

Testimony before the House Committee on Natural Resources, Fish and Wildlife

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## **Introduction**

Good morning Chair Sheldon and Committee members. My name is Mike Kline, I am a river ecologist retired from the Department of Environmental Conservation. I am currently working very part-time as a science and policy consultant. As some members of the Committee are well aware, I have been involved in work to protect, manage, and restore river corridors in Vermont for nearly 20 years. As the DEC Rivers Program lead scientist, I led in the development of Vermont's nationally-recognized stream geomorphic assessment program, documenting the physical condition of Vermont's river corridors. I served as the Rivers Program Manager during and after Tropical Storm Irene and the passage of several legislative acts promoting municipal protections and establishing limited state jurisdiction over development in river corridors. I led in the writing of state rules and procedures for stream alterations and river corridor protections that established no adverse impact standards while recognizing the primacy of life safety and the need for infill and redevelopment in designated centers.

I appreciate the opportunity to speak with you this afternoon about river corridors. Today, I would like to:

- acknowledge and support strategies in the Climate Action Plan that call for compact settlements protected by functioning river corridors and floodplains,
- offer general comments explaining how Vermont's brand of river corridor protection, from its inception, has been developed in support of compact settlement, and
- conclude with a few specific suggestions for how the state might reduce the burden on communities working to establish designated centers and address the patchwork of river corridor and floodplain protections that makes these centers more vulnerable.

## General Comments

In my experience and learning, protected river corridors and functioning floodplains:

- slow down flood flows and give room for dynamic rivers to achieve their least erosive condition,
- maintain groundwater levels important to soil health, working lands production, and the water temperatures important to our native cold-water species,
- reduce flood and fluvial erosion damage in our transportation corridors and economic centers,
- capture and store carbon and nutrients needed to build and enrich our soils, that otherwise go downstream to feed the algal blooms that impair our lakes and ponds,
- restore and maintain aquatic, riparian, and wetland connectivity and biodiversity.

I believe no other component of our landscape provides such an array of ecosystem services in securing resilient communities.

I cannot overstate the importance of implementing the river corridor and floodplain protection strategies articulated in the Climate Action Plan, specifically the call for legislation to expand jurisdiction of the state Flood Hazard Area and River Corridor Rule. The Plan correctly identifies the importance of moving forward with state jurisdiction, recognizing that the current piecemeal regulation, largely resting on municipal capacities, will not meet the urgency for climate adaptation in Vermont.

What I would like the Committee to understand is that a method for achieving resilient communities, what I think of as vibrant, compact settlements less vulnerable to devastating floods, has been evolving over the past decade in Vermont. The Flood Hazard Area and River Corridor Rule currently provides opportunities for communities to work with the state and plan for housing, infrastructure, and economic resiliency, while protecting the natural land and water resources that will be critical to climate mitigation and adaptation. The important work to enhance the accessibility of these tools and eliminate any outstanding contradictions in state law should proceed without delay.

For instance, in the wake of Tropical Storm Irene, the Agency of Commerce and Community Development, in deference to both the science and public interest in river corridor protection, proposed that neighborhood development areas could not be designated in fluvial erosion areas (i.e., river corridors). Ironically, the Agency of Natural Resources was, at the same time, developing rules and procedures that essentially created exceptions for infills within designated centers. This inadvertent contradiction was a source of frustration for community planners, so proposals, such as those embodied

in H.511—that’s been introduced in this committee—are needed to align policies into a potential win-win for housing and natural resource values.

Existing ANR procedures implementing the Flood Hazard Area and River Corridor Rule recognize that, in nearly all cases, we manage the river to protect existing villages and infrastructure from fluvial erosion, and, therefore, new infill and redevelopment into these more densely developed segments of the river corridor will not create new hazards to property owners downstream. If a “no adverse impact standard” were then universally applied to maintain room for river movements in undeveloped corridors, we’d see less and less flood damage over time, to the benefit of all landowners in a watershed.

I would like to conclude my general comments by further explaining how Vermont’s unique approach to river corridor protection has evolved and enjoyed a certain degree of social acceptance where similar efforts in other states have fallen short.

I have worked with scientists across the U.S. in developing corridor mapping methods and advising states on how to apply the science. The handful of more fully developed programs are creating maps and promoting the protection of corridors that span the entire width of their valleys. Any part of the valley floor—and valley side slopes—that could be subject to the river’s erosive forces are included in the corridors and presented to the public. While technically correct, these corridor maps have not enjoyed a large degree of public acceptance as a community planning tool in their respective states. Vermont’s mapping, on the other hand, does not attempt to eliminate all risk by depicting the maximum extent of fluvial and landslide erosion potential; rather, they define a minimal space for protection that may still be available to the river for achieving its least erosive form. Vermont’s method grew out of the need to create a social contract that, if we give at least the meander belt and small natural riparian area for the river, and locate our houses or businesses outside the corridor, we will minimize the individual and societal costs in protecting real property that exists both inside and outside the mapped corridor. We all live downstream of the decisions made by our upstream neighbors.

Finally, I am concerned that we’re asking towns to carry a burden that most are not prepared to shoulder. We’ve hit a plateau and even some backsliding in municipal protection of river corridors. We should beef up state incentives and continue to purchase river corridor easements, but without action that broadens state jurisdiction, I believe we will see a rapid and accelerating loss of river corridors and functioning floodplains to piecemeal development. Climate migration is coming our way (i.e., the influx

of people escaping coastal hazards) and it doesn't matter whether it's a duplex housing unit, a solar array, a stormwater pond, a bike path, or an industrial park, any encroachment that results in hemming in another segment of the river into an exceedingly narrow slice of its valley translates into the kind of adjacent and downstream destruction we saw in Irene. With climate change upon us, we simply don't have the luxury of waiting decades to close the major holes in our current patchwork of river corridor and floodplain protections.

### **Specific Recommendations for Legislative Action**

In conclusion, I would like to offer the following ideas for specific ways the legislature could authorize advancements in state river corridor and floodplain protection:

1. *Expand jurisdiction of the Vermont Flood Hazard Area and River Corridor Rule (10 V.S.A. § 754) to all development along streams and rivers that have a mapped river corridor.* This change would mean that any development along Vermont's larger streams and rivers (those with a drainage area greater than 2 square miles) would require a state permit. While most smaller streams do not have a state mapped corridor, they too become more hazardous with increasing encroachment; therefore, I would recommend that state agencies and interested parties convene to determine the best way to administer top-of-bank standards that would work to protect the corridor, floodplain, and riparian functions of smaller streams. Expanded state jurisdiction, where the state has mapped the river corridor, would represent an incremental, but very significant step for our settlements, located in lower valley settings, to become more resilient.
2. *Require ANR to revise its Rule with a process for amending the statewide river corridor map with defined areas, within designated centers, suitable for infill and redevelopment that will not cause or contribute to increases in fluvial erosion hazards.* If ANR partners with the Agency of Commerce and Community Development and regional planning commissions to map infill areas within designated centers and neighborhood development areas, such *a priori* mapping would create greater efficiency for municipalities, developers, and the state permit program. I think it is important, however, for ANR to remain the final arbiter of amendments to the state river corridor map.

3. *Authorize the ANR to include within its Flood Hazard Area and River Corridor Rule provisions for permits to include the maintenance of existing native riparian vegetation in mapped river corridors.* Act 138, that passed in 2012, requires that the state mapped river corridors include a buffer area, and accordingly ANR added 50 feet to each side of the meander belt to accommodate a minimal area for the native vegetation that would help minimize bank erosion during floods. Act 138 and the Flood Hazard Area and River Corridor Rule are currently silent on the maintenance of vegetation in the buffer areas. While I don't think it's practical to require landowners to go out and plant trees along their river frontage where they may be lacking, the Rule should have provisions that require the maintenance of existing woodlands along jurisdictional streams and rivers. This would be a significant step in preventing the loss of the stream stability and flood resiliency afforded by the binding roots of native vegetation.

Earlier, I mentioned H.511. While I am not here to testify on H.511, I think it is an example of an existing draft bill in Committee where language could be amended to include the specific recommendations I just walked through and to reduce the burden on towns to regulate river corridor development. I would be happy to offer specific language tweaks if the Committee is interested.

Thank you for the opportunity to provide this testimony, and please know that I would be happy to try and answer any questions you may have now or in the future regarding rivers and river corridors.