The 2008 Integrated Water Quality Monitoring and Assessment Report for the United States Virgin Islands

April 1, 2008

Submitted by the Division of Environmental Protection, Department of Planning and Natural Resources, Government of the Virgin Islands of the United States

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Part I. EXECUTIVE SUMMARY

A. Purpose

The 2006 US Virgin Islands Integrated Water Quality Monitoring and Assessment Report was prepared by the Department of Planning and Natural Resources, Division of Environmental Protection (DPNR/DEP) and is intended to satisfy abbreviated reporting requirements under section 305(b) of the Federal Clean Water Act (CWA). This report also is intended to satisfy the requirements of section 303(d) of the Federal CWA by developing a list of assessment units that will require Total Maximum Daily Loads (TMDLs). This report provides an assessment of the water quality conditions of the Virgin Island's surface and ground water resources for the period covering fiscal years 2006 and 2007 (October 1, 2005 through September 30, 2007).

B. Overview of Water Quality Conditions and Trends

Water quality in the US Virgin Islands is generally good but declining due to an increase in point and non-point source discharges into the marine environment. Sources such as direct discharges, uncontrolled run-off and vessel wastes increase stresses on Virgin Islands (VI) waters.

1. Surface Water

Non-point source pollution is the major source of surface water contamination in the Virgin Islands. Non-point source pollution can be attributed to several causes such as:

- Failure to properly install effective silt control devices during construction,
- Failure to contain storm water run-off from unpaved roads,
- Failure of on-site disposal systems (OSDS).

The discharging of wastes overboard directly into the sea by boat owners and the difficulty in regulating such activity also contributes to non-point source pollution problems seen in the Virgin Islands. Point Source Pollution can be attributed to a failing and overloaded municipal sewage system. Poor preventive maintenance practices due to lack of funding and other resources within the Waste Management Authority result in "bypasses" that empty sewage directly into the waters of the Virgin Islands. The Government of the US Virgin Islands has made considerable progress towards resolving these issues including the opening of new treatment plants and upgrading others.

2. Ground Water

The primary sources of groundwater contamination in the Virgin Islands are:

- Bacteriological contamination from failing septic systems
- Leaking municipal sewer lines
- Migration of contamination from previous injections and disposal practices

- Frequent sewage bypasses (generally described as discharges direct to the sea, but with some percolation into sub-soils)

Other sources of ground water contamination include intrusion of salt water caused by the over-pumping of the aquifers, invasion of volatile organic compounds (VOC's), contamination from leaking underground storage tanks, and the indiscriminate/illegal discharges of waste.

C. Program Initiatives

Under the provisions of the Federal and Local Water Pollution Control Act, the Virgin Islands Water Pollution Control (WPC) Program is mandated to conserve, protect, preserve, and improve the quality of water for public use, and the propagation of wildlife, fish and aquatic life for the USVI. To ensure the preservation of water quality WPC projects monitor compliance with the Water Quality Standards as set forth in the Virgin Islands Environmental Laws and Regulations.

In addition, the program-reporting period (FY 2006 and FY 2007) saw water quality management activities in the Virgin Islands being planned for integration for management and reporting purposes with the Unified Watershed Assessment process of the Clean Water Action Plan. This Virgin Islands Water Quality Assessment presents water quality assessment information in a format that preserves the Virgin Islands long-term data series by using the same water quality monitoring sites. This report also indicates how these data can be summarized at a level that is compatible for both Water Quality Assessment and Unified Watershed Assessment processes.

The Government of the Virgin Islands is presently enhancing and strengthening its territorial Water Pollution Control Act and revising its Water Quality Standards. This ongoing process builds upon previous 305(b) and 303(d) reporting periods. The Water Quality Standards were last successfully revised in October 2004. The Department has initiated the process of further revising the Water Quality Standards in time for the Clean Water Act tri-annual update which was due in FY 2007; however a lack of resources, mainly staff, has delayed this revision. The territory has also developed new draft storm water runoff regulations, developed to particularly reduce sedimentation from construction sites. Furthermore, DPNR-DEP advocates the use of best management practices (BMPs) in the *Revised Handbook for Homebuilders and Developers* (Wright, 2002). DPNR has developed Total Maximum Daily Loads (TMDL's) for various assessment units identified in the 2004 303(d) impaired assessment units listing as well as apply for additional funding through the 604(b) Water Quality Management Planning (WQMP), formerly known as the 205(j) program, to achieve some of these Management tasks.

D. Summary of Classified Uses

USVI waters are classified into three (3) groups based on designated uses: Class A, B. and C:

Class A waters are for the preservation of natural phenomena requiring special conditions with existing natural conditions that shall not be changed. Class A water standards are the most stringent of the three (3) classes because of its pristine or near-pristine state.

Class B and C waters are for the propagation of desirable species of marine life and for primary contact recreation.

Class C waters have less stringent water quality standards than Class B.

Detailed specifications for these classes are presented in Part II, Section B, below.

All waters of the Virgin Islands are designated for fish consumption, aquatic life support, primary contact recreation, and secondary contact uses pursuant to the Virgin Islands Water Quality Standard, Title 12, Chapter 7, §186-1 of the Virgin Islands Rules and Regulations (VIRR).

E. Highlights of the Rest of this Report

- Part II maps and explains the geographic delineation used by the Department of Planning and Natural Resources to report on this Water Quality Assessment, and to display the effects on watersheds and watershed restoration priorities in the Virgins Islands.
- Part III reports on surface water quality issues in the Virgin Islands.
- Part IV reports groundwater and related non-point source issues in the Virgin Islands.

PART II. BACKGROUND

A. Resource Overview

The territory of the United States Virgin Islands comprises three major islands: St. Croix, St. John, and St. Thomas. Additionally, 57 smaller islands and cays were documented in *A Natural History Atlas to the Cays of the US Virgin Islands* (Thomas and Devine, 2005). Taken together, the territory encompasses a total land area of about 136 square miles or 110,000 acres (Table II.A.1) characterized by central mountain ranges and relatively small coastal plains. Peak elevations are 1,165 feet on St. Croix (Mount Eagle), 1,550 feet on St. Thomas, (Crown Mountain) and 1,297 feet on St. John (Bordeaux Mountain). The islands are generally only 2 to 6 miles wide, with no land location far from the coastal waters. All data in this report focus on the main islands of St. Croix, St. John, and St. Thomas although several enclosed bays within the main islands' watersheds include offshore islands and cays.

The return of Water Island to the control of the Government of the US Virgin Islands, after 50-some years of direct federal administration (first as a fort by the Department of the Army during the Second World War, and later as the responsibility of the US Department of the Interior) raises the question of whether this areas should be treated as a fourth island. For the purposes of the Water Quality Assessment, Water Island will be treated as another offshore cay or small inhabited island, such as Hassel Island or Great St. James because the area is small (less than 600 acres or 1 square mile), and because the island is practically within St. Thomas Harbor.

The offshore cays and small islands are an inherent piece of the natural heritage of the Virgin

Islands. Additionally, as an economic asset, these offshore sites could be included within a broad eco-tourism program for the territory. Many government-owned cays have already been established as wildlife reserves pursuant to Title 12 94(b)(2) VI Rules and Regulations. A number are important seabird nesting sites, and several are important roosting areas. The surrounding waters of most of the cays and islands teem with marine life, providing food for seabirds and for the fish and shellfish sought by commercial and recreational fishermen. They are also popular dive sites, which are important to the local diving industry.

There are no large freshwater lakes or ponds, and no perennial streams on any of the islands; intermittent streams can only be seen after heavy rainfall or during the rainy season (May – November). The absence of large freshwater resources and perennial streams means that guts (watercourses) form the basis for watershed management in the territory.

This Water Quality Assessment is based on the United States Geological Survey (USGS) 8-digit Hydrologic Units for the US Virgin Islands, which designate two Virgin Islands watersheds: one for St. Croix, and one for the combined islands of St. Thomas and St. John.

In addition, this Water Quality Assessment also uses 11- and 14-digit Hydrologic Unit definitions, in the process of being finalized by the US Geological Service of the US Department of Interior and the Natural Resources Conservation Service of the US Department of Agriculture, to define territorial *Watersheds*. Within these fourteen draft watersheds (seven on St. Croix, four on St. Thomas, and three on St. John), the Virgin Islands have defined waterbody *Assessment Units*, which correspond to coastal elements of watersheds.

Table II.A.1 Characteristics of Virgin Islands Watersheds and Islands

	St. Croix	St. Thomas	St. John	Total
Population	**51,389**	**54,259**	**4,014**	**109,661**
Land Area (square miles)	**84**	**32**	**20**	**136**
Land Area (acres)	**53,499**	**17,489**	**12,323**	**83,311**
Tidal/sub-tidal wetlands (square miles)	**2.5**	**2.4**	**1.1**	**5.9**
Coastal Shoreline	**70.3**	**52.8**	**49.7**	**172.8**
Embayments (square miles)	**1.5**	**0.9**	**0.1**	**3.5**

Figure II.A.1 St. Croix subwatersheds and assessment unit overview

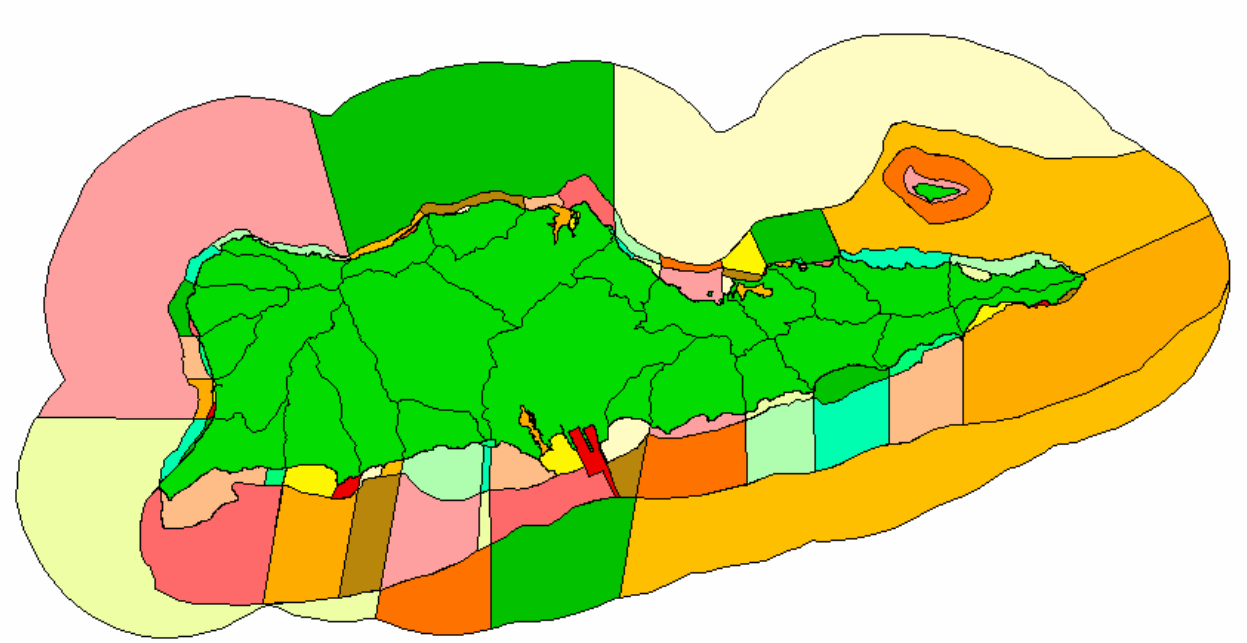
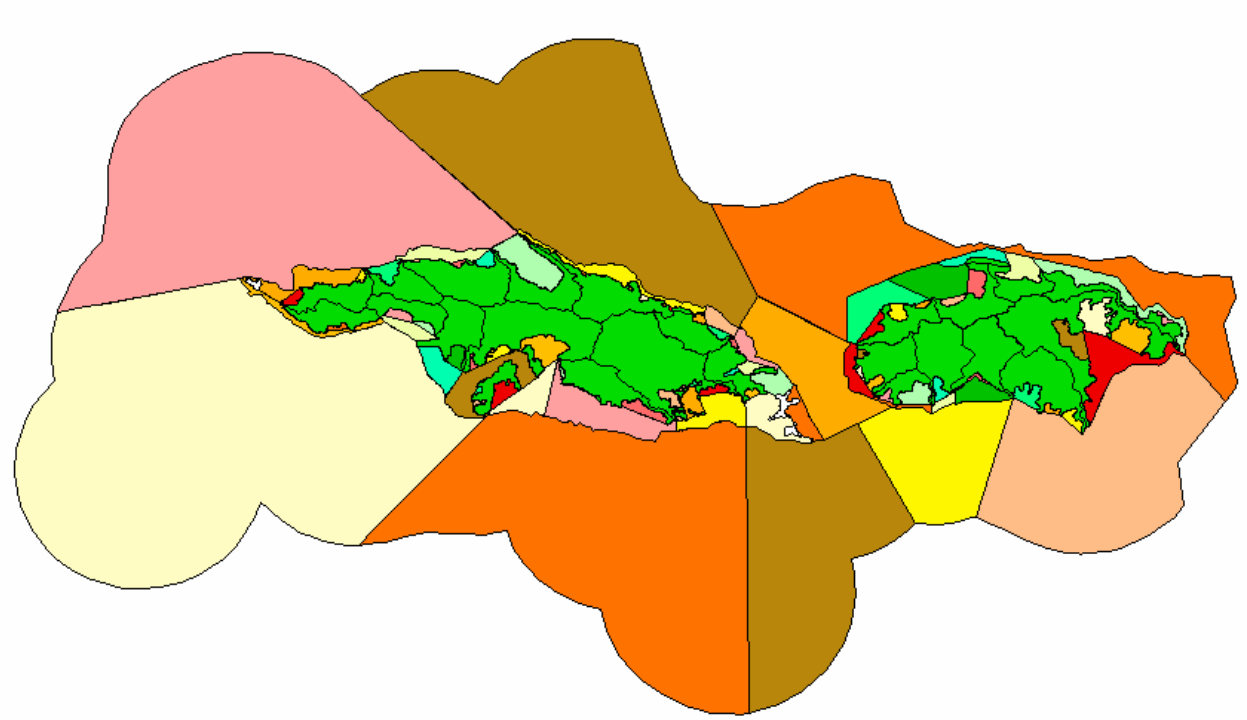


Figure II.A.2 St. Thomas/St. John subwatersheds and assessment unit overview



The 14-digit Hydrologic Unit delineations are to be integrated with the list of watersheds used for the analysis in the Unified Watershed Assessment: See Part III below.

Table II A.2 Sub-watersheds Listed in the Unified Watershed Assessment

St. Croix					
Label Watersheds	**Acres**	**UWA Category**	**Label Watersheds**	**Acres**	**UWA Category**
A. Northside	2,258		N. Bugby Hole	998	2
B. Baron Bluff	1,262	4	O. Cane Garden Bay	1,527	2
C. Salt River Bay	3,510	2	P. HOVENSA	7,642	1
D. Princess	2,182		Q. Bethlehem	6,689	1
E. Christiansted	1,225	1	R. Airport	1,654	1
F. Altoona Lagoon	1,239		S. Diamond	2,577	1
G. Southgate	1,597	1	T. Long Point Bay	2,044	2
H. Solitude	1,691	4	U. Sandy Point	2,735	4
I. Teagues Bay	1,061		V. La Grange	3,137	2
J. Turner Hole	711		W. Prosperity	967	4
K. Madam Carty	1,128		X. Creque Dam	703	
L. Great Pond Bay	2,007	1	Y. Butler Bay	918	
M. Laprey Valley	1,853		Z. Rams Bay	757	
Total St. Croix Acres 54,072					

St. Thomas					
Label Watersheds	**Acres**	**UWA Category**	**Label Watersheds**	**Acres**	**UWA Category**
A. Botany Point	945	4	H. Benner Bay	3,666	1
B. Santa Maria Bay	867	4	I. Frenchman Bay	1,137	
C. Dorothea Bay	1,861	4	J. St. Thomas Harbour	2,696	1
D. Magens Bay	1,210	1	K. Cyril E. King Airport	1,524	4
E. Mandahl Bay	1,883		L. Preseverance Bay	704	
F. Smith Bay	902		M. Fortuna Bay	707	
G. Redhook Bay	850	1			
Total St. Thomas 18,952					

St. John					
N. Hawksnest	1,305		S. Great Lameshur Bay	1,545	3
O. Maho Bay	1,116	3	T. Genti (Reef) Bay	1,208	3
P. Leinster Bay	795		U. Fish Bay	1,503	1
Q. Minnebeck Bay	629	3	V. Rendezvous Bay	416	
R. Coral Bay	3,003		W. Great Cruz Bay	529	1
			X. Mary Point	110	
St. John Total Acres 12,159					

These watersheds align closely with the larger 14-digit Hydrologic Units drafted by the USGS and the NRCS.

The alignment is as follows:

Table II.A.3 Alignment of 14-Digit HUs and Watersheds

8-Digit	11-Digit	14-Digit	Name	Acres
21020002			**St. Croix Watershed**	**54,072**
	21020002010		**North St. Croix**	**22,507**
		21020002010010	Northwest St. Croix	6,482
			V. La Grange	3,137
			W. Prosperity	967
			X. Creque Dam	703
			Y. Butler Bay	918
			Z. Rams Bay	757
		21020002010020	Northcentral St. Croix	7,030
			A. Northside	2,258
			B. Baron Bluff	1,262
			C. Salt River Bay	3,510
		21020002010030	Northeast St. Croix	8,995
			D. Princess	2,182
			E. Christiansted	1,225
			F. Altoona Lagoon	1,239
			G. Southgate	1,597

			H. Solitude	1,691
			I. Teagues Bay	1,061
	21020002020		**South St. Croix**	**31,565**
		21020002020010	Southeast St. Croix	8,224
			J. Turner Hole	711
			K. Madam Carty	1,128
			L.. Great Pond Bay	2,007
			M. Laprey Valley	1,853
			N. Bugby Hole	998
			0. Cane Garden Bay	1,527
		21020002020020	Southparts St. Croix	7,642
			P. Hovic-Vialco	7,642
		21020002020030	Airport St. Croix	8,343
			Q. Bethlehem	6,689
			R.Airport	1,654
		21020002020040	Southwest St. Croix	7,356
			S. Diamond	2,577
			T. Long Point Bay	2,044
			U. Sandy Point	2,735
21020001			**St. Thomas-St. John Watershed**	
	21020001010		**St. Thomas**	**18,952**
		21020001010010	Northwest St. Thomas	4883
			A. Botany Point	945
			B. Santa Maria Bay	867
			C. Dorothea Bay	1,861
			D. Magens Bay	1,210
		21020001010020	Northeast St. Thomas	3,635
			E. Manual Bay	1,883
			F. Smith Bay	902
			G. Redhook Bay	850
		21020001010030	Southeast St. Thomas	4,803

		H. Benner Bay	3,666
		I. Frenchman Bay	1,137
	21020001010040	Southwest St. Thomas	5,631
		J. St. Thomas Hobart	2,696
		K. Cyril E King Airport	1,524
		L. Preseverance Bay	704
		M. Fortuna Bay	707
21020001020		**St. John**	**12,049**
	21020001020010	North St. John	3,845
		N. Hawksnest	1,305
		0. Maho Bay	1,116
		P. Leinster Bay	795
		Q. Minnebeck Bay	629
	21020001020020	Southeast St. John	4,548
		R. Coral Bay	3,003
		S. Great Lameshur Bay	1,545
	21020001020030	Southwest St. John	3,656
		T. Genti (Reef) Bay	1,208
		U. Fish Bay	1,503
		V. Rendezvous Bay	416
		W. Great Cruz Bay	529

Finally, these two systems are displayed with an indication of the monitoring stations associated with each assessment unit and the number of water quality monitoring sites (Battelle 2003) established by the Virgin Islands Department of Planning and Natural Resources.

Table II.A.4 Assessment Units, Square Miles and Monitoring Sites

Assessment Unit ID	Assessment Unit Name	Class	AU Size (sq. mi.)	Associated Monitoring Stations
VI-STT-01	Botany Bay	B	0.1576	STT-9 Botany Bay
VI-STT-02	Stumpy Bay	B	0.0597	STT-10 Stumpy Bay

VI-STT-03	Botany Bay subwatershed, offshore	B	1.309	There are currently no monitoring stations within this assessment unit.
VI-STT-04	Santa Maria Bay	B	0.3617	STT-11 Santa Maria Bay
VI-STT-05	Caret Bay	B	0.0266	STT-12 Caret Bay
VI-STT-06	Neltjeberg Bay	B	0.0562	STT-13B Neltjeberg Bay
VI-STT-07	Dorothea	B	0.0254	STT-13 Dorothea
VI-STT-08	Hull Bay	B	0.2049	STT-14 Hull Bay, VI616865 Hull Bay
VI-STT-09	Dorothea Bay subwatershed, offshore	B	0.7673	There are currently no monitoring stations within this assessment unit.
VI-STT-10	Magens Bay	B	1.6208	STT-15, STT-15A, STT-15B Magens Bay, VI672756 Magen's Bay
VI-STT-11	Northwest St. Thomas HUC14, offshore	B	55.088	STT-OFF1 STT NW-1, STT-OFF9 STT NW-3
VI-STT-12	Lovenlund Bay	B	0.0228	There are currently no monitoring stations within this assessment unit.
VI-STT-13	Mandahl Bay (Marina)	B	0.0131	STT-16B Mandahl Bay Entrance, STT-16C Mandahl Point Entrance
VI-STT-14	Tutu Bay	B	0.0414	There are currently no monitoring stations within this assessment unit.
VI-STT-15	Sunsi Bay	B	0.0152	STT-17B Sunsi Bay
VI-STT-16	Spring Bay	B	0.0102	STT-17A Spring Bay
VI-STT-17	Mandahl Bay subwatershed, offshore	B	1.1379	STT-16A Mandahl Bay, STT-18 Coki Point Bay , VI577932 Coki Point
VI-STT-18	Water Bay	B	0.0845	STT-19 Water Bay
VI-STT-19	Smith Bay	B	0.1187	STT-20 Smith Bay, VI431925 Lindquist Beach
VI-STT-20	Smith Bay subwatershed, offshore	B	0.4103	There are currently no monitoring stations within this assessment unit.

VI-STT-21	St. John Bay	B	0.0411	STT-21A St. John Bay, VI327776 Sapphire Beach
VI-STT-22	Red Bay	B	0.0078	STT-21B Red Bay
VI-STT-23	Vessup Bay	B	0.0619	STT-22B Vessup Bay, USGS-50263000 Vessup Bay West
VI-STT-24	Red Hook Bay	B	0.1772	STT-22A Red Hook Bay, USGS-50263500 Vessup Bay East, VI764950 Vessup Bay
VI-STT-25	Great Bay	B	0.5593	STT-23 Great Bay, VI505006 Bluebeards Beach
VI-STT-26	Red Hook Bay, offshore	B	0.4725	There are currently no monitoring stations within this assessment unit.
VI-STT-27	St. James Islands, offshore	B	0.6691	There are currently no monitoring stations within this assessment unit.
VI-STT-28	Cowpet Bay	B	0.0757	STT-24 Cowpet Bay, STT-24A Cowpet Bay West
VI-STT-29	St. James Bay	B	1.2439	There are currently no monitoring stations within this assessment unit.
VI-STT-30A	Northeast St. Thomas HUC14, offshore north	B	42.927	STT-16C Mandahl Point Entrance, STT-OFF6 STT North-2 , STT-OFF12 STT NE-4
VI-STT-30B	Northeast St. Thomas HUC14, offshore south	B	24.908	There are currently no monitoring stations within this assessment unit.
VI-STT-31	Nazareth Bay	B	0.1793	STT-25B Secret Harbour, STT-26, STT-26A Benner Bay, VI389422 Secret Harbor
VI-STT-32	Jersey Bay, offshore	B	1.2925	STT-25 Nazareth Bay
VI-STT-33	Benner Bay	B	0.4187	USGS-50265900 Benner Bay South
VI-STT-34	Benner Bay Lagoon Marina	B	0.0355	STT-27D Mangrove Lagoon, Near Lavida Marina, STT-27E Mangrove Lagoon, Near Compass Point, USGS-50265700 Benner Bay North

VI-STT-35	Mangrove Lagoon	B	0.2931	STT-27A Mangrove Lagoon, Near Treatment Plant, STT-27B Mangrove Lagoon, Off Sanitary Landfill (East of Ecotours), STT-27C Mangrove Lagoon, Near Tropical Marine Fuel Dock, USGS-50278800 Mangrove Lagoon West, USGS-50278500 Mangrove Lagoon East
VI-STT-36	Frenchman Bay subwatershed, east	B	0.3532	STT-28A Bovoni Bay,STT-28B Bolongo Bay, VI951607 Bolongo Bay
VI-STT-37	Frenchman Bay	B	0.0195	STT-29A Frenchman Bay, VI891065 Frenchman's Bay
VI-STT-38	Limetree Bay	B	0.0065	STT-29B Limetree Bay, VI776527 Limetree Bay
VI-STT-39	Morningstar Bay	B	0.0215	STT-30 Morningstar Bay, VI937158 Morningstar Bay
VI-STT-40	Pacquereau Bay	B	0.0453	STT-31A Flamboyant Cove
VI-STT-41	Frenchman Bay subwatershed, offshore	B	2.9233	There are currently no monitoring stations within this assessment unit.
VI-STT-42	Southeast St. Thomas HUC14, offshore	B	50.939	STT-OFF8 STT South-3, STT-OFF5 STT North2
VI-STT-43	St. Thomas Harbor, inner	C	0.7495	STT-31B Hassel Island, Off Navy Dock, STT-31C Hassel Island, Careening Cove, STT-32A Long Bay, Near South Dolphin, STT-32B Long Bay, Northeast Corner, STT-33A Long Bay, Off Outfall, STT-33B Long Bay, Off Outfall, STT-34 Long Bay, Off Pump Station, STT-35 Groden Bay, STT-36 St. Thomas Harbor, North of Coast Guard Dock, STT-37 St. Thomas Harbor, Cay Bay, STT-38 Haulover Cut

VI-STT-44	St. Thomas Harbor, outer	B	1.2128	There are currently no monitoring stations within this assessment unit.
VI-STT-45	Gregerie Channel	B	1.7072	STT-1 Crown Bay, Near Outfall, STT-39 Water Isle, East Gregorie Channel
VI-STT-46	Sprat Bay	B	0.3814	STT-42 Water Island Sprat Bay
VI-STT-47	Hassel Island at Haulover Cut to Regis Point	C	0.2074	STT-2 Crown Bay, Near Tamarind Outlet, STT-3 Subbase
VI-STT-48	Water Isle Hotel, Beach	B	0.0057	There are currently no monitoring stations within this assessment unit.
VI-STT-49	Druif Bay	B	0.0331	STT-40 Water Isle Hotel, Beach
VI-STT-50	Flamingo	B	0.061	STT-41 Water Island Flamingo Bay
VI-STT-51	Krum Bay	C	0.0754	STT-4 Krum Bay
VI-STT-52	Lindbergh Bay	B	0.2612	STT-5A Lindbergh Bay East, STT-5B Lindbergh Bay West, STT-5C WAPA Outfall, VI514102 Lindberg Bay
VI-STT-53	Cyril E. King Airport subwatershed, offshore	B	0.8499	STT-6C S.W. Road, Near Red Point Outfall
VI-STT-54	Perseverance Bay, offshore	B	0.4734	STT-6B College Cove
VI-STT-55	Brewers Bay	B	0.1076	STT-7A Brewers Bay, VI293962 Brewer’s Bay
VI-STT-56	Perseverance Bay	B	0.2114	STT-7B Perseverance Bay
VI-STT-57	Fortuna Bay	B	0.0827	STT-8 Fortuna Bay
VI-STT-58	Fortuna Bay subwatershed, offshore	B	0.6553	There are currently no monitoring stations within this assessment unit.
VI-STT-59	Northwest St. Thomas HUC14, offshore	B	77.71	STT-6A Airport Runway, STT-OFF2 STT NW-1, STT-OFF11 STT SW-4
VI-STJ-01	Caneel Bay	B	0.2623	STJ-54 Caneel Bay, NPS-1 Caneel Bay, VI658467 Caneel Beach

VI-STJ-02	Hawksnest Bay	B	0.2246	STJ-44B Hawksnest Bay, NPS-3 Hawksnest (middle beach), NPS-4 Hawksnest (Gibney Beach)
VI-STJ-03	Trunk Bay	A	0.0685	STJ-44A Trunk Bay, NPS-5 Trunk Bay
VI-STJ-04	Hawksnest Bay subwatershed, offshore	B	1.7287	NPS-2 Henley Cay
VI-STJ-05	Cinnamon Bay	B	0.1456	STJ-44C Cinnamon Bay, NPS-6 Peter Bay, NPS-7 Cinnamon Bay
VI-STJ-06	Maho Bay/Francis Bay	B	0.346	STJ-44D Francis Bay, NPS-8 Maho Bay, NPS-9 Francis Bay, VI536165 Big Maho Bay
VI-STJ-07	Maho Bay subwatershed, offshore	B	1.6071	There are currently no monitoring stations within this assessment unit.
VI-STJ-08	Mary Point	B	0.4831	There are currently no monitoring stations within this assessment unit.
VI-STJ-09	Leinster Bay	B	0.6627	NPS-10 Leinster Bay
VI-STJ-10	Minnebeck Bay	B	1.4876	NPS-11 Haulover Bay, NPS-30 Newfoundland Bay, NPS-31 Haulover East
VI-STJ-11	Newfound Bay	B	0.0765	There are currently no monitoring stations within this assessment unit.
VI-STJ-12	North St. John HUC14, offshore	B	23.719	There are currently no monitoring stations within this assessment unit.
VI-STJ-13	Coral Harbor	B	0.6965	There are currently no monitoring stations within this assessment unit.
VI-STJ-14	Hurricane Hole	B	0.7689	NPS-13 Water Creek, NPS-14 Princess Bay
VI-STJ-15	Round Bay	B	0.6015	STJ-53 Coral Bay, NPS-15 Coral Bay Dock, NPS-16 Johnson Bay
VI-STJ-16	Coral Bay	B	2.2337	NPS-12 Long Point

VI-STJ-17	Salt Pond Bay	B	0.1978	STJ-52 Salt Pond Bay, NPS-17 Salt Pond Bay
VI-STJ-18	Grootman Bay	B	0.1046	There are currently no monitoring stations within this assessment unit.
VI-STJ-19	Great Lameshur Bay	B	0.359	STJ-51 Great Lameshur Bay, STJ-50 Little Lameshur Bay, NPS-18 Great Lameshur Bay, NPS-19 Yowsi Point, NPS-20 Little Lameshur Bay
VI-STJ-20	Southeast St. John HUC14, offshore	B	24.319	There are currently no monitoring stations within this assessment unit.
VI-STJ-21	Genti Bay, nearshore	B	0.0947	STJ-49 Genti Bay, NPS-21 Reef Bay
VI-STJ-22	Genti Bay, offshore	B	0.769	There are currently no monitoring stations within this assessment unit.
VI-STJ-23	Fish Bay	B	0.2103	STJ-48 Fish Bay, NPS-22 Fish Bay
VI-STJ-24	Fish Bay subwatershed, offshore	B	0.1824	There are currently no monitoring stations within this assessment unit.
VI-STJ-25	Rendezvous Bay	B	0.4677	STJ-47 Rendezvous Bay, NPS-23 Rendezvous Bay, VI204627 Klain Bay, VI402599 Hart Bay
VI-STJ-26	Chocolate Hole	B	0.1004	STJ-46 Chocolate Hole, NPS-24 Chocolate Hole,VI391298 Chocolate Hole
VI-STJ-27	Rendezvous Bay subwatershed, offshore	B	0.1863	There are currently no monitoring stations within this assessment unit.
VI-STJ-28	Great Cruz Bay	B	0.1396	STJ-45 Great Cruz Bay. NPS-25 Great Cruz Bay, VI779192 Great Cruz Bay
VI-STJ-29	Turner Bay/Enighed Pond	B, TMDL	0.057	STJ-55 Turner Bay, NPS-26 Turner Bay
VI-STJ-30	Cruz Bay	B	0.0674	STJ-43A Cruz Bay, North, STJ-43B Cruz Bay, South, STJ-43C Cruz Bay, North of Seaplane Ramp, STJ-43D Cruz Bay Creek North, NPS-27 Cruz

				Bay (ferry dock), NPS-28 Cruz Bay (airplane ramp), NPS-29 Cruz Bay (NPS dock), VI309453 Cruz Bay
VI-STJ-31	Great Cruz Bay watershed, offshore	B	0.5775	VI456779 Frank Bay
VI-STJ-32	Southwest St. John HUC14, offshore	B	10.142	There are currently no monitoring stations within this assessment unit.
VI-STJ-33	Pillsbury Sound	B	6.9399	STJ-OFF13 STJ West-4
VI-STC-01	Frederiksted, south	B	0.0451	There are currently no monitoring stations within this assessment unit.
VI-STC-02	Frederiksted Harbor	C	0.035	STC-28 Frederiksted Pier, STC-29 Frederiksted Public Beach, VI970611 F'sted (Fst. Target)
VI-STC-03	Lagrange subwatershed, offshore	B	0.375	There are currently no monitoring stations within this assessment unit.
VI-STC-04	Prosperity, nearshore	B	0.1118	VI252619 Rainbow (Prosperity)
VI-STC-05	Prosperity subwatershed, offshore	B	0.5129	There are currently no monitoring stations within this assessment unit.
VI-STC-06	Sprat Hall Beach	B	0.0609	STC-30 Sprat Hall Beach, VI645288 Sprat Hall
VI-STC-07	Creque Dam/Butler Bay	B	0.529	There are currently no monitoring stations within this assessment unit.
VI-STC-08	Hams Bay	B	0.3144	There are currently no monitoring stations within this assessment unit.
VI-STC-09	Davis Bay	B	0.0522	There are currently no monitoring stations within this assessment unit.
VI-STC-10	Hams Bluff	B	0.5506	There are currently no monitoring stations within this assessment unit.
VI-STC-11	Northwest St. Croix HUC14, offshore	B	33.302	STJ-OFF3 STJ NW-1, STJ-OFF10 STJ John-3
VI-STC-12	Cane Bay	B	0.0613	STC-32 Cane Bay, VI201013 Cane

				Bay
VI-STC-13	Baron Bluff subwatershed	B	0.3498	STC-31 Davis Bay, VI398766 Davis Bay
VI-STC-14	Belvedere	B	0.0557	There are currently no monitoring stations within this assessment unit.
VI-STC-15	Northside subwatershed	B	0.6109	There are currently no monitoring stations within this assessment unit.
VI-STC-16	Salt River Lagoon, Marina	B	0.0194	STC-33A Salt River Marina, STC-33C Salt River Lagoon, Marina
VI-STC-17	Salt River Lagoon, Sugar Bay	B	0.3244	STC-33D Salt River Lagoon, Sugar Bay
VI-STC-18	Salt River Bay	B	0.3229	STC-33A,B,E-J Salt River (Columbus Landing Beach), VI146901 Gentle Winds, VI558328 Columbus Landing
VI-STC-19	Judith Fancy	B	0.01	There are currently no monitoring stations within this assessment unit.
VI-STC-20	Salt River Bay subwatershed, west	B	0.2433	There are currently no monitoring stations within this assessment unit.
VI-STC-21	Salt River Bay subwatershed, east	B	0.8922	There are currently no monitoring stations within this assessment unit.
VI-STC-22	Northcentral St. Croix HUC14, offshore	B	23.61	STC-OFF4 North-2, STC-OFF11 North-4
VI-STC-23	St. Croix-By-the-Sea	B	0.0727	STC- 34 St. Croix-By-the-Sea, VI738082 Pelican Cove
VI-STC-24	Long Reef Backreef, west	C	0.1153	STC-48 Long Reef Backreef, west
VI-STC-25	Princess subwatershed, offshore	B	0.4343	STC-35 Long Reef Forereef West
VI-STC-26	Christiansted Harbor	C	0.9601	STC-37 Christiansted Harbor Entrance West, STC-40 St. Croix Marine, STC-41 Gallows Bay, STC-42 Public Wharf, STC-43 Water Gut Storm Drain, STC-44 Protestant Cay

				Beach, STC-45 Christiansted Harbor, STC-46 WAPA Intake, STC-47 Mill Harbor Condominium Beach, STC-49 Long Reef Back Reef East, VI572166 Condo Row (Princess), VI359239 Protestant Cay
VI-STC-27	Long Reef Forereef, east	B	0.3149	STC-36 Long Reef Forereef East, STC-35A LBJ (Pump Station) Outfall
VI-STC-28	Altona Lagoon	B	0.2337	There are currently no monitoring stations within this assessment unit.
VI-STC-29	Christiansted Harbor, east	C	0.1089	STC-1 Lagoon Recreational Beach ,STC-39 Altona Lagoon Inlet, VI213332 New Fort Louise Augusta
VI-STC-30	Beauregard Bay	B	0.2145	STC-2 Ft. Louise Augusta Beach, STC-38 Christiansted Harbour Entrance-East, VI651587 Buccaneer
VI-STC-31	Buccaneer Beach	B	0.0166	STC-3 Buccaneer Hotel
VI-STC-32	Altona Lagoon subwatershed, offshore	B	0.6812	There are currently no monitoring stations within this assessment unit.
VI-STC-33	Punnett Bay	B	0.0576	VI610321 Shoy's
VI-STC-34	Punnett Point, east	B	0.0223	There are currently no monitoring stations within this assessment unit.
VI-STC-35	Tamarind Reef Lagoon (Southgate Lagoon)	B	0.0205	STC-4 Tamarind Reef Lagoon
VI-STC-36	Green Cay Beach	B	0.1017	There are currently no monitoring stations within this assessment unit.
VI-STC-37	Southgate subwatershed, offshore	B	2.2219	STC-5 Green Cay Beach
VI-STC-38	Solitude Backreef	B	0.9681	There are currently no monitoring stations within this assessment unit.
VI-STC-39	Teague Bay	B	0.1773	STC-8 Reef Club Beach, STC-9 St. Croix Yacht Club Beach
VI-STC-40	Teague Bay Backreef	B	0.8547	STC-10 Cramers Park, VI351774 Cramer's Park

VI-STC-41	Buck Island Backreef	A	0.7675	STC-6 Buck Island Backreef, STC-7 Buck Island Anchorage
VI-STC-42	Buck Island Forereef	A	3.3497	There are currently no monitoring stations within this assessment unit.
VI-STC-43	Solitude and Teague Bay subwatersheds, offshore	B	18.822	There are currently no monitoring stations within this assessment unit.
VI-STC-44	Northeast St. Croix HUC14, offshore.	B	36.088	STC-OFF8 North-3
VI-STC-45	Isaac Bay	B	0.0853	There are currently no monitoring stations within this assessment unit.
VI-STC-46	Grapetree Bay	B	0.0425	STC-11B Isaacs Bay Forereef
VI-STC-47	Turner Hole Backreef	B	0.2772	STC-12 Grapetree Beach, VI297470 Grapetree Beach
VI-STC-48	Turner Hole subwatershed, offshore	B	16.949	STC-OFF5 East-2
VI-STC-49	Madam Carty Backreef	B	0.464	STC-13B Robin Bay
VI-STC-50	Madam Carty, offshore	B	3.5161	There are currently no monitoring stations within this assessment unit.
VI-STC-51	Great Pond	B	0.1578	There are currently no monitoring stations within this assessment unit.
VI-STC-52	Great Pond Bay	B	1.0184	STC-13A Great Pond Bay
VI-STC-53	Great Pond Bay subwatershed, offshore	B	3.0288	STC-OFF13 SE-4
VI-STC-54	Leprey Valley Backreef	B	0.3712	There are currently no monitoring stations within this assessment unit.
VI-STC-55	Leprey Valley subwatershed, offshore	B	2.8455	There are currently no monitoring stations within this assessment unit.
VI-STC-56	Bugby Hole Backreef	B	0.7042	STC-14A Halfpenny Bay - Manchenil ,STC-14B Halfpenny Backreef, VI931289, Halfpenny

VI-STC-57	Bugby Hole subwatershed, offshore	B	3.9	There are currently no monitoring stations within this assessment unit.
VI-STC-58	Southeast St. Croix HUC14, offshore	B	24.146	STC-OFF2 SE-1, STC-OFF10 SE-3
VI-STC-59	Canegarden Bay	B	0.8542	STC-15 Canegarden Bay
VI-STC-60	Canegarden Bay, offshore	B	0.7933	There are currently no monitoring stations within this assessment unit.
VI-STC-61	Hess Oil Virgin Islands Harbor	C	0.671	STC-16 HOVENSA East Turning Basin, NW Corner, STC-17 HOVENSA West Turning Basin, NW Corner
VI-STC-62	Limetree Bay	B	0.7239	STC-18 Limetree Bay Container Port
VI-STC-63	Martin-Marietta Alumina Harbor	C	0.3228	STC-19 Krause Lagoon Channel, STC-20 Alumina Plant Dock
VI-STC-64	Manning Bay/Estate Anguilla Beach	B	0.0508	STC-23 Public Dump
VI-STC-65	Hovensa, west	B	1.2865	STC-22A Treatment Plant (POTW) Outfall STC-21 Spoils Island (Ruth Island)
VI-STC-66	Hovensa subwatershed, offshore	B	2.8305	There are currently no monitoring stations within this assessment unit.
VI-STC-67	Southports St. Croix HUC14, offshore	B	8.1966	STC-OFF9 SW-3
VI-STC-68	Bethlehem subwatershed, inshore	B	0.2149	There are currently no monitoring stations within this assessment unit.
VI-STC-69	Bethlehem subwatershed, offshore	B	0.3971	There are currently no monitoring stations within this assessment unit.
VI-STC-70	Airport, nearshore	B	2.1943	There are currently no monitoring stations within this assessment unit.
VI-STC-71	Airport,	B	4.263	STC-OFF6 South-2

	offshore			
VI-STC-72	Airport St. Croix HUC14, offshore	B	4.1803	There are currently no monitoring stations within this assessment unit.
VI-STC-73	Diamond, nearshore	B	0.1699	There are currently no monitoring stations within this assessment unit.
VI-STC-74	Enfield Green Beach/VIRIL Outfall	B	0.1376	There are currently no monitoring stations within this assessment unit.
VI-STC-75	Diamond subwatershed, offshore	B	2.8479	STC-24B Rum Plant (VI Rum) Outfall
VI-STC-76	Carlton Beach	B	0.2447	STC-25 Long Point
VI-STC-77	Long Point Bay	B	0.8376	There are currently no monitoring stations within this assessment unit.
VI-STC-78	Long Point Bay subwatershed, offshore	B	4.9231	STC-OFF12 SW-4
VI-STC-79	Good Hope Beach	B	0.1876	STC-26 Good Hope Beach
VI-STC-80	Sandy Point, nearshore south	B	2.0121	There are currently no monitoring stations within this assessment unit.
VI-STC-81	Sandy Point, offshore south	B	7.4306	There are currently no monitoring stations within this assessment unit.
VI-STC-82	Sandy Point, nearshore west	B	0.1158	STC-27 Sandy Point Public Beach, VI896490 Dorsch Bay, VI907985 Stony Ground
VI-STC-83	Sandy Point, offshore west	B	0.4875	There are currently no monitoring stations within this assessment unit.
VI-STC-84	Southwest St. Croix HUC14, offshore	B	18.347	STC-OFF3 SW-1

B. Classifications, Total Waters and Applicable Standards[x]

The information on Water Quality Criteria by Classification and pollutant are summarized in Table II. B.1, below, which closely follows the wording of Virgin Islands Rules and Regulations.

Designated Uses of Class A Waters:
Preservation of natural phenomena requiring special conditions, such as the natural Barrier Reef at Buck Island, St. Croix (defined within 0.5 miles of the boundaries of Buck Island's National Barrier Reef) and the Under Water Trail at Trunk Bay, St. John. Existing natural conditions shall not be changed.

Designated Uses of Class B Waters:

Propagation of desirable species of marine life and for primary contact recreation (swimming, water skiing, etc.).

Legal Limits of Class B waters defined as all other coastal waters not classified Class "A" or Class "C". In addition, those Class "B" waters not covered by color and turbidity criteria in Section 186-3(b)(11) [T. 12, Ch. 7] include:

(i)St. Thomas coastal waters-Mandahl Bay (Marina), Vessup Bay, Water Bay, Benner Bay, and the Mangrove lagoon

(ii)St. Croix Coastal Waters-Carlton Beach, Good Hope Beach, Salt River Lagoon (Marina), Salt River Lagoon (Sugar Bay), Estate Anguilla Beach, Buccaneer Beach, Tamarind Reef Lagoon, Green Cay Beach and Enfield Green Beach.

Designated Uses of Class C Waters:

Propagation of desirable species of marine life and primary contact recreation (swimming, water skiing, etc.).

Legal limits of Class C Waters defined as:

St. Thomas:

(a) St. Thomas Harbor beginning at Rupert Rock and extending to Haulover Cut.
(b) Crown Bay enclosed by a line from Hassel Island at Haulover Cut to Regis Point at West Gregerie Channel.
(c) Krum Bay

St. Croix:

(a) Christiansted Harbor from Fort Louise Augusta to Golden Rock.
(b) Frederiksted Harbor from La Grange to Fisher Street.
(c) Hess Oil Virgin Islands Harbor.
(d) Martin-Marietta Alumina Harbor.

Table II.B.1 Summary of Virgin Islands Water Quality Criteria

Pollutant	Class B	Class C
Dissolved Oxygen	Not less than 5.5 mg/l from other than natural sources	Not less than 5.0 mg/l
pH	<8.3 Tolerable Limit>7.0	<8.5 Tolerable Limit>6.7
Temperature	Less than 32° Celsius	Same as Class B
Bacteria	Not to exceed 70 fecal coliforms per 100 ml by MF or MPN count Not to exceed a geometric mean of 35 enterococci per 100 ml., not to exceed a single sample maximum of 104 per 100 ml at any time	Not to exceed 200 fecal coliforms per 100 ml by MF or MPN count Not to exceed a geometric mean of 35 enterococci per 100 ml., not to exceed a single sample maximum of 104 per 100 ml at any time
Phosphorus	Not to exceed 50 mg/l in any coastal waters	Same as Class B
Chlorine	4-day average concentration of Chlorine not to exceed 7.5 ug/l. The 1-hour average concentration of Chlorine not to exceed 13 ug/l.	Same as Class B
Suspended, colloidal or settleable solids	None from waste water which would cause deposition or be otherwise deleterious.	Same as Class B
Oil and Floating substances	No residue attributable to waste water. No visible film; no globules of grease	Same as Class B
Radioactivity	**Gross Beta:** 1000 picocuries per liter, in the absence of Sr 90 and alpha emitters **Radium-226:** 3 picocuries per liter **Strontium-90:** 10 picocuries per liter	Same as Class B
Taste and Odor	None in amounts to interfere with use for primary contact recreation, potable water supply or to render undesirable taste or odor to edible aquatic life	Same as Class B
Color and Turbidity	A. A secchi disc shall be visible at a minimum depth of one meter. For waters where the depth does not exceed one (1) meter, the bottom must be visible. B. A maximum nephelometric turbidity unit reading of three (3) shall be permissible	A Secchi disc shall be visible at a minimum depth of one (1) meter.

There have been no changes to these Water Quality Rules and Regulations in this reporting period. Draft changes to these standards have been completed, but are currently awaiting acceptance and promulgation.

Table II.B.2 Area of Water Classes by Island

	St. Croix	St. Thomas	St. John	Total
Class A	4.1172 sq. miles	---	0.0685 sq. miles	4.1857 sq. miles
Class B	244.89 sq. miles	272.95 sq. miles	79.958 sq. miles	597.8 sq. miles
Class C	2.2132 sq. miles	1.0323 sq. miles	---	3.2454 sq. miles
Total	251.2204 sq. miles	273.9823 sq. miles	80.0265 sq. miles	605.23 sq. miles

Figure II.B.2 Spatial Distribution of St. Croix Coastal Water Classes

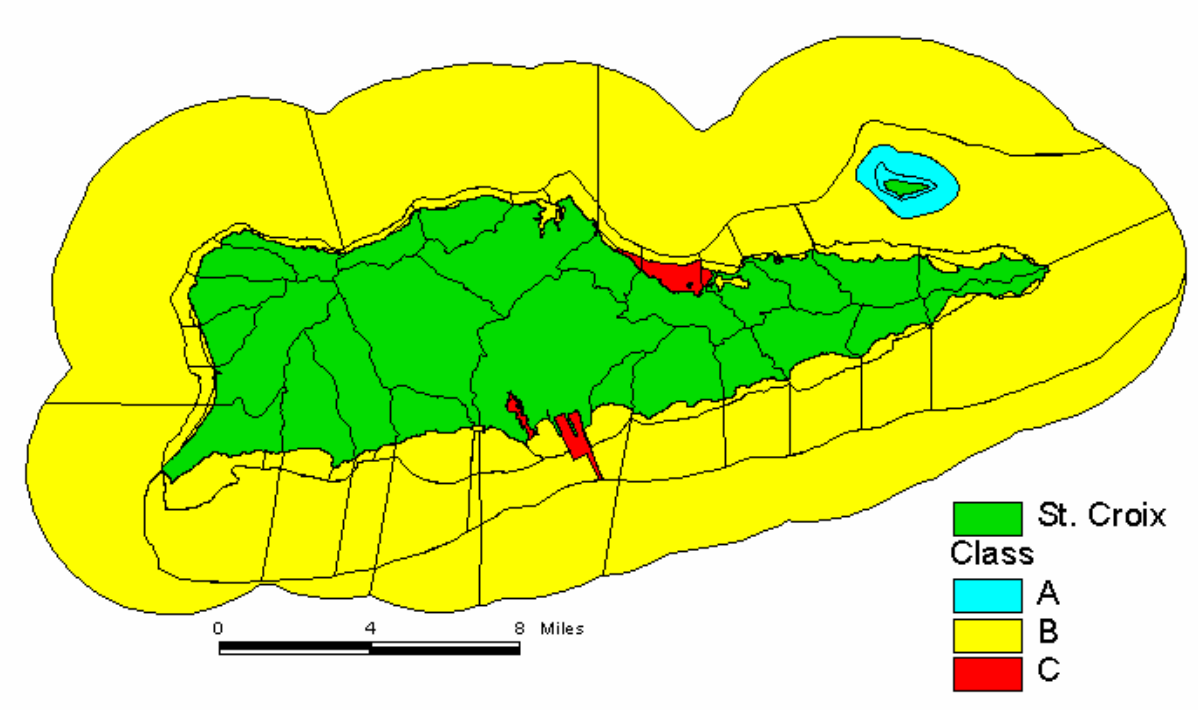
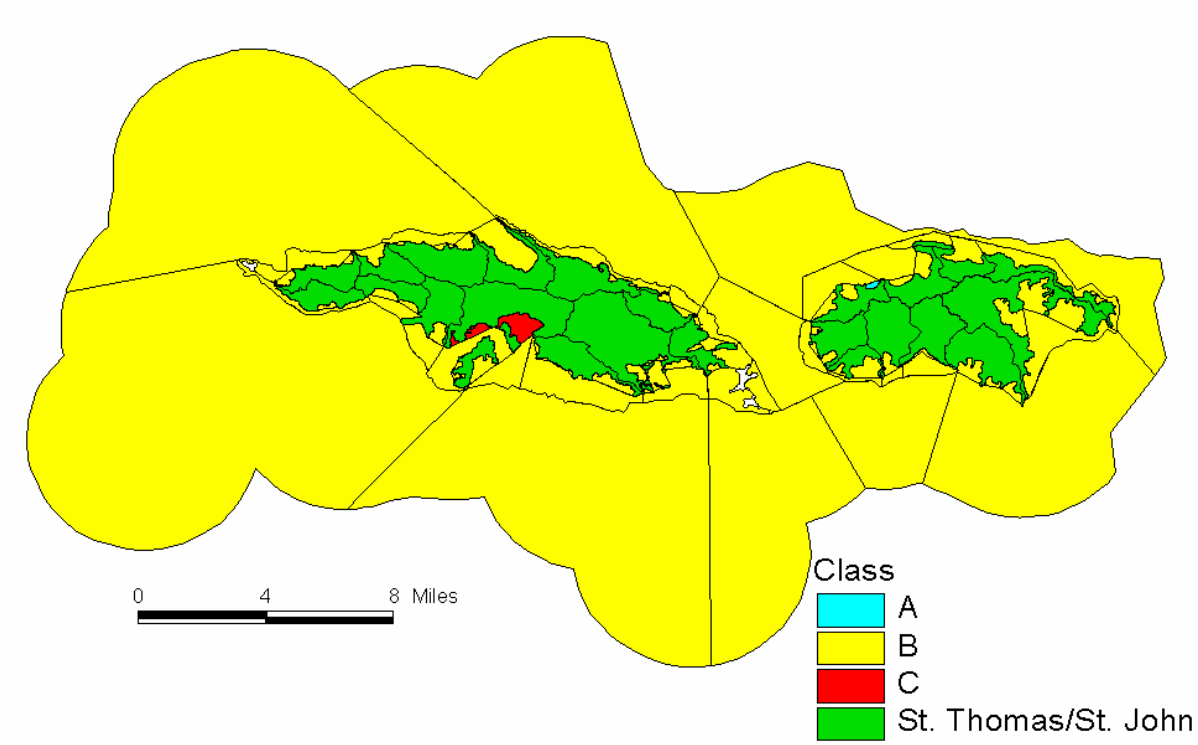


Figure II.B.3 Spatial Distribution of St. Thomas/St. John Coastal Water Classes



Water quality standards for each class of designated use are provided in Table II.B.1.

Water Quality Standards to Address Drinking Water Use Attainment

The water quality standards do not address drinking water use attainment. Since most drinking water supply comes from the Virgin Islands reverse osmosis and flash desalinization plants or from traditional rainwater cisterns (still required for all new construction) most national drinking water issues directed at surface or groundwater resources are moot in the Virgin Islands. There are no water drinking water source-based quality standards available for organic compounds (volatile, synthetic, herbicides, pesticides and PCB), inorganic compounds, unregulated chemicals, and radiological contaminants that apply to the ocean surrounding the US Virgin Islands because ocean water does not fit the definition of surface water under the Safe Drinking Water Act. Standards do exist under the Virgin Islands Rules and Regulations that demand natural existing conditions for waters designated Class A remain unchanged. Waters designated Class B should not exceed 70 fecal coliform per 100mL and waters designated Class C should not exceed 200 fecal coliform per 100mL. All waters of the Virgin Islands should not exceed a geometric mean of 35 enterococci per 100 ml or not to exceed a single sample maximum of 104 per 100 ml at any time. The reason that drinking water source-based standards are not developed in the US Virgin Islands is that drinking water is generally derived from cisterns holding rainwater at each house, or supplemented for public housing and in droughts and other emergencies by desalinization of seawater, as a co-generation by-product of the Virgin Islands Water and Power Authority. The Water and Power Authority in St. Croix maintains some public water supply wells.

No surface water is used directly for any drinking water supply, although questions have been raised about whether sea water intakes of contaminated water is capable of passing bacteria contamination through the relatively low temperature (60° C) flash desalinization processes used for most public desalinization.

C. Water Pollution Control Program

Under the Water Pollution Control Grant (pursuant to CWA §106), the V.I. Department of Planning and Natural Resources (DPNR), Division of Environmental Protection (DEP) is entrusted with the task of monitoring the marine waters of the USVI, and controlling the discharges into those waters. To accomplish this task the Water Pollution Control Program (WPC) is organized into the following sub-programs:

- TERMINAL FACILITY LICENSE AND INSPECTION PROGRAM
- AMBIENT MONITORING PROGRAM
- TMDL DEVELOPMENT AND IMPLEMENTATION PROGRAM
- TERRIORIAL POLLUTANT DISCHARGE ELIMINATION SYSTEMS PERMITTING AND COMPLIANCE PROGRAM
- VIRGIN ISLANDS BEACH MONITORING PROGRAM

The two WPC sub-programs that this report will concentrate its focus on are as follows:

1. The Territorial Pollutant Discharge Elimination Systems (TPDES) Permitting and Compliance Program permits and monitors point source waste streams, which are discharged into the waters of the VI, in accordance with the VI Water Quality Standards.

2. The Ambient Monitoring Program is the primary mechanism for monitoring the Virgin Islands coastal water quality.

Territorial Pollutant Discharge Elimination Systems Program

The Territorial Pollutant Discharge Elimination Systems (TPDES) Permitting and Compliance Program is a federally delegated program which determines what waste streams are allowed to be discharged into the waters of the Virgin Islands, TPDES Permits are issued in accordance to Title 12, Chapter 7 §184-11 of the Virgin Islands Rules and Regulations states, that "…no person shall discharge or cause a discharge of any pollutant without a TPDES permit having been issued to such person…"

TPDES permits require that point source discharges of pollution be monitored by the permittee (facility), and the self-monitoring results are submitted to DPNR-DEP and the United States Environmental Protection Agency (USEPA). Additionally, DPNR-DEP conducts compliance inspections and monitoring at all facilities that have been issued TPDES permits on an annual basis to ensure compliance. There are three types of compliance inspections conducted at TPDES permitted facilities throughout the Territory - Compliance Sampling Inspections, Compliance Evaluation Inspections and Pump Station Inspections, which are conducted on a quarterly basis at the Territory's Publicly Owned Treatment Works (POTW).

If a facility is repeatedly found to be in non-compliance with its TPDES permit or has been found to violate the USVI's Water Quality Standards, enforcement actions may be taken against the facility. The enforcement action usually outlines corrective actions necessary for the facility to return to compliance and, if deemed necessary, fines may also be assessed. Facilities that are enforced against are usually granted the opportunity to work closely with the Department to develop a compliance schedule that sets the timeline for facility will use to achieve compliance.

If necessary or when requested, DPNR-DEP may work closely with the USEPA and the Department of Justice (DOJ) to address major enforcement cases. Cases this nature included an ongoing case against the Department of Public Works which is currently under Federal Consent Decree for unpermitted discharges caused by sewage treatment infrastructure problems throughout the Territory. In such cases, DEP is called upon to monitor the facility in question and produce supporting inspection reports and other pertinent documentation.

Regulated discharges and discharge sites include sewage treatment plant outfalls (both public and private facilities), brine discharges from reverse osmosis (and other technology) freshwater production plants, industrial facility process water discharges, and industrial facility drainage discharge.

The TPDES Program currently regulates discharges from sewage treatment plant outfalls (both public and private facilities), brine discharges from reverse osmosis, desalination freshwater production plants, industrial facility process water discharges.

TPDES Program has several components, all under the auspices of the Division of Environmental Protection:

- TPDES Permit Issuance;
- TPDES Compliance Inspections: Compliance Evaluation (CEI), Compliance Sampling (CSI) and Pump Station Inspections (PSI); and
- Enforcement

TPDES Permit Issuance:

Territorial TPDES permits are issued with effluent limitations pertinent to Federal and Local Regulations. The major industrial dischargers, which have permitted discharges of over 1 MGD, include, the HOVENSA Oil Refinery, VI Rum Distillery, Water and Power Authority in the St. Croix district; the Water and Power Authority and the Marriott Frenchman's Reef on St. Thomas. The major municipal dischargers include the St. Croix POTW, Mangrove Lagoon POTW and Charlotte Amalie POTW. The TPDES Program also permits a number of minor industrial and municipal facilities.

Table II.C.1 Virgin Islands TPDES Permits, 2006 and 2007

Permit #	Facility Name	Permit Type	Priority
VI0003042	Krystal Springs LLC	New	N/A
VI0039829	Frenchman's Reef	Renewal	FY06
VI0040479	Ritz Carlton	Renewal	FY06
VI0040461	Sugar Bay	Renewal	FY06
VI0040711	Michael Weinman	Renewal	FY06
VI0040606	Water Point Estates	Renewal	FY06
VI0040151	Westin St. John	Renewal	FY06
VI0040291	Coral World	Renewal	FY06
VI0039837	Caneel Bay	Renewal	FY06
VI0040924	VI National Guard (seeVI0040762)	Inactivated	AOE '06
VI0040061	Grand Beach Palace Resort	Inactivated	AOE '06
VI0040631	Lewis Bartles	Inactivated	FY06
VI0040525	Little St. James Island	Renewal	FY06
VI0040576	Casa Bougainvillea	Renewal	FY06
VI0040010	Chevron Caribbean	Renewal	FY06
VI0040207	S & S Service	Renewal	FY06
VI0040738	Lakes' Water Service	Renewal	FY06
VI0040398	Secret Harbour House	Renewal	FY06
VI0000019	HOVENSA	Modification	N/A
VI0040215	Cabrita Point	Renewal	FY07
VI0040614	Mahogany Run	Renewal	FY07
VI0040762	Virgin Islands National Guard (USVI)	Renewal	FY07
VI0050024	St. Renaissance Group, LLLP	New	N/A
VI0040916	Candle Reef	Renewal	FY07
VI0040240	Carambola Beach Resort	Renewal	FY07
VI0050008	Bobeck Residence	New	FY07
VI0050016	Mosler Residence	New	FY07
VI0050130	Jacobs Residence	New	FY07

TPDES Compliance Inspections:

A schedule of compliance evaluation inspections (CEI) and compliance sampling inspections (CSI) is incorporated into the WPC program work-plan. In general, DEP staff conducts a CEI and CSI at major facilities and POTWs annually. Generally, facilities with minor permits receive only an annual CEI.

Table II.C.2 Summary of TPDES Activities, 2006 - 2007

FY-2006	St. Thomas/St. John	St. Croix
CEI	37	8
CSI	2	7
Supplementary	1	2

FY-2007	St. Thomas/St. John	St. Croix
CEI	31	10
CSI	1	3
Supplementary	4	1

Additional inspections are conducted at the Territorial POTWs, including the major and minor pump stations. These inspections are scheduled quarterly.

Table II.C.3 Supplementary POTW Inspections:
TPDES Activities, 2006 - 2007

2006

Facility Name	Permit #	Type	Quarter
Seaborne VI (St. Croix)	N/A	Multi-Media (L)	**1st**
St. Thomas Pump Stations	VI0039811 VI0039977 VI0020044 VI0002003 VI0020133	PSI (C)	**1st-4th**
St. John Pump Stations	VI0040835 VI0040266	PSI (C)	
St. Croix Pump Station	VI0020036	PSI (C)	
Bunkers of St. Croix	N/A	Multi-Media (L)	**4th**

2007

Facility Name	Inspection Type
St. Croix Renaissance Group	MMI
Centerline Concrete	MMI
Caneel Bay Resort	MMI
East End Plaza	MMI
Mangrove Lagoon POTW Bordeaux POTW New Cruz Bay POTW	ECS

Legend
C-Compliance Evaluation Inspection
S-Compliance Sampling Inspection
AOE-Affidavit of Exemption
PSI-Pump Station Inspections
MMI-Multi-Media Inspection
ECS-Enforcement Case Support

Other Ambient Monitoring Activities

As part of the Ambient Monitoring Program, the DEP staff takes part in reviews of the Environmental Assessment Reports (EARs) submitted by individuals or groups seeking to acquire land development or earth change permits within the Coastal Zone. EARs are submitted to the DPNR-Division of Coastal Zone Management (CZM), which, in turn, distributes them to various divisions for review. If the CZM permittee's application involves potential impacts to Waters of the U.S. Virgin Islands, a Water Quality Certificate is necessary as part of the CZM Water Permits.

During this reporting period, certificates that were issued are as follows:

List of Water Quality Certificates issued FY 2006-2007

2006

In the St. Croix District, there were 17 Water Quality Certificates (WQCs) issued for the following projects: HOVENSA LLC – Construction of Combustion Turbine; Antilles Crossing – St. Croix; VI Water and Power Authority – Demolition of Demineralizer; Global Caribbean – Installation of Network Submarine Fiber Optic Cable; HOVENSA LLC – Rehabilitation of Docks 2 and 8; Cecilia A. Cruickshank and Mr. John C. Fruzer – Installation of Private Pier; Barbara Wylie St. Croix Country Club; GeoNet Ethanol LLC - Construction of Ethanol Facility; DPNR's Division of Fish and Wildlife – Maintain and repair 70 existing moorings and install 50 new permanent moorings; St. Croix Financial Center, Inc. - Renovations and maintenance of the existing marina facility; HOVENSA L.L.C. – Rehabilitation of portions of Docks Nos. 1 and 9; HOVENSA, LLC – Construction of Phase 2 of an Advanced Wastewater Treatment Plant (AWTP); DPNR-Division of Fish and Wildlife - Establishing an artificial reef site seaward of Scotch Bank, off the north coast of St. Croix, USVI; Virgin Islands Water and Power Authority (WAPA) - Maintenance dredging of the Richmond Sand Channel by using a heavy duty clamshell bucket, mounted on a spud barge; Global Crossings (modification, CZX-06-00L) – Ocean landing of fiber optic cables at Plot Nos. 8A and 23 Estate Northside, St. Croix; Virgin Islands Water and Power Authority WAPA (modification) – maintenance dredging of the Richmond Sand Channel; and The Buccaneer Hotel – Installation of a reverse osmosis intake line in Beauregard Bay.

In the St. Thomas/St. John District, there were three Water Quality Certificates (WQCs) issued for the following projects: Go Fast Charters, LLC- Construction of eight new finger piers, ten mooring piles and install 8 ft. wide travel lift; Westin St. John Hotel Company, Inc- Dredging of 650 cubic yards of material from the area around the dock to a controlling depth of 8 ft.; and Botany Bay Partners, LLP- Installation of intake and discharge pipes for a reverse osmosis plant. In addition, there are currently four WQCs in draft format. The draft certificates are currently awaiting the submission of additional information from the applicants.

2007

St. Croix District

Applicant	Water Quality Certificate #
DPNR - CZM & Env. Enforcement	WQC-07-001W
St. Croix Renaissance Group, LLLP	WQC-07-002W
567 SGB, LLC	WQC-07-003L

St. Thomas/St. John District

Applicant	Water Quality Certificate #
Don and Tammie Kilpatrick	WQT-07-001W
Dependable Maritime Services	WQT-07-002W
Christian Kjaer/Great James Properties	WQT-07-003L
Cabrita Partners, LLC/Lionstone Development, LLC; Springline Architects, LLC (Agent)	WQT-07-004W
WT Enterprises, LLC	WQT-07-005W
Go Fast Charters, LLC	WQT-07-006(L&W) which superseded WQT-06-001(W).

During episodic monitoring, the DEP staff may sample water as a result of citizen complaint, storm event or episodic need. During this reporting period, most of these samples test for fecal coliform and/or enterococci as a result of a sewer line breaks, sewage pump station bypasses or failures, or storm events such as a hurricane or large rainfall event.

Enforcement Actions:

Violations within the TPDES program can come from non-compliance with permitted effluent limits, or failure to report monitoring as required by the permit. This includes any special conditions contained within the permit. For example, St. Croix POTW permit requires the

permittee to take several specific actions in the event of a bypass. Violations issued by DEP during this reporting period were:

Table II.C.4 Summary of TPDES Enforcement Activities, FY 2006 - 2007

2006

Action	Action Number	Against	Island	Date Served
NOV	STT-WPC-003-05	Heavy Materials	St. Thomas	12/20/05
NOV	STT-WPC-003-06	Ritz Carlton	St. Thomas	04/05/06
NOV	STT-WPC-001-06	WAPA Chlorine Spill	St. Thomas	02/10/06
AO	STT-WPC-002-05	Secret Harbor Beach Resort	St. Thomas	08/02/05
NOV	STT-WPC-004-05	Secret Harbor House	St. Thomas	05/11/06
NOV	STT-WPC-003-05	Secret Harbor Beach Resort	St. Thomas	11/16/05
NOV	WPC-C-001-06	HOVENSA, LLC.	St. Croix	09/29/06

2007

Action #	Against	Type	Status
WPC-C-001-06	HOVENSA	NOV	Settled
STX-WPC-04-06	WMA	NOV	Settlement Pending
STX-WPC-003-06	Apple Construction	NOV	Settled
STT-WPC-002-07	Magens Point Resort	AO	Served 2/2/07
	HOVENSA (EPA Referral)		Pending
	WAPA (EPA Referral)		Pending
	WMA (Enfield Green)		Pending
	WMA (Eulalie Rivera)		Pending
	WAPA St. Croix		Pending
	WMA (Telemetry System)		Pending
STT-WPC-002-07	Heavy Materials	NOV	Served
STT-WPC-003-07	Magens Point	NOV	Served
	East End Plaza		Writing Warning 7/21/07
	Better Roads		Pending

WPC continued to participate in the Department of Justice Teleconferences which discussed the Department of Public Works/Waste Management Authority's compliance with the Consent Decree.

Storage and Retrieval Program (STORET)

DPNR-DEP continues to maintain and update its STORET database with data collected from the Ambient Monitoring Program. Data are submitted regularly to EPA Headquarters for inclusion in the national STORET data warehouse. Currently, USVI data are available by querying the national warehouse through the EPA website. The Division of Environmental Protection is in

the process of developing an Environmental Exchange Network Node, which will someday replace STORET through the Water Quality Exchange (WQX). DEP will continue to use STORET until such time as WQX is ready for implementation.

Comprehensive Watershed Restoration Action Strategy

New guidelines request each state to develop a "comprehensive watershed assessment strategy." The Department of Planning and Natural Resources has plans to implement this assessment in the current multi-year monitoring strategy.

D. Non-Point Source Program

Since 1994, the Virgin Islands Department of Planning and Natural Resources, Section 319 program has worked, via Memoranda of Agreement and cooperation with partner agencies such as the Virgin Islands Resource Conservation and Development Council (VIRC&D), Virgin Islands Conservation District (VICD), University of the Virgin Islands (UVI), United States Geological Survey (USGS) and Island Resources Foundation (IRF) through the mechanism of the Virgin Islands Non-point Source Committee, to implement an active program, including activities in the five priority areas of:

1. Erosion And Sediment Control
2. Urban Run-off
3. Vessel Waste Disposal
4. On-Site Disposal Systems (OSDSs) Upgrade
5. Oil and Hazardous Material Spills.

The Non-Point Source Committee has endorsed nine key objectives as described in the *May 1996 Non-point Source Program and Grants Guidance For Fiscal Year 1997 and Future Year*s. The nine objectives of the Program are:

1. Explicit short- and long-term goals, objectives, and strategies to protect surface and ground water.

2. Strong working partnerships and collaboration with appropriated state, interstate, tribal, regional and local entities including conservation districts, private sector groups, citizen groups, and federal agencies.

3. A balanced approach that emphasizes both statewide non-point source programs and on-the-ground management of individual watersheds where water is impaired or threatened.

4. The state program:

(a) Abates known water quality impairments resulting from non-point source pollution and,

(b) Prevents significant threats to water quality from present and future non-point source activities.

5. Identification of waters and watersheds impaired or threatened by non-point source pollution and a process to progressively address these waters.

6. The state reviews, upgrades and implements all program components required by Section 319 of the Clean Water Act, and establishes flexible targeted and iterative approaches to archive and maintain beneficial uses of water as expeditiously as practical.

7. An identification of federal lands and activities that are *not* managed consistent with state non-point source program objectives.

8. Efficient and effective management and implementation of the state's non-point source program including necessary financial management.

9. A feedback loop whereby the state reviews, evaluates, and revises its non-point source assessment and its management program at least every five years.

Non-point Source pollution, in the form of polluted runoff, impairs more water bodies than any other source of pollution in the Virgin Islands. Non-point source pollution in the Virgin Islands is caused by rainfall moving over and through the ground. As runoff moves, it picks up and carries away both natural pollutants and pollutants resulting from human activities. These pollutants include sediments, nutrients, pesticides, and toxic substances such as hydrocarbons and heavy metals. Eventually these pollutants are deposited in wetlands, coastal waters and ground water.

There are numerous problems associated with non-point source pollution. Two of the major non-point source problems affecting the Virgin Islanders are sedimentation and bacterial contamination.

- Sedimentation occurs when soil is eroded from the land surface, such as at construction sites, and deposited onto the land surface or into coastal water bodies. Sedimentation results in problems such as habitat losses and marine life mortality.

- Bacterial contamination from sources such as failed septic systems, runoff from animal operations, and sewage discharged from boats can cause serious threats to human health

Under the Clean Water Act, non-point source control is largely voluntary, not regulatory as is point source control. Non-point source pollution is diffuse and highly variable, depending on climate, soils, and land use practices. Special characteristics unique to the Virgin Islands such as, wet/humid tropical climate, steep slopes, short but heavy rainfall events, small insular watersheds, clayey impermeable soils, large coastline to land area ratio, proliferation of septic tanks, and large tracts of unpaved roads must be considered when addressing non-point source control. Effective control of non-point source pollution requires changes in land use practices and in personal behavior. While the impact from individual non-point sources may be small, the cumulative effects from numerous unregulated activities can significantly degrade water quality.

Sediment - from dirt roads, farmlands, construction sites, urban encroachments, and other disturbed soils - is the primary non-point source pollutant threatening the islands water resources.

The topography of the islands, with a combination of short steep slopes terminating in sensitive wetlands and marine environments make them susceptible to damage from even slight increases in erosion. In June 2003, the Earth Change permitting process was transferred to the Division of Environmental Protection from the Division of Building Permits. As a result, earth change applications now require the implementation of sediment control and erosion mitigation control measures.

Table II.D.1 Earth Change Summary

District	Earth Change Applications Reviewed	Earth Change Applications Approved	Earth Change Applications Denied
St. Croix	10/03-9/04: 413 10/04-9/05: 495	10/03-9/04: 413 10/04-9/05: 495	10/03-9/04: 0 10/04-9/05: 0
St. Thomas/St. John	10/03-9/04: 327* 10/04-9/05: 359	10/03-9/04: 327 10/04-9/05: 359	10/03-9/04: ** 10/04-9/05: 0

*: Performed by Div. of Bldg Permits : Estimated based on 2.5% per annum increase from FY 03

** Not Available

Each earth change permit location is surveyed using Global Positioning System using a hand-held Garmin GPS-V unit. This is done to accurately geolocate inspection sites and to enable the export of the data into a database. Geographic Information System (Arcview) software is used to spatially analyze locational data with respect to soil type, slope and drainage, watershed category, etc.

On St. Thomas more than 70% of the land surface has a slope that exceeds 35 degrees. On St. John, about 80% of the land surface exceeds a slope of 35 degrees, and on St. Croix, about 50% of the land surface exceeds a slope of 25 degrees. The typical soil profile of the Virgin Islands is thin clayey and overlies rock. As a result the water storage capacity of the soils is small. Once the available soil moisture capacity is filled, all additional rainfall becomes runoff. As the major constituent of soil in the Territory is clay, the colloidal nature of the clays prevents them from settling readily and results in significant sediment runoff into coastal waters. The short, steep nature of the guts contributes to streamflow at several hundred locations, making physical control and removal of fine (clayey) sediments in the runoff very difficult.

The US Department of Agriculture – Natural Resources Conservation Service (USDA-NRCD) has classified soils in the Virgin Islands by four hydrologic soil groups which are denoted by the letters A, B, C, and D, which refer to the runoff potential of the soil. An A soil has the lowest runoff potential and soil D has the highest. Approximately two-thirds of the area of the Virgin Islands has D soils and only about 10 % has an A or B designation.

A study performed in the Fish Bay watershed (St. John) documented unpaved road surface erosion of a centimeter a year that delivered, in the case of one catchment area, some 400 metric tons of sediment to the receiving salt ponds, mangrove swamps and coastal waters. Under the Division of Environmental Protection, non-point source mitigation measures will be required and earth change plans reviewed following the technical principles described in 12 VIC § 532-2 (see Conservation Practices below)

Stormwater Control

The major flooding problems that occur in the Virgin Islands are largely due to increased runoff volumes associated with development and improper use and development of historic floodplains. The denuding/paving of a significant portion of urban areas has had an effect on the increased velocity and volume of stormwater runoff. Rain falling in the upstream part of a basin reaches the downstream part in less than an hour; therefore flooding can occur after short periods of intense rain.

Presently, the Division of Environmental Protection is finalizing the rules to achieve consistency with Federal Storm Water Regulations and the revised VI Water Pollution Control Law. The approved regulations will be adopted upon the satisfactory implementation of the revised Territorial Pollutant Discharge Elimination System (TPDES) regulations being performed this fiscal year. The Division of Environmental Protection intends to petition EPA for General Permit authority once the TPDES regulations are satisfactorily revised. The implementation of these new stormwater regulations should be streamlined with existing earth change requirements.

Conservation Practices

The Non-point Source Program of the Division of Environmental Protection has funded the development of the ENVIRONMENTAL PROTECTION HANDBOOK (Wright 2002) pursuant to 12 VIC § 532-3 *Conservation practices*. Standards and specifications for conservation practices that have been proven effective in lessening damage from sediment and runoff are included in the handbook.

Under the Non-point Source Program of the Division of Environmental Protection, Earth change plans are reviewed to determine if they meet the minimum standards required for the adequate protection and conservation of soil and water, and for water disposal in and from the construction area.

Planned Development

All urban development in the second tier of the coastal zone begins with an earth change application process. Urban development is the largest cause of non-point source pollution in the Virgin Islands. Because of the scarcity of flat land, especially on St. Thomas and St. John, development has taken place in areas that far exceed the typical environmental constraint of 15 percent slope. A more realistic cut-off point for development in the Territory would be areas with slopes in excess of 45 percent. Topography is therefore one of the most severe natural constraints to development in the Virgin Islands.

Low-density residential districts comprise 54 percent of the land area of St. Croix, Medium density residential housing is an additional 7 percent. Almost 25 percent is zoned agricultural and about 1 percent is business and commercial. Slightly more than 5 percent is zoned for

industrial uses with two-thirds of this zoned for heavy industry. The waterfront districts, mostly waterfront-pleasure, are about 2 percent of the total area. Large areas of low-density residential zones characterize the St. Croix coastline, with extensive public, industrial and agricultural districts along the south shore.

St. Thomas has a high population density and a higher intensity of land use when compared to the mainland United States and even other Caribbean islands. Seventy percent of the island of St. Thomas is zoned for low density residential uses. Less than 5 percent is zoned agricultural and less than five percent is zoned industrial. The waterfront districts comprise about 4 percent of the island.

More than one-half of the land area of St. John is National Park Service land. There is very little development of any kind within the park. Most of the in-holdings are low-density residential areas. For the island as a whole about 42 percent is zoned as low-density residential areas. Approximately 3 percent is zoned for medium-density residential uses. Waterfront-pleasure districts comprise 2.5 percent. Aside from a few acres of W-2 zoning, there are no industrial districts on the island. Most of the shoreline is part of the National Park while most of the privately held coastal parcels are either low-density residential or waterfront-pleasure.

Table II.D.2 319 Funded Water Quality Related Projects in the USVI

Organization	Project Title
U.S. Virgin Islands Resource Conservation and development Council, Inc. (VIRC&D) & US Dept. of Agriculture - Natural Resource Conservation Service (USDA-NRCS)	The Bethlehem Old Work Reservoir: Stabilize the largest active gully on the island, controlling non-point source pollution from further impacting the ecosystem and environmental, protect the largest water retention structure imminent danger, and protect this area from excessive soil loss from wind and water erosion
We Grow Food Inc.	We Grow Food Project: Rehabilitate and maintain the four earthen dam / agricultural retention ponds in Estate Bordeaux Watershed– sediment trap, aquifer recharge.
Island Resources Foundation	Inventory of Wetlands and Riparian Areas: Update and correct the mapping of 636 wetlands in the Virgin Islands Rapid Environmental Assessment (REA) and design and test basic monitoring tools for wetland characterization
St. Croix Environmental Association	Control of Sedimentation via Mangrove Restoration in the Salt River Watershed: Replanting of mangroves to improve water quality in the estuary; and reestablishing the mangrove forest in Sugar Bay
University of the Virgin Islands (UVI)/Water Resources Research Institute	Water Quality Standards: Development of water quality standards that support the definition of “waters of the Virgin Islands” as defined in the

	Virgin Islands Rules and Regulations
Estate Fish Bay Owner's Association	Fish Bay Sedimentation and Road Erosion Project: Identified and implemented Best Management Practices (BMPs) on Estate Fish Bay roadways to address the high erosion rates that are degrading the water quality of Fish Bay and the coral reefs located therein
UVI/Marine Advisory Services	Study of the Mangrove Lagoon Benner Bay Area: Address issues related to demographics, solid waste and land use of the area surrounding Mangrove lagoon and Benner Bay.
UVI/ Marine Advisory Services	Sediment Toxic Metals Analysis at Lindberg Bay Produce baseline information on non-point pollutants at one watershed in the island of St. Thomas for future development of management guidelines
UVI/ Eastern Caribbean Center	Sediment Deposition, Water Quality and Coral Assessment for Coral Bay, and Botany Bay: Use standard methodology established in previous sedimentation studies in the Territory, sediment traps will be installed in specific locations within the Coral Bay APC and Botany Bay APC. These sediment traps will be monitored after large rain events and on a quarterly basis.
VIRC&D & USDA-NRCS	Estate Bethlehem Demonstration Project: Construction of stormwater retention structures on the primary contributories, and small retention and sediment basins on the secondary contributories. A variety of aquatic plants will be planted at each sediment basin to create wetlands that will serve as filters for the removal of pollutants and sediment
VI. Dept. of Agriculture	Man-made Ponds and Crop Farming: Reduce non-point source pollution entering the sea by increasing retention of water in ponds, increasing biodegradation of bio pesticides and other pollutants in the holding ponds, reducing run off, controlling erosion of spillways and harvesting water for farming

Watershed Approach

The Virgin Islands submitted its Unified Watershed Assessment report pursuant to the Clean Water Action Plan in September 1998 (Anon. 1998). The report includes a detailed listing of the various watersheds with their Watershed Restoration Priorities (WRP). More detailed assessments of condition in the most critical watersheds requiring restoration will be developed as part of the Watershed Restoration Strategies program beginning in FY 1999 [xiv] . Subsequently, DPNR completed its draft Watershed Restoration Action Strategies (WRAS) Report (Anon. 2000).

A joint objective of the Unified Watershed Assessment program and the water protection programs is to design mutually re-enforcing reporting systems that integrate the watersheds of the Unified Watershed Assessment with the Waterbodies and Segments of the Water Quality Assessment and Assessment Database.

Coordination with Other Agencies

The Unified Watershed Assessment provides a comprehensive status assessment of Virgin Islands watersheds and evaluates whether the watersheds are increasing stresses on Territorial waters. The statements published in the Unified Watershed Assessment, relating to conditions in the watersheds can be used as a contributing factor to determine which assessment units will be on the 303(d) list of impaired water bodies.

Agricultural operations receive scrutiny in a similar fashion. If a water quality violation triggers an area investigation and a farming operation is suspected to be the cause of the water quality decline, DPNR staff will perform an assessment of the facility, including identification of problems and suggested remedies with a specified timeframe for compliance. This corrective action could also involve other interested agencies including the Department of Agriculture, the National Resources Conservation Service (NRCS) and the University of the Virgin Islands Cooperative Extension Service (UVI-CES).

Federal programs, like Superfund, Resource Conservation and Recovery Act (RCRA) and UST, have not been delegated to the territory. Therefore, the Virgin Islands receives EPA Region 2 input for events that would normally trigger actions under these federal programs (e.g. spills of solvents, oil-derived products and other hazardous substances affecting soils and groundwater). Additionally, regular sampling of ambient coastal water quality is performed, recorded and archived by the USGS-Biological Resources Division (BRD) in waters under the Virgin Islands National Park Service (VINPS) control in St. John, other sites adjacent to St. John, and around Buck Island, St. Croix.

Cost/Benefit Assessment

An assessment of the costs and benefits of the Water Pollution Control program for the reporting period would include:

Costs:	Administration of all Water Programs, FY 2004; approximately $900,000
	Administration of all Water Programs, FY 2005, approximately $900,000

Benefits:	Value of improvements in recreational fishing Value of improvements in commercial fishing Number of coastal waterbody miles improved to fully supporting designated uses. Reduced cost of drinking water treatment or purchases of bottled potable water due to cleaner intake water and greater security of WAPA-produced water. Recreational value of increased use of beaches Value of increases in recreational boating

Special Concerns and Recommendations

2006 Virgin Islands Water Quality Assessment Concerns [xvi]

1) Timely Disbursement (or lack) of federal funding to the VI Government for Workplan activities (contractual support services: laboratory analysis and equipment maintenance and repair; equipment and supplies purchases; and personnel training)

2) EPA Prescribed Assessment Methodolgy does not suit the historical and present Virgin Islands monitoring approaches. Coastal waters in their present Assessment Unit Delineation and monitoring frequency were not designed to support the EPA methodology. Statistically relevant assessments methods cannot be applied with the combined complications posed by the EPA assessment methodology and the current VI AU delineation and monitoring methodology in the Virgin Islands.

2006 Virgin Islands Water Quality Assessment Recommendations:

- Federal funding needs to arrive in a timely manner to effectively implement the water quality monitoring across an appropriate temporal range.
- DPNR must redesign the monitoring approaches based on the latest EPA Prescribed Assessment Methodologies.

E. Oil and Hazardous Materials

1. Underground Storage Tank Program

The Underground Storage Tank Program has undergone management changes during last few years and has undergone a considerable amount of progress during this time. Draft regulations are in development to support the Underground Storage Tank Act (12 V.I.C. §§ 651-684) that authorizes the Virgin Islands Department of Planning and Natural Resources to manage the underground storage tank program. A permitting program was implemented by 12 V.I.C. §§ 658-660 in order to better track UST systems and their compliance status. The program requires all UST facilities to apply for permits to use/operate, upgrade, and close their systems; in addition EPA notifications are required with each application.

Presently, compliance is the main ambition of the UST program. DPNR is working with each service station to promote compliance efforts in terms of financial responsibility and sufficient leak detection monitoring. These issues are important to ensure the protection of the island's groundwater and DPNR is working to ensure that satisfactory leak detection monitoring will be conducted in the future. In doing so, DPNR intends to determine the full extent of leaking USTs within the territory.

The Leaking Underground Storage Tanks (LUST) program is an important issue to be addressed. The program is implemented, however, and the status list needs to be updated on a continuous basis. DPNR has incomplete files and updated records regarding many aspects to the program, but is working hard to remedy this lack of information.

The LUST list to date is as follows:

St. Croix

1. Texaco-Midway s/s
2. Esso-Estate Glynn
3. Esso-WAPA
4. Esso-Farmingdale s/s
5. Esso-Estate Mint s/s
6. Esso-Hassan s/s
7. LaRaine s/s
8. VI Seaplane Shuttle
9. Green Cay Marina

St. Thomas

1. Esso-Devcon

2. Esso-Gottlieb s/s
3. Esso-One Stop Sugar Estate s/s
4. Esso-Nadir s/s
5. Esso-WICO
6. Texaco-Tutu s/s
7. Texaco-Pollyberg s/s
8. Ramada Yacht Haven

St. John

1. Texaco-Cruz Bay
2. Domino Oil-E.C. Gas

DPNR is investigating the status to date on each of these sites.

UST enforcement is in full force. A Civil Action Penalty Matrix was drafted for the program and an enforcement policy has been initiated. DPNR has issued numerous Notices of Violation.

2. The Used Oil Program

Under Section 1553(g) of the Virgin Islands Code, the US Virgin Islands Government DPNR is authorized to enforce provisions related to environmental effects of waste disposal, resource recovery and hazardous wastes. Pursuant to Section 1560 of the Virgin Islands Code, the Commissioner of DPNR exercised his authority to promulgate rules and regulations for a Used Oil Collection Program under Title 19, Part VI, Chapter 56 of the Virgin Islands Rules and Regulations. This program was initiated under the Division of Environmental Protection during the beginning of this reporting cycle.

Within three years after its inception, the Used Oil Program issued used more than 173 permits to facilities territory-wide. These permits were only valid for three years, and subsequently expired. A search of DPNR records show that more than 72% of these permits have not been renewed. Included among these, seven (7) for facilities have gone out of business and thirteen (13) permits for government agencies. In addition, at least 50 new (or renewal) permits have been issued or are currently pending.

The tables below provide a reverse chronological listing of used oil permits by District. All of the permits are listed to reflect the universe of facilities that have been issued permits to date, even if some permits are currently expired.

One of the objectives of the Solid Waste Program's enforcement strategy is to pursue enforcement against facilities that have failed to renew their permits. Pursuant to Tile 19 of the Virgin Islands Code, these facilities will be issued a Notice of Noncompliance initially, and enforcement will be escalated if compliance is not achieved within the stipulated corrective action period.

Table II.E.1.a
List of Used Oil Permit Holders – St. Thomas-St. John District

238T	12/31/2011	Carty's Auto Repair, Inc.	St. Thomas
237T	12/31/2010	M &S Auto Inc	St. Thomas
224C	12/31/2010	VI Recycling Company	St. Thomas
223T	12/31/2009	Joel's Auto Repair Tech	St. Thomas
220T	12/31/2009	Amalie Car Rental	St. Thomas
128T	12/31/2009	Trans Caribbean Dairy	St. Thomas
125J	12/31/2009	Varlack Ventures, Inc	St. John
120T	12/31/2009	Automotive Enterprises Inc. dba Midas	St. Thomas
118J	12/31/2009	P&S Trucking & Water Delivery	St. John
109T	12/31/2009	U.S. Postal Service Aubrey C. Ottley Branch-GPO	St. Thomas
039T	12/31/2009	It's Black It's White	St. Thomas
201J	12/31/2008	Pimpy's Trucking	St. John
200T	12/31/2008	MOF VI Limited Partnership/DBA American Yacth Harbor	St. Thomas
138T	12/31/2008	Discount Water Deliveries and Trucking Services	St. Thomas
131T	12/31/2008	University of The Virgin Islands	St. Thomas
126T	12/31/2008	Crowley Liner Services (STT)	St. Thomas
089T	12/31/2008	Lennards Auto Repairs	St. Thomas
076T	12/31/2008	Sapphire Beach Resort Marina	St. Thomas
056T	12/31/2008	N & S Auto Services	St. Thomas
188T	12/31/2007	Lew Henley's Sewage Disposal L.L.C.	St. Thomas
158T	12/31/2007	VI Cement and Building Products Inc.	St. Thomas
151T	12/31/2007	Matthews Auto Repairs	St. Thomas
150T	12/31/2007	VI Recycling Company	St. Thomas
149T	12/31/2007	Castillo Auto Repair	St. Thomas
146T	12/31/2006	Innovative Telephone	St. Thomas
145T	12/31/2006	Antilles Gas (STT)	St. Thomas
143T	12/31/2006	Sanitary Trashmoval Services Inc.	St. Thomas
142T	12/31/2006	Cowpet Bay West	St.Thomas
140T	12/31/2006	Chuck Kline Water	St. Thomas
139T	12/31/2006	Challenger's Transport	St. Thomas
137T	12/31/2006	Tutu Texaco Service Station Inc	St. Thomas
136T	12/31/2006	Pueblo Supermarket	St. Thomas
135T	12/31/2006	Bohlke International Airway, Inc.	St. Thomas
134T	12/31/2006	Air St. Thomas	St. Thomas
133T	12/31/2006	Air Center Helicopters	St. Thomas
132T	12/31/2006	Ritz-Carlton Resort	St. Thomas
130T	12/31/2006	United Brothers Trucking	St. Thomas
129J	12/31/2006	O' Connor Car Rental*	St. John
129J	12/31/2006	St. John Development dba Texaco	St. John
125T	12/31/2006	Motor Trend	St. Thomas
124T	12/31/2006	Amco Auto Sales & Service Inc.	St. Thomas
123T	12/31/2006	Compass Point Marina, Inc.	St. Thomas
122T	12/31/2006	V.I. Housing Authority	St. Thomas
121T	12/31/2006	Wyndham Sugar Bay Resort	St. Thomas

119T	12/31/2006	Metro Motors	St. Thomas
117T	12/31/2006	Four Star Aviation, Inc.	St. Thomas
116T	12/31/2006	Dependable Car Rental	St. Thomas
114T	12/31/2006	Florida Coca Cola Bottling Comp.-St. Thomas	St. Thomas
113J	12/31/2006	Boyson Inc	St. John
112T	12/31/2006	VI Enterprises, Inc. (Avis)	St. Thomas
111T	12/31/2006	Auto Excellence	St. Thomas
110T	12/31/2006	Domino Oil Co. Inc.	St. Thomas
108T	12/31/2006	American Eagle dba Exceutive Airlines	St. Thomas
106T	12/31/2006	V.I. Department of Public Works (Bovoni)	St. Thomas
105J	12/31/2006	Public Works (Susanaberg)	St. John
105J	12/31/2006	V.I. Department of Public Works (St. John)	St. Thomas
104TT	12/31/2006	V.I. Department of Public Works (Subbase) Trans	St. Thomas
104T	/12/31/2006	Public Works (#8 Subbase)	St. Thomas
104T	12/31/2006	V.I. Department of Public Works (Sub Base)	St. Thomas
103T	12/31/2006	The Auto Clinic	St. Thomas
102T	12/31/2006	La Vida Marine Center L.P/B.J. Management *****	St. Thomas
101T	12/31/2006	Patrick Charles Enterprises Inc.	St. Thomas
099T	12/31/2006	Heavy Materials (formerly St. Thomas Concrete)	St. Thomas
098T	12/31/2006	Western Auto Supply Co (STT)	St. Thomas
098J	12/31/2006	Caneel Bay Resort	St. John
097C	12/31/2006	Buccaneer Hotel	St. Thomas
096T	12/31/2006	Bussue Auto & Repair	St. Thomas
092T	12/31/2006	School Busing, Inc	St. Thomas
080T	12/31/2006	V.I. Port Authority, Transportation (STT)	St. Thomas
101T	12/31/2005	Valrick Charles Enterprises, Inc.	St. Thomas
100T	12/31/2005	Ge-Tech Auto Repair	St. Thomas
094T	12/31/2005	Hertz Rent A-Car	St. Thomas
091J	12/31/2005	Barry's Auto Service Center	St. John
090T	12/31/2005	Contran Resorts, Inc. dba Mahogany Run Golf Course	St. Thomas
090T	12/31/2005	Mahogany Run	St. Thomas
088J	12/31/2005	E. C. Gas & Service Station, Inc.	St. John
087J	12/31/2005	Westin St. John Hotel Company, Inc	St. John
079T	12/31/2005	Marriott Frenchman's Reef & Morning Star Beach Resort	St. Thomas
077T	12/31/2005	CTF Hotel Management Corp	St. Thomas
077T	12/31/2005	Grand Beach Palace *****	St. Thomas
075T	12/31/2005	A.J. System	St. Thomas
075T	12/31/2005	SK Cove	St. Thomas
073T	12/31/2005	American Yacht Harbor Marina	St. Thomas
072TT	12/31/2005	VI Regulated Waste Management, Inc	St. Thomas
069TT	12/31/2005	Green Hornet Environmental Management Inc	St. Thomas
068T	12/31/2005	Budget Car Rental	St. Thomas
067T	12/31/2005/	Yacht Haven (Long Bay Partners)	St. Thomas
066T	12/31/2005	John's Auto Center, Inc.	ST. Thomas
065T	12/31/2005	Community Motors, Inc.	St. Thomas
063T	12/31/2005	Crown Bay Marina	St. Thomas

061J	12/31/2005	Coral Bay Marina Services, Inc.	St. John
052T	12/31/2004	Gas Station Auto Repair	St. John
051T	12/31/2004	HI Performance Auto Repair	St. Thomas
049T	12/31/2004	Tropical Marine, Inc.	ST. Thomas
047T	12/31/2004	Diesel Dynamic Plus, Inc.	St. Thomas
046T	12/31/2004	Sun, Sea & Sand Leasing & Sales	St. Thomas
041T	12/31/2004	East End Wreck Shop	St. Thomas
037T	12/31/2004	Caribbean Auto Mart	St. Thomas
037R	12/31/2004	Caribbean Auto Mart, Inc. (STT)	St. Thomas
001T	12/31/2004	Allenton Auto Repairs	St. Thomas
004T	12/31/2003	Nadir Esso Service Center	St. Thomas
* Denotes facilities that have either gone out of business or are no longer generating used oil.			

Table II.E.1.b

List of Used Oil Permit Holders – St. Croix District

031C	12/31/2010	H.H. Tire Sales	St. Croix
172C	12/31/2010	Old Time Auto Repair Shop	St. Croix
038C	12/31/2010	St. Croix Dairy Products, Inc.	St. Croix
168C	12/31/2010	Unique Auto Repair	St. Croix
169C	12/31/2010	University of the Virgin Islands	St. Croix
058C	12/31/2010	VI Regulated Waste Management, Inc.	St. Croix
134C	12/31/2009	Ambramson Enterprises	St. Croix
144C	12/31/2009	Antilles Gas (STX)	St. Croix
115C	12/31/2009	Bohlke International Airways	St. Croix
160C	12/31/2009	Bunkers of St. Croix, Inc.	St. Croix
131C	12/31/2009	Centerline Car Rental	St. Croix
152C	12/31/2009	David's Auto Repair	St. Croix
165C	12/31/2009	Divi Carina Bay Resort	St. Croix
155C	12/31/2009	Frank's Garage	St. Croix
130C	12/31/2009	Hendricks International, Inc.	St. Croix
145C	12/31/2009	Human Services maintenance	St. Croix
164C	12/31/2009	Innovative Telephone Company	St. Croix
151C	12/31/2009	MARCO St. Croix, Inc. Water and Trucking Services	St. Croix
166C	12/31/2009	Monarch Heavy Equipment Rental	St. Croix
146C	12/31/2009	Olympic Rent-A-Car	St. Croix
153C	12/31/2009	Paradise Waste Systems, Inc.	St. Croix
033C	12/31/2009	Rodney's Auto Repair	St. Croix
141C	12/31/2009	Seaborne Airlines	St. Croix
035C	12/31/2009	St. Croix Foreign Auto Sales Corp	St. Croix
154C	12/31/2009	Tonges Concrete	St. Croix
131T	12/31/2009	University of the Virgin Islands (STT)	ST. Croix
135C	12/31/2009	Virgin Islands Rum	St. Croix
161C	12/31/2009	Welco Gas Station	St. Croix

103C	12/31/2008	Budget Car Rental	St. Croix
071C	12/31/2008	Caribbean Auto Mart St. Croix, Inc.	St. Croix
074C	12/31/2008	Metro Motors	St. Croix
083C	12/31/2008	St. Croix Marine	St. Croix
174CT	12/31/2007	Chitolie Trucking Equipment	St. Croix
170C	12/31/2007	Francis Water Services	St. Croix
175CT	12/31/2007	M & T Trucking	St. Croix
171C	12/31/2007	Ramco Transmission Repair	St. Croix
173C	12/31/2007	Tonn Motor Corp.	St. Croix
006C	12/31/2007	V.I. Department of Public Works (Annas Hope) DIY	St. Croix
148C	12/31/2006	A+ Auto Repair *****	St. Croix
143C	12/31/2006	Anthony Auto Repair & Maintenance	St. Croix
126C	12/31/2006	Bates Trucking & Trash Removal	St. Croix
127C	12/31/2006	Better Engine Svc & Tire, Inc.	St. Croix
140C	12/31/2006	Caribout aka Florida Coca-Cola Bottling Company	St. Croix
150C	12/31/2006	Champion Auto Part	St. Croix
163C	12/31/2006	Department of Public Works (Maintenance)	St. Croix
142C	12/31/2006	Europa Motorworks *	St. Croix
136C	12/31/2006	Flemings Transport Company, Inc.	St. Croix
159C	12/31/2006	H & H Avionics	St. Croix
003C	12/31/2006	HOVENSA	St. Croix
132C	12/31/2006	Karim Service Station *****	St. Croix
149C	12/31/2006	P.M. Auto	St. Croix
057T	12/31/2006	PM's Auto Inc.	St. Croix
162C	12/31/2006	Roach Auto Service, Inc.	St. Croix
129C	12/31/2006	Thrifty Car Rental	St. Croix
156C	12/31/2006	V.I. Housing Authority (STX)	St. Croix
133C	12/31/2006	V.I. Water & Power Authority	St. Croix
157C	12/31/2006	VI Cement & Building Products, Inc. *****	St. Croix
137C	12/31/2006	VI Paving, Inc.	St. Croix
133C	12/31/2006	WAPA Maintenance	St. Croix
128C	12/31/2006	Zenon Construction Corp.	St. Croix
064C	12/31/2005	A & G Tire & Auto Service *****	St. Croix
093C	12/31/2005	Chitolie Trucking & Equipment	St. Croix
086C	12/31/2005	Gold Coast Yachts Inc.	St. Croix
018C	12/31/2005	Marine Spill Response Corporation	St. Croix
008CT	12/31/2005	Public Works (Anna's Hope)	St. Croix
062TT	12/31/2005	Puerto Rico Used Oil Collectors, Inc.	San Juan, PR
078C	12/31/2005	Stanley & Stanley	St. Croix
094T	12/31/2005	Tropical Automotive Repair	St. Croix
082T	12/31/2005	V.I. Army National Guard (STT)	St. Croix
081C	12/31/2005	V.I. Army National Guard (STX)	St. Croix
030C	12/31/2004	Bill Auto Repair & Maintenance	St. Croix
045C	12/31/2004	Sun Sea & Sand Car Dealer	St. Croix
032C	12/31/2004	Tropical Cars of St. Croix, Inc.	St. Croix
009C	12/30/2004	Western Auto (STX) *****	St. Croix

011CX	12/31/2003	Cruzan Environmental Services	St. Croix
007C	12/31/2003	Public Works (Concordia)	St. Croix
036C	12/31/2003	St. Croix Radiator	St. Croix
100C	12/31/2003	Peters Rest Texaco Svc. Station	St. Croix
* Denotes facilities that have either gone out of business or are no longer generating used oil.			

F. Wetlands Inventory Project

The inventory of the USVI wetlands and associated riparian areas is a joint project between UVI Conservation Data Center, Island Resource Foundation and Eastern Caribbean Center of the University of the Virgin Islands, under supervision of the Virgin Islands Department of Planning and Natural Resources (DPNR). It was created as a response to questions from Region 2 Coastal Zone Management Program, the Division of Coastal Zone Management (CZM) and the Division of Environmental Protection (DEP) of the Virgin Islands Department of Planning and Natural Resources (DPNR).

The inventory is meant to serve the medium and long-term management needs of the Territory's unified watershed management strategies and processes.

The overall project is divided into two phases: Phase 1 is the design and testing of indicators suitable for the general description and characterization of wetlands in the US Virgin Islands and Phase 2 is the compilation of an overall territorial database for wetlands.

The inventory project begins with a database of 636 wetlands as mapped in the Conservation Data Center's Rapid Environmental Assessment (REA) of the US Virgin Islands.

The objectives of the project are to update and correct the mapping of 636 wetlands in the Virgin Islands Rapid Environmental Assessment (REA) and design and test basic monitoring tools for wetland characterization in the US Virgin Islands. The monitoring tools should be applied to eighteen reference watersheds distributed in three broad classes for each island (undisturbed, highly disturbed and intermediate disturbed). The level of disturbance is based on the interpretation of the data produced by the Territory's Unified Watershed Assessment, the Watershed Priority Action Strategies and recent 305(b) Integrated Water Quality Assessment Reports. The monitoring tools will provide the inventory indicators based on the following measures:

A. Instrument measurement of wetland water characteristics (temperature, conductivity, salinity, pH, dissolved oxygen and turbidity);
B. Laboratory analysis of water quality for fecal coliform bacteria and TKN measurement of nutrients;
C. Indicator of the functioning wetland of wetland vegetative classes;

D. Index of the Biological Integrity as wetlands and watershed scale;
E. Wetland sediment core measures.

The sampling was scheduled to occur during the autumn season when wetlands are presumed to be wet during a full daylight periods (between two hours or more after sunrise and two hours or more before sunset). The field tests were scheduled for 5 months from October 2003 to February 2004. Phase 1 is complete at the time of writing this report. Funds have been identified to start Phase 2; the project will commence upon drafting of a request for proposals and awarding of funds.

G. Water Quality Management Planning Program

The Water Quality Management Planning (WQMP) Program was created in 2000. Under the WQMP Grant (pursuant to CWA §604(b)), the V.I. DPNR-DEP is entrusted with the task of planning and implementing Water Quality Management Projects to ensure the protection of the marine waters of the USVI. Several duties that were formerly under the auspices of the Water Pollution Control Program were placed under the WQMP.

The Storage and Retrieval of Water-Related Data (STORET) program is managed and updated by the Water Quality Management Planning Program and has been operating successfully for some time now. Data are easily extracted whenever necessary and data dumps are sent regularly to EPA Headquarters to be uploaded to the national STORET data warehouse. STORET plays a vital role in water quality assessment and reporting.

The Assessment Database (ADB) was fully implemented once the Virgin Islands defined assessment units for more comprehensive water quality assessments. ADB is a valuable tool for storing assessment information and retrieving it for reporting purposes. Research Triangle Institute released ADB version 2 for 2002. The data stored in ADB v. 2 is more accurate thanks to the VI Standard Waterbody Delineation project. The VI has been steadily upgrading ADB v. 2 as necessary. The most current version of ADB is ADB v2.2

H. Coral Reef Monitoring

A number of agencies, including the United States Virgin Islands Government, have done sparse monitoring of coral reefs in the waters of the Virgin Islands for some time. Recently, the
US Virgin Islands has identified a need to implement an intensive, long-term monitoring system.
Coastal Zones Management (CZM), a division of the VI Department of Planning and Natural Resources, prepared a proposal to the National Oceanic and Atmospheric Administration and received grant money to implement a long-term monitoring system.

According to the last available Coastal Zones Management Coral Reef Management report (obtained from their website at http://www.viczmp.com) a grant in the amount of $88,000 was prepared for the task of filling gaps in monitoring coverage of U.S. Coral Reef Ecosystems. Information to be obtained include:

1. Quantitative data on the amount of living coral, algae and other organisms on the reef;
2. Information on the condition of coral colonies such as the presence of disease or bleaching;
3. Survey of macro invertebrates (Sea Urchin, *Diadena antillarum*) and;
4. Census of reef fishes, particularly commercially important groupers and snappers.

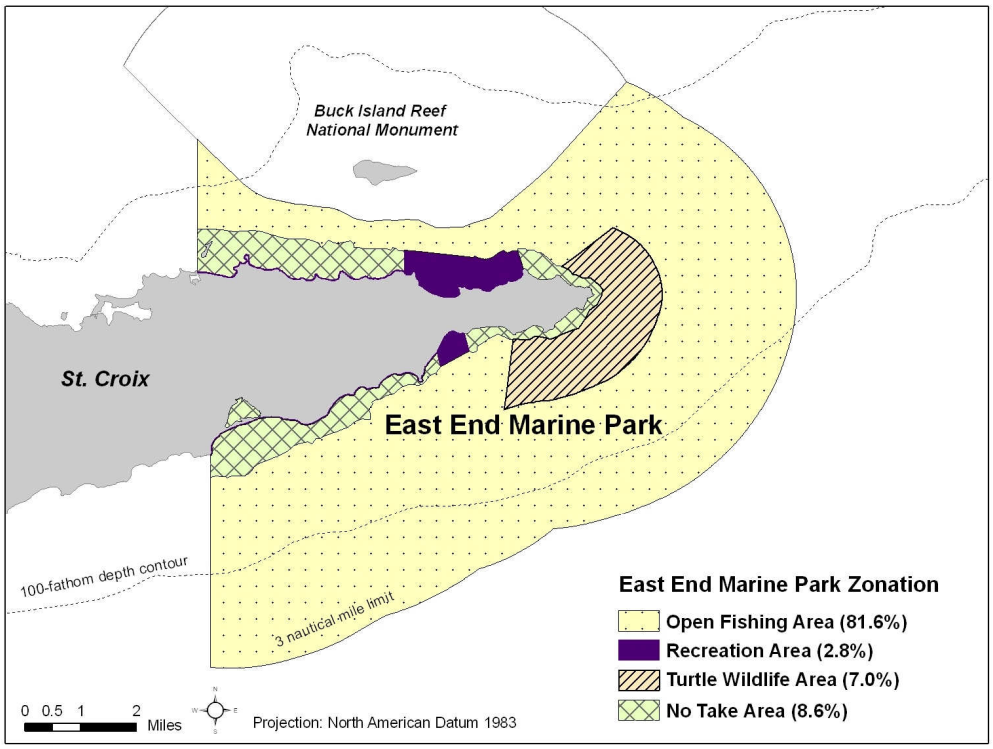
The Coral Reef Monitoring project is conducted under a memorandum of agreement between DPNR and the University of the Virgin Islands. Data collected from this project was used in a report to the National Oceanographic and Atmospheric Administration (NOAA) entitled "Status of Coral Reefs in the U.S. Virgin Islands". The project is still in its planning phase, but it is anticipated that once monitoring begins the project will steadily produce biological data.

The Government of the Virgin Islands embarked on a project to develop a Marine Park System Plan for the territory. This project had five main components:

1. Preparation of a Marine Park System Plan for the USVI;
2. Preparation of a Resource Description Report for the marine environment in the USVI;
3. A Socio-economic Assessment of the uses and users of the marine resources in the USVI;
4. Preparation of a Management Plan for the proposed marine park for the east end of St. Croix; and
5. P
6. reparation of an information brochure about the marine parks.

A Marine Park Management Plan was completed on July 18, 2002. While the Marine Park is not specifically for the monitoring of coral reefs, the overall goal of the Marine Park Project is to establish the objectives, policies, and procedures for management of marine resources within the territorial waters of the U.S.V.I., through the development of marine protected areas. The Marine Park celebrated its grand opening in October 23, 2003. The Department of Planning and Natural Resources must still promulgate a set of rules and regulations governing the use of the park, devise enforcement mechanisms and secure funding to run the park. As of April 4, 2006, those rules and regulations exist in draft.

Figure II.H.1 Map of the St. Croix East End Marine Park, 2006 (provided by the Virgin Islands Coastal Zone Management Program).



Through CZM, the US Virgin Islands regularly participates in meetings with the U.S. Coral Reef Task Force. Presidential Executive Order #13089 to lead U.S. efforts to preserve and protect coral reef ecosystems established the United States Coral Reef Task Force (CRTF) in 1998. The CRTF had its 16th meeting on St. Thomas, US Virgin Islands between October 24-28, 2006. This was the first CRTF meeting held in the territory of the US Virgin Islands since the 3rd meeting held on St. Croix in November 1999. These meetings provide a venue to report on the status of ongoing coral reef initiatives in local areas, an opportunity to discuss resolutions and the status of past resolutions, and allow for public participation regarding coral reefs and coral reef conservation. Several resolutions with implications for the Virgin Islands were passed during the 2006 meeting, the text of which are available at www.coralreef.gov .

The US Virgin Islands' participation in the CRTF was instrumental in response to a major coral bleaching event that started in October 2005. CRTF coordinated efforts among the National Oceanographic and Atmospheric Administration (NOAA), the Department of the Interior (DOI), other federal agencies, non-governmental organizations and local Caribbean managers to assess short and long term impacts of this event. As a result of a meeting held in the USVI, local environmental agencies and organizations committed to meet, form regional teams, draft response plans outlining the geographical responsibilities of each researcher/field team, and develop a plan of action (from funding to field activities to outputs) before bleaching occurs again.

Figure II.H.2 2005 Caribbean Percent Colonies Bleached By Pixel

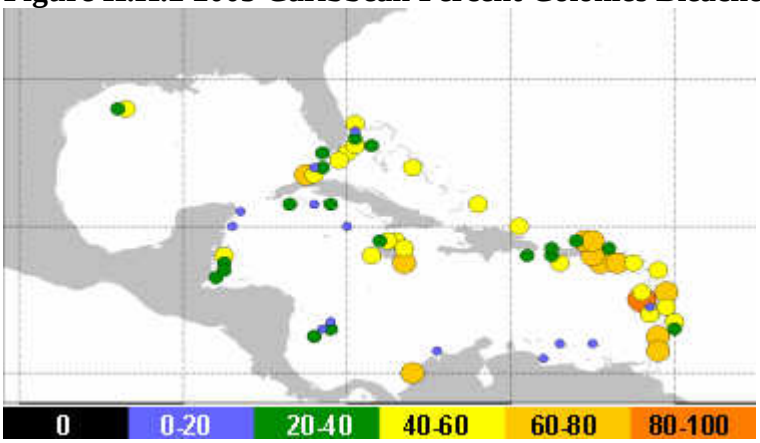


Image provided courtesy of NOAA

At the last CRTF meeting held in Washington, D.C. on May 6, 2006, the National Marine Fisheries Service announced its decision to list elkhorn (*Acropora palmata*) and staghorn corals (*Acropora cervicornis*) as threatened under the Endangered Species Act (ESA). DPNR will take great care to consider this, as well as the bleaching event that started in October 2005, as it extends and expands its various water monitoring programs in the future.

I. Other Non-Point Source Activities

1. Education Outreach/ Non-point Source Newsletter

In order to increase the awareness of non point source pollution among school children, presentations were made reaching a majority of students. University of the Virgin Islands staff working with VI Education Department staff developed presentations on non-point source pollution and ways to prevent it. DPNR-DEP will continue to guide the activities of the NPS Committee to address NPS issues in the Territory and participate in various educational and environmental events to promote NPS awareness within the community and schools.

2. Public information dissemination/outreach

The Division of Environmental Protection added an Environmental Education and Outreach program during this cycle. The Environmental Education program has since been involved in numerous outreach projects (in most cases in conjunction with other DEP programs) including: used oil drives, elementary and high school presentations, environmental public service announcements, and the Non Point Source Conference. DEP has also been actively utilizing their website located at http://www.dpnr.gov.vi in order to disseminate information to the public, solicit comments on public documents, and inform the public of happenings within the Division.

Funded by Section 319 grant money, the quarterly publication of the *Non-point Source Newsletter* has been continuously published since December 1997. Its purpose is to educate and inform the public about the programs of the Non-point Source Committee and to increase the awareness of the different aspects of non-point source pollution. The newsletter was published regularly throughout this reporting period.

3. 9th Annual NPS Conference

The 9th Annual Non Point Source Conference was held on November 28-30, 2005 at the Westin St. John Resort and Villas. The conference brought together individuals involved in pollution prevention, resource conservation, research, and economic development in the Virgin Islands to examine environmental issues in the territory and throughout the Caribbean. Community groups, farmers, government personnel, members of the construction and boating industries, non-governmental organizations, researchers, students and vendors were all invited to participate.

PART III. SURFACE WATER MONITORING & ASSESSMENT

A. Surface Water Monitoring Program

DPNR-DEP work plans require quarterly monitoring of seventy-seven (77) stations around St. Croix, sixty-six (66) stations around St. Thomas, and twenty-four (24) around St. John. These sites are located offshore and are sampled by WPC staff using a vessel. DPNR-DEP expanded the monitoring network to include deep-water offshore sites at the outer rim of the USVI's three-mile boundary. Some sites in the St. John network were not sampled in this reporting cycle due to their location within the jurisdiction of expanded federal waters of national parks and monuments, however they will be sampled in future cycles. For information refer to 2008 303d list of impaired waters, section IV, US Virgin Islands Monument Lands.

1. Monitoring Sites

Table III.A.1 167 Virgin Islands Ambient Monitoring Sites

St. Croix 77 Sites					
Stations	Class	Location	Stations	Class	Location
STC-1	B	Lagoon Recreational Beach	STC-29	B	Magic Isles Beach Resort
STC-2	B	Ft. Louise Augusta Beach	STC-30	B	Sprat hall Beach
STC-3	B	Buccaneer Hotel	STC-31	B	Davis Bay
STC-4	B	Tamarind Reef Lagoon	STC-32	B	Cane Bay

STC-5	B	Green Cay Beach	STC-33a	B	Columbus Landing (Salt River)
STC-6	A	Buck Island Beach	STC-33b	B	Shallow Grass bed (Salt River)
STC-7	A	Buck Island Anchorage	STC-33c	B	Salt River Marina (Salt River)
STC-8	B	Reef Club Beach	STC-33d	B	Sugar Bay (Salt River)
STC-9	B	St. Croix Yacht Club Beach	STC-33e	B	Deep Grass Bed (Salt River)
STC-10	B	Cramer's Park	STC-33f	B	Beach (Salt River)
STC-11b	B	Isaac Forereef	STC-33g	B	NOAA Dock (Salt River)
STC-12	B	Grapetree Beach/Turner Hole	STC-33h	B	Bird Sanctuary (Salt River)
STC-13a	B	Great Pond	STC-33i	B	Steeple (Salt River)
STC-13b	B	Robin Bay Backreef	STC-33j	B	Cove (Salt River)
STC-14a	B	Halfpenny Bay-Manchinel	STC-34	B	St. Croix By the Sea
STC-14b	B	Halfpenny Backreef	STC-35	B	Long Reef, Forereef W
STC-15	B	Canegarden Bay	STC-36	B	Long Reef, Forereef E
STC-16	C	Northwest End, Hess E Channel	STC-37	B	Christiansted Harbor Entrance W
STC-17	C	Northeast End, Hess W Channel	STC-38	B	Christiansted Harbor Entrance E
STC-18	C	Limetree Bay	STC-39	C	Altoona Lagoon Inlet
STC-19	C	Krause Lagoon Channel	STC-40	C	St. Croix Marine Marina
STC-20	C	Martin Marietta	STC-41	C	Gallows Bay
STC-21	B	Spoils Island Channel	STC-42	C	Public Wharf
STC-22a	B	Treatment Plant Outfall	STC-43	C	Water Gut
STC-22b	B	Outfall Break	STC-44	C	Protestant Cay Beach
STC-23	B	Public Dump	STC-45	C	Christiansted Harbor
STC-24a	B	Texaco Buoys	STC-46	C	V. I Water and Power
STC-24b	B	Rum Plant Outfall	STC-47	B	Mill Harbor Condominiums
STC-25	B	Carlton Beach	STC-48	B	Long Reef Backreef W
STC-26	B	Good Hope Beach	STC-49	B	Long Reef, Old Outfall
STC-27	B	Sandy Point Public Beach Resort	STC-50	B	Long Reef, Old Outfall
STC-28	C	Frederiksted Public Dock	STC-51	C	King Cross Street, Storm Drain
STC-OFF1	B	NW-1	STC-OFF2	B	SE-1
STC-OFF3	B	SW-1	STC-OFF4	B	North-2
STC-OFF5	B	East-2	STC-OFF6	B	South-2

STC-OFF7	B	West-3	STC-OFF8	B	North-3
STC-OFF9	B	SW-3	STC-OFF10	B	SE-3
STC-OFF11	B	North-4	STC-OFF12	B	SW-4
STC-OFF13	B	SE-4			

St. Thomas 66 Sites

Stations	Class	Location	Stations	Class	Location
STT-1	C	Crown Bay, near outfall	STT-21b	B	Red Bay
STT-2	C	Crown Bay, tamarind outlet	STT-22a	B	Red Hook Bay
STT-3	C	Sub-Base	STT-22B	B	Vessup Bay
STT-4	B	Krum Bay	STT-23	B	Great Bay
STT-5a	B	Lindbergh Bay, E	STT-24	B	Cowpet Bay
STT-5b	B	Lindbergh Bay	STT-25	B	Nazareth Bay
STT-6a	B	Dump (Station Eliminated)	STT-26	B	Benner Bay
STT-6b	B	Airport/College Cove	STT-27a	B	Mangrove Lagoon
STT-6c	B	SW Roads near Red Point Out	STT-27b	B	Mangrove Lagoon
STT-6d	B	Flat Cay, NE corner	STT-28a	B	Bovoni Bay
STT-7a	B	Brewers Bay	STT-28b	B	Bolongo Bay
STT-7b	B	Perserverance Bay	STT-29a	B	Frenchman's Bay
STT-8	B	Fortuna Bay	STT-29b	B	Limetree
STT-9	B	Botany Bay	STT-30	B	Morning Star Bay
STT-10	B	Stumpy Bay	STT-31a	B	Flamboyant Cove
STT-11	B	Santa Maria Bay	STT-31b	B	Hassel Island, of Navy dock
STT-12	B	Caret Bay	STT-31c	B	Hassel Island, Careening Cove
STT-13	B	Dorothea	STT-32a	C	Long Bay, S Dolphin
STT-14	B	Hull Bay	STT-32b	C	Long Bay, NE Corner
STT-15a	B	Magens Bay, NE	STT-33	C	Long Bay, off Outfall
STT-15b	B	Magens Bay, NW	STT-34	C	Long Bay, off Pump Stations
STT-16a	B	Mandahl Bay	STT-35	C	Garden Bay
STT-16b	B	Mandahl Bay Marina	STT-36	C	STT Harbor, Coast Guard
STT-17a	B	Springs Bay	STT-37	C	St. Thomas Harbor, Cay Bay
STT-17b	B	Sunsi Bay	STT-38	C	Haulover Cut

STT-18	B	Coki Bay	STT-39	B	Water Isle, E Gregerie Channel
STT-19	B	Water Bay	STT-40	B	Water Isles, Hotel Beach
STT-20	B	Smith Bay	STT-41	B	Water Isles, Flamingo Bay
STT-21a	B	St. John Bay	STT-42	B	Water Isles, Sprat Bay
STT-OFF1	B	STT NW-1	STT-OFF2	B	STT SW-1
STT-OFF5	B	STT North-2	STT-OFF6	B	STT North-2
STT-OFF8	B	STT South-3	STT-OFF9	B	STT NW-3
STT-OFF11	B	STT SW-4	STT-OFF12	B	STT NE-4

St. John 24 Sites

Stations	Class	Location	Stations	Class	Location
STJ-43a	B	Cruz Bay, North of Pier	STJ-47	B	Rendezvous Bay
STJ-43b	B	Cruz Bay, South of Pier	STJ-48	B	Fish Bay
STJ-43c	B	Cruz Bay, Creek, Seaplane	STJ-49	B	Genti Bay
STJ-43d	B	Cruz Bay, Creek, North	STJ-50	B	Little Lameshur Bay
STJ-44a	A	Trunk Bay	STJ-51	B	Great Lameshur Bay
STJ-44b	B	Hawksnest Bay	STJ-52	B	Salt Pond Bay
STJ-44c	B	Cinnamon Bay	STJ-53	B	Coral Bay
STJ-44d	B	Francis Bay	STJ-54	B	Caneel Bay
STJ-45	B	Great Cruz Bay	STJ-55	B	Turner Bay
STJ-46	B	Chocolate Bay	STJ-OFF3	B	STJ NW-1
STJ-OFF4	B	STJ SW-1	STJ-OFF7	B	STJ East-2
STJ-OFF10	B	STJ John-3	STJ-OFF13	B	STJ West-4

2. Monitoring Measurements

At each station, field measurements are made of the following:

Turbidity: expressed in Nephelometric Turbidity Units (NTU's) measured 1 meter below the surface and 1 meter above the sea floor (or at the max depth of the instrument (~30 m)) using an EPA approved field instrument.

Dissolved Oxygen: expressed in mg/l saturation and measured 1 meter below the surface and 1 meter above the sea floor (or at the max depth of the instrument (~30 m)) with an EPA approved field instrument.

pH: expressed in Standard Units (SU) measured 1 meter below the surface and 1 meter above the sea floor (or at the max depth of the instrument (~30 m)) with an EPA approved field instrument.

Temperature: expressed in degrees Centigrade measured 1 meter below the surface and 1 meter above the sea floor (or at the max depth of the instrument (~30 m)) with an EPA approved field instrument.

Salinity: expressed in parts per thousand and measured 1 meter below the surface and 1 meter above the sea floor (or at the max depth of the instrument (~30 m)).

Secchi Depth: expressed in meters by a secchi depth recording light transparency.

Bacteria: Water samples are collected by surface grab sample at each station on a quarterly basis and taken to a DPNR certified laboratory where they are analyzed for **Fecal Coliform and enterococci bacteria.** Results are expressed as number of colonies per 100 milliliters. Analysis is performed utilizing an EPA approved methodology. The geometric mean is also factored in before it is determined that an assessment does not meet the water quality standard.

Total Suspended Solids: Water samples are collected by surface grab sample at each station on an annual basis and taken to a DPNR certified laboratory where they are analyzed utilizing an EPA approved methodology.

Total Phosphorous / Total Kjeldhal Nitrogen: Water samples are collected by surface grab samples at each station on an annual basis and taken to a DPNR certified laboratory where they are analyzed utilizing an EPA approved methodology. DPNR-DEP is working to increase the sampling frequency for these parameters. A lack of resources, to include scheduling conflicts with the local lab, has resulted in limited sampling. Currently, the local lab is being checked for quality assurance issues and the efficiency of the methods used is also being evaluated. Once these issues are assessed, it is anticipated that the monitoring frequency will be increased.

3. 2006 and 2007 Monitoring Frequency

During this reporting period Ambient Monitoring was conducted once each quarter for FY2006; however, two (2) quarters were missed during FY2007. DPNR-DEP also conducts BEACH sampling on a weekly basis.

Figure III.A.1 St. Croix Water Quality Monitoring Network

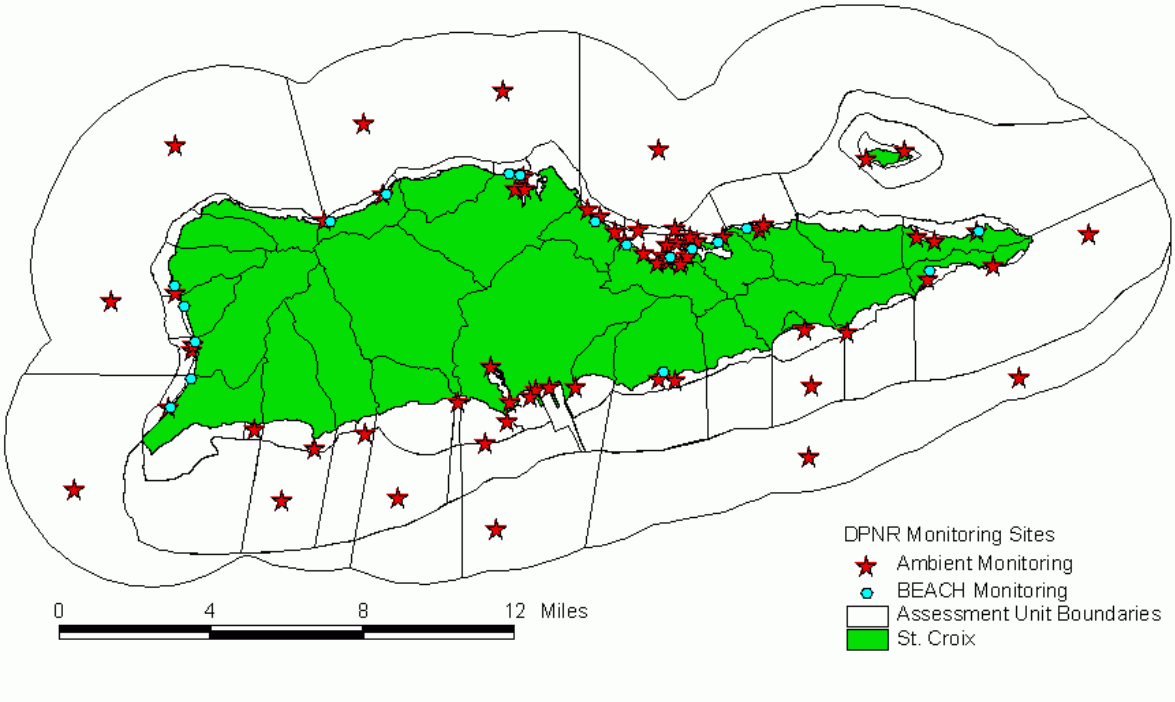
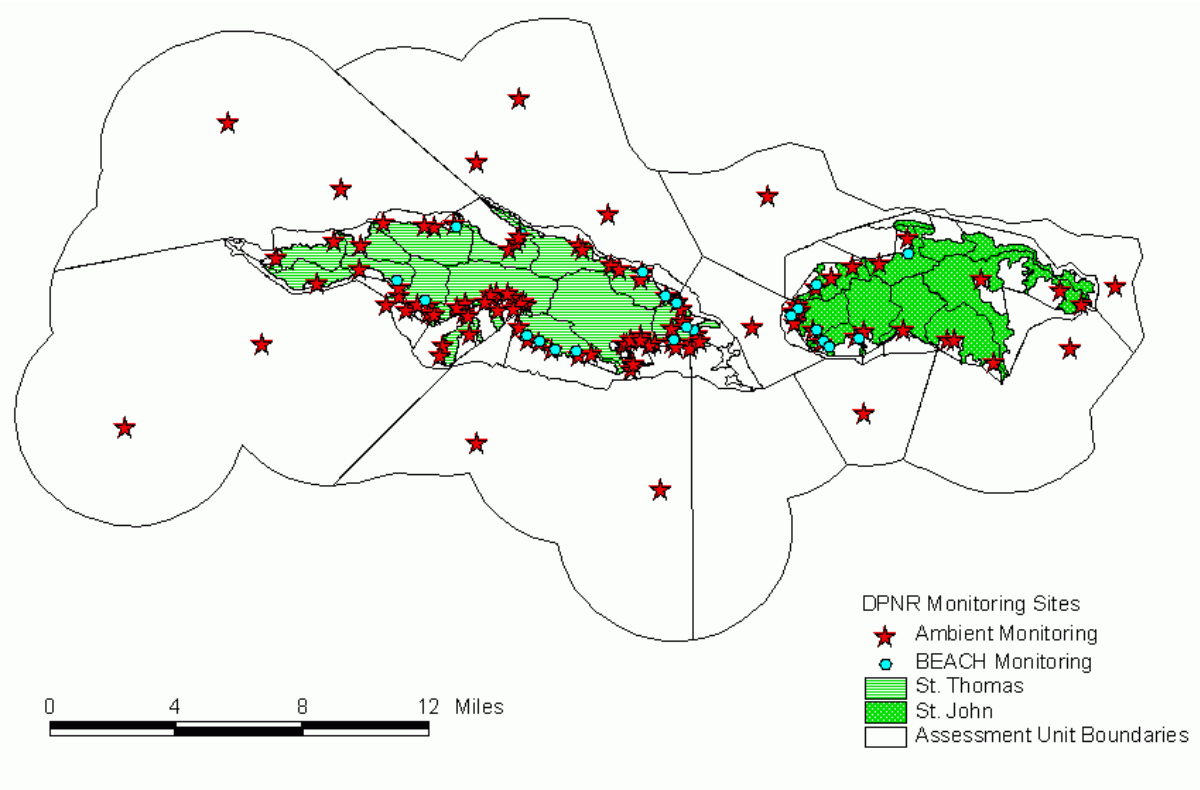


Figure III.A.2: St. Thomas/St. John Water Quality Monitoring Network



4. Toxics/biological monitoring

No monitoring for toxics is conducted in the Virgin Islands for lack of resources. DPNR-DEP has begun to couple biological monitoring with our routine ambient monitoring by evaluating coral health at stations that we currently analyze for water quality. In accordance with the Virgin Islands multi-year monitoring strategy, DPNR-DEP continues to explore development of nutrient criteria for implementing a biological component of the Ambient Monitoring Program. The WPC program is also pursuing a biological monitoring approach to support the assessment of the marine coastal waters of the U.S. Virgin Islands. This is being done with a collaborative effort with EPA, and may further include a partnership with NOAA or another agency with similar monitoring objectives.

5. Fish tissue, sediment, shellfish monitoring:

The Virgin Islands Water Pollution Control program does not include toxic chemicals or biological monitoring. The program also does not monitor fish tissue, sediment or shellfish for toxicity. A background analysis of ambient water quality has not yet been performed to support the adoption of criteria for toxic chemicals (1996 VI 305(b)).

6. Quality assurance/quality control program

The Virgin Islands DPNR-DEP Quality Assurance (QA) Program is committed to assuring and improving the quality of all environmental measurements performed by and for the Department. The goal of the QA program is for the acquisition of reliable and defensible environmental data. It is the policy of DPNR that adequate QA activities are conducted within the agency to ensure that all environmental data generated and processed be scientifically valid, of known precision and accuracy, of acceptable completeness, representative, comparability and where appropriate, legally defensible. During Fiscal Years 2006 and 2007 QA activities such as program technical audits, file audits, revision of the Quality Assurance Management Plan, Management System Reviews, review of program and contractual Quality Assurance Project Plans, review of all program Standard Operating Procedures, and Laboratory Certifications were performed. DPNR has a full-time QA/QC Officer who also acts the Laboratory Certification Officer for the Department.

7. Volunteer monitoring

DPNR had no monitoring volunteers during the reporting period. Volunteer monitoring, however, is being planned for implementation in future water quality monitoring program activities.

8. Program evaluation

- A background analysis of ambient water quality is needed to support the adoption of specific criteria for toxic pollutants (1998 305(b) Report). As part of the 2004 US Virgin Islands Water Quality Standards revision, the national recommended criteria were adopted;

- New equipment and staff training is needed to assess water quality for the development of toxic and biological criteria (1998 305(b) Report);

- Revisions of the existing Local Water Pollution Control Act and regulation are needed to enhance the program's ability to enforce its laws and statutes;

- Revisions to the Water Quality Standards and criteria to include numeric values instead of narrative description of desired water quality;

- Developing stormwater regulations to be implemented within the TPDES permitting program.

B. Assessment Methodology

1. Assessment Methodology for Use Support Determination

Purpose:
The Clean Water Act requires each state, territory and tribe to conduct water quality surveys to determine if its waters are healthy and have sufficient quality to meet their designated uses and attain water quality standards. A report is submitted every two years. It incorporates physical, chemical, and microbiological data from the STORET database, habitat assessments, and beach monitoring data (fish kills/advisories, oil spills, beach closings, etc.). Use of data is subject to availability.

The U.S. Environmental Protection Agency encourages states, territories and tribes to adopt the Integrated Reporting format which blends elements of the 305(b) Water Quality Assessment Report and the 303(d) Impaired Waterbody List. The United States Virgin Islands intends to use this format to more accurately and completely assess our waterbodies.

Complete assessments include:

∃ **Identification of waterbody type.**
The US Virgin Islands has not identified any freshwater with designated uses nor has established water quality standards for freshwaters. Therefore, only coastal waterbodies are included in the U.S. Virgin Islands 2006 Integrated Report. All available groundwater data were reviewed for possible inclusion in the report and Division of Environmental Protection's Groundwater Program will provide groundwater discussion in the 2006 Integrated Report. The Integrated Report includes an overview of groundwater and wetlands resources.

∃ **Identification of waterbody classification and designated use.**
According to the US Virgin Islands water quality standards, the waters of the Virgin Islands exist in one of three classes: A, B and C. The following describes

the geographical extent of the three waterbody classes, the associated designated uses, and the applicable water quality standards.

Class A waters are designated for the preservation of natural phenomena requiring special conditions. Class B criteria are applied towards an assessment Class A waters. Areas classified as Class A include:

- ∃ The area within 0.5 miles of the boundaries of Buck Island's Natural Barrier Reef, St. Croix
- ∃ Trunk Bay, St. John.

Class B waters are designated for Primary Contact Recreation and Aquatic Life Use Support. Any coastal waterbody not classified as Class A or Class C is considered Class B waterbodies. The legal limits of Class B waterbodies not covered by color and turbidity in section 186-3(b)(11) as stated in the US Virgin Islands water quality standards include:

St. Thomas Class B Waters	**St. Croix Class B Waters**
∃ Mandahl Bay (Marina), ∃ Vessup Bay, ∃ Water Bay, and ∃ Benner Bay	∃ Carlton Beach, ∃ Good Hope Beach, ∃ Salt River Lagoon (Marina), ∃ Salt River Lagoon (Sugar Bay), ∃ Estate Anguilla Beach, ∃ Buccaneer Beach, ∃ Tamarind Reef Lagoon, ∃ Green Cay Beach, and ∃ Enfield Green Beach

Class C waterbodies are designated for Primary Contact Recreation and Aquatic Life Use Support. The legal limits of Class C waterbodies as stated in the US Virgin Islands water quality standards include:

St. Thomas Class C Waters	**St. Croix Class C Waters**
∃ St. Thomas Harbor from Rupert Rock to Haulover Cut, ∃ Crown Bay enclosed by a line from Hassel Island at Haulover Cut to Regis Point at West Gregerie Channel ∃ Krum Bay	∃ Christiansted Harbor from Fort Louise Augusta to Golden Rock ∃ Frederiksted Harbor from La Grange to Fisher Street ∃ HOVENSA Harbor ∃ Marin-Marietta Alumina Harbor

- **Inventory of physical, chemical and microbiological data**

  The source of StoRet data is the result of the Division of Environmental Protection's Ambient Monitoring Program. The Water Pollution Control Program manages this program. Through the Ambient Monitoring Program, ambient water quality is monitored on a quarterly basis.

  The 2008 report also considers data taken from other entities that monitor water quality in the US Virgin Islands. National Park Service and EPA were identified as possible data sources. Every effort was made to locate as many data sources as possible including directly contacting entities and publishing a solicitation notice in the Virgin Islands Daily News.

  The Assessment Database (ADB) was a valuable tool for storing information regarding designated uses for waterbodies. ADB was also useful in storing pollutant and stressor data pertinent to making accurate assessments. ADB also stores cause and source data.

- **Habitat assessment data inventory**

  The US Virgin Islands Division of Fish and Wildlife had been identified as a possible data source for habitat assessments. Fish and Wildlife, however, had no data to contribute towards the 2008 water quality assessment report.

- **Visual Data Sources**

  The DPNR-DEP keeps a log of all incidents of oil spills, fish kills and other events that affect water quality in the US Virgin Islands. This log was reviewed for all incidents that could have had a negative impact on US Virgin Islands water quality.

- **Identify exceedances of water quality standards**

  The US Virgin Islands water quality standards set limits for various criteria. All readily available data that meet quality assurance / quality control requirements were compared to the limits set by the USVI water quality standards to determine which waterbodies exceed these limits.

- **Use determination status**

  Use support determination is dependant upon the guidelines set by the United States Environmental Protection Agency's "Guidelines for Preparation of the Comprehensive State Water Quality Assessments (305(b) Reports) and Electronic Updates: Report Contents", "Guidelines for Preparation of the Comprehensive State Water Quality Assessments (305(b) Reports) and Electronic Updates: Supplement", and 2006 Integrated Water Quality Monitoring and Assessment Report Guidance".

- **Data gaps and error control**

The US Virgin Islands made every effort to control errors that may have been reported in data. Data determined to be erroneous or flawed were discarded.

It is understood that the US Virgin Islands has a number of data gaps. These gaps are not limited to existing data sets, but it can also refer to the lack of certain types of data. This Integrated Report makes mention of and describes US Virgin Islands data gaps. Potential data gaps include beach closure data, habitat assessment data, toxicity and toxicant data, wetland assessment data, and intermittent streams data. Data gaps that are identified will be included in the multi-year monitoring strategy for resolution.

- **Natural Disasters**
  Hurricane season in the US Virgin Islands lasts from June through November each year. As part of the Territory's post hurricane Emergency Response Plan (ERP) the Water Pollution Control program conducts episodic beach monitoring at each of the beach monitoring stations until the water quality is determined to meet water quality standards. There was no sampling this cycle related to natural disasters.

- **Data From Other Sources**
  DPNR considers data received up to one week prior to the submission of the draft 303(d) Total Maximum Daily Load List. Last-minute data, while pertinent, delay the reporting process significantly. No last-minute data were received this cycle.

Monitored Waters

The coastal waters of the Virgin Islands are evaluated for the following uses: Primary Contact Recreation and Aquatic Life Use Support. All existing and readily available data and information were assembled and used in the assessment.

Use Support Determination

Waterbody delineations used for determining use support are derived from global information system (GIS) coverages. The Division of Environmental Protection contracted professional services to develop a standard waterbody delineation based on a number of prevailing factors. DEP is currently considering revising the standard waterbody delineation especially in response to waters recently placed under federal jurisdiction.

Presently, use support is determined using the most current version of the US Virgin Islands water quality standards. Water quality standard revision was initiated in June 2002. The revision is complete and has been adopted into the Virgin Islands Rules and Regulations as of October 2004, and was approved by EPA on May 26, 2005. The revised standards include criteria accepting enterococci as a microbiological standard to protect primary contact recreation and the national recommended criteria for priority pollutants to protect aquatic life and human health.

2. Ground Water Assessment

Ground Water Monitoring Program

Specific groundwater monitoring tasks

- ∃ Collect continuous ground-water level records at selected sites in the major well fields in the U.S. Virgin Islands; St. Croix. St. Thomas, and St. John.

- ∃ Conduct monthly measurement of ground water level at selected sites in the U.S. Virgin Islands.

- ∃ Collect meteorological data (instantaneous point measurements) at one consistent station at each island to document climatic variations and seasonal patterns and to consider long term trends.

- ∃ Collect ground-water samples once a year at selected well fields to monitor ground-water quality for possible effects of degradation (changes in water quality as measured since 1960) from saltwater encroachment. This includes testing for sulfates, anions, cations, alkalinity, and conductivity.

3. Surface Water Assessment

As part of the assessment process, each assessment is rated as being supporting, not supporting or not applicable (not applicable is usually the result of a data gap).

In order to assess an assessment unit, data must be available from at least one assessment type in each designated use. Impairment of any single indicator will result in the waterbody being listed as impaired (for that parameter), even if the other indicators do not exceed the standards. Consideration is taken in cases where a parameter falls within the degree of error of monitoring equipment. Waters that naturally exceed water quality standards are addressed in Section 186-10 (Natural Waters) of the US Virgin Islands Water Quality Standards.

Microbiological Assessment

The use support is based on single sample maximum allowable density of fecal coliforms and enterococci, beach closing data and reported oil spills. Allowable limits are determined by the class of the water body. Class A and B water bodies should not exceed 70 colonies/100mL in a single sample. Class C water bodies should not exceed 200 colonies/100mL in a single sample. All waters of the US Virgin Islands should not

exceed 104 colonies/100mL for enterococci. The percent of total violations is evaluated as follows:

Fully Supporting: None of the Samples exceed 70 or 200 colonies/100 mL respectively for fecal coliform and 104 colonies/100 mL for enterococci.

Not supporting: Any of the Samples exceed 70 or 200 colonies/100 mL respectively for fecal coliform and 104 colonies/100 mL for enterococci.

Beach Advisory Assessment

In addition to pathogens, beach-advisory data were used to determine primary contact recreation use support. The matrix of allowable violations is as follows:

Supporting: No bathing area advisories or restrictions in effect during reporting period.

Not Supporting: On average, one bathing area advisory per year of greater than 1 week's duration, or more than one bathing area advisory per year.

The Department of Planning and Natural Resources only issues administrative advisories. Beach closures would only be enforced for very serious threats to human health. DEP has implemented a Beaches Environmental Assessment and Coastal Health (BEACH) monitoring program that takes enterococci at select sites on a weekly basis. These data were used in conjunction with data collected from the Ambient Monitoring Program.

Toxicant Assessment (Human Health)

Considerations were made for toxicants data (based on availability). Toxics were recently adopted into the USVI Water Quality Standards (see *National Recommended Water Quality Criteria - Correction* dated April 1999). The conditions for use support is as follows:

Fully Supporting: No toxicants noted in either acute or chronic tests compared to controls or reference conditions.

Partially Supporting: No toxicants noted in acute tests, but may be present in chronic tests in either slight amounts and/or infrequently within an annual cycle.

Not Supporting: Toxicants noted in many tests and occurs frequently.

Other Parameters

Throughout the course of collecting data for this report, data that did not fit within the auspices of the other assessment categories of Primary Contact Recreation Use Support (e.g. aesthetics, pH, turbidity, algae, odor, etc.) were considered under Other Parameters. The following guidelines apply where appropriate:

Fully Supporting: For any one pollutant or stressor, criteria exceeded in none of the measurements

Not Supporting: For any one pollutant, criteria exceeded in any of measurements.

Aquatic Life Use Support

Habitat Assessment

Determination of Aquatic Life Use Support considered habitat assessment data (based on availability) in relation to propagation of desired species of marine life. Habitat assessment data are considered as follows:

Fully Supporting: Reliable data indicate natural channel morphology, substrate composition, bank/riparian structure, and flow regime of region. Riparian vegetation of natural types and of relatively full standing crop biomass (i.e., minimal grazing or disruptive pressure).

Not Supporting: Moderate to severe habitat alteration by channelization and dredging activities, removal of riparian vegetation, bank failure, heavy watershed erosion or alteration of flow regime.

DEP received no habitat assessment data for the 2004-2005 reporting cycle.

Toxicity Assessment

Considerations were made for aquatic and/or sediment toxicity data (based on availability). The conditions for use support is as follows:

Fully Supporting: No toxicity noted in either acute or chronic tests compared to controls or reference conditions.

Not Supporting: Toxicity noted in many tests and occurs frequently.

Conventional Assessment

Significant violations were determined for conventional parameters. Conventional parameters were evaluated using the frequency of violations.

The conventional parameters are:

Dissolved Oxygen, Temperature, Turbidity, and pH

The conditions for use support for the conventionals are as follows:

1. Fully Supporting: For any one pollutant or stressor, criteria exceeded in none of the measurements.

2. Not Supporting: For any one pollutant, criteria exceeded in any of the measurements.

Toxicant Assessment (Aquatic Life)

Considerations were made for toxicants data (based on availability). The conditions for use support is as follows:

Fully Supporting: No toxicants noted in either acute or chronic tests compared to controls or reference conditions.

Not Supporting: Toxicants noted in many tests and occurs frequently.

Biological Assessment

Upon identifying a source of data to apply towards a biological assessment, the conditions for use support is as follows:

- Fully Supporting: Reliable data indicate functioning, sustainable biological assemblages (e.g., fish, macroinvertebrates, or algae) none of which has been modified significantly beyond the natural range of the reference condition.

- Not Supporting: At least one assemblage indicates nonsupport. Data clearly indicate severe modification of the biological community compared to the reference condition.

DEP received no biological data for the 2004-2005 reporting cycle.

Nutrient Parameters

The nutrient parameter is:

Total Phosphorus

The conditions for use support for nutrients are as follows:

1. Fully Supporting: For any one pollutant or stressor, criteria exceeded in none of the measurements.

2. Not Supporting: For any one pollutant, criteria exceeded in any of the measurements

Listing Rules

This methodology groups assessments as follows:

Primary Contact Recreation (PCR) Indicators	**Aquatic Life Use Support (ALUS) Indicators**
Microbiological Assessment Beach Closing Assessment Toxicant Assessment (Human Health) Other Parameters	Habitat Assessment Toxicity Assessment Conventional Assessment Toxicant Assessment (Aquatic Life) Biological Assessment Nutrient Assessment

The following categories are based on categories recommended in the 2006 Integrated Report Guidance:

Category 1
The assessment unit is placed in this category if it meets the water quality standards for the parameters that define support for both Primary Contact Recreation (PCR) & Aquatic Life Use Support (ALUS).

Category 2
The assessment unit is placed in this category if it attains water quality standards for the parameters that define support for either PCR or ALUS but data are insufficient to determine support for the other use. In addition, there are no data to indicate that the uses are threatened under the US EPA definition of threatened. Waters with insufficient data will be scheduled for more extensive monitoring in the USVI's multi-year monitoring schedule.

Category 3
The assessment unit is placed in this category if insufficient or no data are available to determine if water quality standards are attained and any designated uses are supported. The Virgin Islands considers insufficient data as anything less than four quarters of monitoring data. However, waters with less than four quarters of monitoring data may be reviewed on a case-by-case basis if the limited data strongly suggest that water quality standards are exceeded and the designated uses are impaired. Such waters may be eligible for inclusion on the 303(d) List. Remaining waters with insufficient data will be scheduled for more extensive monitoring in the USVI's multi-year monitoring schedule.

In the 2006 Integrated Report, DEP proposed the following Category 3 subcategories:

Category 3A
No data are available from any of the identified data sources for the assessment unit in question.

Category 3B
Insufficient Data are available from any of the identified data sources for the assessment unit in question. Insufficient data are defined as less than four quarters of monitoring data. This category differs from Category 2 in that this condition must apply to all designated uses.

Category 3C
Inconclusive Data are available from any of the identified data sources for the assessment unit in question. This might include information from studies that do not directly provide information related to water quality standards.

Category 3D
Unreliable or low quality data are available from any of the identified data sources for the assessment unit in question. Unreliable or low quality data are defined as data sets that have significant gaps, obvious anomalies, etc.

Category 4
Assessment units that are found to be not supporting for one or both designated uses are placed in category 4 under the appropriate subcategory (4A, 4B, 4C).

Category 4A
The assessment unit is placed in this category if it was previously listed on the 303(d) list and a total maximum daily load has been established and approved by EPA.

Category 4B
The assessment unit is placed into this category only if other pollution control requirements are expected to address all water/pollutant combinations and attain all water quality standards within a reasonable period of time. The Virgin Islands considers a reasonable period of time as being the time between reporting cycles. If the impairment is the result of a point source discharge, it is expected that the Territorial Pollution Discharge Elimination System (TPDES) program will take appropriate measures to control point source pollution. If the impairment is the result of non-point source pollution, DPNR will provide evidence that a pollution control measure is in place.

Category 4C
The assessment unit is placed into this category if the impairment was not caused by a pollutant. Assessment units placed into this category must show improvement by the next reporting cycle. If the impairment persists because of existing conditions it will be moved into Category 5. If the assessment unit shows improvement since the last cycle it will be moved into either Category 1 or 2. If the data available is insufficient to make an assessment, the assessment unit will be moved to Category 3 (see Category 3 for more detail).

Category 5
The assessment unit is placed into this category if water quality standards are exceeded in which case a total maximum daily load must be established. Assessment units that were placed into Category 5 were placed on the 2006 303(d) Total Maximum Daily Load List.

De-listing

Assessment Units (AU) that were listed as impaired on the 2004 303(d) list were listed in Category 5 with the following exceptions:

- AUs that, after the evaluation of the existing and readily available data, meet the applicable water quality standards. Such a waterbody may be moved to Category 1 or 2 after 2 cycles (4 years) of more recent data demonstrates attainment. This type of de-listing action requires the data to be complete, reproducible, and defensible.

- AUs for which the original basis for listing is determined to be inaccurate may be moved to Category 1 or 2 if a re-examination of the data shows that the segments meet water quality standards, or to Category 3 if there are insufficient data to make a determination.

- The AU in question already has an EPA approved TMDL, in which case it will be placed in Category 4A.

Monitoring Strategy

The Water Pollution Control Program develops the Division of Environmental Protection's monitoring strategy. The current monitoring strategy addresses the integrated five categories and the assessment units delineated by Battelle (2003). The monitoring strategy is available for inclusion in this methodology and is attached as an appendix.

The Water Pollution Control Program developed the following Multi-Year Monitoring Strategy in which a monitoring plan was detailed for 9 years from the point of its creation:

FY 2004
- Develop a comprehensive monitoring and assessment program
- Documentation and mapping of the USVI wetlands
- Database design
- Analysis of all wetlands and riparian areas
- Land ownership records
- Review of Quality Assurance Project Plan for monitoring and data analysis
- Establish monitoring priorities and targets

- Definition of field survey protocols
- Preliminary field data collection on water quality
- Characterization of plant communities and plant species
- DPNR training on data collection and GIS application
- Training on Clean Water Act, Oil Pollution Act and SPCC Wetlands and Regulation
- Develop mangrove restoration plan for Salt River
- Reassessment of the 13 category I watersheds

FY 2005
- Develop a comprehensive monitoring and assessment program
- Documentation and mapping of the USVI wetlands
- Database design
- Review of Quality Assurance Project Plan for new monitoring and data analysis
- Establish monitoring priorities and targets
- Definition of field survey protocols
- Preliminary field data collection on water quality
- Characterization of plant communities and plant species
- Characterization of aquatic life
- Start mangrove restoration for Salt River
- Develop Watershed Restoration Strategies for Salt River
- Training on wetland mitigation and delineation
- Training on watershed assessment
- Develop Watershed Restoration Strategies for Salt River and Benner Bay
- BASINS training

FY 2006
- Implement a comprehensive monitoring and assessment program
- Input data on the database
- Review of Quality Assurance Project Plan for new monitoring and data analysis
- Field data collection on water quality
- Data collection on biological assemblages
- Develop standards for wetland health based on water quality and biological assemblages
- Characterization of plant communities and plant species
- Start mangrove restoration for Salt River
- Implement Watershed Restoration Strategies for Salt River and Benner Bay

FY 2007
- Implement a comprehensive monitoring and assessment program
- Input data on the database
- Review of Quality Assurance Project Plan for new monitoring and data analysis
- Field data collection on water quality
- Data collection on biological assemblages
- Develop standards for wetland health based on water quality and biological assemblages

- Characterization of plant communities and plant species
- Continue mangrove restoration for Salt River
- Implement Watershed Restoration Strategies for Salt River and Benner Bay

FY 2008
- Implement a comprehensive monitoring and assessment program
- Input data on the database
- Aggregate wetlands by similar types of stressors
- Input information from database on GIS
- Field data collection on water quality
- Data collection on biological assemblages
- Develop standards for wetland health based on water quality and biological assemblages
- Characterization of plant communities and plant species
- Start mangrove restoration for Salt River
- Implement Watershed Restoration Strategies for Salt River and Benner Bay

FY 2009
- Review the wetlands monitoring and assessment program
- Input data on the database
- Field data collection on water quality
- Data collection on biological assemblages
- Develop standards for wetland health based on water quality and biological assemblages
- Characterization of plant communities and plant species
- Continue mangrove restoration for Salt River
- Implement Watershed Restoration Strategies for Salt River and Benner Bay
- Training on wetland restoration

FY 2010
- Review the wetlands monitoring and assessment program
- Input data on the database
- Review of Quality Assurance Project Plan for new monitoring and data analysis
- Field data collection on water quality
- Data collection on biological assemblages
- Test and evaluate standards for wetland health based on water quality and biological assemblages
- Characterization of plant communities and plant species
- Continue mangrove restoration for Salt River
- Implement Watershed Restoration Strategies for Salt River and Benner Bay
- Develop Great Pond Enhancement Plan

FY 2011
- Make appropriate changes to the wetlands monitoring and assessment program
- Input data on the database
- Review of Quality Assurance Project Plan for new monitoring and data analysis

- Review procedures for field data collection on water quality
- Review procedures for data collection on biological assemblages
- Present a complete assessment report on USVI wetlands health and water quality
- Evaluate results from mangrove restoration project in Salt River
- Implement Watershed Restoration Strategies for Salt River and Benner Bay
- Implement Great Pond enhancement plan

FY 2012
- Continue with wetlands monitoring and assessment program
- Input data on the database
- Field data collection on water quality
- Data collection on biological assemblages
- Review of assessment report on USVI wetlands health and water quality
- Establish a mangrove restoration plan for critical areas based on the Salt River experience
- Implement Watershed Restoration Strategies for Salt River and Benner Bay
- Implement Great Pond enhancement plan

FY 2013
- Prepare a management plan for the USVI wetlands
- Establish regulations for USVI wetlands
- Identify new areas for wetland restoration
- Implement Watershed Restoration Strategies for Salt River and Benner Bay
- Implement Great Pond enhancement plan

Section 303(d) Waters

Section 303(d) of the Clean Water Act requires States and Territories to develop a list of impaired waters needing TMDLs every even-numbered calendar year. An impaired waterbody is one for which technology-based pollution controls are not stringent enough to attain or maintain compliance with applicable State and Territory water quality standards. In order for a water quality-limited waterbody to attain water quality standards, a TMDL must be developed and implemented specifically for that waterbody and pollutant(s) of concern. A TMDL is a quantitative assessment of the amount of pollution that a certain waterbody can assimilate while still meeting water quality standards.

On February 2, 2008 the Virgin Islands Department of Planning and Natural Resources released the 2008 TMDL list for public comment. The 2008 303(d) List of Impaired Waterbodies is attached to this report as Attachment I.

C. Estuary and Coastal Assessment

1. Designated Use Support Summary

Assessment of the Virgin Islands' coastal waters is presented in (estimated) square miles of assessment unit boundaries. Some 650 square miles are assessed in this report. A summary of use support assessments for coastal waters is shown in Table III.C.1. The mileage presented is based on Global Information Systems (GIS) approximations.

Table III.C.1. Waterbodies, Segments, and Categories

AU ID	AU Name	AU Size (sq. mi.)	305(b) Category	Integrated Category
VI-STT-01	Botany Bay	0.1576	Fully Supporting	1
VI-STT-02	Stumpy Bay	0.0597	Not Supporting	5
VI-STT-03	Botany Bay subwatershed, offshore	1.309	Insufficient Information	3A
VI-STT-04	Santa Maria Bay	0.3617	Not Supporting	5
VI-STT-05	Caret Bay	0.0266	Not Supporting	5
VI-STT-06	Neltjeberg Bay	0.0562	Fully Supporting	1
VI-STT-07	Dorothea	0.0254	Not Supporting	5
VI-STT-08	Hull Bay	0.2049	Not Supporting	5
VI-STT-09	Dorothea Bay subwatershed, offshore	0.7673	Insufficient Information	3A
VI-STT-10	Magens Bay	1.6208	Not Supporting	5
VI-STT-11	Northwest St. Thomas HUC14, offshore	55.088	Fully Supporting	1
VI-STT-12	Lovenlund Bay	0.0228	Insufficient Information	3A
VI-STT-13	Mandahl Bay (Marina)	0.0131	Not Supporting	5
VI-STT-14	Tutu Bay	0.0414	Insufficient Information	3A
VI-STT-15	Sunsi Bay	0.0152	Not Supporting	5
VI-STT-16	Spring Bay	0.0102	Not Supporting	5
VI-STT-17	Mandahl Bay subwatershed, offshore	1.1379	Not Supporting	5
VI-STT-18	Water Bay	0.0845	Not Supporting	5
VI-STT-19	Smith Bay	0.1187	Not Supporting	5
VI-STT-20	Smith Bay subwatershed, offshore	0.4103	Insufficient Information	3A
VI-STT-21	St. John Bay	0.0411	Not Supporting	5
VI-STT-22	Red Bay	0.0078	Not Supporting	5
VI-STT-23	Vessup Bay	0.0619	Not Supporting	5
VI-STT-24	Red Hook Bay	0.1772	Not Supporting	5
VI-STT-25	Great Bay	0.5593	Not Supporting	5
VI-STT-26	Red Hook Bay, offshore	0.4725	Insufficient Information	3A
VI-STT-27	St. James Islands, offshore	0.6691	Insufficient Information	3A
VI-STT-28	Cowpet Bay	0.0757	Not Supporting	5
VI-STT-29	St. James Bay	1.2439	Insufficient Information	3A
VI-STT-30A	Northeast St. Thomas HUC14, offshore north	42.927	Fully Supporting	1
VI-STT-30B	Northeast St. Thomas HUC14, offshore south	24.908	Insufficient Information	3A
VI-STT-31	Nazareth Bay	0.1793	Fully Supporting	1
VI-STT-32	Jersey Bay, offshore	1.2925	Not Supporting	5
VI-STT-33	Benner Bay	0.4187	Insufficient Information	3A
VI-STT-34	Benner Bay Lagoon Marina	0.0355	Not Supporting	5
VI-STT-35	Mangrove Lagoon	0.2931	Not Supporting	5
VI-STT-36	Frenchman Bay subwatershed, east	0.3532	Not Supporting	5
VI-STT-37	Frenchman Bay	0.0195	Not Supporting	5
VI-STT-38	Limetree Bay	0.0065	Not Supporting	5
VI-STT-39	Morningstar Bay	0.0215	Not Supporting	5
VI-STT-40	Pacquereau Bay	0.0453	Not Supporting	5
VI-STT-41	Frenchman Bay subwatershed, offshore	2.9233	Insufficient Information	3A
VI-STT-42	Southeast St. Thomas HUC14, offshore	50.939	Fully Supporting	1
VI-STT-43	St. Thomas Harbor, inner	0.7495	Not Supporting	5
VI-STT-44	St. Thomas Harbor, outer	1.2128	Insufficient Information	3A

VI-STT-45	Gregerie Channel	1.7072	Not Supporting	5
VI-STT-46	Sprat Bay	0.3814	Not Supporting	5
VI-STT-47	Hassel Island at Haulover Cut to Regis Point	0.2074	Not Supporting	5
VI-STT-48	Water Isle Hotel, Beach	0.0057	Insufficient Information	3A
VI-STT-49	Druif Bay	0.0331	Not Supporting	5
VI-STT-50	Flamingo	0.061	Not Supporting	5
VI-STT-51	Krum Bay	0.0754	Fully Supporting	1
VI-STT-52	Lindbergh Bay	0.2612	Not Supporting	5
VI-STT-53	Cyril E. King Airport subwatershed, offshore	0.8499	Not Supporting	5
VI-STT-54	Perseverance Bay, offshore	0.4734	Not Supporting	5
VI-STT-55	Brewers Bay	0.1076	Not Supporting	5
VI-STT-56	Perseverance Bay	0.2114	Not Supporting	5
VI-STT-57	Fortuna Bay	0.0827	Not Supporting	5
VI-STT-58	Fortuna Bay subwatershed, offshore	0.6553	Insufficient Information	3A
VI-STT-59	Northwest St. Thomas HUC14, offshore	77.71	Insufficient Information	1
VI-STJ-01	Caneel Bay	0.2623	Unassessed (NPS Jurisdiction)	-
VI-STJ-02	Hawksnest Bay	0.2246	Unassessed (NPS Jurisdiction)	-
VI-STJ-03	Trunk Bay	0.0685	Unassessed (NPS Jurisdiction)	-
VI-STJ-04	Hawksnest Bay subwatershed, offshore	1.7287	Unassessed (NPS Jurisdiction)	-
VI-STJ-05	Cinnamon Bay	0.1456	Unassessed (NPS Jurisdiction)	-
VI-STJ-06	Maho Bay/Francis Bay	0.346	Unassessed (NPS Jurisdiction)	-
VI-STJ-07	Maho Bay subwatershed, offshore	1.6071	Unassessed (NPS Jurisdiction)	-
VI-STJ-08	Mary Point	0.4831	Unassessed (NPS Jurisdiction)	-
VI-STJ-09	Leinster Bay	0.6627	Unassessed (NPS Jurisdiction)	-
VI-STJ-10	Minnebeck Bay	1.4876	Unassessed (NPS Jurisdiction)	-
VI-STJ-11	Newfound Bay	0.0765	Insufficient Information	3A
VI-STJ-12	North St. John HUC14, offshore	23.719	Insufficient Information	3A
VI-STJ-13	Coral Harbor	0.6965	Insufficient Information	3A
VI-STJ-14	Hurricane Hole	0.7689	Insufficient Information	3A
VI-STJ-15	Round Bay	0.6015	Not Supporting	5
VI-STJ-16	Coral Bay	2.2337	Insufficient Information	3A
VI-STJ-17	Salt Pond Bay	0.1978	Unassessed (NPS Jurisdiction)	-
VI-STJ-18	Grootman Bay	0.1046	Unassessed (NPS Jurisdiction)	-
VI-STJ-19	Great Lameshur Bay	0.359	Unassessed (NPS Jurisdiction)	-
VI-STJ-20	Southeast St. John HUC14, offshore	24.319	Insufficient Information	3A
VI-STJ-21	Genti Bay, nearshore	0.0947	Unassessed (NPS Jurisdiction)	-
VI-STJ-22	Genti Bay, offshore	0.769	Unassessed (NPS	-

			Jurisdiction)	
VI-STJ-23	Fish Bay	0.2103	Unassessed (NPS Jurisdiction)	-
VI-STJ-24	Fish Bay subwatershed, offshore	0.1824	Unassessed (NPS Jurisdiction)	-
VI-STJ-25	Rendezvous Bay	0.4677	Not Supporting	5
VI-STJ-26	Chocolate Hole	0.1004	Not Supporting	5
VI-STJ-27	Rendezvous Bay subwatershed, offshore	0.1863	Insufficient Information	3A
VI-STJ-28	Great Cruz Bay	0.1396	Not Supporting	5
VI-STJ-29	Turner Bay/Enighed Pond	0.057	Not Supporting	5
VI-STJ-30	Cruz Bay	0.0674	Not Supporting	5
VI-STJ-31	Great Cruz Bay watershed, offshore	0.5775	Unassessed (NPS Jurisdiction)	-
VI-STJ-32	Southwest St. John HUC14, offshore	10.142	Insufficient Information	3A
VI-STJ-33	Pillsbury Sound	6.9399	Fully Supporting	1
VI-STC-01	Frederiksted, south	0.0451	Insufficient Information	3A
VI-STC-02	Frederiksted Harbor	0.035	Fully Supporting	1
VI-STC-03	Lagrange subwatershed, offshore	0.375	Insufficient Information	3A
VI-STC-04	Prosperity, nearshore	0.1118	Insufficient Information	3A
VI-STC-05	Prosperity subwatershed, offshore	0.5129	Insufficient Information	3A
VI-STC-06	Sprat Hall Beach	0.0609	Not Supporting	5
VI-STC-07	Creque Dam/Butler Bay	0.529	Insufficient Information	3A
VI-STC-08	Hams Bay	0.3144	Insufficient Information	3A
VI-STC-09	Davis Bay	0.0522	Insufficient Information	3A
VI-STC-10	Hams Bluff	0.5506	Insufficient Information	3A
VI-STC-11	Northwest St. Croix HUC14, offshore	33.302	Fully Supporting	1
VI-STC-12	Cane Bay	0.0613	Fully Supporting	1
VI-STC-13	Baron Bluff subwatershed	0.3498	Not Supporting	5
VI-STC-14	Belvedere	0.0557	Insufficient Information	3A
VI-STC-15	Northside subwatershed	0.6109	Insufficient Information	3A
VI-STC-16	Salt River Lagoon, Marina	0.0194	Not Supporting	5
VI-STC-17	Salt River Lagoon, Sugar Bay	0.3244	Fully Supporting	1
VI-STC-18	Salt River Bay	0.3229	Fully Supporting	1
VI-STC-19	Judith Fancy	0.01	Insufficient Information	3A
VI-STC-20	Salt River Bay subwatershed, west	0.2433	Insufficient Information	3A
VI-STC-21	Salt River Bay subwatershed, east	0.8922	Insufficient Information	3A
VI-STC-22	Northcentral St. Croix HUC14, offshore	23.61	Fully Supporting	1
VI-STC-23	St. Croix-By-the-Sea	0.0727	Not Supporting	5
VI-STC-24	Long Reef Backreef, west	0.1153	Not Supporting	5
VI-STC-25	Princess subwatershed, offshore	0.4343	Not Supporting	5
VI-STC-26	Christiansted Harbor	0.9601	Not Supporting	5
VI-STC-27	Long Reef Forereef, east	0.3149	Not Supporting	5
VI-STC-28	Altona Lagoon	0.2337	Insufficient Information	3A
VI-STC-29	Christiansted Harbor, east	0.1089	Not Supporting	5
VI-STC-30	Beauregard Bay	0.2145	Not Supporting	5
VI-STC-31	Buccaneer Beach	0.0166	Not Supporting	5
VI-STC-32	Altona Lagoon subwatershed, offshore	0.6812	Insufficient Information	3A
VI-STC-33	Punnett Bay	0.0576	Fully Supporting	1
VI-STC-34	Punnett Point, east	0.0223	Insufficient Information	3A
VI-STC-35	Tamarind Reef Lagoon (Southgate Lagoon)	0.0205	Not Supporting	5
VI-STC-36	Green Cay Beach	0.1017	Insufficient Information	3A
VI-STC-37	Southgate subwatershed, offshore	2.2219	Not Supporting	5

VI-STC-38	Solitude Backreef	0.9681	Insufficient Information	3A
VI-STC-39	Teague Bay	0.1773	Not Supporting	5
VI-STC-40	Teague Bay Backreef	0.8547	Not Supporting	5
VI-STC-41	Buck Island Backreef	0.7675	Unassessed (NPS Jurisdiction)	-
VI-STC-42	Buck Island Forereef	3.3497	Unassessed (NPS Jurisdiction)	-
VI-STC-43	Solitude and Teague Bay subwatersheds, offshore	18.822	Unassessed (NPS Jurisdiction)	-
VI-STC-44	Northeast St. Croix HUC14, offshore.	36.088	Unassessed (NPS Jurisdiction)	-
VI-STC-45	Isaac Bay	0.0853	Insufficient Information	3A
VI-STC-46	Grapetree Bay	0.0425	Fully Supporting	1
VI-STC-47	Turner Hole Backreef	0.2772	Fully Supporting	1
VI-STC-48	Turner Hole subwatershed, offshore	16.949	Fully Supporting	1
VI-STC-49	Madam Carty Backreef	0.464	Fully Supporting	1
VI-STC-50	Madam Carty, offshore	3.5161	Insufficient Information	3A
VI-STC-51	Great Pond	0.1578	Insufficient Information	3A
VI-STC-52	Great Pond Bay	1.0184	Fully Supporting	1
VI-STC-53	Great Pond Bay subwatershed, offshore	3.0288	Fully Supporting	1
VI-STC-54	Leprey Valley Backreef	0.3712	Insufficient Information	3A
VI-STC-55	Leprey Valley subwatershed, offshore	2.8455	Insufficient Information	3A
VI-STC-56	Bugby Hole Backreef	0.7042	Not Supporting	5
VI-STC-57	Bugby Hole subwatershed, offshore	3.9	Insufficient Information	3A
VI-STC-58	Southeast St. Croix HUC14, offshore	24.146	Fully Supporting	1
VI-STC-59	Canegarden Bay	0.8542	Not Supporting	5
VI-STC-60	Canegarden Bay, offshore	0.7933	Insufficient Information	3A
VI-STC-61	Hess Oil Virgin Islands Harbor	0.671	Not Supporting	5
VI-STC-62	Limetree Bay	0.7239	Fully Supporting	1
VI-STC-63	Martin-Marietta Alumina Harbor	0.3228	Not Supporting	5
VI-STC-64	Manning Bay/Estate Anguilla Beach	0.0508	Not Supporting	5
VI-STC-65	Hovensa, west	1.2865	Not Supporting	5
VI-STC-66	Hovensa subwatershed, offshore	2.8305	Insufficient Information	3A
VI-STC-67	Southports St. Croix HUC14, offshore	8.1966	Fully Supporting	1
VI-STC-68	Bethlehem subwatershed, inshore	0.2149	Insufficient Information	3A
VI-STC-69	Bethlehem subwatershed, offshore	0.3971	Insufficient Information	3A
VI-STC-70	Airport, nearshore	2.1943	Insufficient Information	3A
VI-STC-71	Airport, offshore	4.263	Fully Supporting	1
VI-STC-72	Airport St. Croix HUC14, offshore	4.1803	Insufficient Information	3A
VI-STC-73	Diamond, nearshore	0.1699	Insufficient Information	3A
VI-STC-74	Enfield Green Beach/VIRIL Outfall	0.1376	Insufficient Information	3A
VI-STC-75	Diamond subwatershed, offshore	2.8479	Not Supporting	5
VI-STC-76	Carlton Beach	0.2447	Not Supporting	5
VI-STC-77	Long Point Bay	0.8376	Insufficient Information	3A
VI-STC-78	Long Point Bay subwatershed, offshore	4.9231	Fully Supporting	1
VI-STC-79	Good Hope Beach	0.1876	Fully Supporting	1
VI-STC-80	Sandy Point, nearshore south	2.0121	Insufficient Information	3A
VI-STC-81	Sandy Point, offshore south	7.4306	Insufficient Information	3A
VI-STC-82	Sandy Point, nearshore west	0.1158	Not Supporting	5
VI-STC-83	Sandy Point, offshore west	0.4875	Insufficient Information	3A
VI-STC-84	Southwest St. Croix HUC14, offshore	18.347	Fully Supporting	1

2. Individual Use Support Summary

Assessment of the Virgin Islands' coastal waters is presented in (estimated) square miles of assessment unit boundaries. Some 650 square miles are assessed in this report. (See note regarding "Not Assessed" category in the 303d list TMDL, section IV.)

Figure III.C.2.a St. Thomas/St. John Integrated Categories

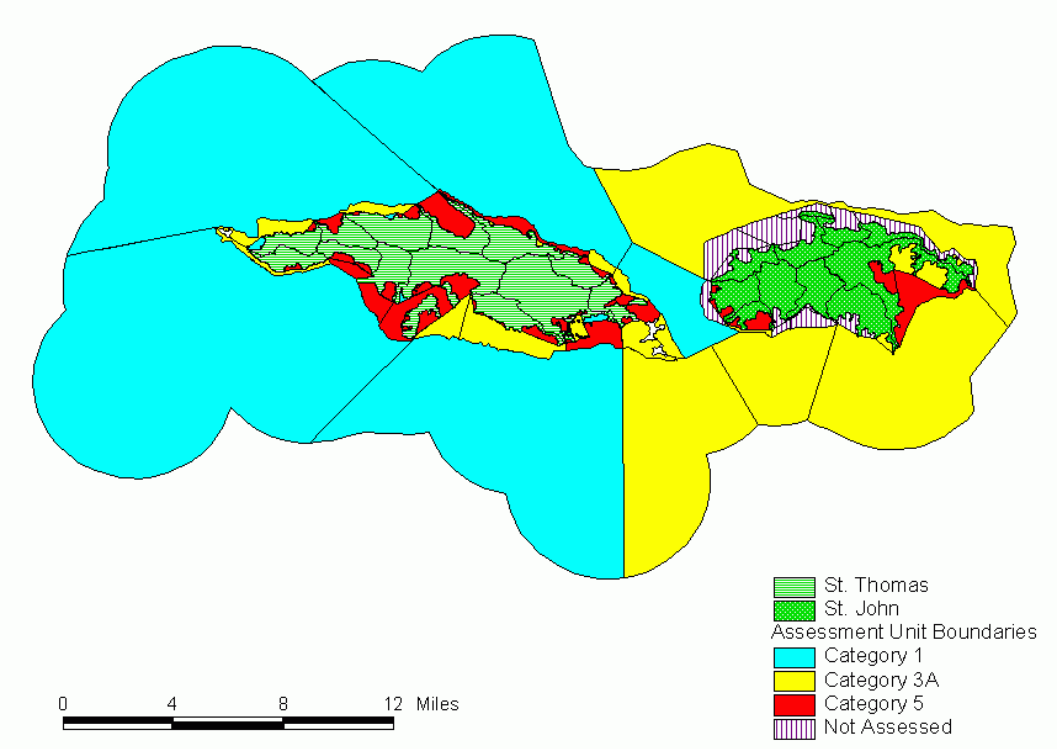
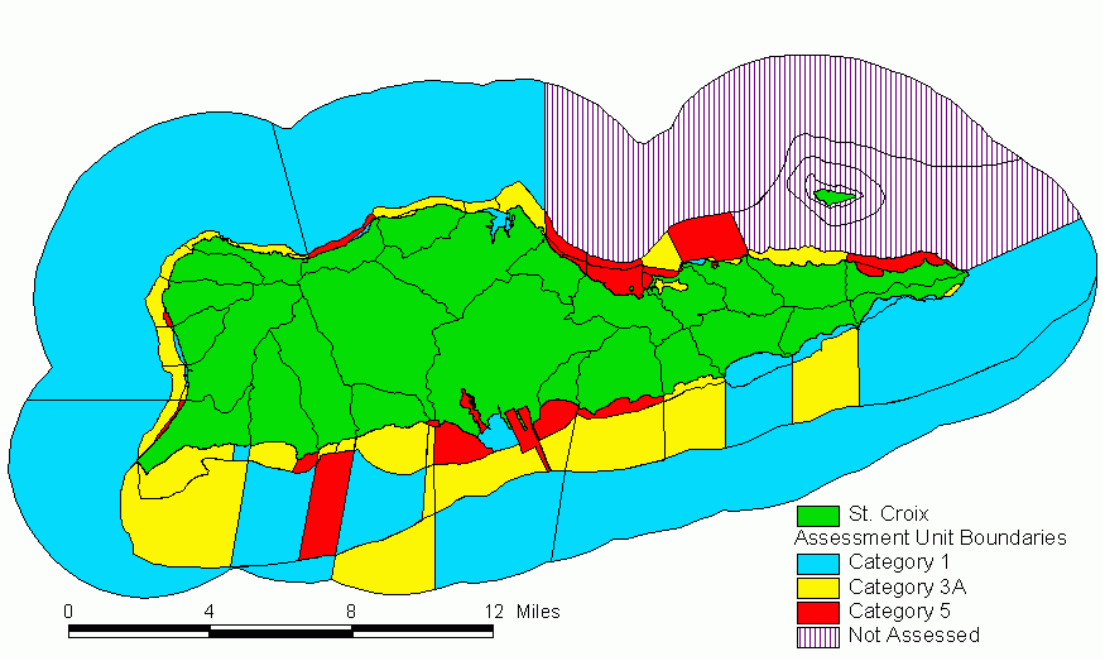


Figure III.C.2.b St. Croix Integrated Categories



Several assessment units were not assessed this cycle because certain areas fall within the jurisdiction of the National Park Service (refer to Attachment 1: 2006 303(d) List of Impaired Waterbodies for greater detail). While the current assessment unit structure does not match perfectly with the waters under federal jurisdiction, Figures III.C.2.c and III.C.2.d illustrates these particular areas.

Figure III.C.2.c St. John Assessment Units Completely Under Federal Jurisdiction

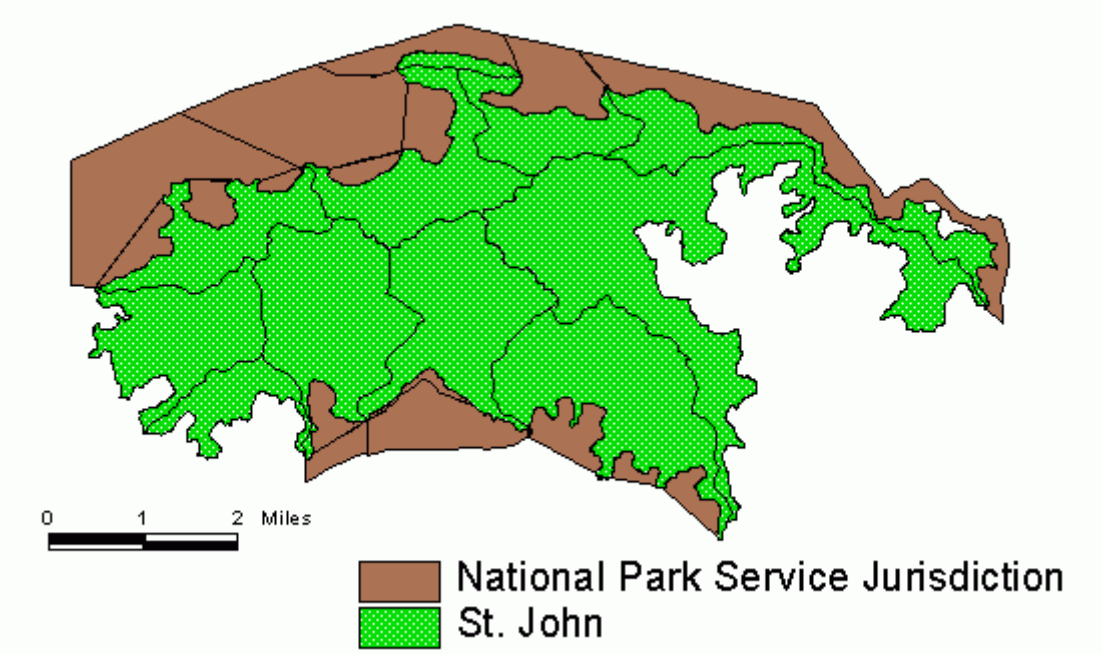
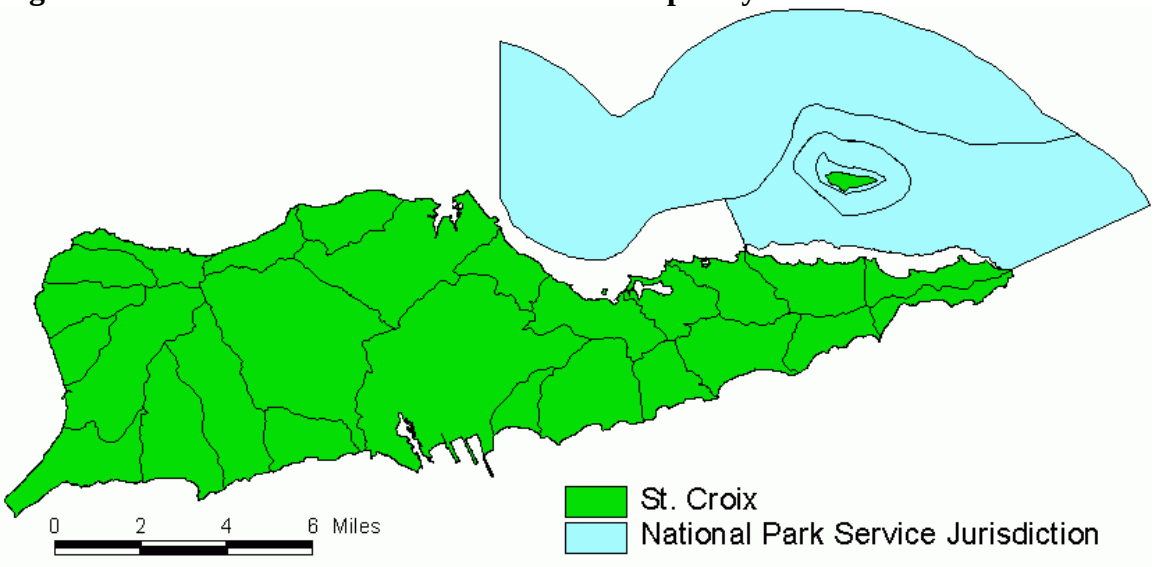


Figure III.C.2.d St. Croix Assessment Units Completely Under Federal Jurisdiction



3. Causes and Sources of Designated Use Impairment

a) Eutrophication

Eutrophication is rarely observed in the Virgin Islands because of tidal flushing and currents driven by the Caribbean current and steady tradewind patterns.[11]

b) Case Studies

The Unified Watershed Assessment includes a detailed summary of existing conditions for the 18 Coastal Zone Management Areas of Particular Concern (This summary is Attachment 5 of the Unified Watershed Assessment, which is included in this Water Quality Assessment as Attachment II.) These APC reports contain water quality reports for each APC.

D. Wetlands Assessment

1. Introduction

Prior to October 31, 1978, the US Army Corps of Engineers, as delegated by 404 of the Clean Water Act, performed protection of wetlands in the Virgin Islands. After that date, all coastal wetland protection was mandated to the Department of Planning and Natural Resources, Division of Coastal Zone Management. Guidelines are found in VIC Title 12, Chapter 21, §.903(b)(8), which states that the Division's responsibility is "*to conserve ecologically significant resource areas for their contribution to marine productivity and value as wildlife habitats, and preserve the function and integrity of reefs, marine meadows, salt ponds, mangroves and other significant areas*".

2. Classification of Wetlands

Classification of wetlands is based on the US Fish and Wildlife Wetland and Deepwater Habitat System (Cowardin *et a*l., 1979). Wetlands are grouped into four categories: tidal, seep, landlocked ponds, and spring tidal wetlands.

Tidal ponds or lagoons have narrow inlets connecting to the sea and have a salinity level that is slightly higher than seawater.

Seep ponds and **landlocked ponds** are not open to the sea, and have fluctuating water and salinity levels depending on rainfall.

Spring tidal wetlands fringe bays, but standing water only occurs during spring tides, when strong onshore winds push water into the wetlands, or during times of heavy rainfall and consequent flooding.

The primary source of wetland impairment is non-point source pollution, construction intrusions, and sedimentation from upland run-off.

Table III.D.1 Wetlands Classification[12]

[Classification of wetlands is based on the US Fish and Wildlife Wetland and Deepwater Habitat System (Cowardin et al., 1979).]

St. Croix	**Classification**
Great Pond	Estuarine, Intertidal, Forested

Billy French Pond	Estuarine, Intertidal, Forested, Scrub-Shrub, Basin
West End Salt Pond	Estuarine, Intertidal, Unconsolidated sanded shore, Scrub-shrub, Basin
Altoona Lagoon	Estuarine, Intertidal, Forested
Coakley Bay	Marine (Coastal), Intertidal, Unconsolidated sanded shore
Long Point Bay	Estuarine, Unconsolidated sanded shore, Intertidal
Mt. Fancy	Estuarine, Intertidal, Scrub- shrub, Unconsolidated shore, cobble-gravel
Robin Bay	Marine (Coastal), Intertidal, Unconsolidated cobble gravel
Southgate Pond	Estuarine, Intertidal, Scrub-shrub basin
Salt River/Sugar Bay	Estuarine, Intertidal, Unconsolidated sanded shore and bottom
Half Penny	Estuarine, Intertidal, Unconsolidated sanded shore, Scrub-shrub
Krause Lagoon	Estuarine, Intertidal, Scrub-shrub,
Manchenil	Marine (Coastal), Intertidal, Unconsolidated sanded shore
St Thomas	**Classification**
Mandahl Bay	Estuarine, Intertidal, Unconsolidated bottom, Scrub-shrub
Fortuna Bay	Estuarine, Intertidal, Unconsolidated sanded shore, Forested,
Magens Bay	Marine (Coastal), Sub-tidal, Coral Reef,
Perseverance Bay	Estuarine, Intertidal, Forested, Unconsolidated sanded shore
Frenchman's Bay	Estuarine, Intertidal, Unconsolidated sanded shore
Little Conculus Bay	Estuarine, Intertidal, Unconsolidated sanded shore, Scrub-shrub
Benner Bay	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Mangrove Lagoon	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Smith Bay	Estuarine, Intertidal, Unconsolidated sanded shore
St. John Bay	Estuarine, Intertidal, Unconsolidated sanded shore
Great Bay	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Cabrita Peninsula	Estuarine, Intertidal, Unconsolidated sanded shore
Cowpet Bay	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Vessup Bay	Estuarine, Intertidal, Forested,
Bolongo Bay	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Cabes Point	Estuarine, Intertidal, Scrub-shrub
Little St. James	Estuarine, Intertidal, Unconsolidated Sanded shore, Scrub-shrub

Salt Cay	Estuarine, Intertidal, Unconsolidated Mud,
Patricia Bay	Estuarine, Intertidal, Scrub-shrub
Muller Bay	Estuarine, Intertidal, Unconsolidated Sanded shore, Scrub-shrub
Water Island	**Classification**
Limestone Bay	Marine (Coastal), Intertidal, Unconsolidated Cobble gravel
Sprat Bay	Marine (Coastal), Intertidal, Unconsolidated sanded bottom
Sprat Point	Estuarine, Intertidal, Unconsolidated sanded shore, Scrub-shrub
St. John	**Classification**
Brown Bay	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Leinster Bay	Estuarine, Intertidal, Unconsolidated sanded shore
Kiddel Bay	Estuarine, Intertidal, Unconsolidated sanded shore, Scrub-shrub
Little Lameshur	Estuarine, Intertidal, Scrub-shrub
Great Lameshur	Estuarine, Intertidal, Scrub-shrub
Fish Bay	Estuarine, Intertidal, Unconsolidated sanded shore,
Frank Bay	Estuarine, Intertidal, Unconsolidated sanded shore, Scrub-shrub
Enighed Bay	Estuarine, Intertidal, Scrub-shrub
Francis Bay	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Salt Pond Bay	Marine (Coastal), Subtidal, Coral Reef, 2, Estuarine, Intertidal, Scrub-shrub
Privateer Bay	Estuarine, Intertidal, Unconsolidated sanded shore, Scrub-shrub
South side Pond	Estuarine, Intertidal, Unconsolidated sanded shore, Scrub-shrub
Elk Bay	Estuarine, Intertidal, Unconsolidated, sanded shore, Scrub-shrub
Water Creek	Estuarine, Sub-tidal, Unconsolidated bottom
Otter Creek	Estuarine, Sub-tidal, Unconsolidated bottom
Princess Bay	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Coral Bay	Estuarine, Intertidal, Forested, Unconsolidated cobble gravel, Forested
Chocolate Hole	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Peter Bay	Estuarine, Intertidal, Forested,
Turner Point	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Newfound Bay	Estuarine, Intertidal, Unconsolidated Sanded shore,

Reef Bay	Estuarine, Intertidal, Forested,
Calabash Boom	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore
Annaberg	Annaberg Estuarine,
Europa Bay	1. Estuarine, Intertidal, Scrub-shrub 2. Estuarine, Sub-tidal, Unconsolidated sanded bottom
Grooto Pain Bay	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Hart Bay	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub
Mary Point	Estuarine, Intertidal, Forested, Unconsolidated Sanded shore, Scrub-shrub

3. Wetlands Protection Activities

The Department of Planning and Natural Resources very recently instituted a Wetlands Program. The program was short-lived though due to staffing problems.

E. Public Health/Aquatic Life Concerns

Pollution-caused fish kills, *ciguatera* or other abnormalities

The Department of Planning and Natural Resources keeps no log of fish kill incidents within the territory. DPNR will from time to time, however, issue public advisories when such incidents do occur.

Restrictions on swimming areas

- No sampling related to natural disasters (e.g. hurricanes) was conducted this cycle.

- Public advisories regarding beach water quality is broadcast over the available radio stations thorough the Virgin Islands Territory Emergency Management Agency (VITEMA) during the hurricane recovery period (interview with Officer Brad Thomas on March 16, 2000). Restrictions are also invoked when a sewage bypasses occurs that may be impacting a waterbody. The water quality sampling is performed by DPNR and a copy of the final results is forwarded to the Waste Management Authority and to the Department of Health's Division of Environmental Health.

The continual monitoring for beach contamination caused by a bypass is performed by DPNR-DEP Under TPDES permit requirements the Waste Management Authority broadcasts over the airwaves and publishes in the local newspapers a public advisory regarding the bypass; however, this action does not negate the fact that the Commissioner of DPNR may broadcast or publish a public advisory if it is deemed necessary.

The BEACH program issues notices on a weekly basis for territorial beaches that are being monitored. Advisories are issued following discovery of enterococci impairments.

PART IV. GROUND WATER ASSESSMENT

A. Ground Water Management Overview

DPNR/DEP is responsible for the development and enforcement of regulations associated with ground water, the management of databases containing information on wells and well related permits, the mapping of ground water supply well locations, the delineation of wellhead protection areas, other technical activities, and the dissemination of public information. Legal authority for DPNR/DEP primarily rests with the VI Code (VIC), Title 12 (Environmental Protection) - Chapters 5 (Water Resources Conservation), 7 (Water Pollution Control), 17 (Oil Spill Prevention and Pollution Control), 19 (Pesticide Control) and Title 19 (Health), Chapters 51 (Drinking Water), 53 (Sanitation), 55 (Sewage Disposal) and Chapter 56 (Solid and Hazardous Wastes) and the rules and regulations promulgated under these statutes.

In the VI, ground water is held primarily in three types of aquifers, principally under water table or semi-confined conditions:

1) Carbonate rock system in St. Croix, known as the Kingshill aquifer system
2) Fractured volcanic bedrock
3. Alluvial deposits

The ground water in the Virgin Islands is highly mineralized, often containing total dissolved solids (TDS) in excess of 1000 parts per million (ppm). Sodium, magnesium and calcium are the primary constituents, rendering continued consumption of untreated ground water unhealthy for those on a restricted sodium diet. Additionally, elevated nitrate levels and coliform bacteria have been found in some wells near the main sewer conveyance lines.

DPNR/DEP has identified seven “Key Themes” to guide groundwater management activities over the next decade:

1) Clarifying "Whose Water is it?"
2) Recognizing the Connections between Groundwater and Surface Water
3) Evaluating and Managing Threats to Groundwater Quality
4) Linking Land Use Planning and Groundwater Protection
5) Developing a Comprehensive Approach to Groundwater Quantity
6) Addressing Water Use and Conservation Issues
7) Collecting Long-Term Groundwater Data to Address Long-term Problems

Wellhead protection is vital to the long-term quality of life in the VI as the population increases. Fresh water is an especially valuable resource in the VI. The meager but important ground water resources are valuable supplements to the expensive, highly energy-consumptive desalinated water which is so heavily relied upon by the much of the population of the VI. Existing untainted ground water resources must be protected. The resources that have already been subjected to contamination by leaking underground storage tanks (USTs), leaking sewer lines and improper storage and disposal of chemicals must be managed to protect adjacent uncontaminated sources and restore damaged resources for future use.

There have been a number of collaborative efforts to promote groundwater protection in the comprehensive planning process by DPNR. In 2004, wellhead protection management standards have been incorporated into the draft Comprehensive Land and Water Use Plan Plan. In conjunction with the University of the Virgin Islands, a wellhead protection area delineation and contaminant inventory project was completed in 2001 to identify the actual and potential threats to the VI Water and Power Authority (WAPA) public water supply wells/well fields. Funding for the next phase of the study to actualize the wellhead management measures have been received and will be initiated by the end of 2008. In addition, a comprehensive hydrologic study was completed in 2007 in support of a petition to EPA to designate the Kingshill as a "sole source" aquifer.

The long-standing efforts to amend groundwater legislation, the Water Resources Conservation Act, during the last several years focused on strengthening high capacity well regulations. The proposed legislation recognized that many groundwater quantity issues needed a more comprehensive approach. For the first time, impacts of groundwater withdrawals on saltwater encroachment were acknowledged in statutory language. Provisions requiring reporting of water use for high capacity wells also reflect a more comprehensive approach. In drafting the proposed legislation, some of the issues that were identified and/or addressed included:

- The lack of monitoring data and capacity to be able to address regional water quantity issues, as well as impacts of wells on surface waters.
- Delineating groundwater management areas,
- Cumulative impacts of many low capacity wells in areas with high population density
- Defining the term "significant adverse environmental impact" as it pertains to groundwater protection areas.
- Identifying sensitive surface waters that should be protected and determining how they should be protected.
- The importance of water use reporting and determining the frequency of reporting
- Incorporating conservation measures more definitively in legislation.

The Ground Water program manages the installation of groundwater wells and groundwater withdrawals through a permitting system under Virgin Islands Code (VIC) Title 12, Chapter 5, Section 151 *et seq*. New wells can only be sited at locations providing adequate yield and a minimum risk of groundwater contamination from past, existing or future sources and activities.

Existing wells are regulated via groundwater appropriation permits that set groundwater withdrawal limits for the approved use, and are valid for a period of two years,.

Table IV.A.1 Number of permitted wells in the USVI

District	No. of Wells	Estimated Total Pumping Rate (million gallons per day)
St. Croix*	704	2.1
St. Thomas	400	0.4
St. John	89	0.1

* Excluding HOVENSA groundwater monitoring and product recovery wells, regulated by RCRA Part B operating permit.

Table IV.A.2 Number of applications reviewed this reporting period

Period	New/Renewal appropriation permit applications	Drilling permit applications	Soil Boring permit applications	Drillers license issued
October 2004 through September 2005	Approved: 57 Rejected: 0 Total: 57	Approved: 25 Rejected: 0 Total: 25	Approved: 15 Rejected: 0 Total: 15	Approved: 7 Rejected: 0 Total: 7
October 2005 through September 2006	Approved: 59 Rejected: 0 Total: 59	Approved: 8 Rejected: 0 Total: 8	Approved: 5 Rejected: 0 Total: 5	Approved: 8 Rejected: 0 Total: 8

WAPA

The "major" water supplier in the VI is the Virgin Islands Water and Power Authority (WAPA). Ground water has the potential to contribute up to 30% (up to about 1 million gallons per day (MGD)) of the WAPA potable water supply on the island of St. Croix (when the well fields are operating at or near capacity). No ground water is used in the WAPA distribution system on St. Thomas and St. John at the present time; however, the authority has previously investigated the use of ground water in the Sugar Estate, St. Thomas and Estates Adrian and Carolina, St. John, to augment the desalinated water supply.

WAPA : St. Croix

On St. Croix, WAPA's principal water supply comes from desalination units, which are capable of producing about 3 MGD(storage capacity =40 MG). Additionally, WAPA can potentially extract up to 1 MGD of ground water from seven (7) well fields. The principal aquifer in St. Croix is the Kingshill aquifer, predominantly a limestone aquifer that underlies the central portion of the island. The Estates Concordia, Adventure, Fairplains, Negro Bay and Barren Spot well fields tap this aquifer. The western Mahogany Road and La Grange well fields tap an alluvial and fractured bedrock aquifer.

WAPA : St. Thomas

On St. Thomas, WAPA provides desalinated water for distribution (approximately 2.2 MGD (storage capacity =40 MG)). Although WAPA used several wells in the vicinity of the St. Thomas Hospital in Sugar Estate the late 1960s to the early 1980s, they are no longer used. As part of a recent ground water source exploration program designed for WAPA's Emergency Ground Water Supply (EGWS) Program, the US Geological Survey (USGS) drilled several test wells in various locations on St. Thomas. USGS performed pumping tests on these wells in the Sugar Estate area, but to date, the wells have not been put into production.

WAPA : St. John

On St. John, WAPA's principal potable water source is a 500,000 GPD vapor vacuum compression unit. Additionally, several wells were drilled on St. John under the EGWS program described above, but to date, with the exception of one well in Estate Carolina, the wells have not been put into production.

The Estate Carolina WAPA well was put on line in the spring of 1994 as supplemental water supply for the eastern portion of St. John. The well provides mineral-rich water (TDS of approximately 2500 ppm) from a shallow, unconsolidated material aquifer, which is pumped into pressure tanks to meters for non-potable use only.

Public Water Systems that utilize groundwater

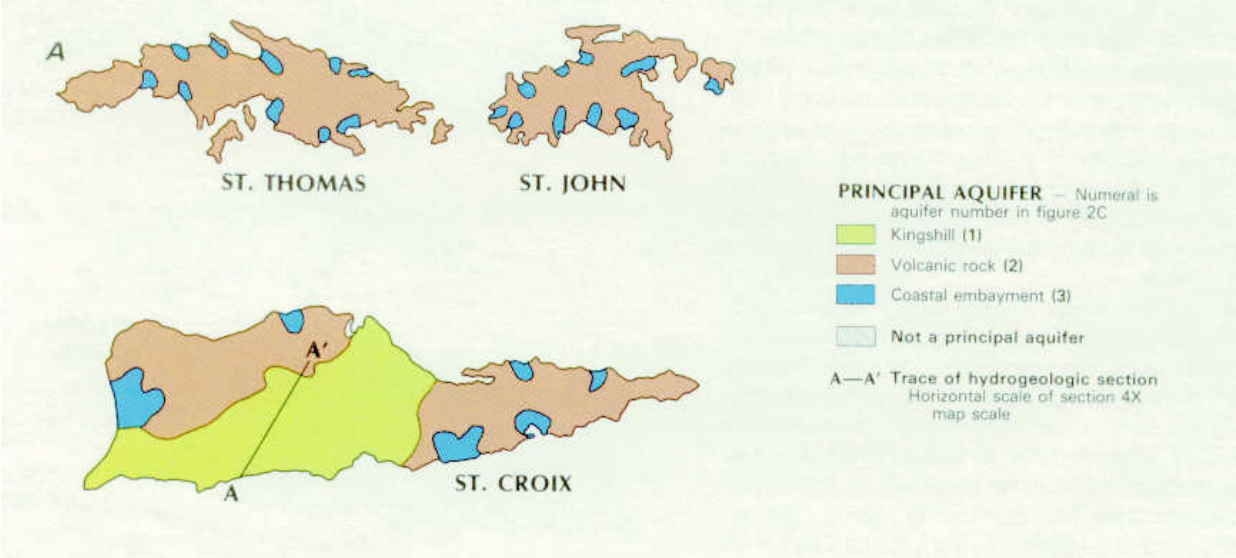
In addition to WAPA, water-hauling companies utilize wells as a secondary water supply source. Several water-hauling companies treat the ground water by reverse osmosis (RO), and then distribute the water via trucks to individual residences and businesses. Several water-bottling companies also do the same prior to bottling and distribution. These public water systems also include apartment complexes, schools, condominiums, hotels, bars and restaurants. In addition to drinking water quality monitoring parameters, these systems must monitor their well water for Total Dissolved Solids.

Table IV.A.3 Overview of VI Public Water Systems Utilizing Groundwater

Island	Number of Water Systems Utilizing Groundwater			
	Community	Non-Transient, Non-Community	Transient, Non-Community	Bottled Water Plant
St. Croix	13	16	25	1
St. Thomas	5	6	11	4
St. John	0	2	1	1

TYPES OF AQUIFER

Figure IV.A.1 Virgin Islands Aquifers



In the Virgin Islands, ground water is held primarily in three types of aquifers, principally under water table or semi-confined conditions:

1) Carbonate rock system in St. Croix, known as the Kingshill aquifer system. The Kingshill aquifer system is comprised of Miocene-aged limestone rock. It overlies the Jealousy Formation, which is markedly different in color (often called the "blue clay"), but is mineralogically and paleontologically very similar to the Kingshill. Both are thought to have been deposited in deep water, possibly greater than 1000 meters in depth (Gill & Hubbard, 1987). The Kingshill is overlain by the post-Kingshill carbonates, generally representing reef and shallow-water facies. This formation is less extensive than the Kingshill, but generally more permeable. In areas, this is overlain by Quaternary alluvium derived from the surrounding hillsides - primarily volcanoclastic debris.

2) Fractured bedrock aquifers in the Tutu Valley and Sugar Estate areas of St. Thomas and in the Estate Adrian area on St. John, for example. The Tutu aquifer of St. Thomas has the highest potential yield of any aquifer on the island - estimated to be in the order of 300,000 gallons per day (Jordan and Cosner, 1973). This type of aquifer is comprised of preferentially fractured bedrock overlain by a veneer of unconsolidated alluvial material varying from a few feet to tens of feet thick. As much as six (6) feet of the upper surface of the bedrock is commonly weathered (saphrolite) (Geraghty & Miller, 1994), depending upon location. Less weathering is evident on the steep slopes; more in the valley floor.

   Ground water is held principally within the fractures in this bedrock with lesser amounts held in the upper weathered saphrolite and overlying unconsolidated deposits. The degree of saturation of the upper portions of the aquifer is dependent upon the intensity of pumping in the area and the overall climatic conditions.

3) Bedrock and alluvial deposit aquifers, in the La Grange area of St. Croix, the Long Bay area of St. Thomas and the Coral Bay area of St. John for example, are at the base of watersheds adjacent to the sea on all the islands. The deposited alluvial material was eroded from the surrounding hillsides. The parent rocks are primarily volcanic in origin with the resultant weathered material having a high clay content. The ground water is found in the interstitial spaces within the alluvium and in fractures in the underlying bedrock.

B. Groundwater Quality

The USGS maintained a cooperative agreement with the Government of the Virgin Islands from 1958 to 2003. The agreement was mutually terminated in June 2003. During those years, a data collection network to monitor stream flow, groundwater levels and selected meteorological parameters was maintained. The data collected at the monitored sites provides an insight into the groundwater withdrawals and recharge at principal aquifers, the degradation of groundwater quality due to saltwater encroachment or contamination, land use changes, groundwater and surface water use estimates, and stream flow regimes which are important in infrastructure planning.

The USGS surface water monitoring consisted of four continuous recording stream flow gauging stations (2STT: Bonne Resolution gut at Bonne Resolution, Turpentine Run at Mount Zion; 1STX: Jolly Hill gut at Jolly Hill; 1STJ: Guinea gut at Bethany). The groundwater monitoring consisted of six continuous reading water level stations (2 STT: Grade school #3, VIEO #6; 3 STX: Fairplains #2, Golden Grove #6, WAPA #17; 1 STJ: Guinea gut well). In addition, three meteorological stations obtained continuous data on rainfall, wind speed and direction, air temperature, solar radiation, relative humidity, and barometric pressure (one per island).

Groundwater samples were also collected on a yearly basis at eight well fields (STX: LaGrange, Concordia, Barren Spot, Fairplains, Golden Grove, Bethlehem, Adventure, Negro Bay) and analyzed for chlorides, sulfates, alkalinity, specific conductance, and temperature. Results show that the concentrations in the sampled wells range as follows: chlorides, 144 to 900 milligrams per liter (mg/L), alkalinity from 249 to 578 mg/L, sulfates from 58 to 135 mg/L, and specific conductance from 1025 to 3300 microsiemens per centimeter at 25 ºC. For a complete discussion of the monitoring results visit http://vi.water.usgs.gov or the annual report "Water Resources Data for Puerto Rico and the United States Virgin Islands Water Year 2001".

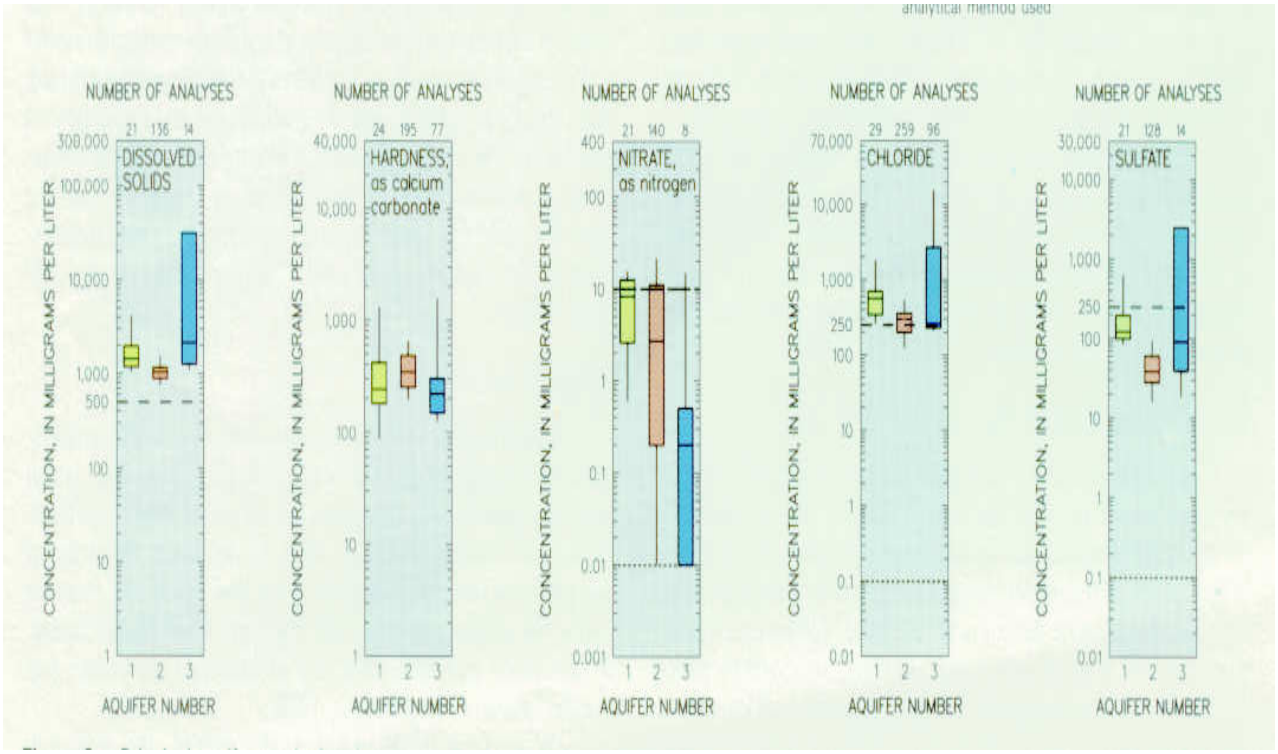


Figure IV.B.1 VI Aquifer Analyses

The ground water in the Virgin Islands is highly mineralized, often containing total dissolved solids (TDS) in excess of 1000 parts per million (ppm). Sodium, magnesium and calcium are the primary constituents, rendering continued consumption of untreated ground water unhealthy for those on a restricted sodium diet. Additionally, elevated nitrate levels and coliform bacteria have been found in some wells near the main sewer conveyance lines.

With the termination of the USGS contract, DPNR will gather the available information and analyze it in order to:

- Update wellhead protection areas
- Identify boundaries of aquifer recharge areas
- Establish water budgets (aquifer recharge versus groundwater withdrawal rates) by watersheds
- Evaluate well field safe yields and maximum withdrawal rates to limit the potential for sea-water encroachment in coastal aquifers
- Identify areas where recharge can be improved through construction of designed facilities
- Prepare and submit documentation to establish the Kingshill aquifer as a “sole-source” aquifer

- Use local human resources to provide education opportunities in the natural science

Failing Onsite Sewage Disposal Systems

The physical characteristics of the Virgin Islands, including the topography, geology, soils and other factors that affect the performance of subsurface wastewater disposal systems, indicate that a large majority of the land area is unsuitable for the construction of conventional septic systems. Failing OSDS are a major source of groundwater pollution (high fecal coliform levels, nitrate levels especially in the LaGrange area of St. Croix).

Presently, there are thousands of onsite sewage disposal systems, better known as "septic" systems in operation in areas that are inappropriate for subsurface disposal. They represent not only a hazard to the environment but also to public health. Poor soil conditions, either too clayey to absorb the effluent adequately, too thin, stony or steep to allow proper treatment of the effluent, often result in groundwater and surface water pollution. Because of the relatively high price of real estate in the Virgin Islands, subdivisions of as little as 3000 square feet and densities of 120 persons per acre can be permitted (R-4, Medium density). Current land development codes allow lots with OSDS to be as small as one-quarter acre for two residences. This of course leads to high-density development with insufficient land allocated to meet the spatial requirements for house/cistern/septic system construction, including appropriate separation distance. Excessive development densities have been permitted without proper wastewater treatment facilities required. This situation is being addressed with the adoption of new onsite sewage disposal system (OSDS) regulations in November 2001 in Tier 1 of the Coastal Zone. We plan to adopt the regulations in the second Tier in the future.

C. Wellhead Protection: Delineation And Management Standards

Wellhead protection is vital to the long-term quality of life in the VI as the population increases. The meager but important ground water resources are valuable supplements to the expensive, highly energy-consumptive desalinated water which is so heavily relied upon by the much of the population of the VI. Existing untainted ground water resources must be protected. The resources that have already been subjected to contamination by leaking underground storage tanks (USTs), leaking sewer lines and improper storage and disposal of chemicals must be managed to protect adjacent uncontaminated sources and restore damaged resources for future use.

During 2001/2002, DPNR in conjunction with the University of the Virgin Islands delineated wellhead protection areas (WHPA) for each of the seven WAPA wellfields on St. Croix. The WHPA represented the actual contributing area for the well field, taking into account the average time required for the ground water to flow to the well (Time of travel = TOT); and the effects of hydrologic boundaries (e.g., faults, guts and ridge lines, etc.), because risks to the well diminish as the time of travel and distance from the well increase

It was evident that various surrounding land uses (agricultural versus industrial) constitute varying risks to the quality of the ground water received at the well. In order to assure an effective pollution mitigation response to a known pollution source, a 20-year TOT was delineated for each well field using the following methods developed by the USGS:.

- Calculated Fixed Radii Method, the data required: the time of travel, well pumping rate, porosity of the aquifer and open screen interval.
- Simplified Variable Shapes Method, in addition to the data specified above, hydraulic gradient, hydraulic conductivity, saturated thickness and hydrologic divides.

Table IV.C.1 WAPA wellfields surveyed

Wellfield	No. of Wells	20-year TOT WHPA	Surrounding Land Use
Negro Bay	6	201 acres	Industrial
LaGrange	6	173 acres	Residential
Golden Grove industrial	9	121 acres	Agricultural and
Concordia agricultural	5	173.3 acres	Residential and
Bethlehem industrial	2	191.5 acres	Agricultural and
Barren Spot residential	9	212 acres	Industrial and
Adventure	9	177 acres	Agricultural

Each delineated WHPA was then surveyed for potential sources of contaminated using the following categories:

Contaminant Category	Description
Category 1	Sources designed to discharge substances
Category 2	Sources designed to store, treat, and/or dispose of substances; discharge through unplanned release
Category 3	Sources designed to retain substances during transport or transmission
Category 4	Sources discharging substances as a consequence of other planned activities
Category 5	Sources providing conduit of inducing discharge through altered flow patterns

Table IV.C.2 The distribution of potential source of contaminations:

Wellfield Name	Number of sources	Category 1	Category 2	Category 3	Category 4	Category 5
Negro Bay	71	0%	68%	20%	1%	11%
LaGrange	58	0%	85%	0%	5%	10%
Golden Grove	24	0%	50%	13%	8%	29%

Concordia	116	1%	74%	3%	9%	13%
Bethlehem	38	0%	89%	3%	5%	3%
Barren Spot	94	1%	65%	13%	6%	15%
Adventure	35	0%	57%	17%	0%	26%

As was evident in all the wellfields, the largest single category of potential sources of contamination was Category 2, which included illegally dumped materials, municipal trash containers, above ground storage of materials, and underground storage.

Figure IV.C.1 20-Year TOT WHPA for Barren Spot wellfield, showing location of wells.

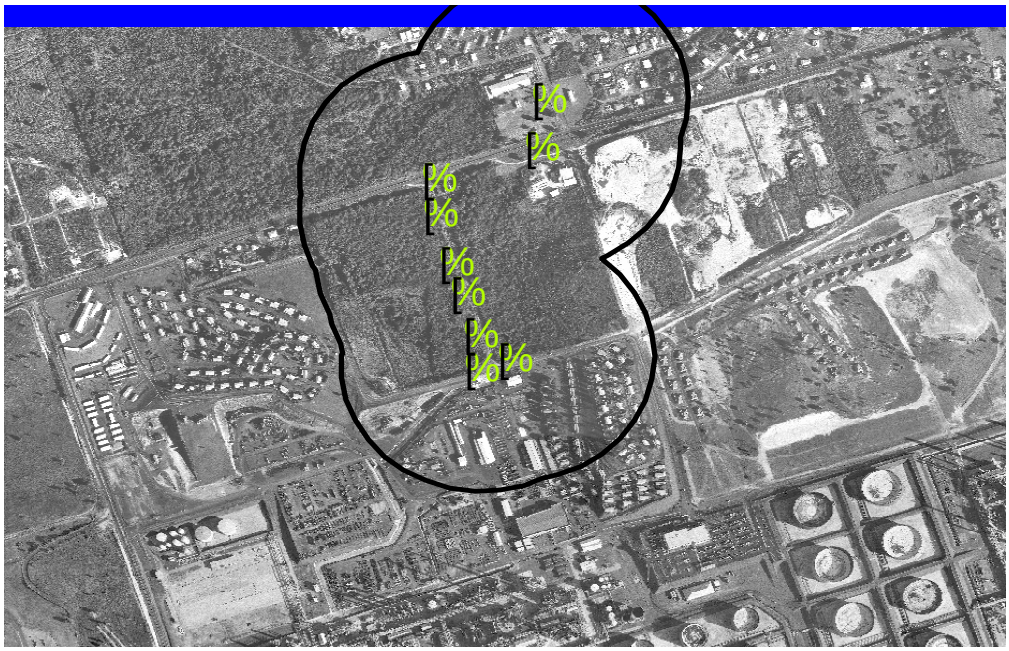
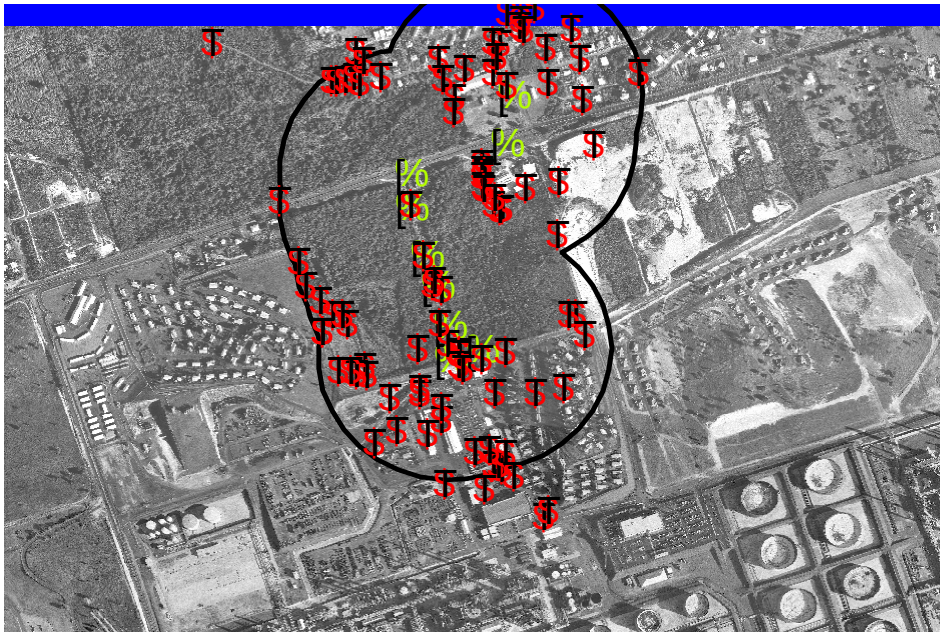


Figure IV.C.2 Location of potential sources of contamination for Barren Spot WHPA



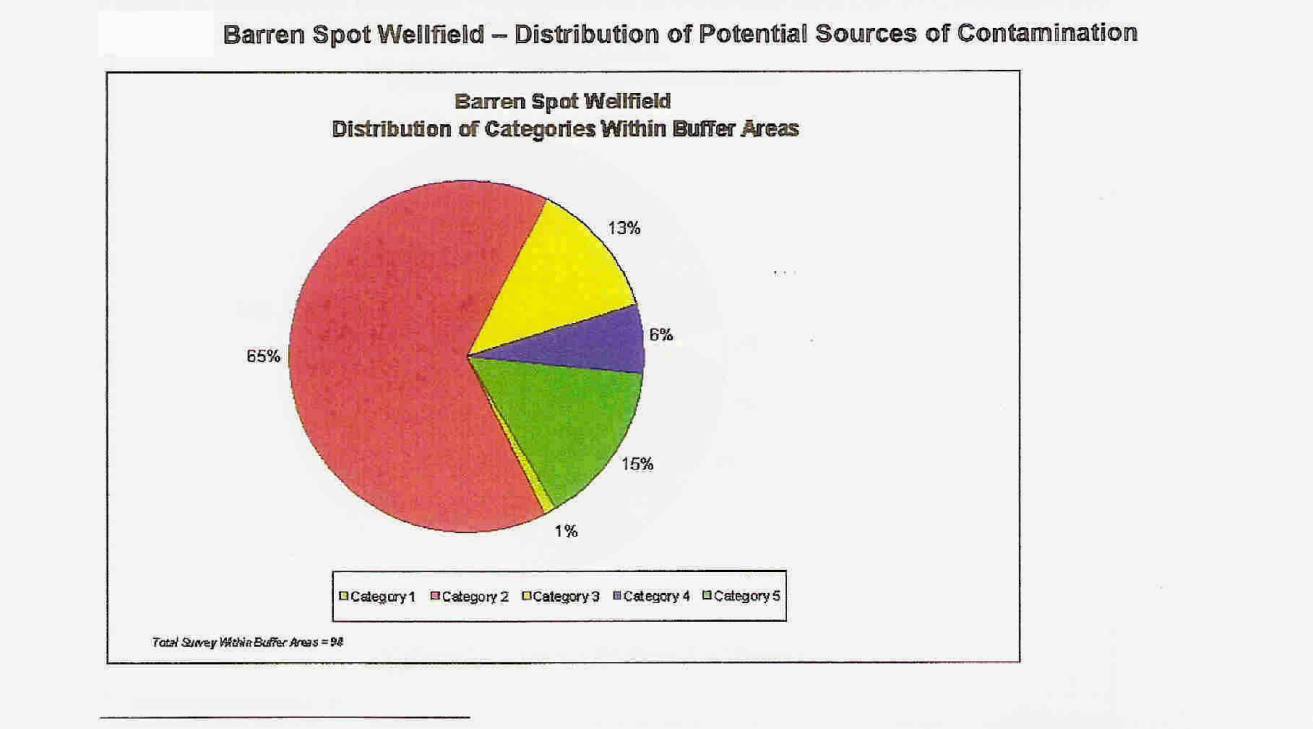
Based on the study, WHPA management standards have been drafted to

1. Protect the public drinking water supply from those land use activities that could contaminate groundwater, and
2. Protect aquifer recharge areas from land use activities that could inhibit their recharge capabilities

Proposed management mechanisms to protect ground water supplies included: contingency plans for public water systems; protect public drinking water supply from contaminants; protect aquifer recharge areas; WHPA delineation for existing public water supply wells (other than WAPA); site plan review for new wells; site plan review for new development in WHPAs; WHPA setbacks for potential sources of contamination; WHPA monitoring and closure requirements for abandoned wells.

The complete Wellhead Protection Project report is available at http://www.dpnr.gov.vi/dep/home.htm.

Figure IV.C.3 Typical distribution of potential sources of contamination within a WHPA



In August 2006, DPNR through the VI Department of Property and awarded a contract to RCAP Solutions, Inc. for the review of the Wellhead Protection Program and perform the following tasks:

Task 1 Assign priorities to wells and wellfields based on:

a. Pumpage or a surrogate, such as population served.

b. Known or suspected contamination based either on 1) monitoring results or 2) known or possible contamination events based on other monitoring data.

c. Site specific risks due to topographical or geological factors identified in the Wellhead Protection Plan ("WPP") or subsequently.

Task 2 Verify and identify threats to groundwater in the area of well or identified recharge areas as well as wellheads according to a work plan based on the priorities developed in Task 1.

Task 3 Develop specific corrective action plans for wells or wellfields identified in Task 1. A number of alternates may be suggested, and additional study or information may be specified where necessary, along with the reason why that information is required. It is expected that only wells producing water for resale, in sensitive aquifers or for Territorial Government facilities will have detailed corrective action plans developed, and in no case exceeding an agreed number of wells and wellfields.

The entire project is expected to last approximately sixteen months, however the start has been delayed. RCAP Solutions, Inc. will collect and collate the information required to assign draft priorities and then a detailed project plan will be developed in conjunction with cooperating agencies. Some specific sites will be selected for site-specific plans for risk reduction; that risk reduction work not included in this proposal. These sites will be selected based, in part, on the priorities developed in this part. At the end of the project recommendations for draw-down and recovery and other subsequent studies will be included in the final report.

Wells and sites identified as priorities in this project will be, insofar as possible, photographed and particular attention in recording will be given to threats or risks to those wells. In addition, production records will be solicited for those identified as priorities for which no production information is in hand. The position of each well or wellfield will be recorded and moved to GIS. The final report will include shapefiles on TIGER, USGS topographic and USGS DOQQ[1] base maps; those shapefiles will include layers for wells, risks and watershed/aquifer information. In addition, a database of wells with positional information, USVI property tax number, risk category, risk ID and updated owner/production information will also be provided. There are significant security concerns regarding this information and RCAPS will not email nor maintain this information on any computer with unrestricted internet access. It is recommended that printed reports have limited circulation and that all electronic transmission of this data or these reports be encrypted; RCAPS will comply with this latter requirement.

Access to wells on private property that cannot be surveyed from off-site will require permission from property owners. RCAPS will endeavor to acquire such permission in writing or verbally. In the event that permission is not forthcoming, DEP/DPNR personnel will be requested to accompany RCAPS personnel on site visits.

As stated, most of the effort will occur on St. Croix, though both St. Thomas and St. John will be superficially studied. As time and funding permit additional sources of groundwater recharge, means and methods of increasing yield or reducing transpiration and alternative sources for non-potable water will be identified and discussed.

D. Kingshill Aquifer As A Sole Source Aquifer

An application to the US Environmental Protection Agency (USEPA) for sole source aquifer designation for the Kingshill Aquifer, St. Croix, was submitted in January 2004.

The proposed designation is the largest aquifer in the USVI and covers roughly an area approximately 25 square miles in diameter, which extends from Frederiksted along the entire south coastal plain bordered by foothills of the northwest range, to the north coast near Salt River and east to Estate Golden Rock (West Christiansted) and Estate Pearl.

[1] USACOE photo surveys may be substituted for USGS photos.

To qualify for designation, the aquifer must supply at least half of the drinking water consumed in the proposed area and there should be no economically feasible alternative source of drinking water, which can supply more than half of the drinking water in the area. The EPA solicited comments on these topics and announced the receipt of DPNR's petition requesting the designation and opened a 30-day public comment period on August 21, 2006. A final decision to approve or deny the petition for the Kingshill Aquifer as a Sole Source Aquifer will be made after the closing date of the comment period, which ended on September 30, 2006.

On July 25, 2007, DPNR withdrew the petition to designate the Kingshill Aquifer as a sole source aquifer. EPA closed its file on the petition on August 9, 2007, without prejudice, and DPNR may file a new petition in the future seeking designation of the Kingshill Aquifer as a sole source aquifer.

EPA's SOLE SOURCE AQUIFER DESIGNATION PROCESS

PHASE	DATE
Phase I - Petition Preparation Ends when the petitioner (i.e. DPNR) submits the petition to EPA.	< - - - - June 10, 2004
Phase II - Initial Petition Review / Completeness Determination	< - - - - October, 2004
Completeness letter to USVI	< - - - - July 31, 2006
Announce Opportunity for Public Meeting (Petition available to public in NY & USVI)	< - - - - August 30, 2006
Comment Period Ends	< - - - - September 30, 2006
Phase III - Detailed Review / Technical Verification	< - - - 1-3 months (No Meeting)
	December 30, 2006
	October 30, 2006
Hold Public Meeting (if requested)	< - - - Oct 24, 2006 N / A
Comments from Public (if any)	< - - - November 7, 2006 N / A
Prepare Designation Package	< - - - (on going)
~~**Phase IV - Designation Determination**~~	
~~Designation Package~~	~~< - - - Jan 30, 2007~~
	~~December 15, 2006~~
~~Regional Administrator Determination~~	~~< - - - Feb 15, 2007~~

~~January 30, 2007~~

~~(Federal Register Printing)~~

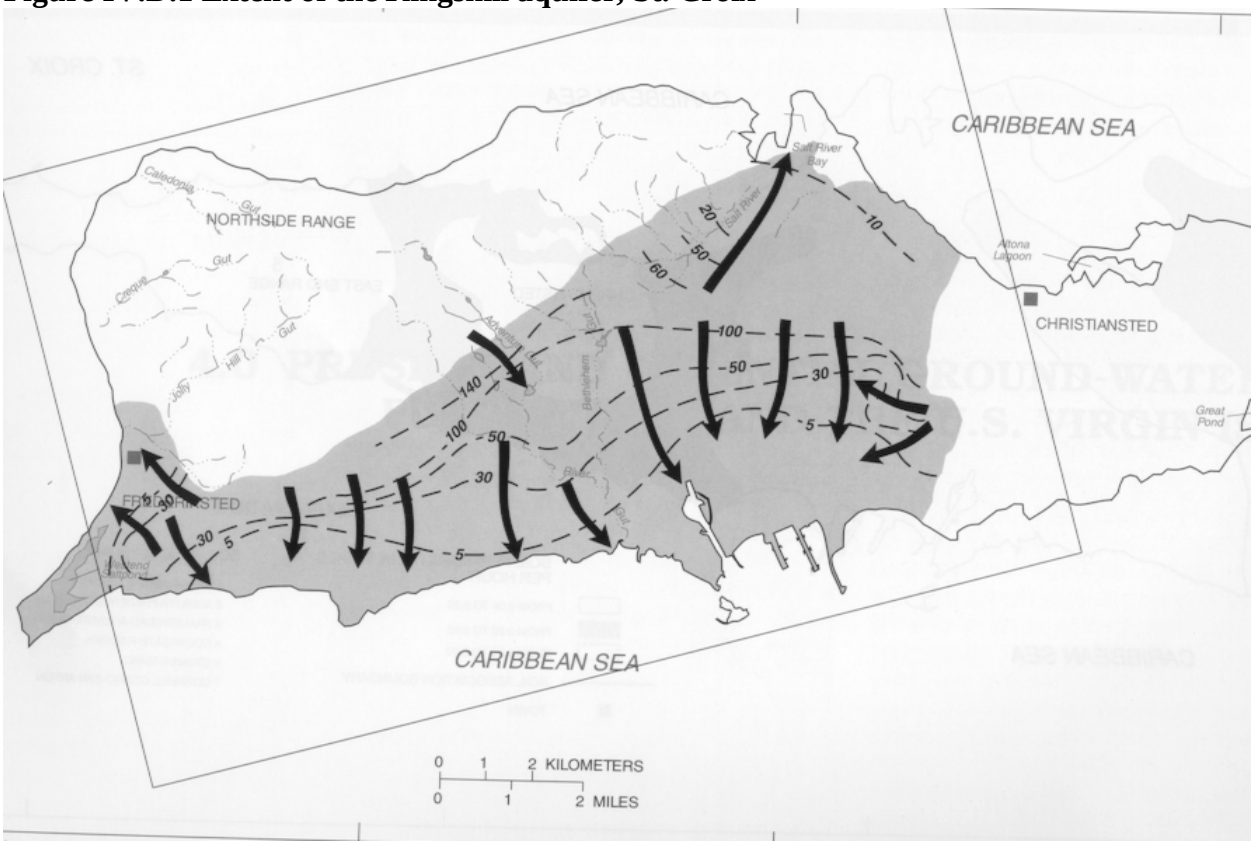
~~Notify Applicant < - - - March 6, 2007~~

~~February 6, 2007~~

The Kingshill aquifer is the largest and most productive aquifer in the USVI. The aquifer has an area of 25 square miles and accounts for 67% of all groundwater withdrawals. Approximately one-third of the population (35,558 (census 2000)) of the entire USVI lives within the aquifer boundary area. Yields from wells can surpass 70,000 gpd/well. Most of the groundwater exists at relatively shallow depths in unconsolidated alluvial sediments or in shallow limestone deposits. The depth to groundwater could range from 5 feet (WAPA Concordia well field) to 60 feet (WAPA Golden Grove well field) below ground surface. Well yields ranged from less than 5 gallons per minute (gpm) (WAPA Adventure well field) to 80 gpm (WAPA Golden Grove well field). Aquifer specific capacity ranged from 1 to 14 gpm per foot draw down with a corresponding aquifer transmissivity ranging from 180 to 3,300 feet squared per day.

There are over 325 wells within the aquifer boundary and it is estimated that the total production of the aquifer is 2.21MGD (WAPA, 1.13 MGD; private wells, 0.55 MGD; industrial/commercial 0.53 MGD). It is estimated that the aquifer can safely supply up to 2.5MGD.

Figure IV.D.1 Extent of the Kingshill aquifer, St. Croix



Within the aquifer service area, due to the high cost of WAPA water and unavailability or expense of alternate sources, groundwater provides:

- A sole source of potable water to many users
- A important supplement for daily shortfalls
- A significant percentage of supply to WAPA potable water system
- A majority or sole water supply during seasonal shortfalls and emergencies
- An economical alternative to municipal supply
- An important energy-saving renewable resource reducing reliance

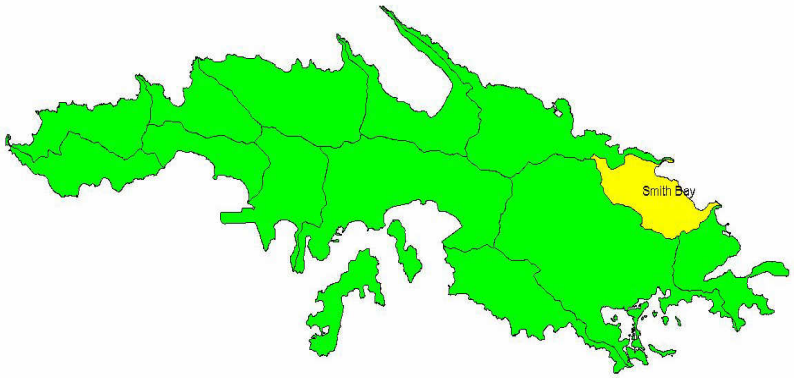
The designation of the Kingshill aquifer as a sole source aquifer will increase DPNR's regulatory capacity to protect and responsibly develop the resource.

E. Groundwater Issues

There are four major issues related to groundwater management as follows:

- Overpumping of coastal aquifers
- Saltwater encroachment
- HOVENSA Hydrocarbon recovery project
- Institutional Controls at Tutu Wellfield Superfund Site and Island Chemical

Figure IV.E.1 Superfund Site (St. Thomas)



Overpumping: Moratorium on well drilling and appropriation - Smith Bay, St. Thomas

A review of recent reports indicates that the ground water table in the Smith Bay area has declined form approximately 30 to 40 feet below ground level to more than 100 feet

below ground level from early 1990 to the present. Additionally, the water quality in the aquifer is declining due to intrusion of more saline water from the sea. This overall decline in ground water levels and water quality in the Smith Bay aquifer is due to heavy pumping of several production wells tapping the aquifer, greatly exceeding the estimated recharge rate.

A water budget for the Smith Bay aquifer, indicates that the maximum amount of water that can be withdrawn from the aquifer on a sustainable basis, calculated using average rainfall values, is approximately 50,000 gallons per day. During drought conditions, Smith Bay area has been shown to experience marginal precipitation, therefore, maximum pumping from the aquifer, to maintain stable aquifer conditions, will be substantially less than 50,000 gallons per day.

Pumping rates during the past several years, collectively, from private wells and commercial water companies and residential tapping the Smith Bay aquifer, have been as high as 140,000 gallons per day - almost three times the sustainable amount, which effectively "mines" the water resources. Continued pumping at these high rates will cause irreversible damage to the aquifer. In order to prevent further deterioration of the Salt River aquifer and in accordance with the declaration of policy by the legislature of the V.I., as contained in Title 12 VIC §151 and the authority vested in the Commissioner of DPNR by Title 12 VIC §153 et. seq., the following actions were instituted:

1. No new ground water appropriation permits will be issued for well drilled into the Smith Bay aquifer, for a period of two years, during which the ground water elevations in the aquifer will be closely monitored by DEP (Title 12 VIC §155).
2. Existing permitted wells will be inspected regularly by DEP to ensure compliance with the terms of the appropriation permit, specifically pumping rates (Title 12 VIC § 154).
3. Existing appropriation permits are subject to modification, such that the quantity allocated may be reduced (Title 12 VIC §155).
4. Renewal for existing appropriation permits are subject to modification, such that the quantity allowed may be reduced. Preference shall be given to domestic uses as against other beneficial uses (Title 12 VIC §156).

Presently, DPNR is investigating the need for similar moratoriums for Lindberg Bay, St. Thomas and Salt River Bay, St. Croix.

Saltwater encroachment: South shore St. Croix

Groundwater quality (generally total dissolved solids, specifically chlorides), has been steadily declining in the south shore area of St. Croix. This can be attributed to the following major shoreline modifications: channelization - dredging of Limetree Bay; construction of bulkhead/piers adjacent to HOVENSA refinery; dredging of Alucroix and Limestone Bay Channels; creation of red mud pile at St. Croix Alumina, leachate high in inorganic salts; filling of Krause Lagoon; creation of holding/detention ponds on HOVENSA and St. Croix Alumina properties.

Figure IV.E.2 Chloride Levels (ppm) in Groundwater in the Vicinity of STX Alumina and Bethlehem/Golden Grove

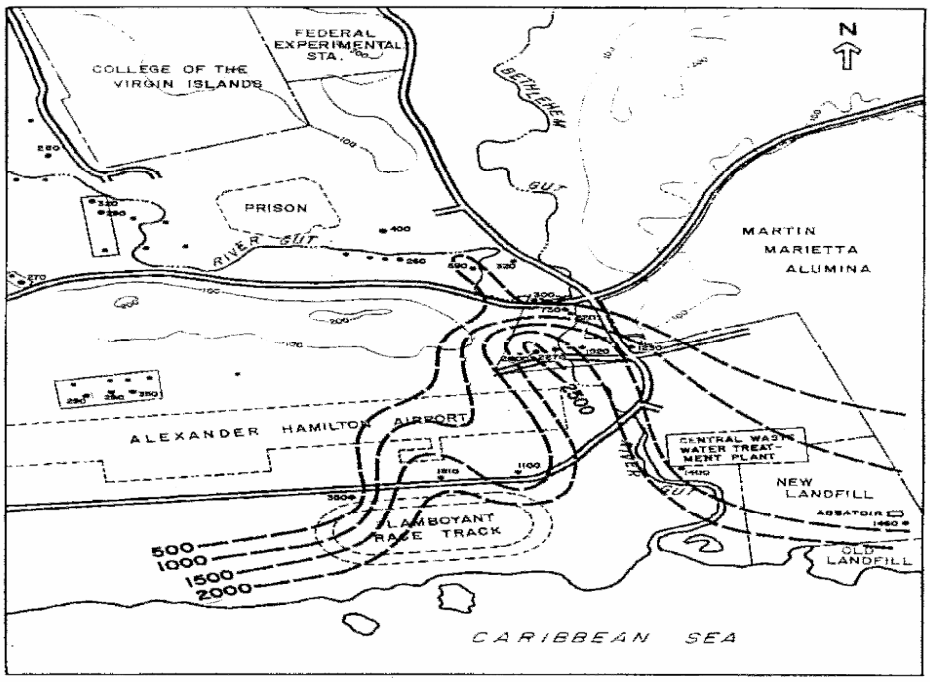
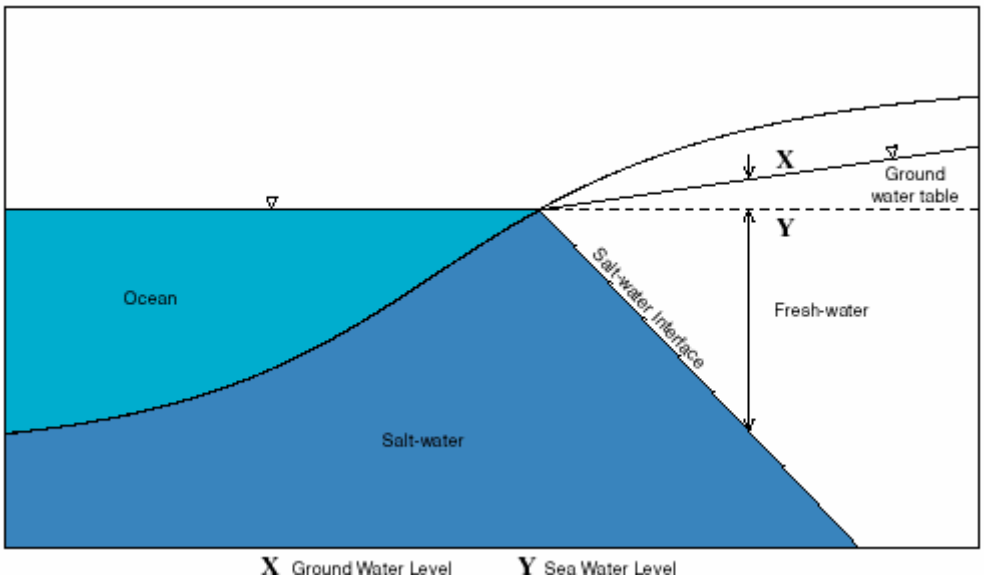


Figure IV.E.3 Salt-water interface in an unconfined coastal aquifer according to the Gyhben-Herzberg relation



Saltwater encroachment can be caused by the reversal or reduction of freshwater discharge that allows the heavier saline water to move into an area where only freshwater previously existed (overpumping: HOVENSA process water wells, see discussion below); the destruction of natural barriers that formerly separated bodies of fresh and saline waters (shoreline modifications: channelization, dredging, etc)

Assuming hydrostatic conditions in a homogeneous, unconfined coastal aquifer, the weight of a unit column of fresh water extending from the water table to the salt-water interface is balanced by a unit column of salt water extending from sea level to the same depth as the point on the interface. According to the Ghyben-Herzberg relation, if the water table in an unconfined coastal aquifer is lowered by 1 ft, the saltwater interface will rise 40 ft. (see discussion on Smith Bay aquifer, St. Thomas)

F. Institutional Controls At Tutu Well Field Superfund Site And Island Chemical Superfund Site

There are two superfund sites, Tutu Well Field and Island Chemical on St. Thomas and St. Croix, respectively. Pursuant to a cooperative agreement between US Environmental Protection Agency (EPA) and the VI Government, institutional controls will be placed on earth moving activities within the superfund site and/or on locations in the vicinity of the site. These controls will insure that soil/groundwater cleanup at the site will not be adversely impacted by construction activities.

Institutional controls in the form of existing well permitting laws and regulations will also limit the pumping of groundwater at the Site to prevent interference with the selected remedy and to also prevent human exposure to contaminated groundwater until MCLs are achieved.

Institutional controls shall be monitored and maintained to: 1) prevent human ingestion of ground water containing concentration of VOCs in excess of the performance standards for drinking water; and 2) restrict withdrawal of ground water within the vicinity of the plume that could adversely impact the ground water remedy.

1. Tutu Wellfield Site

The Tutu Wellfield Superfund Site is located in the Upper Turpentine Run basin, Estate Anna's Retreat, St. Thomas. Groundwater contamination was discovered when EPA sampled 18 wells (13 commercial wells and 5 private wells) in August 1987 and analytical results revealed elevated values of VOCs in 14 of the 18 supply wells, including 1,2-trans-dichloroethylene (DCE), trichloroethylene (TCE), tetrachloroethylene (PCE), toluene, benzene, and methyl-tertiary-butyl-ether (MTBE). The remedial investigation (RI) was conducted from April 1992 to July 1994. EPA issued the Record of Decision (ROD) for the Site in August 1996.

The Remedial Design for the site wide groundwater contamination and Curriculum center soil contamination was performed upon completion of the RI/FS and was completed in

2002. The Remedial Action began in 2003 with construction of the site wide groundwater and soil treatment facilities and will be fully operational in 2004. DPNR agrees to implement institutional controls (which may include governmental controls, proprietary controls, or both, as appropriate) sufficient to insure that no one uses groundwater or installs a groundwater well, or excavate or disturbs any impacted soil or rock at the Site without the written permission of EPA and DPNR.

2. Island Chemical Facility

The Former Island Chemical is located on Melvin Evans Highway (Route 66), about 1,500 feet north of the Alexander Hamilton Airport. Currently inactive, the facility was used to manufacture pharmaceutical chemicals between 1978 and 1980 or later. In 1984 and 1985, it produced benzyl acetate and benzyl salicylate, which are used in perfumes, sunscreen lotion, flavorings, resins, lacquers, printing ink, varnish removers, and as a solvent for synthetic musk. Hazardous substances disposed of at the Site, including pyridine, acids, and solvents.

According to the ROD issued by EPA in August 2002, the following objectives are to be met through the implementation of the remedy selected for Island Chemical Site:

- Mitigate the toxicity, mobility, and/or volume of volatile organic compounds (VOCs) (ethyl benzene and xylene) in soils in the Above-ground Storage Tank (AST) area so as to minimize continued leaching to groundwater;
- Mitigate the toxicity, mobility, and/or volume of VOCs (mainly ethyl benzene and xylene) in groundwater in the AST area and downgradient so as to achieve maximum contaminant levels (MCLs) and protect potential future groundwater users;
- Mitigate the toxicity, mobility, and/or volume of chloroform in groundwater in the Former Process Pit (FPP) area and downgradient so as to achieve MCLs and protect future potential groundwater users; and
- Restrict on-Site groundwater use to non-potable purposes until the water quality is restored to MCLs.

G. Groundwater - Surface Water Interaction

The relatively small watersheds of the three islands, the low storage capacity of their geologic formations, and the high evapotranspiration-to-rainfall ratio has created a streamflow pattern that is highly variable, generally meager, and intermittent on an overall basis.

The major streams on each island are:

- River Gut, Bethlehem Gut and Jolly Hill Gut on St. Croix;
- Turpentine Run and Bonne Resolution Gut on St. Thomas; and
- Guinea Gut and Fish Bay/Battery Gut on St. John.

With the exception of Turpentine Run (perennial due to discharge from package treatment plants and Publicly Owned Treatment Works (POTWs), no streamflow is

perennial, and the basins are steep, having slopes that exceed 35 degrees. These slopes are dissected by numerous stream courses that have steep gradients.

Wetlands can be found alongside these intermittent guts and in the lower reaches of some watersheds along the shoreline. These wetlands are being sustained by groundwater discharges into the surface and by flooding during storm events. In September of 2002, DPNR initiated an investigation on the Territory wetlands through the project "Inventory of U.S.V.I. Wetlands and Riparian Areas" - Phase I. A Non-Point Source Section 319 Grant funds the project.

Wetlands have a fundamental importance as sink/filter of non-point source pollutants. Therefore, there is a need to better understand the wetlands characteristics (size, location, types and water quality) in the USVI. The objectives of the project are to update and correct the mapping of 636 wetlands in the Virgin Islands Rapid Environmental Assessment (REA) and design and test basic monitoring tools for wetland characterization in the US Virgin Islands. The monitoring tools are currently being applied to 18 reference watersheds distributed in three broad classes for each island (undisturbed, highly disturbed and intermediate disturbed). The level of disturbance is based on the interpretation of the data produced by the Territory's Unified Watershed Assessment, the Watershed Restoration Action Strategies and recent 2002 Integrated Water Quality Monitoring and Assessment Report. The 18 watersheds chosen for sampling are presented in the table below:

Table IV.H.1 Reference Watersheds For Sampling

Watersheds			
Disturbance Level	**Reference**	**Intermediate**	**High**
St. John	Reef Bay Leinster Bay	Hawksnest Bay Fish Bay	Great Cruz Bay Coral Bay
St. Croix	Creque Dam-Butler Bay Madame Carty	Salt River Bay Great Pond Bay	HOVENSA Bethlehem
St. Thomas	Botany Bay Perseverance Bay	Magens Bay Smith Bay	Jersey Bay Red Hook Bay

The water quality monitoring parameters are: temperature, conductivity, salinity, pH, dissolved oxygen, turbidity, fecal and TKN. The sampling is scheduled during the fall season when wetlands are presumed wet during a full daylight periods (between two hours or more after sunrise and two hours or more before sunset). The field tests are scheduled for 5 months from October 2003 to February 2004.

Additionally, the project is assessing the effect of stressors on watershed/wetlands areas, based on the condition of the existing landscape/biological community, plants and animals, supported by appropriate chemical and physical data. The indicator chosen for that analysis was the IBI (Index of Biological Integrity), which is a bioassessment measure that integrates several biological metrics to indicate the site's condition.

DPNR is now working on Wetlands Phase II project, financed by EPA 2004 Wetland Program Development Grant. This phase will lead to the adoption of an ambient wetland monitoring and assessment program that builds the Virgin Islands' capacity to determine the causes, effects, and extent of pollution to wetland resources and develop pollution prevention, reduction, and elimination strategies. Hydrological regime is one important component of the wetland assessment Phase II. The knowledge of the wetlands hydrology will provide information on source, extent and frequency of water supply. Therefore, it will be possible to determine the contribution of groundwater to the wetland maintenance as well as the viability of restoration project. Finally, this project intends to use biological assessment methods to improve the evaluation and ranking of potential wetland sites for management and conservation, such as identify biological assemblage, group wetlands into classes that respond similarly to stressors, establish standard sampling methods, determine what time of year to sample, establish known reference conditions and provide an away to measure divergence from biological integrity.

Few people realize the value of our mangroves in filtering sediments and other pollutants, thus maintaining water quality in our nearshore waters. The loss of over 50 percent of our mangrove habitat over the last 70 years due to cutting and land filling for the creation of land and access ways to water has compounded the problem. The loss of our mangrove habitats has resulted in a decline in nearshore water quality as greater quantities of sediments and pollutants entered the sea. This has affected seagrass beds and coral reefs through reduced levels of sunlight penetration and increased stress from chronic sedimentation. Our coral reefs have also suffered from a decline in balanced fish populations as nursery habitats have been destroyed. The general decline in the health of the marine environment of the Virgin Islands threatens our economy via decreases in tourism and in the general quality of life.

H. Summary of Principal Territorial and Federal Ground Water Protection Agencies and Organizations

Department of Planning and Natural Resources-Division of Environmental Protection.

DPNR-DEP is the lead agency for implementation and administration of ground water protection activities in the Virgin Islands. DPNR DEP duties include the development and enforcement of regulations associated with the ground water and wellhead protection, the management of databases containing information on hydro-geology of the Virgin Islands, wells and well-related permits, the mapping of ground water supply well locations, the delineation of wellhead protection areas, and other technical activities.

Other agencies with roles for ground water management and protection include the following:

VI Water and Power Authority (WAPA). As the major public water supplier in the VI, WAPA assists the Division of Environmental Protection in the delineation of wellhead protection areas around its wells and in the development of inventories of potential

pollution sources in the delineated areas. WAPA maintains and provides DEP with data on pumping rates and on ambient ground water quality at its public supply wells. WAPA assists DEP in the development of contingency plans for chemical spills. Underground and above ground storage tank leaks and other incidents that might pose immediate threats to ground water.

VI Department of Health (DOH), Division of Environmental Health (DEH). DOH-DEH is the point of contact for citizens reporting leaking septic systems. VI-DOH coordinates with DEP in its response to reported septic system failures. In addition, VI-DOH is authorized, under. VIC Title 19, Ch. 53, subchapter 1404, to enforce certain provisions of the Virgin Islands Code relating to refuse collection, all aspects of solid waste disposal, sewage disposal including septic tanks and sewage treatment plants, etc., which may affect human health.

VI WASTE MANAGEMENT AUTHORITY (VIWMA). VIWMA manages the Publicly Owned Treatment Works (POTWs) in the Territory and has the major responsibility for the management of solid and hazardous waste in the VI (under VIC T19 Chapter..56). It owns and operates the two municipal solid waste landfills in the VI—at Estate Bovoni on St. Thomas and at Estate Anguilla on St. Croix. DPW inherited several inadequately designed POTWs on St. Thomas from defunct developers. Several of these facilities discharge into main drainage ways in central St Thomas, and contribute to elevated nitrate and coliform levels in the ground water.

USDA Natural Resources Conservation Service (NRCS). This agency is active in the development of water resources for farmers, including the design and building of agricultural retention ponds, which directly aid in aquifer recharge and address non-point source pollution. NRCS completed the re-mapping of VI soils several years ago and the information should soon be available to assess aquifer vulnerabilities and influence decisions pertaining to development options. NRCS is also involved in the detailed mapping of Virgin Islands watersheds for the 14-Digit Hydrologic Unit Codes.

VI Department of Agriculture. The Department of Agriculture controls much of the open-space government land in the Territory. Much of this land is available for farming and grazing activities via leases issued to applicants, however some of the open space land has also been used by WAPA for well field areas. The Adventure we11 field on St. Croix, and in the Carolina well field on St. John, is on DEDA land. In these areas, The Department of Agriculture has the primary responsibility for land use management on non-developed government land.

US Geological Survey (USGS) Water Resources Division (WRD): USGS. -WRD completed a comprehensive wellhead location survey for its Ground Water Sites Inventory (GWSI) database in. the Virgin Islands in 1990. USGS has been instrumental in organizing the database information into a GIS format. The information will be available from USGS on a request basis, or through a contractual arrangement if needed. USGS-WRD is also directly involved in mapping Virgin Islands watersheds for the NRCS 14-digit Hydrologic Unit definition activity.

available from USGS on a request basis, or through a contractual arrangement if needed. USGS-WRD is also directly involved in mapping Virgin Islands watersheds for the NRCS 14-digit Hydrologic Unit definition activity.

I. Ground Water Monitoring Strategy

The objective of the monitoring strategy is to coordinate groundwater monitoring between all agencies that regulate groundwater to get a complete picture of groundwater quality, quantity and use in the US Virgin Islands. To accomplish this objective three goals have been identified: 1) provide enough data to determine how groundwater is changing over time; 2) provide data to increase understanding of groundwater systems; and 3) provide data to citizens to increase their understanding of how their actions affect groundwater.

The eight common components necessary to address the three goals include:
1) A comprehensive assessment of existing databases
2) A fixed network of groundwater level monitoring locations
3) A common, statistically correct process for stratified random sampling of private wells
4) A fixed network of water quality monitoring sites
5) A fixed network of surface water monitoring stations
6) A water use-reporting program
7) A common data management program
8) A common communication approach

The above listed components will be used to develop a groundwater-monitoring network that can be used to assess groundwater quality, quantity and use, determine trends, and study groundwater systems. DPNR will use this network to assess groundwater by watershed, aquifer or other selected strata. Groundwater trends can be tracked using fixed monitoring locations. The network will be maintained by DPNR for use by the different local and federal agencies or other entities such as universities, and consultants for special studies.

Use of the groundwater monitoring network will also allow for better data management, and the sharing of a common protocol for collecting high quality groundwater data and expansion of the fixed monitoring network. The fixed monitoring stations will be available for groups or individuals willing to share analytical data from samples collected from the monitoring locations. The resulting high quality data will be available on the DPNR web site.

Some of these components, such as a fixed network for groundwater level monitoring, a fixed network for surface water monitoring, and a water use reporting program already exist and are maintained by DPNR and USGS. Other components such as a fixed network for monitoring groundwater quality and a data management process need to be implemented. The cost of maintaining and expanding current groundwater monitoring components is detailed below (Table 1).

Finally, the strategy looks at potential partners and funding sources. A coordinated groundwater monitoring strategy will allow for a more efficient use of limited funds and better data sharing between agencies and public partners. Funding sources and partnerships will develop over time.

Goals of the Groundwater Monitoring Strategy

Goal 1: Provide and maintain sufficient, high quality groundwater data to evaluate spatial and temporal trends in groundwater quality, quantity and use

High quality data are needed to make changes to groundwater management and protection policies in response to changing trends in groundwater quality, quantity and use. The components used to meet this goal must be flexible enough to accommodate new contaminants and threats as they are recognized. Examples of how the data will be used include:

1. Evaluating groundwater protection programs;
2. Evaluating public health protection programs;
3. Documenting the presence of new pollutants;
4. Assessing groundwater quality in select aquifers;
5. Tracking groundwater levels in groundwater management areas; and
6. Evaluating water use and its impacts on groundwater levels.

Goal 2: Provide high quality data for a more complete understanding of groundwater systems

An understanding of hydrogeology drives local policy and management decisions that affect drinking water, fisheries and wildlife habitat. Research aimed at understanding flow systems at different scales, helps local resource managers make decisions that protect all water resources. Examples of how this data will be used include:

1. Locating and preserving groundwater recharge areas to sustain groundwater quantity;
2. Understanding the fate and transport of natural and human-induced contaminants;
3. Understanding how land use practices affect groundwater quality and flow; and
4. Developing and evaluating management alternatives.

Goal 3: Provide tools to make groundwater data accessible to citizens, policy makers and resource managers

The public's understanding of groundwater must be increased. Groundwater data must be easily accessible to citizens, policy makers, researchers, and resource managers so that all stakeholders have the information they need to increase protection of the resource and public health. To attain this goal, DPNR will:

1. Make groundwater data accessible to citizens, policy makers and resource managers via DPNR website;
2. Develop tools to help educate citizens about territory-wide and local groundwater quantity and quality problems; and
3. Involve partners in groundwater monitoring to increase awareness of groundwater.

Components of the Groundwater Monitoring Strategy

These components were derived from existing monitoring programs in other states and federal monitoring programs. Details about each component and the goals it addresses are presented below.

Component 1: Mining of Existing Databases (meets goals 1 and 2)

A comprehensive look at existing data for parameters of concern is a starting point for implementing each phase of the groundwater monitoring strategy. Existing databases (Groundwater Site Inventory (GWSI), DPNR UST database, UVI, USGS, WAPA, SDWIS and others) can be mined for parameters such as major anions and cations, nitrate, chloride, arsenic and radon. Public, private and monitoring well data and their databases will be assessed. This component could be done with the assistance of partners listed above, who currently maintain existing databases. The EPA PPG grant is a possible funding source. This component meets goals 1 and 2 by providing baseline data for groundwater trend analysis and system research. A funding estimate of approximately 0.5 FTE is recommended for the initial assessment and subsequent data mining.

Component 2: A Fixed Network of Groundwater Level Monitoring Locations (meets goals 1 and 2)

Monitoring will include measurement of groundwater levels in all three types of aquifers/water-bearing formations reflecting both water table conditions and deep confined and unconfined aquifers. It should include urban areas of groundwater development such as Smith Bay and Lindbergh Bay watersheds (St. Thomas) and rural areas with large withdrawals (Salt River Watershed, St. Croix) and undeveloped areas such as Northside, St. Croix.

The USGS maintained a fixed network of monitoring wells from 1958 to 2003. The network was designed to monitor water levels in the upper most aquifers. It is recommended that the wells be evaluated. Where necessary, some of the wells may be abandoned and replaced by wells in different locations. The cost estimate for improving the observation well network, of about 50 wells, is shown in the table below.

Well abandonment	$500 per well
Real time monitoring equipment	$750 per well
Siting (professional time)	$700 per well
Drilling and well installation	$2000 per well

The total estimated cost of $200,000 could be spread out over 3 to 5 years. Costs may be lower if existing wells can be added to the network. This new, improved observation well network will monitor water levels in shallow, unconfined aquifers in each of three aquifer types and improve our understanding of groundwater flow systems. This information will allow us to look at groundwater quantity trends.

Monitoring the cone of depression in areas where the water table is declining will require additional monitoring wells. These wells will be installed in the deeper bedrock aquifers and may require casing. Approximately 10 new wells will be installed at a cost of about $40,000 per well. The total estimated cost would be $400,000.00. This cost may be less if existing wells can be used. The yearly combined cost for maintaining a fixed network of 50 water table wells and 10 deep wells to monitor cones of depression will be about $120,000. This includes rehabilitating wells, training staff and replacing damaged wells. This component meets goals 1 and 2 by providing high quality groundwater level data over a long period. The EPA PPG grant is a possible funding source.

Component 3: Stratified Random Sampling of Private Wells for Water Quality Parameters (meets goals 1 and 2)

In the past, numerous efforts have been made to characterize the hydrogeology of the south-central St. Croix by USGS and WAPA. These efforts include sampling of private, public and monitoring wells.

Using the Stratified Random Sampling technique, parcels are randomly selected and the well nearest the center of the parcel is selected for sampling if, the well owner gives permission. If there is no well or the owner refuses to have the well sampled, another parcel is selected by spiraling out clockwise around the original parcel. If appropriate sampling strata are used, this approach can be used to select wells for sample collection and analysis for other non-agricultural water quality parameters as well. The number of samples collected in each statistical stratum can be based on many things including prior detects, number of acres in a certain land use or number of acres in a watershed.

The cost for sample collection and analysis will vary depending on the parameters analyzed for. It is estimated that the cost of this component to be $180,000.00 per year. Parameters may include major cations and anions, indicator parameters, and the contaminants of special interest. This component will meet goals 1 and 2 by providing a flexible means of looking at groundwater quality trends and better defining groundwater contaminant transfer in flow systems. As previously discussed, data will be made available to the public.

Component 4: A fixed network of water quality monitoring sites (meets goals 1 and 2)

Stratified random sampling of private wells may lead to selection of fixed monitoring sites for long term monitoring. Fixed sites chosen to consider at the effect of different land use practices will be part of the fixed network. Existing research and monitoring project wells could also be incorporated into the fixed network as well as public water supply wells (e.g. sentinel wells). Each location may have more than one well to monitor specific parameters. This network may change somewhat with time. Costs at this time are difficult to estimate. This component meets goals 1 and 2 by providing groundwater quality data in areas of concern over time. More details on this component will need to be worked out.

Component 5: Surface water-monitoring stations (meets goals 1 and 2)

Surface water monitoring stations provide stream flow data used to:
1. Calibrate groundwater flow models
2. Assess basin water resources management decisions
3. Model the effect of development on watersheds
4. Determine the effect of groundwater use on stream flow and fisheries habitat.

The USGS maintained a limited stream-gaging network since 1958-2003. An additional $70,000 per year is needed to reinitiate and collect low flow measurements at these same locations and additional small streams, as needed, to support long-term monitoring. Funding for changes to the network is not currently available from the USGS or DPNR.

This component meets the needs of goals 1 and 2 by providing long-term data on groundwater base flow to surface water at fixed locations. This component can be enhanced with citizen-based monitoring of small streams. Other partners have access to the data on a website.

Component 6: Water use reporting (meets goals 1 and 2)
The purpose of water use reporting is to manage groundwater at the local level. Data are used to evaluate impacts of proposed wells, monitor well approval conditions, identify trends, as input for groundwater flow models, develop hydrologic budgets for watersheds and basins and improve water use estimates. DPNR currently has data for WAPA water supply wells but the reporting should be expanded to all high-capacity wells (>100,000 gal/day) including industrial and commercial users, irrigators, and non-irrigation agricultural users.

As part of the new proposed legislation, high capacity wells will be required to report water use to DPNR. This strategy proposes that the data be managed in a database and available on the internet through a common portal as described in Component 7.

This component meets goals 1 and 2 by providing groundwater use data to help

determine water quantity trends and define groundwater/surface water interactions. New

well permitting fees may provide funding for data collection.

Component 7: Data management (meets goals 1,2 and 3)
A GWSI database is maintained by DPNR. This database is being updated to include geolocational information. It will form the foundation of a meta-database available on the Internet. Metadata refers to any data used to aid the identification, description and location of networked electronic resources. As the other components of the strategy are implemented, existing and new databases related to groundwater monitoring will be added to the meta-database.

Funding for one half of an FTE is needed to collect and maintain the metadata base and

be responsible for adding new databases as necessary. The data will be available through a common portal, possibly located on the DPNR website.

This component meets goals 1 and 2 by providing a mechanism for data sharing between agencies for groundwater characterizations and goal 3 by providing data to the public on groundwater in the state. It is recommended that an additional 0.5 FTE be funded within DPNR to create and maintain the meta-database.

Component 8: Communication (meets goal 3)
Data and maps generated from monitoring data should be accessible. Materials will be made available to all interested agencies and the public. Creation and maintenance of maps and monitoring reports will require 0.5 FTE. It is recommended that one FTE be responsible for Components 7 and 8. The total estimated cost for components 7 and 8 are $75,000.00 or 1 FTE.

The estimated cost for the new monitoring strategy is summarized in Table 1.

Table 1: Estimated cost of Groundwater Monitoring Strategy Components

Components	One Time Cost	Yearly Cost
#2 :Water Level Monitoring	Shallow: $200,000 Deep: $400,000 Total : $600,000	$120,000
#3, #4 :Water Quality Monitoring (public, private and monitoring wells)		$180,000 for Component 3 Not estimated for component 4
#5 : Stream Flow Monitoring Modeling groundwater flow and surface water interactions		Varied * $70,000*
#6, #7 :Data Management and Communication		0.5 FTE=$32,500
#1 :Data Analysis/Assessment		0.5 FTE=$32,000
Reporting		0.5 FTE=$32,500
Total		**$467,500**

*The cost of adding one surface water-monitoring station to the existing network is approximately $10,000.00 per station. Additional stream flow measurements in small streams to supplement gauging stations will cost approximately $70,000 per year. To evaluate the environmental impact of high capacity wells, stream flow measurements will be needed.

IMPLEMENTATION
The monitoring network will be maintained by DPNR for use by the different local and

federal agencies or other entities such as universities, and consultants for special studies. The following four phases illustrate how the monitoring network will be implemented and used. Phases one and two will assess groundwater systems and determine fixed monitoring locations as described in phases three and four.

Phase I: Baseline Assessment of shallow aquifer systems

As groundwater sustainability becomes more critical, it is important to use reliable and applicable data to make groundwater and land use decisions. Assessing the condition of shallow groundwater is the first step toward groundwater sustainability. An assessment may include the following:

- Mining of data in existing databases to determine contaminants in the basin
- Evaluating potential contaminants present in the basin due to land use
- Determining water quality in select wells (private, public, or monitoring wells) for major cations and anions and other contaminants of concern
- Modeling groundwater flow and surface water interactions
- Identifying fixed monitoring stations (surface water and groundwater) for water quality and quantity
- Evaluating water use
- Making the data and assessment public

Phase II: Baseline Assessment of deep aquifer systems

The next step toward better management of VI's groundwater is evaluating the deeper aquifers. Because deeper aquifers are not impacted as quickly by land use, and because deep groundwater divides usually differ from surface water divides, it is more appropriate to evaluate across watershed lines by aquifer. An assessment of deeper aquifer systems will include the following:

- Mining of data in existing databases to determine contaminants in the aquifer
- Evaluating potential contaminants due to land use
- Evaluating pathways allowing contaminants to reach deeper aquifers
- Determining water quality in select wells (private, public, or monitoring wells) for major cations and anions and other contaminants of concern
- Identifying fixed monitoring stations, including sentinel wells for water supply systems, for water quality and quantity
- Evaluating water use
- Delineating deep aquifer systems
- Making the data and assessment public

Phase III: Ambient monitoring network by basin and aquifer system

Wells useful for monitoring groundwater quality and quantity trends will be identified in phases 1 and 2. In phase 3, these wells will be sampled periodically for parameters specific to each aquifer system. In addition, the wells will be available for use by other interested parties. Surface water monitoring stations will be monitored to determine trends reflected in groundwater/surface water interaction. Groundwater flow models will be updated as needed. Water use information will be a critical piece of information in determining water quantity trends. The data will be maintained by DPNR and made available to the public.

Phase IV: Long term sustainability of monitoring network

The monitoring strategy must be flexible enough to reflect changes in water use, land use, and identified emerging contaminants. It is important to maintain fixed monitoring locations and to re-assess baseline evaluations periodically (every 5-10 years). The wells will be used to perform more detailed monitoring studies and serve as a basis for developing educational resources and reports. The data will be maintained in an accessible database.

Funding Sources

Funding for the fixed networks would logically come from the programs they benefit: For example, federal Clean Water Act (106) and Nonpoint Source (319) grant money is allocated for monitoring. Fees collected as part of the new Groundwater legislation will support money for water use data collection. Money allocated to the Coastal Protection Fund may help fund some of the stratified random sampling programs as will money allocated to Pesticides Program for pesticide monitoring. Safe Drinking Water funds could possibly be used to look at water quality and quantity trends at fixed stations placed to determine impacts to municipal wells. New funding sources may have to be found for the data mining, data base development and maintenance and educational materials components.

One aspect of the monitoring strategy that needs further exploration is volunteer monitoring. Universities, high schools and private individuals might collect well samples. This type of monitoring has been used in other states and meets both fixed monitoring and educational objectives.

Attachment I:
2008 303(d) List of Impaired Waterbodies

Attachment II:
Responsiveness Summary to the
2008 U.S. Virgin Islands
303(d) List of Impaired Waters

The 2008 U.S. Virgin Islands 303(d) List

April 1, 2008
Revised May 8, 2008

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2008 U.S. Virgin Islands
303(d) List of Impaired Waters

April 1, 2008
Revised May 5, 2008

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I. SUMMARY

Section 303(d) of the Clean Water Act requires States and Territories to develop a list of impaired waters needing TMDLs every even-numbered calendar year. A impaired waterbody is one for which technology-based pollution controls are not stringent enough to attain or maintain compliance with applicable State and Territory water quality standards. In order for a water quality-limited waterbody to attain water quality standards, a Total Maximum Daily Load (TMDL) must be developed and implemented specifically for that waterbody and pollutant(s) of concern. A TMDL is a quantitative assessment of the amount of pollution that a certain waterbody can assimilate while still meeting water quality standards.

EPA regulations require States and Territories to:

- identify water quality limited waters still requiring TMDLs after the implementation of technology-based or other pollution controls,
- establish a priority ranking of these waters,
- identify pollutants causing impairment,
- identify waters targeted to begin TMDL development over the next two (2) years.

II. LIST DEVELOPMENT

This 2008 submission, required under Section 303(d)(1)(A) of the Clean Water Act, identifies waters within the territory of the U.S. Virgin Islands that are determined to be, or are suspected to be, “use impaired”. An assessment unit is designated as “use impaired” if the quality of the assessment unit may not meet the water quality standards for protection of designated uses.

The complete list of data sources used to develop the U.S.V.I. 2008 Section 303(d) list is as follows:

- U.S. Virgin Islands Ambient Monitoring data from Fiscal Years 2006-2007 (VIDPNR)
- U.S. Virgin Islands BEACH Monitoring data from Fiscal Years 2006-2007 (VIDPNR)
- 2006 U.S. Virgin Islands Section 305(b) Report (VIDPNR)
- 2006 U.S. Virgin Islands 303(d) List (VIDPNR)
- Water Quality Data from National Park Service (NPS)

The above list of data represents all existing and readily available data. This data are limited and

many waters have been listed based on a suspected impairment. These waters will remain on the list pending further investigations as to a confirmation of the perceived impairment of designated use.

From the external data received it was noted that Fish Bay had exceedences data. However, it was not listed because the exceedance data received were collected prior to this listing cycle. Therefore, DPNR-DEP will continue to monitoring this station.

The Department of Planning and Natural Resources, Division of Environmental Protection (DPNR-DEP) published a data solicitation notice on the DPNR-DEP website announcing that data would be accepted between September 14, 2007 and October 15, 2007. Similarly, DPNR-DEP public noticed the draft 303(d) List from February 2, 2008 to March 3, 2008. The public comment period was announced in two local newspapers: The Virgin Islands Daily News and The Avis. Additionally, the public comment period announcement was posted on the DEP Website at the following URL: *http://www.dpnr.gov.vi/dep/pubs/February_3_2008_Public_Notice.htm*

DPNR also solicited comments from the National Marine Fisheries Service and the US Fish and Wildlife Service, no comments were received from these agencies.

III. DELISTING ACTIONS

DPNR-DEP did not de-list any assessment unit/impairment combinations this cycle.

Some assessment units have shown improvement this cycle. DPNR however feels that to delist based solely on one cycle's worth of data would be premature. The assessment units that showed significant improvement are:

VI-STC-23 St. Croix-By-the-Sea can be delisted next cycle for pH.
VI-STC-24 Long Reef Backreef, west can be delisted next cycle for Dissolved Oxygen.
VI-STC-27 Long Reef Forereef, east can be delisted next cycle for pH.
VI-STC-31 Buccaneer Beach can be delisted next cycle for Turbidity.
VI-STC-35 Tamarind Reef Lagoon (Southgate Lagoon) can be delisted next cycle for Turbidity.
VI-STC-39 Teague Bay can be delisted next cycle for pH.
VI-STC-40 Teague Bay Backreef can be delisted next cycle for pH.
VI-STC-61 Hess Oil Virgin Islands Harbor can be delisted next cycle for Dissolved Oxygen.
VI-STJ-26 Chocolate Hole can be delisted next cycle for Dissolved Oxygen.
VI-STJ-28 Great Cruz Bay can be delisted next cycle for Dissolved Oxygen.
VI-STJ-30 Cruz Bay can be delisted next cycle for Dissolved Oxygen.
VI-STT-04 Santa Maria Bay can be delisted next cycle for Dissolved Oxygen, pH and Turbidity.
VI-STT-05 Caret Bay can be delisted next cycle for Dissolved Oxygen and pH.
VI-STT-07 Dorthea can be delisted next cycle for Dissolved Oxygen and pH.
VI-STT-08 Hull Bay can be delisted next cycle for Dissolved Oxygen and pH.

VI-STT-10 Magen's Bay can be delisted next cycle for Dissolved Oxygen.
VI-STT-13 Mandahl Bay (Marina) can be delisted next cycle for Dissolved Oxygen, pH and Secchi Depth.
VI-STT-15 Sunsi Bay can be delisted next cycle for Dissolved Oxygen and pH.
VI-STT-16 Spring Bay can be delisted next cycle for Dissolved Oxygen and pH.
VI-STT-17 Mandahl Bay subwatershed,offshore can be delisted next cycle for Dissolved Oxygen, Total Fecal Coliform, Turbidity and pH.
VI-STT-18 Water Bay can be delisted next cycle for Dissolved Oxygen.
VI-STT-19 Smith Bay can be delisted next cycle for Dissolved Oxygen.
VI-STT-22 Red Bay can be delisted next cycle for Turbidity.
VI-STT-25 Great Bay can be delisted next cycle for Dissolved Oxygen.
VI-STT-38 Limetree Bay can be delisted next cycle for Turbidity.

Provided these assessment units continue to show improvement they may be delisted in 2010. Additionally, VI-STC-75 Diamond subwatershed, offshore may be eligible to delisting for Toxicity.

IV. U.S. Virgin Islands Monument Lands

On November 15, 2002, the U.S. GAO issued an opinion regarding ownership and control of U.S. Virgin Islands Monument Lands. The GAO opinion follows case law, established by the U.S. Supreme Court, and concluded that the U.S. Federal Government has jurisdiction over the submerged lands in question and the waters that flow over them. This means that the U.S. Government has jurisdiction over the waters over Buck Island Reef National Monument and The Virgin Islands Coral Reef Monument. The United States National Park Service is designated, by Presidential Executive Orders, to manage these national monuments. As the Department of Planning and Natural Resources has no authority over these waters, they were not added to this list in the 2004-2005 reporting period. Furthermore, any previous listing actions for waters under federal jurisdiction were rescinded. Waters that fell under federal jurisdiction included: VI-STJ-01, VI-STJ-02, VI-STJ-03, VI-STJ-04, VI-STJ-05, VI-STJ-06, VI-STJ-07, VI-STJ-08, VI-STJ-09, VI-STJ-10, VI-STJ-17, VI-STJ-18, VI-STJ-19, VI-STJ-21, VI-STJ-22, VI-STJ-23, VI-STJ-24, VI-STJ-30, VI-STJ-31, VI-STC-41, VI-STC-42, VI-STC-43 and VI-STC-44. VI-STJ-10, VI-STJ-23, VI-STJ-24, VI-STJ-30, VI-STJ-31, VI-STC-43 and VI-STC-44

Ten waters, STJ-04, STJ-07, STJ-08, STJ-09, STJ-17, STJ-18, STJ-19, STJ-21, STJ-22, and STC-41, were never included on the USVI 303(d) List, so they were not delisted in the 2004-2006 reporting period. However, these waters were previously monitored and assessed and will were not included in the Integrated Report or the Integrated Report categories.

Due to the designation of these waters as national monuments, any previous listing actions for waters under federal jurisdiction were rescinded. The following five waters and seven water quality parameters are removed from the USVI 303(d) List because they do not fall under the jurisdiction of the Government of the US Virgin Islands:

- STJ-01: Dissolved Oxygen, Turbidity
- STJ-02: Dissolved Oxygen
- STJ-03: Dissolved Oxygen
- STJ-05: Dissolved Oxygen
- STJ-06: Dissolved Oxygen, Turbidity

Finally, seven waters currently contain portions of waters that are not under federal jurisdiction. Six waters, VI-STJ-10, VI-STJ-23, VI-STJ-24, VI-STJ-31, VI-STC-43 and VI-STC-44, are not included on the 303(d) List and assessments included in the Integrated Report pertain to the portions under the jurisdiction of the Government of the US Virgin Islands. One water, VI-STJ-30, remained listed for fecal coliform, turbidity, dissolved oxygen, and secchi depth. For this listing, it was assumed that the assessments were done for the portions under the jurisdiction of the Government of the US Virgin Islands. The discrepancies between federal and local jurisdiction will be considered when the assessment units are reviewed and revised.

PLEASE NOTE: During the 30-day comment period for this 2008 List of Impaired Waters, DPNR-DEP received comments from USEPA indicating that the seven (7) waterbodies/pollutant combinations previously de-listed should be relisted. DPNR-DEP agreed to re-list the waters as they previously appeared on the USVI List of Impaired Waters. The summary reason for the relisting is that the Virgin Islands Government has concurrent jurisdiction over the Monument waters, and the ability to monitor these waters as part of its comprehensive mission to monitor the totality of Virgin Islands waters.

In the support document for EPA's approval of the U.S. Virgin Islands' 2006 Section 303(d) List, the Agency stated:

> "In accordance with the 2002 United States Government Accounting Office opinion[1] concerning the ownership and control of U.S. Virgin Islands Monument Lands, the U.S. Federal Government has jurisdiction over the waters of Buck Island Reef National Monument and the Virgin Islands Coral Reef Monument. The previous listing of the following seven (7) waterbody/pollutant combinations are rescinded because these waters do not fall under the jurisdiction of the Government of the U.S. Virgin Islands:
>
> a) Caneel Bay (VI-STJ-01) for dissolved oxygen and turbidity;
> b) Hawksnest Bay (VI-STJ-02) for dissolved oxygen;
> c) Trunk Bay (VI-STJ-03) for dissolved oxygen;
> d) Cinnamon Bay (VI-STJ-05) for dissolved oxygen; and
> e) Maho Bay/Francis Bay (VI-STJ-06) for dissolved oxygen and turbidity."

[1]GAO Decision Document: *Ownership and Control of U.S. Virgin Islands Monument Lands*, B-287626, November 15, 2002

Although the General Accounting Office opinion concluded that the U.S. Government "owns" and "controls" the waters of Buck Island Reef National Monument and the Virgin Islands Coral Reef Monument, the Territorial Submerged Lands Act (TSLA) specifies that the government of the Virgin Islands "shall have *concurrent* civil and criminal jurisdiction with the Untied States with regard to property owned, reserved, or controlled by the United States in the Virgin Islands." (emphasis added).1

For the purposes of the Clean Water Act (the CWA), the U.S. Virgin Islands is considered a "State." 2 The Clean Water Act establishes several requirements specifically applicable to States, including, establishing water quality standards for interstate and intrastate waters,3developing lists of impaired waters within its boundaries,4 and developing TMDLs.5 Because it has concurrent jurisdiction with the United States over property owned or controlled by the United States within the Virgin Islands and because the CWA establishes the requirement that States develop lists of impaired waters within its boundaries, the U.S. Virgin Islands has the authority to exercise this requirement with respect to the waters of Buck Island Reef National Monument and the Virgin Islands Coral Reef Monument. Therefore, it was within the authority of the U.S. Virgin Islands to list the waterbody/pollutant combinations in (a)-(e) in the paragraph above on its 303(d) List. As a result, these waterbody/pollutant combinations should be re-listed on the U.S. Virgin Islands' 2008 303(d) List.

The Virgin Islands Government DPNR DEP has responded to the EPA comments by assent, re-listing the waters that were removed during the 2004-2005 reporting period.

V. LISTING ACTION

The Environmental Protection Agency released guidance for developing the 2008 Integrated Water Quality Monitoring and Assessment Report that supercedes all previous assessment guidances. Waterbody assessment units are classified into one of five categories. The Virgin Islands has exercised the option of modifying the guidance to better suit DPNR's reporting needs. Below are the categories DPNR used for 2008 assessments:

Category 1

The assessment unit is placed in this category if it meets the water quality standards for the

1 48 U.S.C. § 1704(a)
2 33 U.S.C. § 1362
3 33 U.S.C. § 1313(c)
4 33 U.S.C. § 1313(d)
5 33 U.S.C. § 1313(d)

parameters that define support for both Primary Contact Recreation (PCR) & Aquatic Life Use Support (ALUS).

Category 2
The assessment unit is placed in this category if it attains water quality standards for the parameters that define support for either PCR or ALUS but data is insufficient to determine support for the other use. In addition, there is no data to indicate that the uses are threatened under the US EPA definition of threatened. Waters with insufficient data will be scheduled for more extensive monitoring in the USVI's multi-year monitoring schedule.

Category 3
The assessment unit is placed it this category if insufficient or no data is available to determine if water quality standards are attained and any designated uses are supported. The Virgin Islands considers insufficient data as anything less than four quarters of monitoring data. However, waters with less than four quarters of monitoring data may be reviewed on a case-by-case basis if the limited data strongly suggests that water quality standards are exceeded and the designated uses are impaired. Such waters may be eligible for inclusion on the 303(d) List. Remaining waters with insufficient data will be scheduled for more extensive monitoring in the USVI's multi-year monitoring schedule.

For the 2008 Integrated Report, DEP proposes the following Category 3 subcategories:

Category 3A
No data is available from any of the identified data sources for the assessment unit in question.

Category 3B
Insufficient Data is available from any of the identified data sources for the assessment unit in question. Insufficient data is defined as less than four quarters of monitoring data. This category differs from Category 2 in that this condition must apply to all designated uses.

Category 3C
Inconclusive Data is available from any of the identified data sources for the assessment unit in question. This might include information from studies that do not directly provide information related to water quality standards.

Category 3D
Unreliable or low quality data is available from any of the identified data sources for the assessment unit in question. Unreliable or low quality data is defined as data sets that have significant gaps, obvious anomalies, etc.

Category 4
Assessment units that are found to be partially or not supporting for one or both designated uses are place in category 4 under the appropriate subcategory (4A, 4B, 4C).

Category 4A
The assessment unit is placed in this category if it was previously listed on the 303(d) list and a total maximum daily load has been established and approved by EPA.

Category 4B
The assessment unit is placed into this category only if other pollution control requirements are expected to address all water-pollutant combinations and attain all water quality standards within a reasonable period of time. The Virgin Islands considers a reasonable period of time as being the time between reporting cycles. If the impairment is the result of a point source discharge, is expected that the Territorial Pollution Discharge Elimination System (TPDES) program will take appropriate measures to control point source pollution. If the impairment is the result of non-point source pollution, DPNR will provide evidence that a pollution control measure is in place.

Category 4C
The assessment unit is placed into this category if the impairment was not caused by a pollutant. Assessment units place into this category must show improvement by the next reporting cycle. If the impairment persists because of current conditions it will be moved into Category 5. If the assessment unit shows improvement since the last cycle it will be moved into either Category 1 or 2. If the data available is insufficient to make an assessment, the assessment unit will be moved to Category 3 (see Category 3 for more detail).

Category 5
The assessment unit is placed into this category if water quality standards are exceeded in which case a total maximum daily load must be established. Assessment units that are placed into Category 5 will be placed on the 2008 303(d) Total Maximum Daily Load List.

The US Virgin Islands has created a standard waterbody delineation that organizes the coastal waters of the Virgin Islands into assessment units. This delineation is based on (in order of consideration):

1. legal limits of water quality classifications
2. subwatershed boundaries
3. shoreline geomorphology
4. benthic geomorphology
5. bathymetry
6. benthic habitats
7. 305(d) listing and total maximum daily loads (TMDLs)
8. management areas
9. 305(b) assessment

In the 2008 Integrated Report, these delineated assessment units have been grouped into categories. No assessment unit boundaries have changed since the 2004 assessment. The only difference is that the assessment units have been renamed to begin with VI instead of AU.

Assessment units that fall into category 5 are listed in the 2006 303(d) list.

The following assessment units were listed on the 2006 303(d) and remain listed for impairments listed below. Note that this list does not include parameters eligible for delisting next cycle:

Salt River Lagoon, Marina (St. Croix - VI-STC-16), Salt River Lagoon (St. Croix - VI-STC-17), and Salt River Bay (St. Croix – VI-STC-18) contains DPNR ambient monitoring stations STC-33 Salt River Marina, STC-33C Salt River Lagoon, Marina, Sugar Bay STC-33D Salt River Lagoon, Sugar Bay and STC-33A,B,E-J Salt River (Columbus Landing Beach). This assessment unit has been listed for Dissolved Oxygen, Enterococci, and Fecal Coliform. It is important to note here that only VI-STC-16 has impairments this cycle. VI-STC-17 and VI-STC-18 were grouped with it as a managerial decision because of their proximity and association with VI-STC-16.

St. Croix-By-the-Sea (St. Croix - VI-STC-23) contains DPNR ambient monitoring station STC-34 St. Croix by the Sea. This assessment unit has been listed for Dissolved Oxygen.

Christiansted Harbor (St. Croix - VI-STC-26) contains DPNR ambient monitoring stations STC-40 St. Croix Marine, STC-42 Public Wharf, STC-43 Water Gut Storm Drain, STC-46 WAPA Intake, and STC-47 Mill Harbor Condominium Beach. This assessment unit has been listed for Dissolved Oxygen, Enterococci, Fecal Coliform, and Phosphorus.

Long Reef Forereef, east (St. Croix - VI-STC-27) contains DPNR ambient monitoring stations STC-35A LBJ (Pump Station) Outfall and STC-36 Long Reef Forereef East. This assessment unit has been listed for Dissolved Oxygen and Turbidity.

Buccaneer Beach (St. Croix - VI-STC-31) contains DPNR ambient monitoring station STC-3 Buccaneer Hotel. This assessment unit has been listed for Dissolved Oxygen and Secchi Depth.

Tamarind Reef Lagoon (Southgate Lagoon) (St. Croix - VI-STC-35) contains DPNR ambient monitoring station STC-4 Tamarind Reef Lagoon. This assessment unit has been listed for Dissolved Oxygen, Fecal Coliform, and Secchi Depth.

Southgate subwatershed, offshore (St. Croix - VI-STC-37) contains DPNR ambient monitoring station STC-5 Green Cay Beach. This assessment unit has been listed for Dissolved Oxygen and Fecal Coliform.

Teague Bay Backreef (St. Croix -VI-STC-40) contains DPNR ambient monitoring station STC-10 Cramer's Park. This assessment unit has been listed for Dissolved Oxygen and Turbidity.

Bugby Hole Backreef (St. Croix - VI-STC-56) contains DPNR ambient monitoring stations STC-14A Halfpenny Bay – Manchenil and STC-14B Halfpenny Backreef. This assessment unit has been listed for Phosphorus and Turbidity.

Hess Oil Virgin Islands Harbor (St. Croix - VI-STC-61) contains DPNR ambient monitoring stations STC-16 HOVENSA East Turning Basin, NW Corner and STC-17 HOVENSA West Turning Basin, NW Corner. This assessment unit has been listed for Phosphorus and Temperature.

Manning Bay/Estate Anguilla Beach (St. Croix - VI-STC-64) contains DPNR ambient monitoring station STC-23 Public Dump. This assessment unit has been listed for Phosphorus and Turbidity.

Diamond subwatershed, offshore (St. Croix - VI-STC-75) contains DPNR ambient monitoring station STC-24B Rum Plant (VI Rum) Outfall. This assessment unit has been listed for Dissolved Oxygen, Turbidity, Enterococci and Secchi Depth.

Carlton Beach (St. Croix - VI-STC-76) contains DPNR ambient monitoring station STC-25 Long Point. This assessment unit has been listed for Dissolved Oxygen and Turbidity.

Great Cruz Bay (St. John - VI-STJ-28) contains DPNR ambient monitoring station STJ-45 Great Cruz Bay and NPS monitoring station NPS-25 Great Cruz Bay. This assessment unit has been listed for Turbidity.

Turner Bay/Enighed Pond (St. John - VI-STJ-29) contains DPNR ambient monitoring station STJ-55 Turner Bay and NPS monitoring station NPS-26 Turner Bay. This assessment unit has been listed for Turbidity.

Cruz Bay (St. John - VI-STJ-30) contains DPNR ambient monitoring stations STJ-43A Cruz Bay, North, STJ-43B Cruz Bay, South, STJ-43C Cruz Bay, North of Seaplane Ramp, STJ-43D Cruz Bay Creek and NPS monitoring stations NPS-27 Cruz Bay (ferry dock) NPS-28 Cruz Bay, NPS-29 Cruz Bay (NPS dock). This assessment unit has been listed for Fecal Coliform, Turbidity and Secchi Depth.

Caret Bay (St. Thomas - VI-STT-05) contains DPNR ambient monitoring station STT-12 Caret Bay. This assessment unit has been listed for Turbidity.

Dorothea (St. Thomas - VI-STT-07) contains DPNR ambient monitoring stations STT-13 Dorothea. This assessment unit has been listed for Turbidity.

Magen's Bay (St. Thomas - VI-STT-10) contains DPNR ambient monitoring stations STT-15, STT-15A and STT-15B Magens Bay. This assessment unit has been listed for

Mandahl Bay (Marina) (St. Thomas - VI-STT-13) contains DPNR ambient monitoring stations STT-16B Mandahl Bay Entrance and STT-16C Mandahl Point Entrance. This assessment unit has been listed for Enterococci and Fecal Coliform.

Water Bay (St. Thomas - VI-STT-18) contains DPNR ambient monitoring station STT-19 Water

Bay. This assessment unit has been listed for Enterococci.

St. John Bay (St. Thomas - VI-STT-21) contains DPNR ambient monitoring station STT-21A St. John Bay. This assessment unit has been listed for Dissolved Oxygen.

Red Bay (St. Thomas - VI-STT-22) contains DPNR ambient monitoring station STT-21B Red Bay. This assessment unit has been listed for Dissolved Oxygen.

Vessup Bay (St. Thomas - VI-STT-23) contains DPNR ambient monitoring station STT-22B Vessup Bay. This assessment unit has been listed for Dissolved Oxygen, Temperature.

Red Hook Bay (St. Thomas - VI-STT-24) contains DPNR ambient monitoring station STT-22A Red Hook Bay. This assessment unit has been listed for Dissolved Oxygen.

Benner Bay Lagoon Marina (St. Thomas - VI-STT-34) contains DPNR ambient monitoring stations STT-27D Mangrove Lagoon, Near Lavida Marina and STT-27E Mangrove Lagoon, Near Compass Point. This assessment unit has been listed for Dissolved Oxygen, Enterococci, and Fecal Coliform.

Mangrove Lagoon (St. Thomas - VI-STT-35) contains DPNR ambient monitoring stations STT-27B Mangrove Lagoon, Off Sanitary Landfill (East of Ecotours), STT-27A Mangrove Lagoon, Near Treatment Plant and STT-27C Mangrove Lagoon, Near Tropical Marine Fuel Dock. This assessment unit has been listed for Fecal Coliform and Temperature.

Frenchman Bay (St. Thomas - VI-STT-37) contains DPNR ambient monitoring station STT-29A Frenchman's Bay. This assessment unit has been listed for Dissolved Oxygen.

Limetree Bay (St. Thomas - VI-STT-38) contains DPNR ambient monitoring station STT-29B Limetree. This assessment unit has been listed for Dissolved Oxygen.

Morningstar Bay (St. Thomas - VI-STT-39) contains DPNR ambient monitoring stations STT-30 Morning Star Bay. This assessment unit has been listed for Dissolved Oxygen.

Gregerie Channel (St. Thomas - VI-STT-45) contains DPNR ambient monitoring station STT-1 Crown Bay, Near Outfall and STT-39 Water Isle, East Gregorie Channel. This assessment unit has been listed for Dissolved Oxygen.

Sprat Bay (St. Thomas - VI-STT-46) contains DPNR ambient monitoring station STT-42 Water Island Sprat Bay. This assessment unit has been listed for Dissolved Oxygen.

Hassel Island at Haulover Cut to Regis Point (St. Thomas - VI-STT-47) contains DPNR ambient monitoring stations STT-2 Crown Bay, Near Tamarind Outlet and STT-3 Subbase. This assessment unit has been listed for Dissolved Oxygen and Fecal Coliform.

Flamingo Bay (St. Thomas - VI-STT-50) contains DPNR ambient monitoring station STT-41 Water Island Flamingo Bay. This assessment unit has been listed for Dissolved Oxygen and Turbidity.

Sprat Hall Beach (St. Croix - VI-STC-06) contains DPNR ambient monitoring station STC-30 Sprat Hall Beach. This assessment unit has been listed for Phosphorus and Turbidity.

Baron Bluff subwatershed (St. Croix - VI-STC-13) contains DPNR ambient monitoring station STC-31 Davis Bay. This assessment unit has been listed for Enterococci.

Princess subwatershed, offshore (St. Croix - VI-STC-25) contains DPNR ambient monitoring station STC-35 Long Reef Forereef West. This assessment unit has been listed for Dissolved Oxygen.

Christiansted Harbor, east (St. Croix - VI-STC-29) contains DPNR ambient monitoring stations STC-1 Lagoon Recreation Beach and STC-39 Altona Lagoon Inlet. This assessment unit has been listed for Dissolved Oxygen and Turbidity.

Beauregard Bay (St. Croix - VI-STC-30) contains DPNR ambient monitoring station STC-2 Ft. Louise Augusta Beach. This assessment unit has been listed for Secchi Depth.

Canegarden Bay (St. Croix - VI-STC-59) contains DPNR ambient monitoring station STC-15 Cane Garden Bay. This assessment unit has been listed for Turbidity and Phosphorus.

Martin-Marietta Alumina Harbor (St. Croix - VI-STC-63) contains DPNR ambient monitoring station STC-20 Alumina Plant Dock and STC-19 Krause Lagoon Channel. This assessment unit has been listed for Dissolved Oxygen and Phosphorus.

Hovensa, west (St. Croix - VI-STC-65) contains DPNR ambient monitoring stations STC-22A Treatment Plant (POTW) Outfall and STC-21 Spoils Island (Ruth Island). This assessment unit has been listed for Enterococci, Fecal Coliform and Phosphorus.

Sandy Point, nearshore west (St. Croix - VI-STC-82) contains DPNR ambient monitoring station STC-27 Sandy Point Public Beach. This assessment unit has been listed for Turbidity.

Round Bay (St. John - VI-STJ-15) contains DPNR ambient monitoring station STJ-53 Coral Bay and NPS monitoring stations NPS-15 Coral Bay Dock, NPS-16 Johnson Bay. This assessment unit has been listed for Turbidity.

Rendezvous Bay subwatershed, offshore (St. John - VI-STJ-25) contains DPNR ambient monitoring station STJ-47 Rendezvous Bay and NPS monitoring station NPS-23 Rendezvous Bay. This assessment unit has been listed for Turbidity.

Stumpy Bay (St. Thomas - VI-STT-02) contains DPNR ambient monitoring station STT-10 Stumpy Bay. This assessment unit has been listed for Turbidity.

Cowpet Bay (St. Thomas - VI-STT-28) contains DPNR ambient monitoring stations STT-24 Cowpet Bay and STT-24A Cowpet Bay West. This assessment unit has been listed for Dissolved Oxygen.

Jersey Bay, offshore (St. Thomas - VI-STT-32) contains DPNR ambient monitoring station STT-25 Nazareth Bay. This assessment unit has been listed for Fecal Coliform.

Frenchman Bay subwatershed east (St. Thomas - VI-STT-36) contains DPNR ambient monitoring stations STT-28A Bovoni Bay and STT-28B Bolongo Bay. This assessment unit has been listed for Dissolved Oxygen.

Pacquereau Bay (St. Thomas - VI-STT-40) contains DPNR ambient monitoring station STT-31A Flamboyant Cove. This assessment unit has been listed for Dissolved Oxygen.

St. Thomas Harbor, inner (St. Thomas - VI-STT-43) contains DPNR ambient monitoring stations STT-31B Hassel Island, Off Navy Dock, STT-31C Hassel Island, Careening Cove, STT-38 Haulover Cut, STT-35 Groden Bay, STT-32B Long Bay, Northeast Corner, STT-32A Long Bay, Near South Dolphin, STT-33A Long Bay, Off Outfall, STT-33B Long Bay, Off Outfall, STT-34 Long Bay, Off Pump Station, STT-36 St. Thomas Harbor, North of Coast Guard Dock, and STT-37 St. Thomas Harbor, Cay Bay. This assessment unit has been listed for Dissolved Oxygen, Enterococci, and Fecal Coliform.

Druif Bay (St. Thomas - VI-STT-49) contains DPNR ambient monitoring station STT-40 Water Isle Hotel, Beach. This assessment unit has been listed for Dissolved Oxygen and Turbidity.

Lindbergh Bay (St. Thomas - VI-STT-52) contains DPNR ambient monitoring stations STT-5A Lindbergh Bay, East and STT-5B Lindbergh Bay, West. This assessment unit has been listed for Dissolved Oxygen and Turbidity.

Cyril E. King Airport subwatershed, offshore (St. Thomas - VI-STT-53) contains DPNR ambient monitoring station STT-6C S.W. Road, Near Red Point Outfall. This assessment unit has been listed for Dissolved Oxygen.

Perseverance Bay, offshore (St. Thomas - VI-STT-54) contains DPNR ambient monitoring station STT-6B Airport College Cove. This assessment unit has been listed for Dissolved Oxygen.

Brewers Bay (St. Thomas - VI-STT-55) contains DPNR ambient monitoring stations STT-7A Brewers Bay. This assessment unit has been listed for Dissolved Oxygen.

Perseverance Bay (St. Thomas - VI-STT-56)contains DPNR ambient monitoring stations STT-7B Perseverance Bay. This assessment unit has been listed for Dissolved Oxygen.

Fortuna Bay (St. Thomas - VI-STT-57) contains DPNR ambient monitoring stations STT-8 Fortuna Bay. This assessment unit has been listed for Dissolved Oxygen.

In this 2008 assessment, the following are new to the 303(d) list:

VI-STC-06 Sprat Hall Beach (Dissolved Oxygen)
VI-STC-13 Baron Bluff subwatershed (Dissolved Oxygen)
VI-STC-02 Frederiksted Harbor (Dissolved Oxygen)
VI-STC-62 Limetree Bay (Fecal Coliform)
VI-STC-46 Grapetree Bay (Dissolved Oxygen)
VI-STC-40 Teague Bay Backreef (Fecal Coliform)
VI-STC-64 Manning Bay/Estate Anguilla Beach (Fecal Coliform)
VI-STC-82 Sandy Point, nearshore west (Dissolved Oxygen)
VI-STJ-15 Round Bay (pH)
VI-STJ-25 Rendezvous Bay subwatershed, offshore (pH)
VI-STJ-26 Chocolate Hole (pH)
VI-STJ-28 Great Cruz Bay (pH)
VI-STJ-23 Fish Bay (pH)
VI-STJ-30 Cruz Bay (pH)
VI-STT-02 Stumpy Bay (pH)
VI-STT-10 Magen's Bay (pH, Fecal Coliform)
VI-STT-18 Water Bay (pH)
VI-STT-22 Red Bay (pH)
VI-STT-35 Mangrove Lagoon (Enterococci)
VI-STT-51 Krum Bay (Fecal Coliform)
VI-STJ-01 Caneel Bay (Dissolved Oxygen, Turbidity)
VI-STJ-02 Hawksnest Bay (Dissolved Oxygen)
VI-STJ-03 Trunk Bay (Dissolved Oxygen)
VI-STJ-05 Cinnamon Bay (Dissolved Oxygen)
VI-STJ-06 Maho Bay/Francis Bay (Dissolved Oxygen/Turbidity)

VI. HIGH PRIORITY WATERS

In this cycle, DPNR-DEP has prioritized waters based on whether the impairment is likely due to human or physical factors, the size of the assessment unit, and the proximity of impaired assessment units to one another.

High priority assessment units are scheduled as follows:

VI-STC-23 St. Croix-By-the-Sea (2010)
VI-STC-27 Long Reef Forereef, east (2010)
VI-STC-63 Martin-Marietta Alumina Harbor (2011)
VI-STC-64 Manning Bay/Estate Anguilla Beach (2011)
VI-STC-65 Hovensa, west (2009)
VI-STT-43 St. Thomas Harbor, inner (2010)
VI-STT-45 Gregerie Channel (2010)
VI-STT-46 Sprat Bay (2010)
VI-STT-52 Lindbergh Bay (2011)
VI-STJ-15 Round Bay (2010)
VI-STJ-30 Cruz Bay (2009)

Assessment units scheduled for TMDL development within the next two years will also be prioritized as high. Section VII of this document itemizes the assessment units scheduled for TMDL development within the next two years.

VII. TWO-YEAR SCHEDULE

The following assessment units have been scheduled for a TMDL within the next two years:

VI-STC-23 St. Croix-By-the-Sea (2010)
VI-STC-65 Hovensa, west (2009)
VI-STC-27 Long Reef Forereef, east (2010)
VI-STJ-30 Cruz Bay (2009)
VI-STJ-15 Round Bay (2010)
VI-STT-43 St. Thomas Harbor, inner (2010)
VI-STT-45 Gregerie Channel (2010)
VI-STT-46 Sprat Bay (2010)

VIII. TMDL Schedule

DPNR-DEP has developed a schedule for completion of TMDLs for several waters on the 2008 303(d) list although not required by EPA regulations. TMDL development for the high priority assessment units is detailed under section V of this document.

Medium priority assessment units are listed and/or scheduled as follows: Princess subwatershed, offshore (2008), HOVENSA, west (2009), Christiansted Harbor, east (2010), Tamarind Reef Lagoon (Southgate Lagoon) (2010), Frederiksted Harbor (2012), Canegarden Bay (2011), Martin-Marietta Alumina Harbor (2011), Manning Bay/Estate Anguilla Beach (2011), Mandahl Bay (Marina) (2010), Fish Bay (2013), Mandahl Bay subwatershed, offshore (2010), Jersey Bay, offshore (2009), Frenchman Bay subwatershed east (2009), and Turner Bay/Enighed Pond (2010).

Low priority assessment units are listed and/or scheduled as follows: Salt River Lagoon, Marina (2012), Hess Oil Virgin Islands (2010), Chocolate Hole (2011), Sprat Hall Beach (2012), Baron Bluff subwatershed (2012), Long Reef Backreef, west (2008), Beauregard Bay (2013), Diamond subwatershed, offshore (2013), Buccaneer Beach (2013), Southgate subwatershed, offshore (2010), Teague Bay (2014), Teague Bay Backreef (2014), Bugby Hole Backreef (2015), Carlton Beach (2011), Sandy Point, nearshore west (2011), Rendezvous Bay subwatershed, offshore (2012), Botany Bay (2015), Stumpy Bay (2018), Santa Maria Bay (2017), Caret Bay (2017), Dorothea (2016), Hull Bay (2016), Magen's Bay (2011), Grapetree Bay (2015), Sunsi Bay (2015), Spring Bay (2015), Water Bay (2014), Vessup Bay (2011), Smith Bay (2014), St. John Bay (2013), Red Bay (2013), Great Cruz Bay (2010), Red Hook Bay (2011), Great Bay (2012), Cowpet Bay (2012), Frenchman Bay (2011), Benner Bay Lagoon Marina (2013), Mangrove Lagoon (2013), Limetree Bay (2010), Morningstar Bay (2011), Pacquereau Bay (2011), Hassel Island at Haulover Cut to Regis Point (2012), Druif Bay (2012), Flamingo Bay (2015), Cyril E. King Airport subwatershed, offshore (2011), Perseverance Bay, offshore (2012), Brewers Bay (2012), Perseverance Bay (2015), Fortuna Bay (2015), Caneel Bay (2015), Hawksnest Bay (2015), Trunk Bay (2015), Cinnamon Bay (2015) and Maho Bay/Francis Bay (2015).

AU ID	AU Name	Associated Monitoring Stations	Priority	Class	Impairment	Source	Listed in 2006?	Tentative Year of TMDL Completion
St. Croix								
VI-STC-02	Frederiksted Harbor	STC-29 Frederiksted Pier STC-28 Frederiksted Public Beach	Medium	C	Dissolved Oxygen	Highway/Road/Bridge Runoff (Non-construction Related)	No	2012
VI-STC-06	Sprat Hall Beach	STC-30 Sprat Hall Beach	Low	B	Phosphorus, Turbidity, Dissolved Oxygen	Unknown	Yes	2012
VI-STC-13	Baron Bluff subwatershed	STC-31 Davis Bay	Low	B	Enterococci, Dissolved Oxygen	Unknown	Yes	2012
VI-STC-16	Salt River Lagoon, Marina	STC-33 Salt River Marina, STC-33C Salt River Lagoon, Marina	Low	B	Enterococci, Fecal Coliform	Erosion from Derelict Land (Barren Land) Other Marina/ Boating On- vessel Discharges Residential Districts	Yes	2012
VI-STC-23	St. Croix-By-the-Sea	STC-34 St. Croix by the Sea	High	B	pH	Unknown	Yes	2010
VI-STC-24	Long Reef Backreef, west	STC-48 Long Reef Backreef, west	Low	B	Enterococci	Unknown	No	2015
VI-STC-27	Long Reef Forereef, east	STC-35A LBJ (Pump Station) Outfall, STC-36 Long Reef Forereef East	High	B	Turbidity, pH	Marina/Boating Sanitary On-vessel Discharges Discharges from Municipal Combined Storm Sewer Systems	Yes	2010
VI-STC-29	Christiansted Harbor, east	STC-1 Lagoon Recreation Beach, STC-39 Altona Lagoon Inlet	Medium	C	Dissolved Oxygen, Turbidity	Unknown	Yes	2010
VI-STC-30	Beauregard Bay	STC-2 Ft. Louise Augusta Beach	Low	B	Secchi Depth	Unknown	Yes	2013
VI-STC-31	Buccaneer Beach	STC-3 Buccaneer Hotel	Low	B	Dissolved Oxygen, Secchi Depth, Turbidity	Highways, Roads, Bridges, Infrasturcture (New Construction)	Yes	2013

AU ID	AU Name	Associated Monitoring Stations	Priority	Class	Impairment	Source	Listed in 2006?	Tentative Year of TMDL Completion
VI-STC-35	Tamarind Reef Lagoon (Southgate Lagoon)	STC-4 Tamarind Reef Lagoon	Medium	B	Dissolved Oxygen, Fecal Coliform, Secchi Depth, Turbidity	Marina/Boating Sanitary On-vessel Discharges Other Spill Related Impacts Erosion from Derelict Land (Barren Land) Post-development Erosion and Sedimentation Impacts from Resort Areas (Winter and Non-winter Resorts) Discharges from Municipal Combined Storm Sewer Systems	Yes	2010
VI-STC-37	Southgate subwatershed, offshore	STC-5 Green Cay Beach	Low	B	Dissolved Oxygen, Fecal Coliform	Marina Boat Maintenance Marina/Boating Sanitary On-vessel Discharges Non-Point Source	Yes	2010
VI-STC-39	Teague Bay	STC-9 St. Croix Yacht Club Beach, STC-8 Reef Club Beach	Low	B	Dissolved Oxygen, Turbidity, pH	Highway/Road/Bridge Runoff (Non-construction Related)	Yes	2014
VI-STC-40	Teague Bay Backreef	STC-10 Cramer's Park	Low	B	Turbidity, pH, Fecal Coliform	Highways, Roads, Bridges, Infrasturcture (New Construction) Marina/Boating Sanitary On-vessel Discharges	Yes	2014
VI-STC-46	Grapetree Bay	STC-11B Isaacs Bay, Forereef	Low	B	Dissolved Oxygen	Unknown	No	2015
VI-STC-56	Bugby Hole Backreef	STC-14A Halfpenny Bay - Manchenil, STC-14B Halfpenny Backreef	Low	B	Phosphorus, Turbidity	Unknown	Yes	2015
VI-STC-59	Canegarden Bay	STC-15 Cane Garden Bay	Medium	B	Phosphorus, Turbidity	Unknown	Yes	2011
VI-STC-61	Hess Oil Virgin Islands Harbor	STC-16 HOVENSA East Turning Basin, NW Corner, STC-17 HOVENSA West Turning Basin, NW Corner	Low	C	Phosphorus, Temperature, Dissolved Oxygen	Unknown	Yes	2010
VI-STC-62	Limetree Bay	STC-18 Limetree Bay Container Port	Low	B	Fecal Coliform	Unknown	No	2015
VI-STC-63	Martin-Marietta Alumina Harbor	STC-20 Alumina Plant Dock, STC-19 Krause Lagoon Channel	Medium	C	Dissolved Oxygen, Phosphorus	Unknown	Yes	2011

AU ID	AU Name	Associated Monitoring Stations	Priority	Class	Impairment	Source	Listed in 2006?	Tentative Year of TMDL Completion
VI-STC-64	Manning Bay/Estate Anguilla Beach	STC-23 Public Dump	Medium	B	Phosphorus, Fecal Coliform	Highway/ Road/ Bridge Runoff (Non- construction Related) Municipal Point Source Impacts from Inadequate Industrial/ Commercial Pretreatment	Yes	2011
VI-STC-65	Hovensa, west	STC-22A Treatment Plant (POTW) Outfall, STC-21 Spoils Island (Ruth Island)	Medium	B	Enterococci, Fecal Coliform, Phosphorus	Municipal Point Source Discharges	Yes	2009
VI-STC-75	Diamond subwatershed, offshore	STC-24B Rum Plant (VI Rum) Outfall	Low	B	Dissolved Oxygen, Turbidity, Phosphorus, Enterococci, Secchi Depth, Toxicity	Industrial Point Source Discharge	Yes	2013
VI-STC-76	Carlton Beach	STC-25 Long Point	Low	B	Dissolved Oxygen, Turbidity	Industrial Point Source Discharge	Yes	2011
VI-STC-82	Sandy Point, nearshore west	STC-27 Sandy Point Public Beach	Low	B	Turbidity, Dissolved Oxygen	Unknown	Yes	2011
St. John								
VI-STJ-01	Caneel Bay	STJ-54 Caneel Bay, NPS-1 Caneel Bay, VI658467 Caneel Beach	Low	B	Dissolved Oxygen, Turbidity	Unknown	No	2015
VI-STJ-02	Hawksnest Bay	STJ-44B Hawksnest Bay, NPS-3 Hawksnest (middle beach), NPS-4 Hawksnest (Gibney beach)	Low	B	Dissolved Oxygen	Unknown	No	2015
VI-STJ-03	Trunk Bay	STJ-44A Trunk Bay, NPS-5 Trunk Bay	Low	A	Dissolved Oxygen	Unknown	No	2015
VI-STJ-05	Cinnamon Bay	STJ-44C Cinnamon Bay, NPS-6 Peter Bay, NPS-7 Cinnamon Bay	Low	B	Dissolved Oxygen	Unknown	No	2015
VI-STJ-06	Maho Bay/Francis Bay	STJ-44D Francis Bay, NPS-8 Maho Bay, NPS-9 Francis Bay, VI536165 Big Maho Bay	Low	B	Dissolved Oxygen, Turbidity	Unknown	No	2015
VI-STJ-15	Round Bay	STJ-53 Coral Bay, NPS-15 Coral Bay Dock, NPS-16 Johnson Bay, STJ-57 Round Bay, STJ-58 Johnston Bay	High	B	Turbidity, pH	Unknown	Yes	2010

AU ID	AU Name	Associated Monitoring Stations	Priority	Class	Impairment	Source	Listed in 2006?	Tentative Year of TMDL Completion
VI-STJ-23	Fish Bay	STJ-48	Med	B	pH	Unknown	No	2013
VI-STJ-25	Rendezvous Bay subwatershed, offshore	STJ-47 Rendezvous Bay, NPS-23 Rendezvous Bay	Low	B	Turbidity, pH	Unknown	Yes	2012
VI-STJ-26	Chocolate Hole	STJ-46 Chocolate Hole, NPS-24 Choc	Low	B	Dissolved Oxygen, pH	Marina/Boating Sanitary	Yes	2011
						On-vessel Discharges, Non-Point Source		
VI-STJ-28	Great Cruz Bay	STJ-45 Great Cruz Bay, NPS-25 Great Cruz Bay	Low	B	Turbidity, Dissolved Oxygen, pH	Illegal Dumping, Non-Point Source On- site Treatment Systems (Septic Systems and Similar Decentralized Systems) Other Marina/ Boating On- vessel Discharges Other Recreational Pollution Sources	Yes	2010
VI-STJ-29	Turner Bay/Enighed Pond	STJ-55 Turner Bay, NPS-26 Turner Bay	Medium	B	Turbidity	Municipal Point Source Discharges	Yes	2010
VI-STJ-30	Cruz Bay	STJ-43A Cruz Bay, North, STJ-43B Cruz Bay, South, STJ-43C Cruz Bay, North of Seaplane Ramp, STJ-43D Cruz Bay Creek, NPS-27 Cruz Bay (ferry dock)m NPS-28 Cruz Bay, NPS-29 Cruz Bay (NPS dock)	High	B	Fecal Coliform, Turbidity, Secchi Depth., Dissolved Oxygen, pH	Commercial Ferries Marina Fueling Operations Other Marina/Boating On-vessel Discharges Other Recreational Pollution Sources	Yes	2009
St. Thomas								
VI-STT-01	Botany Bay	STT-9 Botany Bay	Low	B	pH	Highways, Roads, Bridges, Infrasturcture (New Construction)	No	2015
VI-STT-02	Stumpy Bay	STT-10 Stumpy Bay	Low	B	Turbidity, pH	Unknown	Yes	2018
VI-STT-04	Santa Maria Bay	STT-11 Santa Maria Bay	Low	B	Dissolved Oxygen, pH, Turbidity	Post-development Erosion and Sedimentation	Yes	2017
VI-STT-05	Caret Bay	STT-12 Caret Bay	Low	B	Turbidity, Dissolved Oxygen, pH	Source Unknown	Yes	2017
VI-STT-07	Dorthea	STT-13 Dorothea	Low	B	Turbidity, Dissolved Oxygen, pH	Source Unknown	Yes	2016
VI-STT-08	Hull Bay	STT-14 Hull Bay	Low	B	Dissolved Oxygen, pH	Other Marina/Boating On-vessel Discharges	Yes	2016
						Other Recreational Pollution Sources		

AU ID	AU Name	Associated Monitoring Stations	Priority	Class	Impairment	Source	Listed in 2006?	Tentative Year of TMDL Completion
VI-STT-10	Magen's Bay	STT-15, STT-15A, STT-15B Magens Bay	Low	B	Turbidity, Dissolved Oxygen, pH, Fecal Coliform	Highways, Roads, Bridges, Infrasturcture (New Construction) On- site Treatment Systems (Septic Systems and Similar Decentralized Systems) Other Recreational Pollution Sources Changes in Tidal Circulation/ Flushing Highway/ Road/ Bridge Runoff (Non- construction Related)	Yes	2011
VI-STT-13	Mandahl Bay (Marina)	STT-16B Mandahl Bay Entrance, STT-16C Mandahl Point Entrance	Medium	B	Enterococci, Fecal Coliform, Dissolved Oxygen, pH, Secchi Depth	Other Marina/ Boating On- vessel Discharges Other Recreational Pollution Sources Changes in Tidal Circulation/ Flushing	Yes	2010
VI-STT-15	Sunsi Bay	STT-17B Sunsi Bay	Low	B	Dissolved Oxygen, pH	Unknown	Yes	2015
VI-STT-16	Spring Bay	STT-17A Spring Bay	Low	B	Dissolved Oxygen, pH	Unknown	Yes	2015
VI-STT-17	Mandahl Bay subwatershed,offshore	STT-16A Mandahl Bay, STT-18 Coki Point Bay	Medium	B	Dissolved Oxygen, Total Fecal Coliform, Turbidity, pH	Other Marina/ Boating On- vessel Discharges Other Recreational Pollution Sources Illegal Dumping On- site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Yes	2010
VI-STT-18	Water Bay	STT-19 Water Bay	Low	B	Dissolved Oxygen, pH	Unknown	Yes	2014
VI-STT-19	Smith Bay	STT-20 Smith Bay	Low	B	Dissolved Oxygen	On-site Treatment Systems	Yes	2014
						(Septic Systems and Similar Decencentralized Systems)		

AU ID	AU Name	Associated Monitoring Stations	Priority	Class	Impairment	Source	Listed in 2006?	Tentative Year of TMDL Completion
VI-STT-21	St. John Bay	STT-21A St. John Bay	Low	B	Dissolved Oxygen	Unknown	Yes	2013
VI-STT-22	Red Bay	STT-21B Red Bay	Low	B	Dissolved Oxygen, Turbidity, pH	Unknown	Yes	2013
VI-STT-23	Vessup Bay	STT-22B Vessup Bay	Low	B	Temperature	Unknown	Yes	2011
VI-STT-24	Red Hook Bay	STT-22A Red Hook Bay	Low	B	Enterococci	Unknown	Yes	2011
VI-STT-25	Great Bay	STT-23 Great Bay	Low	B	Dissolved Oxygen	Other Marina/ Boating On-vessel Discharges, Internal Nutrient Recycling	Yes	2012
VI-STT-28	Cowpet Bay	STT-24 Cowpet Bay, STT-24A Cowpet Bay West	Low	B	Dissolved Oxygen	Unknown	Yes	2012
VI-STT-32	Jersey Bay, offshore	STT-25 Nazareth Bay	Medium	B	Fecal Coliform	Unknown	Yes	2009
VI-STT-34	Benner Bay Lagoon Marina	STT-27D Mangrove Lagoon, Near Lavida Marina, STT-27E Mangrove Lagoon, Near Compass Point	Low	B	Enterococci	Other Marina/ Boating On- vessel Discharges Discharges from Municipal Combined Storm Sewer Systems Changes in Tidal Circulation/ FlushingHighway/ Road/ Bridge Runoff (Non- construction Related) Sanitary Sewer Overflows (Collection System Failures)	Yes	2013
VI-STT-35	Mangrove Lagoon	STT-27B Mangrove Lagoon, Off Sanitary Landfill (East of Ecotours), STT-27A Mangrove Lagoon, Near Treatment Plant, STT-27C Mangrove Lagoon, Near Tropical Marine Fuel Dock	Low	B	Temperature, Enterococci	Changes in Tidal Circulation/ Flushing Discharges from Municipal Combined Storm Sewer Systems Highway/ Road/ Bridge Runoff (Non- construction Related) Other Marina/ Boating On- vessel Discharges	Yes	

AU ID	AU Name	Associated Monitoring Stations	Priority	Class	Impairment	Source	Listed in 2006?	Tentative Year of TMDL Completion
VI-STT-36	Frenchman Bay subwatershed east	STT-28A Bovoni Bay, STT-28B Bolongo Bay	Medium	B	Dissolved Oxygen	Unknown	Yes	2009
VI-STT-37	Frenchman Bay	STT-29A Frenchman's Bay	Low	B	Dissolved Oxygen	Impacts from Resort Areas (Winter and Non-winter Resorts) Other Recreational Pollution Sources	Yes	2011
VI-STT-38	Limetree Bay	STT-29B Limetree	Low	B	Dissolved Oxygen, Turbidity	On- site Treatment Systems (Septic Systems and Similar Decentralized Systems) Erosion from Derelict Land (Barren Land) Highways, Roads, Bridges, Infrasturcture (New Construction)	Yes	2010
VI-STT-39	Morningstar Bay	STT-30 Morning Star Bay	Low	B	Dissolved Oxygen	Impacts from Resort Areas (Winter and Non-winter Resorts) Other Recreational Pollution Sources	Yes	2011
VI-STT-40	Pacquereau Bay	STT-31A Flamboyant Cove	Low	B	Dissolved Oxygen	Unknown	Yes	2011
VI-STT-43	St. Thomas Harbor, inner	STT-31B Hassel Island, Off Navy Dock, STT-31C Hassel Island, Careening Cove, STT-38 Haulover Cut, STT-35 Groden Bay, STT-32B Long Bay, Northeast Corner, STT-32A Long Bay, Near South Dolphin, STT-33A Long Bay, Off Outfall, STT-33B Long Bay, Off Outfall, STT-34 Long Bay, Off Pump Station, STT-36 St. Thomas Harbor, Norht of Coast Guard Dock, STT-37 St. Thomas Harbor, Cay Bay	High	C	Dissolved Oxygen, Enterococci, Fecal Coliform	Unknown	Yes	2010
VI-STT-45	Gregerie Channel	STT-1 Crown Bay, Near Outfall, STT-39 Water Isle, East Gregorie Channel	High	B	Dissolved Oxygen	Non-Point Source, Marina Boat Maintenance, Marina/Boating Pumpout Releases	Yes	2010
VI-STT-46	Sprat Bay	STT-42 Water Island Sprat Bay	High	B	Dissolved Oxygen	Residential	Yes	2010

AU ID	AU Name	Associated Monitoring Stations	Priority	Class	Impairment	Source	Listed in 2006?	Tentative Year of TMDL Completion
VI-STT-47	Hassel Island at Haulover Cut to Regis Point	STT-2 Crown Bay, Near Tamarind Outlet, STT-3 Subbase	Low	C	Enterococci, Dissolved Oxygen	Dredging (E. g., for Navigation Channels) Wastes from Pets Other Spill Related Impacts Other Marina/ Boating On-vessel Discharges Highway/ Road/ Bridge Runoff (Non- construction Related) Ballast Water Releases	Yes	2012
VI-STT-49	Druif Bay	STT-40 Water Isle Hotel, Beach	Low	B	Dissolved Oxygen, Turbidity	Unknown	Yes	2012
VI-STT-50	Flamingo Bay	STT-41 Water Island Flamingo Bay	Low	B	Dissolved Oxygen, Turbidity	Commercial Ferries Residential Districts Other Marina/ Boating On-vessel Discharges Other Recreational Pollution Sources	Yes	2015
VI-STT-51	Krum Bay	STT-4 Krum Bay	Low	C	Fecal Coliform	Unknown	No	2012
VI-STT-52	Lindbergh Bay	STT-5A Lindbergh Bay, East, STT-5B Lindbergh Bay, West	High	B	Dissolved Oxygen, Turbidity	Unknown	Yes	2011
VI-STT-53	Cyril E. King Airport subwatershed, offshore	STT-6C S.W. Road, Near Red Point Outfall	Low	B	Dissolved Oxygen	Unknown	Yes	2011
VI-STT-54	Perseverance Bay, offshore	STT-6B Airport College Cove	Low	B	Dissolved Oxygen, Turbidity	Unknown	Yes	2012
VI-STT-55	Brewers Bay	STT-7A Brewers Bay	Low	B	Dissolved Oxygen	Unknown	Yes	2012
VI-STT-56	Perseverance Bay	STT-7B Perseverance Bay	Low	B	Dissolved Oxygen	Unknown	Yes	2015
VI-STT-57	Fortuna Bay	STT-8 Fortuna Bay	Low	B	Dissolved Oxygen	Unknown	Yes	2015

AU ID	AU Name	Associated Monitoring Stations	Priority	Class	Impairment	Source	Listed in 2006?	Tentative Year of TMDL Completion
		Key Text in red = paramater/AU eligible for delisting next cycle						

Responsiveness Summary to the 2008 U.S. Virgin Islands 303(d) List of Impaired Waters

April 1, 2008

Prepared by:
Anita E. Nibbs
Environmental Program Manager

Department of Planning & Natural Resources
Division of Environmental Protection
45 Mars Hill
Frederiksted, VI 00841

1. Introduction

The Virgin Islands Department of Planning and Natural Resources (DPNR) Division of Environmental Protection (DEP) has prepared this report to summarize and respond to the comments received on the draft *2008 US Virgin Islands 303(d) List.*

Comments were submitted after a public notice period of 30 days. The public comment period began on February 2, 2008 and ended on March 3, 2008. The public comment period was announced in two local newspapers: The Virgin Islands Daily News and The Avis. Additionally, the public comment period announcement was posted on the DEP Website at the following URL:
http://www.dpnr.gov.vi/dep/pubs/February_3_2008_Public_Notice.htm

DPNR also solicited comments from the National Marine Fisheries Service and the US Fish and Wildlife Service, no comments were received from these agencies.

2. Comments

The only comments received were submitted by Mario Del Vicario, Chief, Watershed Protection Branch, USEPA Region 2. The comments concerned the designation of waters as under the jurisdiction of the United States National Park Service (**See Attachment)**.

DPNR's Comment: As requested, the seven (7) waterbody/pollutant combinations will now be included on the 2008 U.S. Virgin Islands 303(d) List of Impaired Waters.

Attachment

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

FEB 2 1 2008

Anita E. Nibbs
Environmental Program Manager
Department of Planning & Natural Resources
Division of Environmental Protection
45 Mars Hill, Frederiksted
St. Croix, VI 00841

Dear Ms. Nibbs:

Please find enclosed the EPA comments on the 303(d) list that was public noticed on February 3, 2008. The main concern with the list is with the designation of waters as under the jurisdiction of the United States National Parks Service.

It is EPA's goal to reach an agreement with USVI's Department of Planning and Natural Resources regarding these comments before the April 1, 2008 Integrated Report deadline. Please contact Nesmarie Negron, of my staff, at (212) 637-3883 to discuss these comments in further detail.

Sincerely,

Mario Del Vicario, Chief
Watershed Protection Branch

Enclosures

GOVERNMENT OF THE VIRGIN ISLANDS OF THE UNITED STATES
========
DEPARTMENT OF PLANNING AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL PROTECTION
45 MARS HILL
FREDERIKSTED, ST. CROIX, VI 00840
PHONE: (340) 773-1082, FAX: (340) 692-9794

April 1, 2008

Walter Mugdan
Director
Division of Environmental Planning & Protection
US EPA REGION 2
290 Broadway, Floor 25
New York, NY 10007

Dear Mr. Mugdan:

The Department of Planning and Natural Resources-Division of Environmental Protection (DPNR-DEP) is pleased to submit our final version of the 2008 List of Impaired Waterbodies and Responsiveness Summary. Our staff has dedicated the time and effort in order to complete this report and has made special efforts to address all of the comments made by your staff.

DEP appreciates the assistance of the United States Environmental Protection Agency (USEPA) Region 2 in order for the final report to be completed. DEP also appreciates the level of support provided by your staff during the processes of completing this report. Thank you for your assistance in this effort.

Sincerely,

Nadine Noorhasan, Ph.D.
Director