

## Applied Wetland Science Has a Plastics Problem

**STANDARD PROTOCOL MUST GIVE WAY TO FLEXIBLE THINKING IF WE ARE COMMITTED TO PROTECTING THE WATERS OF THE UNITED STATES.**

By Katherine Harrelson

On any given day, in any given year, from April to November, hundreds of wetland scientists all across the United States are busy leaving thousands upon thousands of feet of polyvinyl chloride ribbon hanging in some of the most pristine and untouched landscapes of our country. They diligently leave this plastic tape dangling from trees, shrubs, and grasses, to waft in the breeze and suffer an unknown fate. These narrow pieces of single-use plastic are even left above or directly adjacent to the very rivers and streams these scientists are trying to protect, even after fish and other aquatic wildlife has been observed and documented in such water bodies. Why are they doing this you ask? Well, they do it for the very best of intentions; as part of the standard protocol to protect our natural resources. But it's time for the standard protocol to change.

You see, I am a geologist relatively new to the field of wetland science. I completed Ralph Tiner's excellent wetland delineation certification course through Rutgers University (during which boundary tape is removed after course completed) in order to expand my skills, return to fieldwork after a long hiatus, and fill a gap in my scientific training about what actually happens ABOVE ground

rather than below. After the course, I was lucky to land a position at a wonderful company that allows me to work as a geologist in their environmental remediation department while also training in wetland delineations. I have been working as the tech support and second scientist on wetland delineation projects in New England for future renewable energy projects for about a year and a half now, and with each project, I am growing more and more concerned about what we're leaving behind.

On a recent project in New England, I helped delineate approximately 375 acres of land over five field days, hanging plastic tape at all boundary survey points. But I also made a point of picking up all of the old tape that I found on the ground, buried under leaves, and even at the bottom of streams. The picture you see below is what I picked up in those five days across 375 acres. This represents but a portion of the old tape that was lying on the ground across the entire 600-acre parcel, and is a frightening symbol of our legacy as wetland scientists.

I have come to understand that project managers assume that the tape needs to stay there for the construction crew to use as visual markers during the construction phase of the project. I seem to understand that working crews may decimate a natural resource if they believe it was not delineated as a protected resource during the permitting process. But aren't we threatening our wildlife and water quality with our assumptions?

I have asked several scientists with whom I work what happens to the tape after it is hung, and the answer I get is usually a shrug. I have also found old tape at nearly all the job sites I work, because the same sites get surveyed over and over again. I have also come to understand that it often takes years for development projects to get off the ground, and the consulting portion of that

**FIGURE 1.** Class C stream in upstate New York with blue flagging tape.



project can change hands quite a few times, so that even if project managers budget for the tape to be removed at a later date, they are often removed from a project before the construction is complete, leaving the tape to degrade in place. I have asked our leads if they would consider using the biodegradable tape, but the answer is always no, because that kind of tape does not last more than a year. Yet I have never seen an instance where tape that was hung over a year ago was ever used as a wetland boundary by a construction crew or the next scientist to survey the site. So I am at a loss why this tape needs to last more than a year.

There are alternatives to hanging so much PVC tape. Pre-printed aluminum signs mounted to wooden stakes can be driven into the ground in the center of our features, indicating that such feature is a protected wetland or water body. The shape files and maps with all of the locations of our surveyed boundary points can (and already are!) provided to any construction crew working on the project so that they can see the boundaries as they are mapped. Biodegradable tape can be hung on sites where the construction schedule is known. Or the initial features can be mapped using GIS, and a tech can return to tape up certain features at a later date that are in the path of construction. Tape may not be needed on sites where the consultant is providing a biologist for construction oversight. Or, a project must have a budget for a tech to return to the site and collect the tape, even if the consulting company gets kicked off the job. At

a minimum, project managers, as part of the preliminary desktop review process, should decide which features need flagging at all, and limit the hanging of neon flags to only those resources that are in most danger of being overlooked or missed during construction. Perennial streams and ponds should never be hung with flags.

I know it's the environmental industry as a whole, especially the remediation division, that has a plastics problem. And I know that I am a relative outsider looking in. However, sometimes it takes an outsider to point out what we have been taking for granted all along. I would welcome outside input into what I could be doing to reduce my plastic waste. So I hope that this piece will put a wrench in the gears of our assumptions, and cause us to all stop and think about what we could be doing better for the resources we are trained to protect. ■

**FIGURE 2.** Discarded flagging tape found at delineation site.

