



## Monitoring the White River: A School-Based Watershed Education Program Summer 2019 Newsletter

It's said that change is the only constant, but the pace of change in the world of education in Vermont has certainly had its ups and downs and seemed anything but constant in recent years. In the midst of mergers and reconfigurations, changing standards and morphing responsibilities we continue to be inspired and reinvigorated by the network of educators around us. Our Monitoring the White River programs continue to change, adapt and evolve yet provide a constant connection to the simple pleasures and profound complexities of the world at hand.

Lady Bird Johnson reminded us that, "The environment is where we all meet; where all of us have a mutual interest; it is the one thing all of us share." David Suzuki notes, "Unless we are willing to encourage our children to reconnect with and appreciate the natural world, we can't expect them to help protect and care for it." Our programs explore the underpinnings of our work to "bring together people and local communities to improve the long-term health of the White River and its watershed" by offering outings that directly connect with the waterways and denizens of the basin we inhabit.

The WRP provides FREE content specialist support and other resources for participating teachers, featuring opportunities for hands-on, place-based ecology education. Some of our offerings appear at right, and are tailored to help achieve standards and proficiency goals – and keep students engaged and having fun!

Over the past year we worked with 49 teachers from schools throughout the White River watershed to bring MWR content to more than 1000 students, many of them for more than one unit. If you are among these veterans we'd love to hear from you, hopefully to schedule more outings with you but also to hear how we can 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.

We're thankful to the Byrne Foundation, Couch Family Foundation, Lamson Howell Foundation, Greater Upper Valley Trout Unlimited, US Forest Service, VT Fish & Wildlife, Wellborn Ecology Fund for their support of MWR programs as well as all the committed teachers and educators we are honored to work with.

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

- *Snorkeling* – in-depth ☺ exploration of the inhabitants of the pools and riffles of a restored stream, in conjunction with US Forest Service
- *Waterbugs* (benthic macroinvertebrates) – indicators of river health and water quality
- *Winter Track & Sign* – evidence of wildlife activities along river corridors
- *Trout in the Classroom* – what's needed for survival of this keystone, in conjunction with Trout Unlimited
- *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!*
- *Crayfish* – key members of river and riparian food webs and invasive species

Some **highlights from 2018-2019 school year** for a glimpse of what our programs are about:

We are thrilled that our colleagues at the USDA Forest Service have successfully shepherded a **Snorkeling** unit piloted in the southeastern US to an expanded range in northeastern streams. Staged on a restored section of the West Branch of the White on the Green Mountain National Forest, participants can see fish benefitting from large wood used to rebuild meanders and stabilize pools as well as investigate nearby 'waterbugs' on which the fish feed. Many thanks to those of you who have participated in the last couple years; your enthusiasm and input have helped fine-tune the program and transition to an early-mid September timeframe primarily working with grades 4-6. Contact us for more details if interested!



Students at Sharon Pre-school got introduced to some of the **Crayfish** living in the White River basin, while their sixth-grade peers worked on tallying the different species they caught at their field site along the White mainstem - important information on changing crayfish demographics that is shared with our collaborators at the VT Department of Environmental Conservation.







Our collaboration with Greater Upper Valley and Vermont Trout Unlimited expanded again this year, with **Trout in the Classroom** programs supporting 15 tanks in towns of the White River basin and 1 more in neighboring Greater Upper Valley towns (Braintree, Bethel, Chelsea, East Valley (E Randolph), Newton (Strafford), Marion Cross (Norwich), Prosper Valley (Pomfret/Woodstock), Randolph Union, Rochester, Sharon Elementary, Sharon Academy, South Royalton, White River Valley High, WRV Middle, Williamstown Middle/High, Elm St School (Springfield). This program has documented ties to Next Generation

Science Standards and remarkable possibilities for cross-ties to a broad range of other subjects; schools this year put together remarkable videos, went on fishing expeditions and hatchery visits, exchanged quilt squares with far-away sister TIC programs, and performed classroom dissections.

Diversified Ag students at Randolph Technical Career Center prepped for a 2019 Envirothon appearance by catching and identifying benthic macroinvertebrates (**Waterbugs**) on Ayers Brook in the fall and combining **Winter Track & Sign** outings with investigations of VT Fish & Wildlife's furbearers kit.





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. Recent research has confirmed the wisdom of the ages that there are few more cost-effective or beneficial strategies than planting trees, and we were honored to have students at 13 schools as a huge part of the 700 volunteers and partners that helped plant 3,600 trees and shrubs along the White and its tributaries in April-May 2019.



Eight of these schools opted for an additional classroom session to supplement the planting outings;

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. We'll be planting several thousand more trees during spring 2020; please let us know if you'd like to join in for this rewarding fun!



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.



We are also pleased to present a tool to explain some of the principles of stream equilibrium and geomorphology. Greg Russ' hands-on Lane's Balance was introduced at VINS Science Symposiums the last two years; stay tuned as we develop a new MWR unit to further explore these vital concepts for healthier streams and more flood-resilient communities.

*Stream Equilibrium returns for VINS Science Symposium 2019!*

*Greg Russ' hands-on Lane's Balance seen by 60 students and teachers over 3 days*





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

<b>MWR Schools</b>	<b>Supporting Organizations &amp; Agencies</b>
Barnard Academy 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 (Woodstock) Randolph Elementary School Randolph Union Middle/High School Rochester School Sharon Elementary School South Royalton Elementary School Stockbridge Central School The Sharon Academy Tunbridge Central School Vermont Technical College White River Valley High School (South Royalton) White River Valley Middle School (Bethel) Williamstown Middle/High School	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 & Dorothy Byrne Foundation Lamson-Howell Foundation Lake Sunapee Bank (Bar Harbor Bank & Trust) Mascoma Savings Bank Foundation Ottauquechee NRCD Upper Valley Linkages for Environmental Literacy Upper Valley Teaching Place Collaborative U.S. Fish & Wildlife Service Vermont Fish and Wildlife Department Vermont Department of Forests, Parks & Recreation Vermont Water Quality Division Wellborn Ecology Fund
<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	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> .