



Request for Proposals:
The LaRosa Partnership Program
Volunteer Water Quality Monitoring
LaRosa Analytical Services Grant

Release Date: January 5, 2018
Proposals Due: February 14, 2018 (by 4:00 PM)

Vermont Department of Environmental Conservation
Watershed Management Division
Monitoring, Assessment and Planning Program

Introduction and Purpose

The Vermont Department of Environmental Conservation (VTDEC), through the Vermont Agency of Agriculture /Environmental Laboratory (VAEL) - aka LaRosa Laboratory, is pleased to make available to interested lake, river, and watershed associations sample analysis partnerships for the upcoming 2018 field season. The purpose of this program is to help volunteer watershed associations and monitoring groups implement new and/or ongoing surface water monitoring projects for waters in need of water quality assessment. Groups are encouraged to present an action plan that will highlight anticipated outcomes of their monitoring results.

What are laboratory analytical services?

Laboratory analysis is one of the most expensive elements of a monitoring program, and the VTDEC recognizes that analytical costs hinder the widespread application of volunteer surface water quality monitoring in Vermont. Analytical services provided under this partnership program are essentially 'slots' for tests to be run at the LaRosa Laboratory, free of charge to participants. The LaRosa Laboratory is a full-service analytical facility with capabilities for routine water quality monitoring tests. Examples of such tests include phosphorus, nitrogen, chlorophyll-a, total suspended solids, E. coli, turbidity, alkalinity, conductivity, pH, priority pollutants metals, and other compounds. More information about the VAEL's services are available online at: <http://agriculture.vermont.gov/vael>. This link provides information on staff contacts, training, laboratory fees, the Laboratory Quality System Manual and much more.

Who is eligible?

Volunteer associations across Vermont are eligible for Laboratory Analytical Service Grants (LASG). Such associations include river, lake, watershed groups, and water quality and conservation committees associated with local municipalities. Post-secondary academic institutions and not for profit non-governmental organizations are eligible if one of the following criteria are met: 1) the project is designed jointly with a local association to assess current water quality conditions or diagnose a known water quality problem of interest to the local association; or, 2) the project assesses the extent of, or diagnoses the cause of, a water

quality problem of statewide importance. Educators from elementary, middle, or high-schools who are interested in water quality monitoring are encouraged to coordinate with the University of Vermont's Watershed Alliance (<http://www.uvm.edu/~watershd/>), or the EPSCoR Vermont Streams Project (<http://www.uvm.edu/~streams/>).

What are the eligible project types?

Many project types are eligible for this program. Waters under evaluation should be of significant interest to the local association sponsoring the project, and to VTDEC-MAPP. Waters of interest to VTDEC-MAPP include those listed as stressed or impaired, state priority waters, potential reference waters, waters on which minimal or no monitoring has been performed in the past, waters with significant public swimming use, waters where a suspected water quality problem needs to be further documented, and/or waters where known problems remain undiagnosed. Please refer to Table 1 included with this RFP entitled "LaRosa Analytical Services Grant Monitoring Categories," which includes information on the five typical LaRosa Partnership Program (LPP) monitoring designs that have been conducted over the years. The goal is to provide additional guidance for volunteer water quality monitoring groups and recommend a more standardized approach to sampling design.

Preference will be given to those proposals that have an implementation plan to address water quality issues to state waters. Proposals for new or existing multi-year projects will be accepted. However, continuation of existing multi-year projects is subject to availability of laboratory capacity, continuing need for the data, new modifications to account for prior lessons learned, and project performance and reporting during prior years. The LPP is not necessarily suited for long-term trend detection in streams due to the variability resulting from widely fluctuating flow conditions encountered in these waterbodies. Thus, existing projects that have already determined water quality issues persist need to demonstrate that direct steps are being initiated, in partnership with VTDEC-MAPP and community resources to solve the problem.

The [Vermont Surface Water Management Strategy](#) recognizes the tremendous importance of volunteer-based monitoring and has two monitoring goals.

- To monitor and assess the physical, chemical and biological condition of Vermont's surface waters to maintain, protect, enhance and restore their integrity and uses.
- To interpret, analyze and communicate monitoring and assessment results within the Agency of Natural Resources and with outside groups to support the development of good management decisions for Vermont's surface waters.

The Agency of Natural Resources recognizes that citizen led monitoring, through the LPP, is an excellent means to accomplish these goals.

As in prior years, pre-scheduling of sampling events will be necessary to optimize capacity at the VAEL. Due to limited laboratory resources that hampers the analysis of E. coli samples each day, this test is reserved for waters that are documented to have swimming use only, except on a case by case basis approved by the VTDEC LPP Coordinator.

Activities not eligible under this grant program:

Applicants should note that no funds are disbursed through this program. Partners will be allocated a specified number of laboratory analyses, to be performed by the LaRosa Laboratory free-of-charge. The LPP will provide sample bottles, distilled water and/or preservatives that are required for the intended tests. Transportation of samples to the LaRosa Laboratory at the UVM campus in the Hills Building in Burlington, as well as costs associated with sample collection (e.g., field personnel or vehicle costs), equipment (thermometers, portable meters, transparency tubes, or sampling devices), as well as other project functions are not eligible under this program.

How to apply:

The LPP is competitive and existing participants will need to reapply. Proposals will be evaluated based on project need and pollution abatement/implementation plans, technical merit, integration with other local or watershed-based efforts, integration with statewide needs, aggregate request, and prior LPP performance. Refer to Section 1 of the Vermont Volunteer Surface Water Monitoring Guide (link included in additional resources below) as it provides a checklist/form that can help guide the development of your project. Applicants should use this form as guidance in preparing their proposal. In addition, refer to the attached “**LaRosa Analytical Services Grant Monitoring Categories**” to help frame your proposals and establish the monitoring objectives.

Confer with the VTDEC Regional Watershed Coordinator (list below) assigned to your basin of interest. Regional Coordinators, are well-informed about your part of the state and your initial contact, so please send inquiries and proposals to them. With their initial approval, they will then forward the RFP to the LPP Coordinator for an overall review of successful past performance, laboratory capacity, and expected ability to meet state and applicants own stated objectives, etc.

Ethan Swift, Watershed Coordinator Rutland 802.786.2503 ethan.swift@vermont.gov	Watershed planning and restoration projects in the Southern Lake Champlain , Batten Kill , Hoosic , Walloomsac , and Otter Creek watersheds .
Karen Bates, Watershed Coordinator Essex 802.879.2339 karen.bates@vermont.gov	Watershed planning and restoration projects in the Missisquoi , Winooski River , and the Northern Lake Champlain watersheds.
Marie Levesque Caduto, Watershed Coordinator Springfield 802.885.8958 marie.caduto@vermont.gov	Watershed planning and restoration projects in the West, Williams and Saxtons Rivers , Ottauquechee and Black Rivers , and Deerfield watersheds.

Ben Copans, Watershed Coordinator St. Johnsbury 802.751.2610 ben.copans@vermont.gov	Watershed planning and restoration projects in the Passumpsic , Upper Connecticut Direct , and Lake Memphremagog watersheds.
Danielle Owczarski, Watershed Coordinator Montpelier 802.490.6176 danielle.owczarski@vermont.gov	Watershed planning and restoration projects in the Lamoille River , Stevens, Waits, Wells and Ompompanoosuc and White River watersheds.

Proposals should not exceed four pages in length. Please include the address, telephone number and email address of the project coordinator, and identify the project contact who will interact most regularly with the LaRosa Laboratory. Projects selected to receive a LASG are required to prepare a USEPA Quality Assurance Project Plan (QAPP), as described below.

The RFP must include:

- A description of the project waters;
- Needs for the data and intended data usage;
- Sample collection methods, site locations with lat/long (if known), tests, and numbers to be delivered, proposed dates (if known) and timing of samples (weekly, biweekly, monthly or with approval flow related). Specificity is necessary here. **Please include this in a table and if known the lat/long of all new sites.** Specify your proposed sample collection and laboratory sample drop-off days and dates for the entire sampling season. This will allow better coordination with the VAEL. Be aware of the different holding times for each sample type (i.e. E. coli must be delivered to the laboratory within ≤ 6 hours from collection). Note that these are proposed dates and may need to be adjusted by the VAEL to accommodate other departmental sampling activities and cannot be guaranteed. Having flexibility is key to the LPP’s success.
- A description of how the resulting data will be summarized and reported;
- Anticipated outcomes and groups efforts to inform the local public of project results;
- Implementation plans leading to beneficial improvement in project waters;
- Parties involved and project contact(s), including address, telephone, and email.

Information regarding quality assurance project plans:

USEPA regulations require that environmental monitoring data collected and/or analyzed in part or whole using USEPA funds must be collected in accordance with an approved Quality Assurance Project Plan (QAPP). QAPPs are documents that describe in detail how a project is to be carried out, including project design, type and timing of sampling, analytical methods, and quality assurance procedures. Partners projects participating in the LPP, and specifically the LASG, can use a provided pre-established and pre-approved “generic” QAPP. This USEPA QAPP and modified by VTDEC - MAPP is available and covers much of the activities likely to be carried

out under the program. Successful applicants are provided with copies of this document to fill out and return to the VTDEC LPP Coordinator prior to beginning their field sampling. Additional information regarding the purpose of QAPPs and how to prepare these documents is provided online (see below). or by contacting Jim Kellogg

Timeline and application deadline:

Please provide an electronic copy of this proposal to your Regional Watershed Coordinator by the close of business **February 14, 2018**. Watershed Coordinators will review the applications within their respective watersheds and send these to Jim Kellogg at the Watershed Management Division by **February 22, 2018**. Successful applicants will submit their quality assurance project plan at least two weeks prior to the beginning of field work.

Successful applicants must attend the annual orientation and training session on the UVM Campus (planned for early April), prior to commencing most partnerships sampling unless other arrangements have been made.

Watershed Coordinators: Please direct all completed RFPs to:

Jim Kellogg - LPP Coordinator
Environmental Scientist
Department of Environmental Conservation
Watershed Management Division-Biomonitoring and Aquatic Studies Section
1 National Life Drive, Main 2
Montpelier, VT 05602-35221
jim.kellogg@vermont.gov
(802) 490-6146

Additional Resources:

Vermont Volunteer Surface Water Monitoring Guide <http://dec.vermont.gov/watershed/lakes-ponds/monitor/lay-monitoring/monitoring-guide>

Vermont Assessment Page with Lists of Impaired and Priority Waters:
<http://dec.vermont.gov/watershed/map/assessment>

Vermont 2016 Surface Water Assessment and Listing Methodology
http://dec.vermont.gov/sites/dec/files/wsm/mapp/docs/WSMD_assessmethod_2016.pdf

Vermont Surface Water Management Strategy
<http://dec.vermont.gov/watershed/map/strategy>

The EPA Volunteer Monitor's Guide to Quality Assurance Project Plans
http://www.epa.gov/sites/production/files/2015-06/documents/vol_qapp.pdf

Vermont's Integrated Watershed System (IWIS) - houses the Watershed Management Division's water quality database of monitoring sites.
<https://anrweb.vt.gov/DEC/IWIS/>

Vermont ANR Atlas for mapping existing chemical and biological monitoring sites and stressed and impaired waters.
<http://anrmaps.vermont.gov/websites/anra/>

Table 1. LaRosa Analytical Service Grant Monitoring Categories

The table below includes information on the five typical LaRosa Partnership monitoring designs that have been conducted over the years. The goal is to provide additional guidance for volunteer water quality monitoring groups and recommend a more standardized approach to sampling design. This will support meeting the Vermont DEC's Watershed Management Division (WSMD) monitoring goals and the goals for local watershed groups. Many sampling programs may be able to achieve multiple goals through their programs.

Waterbody Status, Spatial or Temporal - Baseline monitoring/Stressor ID - has the goal of identifying the conditions of waters across a basin or related to a specific stressed, high quality water, or waters above and below a WWTF. Sampling programs can target more than one of these goals and can serve to engage watershed groups in understanding water quality issues. Monitoring can be done on a regular schedule and does not require the targeting of high flow events although such sampling could be helpful to understand some pollutants generally tied to runoff (phosphorus/sediment).

Source ID monitoring spatial, temporal or flow based - has the goal of identifying sources of pollution impacting downstream waters. Monitoring can be broken down into parameters and water quality issues where targeting high flow events is not necessary and where targeting high flow events is strongly recommended for effectively identifying source areas. As a first cut, the areas where monitoring high flows is essential are those where the goal is to identify sources of phosphorus loading impacting lakes, sediment sources, and to a lesser degree nitrogen loading to Long Island Sound. The key to identifying pollutant sources is an iterative approach working upstream from waterbodies that have known elevated levels to bracket potential sources on larger streams and to sample smaller tributaries to narrow down the location of primary source areas. Through this iterative approach monitoring can be an ongoing effort over many years including sampling to measure impact of project implementation to determine success in reducing pollutant levels.

Swimming Hole Monitoring - has the goal of monitoring active swimming holes to provide the public information as to when it's safe to swim. This is a priority for swimming holes where sampling has not been done, is limited or have ongoing elevated levels of E. coli. Sampling is generally done weekly and the results are posted on-site at the swimming hole and through other means to notify the public.

Evaluation of a treatment or management practice (Experimental studies) – The LaRosa Partnership Program supports scientific studies conducted by, or in partnership with volunteer watershed groups. These studies have focused on the effectiveness of implementation practices at improving water quality, but other studies could be considered if they are of significant interest and importance in helping the Watershed Management Division with our monitoring goals. WWTF sampling to determine effectiveness can only be conducted during base flow periods. Monitoring can be done for one to three years to document existing conditions. This can be repeated in the future timed with the VTDEC-MAPP assessment phase of the planning cycle or changes in watershed that might increase loading.

Monitoring Category and Reporting Template	Monitoring Goal	Geographic Targeting	Parameters	Frequency and Time Frame	Flow Targeting Category (base, freshet or Hydro related) and Level (High, Moderate, or Low)	Current Partners w/in each category
Waterbody Status, Spatial or Temporal	To understand existing conditions and possible trends, or to identify reference waters, or to confirm established stressors (i.e. stressor identification) impacting stressed or impaired waters.	Streams or lake tributaries in a watershed that have not been previously sampled or sampled recently, potential reference waters, and stressed or impaired waters where the stressors are not determined.	<p>Total Phosphorus Total Nitrogen Turbidity Conductivity Alkalinity Chloride (in developed areas) Total Metals (below known potential sources)</p> <p>Consider sampling the additional: Temperature, Dissolved Oxygen (DO) and pH</p>	<p>Biweekly or monthly for 1-3 years, or as needed to meet VT assessment and listing methodology</p> <p>Generally targeting June - October.</p>	Targeting range of both category and level, if possible	<p>Black River Action Team (BRAT), Addison County River Watch Collaborative (ACRWC), Friends of Winooski River (FWR) -including the Chittenden County Stream Team (CCST), Winooski Headwaters and Four Rivers Southeastern VT Watershed Alliance (SeVWA), Poultney-Mettawee WQ Monitoring Project (PMNRCD), Allen Brook Monitoring Project (Williston Conservation Commission), Friends of the Mad River (FMR), Missisquoi River Basin Association (MRBA),</p>

<p>Source Identification, Spatial or Temporal</p>	<p>To identify source(s) of pollutants and parameters not focused on loading or high flow events.</p>	<p>Sites selected each year upstream of where elevated levels have been found previously to bracket potential sources or sample tributaries.</p> <p>Monitoring can be continued at sites to evaluate remediation (also covered under evaluation of treatment category). Sites may include intermittent streams and drainage swales.</p>	<p>Total Phosphorus (nutrient stressed stream) E. coli Total Nitrogen Turbidity Specific total metals Chloride</p> <p>Consider sampling the additional: Temperature, Dissolved Oxygen (DO) and pH</p>	<p>Biweekly or monthly</p>	<p>Targeting range of both category and level, if possible or based on study design/pollutant</p>	<p>Ompompanoosuc (White River NRCD) Franklin Watershed Committee (FWC) Upper Otter Creek Monitoring Project – Rutland NRCD White River Partnership (WRP) Huntington River Conservation Commission (HRCC)</p>
<p>Source Identification, Flow-based</p>	<p>To identify source(s) for parameters where loading is the focus or high flow targeting is essential.</p>	<p>Sites are selected each year upstream of where elevated levels have been found previously to bracket potential sources or sample tributaries.</p> <p>Monitoring can be continued at sites to evaluate remediation (also covered under evaluation of treatment category). Sites may include intermittent streams and drainage swales.</p>	<p>Total Phosphorus or Nitrogen (related to lakes where loading is a primary concern) Turbidity Total Suspended Solids (TSS)</p>	<p>Monthly or biweekly plus targeting high flow conditions.</p>	<p>Targeting event category resulting in moderate to high levels when runoff is increasing stream flow.</p>	<p>Memphremagog Watershed Association Lake Seymour Tributary Monitoring Stevens River ACRWC and So. Chittenden River Watch (SCRW)</p>

Swimming Hole Monitoring	Bacteria monitoring so citizens will know when conditions are safe to swim.	Active swimming hole sites where there is none or limited data on E. coli monitoring or where there is a history of elevated E. coli levels.	E. coli Temperature Turbidity	Weekly/Biweekly Generally targeting June -September.	Flows at which swimming use is likely. Generally Base, Low-Moderate	SeVWA FMR BRAT HRCC
Evaluation of a treatment or management practice	To test a specific experimental question on the effectiveness of a treatment.	Variable; often involves sampling off stream (e.g. discharge or drainage).	Variable Total/Dissolved Phosphorus Nitrogen series Turbidity or TSS Other Pollutant of concern	Variable based on experimental design	Variable a Flow regime often targeted (freshet or runoff)	Green Wind Farms Project Friends of Northern Lake Champlain (FNLC)
	Waste Water Treatment Facility (WWTF) to assist State in reasonable potential determination. *	Above and below a WWTF; groups will need to work with VTDEC-MAPP and WWTF operators to ensure sampling occurs during active discharge periods and below site is at a compliance point instream where WQS must be met.	Total Phosphorus Total Nitrogen Ammonia Turbidity Metals (as specified in a permit) Consider sampling the additional: Temperature, Dissolved Oxygen (DO) and pH	Generally, the last 2 years of a National Pollutant Discharge Elimination System (NPDES) permit cycle of WWTF	Targeting Base, Low median monthly flows or below	SCRW FWR BRAT SeVWA Ottauquechee River Group (ORG)

*Reasonable Potential Determinations assess the status of receiving waters upstream and downstream of permitted or proposed discharges to determine if there is a reasonable potential for the discharge to cause or contribute to a water quality violation.