VERMONT LAW SCHOOL

Environmental Advocacy Clinic
Vermont Law School
PO Box 96, 164 Chelsea Street
South Royalton, VT 05068
802-831-1630 (phone) • 802-831-1631 (fax)

TESTIMONY OF MASON OVERSTREET, ENVIRONMENTAL ADVOCACY CLINIC AT VERMONT LAW SCHOOL

ON BEHALF OF VERMONT NATURAL RESOURCES COUNCIL, CONNECTICUT RIVER CONSERVANCY, VERMONT COUNCIL OF TROUT UNLIMITED, AND NATIONAL WILDLIFE FEDERATION'S NORTHEAST REGIONAL CENTER

BEFORE THE SENATE COMMITTEE ON NATURAL RESOURCES AND ENERGY

September 16, 2020

Good morning Chairman Bray and Members of the Committee,

Thank you for the opportunity to testify on H.833, an act relating to the creation of a Surface Water Diversions and Transfers Study Group to investigate and make recommendations to the General Assembly regarding the environmental, economic, and recreational impacts of diverting surface water generally and, in particular, of transferring surface water between watershed basins. My name is Mason Overstreet and I appear before this Committee as a Staff Attorney at Vermont Law School's Environmental Advocacy Clinic speaking on behalf of the Vermont Natural Resources Council (VNRC), Connecticut River Conservancy, Vermont Council of Trout Unlimited, and National Wildlife Federation's Northeast Regional Center, in their support of H. 833. VNRC, Connecticut River Conservancy, National Wildlife Federation's Northeast Regional Center, and Vermont Council of Trout Unlimited believe that proactively understanding Vermont's existing surface water usage and the associated impacts is essential in an era of changing climate, changing populations, and changing industries.

The following testimony explains the need for and importance of H. 833. To place the bill context, I will begin with a discussion of the current status of Vermont's water resources and uses and how climate change, the introduction of new industries, and shifting populations impacts these resources. Next, I will describe the scope of the Vermont Agency of Natural Resources' (ANR) oversight of surface water diversions and transfers in the state. This is followed by an explanation of the riparianism common law principles of water use as applicable to Vermont's surface waters. Finally, I'll broaden the scope to examine how neighboring New England states have addressed similar issues of surface water diversions and changing climate, industries, and populations. H. 833 is a critical step towards effectively monitoring, managing, and conserving Vermont's unique and precious surface water resources.

Water Use in Vermont

One of the greatest challenges to Vermont's surface water resources—including quantity, quality, and longevity—is climate change. Between 1985 and 2011, temperatures in the Northeast rose nearly 2˚F.[1] Projections expect this trend to continue, anticipating warming of 4.5˚F to 10˚F by 2080.[2] In addition to increasing overall temperatures, the frequency, intensity, and length of heat waves are on the rise and expected to continue.[3]

The Northeast is also experiencing greater amounts of precipitation. When rain, snow, and ice fall, they also increasingly arrive as heavy, concentrated precipitation events, rather than the frequent, but moderate precipitation typical of the region.[4] These concentrated precipitation

[1] ENVTL. PROT. AGENCY (*via* CITY OF BURLINGTON, VT), *Climate Impacts in the Northeast*, https://climatechange.burlingtonvt.gov/climate-impacts/climate-impacts-northeast#Reference%201, (last visited Aug. 30, 2020) (*citing* RADLEY HORTON ET AL., CH. 16: NORTHEAST. CLIMATE CHANGE IMPACTS IN THE UNITED STATES: THE THIRD NATIONAL CLIMATE ASSESSMENT, (J. M. Melillo et al., eds. U.S. Global Change Research Program, 2014).
[2] *Id*.
[3] *Id*.
[4] *Id*.

events tend to occur in the winter and spring,[5] evaporating before the hotter, drier months in summer. Forecasts suggest that these changing precipitation patterns could result in greater water scarcity in Vermont, especially during the summer.[6]

Climate change-induced water scarcity is only part of the broader water use challenges facing Vermont. While changing precipitation patterns may decrease the available supply of water, the issue may be exacerbated by the introduction of new industries and increased populations in the state. As the availability of Vermont's water resources decreases and competition increases, traditional water uses may no longer be supported. The resulting uncertainty and unpredictability over water availability will likely place great strain on Vermont's people, its existing and emerging industries, and importantly, the health of the water ecosystems themselves.

Drought lowers the supply of both surface and ground water.[7] As the longer and more intense heat waves cause more drought periods in the summer, Vermont should anticipate that its water resources might not be able to support the uses it once did. During these drought periods, surface and groundwater will generally be at their lowest levels and may be unable to meet the demands of all water users. Such unpredictability may dissuade developers and industry users from investing in water-required projects, while simultaneously raising serious concerns about riverine ecosystem health.[8]

---

[5] *Id*. (*citing* JOHN WALSH ET AL., CH. 2: OUR CHANGING CLIMATE. CLIMATE CHANGE IMPACTS IN THE UNITED STATES: THE THIRD NATIONAL CLIMATE ASSESSMENT (J. M. Melillo et al., eds. U.S. Global Change Research Program, 2014).

[6] *Id*.

[7] VT DEP'T OF HEALTH, *Drought and Your Well*, https://www.healthvermont.gov/environment/drinking-water/drought-and-your-well (last visited Aug. 30, 2020).

[8] When streams dry up, it is detrimental to the health of the watershed. Studies in Arizona recorded the effects of three streams completely running dry for the first time in their recorded history. Sergi Sabater et al., *Effects of Human-Driven Water Stress on River Ecosystems: A Meta-Analysis*, 8 SCI. REP. 11462 (2018). As a result, some insect populations never returned: including the giant water bug, sycamore caddisfly, and water strider. *Id*. Even when a stream does not completely dry up, changes in flow cause shifts in fish habitat, water temperature, nutrient

Vermont takes pride in its local industries, many of which rely on available water resources to survive. Some of Vermont's most recognizable water users include dairies, ski resorts, agriculture, and breweries. For example, the average dairy farm in Vermont houses 185 cows. A single dairy cow drinks between 30-50 gallons of water a day. To remain viable, an average Vermont dairy farm requires between 5,550 and 9,250 gallons of water per day.[9]

Vermont's ski industry is also reliant on a consistent supply of water. Three of Vermont's largest ski resorts represent typical water needs for similar facilities throughout the state. Killington and Stowe each have the capacity to withdraw 10 million and 4.3 million gallons of water a day, respectively, when making snow, while Okemo uses between 350 and 450 million gallons of water each winter.[10] While winter precipitation is expected to increase, the weather extremes and warmer temperature threaten snow cover for recreation, which will likely increase snowmaking demands in the future.[11]

Farming is an essential Vermont industry, one that will become more dependent on irrigation during Vermont's increasing heat waves and droughts.[12] The average vegetable farm

availability, and sediment levels. *Stream Flow*, ENVTL. PROT. AGENCY, https://www.epa.gov/salish-sea/stream-flow (last visited Aug. 30, 2020). Such changes "can impact both human uses and the life cycles of salmon and other aquatic life." *Id*.

[9] *Drinking Water for Dairy Cattle: Part 1*, DAIRY HERD MGMT. (May 23, 2011), https://www.dairyherd.com/article/drinking-water-dairy-cattle-part-1; *see also*, Hannah Himmelmann & Donna M. Amaral-Phillips, *Water Needs for the Dairy Herd*, UNIV. OF KY C. OF AGRIC., FOOD, AND ENV., DEP'T OF ANIMAL & FOOD SCI., https://afs.ca.uky.edu/content/water-needs-dairy-herd, (last visited Jan. 27, 2020); Diane Bothfeld, *Vermont Dairy Data*, VT GEN. ASSEMBLY (July 15, 2017) https://legislature.vermont.gov/Documents/2020/WorkGroups/Senate%20Agriculture/Reports%20and%20Resources/W~Diane%20Bothfeld~Vermont%20Dairy%20Data~7-15-2019.pdf.

[10] *Mountain Stats*, KILLINGTON MOUNTAIN RESORT, https://www.killington.com/the-mountain/mountain-info/mountain-stats (last visited Oct. 22, 2019); *It's the Snow: Snowmaking, Grooming and Other Mountain Ops*, SKI VERMONT (Nov. 5, 2018), https://skivermont.com/its-the-snow-snowmaking-grooming-and-other-mountain-ops-10-31-18; Wendy Clinch, *Snowmaking at Stowe: How to Handle a Tough Season*, THE SKI DIVA, (Feb. 23, 2016) https://www.theskidiva.com/snowmaking-at-stowe-how-to-handle-a-tough-season/.

[11] *VT's Changing Climate*, VT CLIMATE ASSESSMENT, http://vtclimate.org/vts-changing-climate/ (last visited Feb. 15, 2020).

[12] *Water Quality*, VT AGENCY OF AGRIC., FOOD & MARKETS, https://agriculture.vermont.gov/water-quality, (Last visited Aug. 30, 2020) ("More than 1.2 million acres of Vermont land is devoted to farming, and agriculture is one of our most important industries."). Heavy precipitation events can damage crops and wetter springs may delay planting, resulting in later harvest and reduced yields. *Climate Impacts in the Northeast*, ENVTL. PROT. AGENCY (*via*

requires about 6,000 gallons of water a day per acre, which may need to be supplemented by irrigation during the drier months.[13] Hemp is a relatively new water-intensive industry cropping up in Vermont. A single hemp plant uses 2.5 gallons of water per day at peak season.[14] One acre of farmland can hold about 1,500 plants.[15] In terms of water usage, a 10-acre hemp farm needs to withdraw approximately 37,500 gallons of water per day to successfully cultivate its crop.[16]

Microbreweries, fisheries, golf, and domestic uses all carry their own extensive water usages and are expected to increase in Vermont's future. Microbreweries are another water-intensive industry in the Green Mountain State, requiring an average of seven gallons of water to produce one gallon of beer.[17] In 2015, aquaculture surface water diversion estimates in Grand Isle and Rutland County were 3.12 and 1.84 million gallons per day (Mgal/d), respectively.[18] An average Vermont golf course uses approximately .005 Mgal/d to maintain its greens during the

---

CITY OF BURLINGTON, VT), https://climatechange.burlingtonvt.gov/climate-impacts/climate-impacts-northeast#Reference%201, (last visited Aug. 30, 2020).

[13] *Irrigating Vegetable Crops*, UNIV. OF MASS. AMHERST, THE CTR. FOR AGRIC., FOOD & ENV., UMASS EXT., VEGETABLE PROGRAM (Jan. 17, 2013), https://ag.umass.edu/vegetable/fact-sheets/irrigating-vegetable-crops.

[14] Peak season for hemp in Vermont occurs during flowering in late August through to end of September. One farm in the Rutland area grew 28,000 plants over 25 acres used both ground and surface water. While this farm had the irrigation "constantly going" the farmer did not know for sure the quantity used because reporting was not necessary. Another farm in the Champlain Valley grew 30,000 plants over 40 acres, and irrigated "pretty much round the clock" during the warmer, drier days, and while flowering using both ground and surface water. Another farm with similar water use statistics grew 250,000 plants on 250 acres. Interviews by Kelsey Schweitzer with Anonymous, Hemp Farmers, Central, Rutland, and Champlain Valley, VT (Jan. 27–Mar. 3, 2020).

[15] CHEYENNE MOUNTAIN SEED CO., *Hemp Field Irrigation - How to Farm Hemp*, https://cheyennemountainseedcompany.com/hemp-farming-resources/irrigation/ (last visited Jan. 27, 2020).

[16] *Id*. This amount is based on a hemp plant's need for approximately 2.5 gallons of water a day during peak season, or the last two months of its life.

[17] Michael Agnew, *The Thirsty Business of Beer: How Breweries are Confronting the Industry's Water Problem*, THE GROWLER (Mar. 2, 2016), https://growlermag.com/the-thirsty-business-of-beer-how-breweries-are-confronting-the-industrys-water-problem/. More than 60 breweries are listed on the Vermont Brewers Association website. *Discover our Breweries*, VT BREWERS ASS'N, https://www.vermontbrewers.com/breweries/ (last visited Aug. 30, 2020). In 2015, Vermont produced 261,654 barrels (or 10,989,468 gallons) of beer. Emma Marc-Aurele, *Beer is Big Business in Vermont*, VT BUS. MAG., (Sept. 2, 2016, 10:35 AM) https://vermontbiz.com/news/september/beer-big-business-vermont. That translates to 76,926,276 gallons of water used a year in the brewing industry.

[18] *Water Use Data for Vermont*, U.S. GEOLOGICAL SURV. (Feb. 13, 2020, 4:19 PM) https://waterdata.usgs.gov/vt/nwis/water_use?format=html_table&rdb_compression=file&wu_area=County&wu_year=2015&wu_county=ALL&wu_category=AQ&wu_county_nms=--ALL%2BCounties--&wu_category_nms=Aquaculture.

season.[19] Combined, Vermont's golf courses consist of over 360,000 yards of green, meaning that in one season, water use for golf courses can exceed 300,000 Mgal/d. Finally, the average Vermonter uses up to 75 gallons of water a day for domestic uses, or up to 46.9 Mgal/d.[20]

The intent in describing the water resource needs of these industries is not to paint these water users in a negative light. These industries have vital economic, cultural, and social significance to the state and people of Vermont. And at the same time, these industries have sizeable impacts to surface water quality, quantity, ecological health, habitat, etc. The discussion above merely serves to highlight the existing and emerging water uses in Vermont against the backdrop of decreasing and unpredictable water availability. The proposed Study Group in H. 833 would allow Vermont to comprehensively assess how its water is being used, and how these uses are shifting with changes in climate, emerging industries, and changing populations. The effects of climate change, changing industry resource needs, and population densities will also burden Vermont's precious watershed ecosystems. H. 833 presents Vermont with an opportunity to thoroughly inspect and understand its water allocation framework and assess its expected robustness under conditions of scarcity. Armed with this knowledge, Vermonters may proactively craft creative solutions to an increasingly relevant issue of water use.

ANR Regulated Water Diversions

Despite Vermont embracing several water demanding industries, to date, the state has no law on its books that specifically address surface water diversions. Instead, Vermont relies on unpredictable common law—which is reactive, dealing with conflicts amongst users solely in the court system—and piecemeal regulations to manage an increasingly unpredictable resource.

[19] U.S. GEOLOGICAL SURV., Scientific Investigations Report 2010-5053, Estimated Water Withdrawals and Return Flows in Vermont in 2005 and 2020 (2010). Golf season runs approximately from mid-April through October.
[20] *How We Use Water*, U.S. ENVTL. PROT. AGENCY, https://www.epa.gov/watersense/how-we-use-water#Understanding%20Water%20Use (last visited Aug. 30, 2020).

The Agency of Natural Resources' Department of Environmental Conservation (DEC) administers Vermont's existing water conservation regulations.[21] As part of its duties, DEC is tasked with acting in the public's interest to protect, regulate, and control Vermont's waters.[22] Currently, DEC only interacts indirectly with water diversions and transfers through a few permitting regimes including snowmaking, stream alterations, encroachments on public waters, and large developments and subdivisions.

In terms of water quality, Vermont has delegated authority to administer the federal Clean Water Act.[23] When an individual or entity applies for a permit under one of the Clean Water Act programs, it triggers a state-level certification process to show that the project meets Vermont's Water Quality Standards.[24] Though Vermont actively manages water quality, water quantity is rarely considered. A healthy and robust supply of water resources is dependent on both water quality and water quantity. But to-date, Vermont only focuses on part of the issue. Put another way, there is a sizeable hole in the existing regulatory framework, which is unplanned, uncoordinated, and piecemeal.

Snowmaking is the only expressly regulated water diversion activity in Vermont. The DEC permits water diversions to balance the needs of the ski industry with the conservation of water quantity in the State.[25] Permittees must report annually their seasonal water diversion volumes and the daily pumping rates and volume.[26] However, snowmaking permits do not contemplate interbasin transfers of surface water. Last year, the State approved what appears to

[21] 10 V.S.A. § 1001.
[22] *Id.*
[23] 33 U.S.C. § 1251 et seq., 10 V.S.A. § 1250 et seq.
[24] 10 V.S.A. § 1250 et seq.
[25] 10 V.S.A. § 1031.
[26] Agency of Natural Resources Environmental Protection Rules, ch. 16. *Water Withdrawals for Snowmaking* § 16-04(2) (Feb. 15, 1996), https://dec.vermont.gov/sites/dec/files/documents/wsmd-water-withdrawal-snow-rule-1996-02-15.pdf.

be the first interbasin transfer[27] through a series of permits (i.e. Stream Alteration, 401 Water Quality Certification, 404, etc.) for Killington-Pico's snowmaking interconnect and infrastructure improvement system. While Vermont's legislature has already implicitly recognized the importance of large surface water diversions in its snowmaking statute, it has yet to address the issue of surface water diversions as a whole.

Another source of law involving surface water resources in Vermont is Act 250. Act 250 requires permittees to meet specific criteria concerning impacts on water resources in Vermont. Generally, only large developments and subdivisions trigger Act 250. The first criterion for permitting focuses on water quality, and asks whether the project will result in undue water pollution.[28] Regarding water quantity, the Act only requires that permittees have "sufficient water available" for the needs of the project.[29] The Act does not specify any water diversion reporting or other mechanism to inventory the major water diversions in Vermont.

Vermont's stream alteration statute does not address either water diversions generally or interbasin transfers. Under the law, water users are not required to report diversion amounts from streams. The State only considers whether stream users are altering the watercourse and flow. If a user wants to alter a streambed, they must first obtain a permit.[30] As with other existing water statutes in Vermont, the stream alteration permitting system is limited to issues of water quality rather than water quantity.

[27] Interbasin water transfers refer to man-made water conveyances, which move water from one river basin to another. In the case of Killington's, a snowmaking interconnect system was proposed between to Killington and Pico to improve snowmaking capabilities on Pico Mountain. Regarding surface water, the project proposed—and is currently—pulling water from the Ottauquechee River watershed (Connecticut River Basin) up Killington mountain and over to Pico, discharging it into the Otter Creek watershed (Lake Champlain Basin). This concept is discussed in more detail in "Riparianism and Interbasin Transfers" below.
[28] 10 V.S.A. § 6086(1).
[29] 10 V.S.A. § 6086(2).
[30] 10 V.S.A. § 1021(a).

Behind this and other water use laws in Vermont is the idea of riparian rights. A riparian is a person who owns land abutting a watercourse. Riparians have usufructuary rights, which give them the right to use—but not destroy—water running through their property. Riparians do not own the water or streambeds, but they have a property interest in using those resources. The stream alteration statute explicitly reserves these rights of use for riparians. Under the stream alteration law, riparian users are not required to obtain a permit to withdraw water from streams running through their property.[31]

Currently, there is no Vermont statute or regulation requiring permitting or reporting to divert water from a river or stream. ANR does, however, set minimum flow standards for rivers and streams. ANR restricts water diversions to preserve certain streamflow minimums.[32] ANR determines acceptable minimum stream flows when issuing permits for dams, Clean Water Act water quality certificates, and stream alteration or stream flow regulation, as well as for licensure of the Federal Energy Regulatory Commission (FERC) projects, for projects approved by the Commissioner of Fish and Wildlife and for pre-Act 250 decisions on projects affecting stream flow.[33] Under those permit regimes, ANR requires that permittees report water diversions to ensure that projects do not decrease stream flow beyond the minimum flow rates.

However, ANR does not restrict water diversions under a certain rate regardless of natural instantaneous stream flows.[34] Such diversions are considered *de minimis* and require no

[31] Even Vermont's lake encroachment permit regime does not require riparian landowners obtain a permit to divert water from public waters. Here, DEC's permit system only prohibits structures that extend from the shoreline into the water beyond the mean water level. 29 V.S.A. §§ 404(3), 403(a)(1). Water intake pipes two inches in diameter or smaller are specifically exempt. *Id*. at § 403(b)(2). No water consumption reporting is required. These encroachment restrictions only apply to public lakes and ponds, not rivers or streams.
[32] *Agency Procedure for Determining Acceptable Minimum Stream Flows*, VT AGENCY OF NAT. RES. DEP'T OF ENVTL. CONSERV. (July 14, 1993), https://dec.vermont.gov/sites/dec/files/documents/wsmd-stream-flow-procedure-1993-07-14.pdf [hereinafter *Agency Procedure*]
[33] *Id.*
[34] *Id.*

permitting or reporting. Water users may divert water from rivers and streams at a *de minimis* rate[35] regardless of the stream's current flow rate. These *de minimis* diversions do not trigger 401 water quality certifications to assess Water Quality Standards.[36]

ANR can only enforce minimum flow restrictions on water users who report their consumption. Only permittees for the activities listed above must report water consumption. The practical affect is only permittees are bound by ANR's minimum flow requirements and water quality standards. ANR does not oversee *de minimis* riparian water use. Furthermore, ANR cannot confirm whether riparians are diverting water at a *de minimis* rate or higher. Therefore, ANR has little information to ensure riparians are not decreasing stream flow beyond the minimum flow requirements. As a result, this *de minimis* exception has drowned out the rule.[37]

Though ANR oversees some aspects of water use in the state, Vermont's existing piecemeal regulations focus on water quality over water quantity, and do not directly speak to the issue of surface water usage—aside from snowmaking. H.833 would allow the state to collect much-needed data on water use trends and their associated impacts. This information could then be used to assess the state's options for future water use needs and protective measures, and the appropriate means of oversight, if necessary.

Riparianism in Vermont

Although Vermont's statutes do not directly address surface water diversions, there is a body of state common law addressing surface water use disputes. However, the case-by-case nature of the common law does not provide the certainty and reliability that water users in

[35] "A withdrawal rate equal to or less than .005 cubic feet per second times the drainage area in square miles at the proposed withdrawal site, or 5% of the 7Q10 stream flow is considered a *de minimis* impact on the stream flow." *Id.*
[36] *Vermont Water Quality Standards*, VT AGENCY OF NAT. RES. DEP'T OF ENVTL. CONSERV. (Oct. 30, 2014), https://www.epa.gov/sites/production/files/2014-12/documents/vtwqs.pdf.
[37] *Agency Procedure*, *supra* note 32.

Vermont need with changing water availability and demands. H.833 would provide the state with the necessary information on past, present, and future water uses—and their associated environmental impacts—in an effort to thoughtfully consider plausible solutions to a rising problem.

Vermont's common law of surface water use is referred to as "riparianism." Riparianism refers to the right of so-called "riparians"—those property owners abutting surface water—to use the water flowing through their property "reasonably."[38] A reasonable use is one that does not unduly impair another riparian's reasonable use of the waterway.[39]

"Reasonable use" is not a clearly defined legal rule. Instead, it seems to encourage neighborliness among property owners. As opposed to the "prior appropriation" doctrine of the water-scarce Western states, riparianism does not guarantee pre-existing uses of a specified amount of water or afford them priority over more recent uses.[40] Riparianism has worked well to settle occasional disputes among neighbors, particularly where water is plentiful and demand is low. Historically, however, the doctrine has struggled to address new industrial uses and other developments, such as the mills and quarries of the early twentieth century[41] and the municipal water supplies of the mid-twentieth century.[42] Court decisions sometimes favored the new high-

[38] Johns v. Stevens, 3 Vt. 308, 315–16 (1830) ("each proprietor may use and apply the water, while it runs over his own land, to domestic, agricultural, and manufacturing purposes, provided he uses it in a reasonable manner.").
[39] Kasuba v. Graves, 109 Vt. 191, 198–99, 194 A. 455, 457–58 (1937) ("riparian owners have correlative rights and must so use their own rights as not to deprive others of an equal enjoyment of their same rights" though downstream users must accept "some slight inconvenience or detriment.").
[40] *See* Martin v. Bigelow, 2 Aik. 184 (Vt. 1827) ("the mere prior occupancy of the water by the defendant does not give him a right to prevent the plaintiff from using the same water in a prudent way, as it flows down its channel").
[41] Canfield v. Andrew, 54 Vt. 1, 13 (1882) (riparian's downstream of a sawmill "have no cause for complaint if they are not in any way injured by such diversion."); Snow v. Parsons, 28 Vt. 459, 462 (1856); Ames v. Dorset Marble Co., 64 Vt. 10, 23 A. 857, 857–58 (1892) (addressing sediment deposit from a marble mill which impeded an entering mountain stream, flooding an upland meadow); Kasuba v. Graves, 109 Vt. 191, 202, 194 A. 455, 459 (1937) (stream into which defendant pumped quarry water "was too small for such use. The size and character of the stream and the use to which it is subservient are pertinent for consideration in determining the reasonableness of its use.").
[42] *See, e.g.*, State v. Morse, 84 Vt. 387, 80 A. 189, 191 (1911) (upholding conviction under an ordinance banning bathing in pond used as city water supply because, while bathing was typically a protected riparian right, reasonable

demand use and sometimes ruled against it, creating an overall environment of uncertainty as to how the common law rule of reasonableness would be applied.[43]

Diversions and the Evolution of Riparianism

Initially, riparianism in Vermont limited water rights and use to the tract of land abutting the waterway from which the water was obtained, guaranteeing downstream riparians something approximating "natural flow" through their property.[44] Water impounded or diverted out of the streambed was expected to returned, more or less, to its original channel before leaving a landowner's property. Over time, these restrictions eroded, allowing riparians to divert water out of the stream, use it elsewhere, and even transfer their water rights to others who were not riparian-property owners.[45] In modern riparian jurisdictions, most courts now judge diversions, like other uses, according to the "reasonableness" test.

Riparianism and Interbasin Transfers

An interbasin transfer is a particular type of water diversion in which water is removed from a stream and then moved to an entirely different river basin. The transfer between water systems is significant because any water not consumed by its use will not eventually find its way back into the original watershed. This permanently deprives downstream riparian property

use "depends, among other things, upon what use is made of the water by the lower owners, whose equal rights must be respected."); *see also* Griswold v. Town Sch. Dist., 117 Vt. 224, 225-26, 88 A.2d 829, 830 (1952) (finding against school which had caused a spring to dry up by excavating a hole adjacent to it to supply its own water needs).

[43] *E.g.,* Fire Dist. No. 1 v. Graniteville Spring Water Co., 103 Vt. 89, 152 A. 42, 43 (1930) (subjecting diversion of water for municipal use to reasonable use test and determining that "the question whether the defendant's proposed use and diversion of the water of the Big spring is reasonable or otherwise is one of fact.").

[44] Norton v. Volentine, 14 Vt. 239, 245–46 (1842) ("The dominant proprietor may divert the water from its usual channel, but if it is returned to the same channel before it reaches the land of the next proprietor below, no one can complain. But if the water is diverted into a new channel, and then the new channel obstructed, so as to carry off the water wholly in another direction, from that time a right of action accrues").

[45] Fire Dist. No. 1 v. Graniteville Spring Water Co., 103 Vt. 89, 152 A. 42, 43 (1930) (subjecting diversion of water for municipal use to reasonable use test and determining that "the question whether the defendant's proposed use and diversion of the water of the Big spring is reasonable or otherwise is one of fact.").

owners of the use of the removed water.[46] For example, the recently approved Killington-Pico snowmaking interconnect proposal allows Pico Mountain to source water through a 16,850-foot pipeline from Killington's Ottauquechee river intake.[47] After that snow melts, it will run into the Otter Creek, then into Lake Champlain, rather than returning to its natural flow down the Ottauquechee and Connecticut Rivers.[48]

Previous examples of judicial action on this issue are limited, as the rare large-scale interbasin transfers in riparian states usually resulted in swift legislative action, eliminating the need for litigation under the common law. In Vermont specifically, interbasin transfer issues do not appear to have been litigated to date. Thus, it is difficult to predict how a Vermont court would decide a future interbasin transfer case. Such uncertainty is likely to dissuade developers from investing in interbasin transfer projects and also concern conservationists.[49]

Riparianism's Capacity to Effectively Manage Diversions & Interbasin Transfer Issues in an Era of Climate Change

Predicting the outcome of a common law riparianism action against an interbasin transfer is extremely challenging. Previous cases have not created either a hard-and-fast rule (such as a

[46] *See generally,* Lynda L. Butler, *Allocating Consumptive Water Rights in A Riparian Jurisdiction: Defining the Relationship Between Public and Private Interests*, 47 U. PITT. L. REV. 95, 154–55 (1985).
[47] *Press Release: New Water Source at Pico Mountain Approved; Major Snowmaking Upgrades Underway*, VTDigger (Sep. 23, 2019), https://vtdigger.org/2019/09/23/new-water-source-at-pico-mountain-approved-major-snowmaking-upgrades-underway/.
[48] *See supra* note 25 (defining interbasin transfers and describing the Killington-Pico interconnect).
[49] In the strictest form of riparianism, interbasin transfers would likely be considered unreasonable, because such transfers would not follow the traditional place-of-use restrictions and the guarantee of a "natural flow" to downstream users. Given that Vermont courts abandoned "natural flow" and place-of-use restrictions in favor of "reasonableness," it is unlikely that a modern court would ban an interbasin transfer outright. Instead, a dispute between someone seeking an interbasin transfer and a downstream user would likely be subject to the court's judgment of its "reasonableness." In doing so, the court would consider many factors, including the economic and societal benefits and necessities of each competing use. Commentators agree that such transfers are "vulnerable to challenge" under riparianism, though outcomes may be unpredictable. *See* Catherine D. Little, *Eastern Water Law: Less Water, More Change*, ABA TRENDS, March/April 2008; Robert Haskell Abrams, *Interbasin Transfer in A Riparian Jurisdiction*, 24 WM. & MARY L. REV. 591, 599 (1983); Corwin W. Johnson & Larry D. Knippa, *Transbasin Diversion of Water*, 43 TEX. L. REV. 1035, 1037 (1965); J. W. Looney, *An Update on Arkansas Water Law: Is the Riparian Rights Doctrine Dead?*, 43 ARK. L. REV. 573, 588–89 (1990).

ban and a list of exceptions) or similar facts from which we could anticipate future results. Even if interbasin transfer litigation ensues, the resulting case law will do little to bring clarity to water users. Because future cases would turn entirely upon their specific facts—such as the benefits and harms of each proposed use and the character of the waterways in dispute—predicting the outcome of the next interbasin transfer case will remain difficult even after further cases have been litigated. This may result in such transfers being litigated repeatedly, on a case-by-case basis. Continued litigation of interbasin transfers, while being costly and unpredictable, may also discourage development and fail to adequately protect conservation interests. The existing system will likely fail to meet the needs of both the public and regulated community when subjected to the strain of a changing climate.

Today, Vermont's courts are able to mediate disputes between neighbors, especially where water is plentiful, and demand is not particularly high. However, the courts are ill-equipped to provide predictable, consistent, and efficient outcomes where water is scarce or demands are high, especially in the realm of surface water diversions and interbasin transfers. The proposed Study Group in H.833 will develop the specific knowledge of Vermont's surface water resources so that it can proactively investigate and consider plausible solutions that courts, and other government bodies need, if necessary, to adequately assess future disputes about water use.

Water Use Research in Other New England States

Across the country, states are becoming aware of the challenges climate change and new water use burdens are creating for their citizens. In the Northeast, nearly every state has taken steps to address these pressing problems. Though each state has adopted a different way of addressing these issues, all of these efforts began where this committee stands today: identifying

the issue and committing the resources to studying the state's specific challenges and water resources.

Maine established a water use reporting system in 2001 to help the state gather the information necessary to implement a state water policy.[50] Massachusetts has a Water Resources Advisory Committee that, among other duties, is charged with insuring the "comprehensive and systematic planning management" of water diversions and use in the state.[51]

Connecticut requires existing diversion activities to be registered, while proposed diversions must receive a permit.[52] In each instance, the entity seeking approval for their diversions must submit information on their existing or proposed diversion that will help the state identify its existing water needs and uses.[53] Rhode Island is still in the early stages of developing water use standards that preserve water quantity. However, the state created a Water Resources Board (WRB), tasked with conducting and maintaining an inventory of the state's water resources.[54] The WRB has also contributed to studies concerning how best to measure instream flows for water quantity.

New York's Department of Environmental Conservation conducts extensive planning to protect, conserve, and develop the state's water resources. [55] As part of its planning efforts, New York requires routine monitoring and reporting on water uses and diversions in the state "to accumulate comprehensive data as a basis of providing for their proper conservation, development, regulation and use."[56]

---

[50] 120 ME. LEG. REC. H-1934 (2002) (statement of Rep. Cowger).
[51] MASS. GEN. LAWS ch. 21G, § 3 (2018).
[52] CONN. GEN. STAT. §§ 22a-368, 22a-369 (2018).
[53] *Id.*
[54] 46 R.I. GEN. LAWS § 46-15.7-3 (2018).
[55] N.Y. ENVTL. CONSERV. LAW § 15-0103(12) (2018).
[56] *Id.* §15-0301(3).

New Hampshire has one of the most robust systems of studying water use in New England. The state has been studying its water supply since 2003, when the legislature established a Water Resources Commission to study water-related issues in the state.[57] Factors that lead to the Commission's establishment included increased water demand, changing water availability and quality due to climate change, and the continued need for information on the state's water supply.[58] In 2005, the state introduced new water management laws for the purpose of understanding the effects of water use in the state. The purpose of these rules was to provide "a framework to obtain and maintain basic water use data for the state."[59]

More recently, New Hampshire implemented a pilot program to research instream flow protection on two major rivers, the Lamprey and Souhegan Rivers.[60] At the end of the two-year study period, the commission affirmed the Instream Flow Protection Program's usefulness for the state, describing it as "an investment in the health and wellbeing of the people of New Hampshire."[61] The Commission continued on to say:

> "It is a proactive planning tool that not only addresses current river use but establishes a process for managing the demand for future water uses. Fully implemented, the Program will result in Designated Rivers that have healthy, balanced ecosystems and robust water supplies for drinking water, business and other off-stream uses . . . ."[62]

[57] N.H. REV. STAT. ANN. § 481:1-b (2003).
[58] N.H. DEP'T OF ENVTL. SERVS., NEW HAMPSHIRE WATER RESOURCES PRIMER (2008).
[59] N.H. REV. STAT. ANN. § 488:1 (2003).
[60] N.H. CODE ADMIN. R. ANN. Env-Wq 1900 et seq. (2018).
[61] WATERSHED MGMT. BUREAU & N.H. DEP'T OF ENVTL. SERVS., REPORT OF THE INSTREAM FLOW PILOT PROGRAM R-WD-15-1 14 (2015).
[62] *Id.*

Currently, New Hampshire is preparing to add the Cold River to the list of studied rivers, though the state ultimately plans to bring all major rivers under the program.[63]

Though the mechanisms for combating depleted water supply and riverine health differs among New England states, none would be in place without extensive study and information-gathering on the existing water use in each state. These important first steps allowed the states to identify their state-specific issues and uses (i.e. snowmaking, agriculture, drinking water), the ecological impacts of those uses, the current condition of their waters, and the management options best-suited for their citizens.

Vermont should follow the lead of its New England neighbors and take the first step towards a solution to the problem already well on its way by supporting H. 833. To do so will ensure that the state understands its own specific water supply needs and secures the availability of water well into the state's future.

Conclusion

In conclusion, the Vermont Council of Trout Unlimited, the Connecticut River Conservancy, Vermont Natural Resources Council, and the National Wildlife Foundation's Northeast Regional Center support H.833 because it will allow the state of Vermont to proactively conduct an in-depth study of the state's existing water resources and assess the state's ability to allocate and conserve these resources fairly and efficiently among all Vermonters in coming times of scarcity. Climate change, the introduction of new industries, and changing populations will impact the state's water resources. I would like to thank the

[63] N.H. DEP'T OF ENVTL. SERVS., 2018 INSTREAM FLOW PROGRAMS' PRIORITIZATION OF DESIGNATED RIVER STUDIES (2018).

Committee for its work and for the opportunity to testify today. I am happy to answer any questions that you may have.

Thank you for your consideration.

Respectfully submitted,

/s/ Mason Overstreet
Staff Attorney and Assistant Professor of Law
Environmental Advocacy Clinic at Vermont Law School

On behalf of Vermont Natural Resources Council, Connecticut River Conservancy, Vermont Council of Trout Unlimited, and National Wildlife Federation's Northeast Regional Center