

Section 5-5 Rockport Harbor & Tributaries (Rockport Conservation Commission)

Rockport Harbor & Tributaries

Rockport Harbor is in Knox County on the mid-coast of Maine in the Penobscot Bay region. The watershed, which has a total area of approximately 10 mi² (25.9 km²) has three sub-watersheds: Goose River, coastal and Lily Pond. The Goose River, which drains the largest sub-watershed (6.6 mi² or 22.3 km²), originates from the outflow of Hosmer Pond near the base of Bald and Ragged Mountains in Camden, and flows 4.4 miles (7.1 km) southeast to Rockport Harbor. Other smaller streams draining to Rockport Harbor are Harkness Brook and Ott Brook, both of which drain the small coastal subwatershed located along the harbor's western shore, and the unnamed stream draining from Lily Pond (referred to as Lily Pond Stream). While relatively small, the Lily Pond subwatershed contains the Midcoast Solid Waste Corporation facility and grazing pastures associated with the Maine Coast Heritage Trust's Aldermere Farm. A small seasonal stream also drains to the harbor from an upland area to the east. Land uses throughout these subwatersheds include recreation (e.g. golf courses, ski slopes and associated facilities), residential development, light industry, second-growth forest and pasture (Town of Rockport Comprehensive Plan, 2004).

The issuance of public health advisories at Goodies Beach near the head of Rockport Harbor based on bacterial monitoring by Maine Healthy Beaches (MHB) in 2009-2011 prompted efforts by the Rockport Conservation Commission (RCC) to identify potential pollution sources. Results were documented in a RCC report (Kennedy 2011). While bacterial levels in Goose River, Ott Brook, Harkness Brook and Lily Pond stream often exceeded the saltwater criterion for *Enterococcus*, data were insufficient to identify specific upstream sources. However, storm drainage from residential and wetland areas to the west of the harbor clearly had adverse impacts on Goodies Beach. Based on these latter results, the Town of Rockport initiated several investigations, including a house-by-house inspection of plumbing and sewer connections, smoke and dye testing of storm drains, video inspection of gravity sewers, video inspection of house-to-sewer connections for selected homes, limited mDNA sampling at selected sites and use of a sewage-sniffing dog at 16 sites. The USEPA conducted selected pharmaceutical compound sampling in 2013. Illicit discharge detection and elimination investigations continue to try to identify sources of human bacteria.

Recognizing that Rockport Harbor has significant aesthetic value and is an important natural resource for the Town of Rockport and the surrounding area, the RCC pursued an investigative program designed to better understand factors affecting water and environmental quality. This expanded RCC's initial efforts from the identification and resolution of bacteria-related impairments at Goodies Beach to include eutrophication-related issues in the harbor. Nutrient sampling conducted by RCC indicate that nutrients and particular nitrogen from the Goose River affect water quality and clarity in the harbor.

Rockport Conservation Commission received a Coastal Community Grant from the Maine Department of Agriculture, Conservation and Forestry (MDACF)-Municipal Planning Assistance Program. The grant was used to evaluate nonpoint source pollution using a modeling approach. The project was a risk

assessment based on readily available data such as land cover and land use and did not quantify nonpoint source pollution. “A Watershed Approach to Managing Land Use Impacts to Coastal Waters-Final Report” was submitted to MDACF in December 2016.

Monitoring History

- The Maine Biological Monitoring Program monitored the Goose River in 2002. The data is available on DEP’s website.
- With assistance from DEP’s Marine Unit, Rockport Conservation Commission (RCC) began monitoring Rockport Harbor in 2012. In 2013, RCC joined the Volunteer River Monitoring Program (VRMP) with the purpose of monitoring Rockport Harbor, Goose River and other minor streams draining to the harbor.
- Maine Healthy Beaches has been monitoring bacterial levels at Goodies Beach since 2009 and issues advisories as required.
- The current RCC program has the following goals and objectives:
 - 1) Assess bacterial inputs to Rockport Harbor from the watershed
 - 2) Establish baseline water quality and trophic condition information for Rockport Harbor
 - 3) Assess nutrient inputs to Rockport Harbor from selected freshwater inflows
 - 4) Assess the potential influence of inflow mixing on water quality responses in Rockport Harbor.

Methods and Sampling Sites

Rockport Conservation Commission monitors four sites in Rockport Harbor. They also monitor the Goose River, three streams, and an intermittent stream/ditch. All the tributary sites are freshwater.

Monitoring is conducted one to two times per month from May through September. Additional sampling has also been conducted at Goose River for nutrient samples and stage for nutrient loading. At the freshwater sites, the monitors measure water temperature and dissolved oxygen using a YSI meter. Conductivity is measured with either a YSI meter or Oakton EC Testr 11+/11 pen. Grab samples may be collected for total nitrogen, total phosphorus, *E. coli* and *Enterococci* bacteria (Goose River). At the harbor sites, vertical profiles are obtained for temperature and dissolved oxygen using a Manta meter. Grab samples are collected at 0.1 meter depths for chlorophyll a, total phosphorus, and total nitrogen. Grab samples are also collected for *Enterococci* bacteria from May to September. Lastly, Secchi depth transparency is measured.

Bacteria samples are transported to Mirror Lake Laboratory (Maine Water, Rockport, ME) for analysis. Chlorophyll a samples are filtered at Mirror Lake Laboratory and frozen. Chlorophyll, along with frozen nutrient samples, are sent to Chesapeake Biological Lab, University of Maryland for analysis.

Rockport Harbor & Tributaries Sampling Sites Rockport Conservation Commission

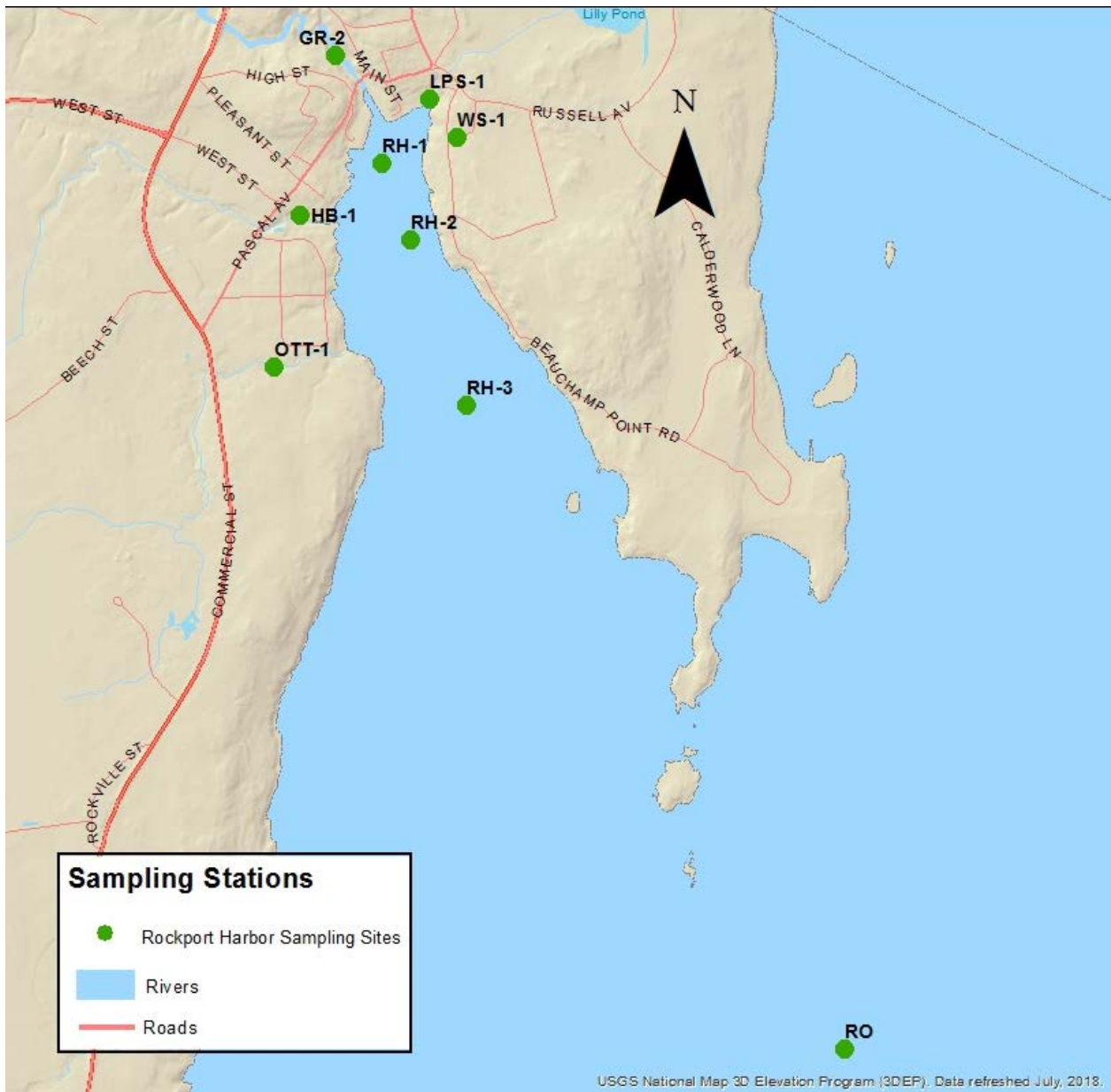


Figure 5-5-1: Map of Rockport Conservation Commission sampling sites.

Table 5-5-1: Rockport Harbor and Tributaries Sampling Sites. Sites sampled in 2018 are in bold.

VRMP Site ID	Organization Site Code	Sample Location	Class
Goose River-NGR01-VRMP	GR-2	Pascal Avenue Bridge	B
Harkness Brook-NHK00-VRMP	HB-1	Elm Street	B
Lily Pond Stream-NLP00-VRMP	LPS-1	Outlet by Head of Cove	B
Ott Brook-NOT02-VRMP	OTT-1	Footbridge in Harkness Preserve	B
Winter Street Ditch-Ditch-N01	WS-1	Southern side of Winter St	B
Rockport Harbor-RH1-VRMP	RH1	Rockport Harbor	SB
Rockport Harbor-RH2-VRMP	RH2	Rockport Harbor	SB
Rockport Harbor-RH3-VRMP	RH3	Rockport Harbor	SB
Penobscot Bay-RO-VRMP	RO	Penobscot Bay	SB

Parameters

Dissolved Oxygen

Dissolved oxygen levels are generally lowest early in the morning and then increase during the day, peaking mid to late afternoon. Monitors should try to collect some samples early in the morning. Dissolved oxygen is also affected by flow conditions and temperature. During high flow conditions, more oxygen is added to the river from the atmosphere as the water is more turbulent and there is more opportunity for mixing. If flow during the summer months is higher or lower than normal, dissolved oxygen will be affected.

Class B criteria for dissolved oxygen are a minimum of 7 mg/l (milligrams/liter) or 75% saturation. To meet water quality criteria, both concentration and saturation standards must be met. The Class SB standard is 85% saturation.

Water Temperature

Maine's Regulations Relating to Temperature (06-096 CMR Chapter 582) require that discharge of pollutants not raise the temperature of any river and stream above the EPA criteria for indigenous species (23 °C maximum and 19 °C weekly average) or 0.3 °C (0.5 °F) above the temperature that would naturally occur outside a mixing zone established by the Board of Environmental Protection. Pollutant is defined in statute as many things including dirt and heat. For tidal waters, discharge of pollutants may not raise the temperature more than 4 °F (2.2 °C) or more than 1.5 °F (0.8 °C) from June 1 to September 1, and may not cause the temperature of any tidal waters to exceed 85 °F (29 °C) at any point outside a mixing zone established by the Board of Environmental Protection.

Specific Conductance

Specific conductance is related to the amount of dissolved materials in the water. While there are no numerical standards, a relationship exists between conductivity and chloride which has numerical criteria. In general, streams located in urban areas tend to have high specific conductance due to polluted urban stormwater runoff. This may also in large part be due to salt buildup in surface and groundwater from road maintenance practices.

Bacteria

Enterococcus bacteria are used as the indicator organism for marine waters and *E. coli* bacteria are used for freshwaters. While these types of bacteria are not pathogens, their presence in the water may indicate the presence of other organisms including bacteria and viruses that can cause gastrointestinal illnesses.

Class B criteria (effective August 1, 2018) are as follows: “Between April 15th and October 31st, the number of *Escherichia coli* bacteria in these waters may not exceed a geometric mean of 64 CFU per 100 milliliters over a 90-day interval or 236 CFU per 100 milliliters in more than 10% of the samples in any 90-day interval.” Class SB criteria (effective August 1, 2018) are as follows: “Between April 15th and October 31st, the number of enterococcus bacteria in these waters may not exceed a geometric mean of 8 CFU per 100 milliliters in any 90-day interval or 54 CFU per 100 milliliters in more than 10% of the samples in any 90-day interval.” Geometric means are calculated instead of average because it is more appropriate to use this calculation for an indicator such as bacteria where there may be one or more very high or low values that can skew the mean.

Nutrients and Chlorophyll *a*

Nutrient criterion for freshwaters have been developed, but not yet adopted. The draft criteria for Class B waters are ≤ 0.03 mg/l (total phosphorus). In regards to total nitrogen, DEP Biomonitoring Program staff suggests that good water streams have values below 0.6 mg/l. Nutrient criteria for marine waters have not been developed.

For this report, when chlorophyll *a*, phaeophytin or chlorophyll *a* – Phaeophytin were recorded as nondetect (below the detection limits of 0.68 ug/l, 0.69 ug/l or 0.46 ug/l respectively), averages for the season were calculated using half the detection limit.

Transparency

Transparency is a measure of the water clarity. Transparency is reduced by suspended materials in the water—primarily algae but may also include suspended sediments that are delivered to a water body during a storm event or stirred up from the bottom. It is measured by lowering a black and white disk called a Secchi disk into the water. The point at which the disk is no longer visible is recorded as the transparency or Secchi depth.

Discussion and Recommendations

There are numerous sources of pollution and other stresses to Rockport Harbor and tributaries monitored by the Rockport Conservation Commission that could potentially have a collective impact on water quality. Some of those sources of pollution and stress may include:

- Non-point source pollution (e.g., septic systems, eroded soil, fertilizers, pesticides, heavy metals, petroleum residues, road salt, wildlife and pet feces) and polluted stormwater originating from urban impervious surfaces (e.g., streets, parking lots, driveways, rooftops) (even though urban development and roads are fairly sparse in the watershed), agriculture, and forestry.
- Ponds and impoundments (which often create more pond-like aquatic habitat conditions that may have higher water temperatures and lower dissolved oxygen concentrations than free-flowing waters).
- Natural effects of wetlands (such as contributing waters to a stream/river that have low dissolved oxygen levels due to the decomposition of large amounts of organic matter, respiration of abundant plant matter, and low re-aeration rates that is characteristic of many wetlands).

The following are recommendations for future monitoring:

- Bacteria samples should be collected at least six times over the sampling season and include both baseflow and storm event samples. Two of the streams have had some high values.
- Continue monitoring at all stations to develop a long-term trend database.

Summary of Data by Site and Parameter (2013-2018)

A summary of mean, minimum and maximum dissolved oxygen concentration (mg/l) values at Rockport Conservation Commission monitoring site: GR-2							
Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Not Meeting Criterion
2013	B	5	9.4	8.0	10.6	7	0
2014	B	3	8.8	8.5	9.4	7	0
2015	B	6	9.5	8.2	11.9	7	0
2016	B	2	9.4	8.4	10.3	7	0
2017	B	4	7.9	7.0	8.3	7	0
2018	B	4	8.0	6.8	10.3	7	1

A summary of mean, minimum and maximum dissolved oxygen saturation (%) values at Rockport Conservation Commission monitoring site: GR-2

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Not Meeting Criterion
2013	B	5	95.5	87.2	99.7	75	0
2014	B	3	95.8	92.6	99.7	75	0
2015	B	6	96.6	89.2	108.5	75	0
2016	B	2	92.0	89.5	94.5	75	0
2017	B	4	82.2	68.5	88.0	75	1
2018	B	4	84.7	77.0	98.0	75	0

A summary of mean, minimum and maximum water temperature (°C) values at Rockport Conservation Commission monitoring site: GR-2

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	B	10	15.7	12.6	19.8	n/a	n/a
2014	B	3	18.9	17.4	20.8	n/a	n/a
2015	B	6	16.7	11.4	19.6	n/a	n/a
2016	B	2	15.1	11.8	18.4	n/a	n/a
2017	B	5	17.0	14.3	19.0	n/a	n/a
2018	B	4	18.7	13.5	21.4	n/a	n/a

A summary of mean, minimum and maximum specific conductance (µS/cm) values at Rockport Conservation Commission monitoring site: GR-2

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	#Exceeding Criterion
2013	B	10	146	100	280	n/a	n/a
2014	B	3	190	180	200	n/a	n/a
2015	B	6	248	170	320	n/a	n/a
2016	B	2	430	430	430	n/a	n/a
2017	B	5	239	200	339	n/a	n/a
2018	B	4	278	230	309	n/a	n/a

A summary of geometric mean, minimum and maximum bacteria (MPN/100 mL) values at Rockport Conservation Commission monitoring station: GR-2

Year	Class	Bacteria Type	# Sample Points	Mean	Minimum	Maximum	Criterion Instant/Geo	# Exceeding Criterion
2013	B	E. Coli	5	55	10	260	236/64	0/0
2013	B	Entero	5	57	10	270	--	--

2014	B	E. Coli	3	--	58	147	236/64	0/--
2014	B	Enterococci	3	--	12	344	--	--
2015	B	E. Coli	5	88	21	248	236/64	1/1
2015	B	Enterococci	6	55	31	201	--	--
2016	B	E. Coli	1	--	6	6	236/64	0/--
2016	B	Enterococci	2	--	10	178	--	--
2017	B	E. Coli	5	71	15	140	236/64	0/1
2017	B	Enterococci	3	--	2	41	--	--
2018	B	E. Coli	2	--	26	91	236/64	0/--
2018	B	Enterococci	2	--	50	58	--	--

***At least 6 samples should be collected to calculate the geometric mean**

A summary of mean, minimum and maximum total phosphorus (mg/l) values at Rockport Conservation Commission monitoring site: GR-2

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	B	11	0.027	0.014	0.097	n/a	n/a
2014	B	8	0.034	0.011	0.071	n/a	n/a
2015	B	8	0.029	0.012	0.085	n/a	n/a
2016	B	8	0.021	0.009	0.074	n/a	n/a
2017	B	5	0.053	0.009	0.198	n/a	n/a

A summary of mean, minimum and maximum total nitrogen (mg/l) values at Rockport Conservation Commission monitoring site: GR-2

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	B	11	0.42	0.33	0.79	n/a	n/a
2014	B	8	0.46	0.27	0.72	n/a	n/a
2015	B	8	0.44	0.22	0.82	n/a	n/a
2016	B	8	0.30	0.21	0.63	n/a	n/a
2017	B	5	0.44	0.31	0.52	n/a	n/a
2018	B	4	0.45	0.37	0.72	n/a	n/a

A summary of mean, minimum and maximum dissolved oxygen concentration (mg/l) values at Rockport Conservation Commission monitoring site: HB-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Not Meeting Criterion
2013	B	5	10.4	9.4	11.5	7	0
2014	B	3	9.6	9.0	10.4	7	0
2015	B	2	10.6	8.8	12.3	7	0
2016	B	--	--	--	--	7	0
2017	B	2	7.5	7.3	7.7	7	0
2018	B	1	--	9.7	9.7	7	0

A summary of mean, minimum and maximum dissolved oxygen saturation (%) values at Rockport Conservation Commission monitoring site: HB-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Not Meeting Criterion
2013	B	5	100.7	97.8	107.1	75	0
2014	B	3	97.9	94.9	100.8	75	0
2015	B	2	97.9	86.6	109.2	75	0
2016	B	--	--	--	--	75	0
2017	B	2	76.5	74.9	78.0	75	1
2018	B	1	--	95.0	95.0	75	0

A summary of mean, minimum and maximum water temperature (°C) values at Rockport Conservation Commission monitoring site: HB-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	B	6	14.0	11.8	17.4	n/a	n/a
2014	B	3	13.5	10.0	16.5	n/a	n/a
2015	B	2	12.5	10.0	15.0	n/a	n/a
2016	B	--	--	--	--	n/a	n/a
2017	B	3	15.6	13.6	17.4	n/a	n/a
2018	B	1	--	14.2	14.2	n/a	n/a

A summary of mean, minimum and maximum specific conductance (µS/cm) values at Rockport Conservation Commission monitoring site: HB-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	B	6	427	190	800	n/a	n/a
2014	B	3	537	450	660	n/a	n/a

2015	B	2	510	290	730	n/a	n/a
2016	B	--	--	--	--	n/a	n/a
2017	B	3	391	348	464	n/a	n/a
2018	B	1	--	240	240	n/a	n/a

A summary of geometric mean, minimum and maximum bacteria (MPN/100 mL) values at Rockport Conservation Commission monitoring station: HB-1

Year	Class	Bacteria Type	# Sample Points	Mean	Minimum	Maximum	Criterion Instant/Geo	# Exceeding Criterion
2013	B	E. Coli	5	100	31	620	236/64	1
2014	B	E. Coli	3	--	48	228	236/64	0
2015	B	E. Coli	2	--	30	60	236/64	0
2016	B	E. Coli	--	--	--	--	236/64	--
2017	B	E. Coli	3	--	248	1733	236/64	3

***At least 6 samples should be collected to calculate the geometric mean**

A summary of mean, minimum and maximum total phosphorus (mg/l) values at Rockport Conservation Commission monitoring site: HB-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	B	5	0.042	0.016	0.120	n/a	n/a
2014	B	2	0.026	0.020	0.031	n/a	n/a
2015	B	2	0.017	0.015	0.020	n/a	n/a
2016	B	6	0.019	0.014	0.029	n/a	n/a
2017	B	3	0.023	0.016	0.031	n/a	n/a

A summary of mean, minimum and maximum total nitrogen (mg/l) values at Rockport Conservation Commission monitoring site: HB-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	B	5	0.64	0.45	1.00	n/a	n/a
2014	B	2	0.62	0.58	0.66	n/a	n/a
2015	B	2	0.71	0.48	0.94	n/a	n/a
2016	B	6	0.40	0.35	0.53	n/a	n/a
2017	B	3	0.54	0.54	0.55	n/a	n/a
2018	B	1	--	0.91	0.91	n/a	n/a

A summary of mean, minimum and maximum dissolved oxygen concentration (mg/l) values at Rockport Conservation Commission monitoring site: LPS-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Not Meeting Criterion
2013	B	5	9.8	9.0	10.9	7	0
2014	B	3	9.1	8.6	9.6	7	0
2015	B	2	10.1	8.8	11.4	7	0
2016	B	--	--	--	--	7	0
2017	B	1	8.6	8.6	8.6	7	0
2018	B	1	--	9.7	9.7	7	0

A summary of mean, minimum and maximum dissolved oxygen saturation (%) values at Rockport Conservation Commission monitoring site: LPS-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Not Meeting Criterion
2013	B	5	99.5	96.0	105.4	75	0
2014	B	3	98.1	97.1	99.7	75	0
2015	B	2	97.3	88.0	106.5	75	0
2016	B	--	--	--	--	75	0
2017	B	1	89.7	89.7	89.7	75	0
2018	B	1	--	95.0	95.0	75	0

A summary of mean, minimum and maximum water temperature (°C) values at Rockport Conservation Commission monitoring site: LPS-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	B	6	16.4	13.8	19.1	n/a	n/a
2014	B	3	19.3	17.1	21.6	n/a	n/a
2015	B	2	14.0	12.2	15.7	n/a	n/a
2016	B	--	--	--	--	n/a	n/a
2017	B	2	16.9	16.0	17.8	n/a	n/a
2018	B	1	--	15	15	n/a	n/a

A summary of mean, minimum and maximum specific conductance ($\mu\text{S}/\text{cm}$) values at Rockport Conservation Commission monitoring site: LPS-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	B	6	359	335	390	n/a	n/a
2014	B	3	353	330	380	n/a	n/a
2015	B	2	380	370	390	n/a	n/a
2016	B	--	--	--	--	n/a	n/a
2017	B	2	315	281	350	n/a	n/a
2018	B	1	--	338	338	n/a	n/a

A summary of geometric mean, minimum and maximum bacteria (MPN/100 mL) values at Rockport Conservation Commission monitoring station: LPS-1

Year	Class	Bacteria Type	# Sample Points	Mean	Minimum	Maximum	Criterion Instant/Geo	# Exceeding Criterion
2013	B	E. Coli	5	69	31	210	236/64	0
2014	B	E. Coli	3	--	29	79	236/64	0
2015	B	E. Coli	2	--	72	90	236/64	0
2016	B	E. Coli	--	--	--	--	236/64	--
2017	B	E. Coli	2	--	36	70	236/64	0

***At least 6 samples should be collected to calculate the geometric mean**

A summary of mean, minimum and maximum total phosphorus (mg/l) values at Rockport Conservation Commission monitoring site: LPS-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	B	5	0.040	0.027	0.068	n/a	n/a
2014	B	2	0.042	0.035	0.049	n/a	n/a
2015	B	2	0.036	0.033	0.039	n/a	n/a
2016	B	1	0.022	0.022	0.022	n/a	n/a
2017	B	2	0.039	0.034	0.044	n/a	n/a

A summary of mean, minimum and maximum total nitrogen (mg/l) values at Rockport Conservation Commission monitoring site: LPS-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	B	5	0.52	0.41	0.69	n/a	n/a
2014	B	2	0.52	0.52	0.52	n/a	n/a
2015	B	2	0.46	0.44	0.48	n/a	n/a
2016	B	1	0.50	0.49	0.49	n/a	n/a
2017	B	2	0.46	0.45	0.47	n/a	n/a
2018	B	1	--	0.97	0.97	n/a	n/a

A summary of mean, minimum and maximum dissolved oxygen concentration (mg/l) values at Rockport Conservation Commission monitoring site: OTT-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Not Meeting Criterion
2013	B	5	9.6	8.3	10.8	7	0
2014	B	3	9.2	8.7	10.0	7	0
2015	B	2	9.8	7.7	11.8	7	0
2016	B	--	--	--	--	7	0
2017	B	2	8.7	8.3	9.1	7	0
2018	B	3	7.9	6.2	9.9	7	1

A summary of mean, minimum and maximum dissolved oxygen saturation (%) values at Rockport Conservation Commission monitoring site: OTT-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Not Meeting Criterion
2013	B	5	93.4	83.5	103.0	75	0
2014	B	3	93.3	90.5	97.4	75	0
2015	B	2	90.1	75.4	104.7	75	0
2016	B	--	--	--	--	75	0
2017	B	2	88.5	85.5	91.4	75	0
2018	B	3	77.7	64.0	96.0	75	2

A summary of mean, minimum and maximum water temperature (°C) values at Rockport Conservation Commission monitoring site: OTT-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	B	6	14.2	12.0	18.2	n/a	n/a
2014	B	3	16.3	14.0	18.1	n/a	n/a
2015	B	2	12.4	10.1	14.7	n/a	n/a
2016	B	--	--	--	--	n/a	n/a
2017	B	3	15.2	13.3	16.8	n/a	n/a
2018	B	3	15.5	14.4	17.6	n/a	n/a

A summary of mean, minimum and maximum specific conductance ($\mu\text{S}/\text{cm}$) values at Rockport Conservation Commission monitoring site: OTT-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	B	6	226	90	460	n/a	n/a
2014	B	3	220	180	270	n/a	n/a
2015	B	2	330	170	490	n/a	n/a
2016	B	--	--	--	--	n/a	n/a
2017	B	3	237	190	262	n/a	n/a
2018	B	3	198	127	316	n/a	n/a

A summary of geometric mean, minimum and maximum bacteria (MPN/100 mL) values at Rockport Conservation Commission monitoring station: OTT-1

Year	Class	Bacteria Type	# Sample Points	Mean	Minimum	Maximum	Criterion Instant/Geo	# Exceeding Criterion
2013	B	E. Coli	5	178	53	740	236/64	2
2014	B	E. Coli	3	--	4	48	236/64	0
2015	B	E. Coli	2	--	20	33	236/64	0
2016	B	E. Coli	--	--	--	--	236/64	--
2017	B	E. Coli	3	--	214	548	236/64	1
2018	B	E. Coli	2	--	46	77	236/64	0

***At least 6 samples should be collected to calculate the geometric mean**

A summary of mean, minimum and maximum total phosphorus (mg/l) values at Rockport Conservation Commission monitoring site: OTT-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	B	5	0.032	0.013	0.077	n/a	n/a
2014	B	2	0.024	0.022	0.027	n/a	n/a
2015	B	2	0.020	0.014	0.026	n/a	n/a
2016	B	6	0.023	0.014	0.049	n/a	n/a
2017	B	3	0.022	0.019	0.026	n/a	n/a

A summary of mean, minimum and maximum total nitrogen (mg/l) values at Rockport Conservation Commission monitoring site: OTT-1							
Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	B	5	0.73	0.54	0.79	n/a	n/a
2014	B	2	0.66	0.55	0.76	n/a	n/a
2015	B	2	0.59	0.52	0.65	n/a	n/a
2016	B	6	0.40	0.30	0.78	n/a	n/a
2017	B	3	0.71	0.66	0.81	n/a	n/a
2018	B	3	0.8	0.67	0.92	n/a	n/a

A summary of mean, minimum and maximum dissolved oxygen concentration (mg/l) values at Rockport Conservation Commission monitoring site: WS-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Not Meeting Criterion
2013	B	5	9.6	9.1	10.0	7	0
2014	B	2	9.9	9.4	10.5	7	0
2015	B	2	10.1	9.0	11.2	7	0
2016	B	--	--	--	--	7	0
2017	B	--	--	--	--	7	0
2018	B	1	--	9.1	9.1	7	0

A summary of mean, minimum and maximum dissolved oxygen saturation (%) values at Rockport Conservation Commission monitoring site: WS-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Not Meeting Criterion
2013	B	5	93.3	92.2	95.5	75	0
2014	B	2	96.9	95.4	98.3	75	0
2015	B	2	94.6	88.6	100.6	75	0
2016	B	--	--	--	--	75	0
2017	B	--	--	--	--	75	0
2018	B	1	--	90	90	75	0

A summary of mean, minimum and maximum water temperature (°C) values at Rockport Conservation Commission monitoring site: WS-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	B	6	13.5	10.9	16.9	n/a	n/a
2014	B	2	14.5	12.9	16.1	n/a	n/a
2015	B	2	12.8	10.7	14.8	n/a	n/a
2016	B	--	--	--	--	n/a	n/a
2017	B	1	--	12.0	12.0	n/a	n/a
2018	B	1	--	15.3	15.3	n/a	n/a

A summary of mean, minimum and maximum specific conductance ($\mu\text{S}/\text{cm}$) values at Rockport Conservation Commission monitoring site: WS-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	B	6	532	430	640	n/a	n/a
2014	B	2	580	570	590	n/a	n/a
2015	B	2	600	570	630	n/a	n/a
2016	B	--	--	--	--	n/a	n/a
2017	B	1	--	560	560	n/a	n/a
2018	B	1	--	332	332	n/a	n/a

A summary of geometric mean, minimum and maximum bacteria (MPN/100 mL) values at Rockport Conservation Commission monitoring station: WS-1

Year	Class	Bacteria Type	# Sample Points	Mean	Minimum	Maximum	Criterion Instant/Geo	# Exceeding Criterion
2013	B	E. Coli	5	866	560	1460	236/64	5
2014	B	E. Coli	2	--	517	727	236/64	2
2015	B	E. Coli	2	--	190	914	236/64	1
2016	B	E. Coli	--	--	--	--	236/64	--
2017	B	E. Coli	1	--	124	124	236/64	0

***At least 6 samples should be collected to calculate the geometric mean**

A summary of mean, minimum and maximum total phosphorus (mg/l) values at Rockport Conservation Commission monitoring site: WS-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	B	5	0.037	0.019	0.087	n/a	n/a
2014	B	2	0.022	0.022	0.023	n/a	n/a
2015	B	2	0.013	0.010	0.016	n/a	n/a
2016	B	6	0.011	0.008	0.016	n/a	n/a
2017	B	1	0.017	0.017	0.017	n/a	n/a

A summary of mean, minimum and maximum total nitrogen (mg/l) values at Rockport Conservation Commission monitoring site: WS-1							
Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	B	5	1.25	1.15	1.47	n/a	n/a
2014	B	2	1.34	1.04	1.64	n/a	n/a
2015	B	2	0.77	0.59	0.95	n/a	n/a
2016	B	6	1.10	0.77	1.52	n/a	n/a
2017	B	1	--	1.47	1.47	n/a	n/a
2018	B	1	--	1.22	1.22	n/a	n/a

A summary of mean, minimum and maximum dissolved oxygen concentration (mg/l) values at Rockport Conservation Commission monitoring site: RH-1 (Harbor sites are surface values)

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Not Meeting Criterion
2013	SB	5	9.4	8.6	11.0	n/a	n/a
2014	SB	6	9.1	8.0	10.0	n/a	n/a
2015	SB	5	9.4	8.9	10.1	n/a	n/a
2016	SB	4	8.7	8.0	10.1	n/a	n/a
2017	SB	5	8.6	7.8	9.2	n/a	n/a
2018	SB	3	8.5	8.1	9.1	n/a	n/a

A summary of mean, minimum and maximum dissolved oxygen saturation (%) values at Rockport Conservation Commission monitoring site: RH-1 (Harbor sites are surface values)

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Not Meeting Criterion
2013	SB	5	110.7	106.2	116.8	85	0
2014	SB	6	113.0	90.8	130.3	85	0
2015	SB	5	115.1	107.6	121.1	85	0
2016	SB	4	106.3	97.5	120.2	85	0
2017	SB	5	103.4	93.2	110.2	85	0
2018	SB	3	107.8	104.5	111.5	85	0

A summary of mean, minimum and maximum water temperature (°C) values at Rockport Conservation Commission monitoring site: RH-1 (Harbor sites are surface values only.)

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	16.2	11.1	19.6	n/a	n/a
2014	SB	6	18.0	13.4	21.5	n/a	n/a
2015	SB	5	17.3	13.6	19.5	n/a	n/a
2016	SB	4	16.4	13.9	20.9	n/a	n/a
2017	SB	5	16.0	14.8	16.9	n/a	n/a
2018	SB	3	18.5	16.5	19.9	n/a	n/a

A summary of geometric mean, minimum and maximum bacteria (MPN/100 mL) values at Rockport Conservation Commission monitoring station: RH-1

Year	Class	Bacteria Type	# Sample Points	Mean	Minimum	Maximum	Criterion Instant/Geo	# Exceeding Criterion
2013	SB	Enterococcus	5	16	<10	960	54/8	1
2014	SB	Enterococcus	4	--	46	158	54/8	2
2015	SB	Enterococcus	3	--	39	190	54/8	1
2016	SB	Enterococcus	3	--	27	65	54/8	1
2017	SB	Enterococcus	4	--	8	387	54/8	1
2018	SB	Enterococcus	2	--	5	17	54/8	0

***At least 6 samples should be collected to calculate the geometric mean**

A summary of mean, minimum and maximum total phosphorus (mg/l) values at Rockport Conservation Commission monitoring site: RH-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	0.027	0.023	0.030	n/a	n/a
2014	SB	6	0.033	0.021	0.046	n/a	n/a
2015	SB	2	0.017	0.016	0.018	n/a	n/a
2016	SB	4	0.039	0.028	0.054	n/a	n/a
2017	SB	5	0.028	0.019	0.041	n/a	n/a

A summary of mean, minimum and maximum total nitrogen (mg/l) values at Rockport Conservation Commission monitoring site: RH-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	0.26	0.20	0.38	n/a	n/a
2014	SB	6	0.26	0.21	0.34	n/a	n/a
2015	SB	2	0.18	0.14	0.21	n/a	n/a
2016	SB	4	0.23	0.17	0.33	n/a	n/a
2017	SB	5	0.17	0.15	0.19	n/a	n/a
2018	SB	3	0.20	0.16	0.23	n/a	n/a

A summary of mean, minimum and maximum chlorophyll *a* (ug/l) values at Rockport Conservation Commission monitoring site: RH-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	1.98	1.35	2.47	n/a	n/a
2014	SB	4	2.30	1.23	4.27	n/a	n/a
2015	SB	2	1.13	1.03	1.22	n/a	n/a
2016	SB	3	3.20	2.04	5.32	n/a	n/a
2017	SB	5	1.62	0.89	4.35	n/a	n/a
2018	SB	3	1.77	<0.68	3.55	n/a	n/a

A summary of mean, minimum and maximum phaeophytin (ug/l) values at Rockport Conservation Commission monitoring site: RH-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	1.05	0.82	1.27	n/a	n/a
2014	SB	4	0.69	0.56	0.97	n/a	n/a
2015	SB	2	0.49	0.41	0.56	n/a	n/a
2016	SB	3	1.01	0.58	1.75	n/a	n/a
2017	SB	5	0.57	0.38	1.18	n/a	n/a
2018	SB	3	0.76	<0.46	1.45	n/a	n/a

A summary of mean, minimum and maximum chlorophyll *a* minus phaeophytin (ug/l) values at Rockport Conservation Commission monitoring site: RH-1

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	1.40	0.89	1.77	n/a	n/a
2014	SB	4	1.39	1.05	1.85	n/a	n/a
2015	SB	2	0.86	0.72	1.00	n/a	n/a
2016	SB	3	2.62	1.72	4.34	n/a	n/a
2017	SB	5	1.55	1.01	3.69	n/a	n/a
2018	SB	3	1.39	<0.69	2.73	n/a	n/a

A summary of mean, minimum and maximum transparency (m) values at Rockport Conservation Commission monitoring site: RH-1							
Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	3.6	2.1	5.0	n/a	n/a
2014	SB	6	4.5	3.1	5.9	n/a	n/a
2015	SB	5	5.1	4.2	5.7	n/a	n/a
2016	SB	3	4.8	4.0	5.4	n/a	n/a
2017	SB	4	4.4	3.0	5.0	n/a	n/a

A summary of mean, minimum and maximum dissolved oxygen concentration (mg/l) values at Rockport Conservation Commission monitoring site: RH-2 (Harbor sites are surface values)

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Not Meeting Criterion
2013	SB	5	9.5	8.7	11.1	n/a	n/a
2014	SB	6	9.3	8.6	9.7	n/a	n/a
2015	SB	5	9.6	9.1	10.2	n/a	n/a
2016	SB	4	8.7	8.1	9.8	n/a	n/a
2017	SB	5	9.1	7.9	9.8	n/a	n/a
2018	SB	3	8.7	8.1	9.0	n/a	n/a

A summary of mean, minimum and maximum dissolved oxygen saturation (%) values at Rockport Conservation Commission monitoring site: RH-2 (Harbor sites are surface values)

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Not Meeting Criterion
2013	SB	5	111.0	106.9	116.7	85	0
2014	SB	6	114.5	97.0	128.5	85	0
2015	SB	5	116.9	109.6	123.9	85	0
2016	SB	4	108.1	100.5	118.1	85	0
2017	SB	5	108.6	91.9	115.6	85	0
2018	SB	3	109.9	104.9	115.5	85	0

A summary of mean, minimum and maximum water temperature (°C) values at Rockport Conservation Commission monitoring site: RH-2 (Harbor sites are surface values only.)

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	15.8	10.6	18.7	n/a	n/a
2014	SB	6	17.7	13.4	20.9	n/a	n/a
2015	SB	5	16.7	11.4	19.4	n/a	n/a
2016	SB	4	16.8	13.8	21.1	n/a	n/a
2017	SB	5	15.3	13.8	16.9	n/a	n/a
2018	SB	3	18.2	16.1	19.7	n/a	n/a

A summary of geometric mean, minimum and maximum bacteria (MPN/100 mL) values at Rockport Conservation Commission monitoring station: RH-2

Year	Class	Bacteria Type	# Sample Points	Mean	Minimum	Maximum	Criterion Instant/Geo	# Exceeding Criterion
2013	SB	Enterococcus	5	11	<10	110	54/8	1
2014	SB	Enterococcus	4	--	32	156	54/8	1
2015	SB	Enterococcus	4	--	20	130	54/8	2
2016	SB	Enterococcus	2	--	23	93	54/8	1
2017	SB	Enterococcus	4	--	11	45	54/8	0
2018	SB	Enterococcus	2	--	7	12	54/8	0

***At least 6 samples should be collected to calculate the geometric mean**

A summary of mean, minimum and maximum total phosphorus (mg/l) values at Rockport Conservation Commission monitoring site: RH-2

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	0.025	0.021	0.031	n/a	n/a
2014	SB	6	0.025	0.019	0.032	n/a	n/a
2015	SB	2	0.015	0.012	0.018	n/a	n/a
2016	SB	4	0.033	0.025	0.043	n/a	n/a
2017	SB	5	0.026	0.018	0.041	n/a	n/a

A summary of mean, minimum and maximum total nitrogen (mg/l) values at Rockport Conservation Commission monitoring site: RH-2

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	0.29	0.20	0.43	n/a	n/a
2014	SB	6	0.22	0.16	0.28	n/a	n/a
2015	SB	2	0.14	0.13	0.15	n/a	n/a
2016	SB	4	0.20	0.16	0.27	n/a	n/a
2017	SB	5	0.17	0.15	0.19	n/a	n/a
2018	SB	3	0.19	0.16	0.23	n/a	n/a

A summary of mean, minimum and maximum chlorophyll *a* (ug/l) values at Rockport Conservation Commission monitoring site: RH-2

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	2.18	1.29	4.34	n/a	n/a
2014	SB	4	1.69	1.30	2.28	n/a	n/a
2015	SB	2	1.31	0.81	1.80	n/a	n/a
2016	SB	3	3.00	2.00	4.95	n/a	n/a
2017	SB	5	1.74	0.89	4.76	n/a	n/a
2018	SB	3	1.17	<0.68	1.85	n/a	n/a

A summary of mean, minimum and maximum phaeophytin (ug/l) values at Rockport Conservation Commission monitoring site: RH-2

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	1.32	0.80	2.68	n/a	n/a
2014	SB	4	0.54	0.41	0.78	n/a	n/a
2015	SB	2	0.52	0.35	0.69	n/a	n/a
2016	SB	3	0.91	0.60	1.42	n/a	n/a
2017	SB	5	0.69	0.38	1.30	n/a	n/a
2018	SB	3	0.39	<0.46	0.72	n/a	n/a

A summary of mean, minimum and maximum chlorophyll *a* minus phaeophytin (ug/l) values at Rockport Conservation Commission monitoring site: RH-2

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	1.45	0.85	2.85	n/a	n/a
2014	SB	4	1.39	1.05	1.85	n/a	n/a
2015	SB	2	1.02	0.62	1.42	n/a	n/a
2016	SB	3	2.49	1.63	4.16	n/a	n/a
2017	SB	5	1.61	1.01	4.03	n/a	n/a
2018	SB	3	0.95	<0.69	1.44	n/a	n/a

A summary of mean, minimum and maximum transparency (m) values at Rockport Conservation Commission monitoring site: RH-2							
Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	3.6	2.4	4.1	n/a	n/a
2014	SB	6	4.9	3.5	6.4	n/a	n/a
2015	SB	5	5.6	5.0	6.2	n/a	n/a
2016	SB	3	4.9	4.4	5.3	n/a	n/a
2017	SB	5	5.2	3.2	7.3	n/a	n/a

A summary of mean, minimum and maximum dissolved oxygen concentration (mg/l) values at Rockport Conservation Commission monitoring site: RH-3 (Harbor sites are surface values)

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Not Meeting Criterion
2013	SB	5	9.5	8.8	10.9	n/a	n/a
2014	SB	6	9.5	8.5	10.2	n/a	n/a
2015	SB	5	9.6	9.1	10.3	n/a	n/a
2016	SB	4	8.7	7.9	9.9	n/a	n/a
2017	SB	5	9.4	8.3	10.3	n/a	n/a
2018	SB	3	9.0	8.3	9.5	n/a	n/a

A summary of mean, minimum and maximum dissolved oxygen saturation (%) values at Rockport Conservation Commission monitoring site: RH-3 (Harbor sites are surface values)

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Not Meeting Criterion
2013	SB	5	111.8	107.3	115.2	85	0
2014	SB	6	115.5	95.5	128.5	85	0
2015	SB	5	116.1	108.3	124.9	85	0
2016	SB	4	107.3	101.5	117.8	85	0
2017	SB	5	111.5	98.1	121.5	85	0
2018	SB	3	112.7	107.2	116.5	85	0

A summary of mean, minimum and maximum water temperature (°C) values at Rockport Conservation Commission monitoring site: RH-3 (Harbor sites are surface values only.)

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	15.6	11.0	18.4	n/a	n/a
2014	SB	6	17.3	13.2	20.9	n/a	n/a
2015	SB	5	16.4	11.1	19.4	n/a	n/a
2016	SB	4	16.7	13.7	21.4	n/a	n/a
2017	SB	5	15.4	14.2	16.8	n/a	n/a
2018	SB	3	18.0	16.1	19.3	n/a	n/a

A summary of geometric mean, minimum and maximum bacteria (MPN/100 mL) values at Rockport Conservation Commission monitoring station: RH-3

Year	Class	Bacteria Type	# Sample Points	Mean	Minimum	Maximum	Criterion Instant/Geo	# Exceeding Criterion
2013	SB	Enterococcus	5	8	<10	50	54/8	0
2014	SB	Enterococcus	4	--	25	103	54/8	1
2015	SB	Enterococcus	4	--	19	44	54/8	0
2016	SB	Enterococcus	3	--	36	39	54/8	0
2017	SB	Enterococcus	4	--	8	37	54/8	0
2018	SB	Enterococcus	2	--	3	4	54/8	0

***At least 6 samples should be collected to calculate the geometric mean**

A summary of mean, minimum and maximum total phosphorus (mg/l) values at Rockport Conservation Commission monitoring site: RH-3

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	0.024	0.019	0.031	n/a	n/a
2014	SB	6	0.024	0.017	0.034	n/a	n/a
2015	SB	2	0.017	0.015	0.018	n/a	n/a
2016	SB	4	0.033	0.024	0.043	n/a	n/a
2017	SB	5	0.029	0.019	0.042	n/a	n/a

A summary of mean, minimum and maximum total nitrogen (mg/l) values at Rockport Conservation Commission monitoring site: RH-3

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	0.23	0.18	0.31	n/a	n/a
2014	SB	6	0.23	0.13	0.27	n/a	n/a
2015	SB	2	0.47	0.15	0.79	n/a	n/a
2016	SB	4	0.21	0.14	0.31	n/a	n/a
2017	SB	5	0.21	0.17	0.26	n/a	n/a
2018	SB	3	0.12	0.12	0.20	n/a	n/a

A summary of mean, minimum and maximum chlorophyll *a* (ug/l) values at Rockport Conservation Commission monitoring site: RH-3

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	2.23	1.18	4.37	n/a	n/a
2014	SB	4	1.82	1.48	2.19	n/a	n/a
2015	SB	2	1.38	0.93	1.83	n/a	n/a
2016	SB	3	4.00	1.82	7.37	n/a	n/a
2017	SB	5	1.69	0.89	4.13	n/a	n/a
2018	SB	3	0.86	<0.68	1.19	n/a	n/a

A summary of mean, minimum and maximum phaeophytin (ug/l) values at Rockport Conservation Commission monitoring site: RH-3

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	1.57	0.87	3.29	n/a	n/a
2014	SB	4	0.51	0.45	0.64	n/a	n/a
2015	SB	2	0.60	0.40	0.79	n/a	n/a
2016	SB	3	0.84	0.49	1.38	n/a	n/a
2017	SB	5	0.58	0.38	1.09	n/a	n/a
2018	SB	3	0.31	<0.46	0.47	n/a	n/a

A summary of mean, minimum and maximum chlorophyll *a* minus phaeophytin (ug/l) values at Rockport Conservation Commission monitoring site: RH-3

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	1.36	0.70	2.55	n/a	n/a
2014	SB	4	1.54	1.22	1.92	n/a	n/a
2015	SB	2	1.05	0.71	1.39	n/a	n/a
2016	SB	3	3.48	1.55	6.61	n/a	n/a
2017	SB	5	1.58	1.01	3.52	n/a	n/a
2018	SB	3	0.70	<0.69	0.96	n/a	n/a

A summary of mean, minimum and maximum transparency (m) values at Rockport Conservation Commission monitoring site: RH-3							
Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	3.8	2.7	4.6	n/a	n/a
2014	SB	6	4.9	3.5	6.7	n/a	n/a
2015	SB	5	6.0	5.5	6.8	n/a	n/a
2016	SB	3	4.6	4.3	5.0	n/a	n/a
2017	SB	5	5.3	3.2	7.0	n/a	n/a

A summary of mean, minimum and maximum dissolved oxygen concentration (mg/l) values at Rockport Conservation Commission monitoring site: RO (Harbor sites are surface values)

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Not Meeting Criterion
2013	SB	5	10.0	9.3	11.1	n/a	n/a
2014	SB	6	9.9	8.5	11.1	n/a	n/a
2015	SB	5	9.8	8.6	10.5	n/a	n/a
2016	SB	4	9.0	8.0	10.1	n/a	n/a
2017	SB	5	9.4	8.1	10.2	n/a	n/a
2018	SB	2	9.4	9.0	9.9	n/a	n/a

A summary of mean, minimum and maximum dissolved oxygen saturation (%) values at Rockport Conservation Commission monitoring site: RO (Harbor sites are surface values)

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Not Meeting Criterion
2013	SB	5	116.6	113.3	119.0	85	0
2014	SB	6	119.2	95.4	134.8	85	0
2015	SB	5	115.5	100.8	125.1	85	0
2016	SB	4	110.2	93.7	119.7	85	0
2017	SB	5	111.2	95.4	119.0	85	0
2018	SB	2	116.3	116.3	116.3	85	0

A summary of mean, minimum and maximum water temperature (°C) values at Rockport Conservation Commission monitoring site: RO (Harbor sites are surface values only.)

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	15.6	11.3	19.3	n/a	n/a
2014	SB	6	16.4	13.1	20.8	n/a	n/a
2015	SB	5	15.1	10.7	19.0	n/a	n/a
2016	SB	4	16.0	13.8	19.7	n/a	n/a
2017	SB	5	15.0	13.3	16.5	n/a	n/a
2018	SB	2	17.0	14.7	19.4	n/a	n/a

A summary of geometric mean, minimum and maximum bacteria (MPN/100 mL) values at Rockport Conservation Commission monitoring station: RO

Year	Class	Bacteria Type	# Sample Points	Mean	Minimum	Maximum	Criterion Instant/Geo	# Exceeding Criterion
2013	SB	Entero	5	<10	<10	<10	54/8	0
2014	SB	Entero	4	--	14	115	54/8	1
2015	SB	Entero	4	--	12	43	54/8	0
2016	SB	Entero	3	--	9	34	54/8	0
2017	SB	Entero	4	--	6	19	54/8	0
2018	SB	Entero	2	--	4	6	54/8	0

***At least 6 samples should be collected to calculate the geometric mean**

A summary of mean, minimum and maximum total phosphorus (mg/l) values at Rockport Conservation Commission monitoring site: RO

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	0.023	0.019	0.032	n/a	n/a
2014	SB	6	0.025	0.017	0.040	n/a	n/a
2015	SB	2	0.018	0.016	0.020	n/a	n/a
2016	SB	4	0.027	0.022	0.036	n/a	n/a
2017	SB	5	0.028	0.017	0.041	n/a	n/a

A summary of mean, minimum and maximum total nitrogen (mg/l) values at Rockport Conservation Commission monitoring site: RO

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	0.24	0.20	0.29	n/a	n/a
2014	SB	5	0.24	0.19	0.30	n/a	n/a
2015	SB	2	0.18	0.17	0.18	n/a	n/a
2016	SB	4	0.18	0.15	0.19	n/a	n/a
2017	SB	5	0.25	0.18	0.34	n/a	n/a
2018	SB	2	0.18	0.16	0.2	n/a	n/a

A summary of mean, minimum and maximum chlorophyll *a* (ug/l) values at Rockport Conservation Commission monitoring site: RO

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	2.72	0.87	5.76	n/a	n/a
2014	SB	4	2.72	1.38	3.99	n/a	n/a
2015	SB	2	1.62	1.19	2.05	n/a	n/a
2016	SB	3	2.30	0.72	3.88	n/a	n/a
2017	SB	5	1.58	0.89	3.69	n/a	n/a
2018	SB	2	0.92	0.9	0.94	n/a	n/a

A summary of mean, minimum and maximum phaeophytin (ug/l) values at Rockport Conservation Commission monitoring site: RO

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	2.22	0.52	5.18	n/a	n/a
2014	SB	4	0.48	0.40	0.64	n/a	n/a
2015	SB	2	0.61	0.44	0.77	n/a	n/a
2016	SB	3	0.42	0.28	0.50	n/a	n/a
2017	SB	5	0.68	0.38	1.35	n/a	n/a
2018	SB	2	<0.46	<0.46	<0.46	n/a	n/a

A summary of mean, minimum and maximum chlorophyll *a* minus phaeophytin (ug/l) total values at Rockport Conservation Commission monitoring site: RO

Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	5	1.49	0.58	2.89	n/a	n/a
2014	SB	4	2.46	1.15	3.74	n/a	n/a
2015	SB	2	1.28	0.94	1.62	n/a	n/a
2016	SB	3	2.09	0.57	3.62	n/a	n/a
2017	SB	5	1.42	1.01	2.94	n/a	n/a
2018	SB	2	0.57	<0.69	0.79	n/a	n/a

A summary of mean, minimum and maximum transparency (m) values at Rockport Conservation Commission monitoring site: RO							
Year	Class	# Sample Points	Mean	Minimum	Maximum	Criterion	# Exceeding Criterion
2013	SB	3	3.8	3.3	4.7	n/a	n/a
2014	SB	6	5.1	3.3	6.5	n/a	n/a
2015	SB	5	6.0	5.4	6.6	n/a	n/a
2016	SB	2	6.8	6.8	6.8	n/a	n/a
2017	SB	4	6.8	4.2	10.8	n/a	n/a

Appendix A

* Sampling depths are only reported for Tier 1 VRMP sites.

** "N/A" = normal environmental sample ; "D" = field duplicate; "L" = lab duplicate.

*** D.O. = dissolved oxygen; "Spec. Cond" = specific conductance; "TDS" = Total dissolved solids; "TSS" = total suspended solids."

Organization Site Code	VRMP Site ID	Date	Time	** Sample Type Qualifier	* Sample Depth	Depth Unit	Water Temp (DEG C)	*** D.O. (MG/L)	*** D.O. Sat. (%)	*** Spec. Cond. (US/CM)	Salinity (PPTH)	Turbidity (NTU)	*** TDS (MG/L)	*** TSS (MG/L)	E. coli Bacteria (MPN/100ML)	Enterococci (MPN/100ML)
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Rockport Harbor and Tributaries - Rockport Conservation Commission: Approved Sites

GR-2	GOOSE RIVER - NGR01 - VRMP	6/27/2018	7:16 AM	NA			16.9	8.6	89.0	290					26	58
GR-2	GOOSE RIVER - NGR01 - VRMP	6/27/2018	7:16 AM	NA	.1	M										
GR-2	GOOSE RIVER - NGR01 - VRMP	6/27/2018	7:16 AM	D			16.9	8.5	88.0	283						
GR-2	GOOSE RIVER - NGR01 - VRMP	6/27/2018	7:20 AM	D	.1	M										
GR-2	GOOSE RIVER - NGR01 - VRMP	7/24/2018	7:04 AM	NA			20.4	7.5	82.0	262.3					91	50
GR-2	GOOSE RIVER - NGR01 - VRMP	7/24/2018	7:04 AM	NA	.1	M										
GR-2	GOOSE RIVER - NGR01 - VRMP	7/24/2018	7:04 AM	D			20.4	7.5	82.0	262.5					88	
GR-2	GOOSE RIVER - NGR01 - VRMP	7/24/2018	7:07 AM	D	.1	M										
GR-2	GOOSE RIVER - NGR01 - VRMP	8/28/2018		L												
GR-2	GOOSE RIVER - NGR01 - VRMP	8/28/2018	6:48 AM	NA			21.4	6.8	77.0	308.8						
GR-2	GOOSE RIVER - NGR01 - VRMP	8/28/2018	6:48 AM	NA	.1	M										
GR-2	GOOSE RIVER - NGR01 - VRMP	8/28/2018	6:48 AM	D			21.4	6.8	77.0	309						
GR-2	GOOSE RIVER - NGR01 - VRMP	8/28/2018	6:50 AM	D	.1	M										
GR-2	GOOSE RIVER - NGR01 - VRMP	9/9/2018	7:53 AM	NA			13.5	10.3	98.0	229.5						
GR-2	GOOSE RIVER - NGR01 - VRMP	9/26/2018	7:53 AM	NA	.1	M										
GR-2	GOOSE RIVER - NGR01 - VRMP	9/26/2018	7:53 AM	D	.1	M										
HB-1	HARKNESS BROOK - NHK00 - VRMP	9/9/2018	7:40 AM	NA			14.2	9.7	95.0	240						
HB-1	HARKNESS BROOK - NHK00 - VRMP	9/26/2018	7:40 AM	NA	.1	M										
LPS-1	LILY POND STREAM - NLP00 - VRMP	9/9/2018	8:05 AM	NA			15.0	9.7	95.0	338.4						
LPS-1	LILY POND STREAM - NLP00 - VRMP	9/26/2018	8:05 AM	NA	.1	M										
OTT-1	OTT BROOK - NOT02 - VRMP	6/27/2018	7:43 AM	NA			14.4	7.5	73.0	316					46	
OTT-1	OTT BROOK - NOT02 - VRMP	6/27/2018	7:45 AM	NA	.1	M										
OTT-1	OTT BROOK - NOT02 - VRMP	7/24/2018	7:22 AM	NA			17.6	6.2	64.0	127.3					77	
OTT-1	OTT BROOK - NOT02 - VRMP	7/24/2018	7:22 AM	NA	.1	M										
OTT-1	OTT BROOK - NOT02 - VRMP	9/9/2018	7:31 AM	NA			14.4	9.9	96.0	151.3						
OTT-1	OTT BROOK - NOT02 - VRMP	9/26/2018	7:31 AM	NA	.1	M										

Organization Site Code	VRMP Site ID	Date	Time	** Sample Type Qualifier	* Sample Depth	Depth Unit	Water Temp (DEG C)	*** D.O. (MG/L)	*** D.O. Sat. (%)	*** Spec. Cond. (US/CM)	Salinity (PPTH)	Turbidity (NTU)	*** TDS (MG/L)	*** TSS (MG/L)	E. coli Bacteria (MPN/100ML)	Entero-cocci (MPN/100ML)
RH-1	ROCKPORT HARBOR-RH1-VRMP	6/27/2018		NA												17
RH-1	ROCKPORT HARBOR-RH1-VRMP	6/27/2018		NA	.3	M	16.5	9.1	111.3		29.32					
RH-1	ROCKPORT HARBOR-RH1-VRMP	6/27/2018		NA	.9	M	16.1	9.4	114.1		29.99					
RH-1	ROCKPORT HARBOR-RH1-VRMP	6/27/2018		NA	1.0	M	16.4	9.3	113.9		29.89					
RH-1	ROCKPORT HARBOR-RH1-VRMP	6/27/2018		NA	1.9	M	14.99, 15	9.53, 9	112.9, 113		30.06, 30.07					
RH-1	ROCKPORT HARBOR-RH1-VRMP	6/27/2018		NA	2.9	M	13.3	9.6	110.7		30.39					
RH-1	ROCKPORT HARBOR-RH1-VRMP	6/27/2018		NA	3.0	M	13.3	9.6	110.6		30.33					
RH-1	ROCKPORT HARBOR-RH1-VRMP	6/27/2018		NA	4.1	M	13.1	9.8	111.7		30.34					
RH-1	ROCKPORT HARBOR-RH1-VRMP	6/27/2018		NA	4.1	M	13.2	9.5	109.1		30.36					
RH-1	ROCKPORT HARBOR-RH1-VRMP	6/27/2018		NA	5.0	M	12.5	9.5	107.5		30.51					
RH-1	ROCKPORT HARBOR-RH1-VRMP	6/27/2018		NA	5.0	M	12.5	9.9	112.2		30.56					
RH-1	ROCKPORT HARBOR-RH1-VRMP	6/27/2018		NA	6.0	M	11.2	9.9	108.3		30.68					
RH-1	ROCKPORT HARBOR-RH1-VRMP	6/27/2018		NA	6.3	M	10.0	10.0	107.0		31.15					
RH-1	ROCKPORT HARBOR-RH1-VRMP	6/27/2018		L												
RH-1	ROCKPORT HARBOR-RH1-VRMP	6/27/2018		D												10
RH-1	ROCKPORT HARBOR-RH1-VRMP	6/27/2018	1:05 PM	NA	.1	M										
RH-1	ROCKPORT HARBOR-RH1-VRMP	6/27/2018	1:05 PM	D	.1	M										
RH-1	ROCKPORT HARBOR-RH1-VRMP	7/25/2018	12:23 PM	NA												
RH-1	ROCKPORT HARBOR-RH1-VRMP	7/25/2018	12:23 PM	NA	.1	M										
RH-1	ROCKPORT HARBOR-RH1-VRMP	7/25/2018	12:23 PM	NA	.5	M	19.9	8.3	107.5		29.72					
RH-1	ROCKPORT HARBOR-RH1-VRMP	7/25/2018	12:23 PM	NA	.5	M	19.8	9.1	118.5		29.71					
RH-1	ROCKPORT HARBOR-RH1-VRMP	7/25/2018	12:23 PM	NA	.7	M	19.7	8.8	113.9		29.77					
RH-1	ROCKPORT HARBOR-RH1-VRMP	7/25/2018	12:23 PM	NA	1.0	M	19.5	8.7	112.3		29.9					
RH-1	ROCKPORT HARBOR-RH1-VRMP	7/25/2018	12:23 PM	NA	1.0	M	19.5	8.5	109.2		29.88					
RH-1	ROCKPORT HARBOR-RH1-VRMP	7/25/2018	12:23 PM	NA	1.6	M	18.3	8.8	111.1		30.23					
RH-1	ROCKPORT HARBOR-RH1-VRMP	7/25/2018	12:23 PM	NA	1.8	M	16.7	8.9	108.7		30.37					
RH-1	ROCKPORT HARBOR-RH1-VRMP	7/25/2018	12:23 PM	NA	2.1	M	16.5	8.9	109.1		30.41					
RH-1	ROCKPORT HARBOR-RH1-VRMP	7/25/2018	12:23 PM	NA	2.4	M	16.4	8.8	107.8		30.35					
RH-1	ROCKPORT HARBOR-RH1-VRMP	7/25/2018	12:23 PM	NA	3.2	M	15.8	9.2	111.2		30.41					
RH-1	ROCKPORT HARBOR-RH1-VRMP	7/25/2018	12:23 PM	NA	4.0	M	15.0	9.6	113.4		30.6					
RH-1	ROCKPORT HARBOR-RH1-VRMP	7/25/2018	12:23 PM	NA	4.1	M	14.8	9.7	114.6		30.61					
RH-1	ROCKPORT HARBOR-RH1-VRMP	7/25/2018	12:23 PM	NA	4.1	M	14.8	9.1	108.1		30.65					
RH-1	ROCKPORT HARBOR-RH1-VRMP	7/25/2018	12:23 PM	NA	5.1	M	14.2	9.9	115.3		30.65					
RH-1	ROCKPORT HARBOR-RH1-VRMP	7/25/2018	12:23 PM	NA	5.8	M	14.2	9.2	108.1		30.62					
RH-1	ROCKPORT HARBOR-RH1-VRMP	7/25/2018	12:23 PM	NA	6.0	M	14.2	10.0	117.0		30.73					
RH-1	ROCKPORT HARBOR-RH1-VRMP	7/25/2018	12:23 PM	NA	6.2	M	14.2	10.0	117.0		30.62					
RH-1	ROCKPORT HARBOR-RH1-VRMP	7/25/2018	12:23 PM	D	.1	M										

Organization Site Code	VRMP Site ID	Date	Time	** Sample Type Qualifier	* Sample Depth	Depth Unit	Water Temp (DEG C)	*** D.O. (MG/L)	*** D.O. Sat. (%)	*** Spec. Cond. (US/CM)	Salinity (PPTH)	Turbidity (NTU)	*** TDS (MG/L)	*** TSS (MG/L)	E. coli Bacteria (MPN/ 100ML)	Entero-cocci (MPN/ 100ML)
RH-1	ROCKPORT HARBOR-RH1-VRMP	8/28/2018	1:12 PM	NA												5
RH-1	ROCKPORT HARBOR-RH1-VRMP	8/28/2018	1:12 PM	NA	.1	M										
RH-1	ROCKPORT HARBOR-RH1-VRMP	8/28/2018	1:12 PM	NA	.3	M	19.1	8.1	104.5		30.74					
RH-1	ROCKPORT HARBOR-RH1-VRMP	8/28/2018	1:12 PM	NA	1.0	M	18.7	8.8	113.0		30.72					
RH-1	ROCKPORT HARBOR-RH1-VRMP	8/28/2018	1:12 PM	NA	2.0	M	18.2	9.1	115.2		30.69					
RH-1	ROCKPORT HARBOR-RH1-VRMP	8/28/2018	1:12 PM	NA	3.2	M	18.1	9.2	116.5		30.7					
RH-1	ROCKPORT HARBOR-RH1-VRMP	8/28/2018	1:12 PM	NA	4.1	M	18.2	9.3	117.9		30.74					
RH-1	ROCKPORT HARBOR-RH1-VRMP	8/28/2018	1:12 PM	NA	5.3	M	18.0	9.4	118.6		30.8					
RH-1	ROCKPORT HARBOR-RH1-VRMP	8/28/2018	1:12 PM	NA	6.1	M	17.8	9.4	118.7		30.78					
RH-1	ROCKPORT HARBOR-RH1-VRMP	8/28/2018	1:12 PM	NA	6.7	M	17.8	9.4	118.7		30.81					
RH-1	ROCKPORT HARBOR-RH1-VRMP	8/28/2018	1:12 PM	D												13
RH-1	ROCKPORT HARBOR-RH1-VRMP	8/28/2018	1:12 PM	D	.1	M										
RH-2	ROCKPORT HARBOR-RH2-VRMP	6/27/2018		NA												12
RH-2	ROCKPORT HARBOR-RH2-VRMP	6/27/2018		NA	.3	M	16.1	9.0	109.3		30.07					
RH-2	ROCKPORT HARBOR-RH2-VRMP	6/27/2018		NA	1.1	M	15.9	9.4	113.2		30.08					
RH-2	ROCKPORT HARBOR-RH2-VRMP	6/27/2018		NA	1.9	M	15.4	9.5	113.7		30.05					
RH-2	ROCKPORT HARBOR-RH2-VRMP	6/27/2018		NA	2.9	M	14.4	9.7	113.2		30.19					
RH-2	ROCKPORT HARBOR-RH2-VRMP	6/27/2018		NA	4.1	M	12.9	9.9	112.5		30.53					
RH-2	ROCKPORT HARBOR-RH2-VRMP	6/27/2018		NA	5.0	M	12.3	9.8	110.8		30.66					
RH-2	ROCKPORT HARBOR-RH2-VRMP	6/27/2018		NA	6.1	M	11.2	9.8	107.2		30.85					
RH-2	ROCKPORT HARBOR-RH2-VRMP	6/27/2018		NA	7.1	M	9.9	9.8	105.2		31.1					
RH-2	ROCKPORT HARBOR-RH2-VRMP	6/27/2018		NA	8.0	M	9.5	9.6	101.6		31.19					
RH-2	ROCKPORT HARBOR-RH2-VRMP	6/27/2018		NA	9.0	M	9.4	9.4	100.2		31.28					
RH-2	ROCKPORT HARBOR-RH2-VRMP	6/27/2018		NA	10.1	M	9.3	9.3	98.5		31.3					
RH-2	ROCKPORT HARBOR-RH2-VRMP	6/27/2018		NA	11.1	M	9.2	9.2	97.3		31.32					
RH-2	ROCKPORT HARBOR-RH2-VRMP	6/27/2018		NA	12.0	M	9.1	9.2	96.6		31.31					
RH-2	ROCKPORT HARBOR-RH2-VRMP	6/27/2018		NA	13.1	M	9.1	9.1	95.5		31.34					
RH-2	ROCKPORT HARBOR-RH2-VRMP	6/27/2018		NA	14.0	M	9.1	9.0	94.8		31.38					
RH-2	ROCKPORT HARBOR-RH2-VRMP	6/27/2018		NA	14.5	M	9.1	9.0	94.6		31.35					
RH-2	ROCKPORT HARBOR-RH2-VRMP	6/27/2018		D	.6	M	16.3	9.2	112.0		30.08					
RH-2	ROCKPORT HARBOR-RH2-VRMP	6/27/2018	12:17 PM	NA	.1	M										
RH-2	ROCKPORT HARBOR-RH2-VRMP	7/25/2018	11:54 AM	NA												
RH-2	ROCKPORT HARBOR-RH2-VRMP	7/25/2018	11:54 AM	NA	.1	M										
RH-2	ROCKPORT HARBOR-RH2-VRMP	7/25/2018	11:54 AM	NA	.4	M	19.7	8.1	104.9		30.01					
RH-2	ROCKPORT HARBOR-RH2-VRMP	7/25/2018	11:54 AM	NA	1.0	M	19.7	8.4	109.0		29.96					
RH-2	ROCKPORT HARBOR-RH2-VRMP	7/25/2018	11:54 AM	NA	1.9	M	19.4	8.5	109.6		30.06					
RH-2	ROCKPORT HARBOR-RH2-VRMP	7/25/2018	11:54 AM	NA	3.0	M	16.5	8.8	107.1		30.39					
RH-2	ROCKPORT HARBOR-RH2-VRMP	7/25/2018	11:54 AM	NA	4.0	M	15.5	9.0	108.4		30.58					
RH-2	ROCKPORT HARBOR-RH2-VRMP	7/25/2018	11:54 AM	NA	5.0	M	15.0	9.2	109.0		30.61					
RH-2	ROCKPORT HARBOR-RH2-VRMP	7/25/2018	11:54 AM	NA	6.0	M	14.3	9.3	109.5		30.71					
RH-2	ROCKPORT HARBOR-RH2-VRMP	7/25/2018	11:54 AM	NA	7.0	M	14.2	9.5	110.9		30.67					
RH-2	ROCKPORT HARBOR-RH2-VRMP	7/25/2018	11:54 AM	NA	8.1	M	14.1	9.5	111.3		30.71					
RH-2	ROCKPORT HARBOR-RH2-VRMP	7/25/2018	11:54 AM	NA	10.1	M	13.9	9.4	109.7		30.7					
RH-2	ROCKPORT HARBOR-RH2-VRMP	7/25/2018	11:54 AM	NA	12.1	M	12.6	9.1	103.2		30.91					
RH-2	ROCKPORT HARBOR-RH2-VRMP	7/25/2018	11:54 AM	NA	13.1	M	12.4	8.7	98.7		30.92					
RH-2	ROCKPORT HARBOR-RH2-VRMP	7/25/2018	11:54 AM	NA	14.1	M	11.9	8.4	94.1		30.99					
RH-2	ROCKPORT HARBOR-RH2-VRMP	7/25/2018	11:54 AM	NA	14.5	M	11.9	8.4	93.8		31.02					

Organization Site Code	VRMP Site ID	Date	Time	** Sample Type Qualifier	* Sample Depth	Depth Unit	Water Temp (DEG C)	*** D.O. (MG/L)	*** D.O. Sat. (%)	*** Spec. Cond. (US/CM)	Salinity (PPTH)	Turbidity (NTU)	*** TDS (MG/L)	*** TSS (MG/L)	E. coli Bacteria (MPN/100ML)	Entero-cocci (MPN/100ML)
RH-2	ROCKPORT HARBOR-RH2-VRMP	8/28/2018	12:40 PM	NA												7
RH-2	ROCKPORT HARBOR-RH2-VRMP	8/28/2018	12:40 PM	NA	.1	M										
RH-2	ROCKPORT HARBOR-RH2-VRMP	8/28/2018	12:40 PM	NA	.4	M	18.8	9.0	115.5		30.77					
RH-2	ROCKPORT HARBOR-RH2-VRMP	8/28/2018	12:40 PM	NA	1.1	M	18.2	9.2	117.0		30.84					
RH-2	ROCKPORT HARBOR-RH2-VRMP	8/28/2018	12:40 PM	NA	2.1	M	18.1	9.3	118.1		30.81					
RH-2	ROCKPORT HARBOR-RH2-VRMP	8/28/2018	12:40 PM	NA	3.0	M	18.1	9.4	118.5		30.79					
RH-2	ROCKPORT HARBOR-RH2-VRMP	8/28/2018	12:40 PM	NA	4.0	M	18.0	9.4	118.6		30.84					
RH-2	ROCKPORT HARBOR-RH2-VRMP	8/28/2018	12:40 PM	NA	5.0	M	17.8	9.4	118.6		30.79					
RH-2	ROCKPORT HARBOR-RH2-VRMP	8/28/2018	12:40 PM	NA	6.0	M	17.8	9.4	118.4		30.84					
RH-2	ROCKPORT HARBOR-RH2-VRMP	8/28/2018	12:40 PM	NA	7.1	M	17.8	9.4	118.1		30.81					
RH-2	ROCKPORT HARBOR-RH2-VRMP	8/28/2018	12:40 PM	NA	8.0	M	17.7	9.4	117.9		30.8					
RH-2	ROCKPORT HARBOR-RH2-VRMP	8/28/2018	12:40 PM	NA	9.1	M	17.7	9.4	117.9		30.78					
RH-2	ROCKPORT HARBOR-RH2-VRMP	8/28/2018	12:40 PM	NA	11.1	M	17.4	9.4	117.4		30.85					
RH-2	ROCKPORT HARBOR-RH2-VRMP	8/28/2018	12:40 PM	NA	12.1	M	16.7	9.5	116.9		30.94					
RH-2	ROCKPORT HARBOR-RH2-VRMP	8/28/2018	12:40 PM	NA	13.2	M	14.9	9.2	109.3		31.2					
RH-2	ROCKPORT HARBOR-RH2-VRMP	8/28/2018	12:40 PM	NA	14.1	M	14.5	8.8	104.2		31.28					
RH-2	ROCKPORT HARBOR-RH2-VRMP	8/28/2018	12:40 PM	NA	14.6	M	14.3	8.3	98.3		31.34					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA												4
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	.6	M	16.1	9.5	114.5		29.98					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	.8	M	16.1	9.2	111.9		30.03					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	1.2	M	15.4	9.6	114.8		30.01					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	2.0	M	14.9	9.7	114.6		30.02					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	2.8	M	14.1	9.9	114.6		30.22					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	3.1	M	13.8	10.0	115.2		30.21					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	3.9	M	12.8	10.2	115.2		30.47					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	4.4	M	12.6	9.4	106.8		30.46					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	5.0	M	12.6	10.2	115.2		30.5					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	6.1	M	12.2	10.2	114.7		30.56					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	7.0	M	11.2	9.2	100.7		30.71					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	7.2	M	11.3	10.2	112.3		30.72					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	8.2	M	10.6	9.9	107.8		30.89					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	9.1	M	9.9	9.7	104.1		31.03					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	10.0	M	9.5	9.5	100.5		31.15					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	10.9	M	9.5	9.2	97.6		31.15					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	12.1	M	9.3	9.2	96.9		31.24					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	13.1	M	9.3	9.2	96.8		31.29					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	14.1	M	9.2	9.2	96.7		31.25					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	15.1	M	9.1	9.2	96.5		31.27					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	16.0	M	9.1	9.1	95.9		31.25					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	17.0	M	9.1	9.1	95.5		31.3					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	18.1	M	9.0	9.0	95.0		31.33					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	19.0	M	9.0	9.0	94.4		31.34					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:17 PM	NA	19.1	M	9.0	8.9	93.9		31.3					
RH-3	ROCKPORT HARBOR-RH3-VRMP	6/27/2018	12:48 PM	NA	.1	M										

Organization Site Code	VRMP Site ID	Date	Time	** Sample Type Qualifier	* Sample Depth	Depth Unit	Water Temp (DEG C)	*** D.O. (MG/L)	*** D.O. Sat. (%)	*** Spec. Cond. (US/CM)	Salinity (PPTH)	Turbidity (NTU)	*** TDS (MG/L)	*** TSS (MG/L)	E. coli Bacteria (MPN/100ML)	Entero-cocci (MPN/100ML)
RH-3	ROCKPORT HARBOR-RH3-VRMP	7/25/2018	11:24 AM	NA												
RH-3	ROCKPORT HARBOR-RH3-VRMP	7/25/2018	11:24 AM	NA	.1	M										
RH-3	ROCKPORT HARBOR-RH3-VRMP	7/25/2018	11:24 AM	NA	.3	M	19.3	8.3	107.2		30.12					
RH-3	ROCKPORT HARBOR-RH3-VRMP	7/25/2018	11:24 AM	NA	1.1	M	19.3	8.6	110.8		30.18					
RH-3	ROCKPORT HARBOR-RH3-VRMP	7/25/2018	11:24 AM	NA	2.6	M	18.9	8.9	113.7		30.19					
RH-3	ROCKPORT HARBOR-RH3-VRMP	7/25/2018	11:24 AM	NA	2.6	M	18.7	8.9	114.0		30.3					
RH-3	ROCKPORT HARBOR-RH3-VRMP	7/25/2018	11:24 AM	NA	3.1	M	16.5	9.3	113.6		30.39					
RH-3	ROCKPORT HARBOR-RH3-VRMP	7/25/2018	11:24 AM	NA	4.0	M	15.2	9.5	113.2		30.54					
RH-3	ROCKPORT HARBOR-RH3-VRMP	7/25/2018	11:24 AM	NA	5.1	M	14.9	9.6	113.8		30.58					
RH-3	ROCKPORT HARBOR-RH3-VRMP	7/25/2018	11:24 AM	NA	6.0	M	14.6	10.0	117.4		30.56					
RH-3	ROCKPORT HARBOR-RH3-VRMP	7/25/2018	11:24 AM	NA	8.0	M	13.9	10.4	120.6		30.68					
RH-3	ROCKPORT HARBOR-RH3-VRMP	7/25/2018	11:24 AM	NA	8.9	M	13.8	10.5	121.6		30.7					
RH-3	ROCKPORT HARBOR-RH3-VRMP	7/25/2018	11:24 AM	NA	10.0	M	13.4	10.5	121.4		30.84					
RH-3	ROCKPORT HARBOR-RH3-VRMP	7/25/2018	11:24 AM	NA	12.1	M	13.1	10.5	120.7		30.78					
RH-3	ROCKPORT HARBOR-RH3-VRMP	7/25/2018	11:24 AM	NA	14.0	M	12.2	10.3	115.6		30.88					
RH-3	ROCKPORT HARBOR-RH3-VRMP	7/25/2018	11:24 AM	NA	16.0	M	11.9	9.9	110.8		31.02					
RH-3	ROCKPORT HARBOR-RH3-VRMP	7/25/2018	11:24 AM	NA	18.1	M	11.5	9.5	105.4		31.07					
RH-3	ROCKPORT HARBOR-RH3-VRMP	7/25/2018	11:24 AM	NA	19.7	M	11.4	9.0	99.4		31.04					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA												3
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	.1	M										
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	.4	M	18.8	9.1	116.5		30.65					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	1.1	M	18.4	9.2	117.4		30.64					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	2.0	M	18.2	9.3	117.7		30.61					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	2.9	M	18.0	9.4	118.1		30.64					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	4.1	M	17.9	9.4	118.7		30.69					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	5.0	M	17.9	9.4	118.9		30.76					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	6.1	M	17.8	9.5	119.2		30.67					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	7.0	M	17.8	9.5	119.3		30.65					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	8.3	M	17.5	9.5	119.0		30.81					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	9.1	M	17.4	9.5	118.6		30.81					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	10.2	M	17.4	9.4	117.5		30.86					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	11.0	M	17.4	9.4	117.1		30.85					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	12.1	M	16.6	9.4	116.0		31.01					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	13.0	M	15.7	9.3	112.7		31.16					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	13.8	M	14.5	8.7	103.1		31.23					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	15.1	M	14.2	8.5	99.7		31.29					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	15.9	M	13.8	8.1	94.1		31.32					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	17.1	M	13.6	7.9	91.3		31.45					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	18.2	M	13.2	7.7	89.1		31.39					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	19.0	M	13.2	7.5	86.1		31.47					
RH-3	ROCKPORT HARBOR-RH3-VRMP	8/28/2018	12:13 PM	NA	19.3	M	13.2	7.2	83.5		31.44					

Organization Site Code	VRMP Site ID	Date	Time	** Sample Type Qualifier	* Sample Depth	Depth Unit	Water Temp (DEG C)	*** D.O. (MG/L)	*** D.O. Sat. (%)	*** Spec. Cond. (US/CM)	Salinity (PPTH)	Turbidity (NTU)	*** TDS (MG/L)	*** TSS (MG/L)	E. coli Bacteria (MPN/100ML)	Enterococci (MPN/100ML)
RO	ROCKPORT HARBOR-RO-VRMP	6/27/2018	11:41 AM	NA												6
RO	ROCKPORT HARBOR-RO-VRMP	6/27/2018	11:41 AM	NA	.6	M	14.7	9.9	116.3		30.01					
RO	ROCKPORT HARBOR-RO-VRMP	6/27/2018	11:41 AM	NA	1.1	M	14.8	9.9	116.3		29.99					
RO	ROCKPORT HARBOR-RO-VRMP	6/27/2018	11:41 AM	NA	1.9	M	14.3	10.0	116.5		30.03					
RO	ROCKPORT HARBOR-RO-VRMP	6/27/2018	11:41 AM	NA	2.9	M	13.9	10.1	117.1		30.14					
RO	ROCKPORT HARBOR-RO-VRMP	6/27/2018	11:41 AM	NA	4.0	M	13.5	10.2	117.6		30.28					
RO	ROCKPORT HARBOR-RO-VRMP	6/27/2018	11:41 AM	NA	5.0	M	13.3	10.3	118.2		30.24					
RO	ROCKPORT HARBOR-RO-VRMP	6/27/2018	11:41 AM	NA	5.9	M	12.9	10.4	118.6		30.34					
RO	ROCKPORT HARBOR-RO-VRMP	6/27/2018	11:41 AM	NA	8.1	M	12.0	10.3	115.6		30.65					
RO	ROCKPORT HARBOR-RO-VRMP	6/27/2018	11:41 AM	NA	9.0	M	10.8	10.2	111.5		30.91					
RO	ROCKPORT HARBOR-RO-VRMP	6/27/2018	11:41 AM	NA	10.0	M	10.3	10.2	110.2		30.98					
RO	ROCKPORT HARBOR-RO-VRMP	6/27/2018	11:41 AM	NA	12.1	M	9.8	10.0	106.7		31.18					
RO	ROCKPORT HARBOR-RO-VRMP	6/27/2018	11:41 AM	NA	14.0	M	9.5	9.6	102.2		31.27					
RO	ROCKPORT HARBOR-RO-VRMP	6/27/2018	11:41 AM	NA	16.1	M	9.4	9.5	101.0		31.51					
RO	ROCKPORT HARBOR-RO-VRMP	6/27/2018	11:41 AM	NA	17.9	M	9.4	9.4	100.2		31.44					
RO	ROCKPORT HARBOR-RO-VRMP	6/27/2018	11:41 AM	NA	20.0	M	9.4	9.4	100.0		31.51					
RO	ROCKPORT HARBOR-RO-VRMP	6/27/2018	11:41 AM	NA	22.0	M	9.3	9.4	99.5		31.57					
RO	ROCKPORT HARBOR-RO-VRMP	6/27/2018	11:41 AM	NA	24.1	M	9.4	9.3	99.2		31.61					
RO	ROCKPORT HARBOR-RO-VRMP	6/27/2018	11:41 AM	NA	25.8	M	9.4	9.3	99.2		31.65					
RO	ROCKPORT HARBOR-RO-VRMP	6/27/2018	11:51 AM	NA	.1	M										
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA												4
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	.1	M										
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	.5	M	19.4	9.0	116.3		30.52					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	1.0	M	19.0	9.1	117.4		30.46					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	2.1	M	17.8	9.3	117.2		30.65					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	2.9	M	17.5	9.4	117.2		30.72					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	4.1	M	17.1	9.5	117.3		30.84					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	5.1	M	16.9	9.5	117.5		30.83					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	6.2	M	16.9	9.5	117.6		30.88					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	7.0	M	16.5	9.6	117.7		30.88					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	8.2	M	15.5	9.7	116.8		31.1					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	9.0	M	15.2	9.5	114.2		31.15					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	9.9	M	15.1	9.4	112.6		31.11					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	11.1	M	15.1	9.3	111.8		31.2					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	12.1	M	15.0	9.3	110.7		31.23					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	13.1	M	14.7	9.3	110.4		31.2					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	14.0	M	14.3	9.1	107.5		31.28					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	16.2	M	13.5	8.3	96.0		31.38					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	17.0	M	13.4	8.2	94.6		31.52					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	17.8	M	13.4	8.0	93.0		31.49					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	19.7	M	13.3	7.9	90.9		31.45					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	21.0	M	13.1	7.8	90.0		31.49					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	22.1	M	13.1	7.7	88.9		31.49					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	24.0	M	13.0	7.7	88.5		31.45					
RO	ROCKPORT HARBOR-RO-VRMP	8/28/2018	11:37 AM	NA	26.0	M	13.0	7.6	87.5		31.47					
WS-1	WINTER STREET DITCH-N01	9/9/2018	8:18 AM	NA			15.3	9.1	90.0	332.4						
WS-1	WINTER STREET DITCH-N01	9/26/2018	8:18 AM	NA	.1	M										