

# **The Contribution of Hydrographic Charting to the Resolution and Portrayal of Offshore Property and Jurisdictional Boundaries.**

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## **Abstract**

Hydrography has an important role to play in coastal and offshore management of property rights, or marine administration. From the coastal upland to the limits of the Continental Shelf, there are myriad property boundaries and jurisdictional limits. Some, like the limits of fisheries zones, have long been portrayed on charts. However, most are defined only in law and legal documents, and few could be delimited today without any grounds for dispute. Yet the oceans are perhaps Canada's greatest natural resource.

This paper will highlight the complexity of Canada's ocean spaces when they are viewed from the perspectives of state, private, and common property. Legal problems range from undefined aboriginal rights along the coast and conflicting public and private rights to jurisdictional uncertainty and the definition of the continental shelf. Technical issues include datums, databases, and "due publicity". Examples of these issues will be discussed in the context of the legal and technical challenges in portraying different types of boundaries on charts.

## **1. Introduction**

From the ordinary high water to the edge of the continental shelf, Canada's marine territories are a mosaic of jurisdictional, administrative, and property boundaries. Most are defined only in law and legal documents; some are represented on maps and charts; fewer still could be delimited today with no grounds for dispute. This paper will highlight the complexity of Canada's ocean spaces when they are viewed from the perspectives of state, private, and common property. Legal problems range from undefined aboriginal rights along the coast and conflicting public and private rights to jurisdictional uncertainty and the definition of the continental shelf. Technical issues include datums, databases, and deadlines.

The coastlines and marine areas in Canada have historically shaped the country's settlement, economy, and culture. With extended national jurisdiction offshore embodied in the United Nations Convention on Law of the Sea (UNCLOS) and the Canada Ocean Act (COA), these areas have re-emerged as new territories to be explored, exploited, protected and shared. Effective marine resource management in these vast coastal regions begins with knowing who has rights of use, ownership, and stewardship in coastal areas, that is, who has the right to make and enforce decisions offshore. This paper outlines the contribution that hydrographic charts can make to help resolve this complex issue.

## **2. Charts as a vehicle for portraying boundaries**

### ***2.1 The need to show boundaries***

Although charts are often described as navigation documents, common practice of being 'all things to all people' has made them the *de facto* chart, map, geographic document of users of the oceans, as well as the government's official statement on most spatial matters. Practically, it makes sense to show fisheries limits, for example, since the fishers and the enforcement vessels will be navigating using charts.

The role of charts as instruments in the construction of boundaries is given legal recognition in the *United Nations Convention on Law of the Sea* (UNCLOS). Article 5 states

*Except where otherwise provided in this Convention, the normal baseline for measuring the breadth of the territorial sea is the low-water line along the coast as marked on large-scale charts officially recognized by the coastal State.*

The low water line is not usually the same as the shoreline shown on topographic maps, a point that may add to the complications of coastal boundary making. This definition can also lead to differences between neighbouring states which use different methods for determining low water ( eg., Canada uses LLW, USA uses L.AT). The Convention goes on to instruct Coastal States to show baselines Territorial Sea, Exclusive Economic Zones and continental shelf limits “on charts of a scale or scales adequate for ascertaining their position.” Furthermore, in all these cases the “coastal State shall give due publicity to such charts.” Nationally, the *Canada Ocean Act* (COA) authorizes the Minister of Fisheries and Oceans to

*prepare... publish and authorize the distribution or sale of charts delineating... the territorial sea of Canada, the contiguous zone of Canada, the exclusive economic zone of Canada and the fishing zones of Canada and adjacent waters.*

Clearly chart makers have a duty to show at least these boundaries.

## ***2.2 Present boundary portrayal***

The Canadian Hydrographic Service has approximately 1000 charts in its inventory, a number that has fluctuated over the years. An average of 26 new charts were produced between 1972 and 1993, 87 new editions were issued as well as 96 reprints. These are not sequential replacements, since some charts must be changed substantially every couple of years while others are never changed. Consequently, an examination of the charts available at any one time will not show an entirely constant pattern applied across the suite. An examination of the history files shows, of course, a constant striving to bring the charts into line with the latest policies, but there is of necessity some time lag. What is now shown includes the following.

### **a. International Bilateral Boundaries.**

Canadian charts show the agreed boundaries with the USA, France and Greenland (Denmark). Those which have not been resolved are sometimes shown and sometimes not, but Canada has unresolved boundaries with the USA, and within the next ten years will have boundaries to agree to with Denmark and Russia.

### **b. International boundaries with the United Nations**

UNCLOS automatically gives Coastal States a 12 nautical mile Territorial Sea, a 24 nautical mile Contiguous Zone and a 200 nautical mile Exclusive Economic Zone. It also permits the claiming of a juridical continental shelf outside the EEZ. (For details of the process, see Monahan et al., 1999). To date, none of these have been shown on charts, although the fishing zone limit which corresponds to 200 nautical miles has been.

### **c. Inter-Provincial and Territorial boundaries**

At present, charts show some boundaries between provinces and between provinces and Territories. In cases where there may be some dispute, no line is shown on the chart. It is important to note that these are inter-provincial boundaries, that is they lie between provinces or territories and not between Canada and the provinces or territories. A large number of jurisdictional issues yet to be resolved would be circumscribed by those boundaries, which may be one reason they do not always appear on any map or chart.

### **d. Fishing zones**

Limits of fishing zones in the offshore that Canada has agreed to Internationally are shown on some charts. the far offshore, these lie at 200 Nautical miles from the Baselines.

### **e. National Parks and Provincial Parks**

The limits of both these types of parks are charted.

### **f. Indian Reserves**

Aboriginal areas officially designated as “Indian Reserves” are charted. As aboriginal land claims work their way through the courts, these will have to be re-examined.

### **g. Marine Protected Areas**

Of recent vintage, these are being charted as they are established and as the appropriate charts are brought up to date.

## ***2.3 Boundaries that might usefully be added over time***

Within the boundaries presently shown and listed above, there are clearly issues to be resolved, not least of which will be the eternal Canadian Federal/Provincial debate. Acknowledging that there are problems but making no attempt to resolve them, our purpose in this section is to indicate the range of other boundaries that can usefully be shown on charts.

The following listing of boundaries in the marine areas does not really do justice to the complexities of the interplay between the various coastal and offshore boundaries in Canada, but does indicate the scope and range of the issue:

- a) oil and gas licenses and leases;
- b) rights for pipelines;
- c) cable rights-of way;
- d) traditional private rights below the ordinary high water mark, including traditional waterlots for wharves, weirs, and piers, for gathering kelp and seaweed, and for accessing the water by boat.
- e) aquaculture and sea ranching;
- f) aboriginal claims and settlements;
- g. coastal zone management limits.

## **3. The Challenges Ahead**

A complete geographically-referenced portrayal of all its marine boundaries should be considered part of any nation’s geospatial data infrastructure, part of the essential data that should be easily accessible in a form suitable for use by anyone from school children to politicians. [e.g., McLaughlin and Nichols, 1994] In Canada, there is as yet no comprehensive plan to construct a such an assemblage of marine boundary data nor to include it as part of the national geospatial data infrastructure. Of course, a great many obstacles stand in the way, but these can be overcome in time. We have outlined here a set of priorities which we believe are essential to solving our marine boundary issues [from Nichols and Monahan, 1999].

***Legal-Political-Administrative Priorities:*** These are the most difficult to solve and the easiest to avoid, yet they must eventually be resolved if we are truly to make progress. In Canada, they include:

1. Ratification of the UN Law of the Sea Convention;
2. Resolution of the uncertainties remaining with boundaries between Canada and the US;
3. Resolution of the extent of federal and provincial jurisdiction with clear inland and seaward boundary definitions, not precluding joint management of some areas for the public good;

4. Clarification of any aboriginal rights in coastal areas;
5. Development of improved administrative arrangements so that policies, legislation, regulations, property rights, and information management are not unnecessarily compartmentalized by a traditional land/sea boundary;
6. Clarification of all boundary definitions for property rights and jurisdictional limits to ensure that these boundaries can be relocated consistently and with technical reliability in the future.

***Technical-Information Related Priorities:*** The degree to which these can be addressed depends to a large extent on resolving inter-jurisdictional issues and on a commitment of resources nationally and provincially. The priorities include:

1. Development of a comprehensive program to delimit the extended continental shelf within 10 years;
2. Redefinition of the national baselines;
3. Resolution of the issues surrounding delimitation of offshore rights by co-ordinates;
4. Research to develop and enhance existing technologies and procedures for collecting, displaying, and managing boundary and limit information, including techniques that would allow users to better visualize and understand the overlapping and complex sets of coastal property rights and to integrate this information with other marine data required for planning and decision-making.

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