



# Monitoring the White River:

## A School-Based Watershed Education Program

### Winter 2018 Newsletter

With major structural changes in educational organization unfolding in every corner of the state, we can't help but realize the unifying capacity of the bonds we share through the waters and soils that sustain us. We're continually inspired by the commitment, passion and hard work the educators we work with bring to the table in order to provide opportunities for learners to engage their full beings in the world at hand; true seeds of hope. Our Monitoring the White River programs continue to evolve as we strive to support those efforts.

Paul Hawken says, ***"If you look at the science about what is happening on earth and aren't pessimistic, you don't understand data. But if you meet the people who are working to restore this earth and the lives of the poor, and you aren't optimistic, you haven't got a pulse."***

Vermont offers riches beyond compare, often right out the back door. Our MWR programs offer ways to keep a pulse on what's happening in the neighborhood, encouraging awareness of watershed issues and the stewardship needed to meet the challenges at hand. The sidebar at right highlights some of our programs, tailored to help achieve standards and proficiency goals – and keep learning fun! – by creating opportunities for hands-on, place-based ecology education. The WRP provides FREE content specialist support and other resources for participating teachers.

**Monitoring the White River units** can be tailored to address individual school goals.

- *Crayfish* – key members of river and riparian food webs and invasive species
- *Waterbugs* (benthic macroinvertebrates) – indicators of river health and water quality
- *Winter Track & Sign* – evidence of wildlife activities along river corridors
- *Watershed Restoration* – on-the-ground projects that improve water quality and habitat:
  - Culvert replacements and retrofits
  - Trees for Streams riparian buffers and planting plans
  - Alternative stream bank restoration projects
  - *and more!*
- *Trout in the Classroom* – what's needed for survival of this keystone, in conjunction with Trout Unlimited
- *Snorkeling* – in development, in conjunction with US Forest Service

If you're a seasoned veteran we're always happy to hear from you, eager to schedule outings with you, and thrilled to have your input on how we might best meet your needs. If you're new to Monitoring the White River, have any questions, are interested in learning more about MWR program opportunities, or would like to know more about our Lending Library, please contact Dan 'rudi' Ruddell at [rudi@whiteriverpartnership.org](mailto:rudi@whiteriverpartnership.org) or (802) 763-7733.

Over the past year we've worked with 30 teachers from schools throughout the White River watershed to bring MWR content to more than 500 students (many of them for more than one unit!). We're thankful to the Wellborn Ecology Fund, Lamson-Howell Foundation, Hope Foundation, Couch Family Foundation, Greater Upper Valley Trout Unlimited, and the US Forest Service for their support of MWR programs, and to the teachers and educators that continue to inspire us and their students.

Highlights from the last year and a glimpse of things to come:



Students at Randolph Elementary School had lots of questions about a mass failure at their field site on Ayers Brook, leading to a Riparian Buffers presentation and fieldwork that delved into the fascinating geologic history of this area and the importance of wide, healthy forested buffers along streams. The trees that slid off this bank left some prime habitat for crayfish, as the traps we set in this debris jam for their Crayfish unit fieldwork turned up more than 30 crayfish!



...and speaking of crayfish, our mentors and colleagues at the Vermont Department of Environmental Conservation

notified us in February 2018 to be on the lookout for marbled crayfish - a large, highly reproductive, self-cloning crayfish that has been popular in the aquarium trade and then spread rapidly in the wild in Europe. Students involved in MWR crayfish work helped with early detections of bigwater crayfish in the White River basin, providing information for a 2015 U.S. Fish and Wildlife Service publication on this species.



Our collaboration with Greater Upper Valley and Vermont Trout Unlimited expanded this year in bringing Trout in the Classroom programs to more schools, with 11 tanks in the White River basin and 3 more in neighboring Greater Upper Valley towns (Braintree, Bethel, Chelsea, East Valley, Randolph Union, Rochester, Sharon Elementary, Sharon Academy, South Royalton Elementary and High School, Whitcomb, Hartland Coop pre-school, Marion Cross, Newton). We recently received news that funding for a couple more tanks in the Greater Upper Valley area (Windsor County) may become available next year; drop us a

line if you are interested. This program has documented ties to Next Generation Science Standards and remarkable possibilities for cross-ties to a broad range of other subjects. One of our teachers has expressed strong interest in building a curriculum around these possibilities!



Students at Prosper Valley and South Royalton schools took advantage of good snow and warm temperatures to investigate plentiful activity right out their back doors, utilizing activities from our Riparian Track & Sign unit.



Sharon Elementary School sixth graders include at least one “river day” a month in their weekly outdoor education outings (part of evolving place-based education curriculum development), covering MWR Waterbugs (macroinvertebrates), Crayfish, Riparian Track & Sign, and Trout in the Classroom during the year. Their explorations culminate with opportunities for these eager learners to share their knowledge with other students during a continuing tradition of a school-wide River Day outing on the White mainstem in June each year.

All of our MWR offerings are tied to our overarching commitment to the health of the White River basin and its communities, and we always have an eye to watershed protection and restoration. Students at 8 schools were a huge part of the 430 volunteers that helped plant 3,400 trees and shrubs along the White and its tributaries in April-May 2017, and we’ll be gearing up to plant nearly



4,000 more during spring 2018; please let us know if you’d like to join in for this rewarding fun! Our **Watershed Restoration: Trees for Streams** unit explores everything from the numerous important roles that good buffers play to how to map and plan a planting.

The MWR **Watershed Restoration: Culverts** unit explores our growing list of culvert replacements and retrofits, a key link to better fish passage, healthier stream systems and greater flood resilience for communities.



Last but by no means least, after the debut of a SNORKELING unit being developed in conjunction with our colleagues at the USDA Forest Service, we’re excited to say that your enthusiasm and input and our continued advocacy are paying off: it looks like the snorkeling program will likely continue and be shifted to an early September timeframe. Contact us for more details if interested!





**Snapshot of MWR's Watershed Education Network (participants since 2012)**

<u><b>MWR Schools</b></u>	<u><b>Supporting Organizations &amp; Agencies</b></u>
<p>Bethel Elementary School            Braintree Elementary School            Brookfield Village School            Chelsea Public School            Dothan Brook School (Hartford)            East Valley Academy            Hartford Memorial Middle School            Mid-Vermont Christian School (Quechee)            Newton School (Strafford)            Ottauquechee School (Hartford)            Prosper Valley School            Randolph Elementary School            Randolph Union Middle/High School            Rochester School            Sharon Elementary School            South Royalton School            Stockbridge Central School            The Pomfret School            The Sharon Academy            Tunbridge Central School            Vermont Technical College            Whitcomb High School (Bethel)</p>	<p>Canaday Family Charitable Trust            Clear Water Carbon Fund            Couch Family Foundation            Ecotone Education (Verdana Ventures LLC)            Four Winds Nature Institute            Friends of the Winooski            Greater Upper Valley Trout Unlimited            Green Mountain National Forest            Hope Foundation (Hypertherm)            Jack &amp; Dorothy Byrne Foundation            Lamson-Howell Foundation            Lake Sunapee Bank (Bar Harbor Bank &amp; Trust)            Mascoma Savings Bank Foundation            Ottauquechee Natural Resources Conservation District            Upper Valley Linkages for Environmental Literacy            U.S. Fish and Wildlife Service            Vermont Department of Fish and Wildlife            Vermont Department of Forests, Parks &amp; Recreation            Vermont Water Quality Division            Wellborn Ecology Fund</p>
<p align="center"><b>Questions about MWR?</b>            Dan 'rudi' Ruddell, WRP Monitoring and            Education Coordinator  <a href="mailto:rudi@whiteriverpartnership.org">rudi@whiteriverpartnership.org</a>            (802) 763-7733</p>	<p align="center">Visit the White River Partnership's website for            White River watershed information and maps, links to            Water Quality Reports and other resources, and more:  <a href="http://www.whiteriverpartnership.org">www.whiteriverpartnership.org</a>.</p>