

Testimony before the House Committee on Environment and Energy

S.213

April 10, 2024

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Middlesex, Vermont

Good afternoon. My name is Mike Kline, and I am a river ecologist and a fluvial geomorphologist. I am retired from the Department of Environmental Conservation, where I served as Rivers Program Manager from 2009 to 2019. I led the science and management teams in the development of river corridor planning and protection, and I served as Program Manager during the response and recovery from Tropical Storm Irene. I was responsible for the development of the emergency stream alteration and river corridor protection standards in the rules that were adopted after Irene.

My testimony today will be about the two different paths that lie before us. One path will have a cost, but one that will be paid for many times over by lower disaster recovery costs over time. The other path will be far more expensive with each successive flood going forward. One path will give us a chance to recover from floods more quickly because we've dialed into ways that natural watershed features absorb storm runoff and release flood waters gradually. On the other path, we cut ourselves off from these natural defenses and spend millions buying out or slowly fortifying an increasing number of structures placed in river corridors. It is a question of whether we're going to continue on the path we've started, one of protecting and restoring places where natural flood storage can occur, or turn our heads and let river corridors fill with private and public investments that get damaged repeatedly. I strongly urge the legislature to get us out of a vicious cycle where river encroachments get fortified with structures that fail during the next flood, or that shunt floodwaters downstream causing damage at other properties.

We need flood storage in watersheds, and since we won't be building new reservoirs behind large dams like the Waterbury dam, we have to seek out opportunities to restore the natural flood storage we've lost due to historic land use and river management practices.

- We can protect our forests and forest soils that are regenerating their capacity to infiltrate great rain events.
- We can reverse or disconnect more of the drainage and ditching that's been done in Vermont forests, fields, and wetlands and along our roadways. We can do more to infiltrate drainage flows before they get to streams or rivers.
- We can strategically build new floodplains in or near our community centers to lower flood depths in our downtowns.

Vermont has been doing all of these flood mitigation practices—but more flood storage is needed than what time and money will buy if we rely solely on human-constructed wetlands and floodplains. Floods create floodplains, and it is still possible for Vermont to benefit from this natural process by simply limiting new encroachments within river corridors. Rivers that have the space to re-meander will, over time, build and maintain the floodplains and wetlands we've lost over the last century, when they were ditched, dredged, straightened, bermed, and armored.

Naturally generated floodplains that dissipate erosive energy and store floodwaters will spare downstream locations that would be damaged otherwise. This upstream-downstream relationship is why the state must be the entity responsible for river corridor protection.

Vulnerable communities and public infrastructure will only benefit from the flood storage and energy dissipation in river corridors and floodplains if they are protected at the watershed scale. The efforts of one town to address repeated flood damage by passing a river corridor protection bylaw are being frustrated when upstream municipalities don't have the capacity or aren't willing to do the same.

There is a great call for more housing, which, by definition (I believe), needs to go where there are services. We also know that most of our service areas—our villages and downtowns—are highly vulnerable to flood damage along our rivers. I believe it is a matter of risk management. If we employ the natural watershed storage that I've just described, step back from the river's edge in downtowns where we can, floodproof and harden downtown infrastructure where need be, then the costs and risks will be lower than if new housing and other development were to sprawl out along the river valleys. In other words, existing settlements and road systems are generally safer when new housing is located within the settlement boundaries, compared to what they would be if the new development were to be placed along the river upstream, which would

then necessitate new river constraints. We've made huge investments in protecting historic settlements and public infrastructure from erosion, more will be necessary, but the more a river is constrained from depositing and dissipating energy upstream, the more dangerous and damaging it becomes downstream.

It is far more possible to manage risks in a few places along a river's length, than attempting to manage them along its entire course. Individual landowners cannot afford to armor a larger stream or river, they turn to the government program, the taxpayer, and I'm very concerned that when we use the public till and borrow every year to respond to multiple disasters and repeated failures, as we're seeing with climate change, there will be less and less to spend on other pressing needs. We should focus on lowering our costs, by continuing to invest in floodplain restoration like we have within the neighborhoods of Bennington, Brattleboro, Brandon, Barre, Ripton, Northfield, and Middlebury. But the ultimate cost-saver is less river management, less time and money spent building or rebuilding river armaments to protect unwise investments.

I believe it is both prudent and timely to combine the steps of promoting new infill housing in compact settlements while mitigating flood and fluvial erosion hazards, as proposed in S.213. A state training course with the regional planning commissions on the technical process for creating and adopting infill maps within Vermont settlements should be created. Such *a priori* mapping has and would create greater efficiency for developers, municipalities, state programs, emergency managers and environmental advocates.

I also urge that a state permit under the Rule be presumptive of meeting the flood hazard criterion in Act 250. This would be way more efficient for all parties. New encroachments that result 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 of infrastructure and neighborhoods we saw in Irene and this past July. But in my previous role as State Rivers Program Manager, I know that preparing for and implementing a statewide jurisdiction will require additional staff. I believe the cost of additional staff, however, will be offset by a fraction of the annual savings that will be accrued from ending the adverse effects of new structural encroachments in river corridors. I believe we can and must afford this.

In closing, I'd like to stress that State protection of river corridors is not a new program or policy. With public safety as its purpose, the DEC began regulating development in river corridors in 2001, over 20 years ago. Many components of a River Corridor Protection Program are in place, including senior staff that have been around since the beginning; decades of science-based river corridor mapping in each of our river basins, seasoned outreach programs too numerous to recall, involving partners from across all sectors; rules and procedures for individual and general permits, for adopting and amending maps, and for identifying development infills; and enough trips to the Courts, in contested cases, to affirm the role of Vermont's river corridors in protecting public safety.

Does all this previous work make the timelines in S.213 achievable? Quite possibly—with the appropriate staffing—but there are always legitimate things that can trip you up. For instance, major floods—there will likely be several regional disaster declarations over the next several years that may demand the attention of the DEC Rivers Program. We can't know. But what we do know is that when this body sets the goal and intent with effective dates, it lights a fire under the administration. From my experience, the consequence of missing a deadline is negligible, if you are accountable.

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.