WATER BOUNDARIES

LITTORAL AND RIPARIAN RIGHTS

THE PUBLIC TRUST DOCTRINE

By

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The boundaries of land adjacent to bodies of water depend upon the type of adjacent water:

1) Navigable Lakes and Ponds;

2) Navigable Rivers and Streams; and

3) Non-navigable or artificial water bodies.

Further, the use of the adjacent waters and the submerged lands and the use of the "upland" adjacent parcel are affected by the common law doctrine of littoral and riparian rights and the "public trust doctrine." In addition, the boundary on the aster may be changed by physical change with the shorelines by "accretion" or "reliction."

A. WHAT ARE "NAVIGABLE WATERS"

Upon admission as a new state of the United States of America, Vermont obtained title in its sovereign capacity to the navigable waters and lands thereunder to the high water mark. Following its admission, generally a new state could alter such control of navigable water and submerged land according to its own state law. In particular, a new state can determine the boundary of ownership of littoral and riparian owners. Hardin v. Jordan, 140 U.S. 371, 381–82 (1891).

1. Historical View of Navigable Waters

Under English Common Law, only tidal waters were considered navigable. For discussion see New England Trout and Salmon Club v. Mather, 68 Vt. 341–45 (1896). The "tidal" concept was abandoned by the United States for commerce and admiralty jurisdiction in favor of a "navigability in fact" test. The Propeller Genesee Chief v. Fitzhugh, 53 U.S. 443 (1851).

This "navigability in fact" test also defined the limits of grants of lands by the United States, the submerged land below waters navigable in fact: "properly belongs to the States by their inherent sovereignty, and the United States has wisely abstained from extending (if it could extend) its survey and grants beyond the limits of high water." Shively v. Bowlby, 152 U.S. 8, 43–44 (1894).

2. Navigable Waters in Vermont

In Vermont there is an interplay between two definitions:

(1) "navigable waters"; and

(2) "boatable waters"

The preeminent case on the issue is New England Trout and Salmon Club v. Mather, 68 Vt. 338 (1896), which is still good law. See Cabot v. Thomas, 147 Vt. 207 (1986).

In Mather, the Court explored the right to fish in Marlboro Pond, an isolated pond of 73 acres with a small brook at its outlet.

> We hold, therefore, that boatable waters, within the meaning of the [Vermont] Constitution, are waters that are of "common passage" as highways.
>
> The rule by which to determine whether waters are of "common passage" as highways or not is variously stated but clearly enough defined. **The test of navigability of a river is, as stated by the Supreme Court of the United States, whether it can be used in its ordinary condition as a highway for commerce,** conducted in the customary mode of trade and travel on water. And they constitute navigable waters of the United States when they form in their ordinary condition, by themselves or by uniting with other waters, a continuous highway over which commerce is or can be carried on with other states or foreign countries in the customary modes in which such commerce is conducted by water. The Daniel Ball, 10 Wall. 557. If, however, they do not thus form such continuous highways, but are navigable only between places in the same state, they are not navigable waters of the United States, but only of the state. The Montello, 11 Wall. 411. Hence, the capability of use by the public for the purposes of transportation and commerce affords the true criterion of the navigability of a river rather than the extent or the manner of that use. If it be capable in its natural

state of being used for purposes of commerce, no matter in what mode the commerce may be carried on, it is navigable in fact, and therefore becomes in our law a public river or highway. The Montello, 20 Wall. 430. It is not, however, as Chief Justice Shaw said in Rowe v. The Granite Bridge Co., 38 Mass. 344, "every small creek in which a fishing skiff or gunning canoe can be floated at high water that is deemed navigable; but in order to have this character it must be navigable to some purpose useful to trade or agriculture."

. . .

In Brown v. Chadbourne, 31 Me. 9, 50 Am. Dec. 641, a leading case on this subject, much cited in other jurisdictions, it is said that the distinguishing test between rivers that are entirely private property and those that are private property subject to public use and enjoyment, consists in whether they are susceptible or not of use as a common passage for the public; that **the true test whether a highway or not is, whether the stream is inherently and in its nature capable of being used for the purposes of commerce, *for* the floating of vessels, boats, rafts, or logs**; that when a stream possesses such a character, the easement attaches, leaving to the owners of the bed all other modes of use not inconsistent therewith.

In Morgan v. King, 35 N.Y. 454, the true rule is said to be, that the public have a right of way in every stream that is capable in its natural state and its ordinary volume of water, of transporting in a condition fit for market, the products of the forests or the mines or the tillage of the soil upon its banks. In the recent case of Haywood v. Farmers' Mining Co., South Carolina, 28 L.R.A. 42, the question is fully considered and the test said to be, navigable capacity, and not that the surroundings should be such that the stream may be useful for the purposes of commerce, for, it is said, the stream may not be useful for commerce at one time and yet circumstances may make it so at another time. The cases are generally to the same effect. And they all agree that it is not necessary to the right that the stream should have been used as a highway; it is enough if it is capable of such use. Nor is it necessary that it should have that capacity at all seasons of the year. It may be subject to periodical fluctuations in the volume and height of its water, attributable to natural causes and recurring with the seasons, yet if its periods of high water ordinarily continue a sufficient length of time to make it useful as a highway, it is subject to the public easement. **But the easement is not confined to business merely it extends to pleasure as well, the same as does the easement of a highway by land**. [Citation omitted. Bold added]

As a general proposition, waters above the tide are, prima facie, private in use as well as ownership, and he who asserts the contrary must prove it. [Citations omitted.] And whether such waters are, in the given case, inherently capable of use as a common passage for the public, is a question of fact, and he who asserts

> that they are must prove it, unless the court can take judicial notice that they are, as perhaps it can in some cases.
>
> . . .
>
> [T]he Constitution itself, in the provision under consideration, affords the test by which to determine over what waters the state has jurisdiction, de jure, thus, "and in like manner to fish in all boatable and other waters (not private property) under proper regulations to be hereafter made and provided by the General Assembly." Thus was jurisdiction expressly reserved to the State over boatable waters and other waters not private property. State v. Norton, 45 Vt. 258; Brew v. Hilliker, 56 Vt. 641. Such waters, therefore, are "public waters" within the statutory definition of that term. Hence, unless the waters in question are boatable, they are not public, but private, and the State has no jurisdiction over them. But if they are boatable, and therefore public, yet the defendant is liable in trespass for crossing the plaintiff''s land against its will to reach them, though for the purposes of taking fish therefrom . . . .

New England Trout and Salmon Club v. Mather, 68 Vt. 338, 345–49 (emphasis added).

The issue of "navigable" or "boatable" was next discussed in Boutwell v. Champlain Realty Co., 89 Vt. 80 (1915), wherein the Court found that the White River up to the plaintiff"s farm in Rochester was "boatable":

> This court will also take judicial notice that White River is one of the larger rivers of the State, is non-tidal, and empties into the Connecticut at Hartford, this State; but whether it is a boatable stream in its natural state and therefore a public highway, especially as far up as the plaintiff's farm, is a question of fact not alleged in the bill, and of which judicial notice is not here taken. New England Trout and Salmon Club v. Mather, 68 Vt. 338, 35 A. 323, 33 L.R .A. 569. It was held in that case that boatable waters, within the meaning of the Constitution, are waters that are of "common passage" as highways; that the capability of use by the public for the purposes of transportation and commerce, rather than the extent or manner of such use, affords the criterion by which the navigability of a river is to be determined; and that if it be capable in its natural state of being used for purposes of commerce, carried on in any mode, it is navigable in fact, and therefore is in our law a public river or highway. In support thereof, the case of Brown v. Chadbourne, 31 Me. 9, 50 Am. Dec. 641, is noticed as a leading case on the subject, wherein the true test to be applied in such cases was held to be, whether the stream is inherently and in its nature, capable of being used for the purposes of commerce, for the floating of vessels, boats, rafts, or logs; and that when a stream possesses such a character, the easement exists, leaving to the owners of the bed, all other modes of use not inconsistent therewith.

. . .

> **It has been held that the Legislature can not make a stream navigable by declaring it to be so if in fact it is not**. [Citations omitted.]
>
> . . .
>
> **Considering the stream as boatable in its natural state, the public . . . [has] the right to use it as a public highway for the floating of logs; and the rights of the riparian owners are subject to such use, if reasonably exercised**. [Citations omitted.]
>
> The test of reasonableness, the want of which is negligence, is the conduct of a careful and prudent man in like circumstances. This is but the exercise of ordinary care, and is the true measure of requirement in such cases.

Boutwell v. Champlain Realty Co., 89 Vt. at 86–87, 89–90.

The Mather decision was widely quoted and cited with approval in Cabot v. Thomas, 147 Vt. 207 (1986):

> As a definite low water line exists along Charcoal Creek, plaintiffs' ownership extends to that line. State v. Cain, 126 Vt. 463, 468, 236 A.2d 501, 505 (1967); Hazen v. Perkins, 92 Vt. 414, 419, 105 A. 249, 251 (1918). Defendants contend, however, that notwithstanding private ownership of the underlying lands, the public enjoys the right to hunt from boats on the waters overlying plaintiff's marsh to the ordinary high water line.
>
> Essentially, defendants and amicus curiae, the Vermont Agency of Environmental Conservation, argue that the public has a navigational easement across the waters overlying plaintiffs' land between the ordinary low and high water lines, and that this easement permits recreational uses as well. Among the recreational uses the public enjoys as of right, according to defendants and amicus curiae, are hunting and fowling.
>
> [At Common Law] [w]aterways overlying private property were not in every instance entirely private, however. Tidal waters could not be privately owned. See [New England Trout and Salmon Club v.Mather, 68 Vt. at 342]. Although an individual could own inland lakes and rivers, the public could use them for navigational purposes if the waterways were susceptible to use for commercial passage and transportation. Id. at 342–43, 35 A. at 324. Thus, the common law recognized a "public easement" for navigation on such waters. Id. at 347, 35 A. at 326.

This public right of passage did not initially include a right to fish or hunt on nontidal waterways. The right of fishery was personal to the owner of the underlying land. See 1 R. Clark, Waters and Water Rights 182 (1967). Also personal to the landowner was the rule to hunt and fowl on those overlying waters. See, e.g., Schulte v. Warren, 218 Ill. 108, 122, 75 N .E. 783, 786 (1905); Sterling v. Jackson, supra, 69 Mich. at 501, 37 N.W. at 853; Fisher v. Barber, 21 S.W.2d 569, 570 (Tex. Civ. App. 1929).

Chapter II, Section 67 extended rights to citizens which the common law had not recognized. Cf. Payne v. Sheets, supra, 75 Vt. at 347, 55 A. at 660 ("the common law . . . is somewhat modified [by Section 67]"). It recognized rights to hunt and fish, given certain circumstances, in what had previously been the landowner's private domain.

In New England Trout & Salmon Club v. Mather, supra, this Court, focusing on the right to fish, reasoned that the constitutional provision at issue does more than just recognize a right to fish in boatable waters under appropriate legislative regulation; it also:

> affords the test by which to determine over what waters the State has jurisdiction de jure, thus, "and in like manner to fish in all boatable and other waters (not private property) under proper regulations to be hereafter made and provided by the General Assembly." Thus was jurisdiction expressly reserved to the State over boatable waters and waters not private property . . . . Hence, unless the waters in question are boatable, they are not public, but private, and the state has no jurisdiction over them.

Mather, supra 68 Vt. at 348-49; 35 A. at 326 (citations omitted); see also Boutwell v. Champlain Realty Co ., 89 Vt. 80, 89, 94 A . 108, 112 (1915). By imposing the compatibility requirement, section 67 also limits the State's authority to enforce and regulate an easement across waters overlying an individual's private land. In this way, section 67 incorporates protections for landowners as well as for those who fish.

Mather's reasoning in the context of fishing applies equally to Section 67's hunting provision. By virtue of Section 67, the state has authority to permit and regulate public hunting on private property, but only when that land is not enclosed.

If landowners fail to take adequate measures to enclose their lands, then individuals who hunt there without first seeking permission would not normally be trespassers. Payne v. Gould, supra, 74 Vt. at 210–11, 52 A. at 422. We believe that the presence of water, whether boatable or nonboatable, is irrelevant for

> purposes of Section 67's right to hunt on nonenclosed, privately owned land. By attaching "boatable waters" and "lands not enclosed" limitations on the respective rights of fishing and hunting**, the Vermont Constitution has designated those points beyond which private property becomes inviolate for fishing and hunting purposes—nonboatability for the former and enclosure for the latter.** Development of the common law must, of course, accommodate these constitutional principles.
>
> Defendants correctly state that most states now interpret their common law to extend the navigational easement to include most water-related recreational activities, including hunting from boats. 1 Clark, supra, at 198–99. As noted previously, this was not always so. Moreover, those states do not have provisions like Chapter II, Section 67 of the Vermont constitution to limit the evolution of their common law.
>
> . . .
>
> Water level on a single day will not normally support a finding of boatability or nonboatability for a body of water subject to seasonal fluctuations. See Mather, supra, 68 Vt. at 347, 35 A. at 326 ("if [the lake's or stream's] periods of high water ordinarily continue a sufficient length of time to make it useful as a highway, it is subject to the public easement"). Nor, logically, can an injunction affecting a large area rest on a finding merely that a single point in that area is nonboatable.

Cabot v.Thomas, 147 Vt. 207, 212–214 (1986).

The Court also used "navigable" and "boatable" waters interchangeably in the State v. Cent. Vermont Ry., Inc., 153 Vt. at 337 (1989).

The "navigable in fact" or "boatable" criteria for waters to be navigable or public waters has been incorporated into statute.

10 V .S.A. § 1422:

> (4) "Navigable water" or "navigable waters" means Lake Champlain, Lake Memphremagog, the Connecticut River, all natural inland lakes within Vermont and all streams, ponds, flowages and other waters within the territorial limits of Vermont, including the Vermont portion of boundary waters, which are boatable under the laws of this state.

10 V.S.A. § 1422:

> (6) "Public waters" means navigable waters excepting those waters in private

> ponds and private preserves as set forth in sections 5204, 5205, 5206 and 5210 of this title.

10 V.S.A. § 5210:

> A person owning a natural pond of not more than 20 acres or an artificial pond entirely upon his or her premises, stocked at his or her own expense with fish artificially hatched or reared, may take fish from such pond at any time for the purpose of propagation or consumption as food on his or her premises, provided that the sources of water supply for such pond are entirely upon his or her premises or that fish do not have access to such pond from waters not under his or her control or from waters stocked at the expense of the state.

29 V.S.A. § 402:

> (4) "Navigable water" or "navigable waters" means those waters as defined in section 1422 (4) of Title 10.

29 V.S.A. § 402:

> (7) "Public waters" means navigable waters excepting those waters in private ponds and private preserves as set forth in 10 V.S.A. chapter 119.

While the boatable or navigable test established by Mather seems to be still good law, its application to streams and rivers apparently has not been tested since the Boutwell decision in 1915. It is interesting to note that during such time "navigability" in Federal law has changed dramatically, particularly in the context of the Rivers and Harbors Act, 33 U.S.C.A. § 403:

> [T]he meaning of "navigability" has progressed from waters actually in use [The Daniel Ball,77 U.S. (10 Wall.) 557, 19 L.Ed. 999 (1870)] to those that used to be navigable [Economy Light & Power Co. v. United States, 256 U.S. 113, 41 S.Ct. 409, 65 L.Ed. 847 1921); United States v. Holt State Bank, 270 U.S. 49,46 S.Ct. 197, 70 L.Ed. 465 (1926) (only by canoe)] to those that by "reasonable improvements" could be made navigable [United States v. Appalachian Elec, Power, 311 U.S. 377, 408, 41 S.Ct. 291, 299, 85 L.Ed. 243, 253 (1940)] to nonnavigable tributaries affecting navigable streams [Oklahoma ex rel. Phillips v. Guy F.Atkinson Co., 313 U.S. 508, 529, 61 S.Ct. 1050, 1061,85 L.Ed. 1487, 1502 (1941)].
>
> Rodgers', Environmental Law § 4.12.C. at 194 (West 1986).

The general definition of navigable waters in the Code of Federal Regulations is in 33 CFR 329.4:

> Section 329.4 - General definition
>
> Navigable waters of the United States are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity.

B. BOUNDARIES ON "NAVIGABLE WATERS"

1. Boundary of Navigable Waters - History

The maximum extent of ownership by a state of navigable waters and lands beneath is the high water mark of waters which are navigable. An individual state, however, may alter such control according to its own state law:

> With regard to grants of the government for lands bordering on tide-water, it has been distinctly settled that **they only extend to high-water mark, and that the title to the shore and lands under water in front of lands so granted inures to the state within which they are situated**, if a State has been organized and established there. Such title to the shore and lands under water is regarded as incidental to the sovereignty of the State - a portion of the royalties belonging thereto and held in trust for the public purposes of navigation and fishery, and cannot be retained or granted out to individuals by the United States. (emphasis added; citations omitted.) Such title being in the State, the lands are subject to state regulation and control, under the condition, however, of not interfering with the regulations which may be made by Congress with regard to public navigation and commerce.

Hardin v. Jordan, 140 U.S. 371, 381–82 (1891).

2. Boundary of Navigable Waters on Lakes and Ponds in Vermont

The establishment of the boundaries between the state ownership of land under navigable public waters and the ownership of land adjoining such water is not completely settled in

Vermont.

The first case to discuss boundaries on public waters was in Fletcher v. Phelps, 28 Vt. 257 (1856), a case determining the boundaries of land conveyed which was "bounded on Lake Champlain." The Court held:

> [W]here land is conveyed bounded on large natural ponds or lakes; in such case, the grant extends to the water's edge, or if . . . the lake or pond have a definite low water line, the grant will extend to the low water mark. (Emphasis added).
>
> In relation to the premises in question, so far as they are bounded on the lake [Champlain]. . . [t]he line extends to edge of the water at low water mark. The same rule . . . should be applied to land bounded on this creek. (Id. at 262).

In this case the court laid out two alternative boundaries:

1) the water's edge; or

2) the low water mark, if there is a definite line.

However, the Court applies the rules as if they were one and the same.

The next case discussing the boundary was Jakeway v. Barrett, 38 Vt. 316 (1865), where the Court held: "lands bounded on Lake Champlain extend to the edge of the water at low water mark." Id. at 323.

Then, in Austin v. Rutland R.R. Co., 45 Vt. 215, 242 (1873), the Court stated:

> [L]ot No . 10 extended to low water mark . . . . The right of the plaintiffs is thus conceded to the utmost limit of title and ownership in the soil known to the law . . . . It is not denied that the lake is "navigable water," in the sense of the law governing public and private rights in respect thereto.

This language appears to move away further from the alternative water's edge to the boundary as solely being "low water mark."

The adoption of the "low water mark" as the boundary between private or public ownership seems to be complete in McBurney v.Young, 67 Vt. 574 (1895) wherein the Court

adopts "mean ordinary low water mark" as the boundary.

> Both parties concede that by the law of this state, the plaintiff's land does not extend beyond low water mark. Such is the law of this state [citing Fletcher, Jakeway, and Austin]. The contention is over the meaning of the term "low water mark . . . ." By the common law all that portion of land on tidewaters between high and low water mark, technically known as the "shore," originally belonged to the crown, and was held in trust by the King for public uses, and was not subject to private uses without a special patent or grant.
>
> . . .
>
> Lake Champlain is a public, navigable water . . . . We think that upon reason and authority, low-water mark, as a terminus of boundary, must be held to **mean ordinary low-water mark**.

McBurney v. Young, 67 Vt. 574, 576, 579 (1895).

However, the Court later re-introduced the dual boundary standard in Hazen v. Perkins, 92 Vt. 414, 419 (1918):

> Being public waters according to the test afforded by the Constitution, the grants of land bounding upon the lake pass title only to the water's edge, or to low-water mark if there be a definite low-water line. (Citing Fletcher, Jakeway, and Austin.)

See also Donahue v. Conant, 102 Vt. 108 (1929).

In its most recent opinion on the issue of the boundary between public and private land, the court specifically addresses the standard to be used, adopted the dual standards, and discussed some possible issues raised by such standards. State v. Cain, 126 Vt. 463 (1967), was the result of owners of property adjoining Lake Champlain starting to fill in a portion of the lakeshore in front of their property. The issue as presented to the Court was as follows:

> [T]he only material question for the Court's determination is the fixing from a physical standpoint of the "ordinary low water mark" of Lake Champlain, since this mark, under McBurney v. Young, 67 Vt. 574 [1895] [32 A. 492, 29 L.R.A. 539], is the boundary line between the public lands underlying the lake and the riparian lands of the defendants.

State v. Cain, 126 Vt. at 465.

The parties disagreed over the data on which to base the "ordinary low water mark." The parties put forth several possibilities:

- the "average of the lowest levels . . . reached by the Lake in each year"; or
- "the lowest elevation point to which the lake had receded"; or
- "the arithmetic mean or average of all the daily water level readings below the mean lake level".

In its decision, the Vermont Supreme Court rejected those three averages of lake levels which were put into evidence by the parties and accepted by the lower court in the case. Instead the Court held:

> In employing the phrase "ordinary low water mark" in McBurney v. Young, supra, this Court did not explicitly define the term used. The Supreme Judicial Court of Massachusetts was called upon to define this term in East Boston Co. v. Commonwealth, 203 Mass. 68, 89 N.E. 236, at p. 237. While the factual question before the Massachusetts court was as to the meaning of "ordinary low water mark" as applied to land abutting on salt water, we believe it to be equally applicable to the question presented here.
>
> The quoted words suggest at once a distinction between the line indicated and absolute low-water mark, or extreme low-water mark. The language is "ordinary" low-water mark, which seems to imply that there is some recognized line to which the tide usually ebbs. But the evidence shows that this is not the fact. The line of low water, like the line of the high water, is gradually and constantly changing from day to day in different parts of the month, and in different parts of the year, from the highest spring tides to the lowest neap tides. **If the distinction intended is between the extreme low-water mark and the ordinary or common line of low water, having reference to all times, and all seasons, the only way of reaching a correct result is to take the average of the low tides, which gives us the line of mean low water**.
>
> The opinion also states that the word "ordinary" when applied to a high or low water mark, has generally been used in the sense of average in the courts of this country, and of England.

> Lake Champlain is not subject to tidal action as in the case of the sea, but the evidence in the record below is undisputed that there is an almost daily variation in the level of the lake, and the reasoning above given is applicable. **The Chancellor, in selecting the intermittent lowest levels over the 37 year period, ignored the ordinary mean low water mark in favor of the extraordinary low water levels, excluding drought years. This was in error.**

However, the Court cautioned that prior to resorting to a mathematical formula for measuring the "the water's edge," it first must be determined whether there is a "definite low water line." State v. Cain, 126 Vt. at 467.

The Court instead states that if a mathematical average is to be used then it should be the average of the low water levels of the lake.

Following, and in direct response to, the Cain & Burnett case and the filling which was the subject of the case, the State enacted a statute in 1969, which, in part, is set in law as 29 V.S.A § 401, providing in part:

> For the purposes of this chapter, jurisdiction of the department shall be construed as extending to all lakes and ponds which are public waters and the lands lying thereunder, which lie beyond the shoreline or shorelines delineated by the mean water level of any lake or pond which is a public water of the state, as such mean water level is determined by the board.

That section now reads:

> **§ 401. Policy**
>
> Lakes and ponds which are public waters of Vermont and the lands lying thereunder are a public trust, and it is the policy of the State that these waters and lands shall be managed to serve the public good, as defined by section 405 of this title, to the extent authorized by statute. For the purposes of this chapter, the exercise of this management shall be limited to encroachments subject to section 403 of this title. The management of these waters and lands shall be exercised by the Department of Environmental Conservation in accordance with this chapter and the rules of the Department. For the purposes of this chapter, jurisdiction of the Department shall be construed as extending to all lakes and ponds which are public waters and the lands lying thereunder, which lie beyond the shoreline or shorelines delineated by the mean water level of any lake or pond which is a public water of the State, as such mean water level is determined by the Department. For the purposes of this chapter, jurisdiction shall

include encroachments of docks and piers on the boatable tributaries of Lake Champlain and Lake Memphremagog upstream to the first barrier to navigation, and encroachments of docks and piers on the Connecticut River impoundments and boatable tributaries of such impounds upstream to the first barrier to navigation. No provision of this chapter shall be construed to permit trespass on private lands without the permission of the owner. (Added 1967, No. 308 (Adj. Sess.), § 1, eff. March 22, 1968; amended 1969, No. 281 (Adj. Sess.), § 1; 1975, No. 162 (Adj. Sess.), § 1, eff. March 15, 1976; 1981, No. 222 (Adj. Sess.), § 41; 1987, No. 76, § 18; 2003, No. 115 (Adj. Sess.), § 110, eff. Jan. 31, 2005; 2009, No. 117 (Adj. Sess.), § 1.)

In 1971, Professor Richard Downer, a professor at the University of Vermont undertook a study of the lake levels under a grant from the United States Department of the Interior, Office of Water Resources Research. In his study, Professor Downer states:

> MEANS OF VALUES ABOVE AND BELOW THE MEAN
>
> The Vermont Supreme Court has attempted to define the ordinary low-water level of Lake Champlain in the case of State of Vermont vs L. John Cain and Norman A. Burnett, 126 Vt. 463, 236 A. 2nd 501 (1967). In this case the state contended that the term "ordinary low-water mark" meant the low-water level representing the arithmetic mean or average of all the daily water-level readings below the mean level, as recorded over a period of years. This contention was accepted by the court. The record discloses that this method of computation is the one used by both the State of New York and the Commissioner of Water Resources for the State of Vermont in determining the ordinary low water level of Lake Champlain.

(Emphasis added). Based on the above definition, Professor Downer calculated the ordinary low and high-water levels from all available official daily records for Burlington and Rouses Point (Table 3).

TABLE 3

Mean-, Ordinary Low-, and Ordinary High-
Water Levels of Lake Champlain at
Burlington, Vermont, and Rouses Point, New York

Station	Mean, feet msl	Ordinary low water, feet msl	Ordinary high water, feet msl	Record length, years
Burlington	95.45	94.22	97.00	63
Rouses Point	95.32	94.10	96.82	100

Following the publication of the Downer study, in 1972 the Water Resources Board of the State of Vermont adopted rules pursuant the 1969 statute, which established the "Mean Water Level" for the Board jurisdiction:

> RULES DETERMINING MEAN WATER LEVELS (amended December 30, 2011)
>
> "Mean water level" for purposes of section 401 of Chapter II of Title 29, Vermont Statutes Annotated, and "normal mean water mark" for purposes of section 1101(6) of Chapter 34 of Title 10, Vermont Statutes Annotated, shall be determined according to the following rules:
>
> Rule 1. For Lake Champlain, 95.5 feet above mean sea level NGVD 29.
>
> Rule 2. For those lakes and ponds that have an artificial structure which controls the flow of water at the outlet, the elevation of the spillway plus the mean depth of flowage over the spillway as measured during the period June 1 to September 15 or, if water does not consistently flow over the spillway, the mean water level which has been customarily maintained during the said period;
>
> Rule 3. For those lakes and ponds that have natural outlets, exclusive of Lake Champlain, the mean water level shall be the elevation of the low point in the natural control section plus the mean depth of flowage over it as measured during the period June 1 to September 15;
>
> Rule 4. Rules 2 and 3 above do not apply to lakes and ponds for which the Water Resources Board or Water Resources Panel has promulgated rules or may in the future promulgate rules pursuant to 10 V.S.A. 6025 (d)(1). For such lakes and ponds the level shall be the highest of any

> such levels established by the Board or Panel to be maintained during the period June 1 to September 15;
>
> Rule 5. The Department of Environmental Conservation shall collect water level data on lakes and ponds and shall determine mean water levels pursuant to these Rules 2 and 3 based upon that data, hydrological or hydraulic analyses, watermarks or similar data or methods.
>
> A list of the surface levels which have been established is attached.

Since the adoption of that rule in 1972 which was based upon the 1971 Downer study, surveyors and landowners and towns and regulators have often referred to 95.5' above sea level (ASL) to be the boundary between private and public ownership even though such level is the calculated **"mean"** and **not the calculated "ordinary low water".**

Under the Supreme Court's ruling in <u>Cain & Burnett</u>, if there is no definite low water mark, then the correct calculation to use would be 94.22' ASL not 95.5'ASL.

However, a recent study of the water level data records of Lake Champlain found that Professor Downer's calculations were incorrect and that the lake levels have actually risen over the past forty years.

In 2014, Brendan R. Murphy (yes, my son), then a senior at Champlain Valley Union High School, undertook (with a little encouragement from his dad) a re-analysis of the Lake Champlain water level data as his senior project. This data was reviewed and verified by Professor Downer, who recently retired from UVM. A copy of his paper is attached, but his findings are interesting and may have an effect on the boundary calculations on Lake Champlain:

> Initially, the analysis tried to recreate Downer's analysis of the available data from 1907 to 1971. However, the re-analysis does not match the original data analysis as to the various mean water levels. The comparison of Professor Downer's calculations and the updated calculations for 5/1/1907 to 5/1/1971 is located in Table 3.
>
> **Table 3.**

Burlington	Mean, feet msl	Ordinary Low Water, feet msl	Ordinary High water, feet msl	Period of Record
Downer (1971)	95.45	94.22	97.00	1907-1971
Murphy (2014)	95.633	94.456	97.264	1903-1971
Difference	0.183	0.236	0.264	

The reason for the difference lays with the disparity in available technology. While it is easy today to sum, search, and manipulate a list of nearly forty thousand values in seconds, the same could not be said for when Professor Downer did his work in 1970. While able to utilize a computer, it was still in the days of monolithic mainframes, punch cards, and several hour-long waits for calculations. In order to make the time invested feasible, according to Dr. Downer, only the extreme daily values were used in his study and not every daily value. However, since we now have the technology available to calculate the daily data quickly, this study used all the daily data points in accordance with the original stated intention of the Vermont Court in order to get a true mean value based upon a daily average of low water levels.

The comparison of Professor Downer's calculations for 63 years 1907 to 1971 and the updated calculations for 106 years 5/1/1907 to 12/2/2013 is located in Table 4.

Table 4.

Burlington	Mean, feet msl	Ordinary Low Water, feet msl	Ordinary High water, feet msl	Period of Record
Downer (1971)	95.45	94.22	97.00	1907-1971
Murphy (2014)	96.032	94.846	97.637	1907-2013
Difference	0.582	0.626	0.637	

The comparison of Professor Downer's calculations for 63 years from 5/1/1907 to 5/1/1971 and the updated calculations for 74 years 8/30/1939 to 12/2/2013 during the period while only automated recording were made is located in Table 5.

Table 5.

Burlington	Mean, feet msl	Ordinary Low Water, feet msl	Ordinary High water, feet msl	Period of Record
Downer (1971)	95.45	94.22	97.00	1907-1971
Murphy (2014)	96.104	94.958	97.678	1939-2013
Difference	0.654	0.738	0.678	

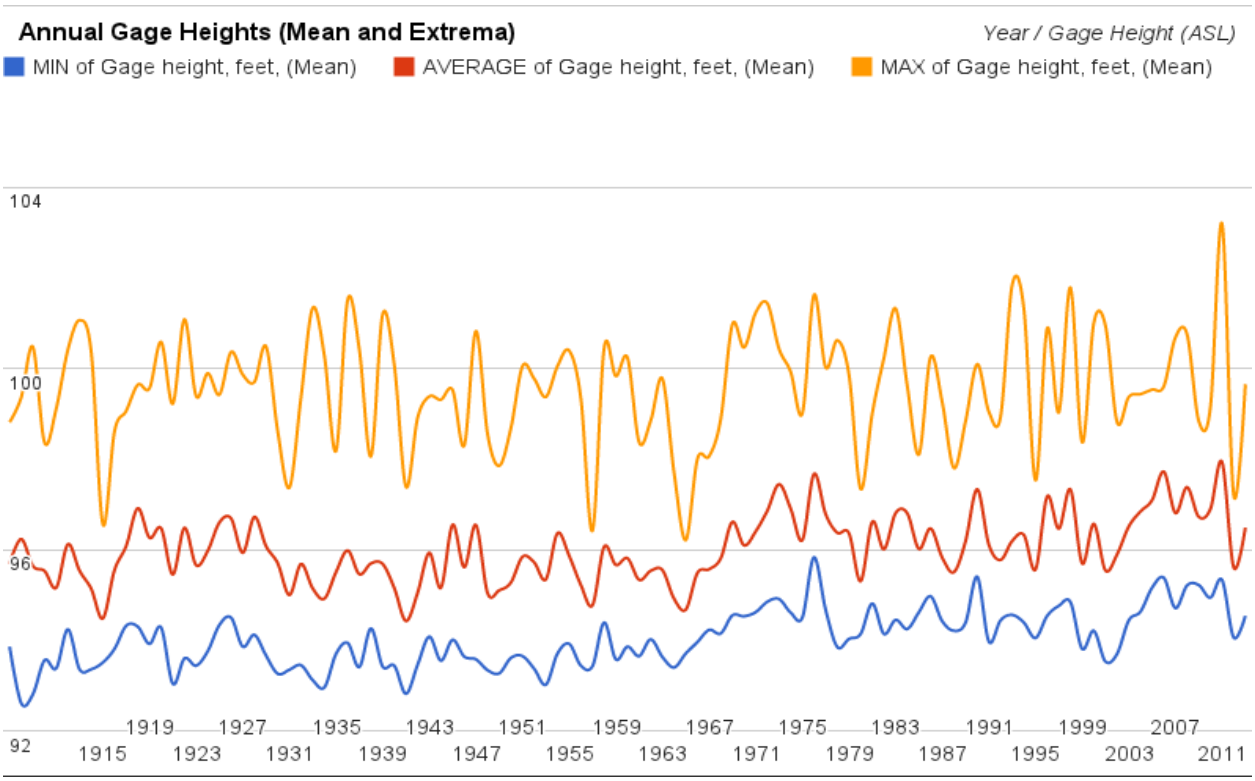
The comparison of the updated calculations for 106 years from 5/1/1907 to 12/2/2013 and the updated calculations for the last 42 years from 5/1/1971 to 12/2/2013 is located in Table 6.

Table 6.

Burlington	Mean, feet msl	Ordinary Low Water, feet msl	Ordinary High water, feet msl	Period of Record
Murphy (2014)	96.032	94.846	97.637	1907-2013
Murphy (2014)	96.523	95.431	98.002	1971-2013
Difference	0.491	0.585	0.365	

The graph of annual minimum, mean, and maximum lake levels from 1907 to 2013 is located in Graph 1.

Graph 1.



Why the changes? First, the Murphy study suggests more accurate analysis of the data.

Second,

> Lake Champlain drains north through the Richelieu River in Quebec, eventually draining into the St. Lawrence River. In the early 1970s, construction on the Chambly Canal, approximately 30 miles north of the northerly end of Lake Champlain, restricted the flow of the river causing drainage of Lake Champlain to flow through a smaller bottleneck, slowing down the flow of water draining from the lake and leading to higher lake levels.

And finally,

> Isostatic rebound is the act of the land raising back into position after glacier movement. According to Professor Downer, it can best be analogized to pressing down on a sponge. When released, it will rebound into shape, but somewhat unevenly. In the case of Lake Champlain, the south rebounded faster than the north. This inequality is now being corrected. As the north rises, the hydraulic pressure pushing water down the Richelieu River lessens. This is especially

> concerning given that the upper part, the Haut Richelieu, drops an insignificant 0.3 m over 35 km. This, combined with the aforementioned constriction of the river, contributes greatly to the increase in lake level—up to half a foot according to one study (Shanley). Somewhat surprisingly, both Professor Homziak and Professor Downer believe that climate change is one of the more minimal factors.

So if a court were to decide today and use the currently available data it might find that the ordinary mean low water of Lake Champlain based upon the available records from 1907 to 1913 is 94.846 ASL or it might find that the new ordinary mean low water of Lake Champlain should be based upon the levels for the last forty years given the changes affecting the lake levels, which level would be 95.431ASL, or remarkably close to the current 95.5'ASL currently used by many surveyors anyway.

3. Boundary of Navigable Waters and Navigable Rivers and Streams in Vermont

Vermont cases dealing with boundaries on navigable rivers and streams generally hold that the riparian owners own to the "middle or thread of the channel" of the river or stream:

> It has long been held in this state that whether land is sold, bounded by a river or stream, the grant extends to the middle of the channel, unless the grant expressly provides otherwise. See Fletcher v. Phelps, 28 Vt. 257, 262 (1856). The grantee takes to the center if the granter owns so far. See Holden v. Chandler, 61 Vt. 291, 292, 18 A. 310, 310 (1888).

Town of Castleton v. Fucci, 139 Vt. 598, 600 (1981). See also Miller v. Mann, 55 Vt. 475, 480 (1882) ("If he owned to the river he owned and conveyed to the thread of it, that is, the thread of the main channel.").

Notwithstanding this long held view that the adjacent riparian landowner owns to the

thread or middle of the navigable river or stream, the title to such land has been called into question by cases dealing with the "public trust doctrine." In the recent case State v. Central Vermont Railway, Inc., 153 Vt. 337 (1989) the Court stated:

> Under the public trust doctrine, the lands submerged beneath navigable waters are "held by the people in their character as sovereign in trust for public uses for which they are adapted." Hazen v. Perkins, 92 Vt. 414, 419, 105 A. 249, 251 (1918). [Hazen dealt with a lake bed.]

If this language of Central Vermont Railway is taken literally, then title to the bed of lands submerged beneath navigable rivers and streams are by the state and not by the adjacent riparian owners.

In regard to boundaries on rivers, it is interesting to note that Vermont's easterly boundary is located at the low water mark of the Connecticut River. In the boundary dispute case of Vermont v. New Hampshire, 290 U.S. 579, 54 S.Ct. 265, 78 L.Ed. 513 (1934); Vermont v. New Hampshire, 289 U.S. 593, 596, 53 S.Ct. 708, 709–710, 77 L.Ed. 1392 (1933), the commissioner appointed to hear the arguments of the two states summarized this interesting case:

> Vermont's claim of a boundary at the thread of the channel was based upon the following propositions: township grants made by the Governor of the Province of New Hampshire, by royal authority, between 1741 and 1764, on the west side of the Connecticut River in the territory now Vermont, were bounded by the river, which was nontidal, and carried title to its thread by virtue of the common law of England; an order of the King-in-Council of July 20, 1764, fixing the boundary between the provinces of New York and New Hampshire at the "western banks of the River Connecticut," thus including the territory now Vermont in the province of New York, was nullified by the successful revolution of the inhabitants of the New Hampshire grants; hence the eastern boundary of the revolutionary state of Vermont was the same as the eastern limits of the township grants—namely, the thread of the river; Vermont was admitted to the Union as a sovereign independent state with her boundaries those established by her revolution. Her eastern boundary was therefore the thread of the Connecticut River.

> The Special Master sustained all these contentions except the last one. With respect to it, he found that Vermont had, by resolution of her Legislature of February 22, 1782, relinquished any claim to jurisdiction east of the west side of the river, at low water mark, in conformity to a Congressional resolution of August 20, 21, 1781, prescribing terms upon which Congress would consider the admission of Vermont to the Union. In addition to the findings already indicated, the special master also concluded that the order of the King-in-Council of July 20, 1764, even if not rendered ineffective by the revolution of Vermont, was not intended to recognize any rights of New Hampshire west of the west side of the river at low water; Vermont's claim of a boundary at the thread of the river would be defeated by her acquiescence in New Hampshire's exercise of dominion over the waters of the river even if it had not been relinquished by acceptance of the resolutions of Congress of August, 1781, and finally that, by practical construction of the two states by long usage and acquiescence, the boundary of Vermont was fixed at the low water mark on the west side of the river.

289 U.S. at 596–597. And the Court ordered:

> It is ORDERED, ADJUDGED, AND DECREED: *First.* That the boundary line between the State of Vermont and the State of New Hampshire is hereby established as a line beginning at the apex of the granite monument which marks the southeast corner of Vermont and the southwest corner of New Hampshire, erected in 1897 under the supervision of commissioners of the two states at low water mark on the west side of the Connecticut river and extending thence northerly along the western side of the river at low water mark, as the same is or would be if unaffected by improvements on the river, to the southerly line of the Town of Pittsburgh, N.H. Such low water mark is hereby defined as the line drawn at the point to which the river recedes at its lowest stage, without reference to, and unaffected by, extreme droughts, but subject to such changes as may hereafter be effected by erosion or accretion.

290 U.S. 579–80.

C. NONNAVIGABLE OR ARTIFICIAL WATER BODIES

The boundary of land on non-navigable or artificial waters follows the traditional rule that the adjacent upland owner has title to the center or middle of the water body unless the language of the deed is to the contrary. Fletcher v. Phelps, 28 Vt. 257, 262 (1856) ("Where land is sold and bounded on a river or stream above tide water, the grant extends to the middle of the channel or thread of the stream . . . The same principle applies where land is bounded upon an

artificial pond . . . ."); Bemis v. Bemis, 111 Vt. 118, 119 (1940) ("When land is conveyed as bounded on a non-navigable stream or non-navigable pond, the grantee takes to the center if the granter owns that far."); see also Town of Castleton v. Fucci, 139 Vt. 598 (1989); Holden v. Chandler, 61 Vt. 291 (1888); Miller v. Mann 55 Vt. 475 (1882). Since the cases dealing with the "public trust doctrine" deal only with "navigable waters," title to the lands submerged beneath non-navigable or artificial bodies of water remain unaffected by those public trust decisions.

D. PRESUMPTION OF BOUNDARY/DEED LANGUAGE

If a deed calls the boundary as being a body of water (i.e. to "Lake Champlain" or "to the Winooski River"), the boundary is presumed to be:

1) low water mark or the water's edge in regard to a navigable pond or lake. See Fletcher v. Phelps, 28 Vt. 257, 262 (1856) (Land described in a conveyance as being "bounded on Lake Champlain" is generally considered to be to "low water."); or

2) the middle or thread of the stream or river or nonnavigable pond or lake. See Town of Newfane v. Walker, 161 Vt. 222 (1993) (description of boundaries as going "along" or "to" the stream are generally construed as a matter of law as going not to the high water mark but to the thread of the stream unless contrary intention appears and description that land is bounded "along" or "to" bank is not sufficient to establish a contrary intention);

However, the presumption may be rebutted by the deed language itself. If the deed calls for the water's edge then the water's edge at the time of conveyance is the boundary. Eddy v. St. Mars, 53 Vt. 462, 467 (1881) (where call was for "southerly on the edge of the pond" the reduction of size of the pond did not change the boundary as originally described and party no longer had access to water of pond.)

If the deed calls for the boundary along the shore or band of a watercourse, then that line as originally granted is the boundary regardless of changes in shore or bank:

Where the description of property conveyed runs the boundary along dry land

> such as the bank, shore, or margin of a private pond or lake, land under water is excluded from the conveyance.

Bemis v. Bemis, 111 Vt. 118, 119 (1940).

> [U]nder a deed in which it was bounded as follows: . . . thence easterly to the pond, thence on the west shore of the pond 75 feet to the place of beginning."
>
> . . .
>
> To the plaintiff's contention that according to the boundaries of his lot Dean had title to the land under water in front of the lot as far as the middle of the lake, under the rule that when land is conveyed as bounded by a non-navigable stream or non-navigable pond the grantee takes to the center, if the grantor owns that far, and therefore Dean's deed to the plaintiff made out good title to so much of the bed of the lake, the answer is that the Dean lot was not bounded by the lake, but was bounded by a course on the shore. In this respect the boundary of the Dean lot, so far as any land under water is concerned, cannot be distinguished from the boundary in the deeds construed in Holden v. Chandler, 61 Vt. 291, 18 A. 310, about which the Court said, page 293, "Two deeds in the plaintiff's chain of title plainly indicate that the boundary of his land is the bank of the pond, viz.: the one * * * bounding the lot by the edge of the mill-pond', and one * * * which defines the line as the bank of said mill-pond."' To the same effect is Eddy v. St. Mars, 53 Vt. 462, 38 Am. Rep. 695, where the boundary along a mill-pond read "then southerly on the edge of the pond" to a corner.
>
> Where the description of property conveyed runs the boundary along dry land such as the bank, shore, or margin of a private pond or lake, land under water is excluded from the conveyance.

Bemis v. Bemis, 111 Vt. 118 (1940).

But compare Adams v. Barney, 25 Vt. 225 (1853):

> The owner of lands, upon streams of water not navigable, owns to the center of the stream. And it makes no difference that certain monuments, on, or near the bank, are referred to, in the deed. There must be an express reservation, to exclude the stream.
>
> If the deed calls for extending the "high water mark," there appears to be no case in

Vermont which clearly holds that a conveyance of land to "high water" of a navigable lake is presumed to include a conveyance to the lands to low water. However, the U.S. Supreme Court

and many other states have found such implied conveyance.

Moreover, such a presumption has been upheld by the U.S. Supreme Court in Illinois Cent. R. Co. v. Illinois, 146 U. S. 387 (1892) ("The riparian right attaches to land on the border of navigable water, without any declaration to that effect from the former owner, and its designation in a conveyance by him would be surplusage."), Hardin v. Jordan, 140 U.S. 371, 391 (1891) (the presumption is that a grant of land thus bounded is intended to include the contiguous land covered by water.), and Massachusetts v. State of New York, 271 U.S. 65 (1926) (interpreting New York law: "a conveyance 'to the shore' or 'along the shore' of such waters carries to the water's edge at low water" and noting that "[t]he same rule is, however, generally followed elsewhere," including in Minnesota, Ohio, New Hampshire, New Jersey, Illinois, and Wisconsin.)

Such presumption has also been followed in Maine, Snyder v. Haagen, 679 A.2d 510, 515 (Me. 1996) ("[P]resumption that a grantor of water's edge property usually intends to convey land down to the low water mark"), Massachusetts, Pazolt v. Dir. of the Div. of Marine Fisheries, 417 Mass. 565, 570–71 (1994) ("[A] grant of land bounding on the sea shore carries the flats in the absence of excluding words"), Maryland, Olde Severna Park Improvement Ass'n, Inc. v. Gunby, 402 Md. 317, 936 A.2d 365, 373 (2007) ("When waterfront property is conveyed, there exists a presumption that the property is accompanied by the riparian rights to those waters."), and Oregon, McAdam v. Smith, 221 Or. 48, 350 P.2d 689, 692–93 (1960) (recognizing "that a conveyance of the upland passes title to land in the bed of the river or way" and applying this presumption to "conveyances involving abutting tideland" as well).

Moreover, cases have addressed such conveyances to lands bounded by the waters of a

stream or river or edge of a highway or railroad and have held an intent to include all lands owned by the grantor even when not clearly expressed, Town of Castleton v. Fucci, 139 Vt. 598, 431 A.2d 486, 487 (Vt. 1981) ("[W]here land is sold, bounded by a river or stream, the grant extends to the middle of the channel, unless the grant expressly provides otherwise.). See Fletcher v. Phelps, 28 Vt. 257, 262 (1856). The grantee takes to the center if the grantor owns so far. Murray v. Webster, 123 Vt. 194, 186 A.2d 89, 93 (Vt. 1962) ("[T]here is a legal presumption that the owner of lands adjoining a public way owns to the center line of the highway. In the absence of evidence showing the fact to be otherwise, the plaintiffs' title as abutting owner must prevail.") (citations omitted); Church v. Stiles 59 Vt. 642, 644–45 (1887) ("…the familiar principle that where general terms are used in a deed, such as "to," "upon" or "along a highway" or railroad, the law presumes the parties intended the conveyance to be to the middle or centre line. In such cases that portion of the land in the limits of the road is not covered by the description in the deed in express terms. The rule is one of construction, and is limited to those cases where the 'grantor owns the fee of the highway; . . . The grantor owning the fee, the law presumes he intended to convey it, and not retain a narrow and oftentimes a long string of land which, for all practical purposes, would be of no value to him.")

It is likely that Vermont would follow this majority view that there is a presumption that a conveyance to the waters of a navigable lake or pond, even if to "high water mark," passes title to the boundary of ownership between private lands and public lands, which in Vermont is "low water."

E. ACCRETION AND RELICTION

The use of rivers, streams and other bodies of water as boundaries for parcels of land

creates opportunities for boundary problems. Unlike other types of physical monuments, bodies of water have natural tendency to regularly change their configuration and, on occasion, to disappear entirely.

The change in the natural configuration of land adjacent to bodies of water is called accretion or alluvion and reliction or avulsion.

> Alluvion [accretion] has been defined to be an addition to riparian land gradually and imperceptibly made by the water to which the land is contiguous, and to be an inherent and essential attribute to the original property; and is said to rest in the law of nature, and is analogous to the right of the owner of a tree to its fruit and the owner of flocks and herds to their natural increase.
>
> The owner takes the chances of injury and of benefit arising from the situation of his property. If there be a gradual loss, he must bear it; if a gradual gain, it is his.

Hubbard v. Manwell, 60 Vt. 235, 246–47 (1887) (underline added).

"Reliction" or "avulsion" is the natural increase in a parcel of land caused by the permanent withdrawal of a body of water. Rood v. Johnson, 26 Vt. 64, 72 (1853).

It is important to distinguish between the gradual and natural change in lands as a result of changes in the stream or river course and man-made or sudden changes made as a result of catastrophic events such as Hurricane Irene.

Title to land formed by accretion or alluvion vests in the riparian owner. Hubbard v. Manwell, 60 Vt. 246 (1887). However, these rules do not apply if the change is sudden or abrupt:

> Defendants correctly state the general rule that sudden as opposed to gradual changes in the course of a boundary stream do not alter the boundary. See 9 R. Powell, Powell on Real Property § 66.01[2], at 66-5 to 66-7 (M. Wolf ed. 2008) (noting general rule that boundary line between abutting landowners moves with waterway when change in location of body of water occurs by gradual process of accretion, but that boundary line does not change when location of body of water changes abruptly due to sudden process of avulsion). But see *Strom v. Sheldon*, 12 Wash. App. 66, 527 P.2d 1382, 1384-85 (1974) (noting that accretion-avulsion rules "should not be mechanically applied").

Fly Fish Vermont, Inc. v. Chapin Hill Estates, Inc., 2010 VT 33, ¶ 13.

> In this case the state is seeking to convict and punish the respondent for a violation of its criminal law. The only question made is, whether the alleged criminal act was committed within or without the state. The place of the act is within the state as it was bounded when its government was established, and as the boundary remained at that place until the year 1834. This boundary was fixed in "the centre of the channel of Poultney river, at the deepest part thereof." In that year, according to the case as stated, the channel of Poultney river was changed by artificial means, so that thenceforth it cut the place where this act was committed, off from the rest of the state; and if that change in the river carried the boundary with it, that place has ever since the change been without the state. This change was not gradual, but sudden. In respect to the effect of such a change, Lord HALE laid down the rule to be, that if a river, "by a new recess from his ancient channel, encompass the land of another man, his propriety continues unaltered." This rule has always been followed, and is an established principle of law as to property in lands. *Trustees of Hopkins Academy* v. *Dickinson*, 9 Cush. 544. And it is as applicable to public as to private rights. *New Orleans* v. *United States*, 10 Pet. 662. Hence, this sudden change in the river, did not of itself have any effect upon the boundary. But it is insisted in behalf of the respondent, that if the boundary was not in fact changed by the change in the channel of the river, still, the new channel has since been so acquiesced in and treated as being the true boundary, that it cannot now be treated otherwise. The title to the land there does not appear to have been treated as being at all affected by the change.

Vermont v. Young, 46 Vt. 565 (1874).

Where there are multiple claimants to the lands created by accretion or alluvion, the division of such lands presents a difficult task for the Court. A court generally tries to find a rule of division among the various claimants that does justice to each. Id. at 247. In Hubbard, the Court elected to extend the existing boundaries from the point of intersection with the old rivers edge to the new rivers edge. Part of the basis for its ruling was that the riparian owner bears the risk of loss for land lost to erosion by the waters action and should therefore have the benefit of accretion. Id. at 247.

A different result was reached by the court in Newton v. Eddy, 3 Vt. 319 (1851). In the

Newton case, the Court elected to revise the course of the boundary stated in the deed to continue to give effect to the words rather than the spirit of the description. The deed called a corner located in the center of the stream opposite a small beech tree. At the time the case was brought the stream had shifted from a north-south course to an east-west course in the vicinity of the tree. The Court, rather than extending the existing boundary in a straight line to the new stream bank, rotated the boundary so that the boundary went from the tree along the shortest distance to the new center line of the stream. Id. at 323.

The case of Holden v. Chandler, 61 Vt. 291 (1889) involved an issue related to reliction. The plaintiff owned a parcel of land bounded by a mill pond. Deeds in his chain of title fixed the boundary at the water's edge. When the mill pond receded the defendant entered onto the land between the original water's edge and the then current water's edge. The Court found that the boundary of the land was the water's edge at the time of a prior deed. The basis for the ruling was that a riparian owner can alienate the stream bed, to the extent of ownership, separate from the upland property. The Court then determined that in the prior deed the bed of the mill pond was not conveyed to the plaintiff's predecessor in title. The Court then held that the plaintiff's claim did not follow the receding water but was fixed at an actual point. The property created by reliction was owned by the defendant who also owned the bed of the pond.

The recent case of Fly Fish Vermont, Inc. v .Chapin Hill Estates Inc., 2010 VT 33 related to the destruction or removal of a stream which had been used as the boundary and where the Court substituted a new boundary line:

> ¶ 3. . . . The deed described part of the boundary line between the conveyed and retained property as following along a brook that eventually flowed into a drainage pipe under Route 100. The deed also referenced a more accurate description of the conveyed parcel: a survey by James Rich recorded in the town

land records. In part, the Rich survey described the boundary as running nine feet from an iron pin to a brook and then westerly along the center of the brook to the edge of Route 100, where the brook entered a large culvert.

¶ 4. . . . Construction of the road effectively eliminated the surface brook that the applicable deeds had designated as a boundary line between the adjoining properties. All that remained of the brook was some intermittent ditching along the north side of a berm left over from construction of the road.

¶ 5. . . . [P]laintiffs' predecessors-in-title . . . constructed a pond—the one involved in the instant dispute—to support his business of selling fly-fishing equipment and supplies. Aware of the construction, [Defendant] warned [Plaintiffs' predecessors-in-title] to make sure that the pond did not extend past the boundary line. With the brook long gone, [Plaintiffs' predecessors-in-title] understood the property boundary to be the intermittent ditching located alongside Megan's Way, so he made sure that he did not cross that line . . . .

¶ 11. . . . In arriving at its boundary decision, the court determined that it was impossible to establish the location of the brook described in the early deeds and thus concluded that the most equitable and rational method for establishing the boundary between the parties' properties was to draw a straight line, or "tie line," between the two known and still-existing monuments . . . .

¶ 12. . . . According to defendants, the court erroneously assumed that because the brook had been destroyed by defendants' actions in 1966 and thus no longer existed, the boundary line could not be established as it existed in 1963 or shortly thereafter. Defendants assert that the location of the brook in 1963, as set forth in the Rich survey, is identifiable and undisputed and therefore should be established as the boundary line now. In support of this argument, defendants rely on the general rule that boundaries move with the gradual movements of streams over time, but not when streams move suddenly as the result of natural or man-made events.

¶ 13. We do not find defendants' arguments persuasive. Defendants correctly state the general rule that sudden as opposed to gradual changes in the course of a boundary stream do not alter the boundary. See 9 R. Powell, Powell on Real Property § 66.01[2], at 66-5 to 66-7 (M. Wolf ed. 2008) (noting general rule that boundary line between abutting landowners moves with waterway when change in location of body of water occurs by gradual process of accretion, but that boundary line does not change when location of body of water changes abruptly due to sudden process of avulsion). But see *Strom v. Sheldon,* 12 Wash.App. 66, 527 P.2d 1382, 1384-85 (1974) (noting that accretion avulsion rules "should not be mechanically applied"). In this case, however, there is no way to determine precisely where the brook was located in 1966 when defendants

effectively obliterated it in the area where the pond was later built, nor is it possible to determine where the brook would have been located in 1989 when Alley constructed the pond.

¶ 14. There is a 2005 survey of the property, relied upon by both parties, that reveals several paths the brook took at various times in the past. Defendants insist that the trial court was obligated to rely upon the path indicated in the 1963 Rich survey referred to in the original deed, but they fail to provide a logical basis for doing so. It is undisputed that a survey done only two years later, in 1965, showed a different path of the brook meandering through the property. Although the brook's 1963 position and its different course in 1965 could be located from the respective depictions in those two surveys, the brook was not fixed and there remains no trace of it, such as an old stream bed, to determine precisely where it ran in 1966 at the time it was obliterated by defendants' road construction. Notwithstanding the trial court's imprecise—and unremarkable—acknowledgement that the brook would not have "significantly" changed course between 1963 and 1966, the fact remains that there was no way for the court to tell where the brook actually was in 1966 when its surface course was erased. Nor could it fix the location of the boundary in 1989 when Alley constructed the pond. Thus, defendants were essentially asking the court to invent a boundary line to their benefit rather than accept the invented tie-line between the two known monuments that benefitted plaintiffs.

¶ 15. For several reasons, we decline to disturb the trial court's decision to do the latter. First, as noted, although the brook was a natural monument entitled to precedence over artificial monuments or metes-and-bounds descriptions, see *Marshall v. Bruce*, 149 Vt. 351, 353, 543 A.2d 263, 264 (1988), its course as of 1966 or 1989 could not be determined because it had been destroyed long before the hearing. Second, the fact that the course of the brook could not be determined was due to the activities of defendants, the same parties seeking to benefit from the uncertainty over the boundary. Although defendants are claiming here that they were disadvantaged by their actions, in fact their earlier actions prevented the court from establishing the subject boundary line as it may have existed in 1966 or 1989. Under these circumstances, the court acted well within its discretion in drawing a tie-line between the known monuments rather than choosing a boundary line based on a prior survey and speculation as to the later meandering of the brook. See *Pion v. Bean*, 2003 VT 79, ¶ ¶ 15-16, 176 Vt. 1, 833 A.2d 1248.

¶ 16. In support of their arguments, both sides cite *Pion v. Bean*, which is also the principal case relied upon by the trial court in establishing the disputed boundary line. In *Pion*, we upheld the trial court's decision to establish a disputed boundary by drawing a straight line between pins depicted in two competing surveys. 2003 VT 79, ¶ ¶ 12, 18, 176 Vt. 1, 833 A.2d 1248. Defendants attempt to distinguish *Pion* by arguing that the trial court in that case did not ignore an

> original known monument. For the reasons stated above, this argument is unavailing—although the location of the brook was described in the deeds, it changed over time and thus was unknown at the time defendants eliminated the brook in 1966. The trial court in this instance did not ignore a known monument; the location of the boundary brook at the critical time was not known. As we stated in *Pion,* the trial court's "determination of a boundary line is a question of fact to be determined on the evidence," and we will uphold such judgment unless clearly erroneous "despite inconsistencies or substantial evidence to the contrary." *Id.* ¶ 15. In this case, reviewing the evidence most favorably to the prevailing party and making all reasonable inferences in support of the trial court's judgment, we find no error in the court's establishment of the disputed boundary line.

F. LITTORAL AND RIPARIAN RIGHTS

The owner of land adjacent to bodies of water have certain rights with respect to the water and submerged lands. Those rights fall under the general classification of "riparian" or "littoral" rights. A littoral owner is a landowner with land adjacent to a lake, pond or tidal waters. A riparian owner owns lands adjacent to a river, stream or brook. The terms are often used interchangeably.

1. No Common Law Right to Maintain any Improvement into Navigable Waters

Unlike in many states, in Vermont there is no common law right of littoral or riparian owner to extend any improvement or structure into navigable waters to reach the point of navigability or to a fixed harbor line.

> [T]here is no common law in Vermont, by which the owner of land bounded on Lake Champlain has a right beyond low water mark to appropriate as his own the bed of the lake. Neither the legislature nor the courts have recognized any such right, only as it has been conferred by act of legislation.
>
> [I]n the Revised Statutes of [1839] §7, ch. 59 [sic; in fact the statute referred to is the 1827 Act which was codified in the 1839 Revised Statutes] it was enacted that "all persons who may have erected any wharves, &c., agreeably to the provisions of any grant heretofore made or agreeably to the provisions of this chapter, their

> heirs and assigns, shall have the exclusive right to the use, benefit and control of such wharves, &c., forever." This seems plainly to show the idea of the legislature to have been, that the right to build a wharf, or another structure, beyond the land of the riparian owner into the water of the lake, depended on a legislative grant, either shown or presumed.

Austin v. R.R. Co., 45 Vt. 215, 242–43 (1873) (emphasis added). The issue of legislative grants will be discussed below in the section on the "public trust doctrine."

2. Common Law Right To Use Water For Reasonable Uses

Subject to the evolution of the "public trust doctrine,"

> [A]s a general statement . . . every owner of land over which a stream flows has the right to the natural flow of the stream, and cannot be deprived of it but by grant, actual or presumptive . . . subject to the qualification that 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. But our decisions have also established that this restriction does not go so far as to deprive an upper riparian owner of the right to a reasonable use of the waters of a stream, even though such use may involve some slight inconvenience or detriment to those situated below.
>
> Cases in which the rights of riparian owners have heretofore been considered in this jurisdiction have usually arisen under one of three classes, which, with some illustrative cases, are as follows : First, where the lower riparian owner obstructed or dammed the stream in such a manner as to set the water back upon the upper riparian owner, and thereby interfere with the use by the latter of his land or water power. Second, where the upper riparian owner diverted or dammed the stream for his own use, resulting in some diminution or irregularity of flow to the lower riparian owner . Third, where the upper riparian owner, in the use of the stream for manufacturing purposes, discharged into it refuse or waste, resulting in more or less inconvenience and damage thereby to lower riparian owners.

Kasuba v. Graves, 109 Vt. 191, 198–99 (1937) (citations omitted). This right of reasonable use for private purposes is being called into question by the evolution of the "public trust doctrine."

G. "PUBLIC TRUST DOCTRINE"

1. Definition

What is the public trust doctrine? A short definition of the public trust doctrine is as

follows: The navigable waters and the public lands submerged beneath are held in trust for the public by the State of Vermont in its sovereign capacity. The legislature is the trustee. The legislature must exercise control of the trust for the benefit of the public and cannot grant any right in navigable waters or the lands submerged thereunder for private purposes.

2. History

The history of the public trust doctrine was recently discussed by the Vermont Supreme Court in the case of the City of Montpelier v Barnett, 2012 VT 32:

> ¶ 17. State trusteeship over navigable waters has a lengthy and somewhat mythic pedigree dating back to Roman and English law. The first oft-cited origin lies in Justinian: "By the law of nature these things are common to mankind—the air, running water, the sea, and consequently the shores of the sea. No one, therefore, is forbidden to approach the sea-shore . . . ." Institutes bk. II, tit. 1, § 1 (T. Sandars trans., 1st Am. ed. 1876). Glimmers of this idea of common trusteeship are found in the Magna Carta, which, among other things, placed constraints on the crown's authority over navigable waters and fisheries. See, e.g., H. Sun, *Toward a New Social-Political Theory of the Public Trust Doctrine*, 35 Vt. L.Rev. 563, 570 (2011) ("In England, thanks to the Magna Carta, the public trust doctrine was included as part of English common law in order to restrict the Crown's proprietary control over certain natural resources."). The extent to which these early conceptions prohibited private ownership is an open question, see P. Deveney, *Title, Jus Publicum, and the Public Trust: An Historical Analysis*, 1 Sea Grant L.J. 13 (1976) (contesting the modern public trust doctrine's history in Roman and English law); see also J. Huffman, *Speaking of Inconvenient Truths—A History of the Public Trust Doctrine*, 18 Duke Envtl. L. & Pol'y F. 1 (2007) (similar), but it is clear that natural resources including navigable waters were considered to be at least initially common property subject to certain public rights. As the U.S. Supreme Court has explained, this idea became part of American common law: "[W]hen the [American] Revolution took place, the people of each state became themselves sovereign; and in that character hold the absolute right to all their navigable waters and the soils under them for their own common use, subject only to the rights since surrendered by the Constitution to the general government." *Martin v. Lessee of Waddell*, 41 U.S. (16 Pet.) 367, 410, 10 L.Ed. 997 (1842); see also *Ill. Cent. R.R. v. Illinois*, 146 U.S. 387, 452, 13 S.Ct. 110, 36 L.Ed. 1018 (1892) ("It is a title held in trust for the people of the State that they may enjoy the navigation of the waters, carry on commerce over them, and have liberty of fishing therein freed from the obstruction or interference of private parties."); cf. 1 V.S.A. § 271 (stating that English common law is the law of

Vermont if "applicable to the local situation and circumstances" and "not repugnant to the constitution or laws").

¶ 18. Since 1777, the public trust doctrine has been entrenched in the Vermont Constitution, which reads:

> The inhabitants of this State shall have liberty in seasonable times, to hunt and fowl on the lands they hold, and on other lands not inclosed, and in like manner to fish in all boatable and other waters (not private property) under proper regulations, to be made and provided by the General Assembly.

Vt. Const. ch. II, § 67; see also R. Brooks, *Speaking (Vermont) Truth to (Washington) Power*, 29 Vt. L.Rev. 877, 885 (2005) ("This provision has been [taken] to establish a public trust in Vermont's natural resources which is now recognized in her statutes and regulations."). As explained, the public trust doctrine means that navigable waters and the land below them are held in common by the people of this state. *Hazen v. Perkins*, 92 Vt. 414, 419, 105 A. 249, 251 (1918) ("Being public waters according to the test afforded by the Constitution, the grants of land bounding upon the lake pass title only to the water's edge, or to low-water mark if there be a definite low-water line. The bed or soil of such boatable lakes in this state is held by the people in their character as sovereign in trust for public uses for which they are adapted." (citations omitted)); see also *State v. Cent. Vt. Ry.*, 153 Vt. 337, 344, 571 A.2d 1128, 1131 (1989) (explaining that *Hazen* "stands for the proposition that the legislature cannot grant rights in public trust property for private purposes"). We have explicitly applied this principle to Berlin Pond itself: "Berlin Pond being public . . . its waters [and] the land beneath them . . . belong to the people in their sovereign character, and are held for the public uses for which they are adapted." *State v. Quattropani*, 99 Vt. 360, 363, 133 A. 352, 353 (1926). This trusteeship does not prevent regulation, but it does demand that regulation have a special public character, both in its aims and in its formation. See J. Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 Mich. L.Rev. 471, 558-60 (1970) (describing the role of the public trust doctrine as one of "democratization" whereby the courts "thrust[ ] decision making upon a truly representative body").

¶ 19. In this light, delegation of the State's role as trustee need not be disfavored, even though abandonment of the public trust would be. Compare *Cent. Vt. Ry.*, 153 Vt. at 347-48, 571 A.2d at 1133 ("'[S]tatutes purporting to abandon the public trust are to be strictly construed; the intent to abandon must be clearly expressed or necessarily implied; and if any interpretation of the statute is reasonably possible which would retain the public's interest in tidelands, the court must give the statute such an interpretation.'" (quoting *City of Berkeley v.*

> *Superior Ct. of Alameda Cnty.*, 26 Cal.3d 515, 162 Cal.Rptr. 327, 606 P.2d 362, 369 (1980))), with *Elliott v. State Fish & Game Comm'n*, 117 Vt. 61, 69, 84 A.2d 588, 593 (1951) ("[R]egulations, proper in the sense that they complied with constitutional requirements, might be made by the Legislature through a delegation of the power to make such regulations to a body or person given jurisdiction by the Legislature over matters pertaining to fish and game . . . ."). Thus, the State may, compatible with holding Berlin Pond in public trust, delegate certain authority to regulate its use to another body, in this case the City of Montpelier. A main question before us is whether such a delegation has occurred here.

The Supreme Court held in Community Nat'l Bank v. Vermont, 172 Vt. 616 (2001) that the abandonment of public trust lands must meet a very high standard:

> Plaintiffs first contend that the public trust doctrine articulated in *Central Vermont* should be "modified" to recognize the power of the legislature to convey public trust lands into private ownership free of any vestigial claim by the State. We acknowledged in *Central Vermont* that some authority supported recognition of such a power, but did not resolve the question because the record demonstrated that "the legislature did not intend to grant the lands at issue free from the public trust." *Id.* at 347, 571 A.2d at 1133; see also *Opinion of the Justices to the Senate*, 383 Mass. 895, 424 N.E.2d 1092, 1103 (1981) (legislature may determine that land once vested with public trust has undergone such change over time that it is no longer suitable for public trust purposes). We explained that even assuming such a power on the part of the legislature, an "intent to abandon must be clearly expressed or necessarily implied; and if any interpretation of the statute is reasonably possible which would retain the public's interest in tidelands, the court must give the statute such an interpretation." *Id.* at 347, 571 A.2d at 1133 (quoting *City of Berkeley v. Superior Court*, 26 Cal.3d 515, 162 Cal.Rptr. 327, 606 P.2d 362, 369 (1980)). Construing the statutes at issue in this light, we found no intent--express or implied--to abandon the public trust. See *id.* at 348-50, 571 A.2d at 1133-35.

As discussed above, when Vermont became a state, it became owner of navigable waters and the submerged lands to "high water." The State had the authority to determine the boundary of private ownership of land adjacent to navigable waters to any point below the high water mark. In Vermont, the boundaries of grants have traditionally been understood as being: (1) low

water mark or the water's edge on navigable ponds and lakes; and (2) the middle or thread of other waters. The public trust doctrine cases, especially Hazen v. Perkins, 92 Vt. 414 (1918) State v. Cent. Vermont Ry., Inc., 153 Vt. 337 (1989) and most recently Montpelier v Barnett, 2012 VT 32 (2012), have called these boundaries into question since the language of these cases state that title to all lands under navigable waters are held by the state.

Furthermore, the public trust cases have raised the issue that even if certain littoral or riparian lands are "private" such lands may still be subject to use by the public under certain circumstances.

3. Public Rights on Waters and Lands Between High Water or Low Water and the Water's Edge

The Court in State v. Cain, 126 Vt. 463 (1967) raises the issue of the extent of the public rights extend to the waters of the state wherever they flow:

> The agreed question in the hearing below was only as to the limit of private ownership of land underlying the waters of the lake, but the question that should have been determined under the pleadings, was not the land ownership of the defendants underlying the lake, but the public ownership of the waters in which it was alleged that the defendants had placed fill.

State v. Cain, 126 Vt. at 469 (emphasis added).

Moreover, in distinguishing the McBurney case the court stated:

> First, McBurney v. Young did not determine the extent of the public waters of the lake, for the Court expressly stated in that case that they did not determine what right the public had to sail on waters between the high and low water marks of the lake, or the rights of inhabitants of this State under the Constitution to use such waters, such decision not being necessary for the determination of the question then presented. All that was considered in the McBurney case was the boundary of lands bordering on Lake Champlain, and not the extent of the public waters of the lake.

State v. Cain, 126 Vt. at 468 (emphasis added).

The question raised by the Court regarding the right of the public to use the overlying waters of Lake Champlain, regardless of the ownership of the bed of the lake under such waters was answered in the case of Cabot v. Thomas, 147 Vt. 207 (1986). In Cabot, the Court decided that the public had the right to fish in any boatable water whether or not it was above private lands. The Court also seemed to enforce the view that the public has such rights to navigate and fish in all boatable waters extended to other "water-related recreational activities."

Moreover, in State v. Cain, the Court also raised issues in a manner which seems to suggest that although the owner of adjoining property of navigable waters may own his property to the low water mark when there is a definite one, the rights between that low water mark on the water's edge and the high water mark may be limited:

> As we have before noted, while this Court in a number of decisions ruled on the matter of private ownership, as well as of public ownership, of land underlying the bed of the lake, no decision has yet been made on . . . the rights, if any, of a landowner, whose property is bounded by the lake, to erect any structure, or to raise in any manner, the bed of the lake which bounds his property, whether such lake bed is privately or publicly owned.
>
> It cannot be doubted that the determination of such questions is vitally important to the public interest and welfare of that substantial part of the general public who sail upon the waters of Lake Champlain, as well as to that other substantial portion of people in this State who own real estate bordering upon the lake, including the defendants in this action.

State v. Cain, 126 Vt. at 470–71 (emphasis added).

4. Encroachment s in Navigable Waters.

As discussed above, a riparian or littoral owner in Vermont has no right to construct any improvement in navigable waters except by legislative grant. Austin v. R.R., 45 Vt. 215 (1873).

While the Austin court seemed to indicate that a legislative grant of the public trust land and waters could be made by the legislature for private purposes, the Burlington Waterfront case

clearly states that a legislative grant for private purposes is impermissible:

> [T]he case [Hazen v. Perkins, 92 Vt. 414 (1918)] stands for the proposition that the legislature cannot grant rights in public trust property for private purposes.

State v. Cent. Vermont Ry. Inc, 153 Vt. 337, 344 (1989).

> We begin by observing that the public trust doctrine, particularly as it has developed in Vermont, raises significant doubts regarding legislative power to grant title to the lakebed free of the trust. As the Supreme Court of California has stated:
>
> > [T]he core of the public trust doctrine is the state's authority as sovereign to exercise a continuous supervision and control over the navigable waters of the state and the lands underlying those waters . . . . The corollary rule which evolved in tideland and lakeshore cases bar[s] conveyance of rights free of the trust except to serve trust purposes . . . . [P]arties acquiring rights in trust property generally hold those rights subject to the trust, and can assert no vested right to use those rights in a manner harmful to the trust.

Nat'l Audubon Soc'y v. Superior Court of Alpine Cnty., 33 Cal. 3d 419, 425–26, 437, 658 P.2d 709, 712, 721, 189 Cal. Rptr. 346, 349, 358 (1983) (en banc).

> This rule obtains because the state's power to supervise trust property in perpetuity is coupled with the ineluctable duty to exercise this power. See id. at 437, 658 P.2d at 721, 189 Cal. Rptr. at 358.

State v. Cent. Vermont Ry. Inc., 153 Vt. at 345.

5. Vermont Wharfing Statutes - Fee Simple Subject to Condition Subsequent

There have been some legislative grants for use of public submerged lands. The only grants found have been limited to Lake Champlain.

The issue in the Burlington Waterfront case was the title of the railroad under certain Vermont "wharfing" statutes. The statute at issue was the Acts of 1874, No. 85. The 1876 Act was a railroad specific statute is not of general application. However, the 1827 Act did generally

apply to all littoral owners on Lake Champlain[1]:

> That each and every person owning lands adjoining lake Champlain, within this state, be . . . fully authorised and empowered to erect any wharf or wharves, store-house or store-houses, and to extend the same . . . into lake Champlain, to any distance they may choose within this state.
>
> . . .
>
> Provided also, that such wharf or wharves, store-house or store-houses shall not be extended so far into said lake as to impede the ordinary navigation in passing up and down said lake . . . .
>
> . . .
>
> That each and every person or persons, their heirs or assigns, shall have the exclusive privilege of the use, benefit and control of any wharf or wharves, storehouse or store-houses, forever, which may hereafter be erected in said lake, agreeably to the provisions of this act.
>
> 1827, No. 38, §§ 1, 3.

State v. Cent. Vermont Ry., Inc., 153 Vt. at 344–45.

In the Burlington Waterfront case, the statute was held to be a grant for public purposes and thus not violative of the public trust doctrine. See State v. Cent. Vermont Ry., Inc., 153 Vt. at 345, footnote 3. Further, the Court held that the title granted to the lands created by the construction of the wharves was "a fee simple . . . subject to the condition subsequent that the lands be used for railroad, wharf or storage purposes." State v. Cent. Vermont Ry., Inc., 153 Vt. at 351.

6. What is a "wharf"?

A "wharf" is a structure constructed parallel to or along the shore to facilitate loading or unloading of cargo and passengers[2]: The word "wharf" is defined to

[1] It should be noted that prior to the 1827 Act there was a number of individual petitions for wharfing rights. See Acts of 1802, Chapter 115, Acts of 1810, Chapter 105, Acts of 1825, No. 87, Acts of 1826, Nos. 41 and 42. However, each of these grants were for a limited duration.

[2] A "dock" is an enclosed water space used to keep a vessel afloat at the level of high tide to facilitate loading or unloading, or for repair or an artificial inlet for a vessel. A "pier" is a structure supported on columns or piles extending into a body of water to serve as a landing place or promenade.

> include structures built with fill along a shoreline so that boats can be brought alongside them to load and unload cargo and passengers. See Port of Portland v. Reeder, 203 Or. 369, 384-85, 280 P.2d 324, 332 (1955).

State v. Cent. Vermont Ry., Inc., 153 Vt. 337, 340, note 1 (1989).

Does the Court's decision that the 1827 Act was a grant for public purpose apply to wharves made into the lake by littoral owners solely for their own personal use? Must the wharf be open to public use? If not, will the grant be subject to re-entry by the state? The Court's quotation of Boston Waterfront Dev. Corp. v. Commonwealth, 378 Mass. 629, 648, 393 N .E.2d 356, 366 (1979) would seem to include that private pleasure boat use of a wharf or dock would not be for commerce and trade and would not comply with the public trust doctrine and may be a violation of the condition subsequent .

In discussing the legislative intent underlying the wharfing statutes, the court observed that:

> At that time, it was probably inconceivable to the men who sat in the Legislature . . . that the harbor would ever cease to be much used for commercial shipping or that a wharf might be more profitable as a foundation for private condominiums and pleasure boats than as a facility serving public needs of commerce and trade. They did not speculate on what should become of the land granted to private proprietors to further development of maritime commerce if that very commerce should cease, because they did not envision it.
> [Boston Waterfront Corp.] at 648, 393 N .E.2d at 366. It is unlikely that the drafters of Vermont's 1827 Act were any more farsighted than Massachusetts' nineteenth-century legislators in this regard.

State v. Cent. Vermont Ry. Inc., 153 Vt. at 350.

7. Statutory Permits for Encroachments

In 1969, the granting portion of the Wharfing Acts were repealed but the control and title portions were retained. See 27 V.S.A. § 1001 et seq. At the same time, 10 V.S.A. § 1421 et seq. "Protection of Navigable Waters and Shorelands" and 29 V.S.A. § 401 et seq. "Management of Lakes and Ponds" were enacted. In general, the Title 10 provisions authorize regulation of the

use of public waters and the Title 29 provisions prohibit encroachments into navigable waters without a permit.

In regard to encroachments into public waters, Title 29 limits jurisdiction to beyond mean water level:

> [J]urisdiction of the department shall be construed as extending to all lakes and ponds which are public waters and the lands lying thereunder, which lie beyond the shoreline or shorelines delineated by the mean water level of any lake or pond which is a public water of the state, as such mean water level is determined by the board.

29 V.S.A. § 401.

Given this limit of jurisdiction, the Department of Environmental Conservation in the past has not required a permit for encroachments below "low water" (low water mark if there is one or water's edge and the mean water line). The Burlington Waterfront case has called such limit of jurisdiction into question since it would apparently allow use of public trust lands without obtaining a permit and without establishing that the encroachment is for "public purposes."

Further, the criterion for granting a permit under Title 29 was a determination of whether the proposed encroachment would have an adverse effect on the "public good." However, in In Re Williams Point Yacht Club, No. 8213-89 Cncv (Vt.. Super. Ct. 1989), Judge Martin, who also decided the Burlington Waterfront case at trial level, held that a finding of public good is insufficient:

> The law is crystal clear. While the Management of Lakes and Ponds statute does not specifically say that a public purpose must be served in this instance, Vermont case law clearly says so. The Board cannot grant to a private party the right to use property impressed with the public trust for private purposes. CVR, slip op, at 6. The law requires the Board to find affirmatively that the proposed encroachment serves a public purpose before granting a permit.

The Court rejects the Yacht Club's contention that the Management of Lakes and Ponds statute was intended by the Legislature to embody and supplant the public trust doctrine. In reaching this conclusion the Court relies on Hazen and CVR to the effect that the General Assembly is powerless to negate the requirements of the public trust doctrine even if it so desired. Hazen, 92 Vt. at 420; CVR, slip op. at 6.

In addition, certain encroachments are not required to get a permit under 29 V.S.A. § 403 (b) and (c).

> (b) A permit shall not be required for the following uses provided that navigation or boating is not unreasonably impeded:
>
> (1) Wooden or metal docks for noncommercial use mounted on piles or floats provided that:
>
> (A) the combined horizontal distance of the proposed encroachment and any existing encroachments located within 100 feet thereof which are owned or controlled by the applicant do not exceed 50 feet and their aggregate surface areas do not exceed 500 square feet; and
>
> (B) concrete, masonry, earth or rock fill, sheet piling, bulkheading, cribwork or similar construction does not form a part of the encroachment;
>
> (2) A water intake pipe not exceeding two inches inside diameter;
>
> (3) Temporary extensions of existing structures added for a period not to exceed six months, if required by low water;
>
> (4) Ordinary repairs and maintenance to existing commercial and noncommercial structures;
>
> (5) Duck blinds, floats, rafts and buoys.
>
> (c) Existing encroachments shall not be enlarged, extended, or added to without first obtaining a permit under this chapter, except as provided in subsection (b) of this section.
>
> (d) This chapter shall not apply to encroachments subject to the provisions of chapter 43 of

Title 10, concerning dams, or regulations adopted under the provisions of 10 V.S.A. § 1424 concerning public waters.

(e) This section shall not apply to the installation on lake bottoms of small filtering devices not exceeding nine square feet of disturbed area on the end of water intake pipes less than two inches in diameter for the purpose of zebra mussel control.

However, given the public trust doctrine as expressed in the Burlington Waterfront case, it is questionable whether pre-existing (pre-1969) encroachments are still exempt and grandfathered and whether the other new encroachment would be permitted.

8. Status of Wharves Without Water - Filled Lands Separated from the Waterfront Lands

In the Burlington Waterfront case, there was a number of parcels of lands which were filled lands but were separated from the existing waterfront parcels. In the Superior Court a number of these parcels were dropped from the case by stipulation with the State. Further, the Superior Court found a one-third acre was no longer subject to any public trust limitations:

> The Court finds the approach used in City of Berkeley v. Superior Court, 606 P.2d 362, 162 Cal. Rptr. 327 (Cal, 1980) persuasive. The Supreme Court of California in City of Berkeley was dealing with tidelands in the San Francisco Bay area and actually determined how property-owners' titles were affected by the application of the public trust doctrine. The City of Berkeley court adopted
>
> > an intermediate course: the appropriate resolution is to balance the interest of the public in tidelands . . . against those of the landowners . . . . In the harmonizing of these claims, the principle we apply is that the interests of the public are paramount in property that is still physically adaptable for trust uses, whereas the interests of the grantees and their successors should prevail insofar as the tidelands have been rendered substantially valueless for those purposes.
>
> [City of Berkeley v. Superior Court, 606 P.2d] at 373. The Court continued by stating that "a[n] obvious illustration of absolute title is a parcel that no longer has Bay frontage." Id. at 374.

> The Court concludes that the Union station .33 acre triangle falls within this category. It is a landlocked parcel. Indeed, a number of parcels owned by others lie between the Union Station parcel and the Lake. Among these are the U.S. Naval Reserve station and land, a vacant lot owned by CVR, the State of Vermont/Rutland Railroad right-of-way, Woodbury Lumber store and warehouse, and Lake Champlain Transportation Company docks and offices. The Union Station triangle involves an insignificant portion of the "filled land" in question and releasing the property from the public trust interest will not impair the State's public trust interest in the lands and waters remaining. Hence, this Court concludes that Alden Waterfront Corporation holds the .33 acre Union station triangle in fee simple absolute.

State v. Cent. Vermont Ry., Inc., No. S966-84 Cncv (Vt. Super. Ct. 1987) at 16–17.

Given that the Supreme Court rejected this "intermediate course" by holding that the public trust interest can never be removed from public trust property, it appears that no other owner would be able to avail themselves of the Berkeley exception. In regard to the one-third acre discussed above and the other small parcels of filled lands dismissed from the lawsuit, it would appear that title to such properties free of public trust claim is secure since the State did not appeal the superior Court's decision and therefore the state may be bound by res judicata.

9. No Defenses of Adverse Possession, Waiver, Estoppel or Laches for Public Trust Claims

If there is an encroachment in Lake Champlain which is inconsistent with public trust doctrine traditional defenses may be of no avail.

First, there is no adverse possession "in lands belonging to the state," 12 V.S.A. § 462—at least for encroachments made after 1786, which is fifteen years before the first act prohibiting prescription against the State was enacted. See discussion in Hazen y. Perkins, 92 Vt. 414, 420 (1918); see also Vermont Woolen Corp. v. Wackerman, 122 Vt. 219, 226 (1961).

H. SHORELAND PROTECTION ACT

Effective July 1, 2014, the Shoreland Protection Act, Title 10, chapter 49A, § 1441 et seq ("the Act"), regulates the creation of impervious surface or cleared area within 250 feet of the mean water level (the "Shoreland Protection Area") of lakes greater than 10 acres in size. For some lakes, the mean water level ("MWL") may be established by rule or a permit. Otherwise, the MWL is defined in the "Rules for Determining Mean Water Level" promulgated by the Natural Resources Board. The area of impervious surface or cleared area is measured on a horizontal plane.

The Act divides the 250-foot "Protected Shoreland Area" into two "zones," with varying levels of protection:

(1) the "Lakeside Zone," or the first 100 feet from the MWL; and

(2) the "Upland Zone," or the area between 100 feet to 250 feet from the MWL.

Land located on the non-lake side of a municipal or state road does not have to conform to the Act.

The Watershed Management Division of the Department of Environmental Conservation has created a website with a PDF of the Act, as well as a handbook and other reference materials, available at http://www.watershedmanagement.vt.gov/permits/htm/pm_shoreland.htm. Provided below is a summary of the permitting provisions.[3]

Permit Standards—10 V.S.A. § 1444

i. 100-foot Setback.

The Act requires a 100-foot setback for all non-exempt cleared area and impervious

[3] Section 1446 of Title 10 provides a list of exempted activities, which may occur within the Shoreland Protection Area without a permit.

surfaces. While the Act provides for some flexibility for pre-existing (pre-July 2014) lots, in order to create more than 100 square feet of impervious surface within the Lakeside Zone an applicant with a pre-existing lot must demonstrate a specific site limitation that prevents them from placing the impervious surface more than 100 feet from the MWL. 10 V.S.A. § 1445(a).

ii. 40% Cleared Area Standard.

The Act requires that the total cleared area be limited to 40% of the total parcel area within the Shoreland Protection Area. "Cleared Area" is defined as:

> An area where the existing vegetative cover, soil, tree canopy, or duff has been permanently removed or altered.

In the event the 40% cap is exceeded, the landowner must demonstrate best management practices for cleared area, including diverse, native revegetation.

The Act allows for a simplified "registration" process for the creation of up to 100 square feet of new cleared area between 25 and 100 feet of the MWL (Lakeside Zone) or up to 500 square feet of cleared area more than 100 feet from the MWL (Upland Zone), provided the total cleared area is 40% or less of the total parcel area within the Shoreland Protection Area. All other clearing requires a permit.

iii. 20% Impervious Surface Standard.

The Act requires that the total amount of impervious surface be limited to 20% of the total parcel area within the Shoreland Protection Area. Impervious surface is defined as:

> Manmade surfaces, including paved and unpaved roads, parking areas, roofs, driveways, and walkways, from which precipitation runs off rather than infiltrates.

In the event the 40% cap is exceeded, the landowner must demonstrate best management practices for impervious surfaces, such as rain gardens, vegetated swales and/or berms, and

drainage ditches.

The Act allows for a simplified "registration" process for the creation of up to 100 square feet of new impervious surface between 25 and 100 feet of the MWL (Lakeside Zone) or up to 500 square feet of impervious surface more than 100 feet from the MWL (Upland Zone), provided the total impervious surface is 20% or less of the total parcel area within the Shoreland Protection Area. All other impervious surface requires a permit.

iv. 20% Slope Standard

The Act requires that new impervious surface or cleared area be located on slopes less than 20%, unless the applicant demonstrates that the slope will remain stable and erosion and water quality impacts will be minimal through the use of best management practices, such as waterbars, terracing, and vegetation.

The slope of interest is for the project site; this area covers a 100 foot distance, with the center being the center of the project. In the event there is less than 50 feet between the project site and the MWL, the excess not measured should be added to the other side of the project center to reach 100 feet.

Of course, even within 100 feet the slope may vary dramatically—Appendix B of DEC's handbook suggests that the average slope of the most representative terrain within the project site applies. For example, Appendix B instructs that using the manual field method of measuring slope, with a 50 inch board, level, and tape measure, the measurement of the rise should be repeated every 10 paces, in locations most representative of the terrain, and the results averaged to find the "slope" of the project site:

- Taking a 50 inch board, start at the bottom of the distance you will be measuring to determine the slope. The Mean Water Level marks the bottom of

the slope for the Protected Shoreland Area, otherwise, for a project site, start at the lowest point of the distance needed to measure slope.

- Laying the board perpendicular to the slope, place the carpenter's level on the board and raise it until its level. [The board is the Run]

- Use the tape measure to determine the board's distance from the ground. Take your measurement from the bottom of the board. [This distance is the Rise]

- Plug the Rise and Run measurements into the slope formula to determine percent slope. Repeat these steps every 10 paces in locations that are most representative of the terrain. You will average your results.

- For example:

  17 ÷ 50 x 100 = 34% Slope
  Repeating this four more times yielded:
  18 ÷ 50 x 100 = 36% Slope
  16 ÷ 50 x 100 = 32% Slope
  18 ÷ 50 x 100 = 36% Slope
  18 ÷ 50 x 100 = 36% Slope

  To calculate the average of the measurements, add the measurements and divide by the number of them.

  For the example above, the average slope is:

  36 + 32 + 34 + 36 + 36 = 174
  174 ÷ 5 = 34.8, or 35% Slope

v. Vegetation Protection Standards

"Vegetative cover" is defined as:

Mixed vegetation within the Protected Shoreland Area, consisting of trees, shrubs, groundcover and duff.

Vegetative cover within the Protected Shoreland Area must be managed according to the Vegetation Protection Standards, which use a "point system" to measure the vegetative cover within 25' x 25' "plots" and allows thinning only when a "plot" has more than the minimum number of "points" required to achieve a "well-distributed stand of trees."