



## Freshwater Quality and Flow Indicators for Watershed Counts

January 8, 2013 at RIDEM Room 300

### Workshop Goals:

- 1) To reach consensus on the 2013 WC assessment for Flow and Freshwater Quality Indicators
- 2) To agree upon next steps

### Attendees:

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## Meeting Summary:

**Freshwater Quality: (working group Meg Kerr, Q Kellogg, Lesley Lambert, Peter Coffin, Tammy Gilpatrick, Carolyn LaMarre, Priscilla Chapman, Denise Poyer, Alicia Lehrer, Sue Kiernan, Katie DeGoosh, Linda Green, Elizabeth Herron, Eugenia Marks, Therese Beaudoin, Rick McVoy, Bryan Milstead, Hal Walker)**

2012 assessment looked at rivers and streams in 4 watersheds (Blackstone, Taunton, Woonasquatucket, Wood-Pawcatuck).

2013 assessment will complete the water quality assessment for entire NB watershed. We will also add lakes and ponds to the assessment. The working

Lakes and ponds will address water quality, invasives, cyanobacteria and public access

### Mapping aquatic invasives

Office of Water DEM characterizes surface water quality

Ambient river monitoring

Biomonitoring –stream macro-invertebrate

Aquatic invasive (AIS) distribution mapping and monitor the spread

Until 2009 surveys involve spot-checking at public boat ramps and mapped presence or absence of plants. In 2009 they got a canoe and paddled around

Began including ambient river sites

Included general access sites

53% of lakes surveyed have variable milfoil and 62% of lakes have fanwort

There are 13 different AIS found in RI

AIS page on DEM website is nested in the Water Resources page

Lakes impaired by invasives that do not support fish and wildlife is different so the metrics will include:

AIS impaired (determined by personal judgment whether it is suitable for F&W)

AIS documented

NO AIS observed

Not assessed

Impaired for invasives does not necessarily mean that it does not support fish and wildlife, but the state assessment determines the impairment status and the category is impaired, but not for pollution (meaning that it does not go into the category of violating the state regulations—and it does not need a TMDL)

It is easier to determine habitat impairment versus a recreational impairment so it is linked as such

Does DEM have a list of native animals that eat these plants?  
The problem with invasives is that there are no natural predators

Invasives are better correlated to recreational use rather than F&W because fish can live very happily with invasives whereas swimming or boating can be easier to determine

## **Cyanobacteria**

(Presentation given at last FW meeting—can get notes from that)

- Things that look like scum on the water are not necessarily cyanobacteria. The stuff you can pick up and see individual organisms is NOT cyanobacteria!
- <http://cfb.unh.rfu/phycokey/phycokey.htm>
- The nitrogen and phosphorous we are concerned with are a result (the byproducts) of our lifestyle.
- Some species actually produce more than one toxin (but not all)
- Presence of cyanobacteria not necessarily occurring at the same time as the toxins they produce. The toxins break down at different rates
- There are a variety of management options (both proactive and reactive)
- Proactive: REDUCE NUTRIENT INPUTS
- Hydrologic manipulations → water withdrawal, aeration and dam removal
- Turf fertilizers can be strongly correlated to cyanobacteria sightings

Questions:

Do they respond to ratios of N versus P loads?

This is a very controversial issue → you must look at the whole picture and the ratio of all of them.

Microcystis (that produces microcystin) do not fix nitrogen so it is not limited by nitrogen

P issue with fertilizers (there will be a worldwide shortage of Nitrogen) and Scotts Turf fertilizer had removed N from all their fertilizers

Could universities study how to stop this issue?

There is so much research going into this issue → it is more than just stopping it, but understanding it and managing it

There was a bi-state phosphorous TMDL and there are identified solutions but there is a real lack in political will

In RI there is no sampling protocol it is done by the complaint call line for odor (more of a response than monitoring)

There is actually a monitoring program that began 2 years ago. The lakes with high P are screened and monitored once a year. The complaints trigger response.

There needs to be a set up for the public to learn what they should be looking for so they know how and who to call

DOH and DEM are working together to develop these criteria and have settled on using the MA protocol. This involves a screening level monitoring but the budget for monitoring is so limited they ask for people calling in with complaints to provide photos so they can document it and if there appears to be an issue they will go out and get the samples

There was a study in Europe in Alpine lakes to reduce cyanobacteria

They found that occurrence is rising

## **2013 freshwater metrics**

Complete rivers assessment with 2010 data (to keep things consistent)

Add lakes and ponds use same assessment methodology

The maps will not include the icons on the lakes and ponds map

Will add icon to map (# for metric) showing lakes and ponds with cyanobacteria presence in the past 3 years

Will have an individual map for each major watershed (including Pawtuxet this year) and the rest will be included on one big map that will not have icons

Kickemuit Reservoir is interested in public awareness → we are very interested in helping folks take this information to the local papers and public

Lakes and Ponds invasives → a set of maps that show presence of invasives and differentiate according to impairment

Red—listed impaired and invasives are there

Yellow—has AIS but not impaired

Blue—has been monitored and none found

Gray—no monitoring has been done

Access → use ExploreRI data to show access with canoe and kayak access

And combine this data with the DEM and DEP boat ramp data

Any movement to create interactive maps? We don't have the skills now, and we will certainly consider, but we are a ways off from being able to do this

Metrics:

# miles /# acres of water quality assessment

# acres impacted by cyanobacteria

# acres of invasives

# acres with public access

Tidal rivers → would like to include but maybe have a different color

What about the other areas of RI that don't drain to Narragansett Bay... The ones that drain into CT, and the Atlantic would be beneficial for going to the public

Could we link into LISS and Buzzards Bay to get this information and connect with them? It is important to educate on the watershed boundaries

Discussion:

# of acres for Cyano may not be a good metric

# of events may be better

the icon is still good

Is public access included in the recreational assessment?

Is it needed in the discussion of water quality?

We are highlighting public access for the lakes and ponds because it helps to draw attention to the impact on these waterbodies

Sue K does not think there is a good nexus to water quality and it is a better metric to characterize the resources and how they are managed. Freshwater quality should not be at the top of the poster

What about ponds that have no technical public access (such as camps, campgrounds and private ones)

Can the text touch on the impact (to and from) animals and particularly dogs

Public Access metrics: CWA says wq should be such that public use is possible, so public access is important

Do the metrics really reflect the issues that could impact the water body and watershed?

These metrics show the condition of the water, not the lbs of nutrients coming in, or # of geese in the watershed.

There is a land use metric as well that will end up relating very closely to this

Summarizing data can muddy up the general points and purpose of this initiative

Public access to freshwater is a big part of our way of life here → economically, and environmentally  
A lot of info conveyed on the map with the icons so they could readily see what uses were impaired but this is not easily reflected on the lakes. We should be careful adding the rivers on the lakes map in blue because we do not want to give the impression that they are good—need to make it clear to people about the maps and what they are showing  
May want to indicate how many things were assessed for the individual waterbodies

### **Water Demand and quantity**

Quantity: Used gage data last year but couldn't find any meaningful metric

Demand: using RI water resources board info

Used gages that have 40+ years of data

6 gages that are unaffected and can be used for climate change impacts

12 gages are impacted by withdrawals

We can compare these before and after 1985 (to split the data down the middle)

Frequency of floods, low flow (dry periods) and duration of weather events

Things to consider:

This must be: Theoretically sound, and relevant to management concerns and responds predictably to changes and must be linkable to scientifically defined points/targets

Can we link to Dave Valley's modeling? Would his models show a change over time? Jane Austin will provide contact info

How many more gages are there that perhaps have fewer years of data?

Good question! And it bears the argument for monitoring funding

There are areas that don't get picked up by the gages

The well network could be added in to provide groundwater information. They are primarily in the southern part of the state

DEM has to fight to keep the gages they have so there is a real need to get the legislatures to provide the resources

Water resources board has a whole slew of ways to interpret the data and have all the data to help

\*\* need to have a working group meeting

Are there other (private) groups that can pay for gages?

Yes there are a number of them, but there are also ones that have had to drop their gages due to lack of funds → another good point to argue for

### **Demand:**

Reasonable allocation of water according to uses and creating policies is the ultimate goal of the water resources board

This (strategic plan) has become the template for the state metrics and action plans

What are our goals as a state for our water use?

The deficit (far right column) implies we really need to be thinking about this

This appendix is an inventory of the resources of the state and the data that is collected about these resources

Using a reference gage they took a blanket review of the allowable depletion within the individual watersheds

Chart is broken down to 4 regions. Each have different circumstances that require different management.

Southern region for example relies primarily on groundwater while the northern region relies on reservoirs

What WRB is doing and how it can be refined to smaller (municipality level) determinations

The regions are really impacted differently and a summer deficit is not as imperative in the northern region than the southern region

**Discussion:**

Spatial variation

Data variability

Who are we trying to reach? Decision makers (policy makers and implementers), children, watershed groups, land trusts, interested public, CCs, press

What are we trying to say? Protect and improve our watersheds. What is a watershed and why should people care about them.

Resolution of information focused on areas to develop solutions on the impacts

Develop a common message for all groups in order to respond to issues in a uniformed way

Watershed maps is critical for people to understand these issues in their local communities because the solution falls on the shoulders of the local groups

It would be beneficial for the groups to work together better (recognizing it is difficult to get volunteer groups to attend day meetings)

Perhaps we should work on press releases for the various newspapers, etc

With due respect that what is implicit to us may not be to the public → need to translate it to hit our target audiences

Classifying the metrics: Acceptable vs. unacceptable when we should be saying good, fair, poor (\*I'm pretty sure Colleen was against this)

Categories of marginally acceptable and slightly bad... these are not easy to understand, or more so could be easily misinterpreted

EPA set a good example of good, fair, poor in the national coastal assessment so there is a nationally acceptable argument

Translation for the interested public will be different than the translation for the mass audience

A partnership project with the Met Caf group could be beneficial

Not that the legislatures cant understand it, but they don't have the time to get into the gritty details. They need it boiled down and given clear solutions they can impact

Categories may not be best, could do a scale (1-10)

Politicians look at these issues in terms of votes

The public reads the papers to get their information and if it is too difficult they will stop reading

Could one of the legislatures interns come and sit in on our committee so they can help provide their input and vise versa?

Should develop a set of "commandments" that everyone should be aware of

Flow: spatial relationship does not reflect what happens with the small streams and the most fragile parts of the ecosystem are often overlooked

Much of the info is based on the gages, but WW has some data on these smaller streams that went dry so we should connect with them on this

Would be beneficial to hold evening meetings as well so that the volunteers can attend as well.

What about the dams and the multitude of them in the state... how can that be incorporated? And Stream continuity?

Are we going to incorporate sediment suspension and the legacy pollution? What do we do strategically?

Good (blue/acceptable) should be clearly defined and “this is what we want to see everywhere” and that maintaining the good ones and improving the so-so ones is key