WPWA 2018-2020 Water Quality Monitoring Strategic Plan

This 3-year strategy for WPWA's water quality program implementation, including support of the program on a sustainable basis, is the result of a board workshop convened in January 2018.

Ten (10) water quality monitoring stations are listed below and are considered critical for support on a sustainable basis. These stations are considered "core stations" and will be supported for water quality monitoring by WPWA as long as a WPWA water quality monitoring program is in existence. Combined, these locations provide reasonable coverage as sentinel sites by which to assess overall conditions and trends in water quality throughout the Wood-Pawcatuck watershed hydrologic system, for the reasons as listed.

SUPPORTED CORE STATIONS

The following stations will be monitored with the financial support of WPWA:

1. Shunock River at I-95 off of Route 49 (Shunock River subwatershed; Station #7000
    a. This is a Tier 1 site and is being supported as the site sits just above the confluence of the Shunock with the Pawcatuck River and includes a continuously recording WPWA specific conductivity meter. This site is therefore a good integrator of several waterways and their associated watershed.
2. Ashaway River at Route 216 (Ashaway River subwatershed; Station #5210)
    a. This is a Tier 1 site and is being supported as it is located just above the confluence with the Pawcatuck River and is therefore a good integrator of the subwatershed as it joins the Pawcatuck River.
3. Alton Pond (lower Wood River subwatershed; Station #4480)
    a. This is a Tier 1 site and is being supported as it has been continuously monitored for 26 years, and is at the bottom portion of the drainage basin making it a good integrator of the landscape. This site also is in a more developed area, and has shown considerable variability over time in monitored parameters, and therefore is worthwhile to keep tabs on.
4. Beaver River at Route 138 (Beaver River subwatershed; Station #5100)
    a. This is a Tier 1 site and is being supported as it is the only such monitoring site in this subwatersed. USGS gage (#01117468) site is located close to this monitoring site, providing the opportunity for accessory data to be available.
5. Glen Rock Reservoir / Queen River at Usquepaugh (Queen River subwatershed; Station #3150)
    a. This is a Tier 1 site and is being supported as it has been continuously sampled for 27 years and has shown a slow but continuing trend towards improved water quality. It is therefore worthwhile to keep tabs on this site as an indicator of improving conditions over time.
6. Chipuxet River at Route 138/Taylor's Landing (Chipuxet River subwatershed; Station #1050)

a. This is a Tier 1 site and is being supported because it is in the proximity of several stressors, mainly the University of Rhode Island Kingston Campus, several turf farms, the Town of West Kingston. There also is a USGS gage (#01117350) station and a continuously recording WPWA specific conductivity meter in close proximity, providing the opportunity for accessory data to be available for the site.

7. Pawcatuck River at Biscuit City Road (Usquepaugh River subwatersed; Station #5060)
    a. This is a Tier 1 site and is being supported because it captures the Usquepaugh/Queens Rivers just as they join the Pawcatuck River, and is above possible stressors located downstream (e.g., Kenyon Industries). A USGS gage (#01117430) is in relative proximity, providing the opportunity for accessory data to be available for this site.
8. Pawcatuck River below Kenyon Industries (Usquepaugh River subwatershed; Station #5290)
    a. This is a Tier 1 site and is supported because it integrates possible impacts resulting from Kenyon Industries, which straddles the river. This site has shown high phosphorus values in the past, and recently has seen a trend of improved water quality, making it worthwhile to keep tabs on.
9. Pawcatuck River at Route 91 (Tomaquag-Pawcatuck subwatershed; Station #5160)
    a. This is a Tier 1 site and is supported because it integrates a subwatershed area with the larger Pawcatuck River, and because a USGS gage (#01117500) is located at the site, providing the opportunity for accessory data to be available.
10. Wood River at Switch Road (Lower Wood River subwatershed; Station #4420)
    a. This is a Tier 1 site and is supported because it is a good integrator of the entire Wood River watershed. This site is located immediately downstream of both the Rte 95 overpass which pipes stormwater directly into the Wood River and the USGS stream gage (01118000). RIDOT is also constructing a toll gantry at this location (completion 4/18)and has loosely committed to treating highway runoff to the Wood River in a future bridge repair project.

OUTSIDE ENTITY SUPPORTED STATIONS

The following water quality monitoring stations are located in the watershed, adding to the diversity of sites being assessed, and adding further richness to the data available by which to judge conditions and trends. Because these sites are supported by entities outside of WPWA, they are not incorporated into the WPWA 3-year strategic plan for water quality monitoring. Should these sites not be supported as noted below in the future, WPWA will at that time assess the strategic importance of the site according to existing monitoring efforts, and include or exclude from the overall WPWA water quality monitoring program, as appropriate. These sites are:

- Upper Wood River is being monitored with the support of Trout Unlimited on the Falls River at Step Stone Falls and at Twin Bridges; both are Tier 1 sites
- Barber Pond is being monitored by US EPA, and is a Tier 1 site
- Chickasheen Brook at Route 2 is being monitored with support by Watershed Watch

- Pawcatuck River at the USGS Stream Gage site (Lower Pawcatuck watershed; Station #5560) is a Tier 1 site with a USGS gage (#01118500), providing for the opportunity for accessory data to be available without WPWA involvement.
- Save the Bay maintains water quality monitoring stations (through URI Watershed Watch) in the estuary downstream of this sample site.
- URI (Tom Boving) may be conducting study of White Horn Brook---we should check to see if this is true, and if so, what specifically is being done and over what time frame.

TEMPERATURE MONITORING

It is agreed that temperature is an important, and relatively easy, environmental variable to record on a regular and sustainable basis. Temperature data are easy to collect with existing WPWA continuously recording conductivity meters and will be useful in assessing impacts of changing climate/warming on the riparian ecosystem. URI Watershed Watch now has the database capability to archive temperature data. Therefore, temperature will be recorded at all water quality monitoring stations beginning in the 2018 sampling season, or as is practical, with the intent of temperature data collection as soon as is reasonable within the overall scope of the monitoring program.

CONTINUOUS RECORDING METERS

At present, there are 10 continuously recording temperature/conductivity meters in use in the watershed. The data from these recorders augment existing water quality monitoring data being collected through Watershed Watch. These meters will be kept in functional condition by WPWA, to reasonable extent, and will be deployed approximately at the outlets of the watershed's 10 sub basins. These sub basins are mapped based on the USGS HUC 12 model. **(need a map showing locations of meters and subbasins here)**

LAKES AND PONDS

This 3-year strategic plan for water quality monitoring in the Wood-Pawcatuck watershed does not provide support for any sites located on watershed ponds and lakes. The reasoning behind this decision is that the 10 supported Tier 1 sites provide a reasonable, and affordable, overview of conditions and trends throughout the entirety of the Wood-Pawcatuck watershed, while pond and lake sites tend to assess conditions and trends only in the watershed directly linked to that impounded waterbody.

While WPWA agrees that the health and well-being of lakes and ponds in the watershed is important, support of these sites was deemed not strategically possible in the 3-year period of this plan, and perhaps not into the future. WPWA will, over the course of 2018 and beyond, reach out to and meet with, as is practical, lake and pond associations located in the watershed not currently conducting monitoring to engage them in initiating and financially supporting water quality monitoring of their designated waterbody. Lake and pond/homeowner associations have a vested interest in the waterbody they reside on, and it is reasonable to expect that they support improved understanding of that aquatic ecosystem, and the trends expressed over time in the waterbody. Ideally, for the 2019 monitoring season, lake and

pond/homeowner associations would be supporting those stillwater-ecosystems once part of the Watershed Watch program. (**list of existing pond/lake stations/sites here**)

BUSINESS MEMBERSHIP SUPPORT

To sustainably support the 10 designated Tier 1 sentinel sites noted previously, WPWA will focus effort on expanding the number of its' Business Membership patrons. During 2017 WPWA initiated a Business Membership Campaign, and attracted 2 new business members. Interaction with these new business members led to positive learning experiences; 2018 will see a more vigorous and more aggressive campaign to bolster business memberships.

- Business sponsorship of a water quality monitoring station will cost $1,000. The sponsor will be provided a business member benefits as is currently defined for a Business Member.
- Each business member will be assigned a site that they will be acknowledged as supporting on the WPWA website, and in other public media, as appropriate.
    - A plaque or similar instrument will be made for each site in the WPWA supported water quality program. This plaque will be awarded to the business partner supporting the site for display at their place of business. The plaque will remain with that sponsor until sponsorship ends, then being awarded to the next site business sponsor.
- WPWA will convene business members at least once per year to provide an update on monitoring efforts and findings, and any trends or interesting findings.
- WPWA will meet individually with business members at least once per year to discuss their business membership and its' benefits, and to determine how we might adjust their benefits, within reason and as possible, to ensure their continued support of water quality monitoring.

PROGRAM ASSESSMENT & EVALUATION

WPWA will have check points in April and June to assess the ongoing success of the Business Membership Campaign, adjusting the strategic approach as necessary. By November 2018 WPWA will make a full assessment of the robustness of this approach to sustaining the WPWA water quality monitoring program. This assessment will be used to change the approach, if needed and as necessary, for 2019, and to determine if monitoring sites should be added, removed, or held at present level of 10 core stations.

ACTION ITEMS

- It will be the 2018 goal to attract 10 business memberships, in total, at the level of $1,000 per membership.
- Design and create site plaques for business sponsorships; plaques will not be sponsor specific and will move to a new sponsor as appropriate.
- Assign sites to existing business member supporters: Fuss & O'Neill, Malted Barley, Grey Sail Brewing, GBC Associates.
    - Provide each with plaque noting the site they are supporting and honoring them as a supporter.

    - Outline to each that we want to get feedback on the program from them, and that we will have a business member meeting later in the season. Ask what they want for level of involvement, if any, outside of monetary sponsorship.
    - Invite them to the Annual Meeting
- Contact Tom Boving about his work in the watershed to determine any crossover options
- Form a standing WPWA committee on Water Quality Monitoring
    - Chair will be a board member
    - It is preferred that a representative from URI Watershed Watch be on the committee
    - It is preferred that the majority of committee members be non-board affiliated
    - Committee duties will include:
        - maintenance and revision of the WQ Strategic Plan to accomplish stated timeline goals of station expansion
            - prioritized list of stations for addition, with justifications
        - work with Business Membership Initiative to supply information and correlate sponsored sites with available sites
        - conduct an annual review of water quality monitoring activities, results, outcomes, and needs
        - develop action plan for integration of lake/pond associations into site sponsorship goals
        - plan an annual event to honor monitoring volunteers and site financial supporters

document last revised by Desbonnet, 14 March 2018