

# Overview of the NHDES Assessment Process

## Understanding the 305(b)/303(d)

Nashua Regional Planning Commission

Lower Merrimack Valley Stormwater Coalition

November 12<sup>th</sup>, 2020



# Who you will hear from today



Matt Wood, NHDES Water Quality Assessment Program Coordinator



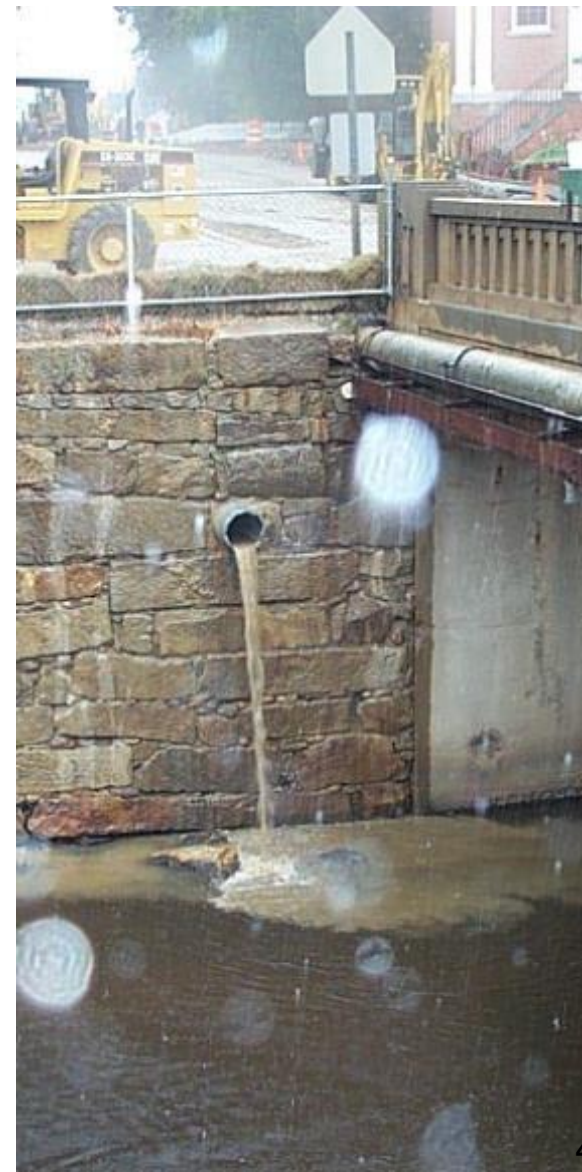
# Topics for Today



1. Overview of the Assessment Process
2. Overview of the CALM
3. What Documents are Available
4. How to Access Assessment Data
5. Discussion

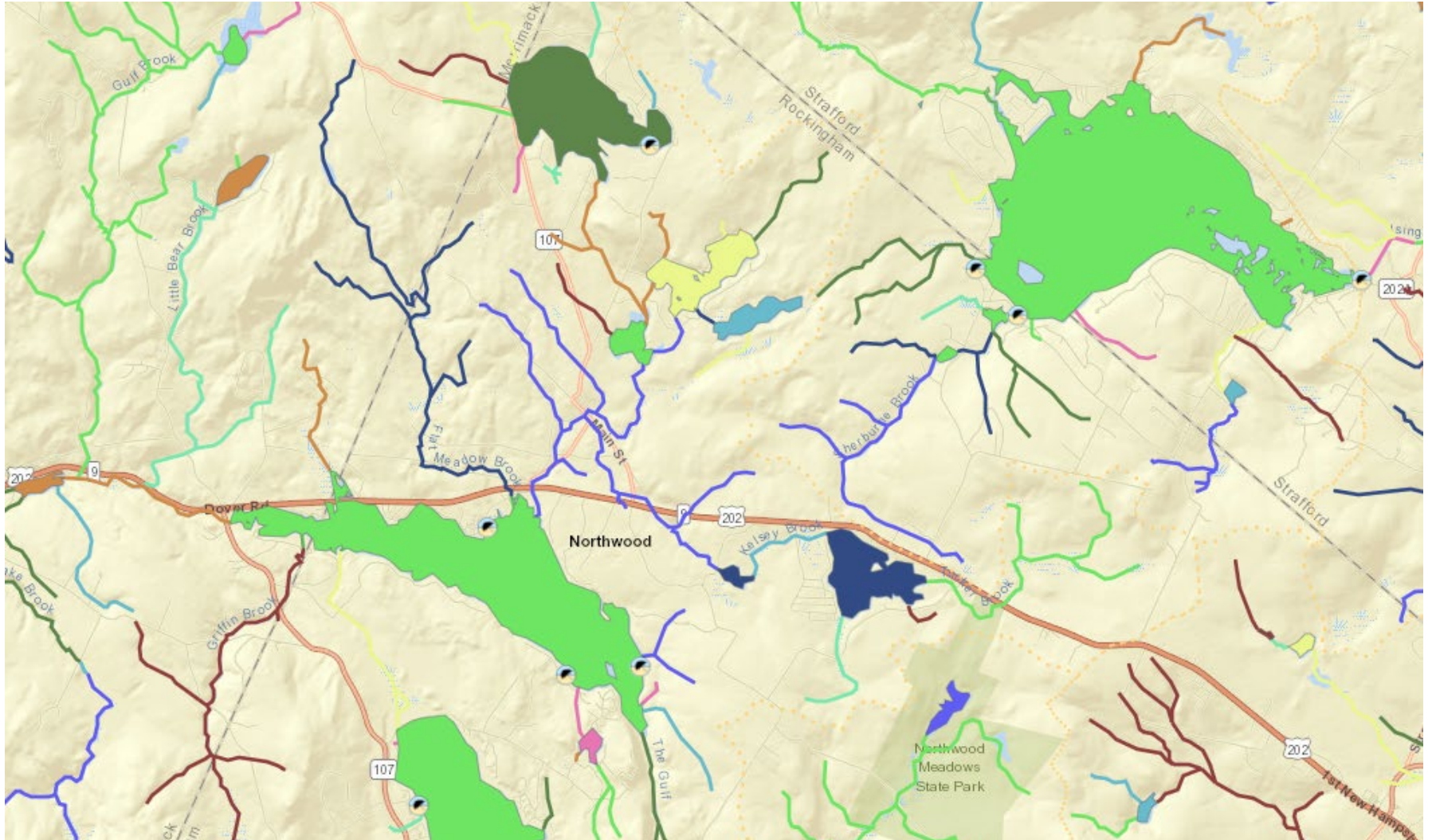
# Assessment Process

- Biennial report fulfills Federal & State requirements to assess water quality.
- Completed biennially on even years
  - ..., 2014, 2016, 2018, etc.
- 305(b) = All assessments.
  - 303(d) = Impairments that need a TMDL.



# Assessment Unit

- Spatial unit of record is the “Assessment Unit”.



# Waterbody Types

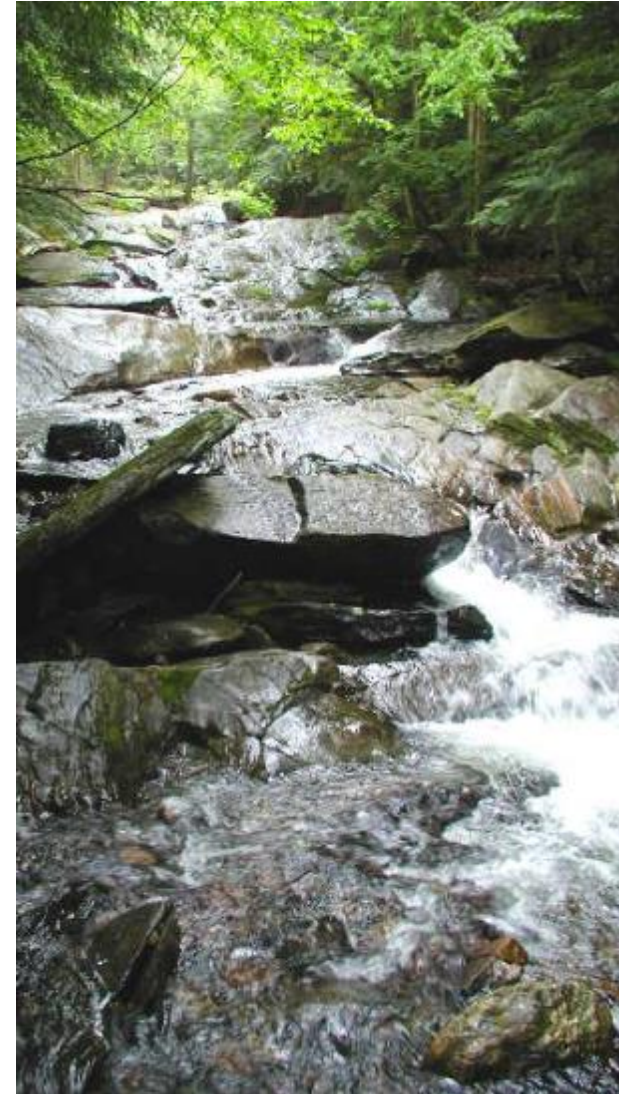
- Over 8,000 assessment units

Waterbody Type	Total Size		Total Number of Assessment Units
Rivers and Streams	16,963	Miles	5,923
Impoundments	22,435	Acres	1,235
Lakes and Ponds	162,743	Acres	1,558
Estuaries	17.98	Square Miles	72
Ocean	81.48	Square Miles	26
Total			<b>8,818</b>



# Assessment Process

- Assessments are governed by the Water Quality Standards, Env-Wq 1700 & RSA 485-A:8.
  - Designated Uses
  - Criteria - Numeric & Narrative
  - Antidegradation
- Consolidated Assessment & Listing Methodology (CALM) defines how we apply the Water Quality Standards to available data.



# Designated Uses

- **NH Code of Administrative Rules (Env-Wq 1702.17)**

1. Aquatic Life Integrity
2. Fish Consumption
3. Shellfish Consumption
4. Potential Drinking Water Supply
5. Wildlife
6. Swimming and Other Recreation In and On The Water



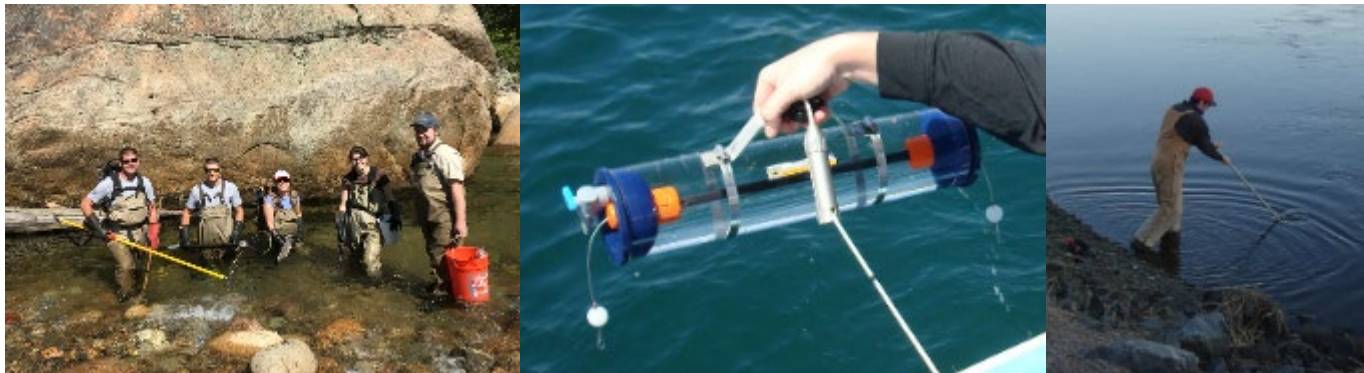
- A. Primary Contact Recreation (i.e. swimming)
- B. Secondary Contact Recreation (i.e. boating)





# Parameters

- Too many to list, here are some examples...
  - Dissolved Oxygen
  - Heavy metals
  - Exotic species
  - Pesticides
  - Bacteria
  - Toxic chemicals
  - Fish & aquatic insects
  - Etc...



# Consolidated Assessment & Listing Methodology (CALM)

- Translator document for how the water quality data will be used to make surface water quality attainment decisions by designated use, consistent with state surface water quality standards
- Like the 303(d), the CALM is available for public comment
- What kinds of things are in the CALM?



# CALM Overview

## What kinds of things are in the CALM?

- Core parameters for each use (i.e. bacteria for swimming use).
- Minimum number of samples.
- Maximum age of samples.
- How older data is treated.
- When samples must be taken (seasonality, time of day, flow, ...).
- Where samples are collected (depth profiles, to compare with older data, ...).
- How multiple samples will be treated.
- ...



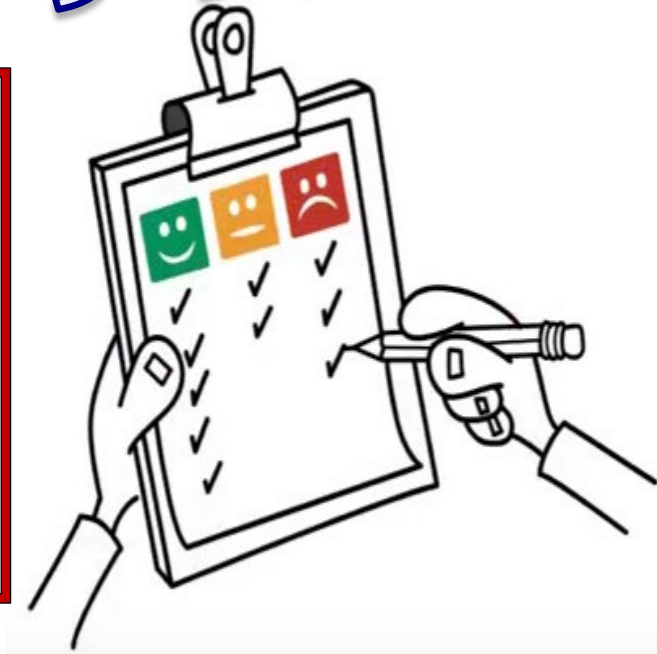
# 305(b) / 303(d) - Categories

- **Category 2** – Parameter meets water quality standards
- **Category 3** – Insufficient data to assess the parameter per the CALM

- **Category 5** – Parameter is a pollutant that requires a TMDL

- **Category 4** – Impairment per the CALM
  - **4A** = An EPA-approved TMDL has been completed
  - **4B** = A TMDL is not necessary since other enforceable controls are expected to attain water quality standards
  - **4C** = Not a pollutant but is causing impairment

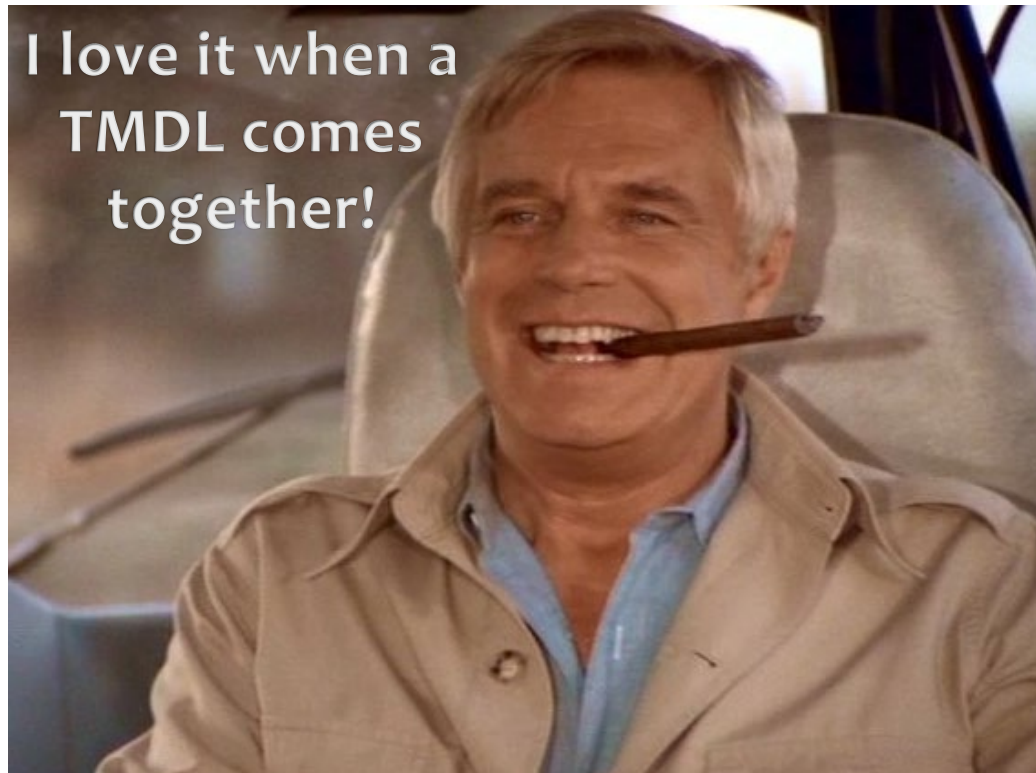
303(d) list



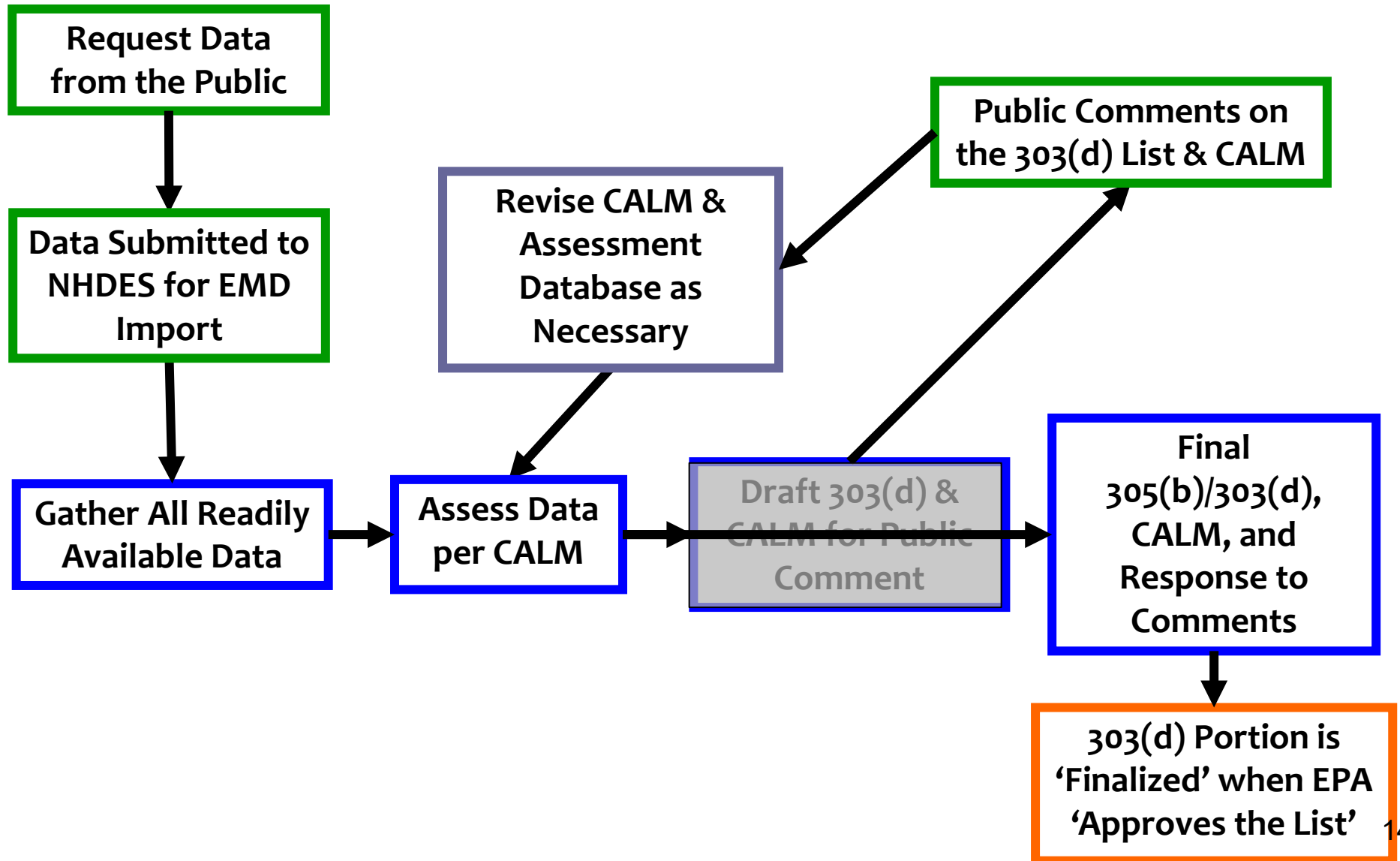
# So what is a TMDL?

## **T.M.D.L. = Total Maximum Daily Load**

- A plan for restoring impaired waters, which identifies the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards



# Assessment Process



# Data - Demystified

- In an assessment year – a request for data is sent out to over 2,000 individuals/organizations
- But... Data can be submitted at any time
- Needs supporting documentation to be used in assessment process

**Over 4,000,000 data points**

1. Low
2. Fair
3. Good
4. Excellent

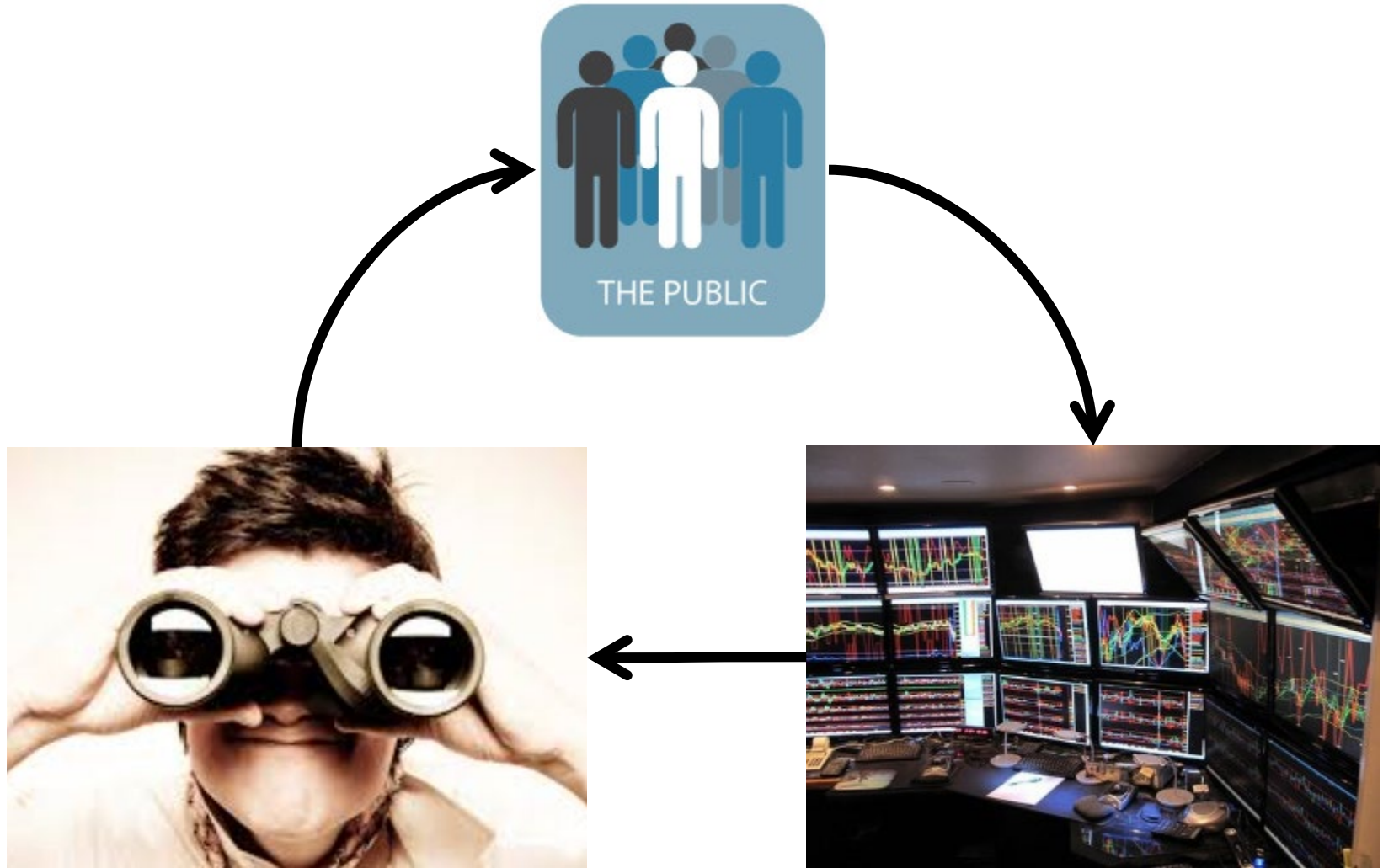


# How do the Assessments Happen?





# How do the Assessments Happen?





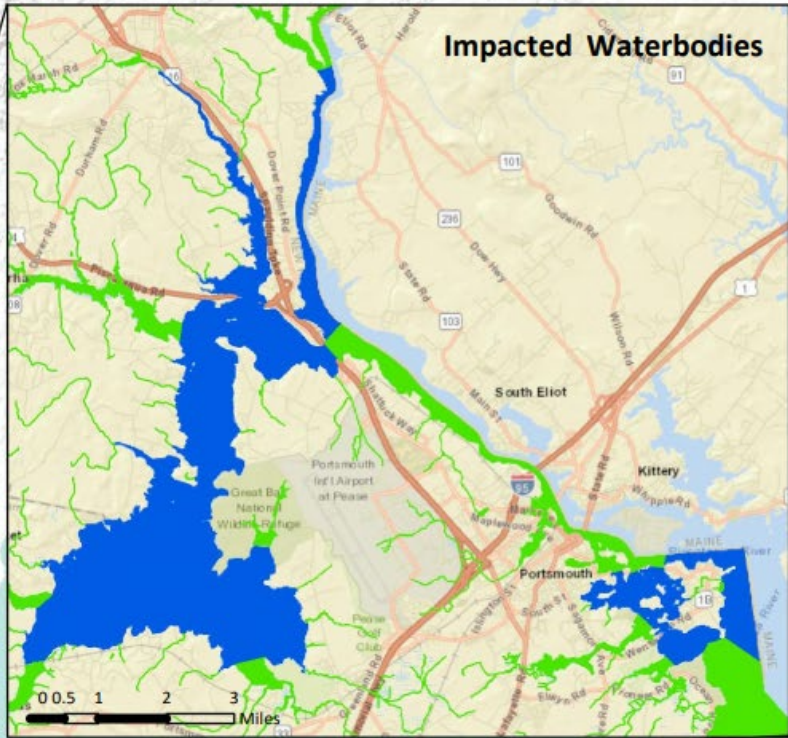
# Applicability of EPA Approved 303(d) Lists for New Hampshire Surface Waters

2012 EPA Approval Applies    2018 EPA Approval Applies



201

019



0 5 10 20 30 Miles

The data presented in this map is under constant revision, and may not depict the most up to date information. The New Hampshire Department of Environmental Services (NHDES) is not responsible for the use or interpretation of this information by third parties. Not for legal use. Map created 03/02/2020.









# Lets Dig a Little Deeper

What resources are available







# Draft 303(d) Document Availability

## 2020, Draft 303(d) List

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  - [Request for Comments on the CALM](#) 
- [2020, 303\(d\) List Content Introduction](#) 
  - [Appendix A - 2020, Draft 303\(d\)](#) 
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<https://www.des.nh.gov/organization/divisions/water/wmb/swqa/2020/index.htm>

# 303(d) List









Cycle	Assessment Unit ID (AUID)	Assessment Unit Name	Town(s) Primary Town is Listed First	AUID Intersects or is Adjacent to EPA's 2017 MS4 General Permit Area	Water Size	Size Unit	Designated Use	Parameter Name	Parameter Level - NHDES Category	TMDL Priority	Beach
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE MILES	Aquatic Life Integrity	Chlorophyll-a	5-P	LOW	N
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE MILES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M	LOW	N
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE MILES	Aquatic Life Integrity	Nitrogen (Total)	5-P	LOW	N
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P	LOW	N
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE MILES	Aquatic Life Integrity	pH	5-M	LOW	N
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE MILES	Fish Consumption	MERCURY - FISH CONSUMPTION ADVISORY	5-M	LOW	N
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE MILES	Fish Consumption	PCBS - FISH CONSUMPTION ADVISORY	5-M	LOW	N
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE MILES	Primary Contact Recreation	Chlorophyll-a	5-M	LOW	N
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE MILES	Primary Contact Recreation	Nitrogen (Total)	5-P	LOW	N
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE MILES	Shellfish Consumption	DIOXIN - FISH CONSUMPTION ADVISORY	5-M	LOW	N
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE MILES	Shellfish Consumption	MERCURY - FISH CONSUMPTION ADVISORY	5-M	LOW	N
2020	NHEST600030406-01	SALMON FALLS RIVER	DOVER, ROLLINSFORD	Yes	0.282	SQUARE MILES	Shellfish Consumption	PCBS - FISH CONSUMPTION ADVISORY	5-M	LOW	N
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE MILES	Aquatic Life Integrity	2-Methylnaphthalene	5-P	LOW	N
2020	NHEST600030608-01	COCHECO RIVER	DOVER	Yes	0.277	SQUARE MILES	Aquatic Life Integrity	Acenaphthene	5-P	LOW	N






Only **Category 5** – Impairment requiring a TMDL

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# Status of Each Assessment Unit

Cycle	Assessment Unit ID (AUID)	Assessment Unit Name	Town(s) Primary Town is Listed First	AUID Intersects or is Adjacent to EPA's 2017 MS4 General Permit Area	Water Size	Size Unit	Designated Use	Parameter Name	Parameter Level - NHDES Category	TL	DL Priority	Beach
2020	NHIMP700040402-02	NASHUA RIVER - MINE	NASHUA	Yes	60.000	ACRES	Aquatic Life Integrity	Chloride	3-ND			N
2020	NHIMP700040402-02	NASHUA RIVER - MINE	NASHUA	Yes	60.000	ACRES	Aquatic Life Integrity	Chlorophyll-a	No Stnd			N
2020	NHIMP700040402-02	NASHUA RIVER - MINE	NASHUA	Yes	60.000	ACRES	Aquatic Life Integrity	Dissolved oxygen saturation	5-P			N
2020	NHIMP700040402-02	NASHUA RIVER - MINE	NASHUA	Yes	60.000	ACRES	Aquatic Life Integrity	Non-Native Aquatic Plant	4C-M			N
2020	NHIMP700040402-02	NASHUA RIVER - MINE	NASHUA	Yes	60.000	ACRES	Aquatic Life Integrity	Oxygen, Dissolved	3-ND			N
2020	NHIMP700040402-02	NASHUA RIVER - MINE	NASHUA	Yes	60.000	ACRES	Aquatic Life Integrity	pH	5-M		LOW	N
2020	NHIMP700040402-02	NASHUA RIVER - MINE	NASHUA	Yes	60.000	ACRES	Fish Consumption	MERCURY - FISH	4A-M			N
2020	NHIMP700040402-02	NASHUA RIVER - MINE	NASHUA	Yes	60.000	ACRES	Primary Contact Recreation	Chlorophyll-a	3-PAS			N
2020	NHIMP700040402-02	NASHUA RIVER - MINE	NASHUA	Yes	60.000	ACRES	Primary Contact Recreation	Cyanobacteria hepatotoxic	5-M		LOW	N
2020	NHIMP700040402-02	NASHUA RIVER - MINE	NASHUA	Yes	60.000	ACRES	Primary Contact Recreation	Escherichia coli	3-ND			N
2020	NHIMP700040402-02	NASHUA RIVER - MINE	NASHUA	Yes	60.000	ACRES	Secondary Contact Recreation	Escherichia coli	3-ND			N
2020	NHIMP700040402-03	NASHUA RIVER - NASHUA	NASHUA	Yes	42.000	ACRES	Aquatic Life Integrity	Alkalinity, Carbonate as	3-ND			N
2020	NHIMP700040402-03	NASHUA RIVER - NASHUA	NASHUA	Yes	42.000	ACRES	Aquatic Life Integrity	Chloride	5-M		LOW	N
2020	NHIMP700040402-03	NASHUA RIVER - NASHUA	NASHUA	Yes	42.000	ACRES	Aquatic Life Integrity	Chlorophyll-a	3-ND			N
2020	NHIMP700040402-03	NASHUA RIVER - NASHUA	NASHUA	Yes	42.000	ACRES	Aquatic Life Integrity	Dissolved oxygen saturation	3-ND			N
2020	NHIMP700040402-03	NASHUA RIVER - NASHUA	NASHUA	Yes	42.000	ACRES	Aquatic Life Integrity	Non-Native Aquatic Plant	4C-M			N
2020	NHIMP700040402-03	NASHUA RIVER - NASHUA	NASHUA	Yes	42.000	ACRES	Aquatic Life Integrity	Oxygen, Dissolved	3-PNS			N
2020	NHIMP700040402-03	NASHUA RIVER - NASHUA	NASHUA	Yes	42.000	ACRES	Aquatic Life Integrity	Turbidity	3-ND			N
2020	NHIMP700040402-03	NASHUA RIVER - NASHUA	NASHUA	Yes	42.000	ACRES	Aquatic Life Integrity	pH	5-M		LOW	N
2020	NHIMP700040402-03	NASHUA RIVER - NASHUA	NASHUA	Yes	42.000	ACRES	Fish Consumption	MERCURY - FISH	4A-M			N
2020	NHIMP700040402-03	NASHUA RIVER - NASHUA	NASHUA	Yes	42.000	ACRES	Potential Drinking Water Supply	Escherichia coli	3-PNS			N











Category 2, Category 3,  
Category 4 and Category 5





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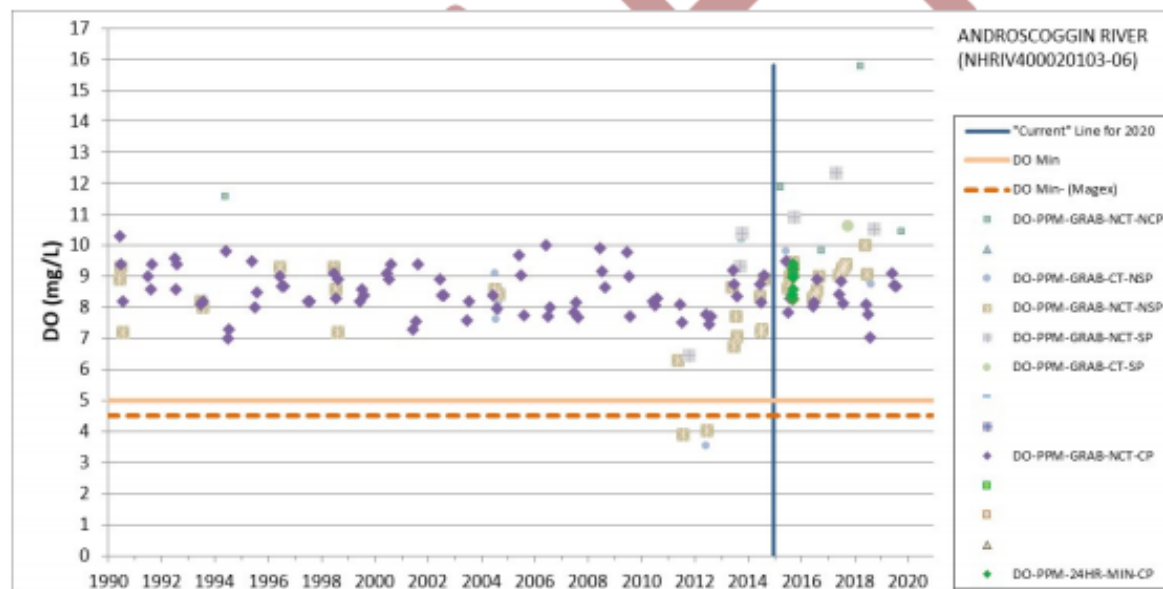
# Change Documents

## Dissolved Oxygen Concentration for Aquatic Life Integrity

### ANDROSCOGGIN RIVER (NHRIV400020103-06)









Assessment Unit Name	Assessment Unit ID	Parameter Name	Town(s) - Primary	2018	2020
			Town Listed First		
ANDROSCOGGIN RIVER	NHRIV400020103-06	DISSOLVED OXYGEN (MG/L)	SHELBURNE	5-P	2-G

The Androscoggin River (NHRIV400020103-06) was originally impaired during the 2012 assessment cycle using data collected at station 02-AND. Since 1990, three of 157 (1.9%) grab samples and 24-hr min datalogger values collected at stations 02-AND and 01-AND were below the dissolved oxygen threshold of 5 mg/L. The low dissolved oxygen samples were collected at flows ranging from 1,280-2,210 cfm on the Androscoggin River gage (01054000), water temperatures ranging from 21.1-23.5 degrees C and three-day rainfall totals ranging from 0.00-0.27 inches. Two of the three of these samples were collected during NSP. In the current assessment period (2015-2020), all samples (n=52) collected at stations 02-AND and 01-AND were above the dissolved oxygen threshold of 5 mg/L. The 52 dissolved oxygen samples were collected at a wide variety of flows ranging from 887-9,390 cfm on the Androscoggin River gage (01054000), water temperatures ranging 0.9-23.3 degrees C, and three-day rainfall totals ranging from 0.00-3.34 inches. The current data was collected at the same station (with the addition of data collected at 01-AND) and under similar hydrological and meteorological conditions as those that drove the initial impairment, which supports the delisting of the Androscoggin River in the 2020 cycle. The Androscoggin River (NHRIV400020103-06) has been moved from 5-P to 2-G for dissolved oxygen (mg/L) for the aquatic life integrity designated use based on data collected in the current assessment period.









# Draft 303(d) Document Availability

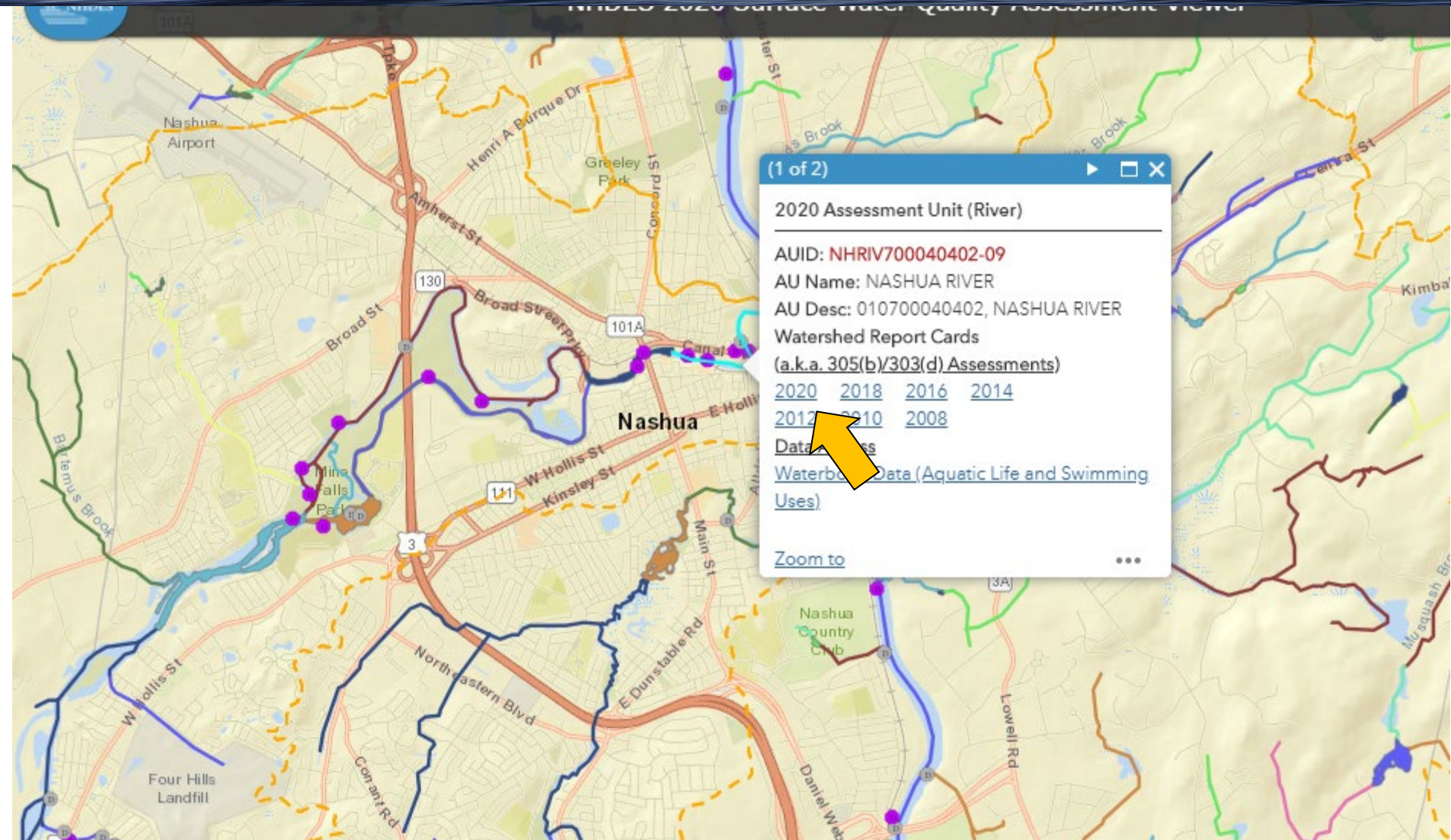
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# Assessment Viewer



# Assessment Viewer - Report Card

Assessment Unit ID: NHRIV700040402-03  
 Assessment Unit Name: Flints Brook  
 Town(s) Primary Town is Listed First: Hollis

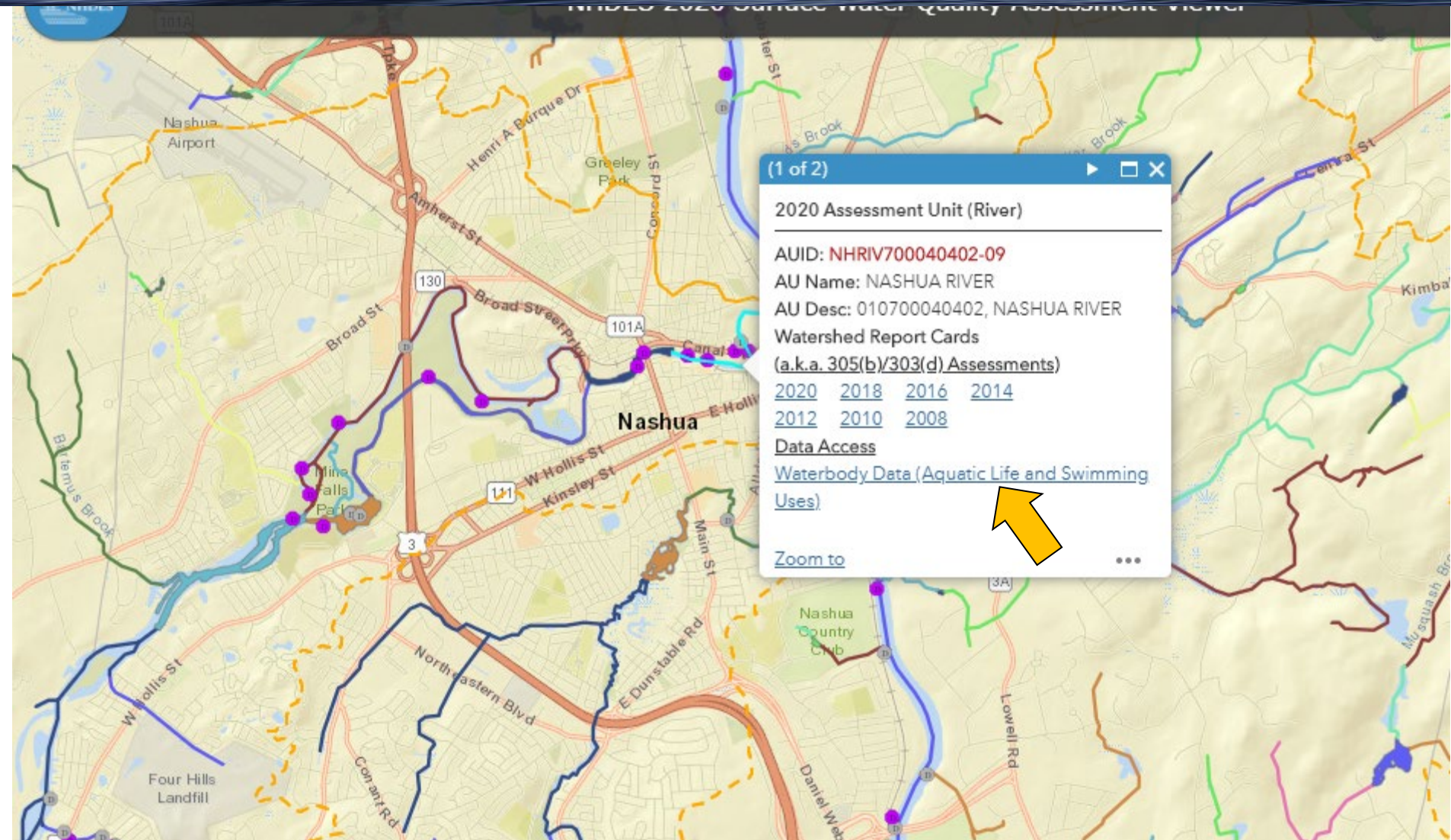
Size: 6.5770 MILES  
 Assessment Unit Category: 5-P  
 Beach: N

Draft 2020, 305(b)/303(d) - All  
 Reviewed Parameters by Assessment Unit

Designated Use Description	Desig. Use Category	Parameter Name	Parameter Threatened (Y/N)	Last Sample	Last Exceed	Parameter Category	TMDL Priority
Aquatic Life Integrity	5-P	Aluminum	N	2019	2016	3-PAS	
		Benthic-Macroinvertebrate Bioassessments (Streams)	N			3-PAS	
		Chloride	N	2019	N/A	2-G	
		Copper	N	2016	N/A	3-PAS	
		Dissolved Oxygen Saturation	N	2019	N/A	2-G	
		Fishes Bioassessments (Streams)	N			3-PAS	
		Oxygen, Dissolved		2019	2019	5-P	LOW
		Ph	N	2019	2019	2-M	
		Phosphorus (Total)	N	2019	NLV	3-PNS	
Fish Consumption	4A-M	Copper	N	2016	N/A	3-PAS	
		Mercury - Fish Consumption Advisory	N			4A-M	
Potential Drinking Water Supply	2-G	Copper	N	2016	N/A	3-PAS	
		Escherichia Coli	N	2019	2019	3-PNS	
		Sulfates	N	2016	N/A	3-PAS	
Primary Contact Recreation	4A-M	Chlorophyll-A	N	2015	N/A	3-PAS	

Good	Marginal	Likely Good	No Current Data	Likely Bad	Poor	Severe
Meets water quality standards/thresholds by a relatively large margin.	Meets water quality standards/thresholds but only marginally.	Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS)	Insufficient information to make an assessment decision.	Limited data available. The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards.	Not meeting water quality standards/thresholds. The impairment is marginal.	Not meeting water quality standards/thresholds. The impairment is more severe and causes poor water quality.

# Assessment Viewer



# Assessment Viewer -

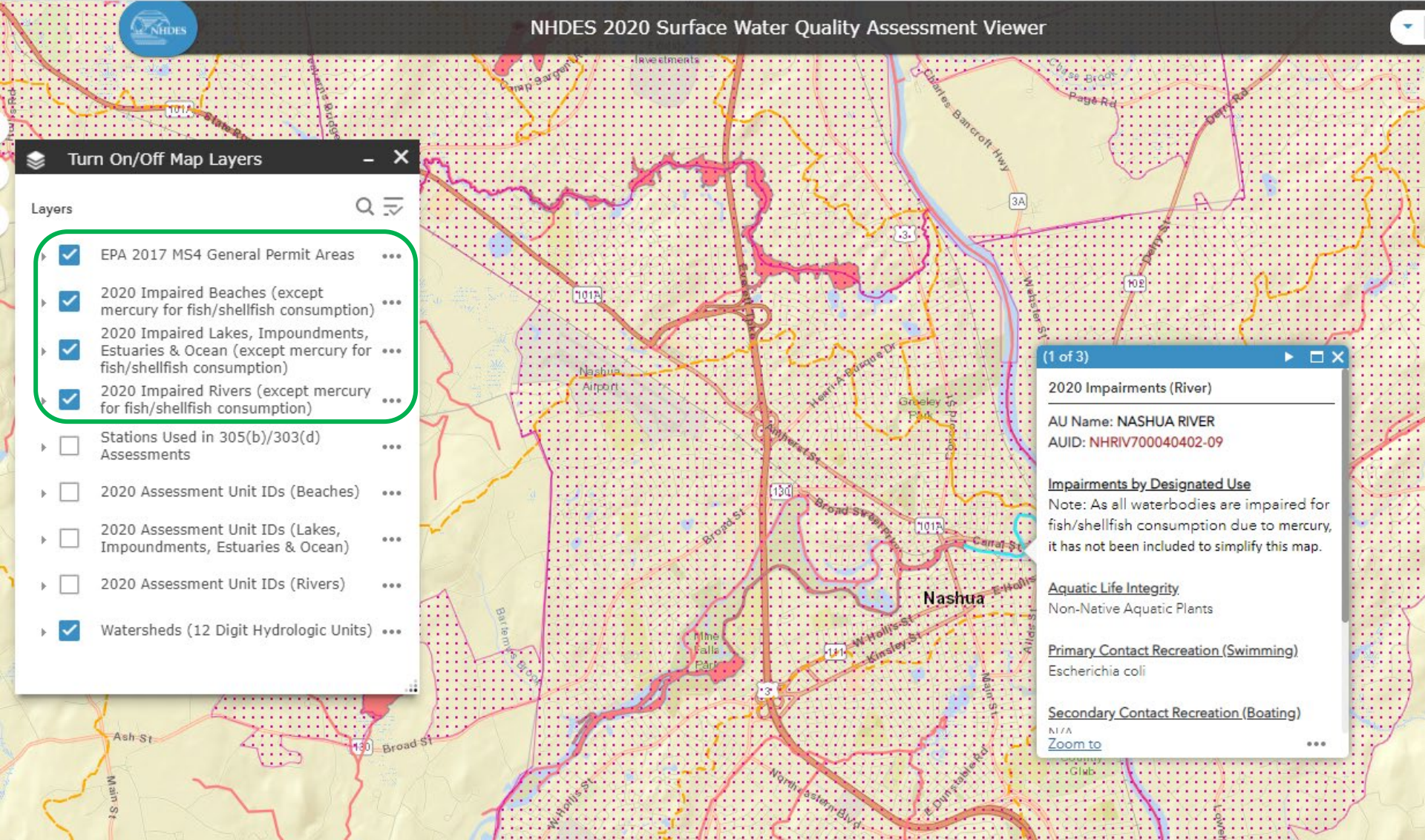


	AA	AB	AC	AD	AE	AF
▼	Statistic Type ▼	Sample Size ▼	Adjusted Result ▼	Adjusted Unit ▼	Original Result ▼	Medium ▼
	MINIMUM	96	1.96	MG/L	1.96	WATER
	MAXIMUM	32	2.68	MG/L	2.68	WATER
	MEAN	32	2.36688	MG/L	2.36688	WATER
	MINIMUM	96	0.56	MG/L	.56	WATER
	MAXIMUM	96	2.15	MG/L	2.15	WATER
	MEAN	96	1.39958	MG/L	1.39958	WATER
	MINIMUM	96	0.71	MG/L	.71	WATER
	MAXIMUM	96	2.37	MG/L	2.37	WATER
	MEAN	96	1.43146	MG/L	1.43146	WATER
	MINIMUM	96	0.78	MG/L	.78	WATER
	MAXIMUM	96	1.94	MG/L	1.94	WATER
	MEAN	96	1.33531	MG/L	1.33531	WATER
	MINIMUM	96	0.82	MG/L	.82	WATER
	MAXIMUM	52	1.62	MG/L	1.62	WATER
	MEAN	52	1.15885	MG/L	1.15885	WATER
		-99999	4.13	MG/L	4.13 MG/L	WATER
N"	MEAN	32	27.87273	%	27.87273	WATER
T						
	MAXIMUM	32	31.5847	%	31.5847	WATER
	MINIMUM	96	23.0668	%	23.0668	WATER
	MEAN	96	16.58337	%	16.58337	WATER
	MAXIMUM	96	25.5837	%	25.5837	WATER
	MINIMUM	96	6.5601	%	6.5601	WATER

# Assessment Viewer



NHDES 2020 Surface Water Quality Assessment Viewer



<https://nhdes.maps.arcgis.com/apps/webappviewer/index.html?id=d1ba9c5ec85646538e032580e23174f7>

# Questions?

**Matthew A. Wood**, Water Quality Assessment Program Coordinator  
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Water Division, NH Dept. of Environmental Services  
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<http://des.nh.gov/organization/divisions/water/wmb/swqa/index.htm>

