

Testimony of Shayne Jaquith
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Before the House Natural Resources, Fish, and Wildlife Committee
On H.92 An act relating to the registration of dams
February 12, 2017

Thank you Chairman Deen and Members of the Committee for the opportunity to speak with you in support of H.92. My name is Shayne Jaquith and I am the Watershed Restoration Program Manager for The Vermont Chapter of The Nature Conservancy (TNC). Before joining TNC a little less than a year ago I worked for 16 years with the VT DEC Rivers Program in the specific areas of river assessment and restoration, hydro-project certification, regulation of instream management projects, and training of transportation infrastructure professionals in the design and maintenance of transportation infrastructure for river stability and flood resiliency.

In my role with TNC I work to restore rivers, floodplains and wetlands with the purpose of strengthening ecosystems and increasing the resiliency of human communities. Included in that work is the removal of unbeneficial dams in order to reconnect river habitats and decrease public hazards. The registration and inspection of dams would allow for more comprehensive accounting of dams throughout the state and a better understanding of their cumulative threat to public safety and impact on riverine ecosystems and this is why I am speaking in support of H.92.

There are approximately 1000 dams throughout Vermont and these dams degrade the river ecosystems in which they are located. Under natural free flowing conditions rivers are complex and full of nooks and crannies which fish and other river animals require for survival. Fish hide from overhead predators, rest and feed in deep pools, they lay eggs in shallow steep sections called riffles, which are also the primary home of bottom dwelling insects that fish rely on for food. Sand and silt patches provide habitat for mussels, aquatic plants and river dwelling micro-organisms. The free flow of rivers creates the habitat that is critical for the survival of riverine organisms and dams fundamentally interrupt that process.

When a dam is constructed in a river the natural scour, transport and deposition of sediments is blocked and the habitat within the river is degraded. Upstream of the dam, flows

are impounded turning the river into a body of ponded water that can extend upstream for some distance. In these impoundments the ponded water deposits all the sediments it has carried from upstream, smothering the rivers natural gravel beds and filling pools with fine sands and silts. Impoundments are often wider and less shaded than the natural river and therefore absorb more solar radiation which results increased water temperatures. The warmer impoundment waters are unsuitable for cold water river species typical of Vermont's rivers and also have less capacity to hold dissolved oxygen at the concentrations required by the fish and other animals. In large deep impoundments the bottom waters can be excessively cold and extremely low in oxygen. Impoundments also trap and concentrate nutrients and pollutants which can also create conditions unsuitable for river critters.

Of course as the water of the impoundment flows downstream, so do the impacts associated with water temperatures and oxygen levels in those waters. A second downstream problem is the significant channel erosion which occurs as the sediment free "hungry water" plunges over the dam crest and onto the downstream bed. The result is an eroding, unstable river that becomes devoid of the natural features that make up physical habitat and also becomes a hazard to any adjacent human investments such as roads, bridges or other structures. As river beds and banks erode, bridge abutments and culverts are compromised, road embankments are failed and building foundations are exposed.

Fish and other river animals must migrate throughout the river system for survival. Fish and other organisms will migrate daily in search of quality feeding habitat. Brook trout and other cold water species that spend time feeding in the larger rivers of the lowlands will migrate to colder headwater streams in summer months to escape the deadly temperatures of the warmer lowland rivers. Brook trout and other fish will also migrate great distances seasonally to find suitable spawning habitat. The simple fact of the matter is that river fish and aquatic animals must migrate daily and seasonally for their very survival. Dams prevent those migrations by creating physical barriers that are impassable to many if not all of the critters that inhabit rivers.

Dams disconnect and destabilize rivers causing significant ecological damage and increasing threats to human investments. Currently the comprehensive impacts and threats posed by dams aren't known. TNC is finalizing a tool for evaluating and prioritizing dams in the Champlain basin based on their ecological impacts so that this facet of the issue may be better

understood. H.92 would provide complementary information with respect to the hazards dams pose to human communities and this is why The Nature Conservancy supports H.92.

Thank you again for the opportunity to speak with you today.