**WPWA 2018-2022 Water Quality Monitoring Strategic Plan**

The Wood Pawcatuck Watershed Association (WPWA) supports the assessment of the water quality in the watershed as a key role of the organization. The overall goals of the program are to characterize status and trends across the watershed, and to make the data and its analysis widely available and accessible to all. The WPWA water quality program includes Watershed Watch; other assessment approaches; and analysis, outreach, communication of the water quality data. This 5-year strategy for WPWA’s water quality program implementation

**WATERSHED WATCH**

The URI Watershed Watch (URIWW) is a volunteer water quality monitoring program that works with local communities to assess water quality, identify sources of pollution in water and provide information about water leading to more effective management of critical water resources. URIWW provides standardized methods for sampling and data analysis. WPWA has participated in URIWW since [date]. In 2016, WPWA completed an assessment of the sites sampled through URIWW, and divided the sites into three tiers of priority.

**SUPPORTED CORE STATIONS**

Ten (10) water quality monitoring stations were selected by the WPWA board in January 2018, as core stations, which are considered critical for support on a sustainable basis 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 to assess overall conditions and trends in water quality throughout the Wood-Pawcatuck watershed hydrologic system, for the reasons as listed.

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
   1. 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)
   1. 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)
   1. 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)
   1. 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)
   1. 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)
   1. 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)
   1. 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)
   1. 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)
   1. 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)
    1. 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.

**PRIOTITIES WITHIN TIERS 1 AND 2**

**(TBD)**

**BUSINESS MEMBERSHIP SUPPORT**

In 2017, WPWA initiated a campaign for business sponsorship of water quality monitoring stations, which costs $1,000/year and provides benefits as 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 that is awarded to the business partner supporting for display at their place of business. The plaque will remain with that sponsor until sponsorship ends (plaques will not be sponsor specific and will move to a new sponsor as appropriate).
* 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 membership benefits, and to determine how we might adjust their benefits, within reason and as possible, to ensure their continued support of water quality monitoring.

Business members in 2018 are: Fuss & O’Neill, Malted Barley, Grey Sail Brewing, GBC Associates. To sustainably support the 10 core sites, WPWA will focus effort on expanding the number of Business Membership patrons.

**OUTSIDE ENTITY SUPPORTED STATIONS**

The following water quality monitoring stations in the watershed are being sampled by entities outside of WPWA. adding to the diversity of sites being assessed, and adding further richness to the data available by which to judge conditions and trends. 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.

**OTHER ASSESSMENT APPROACHES**

**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**)

**DATA ANALYSIS, OUTREACH, and APPROACH**

**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**

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* 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 Rashleigh 9/11/18*