

Canada's Unresolved Maritime Boundaries

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Introduction

As recently as the end of the Second World War, it was accepted as international practice that the outer limit of a country's jurisdiction was three nautical miles (nm) from the low-water line of the coast. During the last half century the nations of the world have started to claim national jurisdiction over the maritime areas within 200nm of their baselines and, in some cases, to the continental shelf that extends past that limit.

At least part of the Canadian economy is tied to the people who make a living from the resources of the sea, be they fishermen or oil drillers. These resources need protection from foreign exploiters; thus, the need for national jurisdictions. But with national jurisdictional claims, comes the overlap with claims of other nations. For Canada, these overlaps occur:

- off the mouth of Juan de Fuca Strait;
- in, and seaward of, Dixon Entrance on the Pacific Coast;
- near Machias Seal Island on the Atlantic coast;
- in the Beaufort and Lincoln Seas in the Arctic.

Special problems occur because of the already negotiated or arbitrated boundaries in Baffin Bay and Nares Strait and in the Gulf of Maine. The ownership of two islands, Machias Seal and Hans Island in Kennedy Channel is still disputed.

This paper will highlight the facts concerning these unresolved maritime boundaries.

West of Juan de Fuca Strait

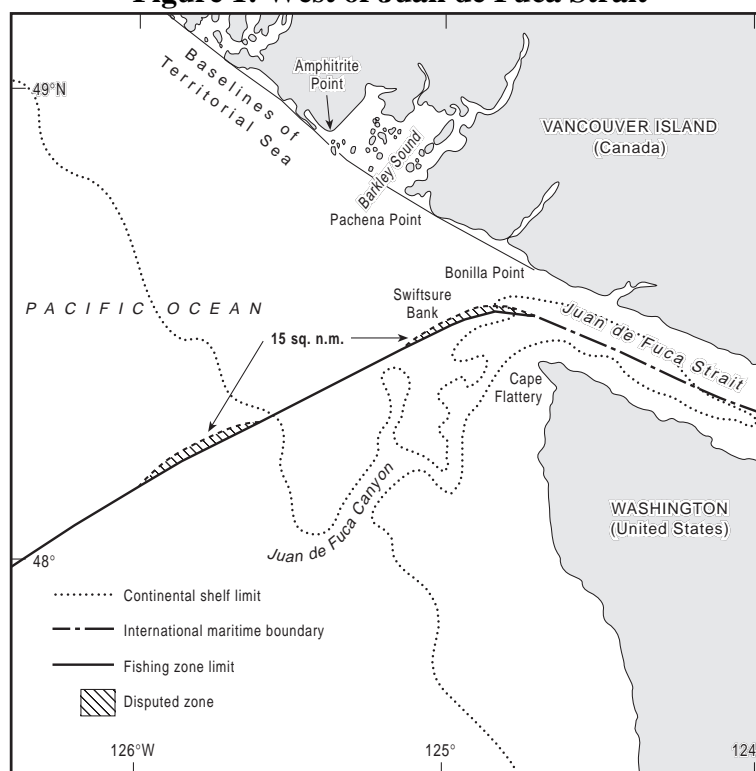
The boundary between Canada and the United States is resolved as far west as the mouth of Juan de Fuca Strait and is

under the management of the International Boundary Commission (Figure 1). The unresolved boundary lies west of that point.

The geography of the area is characterised by the relatively straight north-south alignment of the coast of the State of Washington and the indented coast of Vancouver Island, which runs in a northwesterly direction. At the entrance of Juan de Fuca Strait there is the shallow Juan de Fuca Canyon. The geological continental shelf in this area extends no farther than 35 miles, thus there is no juridical continental shelf beyond the 200nm fishing zone limits declared by both countries.¹

The area in question has limited known hydrocarbon resources. Instead, fisheries resources are of primary importance today. Salmon, an anadromous species, spawn in the rivers of Canada and the United States, head north to the north-central Pacific as young fish and when mature, return to the rivers to spawn and die. Therefore, the fishery is a case of interception of the mature fish.

Figure 1: West of Juan de Fuca Strait



Some salmon of American origin (e.g., those returning to the Columbia River) are caught by Canadians, and some salmon of Canadian origin (e.g. those returning to the Fraser River) are caught by Americans. Also there is a large halibut fishery throughout the Pacific coast and a ground fish fishery centred on the Swiftsure Bank on the edges of the Juan de Fuca Canyon. In addition, some polymetallic sulfides have been found at and beyond the 200nm limit where there is tectonic plate activity.

On 1 January 1977, Canada declared a 200nm-wide 'Exclusive Fishing Zone 5' and used an equidistance line based on territorial sea straight baselines as the lateral boundary.² The Americans followed suit on 1 March 1977 by claiming a Fishery Conservation Zone but used an equidistance line based on the low water line.³ There are only mild differences, amounting to about 15 sq.nm, but they lie in the important fisheries area of Swiftsure Bank.

Dixon Entrance

Dixon Entrance is between the south end of the Alaska Panhandle and the north shore of the Queen Charlotte Islands (Figure 2). It is an area that is roughly 75nm east-west by 30nm north-south and is deeper than 200 metres over much of its area. The geological continental shelf is very narrow and deeper than other parts of the coast. Learmouth

Bank sits at the mouth of Dixon Entrance and is within the disputed area.

As in the Juan de Fuca situation, the Dixon Entrance dispute is a matter of fish – principally salmon. The returning mature salmon endeavour to get to the Skeena and other rivers and the fishermen, both Canadian and Americans, try to intercept them as they round Cape Muzon, at the southern tip of Dall Island, and as they approach the mouths of various rivers and inlets. Hydrocarbons are not considered an economic resource in this area.

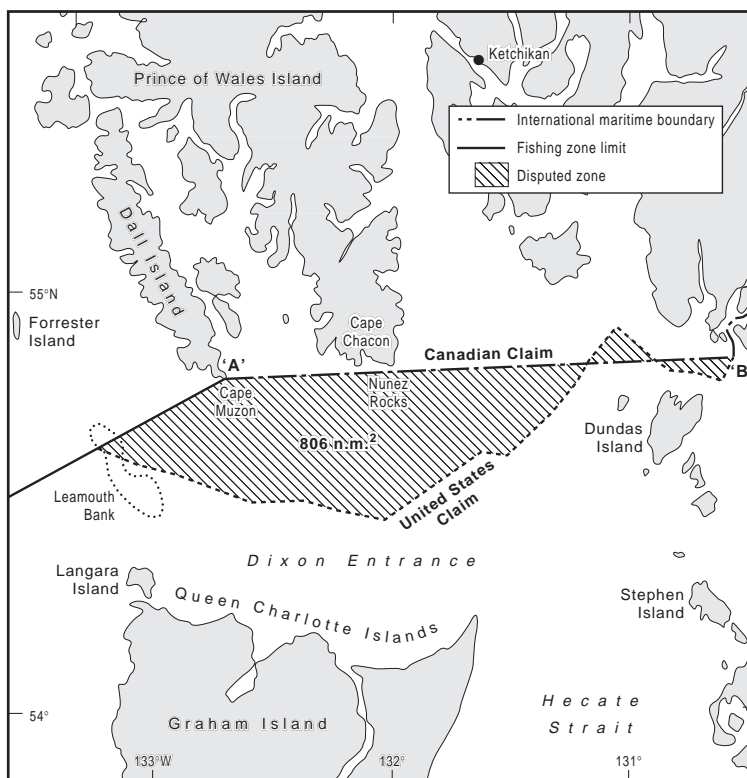
The 1903 Court of Arbitration between United States and Great Britain (acting on behalf of Canada) was made up of one British, two Canadian and three American judges. The British judge, Lord Alverstone, sided with the Americans to form a majority decision on the location of the land boundary of the Alaska Panhandle. The two Canadian judges felt so strongly about this part of the decision that they refused to sign. Nevertheless, the Court unanimously agreed that Cape Muzon was the point of commencement of the boundary line and which channels constituted the Portland Channel (the toponym used in the 1825 Agreement), thus defining the boundary from the north end of Portland Canal to a point (Turning Point 1) off the southwest corner of Wales Island.⁴

This last part is now undisputed and is under the management of the International Boundary

Commission, as is the land boundary determined by the majority decision. However, the Arbitration also defined two points, named 'A' on Cape Muzon (the unanimously agreed point of commencement) and 'B' just south of the first undisputed point and 72nm away from 'A'. The dispute centres around the interpretation of the significance of these two points.

The Canadian position is that 'A' and 'B' are part of the arbitrated boundary delimitation just as any of the other turning points. This interpretation essentially makes all of Dixon Entrance Canadian waters. The Americans claim that the 'A-B' line merely allocates the ownership, or sovereignty, of the land masses. According to the United States, the maritime boundary would then be decided in accordance to international law relative to those land masses.

Figure 2: Dixon Entrance



The Americans promulgated their Fishing Conservation Zone on 1 March 1977 by defining an equidistance line throughout the length of Dixon Entrance.⁵ The American equidistance line is mainly to the south of the Canadian claim of the 'A-B' line, but not entirely. North of Dundas Island, the American equidistance line swings north of the 'A-B' line. The United States uses Nunez Rock, close off Cape Chacon, as one of its basepoints to define its territorial sea and its equidistance line even though the rock is a low-tide elevation that is south of the 'A-B' line.

There are four segments to the disputed area, which will for clarity's sake be called here Areas 1-4, moving from West to East. The most westerly area, Area 1, is about 813nm², includes Learmouth Bank and is claimed by both countries; Area 2, north of Dundas Island, is not claimed by either country, and is about 21nm²; Area 3 is claimed by both countries and is about 15nm²; and the most easterly area, Area 4, is about 0.4nm² and not claimed by either country. The total disputed area, in Areas 1 and 3 is, therefore, about 828nm², while Areas 2 and 4, unclaimed by either party, add up to about 21.4nm².

Canada claims that the waters of Dixon Entrance (as well as those of Hecate Strait and Queen Charlotte Sound) are internal waters whereas the United States only acknowledges Canada's right to claim a

territorial sea but not internal waters.

Seaward of Dixon Entrance, the two countries claim a boundary computed on the equidistance principle and there is not much difference between them, except that the Canadian version starts at point 'A' on Cape Muzon.⁶

As the situation stands today, the 'A-B' line defines the north limit of the disputed zone. Although the geographic coordinates of 'A' and 'B' are undisputed, the geometric properties of the line joining the two are disputed. Canada interprets the line as a geodesic based on the international interpretation of 'straight':

Straight line: Mathematically the line of shortest distance between two points in a specified space or on a specified surface.⁷

On the surface of an ellipsoid the shortest distance between two points is defined as a geodesic.⁸ Since most nautical charts are drawn on the Mercator projection, a geodesic plots as a curved line, convex on the side of the closer pole. Since Canada claims the 'A-B' line as the boundary, the boundary is shown as the curved, geodesic line. The United States does not recognise the 'A-B' line as an official boundary so it is not printed on its nautical charts. However, for fisheries enforcement, the Americans appear to use a rhumb line definition for the 'A-B' line.

Figure 3: Beaufort Sea



Beaufort Sea

The Beaufort Sea is adjacent to the Arctic Ocean and has a geological continental shelf that extends about 40nm offshore in the vicinity of the 141°W meridian (Figure 3). The shelf extends laterally as one continuous entity from Russia, across the Chukchi Sea, along the north shore of Alaska, Yukon and Northwest Territories as far east as Amundsen Gulf. The offshore hydrocarbon potential is definitely identified and much exploration work has been conducted in the area near Tuktoyaktuk on the Canadian side. Oil is being produced commercially from wells on land near Prudhoe Bay, Alaska and sent south through the trans-Alaska pipeline. Both countries have issued permits for petroleum exploration in the disputed area but because of the dispute, they have established a moratorium on exploration. Essentially, there is no commercial fishing in the area, but native groups from both

sides of the border have environmental interests throughout the region.

The land boundary between Alaska and the Yukon is defined by the 141°W meridian and was surveyed between 1906 and 1912 by the prolongation of an astronomic meridian observed at the Yukon River through 26 turning points to the shores of the Beaufort Sea. Monuments were established at frequent intervals and accepted as the definitive location of the land boundary. A triangulation net (of about third order accuracy) was also surveyed to support mapping of the boundary area.⁹

The authority for the Canadian position has always been the 1825 Convention between Great Britain and Russia. The historical reason for that Convention was to establish the spheres of maritime influence; the land boundary from the Pacific to Arctic Ocean was essentially added for completeness. Article 3 of that Convention defined the boundary between what is now Canada and the United States of America as:

The line of demarcation shall follow the summit of the mountains situated parallel to the Coast, as far as the point of intersection of the 141st degree of West longitude...and finally from the said point of intersection, the said Meridian Line of the 141st degree, in its prolongation as far as the Frozen ocean [emphasis added]¹⁰

This Article has been interpreted by Canada to mean that the Convention provides for a boundary which divides what is now Canada and the United States interests on both land and sea since the same wording is used in the 1867 purchase agreement of Alaska¹¹ between Russia and the United States and because Canada succeeds Great Britain as the sovereign state adjacent to Alaska. The Canadian position is reflected in a number of proclamations, one of which is 'Fishing Zone 6'.¹²

The position of the United States became known on 1 March 1977 when it proclaimed a 200nm wide Fishery Conservation Zone.¹³ In that proclamation, the lateral boundary between Alaska and the Yukon in the Beaufort Sea was defined as the equidistance line from the low-water line of both coasts. Because the coast trends in the southeasterly direction, the equidistance line departs from the land terminus in a N25°E direction for about the first 10nm and in a direction of

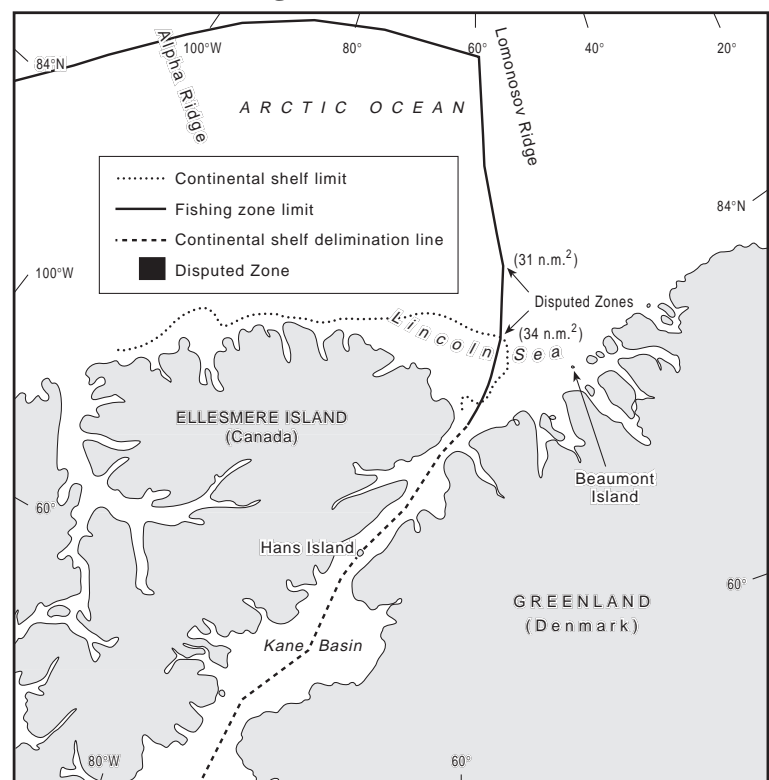
N17°E for the remainder of the 200nm claim. Thus, there is an overlap between the two claimed jurisdictions of approximately 6,250nm².

The weight given to the Canadian claim may hinge on the words emphasised in the quotation above. The authentic text is in French: "*dans son (sic) prolongation jusqu'à la Mer Glaciale.*"¹⁴ The precise question which arises is what interpretation should be given to the preposition "*jusqu'à.*" Specifically, is it inclusive or exclusive of the object to which the preposition relates? To go any farther with this discussion point would be beyond the author's competence, particularly in the technical aspects of the French language.

No doubt the parties will argue that there is a similarity, or lack of similarity, between the wording used to define the boundary in Bering Strait and Chukchi Sea in the 1867 treaty of cessation of Alaska to the United States and the wording used to define the 141°W meridian boundary, which repeated the 1825 treaty wording. The United States and the Union of Soviet Socialist Republics updated the 1867 treaty on 1 June 1990, by using the 168° 58' 37"W meridian as far north as the more northerly of the two 200nm limits.

Another claim to the use of the 141°W meridian comes from the 'sector principle'. On 20 February 1907, Senator Pascal Poirier, in addressing the

Figure 4: Lincoln Sea



Canadian Senate, moved that the time had come for Canada to make formal declaration of possession of the lands and islands situated in the north, and extending to the North Pole. The senator maintained that all islands between 141°W and 60°W longitude up to the North Pole were Canadian territory. The use of a sector is a special application of the use of meridians and parallels which can be found to have been used in treaties dating back to the 16th century. What made the speech so notable was the fact that it was a quasi-official public utterance on the sovereignty of Canada. However, Senator Poirier's proposal was not adopted, and the Minister of the Interior dissociated himself from it.¹⁵ For many years, the Canadian Government has neither affirmed nor disaffirmed this sector theory in explicit terms.

Lincoln Sea

The Lincoln Sea borders the Arctic Ocean, as does the Beaufort Sea, and the extent of the geological continental shelf is about 50nm from the coast (Figure 4). However, the Lomonosov Ridge and the Alpha Ridge extend well out into the Arctic Ocean. Indeed, they are two of the four ridges that divide the Arctic into several basins. There are indications that the Lomonosov Ridge might be continental in origin, as opposed to a mid-oceanic ridge, and thus Canada, Denmark and Russia could lay claim to the ridge, or parts of it, under the provisions of the Law of the Sea Convention with respect to the Continental Shelf.

The geological continental shelf extends northeastwards from the north end of Ellesmere Island for a distance of 50nm and is almost non-existent along the northwest coast of Greenland.

Canada claimed 'Exclusive Fishing Zone 6' in the Arctic Ocean on 1 March 1977 describing a lateral boundary with Denmark based on the equidistance principle using the low-water line of the coasts and islands.¹⁶

On 1 June 1980, Denmark established straight baselines around the coast of Greenland and thus straight baselines joined Beaumont Island (82° 44'N, 50° 40'W) with Kap Bryant (42.6nm to the southwest) and with Distant Cape (40.9nm to the northeast). Canada found these straight baselines unacceptable since:

- Beaumont Island is somewhat west of other islands, thus it is not part of a fringe of islands;
- the straight baselines are long;
- they do not follow the trend of the coast; and,
- they do not cross the mouths of the intervening fjords but are farther offshore.

As an isolated, uninhabited island of about 4 square miles it could be argued that the island cannot generate an exclusive economic zone in its own right under Article 121(3) of the Law of the Sea Convention. The net effect is that the straight baselines cause the equidistance line to move westward and give Denmark two isolated, lens shaped, areas along the equidistance line of 31 and 34nm². Canada formally objected to the Danish promulgation of straight baselines in the Arctic on 3 September 1980. The two sides met in March 1982 with neither side moving from their respective positions.



Figure 5: Machias Seal Island. Sketch made from 1911 photographs of the 1870 NW lighthouse (L), 1876 SE lighthouse (R), the lighthouse keeper's house and the storehouse made by cutting down the 1832 SE lighthouse. All of these structures have been demolished and replaced by a single lighthouse and new residence.

Machias Seal Island

Machias Seal Island (44° 30' N, 67° 06' W) is a tear-drop shaped island 0.3nm by 0.2nm that sits at the end of a chain of islands and shoals that extend about 10nm southwest from Grand Manan Island (Figure 6). The island sits 9.2nm off the coast of Maine. The island is granite (an intrusive igneous rock), the United States mainland is gabbro (another intrusive igneous rock) whereas Grand Manan Island is basalt (an extrusive igneous rock). It is described in Sailing Directions as 28 feet high and steep-to on its west side. A 60 foot tall white reinforced concrete octagonal lighthouse is situated on the summit of the island. The island is the breeding colony of five species of seabirds (Arctic Terns, Common Terns, Atlantic Puffins, Razorbills, and Leach's Storm-Petrels) and was designated a migratory bird sanctuary in 1944 which is administered by the Canadian Wildlife Service.

The economy of the island is minimal. It has never had timber cut, been mined, had guano extracted or any other economic resource drawn directly from it. The island has become popular for about 1,200 naturalists, birdwatchers and photographers per year who arrive by private charter boats operating out of Grand Manan and a few points in Maine.¹⁷ To date, there is no identified hydrocarbon or mineral potential.

Two wooden lighthouses, about 43 metres apart bearing ESE/WNW, were constructed on the island in 1832 by the Province of New Brunswick. The height of the lights were raised about two metres shortly after 1846 to increase the visibility of the lights. With the Canadian Confederation in 1867, the lights came under the jurisdiction of the Federal Department of Marine and Fisheries, later transferred to the Department of Transport. In 1870, the northwest light was replaced and in 1876 the southeast light was also replaced so that the lights were NW/SE of each other and 58 metres apart. The old southeast lighthouse was then cut down and used as a storehouse (Figure 5). In July 1912, the southeast lighthouse was discontinued and the remaining lighthouse was replaced in September 1915 with the present one, 55 metres northwest of the remaining light.^{18,19,20}

The United States Coast & Geodetic Survey positioned the original east light in 1862:

44° 30' 06.878"N, 67° 06' 07.952"W (NAD27).

The lighthouse constructed in 1915 was positioned by Canadian Hydrographic Service in 1948:

44° 30' 06.446"N, 67° 06' 08.628"W (NAD27).

In 1977, the Geodetic Survey of Canada established a first order Doppler satellite point on the southeast corner of the helicopter pad:

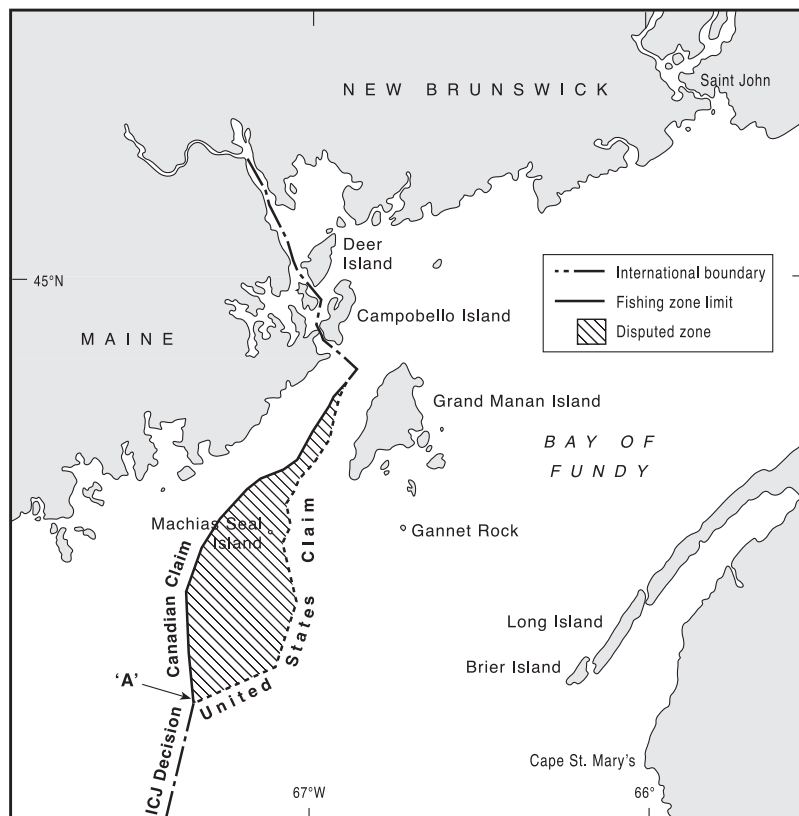
44° 30' 05.753"N, 67° 06' 06.525"W (NAD27).

According to the Canadian Department of External Affairs, the United States claim to the island dates from August 1971. It never protested the existence of the lighthouse on the island or its maintenance by Canadian or British authorities between 1832 and 1971. The author has heard it said that the US claim is, in part, based on the geographic name of the island, as Machias Bay and the town of Machias, Maine are 12 and 20nm away from the island, respectively.

The unresolved maritime boundary breaks into two elements: the sovereignty of the island and location of the maritime boundary taking into account who is the rightful owner of the island.

The original Letters Patent of 1621 from King James I of England to Sir William Alexander for the purposes of establishing colonies in what is now Nova Scotia and New Brunswick described the

Figure 6: Machias Seal Island



inclusion of islands that were within six leagues of a direct line from St. Mary's Bay to the mouth of the St. Croix River. The Letters Patent included a rule of interpretation in favour of the grantee:

And if any questions, or doubts shall hereafter arise upon the interpretation or construction of any clause in the present Letters Patent contained, they shall all be taken and interpreted in the most extensive sense, and in favor of the said Sir William Alexander, his heirs and assigns aforesaid.

By virtue of Article II of the Definitive Treaty of Peace of 1783, Great Britain ceded to the United States all islands within 20 leagues of US shores except those islands within the limits of Nova Scotia. An Award of the Commissioners in 1817 awarded certain islands in Passamaquoddy Bay to the United States but awarded Grand Manan to his Britannic Majesty. One legal opinion states that natural appendages to Grand Manan such as Machias Seal Island and North Rock would be included under the elementary rule of interpretation that, in the absence of a contrary provision, the accessory follows the principal.

The Canadian version of the maritime boundary starts at the seaward end of the land boundary between Canada and the United States, which occurs 3nm off Passamaquoddy Bay, and follows the strict equidistance line between the two countries as described by the low-water line of all islands and rocks as far as Point 'A' of the 1984 Gulf of Maine decision. The claim assumes that Machias Seal Island is Canadian. This boundary claim was put into Canadian law through the proclamation of 'Exclusive Fishing Zone 4' on 1 January 1977.²¹

The American claim to the island is based on the Definitive Treaty of Peace of 1783. The US also contends that there are a number of cases in international law that show that the construction of a lighthouse does not entail, by itself, the manifestation of a nation's sovereignty over a territory.²²

The American version of the maritime boundary also starts at the seaward end of the land boundary between Canada and the United States and proceeds seaward as the 'thalweg', or line of the deepest channel, between the Canadian and American land masses, assuming that Machias Seal Island is American. The thalweg line crosses the Canadian equidistance line at Point 'A'

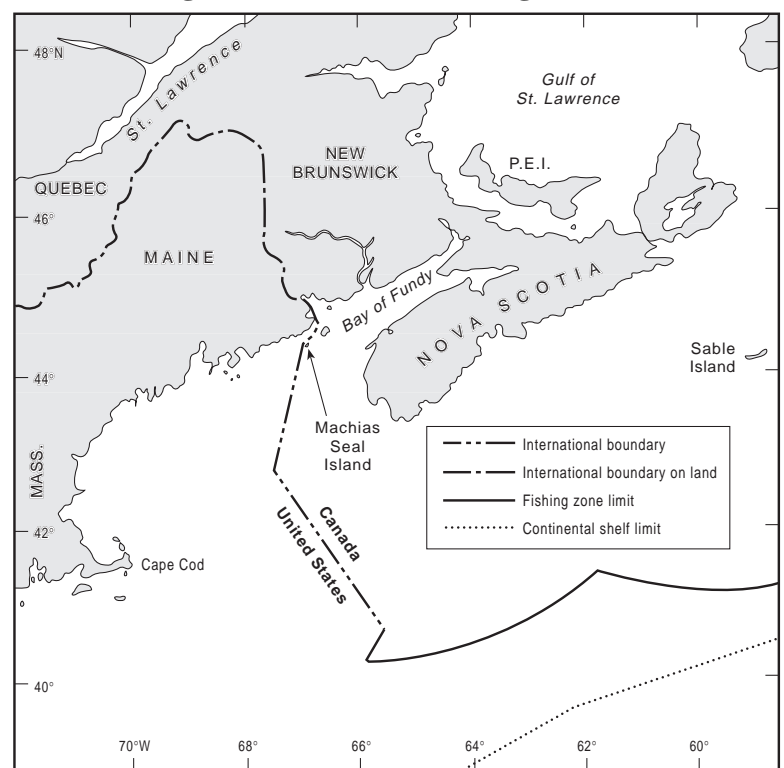
of the 1984 Gulf of Maine decision. This claim was put into American law by the proclamation of the Fisheries Conservation Zone on 1 March 1977.²³ There is a disputed area of 210nm² between the two claims.

In the submission to the International Court of Justice for a binding arbitration on the maritime boundary in the Gulf of Maine, Canada and United States specifically chose as a fixed starting point of the single maritime boundary a point on their two claims where there was unanimity; namely, Point 'A'. The apparent reason was that neither country wished the Chamber of the Court to rule one way for the possession of the island and then feel obliged to rule against that country in the Georges Bank area. Both countries wanted the Georges Bank boundary to be decided on its own merits.

Seaward of Georges Bank

The Chamber of the International Court of Justice established the boundary between Canada and the United States in the Gulf of Maine and Georges Bank area in 1984 as far as the 200nm limit from the United States. That point is only 175.5nm from Canada (Figure 7):

Figure 7: Seaward of Georges Bank



As for the terminus ad quem of this final segment of the delimitation line, a point... should be recognition of the fact that the delimitation to be drawn must equitably

*divide the areas in which the maritime projections of the two neighboring countries' coast overlap. It will therefore coincide with the last point the perpendicular reaches within the overlapping of the respective 200-mile zones claimed by the two States and established from appropriate basepoints on their coastlines.*²⁴

Since there is a possibility that the juridical continental shelf extends beyond the 200 mile limits of Canada and the United States, it may be necessary to establish a continental shelf delimitation line.

If the delimitation line is a continuation of the presently established line, there will be an area of 163nm² of Exclusive Fishing Zone appertaining to Canada that is on the 'wrong' side of the line. Canada will be losing rights that the United States can not enjoy. If, on the other hand, the boundary extends seaward from the intersection of the 200nm limits, then the United States might easily complain that the boundary takes an unnatural jog along the limit of its Fishing Conservation Zone.

At present, Canadian definition of the Exclusive Fishing Zone follows the outer limit of the US Fishing Conservation Zone until the two limits meet. CHS charts provide a disclaimer:

*The limits of the Fishing Zone south of the maritime boundary established by the Chamber of the International Court of Justice on Oct. 12, 1984 are without prejudice to any negotiations or to any position which may be adopted by Canada respecting the seaward extension of that boundary.*²⁵

Canada/Greenland Continental Shelf Delimitation

In 1972-73, while the nations of the world prepared themselves for the Third United Nations Conference of the Law of the Sea, Canada and Denmark negotiated an agreement to delimit the continental shelf between Canada and Greenland which was signed on 17 December 1973 and came into force on 13 March 1974. In the wide area of Baffin Bay and Davis Strait, equidistance is used, even beyond 200nm from each coast. In the narrow area of Nares Strait, Kane Basin and Robson Channel, a negotiated simplification of the equidistance line was constructed.

To date, there has not been very much hydrocarbon exploration in the area, and since it is not in a tectonically active area, the discovery of mineral

resources, such as polymetallic sulphides, is not expected either. There are some shrimp stocks that straddle the boundary in the Davis Strait area.

Both countries recognise that the delimitation line is officially for continental shelf purposes, but both have used the same line to define their own fishing zones. Thus, by usage, the delimitation line is becoming a single maritime boundary. There is the possibility that it will be officially upgraded to such in the future.

When Canada extended its territorial sea from 3nm to 12nm in 1972,²⁶ it overlooked the problem that the new territorial sea limit would extend past a median line with Greenland. Canada also failed to realise that there was a problem when it ratified the Canada/Greenland Continental Shelf Delimitation Line, which came into force on 13 March 1974.

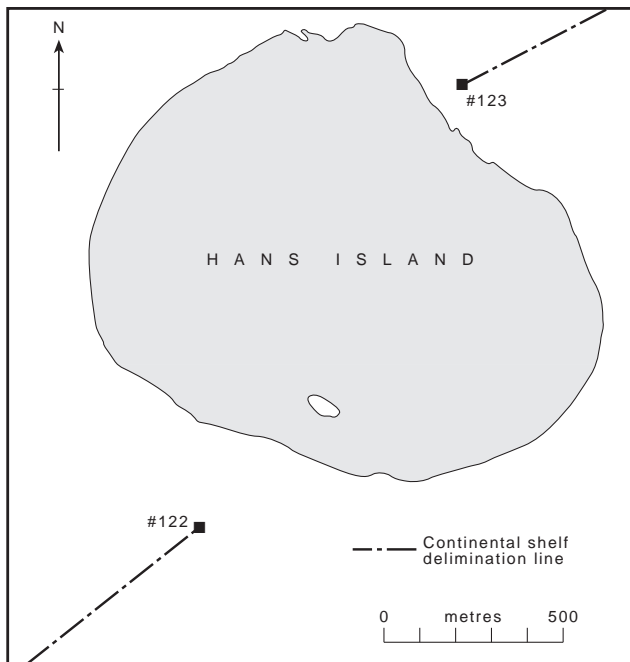
From a surveying stand-point, the interesting aspect is the fact that the Canadian maps and charts were drawn on the North American Datum (NAD) 1927 and the Danish maps and charts on the Qornoq Datum which uses a different ellipsoid. The technical experts knew that there was a difference between the geodetic coordinate systems but had no way of knowing the magnitudes. So the practical solution was to set the problem aside for future consideration and to assume that the two coordinate systems were identical. Provision was made in the agreement to re-open the agreement when geodetic data was available to relate the two geodetic datums and if new surveys located new turning points from which one could compute the equidistance line.

In 1982, the two countries agreed to re-open the computation of the equidistance line south of 75°N and the work has been going on ever since. New points have been included on both coasts, some because of new surveys, some because of the rules relating to the use of low-tide elevations. Some previous points have been proven not to exist. It seems comparatively easy to get features added to charts – it is a lot harder to get them removed!

Because there is now the capability to interrelate the Qornoq Datum, NAD 1927, NAD 1983 and World Geodetic System 1984, it is probable that the future amendment to the coordinates will be provided in several datums and may reduce the number of turning points of the boundary from the present 113 points (south of 75°N).

Hans Island

Hans Island (80° 49'N, 66° 28'W) is described as being sandy in colour with a cliff at its south end of

Figure 8: Hans Island

about 150m in elevation.²⁷ The island is only about one kilometre in diameter and sits almost in the middle of Kennedy Channel. Both Canada and Denmark claim the island (Figure 8).

The American, Charles Francis Hall (1821-1871), was the first Caucasian that would have seen Hans Island on 28 August 1871 when he passed to the westward of the island, proceeding northward in his 1871-76 expedition. No name was given to the island. The 1873 board of inquiry into Hall's death interviewed all survivors, including Hans Hendrick, but the island was still unnamed. By 1874, the island had been named by US Navy cartographers and appeared on the chart that accompanied the report of the board. The name Hans Island was formally introduced into the records of the Canadian Permanent Committee on Geographic Names on 22 June 1950.

Canada's claim is based on the fact that the discovery of the Arctic islands had been made chiefly by the British whose rights Canada had inherited. Also the first determination of the location of the island was by Eric Fry, of the Topographical Survey of Canada, who erected a rock cairn and buried a glass jar containing a note saying that his observations taken on 21 August 1953 had been taken on behalf of the Canadian Government.

The position of Eric Fry's astronomic station on Hans Island was tied by angle and distance measurements to Canada's control survey network in 1972 by G.E. (Gerry) Wade, Canadian

Hydrographic Service. A Danish surveyor accompanied the survey party as it established survey control on both sides of Kennedy Channel, Hall Basin and Robson Channel.

The Danish claim to the island seems to be based solely on the proposition that the island is closer to the Greenland coast than it is to the Ellesmere Island coast.

Conclusion

The extension of maritime jurisdictions to 200nm and beyond is a recent phenomenon and the resolution of the boundaries between jurisdictions has advanced slowly. In part this is because the situation is so new, the areas so vast, the resources unknown, the legal principles hazy. Many states take the view that it is far better to wait and see what are the resources to strive to acquire, where are they, and what legal principles can be used to support the argument to obtain them.

Most maritime boundaries of Canada fall into that category. Only the rich fisheries of Georges Bank and the Grand Banks have, so far, forced Canada into action. In the author's opinion, the 1,100nm continental shelf delimitation with Greenland, through inhospitable areas of very deep water or very narrow areas, was negotiated to show the world, principally our respective neighbours, that we (Canada and Denmark) were prepared to bargain in good faith.

Our other unresolved boundaries will, no doubt, be resolved when there is a necessity to resolve them. As time goes by, although our, and our neighbour's, position may become more entrenched, the legal principles should become clearer; thus helping to show the parties the way to a negotiated settlement.

Notes

¹ For this paper, the outer limit of the "geological continental shelf" is taken to be the "continental shelf break", which is often near the 200m isobath. The "juridical continental shelf" is considered to be as defined in paragraph 4 of Article 76 of the UN Law of the Sea Convention, realising that a state can claim a minimum of 200nm under paragraph 1.

² Government of Canada, (1977) 'Fishing Zones of Canada (Zones 4 and 5) Order', *Consolidated Regulations of Canada, 1978*, chapter 1548.

³ US Government (1977) 'Fishery Limits', (US) *Notices to Mariners - Week 16*, Washington.

⁴ Government of Canada, (1952) *Joint Report upon the Survey and Demarcation of the Boundary between Canada and the United States from Tongass Passage to Mount St. Elias*, Ottawa: IBC.

⁵ See note 3.

⁶ See note 2.

⁷ International Hydrographic Organization (IHO), (1993) 'A Manual on Technical Aspects of the United Nations Convention on the Law of Sea', *Special Publication No. 51*, 3rd Ed., Monaco: IHO.

⁸ US National Geodetic Survey, (1986) *Geodetic Glossary*, Rockville, MD: US Dept. of Commerce.

⁹ Government of Canada, (1918) *Joint Report upon the Survey and Demarcation of the International Boundary between United States and Canada along the 141st meridian from the Arctic Ocean to Mount St. Elias*, Canada: Department of the Interior.

¹⁰ 'Convention between Great Britain and Russia concerning the limits of their Respective Possessions on the North-West Coast of America and the Navigation of the Pacific Ocean, 16 February 1825: Article 3', 75 *Consolidated Treaty Series (CTS)* 95.

¹¹ 'Convention ceding Alaska between Russia and the United States, 30 March 1867', 134 *CTS* 331, 15 Stat 539. Treaty Series No. 301.

¹² Government of Canada, (1977) 'Fishing Zones of Canada (Zones 6) Order', *Consolidated Regulations of Canada, 1978*, chapter 1549.

¹³ See note 3.

¹⁴ Pharand, D. (1993) *Delimitation Problems of Canada (Second Part): 'The Continental Shelf and the Exclusive Economic Zone'*, Netherlands: Martinus Nijhoff Publishers: 171-179.

¹⁵ Nicholson, N. L. (1954) *The Boundaries of Canada, its Provinces and Territories*, Canada: Geographical Branch, Department of Mines and Technical Surveys: Memoir 2.

¹⁶ See note 11.

¹⁷ Schmidt, P. B. (1991) *Machias Seal Island: A Geopolitical Anomaly*, Uni. of Vermont: MA Thesis.

¹⁸ Government of Canada, (1988) 'Lighthouse, Fog Alarm building, Oil Storage Shed and Boathouse, Machias Seal Island Light Station', *Report 87-125*, Hull: Federal Heritage Buildings Review Office.

¹⁹ Government of Canada, (Annual since 1912) *List of Lights, Buoys and Fog Signals (Atlantic)*, Ottawa: Canadian Coast Guard.

²⁰ Government of Canada, (Weekly since 1908) *Notices to Mariners*, Ottawa: Canadian Coast Guard.

²¹ See note 2.

²² See note 14.

²³ See note 3.

²⁴ ICJ, (1984) *Case concerning the Delimitation of the Maritime Boundary in the Gulf of Maine Area*, Decision of 12 Oct. 1984, ICJ Reports 1984: Para. 228.

²⁵ Government of Canada, (1984) *Chart 4003 - Cape Breton to/à Cape Cod*, Canadian Hydrographic Service, Dept. of Fisheries and Oceans.

²⁶ Government of Canada, (1972) *Order in Council*, P.C. 1972- 966.

²⁷ Government of Canada, (1985) *Sailing Directions, Arctic Canada*, Vol. 2, Ottawa: Canadian Hydrographic Service.

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