STATE OF NEW HAMPSHIRE

# Impairments Added to the 2020/2022 303(d) List of Threatened or Impaired Waters

February 18, 2022

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

**STATE OF NEW HAMPSHIRE**

# Impairments Added to the 2020/2022 303(d) List of Threatened or Impaired Waters

*STATE OF NEW HAMPSHIRE*
*DEPARTMENT OF ENVIRONMENTAL SERVICES*
*29 HAZEN DRIVE*
*CONCORD, N.H. 03301*

*ROBERT R. SCOTT*
*Commissioner*

*MARK A. SANBORN*
*Assistant Commissioner*

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*Water Division Director*

**Prepared by:**
*MATTHEW A. WOOD*
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**February 18, 2022**

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# Introduction

In accordance with Section 303(d) of the federal Clean Water Act, States must prepare a list of impaired waters that require a Total Maximum Daily Load study every two years (i.e., the 303(d) List). The last approved 303(d) List was prepared by the New Hampshire Department of Environmental Services (NHDES) in 2018. Downloadable copies of the past lists as well as the 303(d) 2020/2022 list are available on the NHDES website for review. This document provides a list of all surface waters and parameter combinations that were added as impairments on the 2020/2022 303(d) List and the reasons why they were added.

Assessment outcomes cover a spectrum from very good to very bad coded as an alpha numeric scale that provides additional distinctions in cases where an impairment exists. In each of the new impairments detailed within this document, the 2018 and 2020/2022 assessment status is highlighted applying the categories in the table below.

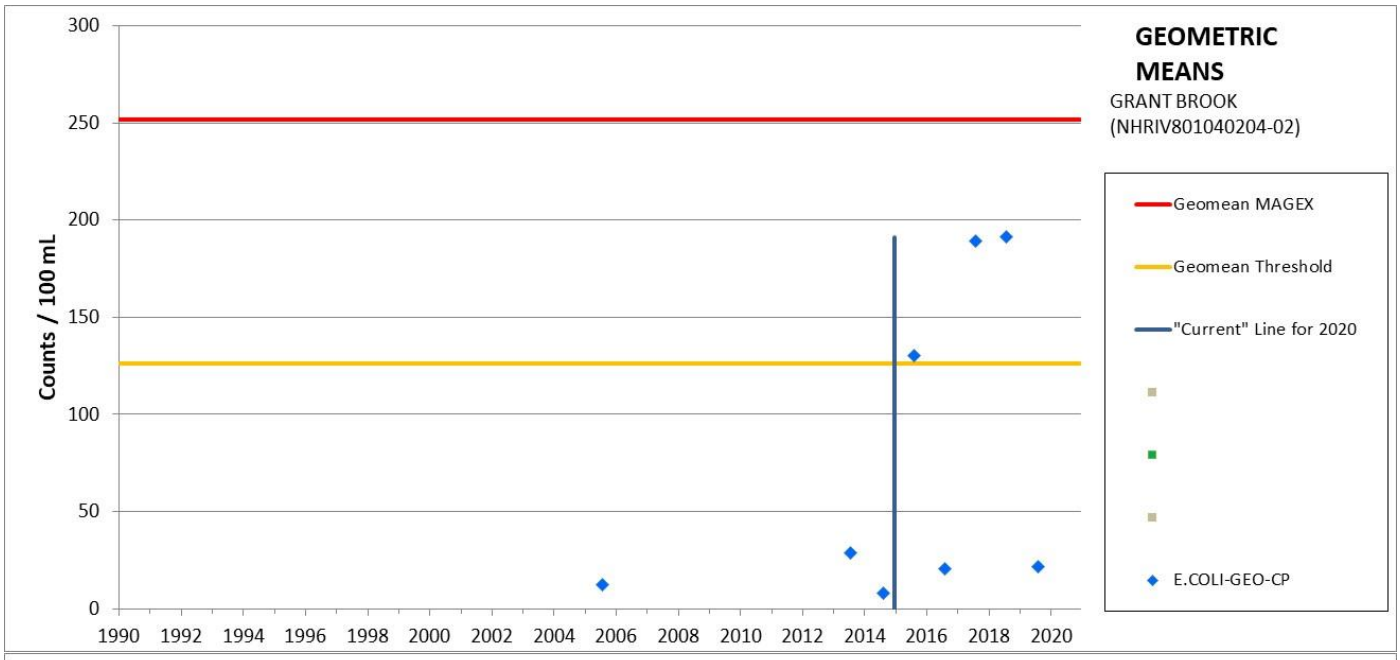
| | | **Severe**<br>Not Supporting, Severe | **Poor**<br>Not Supporting, Marginal | **Likely Bad**<br>Insufficient Information – Potentially Not Supporting | **No Data**<br>No Data | **Likely Good**<br>Insufficient Information – Potentially Full Supporting | **Marginal**<br>Full Support, Marginal | **Good**<br>Full Support, Good |
|---|---|---|---|---|---|---|---|---|
| **CATEGORY** | **Description** | | | | | | | |
| Category 2 | Meets standards | | | | | | 2-M or 2-OBS | 2-G |
| Category 3 | Insufficient Information | | | 3-PNS | 3-ND | 3-PAS | | |
| Category 4 | Does not Meet Standards; | | | | | | | |
| 4A | TMDL Completed | 4A-P | 4A-M or 4A-T | | | | | |
| 4B | Other enforceable measure will correct the issue. | 4B-P | 4B-M or 4B-T | | | | | |
| 4C | Non-pollutant (i.e. exotic weeds) | 4C-P | 4C-M | | | | | |
| Category 5 | TMDL Needed | 5-P | 5-M or 5-T | | | | | |

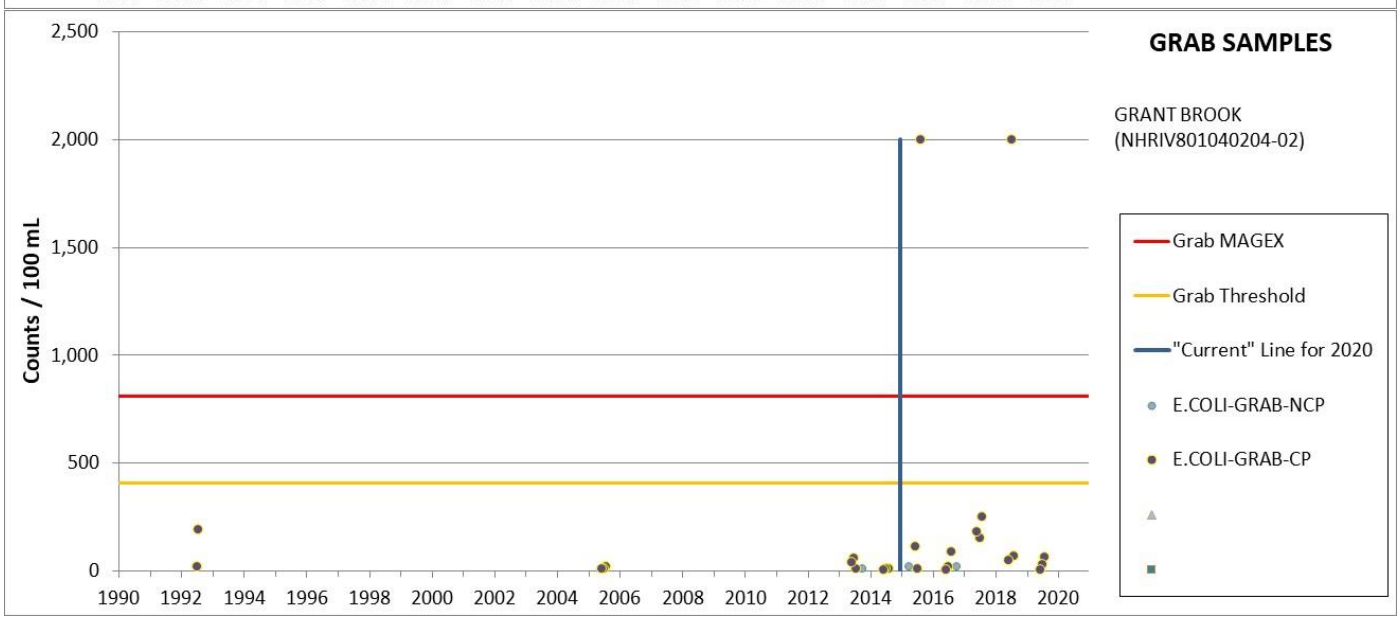
# Bacteria for Primary Contact Recreation (i.e. swimming)

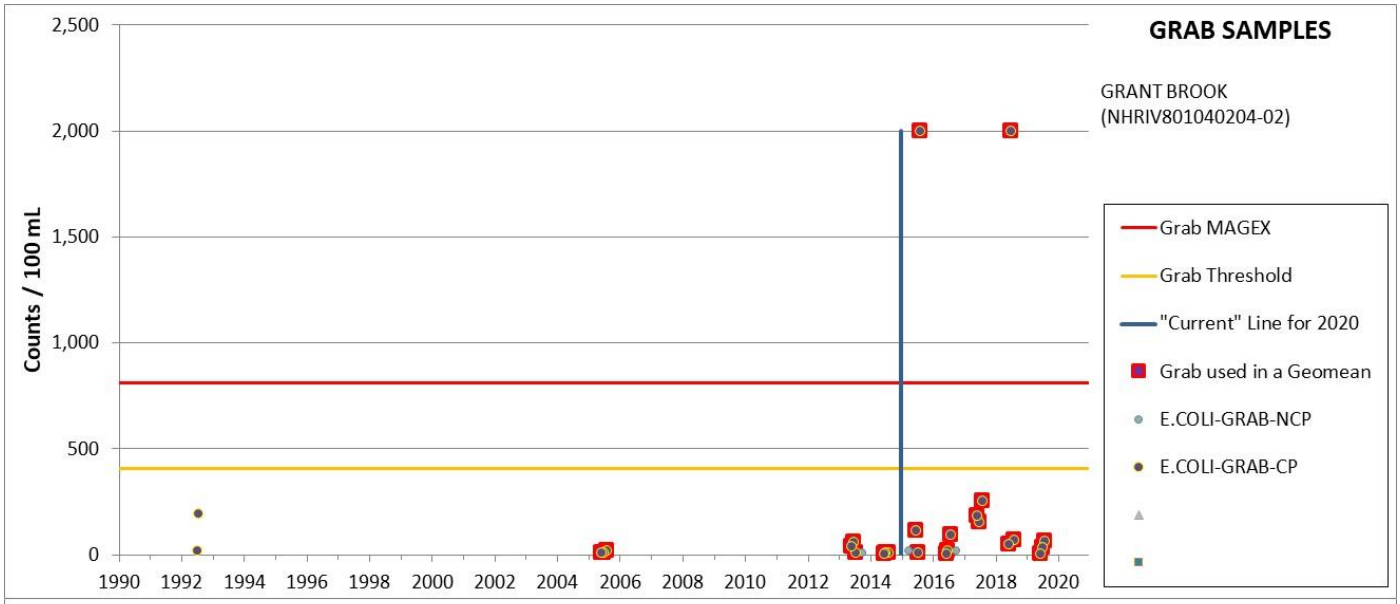
## GRANT BROOK (NHRIV801040204-02)

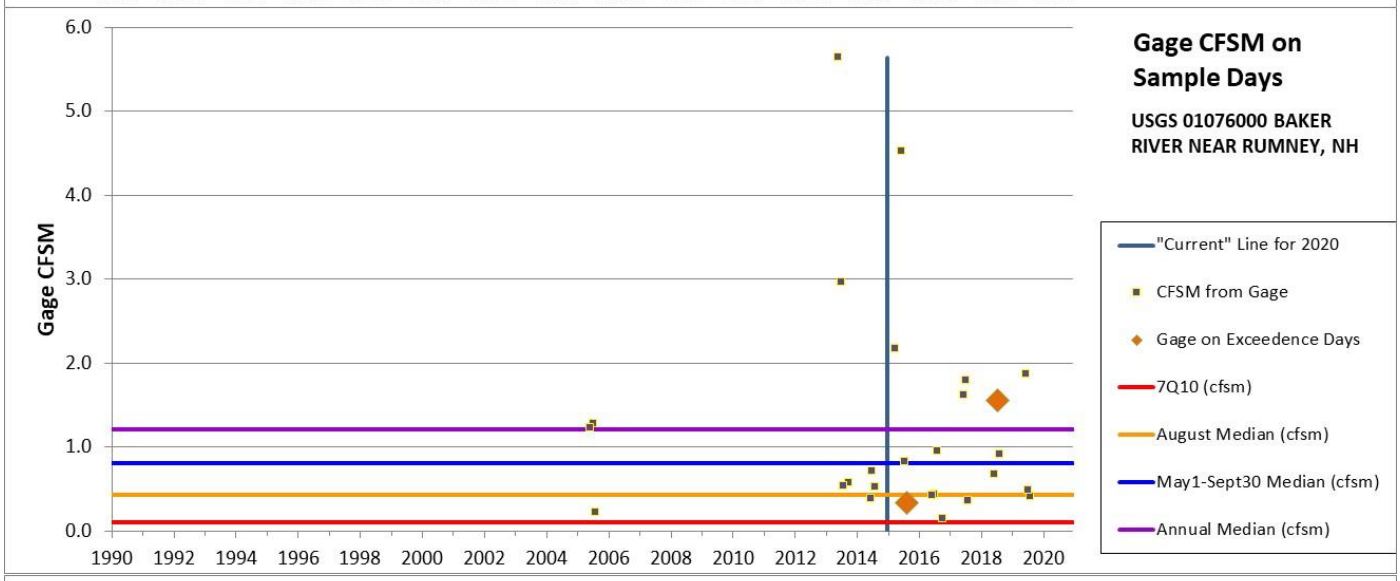
| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| GRANT BROOK | NHRIV801040204-02 | Escherichia coli | LYME | 2-G | 5-M |

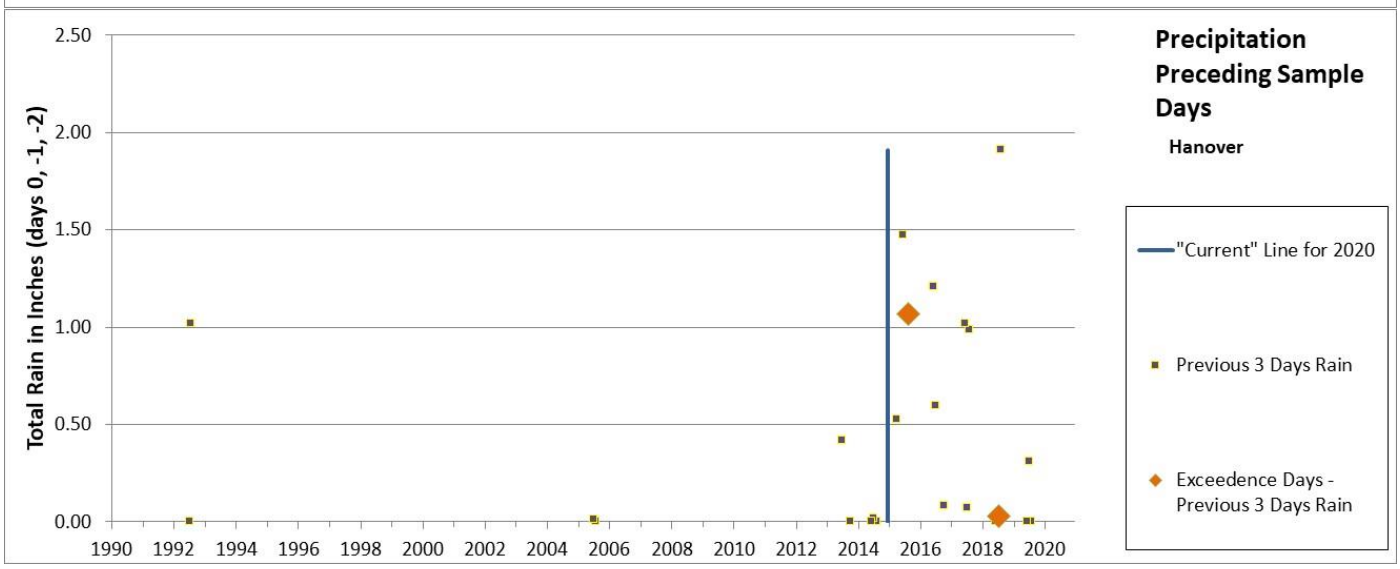
Three of 5 (60%) geomeans in the current assessment period (2015-2020) were above the geometric mean threshold (126 cts/100 ml) and above the geometric mean MAGEX threshold (252 cts/100 ml). Two of 17 (12%) samples collected at station 02-GNB during the current assessment period were above the single sample threshold (406 cts/100 ml) and above the single sample MAGEX threshold (812 cts/100 ml). The high Escherichia coli samples were taken during the critical period with flows of 1.56 and 0.33 cfsm on the Baker River gage (01076000) and three-day rainfall totals of 0.03 and 1.07 inches. The Grant Brook (NHRIV801040204-02) has been moved from 2-M to 5-P for Escherichia coli. for the primary contact recreation designated use based on the data collected in the current assessment period.

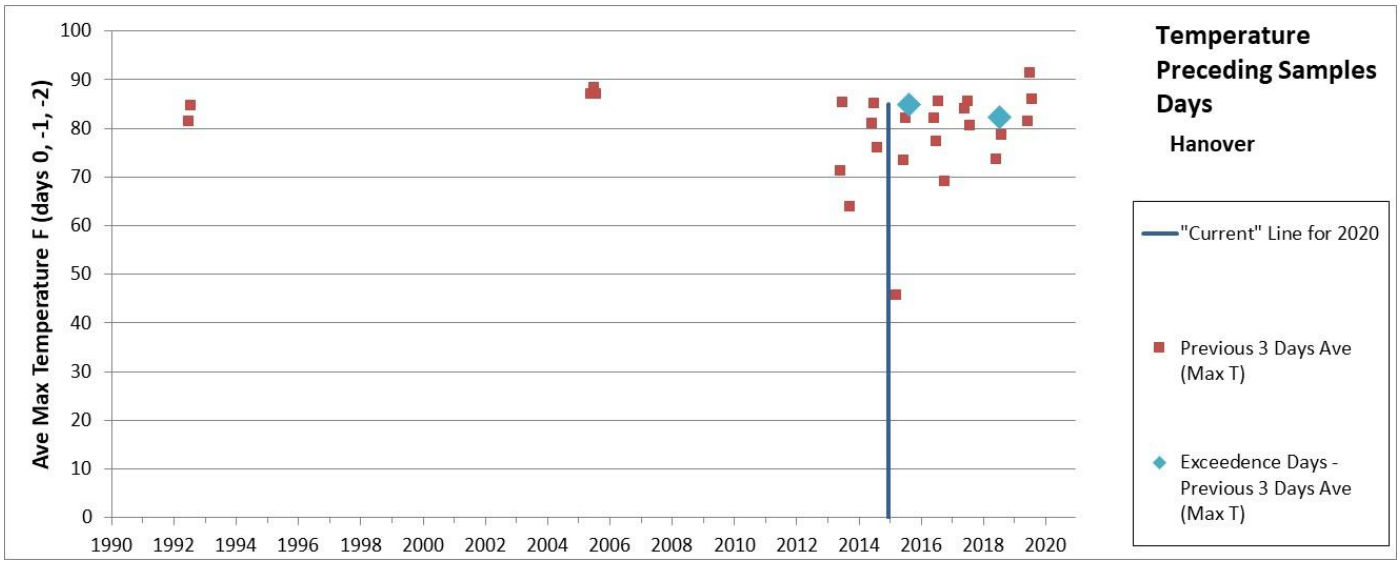



GRAB SAMPLES
GRANT BROOK
(NHRIV801040204-02)
Counts / 100 mL
2,500
2,000
1,500
1,000
500
0
1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020
Grab MAGEX
Grab Threshold
"Current" Line for 2020
Grab used in a Geomean
E.COLI-GRAB-NCP
E.COLI-GRAB-CP


Gage CFSM on Sample Days
USGS 01076000 BAKER RIVER NEAR RUMNEY, NH
Gage CFSM
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)

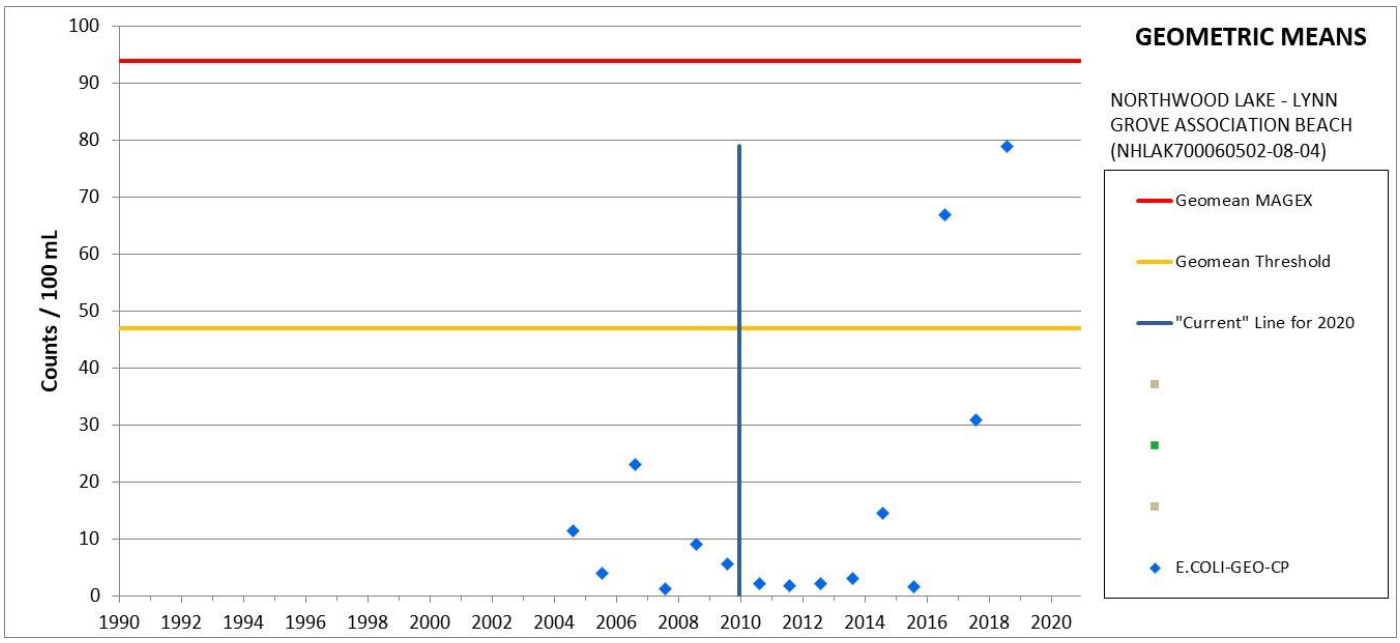

Precipitation Preceding Sample Days
Hanover
Total Rain in Inches (days 0, -1, -2)
2.50
2.00
1.50
1.00
0.50
0.00
1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020
"Current" Line for 2020
Previous 3 Days Rain
Exceedence Days - Previous 3 Days Rain

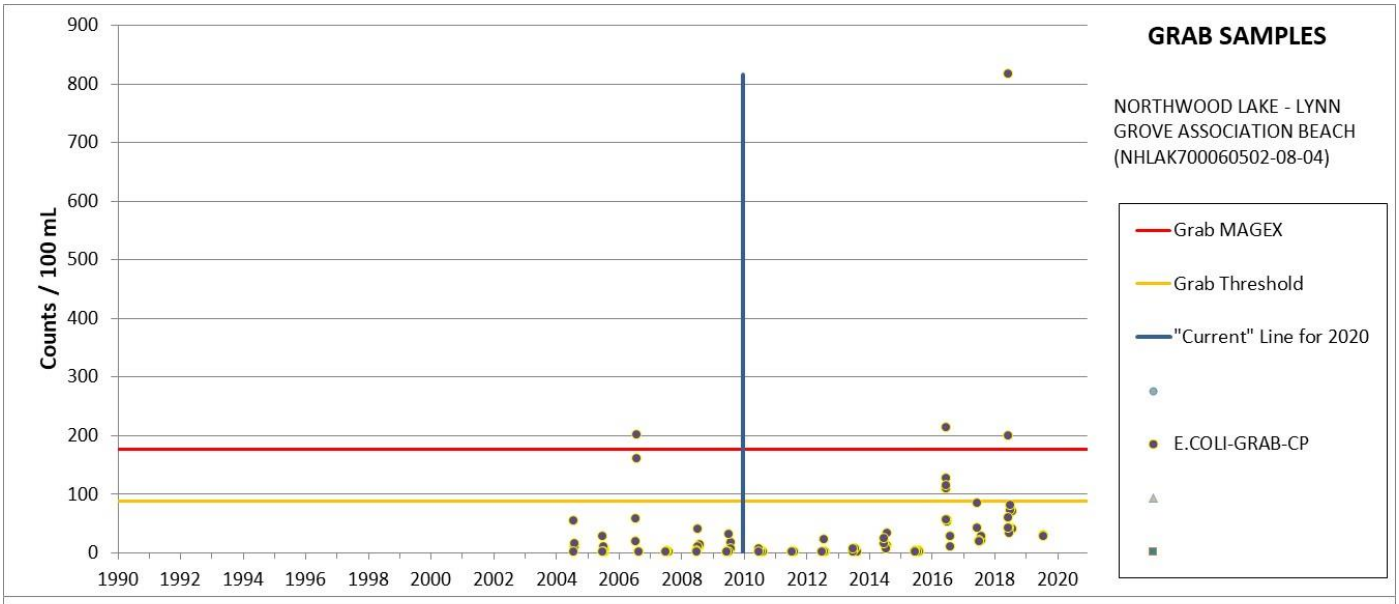


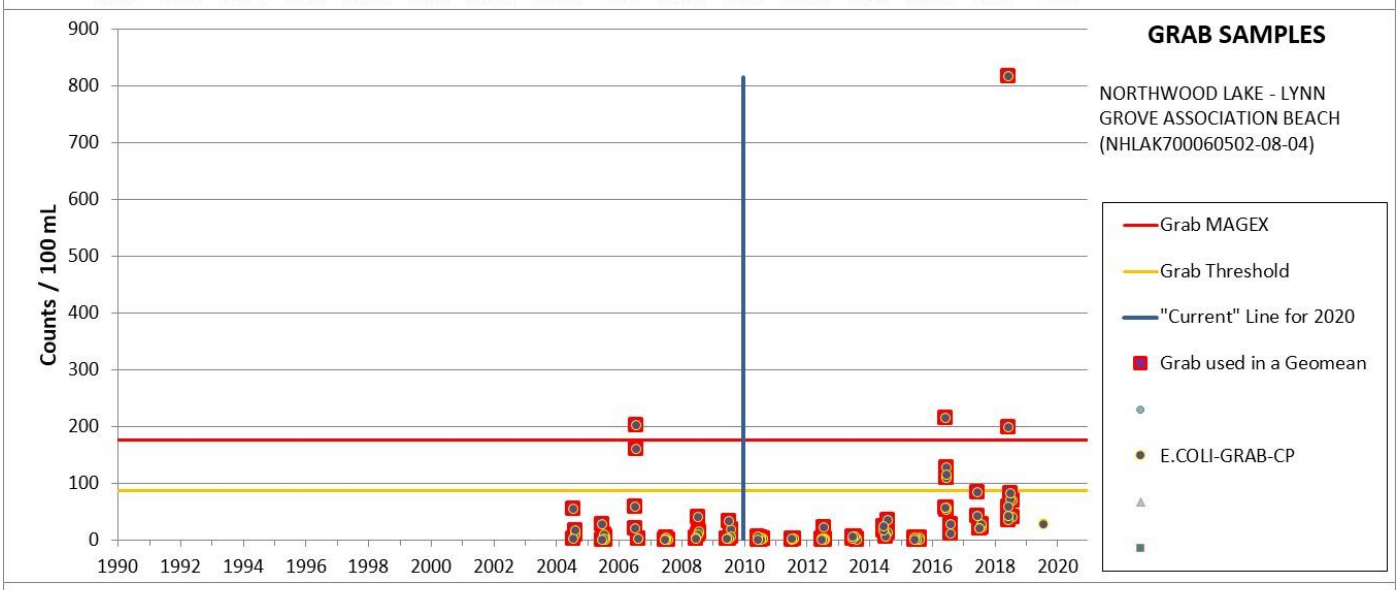

## NORTHWOOD LAKE - LYNN GROVE ASSOCIATION BEACH (NHLAK700060502-08-04)

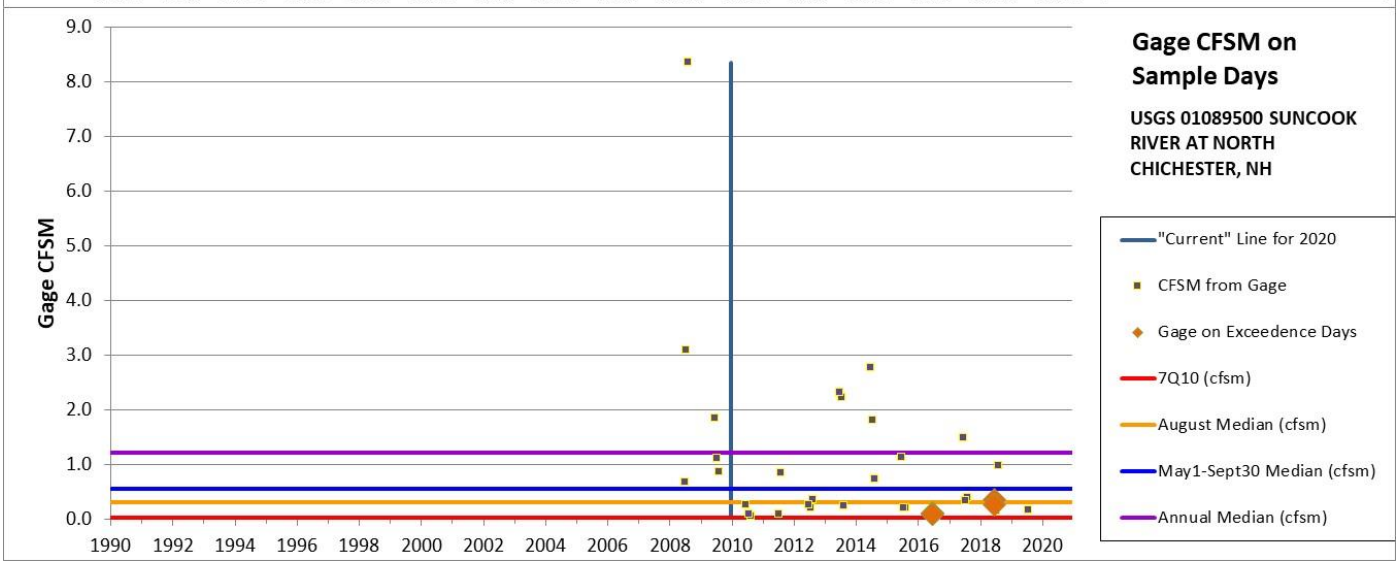
| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| NORTHWOOD LAKE - LYNN GROVE ASSOCIATION BEACH | NHLAK700060502-08-04 | Escherichia coli | NORTHWOOD | 3-PNS | 5-P |

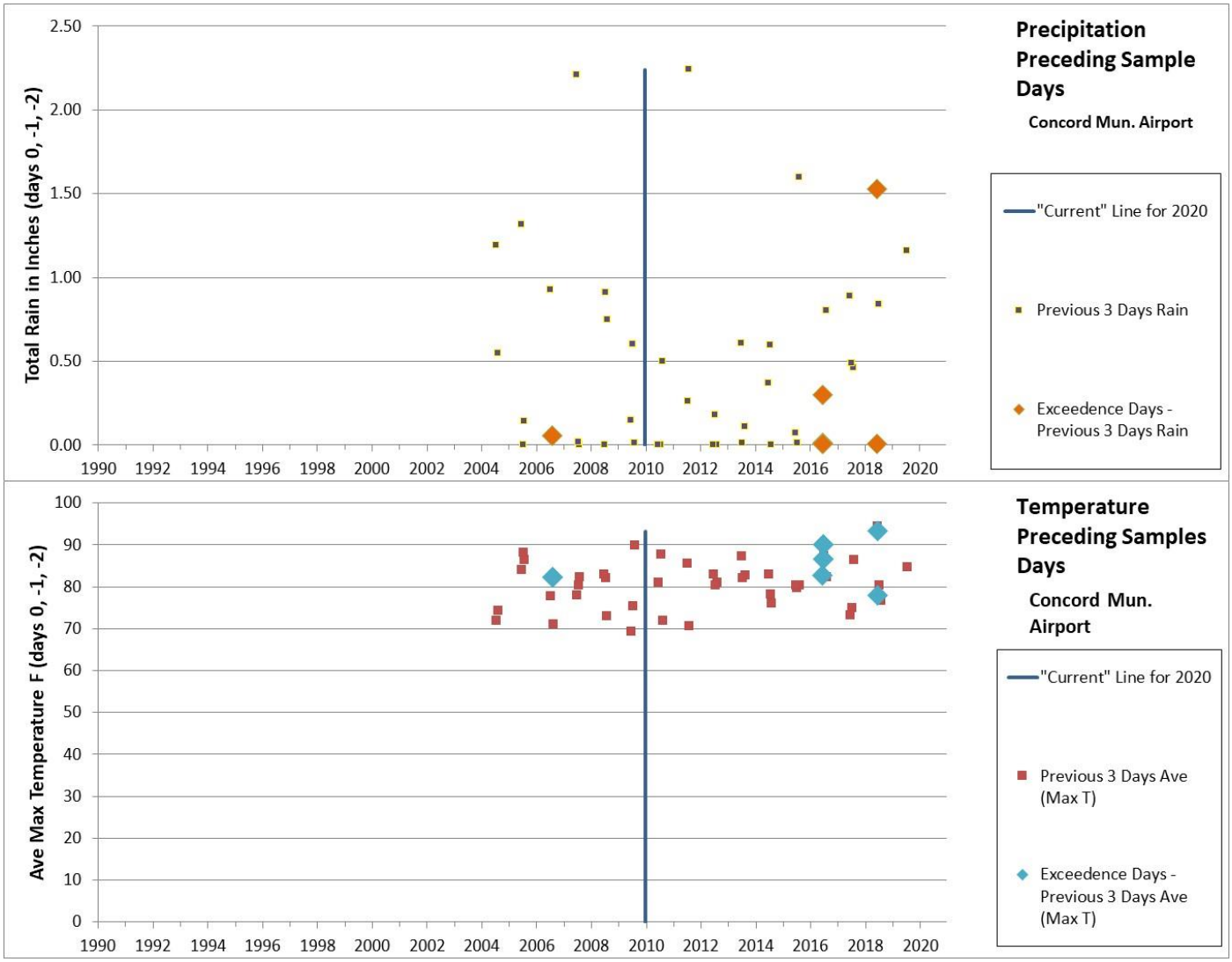
There have been two geomean exceedances (15 have been calculated). For the 2020/2022 assessment cycle, there have been 7 out of 62 (11%) grabs samples in exceedance of the standard, three of those exceeding the MAGEX. The precipitation and flow conditions had varied with flows ranging 0.05 - 8.34 CFSM; gage 01089500 - Suncook River at Chichester; and precipitation from 0.012 - 2.24" in 3 days; Concord. Activity comments state that there were no bathers or birds at time of sampling. This beach is no longer in the NHDES Beach Inspection Program, due to its private status, serving those of the Lynn Grove Association. Northwood Lake - Lynn Grove Association Beach (NHLAK700060502-08-04) has been moved from 3-PNS to 5-P for E. coli for the primary contact recreation designated use (i.e. swimming) based on data collected in the current period.




GRAB SAMPLES
NORTHWOOD LAKE - LYNN GROVE ASSOCIATION BEACH (NHLAK700060502-08-04)
Counts / 100 mL
Grab MAGEX
Grab Threshold
"Current" Line for 2020
E.COLI-GRAB-CP


GRAB SAMPLES
NORTHWOOD LAKE - LYNN GROVE ASSOCIATION BEACH (NHLAK700060502-08-04)
Counts / 100 mL
Grab MAGEX
Grab Threshold
"Current" Line for 2020
Grab used in a Geomean
E.COLI-GRAB-CP

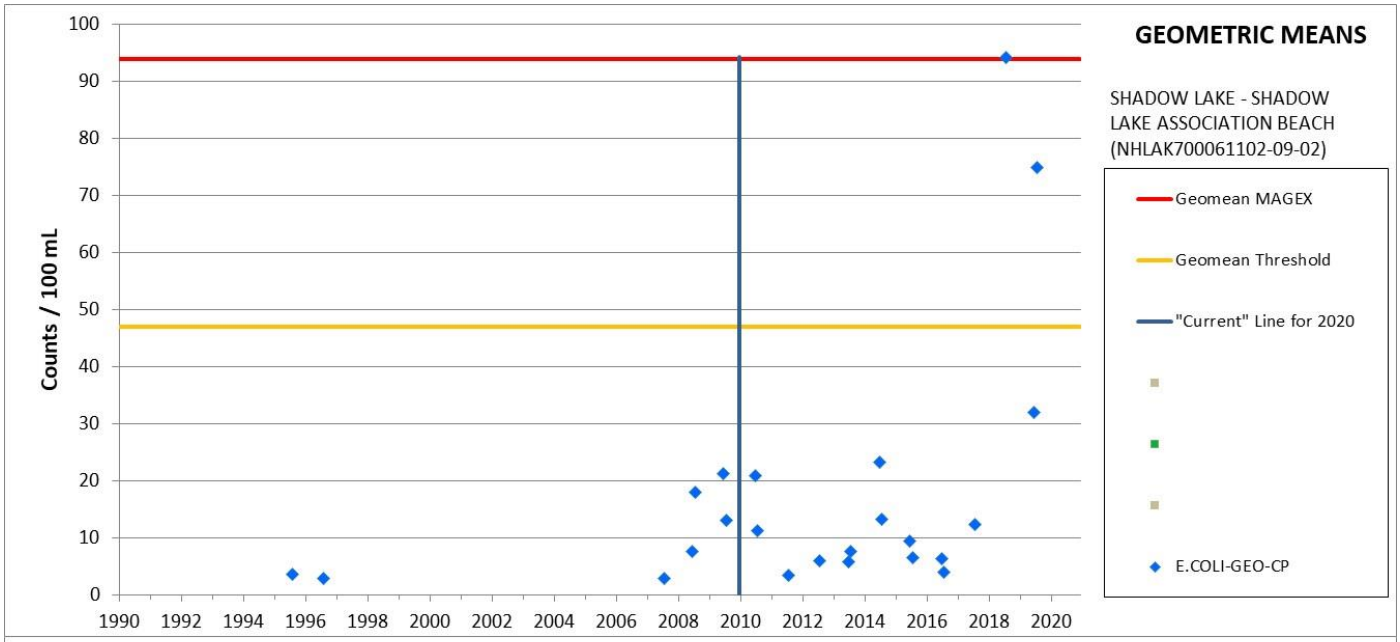

Gage CFSM on Sample Days
USGS 01089500 SUNCOOK RIVER AT NORTH CHICHESTER, NH
Gage CFSM
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)

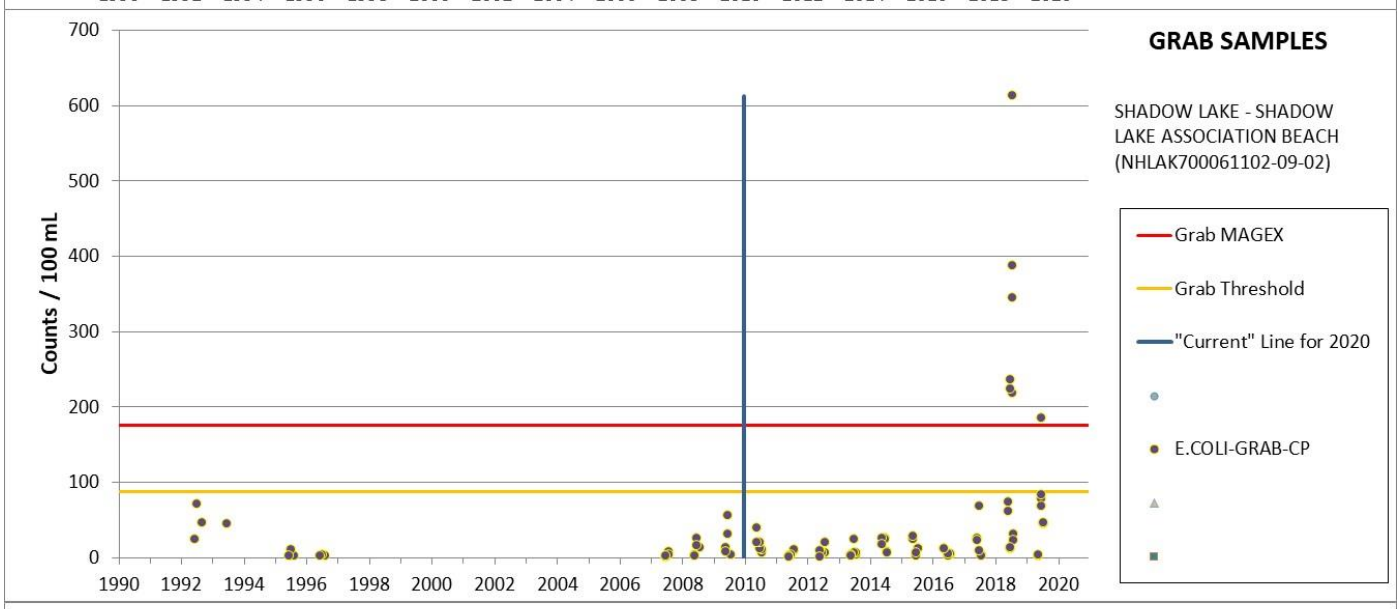


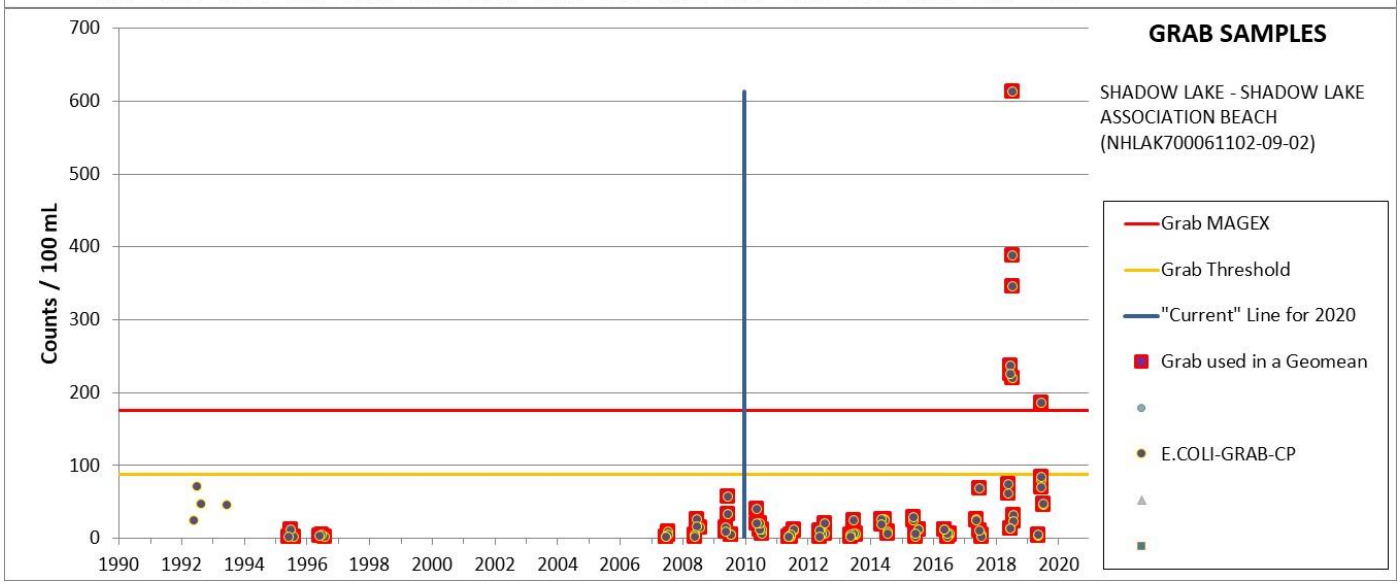

## SHADOW LAKE - SHADOW LAKE ASSOCIATION BEACH (NHLAK700061102-09-02)

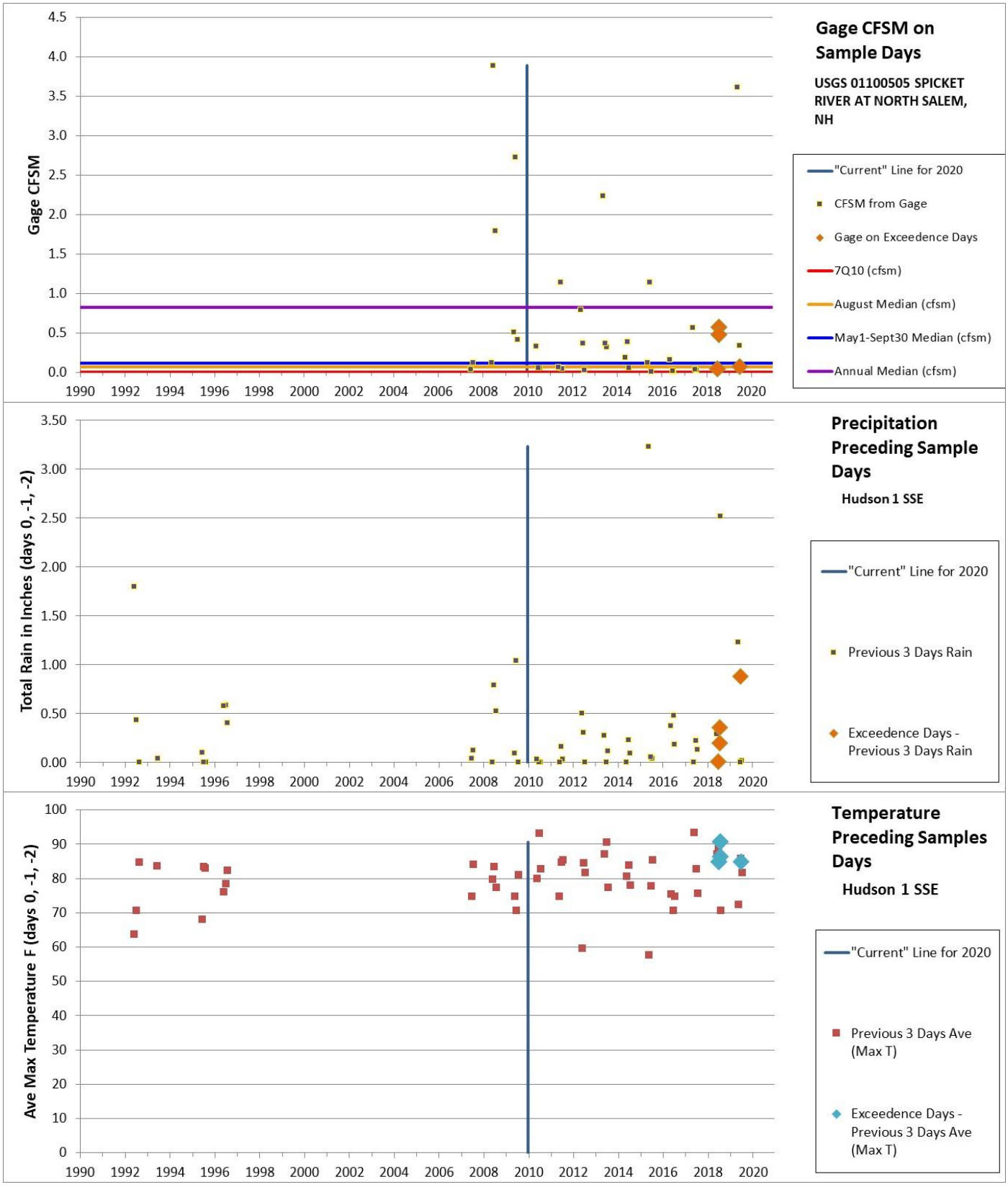
| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| SHADOW LAKE - SHADOW LAKE ASSOCIATION BEACH | NHLAK700061102-09-02 | Escherichia coli | SALEM | 2-G | 5-P |

Sixteen geomeans were included in the 2020/2022 assessment for Shadow Lake - Shadow Lake Association Beach (NHLAK700061102-09-02). Two of those are above the Class A geometric mean water quality threshold (47 cts/100 ml). These exceedances occurred in recent years; 2018-2019. This beach is monitored by the Town of Salem, sampled every other week during the critical period (swim season). Since 1990, 93 grab samples have been collected and 7 (8%) have exceeded the water quality threshold. In the current period (2010-2020), there were 7 out of 68 (10%) grab samples that exceeded the Class A water quality threshold (88 cts/100 ml), all of those also exceeded the MAGEX (176 cts/100 ml). Streamflow (gage 01100505 Spicket River at North Salem) and rainfall (Hudson 1 SSE) records indicate high bacteria data are associated with streamflows less than 0.63 cfsm and a three-day rainfall total of less than 1 inch. Shadow Lake - Shadow Lake Association Beach (NHLAK700061102-09-02) has been moved from category 2-M to 5-P for E. coli for the primary contact recreation (i.e. swimming) designated use based on data collected in the current assessment period. It should be noted that this new impairment is tied to an assessment unit that falls within EPA's 2017 MS4 General Permit Area.


GEOMETRIC MEANS
SHADOW LAKE - SHADOW LAKE ASSOCIATION BEACH (NHLAK700061102-09-02)
Counts / 100 mL
Geomean MAGEX
Geomean Threshold
"Current" Line for 2020
E.COLI-GEO-CP


GRAB SAMPLES
SHADOW LAKE - SHADOW LAKE ASSOCIATION BEACH (NHLAK700061102-09-02)
Counts / 100 mL
Grab MAGEX
Grab Threshold
"Current" Line for 2020
E.COLI-GRAB-CP


GRAB SAMPLES
SHADOW LAKE - SHADOW LAKE ASSOCIATION BEACH (NHLAK700061102-09-02)
Counts / 100 mL
Grab MAGEX
Grab Threshold
"Current" Line for 2020
Grab used in a Geomean
E.COLI-GRAB-CP

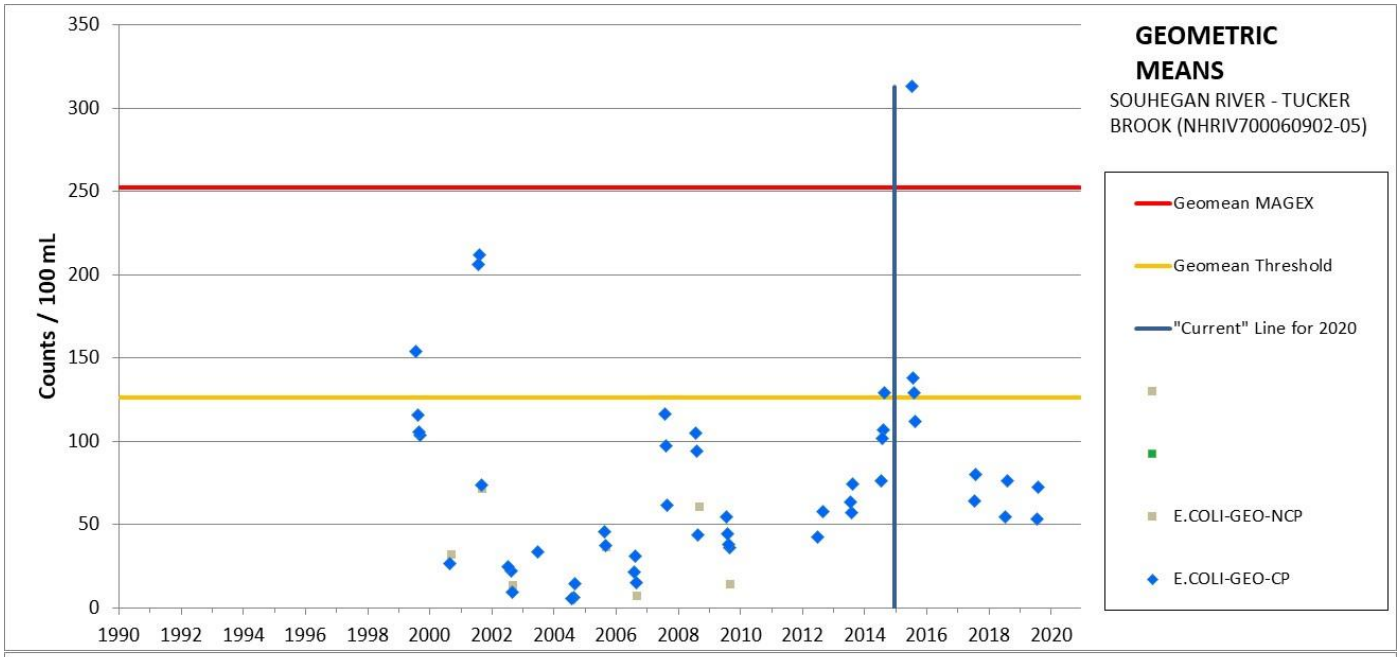


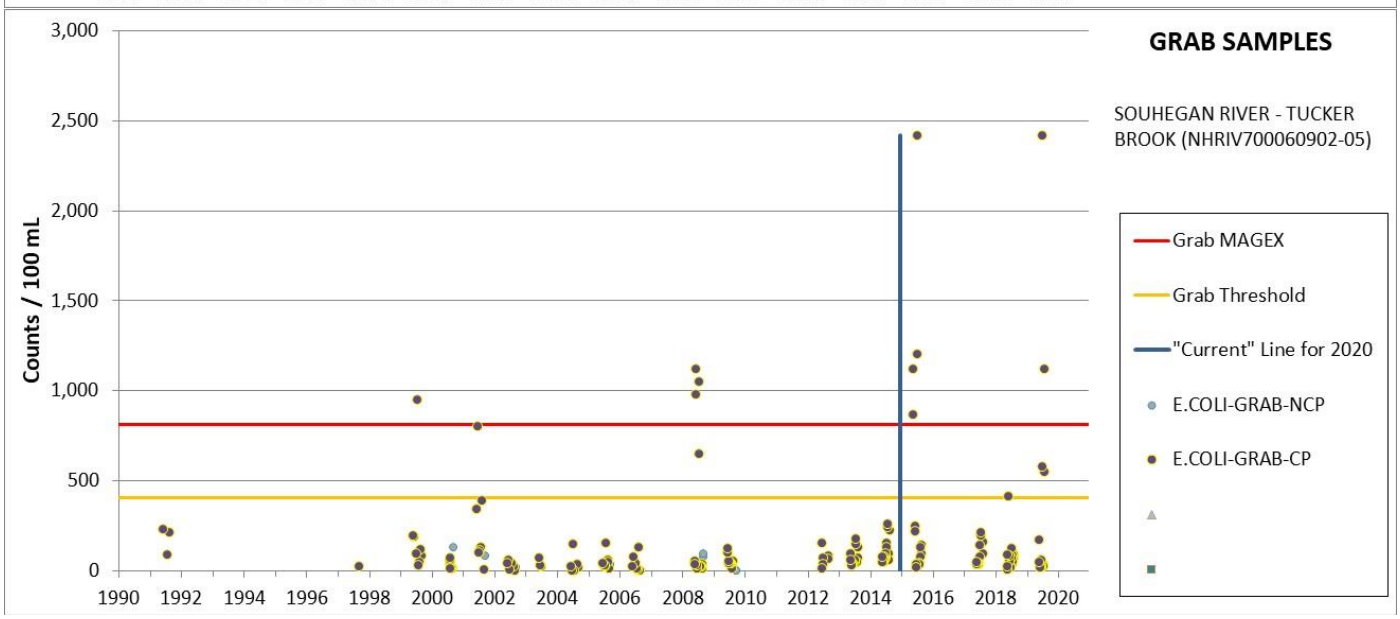

## SOUHEGAN RIVER - TUCKER BROOK (NHRIV700060902-05)

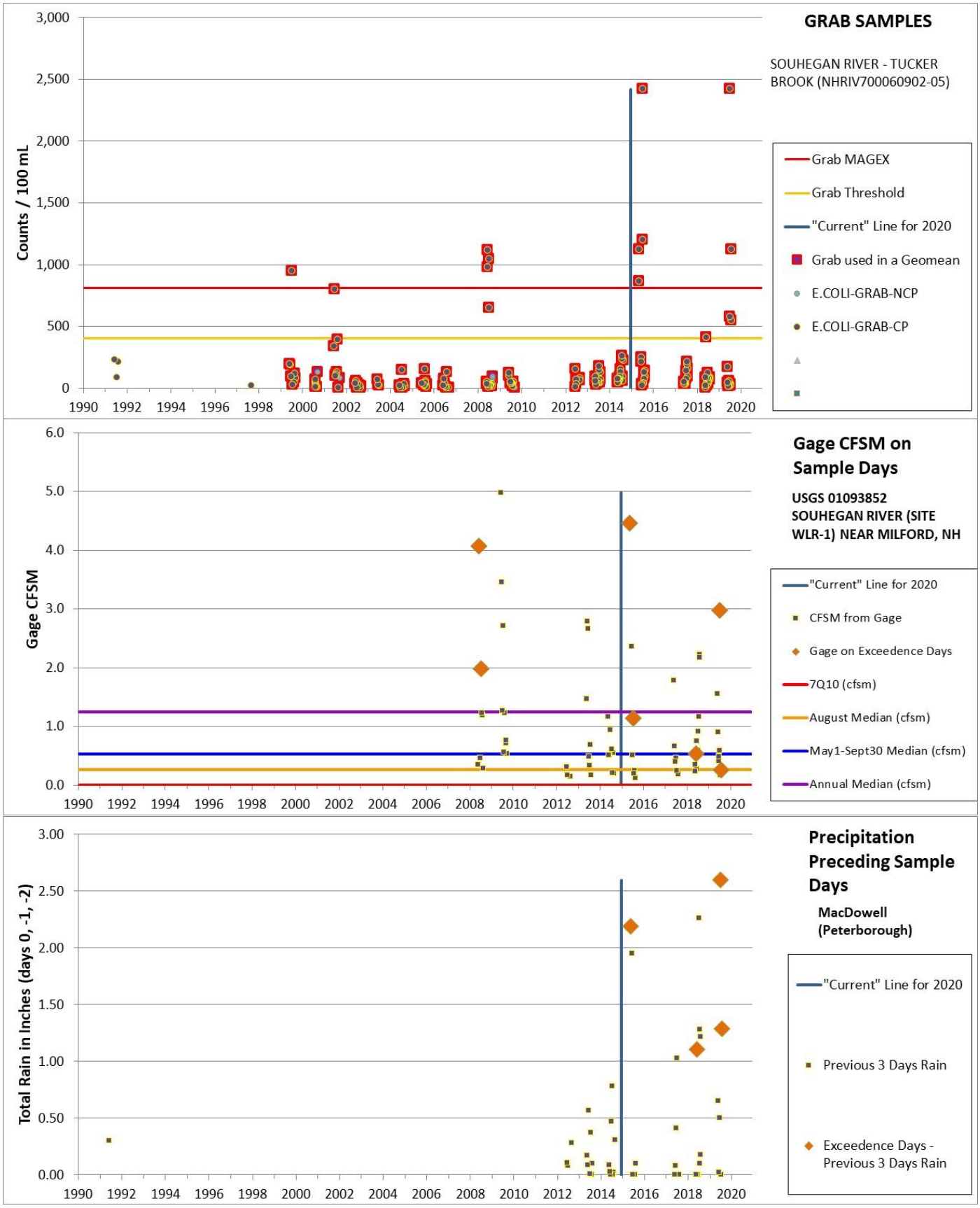
| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|

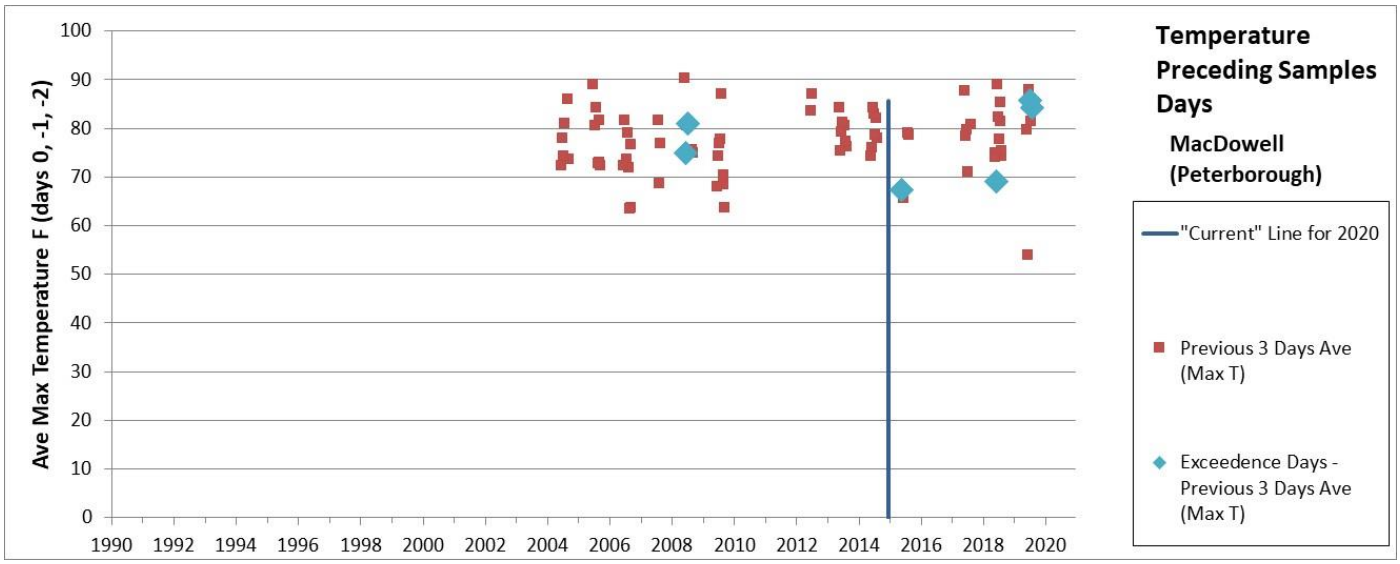
| | | | | | |
|---|---|---|---|---|---|
| SOUHEGAN RIVER - TUCKER BROOK | NHRIV700060902-05 | Escherichia coli | GREENVILLE, NEW IPSWICH, WILTON | 3-PNS | 5-P |

Three of 10 (30%) of geomeans in the current assessment period (2015-2020) were above the geometric mean threshold (126 cts/100 ml), with one geomean above the geometric mean MAGEX threshold (252 cts/100 ml). Ten of 62 (16%) samples collected at stations SWA-SOR291, SWA-SOR296, 19N-SHG, and 19L-SHG were above the single sample threshold (406 cts/100 ml), with 6 of those samples above the single sample MAGEX threshold (812 cts/100 ml). The high Escherichia coli samples were taken during the critical period with flows ranging from 0.26- 4.47 cfsm on the Souhegan River gage (01093852) and three-day rainfall totals ranging from 1.11-2.60 inches. The Souhegan River- Tucker Brook (NHRIV700060902-05) has been moved to 5-P for Escherichia coli for the primary contact recreation designated use based on the data collected in the current assessment period.



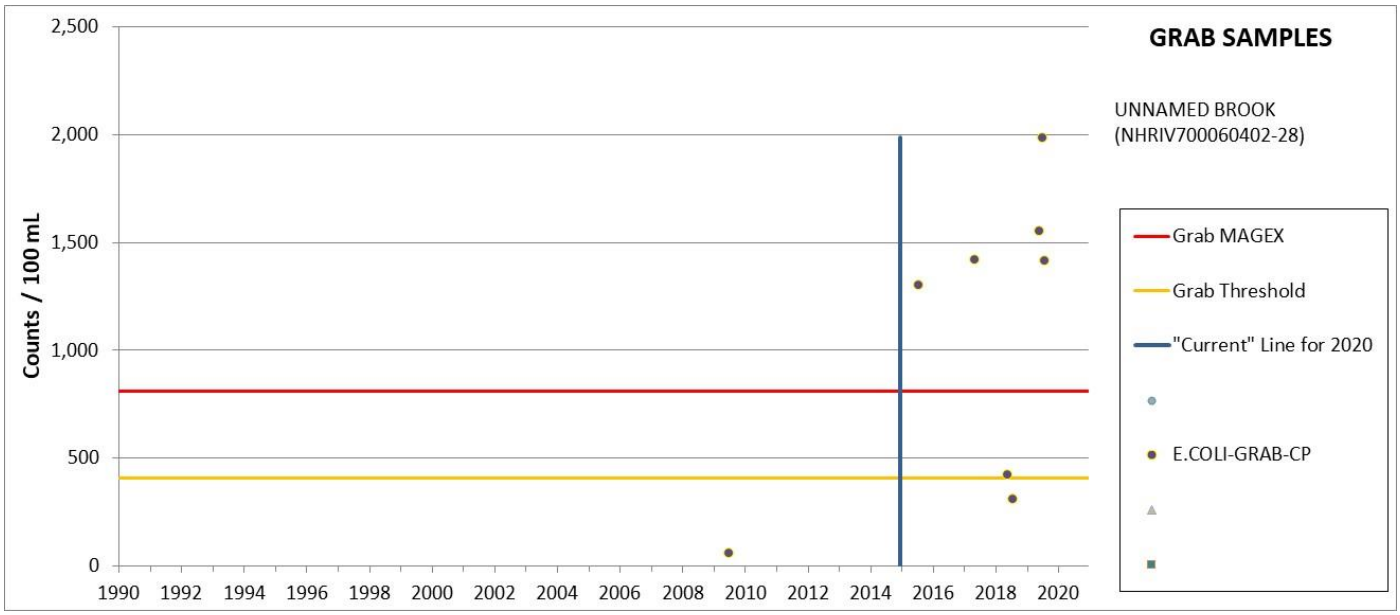

GRAB SAMPLES
SOUHEGAN RIVER - TUCKER BROOK (NHRIV700060902-05)
Counts / 100 mL
Grab MAGEX
Grab Threshold
"Current" Line for 2020
Grab used in a Geomean
E.COLI-GRAB-NCP
E.COLI-GRAB-CP
Gage CFSM on Sample Days
USGS 01093852 SOUHEGAN RIVER (SITE WLR-1) NEAR MILFORD, NH
Gage CFSM
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)
Precipitation Preceding Sample Days
MacDowell (Peterborough)
Total Rain in Inches (days 0, -1, -2)
"Current" Line for 2020
Previous 3 Days Rain
Exceedence Days - Previous 3 Days Rain

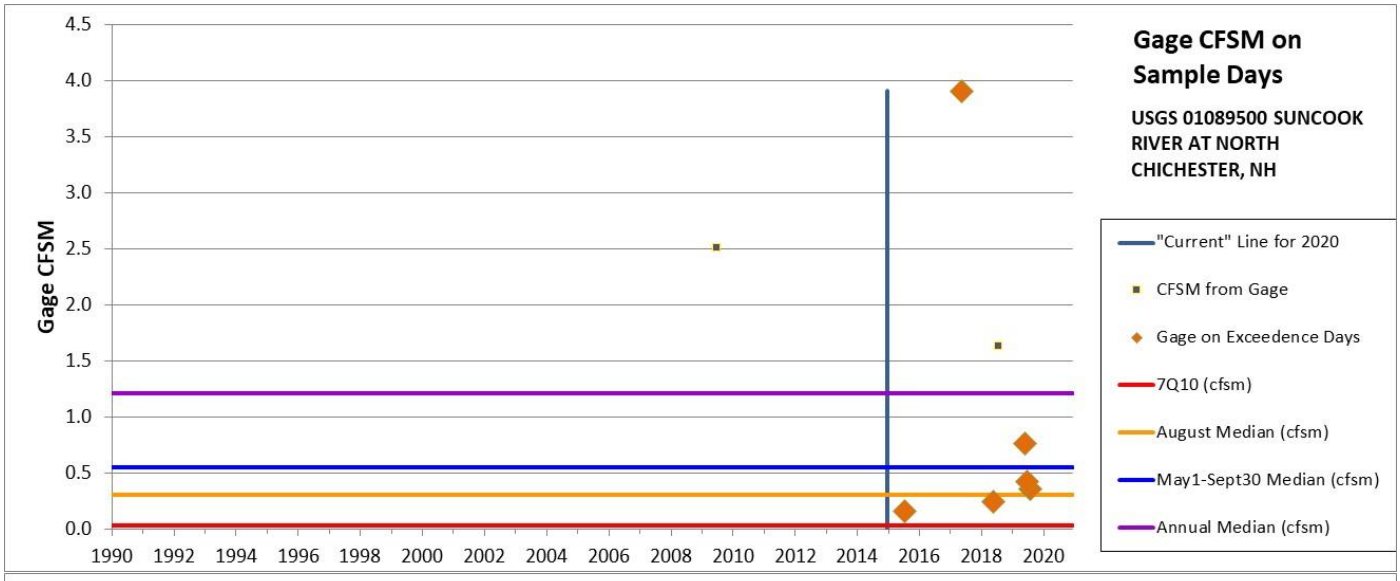


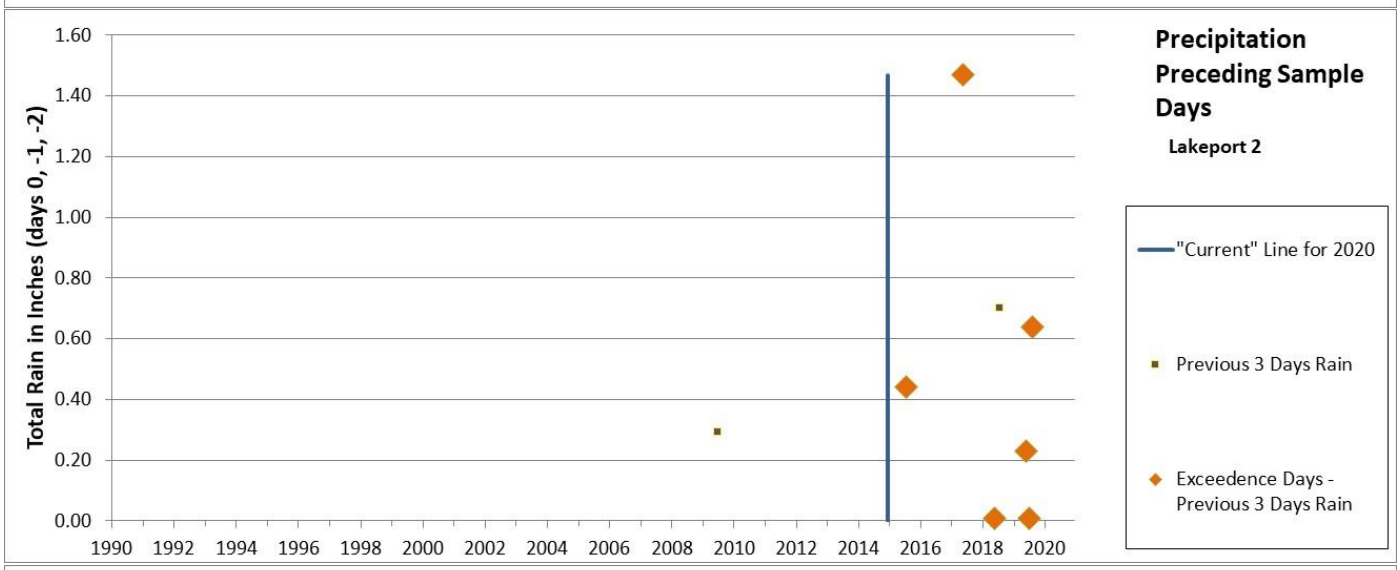

## UNNAMED BROOK (NHRIV700060402-28)

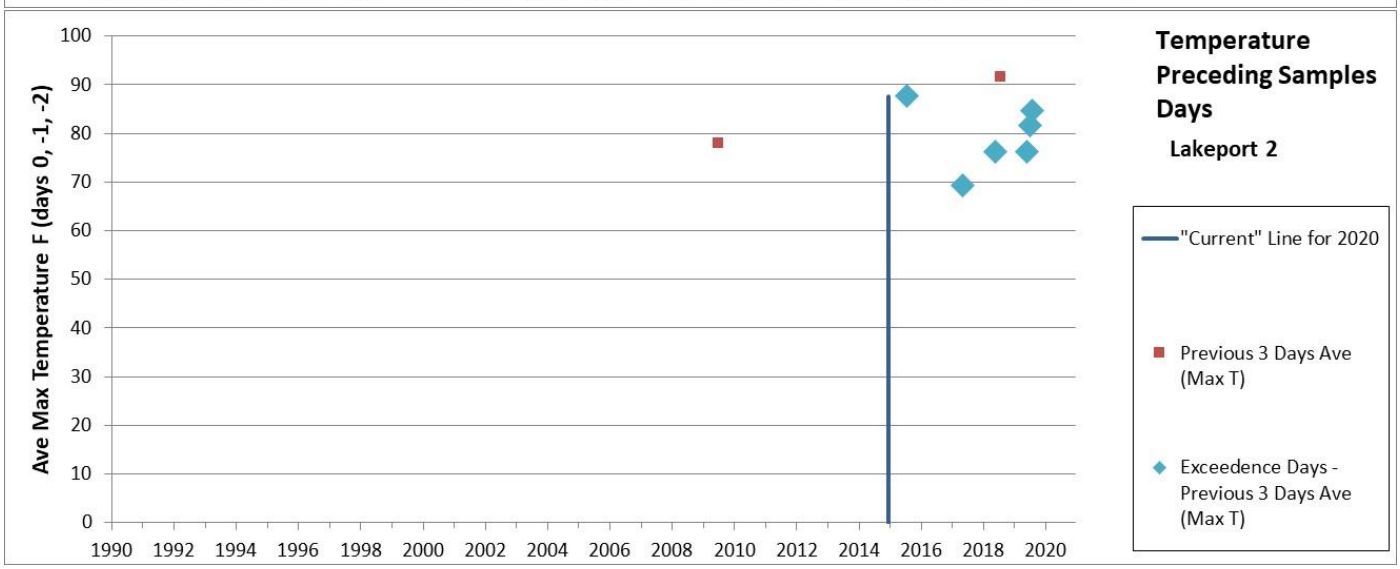
| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| UNNAMED BROOK | NHRIV700060402-28 | Escherichia coli | BARNSTEAD | 3-PNS | 5-P |

There were no geomeans included in the current assessment period (2015-2020). Six of the 7(86%) samples collected at station LOCBRNCT during the current assessment period were above the single sample threshold (406 cts/100 ml), with five of those above the single sample MAGEX threshold (812 cts/100 ml). The high Escherichia coli samples were taken during the critical period with flows ranging from 0.16-3.90 cfsm on the Suncook River gage (01089500) and three-day rainfall totals ranging from 0.00-1.47 inches. The Unnamed Brook (NHRIV700060402-28) has been moved from 3-PNS to 5-P for Escherichia coli. for the primary contact recreation designated use based on the data collected in the current assessment period.




Gage CFSM on Sample Days
USGS 01089500 SUNCOOK RIVER AT NORTH CHICHESTER, NH
Gage CFSM
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)


Precipitation Preceding Sample Days
Lakeport 2
Total Rain in Inches (days 0, -1, -2)
"Current" Line for 2020
Previous 3 Days Rain
Exceedence Days - Previous 3 Days Rain

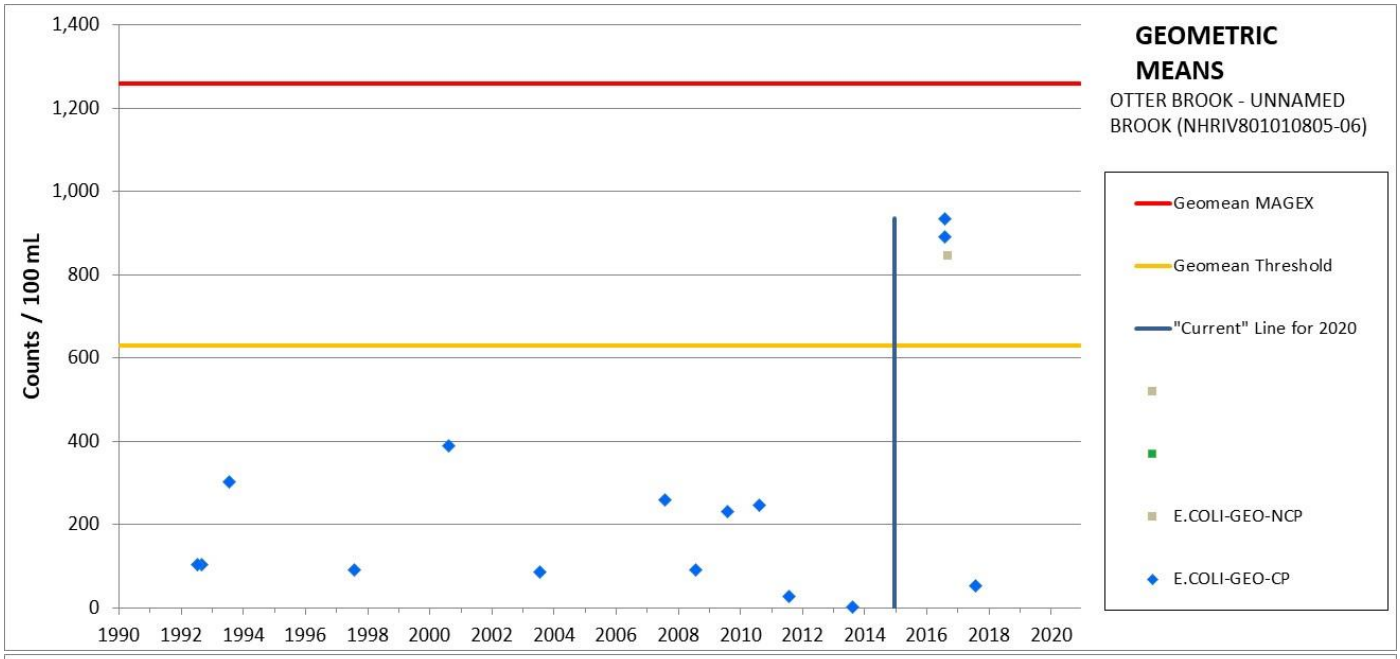

Temperature Preceding Samples Days
Lakeport 2
Ave Max Temperature F (days 0, -1, -2)
"Current" Line for 2020
Previous 3 Days Ave (Max T)
Exceedence Days - Previous 3 Days Ave (Max T)

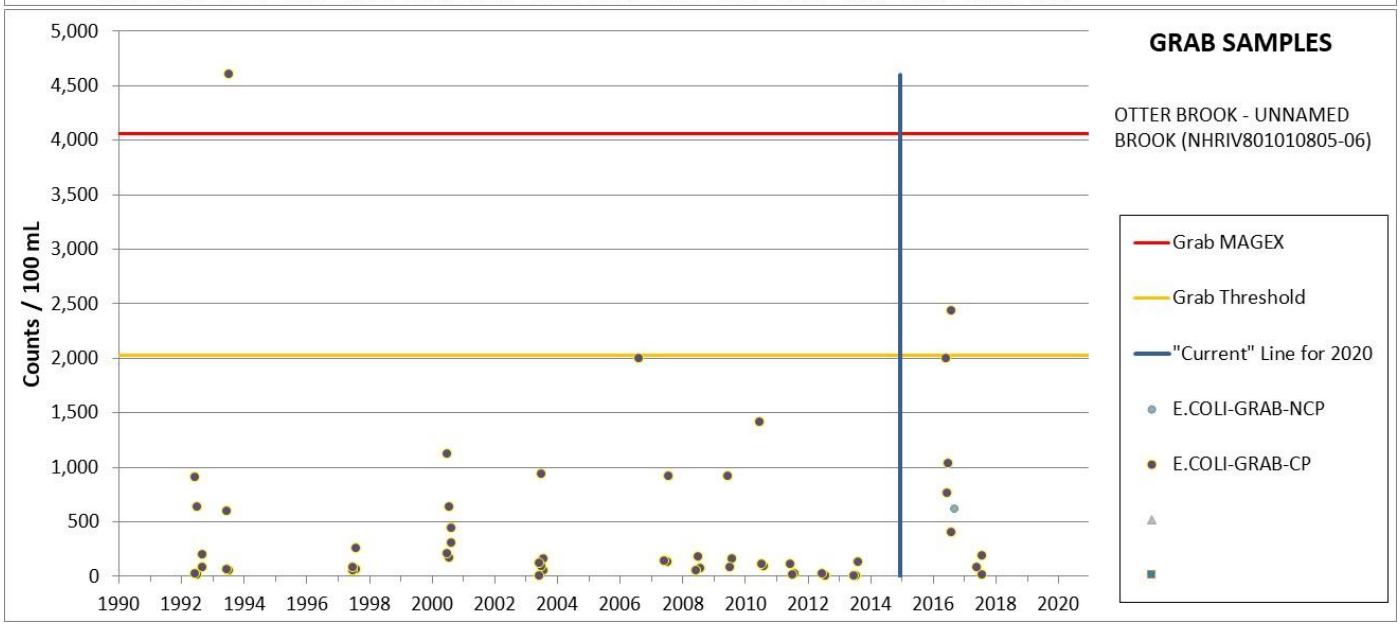
# Bacteria for Secondary Contact Recreation (i.e. boating)

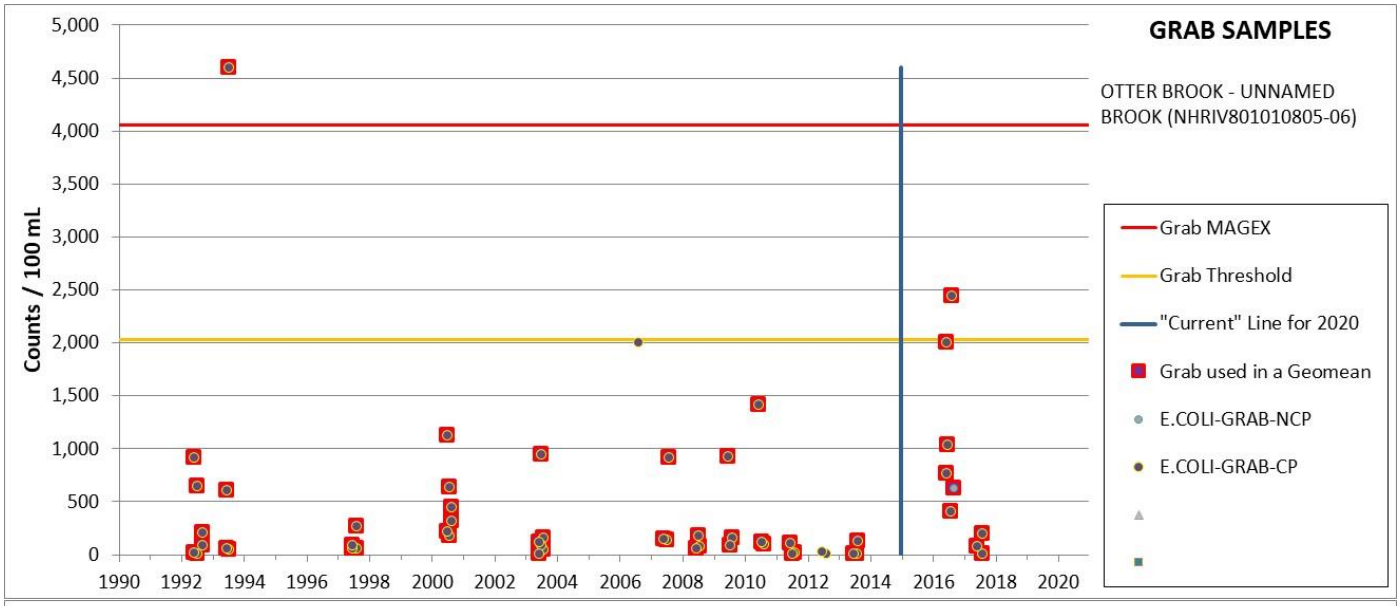
## OTTER BROOK - UNNAMED BROOK (NHRIV801010805-06)

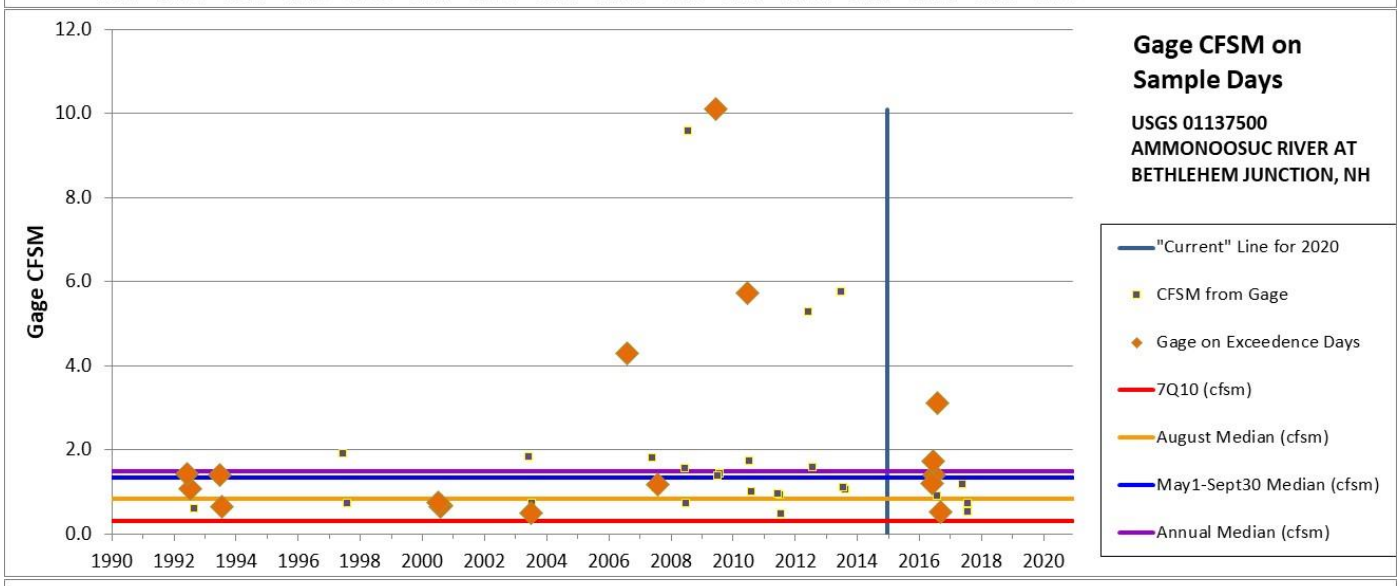
| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| OTTER BROOK - UNNAMED BROOK | NHRIV801010805-06 | Escherichia coli | LANCASTER | 3-PNS | 5-M |

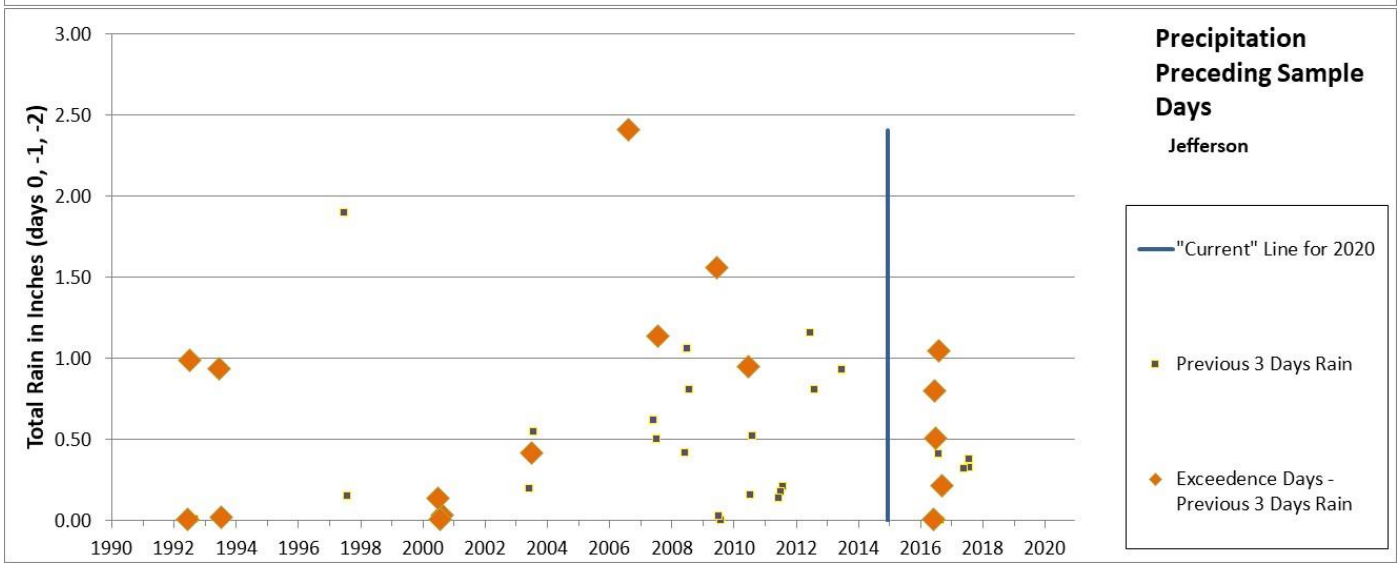
Three of 4 (75%) geomeans included in the current assessment period (2015-2020) were above the geometric mean threshold (630cts/100 ml). One of 9 (11%) samples collected at station 01-OTT during the current assessment period were above the single sample threshold (2,030cts/100 ml). The high Escherichia coli sample was taken during a flow of 3.12 cfsm on the Ammonoosuc River gage (01137500) and three-day rainfall total of 1.05 inches. The Otter Brook - Unnamed Brook (NHRIV801010805-06) has been moved from 3-PNS to 5-M for Escherichia coli. for the secondary contact recreation designated use based on the data collected in the current assessment period.

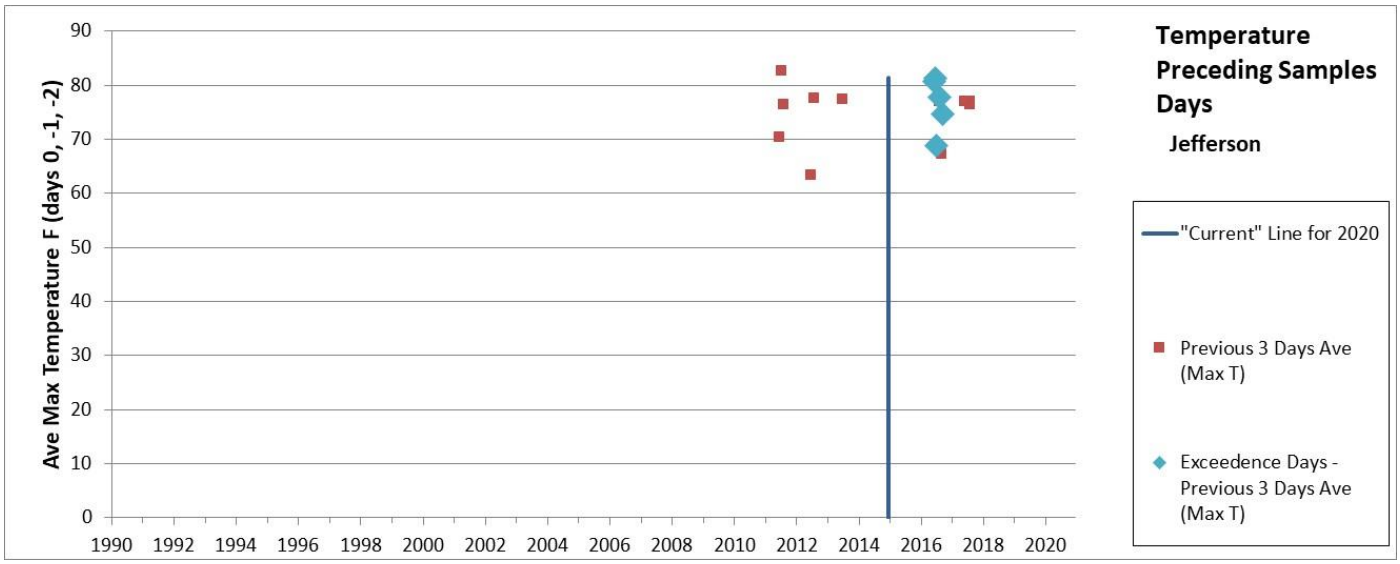



GRAB SAMPLES
OTTER BROOK - UNNAMED BROOK (NHRIV801010805-06)
Counts / 100 mL
Grab MAGEX
Grab Threshold
"Current" Line for 2020
Grab used in a Geomean
E.COLI-GRAB-NCP
E.COLI-GRAB-CP


Gage CFSM on Sample Days
USGS 01137500 AMMONOOSUC RIVER AT BETHLEHEM JUNCTION, NH
Gage CFSM
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)


Precipitation Preceding Sample Days
Jefferson
Total Rain in Inches (days 0, -1, -2)
"Current" Line for 2020
Previous 3 Days Rain
Exceedence Days - Previous 3 Days Rain

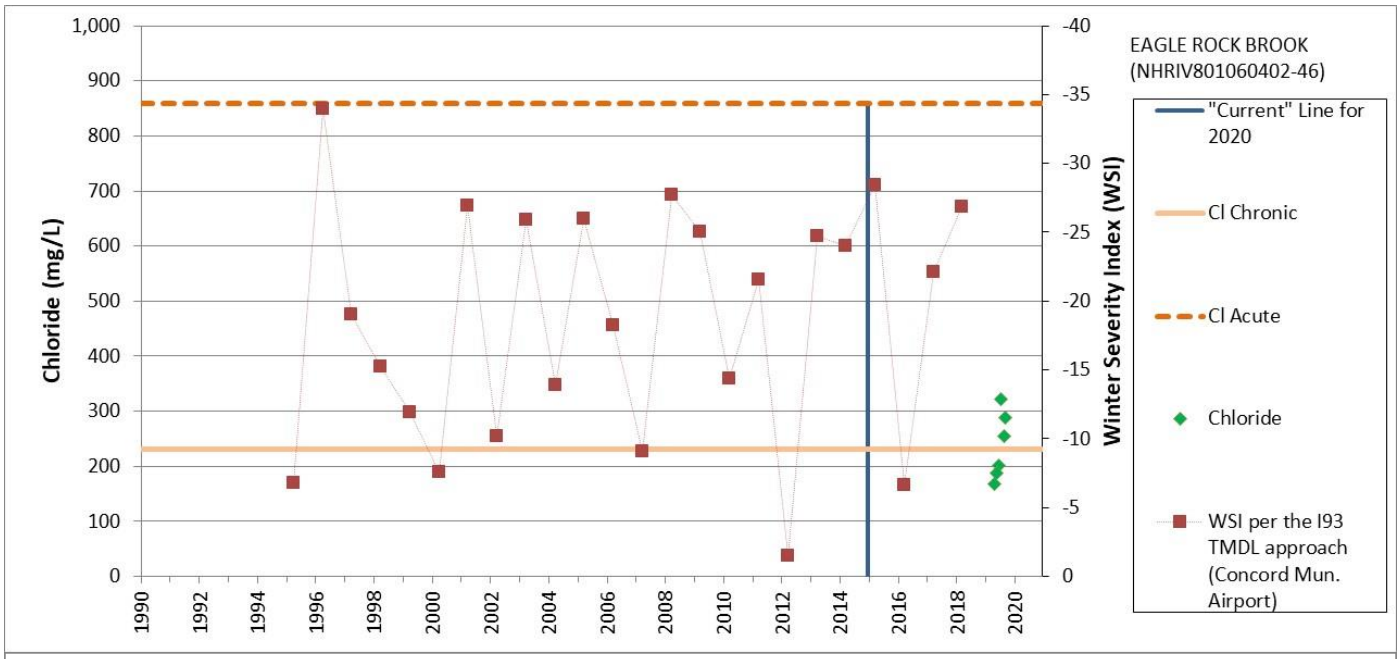


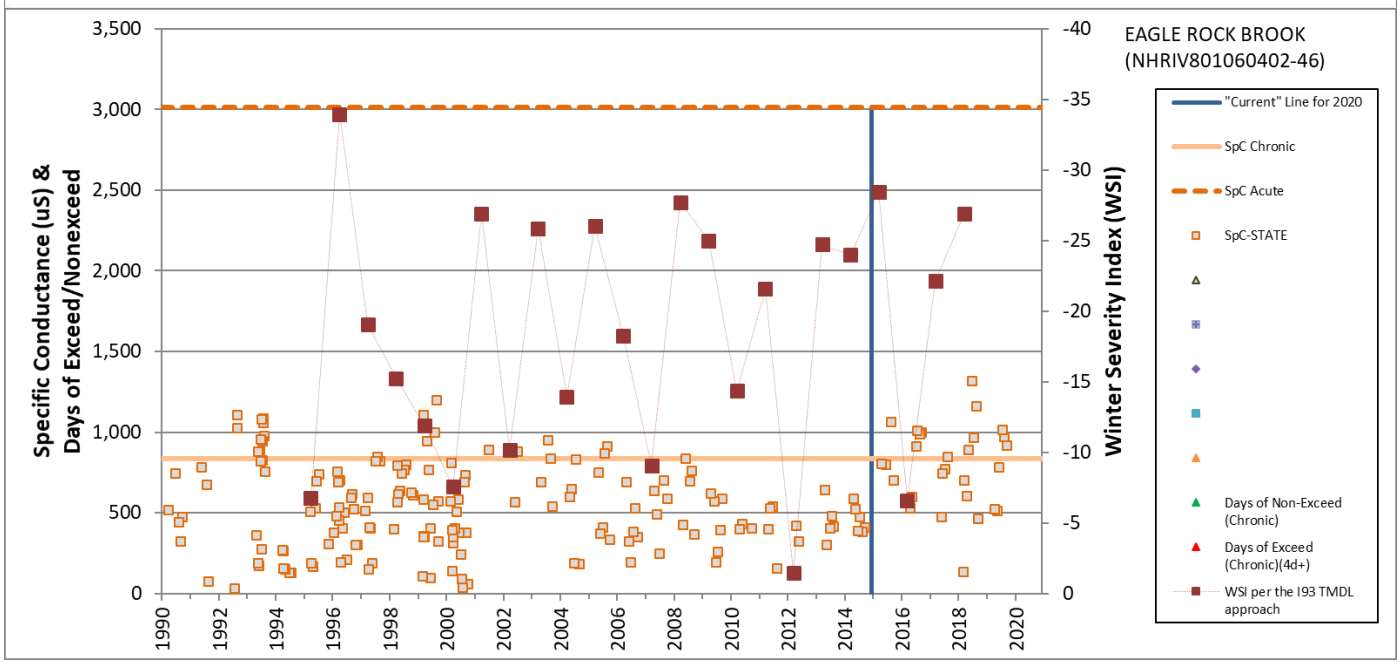

# Chloride for Aquatic Life Integrity

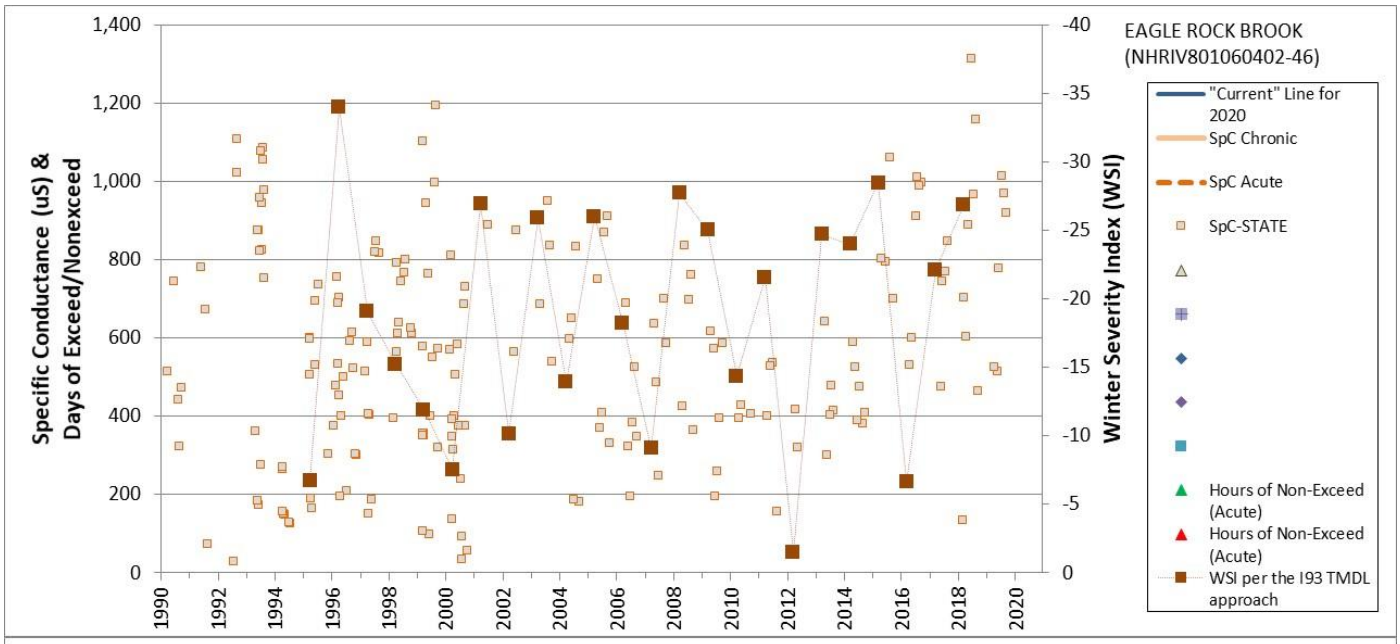
## EAGLE ROCK BROOK (NHRIV801060402-46)

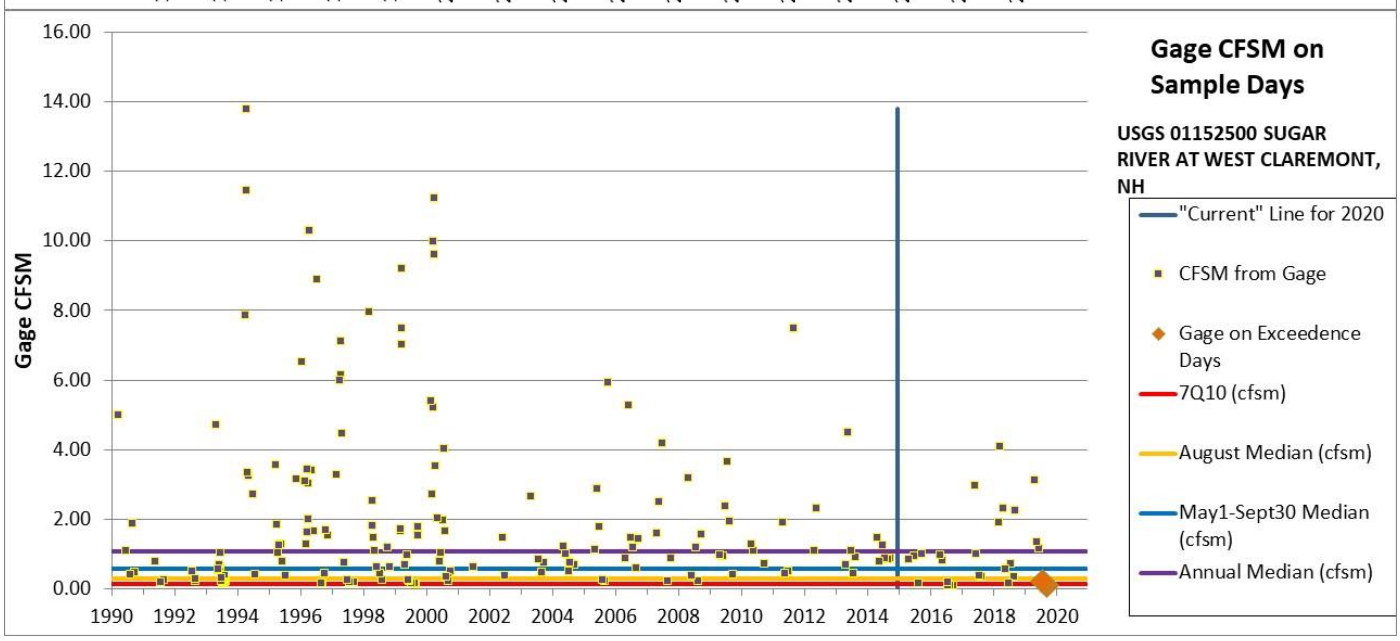
| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| EAGLE ROCK BROOK | NHRIV801060402-46 | CHLORIDE | SUNAPEE | 3-PNS | 5-M |

Three of the six chloride samples collected in 2019 were above the chronic water quality standard of 230 mg/L (8/6/19 321 mg/L, 9/8/19 254 mg/L, and 10/1/19 289 mg/L) at station SUNSUN5151. Thirteen of the 28 specific conductance measurements taken from 2015 - 2019 exceeded the 835 µS/cm threshold. The statewide chloride/specific conductance regression identifies 835 µS/cm as the specific conductance threshold that corresponds to chloride levels exceeding the chronic water quality standard of 230 mg/L. Chloride and specific conductance samples collected at SUNSUN5151 indicate that the statewide chloride/specific conductance regression is appropriate to use for this assessment unit. Given that chloride and specific conductance exceedances occurred during summer low flow conditions it is likely that chloride levels are even higher during periods of snowmelt and active application of road salt in the watershed. Eagle Rock Brook (NHRIV801060402-46) has been moved from 3-PNS to 5-M for Chloride for the aquatic life integrity designated use based on data collected in the current assessment period.


EAGLE ROCK BROOK
(NHRIV801060402-46)
Chloride (mg/L)
Winter Severity Index (WSI)
"Current" Line for 2020
Cl Chronic
Cl Acute
Chloride
WSI per the I93 TMDL approach (Concord Mun. Airport)


EAGLE ROCK BROOK
(NHRIV801060402-46)
Specific Conductance (uS) & Days of Exceed/Nonexceed
Winter Severity Index (WSI)
"Current" Line for 2020
SpC Chronic
SpC Acute
SpC-STATE
Days of Non-Exceed (Chronic)
Days of Exceed (Chronic)(4d+)
WSI per the I93 TMDL approach



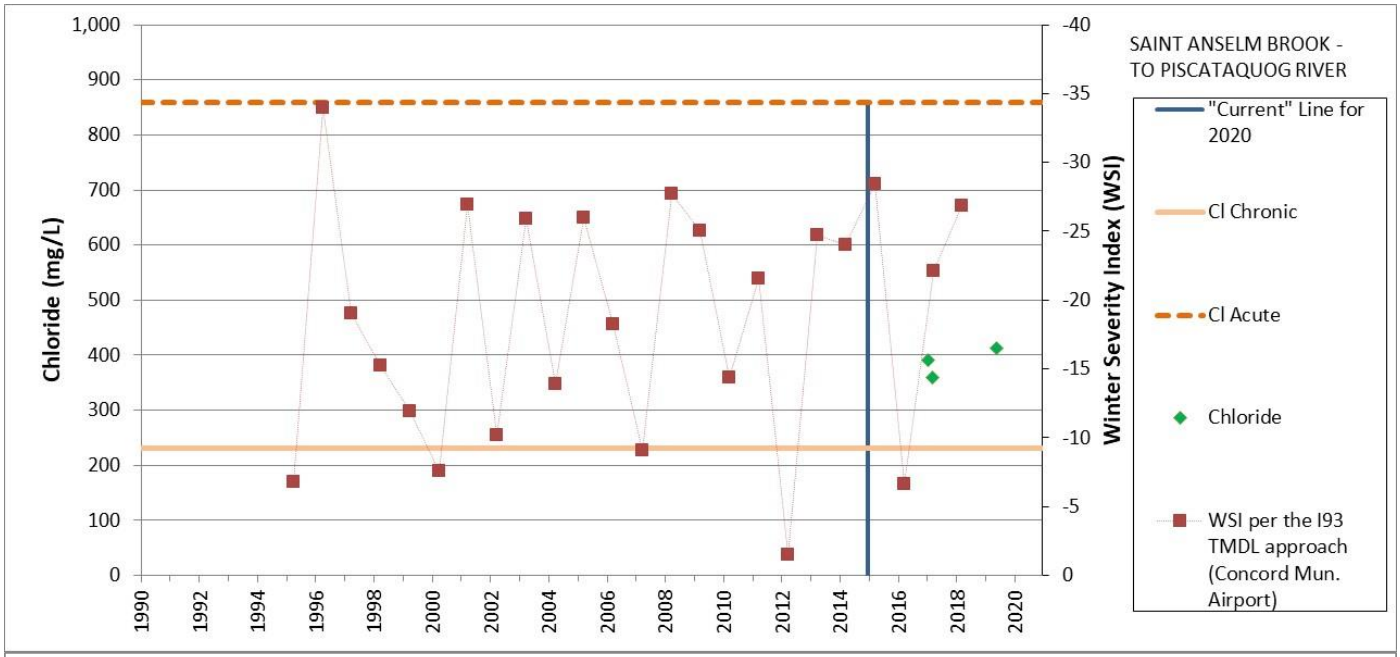



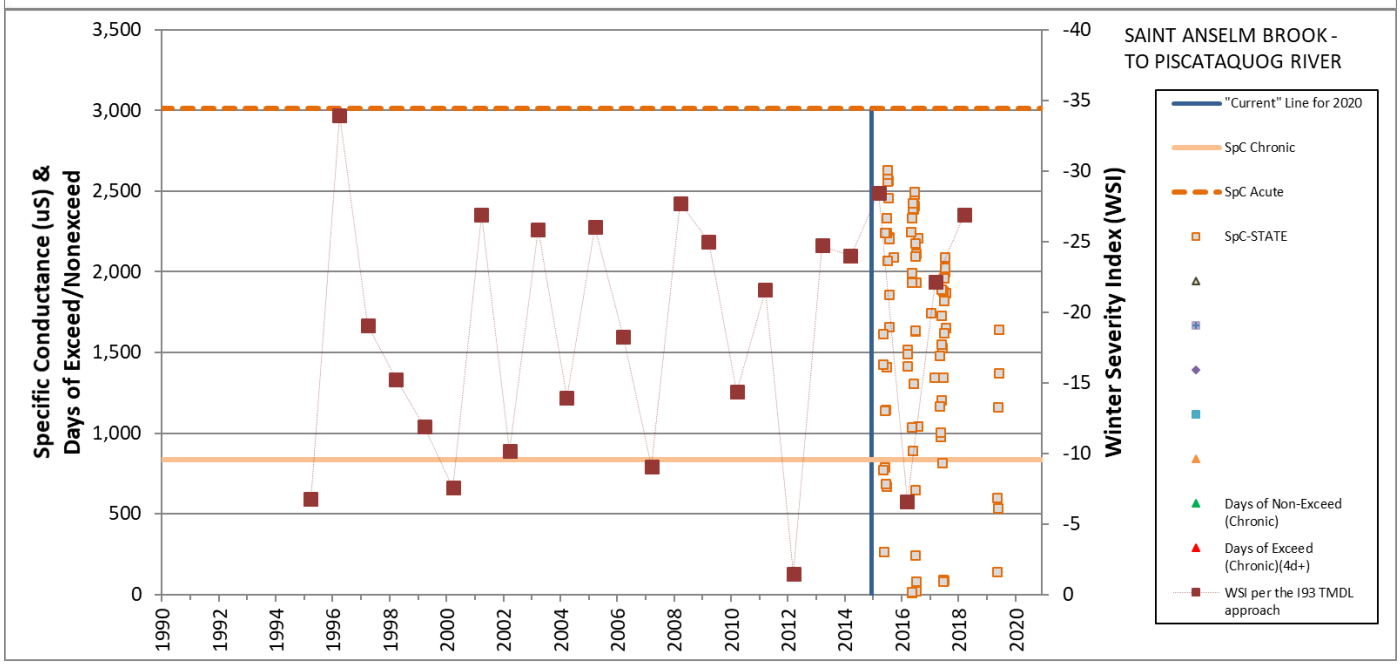

## SAINT ANSELM BROOK - TO PISCATAQUOG RIVER (NHRIV700060607-35)

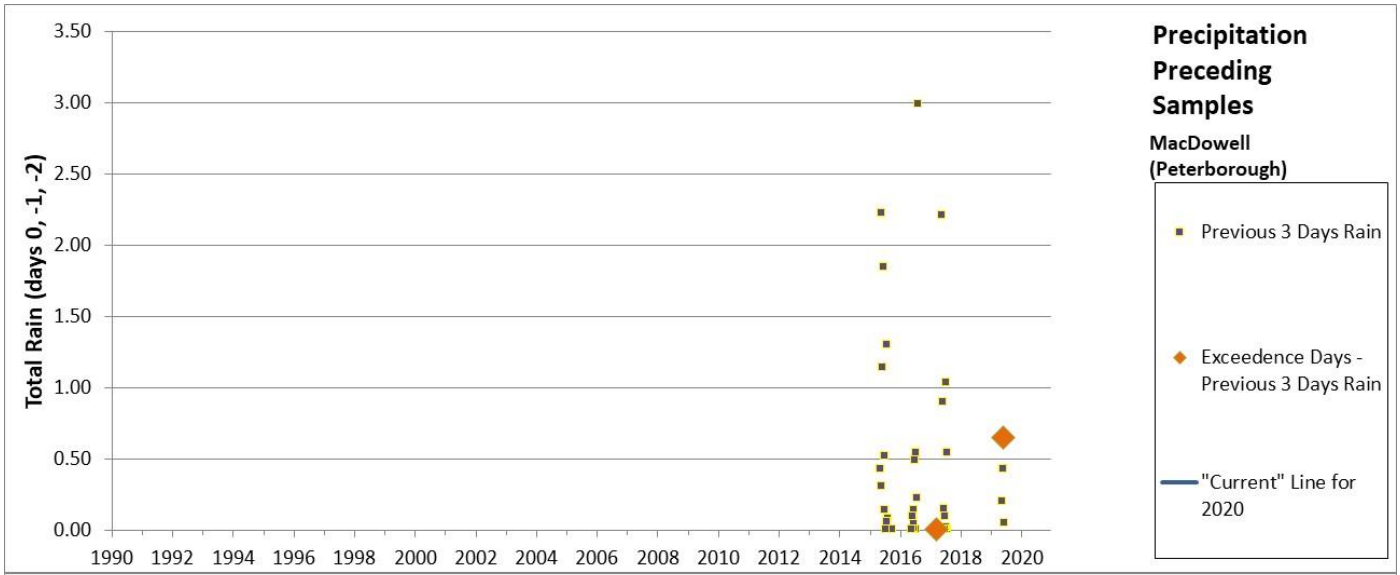
| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| SAINT ANSELM BROOK | NHRIV700060607-35 | CHLORIDE | GOFFSTOWN | 3-PNS | 5-M |

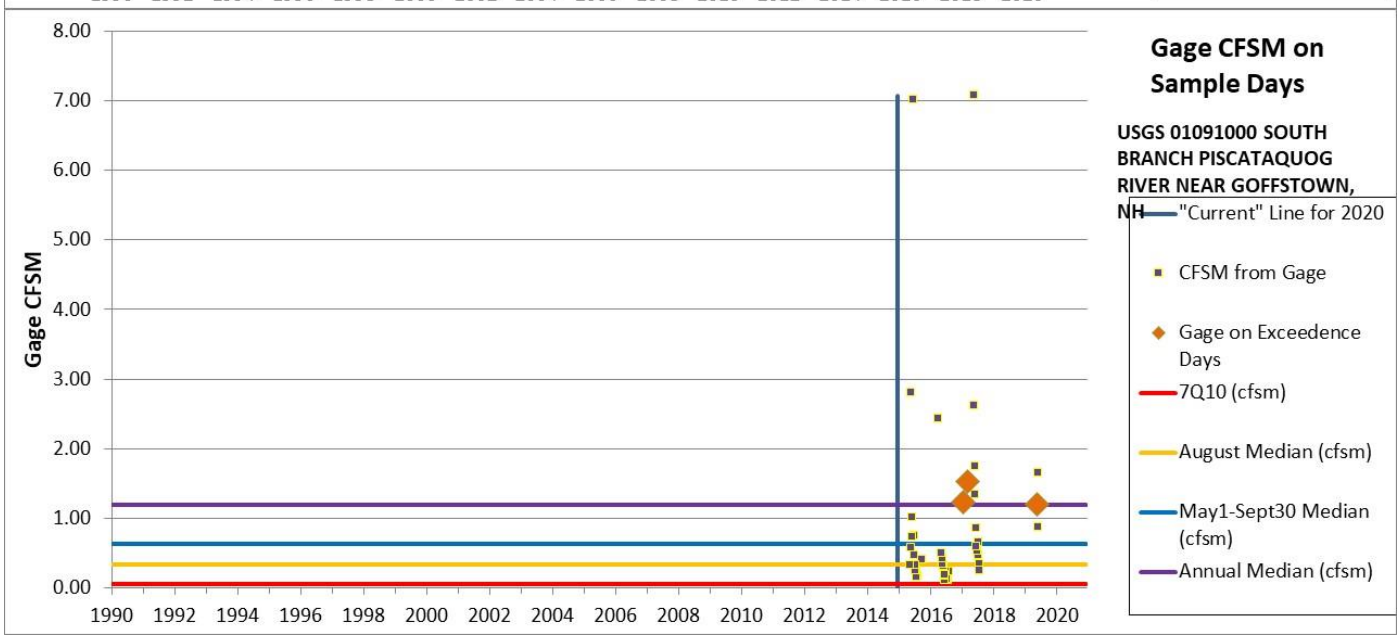
Three chloride samples (390 mg/L 1/31/17, 360 mg/L 5/23/17, and 412 mg/L 6/13/19) collected at stations 03-SAB and 05-SAB in the current assessment period (2015-2020) exceeded the chronic criteria of 230 mg/L. Additionally, 71 out of 89 specific conductance measurements exceeded the 835 µS/cm threshold. Chloride and specific conductance samples collected at 03-SAB and 05-SAB indicate that the statewide chloride/specific conductance regression is appropriate to use for this assessment unit. The statewide chloride/specific conductance regression identifies 835 µS/cm as the specific conductance threshold that corresponds to chloride levels exceeding the chronic water quality standard of 230 mg/L. It should be noted that 42 of the 89 specific conductance measurements also exceeded 1,670 µS/cm, which is twice the chronic standard. Saint Anselm Brook (NHRIV700060607-35) has been moved from 3-PNS to 5-M for Chloride for the

aquatic life integrity designated use based on data collected in the current assessment period. It should be noted that this new impairment is tied to an assessment unit that falls within EPA's 2017 MS4 General Permit Area.






# Chlorophyll-a for Aquatic Life Integrity

## BELLAMY RIVER ASSESSMENT ZONE (NHEST600030903-01-01, NHEST600030903-01-03, NHEST600030903-01-04)

| Assessment Zone | Assessment Unit IDs | Parameter Name | Town(s) | 2016 | 2020/2022 |
|---|---|---|---|---|---|
| BELLAMY RIVER | NHEST600030903-01-01, NHEST600030903-01-03, NHEST600030903-01-04 | Chlorophyll-a | DOVER, DURHAM, MADBURY | 3-PNS | 5-P |

The Bellamy River Assessment Zone (NHEST600030903-01-01, NHEST600030903-01-03, NHEST600030903-01-04) has been moved from category 3-PNS to 5-P for chlorophyll-a for the aquatic life integrity designated use based on data collected in the current assessment period. A full parameter level discussion of the rational used to make the assessment determination for this waterbody is provided by assessment zone in the Technical Support Document for the Great Bay Estuary Aquatic Life Use Support Assessments, 2020/2022 305(b) Report/303(d) List.

## GREAT BAY ASSESSMENT ZONE (NHEST600030904-02, NHEST600030904-03, NHEST600030904-04-02, NHEST600030904-04-03, NHEST600030904-04-04, NHEST600030904-04-05, NHEST600030904-04-06)

| Assessment Zone | Assessment Unit IDs | Parameter Name | Town(s) | 2016 | 2020/2022 |
|---|---|---|---|---|---|
| GREAT BAY | NHEST600030904-02, NHEST600030904-03, NHEST600030904-04-02, NHEST600030904-04-03, NHEST600030904-04-04, NHEST600030904-04-05, NHEST600030904-04-06 | Chlorophyll-a | DURHAM, GREENLAND, NEWFIELDS, NEWINGTON, NEWMARKET, STRATHAM | 3-PNS | 5-M |

The Great Bay Assessment Zone (NHEST600030904-02, NHEST600030904-03, NHEST600030904-04-02, NHEST600030904-04-03, NHEST600030904-04-04, NHEST600030904-04-05, NHEST600030904-04-06) has been moved from category 3-PNS to 5-M for chlorophyll-a for the aquatic life integrity designated use based on data collected in the current assessment period. A full parameter level discussion of the rational used to make the assessment determination for this waterbody is provided by assessment zone in the Technical Support Document for the Great Bay Estuary Aquatic Life Use Support Assessments, 2020/2022 305(b) Report/303(d) List.

## OYSTER RIVER ASSESSMENT ZONE (NHEST600030902-01-03, NHEST600030902-01-04, NHEST600030904-06-17)

| Assessment Zone | Assessment Unit IDs | Parameter Name | Town(s) | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| OYSTER RIVER | NHEST600030902-01-03, NHEST600030902-01-04, NHEST600030904-06-17 | Chlorophyll-a | DURHAM | 2-M | 5-M |

The Oyster River Assessment Zone (NHEST600030902-01-03, NHEST600030902-01-04, NHEST600030904-06-17) has been moved from category 2-M to 5-M for chlorophyll-a for the aquatic life integrity designated use based on data collected in the current assessment period. A full parameter level discussion of the rational used to make the assessment determination for this waterbody is provided by assessment zone in the Technical Support Document for the Great Bay Estuary Aquatic Life Use Support Assessments, 2020/2022 305(b) Report/303(d) List.

## SAGAMORE CREEK ASSESSMENT ZONE (NHEST600031001-03, NHEST600031001-04)

| Assessment Zone | Assessment Unit IDs | Parameter Name | Town(s) | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| SAGAMORE CREEK | NHEST600031001-03, NHEST600031001-04 | Chlorophyll-a | NEW CASTLE, PORTSMOUTH, RYE | 3-ND | 5-P |

The Sagamore Creek Assessment Zone (NHEST600031001-03, NHEST600031001-04) has been moved from category 3-ND to 5-P for chlorophyll-a for the aquatic life integrity designated use based on data collected in the current assessment period. A full parameter level discussion of the rational used to make the assessment determination for this waterbody is provided by assessment zone in the Technical Support Document for the Great Bay Estuary Aquatic Life Use Support Assessments, 2020/2022 305(b) Report/303(d) List.

# Cyanobacteria for Primary Contact Recreation

## ADDER POND (NHLAK700030403-01)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| Adder Pond | NHLAK700030403-01 | Cyanobacteria hepatotoxic microcystins | ANDOVER | 3-ND | 5-M |

Adder Pond (Hopkins Pond) had a cyanobacteria advisory issued in October of 2019. The advisory lasted 41 days. Cyanobacteria taxa were mostly Anabaena/Dolichospermum exceeding 3 million cells/ml in some samples. Satellite imagery revealed that this bloom was likely going on since July of 2019. Microcystins were detected in the samples. This waterbody should be carefully monitored in the future. Adder Pond (NHLAK700030403-01) has been placed in category 5-M for cyanobacteria hepatotoxic microcystins for the primary contact recreation designated use.

## CLOUGH POND (NHLAK700060202-03-01)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| Clough Pond | NHLAK700060202-03-01 | Cyanobacteria hepatotoxic microcystins | LOUDON, CANTERBURY | 3-ND | 5-M |

A cyanobacteria advisory was issued on 6/27/19, lasting 5 days. Upon sampling, it was apparent that the bloom was beginning to die-off. Reports of children getting sick were also noted. Nearly 500,000 cells/ml of Anabaena/Dolichospermum was determined. Cyanotoxin testing later revealed positive detections of anatoxin-a and BMAA. This waterbody should be carefully monitored in the future. During the assessment process for the 2020/2022 cycle an additional bloom was reported during the summer of 2020. Clough Pond (NHLAK700060202-03-01) has been placed in category 5-M for cyanobacteria hepatotoxic microcystins for the primary contact recreation designated use.

## MIRROR LAKE and MIRROR LAKE - MIRROR LAKE BEACH (NHLAK700020106-02-01 and NHLAK700020106-02-02)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| Mirror Lake | NHLAK700020106-02-01 | Cyanobacteria hepatotoxic microcystins | TUFTONBORO, WOLFEBORO | 2-M | 5-M |
| Mirror Lake - Mirror Lake Beach | NHLAK700020106-02-02 | | | | |

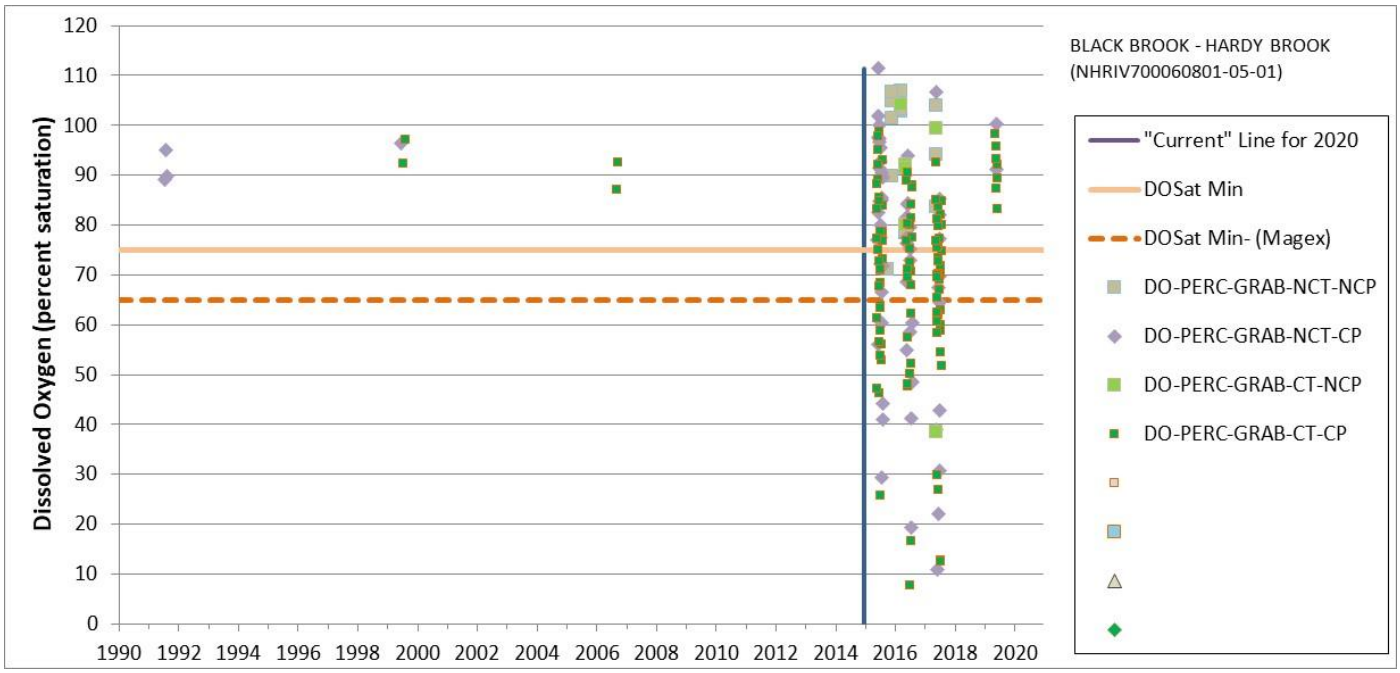
Mirror Lake and Mirror Lake - Mirror Lake Beach (NHLAK700020106-02-01 and NHLAK700020106-02-02) were originally listed as impaired for primary contact recreation due to cyanobacteria hepatotoxic microcystins in 2008. The 2008 listing was based on a cyanobacteria bloom in 2008. In 2011, samples were below the cyanobacteria threshold of 70,000 cells/mL (12,150 cell/mL on 9/9/11 & 55,479 cells/mL on 9/24/11) and the lake was delisted in 2018. NHDES VLAP monitors the lake and NHDES Beach Program samples the beach each summer. The volunteers on the lake are on a constant look-out for issues. In 2019, a bloom was found and an advisory was issued. While several cyanobacteria taxa were identified, the dominant type was Microcystis. Total cell concentrations were > 1 million cells/ml on 8/7/2019 and the advisory lasted 13 days. Microcystins and anatoxin-a were later tested and detected in these samples. Though these AUIDs were recently removed from the impaired list, the 2019 cyanobacteria bloom occurred in amounts and for a duration that significantly interfered with the primary contact recreational use of the lake. Therefore, Mirror Lake and Mirror Lake - Mirror Lake Beach (NHLAK700020106-02-01 and NHLAK700020106-02-02) have been placed in category 5-M for cyanobacteria hepatotoxic microcystins for the primary contact recreation designated use.

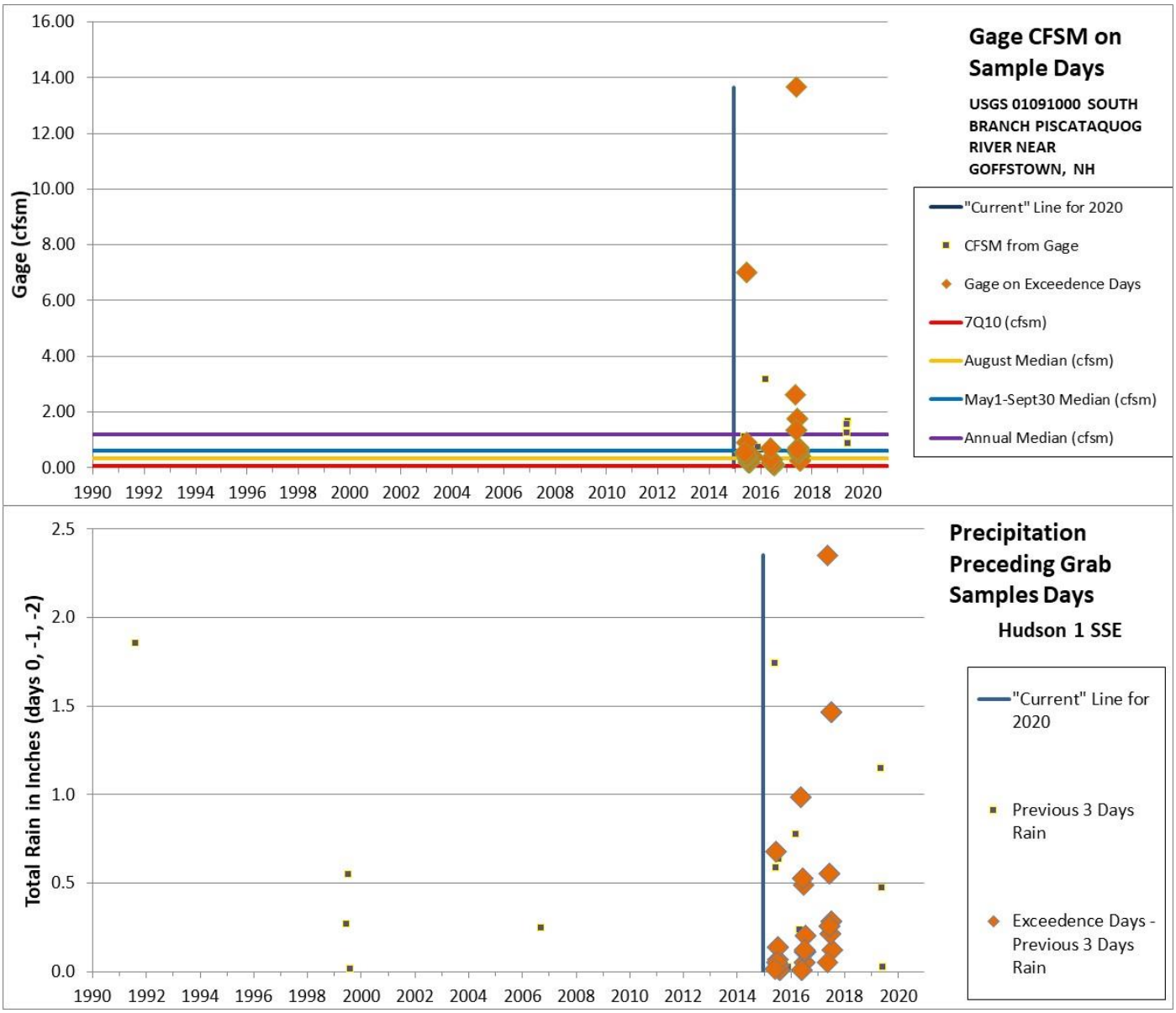
# Dissolved Oxygen Saturation for Aquatic Life Integrity

## BLACK BROOK - HARDY BROOK (NHRIV700060801-05-01)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| BLACK BROOK - HARDY BROOK | NHRIV700060801-05-01 | Dissolved oxygen saturation | BOW, DUNBARTON, GOFFSTOWN, MANCHESTER | 3-PNS | 5-P |

Eighty-three of 182 samples (46%) collected at stations 09-HRG, 11-HRG, 03-BKB, 04-BKB and 04-BKB in the current assessment period (2015-2020) were below the criteria of 75% (24-hour average), resulting in a new impairment in the current assessment cycle. The samples were collected under a wide variety of flow conditions (0.26-13.65 cfsm) on the South Branch Piscataquog River gage (01091000), water temperatures ranging from 13.0-28.1 degrees C, and under a variety of weather conditions (3-day rainfall total of 0.00-2.36 inches). Black Brook - Hardy Brook (NHRIV700060801-05-01) has been moved from 3-PNS to 5-P for dissolved oxygen saturation for the aquatic life integrity designated use based on the data collected in the current assessment period. It should be noted that this new impairment is tied to an assessment unit that falls within EPA's 2017 MS4 General Permit Area.





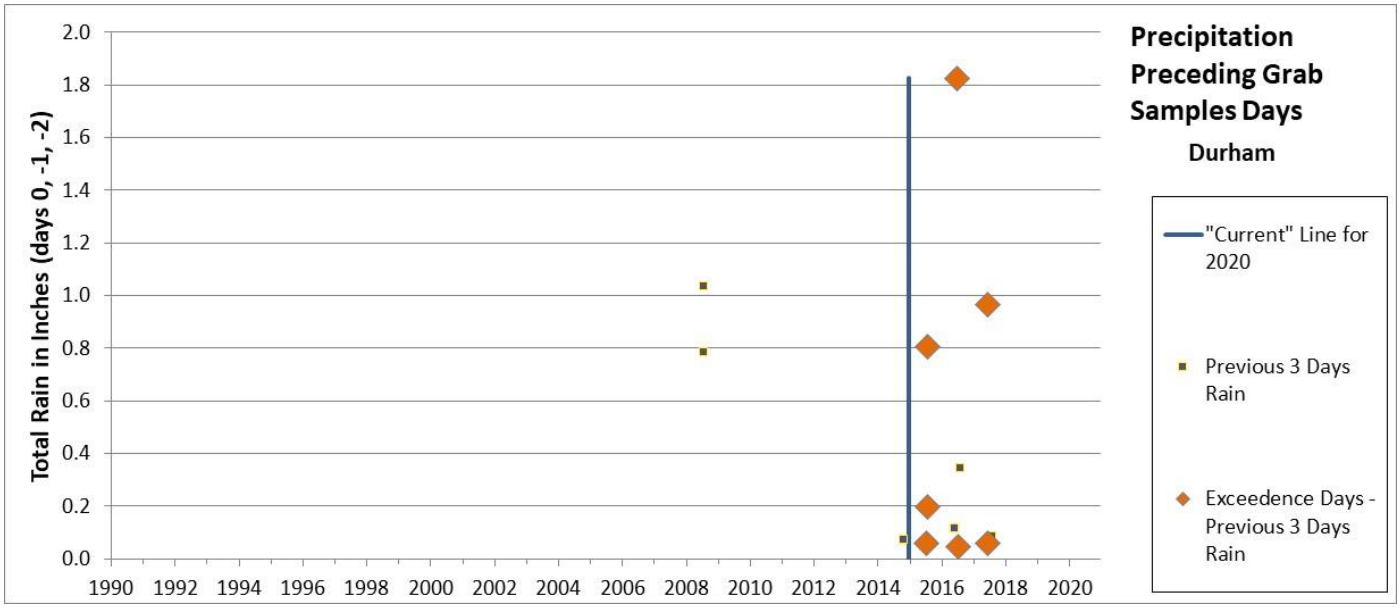

Notes:
DO-PERC-GRAB-CT-CP = Grab samples of dissolved oxygen during the early morning hours of the summer critical period.
DO-PERC-GRAB-CT-NCP = Grab samples of dissolved oxygen during the early morning hours and not during the summer critical period.
DO-PERC-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.
DO-PERC-GRAB-NCT-NCP = Grab samples of dissolved oxygen not in the early morning hours and outside the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details.

## BROWN BROOK - TO PISCASSIC RIVER (NHRIV600030708-14)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| BROWN BROOK - TO PISCASSIC RIVER | NHRIV600030708-14 | Dissolved oxygen saturation | BRENTWOOD, EPPING, FREMONT | 3-PNS | 5-M |

Nine of 13 samples (69%) collected at station 10-PIS in the current assessment period (2015-2020) were below the criteria of 75% (24-hour average), resulting in a new impairment in the current assessment cycle. The samples were collected under a wide variety of flow conditions (0.03-1.31 cfsm) on the Lamprey River gage (01073319), water temperatures ranging from 19.8-29 degrees C, and

under a variety of weather conditions (3-day rainfall total of 0.00-1.83 inches). Brown Brook - To Piscassic River (NHRIV600030708-14) has been moved from 3-PNS to 5-M for dissolved oxygen saturation for the aquatic life integrity designated use based on the data collected in the current assessment period.

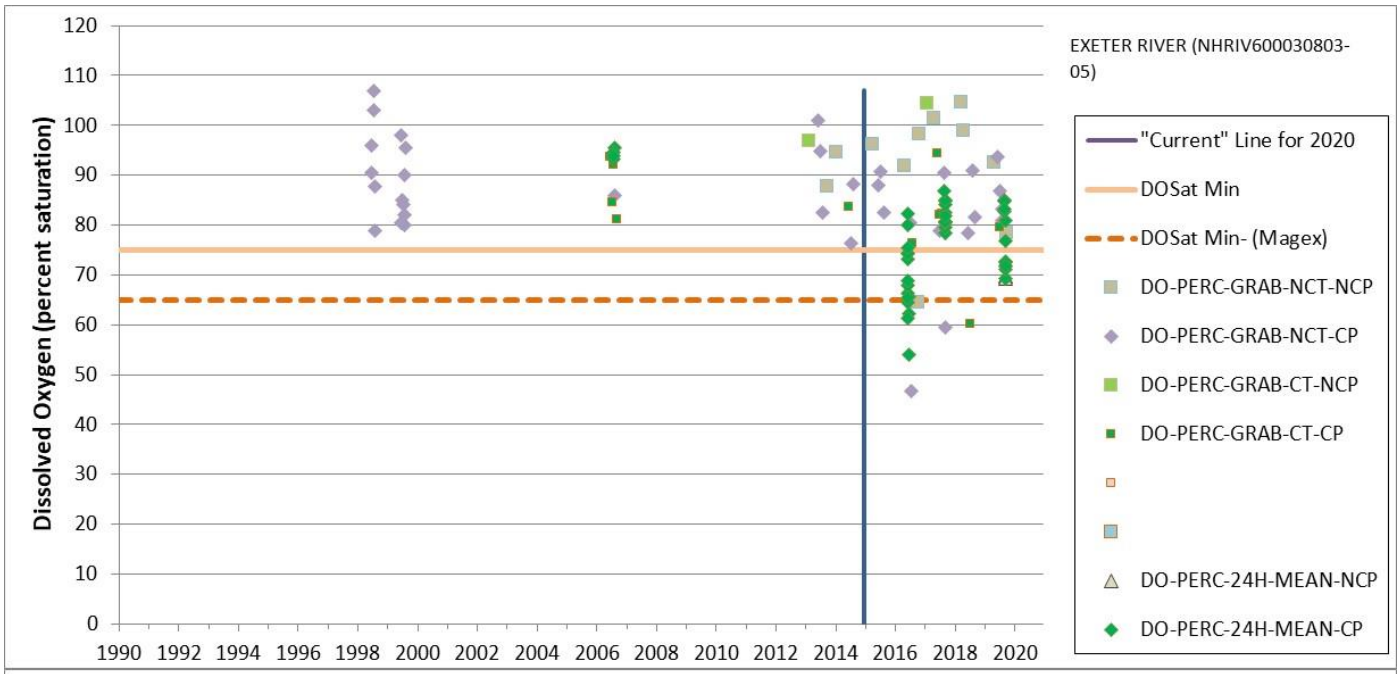


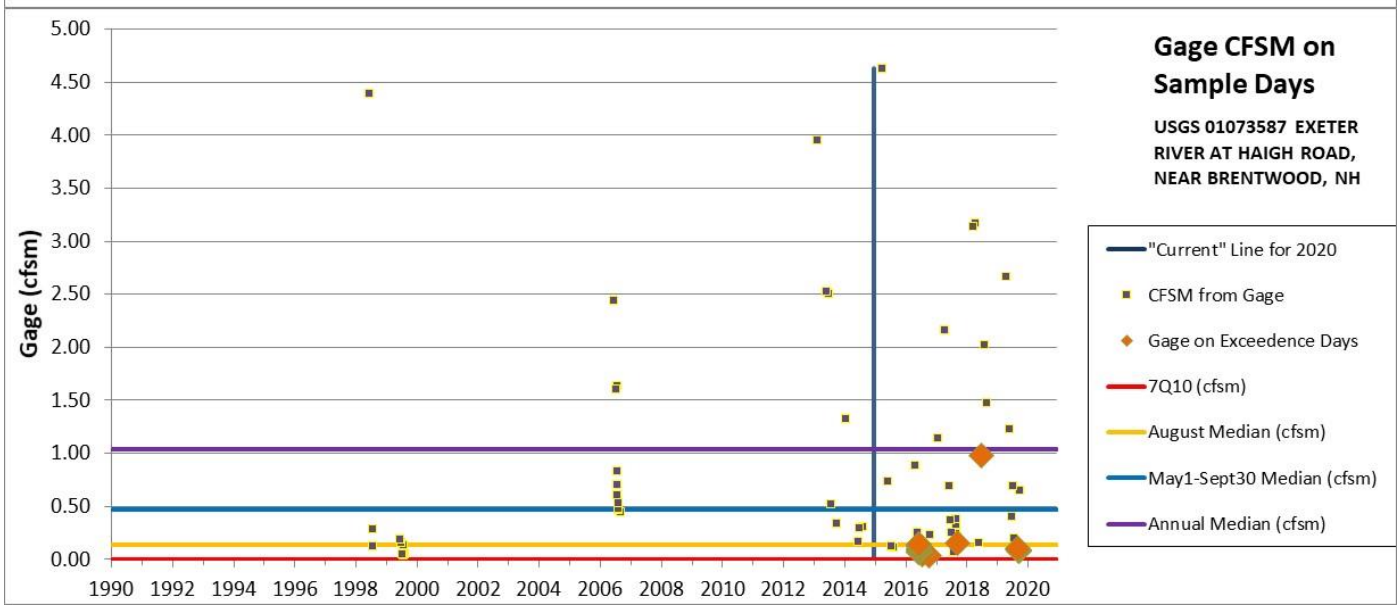

Notes:
DO-PERC-GRAB-CT-CP = Grab samples of dissolved oxygen during the early morning hours of the summer critical period.
DO-PERC-GRAB-CT-NCP = Grab samples of dissolved oxygen during the early morning hours and not during the summer critical period.
DO-PERC-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.
DO-PERC-24HR-MEAN-CP = 24-hour average dissolved oxygen saturation from a datalogger deployed during the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details.

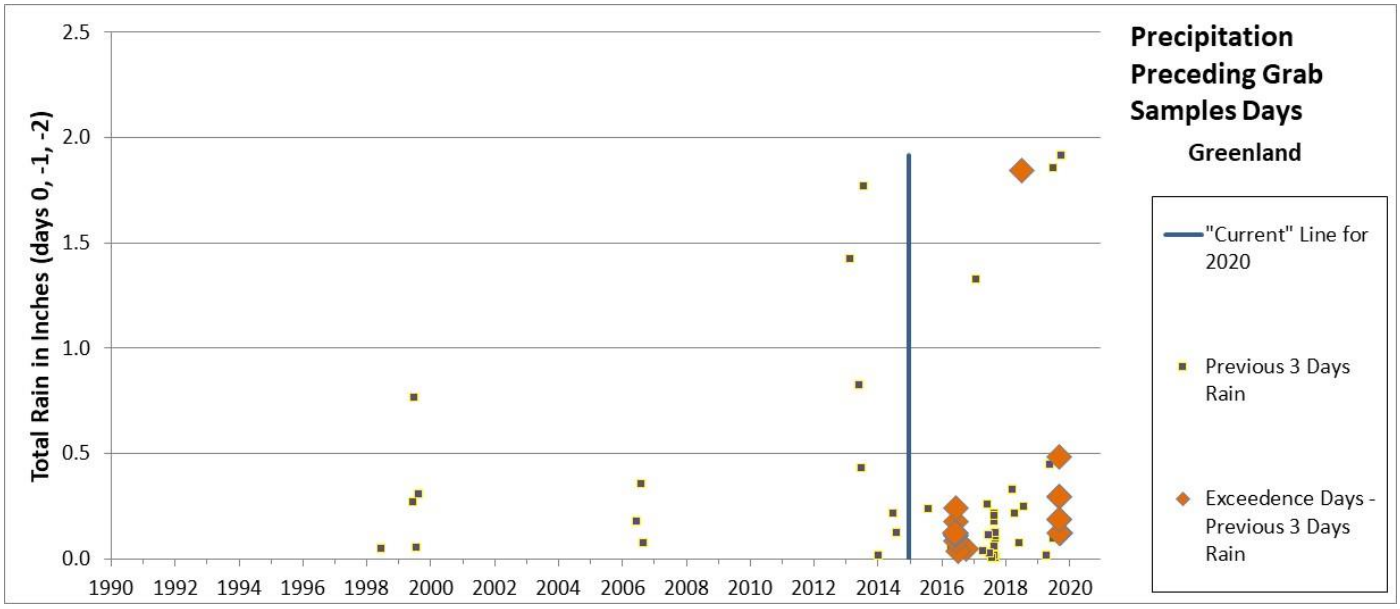
## EXETER RIVER (NHRIV600030803-05)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| EXETER RIVER | NHRIV600030803-05 | Dissolved oxygen saturation | BRENTWOOD | 3-PNS | 5-P |

Twenty-four of 72 samples (33%) collected at station 15-EXT in the current assessment period (2015-2020) were below the criteria of 75% (24-hour average), resulting in a new impairment in the current assessment cycle. The samples were collected under a wide variety of flow conditions (0.08-0.98 cfsm) on the Exeter River gage (01073587), water temperatures ranging from 12.3-22.5 degrees C, and under a variety of weather conditions (3-day rainfall total of 0.00-1.85 inches). The Exeter River (NHRIV600030803-05) has been moved from 3-PNS to 5-P for dissolved oxygen saturation for the aquatic life integrity designated use based on the data collected in the current assessment period.


EXETER RIVER (NHRIV600030803-05)
Dissolved Oxygen (percent saturation)
"Current" Line for 2020
DOSat Min
DOSat Min- (Magex)
DO-PERC-GRAB-NCT-NCP
DO-PERC-GRAB-NCT-CP
DO-PERC-GRAB-CT-NCP
DO-PERC-GRAB-CT-CP
DO-PERC-24H-MEAN-NCP
DO-PERC-24H-MEAN-CP


Gage CFSM on Sample Days
USGS 01073587 EXETER RIVER AT HAIGH ROAD, NEAR BRENTWOOD, NH
Gage (cfsm)
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)

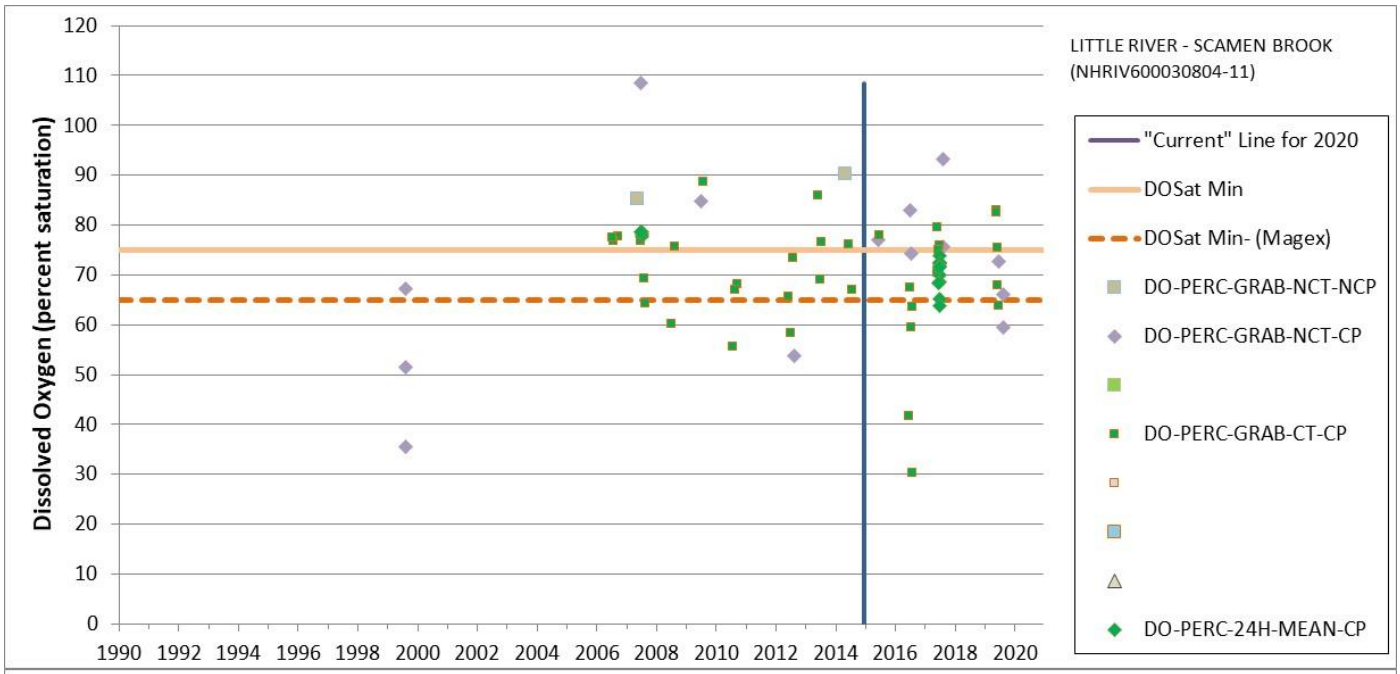


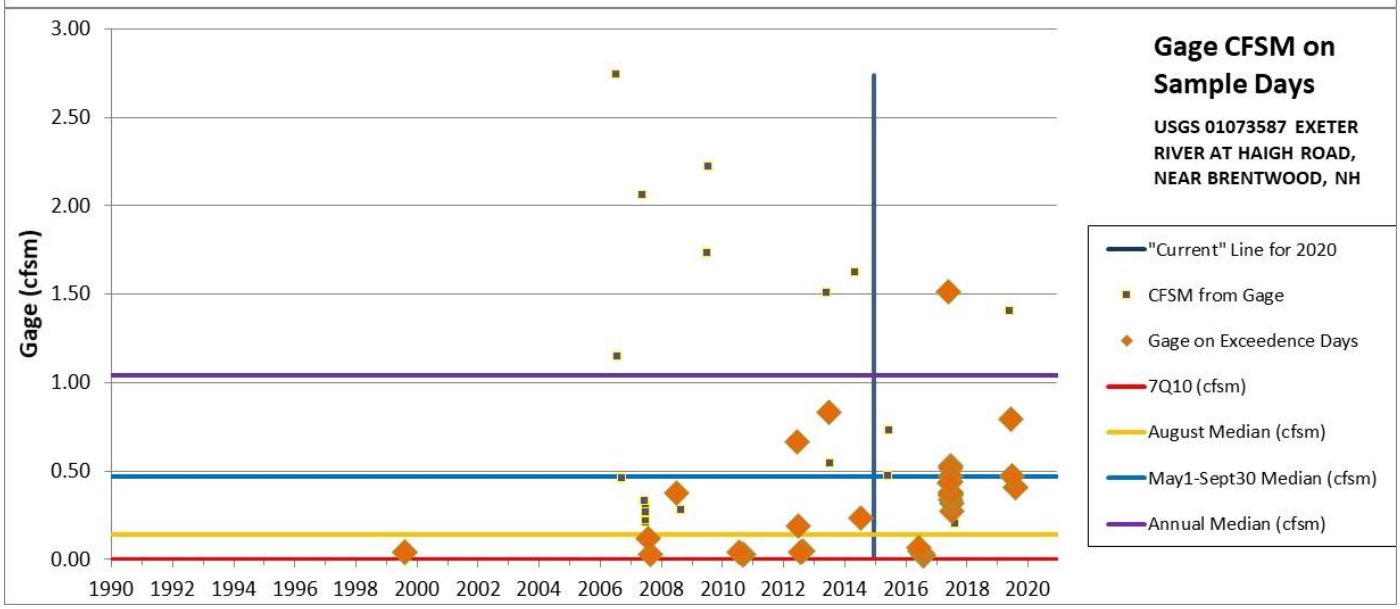

Notes:
DO-PERC-GRAB-CT-CP = Grab samples of dissolved oxygen during the early morning hours of the summer critical period.
DO-PERC-GRAB-CT-NCP = Grab samples of dissolved oxygen during the early morning hours and not during the summer critical period.
DO-PERC-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.
DO-PERC-GRAB-NCT-NCP = Grab samples of dissolved oxygen not in the early morning hours and outside the summer critical period.
DO-PERC-24HR-MEAN-CP = 24-hour average dissolved oxygen saturation from a datalogger deployed during the summer critical period.
DO-PERC-24HR-MEAN-NCP = 24-hour average dissolved oxygen saturation from a datalogger not deployed during the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details

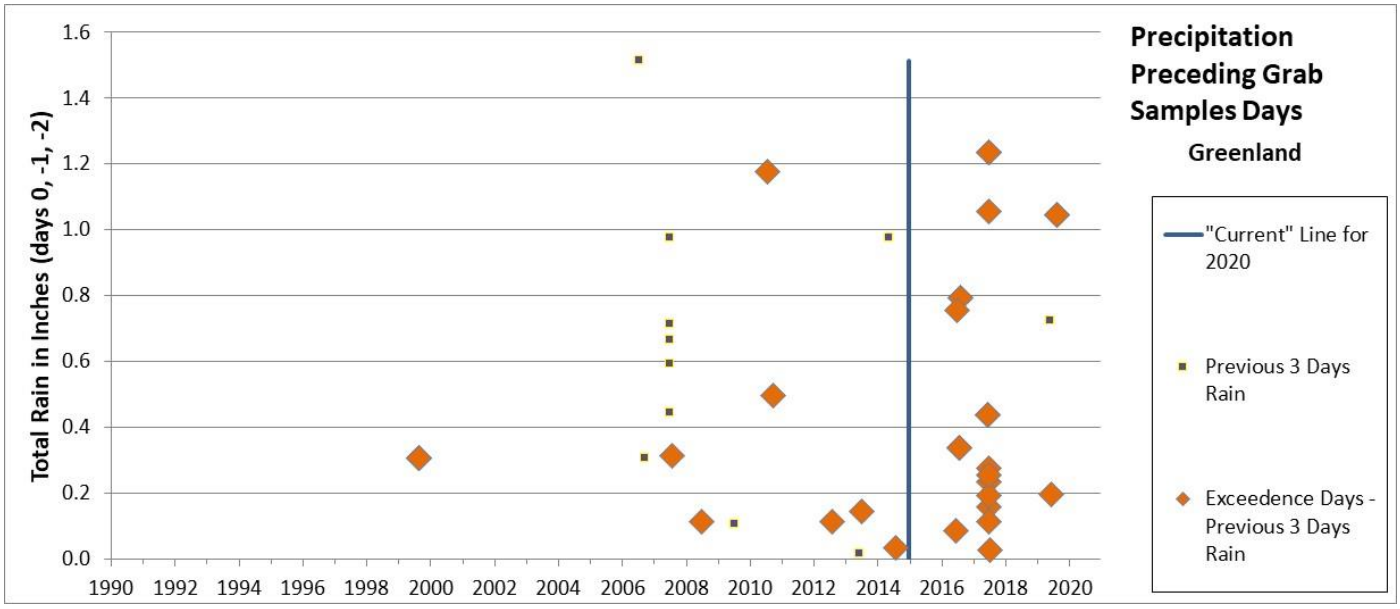
## LITTLE RIVER - SCAMEN BROOK (NHRIV600030804-11)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| LITTLE RIVER - SCAMEN BROOK | NHRIV600030804-11 | Dissolved oxygen saturation | EXETER | 3-PNS | 5-P |

Twenty-six of 36 samples (72%) collected at stations 00-LTE and 02-LTE in the current assessment period (2015-2020) were below the criteria of 75% (24-hour average), resulting in a new impairment in the current assessment cycle. The samples were collected under a wide variety of flow conditions (0.02-1.51 cfsm) on the Exeter River gage (01073587), water temperatures ranging from 18.5-23.5 degrees C, and under a variety of weather conditions (3-day rainfall total of 0.00-1.24 inches). Little River - Scamen Brook (NHRIV600030804-11) has been moved from 3-PNS to 5-P for dissolved oxygen saturation for the aquatic life integrity designated use based on the data collected in the current assessment period. It should be noted that this new impairment is tied to an assessment unit that falls within EPA's 2017 MS4 General Permit Area.


LITTLE RIVER - SCAMEN BROOK
(NHRIV600030804-11)
Dissolved Oxygen (percent saturation)
"Current" Line for 2020
DOSat Min
DOSat Min- (Magex)
DO-PERC-GRAB-NCT-NCP
DO-PERC-GRAB-NCT-CP
DO-PERC-GRAB-CT-CP
DO-PERC-24H-MEAN-CP


Gage CFSM on Sample Days
USGS 01073587 EXETER RIVER AT HAIGH ROAD, NEAR BRENTWOOD, NH
Gage (cfsm)
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)

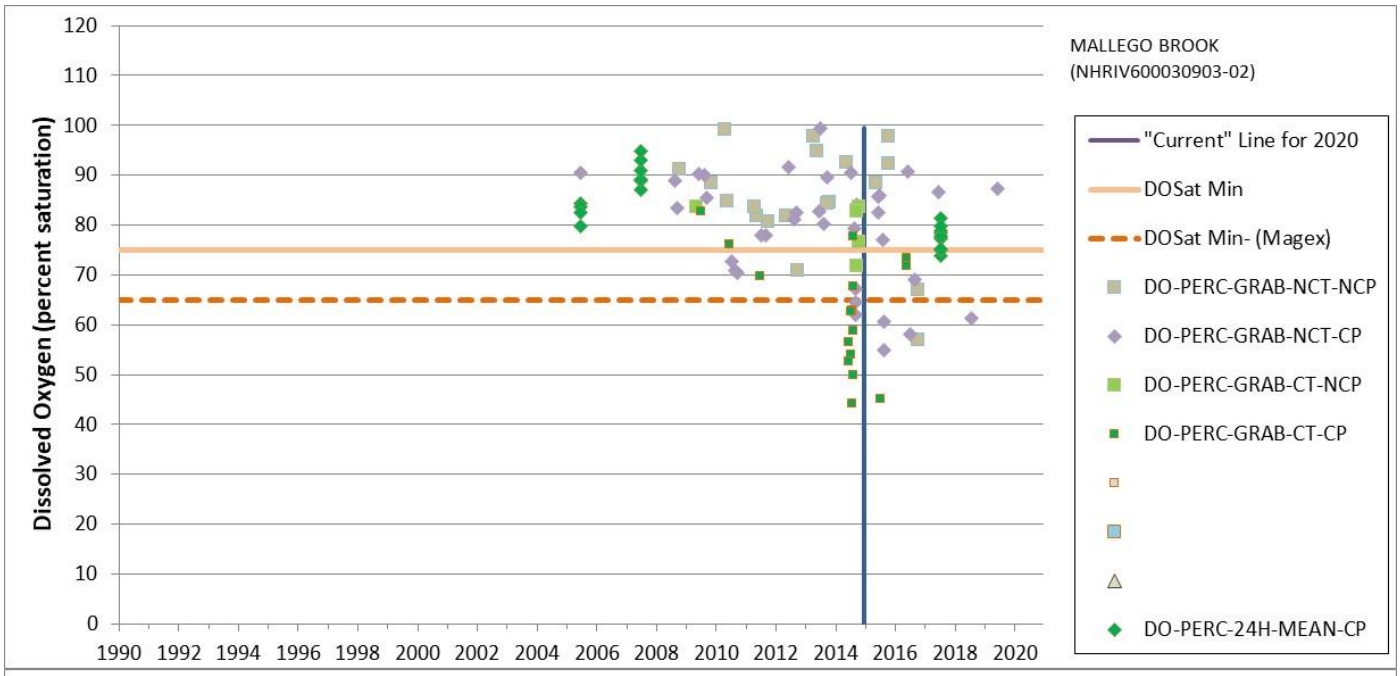


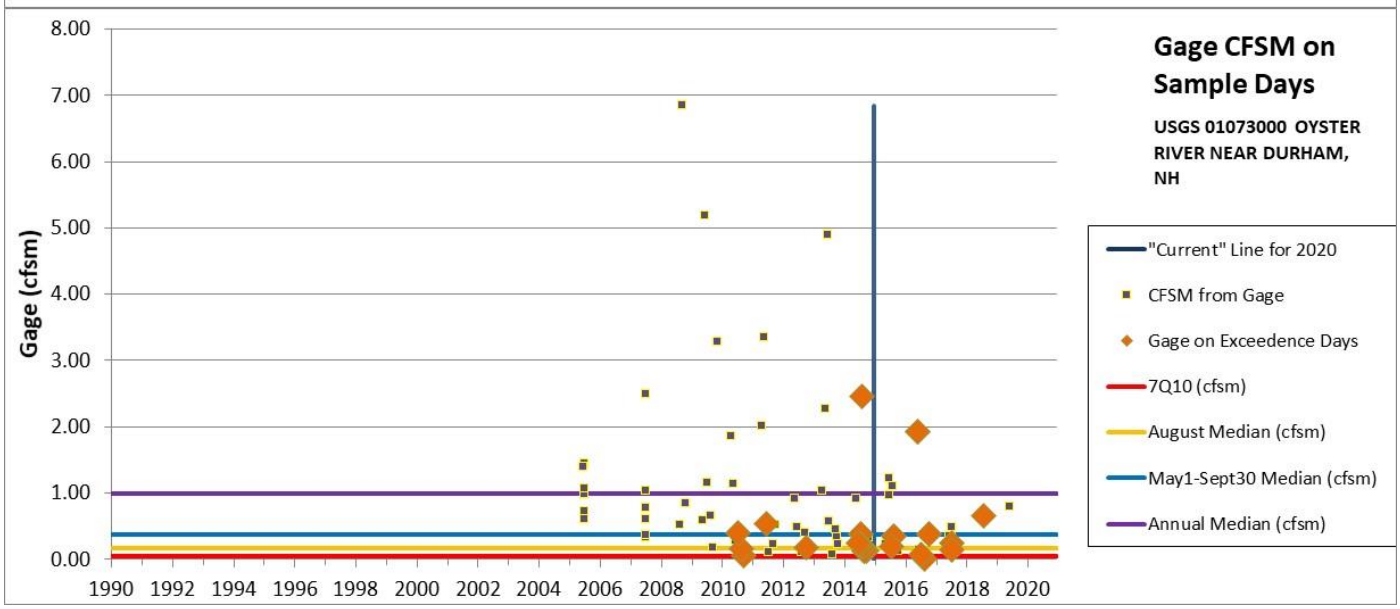

Notes:
DO-PERC-GRAB-CT-CP = Grab samples of dissolved oxygen during the early morning hours of the summer critical period.
DO-PERC-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.
DO-PERC-GRAB-NCT-NCP = Grab samples of dissolved oxygen not in the early morning hours and outside the summer critical period.
DO-PERC-24HR-MEAN-CP = 24-hour average dissolved oxygen saturation from a datalogger deployed during the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details

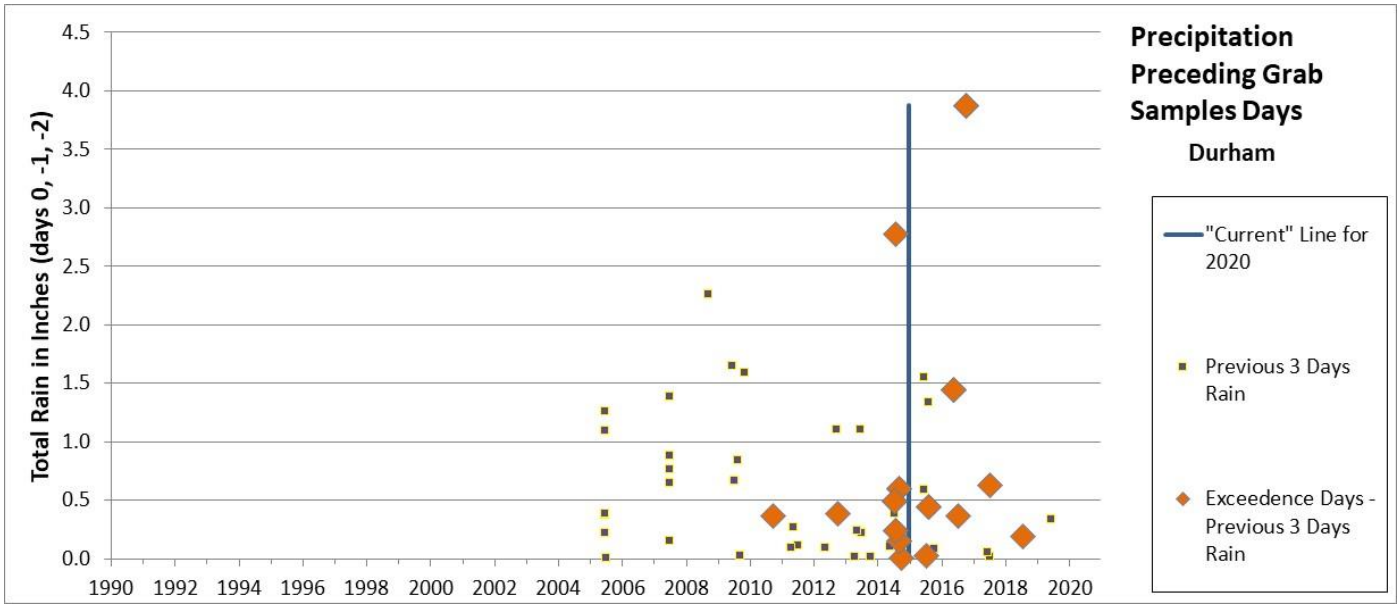
## MALLEGO BROOK (NHRIV600030903-02)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| MALLEGO BROOK | NHRIV600030903-02 | Dissolved oxygen saturation | BARRINGTON, MADBURY | 3-PNS | 5-M |

Twelve of 30 samples (40%) collected at stations 02-MLG, 08-MLG and 08A-MLG in the current assessment cycle (2015-2020) were below the criteria of 75% (24-hour average), resulting in a new impairment in the current assessment cycle. The samples were collected under a wide variety of flow conditions (0.07-1.93 cfsm) on the Oyster River gage (01073000), water temperatures ranging from 8.6-21.8 degrees C, and under a variety of weather conditions (3-day rainfall total of 0.00-3.88 inches). Mallego Brook (NHRIV600030903-02) has been moved from 3-PNS to 5-M for dissolved oxygen saturation for the aquatic life integrity designated use based on the data collected in the current assessment period.


MALLEGO BROOK
(NHRIV600030903-02)
Dissolved Oxygen (percent saturation)
"Current" Line for 2020
DOSat Min
DOSat Min- (Magex)
DO-PERC-GRAB-NCT-NCP
DO-PERC-GRAB-NCT-CP
DO-PERC-GRAB-CT-NCP
DO-PERC-GRAB-CT-CP
DO-PERC-24H-MEAN-CP


Gage CFSM on Sample Days
USGS 01073000 OYSTER RIVER NEAR DURHAM, NH
Gage (cfsm)
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)

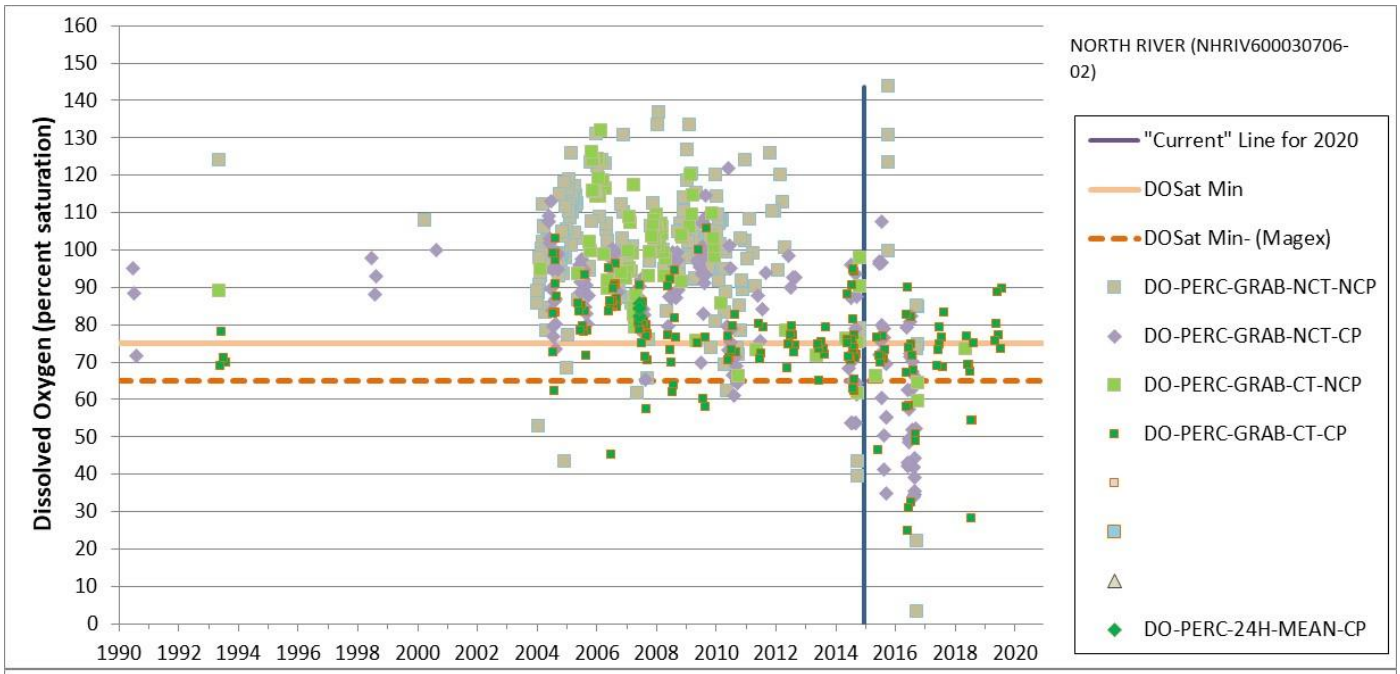


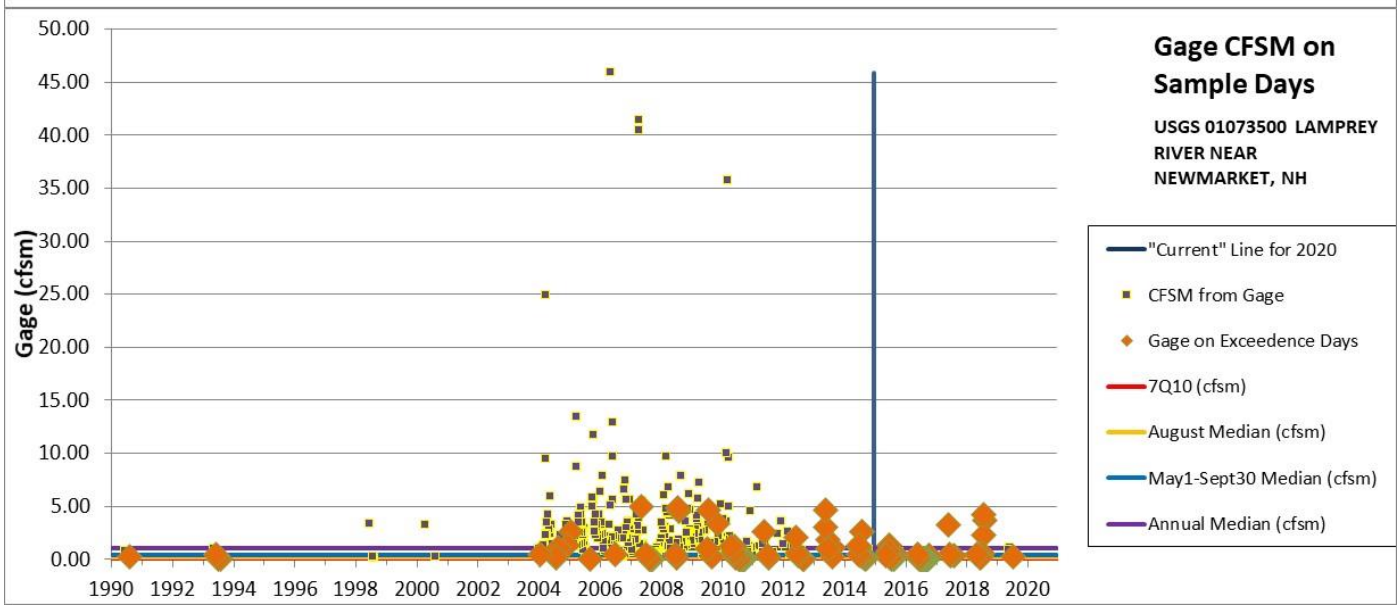

Notes:
DO-PERC-GRAB-CT-CP = Grab samples of dissolved oxygen during the early morning hours of the summer critical period.
DO-PERC-GRAB-CT-NCP = Grab samples of dissolved oxygen during the early morning hours and not during the summer critical period.
DO-PERC-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.
DO-PERC-GRAB-NCT-NCP = Grab samples of dissolved oxygen not in the early morning hours and outside the summer critical period.
DO-PERC-24HR-MEAN-CP = 24-hour average dissolved oxygen saturation from a datalogger deployed during the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details

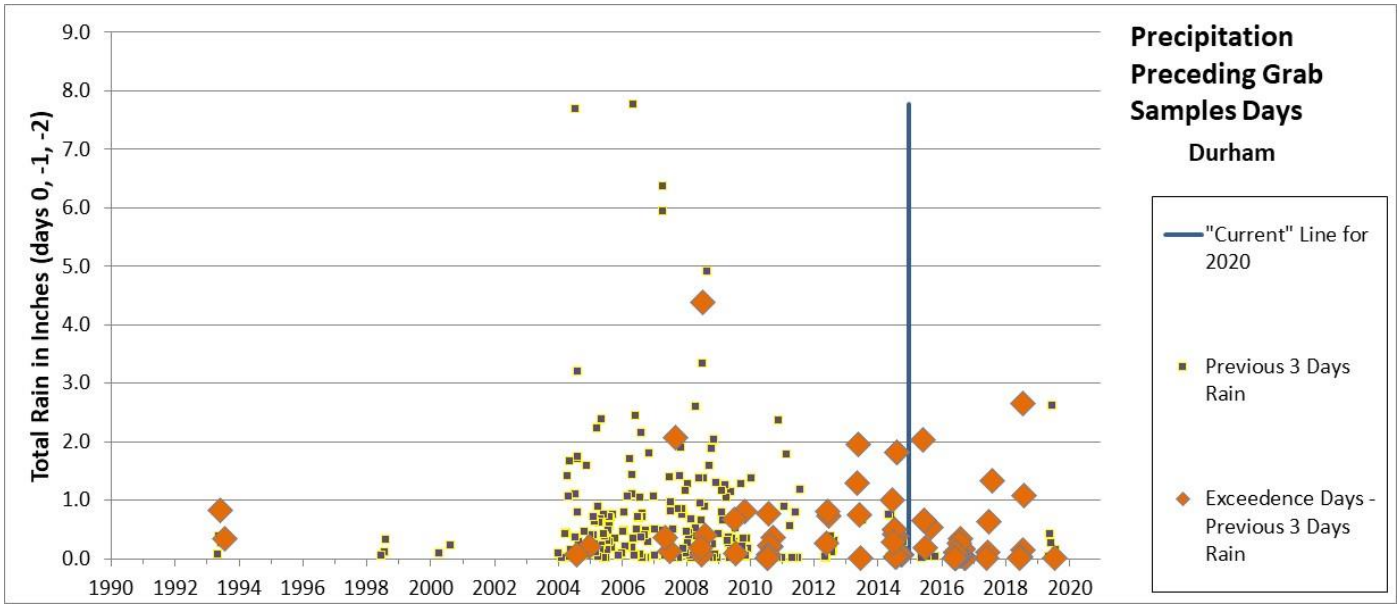
## NORTH RIVER (NHRIV600030706-02)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| NORTH RIVER | NHRIV600030706-02 | Dissolved oxygen saturation | EPPING, LEE, NOTTINGHAM | 3-PNS | 5-M |

Sixty-nine of 101 samples (68%) collected at stations 02-NOR, 03-NOR, 05-NOR, 06A-NOR, 07-NOR in the current assessment period (2015-2020) were below the criteria of 75% (24-hour average), resulting in a new impairment in the current assessment cycle. The samples were collected under a wide variety of flow conditions (0.01-4.25 cfsm) on the Lamprey River gage (01073319), water temperatures ranging from 6.18-23.9 degrees C, and under a variety of weather conditions (3-day rainfall total of 0.00-2.66 inches). The North River (NHRIV600030706-02) has been moved from 3-PNS to 5-M for dissolved oxygen saturation for the aquatic life integrity designated use based on the data collected in the current assessment period.


NORTH RIVER (NHRIV600030706-02)
Dissolved Oxygen (percent saturation)
"Current" Line for 2020
DOSat Min
DOSat Min- (Magex)
DO-PERC-GRAB-NCT-NCP
DO-PERC-GRAB-NCT-CP
DO-PERC-GRAB-CT-NCP
DO-PERC-GRAB-CT-CP
DO-PERC-24H-MEAN-CP


Gage CFSM on Sample Days
USGS 01073500 LAMPREY RIVER NEAR NEWMARKET, NH
Gage (cfsm)
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)

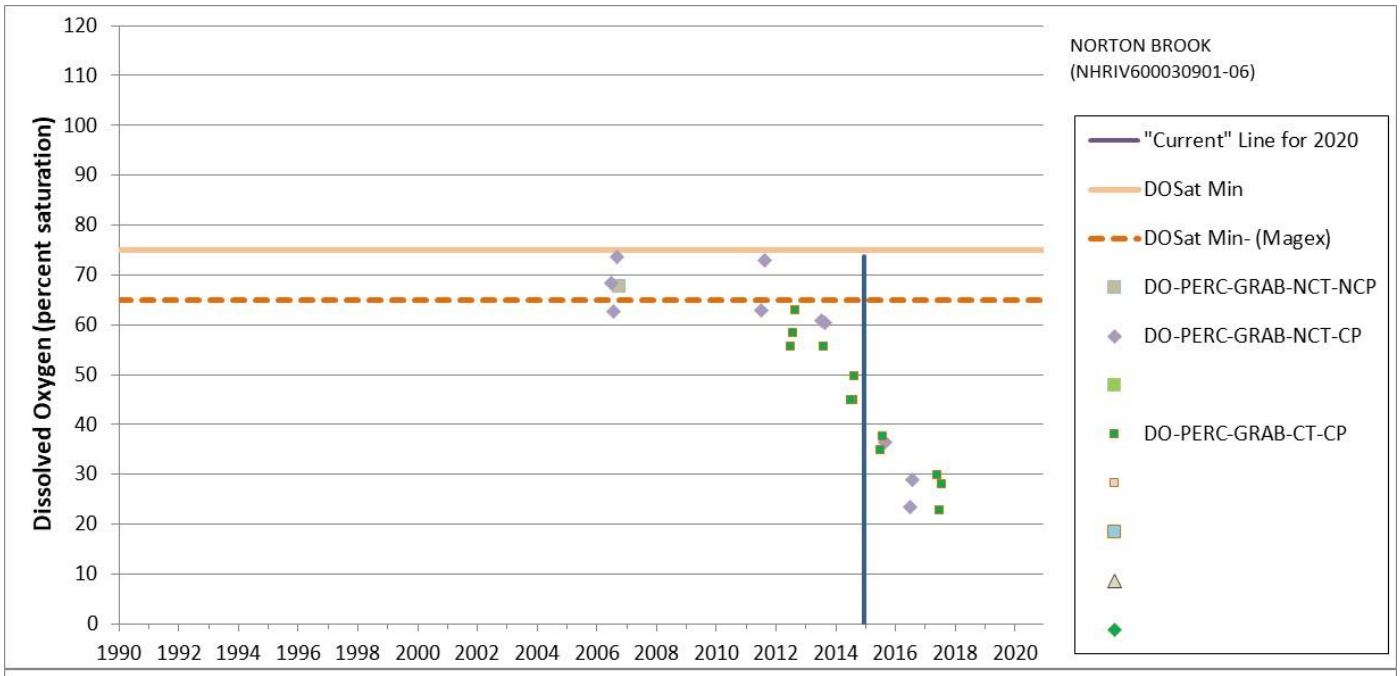


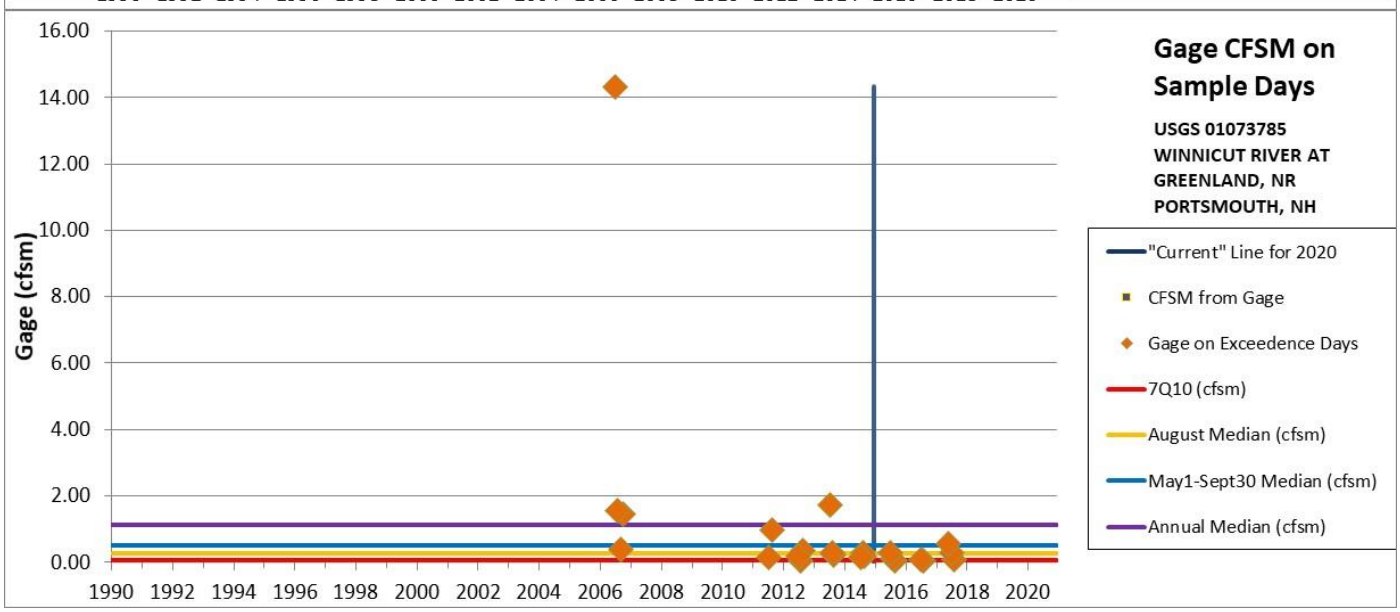

Notes:
DO-PERC-GRAB-CT-CP = Grab samples of dissolved oxygen during the early morning hours of the summer critical period.
DO-PERC-GRAB-CT-NCP = Grab samples of dissolved oxygen during the early morning hours and not during the summer critical period.
DO-PERC-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.
DO-PERC-GRAB-NCT-NCP = Grab samples of dissolved oxygen not in the early morning hours and outside the summer critical period.
DO-PERC-24HR-MEAN-CP = 24-hour average dissolved oxygen saturation from a datalogger deployed during the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details

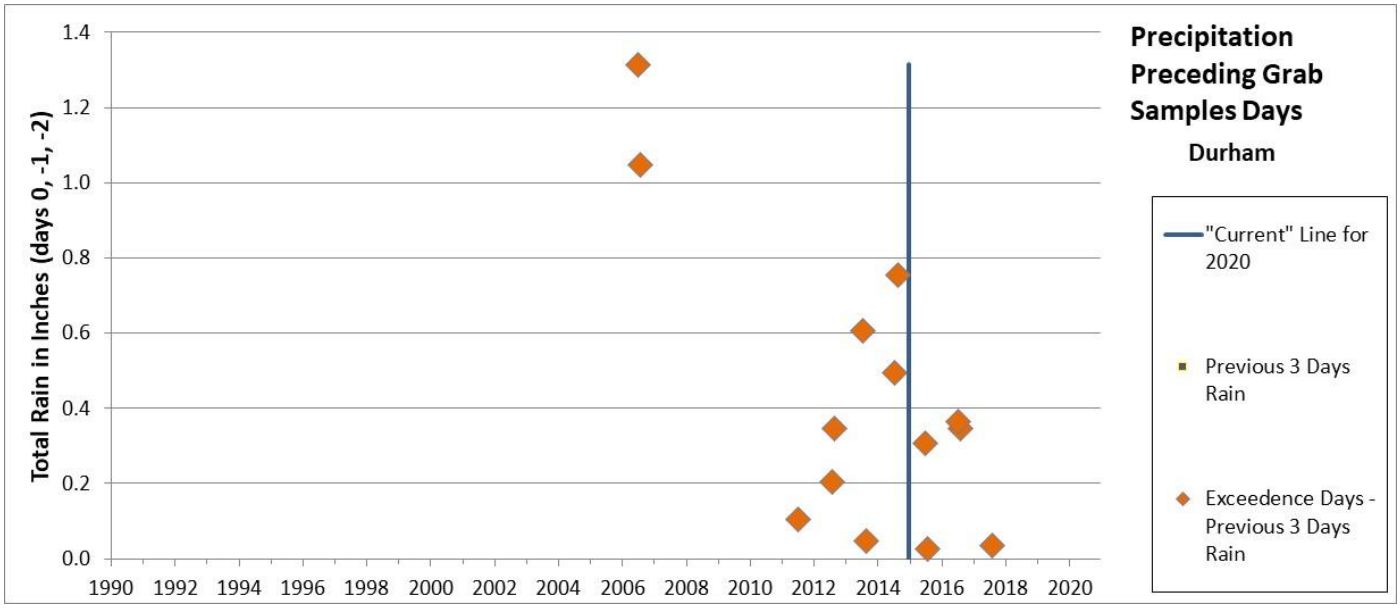
## NORTON BROOK (NHRIV600030901-06)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| NORTON BROOK | NHRIV600030901-06 | Dissolved oxygen saturation | GREENLAND | 3-PNS | 5-P |

Data collected in during the current assessment period (2015-2020) at station 06-NOB indicate that the brook consistently has dissolved oxygen saturations below 40%. It should be noted that there appears to be a steep declining trend in dissolved oxygen between 2011 and 2017. The low dissolved oxygen samples collected during the current assessment period were collected during low flows (< 0.6 CFSM) at the Exeter River gauge (01073587) and with 3-day rainfall totals between 0.00 and 0.35 inches. Norton Brook (NHRIV600030901-06) has been moved from 3-PNS to 5-P for dissolved oxygen (percent saturation) for the aquatic life integrity designated use based on data collected in the current assessment period.


NORTON BROOK
(NHRIV600030901-06)
Dissolved Oxygen (percent saturation)
"Current" Line for 2020
DOSat Min
DOSat Min- (Magex)
DO-PERC-GRAB-NCT-NCP
DO-PERC-GRAB-NCT-CP
DO-PERC-GRAB-CT-CP


Gage CFSM on Sample Days
USGS 01073785
WINNICUT RIVER AT
GREENLAND, NR
PORTSMOUTH, NH
Gage (cfsm)
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)



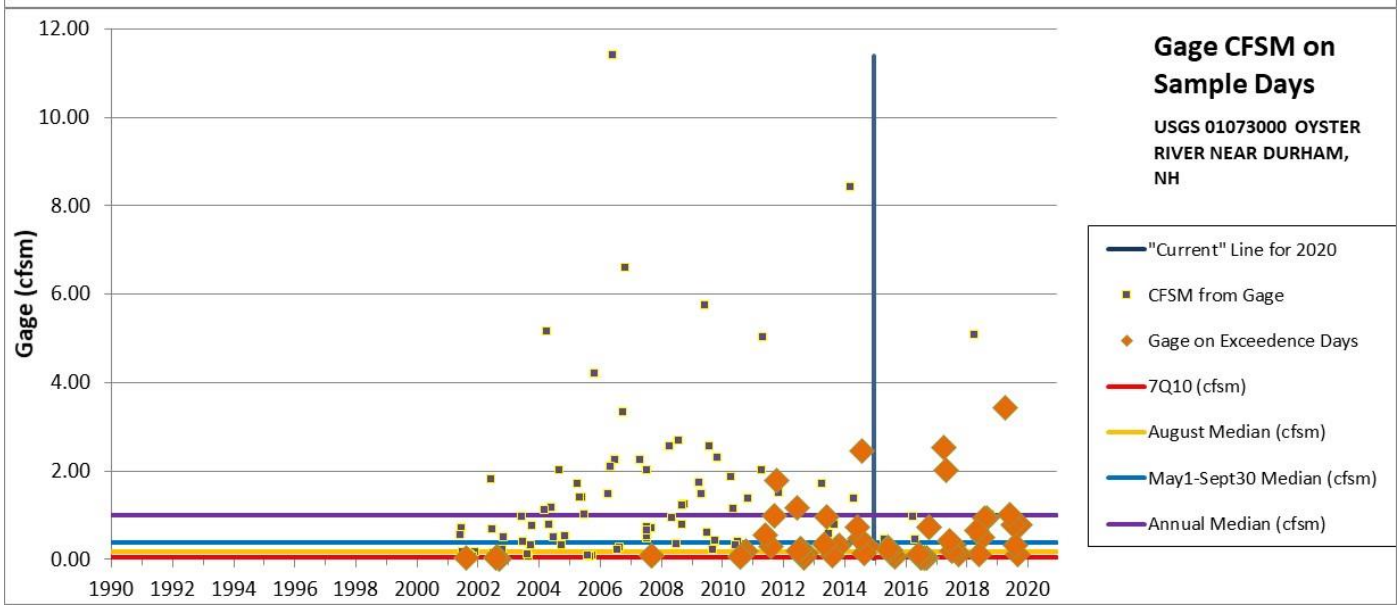

Notes:
DO-PERC-GRAB-CT-CP = Grab samples of dissolved oxygen during the early morning hours of the summer critical period.
DO-PERC-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.
DO-PERC-GRAB-NCT-NCP = Grab samples of dissolved oxygen not in the early morning hours and outside the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details

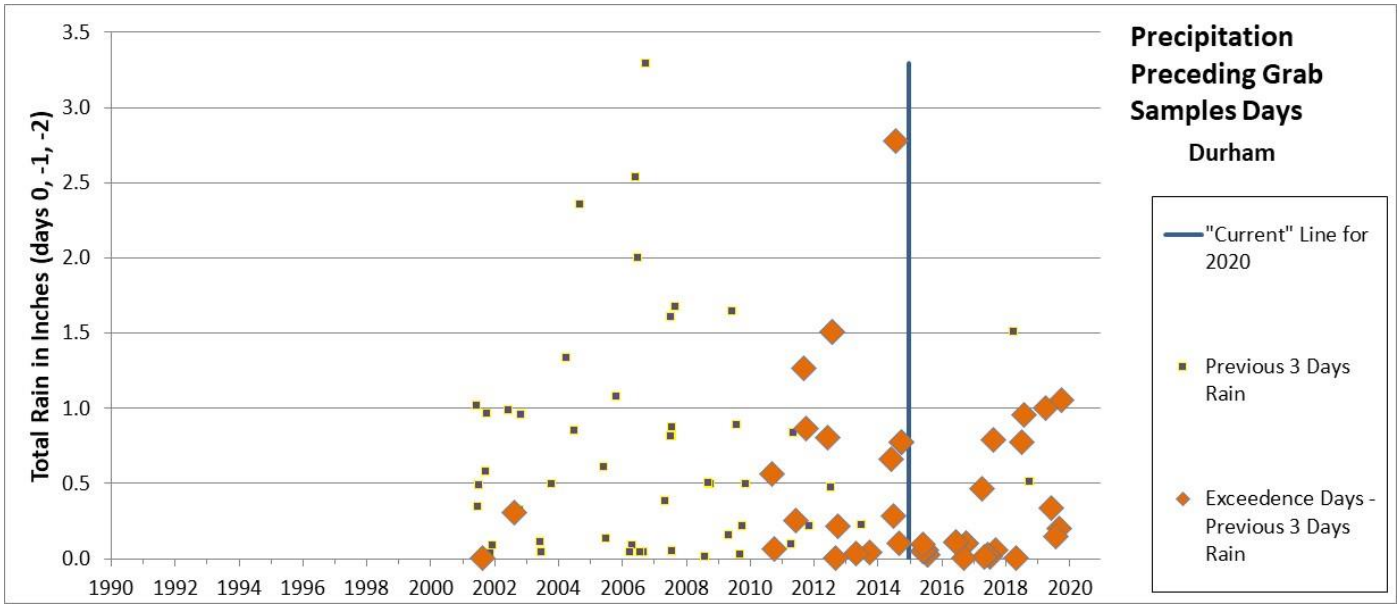
## OYSTER RIVER - CALDWELL BROOK (NHRIV600030902-02)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| OYSTER RIVER - CALDWELL BROOK | NHRIV600030902-02 | Dissolved oxygen saturation | BARRINGTON, LEE, NOTTINGHAM | 3-PNS | 5-P |

Thirty-four of 65 samples (52%) collected at stations 15C-OYS and 01-CWL in the current assessment cycle (2015-2020) were below the criteria of 75% (24-hour average), resulting in a new impairment in the current assessment cycle. The samples were collected under a wide variety of flow conditions (0.02-3.42 cfsm) on the Oyster River gage (01073000), water temperatures ranging from 9.8-22.3 degrees C, and under a variety of weather conditions (3-day rainfall total of 0.00-1.06 inches). Oyster River - Caldwell Brook (NHRIV600030902-02) has been moved from 3-PNS to 5-P for dissolved oxygen saturation for the aquatic life integrity designated use based on the data collected in the current assessment period.


OYSTER RIVER - CALDWELL BROOK
(NHRIV600030902-02)
Dissolved Oxygen (percent saturation)
"Current" Line for 2020
DOSat Min
DOSat Min- (Magex)
DO-PERC-GRAB-NCT-NCP
DO-PERC-GRAB-NCT-CP
DO-PERC-GRAB-CT-NCP
DO-PERC-GRAB-CT-CP
DO-PERC-24H-MEAN-CP


Gage CFSM on Sample Days
USGS 01073000 OYSTER RIVER NEAR DURHAM, NH
Gage (cfsm)
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)

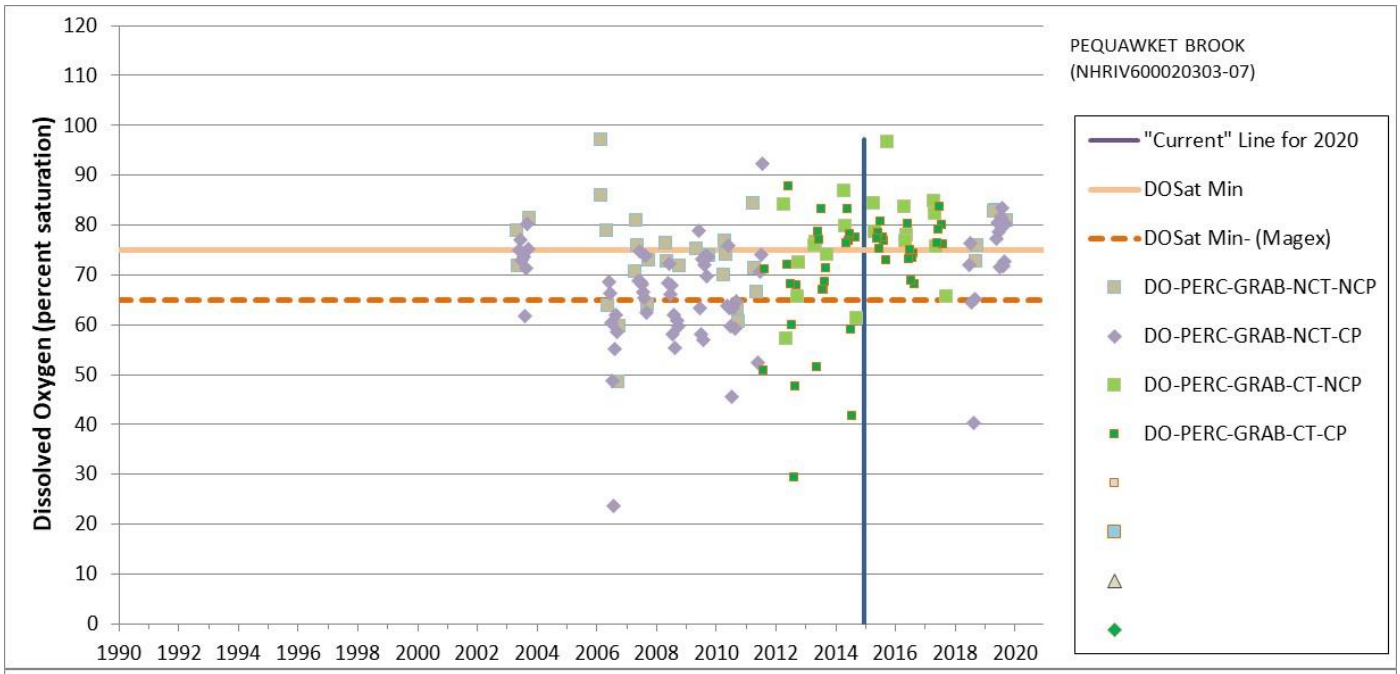


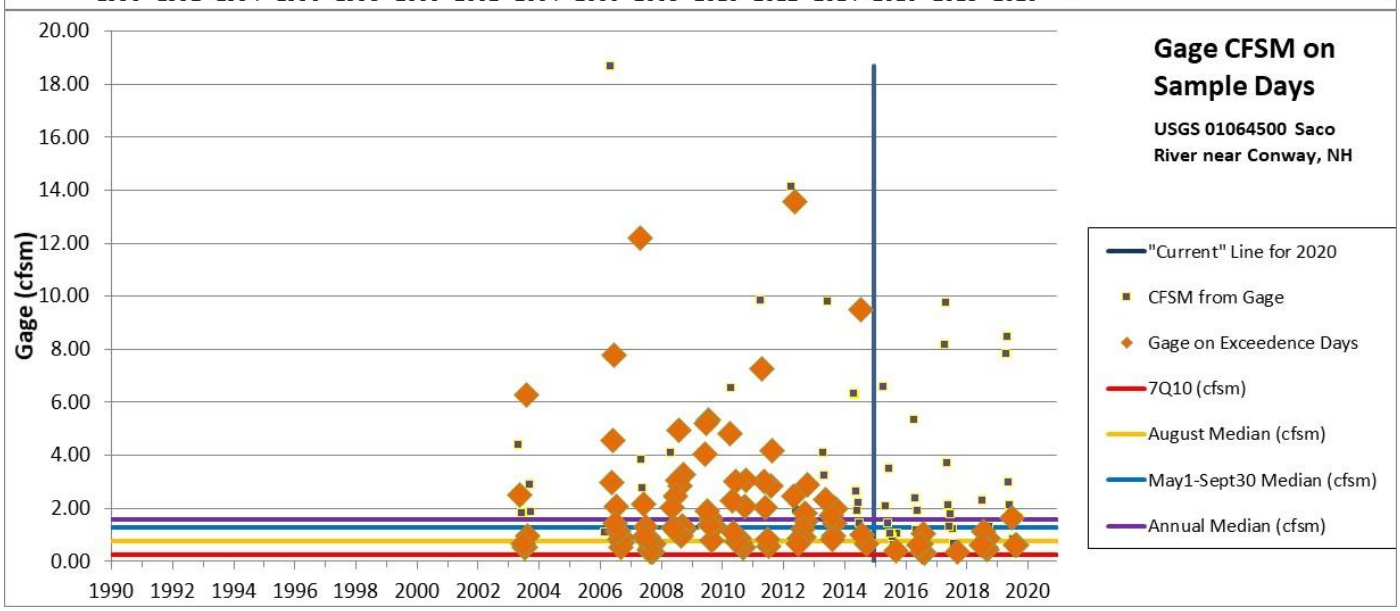

Notes:
DO-PERC-GRAB-CT-CP = Grab samples of dissolved oxygen during the early morning hours of the summer critical period.
DO-PERC-GRAB-CT-NCP = Grab samples of dissolved oxygen during the early morning hours and not during the summer critical period.
DO-PERC-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.
DO-PERC-GRAB-NCT-NCP = Grab samples of dissolved oxygen not in the early morning hours and outside the summer critical period.
DO-PERC-24HR-MEAN-CP = 24-hour average dissolved oxygen saturation from a datalogger deployed during the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details

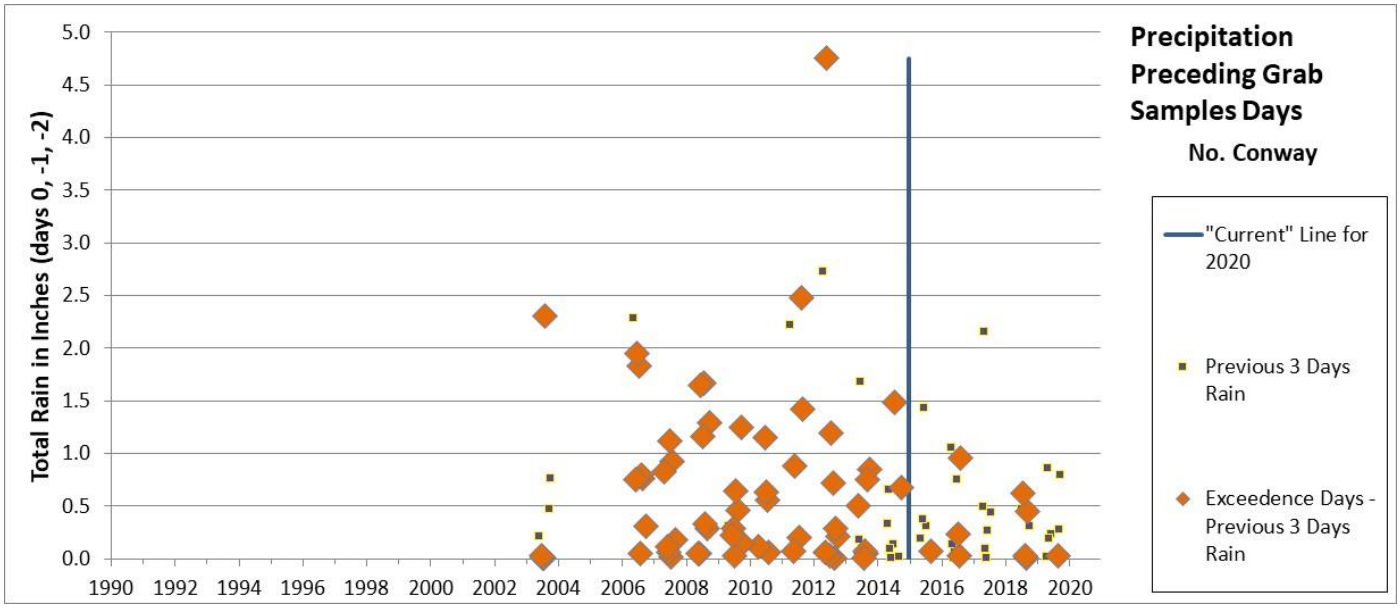
## PEQUAWKET BROOK (NHRIV600020303-07)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| PEQUAWKET BROOK | NHRIV600020303-07 | Dissolved oxygen saturation | ALBANY, MADISON | 3-PNS | 5-M |

Fifteen of 48 samples (31%) collected at station GM-2 in the current assessment period (2015-2020) were below the criteria of 75% (24-hour average), resulting in a new impairment in the current assessment cycle. The samples were collected under a wide variety of flow conditions (0.31-1.62 cfsm) on the Saco River gage (01064500), water temperatures ranging from 12.7-22.4 degrees C, and under a variety of weather conditions (3-day rainfall total of 0.00-0.96 inches). Pequawket Brook (NHRIV600020303-07) has been moved from 3-PNS to 5-M for dissolved oxygen saturation for the aquatic life integrity designated use based on the data collected in the current assessment period.


PEQUAWKET BROOK
(NHRIV600020303-07)
Dissolved Oxygen (percent saturation)
"Current" Line for 2020
DOSat Min
DOSat Min- (Magex)
DO-PERC-GRAB-NCT-NCP
DO-PERC-GRAB-NCT-CP
DO-PERC-GRAB-CT-NCP
DO-PERC-GRAB-CT-CP


Gage CFSM on Sample Days
USGS 01064500 Saco River near Conway, NH
Gage (cfsm)
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)



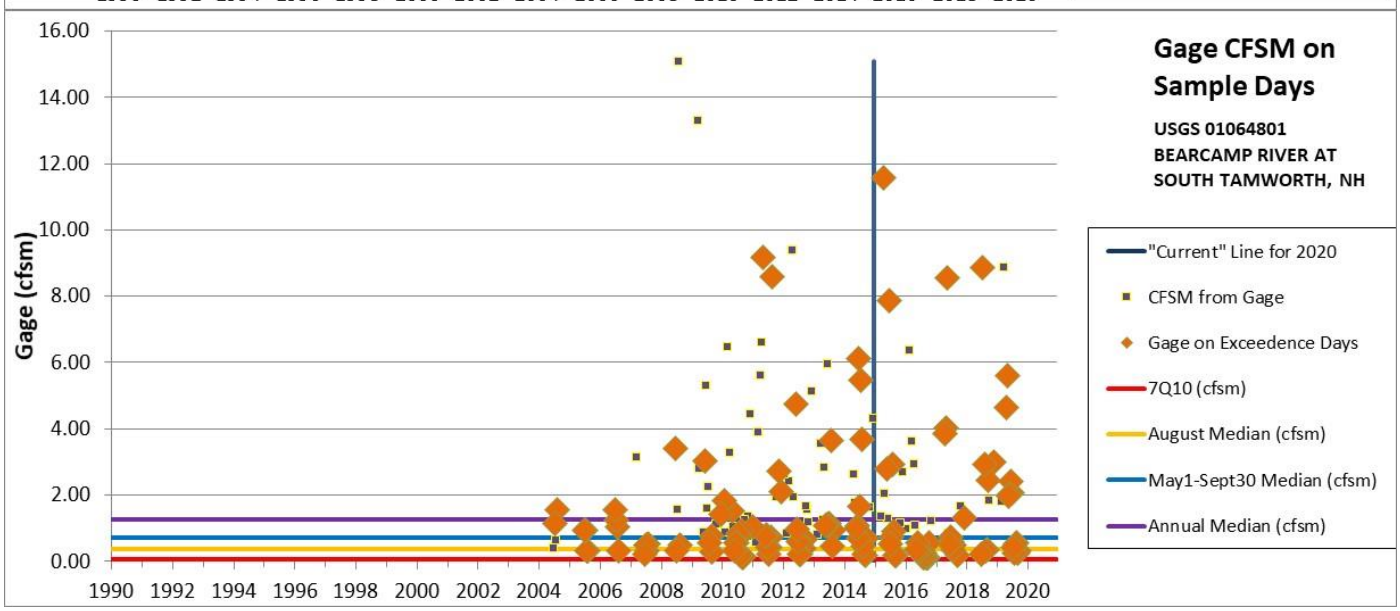

Notes:
DO-PERC-GRAB-CT-CP = Grab samples of dissolved oxygen during the early morning hours of the summer critical period.
DO-PERC-GRAB-CT-NCP = Grab samples of dissolved oxygen during the early morning hours and not during the summer critical period.
DO-PERC-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.
DO-PERC-GRAB-NCT-NCP = Grab samples of dissolved oxygen not in the early morning hours and outside the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details

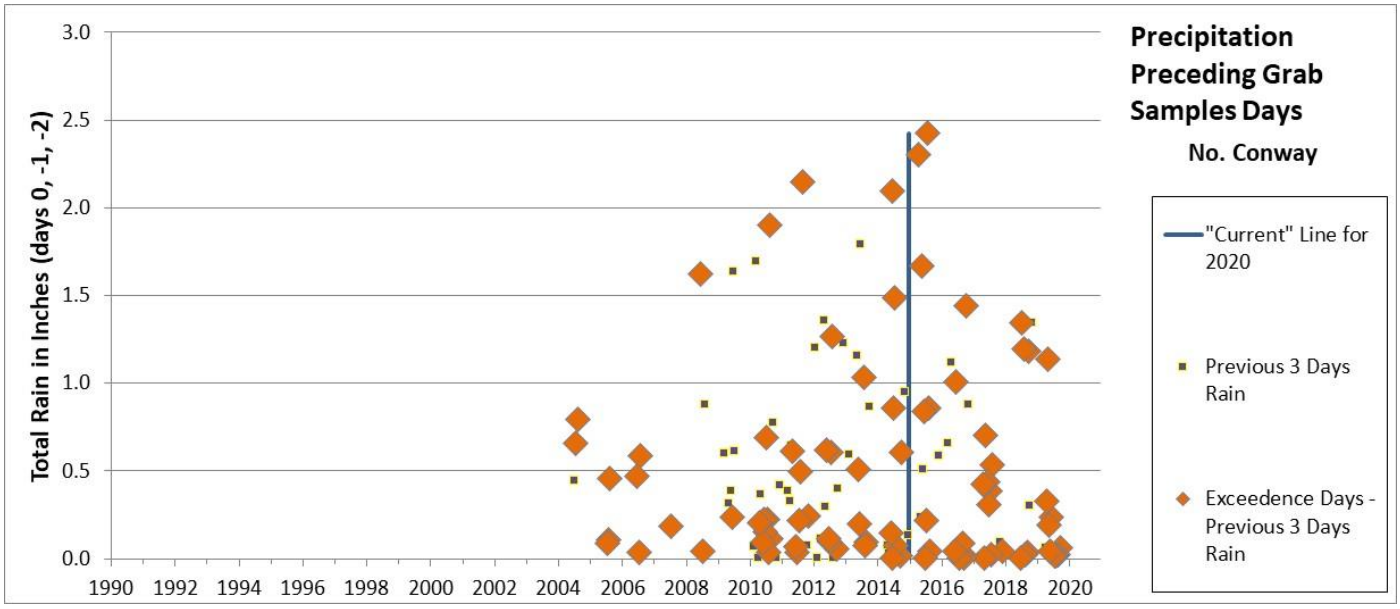
## PHILLIPS BROOK (NHRIV600020804-03)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| PHILLIPS BROOK | NHRIV600020804-03 | Dissolved oxygen saturation | EFFINGHAM, OSSIPEE | 3-PNS | 5-M |

Forty-nine of 68 samples (72%) collected at station OL-12U in the current assessment period (2015-2020) were below the criteria of 75% (24-hour average), resulting in a new impairment in the current assessment cycle. The samples were collected under a wide variety of flow conditions (0.11-11.57 cfsm) on the Bearcamp River gage (01064801), water temperatures ranging from 8.3-19.3 degrees C, and under a variety of weather conditions (3-day rainfall total of 0.00-2.43 inches). Phillips Brook (NHRIV600020804-03) has been moved from 3-PNS to 5-M for dissolved oxygen saturation for the aquatic life integrity designated use based on the data collected in the current assessment period.


PHILLIPS BROOK
(NHRIV600020804-03)
Dissolved Oxygen (percent saturation)
"Current" Line for 2020
DOSat Min
DOSat Min- (Magex)
DO-PERC-GRAB-NCT-NCP
DO-PERC-GRAB-NCT-CP
DO-PERC-GRAB-CT-NCP
DO-PERC-GRAB-CT-CP


Gage CFSM on Sample Days
USGS 01064801
BEARCAMP RIVER AT
SOUTH TAMWORTH, NH
Gage (cfsm)
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)

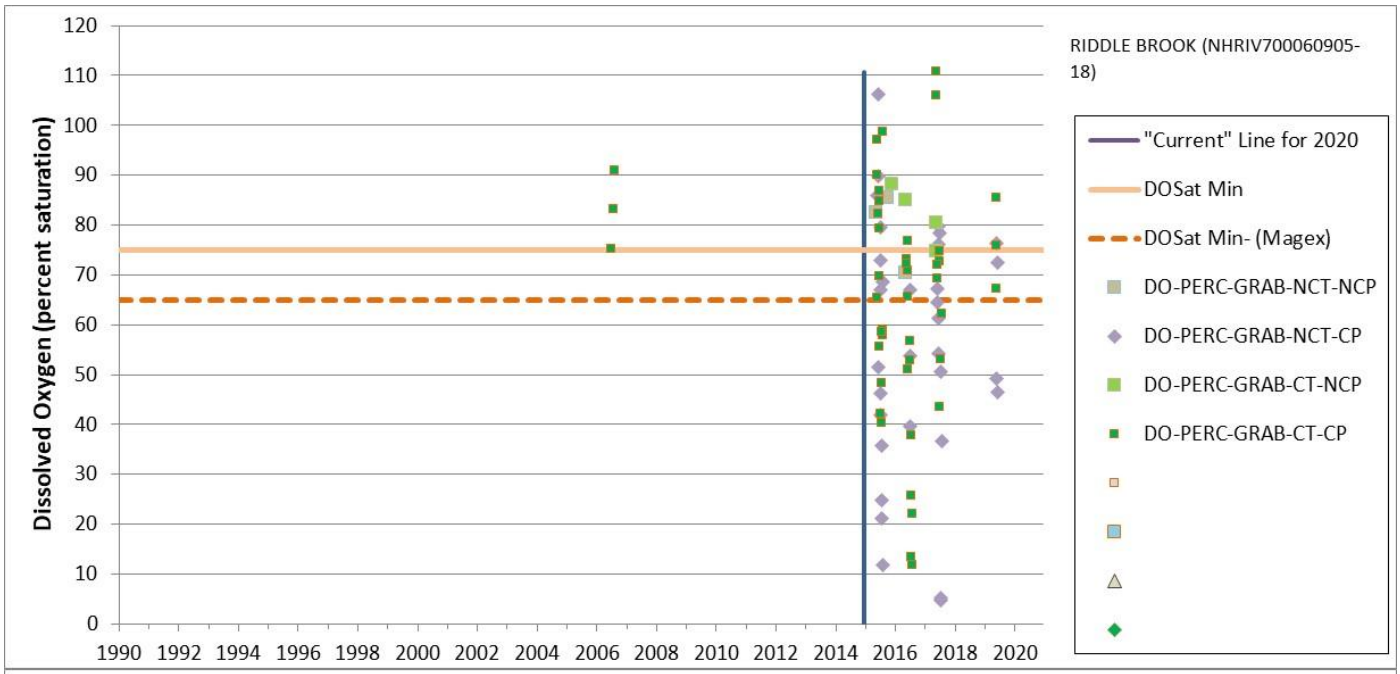


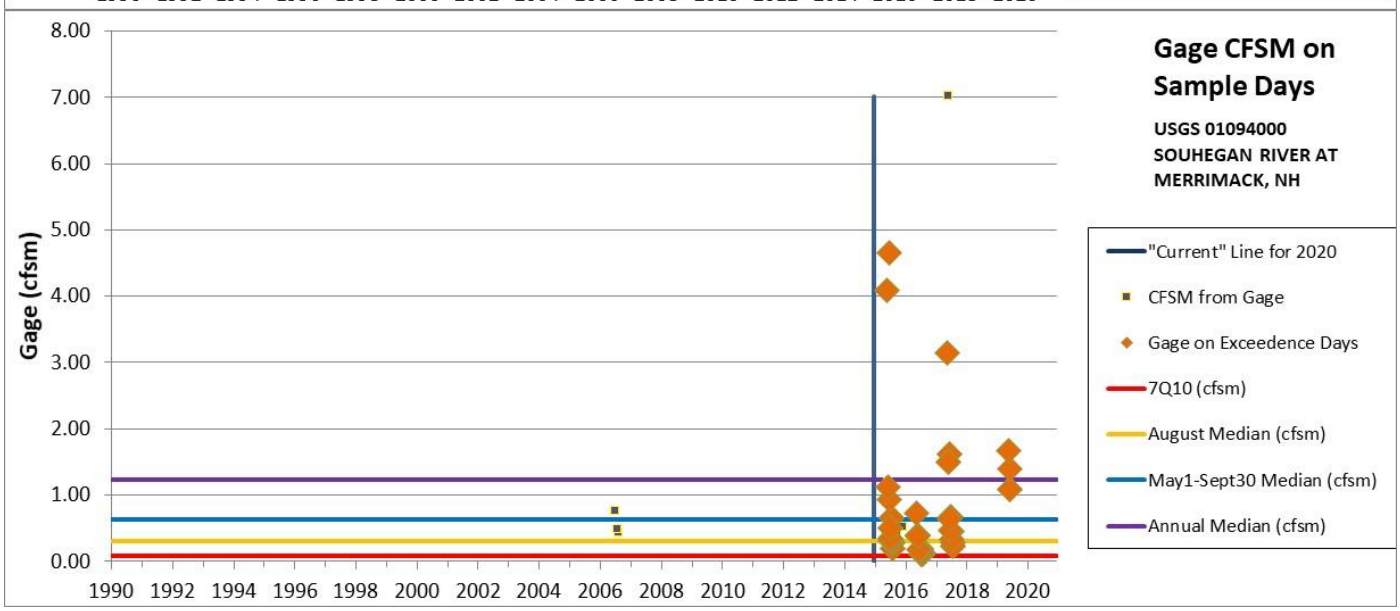

Notes:
DO-PERC-GRAB-CT-CP = Grab samples of dissolved oxygen during the early morning hours of the summer critical period.
DO-PERC-GRAB-CT-NCP = Grab samples of dissolved oxygen during the early morning hours and not during the summer critical period.
DO-PERC-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.
DO-PERC-GRAB-NCT-NCP = Grab samples of dissolved oxygen not in the early morning hours and outside the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details

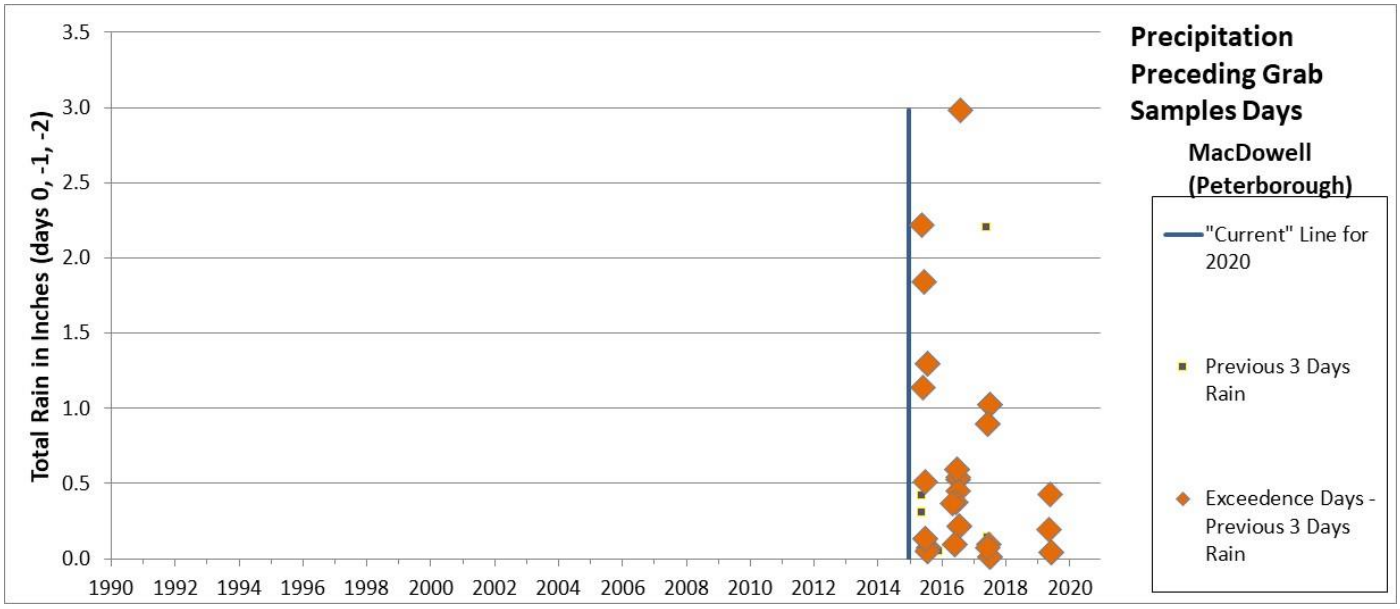
## RIDDLE BROOK (NHRIV700060905-18)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| RIDDLE BROOK | NHRIV700060905-18 | Dissolved oxygen saturation | BEDFORD, GOFFSTOWN | 3-PNS | 5-P |

Fifty-five of 80 samples (69%) collected at stations 15P-RID, 16-RID and 17-RD in the current assessment period (2015-2020) were below the criteria of 75% (24-hour average), resulting in a new impairment in the current assessment cycle. The samples were collected under a wide variety of flow conditions (0.10-4.65 cfsm) on the Souhegan River gage (01094000), water temperatures ranging from 13.4-25.9 degrees C, and under a variety of weather conditions (3-day rainfall total of 0.00-2.99 inches). Riddle Brook (NHRIV700060905-18) has been moved from 3-PNS to 5-P for dissolved oxygen saturation for the aquatic life integrity designated use based on the data collected in the current assessment period. It should be noted that this new impairment is tied to an assessment unit that falls within EPA's 2017 MS4 General Permit Area.


RIDDLE BROOK (NHRIV700060905-18)
Dissolved Oxygen (percent saturation)
"Current" Line for 2020
DOSat Min
DOSat Min- (Magex)
DO-PERC-GRAB-NCT-NCP
DO-PERC-GRAB-NCT-CP
DO-PERC-GRAB-CT-NCP
DO-PERC-GRAB-CT-CP


Gage CFSM on Sample Days
USGS 01094000
SOUHEGAN RIVER AT MERRIMACK, NH
Gage (cfsm)
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)

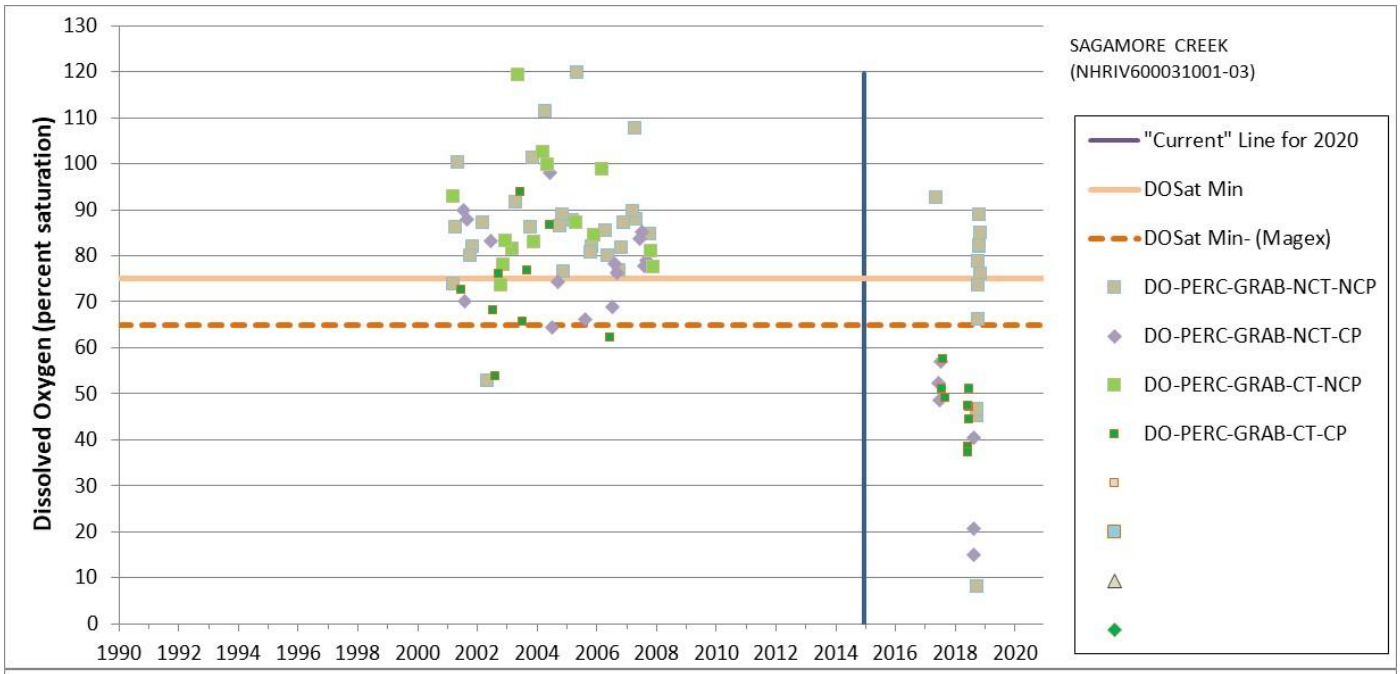


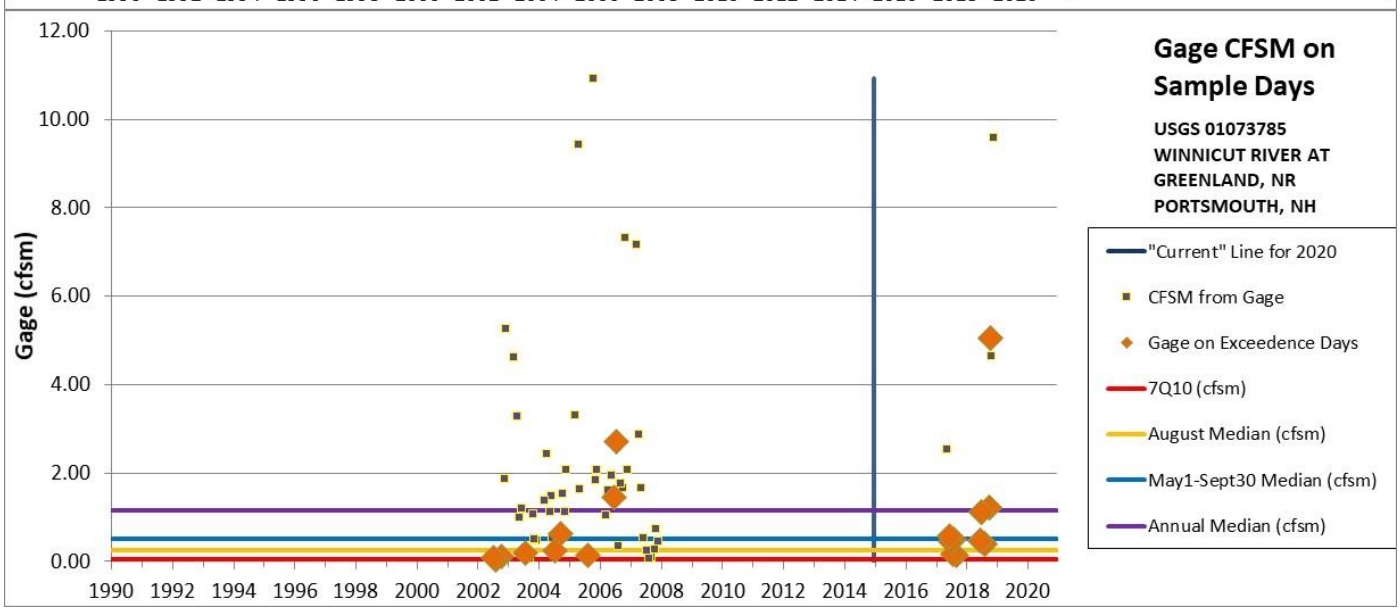

Notes:
DO-PERC-GRAB-CT-CP = Grab samples of dissolved oxygen during the early morning hours of the summer critical period.
DO-PERC-GRAB-CT-NCP = Grab samples of dissolved oxygen during the early morning hours and not during the summer critical period.
DO-PERC-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.
DO-PERC-GRAB-NCT-NCP = Grab samples of dissolved oxygen not in the early morning hours and outside the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details

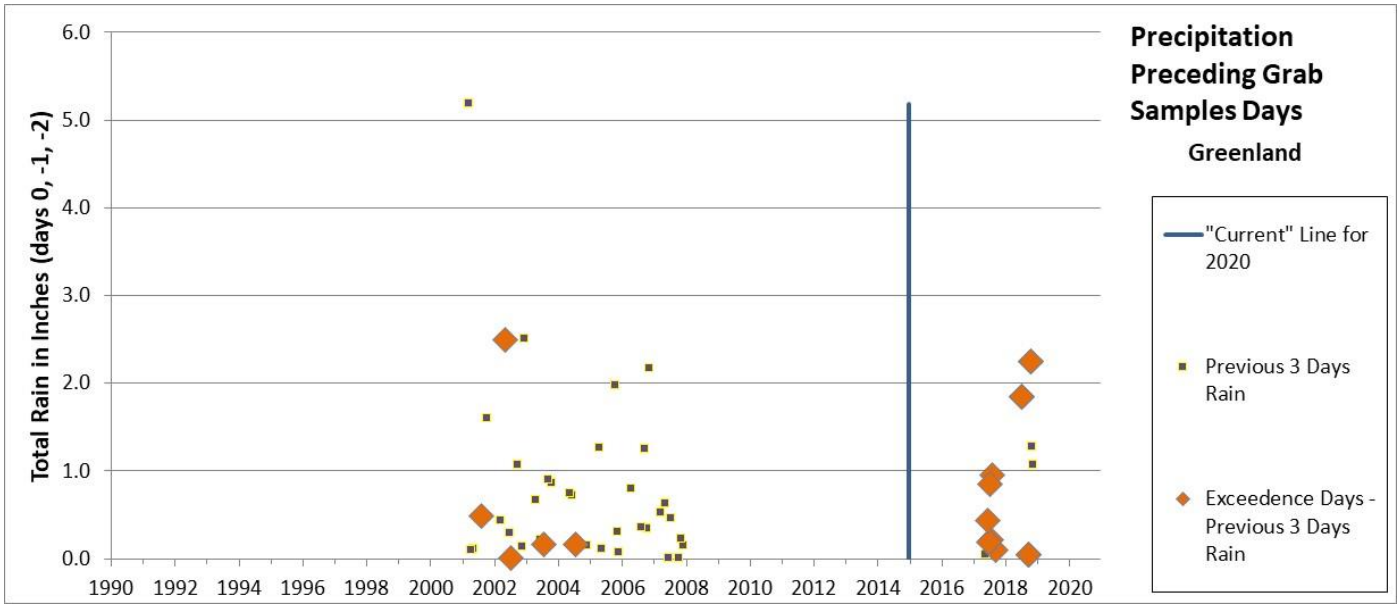
## SAGAMORE CREEK (NHRIV600031001-03)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| SAGAMORE CREEK | NHRIV600031001-03 | Dissolved oxygen saturation | PORTSMOUTH | 3-PAS | 5-M |

Twenty of 28 samples (71%) collected at stations 05-SAG, 01-ELW and SAGCK01 in the current assessment period (2015-2020) were below the criteria of 75% (24-hour average), resulting in a new impairment in the current assessment cycle. The samples were collected under a wide variety of flow conditions (0.14-5.05 cfsm) on the Winnicut River gage (01073785), water temperatures ranging from 7.7-23.8 degrees C, and under a variety of weather conditions (3-day rainfall total of 0.00-2.25 inches). The North River (NHRIV600031001-03) has been moved from 3-PNS to 5-M for dissolved oxygen saturation for the aquatic life integrity designated use based on the data collected in the current assessment period. It should be noted that this new impairment is tied to an assessment unit that falls within EPA's 2017 MS4 General Permit Area.


SAGAMORE CREEK
(NHRIV600031001-03)
Dissolved Oxygen (percent saturation)
"Current" Line for 2020
DOSat Min
DOSat Min- (Magex)
DO-PERC-GRAB-NCT-NCP
DO-PERC-GRAB-NCT-CP
DO-PERC-GRAB-CT-NCP
DO-PERC-GRAB-CT-CP


Gage CFSM on Sample Days
USGS 01073785
WINNICUT RIVER AT
GREENLAND, NR
PORTSMOUTH, NH
Gage (cfsm)
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)

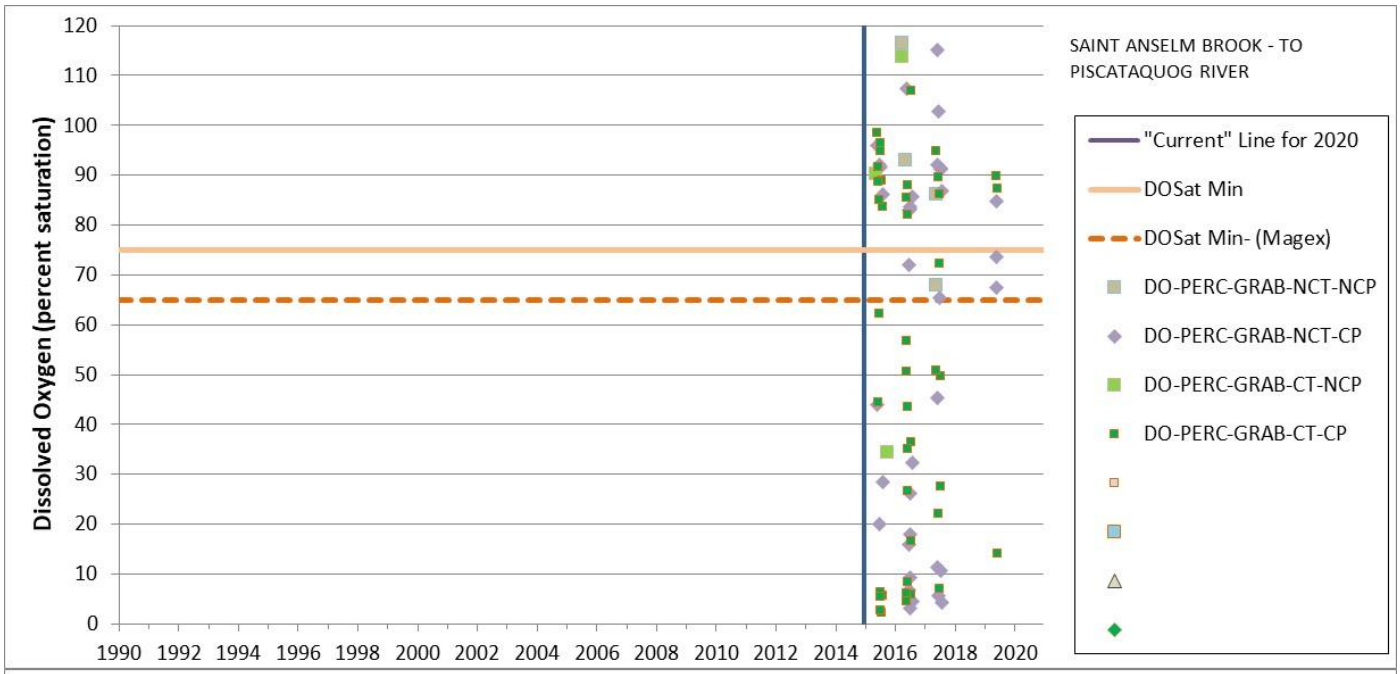


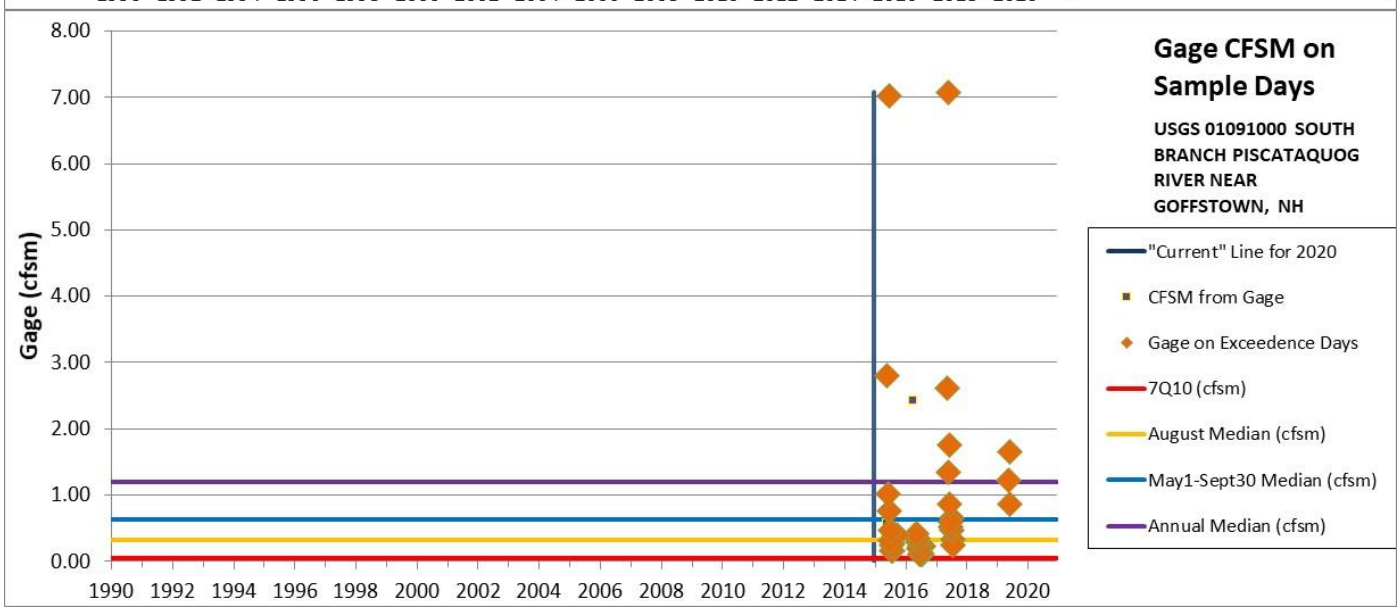

Notes:
DO-PERC-GRAB-CT-CP = Grab samples of dissolved oxygen during the early morning hours of the summer critical period.
DO-PERC-GRAB-CT-NCP = Grab samples of dissolved oxygen during the early morning hours and not during the summer critical period.
DO-PERC-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.
DO-PERC-GRAB-NCT-NCP = Grab samples of dissolved oxygen not in the early morning hours and outside the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details

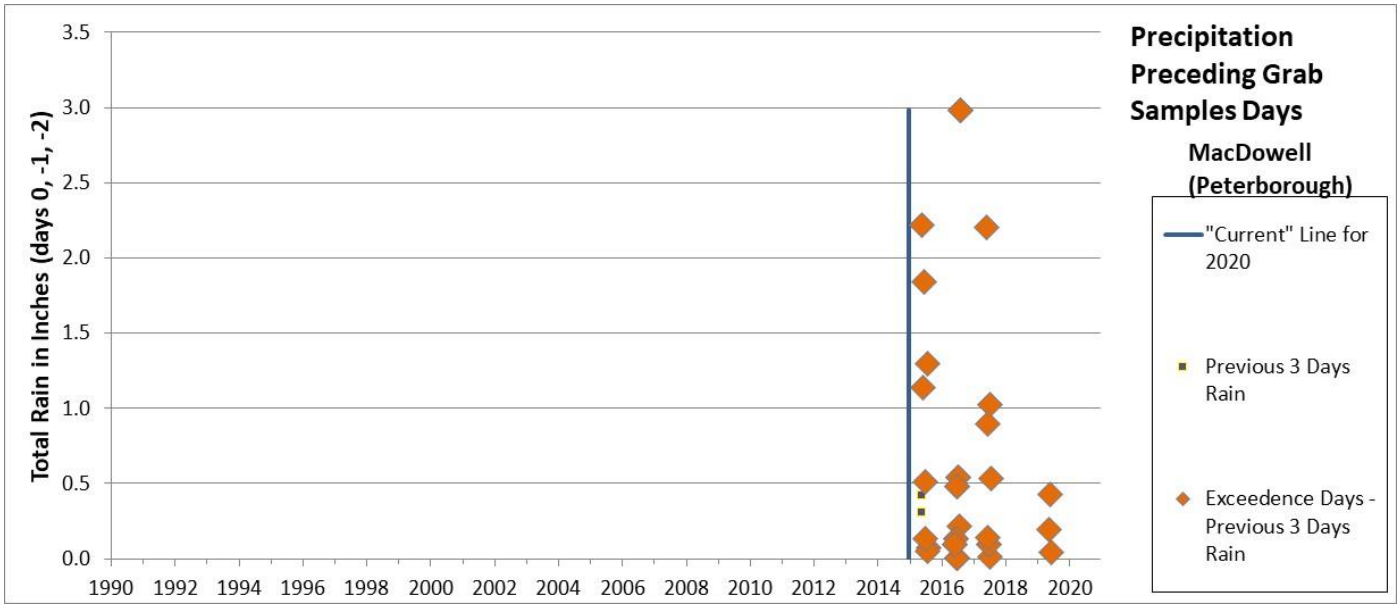
## SAINT ANSELM BROOK - TO PISCATAQUOG RIVER (NHRIV700060607-35)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| SAINT ANSELM BROOK - TO PISCATAQUOG RIVER | NHRIV700060607-35 | Dissolved oxygen saturation | GOFFSTOWN, MANCHESTER | 3-PNS | 5-P |

New data collected in the current assessment period (2015-2020) at stations 03-SAB, 04-SAB and 05-SAB indicate that the brook consistently has dissolved oxygen saturation below 65%, and on occasion the saturation falls below 10%. The low dissolved oxygen samples collected during the current assessment perio were collected during flows between 0.10 and 7.08 cfsm at the South Branch Piscataquog River gauge (01091000) and with 3-day rainfall totals between 0.01 and 2.99 inches. Saint Anselm Brook - To Piscataquog River (NHRIV700060607-35) has been moved from 3-PNS to 5-P for dissolved oxygen saturation for the aquatic life integrity designated use based on the data collected in the current assessment period. It should be noted that this new impairment is tied to an assessment unit that falls within EPA's 2017 MS4 General Permit Area.


SAINT ANSELM BROOK - TO PISCATAQUOG RIVER
Dissolved Oxygen (percent saturation)
"Current" Line for 2020
DOSat Min
DOSat Min- (Magex)
DO-PERC-GRAB-NCT-NCP
DO-PERC-GRAB-NCT-CP
DO-PERC-GRAB-CT-NCP
DO-PERC-GRAB-CT-CP


Gage CFSM on Sample Days
USGS 01091000 SOUTH BRANCH PISCATAQUOG RIVER NEAR GOFFSTOWN, NH
Gage (cfsm)
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)



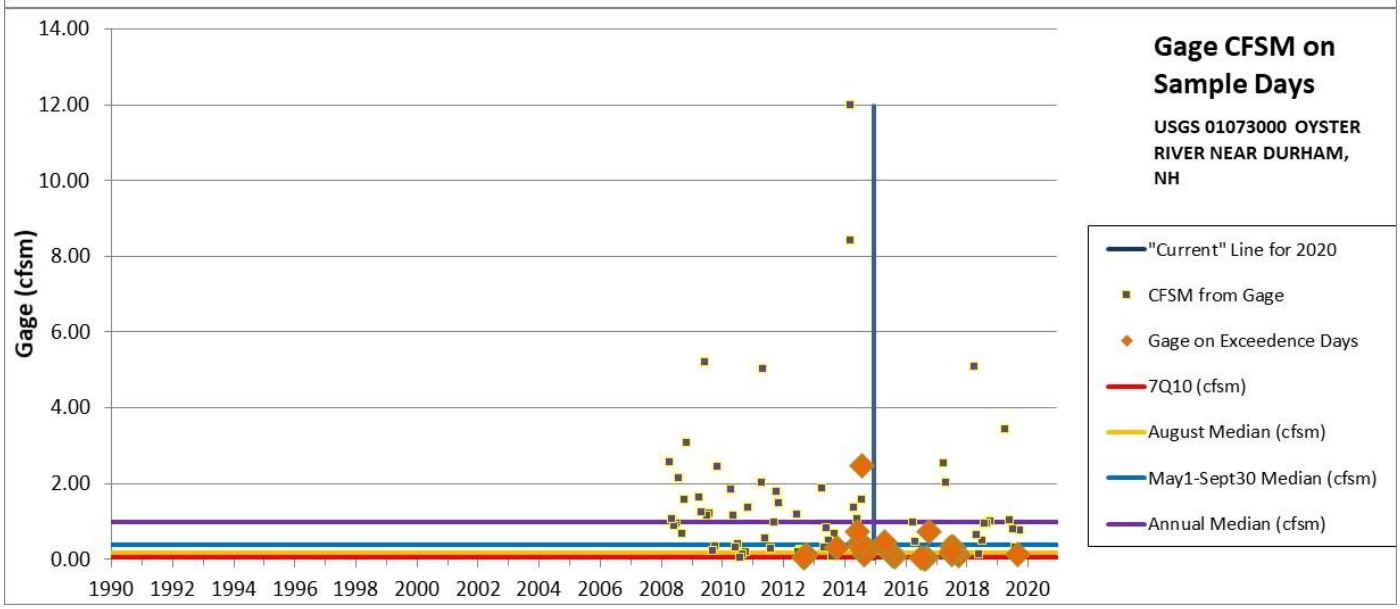

Notes:
DO-PERC-GRAB-CT-CP = Grab samples of dissolved oxygen during the early morning hours of the summer critical period.
DO-PERC-GRAB-CT-NCP = Grab samples of dissolved oxygen during the early morning hours and not during the summer critical period.
DO-PERC-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.
DO-PERC-GRAB-NCT-NCP = Grab samples of dissolved oxygen not in the early morning hours and outside the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details

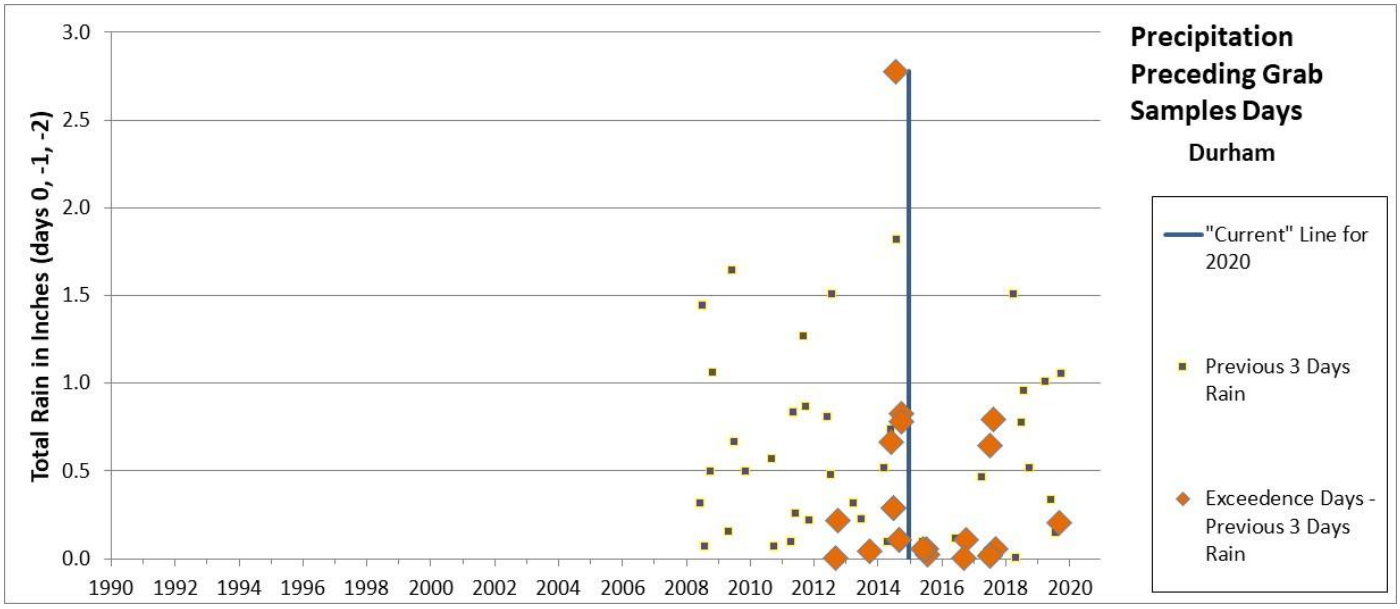
## WENDYS BROOK (NHRIV600030902-16)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| WENDYS BROOK | NHRIV600030902-16 | Dissolved oxygen saturation | LEE | 3-PNS | 5-M |

Twenty of 47 samples (43%) collected at station 01-WDY in the current assessment period (2015-2020) were below the criteria of 75% (24-hour average), resulting in a new impairment in the current assessment cycle. The samples were collected under a wide variety of flow conditions (0.1-0.73 cfsm) on the Oyster River gage (01073000), water temperatures ranging from 12-20.1 degrees C, and under a variety of weather conditions (3-day rainfall total of 0.00-0.80 inches). Wendys Brook (NHRIV600030902-16) has been moved from 3-PNS to 5-M for dissolved oxygen saturation for the aquatic life integrity designated use based on the data collected in the current assessment period.


WENDYS BROOK
(NHRIV600030902-16)
Dissolved Oxygen (percent saturation)
"Current" Line for 2020
DOSat Min
DOSat Min- (Magex)
DO-PERC-GRAB-NCT-NCP
DO-PERC-GRAB-NCT-CP
DO-PERC-GRAB-CT-NCP
DO-PERC-GRAB-CT-CP
DO-PERC-24H-MEAN-CP


Gage CFSM on Sample Days
USGS 01073000 OYSTER RIVER NEAR DURHAM, NH
Gage (cfsm)
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)



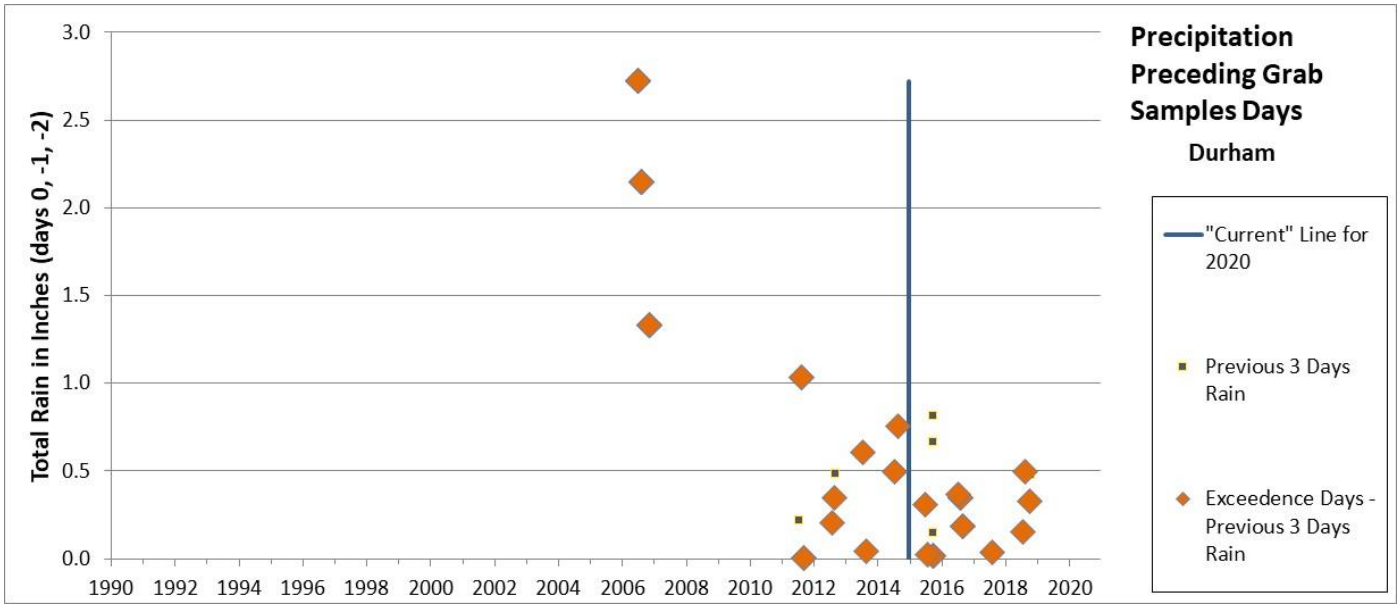

Notes:
DO-PERC-GRAB-CT-CP = Grab samples of dissolved oxygen during the early morning hours of the summer critical period.
DO-PERC-GRAB-CT-NCP = Grab samples of dissolved oxygen during the early morning hours and not during the summer critical period.
DO-PERC-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.
DO-PERC-GRAB-NCT-NCP = Grab samples of dissolved oxygen not in the early morning hours and outside the summer critical period.
DO-PERC-24HR-MEAN-CP = 24-hour average dissolved oxygen saturation from a datalogger deployed during the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details

## WINNICUT RIVER - BARTON BROOK - MARSH BROOK - THOMPSON BROOK (NHRIV600030901-02)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| WINNICUT RIVER - BARTON BROOK - MARSH BROOK - THOMPSON BROOK | NHRIV600030901-02 | Dissolved oxygen saturation | GREENLAND, NORTH HAMPTON, STRATHAM | 3-PNS | 5-P |

Data collected during the current assessment period (2015-2020) at stations 02H-TBK, 02-TBK, 05-WNC and 11-WNC indicate that the brook consistently has dissolved oxygen saturations below 65%, and occasionally below 50%. The majority of the low dissolved oxygen occurred at stations 05-WNC and 11-WNC. The low dissolved oxygen samples collected during the current assessment period were collected during flows between 0.01 and 1.22 CFSM at the Winnicut River gauge (01073785) and with 3-day rainfall totals < 0.33 inches. The Winnicut River - Barton Brook - Marsh Brook - Thompson Brook (NHRIV600030901-02) has been moved from 3-PNS to 5-P for dissolved oxygen (percent saturation) for the aquatic life integrity designated use based on data collected in the current assessment period. It should be noted that this new impairment is tied to an assessment unit that falls within EPA's 2017 MS4 General Permit Area.


WINNICUT RIVER - BARTON BROOK - MARSH BROOK - THOMPSON
Dissolved Oxygen (percent saturation)
"Current" Line for 2020
DOSat Min
DOSat Min- (Magex)
DO-PERC-GRAB-NCT-NCP
DO-PERC-GRAB-NCT-CP
DO-PERC-GRAB-CT-NCP
DO-PERC-GRAB-CT-CP
DO-PERC-24H-MEAN-NCP
Gage CFSM on Sample Days
USGS 01073785 WINNICUT RIVER AT GREENLAND, NR PORTSMOUTH, NH
Gage (cfsm)
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)

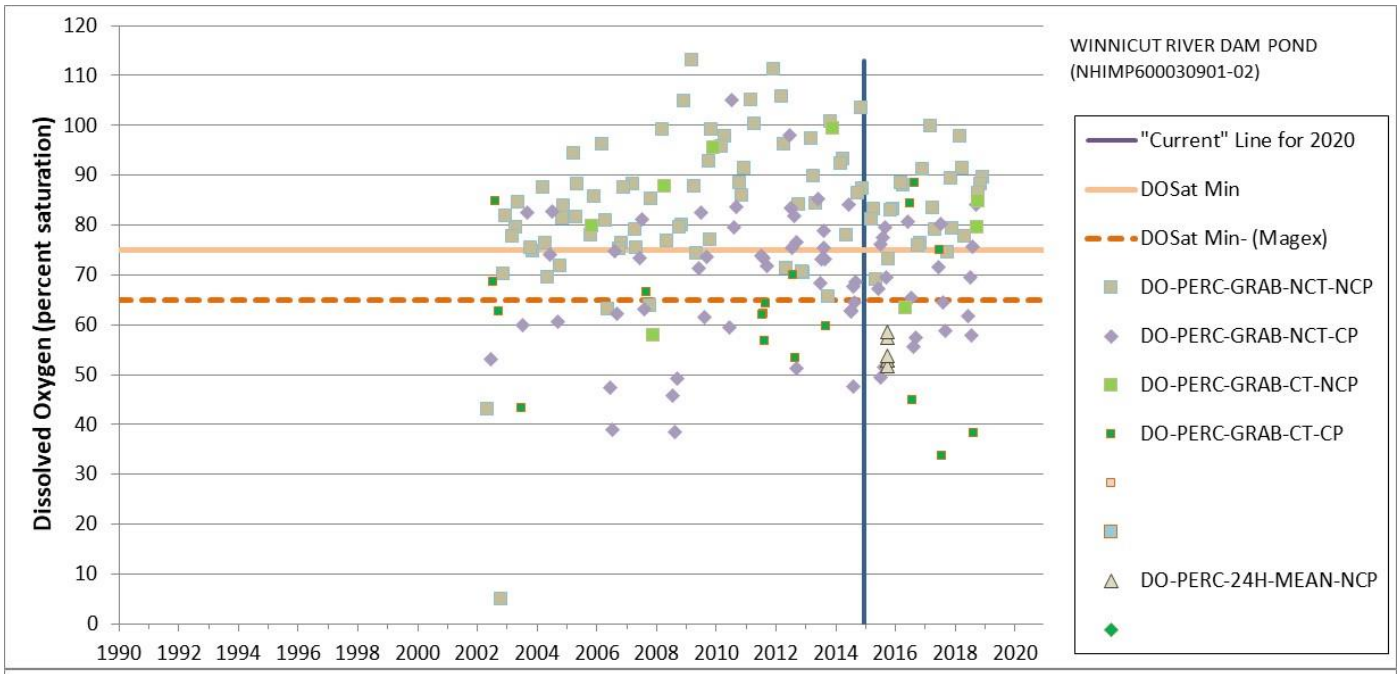


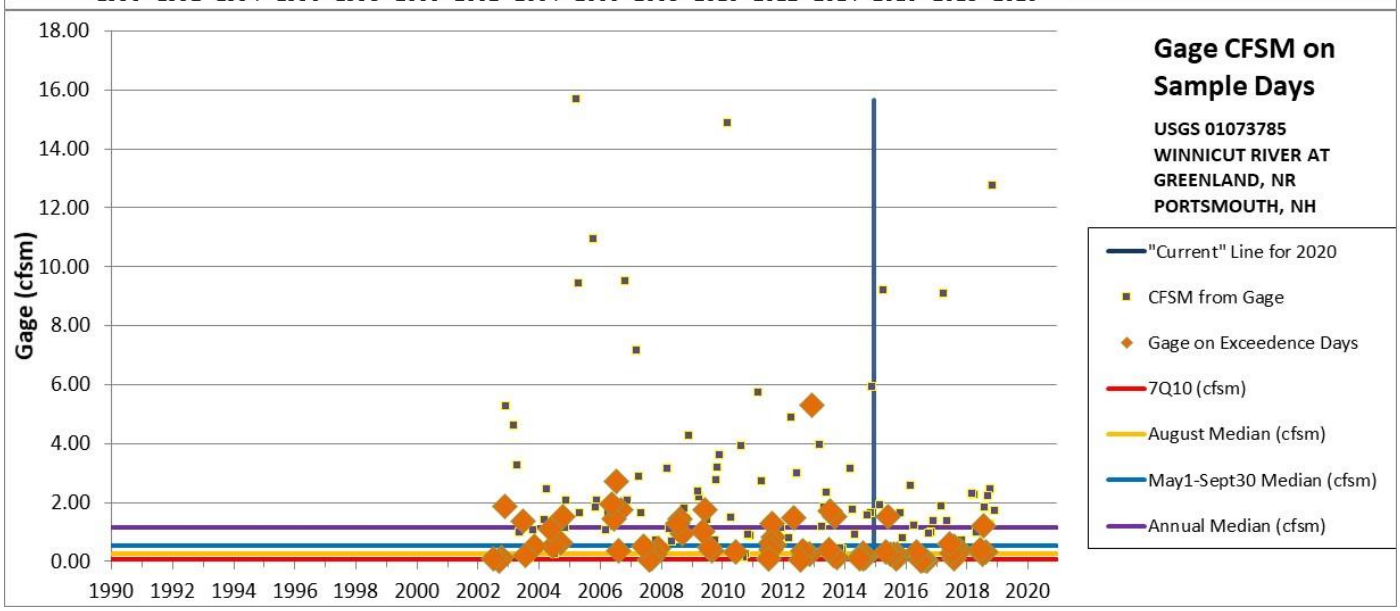

Notes:
DO-PERC-GRAB-CT-CP = Grab samples of dissolved oxygen during the early morning hours of the summer critical period.
DO-PERC-GRAB-CT-NCP = Grab samples of dissolved oxygen during the early morning hours and not during the summer critical period.
DO-PERC-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.
DO-PERC-GRAB-NCT-NCP = Grab samples of dissolved oxygen not in the early morning hours and outside the summer critical period.
DO-PERC-24HR-MEAN-NCP = 24-hour average dissolved oxygen saturation from a datalogger not deployed during the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details

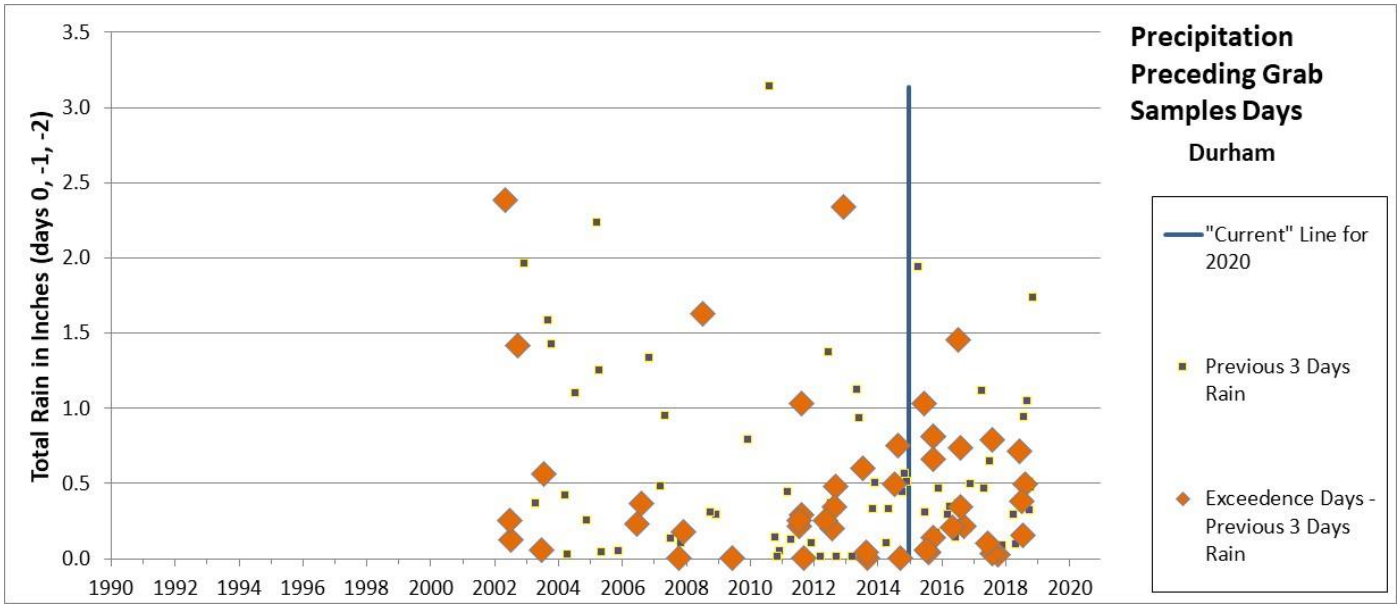
## WINNICUT RIVER DAM POND (NHIMP600030901-02)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| WINNICUT RIVER DAM POND | NHIMP600030901-02 | Dissolved oxygen saturation | GREENLAND | 3-PNS | 5-P |

Twenty-seven of 58 samples (47%) collected at station 02-WNC in the current assessment period (2015-2020) were below the criteria of 75% (24-hour average), resulting in a new impairment in the current assessment cycle. The samples were collected under a wide variety of flow conditions (0.07-1.52 cfsm) on the Winnicut River gage (01073785), water temperatures ranging from 7.7-25.3 degrees C, and under a variety of weather conditions (3-day rainfall total of 0.00-1.46 inches). The Winnicut River Dam Pond (NHIMP600030901-02) has been moved from 3-PNS to 5-P for dissolved oxygen saturation for the aquatic life integrity designated use based on the data collected in the current assessment period. It should be noted that this new impairment is tied to an assessment unit that falls within EPA's 2017 MS4 General Permit Area.


WINNICUT RIVER DAM POND
(NHIMP600030901-02)
Dissolved Oxygen (percent saturation)
"Current" Line for 2020
DOSat Min
DOSat Min- (Magex)
DO-PERC-GRAB-NCT-NCP
DO-PERC-GRAB-NCT-CP
DO-PERC-GRAB-CT-NCP
DO-PERC-GRAB-CT-CP
DO-PERC-24H-MEAN-NCP


Gage CFSM on Sample Days
USGS 01073785
WINNICUT RIVER AT
GREENLAND, NR
PORTSMOUTH, NH
Gage (cfsm)
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)




Notes:
DO-PERC-GRAB-CT-CP = Grab samples of dissolved oxygen during the early morning hours of the summer critical period.
DO-PERC-GRAB-CT-NCP = Grab samples of dissolved oxygen during the early morning hours and not during the summer critical period.
DO-PERC-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.
DO-PERC-GRAB-NCT-NCP = Grab samples of dissolved oxygen not in the early morning hours and outside the summer critical period.
DO-PERC-24HR-MEAN-NCP = 24-hour average dissolved oxygen saturation from a datalogger not deployed during the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details

# Dissolved Oxygen Concentration for Aquatic Life Integrity

## BELLAMY RIVER ASSESSMENT ZONE (NHEST600030903-01-01, NHEST600030903-01-03, NHEST600030903-01-04)

| Assessment Zone | Assessment Unit IDs | Parameter Name | Town(s) | 2016 | 2020/2022 |
|---|---|---|---|---|---|
| Bellamy River | NHEST600030903-01-01, NHEST600030903-01-03, NHEST600030903-01-04 | Chlorophyll-a | DOVER, DURHAM, MADBURY | 3-PNS | 5-P |

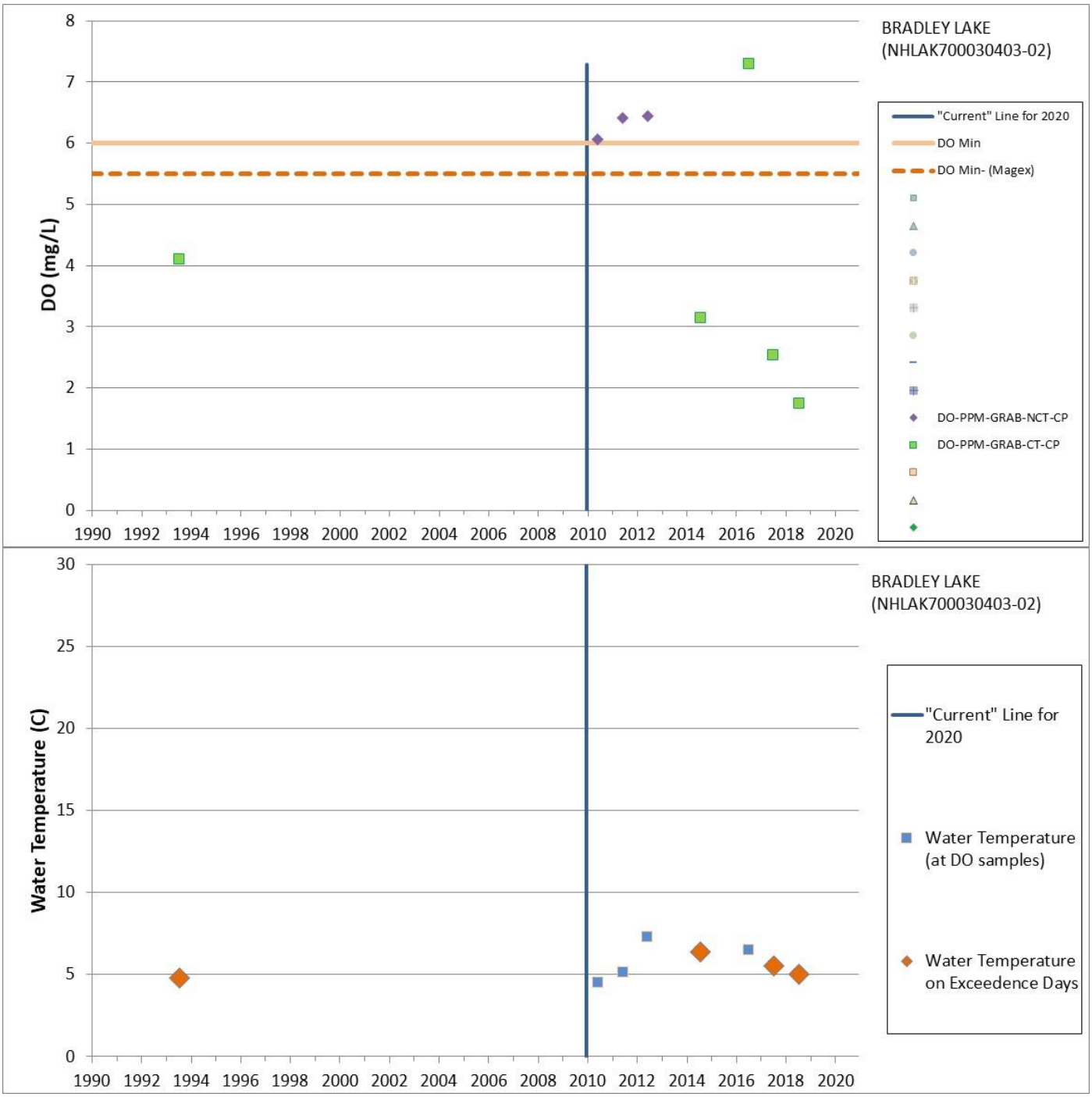
The Bellamy River Assessment Zone (NHEST600030903-01-01, NHEST600030903-01-03, NHEST600030903-01-04) has been moved from category 3-PNS to 5-P for dissolved oxygen (mg/L) for the aquatic life integrity designated use based on data collected in the current assessment period. A full parameter level discussion of the rational used to make the assessment determination for this waterbody is provided by assessment zone in the Technical Support Document for the Great Bay Estuary Aquatic Life Use Support Assessments, 2020/2022 305(b) Report/303(d) List.

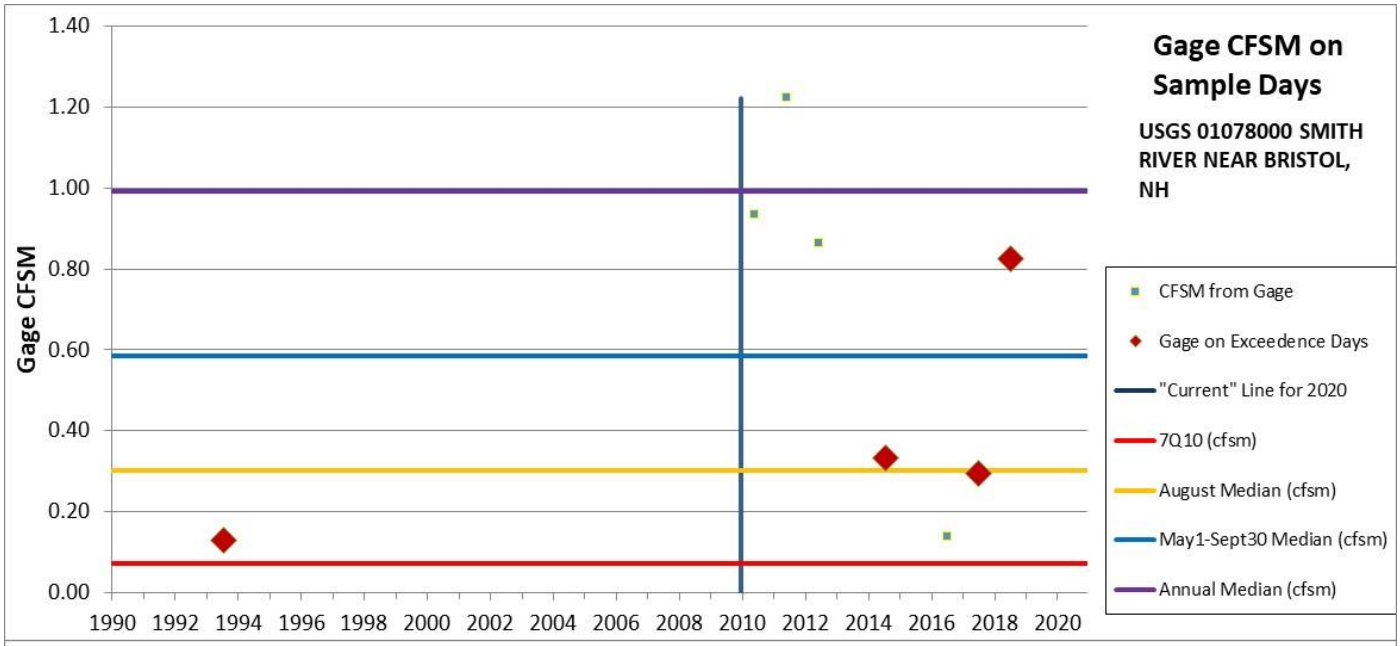
## BRADLEY LAKE (NHLAK700030403-02)

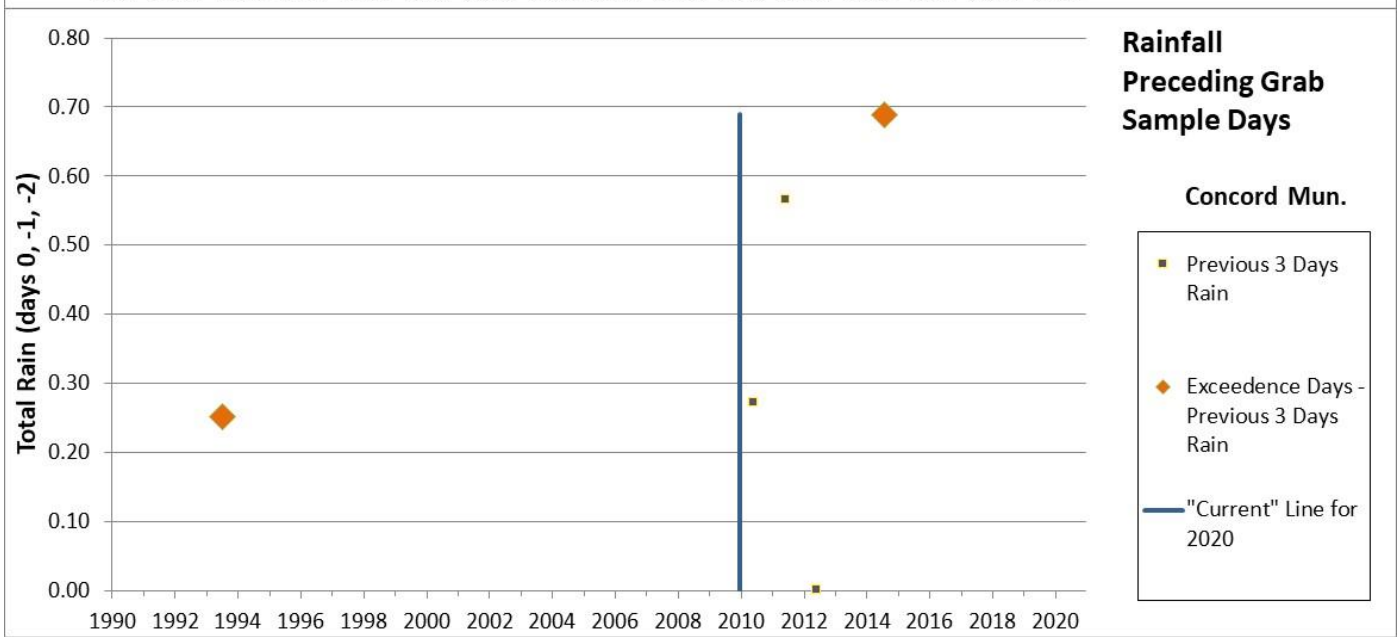
| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| BRADLEY LAKE | NHLAK700030403-02 | DISSOLVED OXYGEN (MG/L) | ANDOVER | 3-PNS | 5-P |

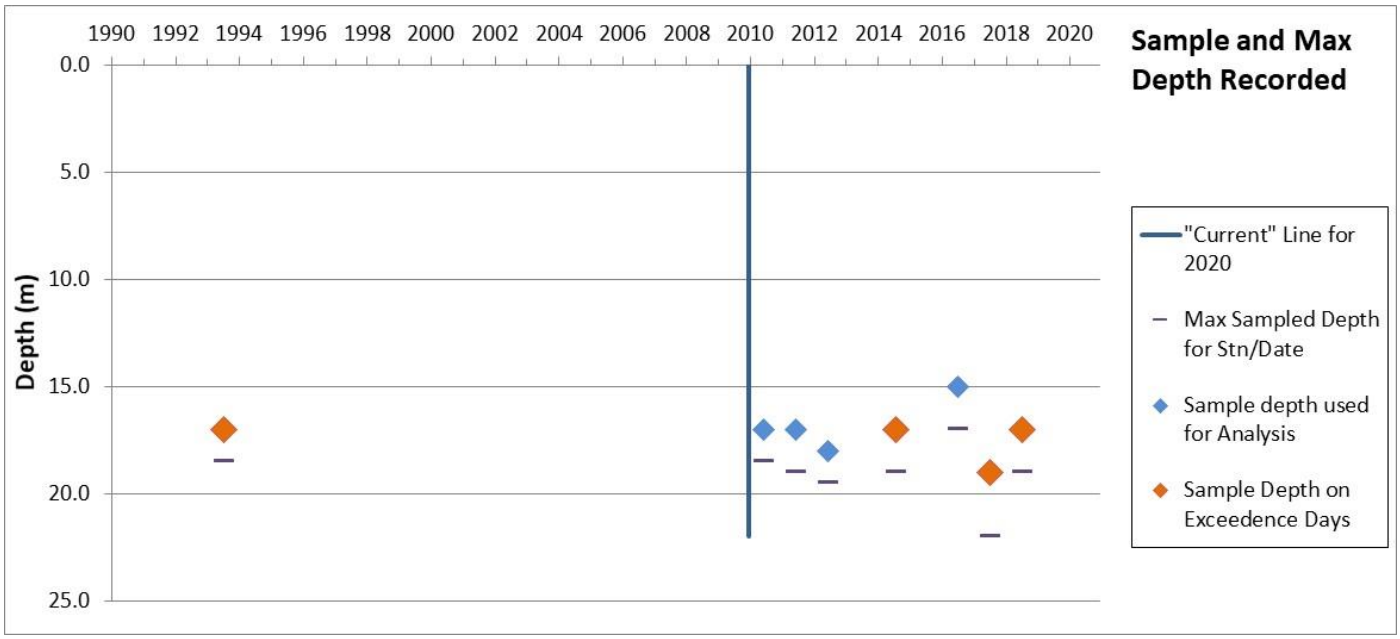
Three of 7 samples (42.9%) of grab samples collected at station BRAANDD in the current assessment cycle (2010-2020) were below the criteria of 6.0 mg/L, resulting in a new impairment in the current assessment cycle. Although it is only 3 samples, the samples were collected during the critical period and critical time for three different years. The samples were collected under a wide variety

of flow conditions (0.33-0.83 cfsm) on the Smith River gage (01078000), water temperatures ranging from 5.0-6.4 degrees C, and under a variety of weather conditions (3-day rainfall total of 0.00-2.18 inches). Bradley Lake (NHLAK700030403-02) has been moved from 3-PNS to 5-P for dissolved oxygen (mg/L) for the aquatic life integrity designated use based on the data collected in the current assessment period.




Gage CFSM on Sample Days
USGS 01078000 SMITH RIVER NEAR BRISTOL, NH
Gage CFSM
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020
CFSM from Gage
Gage on Exceedence Days
"Current" Line for 2020
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)


Rainfall Preceding Grab Sample Days
Concord Mun.
Total Rain (days 0, -1, -2)
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020
Previous 3 Days Rain
Exceedence Days - Previous 3 Days Rain
"Current" Line for 2020

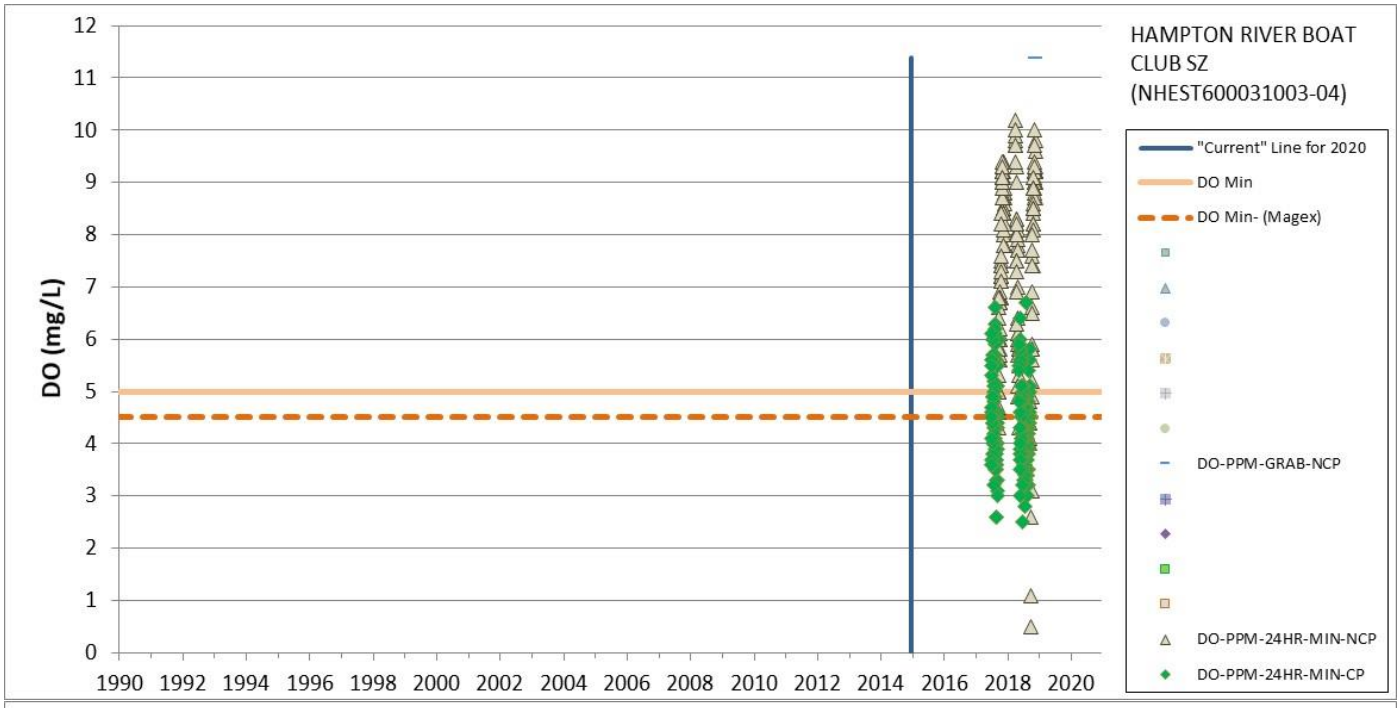


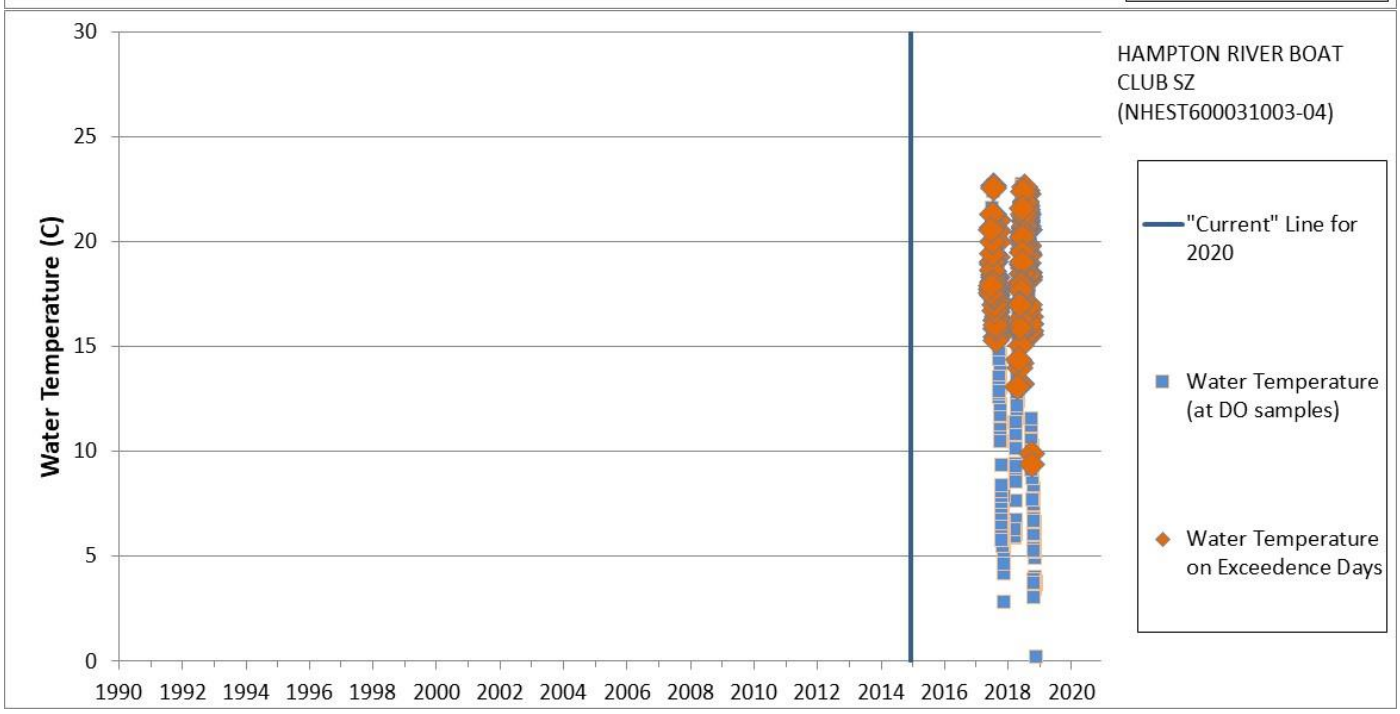

Notes:
DO-PPM-GRAB-CT-CP = Grab samples of dissolved oxygen during the early morning hours of the summer critical period.
DO-PPM-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details.

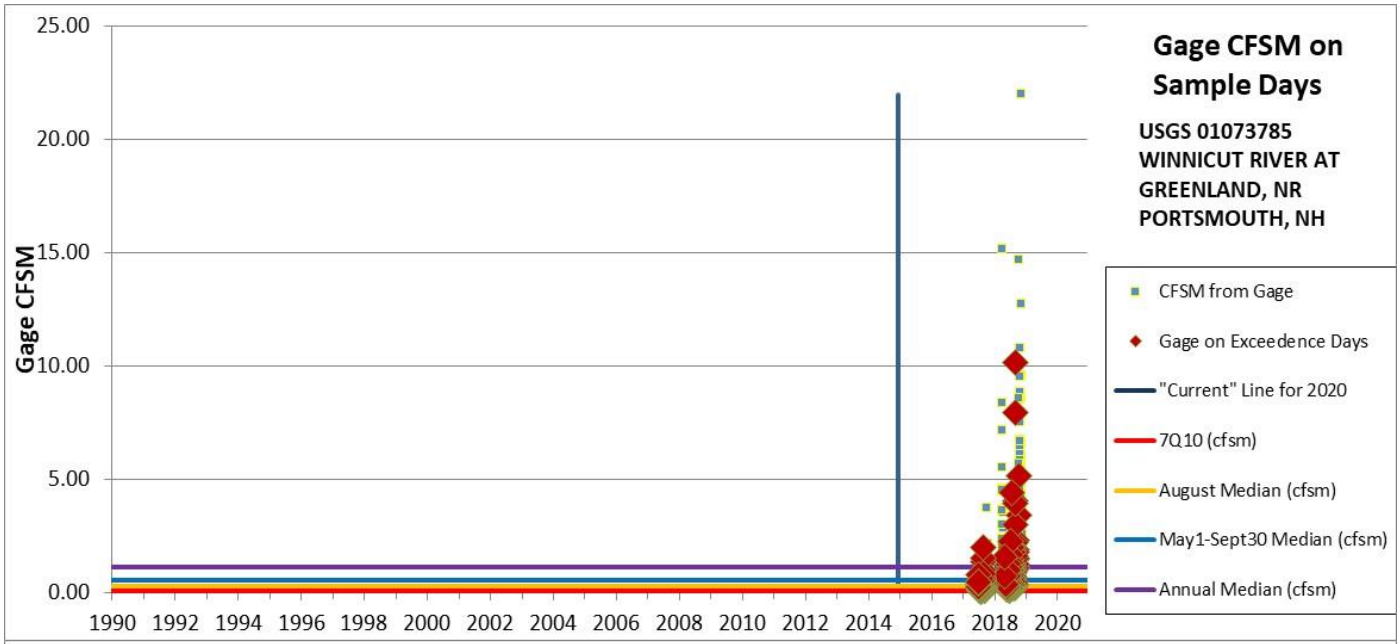
## HAMPTON RIVER BOAT CLUB SZ (NHEST600031003-04)

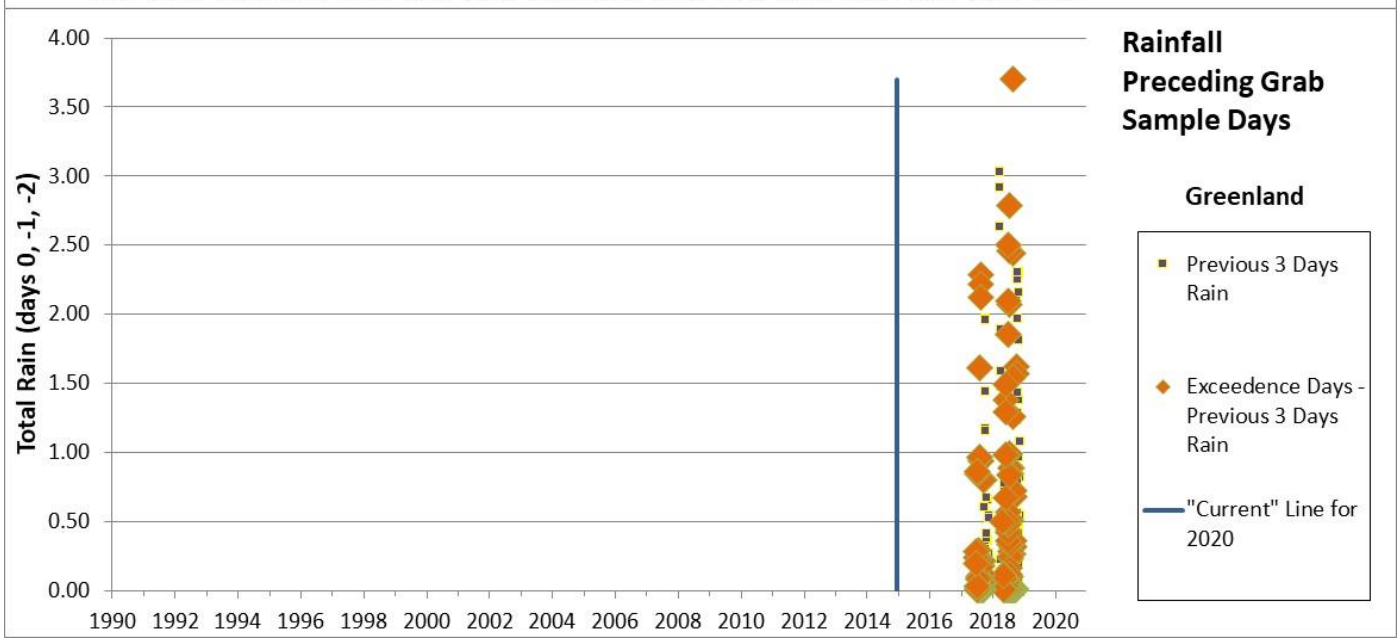
| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| HAMPTON RIVER BOAT CLUB SZ | NHEST600031003-04 | DISSOLVED OXYGEN (MG/L) | HAMPTON | 3-ND | 5-P |

167 of 381 (43.8%) of 24hr min values of dissolved oxygen (mg/L) collected at station HHHR in the current assessment cycle (2015-2020) were below the threshold of 5.0 mg/L, resulting in a new impairment in the current assessment cycle. The low dissolved oxygen values were collected under a wide variety of flow conditions (0.07-10.14 cfsm) on the Winnicut River gage (01073785), water temperatures ranging from 9.4-22.7 degrees C, and under a variety of weather conditions (3-day rainfall total of 0.00-3.70 inches). The Hampton River Boat Club SZ (NHEST600031003-04) has been moved from 3-ND to 5-P for dissolved oxygen (mg/L) for the aquatic life integrity designated use based on the data collected in the current assessment period. It should be noted that this new impairment is tied to an assessment unit that falls within EPA's 2017 MS4 General Permit Area.


HAMPTON RIVER BOAT CLUB SZ (NHEST600031003-04)
DO (mg/L)
"Current" Line for 2020
DO Min
DO Min- (Magex)
DO-PPM-GRAB-NCP
DO-PPM-24HR-MIN-NCP
DO-PPM-24HR-MIN-CP


HAMPTON RIVER BOAT CLUB SZ (NHEST600031003-04)
Water Temperature (C)
"Current" Line for 2020
Water Temperature (at DO samples)
Water Temperature on Exceedence Days



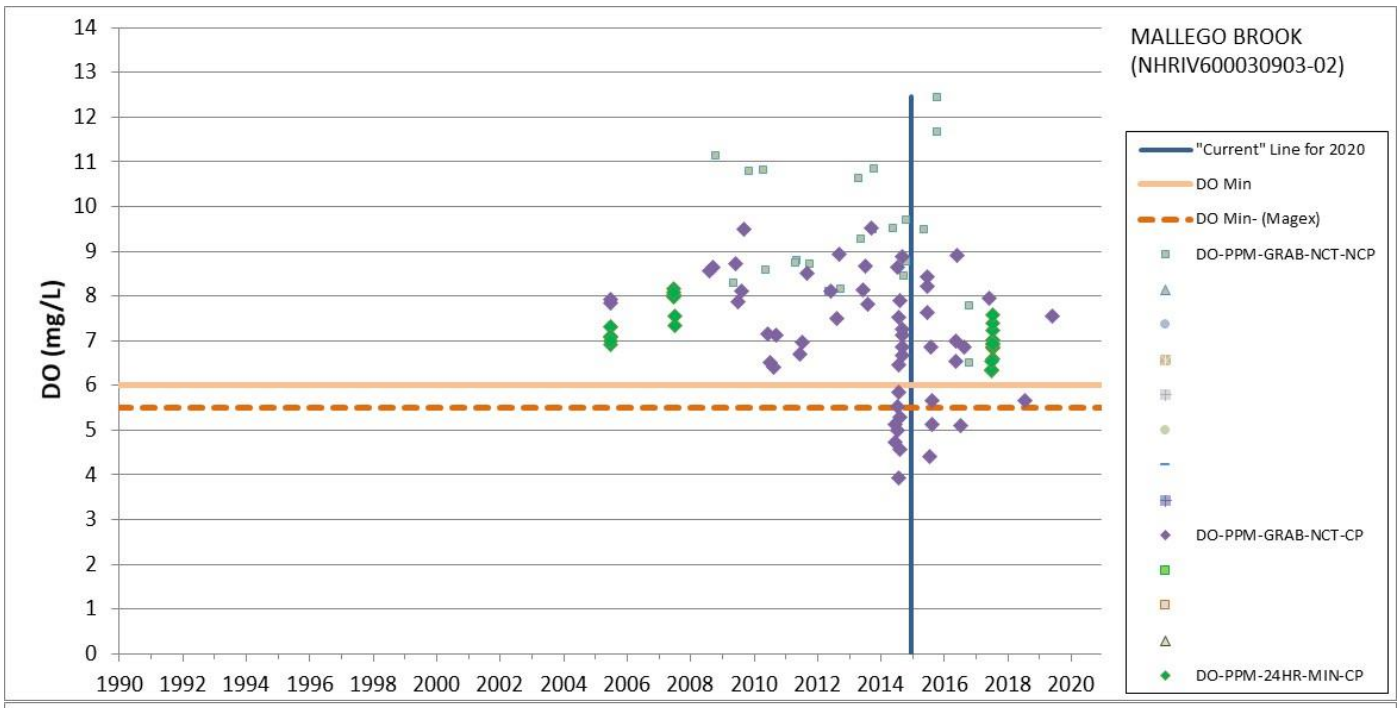

Notes:
DO-PPM-GRAB-NCP = Grab samples of dissolved oxygen during not during the summer critical period.
DO-PPM-24HR-MIN-CP = 24-hour minimum dissolved oxygen concentration from a datalogger deployed during the summer critical period.
DO-PPM-24HR-MIN-NCP = 24-hour minimum dissolved oxygen concentration from a datalogger not deployed during the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details.

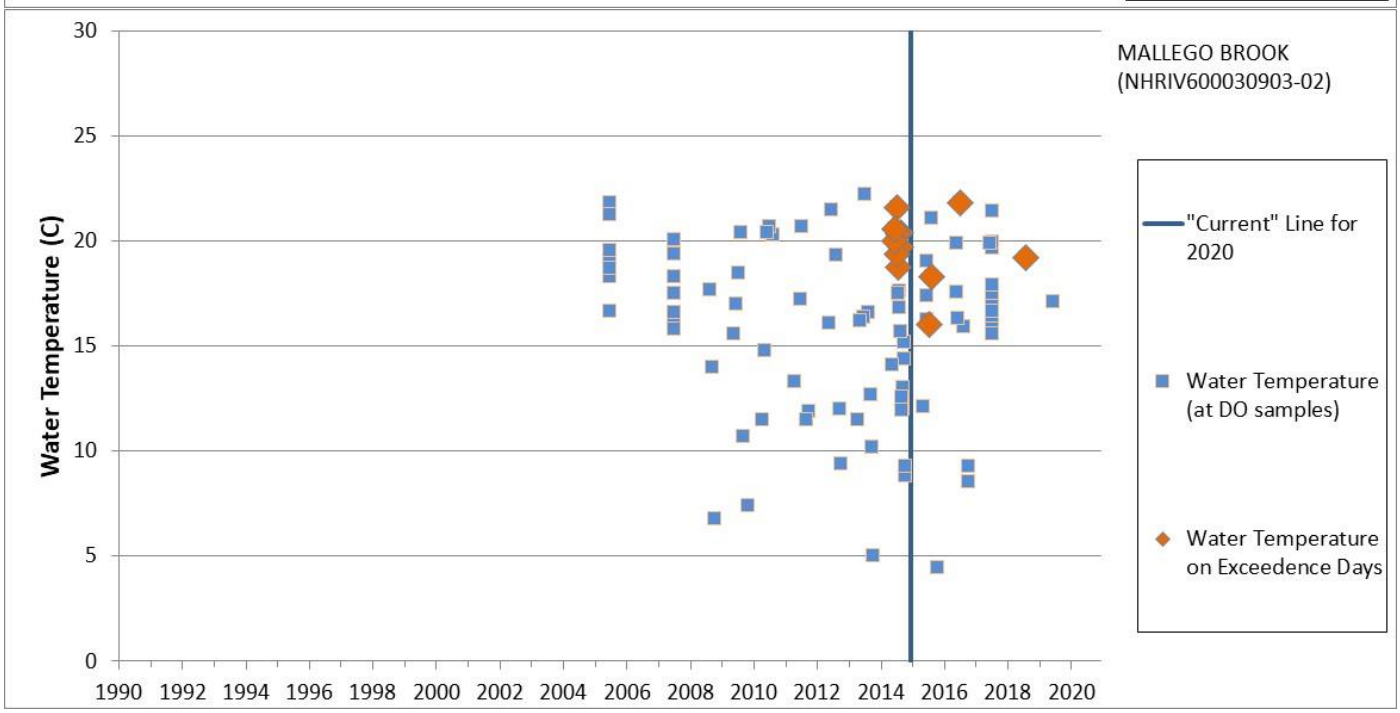
## MALLEGO BROOK (NHRIV600030903-02)

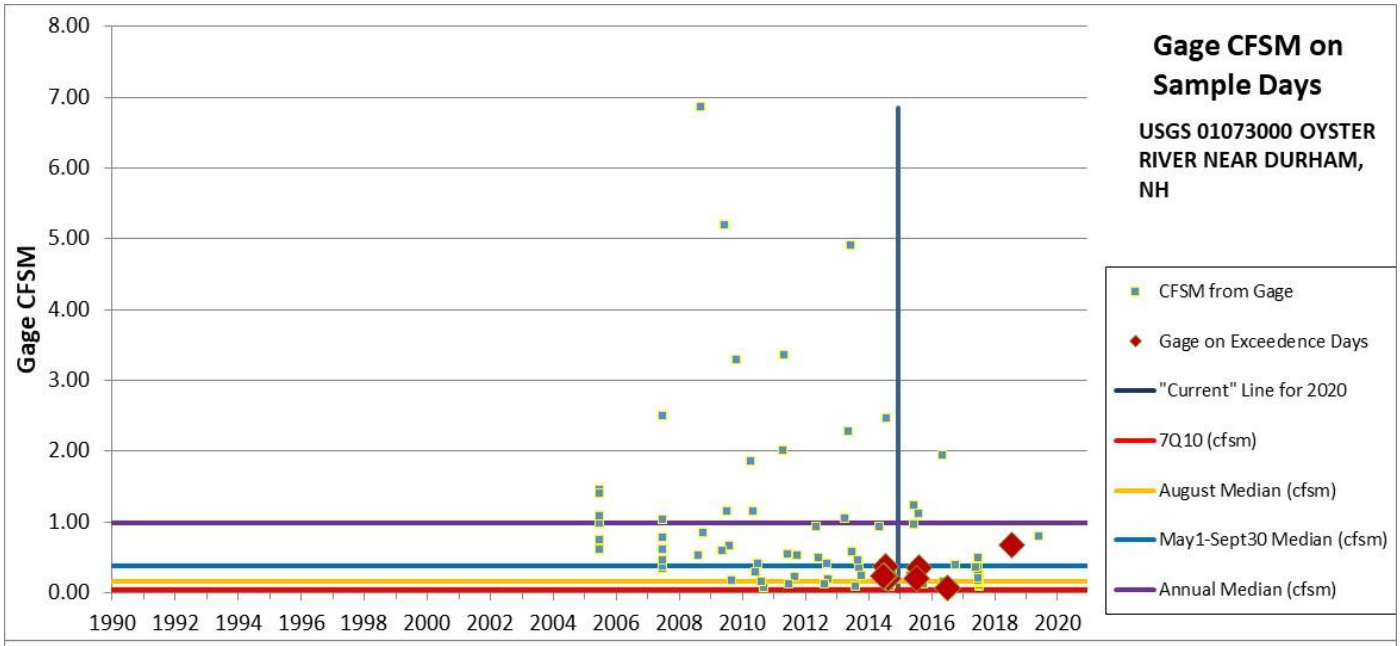
| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| MALLEGO BROOK | NHRIV600030903-02 | DISSOLVED OXYGEN (MG/L) | BARRINGTON, MADBURY | 3-PNS | 5-M |

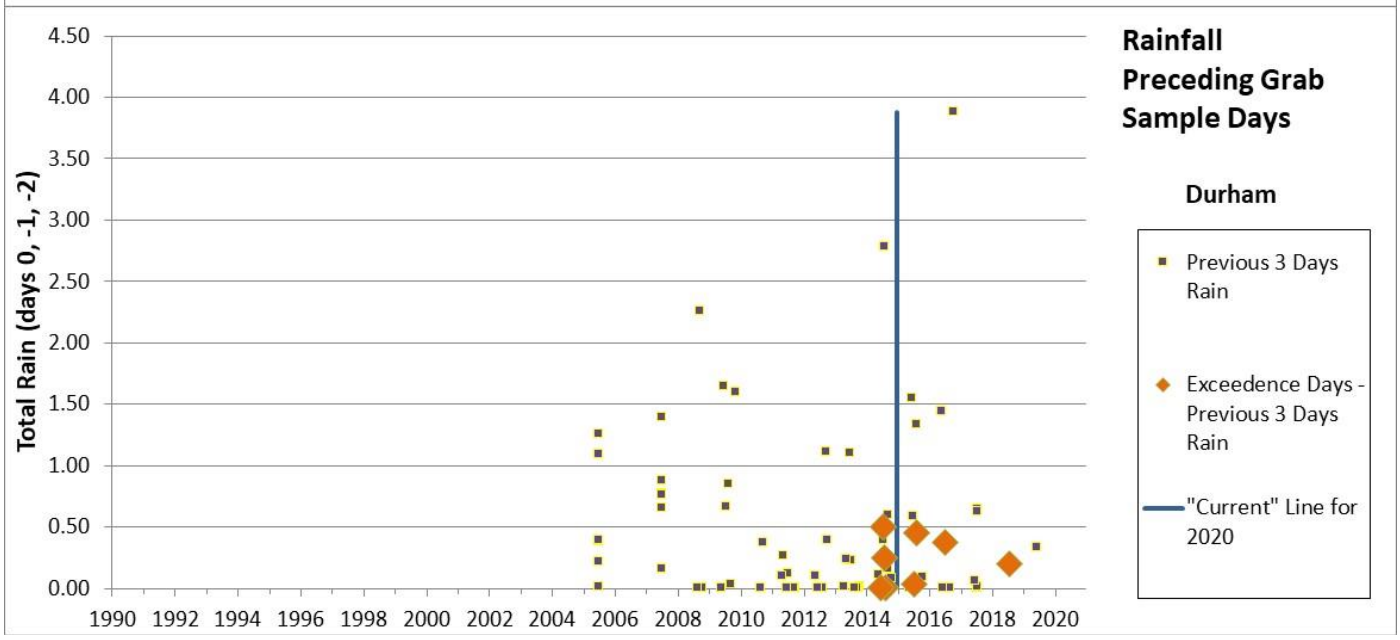
Five of 20 (25%) grab samples and none 24 hour minimum datalogger values collected at stations 02-MLG, 08-MLG, and 08A-MLG during the current assessment period (2015-2020) were below the dissolved oxygen criteria of 6 mg/L, resulting in a new impairment in the current assessment cycle. The low dissolved oxygen samples were collected during flows ranging from 0.07-0.66

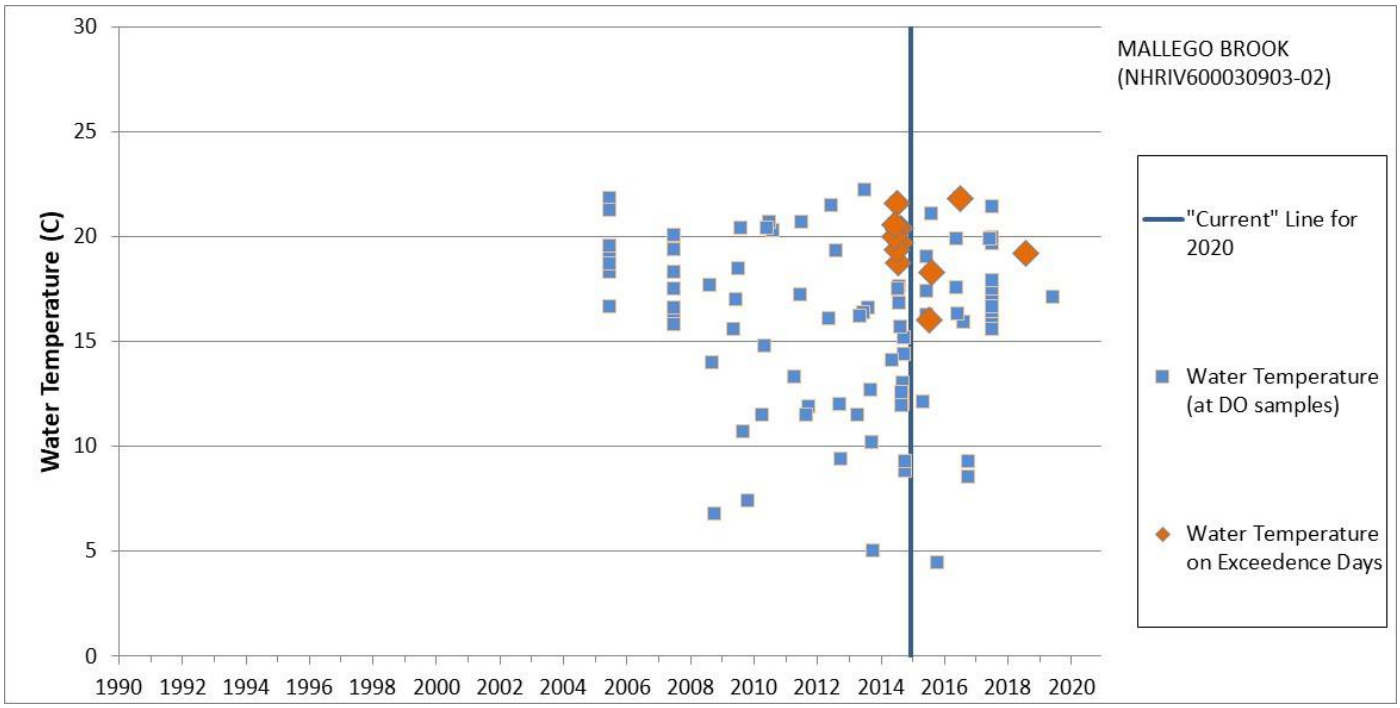
cfsm on the Oyster River gage (01073000), water temperatures ranging from 13.0-21.8 degrees C, and 3-day rainfall totals ranging from 0.03-0.45 inches. Although all three sampling station showed low dissolved oxygen, the majority of the low concentrations were seen at stations 08-MLG and 08A-MLG. Additionally, when concurrent samples have been collected station 02-MLG typically shows dissolved oxygen above the threshold when stations 08-MLG and 08A-MLG show low dissolved oxygen. The 2018 assessment requested that additional dataloggers be deployed to better understand the dynamics of this system. Unfortunately, the only datalogger data collected to date has come from station 02-MLG where dissolved oxygen is typically better. It should be noted that stations 08-MLG and 08A-MLG are at the very top of the watershed and have a relatively small drainage area of about 300 acres, while station 02-MLG is about 4-miles downstream at the bottom of the watershed where it aggregates greater flows that can translate to better mixing and higher dissolved oxygen concentrations. Additional datalogger data at stations 08-MLG and 08A-MLG should be collected in future years. Mallego Brook (NHRIV600030903-02) has been moved from 3-PNS to 5-M for dissolved oxygen (mg/L) for the aquatic life integrity support designated use based on data collected in the current assessment period.




Gage CFSM on Sample Days
USGS 01073000 OYSTER RIVER NEAR DURHAM, NH
Gage CFSM
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020
CFSM from Gage
Gage on Exceedence Days
"Current" Line for 2020
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)


Rainfall Preceding Grab Sample Days
Durham
Total Rain (days 0, -1, -2)
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020
Previous 3 Days Rain
Exceedence Days - Previous 3 Days Rain
"Current" Line for 2020

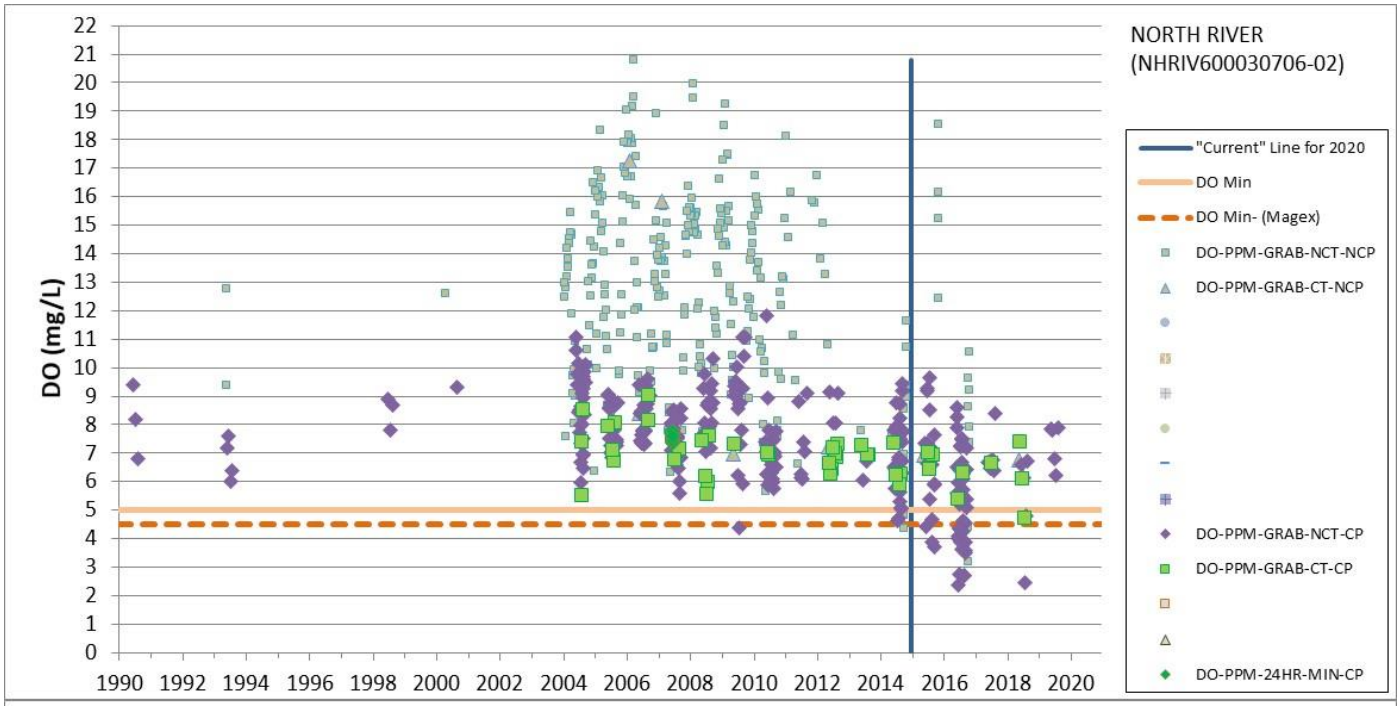


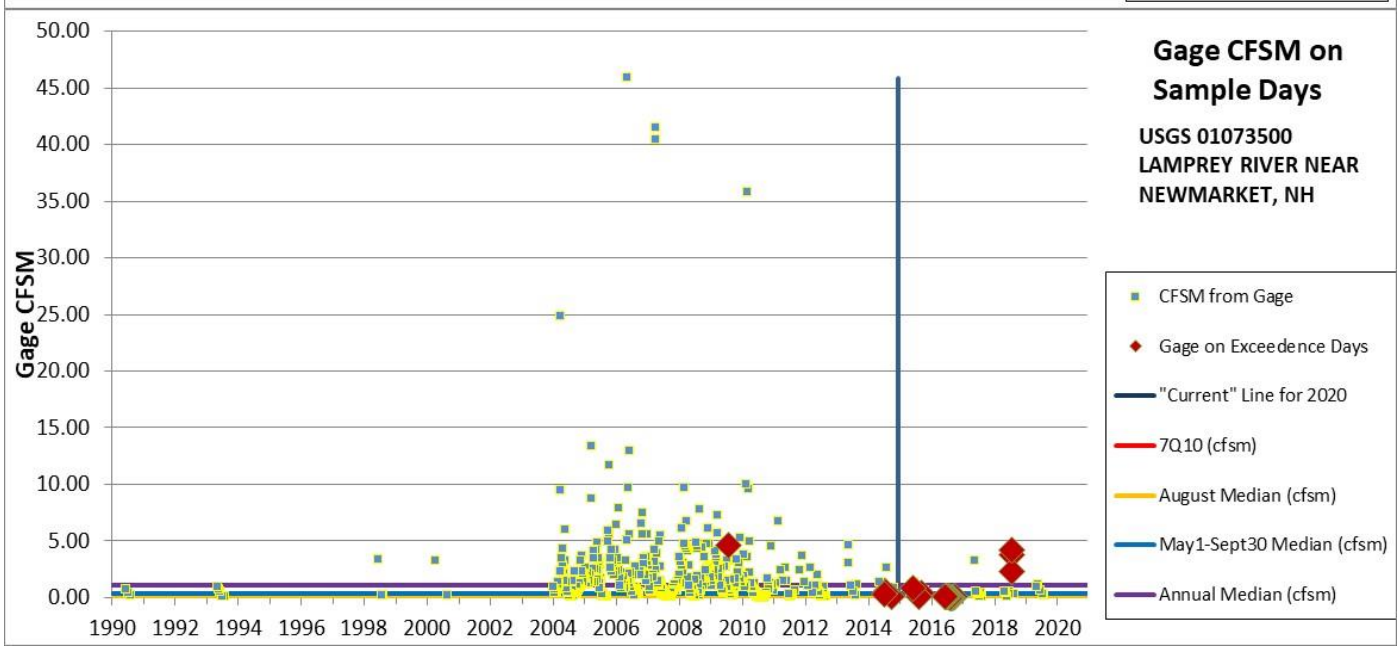

Notes:
DO-PPM-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.
DO-PPM-24HR-MIN-CP = 24-hour minimum dissolved oxygen concentration from a datalogger deployed during the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details.

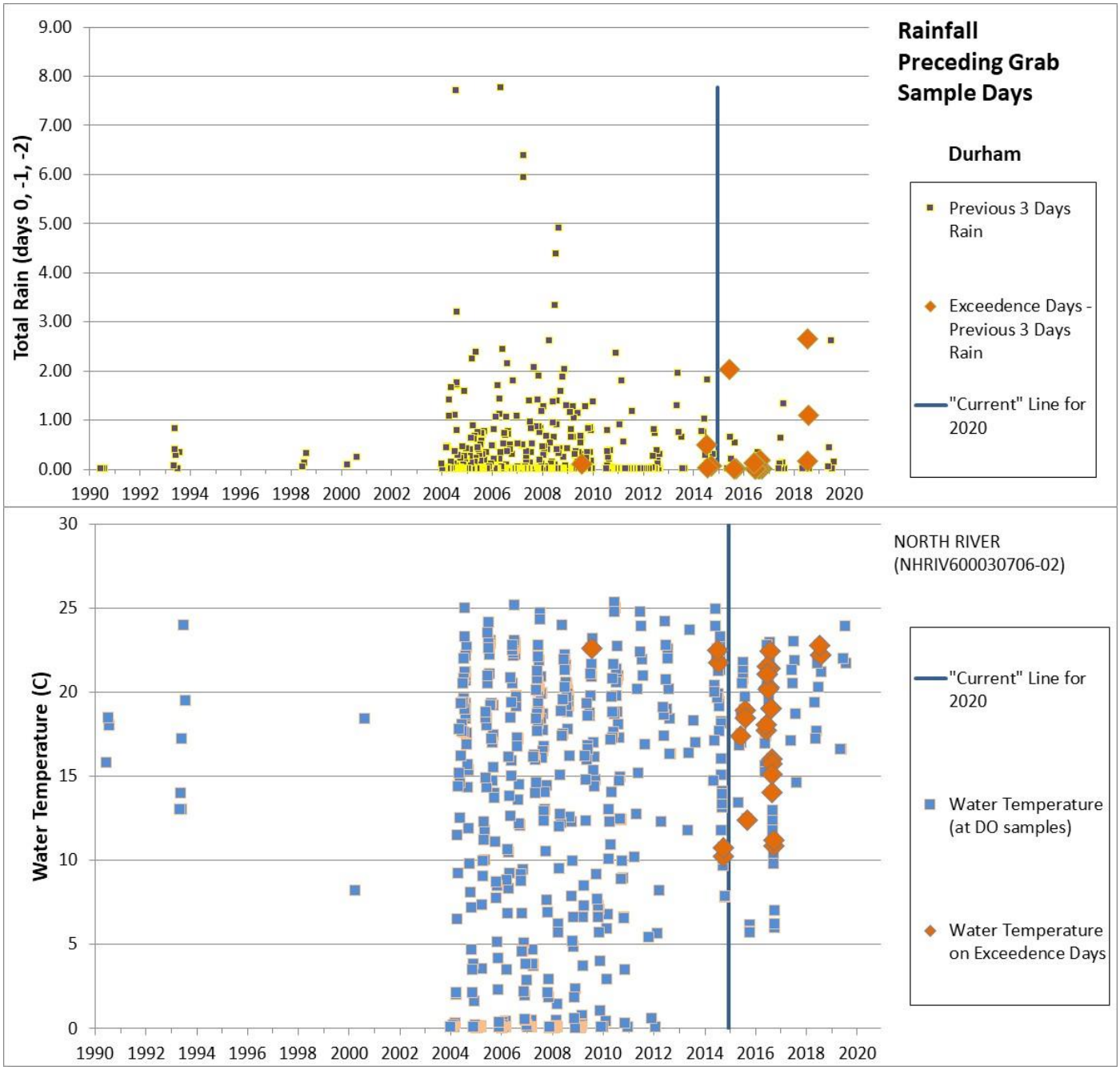
## NORTH RIVER (NHRIV600030706-02)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| NORTH RIVER | NHRIV600030706-02 | DISSOLVED OXYGEN (MG/L) | EPPING, LEE, NOTTINGHAM | 3-PNS | 5-M |

Twenty-seven of 100 (27%) grab samples collected at stations 02-NOR, 03-NOR, 05-NOR, 06A-NOR, and 07-NOR during the current assessment period (2015-2020) were below the dissolved oxygen criteria of 5 mg/L, which resulted in a new impairment during the current cycle. The low dissolved oxygen samples were collected during flows ranging from 0.01-4.25 on the Lamprey River gage (01073500), water temperatures ranging from 10.8-22.8 degrees C, and 3-day rainfall totals ranging from 0.00-2.66 inches. All of the samples starting in 2017 have been collected at station 05-NOR. It is recommended that additional samples at stations 02-NOR, 03-NOR, 06A-NOR, and 07-NOR be collected to verify the older low dissolved oxygen concentrations seen at these stations. The North River (NHRIV600030706-02) has been moved from 3-PNS to 5-M for dissolved oxygen (mg/L) for the aquatic life integrity designated use based on data collected in the current assessment period.


NORTH RIVER
(NHRIV600030706-02)
DO (mg/L)
"Current" Line for 2020
DO Min
DO Min- (Magex)
DO-PPM-GRAB-NCT-NCP
DO-PPM-GRAB-CT-NCP
DO-PPM-GRAB-NCT-CP
DO-PPM-GRAB-CT-CP
DO-PPM-24HR-MIN-CP


Gage CFSM on Sample Days
USGS 01073500
LAMPREY RIVER NEAR
NEWMARKET, NH
Gage CFSM
CFSM from Gage
Gage on Exceedence Days
"Current" Line for 2020
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)

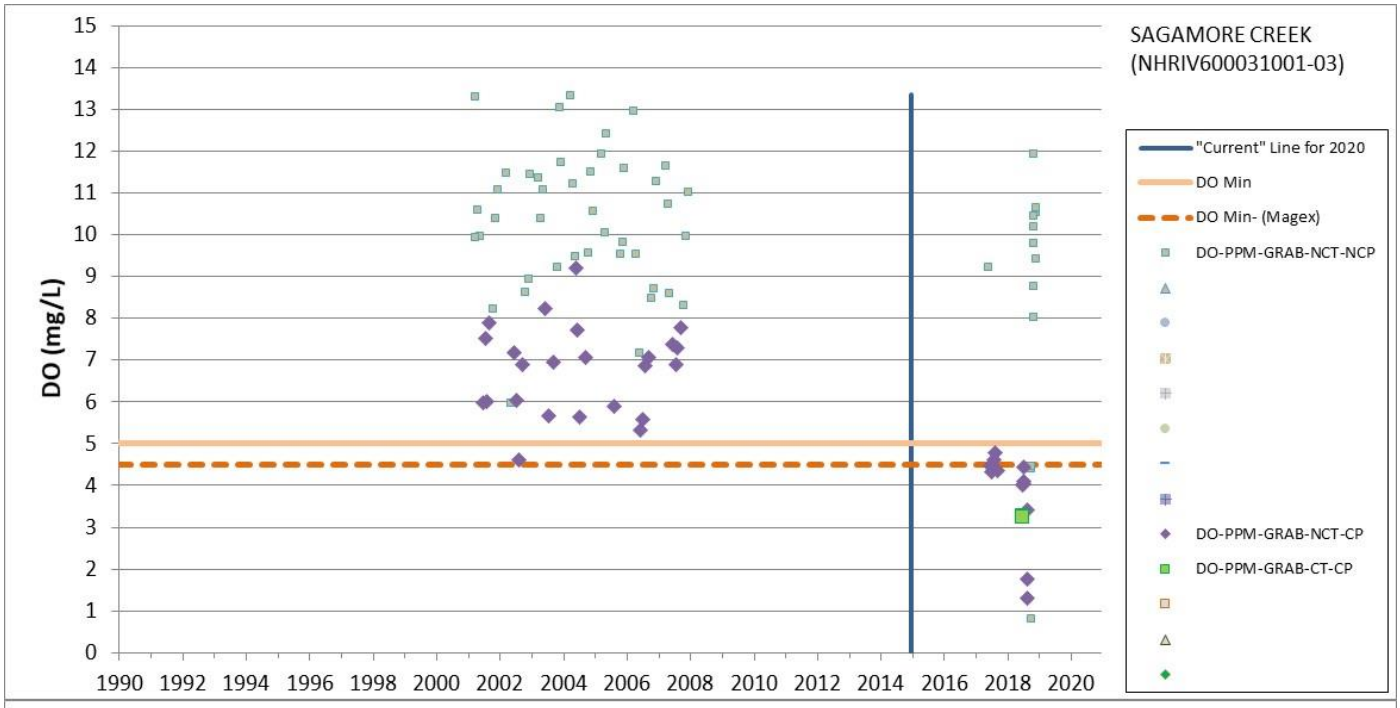


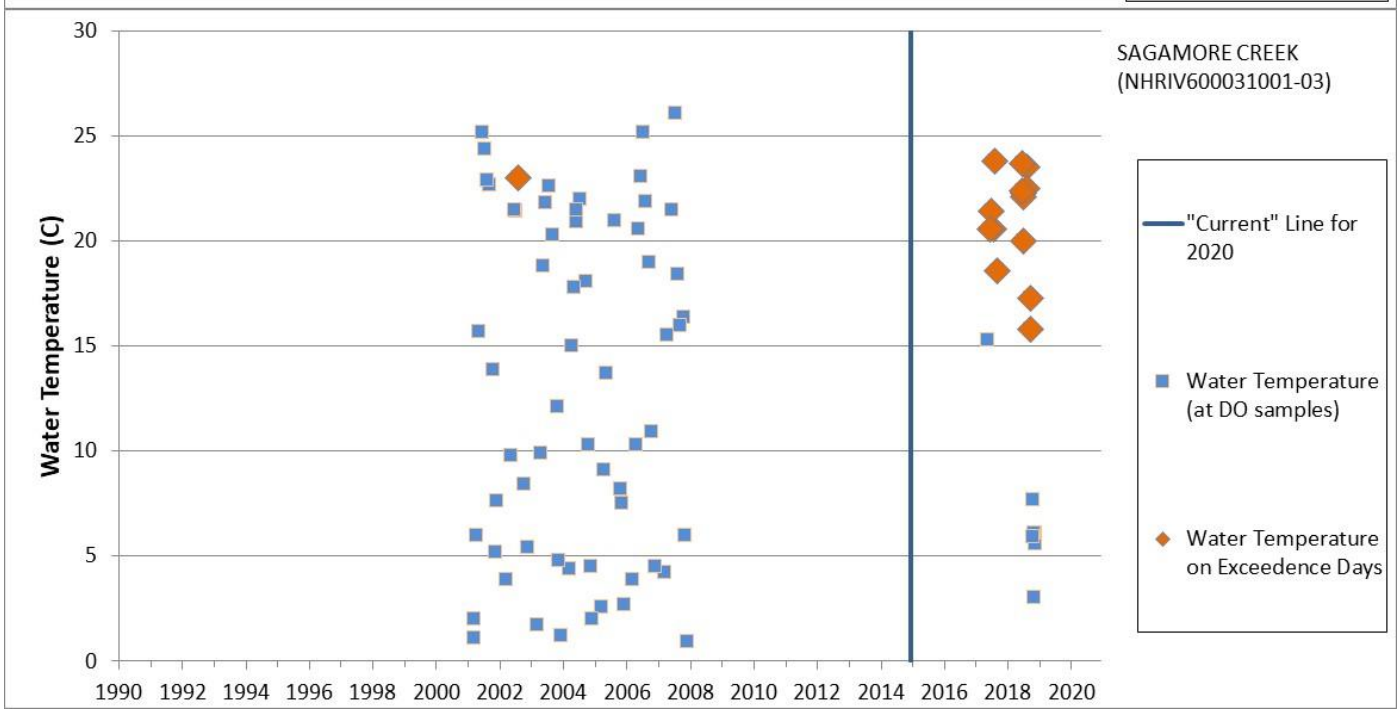

Notes:
DO-PPM-GRAB-CT-CP = Grab samples of dissolved oxygen during the early morning hours of the summer critical period.
DO-PPM-GRAB-CT-NCP = Grab samples of dissolved oxygen during the early morning hours and not during the summer critical period.
DO-PPM-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.
DO-PPM-GRAB-NCT-NCP = Grab samples of dissolved oxygen not in the early morning hours and outside the summer critical period.
DO-PPM-24HR-MIN-CP = 24-hour minimum dissolved oxygen concentration from a datalogger deployed during the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details.

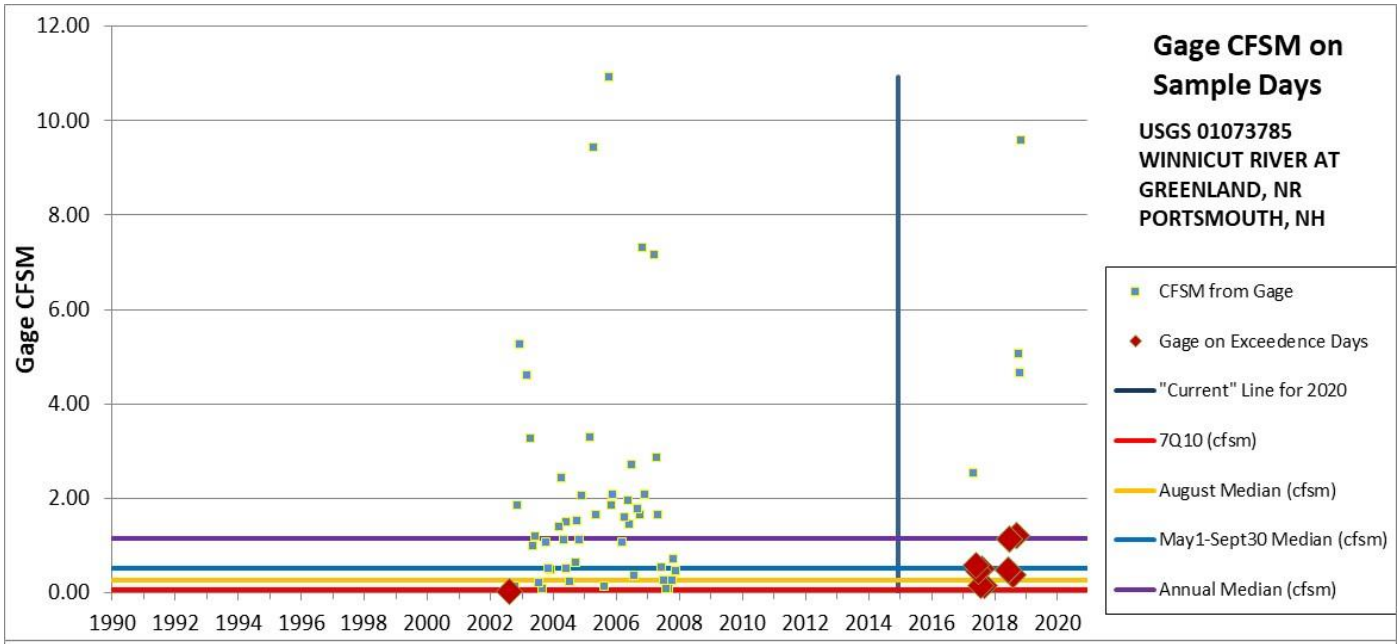
## SAGAMORE CREEK (NHRIV600031001-03)

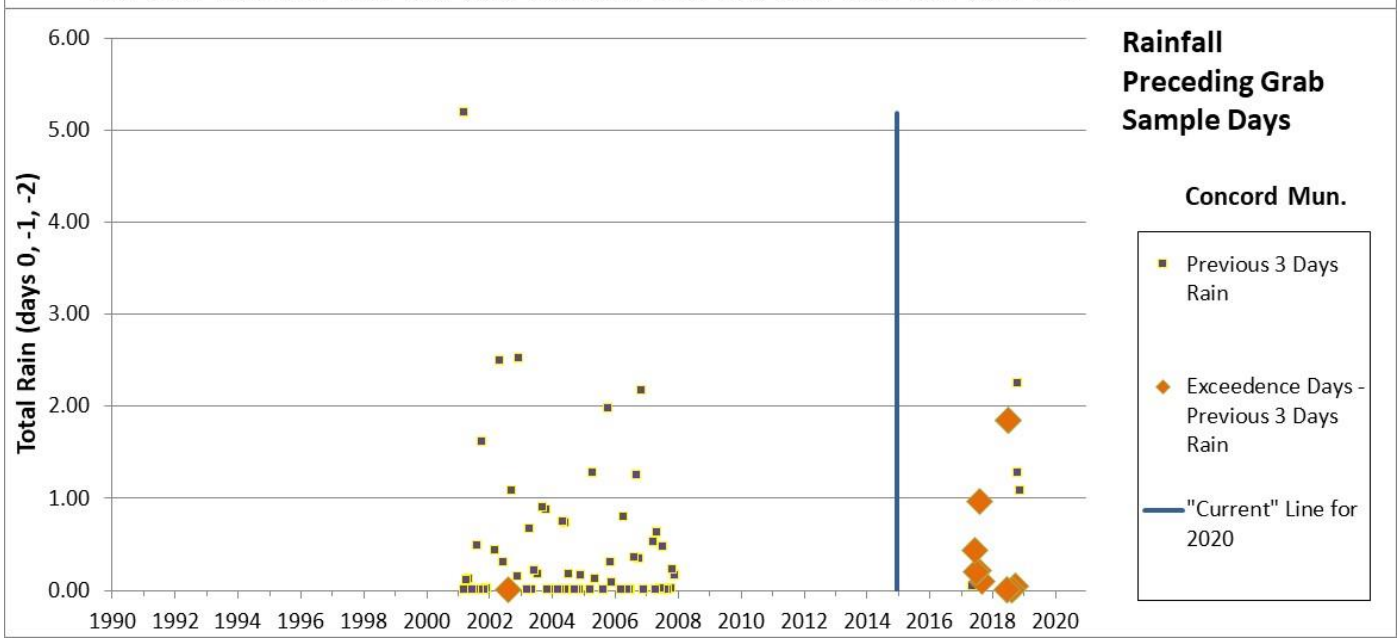
| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| SAGAMORE CREEK | NHRIV600031001-03 | DISSOLVED OXYGEN (MG/L) | PORTSMOUTH | 3-PNS | 5-P |

Seventeen of 27 (63%) of grab samples collected at station 05-SAG ,01-ELW, and SAGCK01 in the current assessment cycle (2015-2020) were below the threshold of 5.0 mg/L, resulting in a new impairment in the current assessment cycle. The samples were collected under a wide variety of flow conditions (0.14-1.21 cfsm) on the Winnicut River gage (01073785), water temperatures ranging from 18.8-23.7 degrees C, and under a variety of weather conditions (3-day rainfall total of 0.00-1.85 inches). The Sagamore Creek (NHRIV600031001-03) has been moved from 3-PNS to 5-P for dissolved oxygen (mg/L) for the aquatic life integrity designated use based on the data collected in the current assessment period. It should be noted that this new impairment is tied to an assessment unit that falls within EPA's 2017 MS4 General Permit Area.





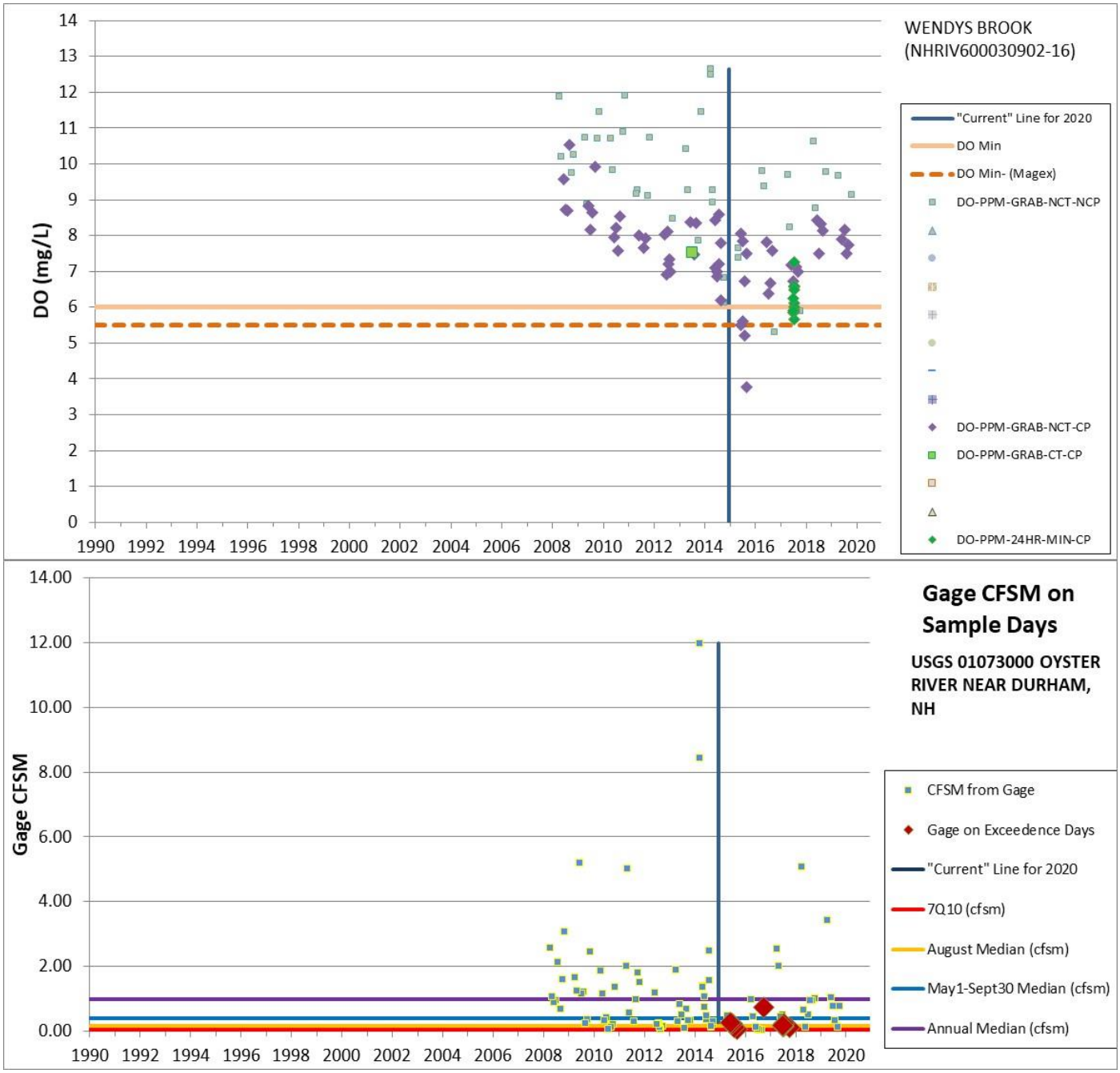

Notes:
DO-PPM-GRAB-CT-CP = Grab samples of dissolved oxygen during the early morning hours of the summer critical period.
DO-PPM-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.
DO-PPM-GRAB-NCT-NCP = Grab samples of dissolved oxygen not in the early morning hours and outside the summer critical period.
"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details.

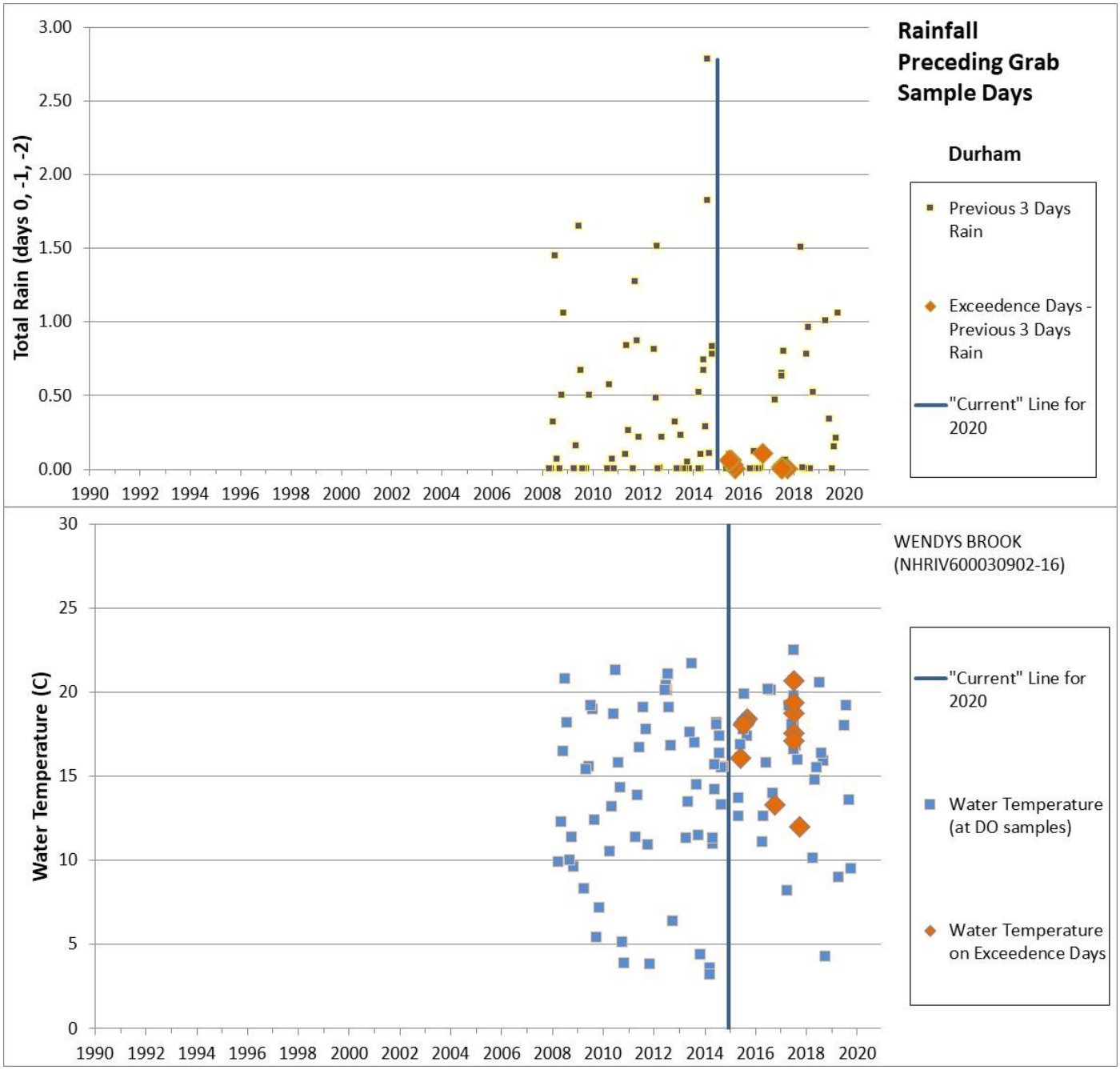
## WENDYS BROOK (NHRIV600030902-16)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| WENDYS BROOK | NHRIV600030902-16 | DISSOLVED OXYGEN (MG/L) | LEE | 3-PNS | 5-M |

Six of 37 (16%) grab samples and five of 12 (42%) 24 hour minimum datalogger values collected at stations 01-WDY and 05-WDY during the current assessment period (2015-2020) were below the dissolved oxygen threshold of 6 mg/L, resulting in a new impairment for the current assessment cycle. The low dissolved oxygen samples were collected during flows ranging from 0.10-0.73

on the Oyster River gage (01073000), water temperatures ranging from 12.0-20.7 degrees C, and 3-day rainfall totals ranging from 0.00-0.11 inches. Although both stations show low dissolved oxygen, starting in 2016 all samples have been collected solely from station 01-WDY. Additional samples should be collected at station05-WDY in future years to help corroborate some of the concentrations that dropped below 4 mg/L observed in 2015. The Wendy's Brook (NHRIV600030902-16) has been moved from 3-PNS to 5-M for dissolved oxygen (mg/L) for the aquatic life integrity designated use based on data collected in the current assessment period.






Notes:

DO-PPM-GRAB-CT-CP = Grab samples of dissolved oxygen during the early morning hours of the summer critical period.

DO-PPM-GRAB-NCT-CP = Grab samples of dissolved oxygen not in the early morning hours of the summer critical period.

DO-PPM-GRAB-NCT-NCP = Grab samples of dissolved oxygen not in the early morning hours and outside the summer critical period.

DO-PPM-24HR-MIN-CP = 24-hour minimum dissolved oxygen concentration from a datalogger deployed during the summer critical period.

"Current" Line for 2020 – Per the methodology outlined in the CALM, all data from this referenced data is considered "current" unless available older data is provided for context. See the 2020 CALM for addition details.

# Fish Bioassessments for Aquatic Life Integrity

## BOG BROOK (NHRIV700010403-03)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Primary Town | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| BOG BROOK | NHRIV700010403-03 | Fishes Bioassessments (Streams) | CAMPTON | 3-ND | 5-P |

Fish assemblage = Cold Water. Three fish surveys in 2019 at three different locations. CW-IBI threshold = 30. CW-IBI score = 9 (site 01-BGK), 12 (site 09-BGK), 9 (site 15-BGK). Site 01-BGK located immediately downstream of I-93 crossing. Site 15-BGK immediately downstream of dam/wildlife pond. CW-IBI score less than 30 indicates the fish community fails to meet or exceed the narrative aquatic life use water quality criteria. Bog Brook (NHRIV700010403-03) has been placed in category 5-P for Fishes Bioassessments (Streams) for the aquatic life use support designated use based on data reviewed as part of the 2020/2022 assessment cycle. This is a new assessment, 3-ND to 5-P.

| Waterbody | Station ID | Activity ID | Collection Date | CW-IBI Threshold | CW-IBI Score |
|---|---|---|---|---|---|
| Bog Brook | 01-BGK | F-01-BGK-01 | 8/5/2019 | 30 | 9 |
| Bog Brook | 09-BGK | F-09-BGK-01 | 8/5/2019 | 30 | 12 |
| Bog Brook | 15-BGK | F-15-BGK-01 | 9/24/2019 | 30 | 9 |

## DEAN BROOK (NHRIV801010902-01)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Primary Town | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| DEAN BROOK | NHRIV801010902-01 | Fishes Bioassessments (Streams) | NORTH UMBERLAND | 3-ND | 5-P |

Fish assemblage = Cold Water. Two fish surveys in 2018. CW-IBI threshold = 30. CW-IBI scores = 9 (Site 02-DNB), and 9 (04-DNB). CW-IBI score less than 30 indicates the fish community fails to meet or exceed the narrative aquatic life use water quality criteria. Dean Brook (NHRIV801010902-01) has been placed in category 5-P for Fishes Bioassessments (Streams) for the aquatic life use support designated use based on data reviewed as part of the 2020/2022 assessment cycle. This is a change in the assessment category from the previous cycle, 3-ND to 5-P.

| Waterbody | Station ID | Activity ID | Collection Date | CW-IBI Threshold | CW-IBI Score |
|---|---|---|---|---|---|
| Dean Brook | 02-DNB | F-02-DNB-01 | 9/19/2018 | 30 | 9 |
| Dean Brook | 04-DNB | F-04-DNB-01 | 9/21/2018 | 30 | 9 |

## MILLSFIELD POND BROOK (NHRIV400010501-05)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Primary Town | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| MILLSFIELD POND BROOK | NHRIV400010501-05 | Fishes Bioassessments (Streams) | MILLSFIELD | 3-ND | 5-P |

Fish assemblage = Cold Water. One fish survey in 2019. CW-IBI threshold = 30. CW-IBI score = 12. CW-IBI score less than 30 indicates the fish community fails to meet or exceed the narrative aquatic life use water quality criteria. Millsfield Pond Brook (NHRIV400010501-05) has been placed in category 5-P for Fishes Bioassessments (Streams) for the aquatic life use support designated use based on data reviewed as part of the 2020/2022 assessment cycle. This is a new assessment, 3-ND to 5-P.

| Waterbody | Station ID | Activity ID | Collection Date | CW-IBI Threshold | CW-IBI Score |
|---|---|---|---|---|---|
| Millsfield Pond Brook | 04-MLP | F-04-MLP-01 | 8/23/2019 | 30 | 12 |

## SKINNER BROOK (NHRIV801060401-21)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Primary Town | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| SKINNER BROOK | NHRIV801060401-21 | Fishes Bioassessments (Streams) | GRANTHAM | 3-ND | 5-P |

Fish assemblage = Cold Water. One fish survey in 2019. CW-IBI threshold = 30. CW-IBI score = 12 (1997), 9 (1999), and 15 (2018). CW-IBI score less than 30 indicates the fish community fails to meet or exceed the narrative aquatic life use water quality criteria. Low number of Brook Trout individuals and high number of Blacknosed Dace along with some Common Shiner, Creek Chub, and Common White Sucker resulted in poor metric scores related to Brook Trout, Slimy Sculpin, coldwater specialists, and tolerant species. Skinner Brook (NHRIV801060401-21) has been placed in category 5-P for Fishes Bioassessments (Streams) for the aquatic life use support designated use based on data reviewed as part of the 2020/2022 assessment cycle. This is a new assessment, 3-ND to 5-P.

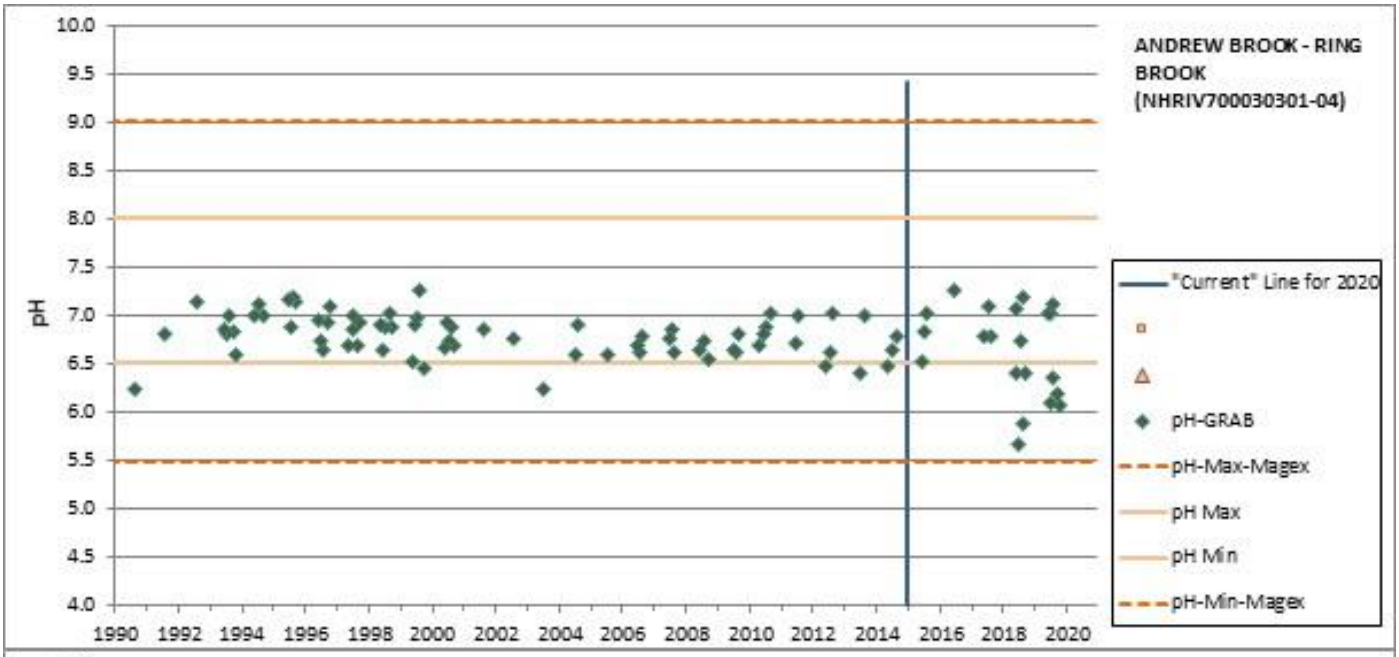
| Waterbody | Station ID | Activity ID | Collection Date | CW-IBI Threshold | CW-IBI Score |
|---|---|---|---|---|---|
| Skinner Brook | 10-SKN | F97C-153 | 7/9/1997 | 30 | 12 |
| Skinner Brook | 08-SKN | F99C-35 | 7/7/1999 | 30 | 9 |
| Skinner Brook | 08-SKN | F-08-SKN-01 | 7/24/2018 | 30 | 15 |

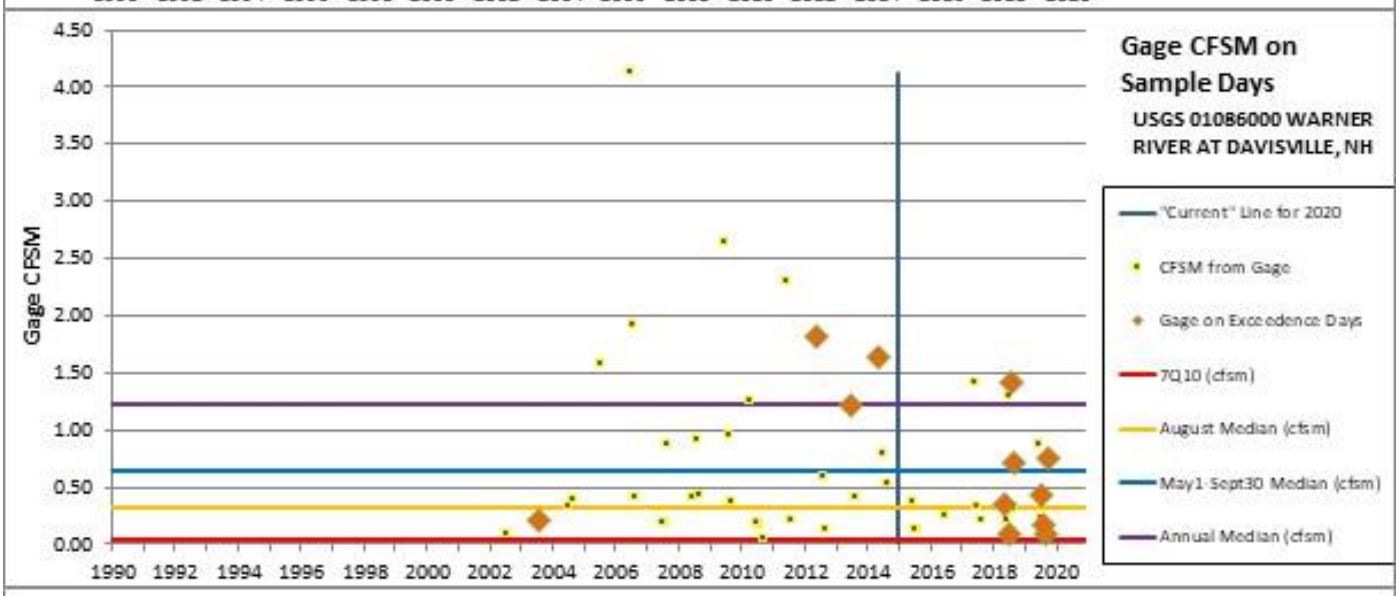
# pH for Aquatic Life Integrity

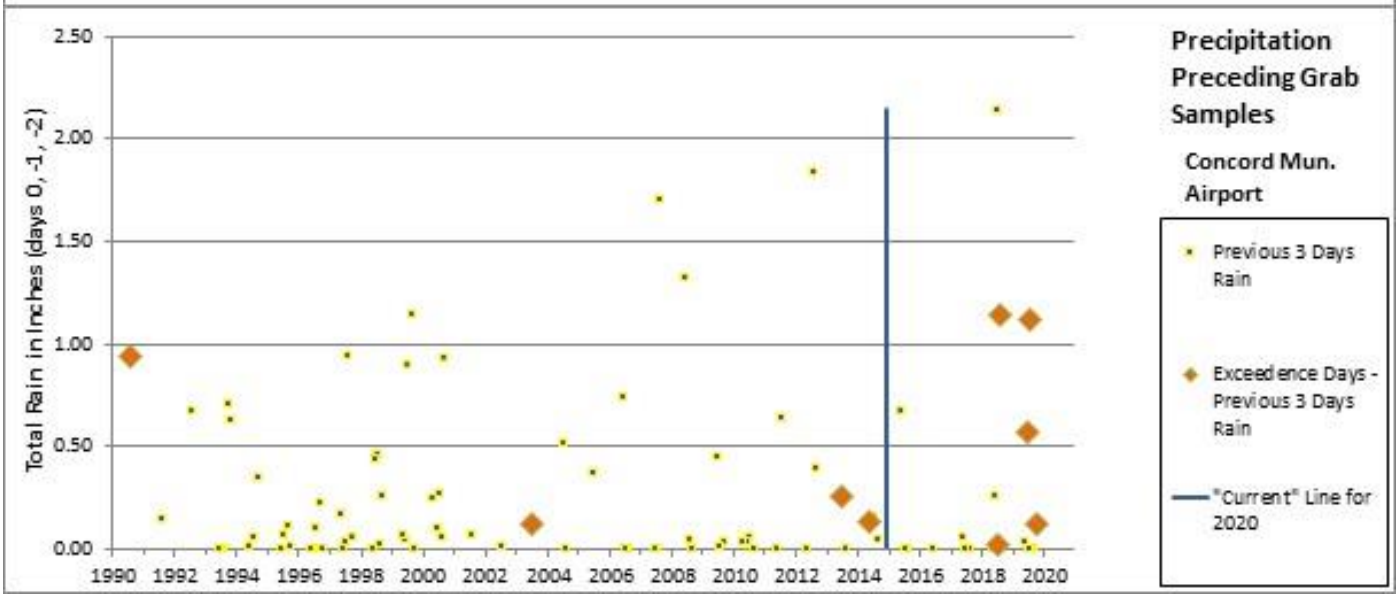
## ANDREW BROOK - RING BROOK(NHRIV700030301-04)

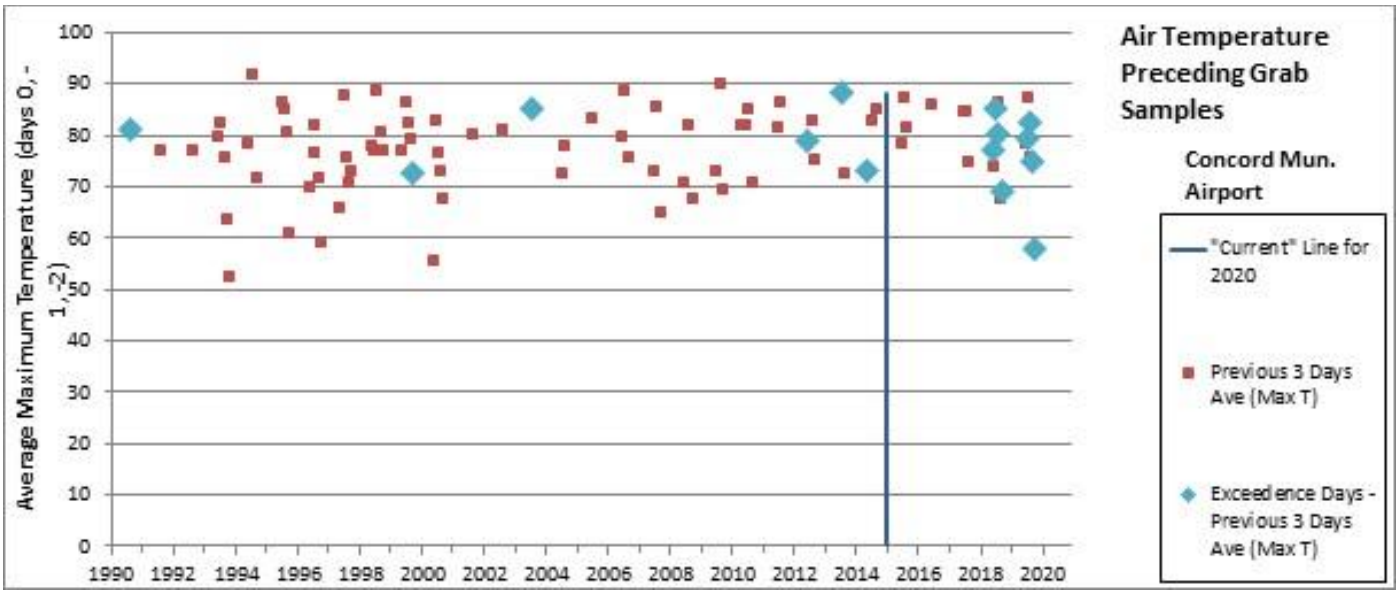
| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| ANDREW BROOK - RING BROOK | NHRIV700030301-04 | pH | NEWBURY | 2-M | 5-M |

Eight of 21 (38.1%) grab samples collected in the current assessment period (2015-2020) were below the lower pH threshold of 6.5, resulting in a new impairment in the current assessment cycle. The low pH samples were collected at station 04-ADW under a wide variety of flow conditions (0.08-1.42 cfsm) on the Warner River gage (01086000) and during a variety of weather conditions (3-day rainfall total of 0.00-1.14 inches). Additionally, 6 grab samples collected at TODNBYA before the current assessment period were below the pH threshold of 6.5. Andrew Brook-Ring Brook (NHRIV700030301-04) has been moved from 2-M to 5-M for pH for the aquatic life integrity designated use based on data collected in the current assessment period.


ANDREW BROOK - RING BROOK (NHRIV700030301-04)
pH
"Current" Line for 2020
pH-GRAB
pH-Max-Magex
pH Max
pH Min
pH-Min-Magex


Gage CFSM on Sample Days
USGS 01086000 WARNER RIVER AT DAVISVILLE, NH
Gage CFSM
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)

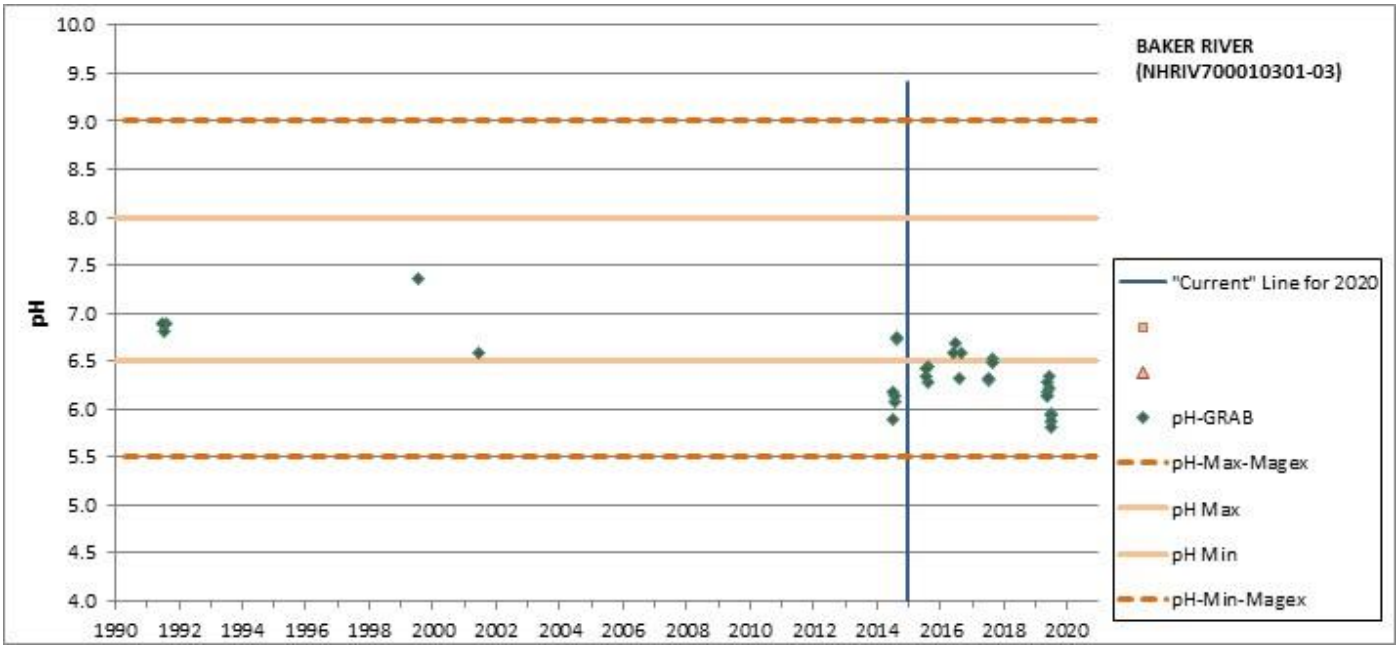

Precipitation Preceding Grab Samples
Concord Mun. Airport
Total Rain in Inches (days 0, -1, -2)
Previous 3 Days Rain
Exceedence Days - Previous 3 Days Rain
"Current" Line for 2020

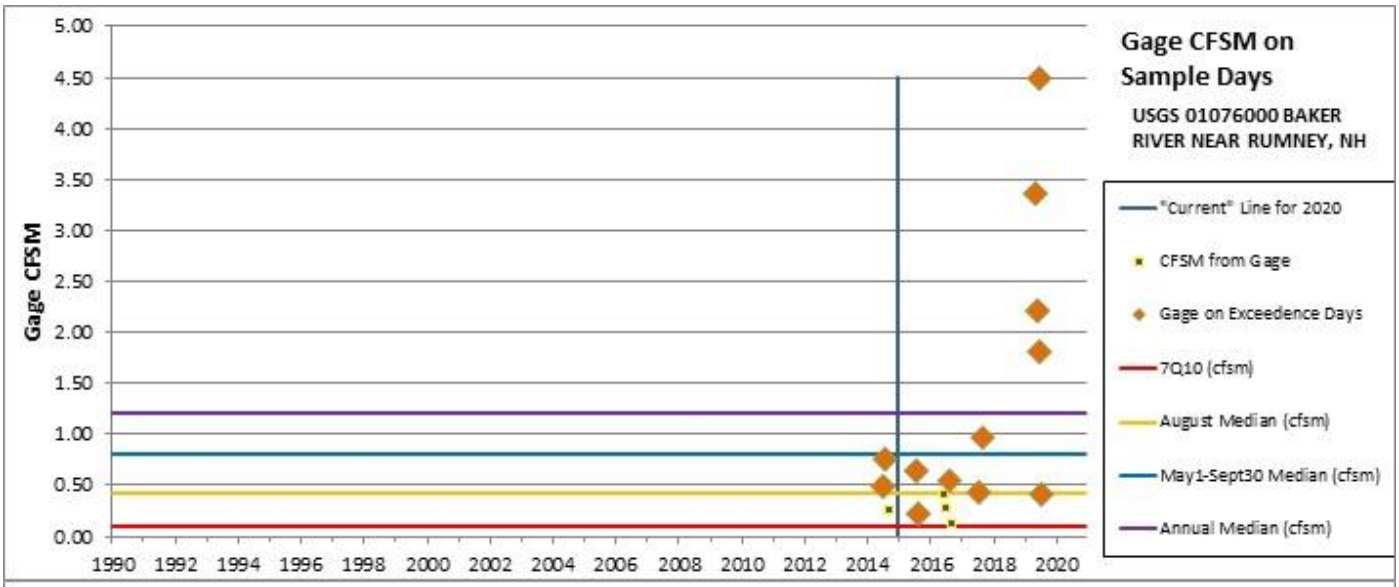


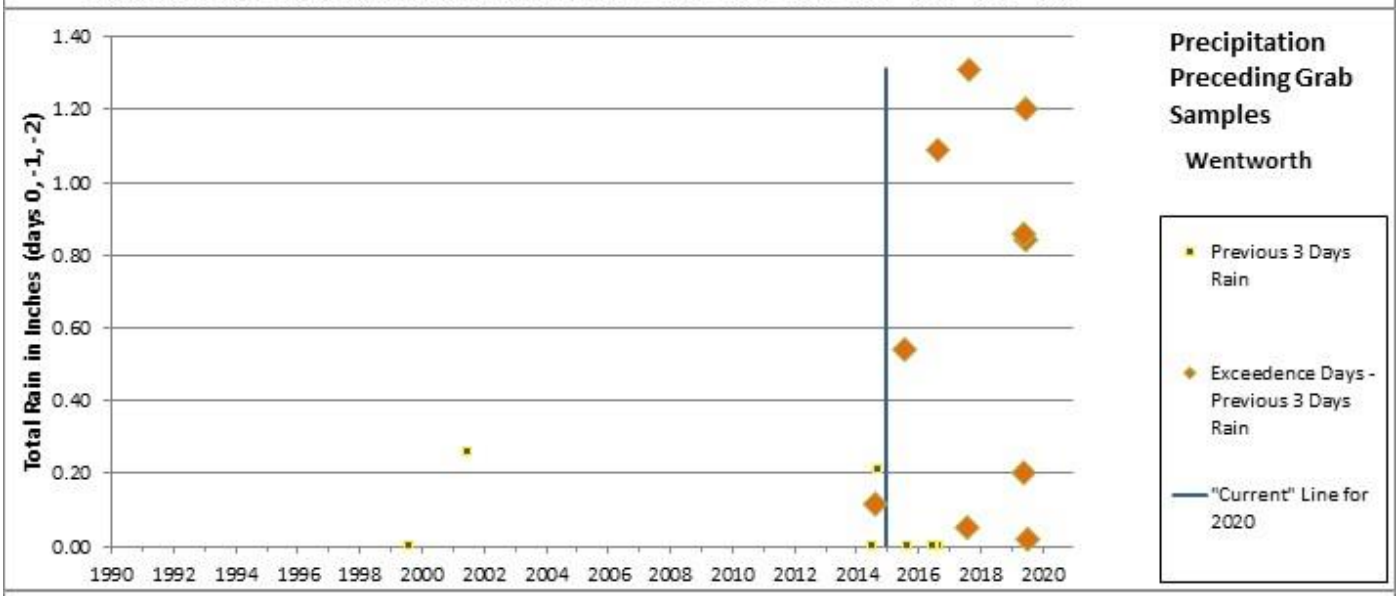

## BAKER RIVER (NHRIV700010301-03)

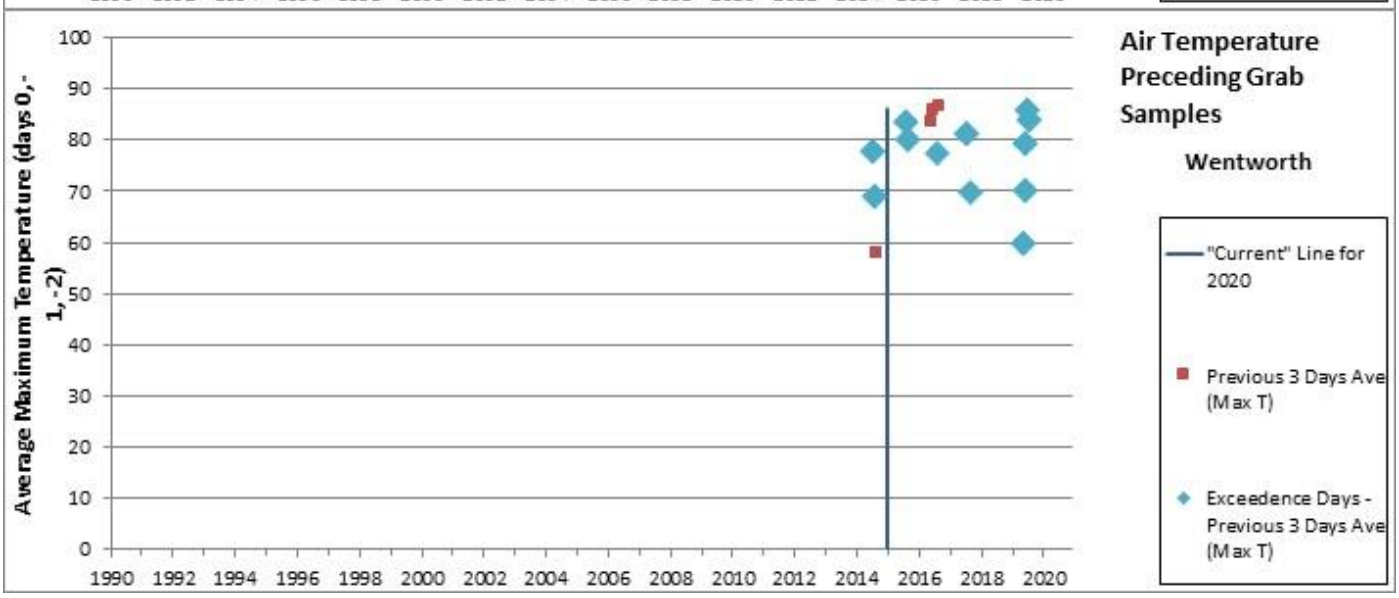
| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| BAKER RIVER | NHRIV700010301-03 | pH | WARREN | 3-PNS | 5-M |

Eighteen of 22 (81.8%) grab samples collected in the current assessment period (2015-2020) were below the lower pH threshold of 6.5, resulting in a new impairment in the current assessment cycle. The low pH samples were collected at stations 10-BKR and 11-BKR under a wide variety of flow conditions (0.23- 4.50 cfsm) on the Baker River gage (01076000) and under a variety of weather conditions (3-day rainfall total of 0.0 – 1.31 inches). The Baker River (NHRIV700010301-03) has been moved from 3-PNS to 5-M for pH for the aquatic life integrity designated use based on data collected in the current assessment period.




Gage CFSM on Sample Days
USGS 01076000 BAKER RIVER NEAR RUMNEY, NH
Gage CFSM
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)

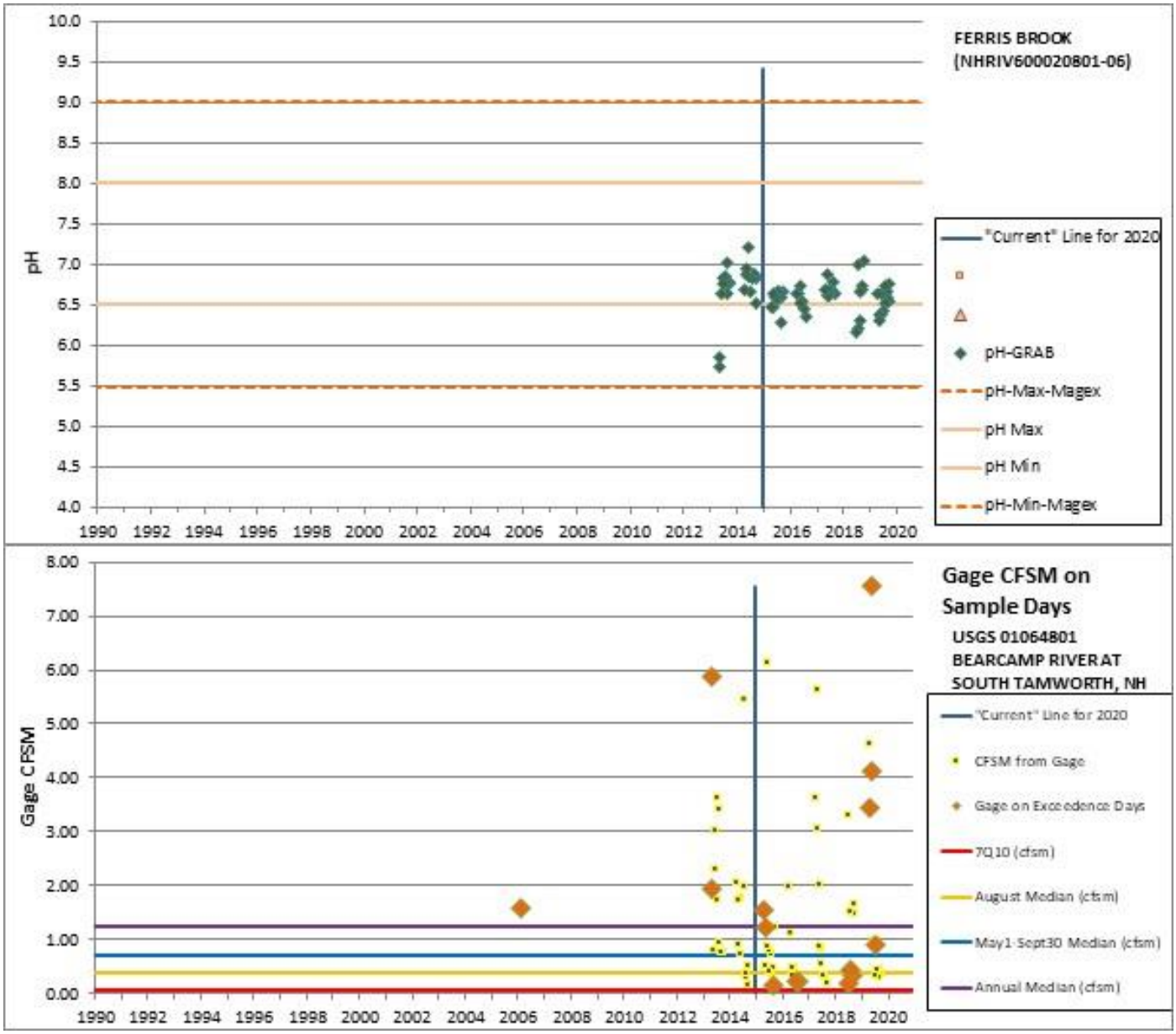

Precipitation Preceding Grab Samples
Wentworth
Total Rain in Inches (days 0, -1, -2)
Previous 3 Days Rain
Exceedence Days - Previous 3 Days Rain
"Current" Line for 2020

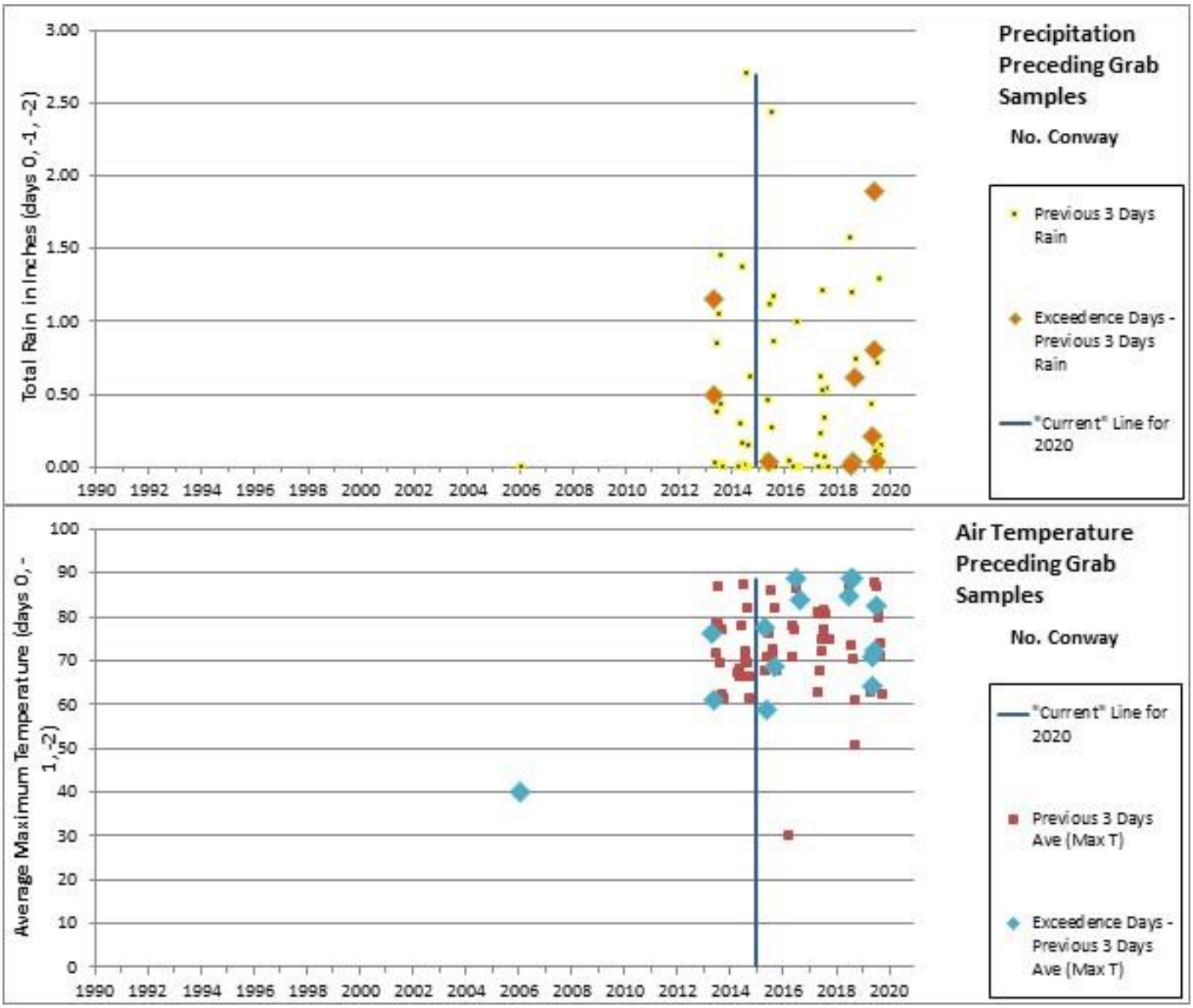

Air Temperature Preceding Grab Samples
Wentworth
Average Maximum Temperature (days 0, -1, -2)
"Current" Line for 2020
Previous 3 Days Ave (Max T)
Exceedence Days - Previous 3 Days Ave (Max T)

## FERRIS BROOK (NHRIV600020801-06)

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| FERRIS BROOK | NHRIV600020801-06 | pH | MADISON | 2-M | 5-M |

Twelve of 49 (24.5%) grab samples collected in the current assessment period (2015-2020) were below the lower pH threshold of 6.5, resulting in a new impairment in the current assessment cycle. The low pH samples were collected at station GM-4 under a wide variety of flow conditions (0.17 - 7.54 cfsm) on the Bearcamp River gage (01075000) and during a variety of weather conditions (3-day rainfall total of 0.00-1.89 inches). Ferris Brook (NHRIV600020801-06) has been moved from 2-M to 5-M for pH for the aquatic life integrity designated use based on data collected in the current assessment period.

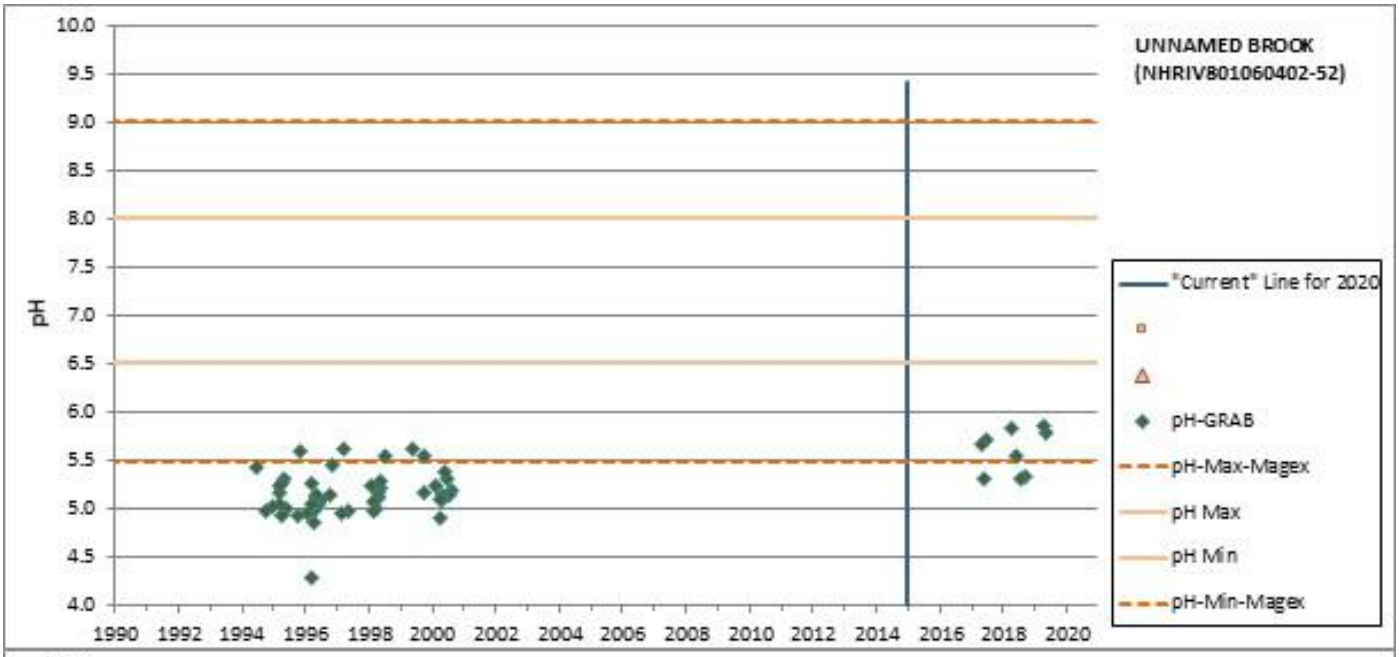


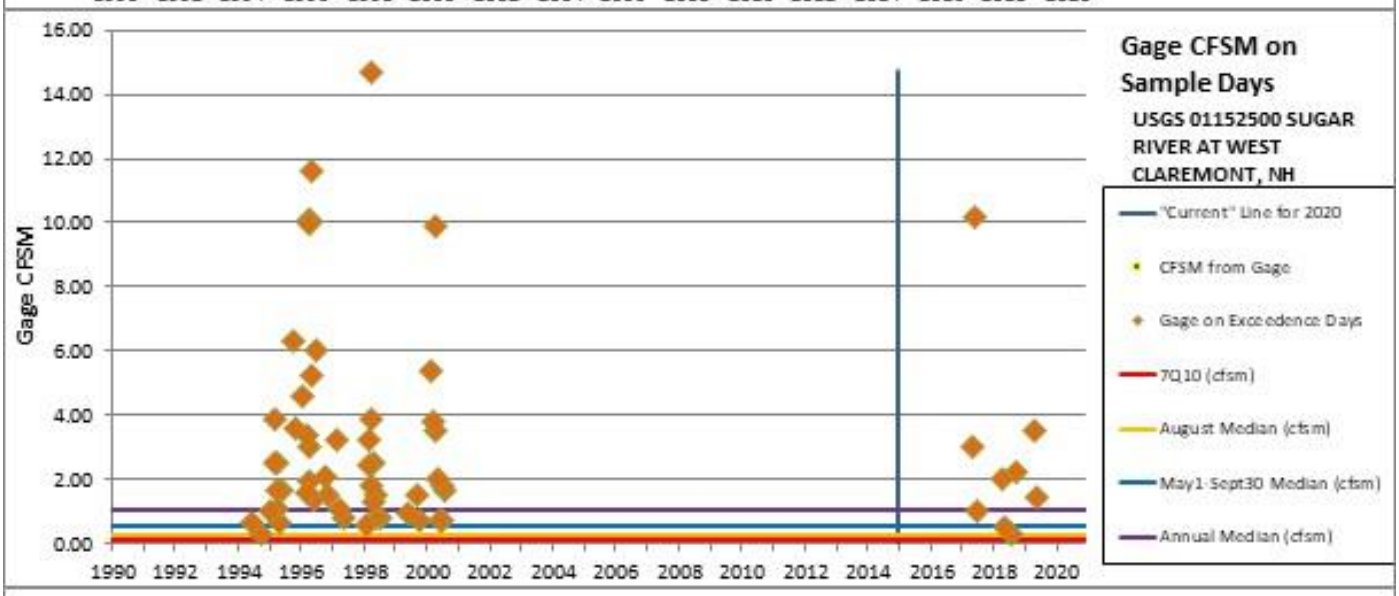


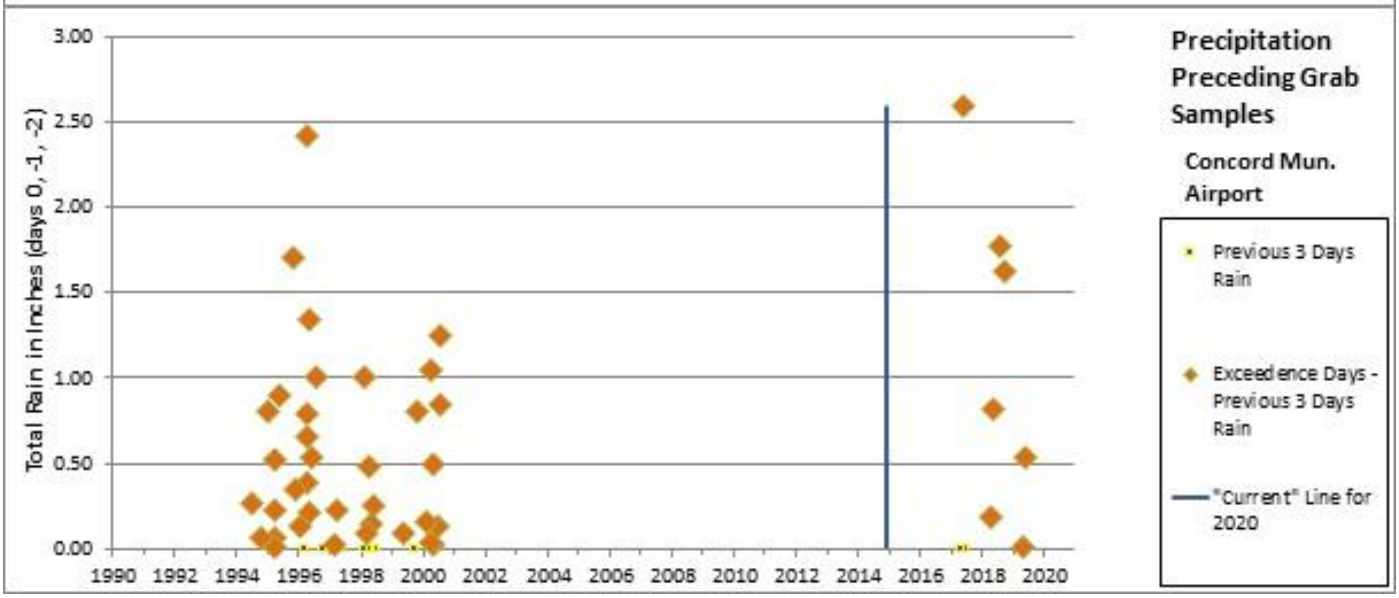

## UNNAMED BROOK (NHRIV801060402-52)

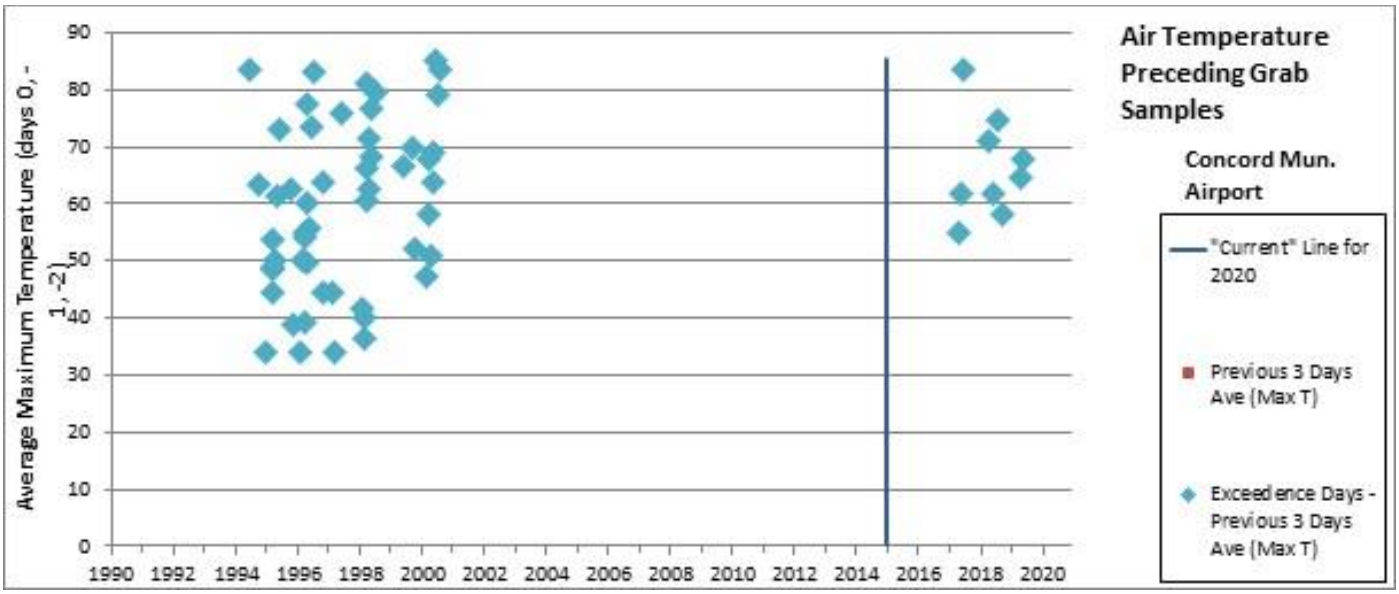
| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| UNNAMED BROOK | NHRIV801060402-52 | pH | Newbury | 3-PNS | 5-P |

Grab sample data collected at station SUNSUN715 during the current assessment cycle (2015-2020) triggered a new impairment in the 2020/2022 cycle. Nine of the nine (100%) grab samples collected during the current assessment cycle were below the lower pH threshold of 6.5, and three of the samples were below 5.5. The low pH samples were collected during flows ranging from 0.34 to 10.19 cfsm at the Sugar River gauge (01152500) and under variable weather conditions (0.00 to 2.59 inch 3-day rainfall total). This segment of Unnamed Brook (NHRIV801060402-52) has been moved from 3-PNS to 5-P for pH for the Aquatic Life Integrity designated use based on data collected in the current assessment period.


UNNAMED BROOK
(NHRIV801060402-52)
pH
"Current" Line for 2020
pH-GRAB
pH-Max-Magex
pH Max
pH Min
pH-Min-Magex


Gage CFSM on Sample Days
USGS 01152500 SUGAR RIVER AT WEST CLAREMONT, NH
Gage CFSM
"Current" Line for 2020
CFSM from Gage
Gage on Exceedence Days
7Q10 (cfsm)
August Median (cfsm)
May1-Sept30 Median (cfsm)
Annual Median (cfsm)


Precipitation Preceding Grab Samples
Concord Mun. Airport
Total Rain in Inches (days 0, -1, -2)
Previous 3 Days Rain
Exceedence Days - Previous 3 Days Rain
"Current" Line for 2020




# Polychlorinated Biphenyls (PCBs) for Fish Consumption

## SQUAM LAKE, LITTLE SQUAM LAKE and the UNNAMED BROOK - FROM LITTLE SQUAM TO SQUAM LAKE

| Assessment Unit Name | Assessment Unit ID | Parameter Name | Town(s) - Primary Town Listed First | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| SQUAM LAKE | NHLAK700010501-04-01 | PCBS - FISH CONSUMPTION ADVISORY | CENTER HARBOR, HOLDERNESS, MOULTONBOROUGH, SANDWICH | n/a | 5-M |
| LITTLE SQUAM LAKE | NHLAK700010502-01-01 | | HOLDERNESS, ASHLAND | | |
| UNNAMED BROOK - FROM LITTLE SQUAM TO SQUAM LAKE | NHRIV700010502-02 | | HOLDERNESS | | |

Section 3.2.6 of the 2020/2022 Consolidated Assessment and Listing Methodology (CALM), defines the fish consumption designated use as “Waters that support fish free from contamination at levels that pose a human health risk to consumers” based on Env-Wq 1703.21(a)(2). The presence of “restricted consumption” or “no consumption” fish advisories or bans are used to determine if a surface water is not supporting the fish consumption designated use. On March 30, 2020 a fish consumption advisory was issued by NHDES for all fish caught in Squam Lake, as a result of high levels of polychlorinated biphenyls (PCBs) detected in fish tissue samples. NHDES biology staff collected 55 fish including smallmouth bass (SMB) and yellow perch (YP), in an effort to better understand the potential risk to human health associated with eating fish caught in the lake. Fish were submitted to EPA in groups sorted by size, 5 (YP) and 7 (SMB) size groups, where each group contained 4-5 fish. An EPA contract lab filleted and composited the fish samples for analysis of PCB concentrations in the fillets as that is the portion consumed by people. This work is a follow-up on previous research conducted by the Loon Preservation Committee and the Squam Lake Association that identified elevated contaminant levels in loon eggs and lake sediment. The NHDES Environmental Health Program (EHP) has evaluated the fish data analyzed by the EPA contract lab and determined that a fish consumption advisory was warranted. The EHP added Squam Lake to its 2020 New Hampshire Fish Consumption Guidelines. This document lists all of the NH fish consumption advisories currently in effect. Squam Lake, Little Squam Lake and the Unnamed Brook - from Little Squam to Squam Lake (NHLAK700010501-04-01, NHLAK700010502-01-01 and NHRIV700010502-02) have been placed in category 5-M for PCBs - Fish Consumption Advisory for the fish consumption designated use for the 2020/2022 cycle.

# Total Nitrogen for Aquatic Life Integrity

## BELLAMY RIVER ASSESSMENT ZONE (NHEST600030903-01-01, NHEST600030903-01-03, NHEST600030903-01-04)

| Assessment Zone | Assessment Unit IDs | Parameter Name | Town(s) | 2016 | 2020/2022 |
|---|---|---|---|---|---|
| BELLAMY RIVER | NHEST600030903-01-01, NHEST600030903-01-03, NHEST600030903-01-04 | Chlorophyll-a | DOVER, DURHAM, MADBURY | 3-PNS | 5-P |

The Bellamy River Assessment Zone (NHEST600030903-01-01, NHEST600030903-01-03, NHEST600030903-01-04) has been moved from category 3-PNS to 5-P for total nitrogen for the aquatic life integrity designated use based on data collected in the current assessment period. A full parameter level discussion of the rational used to make the assessment determination for this waterbody is provided by assessment zone in the Technical Support Document for the Great Bay Estuary Aquatic Life Use Support Assessments, 2020/2022 305(b) Report/303(d) List.

## GREAT BAY ASSESSMENT ZONE (NHEST600030904-02, NHEST600030904-03, NHEST600030904-04-02, NHEST600030904-04-03, NHEST600030904-04-04, NHEST600030904-04-05, NHEST600030904-04-06)

| Assessment Zone | Assessment Unit IDs | Parameter Name | Town(s) | 2016 | 2020/2022 |
|---|---|---|---|---|---|
| GREAT BAY | NHEST600030904-02, NHEST600030904-03, NHEST600030904-04-02, NHEST600030904-04-03, NHEST600030904-04-04, NHEST600030904-04-05, NHEST600030904-04-06 | Chlorophyll-a | DURHAM, GREENLAND, NEWFIELDS, NEWINGTON, NEWMARKET, STRATHAM | 3-PNS | 5-M |

The Great Bay Assessment Zone (NHEST600030904-02, NHEST600030904-03, NHEST600030904-04-02, NHEST600030904-04-03, NHEST600030904-04-04, NHEST600030904-04-05, NHEST600030904-04-06) has been moved from category 3-PNS to 5-M for total nitrogen for the aquatic life integrity designated use based on data collected in the current assessment period. A full parameter level discussion of the rational used to make the assessment determination for this waterbody is provided by assessment zone in the Technical Support Document for the Great Bay Estuary Aquatic Life Use Support Assessments, 2020/2022 305(b) Report/303(d) List.

## SAGAMORE CREEK ASSESSMENT ZONE (NHEST600031001-03, NHEST600031001-04)

| Assessment Zone | Assessment Unit IDs | Parameter Name | Town(s) | 2018 | 2020/2022 |
|---|---|---|---|---|---|
| SAGAMORE CREEK | NHEST600031001-03, NHEST600031001-04 | Chlorophyll-a | NEW CASTLE, PORTSMOUTH, RYE | 3-ND | 5-M |

The Sagamore Creek Assessment Zone (NHEST600031001-03, NHEST600031001-04) has been moved from category 3-ND to 5-M for total nitrogen for the aquatic life integrity designated use based on data collected in the current assessment period. A full parameter level discussion of the rational used to make the assessment determination for this waterbody is provided by assessment zone in the Technical Support Document for the Great Bay Estuary Aquatic Life Use Support Assessments, 2020/2022 305(b) Report/303(d) List.

# Water Clarity (Light Attenuation Coefficient) for Aquatic Life Integrity

## BELLAMY RIVER ASSESSMENT ZONE (NHEST600030903-01-01, NHEST600030903-01-03, NHEST600030903-01-04)

| Assessment Zone | Assessment Unit IDs | Parameter Name | Town(s) | 2016 | 2020/2022 |
|---|---|---|---|---|---|
| BELLAMY RIVER | NHEST600030903-01-01, NHEST600030903-01-03, NHEST600030903-01-04 | Chlorophyll-a | DOVER, DURHAM, MADBURY | 3-PNS | 5-P |

The Bellamy River Assessment Zone (NHEST600030903-01-01, NHEST600030903-01-03, NHEST600030903-01-04) has been moved from category 3-PNS to 5-P for water clarity (light attenuation coefficient) for the aquatic life integrity designated use based on data collected in the current assessment period. A full parameter level discussion of the rational used to make the assessment determination for this waterbody is provided by assessment zone in the Technical Support Document for the Great Bay Estuary Aquatic Life Use Support Assessments, 2020/2022 305(b) Report/303(d) List.