, called Electro-Scan, have been released by the Environmental Protection Agency (EPA).



In Raritan's patented new system, sewage is pumped, on a flush-by-flush basis, into the first of two treatment chambers, and macerated into fine particles. Electricity (from rare-earth titanium electrodes with a proprietary coating) is introduced into the salt water, which separates the sodium from the chloride, creating free-standing chlorine ions, which neutralizes and disinfects the waste. At the end of the electric charge, the sodium and chloride recombine naturally within the unit so no chemicals are discharged. The particles then move into the second chamber during the next flush where the process is repeated. When discharged, the effluent particulate can best be described as light dust and, in extensive testing, the fecal coliform (FCU) content was found to be only 2.43FCU/100mL; by comparison, 14FCU/100mL is the shell-fishing-approved standard. (The current standard for Type I MSDs is less than 1000FCU/100mL.)

These new results were established in extensive testing conducted by the EPA in 2007, and announced in 2010. The EPA Executive Summary of that test determined: "...The Electro Scan device removed almost all pathogen indicators (99.99% or greater)." This is the first time an independent and thoroughly conducted test, sponsored by the EPA, has validated the results of this technology. Raritan, too, has had the product independently tested periodically for recertification, but the EPA-sponsored test was the most thorough. To see a

- ### Today's Boating Stories
- Two Saved From 16-foot Boat in Grays Harbor, WA**  
 Life jackets and fishing vessel crew are credited.
  - Largest Steel Steamer Lost In Lake Ontario Is Found**  
 British steamship Nisbet Grammer sunk after collision in fog in 1925.
  - Base Fishing Hall Of Fame Gains Four**  
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 October 16-19, 2014  
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BUY TICKETS: 410-868-8828  
 AnnapolisBoatShows.com

### Running The Numbers

Any treated sewage, regardless of the source, contains nutrients that contribute to water-quality issues including algae blooms. While the existing standards for treatment MSDs on boats only require pathogen reduction, the EPA nonetheless monitored, recorded, and reported on nutrients discharged by the Electro-Scan as part of their testing. The EPA results yielded an average of 0.000375 pounds of nitrogen per gallon of treated discharge (about two flushes). That number is too small to easily conceptualize, but extrapolating it out to an average boating family's annual usage leads to an amount that can be compared to other sources.

If a family of four spends 20 weekends aboard per year (two days aboard X four persons X five flushes per day per person = 40 flushes per weekend) that adds up to 800 flushes per season. The average volume of a flush for a marine head ranges from half to three quarters of a gallon. Using the larger number results in 600 gallons of

table of results, and the EPA Executive Summary, visit [www.BoatUS.com/Magazine](http://www.BoatUS.com/Magazine).

Over the past decade Raritan has worked to solve former fail-safe concerns: Their current Electro Scan has a microprocessor and display that tells the user if the device isn't operating properly. It gives the historical data of each flush of the unit for enforcement purposes, uses up to 36 percent less electricity, tailors electrical input to properly treat waste, and shuts down should the unit not be operating within required parameters. Buoyed by their product's performance, Raritan and various boating interests, including BoatUS, have requested that the EPA make its standards for onboard treatment devices substantially more stringent than those on the books today, which were formulated 35 years ago. This change could prohibit onboard devices that don't work as well from ever becoming certified. That request is still awaiting EPA action. 

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treated discharge. Multiply that by 0.000375 pounds per gallon and you get 0.225 pounds of nitrogen released, or 3.6 ounces for the year. That's about the same amount of nitrogen in 11 ounces of lawn fertilizer (volumetric measure coming).

Michael Vatalaro

### Did You Know?

Once the EPA designates a No Discharge Zone, outlawing the use of marine sanitation device treatment systems, it's permanent, regardless of advancements in MSD technology.

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## Appendix 25: News articles regarding No Discharge Zone on the Chester River

“Public Meetings to Be Held On Proposed No Discharge Zone For Chester River.” *Chestertown Spy*. Chestertown Spy, 18 Sept. 2014. Web. <http://chestertownspy.org/2014/09/18/public-meetings-to-be-held-on-proposed-no-discharge-zone-for-chester-river/>

Divilio, Daniel. “CRA Meetings No Opposition so Far on No Discharge Zone.” *My Eastern Shore MD*. Kent County News, 25 Sept. 2014. Web and Print. [http://www.myeasternshorem.com/news/kent\\_county/article\\_e7a1b8c0-aff-5972-b930-5d49e0898873.html](http://www.myeasternshorem.com/news/kent_county/article_e7a1b8c0-aff-5972-b930-5d49e0898873.html)

Divilio, Daniel. “NDZ Opposition Heard in Rock Hall.” *My Eastern Shore MD*. Kent County News, 3 Oct. 2014. Web and Print. < [http://www.myeasternshorem.com/news/kent\\_county/article\\_acf08dfc-5727-5643-a2c7-6abbc20bed01.html](http://www.myeasternshorem.com/news/kent_county/article_acf08dfc-5727-5643-a2c7-6abbc20bed01.html)>

Divilio, Daniel. “Third Hearing Set for No Discharge Zone Proposal.” *My Eastern Shore MD*. Kent County News, 23 Oct. 2014. Web and Print. <[http://www.myeasternshorem.com/news/kent\\_county/article\\_427de34e-7c19-513c-a5fa-821caf9370ea.html](http://www.myeasternshorem.com/news/kent_county/article_427de34e-7c19-513c-a5fa-821caf9370ea.html)>

Wolf, Alex. “Chester River No Discharge Zone Discussed.” *My Eastern Shore MD*. Bay Times, 5 Nov. 2014. Web. < [http://www.myeasternshorem.com/news/queen\\_anne\\_county/article\\_d8b45847-aaf2-5a2a-ba31-fa7083](http://www.myeasternshorem.com/news/queen_anne_county/article_d8b45847-aaf2-5a2a-ba31-fa7083)

