CHESAPEAKE BAY:
OLD PLANTATION CREEK TO CAPE CHARLES POINT
Growing Area # 090
Shoreline Sanitary Survey
Northampton County

Date: June 30, 2021
Survey Period: November 19, 2020 – June 30, 2021
Total Number of Properties Surveyed and Samples Analyzed: 89
Surveyed By: B.T. Charnock and I. Geeson

SECTION A: GENERAL

Special announcement: In August 2018, Growing Area # 091, “Chesapeake Bay: Elliotts Creek to Cape Charles Point” was merged into GA # 090 “Old Plantation and Elliotts Creek” with all aspects reflected with the 2016 growing area evaluation. This merger renames Growing Area # 090 now as “Chesapeake Bay: Old Plantation Creek to Cape Charles Point.”

This survey area extends from Reference Point 90 at Cherrystone Channel South Shore Light to Reference Point 92 at the center of the Chesapeake Bay Bridge Tunnel at Wise Point, including the Chesapeake Bay shoreline between these two points, Allegood Pond, Old Plantation Creek (Long Pond), Costin Pond, Elliott’s Creek, Pond Drain, Devils Ditch, and all of their tributaries. The survey boundary has been revised. See map for current boundary. The topography of the area varies from 5’ or less along the shoreline to a maximum of 40’ along the southeastern edge of the survey boundary. The population is primarily sparse and the economy relies mainly on agriculture, seafood, and tourism.

A large residential golfing community, is located at 1 Clubhouse Way, Cape Charles, VA, to the northeast of Old Plantation Creek. There are two golf courses and five homesite areas. Approximately 332 of the 656 available lots are developed. In the adjacent waters there are substantial hard clam and oyster aquaculture operations. The sewerage system for the community is connected to the Cape Charles Wastewater Treatment Facility, which is located in Growing Area # 089.

The 0.04 MGD Sewage Treatment plant that serves the campground, waterpark and restaurant at 32246 Lankford Highway, Cape Charles VA has been significantly upgraded following fair-poor performance inspections in 2014 by DEQ. Prior to upgrades, sludge was hauled away from the terminal wetland for disposal at a municipal sewage treatment plant. After upgrades, this plant meets tertiary limitations with the addition of a biological nutrient removal (BNR) infiltration basin. This VPA-permitted sewage facility, by definition, has no discharge to waterways. A change in ownership occurred in 2016. A satisfactory inspection by DEQ was performed in 2018. The Recreational Vehicle camping area with
sewage connections that resulted in several Onsite Sewage Deficiencies in the 2013 survey (due to some missing sewer caps) was inspected by DSS during the current survey and found to be in good condition.

Meteorological data indicated that there was 21.13" total rainfall during the survey period. This includes a 5.09" 24-hour rain event on November 12, 2020. A monthly breakdown is as follows:

<table>
<thead>
<tr>
<th>Month</th>
<th>Rainfall (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov. 2020</td>
<td>6.47</td>
</tr>
<tr>
<td>December</td>
<td>2.94</td>
</tr>
<tr>
<td>Jan. 2021</td>
<td>3.06</td>
</tr>
<tr>
<td>February</td>
<td>5.10</td>
</tr>
<tr>
<td>March</td>
<td>1.98</td>
</tr>
<tr>
<td>April</td>
<td>1.79</td>
</tr>
<tr>
<td>May</td>
<td>1.48</td>
</tr>
<tr>
<td>June</td>
<td>3.97</td>
</tr>
</tbody>
</table>

At the beginning of the survey, inspectors reviewed the available literature from prior reports, public works and online resources to characterize land use, drainage patterns, and establish nearshore seawater stations. Properties identified in the previous survey as having sanitary deficiencies or other environmental significance were revisited to evaluate their current status. All roadways and navigable shoreline within the survey boundary were visually inspected to identify potential pollution sources requiring further investigation.

Nearshore seawater stations were established to survey the full extent of waters beyond routine classification stations. Stations were created in closer proximity to the shoreline and farther upstream than routine stations and are intended to evaluate drainage entry points of potential pollution sources. Station data were analyzed to compare relative concentrations of fecal indicator bacteria within the waterway to identify potential onshore sources of contamination.

Hydrographic data, sampling times and range of enterococcus concentrations measured are shown in the table below. Maps of the enterococcus sampling are shown at the conclusion of this report.

<table>
<thead>
<tr>
<th>Sample dates</th>
<th>High Tide</th>
<th>Ebb Current</th>
<th>Sampling time</th>
<th>Enterococcus range (MPN/100ml)</th>
<th>Day of Previous 24 hours</th>
<th>Previous 7 days</th>
<th>Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/27/2021</td>
<td>9:38</td>
<td>1:55 – 8:00</td>
<td>9:39 - 12:08</td>
<td>&lt;1 0- 279</td>
<td>0</td>
<td>0</td>
<td>0.43</td>
</tr>
<tr>
<td>4/28/2021</td>
<td>10:28</td>
<td>2:45 – 8:54</td>
<td>11:00 - 14:30</td>
<td>&lt;10 - 30</td>
<td>0</td>
<td>0</td>
<td>0.43</td>
</tr>
<tr>
<td>5/25/2021</td>
<td>8:24</td>
<td>12:14 – 6:17</td>
<td>9:02 - 11:52</td>
<td>&lt;10 -243</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>5/26/2021</td>
<td>9:18</td>
<td>1:05 – 7:08</td>
<td>9:02 - 11:52</td>
<td>&lt;10 - 20</td>
<td>0</td>
<td>0.01</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Total rainfall for nearshore sampling period (April 1 – May 26, 2021) 2.19

The current restriction on shellfish harvesting is Condemned Shellfish Area # 090-152, Old Plantation Creek. Copies of bacteriological, hydrographical, and shellfish closure data are available at the area field office for review. Copies of the current condemnation notices and maps are available via the internet at www.vdh.virginia.gov/shellfish/.
Information in this report is gathered by and primarily for use by the Division of Shellfish Safety and Waterborne Hazards, Virginia Department of Health, in order to fulfill its responsibilities of shellfish growing area supervision and classification. However, the data is made available to various agencies participating in shellfish program coordinated activities and other interested parties.

Report copies are provided to the local health department for corrective action of deficiencies listed on the summary page in Section B.2. and the Department of Environmental Quality for possible action at properties listed on the summary page in Sections C.1. and C.2. The Division of Soil and Water Conservation is provided information on possible sources of animal pollution found in Section E.

This report lists only those properties that have a sanitary deficiency or other environmental significance. "DIRECT" indicates that the significant activity or deficiency has a direct impact on shellfish waters. Individual field forms with full information on properties listed in this report are on file in the Richmond Office of the Division of Shellfish Safety and are available for reference until superseded by a subsequent resurvey of the area.
<table>
<thead>
<tr>
<th>GA #</th>
<th>Field #</th>
<th>Inspection Date</th>
<th>Deficiency or Pollution Type</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Address</th>
<th>Pollutant Remarks</th>
<th>Septic System Type</th>
<th>Structure Type</th>
<th>Contact</th>
<th>Overall Site Remarks</th>
<th>Locality</th>
<th>DSS Staff</th>
<th>Date of Correction</th>
<th>Correction Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>470</td>
<td>90</td>
<td>6/23/2021</td>
<td>SEWAGE TREATMENT FACILITY, indirect</td>
<td>37.136256</td>
<td>-75.971068</td>
<td>32246 Lankford Highway, Cape Charles, VA 23310</td>
<td>Sewage treatment facility with sand filtration and UV disinfection. 3 EQ tanks in use that discharge to 2 large, and 1 small basin. Design flow 0.04 MGD. No point source to the bay. Permit # VPA01058.</td>
<td>NA</td>
<td>Business</td>
<td>Y</td>
<td>Sewage treatment facility for camp ground area. Sunset Beach Investments, LLC, KOA Resort.</td>
<td>Northampton</td>
<td>TC</td>
<td>0</td>
<td>0</td>
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<td>GA #</td>
<td>Field #</td>
<td>Inspection Date</td>
<td>Deficiency or Pollution Type</td>
<td>Latitude</td>
<td>Longitude</td>
<td>Address</td>
<td>Pollutant Remarks</td>
<td>Septic System Type</td>
<td>Structure Type</td>
<td>Contact</td>
<td>Overall Site Remarks</td>
<td>Locality</td>
<td>DSS Staff</td>
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**SECTION D: BOATING ACTIVITY**

<table>
<thead>
<tr>
<th>GA #</th>
<th>Field #</th>
<th>Inspection Date</th>
<th>Deficiency or Pollution Type</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Address</th>
<th>Pollutant Remarks</th>
<th>Septic System Type</th>
<th>Structure Type</th>
<th>Contact</th>
<th>Overall Site Remarks</th>
<th>Locality</th>
<th>Boating Activity Type</th>
<th>Number of Wet Slips</th>
<th>NUM BOATS &lt;26'</th>
<th>NUM BOATS &gt;26'</th>
<th>Evidence of Live-Aboards</th>
<th>DSS Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>409</td>
<td>90</td>
<td>12/9/2020</td>
<td>BOATING ACTIVITY</td>
<td>37.167163</td>
<td>-75.987640</td>
<td>3540 Kiptopeke Dr, Cape Charles, VA 23310</td>
<td>Boat ramp, fishing pier, and bath house.</td>
<td>Conv</td>
<td>Marine</td>
<td>N</td>
<td>Kiptopeke State Park boat ramp.</td>
<td>Northampton</td>
<td>OPWBAM</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>N</td>
<td>TC</td>
</tr>
<tr>
<td>GA #</td>
<td>Field #</td>
<td>Inspection Date</td>
<td>Deficiency or Pollution Type</td>
<td>Latitude</td>
<td>Longitude</td>
<td>Address</td>
<td>Pollutant Remarks</td>
<td>Septic System Type</td>
<td>Structure Type</td>
<td>Contact</td>
<td>Overall Site Remarks</td>
<td>Locality</td>
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<tr>
<td>434</td>
<td>90</td>
<td>T2</td>
<td>CONTRIBUTES ANIMAL POLLUTION, indirect</td>
<td>37.236774</td>
<td>-75.983279</td>
<td>25112 Lankford Highway, Cape Charles, VA 23310</td>
<td>1 donkey, 3 chickens, and 3 goats.</td>
<td>NA</td>
<td>Dwelling</td>
<td>Y</td>
<td></td>
<td>Northampton</td>
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<tr>
<td>4755</td>
<td>90</td>
<td>T3</td>
<td>CONTRIBUTES ANIMAL POLLUTION, indirect</td>
<td>37.230986</td>
<td>-75.992403</td>
<td>2464 Plantation Creek Lane, Cape Charles, VA 23310</td>
<td>Approximately 70 horses.</td>
<td>NA</td>
<td>Business</td>
<td>N</td>
<td>Large barns and fencing for horses. The Bayview Corporation.</td>
<td>Northampton</td>
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</tbody>
</table>
SUMMARY
Growing Area # 090
Old Plantation and Elliotts Creeks
30 June 2021

SECTION B: SEWAGE POLLUTION SOURCES

1. SEWAGE TREATMENT WORK
   0 – DIRECT – None.
   1 – INDIRECT – # T5
   1 – B.1. TOTAL

2. ONSITE SEWAGE DEFICIENCIES – Correction of the deficiencies in this section is the responsibility of the local health department.
   0 – CONTRIBUTES POLLUTION, DIRECT – None.
   0 – CONTRIBUTES POLLUTION, INDIRECT – None.
   0 – CP (Kitchen or Laundry Wastes), DIRECT – None.
   0 – CP (Kitchen or Laundry Wastes), INDIRECT – None.
   0 – NO FACILITIES, DIRECT – None.
   0 – NO FACILITIES, INDIRECT – None.
   0 – B.2. TOTAL

3. POTENTIAL POLLUTION – Periodic surveillance of these properties will be maintained to determine any status change.
   0 – POTENTIAL POLLUTION – None.

SECTION C: NON-SEWAGE WASTE SITES

1. INDUSTRIAL WASTE SITES
   0 – DIRECT – None.
   0 – INDIRECT – None.
   0 – C.1. TOTAL

2. SOLID WASTE DUMPSITES
   0 – DIRECT – None.
   1 – INDIRECT – # T1
   1 – C.2. TOTAL

3. STORMWATER OUTFALLS
   0 – DIRECT – None.
   0 – INDIRECT – None.
   0 – E. TOTAL

SECTION D: BOATING ACTIVITY

0 – MARINAS – None.
1 – OTHER PLACES WHERE BOATS ARE MOORED – T4
0 – UNDER SURVEILLANCE – None.
1 – D. TOTAL

SECTION E: CONTRIBUTES ANIMAL POLLUTION

0 – DIRECT – None.
2 – INDIRECT – # T2, T3
2 – E. TOTAL
GA # 090 - Chesapeake Bay:
Old Plantation Creek - Cape Charles Point
Enterococci Sampling
- Highest Sample: 243 at T16 on 5/25/21

Legend
Enterococcus spp. (MPN/100ml)

- < 10
- 10 - 100
- 101 - 1000
- 1001 - 10000
- > 10000

29 June 2021