



**GROWING AREA WA
Towns of South Berwick, Eliot and Kittery**

ANNUAL REVIEW for 2010

Report Date: 01-30-2012

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APPROVAL

Division Director:

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1/30/12

Print name

signature

Date:



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Figure 1. Growing Area WA, with Active Water Stations



Maine Department of Marine Resources

Growing Area WA



05/24/2011

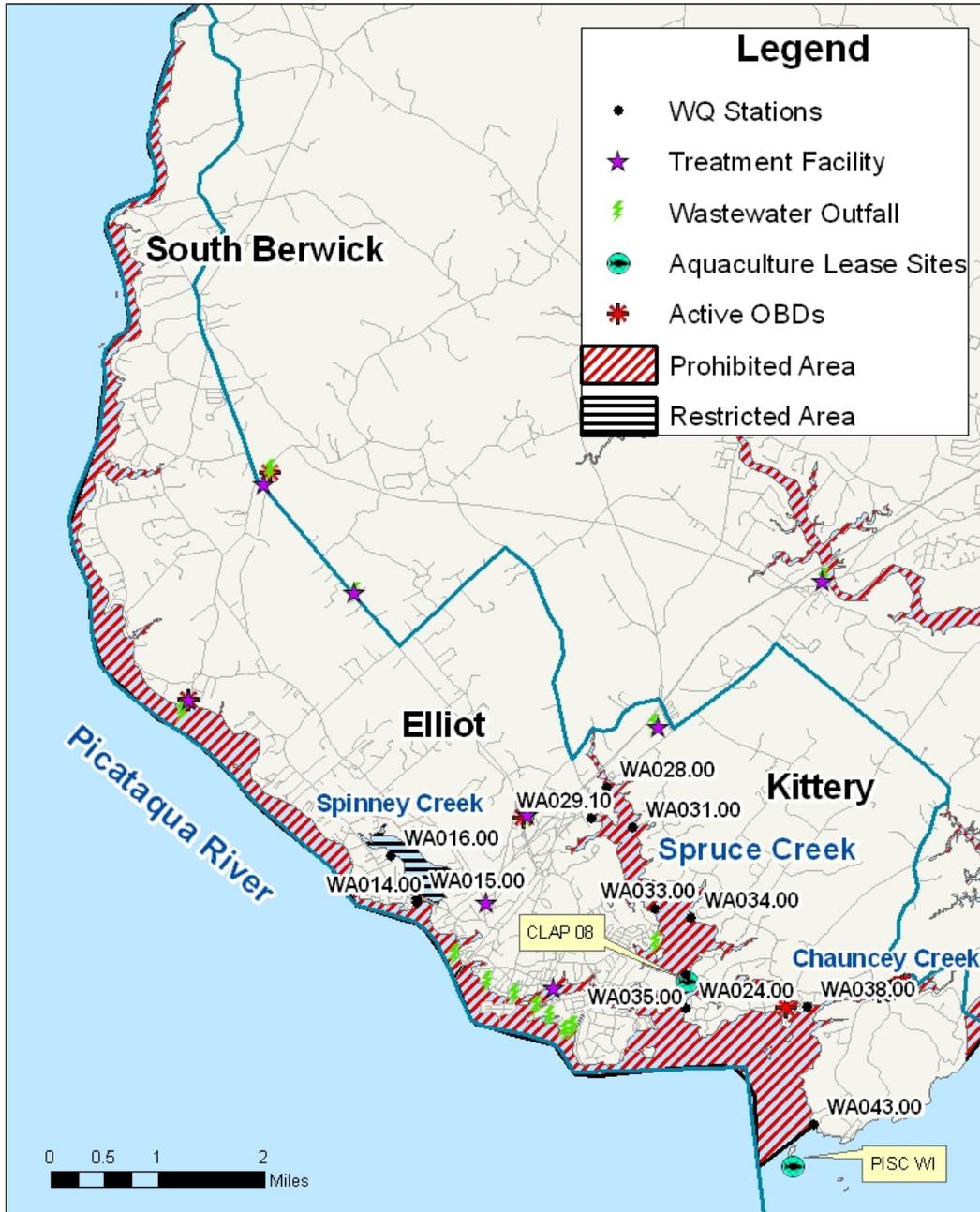
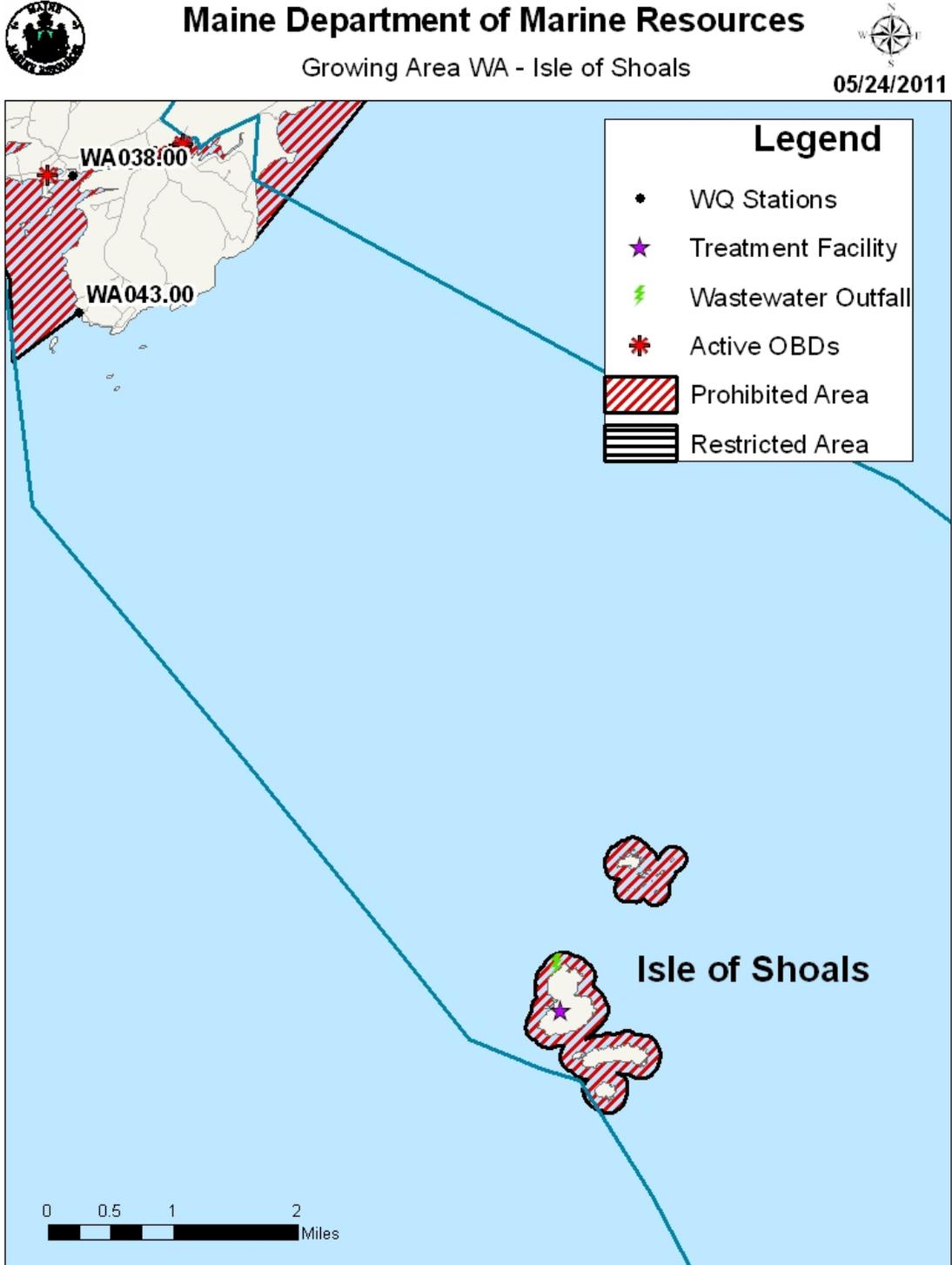




Figure 2. Growing Area WA, Isle of Shoals





Executive Summary

This is an annual report for growing area WA written in compliance with the requirements of the 2009 Model Ordinance and the National Shellfish Sanitation Program (NSSP).

Growing area WA is located between the Piscataqua River, at the Maine/New Hampshire border, and Sisters Point, Kittery (Figure 1); including the Isle of Shoals (Figure 2). All of the Piscataqua River is classified prohibited down to Gerrish Island, including Spruce Creek and Chauncey Creek. Chauncey Creek and the Piscataqua River are prohibited due to the presence of several municipal and residential overboard discharges (OBDs) and wastewater treatment plant outfalls (WWTP) on both the New Hampshire and Maine coasts. Spinney Creek is classified restricted due to non-point pollution. The mouth of the river at Gerrish Island is classified approved. The Isle of Shoals is classified prohibited due to point source pollution.

There were no stations added or removed from growing area WA during the annual review period. Spinney Creek has shown improved water quality and continues to meet the restricted standard. Station WA 43, which monitors the approved area around Gerrish Island has shown improved water quality and continues to meet the approved NSSP standard.

A sanitary survey report will be written for growing area WA in 2011, followed by annual reports in 2012 and 2013 and a triennial report in 2014.

Growing Area Description

Growing area WA is located in Southern Maine and includes the towns of South Berwick, Eliot, Kittery, as well as the Isle of Shoals (Figure 1). The area is entirely in the Piscataqua River Watershed which drains 1,495 square miles and includes the smaller watersheds of Spruce Creek in Maine, and the Great Works, Salmon Falls, Cocheco, Bellamy, Winnicutt, Squamscott, Lamprey, Oyster, and Exeter Rivers of New Hampshire. The harbor is used by submarines from the Portsmouth Naval Shipyard on Seavey Island in Kittery and for fuel deliveries to Pease International Tradeport in Newington. Portsmouth Harbor is also used extensively by a large lobster fishing fleet, charter fishing vessels, commercial fishermen, excursion boats to the Isles of Shoals situated nine miles offshore, and local and transient boats based at or visiting the nearly 20 boating facilities in the area. The harbor has been improved and dredged several times since 1966 extending up Long Reach to Newington, NH. The Piscataqua River is also the receiving waters for the waste treatment facilities in Portsmouth, Kittery, and Newington, NH.



The Spruce Creek watershed includes Wilson Creek which begins as two small streams that run south on either side of Route 1. The area is heavily developed with many retail stores, as well as a large trailer park. Spruce Creek flows into Kittery through a farm field west of Wilson Road. The Spruce Creek Watershed covers 9.6 square miles in Kittery and a small portion of Eliot. There is significant development within the Spruce Creek Watershed, especially surrounding Route 1 and the Maine Turnpike, and the tidal portion of Spruce Creek. These areas have a high percentage of impervious surface which leads to increased stormwater runoff into the creek.

Land use in the Piscataqua River watershed is characterized as densely developed with high levels of impervious surfaces which contribute to increased flow of stormwater into the river. Numerous small parcels of municipal and privately managed conservation land areas are located throughout the watershed. Many areas within the watershed provide significant habitat for inland and coastal wading birds and waterfowl, as well as a small area of nesting seabirds. In addition several areas provide valuable habitat for wintering deer.

The Isles of Shoals is comprised of nine rocky islands six miles off the New Hampshire and Maine coast. The Maine islands include; Appledore, Smuttynose, Cedar, Cedar Island Ledge, Duck, Shag, Mingo, Eastern Island and Southwest Ledge. There are no year-round residences on the Isle of Shoals. There is White Island Light, the Oceanic Hotel, a few summer houses, and the Shoals Marine Research Laboratory. Various excursion boat companies cruise to the Shoals but since the Shoals are privately owned, stopovers are not always included in cruises or are limited.

Major pollution sources on the Maine side of the Piscataqua River and within growing area WA include the South Berwick WWTP, Kittery WWTP and the Portsmouth Naval Shipyard. There are several marinas and large boat mooring areas. There is one limited purpose aquaculture license in Spruce Creek and an aquaculture lease south of Wood Island in Portsmouth Harbor.

Current Classification(s)

Shellfish growing area WA currently has areas classified as:

Approved

- Gerrish Island, Kittery (1 station, WA 43)

Restricted

- Spinney Creek, Eliot and Kittery (2 stations, WA 15 and 16) (Non-point Pollution)

Prohibited

- Spruce Creek, Kittery (8 stations, 24, 28, 29.1, 31, 33, 34, 35 and 36) (Outdated Shoreline Survey/Non-point Pollution)
- Chauncey Creek, Kittery (1 Station, WA 38)(Presence of OBDs)
- Spinny Creek, Elliot and Kittery (1 station, WA 14) (Non-Point Pollution)



Please visit the DMR website to view legal notices:

http://www.maine.gov/dmr/rm/public_health/closures/closedarea.htm#T

Activity during Review Period

May 21, 2010; DMR received a call from Lori Howell of Spinney Creek Shellfish at 1402 to report a small home heating oil spill on the northeast side of Spinney Creek. The spill occurred the night of 05.20.10 and was reported to the Eliot Fire Department who responded at ~2030 to put down sorbent pads in a stream/gully about 200' inland from Spinney Creek near the corner of Dennett Road and Old Dennett Road. The DEP arrived on scene at ~2200 (Scott Cyr) and investigated the spill back to a house with a sump pump. The owner had been transferring home heating oil from the tank in the basement to a 50 gallon drum and some spilled onto the floor and went out the sump pump pipe to the ditch/stream. The DEP estimates it to be about 15 gallons. There are 6 catch basins between the property and Spinney Creek; the Kittery Sewer District and the Kittery Dept. of Public Works had cleaned out all the catch basins of water/soil by the time the DMR contacted the DEP at 1430. As a precaution, sorbent padding was put into the storm drains. It was determined that no closure was necessary as the spill was cleaned up, there was no chance for rain in the 7 day forecast and the oil did not reach Spinney Creek.

Current Management Plan(s) for Conditional Area(s)

There are currently no conditional areas in area WA.

Water Quality Review and Discussion

Table 1 lists all active approved, restricted and prohibited stations in Growing Area WA, with their respective Geomean (GM) and P90 calculations for 2010. Please refer to Appendix A for a key to interpreting the headers on the columns of Table 1. The approved and restricted standards for each station are also displayed in Table 1. These standards will fluctuate yearly as a result of the DMR transition from a most probable number (MPN) fecal coliform test method to a membrane filtration (MF) method and are dependent on the number of samples analyzed by MPN versus MF. The total number of data points used in the calculations is displayed in the Count column and includes both MPN and MF values. The number of data points analyzed by MF is displayed in the MFCount column. This fluctuating standard will cease when all 30 data points have been analyzed by the MF method. A more detailed explanation of this transition can be found in central files.

Based on the current review of water quality data some prohibited stations are meeting the approved NSSP standard, but will remain prohibited until the shoreline survey is updated and a dilution calculation is completed for several wastewater treatment outfalls in the Picataqua River. Station WA 24 is located at the mouth of Spruce Creek where there is an OBD and will



remain prohibited until the OBD is removed. Station WA 38 is located in Chauncey Creek where there are multiple OBDs. This station will remain prohibited until the OBDs are removed.

Table 1. Geomean and P90 Scores, Growing Area WA, 2004-2010

Station	Class	Count	MFCOUNT	GM	SDV	MAX	P90	Appd_Std	Restr_Std
WA014.00	P	30	27	5.2	0.4	36	17.4	32	173
WA015.00	R	30	27	5.7	0.66	240	41.4	32	173
WA016.00	R	30	27	8.8	0.75	1100	82.3	32	173
WA024.00	P	30	27	3.9	0.38	23	12.4	32	173
WA028.00	P	30	27	15.6	0.67	240	113.2	32	173
WA029.10	P	30	25	13	0.55	108	66.8	33	180
WA031.00	P	30	27	10.1	0.68	460	77.5	32	173
WA033.00	P	30	27	7.4	0.52	240	35.6	32	173
WA034.00	P	30	27	6	0.52	104	28.4	32	173
WA035.00	P	30	15	6.4	0.48	104	26.7	38	221
WA036.00	P	30	27	5	0.44	93	18.8	32	173
WA038.00	P	30	27	6.9	0.44	38	26.1	32	173
WA043.00	A	30	27	3.1	0.31	30	8	32	173

All stations that were active at the beginning of the year were sampled at least 6 times in 2010, following the systematic random sampling (SRS) schedule. Table 2 shows the number of random, adverse, and extra samples taken during the 2010 sampling year;

Table 2. WA Samples Collected in 2010

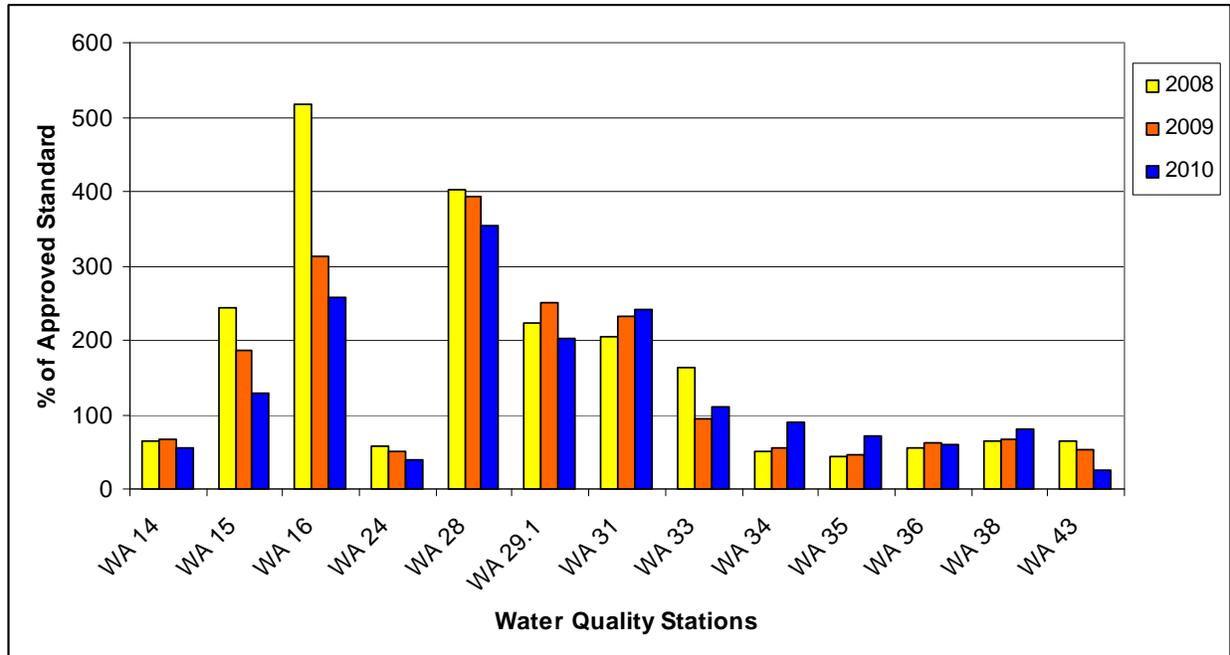
Station	Class	Adverse	Extra		Random		Total	Comments
		Closed	Closed	Open	Closed	Open		
WA014.00	P		1		6		7	
WA015.00	R			1		6	7	
WA016.00	R	8		1		6	15	
WA024.00	P		1		6		7	
WA028.00	P		1		6		7	
WA029.10	P		1		6		7	
WA031.00	P		1		6		7	
WA033.00	P		1		6		7	
WA034.00	P		1		6		7	
WA035.00	P				6		6	
WA036.00	P		1		6		7	
WA038.00	P		1		6		7	
WA043.00	A			1		6	7	

Figure 3 shows the P90 trends over the past three years for all stations in area WA. During the transition from MPN to MF analysis method, the approved standard will decrease every year, until all samples have been analyzed by the MF method. In order to show the trend of the P90 value over the years, the calculated P90 scores are expressed as a percentage of the approved



standard; any station showing the 2010 column on or above the 100 percent line does not meet the standard for approved classification. Stations WA 14, 15, and 16 which monitor the restricted area in Spinney Creek are trending downward in their P90 scores (improving water quality). Station 43 has also shown a downward trend and continues to meet the approved NSSP standard.

Figure 3. Area WA P90 Scores for Active Stations (expressed as the percent of the approved standard), 2008-2010



Recommendations for Upward Classification

Based on the 2010 annual review, there are currently no upward classification recommendations for area WA.

Shoreline Survey Activity

A drive through survey was conducted on July 26, 2010. There were no new actual or potential pollution sources noted.



Aquaculture/Wet Storage Activity

There is one Limited Purpose Aquaculture (LPA) site, CLAP 08, in Spruce Creek which is a 0.01 acre permit for overwintering trays or racks for soft shelled clam seed. It was issued on July 16, 2008 and expired on December 31, 2010. There is one aquaculture lease southeast of Wood Island in Portsmouth Harbor, Kittery, PISC WI. It is a 3.76 acre bottom lease for green sea urchins. Additional information can be found at the DMR website:
<http://www.maine.gov/dmr/aquaculture/leaseinventory/yorkcounty.htm>.

There is one wet storage permit issued for intake water from Spinney Creek. Additional information can be found at the DMR website:
http://www.maine.gov/dmr/rm/public_health/wetstorage_bulktagging_permits.htm

Recommendation for Future Work

The following work is recommended for the 2011 review year (sanitary report):

1. Conduct a sanitary shoreline survey of Spruce Creek
2. Re-evaluate the restricted area in Spinney Creek to determine if this area should be classified as conditionally restricted based on the Kittery Waste Water Treatment Plant.
3. Evaluate the Prohibited area in WA due to the Kittery Waste Water Treatment Plant, outfalls, and OBDs to determine if the closure is the appropriate size based on an updated dilution calculation.

Classification Changes

Based on the 2010 annual review, there are currently no classification changes required or recommended for area WA.

Summary

Water Quality in Spinney Creek has remained steady or improved over the annual review period. Station WA 43 which monitors the approved area around Gerrish Island has shown an improved water quality over the past 3 review years. The prohibited stations in Spruce Creek will remain prohibited until several licensed OBDs are removed (WA 24 and WA 38), an updated dilution calculation is completed for the wastewater treatment plant outfalls from both New Hampshire and Maine, and an updated shoreline survey of Spruce Creek is completed.

The Piscataqua River area will remain prohibited due to the presence of numerous wastewater treatment plant outfalls on both the New Hampshire and Maine sides of the river. No sampling



or shoreline survey work will be conducted on the Piscataqua River with the exception of station WA 14 which monitors the effects of the Piscataqua River on the inlet to Spinney Creek.



Appendix A Key to Water Quality Table Headers

Station = water quality monitoring station

Class = classification assigned to the station; prohibited (P), restricted (R), conditionally restricted (CR), conditionally approved (CA) and approved (A).

Count = the number of samples evaluated for classification, must be a minimum of 30.

MFCNT = the number of samples evaluated with the MTec method (included in the total Count column)

Geo_Mean = means the antilog (base 10) of the arithmetic mean of the sample result logarithm (base 10).

SDV = standard deviation

Max = maximum score of the 30 data points in the count column

P90 = 90th percentile

APPD_STD = the 90th percentile, at or below which the station would meet approved criteria in the absence of pollution sources or poisonous and deleterious substances.

RESTR_STD = the 90th percentile, at or below which the station would meet restricted criteria.

MIN_DATE = collection date of the least recent sample used in the P90 calculation.