

**Effects of the Law on the Marine Cadastre:  
Title, Administration, Jurisdiction, and Canada's Outer Limit**

**Sara COCKBURN and Dr. Susan NICHOLS, Canada**

**Key words:**

**ABSTRACT**

When considering the legal framework for the marine cadastre, four things must be taken into account. First, what types of rights exist in a marine context? Second, what types of laws define these rights? Third, can we put these rights in a hierarchy of precedence, and fourth, how can we think about or visualize these rights interacting with one another?

**CONTACT**

Sara Cockburn, Research Assistant/M.Eng Candidate  
Department of Geodesy and Geomatics Engineering  
University of New Brunswick  
P.O. Box 4400  
Fredericton, NB  
E3B 5A3 CANADA  
Tel. + 1 506 447 3346  
Email: Sara@omg.unb.ca or t8wn@unb.ca  
Webpage: [www.omg.unb.ca/~sara](http://www.omg.unb.ca/~sara)

Dr. Susan Nichols  
Department of Geodesy and Geomatics Engineering  
University of New Brunswick  
Fredericton, NB  
CANADA E3B 5A3  
Tel. + 1 506 453 5141  
Fax +1 506 453 4943  
E-mail: [nichols@unb.ca](mailto:nichols@unb.ca)  
<http://www.unb.ca/GGE/Personnel/Nichols/Nichols.html>

# **Effects of the Law on the Marine Cadastre: Title, Administration, Jurisdiction, and Canada's Outer Limit**

**Sara COCKBURN and Dr. Susan NICHOLS, Canada**

## **1. INTRODUCTION**

When considering the legal framework for the marine cadastre, four things must be taken into account. First, what types of rights exist in a marine context? Second, what types of laws define these rights? Third, can we put these rights in a hierarchy of precedence, and fourth, how can we think about or visualize these rights interacting with one another?

## **2. RIGHTS IN THE MARINE CADASTRE**

The first consideration, i.e., which types of rights exist in a marine cadastre, is, in some ways, the easiest to answer. Title searches and a broad-based study of laws which may effect a marine "parcel," including such things as fisheries and aquaculture, navigation, environmental laws, criminal laws, oil and gas interests, First Nations' interests, etc., usually lead to the discovery of most interests in the marine context. Consideration of other typical rights might include cable laying and flood control, as well as public rights of access. In most jurisdictions, however, marine rights are myriad and are superimposed in such a way that it is extremely difficult to disentangle them.

One approach is to try to associate each right with a particular stakeholder. For example, private persons may have rights of access to the water as well as rights of fishing, rights to clean water, rights to flood control, or they may hold a private lease to a water lot or aquaculture site.<sup>1</sup> Companies and private entities may hold certain oil and gas or mineral rights, fishing licenses, or cable laying privileges. They may also have leaseholds or other rights in aquaculture or water lots, although these are often on a larger scale than rights held by a private person. First Nations may have rights to a marine area, or certain resources of an area, based on tradition and treaties. Public rights may include, for example, rights of access to the foreshore, rights of fishing, and rights of navigation. However complicated the private and public rights in a given area may seem, most marine rights have one thing in common: they exist because they were implemented by law.<sup>2</sup>

## **3. GOVERNMENT RIGHTS AND LAWS IN THE MARINE CADASTRE**

Black's Law Dictionary defines law as "...a body of rules of action or conduct prescribed by controlling authority, and having binding legal force."<sup>3</sup> Laws may also, particularly in

---

<sup>1</sup> This list is not meant to be exhaustive.

<sup>2</sup> One arguable exception to this general rule is First Nations' rights, which pre-date much modern law, despite their current form being codified in treaties as well as statute.

<sup>3</sup> Black, H.C. (1979). *Black's Law Dictionary, 5<sup>th</sup> Edition*. (5<sup>th</sup> Edition by The Publisher's Editorial Staff – Contributing authors I.R. Nolan and M.I. Connolly), West Publishing Company, St. Paul Minnesota. P. 795.

Common Law jurisdictions, arise through tradition and long use. These are typically incorporated into statute or the Common Law through court decisions. Either way, laws and regulations create or describe rights, and then give the means to implement or enforce them. In the case of the marine cadastre, a government may maintain legislative jurisdiction, which can be defined as “[t]he sphere of authority of a legislative body to enact laws and to conduct all business incidental to its law-making function,”<sup>4</sup> as well as the right to administer the law. Administrative authority is defined by Black’s Law Dictionary as “The power of an agency or its head to carry out the terms of the law creating the agency as well as to make regulations for the conduct of business before the agency; distinguishable from legislative authority to make laws.”<sup>5</sup> Of course, governments may also hold title to the seabed and subsurface, as well as the water column above them.

These government rights can, in some senses, be thought of as the controlling force over all private and public rights in a nation’s waters. Most nations have a series of checks and balances so that the government does not overstep its authority, but these are jurisdiction-dependent. The goal here is to draw a broad legal framework within which most rights in the marine cadastre may fit.

The rights so far described in the marine cadastre may be broadly drawn as follows in Figure 1:

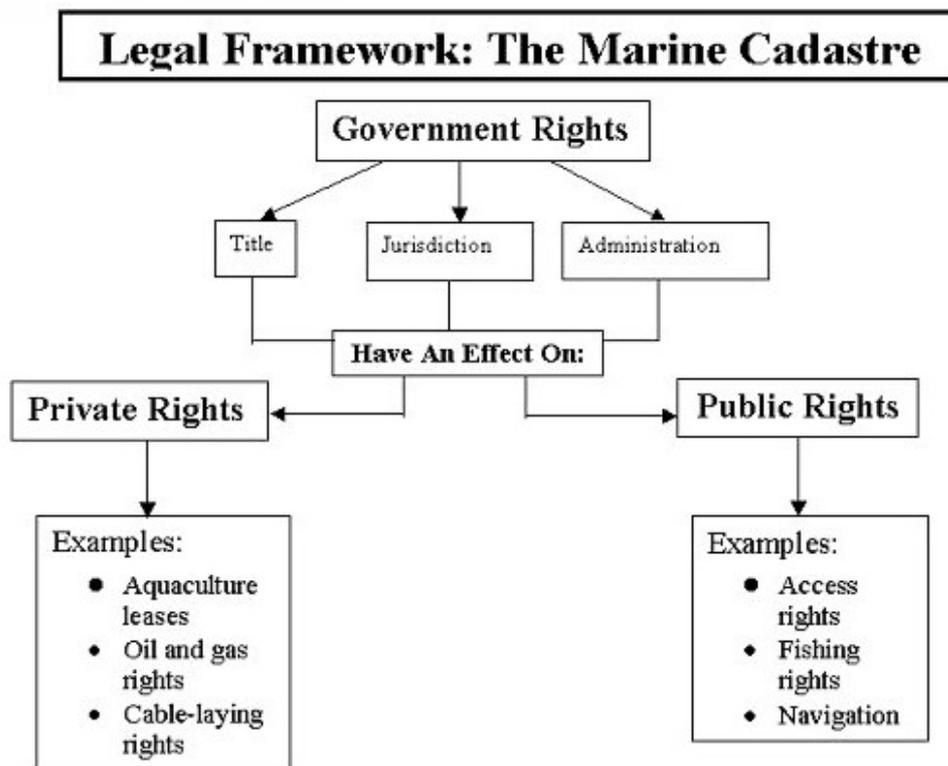
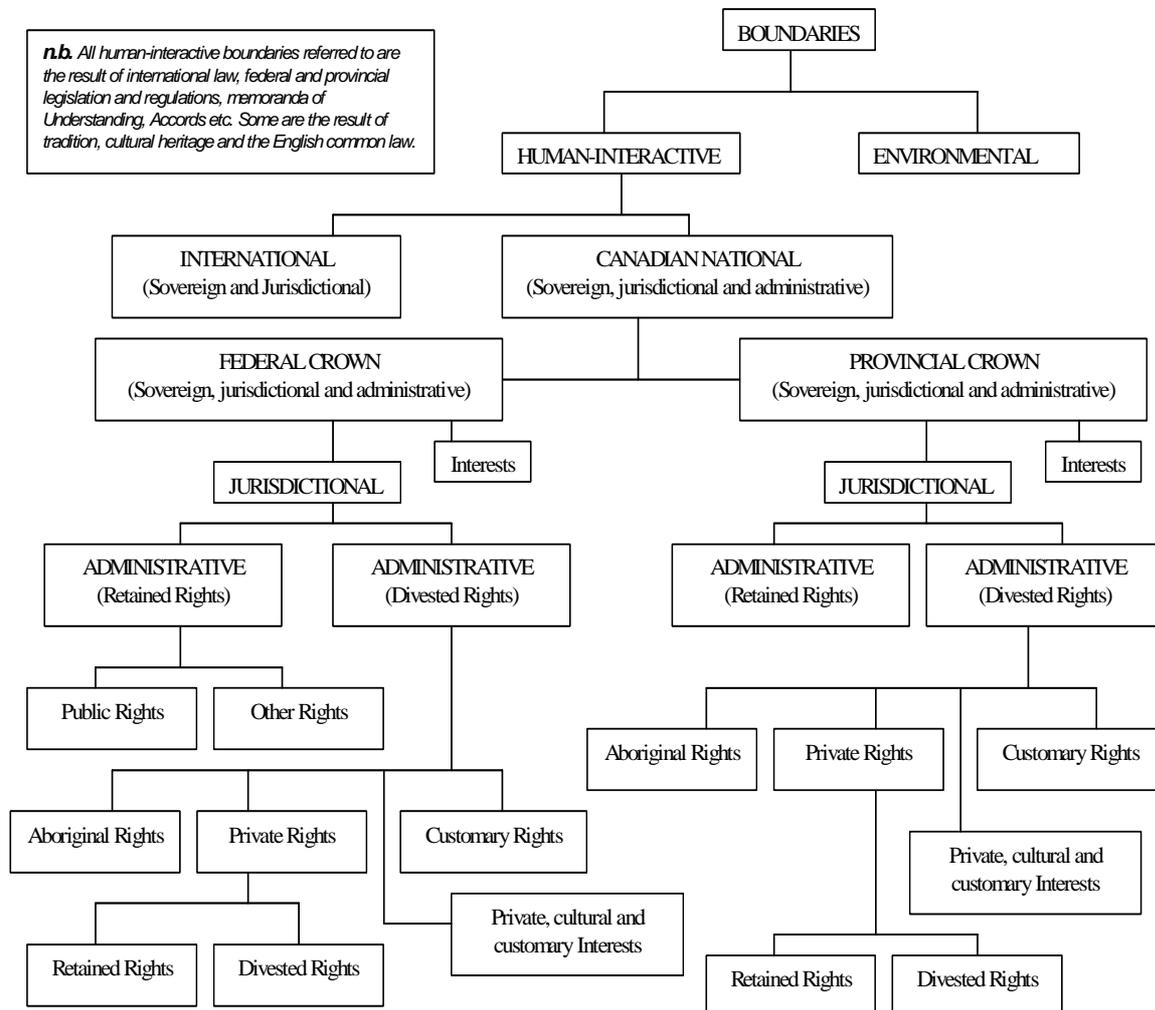


Figure 1

<sup>4</sup> Ibid., P. 810.

Naturally, this basic framework can be greatly expanded depending on the jurisdiction. Canada's framework for organizing just types of boundaries, for example, and this does not include any specific government, private or public rights, might resemble a complicated diagram such as Figure 2:



*From Sutherland, 2002*

**Figure 2**

Figure 2 is further complicated by the consideration that the provincial government, or an agency thereof, may, under specific circumstances, administer a federal law or regulation. Also, as previously mentioned, while this schematic seems expansive, it does not include any individual, private or specific public rights. However, it does concisely evaluate broad classes

<sup>5</sup> Ibid, P. 42.

of rights, and gives a fundamental breakdown of the types of governmental rights to be found in Common Law federations.

Apart from defining the broad ways in which a government may rule the marine cadastre, it may be indispensable to examine *in what way* specific laws (“law” here is broadly defined to include legal truths developed via *stare decisis* in Common Law jurisdictions) have direct bearing on the marine cadastre. Three broad types of laws may be found as follows:

- 1) Boundary laws: these typically define a particular boundary in order to enclose a right within it. For example, these may include zoning laws, including fishing zones, or property boundary regulations.
- 2) Rights laws: these usually affirm a right without defining a *particular* boundary. First Nations’ rights, and rights of access and navigation are examples of these “laws,” and may in theory extend as far as the nation’s waters may extend.
- 3) 3) Formulaic laws: these describe a formula for finding a boundary within which certain rights will exist, without defining the boundary in specific terms such as coordinates. The result is that there is work left to be done in order to delimit the boundary, which may lead to some uncertainty in terms of the marine cadastre. The consummate example of this type of law is the *United Nations Convention on the Law of the Sea (UNCLOS)*<sup>8</sup>, which contains sometimes complex formulas for finding boundaries, the most complicated of which is the formula for finding the limit of a nation’s extended Continental Shelf. If a nation has a physical continental shelf beyond 200 nautical miles, as Canada does, it then must follow a complex series of guidelines to find its outer limit, and hence the outer limit of its marine cadastre.

#### 4. HIERARCHY OF LAWS AND RIGHTS

The next thing to consider about the legal framework of the marine cadastre is whether we can place these laws in some kind of hierarchy. That is, can we develop a framework in which we know which rights take precedence over other rights? This exercise is necessarily jurisdiction dependent, as the number of levels of government and their legal hierarchies vary by jurisdiction. In the U.S. and Canada, the general configuration is that Constitutional law is paramount, and that governments must abide by a constitutional division of powers. The federal government, operating within its rights, is another legal authority, and provincial or state laws that are of concurrent jurisdiction must usually not contradict it. Provincial and state laws, and county and municipal laws, are also authorities that may impact the interests to be included in a marine cadastre, depending on the jurisdiction.

Some rights, such as the paramount public right to navigation, also take precedence over other rights, and “...whenever it conflicts with the rights of the owner of the bed or of a

---

<sup>8</sup> 1982 LOS Convention opened for signature 10 December 1982, UN Doc. A/Conf. 62/122 reprinted in United Nations, Official Text of the United Nations Convention on the Law of the Sea with Annexes and Index (New York: UN Sales No. E83.V.5, 1983).

riparian owner it will prevail.”<sup>9</sup> “Nothing short of legislation can take away the public right of navigation... [a]ccordingly a Crown grant of land does not and cannot give a right to interfere with navigation.”<sup>10</sup> This right would, therefore, take precedence over other rights granted in marine areas unless specifically abolished or made less paramount by statute.

## 5. VISUALIZATION OF MARINE RIGHTS IN A BENEFICIAL WAY

For many years, common law jurisdictions have regarded property rights as a “bundle of sticks” which consists of many strands, each representing a separate right in the property. [Kaiser Aetna v. U.S., 444 U.S. 164, 176 (1979); Black, 1990].<sup>11</sup> Traditionally, many of the strands or elements of the bundle have been held by a single person or legal entity at any given time. Today complicated zoning regulations, easements, leases, and other use rights complicate the traditional system. Some authors [e.g. Hoogsteden and Robertson, 1998,1999] have advocated the “unbundling” of these property rights in order to clarify today’s complicated ownership scheme. In fact, Cadastre 2014 (3.2) promotes the division of rights into “legal land objects” as follows: “...If a law defines phenomena, rights, or restrictions which are related to a fixed area or point of the surface of the earth, it defines a land object.”<sup>12</sup>

However, defining a land object based on the surface area of land it occupies, or is related to, does not present an accurate view of every right that may exist in that land. A three-dimensional definition of any given right, whether it is surface-based or not, renders a more accurate picture of the land parcel. For example, the right to explore for minerals may have an impact on the surface of the land, but it will also affect a three-dimensional cross-section of the parcel below the land’s surface. Policy-makers would no doubt benefit from an understanding of the upper and lower bounds of the exploration rights, and how these may affect the environment or other property entitlements within the same parcel.

Nowhere is the need to unbundle rights in 3D form more pressing than in the world’s oceans. This is true for several reasons. First, in a marine environment, individual ownership of a “parcel” is not the norm. Government ownership, public rights, and international law may usurp what private rights do exist in the water column, and may eliminate an individual’s “right to exclude others from the property,” which is traditionally considered one of the most treasured strands in a property owner’s bundle of rights. [Kaiser Aetna v. U.S., 444 U.S. 164, 176 (1979); Loretto v. Teleprompter Manhattan CATV Corp. et al, 458 U.S. 419 (1982)]. This absence of the parcel in a marine setting, and the lack of an individual owner holding

---

<sup>9</sup> LaForest, G.V. and Associates, *Water Law in Canada: The Atlantic Provinces*. Regional Economic Expansion, Information Canada, Ottawa, 1973. P. 185

<sup>10</sup> LaForest, G.V. and Associates, *Water Law in Canada: The Atlantic Provinces*. Regional Economic Expansion, Information Canada, Ottawa, 1973. P. 190

<sup>11</sup> This section appears originally in Ng'ang'a, S., M. Sutherland, S. Cockburn and S. Nichols (2001). "Toward a 3D Marine Cadastre in Support of Good Ocean Governance." Presented at the International Workshop on 3D Cadastres, Delft, Netherlands, 28-30 November 2001.

<sup>12</sup> Bevin, T. (1999). Cadastre 2014 Reforms in New Zealand. In the Coastal Cadastre: Onland, Offshore. Proceedings from the New Zealand Institute of Surveyors & FIG Commission VII Conference, Waitangi, New Zealand, p. 99-111.

many simultaneous rights, makes a bundled portrayal of rights in a marine cadastre ineffective and inaccurate when it comes to decision-making. The distinct portrayal of these rights is essential for informed policy creation.

Secondly, few marine activities can be said to take place on the “surface” of the water. Nearly everything marine actually takes place in a volume of water. Most marine rights, such as aquaculture, mining, fishing, mooring rights and even navigation have an inherently three-dimensional nature, which makes a two-dimensional definition of these rights legally inadequate. It is entirely possible that any two marine rights intersect not at the surface of the water, but at some point far below, in the water column or even within the seabed. In order to control and regulate marine activity, a more accurate portrayal of rights in the water column is required. This can only be achieved using a three-dimensional representation of these rights.<sup>13</sup>

## 6. CONCLUSION

Arriving at an accurate legal framework for the marine cadastre requires four procedures. First, the wide variety of rights that may exist in the marine context should be identified. It is important to keep in mind that these rights may change depending on the jurisdiction, as well as on whether the waters involved are tidal or non-tidal, or navigable or non-navigable and how far the right extends from shore. For example, under UNCLOS, the seabed and subsurface remain under a nation’s jurisdiction for certain purposes only on the Extended Continental Shelf, but the nation does not retain rights to the water column at that distance from its baselines. Also, room should be left in case previously unidentified rights arise or are discovered at a later date.

Second, the various laws that identify these rights, as well as the ways in which these laws have direct impact on the marine cadastre should be considered. “Boundary laws,” “rights laws,” and “formulaic laws” each influence the marine cadastre in different ways. It is important to consider how to incorporate specifically delineated boundaries and rights, as well as those that are to be arrived at by formulas, into a marine cadastre. Naturally, the engineering and science communities may not have completed formulaic boundaries by the time a marine cadastre is called for.

Third, it will be important from a legal perspective for private individuals and governments alike to have a recording of which rights and laws take precedence over other rights and laws in the hierarchy. This may help to avoid unnecessary conflict and confusion when examining the marine cadastre in its entirety. Fourth and lastly, jurisdictions should consider how to visualize rights and boundaries in a marine cadastre so that they are clear, and so that the places where they overlap are evident. This will add additional clarity in case of conflict, as

---

<sup>13</sup> Four dimensions may be required in order to visualize time-variable rights. This section appears originally in Ng'ang'a, S., M. Sutherland, S. Cockburn and S. Nichols (2001). "Toward a 3D Marine Cadastre in Support of Good Ocean Governance." Presented at the International Workshop on 3D Cadastres, Delft, Netherlands, 28-30 November 2001.

many rights in a marine cadastre may overlap in three dimensions below the water's surface in the water column or below the seabed.

## REFERENCES

- 1982 LOS Convention opened for signature 10 December 1982, UN Doc. A/Conf. 62/122 reprinted in United Nations, Official Text of the United Nations Convention on the Law of the Sea with Annexes and Index (New York: UN Sales No. E83.V.5, 1983).
- Bevin, T. (1999). Cadastre 2014 Reforms in New Zealand. In the Coastal Cadastre: Onland, Offshore. Proceedings from the New Zealand Institute of Surveyors & FIG Commission VII Conference, Waitangi, New Zealand, p. 99-111.
- Black, H.C. (1979). *Black's Law Dictionary, 5<sup>th</sup> Edition*. (5<sup>th</sup> Edition by The Publisher's Editorial Staff – Contributing authors J. R. Nolan and M.J. Connolly), West Publishing Company, St. Paul Minnesota.
- Hoogsteden, C.C., and W.A. Robertson (1998). On Land - Off Shore: Strategic Issues in Building a Seamless Cadastre for New Zealand. XXI International Congress Proceedings: Developing the Profession in a Developing World, International Federation of Surveyors, Commission 7, Cadastre and Land Management, p. 32-48, Brighton.
- Hoogsteden, C.C., and W.A. Robertson (1999). Re-engineering New Zealand's Cadastre: Strategic Issues in Building an Onland-Offshore Cadastre. GIM International, Vol. 13, No. 6, p. 7-9, June 1999.
- Kaiser Aetna v. United States, 444 U.S. 164, 176 (1979). Retrieved on September 14, 2001 from the FindLaw website on the World Wide Web.  
<http://caselaw.lp.findlaw.com/scripts/getcase.pl?navby=case&court=US&vol=444&invol=164>.
- LaForest, G.V. and Associates, *Water Law in Canada: The Atlantic Provinces*. Regional Economic Expansion, Information Canada, Ottawa, 1973.
- Loretto v. Teleprompter Manhattan CATV Corp., 458 U.S. 419 (1982). *Fundamentals of Modern Real Property Law, Third Edition*. Rabin, E.H., and R.R. Kwall. The Foundation Press, Inc., Westbury, New York. 1992.
- Ng'ang'a, S., M. Sutherland, S. Cockburn and S. Nichols (2001). "Toward a 3D Marine Cadastre in Support of Good Ocean Governance." Presented at the International Workshop on 3D Cadastres, Delft, Netherlands, 28-30 November 2001.
- Sutherland, M. (2002). "A Classification of Canadian Marine Boundaries and the Design of a Conceptual Marine Boundary Database Framework." Contract

report prepared for Fisheries and Oceans Canada (Canadian Hydrographic Services). March 2002, 41 pp.