

Water Quality Standards  
Advisory Committee,  
January 14, 2021

# Water Quality Standards Advisory Committee, January 14, 2021

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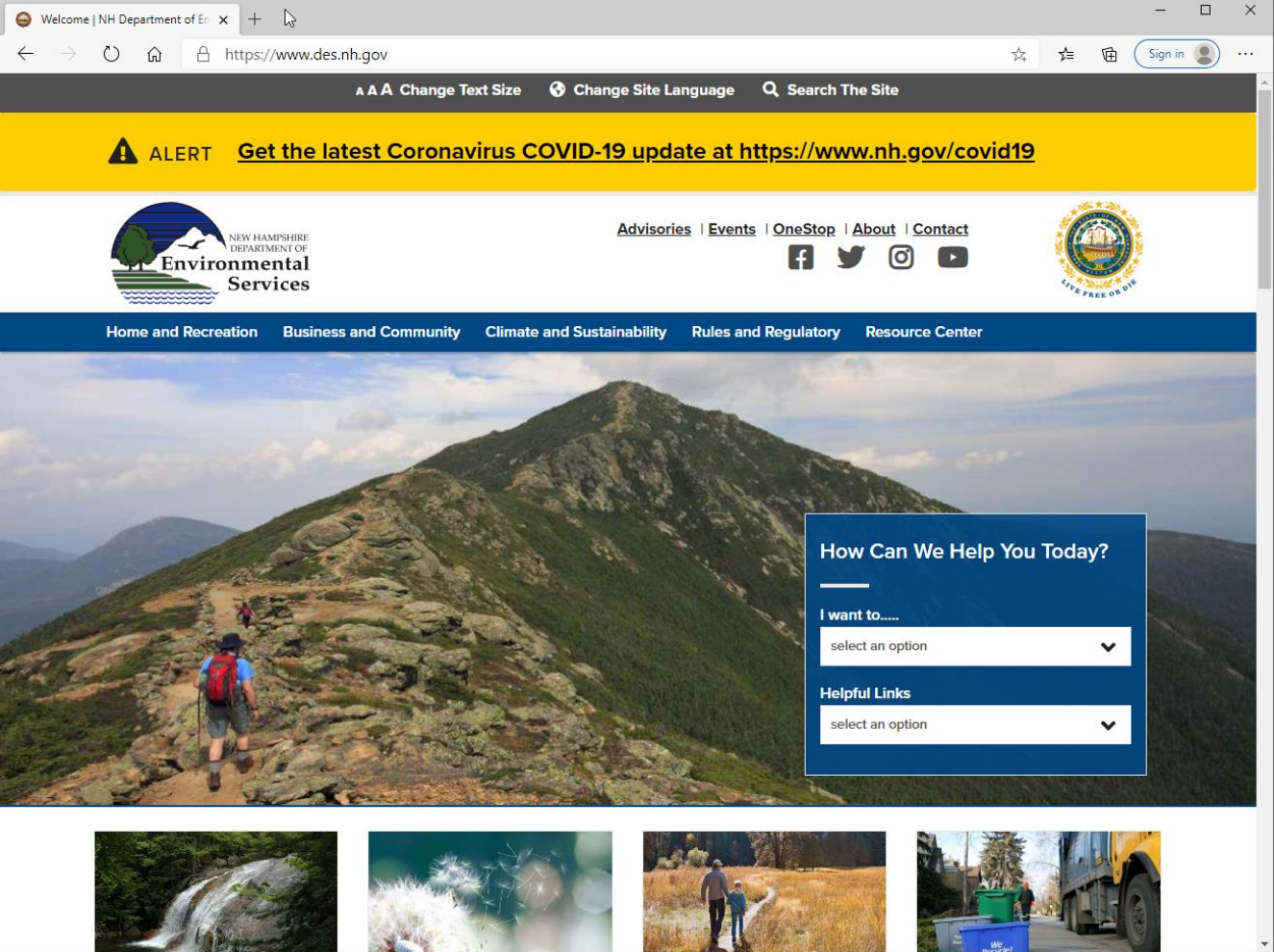


# Agenda

Item	~Time	Subject	Lead by
1.	1:30	Introductions	Chair
2.	1:35	New Website	Ken Edwardson
3.	1:40	Quick Note – Environmental Monitoring Database Upgrade	Ken Edwardson
4.	1:45	COVID19 – Data impacts	Ken Edwardson
5.	1:50	Legislative Update – Budget	Ted Diers
6.	1:55	EPA Update	Dan Arsenault
7.	2:05	PFAS – Fish Study Update	Ken Edwardson
8.	2:15	Drought	Ken Edwardson
9.	2:20	Antidegradation – Withdrawals	Ken Edwardson/ Gregg Comstock
10.	2:30	What does 2021 look like for WQStds Triennial review process	Ken Edwardson/ Ted Diers
11.	3:15	Other Business <ul style="list-style-type: none"> <li>• Discussion of chairs</li> <li>• The next two regularly scheduled WQSAC meetings are on 4/8/2021 and 7/8/2021.</li> <li>• Other</li> </ul>	Chair
12.	3:30	Adjourn	Chair

# New NHDES Website

# New NHDES Website



<https://www.des.nh.gov/>

# Searching the New Website

- Main Site Search (top of page)
  - Searches, titles, web content and document tags
  - Web pages should be on top
  - Shows count of records returned
- Document Library a.k.a. Publications
  - Single words is best
  - Multiple word search?
    - Defaults to “or”
    - Use a “+” if your want to search for a specific title
  - Alphabetical order (what you see hints at how much there is)

# WQSAC - Address

<https://www.des.nh.gov/about/boards-and-committees/water-quality-standards-advisory-committee>

# WQSAC – Current Content

- <https://www.des.nh.gov/about/boards-and-committees/water-quality-standards-advisory-committee>
- Currently
  - WQSAC minutes/summaries and agendas back to 2010
  - All meeting documents back to 2018
  - More will be added as time permits





# Quick Note – Environmental Monitoring Database Upgrade

# Quick Note – EMD Upgrade

- Internally converting from Oracle Forms to the more modern .NET format.
- EMD will be unavailable internally and externally starting Thursday 1/14
- OneStop uploads may be down until 1/31.
- Expect queries to the assessment DB to be poor to unresponsive.



Build and transfer load  
while under way!



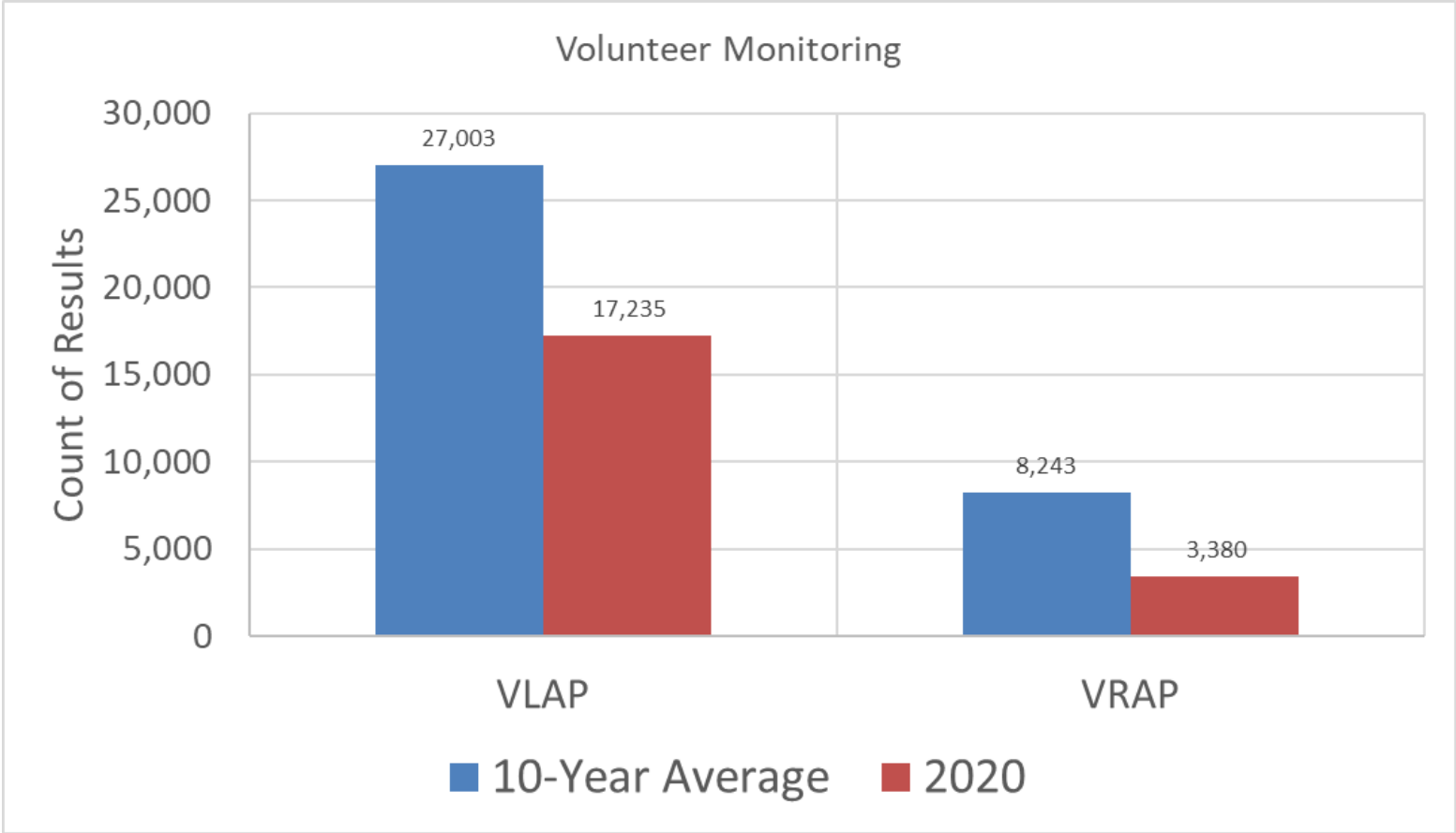
# COVID19 – Data Impacts

# COVID19 – Data Impacts

- Limitations
  - WMB Staff Sampling
  - Interns
  - State Lab
- Expect limitations into the 2021 field season

# COVID19 – Data Impacts

## Example



# Legislative Update - Budget

- Ted Diers



# EPA Update



- Dan Arsenault



# PFAS – Fish Study – Data overview

# What was sampled?

- Lake water (3 analyses)
  - Stratified → Epilimnion (mid), Metalimnion (mid), Hypolimnion (~0.5m off bottom)
  - Unstratified → Surface (1m), Middle (mid-depth), Deep (~0.5m off bottom)

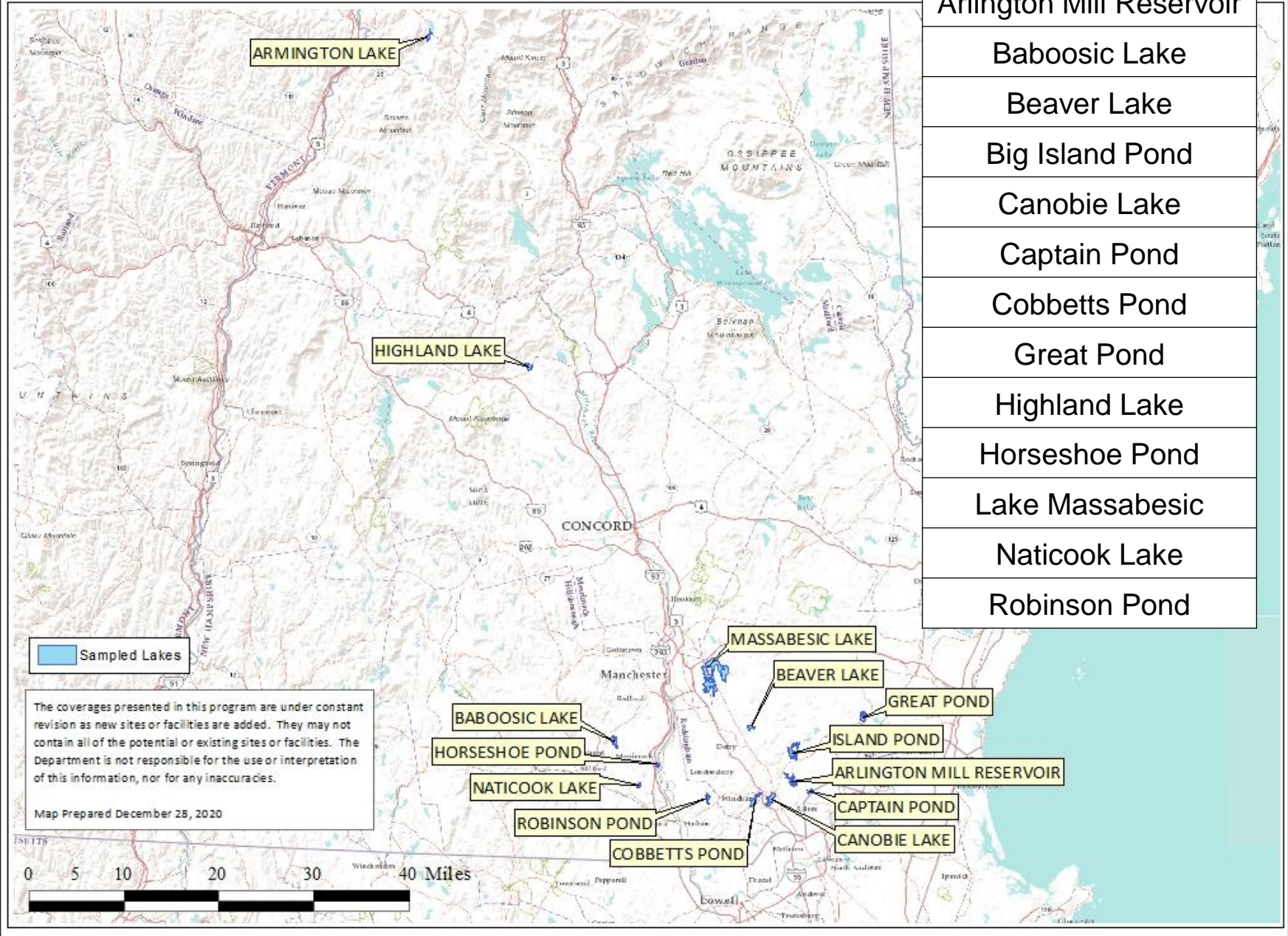
## Sediment (1 analysis)

- Deep water
  - Petite Ponar clamshell-style dredge or hand corer
  - Top 0 to 6 inches
- 
- Fish (2 analyses)
    - Skin-off Fillets
    - 2 species
    - 5 fish composited per species
- 
- Lakes (14)
    - 12 in developed areas
    - 2 “reference”

# Analyses

- Per- and Polyfluoroalkyl Substances - Modified EPA Method 537
  - 36 compounds
- Dissolved Organic Carbon (mg/L)
- Alkalinity (mg/L)
- Hardness (mg/L)
- Chlorophyll-A ( $\mu\text{g/L}$ )
- Dissolved oxygen
- Temperature
- Conductivity
- pH
- Turbidity

# Lakes in the Fall 2020 PFAS Sampling



- Lake Armington
- Arlington Mill Reservoir
- Baboosic Lake
- Beaver Lake
- Big Island Pond
- Canobie Lake
- Captain Pond
- Cobbetts Pond
- Great Pond
- Highland Lake
- Horseshoe Pond
- Lake Massabesic
- Naticook Lake
- Robinson Pond

# Matrix of fish collected across the sites

	Large Mouth Bass	Small Mouth Bass	Yellow Perch	Black Crappie	Bluegill	Common Sunfish (PS)
Lake Armington	X		X			
Arlington Mill Reservoir		X*	X*			
Baboosic Lake	X				X	
Beaver Lake		X	X			
Big Island Pond	X		X			
Canobie Lake	X				X	
Captain Pond	X		X			
Cobbetts Pond	X		X			
Great Pond	X		X			
Highland Lake		X				X
Horseshoe Pond	X		X			
Lake Massabesic	X				X	
Naticook Lake		X		X		
Robinson Pond	X		X			

# 2020 Fish Tissue Study Moving Forward

- Report from Weston
- Electronic data from Weston
- Data report
- Screening level evaluation
- Determine next steps...



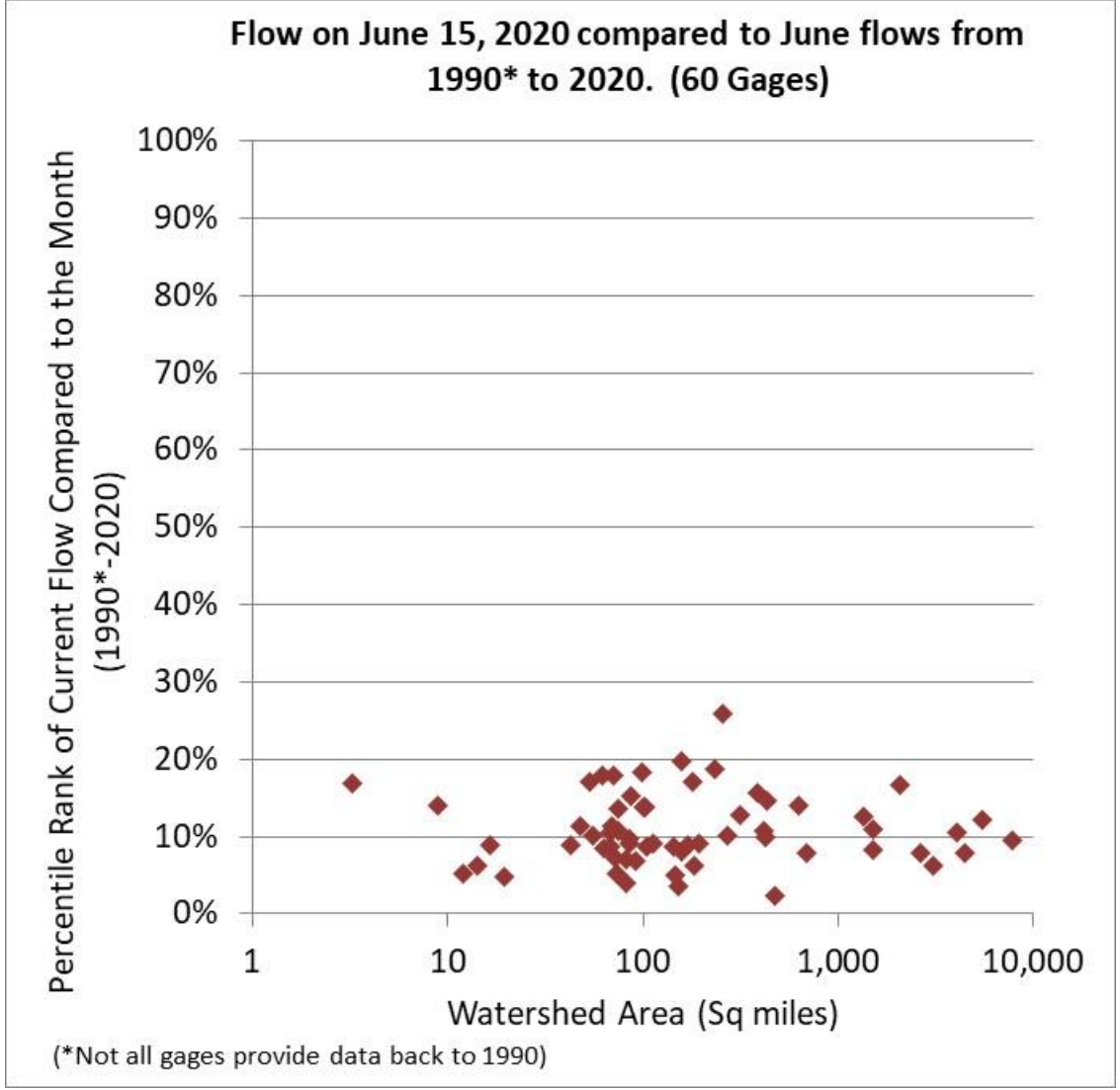
# Drought



Triggered by the  
question,  
“How are the rivers  
doing?”



# Drought – Day view

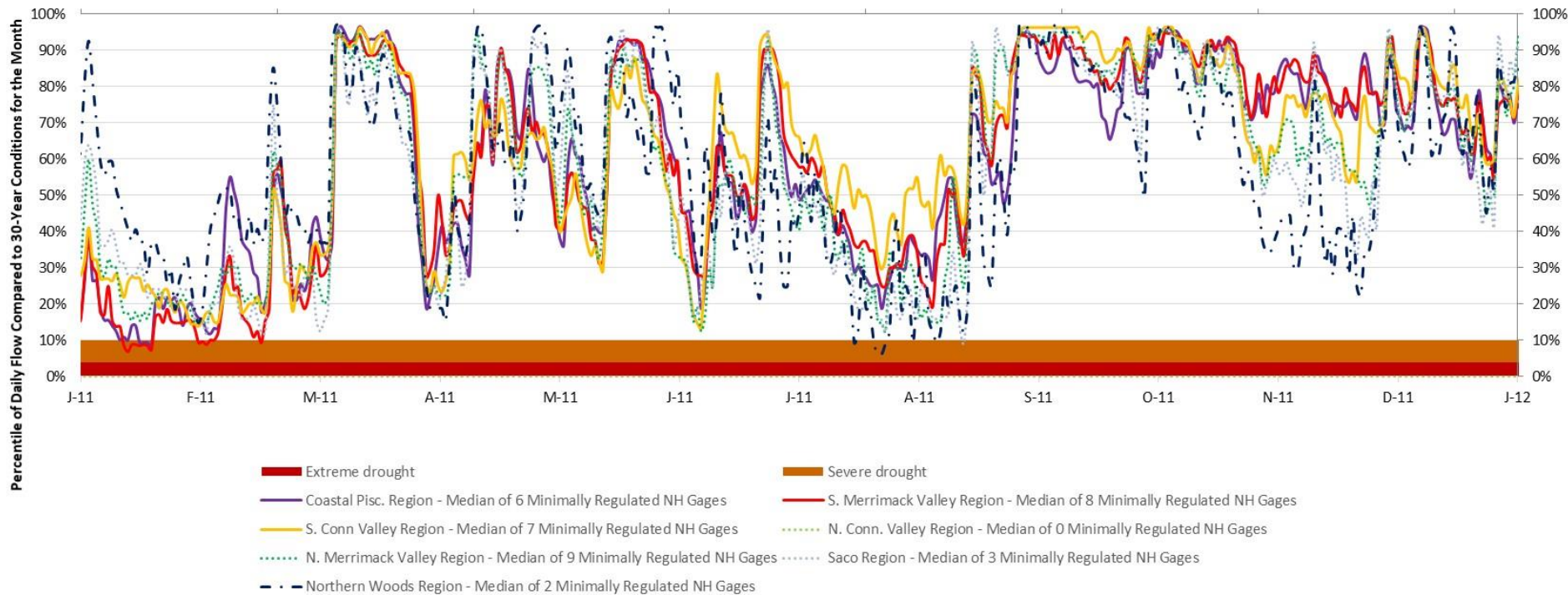


# Drought

- The State-wide picture

## 2011 "Normal" Year

Aggregate NH Flow Status - Median Percentile of Daily Flows (2000-2020) at 37 Minimally Regulated New Hampshire Gages Using Daily Flow Percentiles (1990-2020)

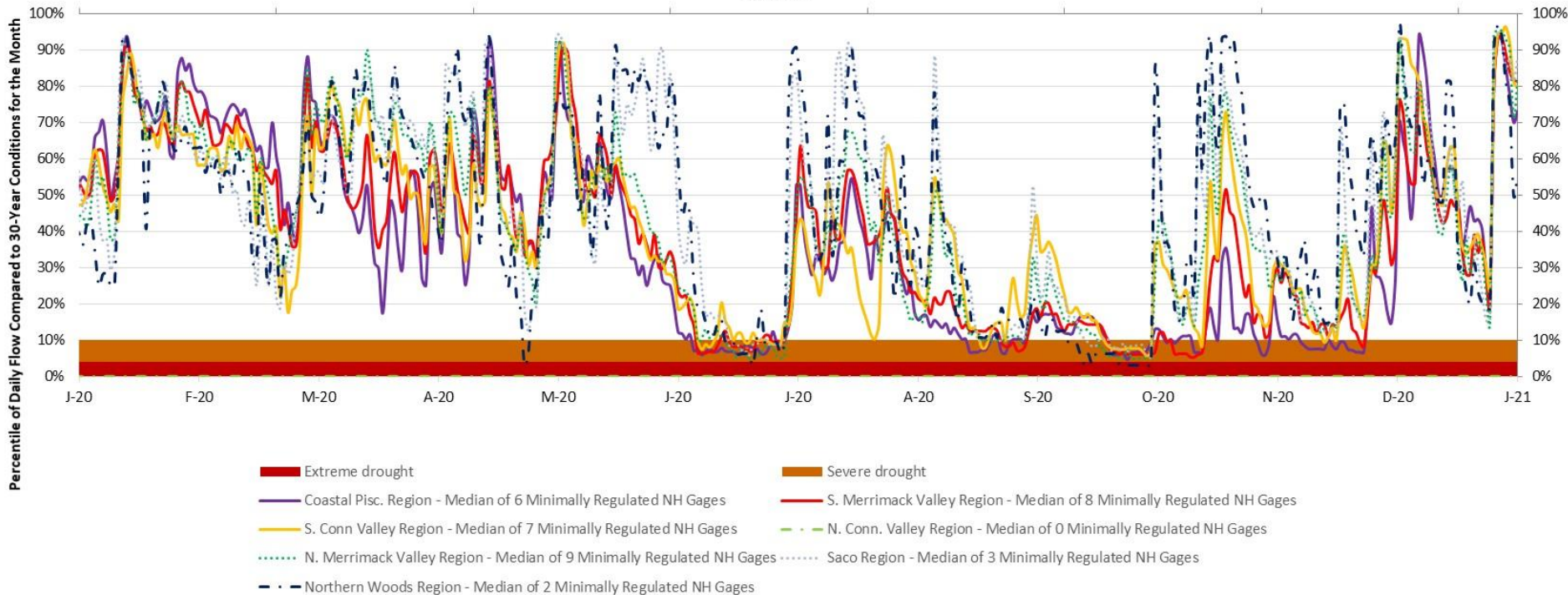


# Drought

- The State-wide picture

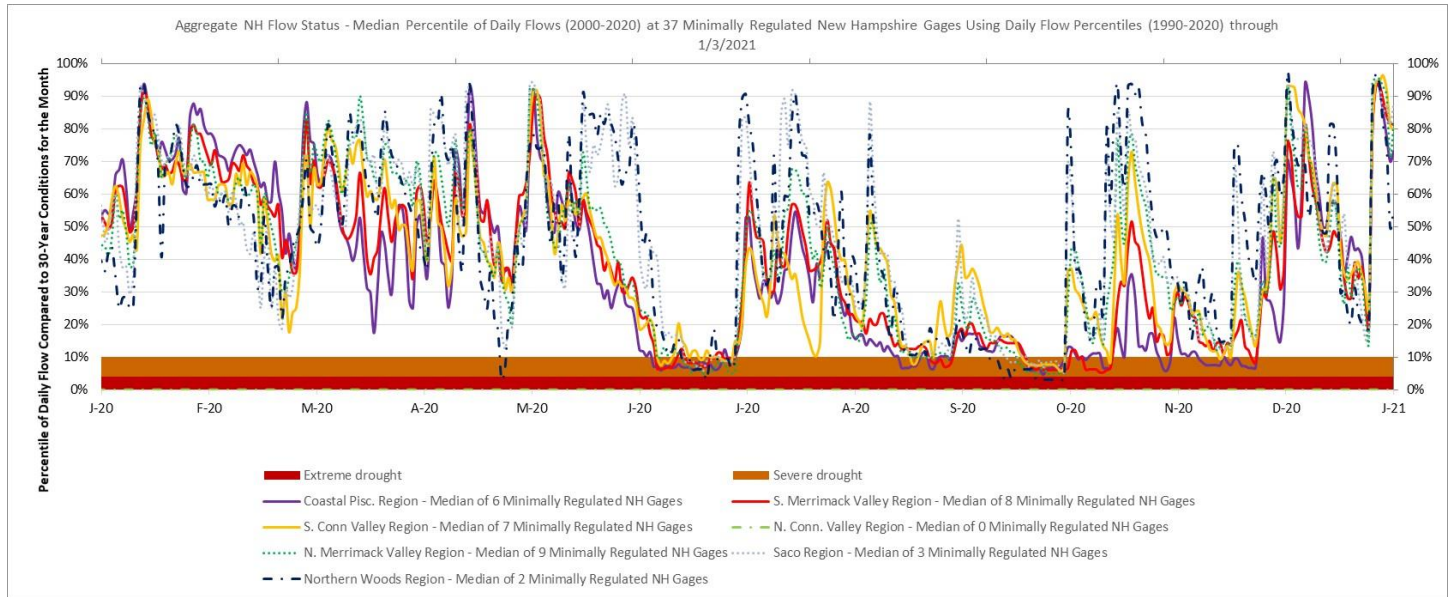
## 2020 "Dry" Year

Aggregate NH Flow Status - Median Percentile of Daily Flows (2000-2020) at 37 Minimally Regulated New Hampshire Gages Using Daily Flow Percentiles (1990-2020) through 1/3/2021

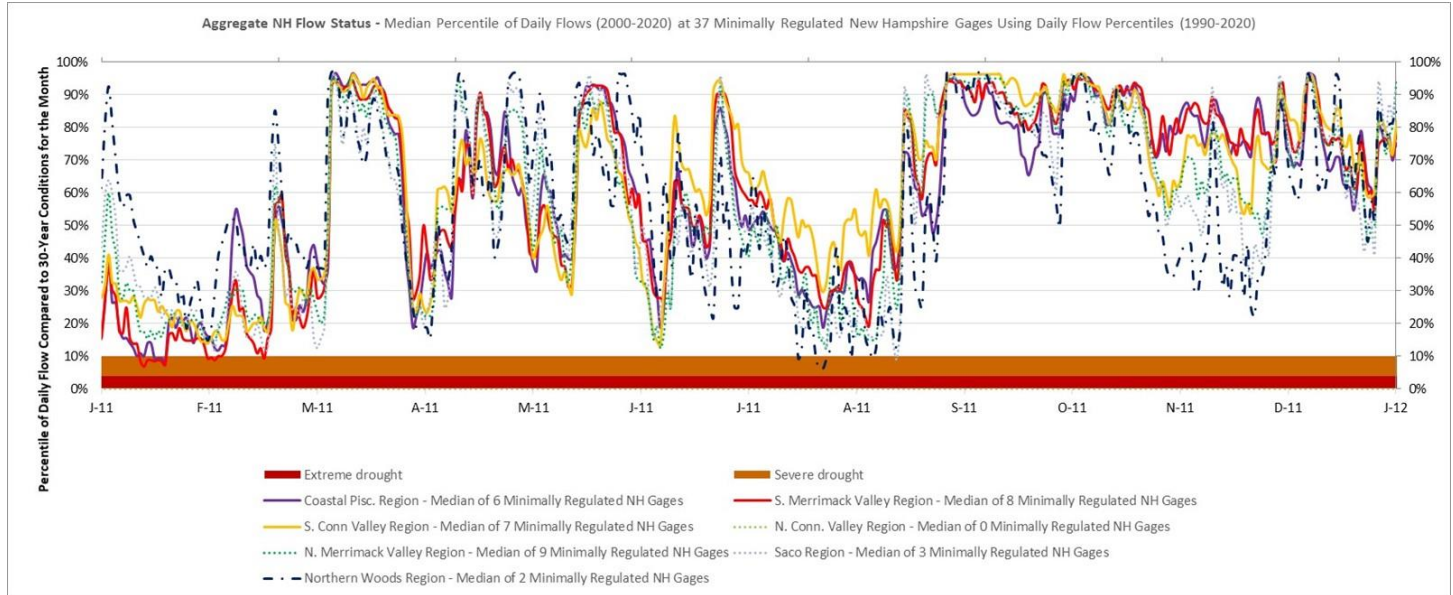


# Discussion

2020  
"Dry" Year



2011  
"Normal" Year



# Antidegradation – Flow – Bellamy – Webster

# Webster Stream Withdrawal Request

- To provide a secondary drinking water source during the winter months (Oct-May/June) to allow for more robust recharge of the existing wells.
- The withdrawal is needed to allow the Applicant's water supply production wells to recharge through the winter months in preparation for summer withdrawals which exceed their capacity when pumped 12-months per year.
- Currently, with full outdoor water use restrictions in place, the Applicant occasionally needs to truck-in water (i.e., up to 10 trucks per week) to augment water supply in the summer.
- A maximum of 150 gallons per minute (gpm) [which is equivalent to 0.334 cubic feet per second (cfs)] was requested to be withdrawn from Webster Stream (Oct-May/June) 12-hours/day.
- Webster Stream drainage area = 9.29 square miles.
- Nearly all "users" are upstream of the withdrawal and discharge to septic systems.
- Seeking a "non-significant" withdrawal (Env-Wq 1708.09).

# How to address Anti-degradation?

BEST POSSIBLE WATER QUALITY				
Better ↑ WATER QUALITY Parameter Value ↓ Worse	Outstanding Resource Waters (ORWs) TIER 3	<b>TIER 2</b> <b>HIGH QUALITY</b> Water quality has more than 10% of the Total Assimilative Capacity Remaining	<b>EXISTING WATER QUALITY</b>	
			20% Remaining Assimilative Capacity	Remaining Assimilative Capacity
		<b>TIER 1</b> <b>MARGINAL QUALITY</b> Water quality has less than 10% of the Total Assimilative Capacity Remaining	Insignificant pollutant loading allowed (i.e., takes up <20% remaining assimilative capacity)  Significant pollutant loading allowed with full public participation to demonstrate that lowering of water quality is necessary to allow for important economic or social development (i.e., takes up ≥20% remaining assimilative capacity)	
		<b>WATER QUALITY CRITERIA</b>		
		<b>IMPAIRED</b> Water quality is below the standard	No additional pollutant loading Pollutant loading reductions are needed to restore water quality	
		Total Assimilative Capacity		



# Anti-degradation - Applied

		<b>BEST POSSIBLE WATER QUALITY</b>		
<b>Better</b> ↑ <b>WATER QUALITY</b> Parameter Value ↓ <b>Worse</b>	<b>Outstanding Resource Waters (ORWs) TIER 3</b>	<b>TIER 2</b> <b>HIGH QUALITY</b> Water quality has more than 10% of the Total Assimilative Capacity Remaining	<b>EXISTING WATER QUALITY</b> 20% Remaining Assimilative Capacity	
		<b>TIER 1</b> <b>MARGINAL QUALITY</b> Water quality has less than 10% of the Total Assimilative Capacity Remaining	Insignificant pollutant loading allowed (i.e., takes up <20% remaining assimilative capacity)  Significant pollutant loading allowed with full public participation to demonstrate that lowering of water quality is necessary to allow for important economic or social development (i.e., takes up ≥20% remaining assimilative capacity)	Remaining Assimilative Capacity
			No additional pollutant loading Reserve Assimilative Capacity must be no less than 10% of the Total Assimilative Capacity	Reserve Assimilative Capacity
	<b>WATER QUALITY CRITERIA</b>		<b>IMPAIRED</b> Water quality is below the standard	No additional pollutant loading Pollutant loading reductions are needed to restore water quality
		<b>Total Assimilative Capacity</b>		

Granted, sometimes "Existing" is up here.

Monthly Q75

During operation, existing flow dictates the 20% RAC.  
Volume the applicant can withdraw

Monthly Withdrawal Cutoff

Monthly Q25 - Withdrawal <15%, >10%  
 Monthly Q20 - Withdrawal <10%, >5%  
 Monthly Q10 - Withdrawal <5%

# Estimate the “natural” flow percentiles by month

The Applicant has maintained a rating cure and pressure transducer since 1/29/2019.

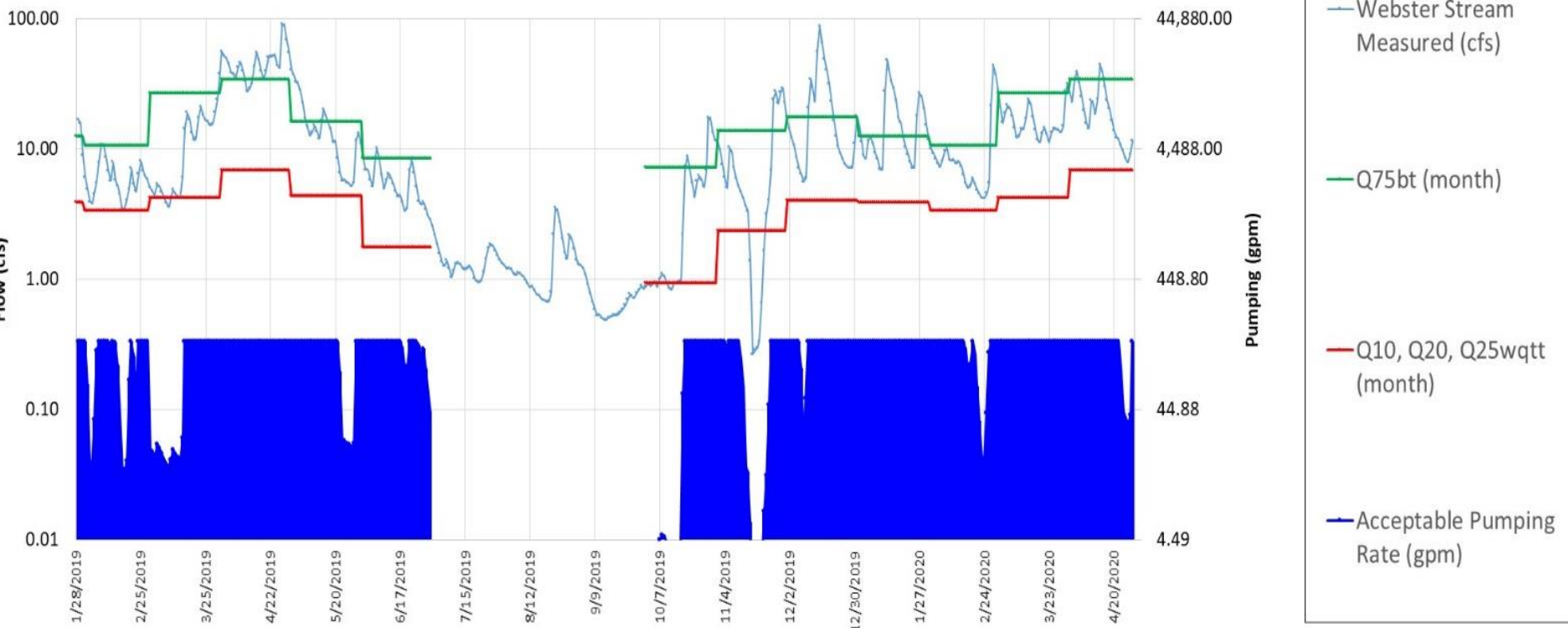
Table 1– Estimated “natural” flow percentiles by month in Webster Stream (based on regression against the Soucook River gage from 1990 through 2020)

Month	Q10	Q20	Q25	Q30	Q40	Q50	Q60	Q70	Q75	Q80	Q90
1	3.00	3.92	4.39	5.08	6.32	7.36	8.75	11.15	12.60	14.64	23.38
2	2.73	3.36	3.92	4.23	5.04	5.87	7.36	9.29	10.63	13.71	23.66
3	4.23	5.83	6.81	8.08	11.11	14.12	18.25	24.20	27.01	30.98	43.52
4	6.88	10.43	11.53	12.70	16.38	20.29	24.71	30.61	34.49	39.70	63.54
5	3.01	4.39	5.07	5.93	7.45	9.01	11.31	14.40	16.21	18.80	29.00
6	1.14	1.75	2.08	2.29	3.00	4.23	5.43	7.10	8.43	10.80	20.19
7	0.48	0.64	0.73	0.85	1.12	1.52	2.07	3.10	3.85	5.38	12.76
8	0.33	0.51	0.57	0.67	0.83	1.10	1.49	2.37	3.07	4.21	8.72
9	0.29	0.37	0.41	0.47	0.63	0.89	1.30	1.94	2.36	2.98	6.91
10	0.44	0.72	0.94	1.18	1.81	2.36	3.51	6.22	7.18	9.72	17.70
11	1.55	2.36	2.81	3.31	4.43	6.13	8.27	11.77	13.79	16.51	26.61
12	2.75	4.04	4.74	5.29	6.92	8.78	11.17	14.74	17.50	20.57	31.96
<b>Annual</b>	0.67	1.49	2.02	2.64	3.99	5.71	7.90	11.50	13.81	17.17	29.16

All flows are in cubic feet per second (cfs)

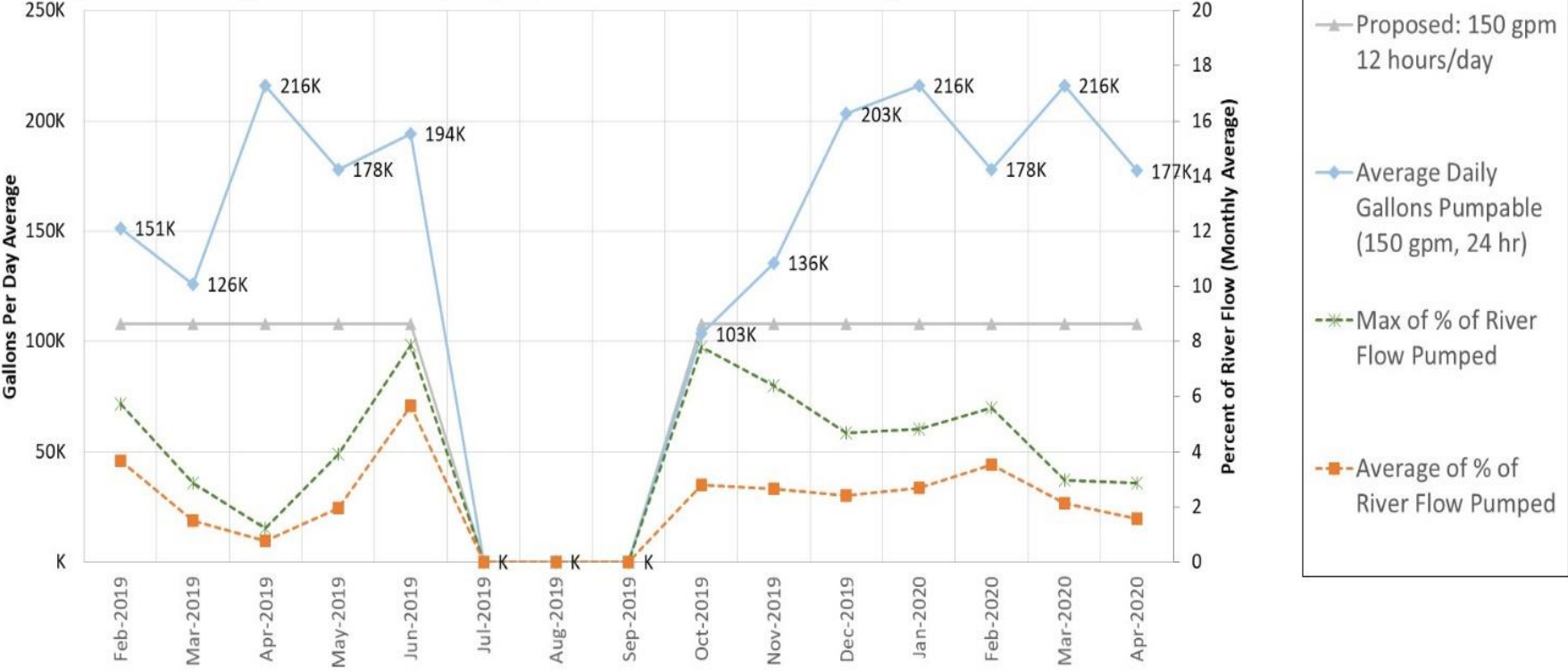
# Webster Stream Withdrawal Example – 1/29/2019-4/28/2020

Webster Stream measured flows (1/29/2019-4/28/2020). Statistics for predicted Webster from Soucook Power Function (1990-2020). Q75bt. Qwqc = Variable. 150gpm max & variable speed pump. 20% RemAC not exceeded on a daily basis. 1% allowable at all times.



# Webster Stream Withdrawal Example – Monthly Summary 1/29/2019-4/28/2020

Webster Stream measured flows (1/29/2019-4/28/2020). Statistics for predicted Webster from Soucook Power Function (1990-2020). Q75bt. Qwqc = Variable. 150gpm max & variable speed pump. 20% RemAC not exceeded on a daily basis. 1% allowable at all times.



# Also See....

**WATER QUALITY CERTIFICATION**  
In Fulfillment of  
**Section 401 of the United States Clean Water Act (33 U.S.C 1341)**  
**And NH RSA 485-A:12, III**

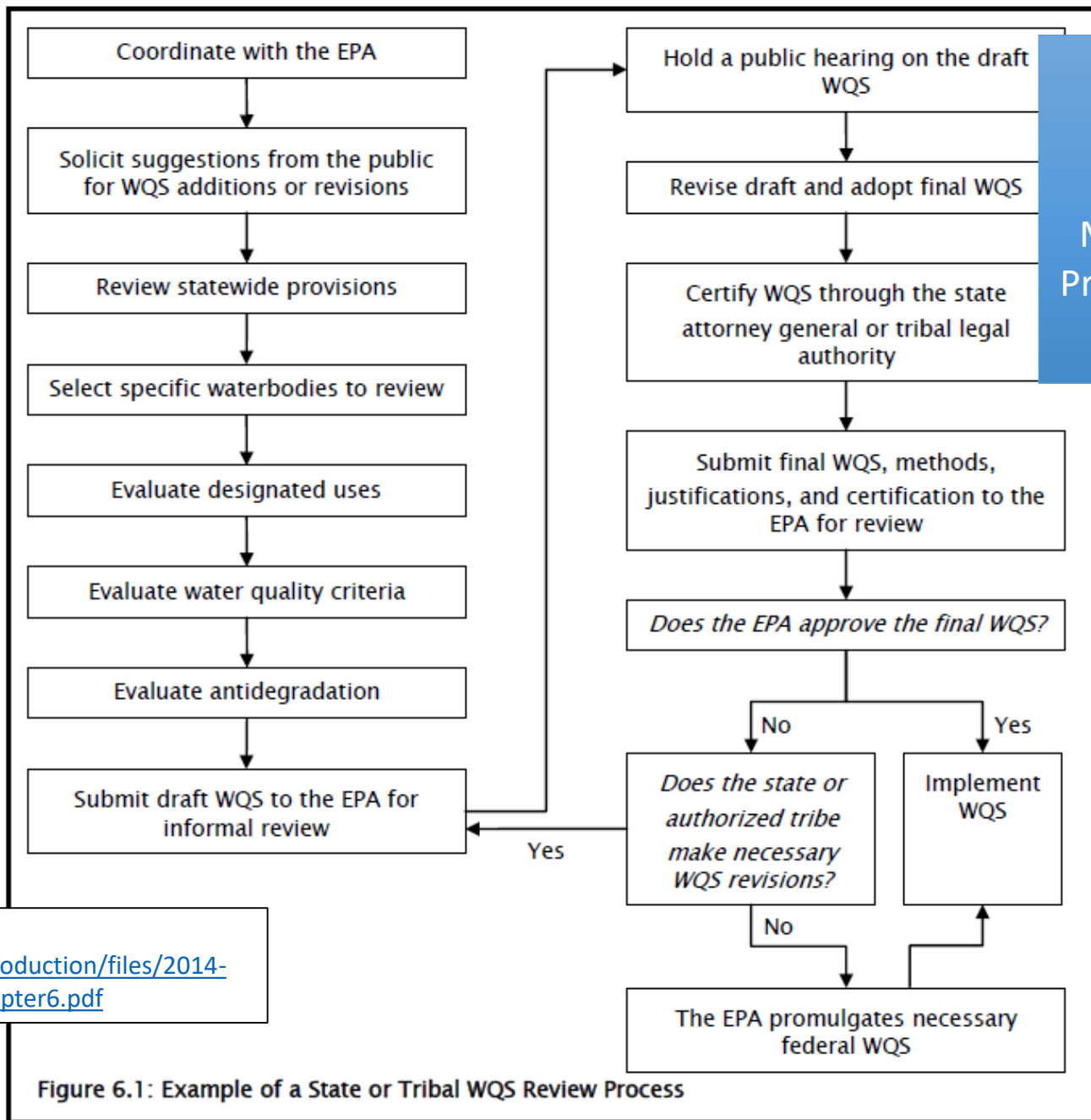
**WQC # 2019-404P-001**

<b>Activity Name</b>	Bellamy River Artificial Recharge Facility
<b>Activity Location</b>	Pudding Hill Road Dover, New Hampshire
<b>Affected Surface waters</b>	Bellamy River (NHRIV600030903-08) Unnamed Wetlands
<b>Owner/Applicant</b>	City of Dover



# Triennial review process

# Triennial Review Process



State Rule-Making Processes

EPA WQS handbook  
<https://www.epa.gov/sites/production/files/2014-09/documents/handbook-chapter6.pdf>

Figure 6.1: Example of a State or Tribal WQS Review Process



# Process

Phases	Approx. Timeframe*
Pre-Rulemaking – internal review and solicit public comment. Draft initial proposal	January – Dec. 2021
First Stage – Finalize initial proposal, public comments and hearing, final rule proposal	January – July 2022
Second Stage – JLCAR	July – Sept. 2022
CWA Submittal – EPA review and approval	October 2022 - ?

\* Timeframe assumes everything goes well.

# Pre-Rulemaking: Getting to an Initial Proposal

- Coordinate with EPA
- Solicit suggestions from the public
- Review State-wide provisions
- Evaluate Designated Uses
- Evaluate Water Quality Criteria
- Evaluate Antidegradation

WQSAC

Water Quality Standards Handbook Chapter 6: Procedures for Review and Revision of Water Quality Standards

<https://www.epa.gov/sites/production/files/2014-09/documents/handbook-chapter6.pdf>

# First Stage: Agency actions to update rules

- Initial Proposal (IP)
- Fiscal Impact Statement (FIS)
- Rulemaking Notice (RMN) Filed & Published
- Public Hearing
- Public Comment
- File Final Proposal

*RSA 541-A:5 through A:12*

# Second Stage: JLCAR Review

- **JLCAR Review**
  - **Approve**
  - **Conditionally Approve [sets timeline for amendments]**
  - **Preliminary Objection [sets timeline for agency response/amendments]**
- **Final Rules**
- **Adoption by agency and file with OLS**

*RSA 541-A:13 through A:14*

# CWA Submittal: EPA Triennial Review

- Requires public hearing
- Address new or revised 304(a) guidance
- Submit to EPA within 30-days of review completion
- EPA may approve or disapprove
- If disapproval, EPA must promulgate the necessary federal SWQS

40 CFR Part 131 - Subpart C

Water Quality Standards Handbook Chapter 6: Procedures for Review and Revision of Water Quality Standards

<https://www.epa.gov/sites/production/files/2014-09/documents/handbook-chapter6.pdf>



# Human Health Criteria Updates

# Human Health Criteria Updates

- EPA made 304(a) guidance changes while we were in out last triennial review
  - 2015 EPA Updated Ambient Water Quality Criteria for the Protection of Human Health
- 94 Chemicals
- Updated Exposure Inputs
  - body weight, drinking water consumption rates, fish consumption rate
- Updated bioaccumulation factors\*
- Updated Toxicity Values
  - reference dose, cancer slope factor



<https://www.epa.gov/wqc/2015-epa-updated-ambient-water-quality-criteria-protection-human-health>

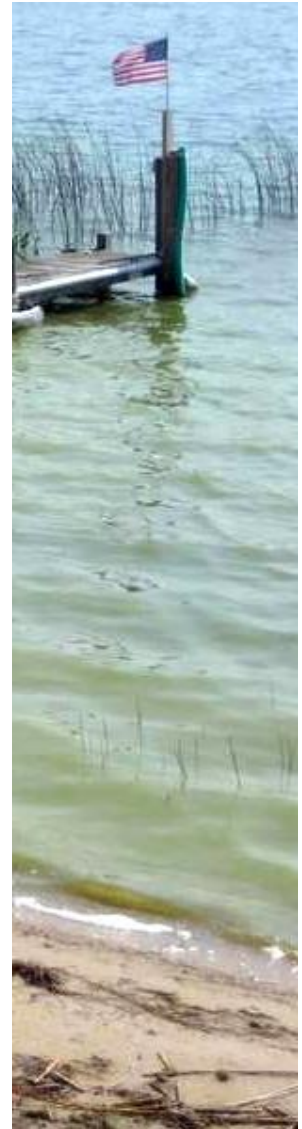


# Harmful Algae Blooms

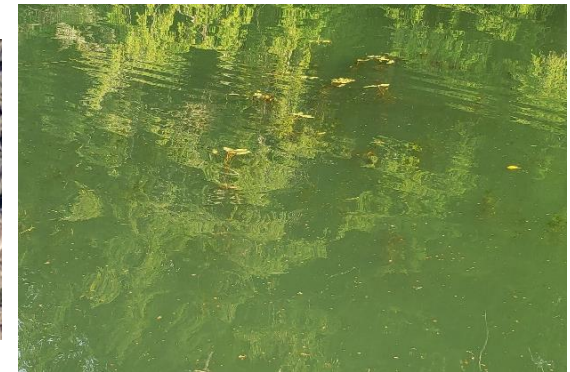
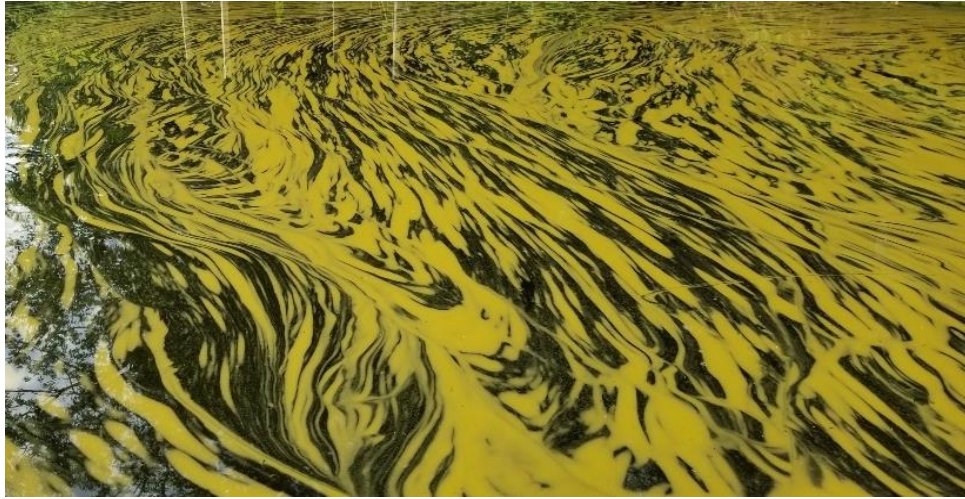


# Harmful Algae Blooms

- Recreational recommended criteria published by EPA, May 2019
  - Microcystin – 8 ug/L
  - Cylindrospemopsin 15 ug/L
- Limitations of calculated recommended criteria
  - Limited routes of exposure
  - Limited symptoms of exposure
  - Limited toxins
- See NHDES presentation at the July 25, 2019 WQSAC



# A Subset of 2020 Cyanobacteria Blooms

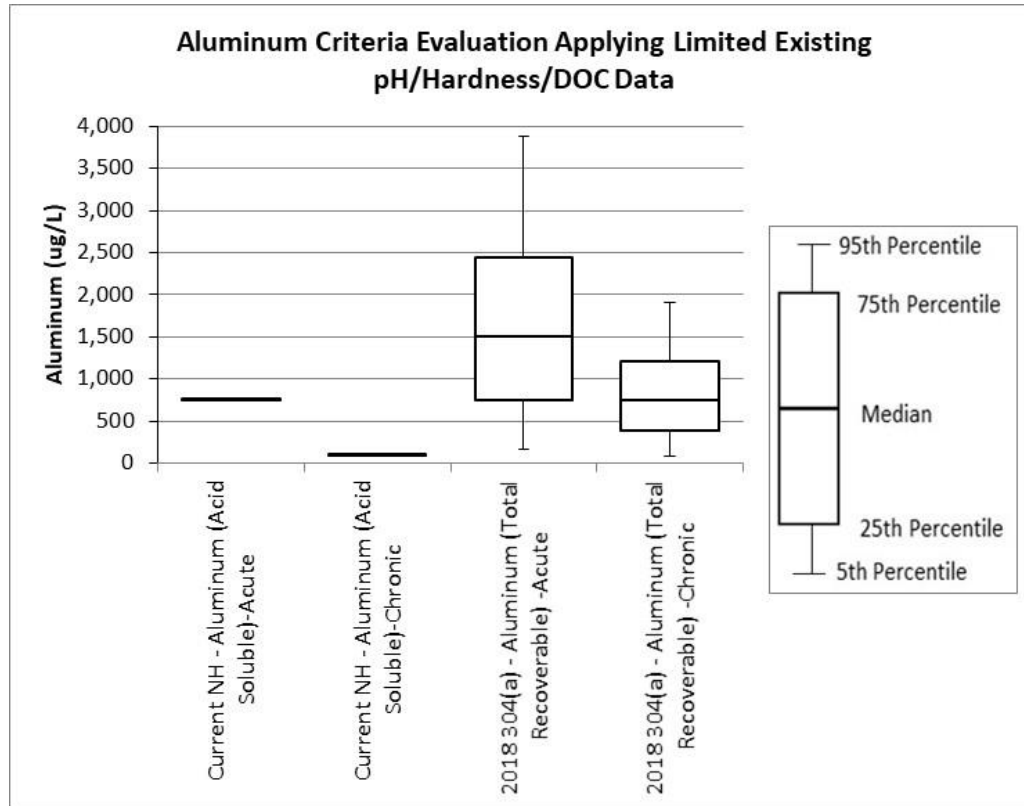


# Aluminum

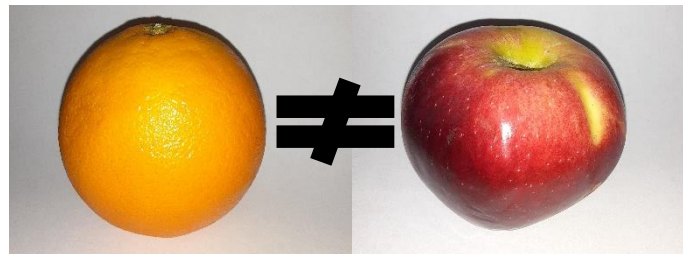
# Aluminum – EPA 2018 304(a)

- EPA provided finalized 304(a) recommendations December 21, 2018
  - <https://www.epa.gov/wqc/aquatic-life-criteria-aluminum#2018>
- Variable criteria based on pH, total hardness, and dissolved organic carbon (DOC)
- Criteria expressed as Total Recoverable Aluminum
- Three methods to get the applicable criteria
  - Aluminum Criteria Calculator V.2.0.xlsm
  - R-code
  - Lookup tables in the criteria document's appendix

# Comparability based on limited data?



Existing Env-Wq  
1700 Criteria  
Acid Soluble



2018 304(a)  
Recommendations  
Total Recoverable  
Aluminum

# Aluminum Path Forward

- Adopt EPA calculation by reference
- Site specific data preferred – Treat as we do hardness dependent metals (Env-Wq 1703.22 note (f))
- Determine protective default values where site specific data does not exist. Additional data collection currently in progress. May consider,
  - Regional
  - Waterbody Type
  - Seasonal
  - ...



# PFAS MCLs into Env-Wq 1700

# MCLs adoptable into Env-Wq 1700 Protection of Human Health - Water & Fish Ingestion

## Env-Wq 1703.22 Notes For Table 1703-1.

(l) The letter “l” shall indicate that there is a more stringent drinking water maximum contaminant level (MCL) specified in Env-Dw 700, so if the surface water is a source for a public water system as defined in RSA 485:1-a, XV or is within 20 miles upstream of any active surface water intake for a public water system, the department shall use the MCL values shown in table 1703-2A, below, for the water and fish ingestion human health criteria:



# Would PFAS be unique?

304(a)  
based  
criteria

Table 1703-2A: MCL Values for Water and Fish Ingestion Criteria

CAS Number	Chemical Name	MCL (Units per Liter)	
7440417	Beryllium	4 µg	na
7440439	Cadmium	5 µg	na
7782505	Chlorine (as Cl <sub>2</sub> )	4 mg	na
94757	Chlorophenoxy herbicides (2,4-D)	70 µg	1,300 ug
93721	Chlorophenoxy herbicides (2,4,5-TP)	50 µg	100 ug
18540299	Chromium+6	see Chromium Total	
16065831	Chromium+3	see Chromium Total	
7440473	Chromium Total (equal to the sum of Chromium+3 plus Chromium+6)	100 µg	na
95501	Dichlorobenzene (1,2)	600 µg	1,000 ug
106467	Dichlorobenzene(1,4)	75 µg	300 ug
107062	Dichloroethane (1,2)	5 µg	9.9 ug
75354	Dichloroethylene(1,1)	7 µg	330 ug
156605	Dichloroethylene(1,2-Trans)	100 µg	140 ug
58899	gamma-BHC (Lindane)	0.2 µg	4.2 ug
72435	Methoxychlor	40 µg	100 ug
7782492	Selenium	50 µg	170 ug
108883	Toluene	1 mg	1.3mg
71556	Trichloroethane 1,1,1	200 µg	na

# Process

As part of the triennial review, PFAS MCLs may be proposed for adoption into Table 1703-1: Water Quality Criteria For Toxic Substances and Table 1703-2A: MCL Values for Water and Fish Ingestion Criteria



# Variations

# Variations

- Covered in 40 CFR Part 131.14
- A variance requires a submission to EPA for approval or disapproval.\*\*\*
- A WQS variance may be adopted for a permittee(s) or water body/waterbody segment(s), but only applies to the permittee(s) or water body/waterbody segment(s) specified in the WQS variance.

# Variations

## A WQS Variance is:

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A time-limited designated use and criterion:

- for a specific pollutant
- from a specific source or for a specific water body
- that reflects the highest attainable condition for a specific time period.

A regulatory mechanism that **allows progress toward attaining a designated use and criterion** that is **not currently attainable**.

Transparent path, accountable progress

# Variance Compared to Site Specific Criteria?

## Site Specific Criteria

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Site Specific Criteria	WQS Variance
Where the same designated use will be protected but with different (e.g. more or less stringent) water quality criteria.	Where the designated use cannot be attained for a period of time and the state adopts a less stringent designated use and criteria to be put in place for a specified period of time.

# Variance Compared to Compliance Schedule?

## Permit Compliance Schedule

Permit Compliance Schedule	WQS Variance
The permit requires compliance with final WQBELs (based on WQS) “as soon as possible.”	The WQS variance is a temporary designated use and criterion and WQBELs are adjusted to make incremental progress toward attaining the standard.
Actions and time needed to comply with the WQBEL are known.	Actions and time needed to comply with the WQBEL are uncertain.
A condition included in a permit.	WQS basis for a less stringent permit limit.

# Variations in terms of 303(d) and TMDLs?

- The underlying standard, not the variance, is used for assessments and TMDL targets.

## Impaired Waters Listing (303(d))

Assessment for 303(d) listing is based on the underlying designated use and criteria, not the interim requirements of a variance.

Variations are time-limited and intended to restore the underlying designated use, not change the long-term goal of the waterbody.



## Total Maximum Daily Loads

Interim requirements of a WQS variance do not replace the underlying designated use and criteria.

- Load allocations must be based on the underlying designated use because a WQS variance is time-limited and intended to restore the waterbody.

However, a permit may include limits based on the WQS variance even where there is a TMDL for that parameter because the allocations in the TMDL are not “available” during that time period.



# Variance

## 40 CFR Part 131.14(b)(2)(i)(A)(2)

**(2)** Actions necessary to facilitate lake, wetland, or stream restoration through dam removal or other significant reconfiguration activities preclude attainment of the designated use and criterion while the actions are being implemented.

# Variations - Potentially add the following language

Variations shall be in accordance with 40 CFR Part 131.14.



# Bacteria

# Fecal bacteria sampling in tidal waters

**485-A:8 Standards for Classification of Surface Waters of the State. –**

V. Tidal waters utilized for swimming purposes shall contain not more than either a geometric mean based on at least 3 samples obtained over a 60-day period of 35 enterococci per 100 milliliters, or 104 enterococci per 100 milliliters in any one sample, unless naturally occurring. Those tidal waters used for growing or taking of shellfish for human consumption shall, in addition to the foregoing requirements, be in accordance with the criteria recommended under the National Shellfish Program Manual of Operation, United States Department of Food and Drug Administration.

**Env-Wq 1703.06 Bacteria.**

- (a) Uses and criteria associated with bacteria shall be as set forth in RSA 485-A:8, I, II, and V, as summarized in Appendix E.
- (b) Subject to (c), below, the bacteria criteria shall be applied at the end of a wastewater treatment facility’s discharge pipe.

**APPENDIX E: SUMMARY OF BACTERIA STANDARDS FROM RSA 485-A:8**

Tidal waters used for growing or taking of shellfish for human consumption	Same as for tidal waters used for swimming, <u>PLUS</u> must meet criteria recommended under the National Shellfish Program Manual of Operation, US DHHS, Food and Drug Administration.
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# WWTP Sampling

- Since 2012, WWTPs in the seacoast had waiver to use Colilert-18 as a sampling method for end of pipe discharge of fecal coliform.
- Colilert-18 is approved EPA method but NOT approved NSSP method (but letter from FDA says its ok).
- Advantages of ease of use and timing of result.
- 2020 – EPA examines this issues and determines that waiver doesn't comply with WQS
- 5-Tube decimal test or equivalent NSSP approved is now required three times a week. Colilert-18 is required by state the other days of the week.
- No approved labs (for 5-Tube decimal test) except the state lab. Capacity issues at state lab.

# Permit Example

Parameter	Standard	Limit	Standard	Frequency	Sampling Method
<i>Enterococci</i> <sup>7,8</sup>	35/100 mL	---	104/100 mL	1/day	Grab
Fecal Coliform <sup>7,8</sup>	14/100 mL	---		3/week	Grab
Fecal Coliform <sup>7,8,9</sup> (% of samples > 43/100mL)	---	---	≤ 10 %	3/week	Grab
Total Copper	3.7 µg/L	---	5.8 µg/L	2/month	Composite

9. The Average Monthly values for Fecal Coliform shall be determined by calculating the geometric mean using daily sample results. As a Daily Maximum, not more than 10 percent of collected samples (over a monthly period) shall exceed a Most Probable Number (MPN) of 43 per 100 mL for the 5-tube decimal dilution test. Each month the percentage of collected samples that exceeds an MPN of 43 per 100 mL for the 5-tube decimal dilution test shall be reported at the Daily Maximum value. Furthermore, all Fecal Coliform data collected must be submitted with the monthly Discharge Monitoring Reports (DMRs).

G. 11. Fecal Coliform - Daily post-disinfection effluent grab samples shall be collected and analyzed for fecal coliform using an EPA-approved analytical method (published in 40 CFR Part 136) that meets the timeliness requirements of the NHDES Shellfish Program. Results shall be reported to NHDES each month in accordance with state reporting requirements in Part I.H.6.

# Options to fix problem



## Change law and rules

- Provide exemption for WWTPs in seacoast.
- Provide new WQS language that complies with 304(a) guidance and NSSP requirements without requiring methods see MA language –  
*“... fecal coliform shall not exceed a geometric mean Most Probable Number (MPN) of 14 organisms per 100 ml, nor shall more than 10% of the samples exceed an MPN of 28 per 100 ml, or other values of equivalent protection based on sampling and analytical methods used by the Massachusetts Division of Marine Fisheries and approved by the National Shellfish Sanitation Program in the latest revision of the Guide For The Control of Molluscan Shellfish.”*
- Other?

## Get NSSP to approve Colilert-18

- Requires request to the lab committee
- Proposal to ISSC
- 2-4 year process

## Provide research to EPA showing that methods are equivalent and waiver is justified

- Unknown if the research exists and if such a demonstration would be successful



# Dissolved Oxygen



Meeting Date	Dissolved Oxygen Topic
10/13/2016	NHDES-Current Crit., History, Other NE States, Issues, Start
2/09/2017	Pennsylvania Approach
4/13/2017	NHDES-Why D.O. NHDES-D.O. and temp. NHF&G-FW Fish/Life stages NHDES-EPA 1986 FW Crit. Doc.
10/12/2017	EPA-Glen Thursby – Va. Prov. Approach
1/11/2018	NHDES-Update. NHFG to generate species info.
4/12/2018	NHDES-Update
10/11/2018	NHDES-Update
4/11/2019	NHDES-Marine Discussion
7/25/2019	NHDES-Status of EPA work update
12/6/2019	EPA presentation on GBE data and VPA larval recruitment
4/9/2020	NHDES- Attainment goal level. Conc & %Sat equivalency. Baseline criteria.

# Considerations

- All 304(a) guidance and available science
- Criteria that provide a descriptive level of protection consistent with NH designated uses
- Criteria that provide a descriptive level of protection consistent with existing NH DO WQStds
- Criteria that lets aquatic life do more than survive
- Criteria that addresses avoidance
- Other states/regions
  - Chesapeake approach
  - Delaware process
  - Massachusetts process and possible outcomes
- State Species of Concern (Alewife, Am. Eel, Herring, Shad\*, Smelt\*)
- Endangered and Threatened species
  - Sturgeon
- Essence of NMFS ESA discussions

# Considerations (cont.)

- Existing data on dissolved oxygen condition
- Reference condition approaches
- Weighting the impacts of science gaps
  - Missing DO requirements for NH species and life stages
  - Implications of VP approach being all lab studies
  - Problems with lab studies from VP approach – pH adjustment inconsistent with the natural world
  - Uncertainty in the VP approach
  - ESA Species life stage DO requirement gaps
  - Relationships in DO needs between life stages
- Assessment Methods and Compliance.
- Other

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# Flows for nutrient permitting

Meeting Date	Flows for Nutrient Permitting Topic
10/12/2017	Topic was introduced at WQSAC meeting.
01/11/2018	NHDES-Background EPA-Permit Calculations Clifton Bell-Alternatives
04/12/2018	NHDES-Recap & Applying other States targets to a NH permit site
10/11/2018	NHDES-Alternative scenarios <ul style="list-style-type: none"> <li>• Regional TP</li> <li>• NE Neighbors Thresholds</li> <li>• Ambient NH TP – Flow, Watershed position, Assessments</li> <li>• Current loads and limits</li> <li>• Flow duration statistics</li> <li>• Projected possible limits and loads based on August Median Flow</li> </ul>
04/11/2019	NHDES-Update
07/25/2019	NHDES <ul style="list-style-type: none"> <li>• Alternative flows</li> <li>• Ambient TP Targets</li> <li>• Initial Discussion - Framework for Permit Guidance</li> </ul>

# Considerations

- Nationally – Ecoregional TP 25<sup>th</sup> percentile ranges from 10-128 ug/L.
  - Most of NH is in the 10 ug/L ecoregion.
  - SE NH is in the 31 ug/L ecoregion.
- From more detailed NH data, river TP medians 6 ug/L to 25 ug/L correlating well with population.
- ~5% of NH river miles are downstream of a WWTF discharge.
- In river systems without WWTF effluent TP concentrations do not increase as flows decrease (median 12 ug/L).
- TP is significantly different in rivers that have nutrient related impairments (median = 19 ug/L) than rivers without nutrient related impairments (12 ug/L).
- Nutrient related issues do not “suddenly” occur at 7Q10 flow but rather develop over time.

# Considerations (cont.)

- EPA calculates discharge reasonable potential based on design flow, 95<sup>th</sup> percentile or maximum effluent TP, and median upstream TP.
- EPA using the 7Q10 flow and an instream TP target of 100 ug/L in NH.
- EPA - If flows higher than 7Q10 are used, then downstream target is likely to be lower than 100 ug/L.
- EPA - Facilities with existing TP permit limits cannot have less stringent limits due to federal “anti backsliding” regulations.
- NPDES is a preventative program.
- Permit limits are not equal to nutrient criteria.
- TP Targets around the country are in keeping with natural ecoregional concentrations.
- Non-7Q10 based NE Neighbor thresholds range from 9 – 33 ug/L at Summer Low Median Monthly Flow to 14Q10.



# Considerations (cont.)

- The ratio of August median flow to 7Q10 is roughly 4:1 but quite variable.
- Flow is less than or equal to the August median flow ~ 17% of the year (62-days) and ~ 0.5% (2-days) for the 7Q10 flow.
- August TP downstream of the 23 WWTFs that have permitted loads is predicted to result in a median of 29 ug/L (range 15-48 ug/L) at August median flows (assumes background of 13 ug/L).
- NHDES has not made a final decision regarding target TPs. Ambient data and literature indicates range of ~ 9 ug/L to ~ 50 ug/L
- A tiered framework may be possible.
- Different targets/methodologies are an option now under the WQStds, without a new framework.

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# Other Pieces to Address

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Minor deficiencies identified by EPA during 2015 WQS review.



# Other Business

- Discussion of chairs
- The next two regularly scheduled WQSAC meetings are on 4/8/2021 and 7/8/2021.
- Other?



