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WATER BOUNDARIES ON CANADA LANDS: THAT FUZZY SHADOWLAND

Dr. Brian Ballantyne



Canada

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WATER BOUNDARIES ON CANADA LANDS: THAT FUZZY SHADOWLAND¹

Dr. Brian Ballantyne

Surveyor General Branch
Natural Resources Canada

November 2015

¹ Shermer. *Science friction*. p.xxxi. 2005: "On the edge between the known and the unknown, in that fuzzy shadowland that offers a unique perspective on both knowing and not knowing ..."



WATER BOUNDARIES ON CANADA LANDS: THAT FUZZY SHADOWLAND

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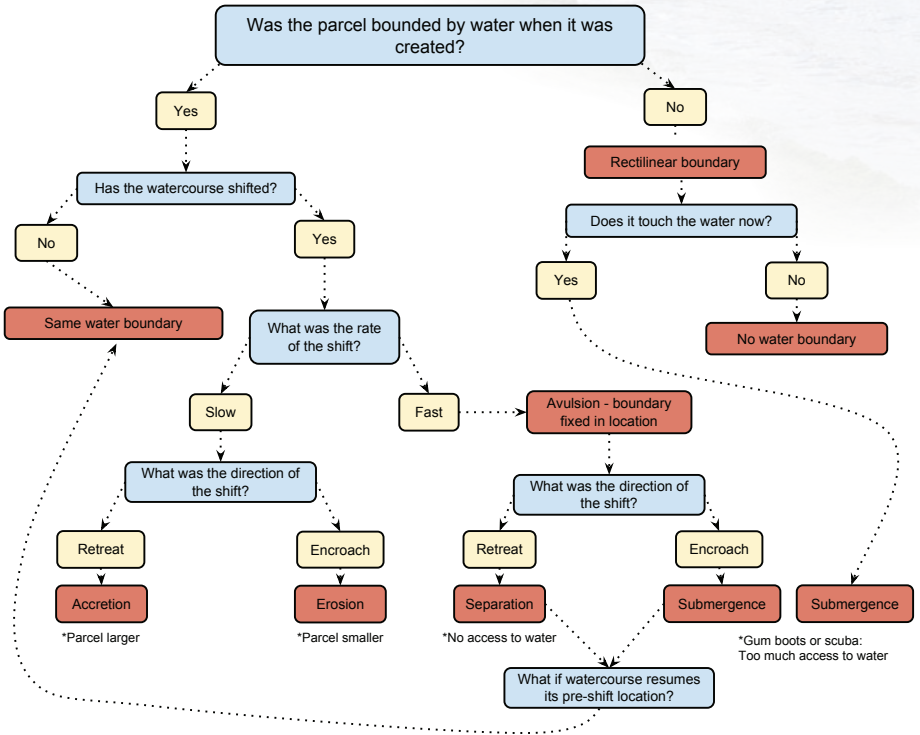


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Executive summaries

A canoeist who hopes to make progress faces forwards, not backwards.²

One flow-chart:



Two haikus:

Primary question:
Did the parcel touch water,
At time created?

Ambulatory?
Accretion or erosion?
It can get tricky.

² *Beckman v Little Salmon/Carmacks First Nation*, 2010 SCC 53, at para 10.



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The water in the river seems to be in a constant state of ebullion.³

1. This monograph was drafted in November 2011; distributed widely to academia; to the provinces (through the Canadian Council on Geomatics); to the private sector; to Justice Canada; and through the Surveyor General Branch of Natural Resources Canada; revised in April 2014; and distributed for critique again. It has benefitted from 24 critiques (see Acknowledgments for reviewers and reviewing venues).⁴ Most significantly, this monograph is indebted to the various collections of boundary principles that pre-date it. It aims only to advance the debate a wee bit beyond La Forest with *Water law in Canada* (1973), Bartlett with *Aboriginal water rights in Canada* (1988), Lambden with chapter 6 of *Survey Law in Canada* (1989), and Lambden and de Rijcke with *Legal aspects of surveying water boundaries* (1996).
2. Although the focus is on water boundaries of Canada Lands, the principles apply to all parcels across all jurisdictions in Canada (three territories and 10 provinces). Indeed, Canada Lands are bounded within each jurisdiction using the principles from that jurisdiction (i.e. terminology and feature). This means that Canada Lands' practice is consistent within each jurisdiction and varies across the 13 jurisdictions (because of variation across provinces and territories – Appendix 3).
3. Land surveyors have been long involved in developing water boundary principles, partly because of their role in establishing and re-establishing boundaries and partly because of their experience in observing watercourses. For example, Pearce DLS and Dennis DLS were instrumental in drafting the *Northwest Irrigation Act* of 1894 which eliminated *ad medium filum* as a boundary in much of Canada,⁵ and Klotz's insight on the six-year cycle between high

³ Klotz. Report on exploratory survey to Hudson's Bay, 1884. *Annual Report of the Department of the Interior for the year 1884*. p17.

⁴ "Why do I have to keep reading these technical manuals?" Waters. *Perfect sense - Amused to death*. 1992.

⁵ Burchill. The origins of Canadian irrigation law. *The Canadian Historical Review*. p353. 1948.

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and low waters was invaluable in understanding the Saskatchewan River.⁶

4. There is little merit in seeking high precision in re-establishing water boundaries. Such a quest is foolish in light of survey practice, the observations of the courts and the vagaries of nature. Darwin recognized that “nature produced no such lines of absolute demarcation” as he demanded: “Where were the boundaries?”⁷
5. Re-establishing water boundaries through survey is very fact-dependent; answers are arrived at “by carefully accreting experimental observations.”⁸ In re-establishing a boundary, surveyors and other boundary experts must be curious;⁹ be dogged;¹⁰ be reasonable;¹¹ and know their history.¹² See Figure 1 for a complex matrix of facts (rip-rap, vegetation, deposition, freshets) for a watercourse boundary in Yukon.



Figure 1 - Liard River at Alaska Highway, Yukon (2005)

⁶ Klotz. Report on exploratory survey to Hudson's Bay, 1884. *Annual Report of the Department of the Interior for the year 1884*.

⁷ Stott. *Darwin and the barnacle*. pp242 & 199. 2003.

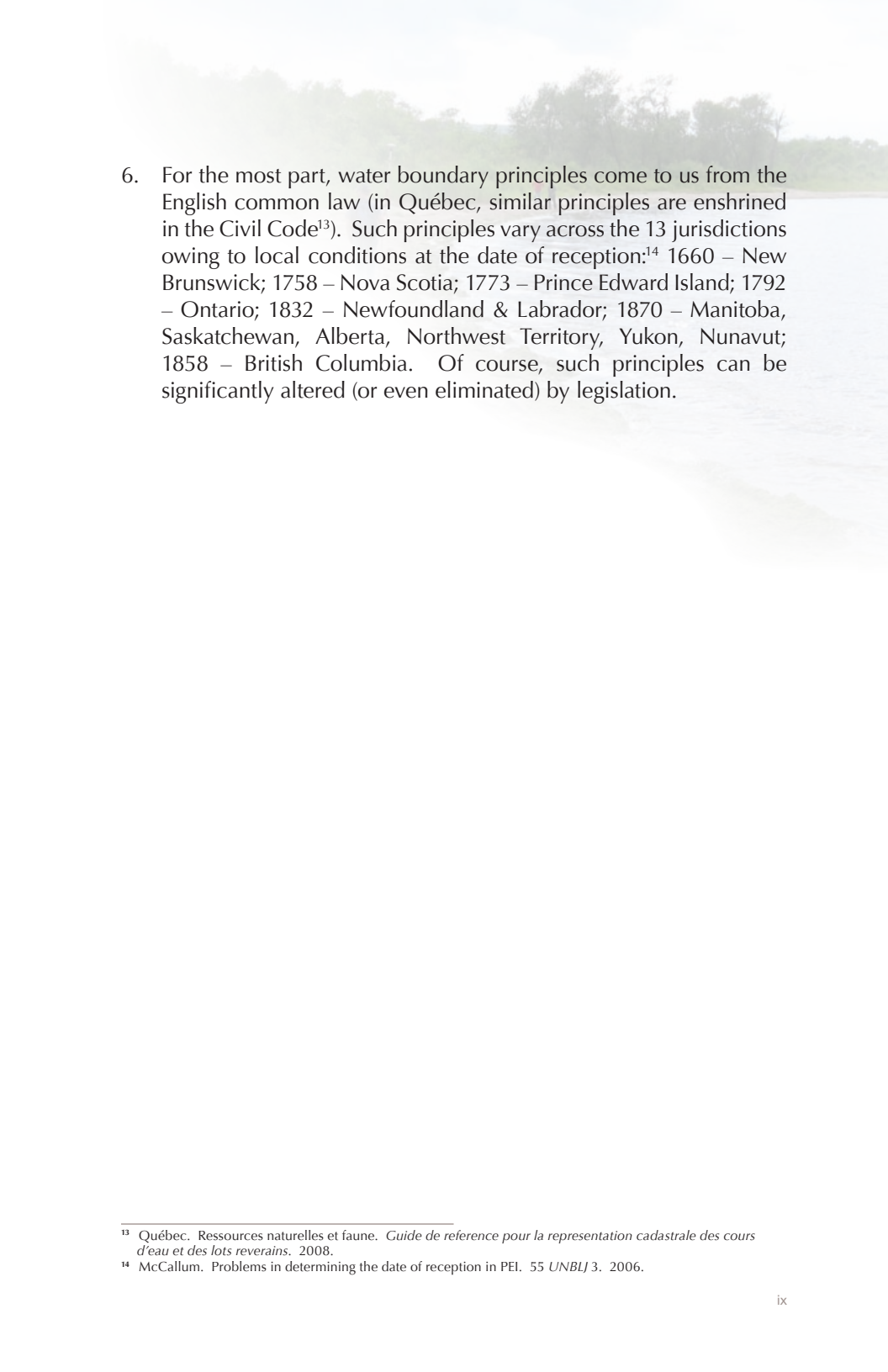
⁸ Lynch & Granger. *Big brain*. p180. 2008.

⁹ For instance, did you know that “standup paddle boarding is illegal under maritime law?” Taylor. *SUP – The Mag*. November 15, 2013.

¹⁰ As captured by the injunction to “leave no stone unturned.” Not to be confused with “no left turn unstoned,” the mantra of the Merry Pranksters: Wolfe. *The Electric Kool-Aid Acid test*. 1968.

¹¹ As represented by the dictum of Occam's razor.

¹² Those who cannot remember the past are condemned to repeat it: Santayana. *The life of reason*. 1905.

- 
6. For the most part, water boundary principles come to us from the English common law (in Québec, similar principles are enshrined in the Civil Code¹³). Such principles vary across the 13 jurisdictions owing to local conditions at the date of reception:¹⁴ 1660 – New Brunswick; 1758 – Nova Scotia; 1773 – Prince Edward Island; 1792 – Ontario; 1832 – Newfoundland & Labrador; 1870 – Manitoba, Saskatchewan, Alberta, Northwest Territory, Yukon, Nunavut; 1858 – British Columbia. Of course, such principles can be significantly altered (or even eliminated) by legislation.

¹³ Québec. Ressources naturelles et faune. *Guide de référence pour la représentation cadastrale des cours d'eau et des lots riverains*. 2008.

¹⁴ McCallum. Problems in determining the date of reception in PEI. 55 *UNBLJ* 3. 2006.

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1

General Principles

There is a certain imprecision, and perhaps imperfection.¹⁵

Is the survey of water boundaries a simple, mechanical task?

No, there “is some arbitrariness and opinion involved in deciding exactly where to determine the ... boundary to be”¹⁶ This arbitrariness results from a water boundary often being indistinct on the ground and having the potential to move. Such potential movement; ambiguous terms (e.g. OHWM, bank, natural boundary, water’s edge, edge of vegetation, water line, shore, coast and bed);¹⁷ and tension between public policy and private rights makes the re-establishment of water boundaries a fascinating task.

Can a court’s judgment on a boundary be ignored if a surveyor disagrees?

No. To the contrary, boundary re-establishment must adhere to a decision of the court. Thus, a 1993 survey which relied upon a 1949 survey which relied upon a 1910 survey which relied upon an 1829 re-establishment survey was held to be wrong, because the 1829 re-establishment was wrong. The boundary had been established in 1789;

¹⁵ *Andriet v County of Strathcona No. 20*, 2008 ABCA 27.

¹⁶ *Harris v Hartwell*, 1992 CanLII 1273 (BCSC).

¹⁷ Ross & Hopley. The water’s edge and the ripple effect of judicial error in the Common Law. *Journal of Environmental Law and Practice*. v16: 239. July 2006. de Rijcke. Does a presumption exist that a natural boundary is located at the water’s edge? *Geomatica*. v64-n2. pp257-264. 2010.

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and in 1852 the Court rejected the 1829 re-establishment location in favour of a second location 22 ch distant.¹⁸

How important is intention in re-establishing boundaries?

Intention is king.¹⁹ Current water boundary disputes tend to focus on ascertaining the original intention when re-establishing a water boundary; and not on the minutiae of boundary location (e.g. distinguishing between terrestrial and aquatic vegetation, or between water's edge and vegetation edge). So, the difficult and yet fascinating exercise is teasing out the intention at the time of boundary establishment and parcel creation.

Can intention often be gleaned from the plan of survey?

Yes, intention is often apparent from the survey plan.²⁰ For a 1921 subdivision on Georgian Bay (see Figure 2), the subdivider intended to retain title to the beach: "The intention of the original developer of the land is relevant to the determination of the boundary issue."²¹

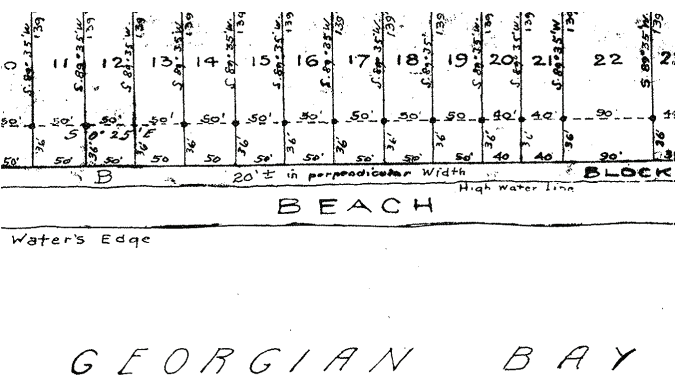


Figure 2 - Boundary held to be HWM, not water's edge, ON (Plan 656)

Must intention sometimes be inferred by looking behind the plan?

Yes, intention is sometimes not apparent from the plan, particularly when there is some ambiguity as to the character of the water boundary of the parent parcel. For a 1958 subdivision along Lake Huron, the court held that the subdivider intended to subdivide/transfer all that he

¹⁸ *J.D. Irving v Greer*, 1993 CanLII 6578 (NB QB); citing *Gaudin v M'Killigan* (1852), 7 NBR 393.

¹⁹ *Lackner v Hall*, 2013 ONCA 631, at para 15.

²⁰ For instance, s54 of the *Ontario Surveys Act* sets out that that every line, boundary and corner established by survey and shown on a plan of subdivision is a true and unalterable line, boundary or corner.

²¹ *Tiny (Township) v Battaglia*, 2013 ONCA 274, at para 71.

owned (see Figure 3). He simply was ignorant of the fact that his parcel was bounded by the lake and that he owned the beach; he presumed – incorrectly – that it was bounded by the back of the beach.²²

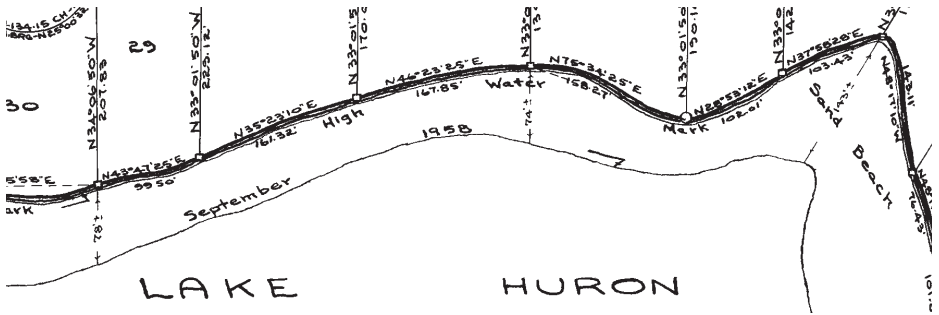


Figure 3 - Boundary held to be water's edge, not HWM, ON (Plan 509-B-1224)

Does the quest for intention extend to the creation of First Nation Reserves?

Indeed it does. There was uncertainty as to the status of a two chain strip (shore allowance) around a First Nation Reserve on Rainy Lake. Was it a road separate from the Reserve, or merely an easement within the Reserve? The relevant elements “include ... the intentions of the Crown and Ojibway and the actions ... taken by the parties to realize their intentions.”²³

So, are water boundary principles here to stay?

Those of interest to surveyors will likely remain. Although riparian rights can be changed by legislation, the rights of access and accretion/erosion have not been changed (with the exception of Saskatchewan), because they are relevant to using the parcel.²⁴

Are these principles applicable to Quebec, which relies on the Civil Code?

Mais oui. The principles are echoed in Articles 965 to 970 of the Quebec Civil Code. Indeed, the terminology is the same; deposition which is “gradually and imperceptibly formed” enlarges the riparian parcel (Article 965).

²² *Michnick v Bass Road Beach Association*, 2015 ONSC 1936.

²³ *Couchiching FN et al v AG Canada et al*, 2014 ONSC 1076, at para 18.

²⁴ La Forest. Water law of the future. *Canadian Bar Review*. v51. p307. 1973.

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Do these principles apply to First Nations Reserves?

Yes (see Figure 4). The courts have assumed, acknowledged and affirmed that the doctrines of accretion and erosion apply to Reserves, and that the *ad medium filum* presumption can apply along non-navigable watercourses (at least in western Canada).²⁵ Indeed, it is federal government policy that accretion and erosion apply to Reserves.²⁶ Moreover, commentators note that “Indian bands are riparian landowners.”²⁷

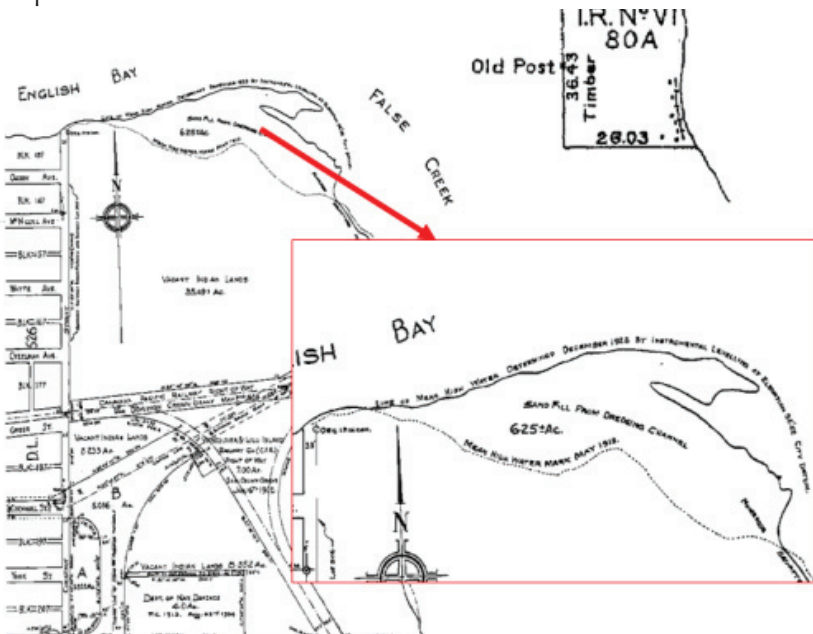


Figure 4 - Accretion to a First Nation Reserve, BC

Does this mean that Reserves enjoy all riparian rights at all times?

Not necessarily. Many riparian rights (such as the right to take water) were extinguished by the provinces before the creation of Reserves, meaning that Reserves do not have that specific right. To be clear, it is not that all riparian rights were extinguished; accretion and erosion remain unscathed.²⁸

²⁵ *Re Brew Island*, 1977 CarswellBC 330; *Dunstan v Hell's Gate*, 1987 CanLII 2410 (BCCA); *R v Douglas*, 2004 BCCP 279; *Canada AG v CPR*, 2002 BCCA 478; *Watts v Kincolith Indian Band* 2000 CanLII 15092; *R v Iroheagle*, 2000 SKQB 553; *R v NTC Smokehouse Ltd*, 1993 CanLII 4521 (BCCA).

²⁶ AANDC Interpretation Bulletin 10-04 (July 2002) & Directive 10-3 (October 2003).

²⁷ Bartlett. *Aboriginal water rights in Canada*. p50. 1988.

²⁸ *Saik'uz First Nation and Stellat'en First Nation v Rio Tinto Alcan Inc*, 2015 BCCA 154.

How reliable are the watercourses shown on original plans of survey?

If the watercourse was not traversed in the original survey, then its location is only an estimate (as interpolated between two section lines in the Dominion Lands Survey system) and might well be in error.²⁹ Moreover, the watercourse location is reliable only at the time of survey; there can be significant time lags between fieldwork and plan drafting; and between registering the plan and granting the rights in the parcel.

What if the watercourse shifts between time of survey and time of parcel creation (e.g. creating a Reserve, granting a Crown patent, registering a subdivision plan, or raising a new title)?

The significant date is when the parcel is created. The location of the watercourse and thus the location of the water boundary pertains when the parcel is created and not when the parcel/watercourse is surveyed: “The test is whether the land in fact comes to the water’s edge under the grant and not upon the manner of land description within the grant.”³⁰ The time of survey pales into insignificance because “riparian rights exist ... at the time of the original Crown grants.”³¹

What of the interface between a river and a lake?

Such a boundary is nebulous, and relies on a mixture of custom (is there a distinction in local jurisdiction?),³² physical geography (are there distinct headlands?) and fluvial geomorphology (is there a change in water turbidity, flow, ice-cover, salinity, tidal reach?). Certainly, there is no legal principle that distinguishes between rivers and lakes.

What of closing lines across the mouths of rivers?

Closing lines represent the surveyor’s opinion on the day of the location of the water boundary, and are typically used to extend a boundary across the mouth of a stream that flows into a larger watercourse, or to overcome discontinuities in the physical bank (i.e. a short straight line delineating the bank used to connect two longer curvilinear lines

²⁹ *Hextall v Burns* (1911), 38 WWR 422 (Alta SC).

³⁰ *Chuckry v Manitoba*, [1972] 27 DLR(3d) 164, at 177; affirmed at SCC.

³¹ *Lack v Alberta*, 2011 ABQB 379, at para 60.

³² For example, the NWT *Legislative Assembly and Executive Council Act* bounds the Hay River North constituency “across the mouth of the Hay River and along the southern shore of Great Slave Lake.”

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that delineate the bank). A closing line is different from substituting a demarcated, rectilinear boundary for a natural features boundary, when the said feature does not exist or cannot be found on the ground.³³ Such substitution changes a water boundary (with the potential to shift) to a non-water boundary.

³³ *Tlicho Land Claims and Self Government Agreement*. Section 18.4.4. 2003.

2

Is it a riparian parcel?

To tell a story you have to touch its contours, allowing absences, like demarcating land and water.³⁴

What is a frontager?

Since at least 1622, a frontager has been an upland riparian proprietor who possesses a parcel with a water boundary.³⁵

How is a watercourse distinguished from a waterway?

They are one and the same; both terms imply flowing water, defined features and the potential to be navigated.³⁶ Only watercourses/waterways have water boundaries; only parcels bounded by watercourses (riparian parcels) enjoy riparian rights.

Is the watercourse part of the parcel?

This is a question of fact and law. For the facts, was the watercourse explicitly included through survey and plan, area considerations, OIC description (e.g. “centre of the x River”), policy, instructions. Was it implicitly included as being integral to the community (e.g. to

³⁴ Brenda Draney, winner of the 2009 RBC Canadian Writing Competition

³⁵ *The reading of the famous and learned Robert Callis*. p57. August 1622.

³⁶ *Manitoba Treaty Land Entitlement Framework Agreement*, s12.01. May 29, 1997

allow fishing), as allowing water privileges to be enjoyed, or by not being reserved/excepted (i.e. no evidence of intention to exclude)?³⁷ Conversely, was the watercourse explicitly excluded through traverse and area calculations?

For the law, is there legislation that explicitly excepted the watercourse such that it was retained by the Crown (see Appendix 2 for Crown retention of watercourses); and what is the effect of such legislation to fee simple parcels, Crown lands and Reserves? The doctrine of interjurisdictional immunity restricts provincial legislation affecting lands from having any effect on Reserves³⁸ or on federal property.³⁹

How is a watercourse distinguished from a wetland?

A watercourse has a channel with distinct banks, a flow in the direction of the gradient, an inlet at the upstream end and an outlet at the downstream end.⁴⁰ A wetland (e.g. swamp, marsh, fen, bog, slough) has no defined banks; “A body of water is not the same as soft swampy earth. A puddle is not public.”⁴¹

Does a parcel bounded by a wetland have a natural boundary?

Yes, but it is not a water boundary. If bounded by a wetland, then the upland parcel is not riparian and enjoys no riparian rights. The test is whether the parcel is “as a substantial fact, bounded or covered in part by the waters” of the watercourse.⁴² The boundary of a wetland is often uncertain and indefinite, relying as it does on botanical criteria, so the “different sources and windings” are best described by a survey plan.⁴³

What of a parcel that is both firm and marshy, yet is bounded by a watercourse?

Such a hybrid parcel (see Figure 5) is riparian and has a water boundary, “bounded partly by firm land and partly by marshy land.”⁴⁴

³⁷ Such explicit inclusion does not rely on the *ad medium filum* presumption (see Section 8).

³⁸ *Sechelt Indian Band v British Columbia*, 2013 BCCA 262.

³⁹ *Mississauga v GTA*, 2000 CanLII 16948 (ONCA).

⁴⁰ *Kapicki v Andruick* [1975], 2 WWR 264 (Alta SC).

⁴¹ *Maticuk v Quattro Holdings Ltd*, 2013 ABCA 340, at para 2.

⁴² *Merritt v City of Toronto*, 1913 CanLII 6 (SCC).

⁴³ *Ledyard v Young* [1914], OWN 146.

⁴⁴ *Bartlett v Delaney*, 1913 CarswellOnt 892 (Ont CA), at para 2.



Figure 5 - A problematic water boundary with upland, wetland and watercourse, YK

What of a parcel that contains an aquifer?

An aquifer is groundwater; such a parcel is not riparian. It merely contains “water percolating through underground strata, which has no certain course, no defined limits, but which oozes through the soil in every direction in which the rain penetrates.”⁴⁵

What of fractional ¼ sections riddled with wetlands (e.g. swamps)?

The fractional descriptor means that the parcel contained less than 160 acres of arable land when it was granted, and that the grantee paid on the basis of the dry area. The entire ¼ section was generally granted; the parcel has no water boundaries.⁴⁶

What of shore road allowances?

If a shore road allowance separates a parcel from the water, then the parcel is not a riparian parcel, does not have a water boundary and can neither gain through accretion⁴⁷ nor lose through erosion.⁴⁸ The road

⁴⁵ *Halalt First Nation v British Columbia*, 2011 BCSC 945, at para 505.

⁴⁶ *Manitoba v Thomas* [1948 - v2], WWR 444.

⁴⁷ Re: *Monashee Enterprises and Minister of Recreation BC* (1981), 124 DLR (3d) 372 (BCCA); *White v Village of Rosseau* (1995), 49 RPR(2d) 88 (Ont Gen Div).

⁴⁸ *Volcanic Oil and Gas Co. v Chaplin* (1914), 31 OLR 364 (Ont CA).

allowance has a water boundary, as for the 100 ft strip that is reserved from Crown grants along navigable watercourses in the territories.⁴⁹

What of a shore allowance on a First Nation Reserve whose purpose is ambiguous?

If the shore allowance is an easement, then the Reserve is a riparian parcel, bounded by the water. However, if the shore allowance was surveyed “as a separate physical entity from the body of the ... Reserve,” then the allowance is a riparian parcel with a water boundary and the Reserve has a rectilinear boundary distant from the water.⁵⁰



Is a parcel that touches a watercourse necessarily a riparian parcel?

No. If the parcel is created without reference to the watercourse then it is not a riparian parcel and has no water boundaries (see Figure 6). Rather, it has a series of rectilinear bounds which are fixed in location, although the parcel might enjoy access to water if it touches (or is submerged by) water.

Figure 6 - Non-riparian parcels without water boundaries but with access, SK

Surely the upland riparian parcel must touch the water at all times?

No, riparian status does not require that the parcel touch the water at all times.⁵¹ It need only touch the water during some seasons or during some portion of the day.

⁴⁹ Territorial Lands Act, s.13; NWT Lands Act, s11; Territorial Lands (Yukon) Act, s11.

⁵⁰ Couchiching FN v AG Canada et al, 2014 ONSC 1076 (Ont SCJ), at para 497.

⁵¹ Flewelling v Johnson (1921), 59 DLR 419 (Alta CA).

3

Non-tidal bounds⁵²

We had all the momentum; we were riding the crest of a high and beautiful wave. So now, less than five years later, you can go up on a steep hill ... and look West, and with the right kind of eyes you can almost see the high-water-mark – that place where the wave finally broke and rolled back.⁵³

How is a non-tidal water boundary to be located on Canada Lands?

The *National Standards for the Survey of Canada Lands* (2014) set out that a water boundary is located “in keeping with provincial or territorial statute or custom”⁵⁴ (see Figure 7). For instance:

- ◆ In British Columbia, present natural boundary is used, which accords with the change in vegetation or soil owing to the continued presence of the water;
- ◆ In Ontario, water’s edge is used, which accords with water’s edge under non-extreme (freshet, storm) conditions.
- ◆ In the north (Yukon, NWT, Nunavut), ordinary high water mark is used as the limit or edge of the bed of a body of water.

⁵² It is tempting to refer to such bounds as freshwater. They are not; the distinction in water boundaries is a function of the tides, not of salinity.

⁵³ Thompson. *Fear and loathing in Las Vegas*. p68. 1971.

⁵⁴ NRCan. *National standards for the survey of Canada Lands*. c5.01 – Water boundaries. 2014.

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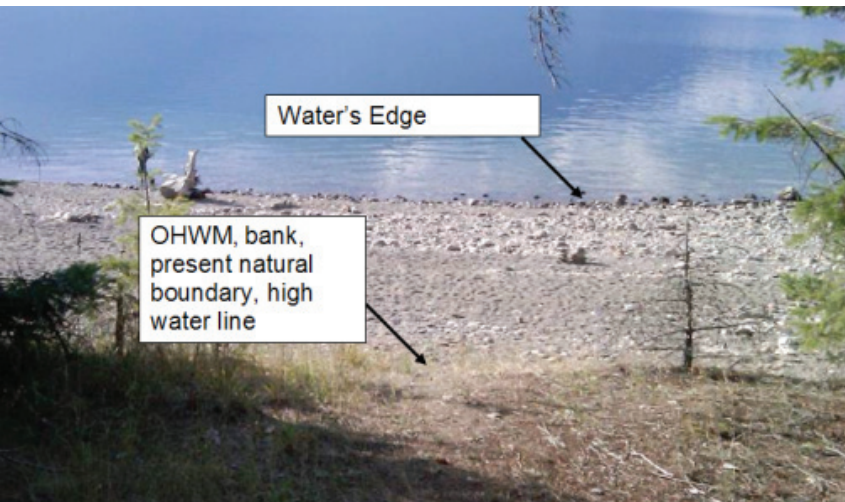


Figure 7 – Variance in water boundary terminology and application across jurisdictions

Is this a change in practice?

Yes and no. The use of ordinary high water mark (OHWM) as a label is discontinued in jurisdictions where OHWM is not used; the survey of water boundaries consistent with the practice in the local jurisdiction continues.

Which jurisdictions focus on changes in soil and vegetation?



Figure 8 - OHWM boundary between wetland (upland) and watercourse, MB

OHWM is used in Newfoundland & Labrador, Nova Scotia, the three Territories, and Manitoba (see Figure 8). The definition of OHWM differs insignificantly across these jurisdictions: “The limit or edge of a body of water where the land has been covered by water so long as to wrest it from vegetation or as to mark a distinct character upon the vegetation where it extends into the water or upon the soil itself.”

Quebec uses high-water line, defined as the average, ordinary high-water mark, irrespective of seasonal variations - the effects of torrential rains, uncommon floods and spring flooding are ignored.⁵⁵ Bank is used in Alberta and Saskatchewan; its definition is similar to OHWM: "Bed and shore covered so long by water as to wrest them from vegetation, or as to mark a distinct character on the vegetation or on the soil." In British Columbia present natural boundary is similar:

The visible high water mark of any lake, river, stream or other body of water where the presence and action of the water are so common and usual, and so long continued in all ordinary years, as to mark on the soil of the bed of the body of water a character distinct from that of its banks, in vegetation, as well as in the nature of the soil itself.

It is not always the vegetation edge that represents the boundary; sometimes discolouration on the rocks represents the boundary.

Which jurisdictions focus on the water's edge?

Prince Edward Island and Ontario use water's edge for all non-tidal watercourses, defined as the location of the water on the day of survey (excluding storm surges and spring freshets). Thus, water's edge has been used as the boundary of Canada Lands in Ontario since May 17, 1980.⁵⁶ New Brunswick uses either *ad medium filum* (to the middle thread) for rivers⁵⁷ or water's edge for lakes.⁵⁸

Can a grantor use any feature or location for a water boundary?

Yes, a grantor can use any feature or location that lies within the parent parcel for the water boundary of a subdivided parcel. For example, the Labrador Inuit land claim parcel uses the "water's edge of a river, stream or body of water."⁵⁹ Thus, the non-tidal water boundaries of an abutting parcel, Mealy Mountain National Park (Labrador), are water's edge.⁶⁰

⁵⁵ *Le droit Quebecois de l'eau*, citing *Girard v Price Brothers* (1929), 47 BCR 68.

⁵⁶ CLSR Plan 67082.

⁵⁷ *Boyd v Fudge*, 1964 CarswellNB11 (NBCA). See Section 8 for the *ad medium filum* presumption.

⁵⁸ *Merriman v New Brunswick*, 1974 CarswellNB 23 (NBCA).

⁵⁹ *Labrador Inuit Land Claim Agreement*. p3. 2005.

⁶⁰ CLSR Plans 103394, 103395, 103400.

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What is the genesis of vegetation edge and water's edge as boundaries?

The use of vegetation and the use of water as criteria both come from the Supreme Court of Canada. The vegetation boundary (see Figure 9) comes from *Clarke v. City of Edmonton*, which described the banks of a river as:

Those elevations of land which confine the waters when they rise out of the bed; and the bed is that soil so usually covered by water as to be distinguishable from the banks, by the soil, or vegetation, or both, produced by the common presence and action of flowing water ... The line is to be found by examining the bed and banks, and ascertaining where the presence and action of water are so common and usual, and so long continued in all ordinary years, as to mark upon the soil of the bed a character distinct from that of the banks.⁶¹

The water's edge boundary (see Figure 10) comes from *AG Ontario v. Walker*, in which the boundary on a large lake was the "edge" of the lake, and not the back of the beach.⁶²

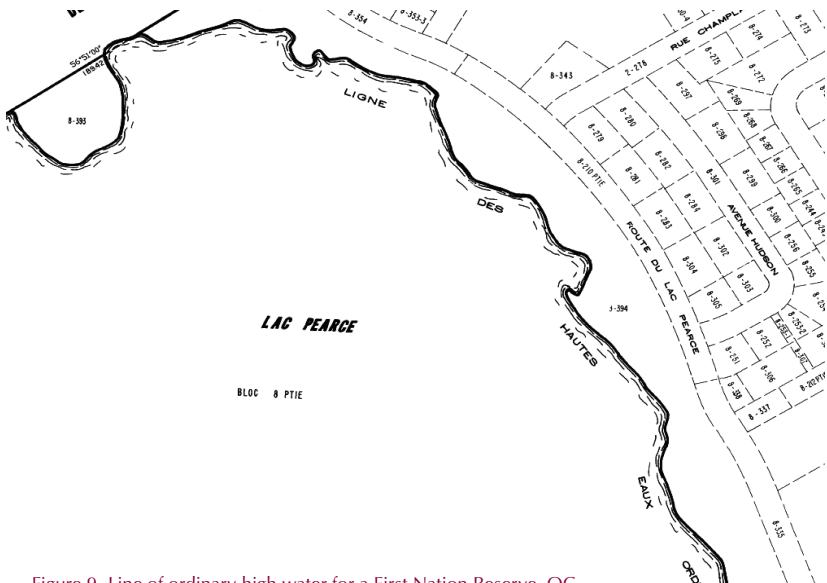


Figure 9—Line of ordinary high water for a First Nation Reserve, QC (CLSR Plan 81156)

⁶¹ *Clarke v City of Edmonton*, [1929] 4 DLR 1010 (SCC).

⁶² *AG Ontario v Walker*, [1975] 1 SCR 78 (SCC).

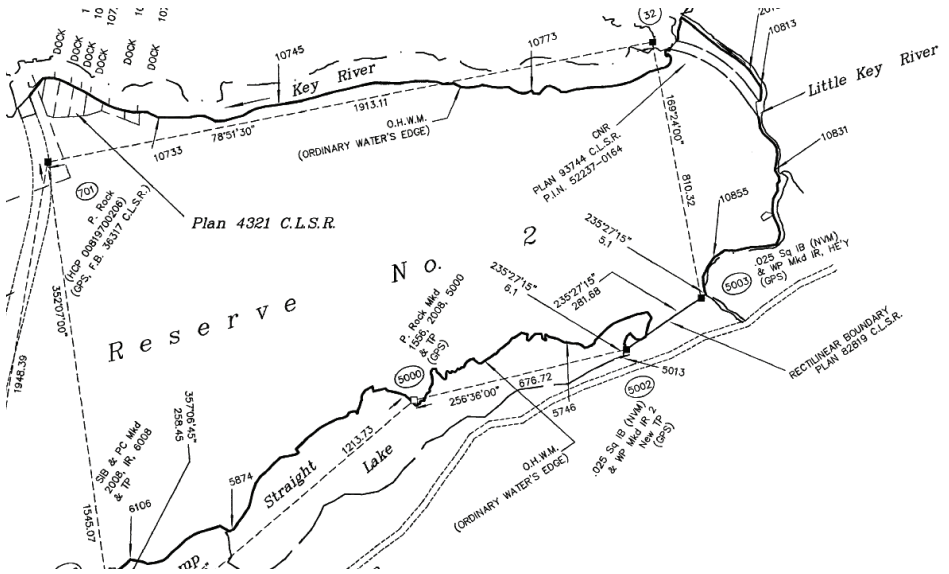


Figure 10—Ordinary water's edge for a First Nation Reserve, ON (CLSR Plan 98277)

What role does statutory interpretation play in re-establishing water boundaries?

If a jurisdiction has defined in legislation a water boundary and has set out a procedure for its re-establishment, then the definition and procedure must be interpreted. Bank is defined in Saskatchewan as “the line where the bed of the body of water ceases.” Thus, “the critical issue of where the bank lies is ultimately a question of law to be decided on the basis of statutory interpretation.”⁶³ The boundary was held to be at the location where vegetation ceased to grow because of water coverage (at McLeod line on Figure 11).

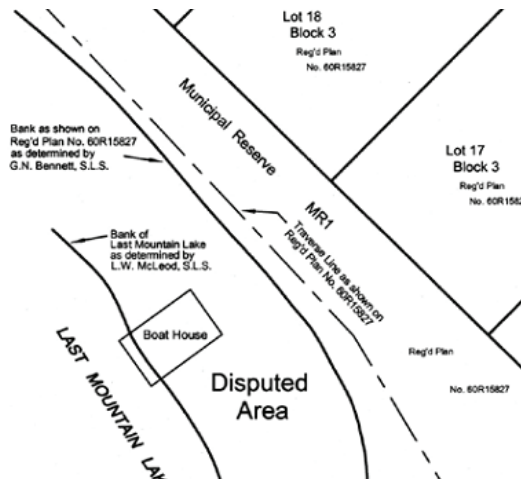


Figure 11 - Boundary as the edge of vegetation, SK (2010)

⁶³ Resort Village of Island View v Romashenko, 2010 SKCA 4.

WATER BOUNDARIES ON CANADA LANDS: THAT FUZZY SHADOWLAND

Is ordinary low water mark (OLWM) a misnomer?

Yes, although *Walker* set out that “the water’s edge at still water” is “known as the low water mark” such marks do not exist in nature. The very fact that water is usually above such levels eliminates any such mark. So, be wary of confusing a descriptor with a feature/location; the context is critical. Thus, one of the boundaries of Wood Buffalo National Park - the “low water mark on the southerly or westerly shore” of Lake Athabasca - is to be interpreted in light of the *Walker* definition.

In assessing the extent of accretion to a riparian parcel on the Fraser River, the parcel was described as bounded by the OLWM of the river. However, the court elaborated “that is to say, the flowing waters of the Fraser River at times other than freshet” (i.e. as the river flows for eight months each year).⁶⁴ This meant merely that the boundaries are unaffected by freshets (as the river flows for four months each year).



Figure 12 - Distinct high water marks at Rainy Lake, ON (1915)

⁶⁴ *R v Douglas et al - Ruling on Voir Dire*, 2000 BCPC 8 (CanLII).

If reference to low and high marks is misleading, how is one to be guided?

For vegetation boundaries, emphasize “ordinary” rather than “high” (see Figure 12) so as to re-establish:

- ◆ “the usual position of the water in ordinary years under natural conditions.”⁶⁵
- ◆ the river’s “average height”⁶⁶
- ◆ “the ordinary summer highwater mark”⁶⁷
- ◆ “the boundaries of the stream in full normal flow, but not in flood.”⁶⁸

For water’s edge boundaries on rivers focus on the usual position of the water in ordinary years under natural conditions (see Figure 13). For lakes, the boundary is to be re-established:

- ◆ “when the waters of the lake recede to the July-August level, after spring freshets.”⁶⁹
- ◆ At “the ordinary summer level” or the “mean level of the lake during the open season.”⁷⁰



Figure 13 - A surveyor’s opinion of a water boundary, ON

⁶⁵ *Morrison v Styles*, January 21, 1985; Ont Div Ct, affirming the *Boundaries Act* decision.

⁶⁶ *Plumb v McGannon*, (1871), 32 UCQB 8.

⁶⁷ *AG New Brunswick v Town of Newcastle*, [1948] 1 DLR 47 (NBSC).

⁶⁸ *Scarboro Golf & Country Club v City of Scarborough* (1986), 28 DLR (4th) 321 (Ont SC).

⁶⁹ *Merriman v. New Brunswick* (1974), 45 DLR (3d) 464 (NBCA).

⁷⁰ International Joint Commission. *Report on Lake of the Woods*. p53. 1917.

**WATER BOUNDARIES ON CANADA LANDS:
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Figure 14 – Two surveyors' opinions of a water boundary, NWT



Figure 15 – A surveyor's opinion of a water boundary, AB (CLSR FB33629)

Were parcels in western Canada ever surveyed or granted to the water's edge?

Yes, the 1892 Manual of Instructions set out that plans were to show "the extent of water at the time of survey."⁷¹ So, Pitt's parcel in Alberta was granted in 1889, described as 140 acres within the NE ¼ section lying north and west of the "water's edge of the north shore of the Red Deer River," following "the said water's edge" to the south boundary of the NE ¼.⁷² Parts of Buffalo Point Reserve in Manitoba were re-surveyed in 1997 to the water's edge, because "Lake of the Woods is a regulated waterway."⁷³

Does the upland riparian parcel include the shore?

No. If water's edge is not used as the boundary, then the shore is the area uncovered when the flow is below the bank (for rivers) or when the water is below the normal summer level (for lakes). Although the parcel does not include the shore, the riparian proprietor enjoys the right of access across the intervening strip to navigable waters (see Figure 16). This riparian right of access towards the watercourse is distinct from the public right of navigation along the watercourse (see Appendix 4).

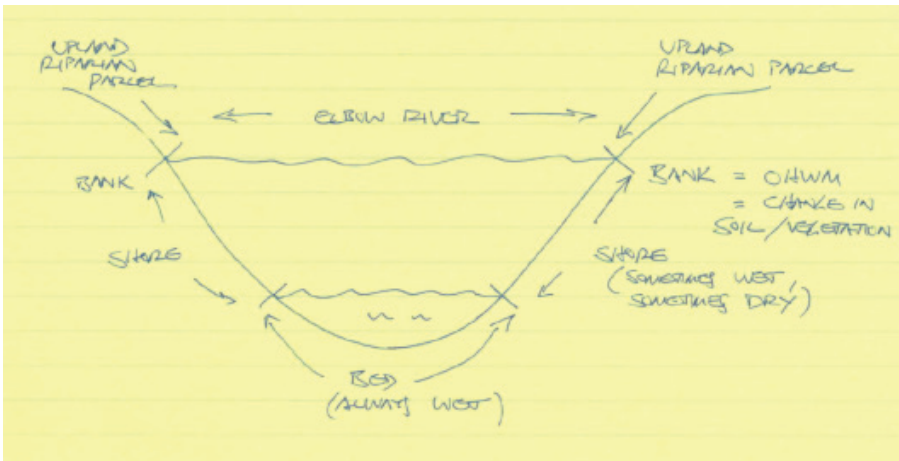


Figure 16 – Watercourse in western Canada (bank is also the normal, summer, post-freshet level)

⁷¹ *Manual of Instructions for the Survey of Dominion Lands* (4th ed). 1892.

⁷² *Red Deer (City of) v Pitt*, 1998 ABQB 724, at para 16.

⁷³ CLSR Plans 80194, 80298, 80366 and 80367.

**WATER BOUNDARIES ON CANADA LANDS:
THAT FUZZY SHADOWLAND**

4

Tidal regime & jurisdictional bounds

A band of this beach is drowned, and exposed, and drowned again. And so on, every day, forever. This patch of territory is ... a contrary place. It cannot make up its mind: Am I earth or am I ocean? This territory is called the landwash. Opposing syllables express precisely the paradoxical reality of the winding serrated ribbon of foreshore circling the island.⁷⁴

What is the typical water boundary on tidal waters?

The boundary of the upland riparian parcel is the “high tide line”⁷⁵ or mean high water mark (MHW/OHWM) - the average of the high spring and high neap tides. Evidence of the MHW might include the state of vegetation and the accumulation of drift-wood and debris; a practice “generally accepted and followed” by surveyors and endorsed by the courts as early as 1918 and as recently as 2010.⁷⁶

Although vegetation might be persuasive, it is not conclusive. A vegetation line is often the result of freshets, and “there is a very distinct difference between freshet marks on a tidal river and high water mark.” The former is often a distinct line and should be ignored; the latter might be represented by a slight gravel ridge.⁷⁷

⁷⁴ Kavanagh. A boy can find his soul in Conception Bay. *Globe and Mail*. pT-3. June 16, 2001.

⁷⁵ *King Island Clay Ltd. v. Upton*, 1995 CanLII 3438 (BCCA).

⁷⁶ *Nelson v. Pacific Great Eastern Ry Co*, [1918] 1 WWR 597, at 601 (BCSC); *Lawrence v. British Columbia (AG)*, 2010 BCSC 309

⁷⁷ *Turnbull v. Saunders*, 1921 CarswellNB 27 (NBCA).

WATER BOUNDARIES ON CANADA LANDS: THAT FUZZY SHADOWLAND

Can tide gauges be used to locate MHWM on tidal waters?

Yes, but only if the gauges are reliable; are located close to the boundary; and are in areas of similar topography to the survey site.⁷⁸ Often, MHWM is transferred from physical marks (see Figures 17 & 18).



Figure 17 – Acquiring tidal bound (MHW) from wharf, NS



Figure 18 – Transferring tidal bound (MHW) to foreshore, NS

⁷⁸ Nichols. *Tidal boundary delimitation*. University of New Brunswick Technical Report 103. 1983.

What is the foreshore on tidal waters?

The foreshore is the area between MHWM and mean low water mark (MLWM/OLWM); the area uncovered at low tide (the beach). It remains in the Crown in right of the province,⁷⁹ meaning that the province can grant a parcel bounded by the “north shore of the said river [Saint John] at low water mark.”⁸⁰

Are lines of administration for resource-sharing jurisdictional boundaries?

No, such lines are not jurisdictional boundaries. Accords between Canada and a province provide no basis for a provincial claim to legislative jurisdiction over any offshore area.⁸¹

What is the jurisdictional water boundary between the provinces and Canada?

The starting position is that provinces extend to MLWM/OLWM, and that jurisdiction beyond that boundary vests in Canada.⁸² So, Canada Lands are below OLWM. However, this principle is honoured more in the breach than the observance, for there are four common exceptions: *intra fauces terrae* (or juridical) bays; historic bays (e.g. Conception Bay, NL); pre-Confederation descriptions/title (e.g. St. Lawrence River; Bay of Fundy); pre-Confederation statutes (e.g. Georgia Strait; Baie de Chaleurs).

For example, the four straits east of Vancouver Island are part of British Columbia (Juan de Fuca, Georgia, Johnston, Queen Charlotte).⁸³ The Bay of Chaleurs is under provincial jurisdiction, divided by a median line between Quebec to the north and New Brunswick to the south.⁸⁴ The St Lawrence River upstream of a line between Cap-des-Rosiers, the west end of Anticosti Island and “the River of St John” is part of Quebec.⁸⁵

⁷⁹ *Esquimalt and Nanaimo Railway Company*, [1918] WWR 356 (PC).

⁸⁰ *City of Saint John v. Wilson*, 1902 CarswellNB 8 (NBSC).

⁸¹ Calderbank, et al. *Canada's offshore: Jurisdiction, rights and management*. Association of Canada Lands Surveyors & Canadian Hydrographic Association. 3rd edition. 2006.

⁸² *Reference Re: Offshore mineral rights of British Columbia*, [1967] SCR 792; *Reference Re: Seabed and subsoil of the continental shelf offshore Newfoundland*, [1984] 1 SCR 86.

⁸³ *Reference re: Ownership of the bed of the Strait of Georgia and related areas*, [1984] 1 SCR 388.

⁸⁴ *An Act for the settlement of the boundaries between the Provinces of Canada and New Brunswick*, 1851.

⁸⁵ Royal Proclamation of 1763.

WATER BOUNDARIES ON CANADA LANDS: THAT FUZZY SHADOWLAND

What of historic bays?

The historical use of bays by provinces up to the time of Confederation (1867 for New Brunswick, Nova Scotia and Quebec, 1871 for BC, 1873 for PEI and 1949 for NL) is relevant.⁸⁶ For instance, the Baie de Gaspé is part of Québec, because it was a duty-free port from 1861 to 1866, wharfing 40 ships a year and hosting consulates from USA, Italy, Portugal, Norway and Brazil.

*Does the *intra fauces terrae* exception mean that many bays, although below OLWM, vest in the provinces?*

Yes. *Intra fauces terrae* (within the jaws of the land) dates to 1315; and involved the jurisdiction of the county coroner over an incident on the bay: "It is no part of the sea, where one may see what is done of the one part of the water, and of the other, as to see from one land to the other ..."⁸⁷ It is thus an exception that acknowledges the intimate relationship of a bay with the processes of life on shore, such that the bay is legally assimilated to the land.

Do closing lines play a role in ascertaining whether a curvature is a bay?

No. A 6 nM closing line test for *intra fauces terrae* bays was rejected by the Britain-USA fishing arbitration in 1910.⁸⁸ Such closing lines – be they 6 nM, 10 nM or 24 nM - are creatures of international law to be used only for baseline purposes and not for jurisdictional boundaries.

*How does the *intra fauces terrae* exception apply in Canada?*

The primary test is geographic: Does the curvature of the coastline look like a bay? The secondary test is historic: Was the bay used as if it was part of the abutting upland jurisdiction? If the tests are answered in the affirmative, then the bay is intimately associated with the land; it is embraced within the land. All use – from time immemorial to the present - has a role for *intra fauces terrae*: "The utility of the waters is highly relevant to bay delimitation, to be assessed factually, based on the actual usage of the waters in question."⁸⁹

⁸⁶ *Direct United States Cable v Anglo-American Cable*, [1877] 2 AC 394.

⁸⁷ Staunton J (1315) in Lord Coke's *Fourth Institute* (1641); as recounted in *Re: Ownership of the Bed of the Strait of Georgia* [1984] 1 SCR 441 (Wilson J in dissent).

⁸⁸ North Atlantic Coast Fisheries Arbitration (1910): La Forest. Canadian inland waters and the Bay of Fundy incident. *The Canadian Yearbook of International Law* 1963, at 160.

⁸⁹ Westerman. When good courts go wrong: A critique of the Supreme Court's domestic maritime boundary jurisprudence. 8 *Loyola Maritime Law Journal* 1, at 45. 2010.

What have the courts said about intra fauces terrae?

The cases have addressed the fundamental question: Are the waters of the indentation so closely related to provincial interests that a conclusion can be reached favouring those interests? In all cases, entrance width/length and depth (penetration) have been irrelevant; none of the cases have insisted that depth exceed width or that area exceed a standard; none have required hydrographic surveys. Six examples should suffice:

- ◆ Perce Harbour (including Perce Rock),⁹⁰ Quebec: 3.5 km wide and 4 km deep.
- ◆ Section 79, Renfrew District, British Columbia:⁹¹ 2.5 km wide and 0.8 km deep⁹². (Figure 19)
- ◆ St Margaret's Bay, Nova Scotia:⁹³ 6 km wide and 16 km deep.
- ◆ Sydney estuary, Nova Scotia:⁹⁴ 7 km wide and 8 km deep.
- ◆ Telegraph Cove, British Columbia:⁹⁵ 1.6 km wide and 2.4 km deep.
- ◆ Louisbourg Harbour, Nova Scotia:⁹⁶ 2 km wide and 2-4 km deep.

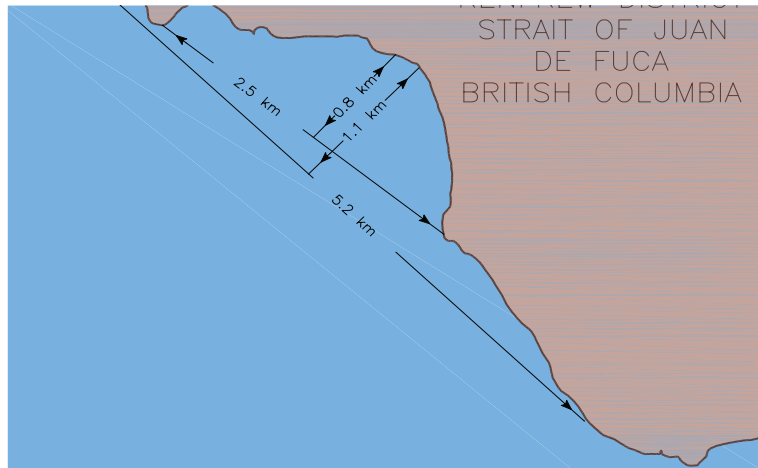


Figure 19 - Bay on Strait of Juan de Fuca held to be *intra fauces terrae*, BC (1905)

⁹⁰ *Duguay v North American Transportation Company*, 1902 CarswellQue 255 (Que CA).

⁹¹ *Capital City Canning & Packing v Anglo-British Columbia Packing*, 1905 CarswellBC 72 (BCSC).

⁹² Or 5 km wide and 1 km deep; the bay is not well identified in the case.

⁹³ *R v Boutilier*, 1929 CarswellNS 27 (NSCA).

⁹⁴ *Dominion Coal Company v Cape Breton (County)*, 1962 CarswellNS 23 (NSCA).

⁹⁵ *R v Crown Zellerbach Canada Ltd.*, [1988] 1 SCR 401 (SCC).

⁹⁶ *Canada (AG) v Nova Scotia*, 1992 CarswellNat 1722 (FC).

WATER BOUNDARIES ON CANADA LANDS: THAT FUZZY SHADOWLAND

Can Canada and a province agree to an inter-jurisdictional boundary?

Yes, provided that there is no alteration to the boundaries that the province had at Confederation.⁹⁷ In the absence of such an agreement, then it is difficult to quibble with La Forest “that all adjacent inland bays form part of the Atlantic Provinces”⁹⁸ and that “claims could be made that all bays in these provinces ... were inland bays.”⁹⁹

Why is jurisdiction over bays significant?

For one thing, since 2012, the *Canadian Environmental Assessment Act* applies to “the internal waters of Canada, in any area of the sea not within a province.”¹⁰⁰

To what extent is OLWM used as a tidal boundary for Canada Lands?

Six National Parks have water boundaries that relate to some aspect of low water: Wapusk, Forillon, Ivvavik, Aulavik, Auyuittuq and Quttinirpaaq. Three use ordinary low water mark, two use low water mark, one uses average low water mark.¹⁰¹

Is there any relationship between OLWM and baselines?

The OLWM defines the seaward limit of the foreshore; it is not used as a baseline nor is a baseline defined in relation to the OLWM. The baselines used for purposes of defining Canada’s territorial sea are:

- ◆ lower low water large tide (LLWLT) which is below (seaward) of the OLWM;
- ◆ straight lines (below LLWLT) interpreted as geodesics between geographical coordinates; or
- ◆ the outer limits of any area, other than the territorial sea of Canada, over which Canada has a historic or other title of sovereignty.¹⁰²

⁹⁷ Section 3 of the *Constitution Act, 1871* and s43 of the *Constitution Act, 1982*.

⁹⁸ La Forest. *Water Law in Canada*. pp464-465. 1973.

⁹⁹ La Forest. Canadian inland waters of the Atlantic Provinces and the Bay of Fundy incident. *The Canadian Yearbook of International Law* 1963. p149-171.

¹⁰⁰ *Canadian Environmental Assessment Act, 2012*

¹⁰¹ CLSR Plan 78837 (Wapusk – OLWM); *National Parks Act* – Schedule 1.

¹⁰² *Oceans Act, 1996*, c31, s5.

Does the use of straight baselines impact water boundaries?

No. Water boundaries do not shift in location as a result of adopting baselines for defining administrative areas and Canada's territorial sea. The *Oceans Act* sets out that:

- ◆ the internal waters of Canada consist of the waters on the landward side of the baselines of the territorial sea of Canada;
- ◆ the internal waters of Canada form part of Canada;
- ◆ in any area of sea not within a province, the seabed and subsoil below the internal waters of Canada are vested in her Majesty in right of Canada.¹⁰³

Has intra fauces terrae been modified by Article 10 (from UNCLOS III)?

Yes, as is widely recognized. Canada's baselines subsume provincial bays, meaning that bay issues between Canada and the international community have been fossilized. Certainly, Article 10 of UNCLOS III has subsumed historic bays: "By now, most bays known as historic bays have become ordinary bays because of the new rule of the 24-mile closing line."¹⁰⁴

How might offshore boundaries inform a marine cadastre?

The boundaries of offshore parcels – that correspond to permits, leases, licences and other forms of use and tenure – are important. For instance, modern charts (both hard-copy and digital) accurately show the location and purpose of marine cables; operators (fishers) ignore such charts at their peril.¹⁰⁵ A marine cadastre is a repository of such parcels and boundaries.

There is merit in having a marine cadastre distinguish between provincial and federal jurisdiction in offshore bays. An inventory of the rights that have been granted by the province within each bay (in conjunction with the test of geography) will be useful as provinces assume jurisdiction for environmental assessments.¹⁰⁶

¹⁰³ *Oceans Act*, 1996, c31, ss 6, 7 & 8.

¹⁰⁴ *El Salvador/Honduras (Nicaragua intervening)*. *ICJ Reports*. pp755-757. 1992.

¹⁰⁵ *Peracom Inc v Telus Communications*, 2014 SCC 29.

¹⁰⁶ *The Onion*. Local company moves production underseas. Issue 41-29. July 20, 2005.

**WATER BOUNDARIES ON CANADA LANDS:
THAT FUZZY SHADOWLAND**

5

Accretion and Erosion

Ooze, warp, silt, sludge and soil.¹⁰⁷

What criteria must exist for a water boundary to be ambulatory?

A water boundary is ambulatory if the change in its location is slow, gradual and imperceptible; incremental; and caused by natural forces (the action of water or wind)¹⁰⁸ or as the inadvertent effect of an artificial structure, legitimately built (see Figure 20):

The fact that the increase is brought about ... by the water, as a result of the employment of artificial means, does not prevent it from being a true accretion, provided the artificial means are employed lawfully and not with the intention of producing an accretion, for the doctrine of accretion applies to the result and not to the manner of its production.¹⁰⁹

What is meant by incremental?

It means that the deposition occurs at the water boundary and not out in the watercourse. If it is not incremental then an island forms, and it vests not in the owner of the riparian parcel but in the owner of the bed.¹¹⁰ Of course, an island can also form if the water recedes and a shallow part of the bed is exposed. Regardless of how formed – gradual recession or deposition - the island is not accretion.¹¹¹

¹⁰⁷ Characterization of accretion: *R v Lord Yarborough* (1824), 107 ER 668, affirmed on appeal.

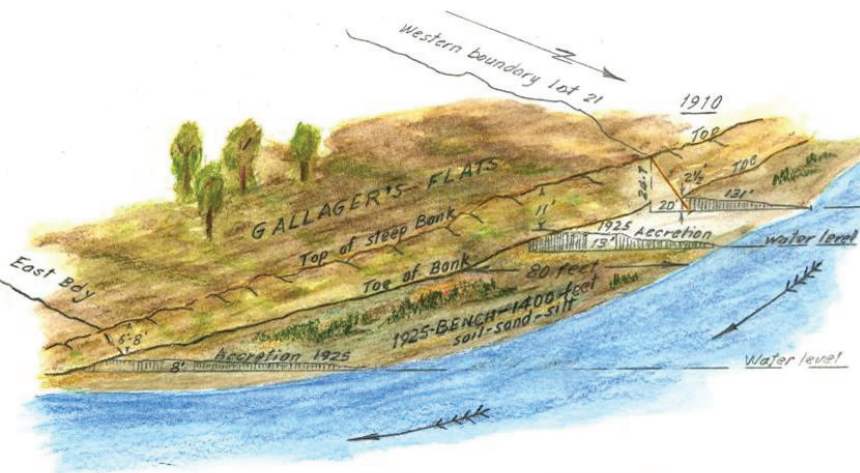
¹⁰⁸ *Southern Centre of Theosophy v State of South Australia*, [1982] 1 All ER 283 (PC).

¹⁰⁹ *Clarke v City of Edmonton*, [1930] SCR 137, at 144 (SCC).

¹¹⁰ *Quebec Civil Code*, Clause 968.

¹¹¹ *AG BC v Neilson*, [1956] 5 DLR (2d) 449 (SCC); *Re: Bulman's Petition* (1966), 56 WWR 225 (BCSC).

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Clarke v. Canada (Attorney General), [1930] S.C.R. 137

Figure 20 - Looking south-west across the Clarke parcel, AB (courtesy of DWL)

What is meant by slow, gradual and imperceptible?

According to Henri de Bracton:¹¹² “Although you fix your eyesight upon it for a whole day, the infirmity of sight cannot appreciate such subtle increments.” It is imperceptible moment to moment.¹¹³ Of course, imperceptibility is nebulous.¹¹⁴ There are three explanations for accretion and the requirement that the process be gradual:

- ◆ the addition to land is too small to be worthy of separate ownership;
- ◆ if it cannot be perceived in its progress it is taken to be as if it never had existed;
- ◆ it is required for the permanent protection of property and recognizes that a riparian parcel might also lose land through erosion.¹¹⁵

What underlies these reasons is the principle of fairness (“it is manifestly convenient”).¹¹⁶

¹¹² A 13th century commentator.

¹¹³ Quoted by Donaldson. Paradox of the moving boundary. *Water Alternatives*. 4(2). p155 at 163. 2011.

¹¹⁴ Simons & Chabris. Gorillas in our midst. *Perception*. v28-n9. pp.1059-1074. 1999.

¹¹⁵ Sax. The accretion/avulsion puzzle. 23 *Tulane Environmental Law Journal* 305. 2009.

¹¹⁶ *Southern Centre of Theosophy v State of South Australia*, [1982] 1 All ER 283 (PC), at 287.

What is the distinction between accretion and erosion?

If the criteria are met and the water boundary moves out (retreats), then accretion has occurred and the parcel increases in area. If the criteria are met and the water boundary moves in (encroaches), then erosion has occurred and the parcel decreases in area.

What of a lake, entirely within a parcel, that gradually ceases to be?

The surrounding parcel (eg. all that portion of the NW $\frac{1}{4}$ "not covered by any of the waters of a lake") gets larger, and the accreted land takes on the legal characteristics of the land to which it is accreted, including all reservations of minerals.¹¹⁷

Has any jurisdiction modified the doctrine of accretion?

Yes, Saskatchewan has eliminated the doctrine of accretion such that accrued land vests in the province.¹¹⁸

Must the change be constant throughout the year or exceed a minimum amount?

No. The change can be a result of deposition from spring floods. At the Clarke parcel along the North Saskatchewan River, such floods were a normal occurrence. The following three factors are irrelevant:

- ◆ the amount of change (area);
- ◆ the rate of change (distance/year), as long as the rate is maintained over many years;
- ◆ the change happening during only one season, provided that such seasonal changes occur over many years.

¹¹⁷ *Eliason v Registrar (Alberta)*, [1980] 6 WWR 361 (Alta QB).

¹¹⁸ *Saskatchewan Provincial Lands Regulations*, s.4. However, it cannot apply to First Nations Reserves owing to the doctrine of interjurisdictional immunity (see Section 2).

WATER BOUNDARIES ON CANADA LANDS: THAT FUZZY SHADOWLAND

What rates and amounts have been held to be accretion?

	Jurisdiction	Time-span	Area/distance
Rivers	MB	1875-1972	59 acres
	AB	1884-1998	28 acres
	AB	1916-1963	26 acres
	AB	1910-1920	13 ft V; 130 ft H
	BC	1889-1930	207 acres
	BC	1892-1973	700 ft H
Lakes	AB	1902-2005	305 m H
	AB	1895-1952	14 acres
	BC	1867-1966	166 acres
	S. Australia	1911-1975	20 acres
Sea	BC	1911-1970	6 acres
	PEI	1936-1995	12 acres
	NS	1904-1986	7 acres
	England	1800-1828	450 acres

Conversely, what rates have been held not to be accretion or erosion?

Watercourses that have shifted over a few days, one season or three years have been held not to accrete or erode, because the period was too short.

What are the two techniques for apportioning accretion?

Perpendicular from baseline - On the plan, draw “a line representing the line of the shore drawn at such distance seawards as to clear the sinuosity of the coast, and let fall a perpendicular from the end of the land boundary” (see Figure 21).¹¹⁹

Proportional shorelines - “Equity is served,” if each parcel receives the same proportion of new water boundary as it had old water boundary (see Figure 22).¹²⁰ The registered owners are entitled to an “equitable division” of the accreted lands, with each maintaining their proportionate share of the shoreline of the lake.¹²¹

¹¹⁹ *Paul v Bates* (1934), 48 BCR 473 (BCSC).

¹²⁰ *Re Brew Island*, [1977] 3 WWR 81 (BCSC).

¹²¹ *Andriet v County of Strathcona No. 20*, 2008 ABCA 27.

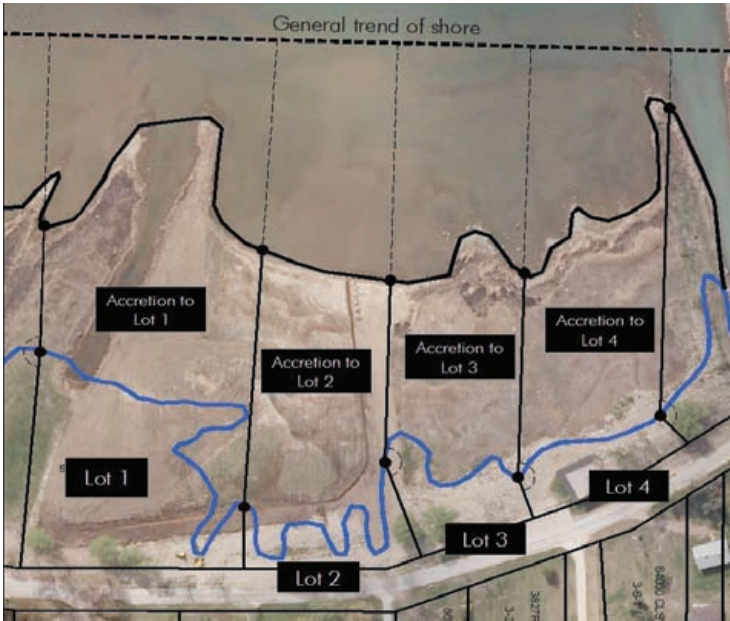


Figure 21- Perpendicular from baseline technique for apportioning accretion



Figure 22 - Proportional shoreline technique for apportioning accretion

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What effect does such apportioning have on side boundaries?

Both techniques for apportioning accretion usually result in bends in the side boundaries, and both are informed by the principle that the distribution of accreted land among the parcels should be equitable (see Figures 23 & 24): “It is unlikely that straight property lines can be maintained so as to provide an equitable allocation of shoreline property. It will be necessary to deflect some, or perhaps all, property lines in order to achieve an equitable division.”¹²²

There are two exceptions. First, if the new shoreline is parallel to the old shoreline and the side boundaries are perpendicular to the water, then both methods result in merely prolonging the side boundaries across the accreted land.¹²³ Second, if accretion has moved past/outside the underlying nominal parcel (e.g. the township lot or ¼ section), then rectilinear boundaries without bends result.

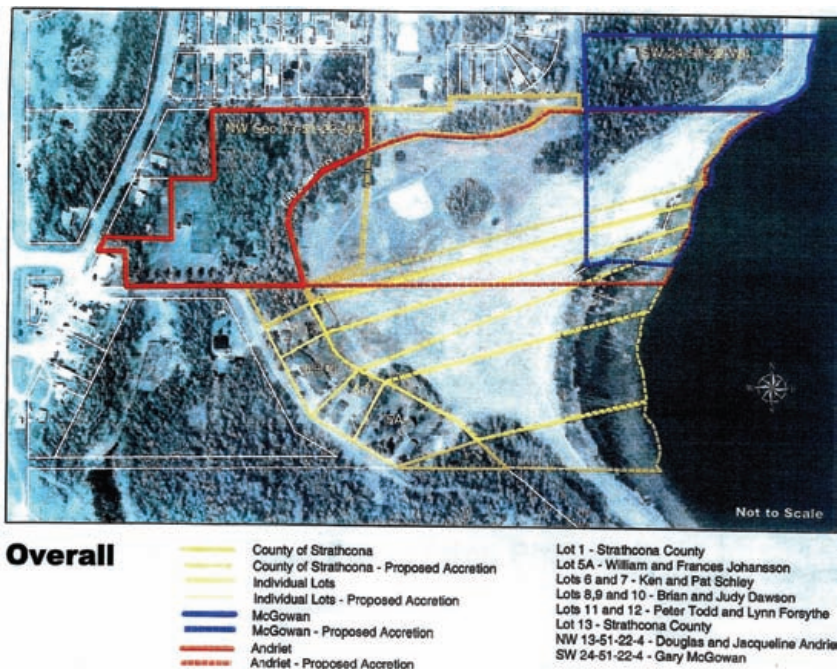


Figure 23 - Inequitable apportioning rejected, AB (2008)

¹²² *Andriet v Strathcona (County No. 20)*, 2010 ABQB 323 (Alta QB).

¹²³ *Nastajus v Registrar, North Alberta* (1989), 64 Alta LR(2d) 300 (Alta CA).

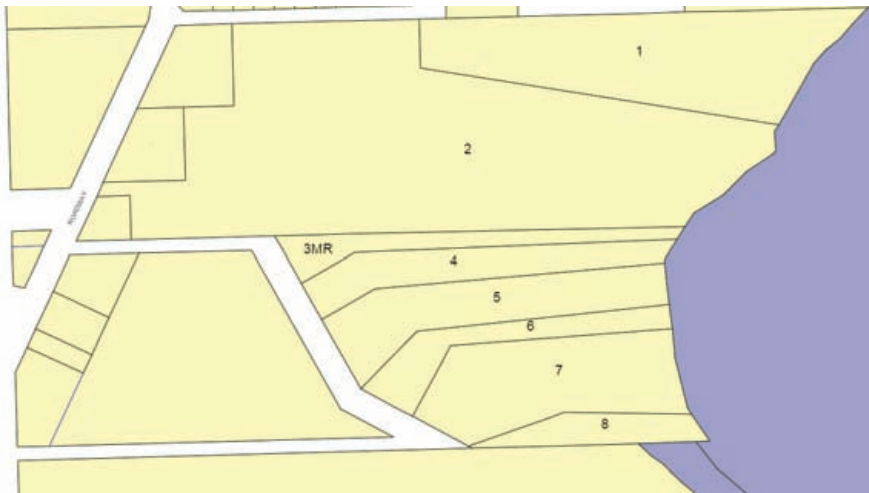


Figure 24 -Equitable apportioning accepted, AB (2010)

How is accretion constrained by reference to the underlying parcel?

Accretion is limited by the nominal (theoretical) lot, section, $\frac{1}{4}$ section or legal subdivision lines within the township:

- ◆ Pitt’s parcel was described as all that portion of the NE quarter lying to the west of the Red Deer River. The river moved slowly east, out of Pitt’s parcel. The court held that “alluvial accretion” does not “extend the ownership of land beyond the original boundaries set forth in the Certificate of Title” and that “the change of the physical boundaries of the watercourse cannot create an expanded title overriding the boundaries of the title he received.”¹²⁴
- ◆ The principle applied in denying the claims of riparian proprietors on Buffalo Lake to land uncovered by the gradual recession of the waters. As the recession took the water boundary outside the parcel referred to in each Certificate of Title, the parcels did not extend beyond the section, $\frac{1}{4}$ section or LSD.¹²⁵
- ◆ The principle was relied upon by the Ontario Surveyor General in constraining Lot 12, Con 18, Tiny Township, owing to the recession of Lake Huron since 1822.¹²⁶

¹²⁴ *Pitt v City of Red Deer*, 2000 ABCA 281 (Alta CA).

¹²⁵ *Johnson et al v Alberta*, 2005 ABCA 10 (Alta CA).

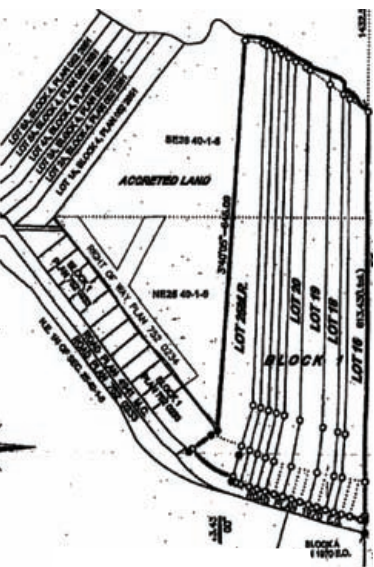
¹²⁶ Ontario Surveyor General. *Municipal Act* Hearing decision. Case 883. October 2013. Under appeal.

WATER BOUNDARIES ON CANADA LANDS: THAT FUZZY SHADOWLAND

What of the doctrine of mutuality?

The constraint on accretion is supported by the “fundamental doctrine of mutuality.”¹²⁷ This notion of fairness means that he who enjoys the benefit ought also to bear the burden, and vice-versa. Thus, a non-riparian parcel cannot lose by erosion (regardless of the action of water), because it gains nothing from accretion if the water recedes. Mutuality suggests that if a parcel cannot decrease in area, then it cannot increase in area.

If a parcel is defined by reference to an underlying lot or section, then it is ultimately bounded by nominal (or theoretical) rectilinear boundaries. One such boundary might well be only vaguely ascertainable because it is under the waters of the lake. If the waters encroach, the location of that vaguely ascertainable boundary remains unchanged, and title remains to all that part of the parcel not covered by the waters of the lake. Thus, as the waters recede, the underlying parcel retains its original boundary and constrains recession across the lot/section boundary.



What of accretion to subsequent subdivisions?

If lots are subdivided from $\frac{1}{4}$ sections (see Figure 25), then accretion cannot extend the subdivided lot beyond the nominal boundary of the underlying parcel (the $\frac{1}{4}$ section).¹²⁸

Is there a right to protect against the ravages of erosion?

Yes, it is a riparian right that parcels can be protected from the effects of erosion, provided that such works are on the riparian parcel and are lawful.¹²⁹ The last qualifier is critical; riparian rights have been altered by legislation.¹³⁰ This right to prevent erosion extends to preventing the removal of erosion abatement devices (e.g. breakwater, tree).¹³¹

Figure 25 - Proposed apportioning across $\frac{1}{4}$ section line rejected, AB (2011)

¹²⁷ *Volcanic Oil and Gas Co. v Chaplin* (1912), 27 O.L.R. 34, at 41 (Ont. K.B.).

¹²⁸ *Lack v Alberta*, 2011 ABQB 379.

¹²⁹ *AG British Columbia v Neilson*, [1956] 5 DLR(2nd) 449, at 455.

¹³⁰ The *Fisheries Act* restricts what can be done upland of a water boundary so as to protect fish habitat.

Provinces have enacted complementary legislation. (e.g. BC *Riparian Areas Regulation* 376/2004).

¹³¹ *Sapergia v British Columbia Assistant Regional Water Manager*, 2011 CarswellBC 1088.

6

Corollaries to accretion/erosion |

I would like to...but I am just a river.¹³²

Can a parcel cease to be riparian?

Yes. If the parcel ceases to touch (be bounded by) the water, then it loses all riparian rights.¹³³ The doctrine of accretion is a necessary but not a sufficient condition to ensure access to water. If islands, whether pre-existing or the result of land arising from the bed, attach (but not accrete) to the upland, then access to the water can be lost:

The riparian owner's rights are subject to the changes affected by nature. So long and to the extent that nature continues the riparian owner as such, he enjoys riparian rights, but nature ... may from time to time alter or even destroy those of the riparian owner.¹³⁴

The imperceptible deposition of soil onto the bed or island and towards the upland might eventually deprive the upland of access; such are the forces of nature. The boundary then becomes a fixed, non-ambulatory line.¹³⁵

¹³² Phillips, *Gods behaving badly*, p.238. 2007

¹³³ *Re Darrach* (1995), 135 Nfld & PEI R. 153 (PEI SC).

¹³⁴ *Queen's County v Cooper*, [1946] S.C.R. 584.

¹³⁵ *Bailey v Barbour*, 2013 ONSC 7397.

WATER BOUNDARIES ON CANADA LANDS: THAT FUZZY SHADOWLAND

How might a parcel cease to be riparian owing to the forces of people (not nature)?

Suppose the OHWM shifted because “heavy equipment pushed around the sand on the beach.” Such horizontal deposition of 13 m over 11 years is not slow, gradual and imperceptible and not accretion. Thus, the parcel ceased to be riparian; the deposition seaward of the original OHWM was Crown land.¹³⁶

What is tricky about re-establishing the boundary of a parcel, formerly riparian?

The tricky bit is finding the location of the bound when the riparian parcel ceases to touch the water. For a channel between upland and island, the thalweg (or line of lowest profile) can be used to ascertain the location.

How do meanders become oxbow lakes?



Figure 26 - The straighter Highwood River and isolated oxbow, AB (2000)

If a meandering river slowly straightens so that the meander does not remain, then water boundaries along the river are ambulatory. Parcels on one bank increase in area (accretion); those on the other bank decrease in area (erosion). However, should the river break through the neck of land at the base of the meander, resulting in a straight channel and an oxbow lake, then the change is not the result of the gradual shifting of the river (see Figure 26). The sudden action of the river means that the boundary is fixed in location at the oxbow and the parcel on the outside of the old meander ceases to be bounded by the river.¹³⁷

¹³⁶ *McDonald v New Brunswick*, 2007 NBCA 44.

¹³⁷ *Robertson v Wallace*, 2000 ABQB 1020 (Alta QB).

What is avulsion?

Avulsion is the process whereby a watercourse changes its location suddenly; not gradually. Owing to the absence of accretion and erosion, the water boundary does not shift in location. Rather, it is fixed in location at the time of the avulsive event despite the shift in the watercourse, whether caused by the forces of nature or of people.¹³⁸

Surely avulsion (fast) is easily distinguished from erosion/accretion (slow)?

No; one would be mistaken for thinking so. Watercourses are capricious: “The fickle Missouri River ... refused to be bound by the Supreme Court decree of 1892 ... It is difficult to determine whether the channel of the river has changed by the law of accretion or that of avulsion.”¹³⁹ Indeed, it is the ability to discern one from the other that demonstrates expertise in re-establishing water boundaries. For the straightening of meanders, there are two critical questions:

- ◆ Has an oxbow remained in place or has the entire river shifted?
- ◆ Is there mature vegetation between the original and current locations of the river?

What if huge chunks of the river bank suddenly cave in?

A water boundary does not shift. The court rejected the “extraordinary if ingenious suggestion” that the bank has been imperceptibly undermined.¹⁴⁰

Can avulsion be significant?

Yes, as exemplified by extensive flooding in Calgary in 2005 and 2013 (see Figures 27 & 28). The most recent avulsion in the Cumberland Marshes of east-central Saskatchewan converted 500 sq km of floodplain into channels of the Saskatchewan River.¹⁴¹

¹³⁸ *Van Diepen v Thomson*, 2011 ONSC 2020, at para 148.

¹³⁹ *Nebraska v. Iowa*, (1972) 406 US 117.

¹⁴⁰ *Yukon Gold v Boyle Concessions Ltd*, [1919] 3 WWR 145, at 147 (SCC).

¹⁴¹ Smith. The 1870s avulsion of the Saskatchewan River. *Cdn J of Earth Science*. v35. p453. 1998.

**WATER BOUNDARIES ON CANADA LANDS:
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Figure 27 - The sudden encroachment of the Bow River over a one-day period, AB (2013)



Figure 28 - The sudden encroachment of the Elbow River over a five-day period, AB (2005)

What of water boundary creep?

If Surveyor 1 suggests that the water boundary of a parcel is at Location 1 at Time 1, and Surveyor 2 suggests that it is at Location 2 at Time 2, either the boundary has shifted slowly or the boundary has remained in the same location and the two surveyors differ in opinion (see Figure 29).¹⁴²

Can accretion and erosion result from isostatic rebound?

Land was suppressed by the glaciers; isostatic rebound means that such land is now rising owing to the absence (i.e. retreat) of the glaciers. Such rebound is a mere 3 mm per year along Lake Huron. Although there appear to be no cases in Canada, the Supreme Court of Alaska held that isostatic rebound falls within the general doctrine of accretion. Thus, 95 ac of land that had slowly emerged owing to the rise of the bed accreted to the riparian parcel.¹⁴³ Indeed, such claims

to accretion are not uncommon in southern Alaska; isostatic rebound of $\frac{1}{2}$ " per year added 4.1 ac of accreted land to a riparian parcel that was originally 1.3 ac in area.¹⁴⁴

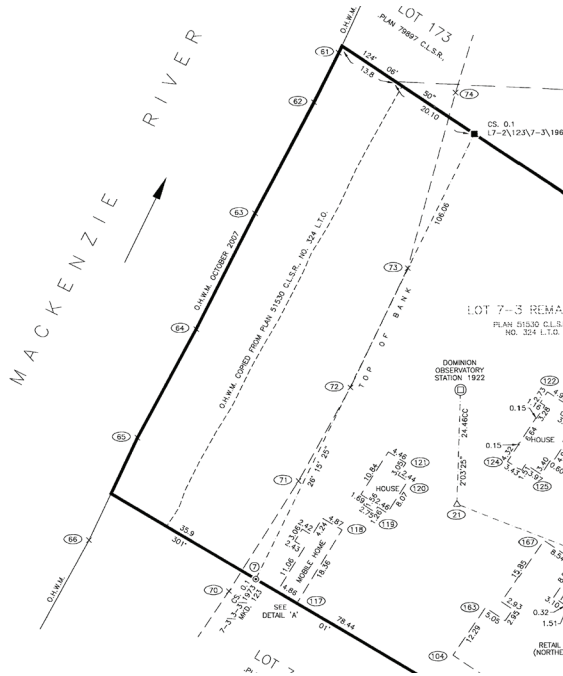


Figure 29 - Two surveyors' opinions of same boundary at different times, NWT (CLSR Plan 94094)

¹⁴² Careen. *OHWM: Problem of definition in NWT*. Project for CLS Commission. February 29, 1996.

¹⁴³ *Honsinger v Alaska* (1982) 642 (2d) 1352. See: Flushman. *Water boundaries*. p.174. 2002.

¹⁴⁴ Southeast Alaska Land Trust. *Accreted Lands Project: Mendelhall Wetlands State Game Refuge*.

**WATER BOUNDARIES ON CANADA LANDS:
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7

Regulated watercourses

Reclaimed land. Miss Hendry spoke bitterly as if the land were being reclaimed and she'd not had her fair share. Who owned the land? Who stole it in the first place? Was it a matter between the sea and the Harbour Board but what an unlikely negotiation for the sea to make.¹⁴⁵

Do water bounds exist only on pristine watercourses; unsullied by people?

No. An unsullied watercourse can be “augmented by the hand of man.”¹⁴⁶ Also, riparian rights can apply to a canal constructed as a permanent waterway.¹⁴⁷ Indeed, there are few significant watercourses in Canada not augmented/regulated.

What of bounds on a watercourse regulated by a dam or weir?

The question is not natural/unsullied vs unnatural/sullied; it is: What is the effect of regulation? Because the “interests of navigation and power development are directly opposed,”¹⁴⁸ the effect is usually set by the purpose of the regulation (see Figure 30).

¹⁴⁵ Frame. *Yellow flowers in the antipodean room*. p19. 1969

¹⁴⁶ *Meyer v McLennan*, 2005 CanLII 39858 (Ont CA).

¹⁴⁷ *Gardiner v Chapman* (1884), 6 OR 272.

¹⁴⁸ *Report to the IJC relating to official reference re: Lake of the Woods levels*. v1. p13. 1916.

WATER BOUNDARIES ON CANADA LANDS: THAT FUZZY SHADOWLAND

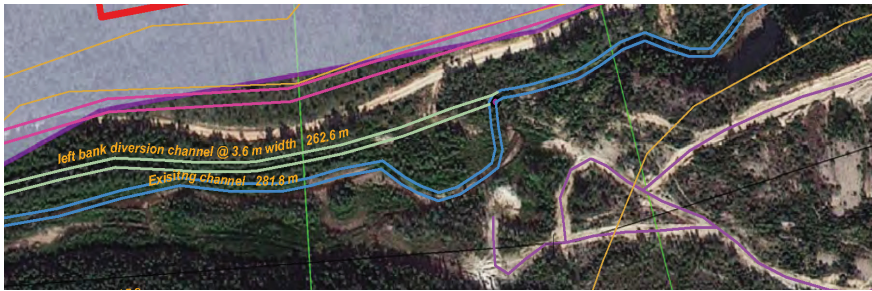


Figure 30 - Proposed northward diversion of Adam's Creek, YK

What if the watercourse is regulated for upstream purposes (control of level)?

Watercourses regulated for navigation or reservoir (millpond) purposes have higher levels, which remain somewhat constant throughout the year (e.g. many lakes in Ontario). Such levels are upstream of dams and remove impediments to navigation such as rocks and reeds. This means that discharge varies greatly throughout the year. If water levels are quickly raised (through a process that is not gradual), then erosion has not occurred and the boundary is fixed in location at the time of encroachment. The upland parcel is partially (or completely) submerged.¹⁴⁹

What if water levels are quickly lowered (i.e. the water recedes suddenly)?

As for Deadman Lake in Alberta the boundary of the lake – unsold surrendered land – is fixed in place (see Figure 31). Circa 1988, Ducks Unlimited quickly (over the course of 2-3 years) and legitimately (with all relevant approvals/permits) lowered the level of the lake so as to increase duck habitat (at a cost of \$3 per duck). The pre-regulated lake level, some 150 acres in area larger than the post-regulated level, is the best evidence of the location of the boundary, meaning that upland parcels are no longer riparian owing to lack of access to the water. The typical horizontal separation is now 35m; as long as the water level is regulated by the downstream control structure, then the bounds of the abutting parcels cannot shift though accretion and erosion.

¹⁴⁹ *Gall v Rogers* (1993), 15 OR(3d) 250 (Ont Gen Div).

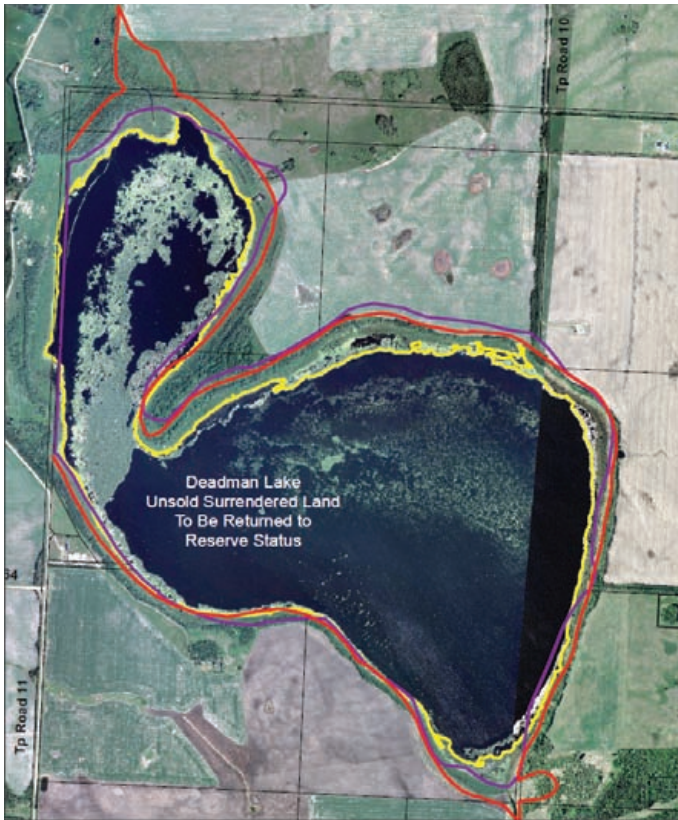


Figure 31 - Lake quickly lowered between red and yellow lines, AB

What if the dam is removed?

If the dam is removed and the watercourse returns to its pre-regulated flow, such that the upstream parcel is not submerged (owing to the level being quickly raised) nor remote (owing to the level being quickly lowered), then the water boundary regains its ambulatory nature.¹⁵⁰

What if the watercourse is regulated for downstream purposes (control of flow)?

Watercourses regulated for flood control or electricity generation have flows that are somewhat constant throughout the year. For instance,

¹⁵⁰ *Brophy v Alexander Construction Company*, (1984) 55 NBR (2d) 233.

WATER BOUNDARIES ON CANADA LANDS: THAT FUZZY SHADOWLAND

the flow on the Sheet River in Nova Scotia varied from 25 cfs to 7,500 cfs through the year, “which is of course no use for power purposes; you must have a steady supply of water all the year.”¹⁵¹ Thus storage dams allowed for a uniform flow of 305 cfs through the year.

Constant flow allows for efficient use of turbines, and affects watercourses downstream of dams (e.g. North Saskatchewan River, Peace River, Kootenay Lake). Flood control tempers flows – the spring highs are less high and the later lows are less low (e.g. Qu’Appelle River). This means that there is insignificant effect on water boundaries.

What of vegetation creep?

If water levels are merely tempered (such that spring freshets are less high) throughout the year (albeit through an artificial process) then the line of vegetation might shift towards the watercourse. This happens where the high flows had – and continue to have - a significant effect on vegetation (see Appendix 7).

So, what false dichotomy should be expunged?

Expunge the false dichotomy that:

- ◆ for unregulated watercourses, water boundaries have the potential to move;
- ◆ for regulated watercourses, water boundaries are fixed in place.

Boundaries on regulated watercourses are very fact-specific (see Figure 32).

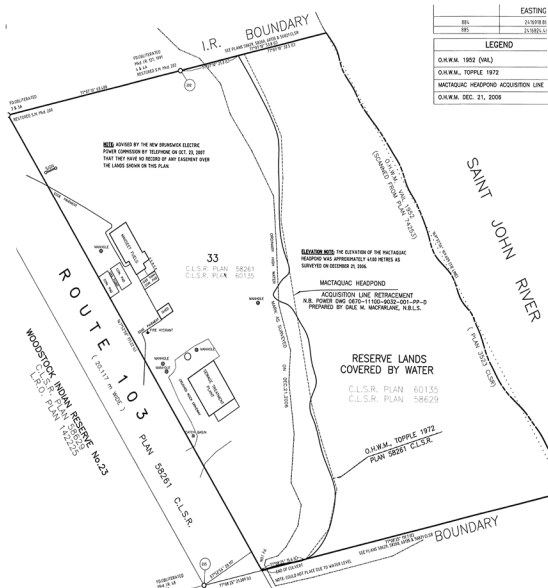


Figure 32 - Regulated watercourse through a First Nation Reserve, NB (CLSR Plan 93174)

¹⁵¹ Canadian Provincial Power Co. v The Nova Scotia Power Commission, [1928] SCR 586, at 594.

8

Navigability & ad medium filum

In the days that passed, Siddhartha learned to listen to the river, and the river told Siddhartha many things: The formula for the volume of a sphere; that the Edict of Nantes was revoked in 1593; that cellophane was invented in 1908.¹⁵²

What is a navigable watercourse?

A navigable watercourse is an aqueous highway, along which the public can pass and re-pass without let or hindrance. An aqueous highway means:

“That the waters be more than a small pond or lake isolated from the other waters, and more than a prairie slough that fills with spring melt and virtually dries up in late summer. It implies that the waters connect places which in the normal course would facilitate travel, even recreational travel, on a route that would have a likelihood of appeal to members of the public as a route to be travelled.”¹⁵³

What is fundamental - that the watercourse carries vessels or that it be a highway?

The watercourse must be a highway: “Is there a reasonable likelihood of use by the public as an aqueous highway?”¹⁵⁴ It is not enough that

¹⁵² *National Lampoon*. Classic Comics Illustrated. February 1971.

¹⁵³ *International Minerals & Chemicals Corp. v Canada* (1992), 10 C.E.L.R. (N.S.) 85 (F.C.T.D.)

¹⁵⁴ *Navigation Protection Act* 2014.

WATER BOUNDARIES ON CANADA LANDS: THAT FUZZY SHADOWLAND

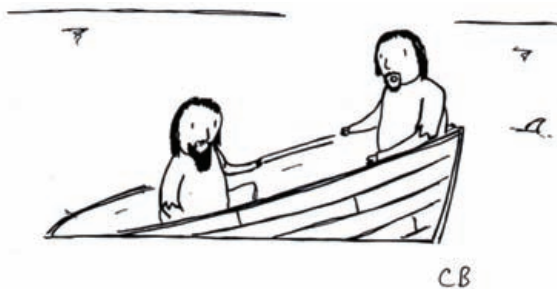
the waterway can carry vessels, if it is not a highway.¹⁵⁵ Moreover, navigation must not be restricted to “the normally short season of high runoff” (although an exception is made for spring log drives).¹⁵⁶

Must the watercourse be navigated in fact?

No; the watercourse must only be capable of being navigated; it need not be actually navigated.¹⁵⁷ If actual use was required, then the physical characteristics of the watercourse would be ignored; large remote waterways would be non-navigable.

What sorts of uses are persuasive in assessing navigability?

Historical use is persuasive. This includes use by Aboriginal peoples,¹⁵⁸



"I'M MORE OF A BOAT-HALF-FULL
KIND OF PERSON!"

by explorers and surveyors, by the fur trade, by settlers, by loggers.¹⁵⁹ Recreational use is also persuasive. Is the watercourse used by the rower (capable of being navigated by oar),¹⁶⁰ the paddler,¹⁶¹ or the drifter (see Figure 33)?

Figure 33—Two erstwhile rowers navigating an aqueous highway

Does size count in assessing navigability?

Yes. Lakes are merely “enlarged watercourses wherein ... the waters are quiescent.”¹⁶² A small lake (3 km by 0.5 km), with non-navigable inlets and outlet is non-navigable, as “not constituting any part of the

¹⁵⁵ LaForest. *Water law in Canada*. p181. 1973.

¹⁵⁶ *International Minerals & Chemicals Corp v. Canada* (1992), 10 CELR 85, at para 29 & 31. Thus Cutarm Creek in south-eastern SK, being marsh-like before becoming a trickle, is not navigable.

¹⁵⁷ *Coleman v. Ontario*, 1983 CarswellOnt 1313, at para 15. See Appendix 8 - Followed in many cases.

¹⁵⁸ Admittedly, this test is from the USA: *Flushman. Water boundaries*. p239 – fn 57 (Washington case); p293 – fn 58 (Minnesota case). 2002.

¹⁵⁹ *Keewatin Power v Kenora*, 1906 CarswellOnt 484, at para 9.

¹⁶⁰ A California case: *Baker v Mack* (1971): *Flushman. Water boundaries*. p239. 2002.

¹⁶¹ The canoes vs kayaks test: *Pierce. What is a navigable water?* 2003 *Syracuse Law Review* 1067.

¹⁶² *Flushman. Water boundaries*. p294 – fn 64 (North Dakota case). 2002.

common highway.”¹⁶³ Larger lakes are navigable in their own right, regardless of inlet and outlet: Stoney Lake, Ontario (15 km by 1-5 km);¹⁶⁴ Big Cedar Lake, Ontario (4 km by 0.5-2 km).¹⁶⁵

How many watercourses have been held by the courts to be non-navigable?

Very few. The following watercourses have been held to be navigable in Ontario:

- ◆ Maitland River through the Township of Morris was 6” deep.¹⁶⁶
- ◆ Bronte Creek in Burlington was 26-60 ft wide and 1-5 ft deep.¹⁶⁷
- ◆ Hoasic Creek in eastern Ontario was 6-20 m wide and 1-3 m deep.¹⁶⁸
- ◆ Wye River in Simcoe County varied seasonally from 6” to 4 ft deep.¹⁶⁹
- ◆ Credit River in Mississauga, despite been interrupted by a dam.¹⁷⁰
- ◆ Martin’s Creek through the Township of Christie was 20-40 ft wide.¹⁷¹
- ◆ Bear Creek in Middlesex Centre was 25 ft wide and 3-5 ft deep.¹⁷²
- ◆ Chippewa¹⁷³ Creek tributary in Binbrook was 8 ft wide and 0.04-0.4m deep.

In British Columbia, the Bulkley and Squamish Rivers have been held to be navigable.¹⁷⁴ Across the prairies, the Winnipeg, Red, Assiniboine, Saskatchewan, and Pembina Rivers have been held to be navigable.¹⁷⁵

Why is navigability relevant?

For the purposes of boundaries and parcels, navigability is integral to four questions:

¹⁶³ *Williams v Salter* (1912), 23 OWR 34.

¹⁶⁴ *Stephens et al v MacMillan et al*, [1954] OR 133.

¹⁶⁵ *Glaspell v Ontario*, 2015 ONSC 3965.

¹⁶⁶ *Re, Golley*, 1992 CarswellOnt 2275.

¹⁶⁷ *Re, Coleman and AG Ontario* (1983), 143 DLR (3d) 608 (Ont HC).

¹⁶⁸ *Casselman v Ontario Ministry of Natural Resources*, 1994 CarswellOnt 3525.

¹⁶⁹ *Simpson v Ontario*, 2011 ONSC 1168

¹⁷⁰ *Canoe Ontario v. Reed* (1989), 69 OR (2d) 494.

¹⁷¹ *Van Diepen v Thomson*, 2011 ONSC 2020.

¹⁷² *Municipality of Middlesex Centre v MacMillan*, 2015 ONSC 2988.

¹⁷³ *O'Donnell v Ontario*, 2013 ONSC 590.

¹⁷⁴ *R v Nikal*, [1996] 5 WWR 305 (SCC); *R v Lewis*, [1996] 5 WWR 348 (SCC).

¹⁷⁵ Bartlett. Aboriginal water rights in Canada. p91. 1988.

WATER BOUNDARIES ON CANADA LANDS: THAT FUZZY SHADOWLAND

- ◆ What is the character and location of the water boundary (i.e. does the riparian parcel include half the watercourse)?
- ◆ Has the watercourse been retained by the Crown upon grant?
- ◆ Can a watercourse be selected under the Treaty Land Entitlement Agreements?
- ◆ Have shore road allowances been created in Nunavut, NWT and Yukon?

What is the ad medium filum (amf) presumption?

In days gone by, an upland riparian parcel was presumed to extend to the middle thread of non-tidal watercourses. This presumption continues to apply in New Brunswick.¹⁷⁶ The presumption was always rebutted by express language to the contrary in the description (e.g. “excepting the bed of the river”).

Has the amf presumption been largely eliminated?

Yes, through a two-part process. First, Canadian courts have largely restricted the presumption to watercourses that are non-navigable. Second, most jurisdictions retain the beds of all watercourses upon Crown grant, regardless of navigability (see Appendix 1). For instance, in NWT and Nunavut the bed below OHWM is reserved to the Crown out of every grant of territorial lands that abut a watercourse. The *ad medium filum* presumption continues to apply to non-tidal watercourses in PEI; and selectively in Alberta, Saskatchewan, Ontario, Québec and New Brunswick.

Does the amf presumption apply to First Nation Reserves in Canada?

Yes. In Ontario, the amf presumption applies to any Reserve not created by a Crown grant; and to any Reserve created from a Crown grant before 1911.¹⁷⁷ In western Canada, the amf presumption applies to any Reserve bounded by a non-navigable watercourse (see Figure 34). However, if the river is considered to be navigable *in toto*, then the amf presumption does not apply and the Reserve is bounded by the river.¹⁷⁸

¹⁷⁶ *Boyd v Fudge*, 1964 CarswellNB 11 (NBCA).

¹⁷⁷ *Keewatin Power Company v Kenora* (1908), 16 OLR 184 (Ont CA).

¹⁷⁸ *R v Nikal*, [1996] 5 WWR 305 (SCC); *R v Lewis*, [1996] 5 WWR 348 (SCC).

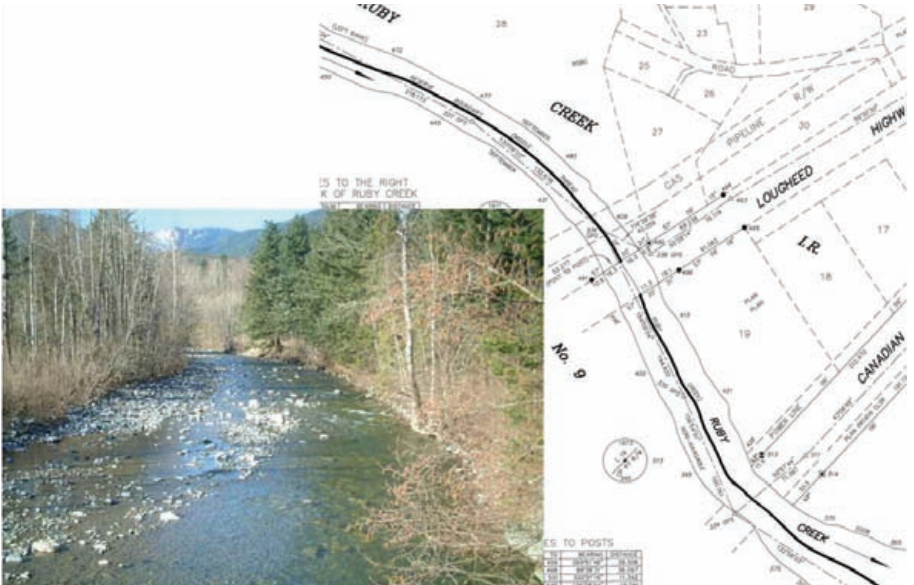


Figure 34 - *ad medium filum* bounding a First Nation Reserve, BC (CLSR Plan 95966)

To what extent is the ad medium filum presumption affected by an island?

If the island has not been patented (i.e. it remains vested in the Crown), then its presence is irrelevant to applying the amf presumption. The middle thread lies between the two banks/water's edges and not between the island and one bank/water's edge, meaning that the island will vest partly in each riparian proprietor or solely in one riparian proprietor (depending upon the location of the island). If the island has been patented, then it is a riparian parcel in its own right, meaning that there are two amf boundaries:

- ◆ Between riparian parcel A and the island (riparian parcel C);
- ◆ Between riparian parcel B and the island (riparian parcel C).

In either case – island patented or not patented – the widths/depths of the channels on each side of the island and the size/nature of the island are irrelevant (see Figure 35). That is, it matters not where the island is located in the watercourse, nor whether the landform is an island or a bar.¹⁷⁹

¹⁷⁹ *Routh v Bowes* (1983), 47 NBR(2d) 425 (NBCA); *Re: Price*, 2010 NBQB 428, at para 213.

WATER BOUNDARIES ON CANADA LANDS: THAT FUZZY SHADOWLAND

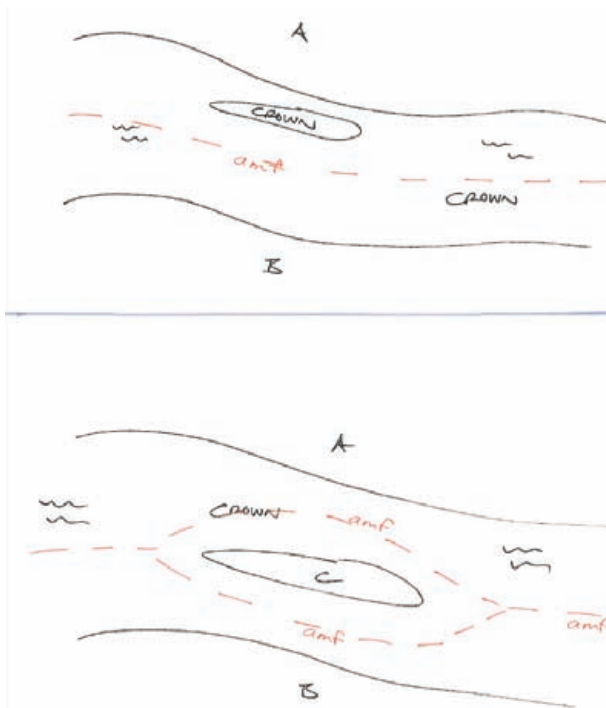


Figure 35 – Island vis-a-vis the ad medium filum boundaries (red)

How is navigability relevant in the Treaty Land Entitlement context?

Both the Manitoba TLE Framework Agreement and individual First Nation Agreements restrict the First Nation to selecting or acquiring land which includes the bed of non-navigable waterways. Both Agreements set out that only land that is adjacent to – not part of – a navigable waterway can be selected or acquired.¹⁸⁰

Can the navigable status of a watercourse change?

Curiously, yes. A watercourse was held to be non-navigable in 1938 and thus part of a Crown grant; and navigable and floatable in 2014. This means that a lake (12 km in length) never left the public domain; the Crown retained the bed in 1674 upon grant.¹⁸¹

¹⁸⁰ MB TLE Framework Agreement, s12.01. 1997.

¹⁸¹ 4345126 Canada inc. v Bruneau, 2015 QCCA 1882.

Can both a watercourse and a wetland be navigated?

No, a wetland is not an aqueous highway over which the public can pass and re-pass without let or hindrance. Rather, “sometimes the water in these outlying ponds is so low that you cannot get a duck-punt in, and when pushing a duck-boat through the marsh you are generally pushing through part water and part loose mud.”¹⁸²

Is a portage part of an aqueous highway?

No. In general, the public has no right to navigate around an obstruction on a waterway (e.g. dam, rapids, falls) over the abutting riparian parcels.¹⁸³ On the other hand, such portages do not render the watercourse non-navigable.

Is it difficult to generalize about navigability across Canada?

Yes, owing to regional custom (itself a function of topography, climate, fluvial geomorphology, traditional use and settlement patterns) navigability is defined differently. In British Columbia, many watercourses larger in width and depth than those in Ontario are considered non-navigable.¹⁸⁴

In Atlantic Canada there is some question as to whether the public right of navigation exists along non-tidal watercourses. On the one hand, in New Brunswick, the Miramichi River has been held to be divided into three classes:

- ◆ Tidal and thus navigable in law;
- ◆ Non-tidal but navigable in fact (amf applies although the public has the right to travel along the watercourse);
- ◆ Non-tidal and non-navigable (such that amf applies).¹⁸⁵

On the other hand, in Nova Scotia, the public right to use or pass over the waters of Big Mushamush Lake was held to be “probably contrary to law” because the lake vests in the province.¹⁸⁶ The lake was not used by commercial vessels, although its waters were plied by recreational boats that used the two public boat ramps.

¹⁸² *Ledyard v Chase*, 1925 CarswellOnt 229 (Ont CA).

¹⁸³ *TLEC v Manitoba - Adjudicator's decision, File 2007-TLEC-005*. Trout Falls and Wipaniapanis Portage Selections. p9. April 16, 2014

¹⁸⁴ Watercourses have been considered non-navigable in 85% of boundary opinions for FNLMMA purposes.

¹⁸⁵ *Steadman v Robertson* (1879), 18 NBR 580 (NBCA).

¹⁸⁶ *Hirtle v Ernst*, 1991 CanLII 4297 (NSSC).

**WATER BOUNDARIES ON CANADA LANDS:
THAT FUZZY SHADOWLAND**

9

Canada - United States boundary

Something that has edges where it stops and doesn't go on and become something else.¹⁸⁷

Does the doctrine of accretion and erosion apply to the Canada-USA boundary?

No.

Does accretion/erosion apply to inter-state and international boundaries in general?

Yes; it has been applied in disputes between states in the United States¹⁸⁸ and in a dispute between the United States and Mexico along the Rio Grande River (1911); it was not rejected by the International Court of Justice (ICJ) in a dispute between El Salvador and Nicaragua (1992);¹⁸⁹ it was acknowledged by the IJC in a dispute between Nicaragua and Honduras (2007).¹⁹⁰ It is accepted by most observers that "inconsistency of state practice and the ambiguity of international jurisprudence do not suggest that the processes of accretion or avulsion

¹⁸⁷ Stoppard. *Lord Malquist & Mr Moon*. Grove Press. 1966.

¹⁸⁸ *Nebraska v Iowa* (892), 143 U.S. 359. This boundary has now been fixed in location by interstate compact/treaty: Flushman. *Water boundaries*. p261. 2002.

¹⁸⁹ Summary of ICJ Judgment of September 11, 1992: "... were the Chamber satisfied that that the course [of the Goascoran River] was earlier so radically different from its present one, then an avulsion might reasonably be inferred."

¹⁹⁰ ICJ Press Release of October 8, 2007: "... taking account of the continuing eastward accretion of Cape Gracias a Dios as a result of alluvial deposits by the River Coco ..."

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should not be conveyed as accepted principles of international law.”¹⁹¹
The triple negative means that the principle applies.

Why does the doctrine not apply to the Canada-United States boundary?

Admittedly, many parts of the boundary were initially defined in treaty as the middle of a particular watercourse, as along Halls Stream (between Québec and New Hampshire) or between Lake Superior and Lake of the Woods (between Ontario and Minnesota). However, subsequent treaties fixed the boundary in location through various watercourses, as a series of straight lines between turning points that are referenced to shore-based control monuments (see Figure 36).¹⁹²

For instance, Article V of the 1908 Treaty eliminated the ambulatory nature of the boundary between Ontario and Minnesota. The Commissioners were instructed to “reestablish and fix the actual location of said entire boundary” and the “line so defined and laid down shall be taken and deemed to be the international boundary as defined and established under the aforesaid treaties ...”

*Why has this been described as a paradox and an incongruity?*¹⁹³

There are negative implications to applying the doctrine of accretion and erosion. That is, if the treaty had not fixed the boundary and the watercourse shifted away suddenly (through avulsion), then a country loses access to the watercourse. But, if gradualness is not a mandatory rule, then the rate of shift is irrelevant and a country continues to maintain access. There is thus merit to rejecting the doctrines, for rejection maintains access and it mimics the approach along coastlines and glaciers.¹⁹⁴ That is, if a big chunk of rock suddenly falls or an iceberg suddenly calves from a glacier (both avulsive actions), then a country’s boundary is not fixed in the old (pre-calving) location. Rather, the landmass of the country has shrunk suddenly; the rate of change is irrelevant.

¹⁹¹ Donaldson. Paradox of the moving boundary. *Water Alternatives*. v4-n2. p155 at 164. 2011.

¹⁹² Sullivan, et al. The border is not finished. *Geomatica*. v63(3). pp230-239. 2009.

¹⁹³ Donaldson. Paradox of the moving boundary. *Water Alternatives*. v4-n2. pp155 at 165. 2011.

¹⁹⁴ The Economist. *The Italy - Switzerland bound shifts owing to shrinking glaciers*. p56. April 18, 2009.



Figure 36 - Halls Stream, with the international boundary as straight lines (not as the watercourse)

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Further Reading

What is the use of a book," thought Alice, "without pictures or conversations?"¹⁹⁵

Canada:

Bartlett. *Aboriginal water rights in Canada*. CIRL – University of Calgary. 1988.

Benedickson. Private rights and public purposes in the lakes, rivers and streams of Ontario, 1970-1930. Chapter 7 in *Essays in the history of Canadian law*. 1983.

Calderbank, et al. *Canada's offshore: Jurisdiction, rights and management*. Association of Canada Lands Surveyors & Canadian Hydrographic Association. 3rd edition. 2006.

de Rijcke. *Ontario v. Walker: Does a presumption exist that a natural boundary is located at the water's edge?* *Geomatica*. v.64-n.2. p.257. 2010.

Gisvold. *A survey of the law of water in Alberta, Saskatchewan and Manitoba*. 1959.

Kwasniak. *Alberta's wetlands: Law & policy guide*. Environmental Law Centre. 2001.

LaForest. *Water law in Canada*. 1973.

Lambden. Water boundaries – Inland. Chapter 6 in *Survey law in Canada*. 1989

Lambden & de Rijcke. *Boundaries & surveys*. Title 19 from CED. 1985.

Lambden & de Rijcke. *Legal aspects of surveying water boundaries*. 1996.

Lord. *Le droit Quebecois de l'eau*. Ministere des Richesses naturelles. 1977.

¹⁹⁵ Carroll. *Alice's Adventures in Wonderland*. Chapter 1 – Down the rabbit-hole. 1865.

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Nichols. Water boundaries – Coastal. Chapter 5 in *Survey law in Canada*. 1989

Phare. *Denying the source : The crisis of First Nations water rights*. 2009.

Quebec. *Guide de référence pour la représentation cadastrale des cours d'eau et des lots riverains*. Ministère des Ressources naturelles et de la Faune. 2008.

Ross & Hopley. The water's edge and the ripple effect of judicial error in the common law. *Journal of Environmental Law and Practice*. v.16. p. 239. 2006.

Stewart. Surveying Water Boundaries: Not a Simple Task. Ontario Bar Association. April 7, 2006.

Elsewhere:

Bureau of Land Management. Resurveys and water boundaries. Chapter VIII in *Manual of surveying instructions*. United States Department of Interior. 2009.

Donaldson. Paradox of the moving boundary. *Water Alternatives*. v4-n2. p.155. 2011.

Flushman. *Water boundaries*. 2002.

Guest. The ordinary high water boundary on freshwater lakes and streams. *Journal of Land Use and Environmental Law*. v6. p.205. 1991.

Hayes. *Elements of the law on movable water boundaries*. New Zealand Ministry of Agriculture and Forestry. 2007.

Maloney. Ordinary high water mark. *Land & Water Law Review*. v.13-n.2. p.465. 1978.

Sax. The accretion/avulsion puzzle: Its past revealed, its future proposed. 23 *Tulane Environmental Law Journal* 305. 2009.

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Seminars:

The monograph has also been forged on the anvil of seminar feedback,¹⁹⁷ because significant parts of the 2011 and 2014 drafts were presented to and vetted by 17 groups:

¹⁹⁶ I also acknowledge Steve's assistance with graphics and appropriation ("shallow and pedantic"); Erin's assistance with maritime law vis-à-vis standup paddle boarding; and Ceil's assistance with cartoons.

¹⁹⁷ Nobody explicitly echoed Walter Scott's critique: "Not very original in its concoction, and lame and impotent in its conclusion." Kelly. *Scott-Land: The man who invented a nation.* p113. 2010.

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- ◆ Canadian Council on Geomatics (Cadastral) – Montréal, November 2011
- ◆ Alberta Land Surveyors Association – Edmonton, November 2011
- ◆ Association of New Brunswick Land Surveyors – Saint John, January 2012
- ◆ Canadian Council on Geomatics (Cadastral) – Levis, September 2012
- ◆ Canadian Institute of Geomatics – Toronto, September 2012
- ◆ Association of Ontario Land Surveyors – Toronto, February 2013
- ◆ Association of Prince Edward Island Surveyors - Charlottetown, June 2013
- ◆ Canadian Council on Geomatics (Cadastral) – Niagara Falls, June 2013
- ◆ Canadian Council of Land Titles Officers – Vancouver, September 2013
- ◆ Justice Canada – Halifax, October 2013
- ◆ Saskatchewan Land Surveyors Association - Regina, November 2013
- ◆ Alberta Land Surveyors Association – Edmonton, February 2014
- ◆ Association of Ontario Land Surveyors – Niagara Falls, February 2014
- ◆ City of Calgary – Calgary, April 2014
- ◆ Association of Manitoba Land Surveyors – Winnipeg, October 2014
- ◆ Alberta Land Surveyors Association – Edmonton, January 2015
- ◆ City of Calgary – Calgary, May 2015

Appendix 1

Watercourses across 13 jurisdictions

Twelve jurisdictions have title to non-tidal watercourses.

<u>Where</u>	<u>Current legislation</u>	<u>Other stuff</u>
BC	<i>Land Act</i> , s55	Changed in 1961 ¹⁹⁸
AB	<i>Public Lands Act</i> , s3	Changed in 1984 ¹⁹⁹ Policy re: HBC grants & surrendered IR ²⁰⁰
SK	<i>Provincial Lands Act</i> , s12 <i>Water Security Act</i> , s39	Policy re: 1894 Act and HBC/CPR grants ²⁰¹
MB	<i>Crown Lands Act</i> , s4	
ON	<i>Beds of Navigable Waters Act</i> , s1	Navigable watercourses only; Changed in 1911, 1940 & 1951 ²⁰²
QC	<i>Civil Code</i> , s919	Navigable watercourses; Non-navigable watercourses after 1918 ²⁰³
NB	<i>Crown Lands & Forests Act</i> , s15	Enacted in 1982 ²⁰⁴
PEI		<i>amf</i> presumption on non-tidal waters ²⁰⁵

¹⁹⁸ The *amf* presumption was abrogated as of March 27, 1961 in response to *Canadian Exploration Ltd. v. Rotter* (1961); which held that the presumption applied to watercourses. Now, watercourses are only granted if outlined in red.

¹⁹⁹ The definition of watercourse was changed as of May 31, 1984, in response to *Queen v. Very* (1983). Now, all permanent and naturally occurring bodies of water and all naturally occurring rivers, streams, watercourses and lakes vest in Alberta.

²⁰⁰ Grants to HBC, grants of surrendered IR and grants to others before the *NW Irrigation Act* (July 23, 1894) include watercourses: aep.alberta.ca.

²⁰¹ Grants to HBC or CPR; and grants to others before the *NW Irrigation Act* (July 23, 1894) include watercourses: ISC Policy GO-07/001. February 26, 2007.

²⁰² The *amf* presumption on navigable watercourses was abrogated as of March 24, 1911 in response to *Keewatin Power Co. v. Kenora*, (1908); the presumption continues to apply to non-navigable watercourses. Navigable watercourses were bounded between February 24, 1940 and April 5, 1951 by HWM.

²⁰³ All navigable watercourses vest in Quebec. The *ad medium litum* presumption on non-navigable watercourses was abrogated on grants after February 9, 1918; the presumption continues to apply to non-navigable watercourses granted before 1918.

²⁰⁴ The *amf* presumption continues to apply to non-tidal watercourses granted before 1982: *Boyd v. Fudge* (1964).

²⁰⁵ According to policy, given the paucity of non-tidal watercourses (APEILS AGM – June 13, 2013).

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Where	Current legislation	Other stuff
NS	<i>Environment Act</i> , s103	Changed in 1919, 1972 & 1995 ²⁰⁶
NL	<i>Water Resources Act</i> , s9	
Territories ²⁰⁷	<i>Territorial Lands Act</i> , s14 (Nun), <i>NWT Lands Act</i> , s12, <i>Territorial Lands (YK) Act</i> , s12	Lacunae between 1898 and 1950 ²⁰⁸

Caveats:

- ◆ This does not include all legislative, judicial and policy changes since time immemorial for each jurisdiction.
- ◆ This does not reflect distinctions in what is vested or retained: bed, bed and shore, watercourse or body of water.
- ◆ Recourse must be had to the description in the Crown grant and subsequent transfers: In the absence of legislation, the Crown can still retain a watercourse upon grant; in the presence of legislation, a Crown can explicitly grant a watercourse.
- ◆ The transfer of administration and control from a province to Canada can include watercourses. Much hinges on the largesse of the province and the skill of the negotiators.

²⁰⁶ The *amf* presumption on most watercourses was abrogated as of May 16, 1919; the presumption continued to apply to “small rivulets or brooks unsuitable for milling, mechanical or power purposes.” The presumption on all watercourses was abrogated as of September 25, 1973; likely in response to *George v. Floyd* (1973). Watercourse is now defined as river, stream, lake, creek, pond, spring, lagoon or other natural body of water.

²⁰⁷ The *amf* presumption was abrogated as of July 23, 1894 by the *North-West Irrigation Act*: “No grant shall be hereafter made ... of any lake, river stream or other body of water ... or the land forming the bed or shore.” The Territories trace watercourse retention through the 1950 *Territorial Lands Act*.

²⁰⁸ The *amf* presumption prevailed pursuant to the 1894 *North-West Irrigation Act* until the *Yukon Territory Act* was enacted in June 13, 1898. Thereafter, the *amf* presumption prevailed until June 1, 1950, at which time the *Territorial Lands Act* was enacted.

Appendix 2

Temporal extent of water coverage

The correlation between bank (as indicated by the absence of terrestrial vegetation or the change in vegetation/soil) and water was observed on the North Saskatchewan River at Edmonton over a 214-day period (May to November, 2009).²⁰⁹ Between the retreat of the ice in spring and the advance of the ice in autumn:

- ◆ The water was at the edge of vegetation for six days (3% of the time) during spring freshets (June).
- ◆ On average, the water was 9 m away from the edge of vegetation.



Figure 37 – June 25, 2009



Figure 38 – September 14, 2009

²⁰⁹ Flow in the river is regulated by two upstream dams – Brazeau (since 1965) and Bighorn (since 1971).

Appendix 3

Opinions vary across jurisdictions



Figure 39 – Eight surveyors rendered water boundary opinions (Yellowknife, NWT): Variance of > 10m across opinions (at wide beach - bottom image); < 5m across opinions (at narrow beach - top image). June 25, 2011

Appendix 4

Access to and along watercourses

The right of access allows the riparian proprietor to access the watercourse along the entire water boundary, and to exclude others from the watercourse along that same boundary.²¹⁰ Two abutting riparian proprietors had each leased from the provincial Crown a water lot consisting of the bed and foreshore in front of their parcels. Each water lot extended a distance of 500 ft from the water boundaries. The defendant received approval to construct a marine railway across 150 ft of his water lot, which restricted the plaintiff's access to deeper, navigable waters. The court held that "a 30 to 40 ft boat with a draught of from 3.5 - 5 ft is a boat of reasonable size to use ... at all stages of the tide."²¹¹ Any person impeding such a boat impedes access.

However, the private right of access to navigable water, as enjoyed by riparian proprietors, is distinct from the right of navigation enjoyed by the public at large. A floating marina was established on a water-lot (a foreshore lease) on Kootenay Lake that had the effect of disrupting the abutting riparian parcel's access to the lake. The court weighed the riparian right of access against the right of members of the public to pass unimpeded over navigable water; and held that access was only delayed and not obstructed. Such an annoyance is allowed because "the public's right to navigation supersedes ... riparian rights."²¹²

Likewise, the right of access is quite distinct from ownership of the bed.²¹³ At two parcels that fronted on the sea at Canoe Bay on Vancouver Island the upland proprietors constructed wharves on the foreshore, so as to allow access to boats in deeper water. The local municipality had leased from the provincial Crown the foreshore and bed in front of the riparian parcels, to a distance of 1,000 feet. The riparian proprietors obtained no municipal approvals to construct wharves on pilings. The court would have permitted floating wharves as part of the riparian right of access,²¹⁴ but affirmed that a riparian owner does not have the right to construct structures upon the foreshore, if the foreshore is vested in another.

²¹⁰ *Corkum v Nash* (1992), 71 DLR (4th) 127 (N.S.C.A.).

²¹¹ *Nicholson v Moran* [1950] 1 WWR 118, at 120 (B.C.S.C.).

²¹² *Graham v Andrusyk*, 2006 BCSC 1614, at para 26.

²¹³ *Welsh v Marantette* (1985), 33 CCLT 289, at 310.

²¹⁴ *District of North Saanich v Murray et al*, [1975], 4 WWR 242 (B.C.C.A.).

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The corollary to that restriction is that the owner of the foreshore and bed is likewise restricted from erecting works, such as a sea-wall, which interfere with either the private right of access or the public right of navigation.²¹⁵ Nor can any third party - a party other than the upland owner and the foreshore owner - erect works that substantially interfere with the riparian right of access.

To be clear, access is contrasted with trespass. On the one hand, regardless of who has title to the watercourse, the riparian proprietor can access the water. On the other hand, neither the owner of the watercourse (bed and shores) nor a member of the public navigating the watercourse (as an aqueous highway) can enter onto the riparian parcel. Such an entrance is trespass, in the absence of distress.

²¹⁵ *Champion & White v City of Vancouver*, [1918] 1 WWR 216 (S.C.C.).

Appendix 5

Harbours are not Canada Lands

Public harbours at Confederation became the property of Canada.²¹⁶ Such harbours are not limited to the beds; they can include parts of the foreshore.²¹⁷ This is not to suggest that such harbours are enclaves of Canada Lands within a province. They are not.

As early as 1881, the courts held that property rights in public harbours – within a province – were transferred to Canada as of Confederation. That this was merely vesting in a “proprietary sense” within provincial jurisdictional bounds is reflected in the debate as to whether the bed, base metals or precious metals vested in Canada.²¹⁸ Such property rights should not be confused with jurisdictional rights. Indeed, Canada was only able to acquire such rights from the province because the harbours were within the province. If not within the province, then the harbour would not qualify as “Public works and Property” of the province, s.108 would be inoperative and Canada would acquire nothing.

Such lands that vest in Canada do not cease to be within a province owing to their use for federal activities. Federal ownership of land does not create an enclave from which all provincial laws are excluded.²¹⁹

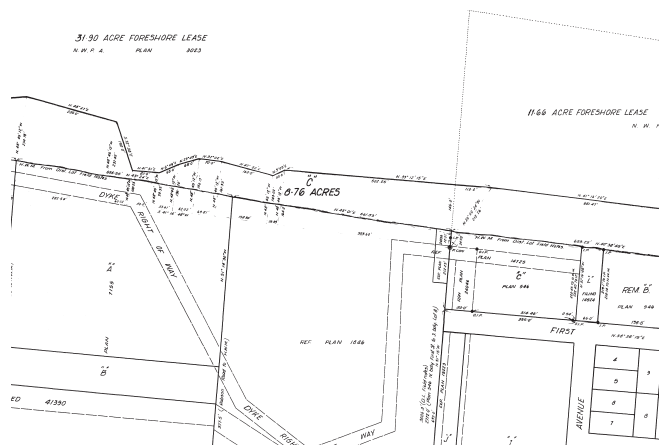


Figure 40—Foreshore leases at New Westminster harbour, BC (CLSR Plan 55347)

²¹⁶ Section 108 of *Constitution Act, 1867*, as enumerated in s.2 of the Third Schedule.

²¹⁷ La Forest. The meaning of public harbours in the Third Schedule to the BNA Act, 1867. *The Canadian Bar Review*. vXLI. pp519-537. 1963

²¹⁸ *Holman v Green* (1881), VI SCC 707.

²¹⁹ *British Columbia v Lafarge Canada Inc.*, [2007] 2 SCR 86.

Appendix 6

Islands & CGVD2013

In law, islands are merely characterized as “the exaggeration of sand and slubb.”²²⁰ There is, sadly, no legal principle that assists in defining islands. They can come into being owing to deposition (to the bed), recession of the waters (exposing the bed) or encroachment of the waters (severing a peninsula).²²¹ They can cease to be owing to the effects of erosion (to the island) or accretion (attaching to the mainland).²²²

Although an island is defined as land surrounded by water, there are two common artificial (anthropomorphic) modifiers – water levels and property rights. The level of the water can be defined. For instance, for Contiguous Zone and Exclusive Economic Zone (EEZ) purposes an island only exists above high tide; for mapping/navigation purposes an island only exists above chart datum. Moreover, the rights that attach to the island can be limited. For instance, although rocks that cannot sustain human or economic life have no EEZ, they remain islands.²²³

Thus, islands can be any bit of land:

- ◆ above water at any point in time;
- ◆ above water at a particular point in time (e.g. as of 5:51pm on July 25, 2011);
- ◆ above an arbitrary elevation at any point in time (e.g. above 177.3m IGLD85);
- ◆ above an arbitrary elevation (e.g. above 177.3m IGLD85) at a particular point in time (e.g. as of 5:51pm on July 25, 2011).

Such temporal and elevation criteria can be further modified by area. That is, to qualify as an island the landmass must exceed a minimum area.

Having defined the islands (referring to a combination of water level, terrestrial area and point in time) all the parties must address whether the islands:

- ◆ Can increase in area through accretion?

²²⁰ Reference re: *Offshore Mineral Rights (British Columbia)*, [1967] SCR 792, at para 73, quoting from *Hale’s De Juris Maris*.

²²¹ *AG BC v Neilson*, [1956] 5 DLR(2d) 449 (SCC).

²²² *Municipality of Queen’s County v Cooper*, [1946] SCR 584.

²²³ Article 121, UNCLOS III

- ◆ Can decrease in area through erosion?
- ◆ Remain unchanged in area despite avulsive actions?
- ◆ Can decrease in number through excessive erosion?
- ◆ Cannot increase in number (insofar as new islands will remain vested in the owner of the bed)?

Be wary of assuming that an island has eroded merely because one daily water level, measured at some distance and transferred to a site different in aspect and geography, exceeds the elevation of the island. There is no principle that characterizes such nebulous, one-off, short-term over-washing as erosion.

Finally, Canada's height modernization can play a role in defining islands. The Canadian Geodetic Vertical datum of 2013 (CGVD2013) replaces CGVD28, uses an equipotential surface, integrates gravity data and is accessed using a geoid model. It will allow islands across Canada to be referenced to a constant datum, unrelated to sea levels.²²⁴

²²⁴ Huang & Veronneau. Canadian gravimetric geoid model 2010. *Journal of Geodesy*, v87, pp771-790. 2013.

Appendix 7

Effect of regulation on vegetation creep

Kootenay Lake has been regulated since about 1929, in two phases. Phase two saw the construction of two upstream dams – the Duncan Dam in BC in 1967 and the Libby Dam in Montana in 1972. The effect



Figure 41 - East from water's edge to vegetation edge at Kootenay Lake, BC

of the two dams was to reduce the high (June-July) levels by 7 ft (on average), and thus reduce the seasonal range. Regulation has had no effect on the levels throughout the rest of the year; the extreme low water levels in late winter have remained at 1739 ft (local datum) since 1931.

The effect of regulation has been to temper the extreme high water levels:

- ◆ before 1973 the highs averaged 1755 ft, and the range was 16 ft;
- ◆ since 1973, the highs have averaged 1748 ft, and the range is 9 ft.
- ◆ the vegetation edge corresponds very well with the annual high level of 1748 ft.
- ◆ the physical bank between the beach and the vegetation corresponds very well with the high water level in June – July.

The edge of terrestrial vegetation (grasses, shrubs and trees) appears to be a function of high water in June and July. Change in the location of the vegetation edge since 1973 is the result of such high water being 7 ft lower, on average. The edge of vegetation has moved towards the lake, by 24 m on average.

Thus, if high spring waters result in a change in vegetation – such that the area covered by water for short periods is denuded of vegetation - then, if spring waters are less high, vegetation will creep towards the watercourse. This has the effect of shifting a vegetation-based water boundary towards the watercourse, despite the absence of deposition and with constant water levels for the other 11 months of the year.

Appendix 8

Some seminal stuff on navigability

A landowner along Bronte Creek in Burlington Ontario applied to determine who had title to the bed of the creek as it passed through the parcel. At that location the creek was fast-moving, containing several rapids, with a bed of cobble-stones and a depth of 1 ft, in places. The court applied the following criteria:

- ◆ a stream is navigable in law if it is navigable in fact.
- ◆ a stream is navigable in fact if a small craft, or a log raft or boom is capable of passage.
- ◆ the stream need not be used for navigation, as long as it is capable of navigation.
- ◆ navigability may be determined independently at different locations.
- ◆ navigability identifies a lake or stream as a public water over which the public have a right to pass, whether for commercial or non-commercial (recreational) uses.
- ◆ a stream is not navigable if it is used only for the private purposes of the owner – to be navigable it must be capable of such use by the public.
- ◆ navigation may fluctuate seasonally.
- ◆ natural interruptions which may be circumvented do not render a stream non-navigable.
- ◆ a stream that is not navigable naturally can become navigable through improvements.

The court recognized that “the public character of watercourses in Ontario remains open to definition in the light of the modern needs of the public.”²²⁵ Nevertheless, the critical date for the Court was when the parcel was created in 1827: “... at the time of the grant Bronte Creek was commercially floatable; it is probable that it was also capable of seasonally moving farm produce and articles of commerce in shallow boats.”²²⁶



Figure 41 - Bronte Creek at the Coleman site, ON

²²⁵ *Re: Coleman and AG Ontario* (1983), 143 DLR (3d) 608 (Ont HC), at 621.

²²⁶ As endorsed by the SCC: *R v Nikal*, [1996] 5 WWR 305; *R v Lewis*, [1996] 5 WWR 348.

