

Conference Proceedings: Commentary

Canada's Pacific Gateway to the Arctic

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Pacific Gateway is a term that evokes the “All Red Route” of fashionable and elegant travel by Canadian Pacific Railway steamers or, less historically, global shipping patterns that have enabled Prince Rupert to post record growth as Canada’s third largest port. But the Pacific Northwest is also notably associated with “White Routes” – forays into polar waters that reflected accessibility and opportunity and that contradicted common notions of Arctic approaches. This article will explore the history of these western approaches, examining European explorers, economic and technological innovations, the impact of climate change, and current geopolitical developments that ensure Canada’s Pacific Gateway will remain significantly northern, as well as westwards, focused.

Porte d’entrée du Pacifique est un terme qui évoque la « All Red Route » des voyages élégants et à la mode des bateaux à vapeur du chemin de fer Canadien Pacifique ou, d’un point de vue moins historique, les trajets d’expédition à l’échelle mondiale qui ont permis à Prince Rupert d’afficher une croissance record comme troisième plus grand port du Canada. Mais le Nord-Ouest du Pacifique est aussi particulièrement associé aux « routes blanches », les incursions en eaux polaires qui soulignaient l’accessibilité et les possibilités et qui contredisaient les notions communes d’approches arctiques. Cet article examine l’histoire de ces approches occidentales, notamment les explorateurs européens, les innovations économiques et technologiques, les répercussions des changements climatiques et les évolutions géopolitiques actuelles qui font en sorte que la porte d’entrée canadienne du Pacifique restera considérablement axée sur le Nord et sur l’Ouest.

Pacific Gateway conjures up visions of the great era of steamship connections westwards from Vancouver and Victoria to the Far East, tracing a “Red Route” through Britain’s colonial possessions. Or, alternately, the more current commercial focus of growing BC ports with shipping contacts to East Asia. I would like to offer a different orientation: that of the Pacific as a gateway to the Arctic, a region that is growing in importance for both environmental and geostrategic reasons.

The Pacific connection with the Arctic marries tales of exploration and consequent disaster or heroism with great-power rivalry, scientific investigation, and rigorous resource exploitation. These themes are present in the historical record and continue into the present day. This paper will not make any historic revelations but, employing maps and ice charts, will provide a historical overview and some recent experiences that demonstrate a close connection between Canada’s West Coast (or the Pacific Northwest generally) and the Arctic, which may convey some cautionary tales for the future.

I should add that this contribution to *The Northern Mariner* is based on a life-long interest in the Arctic and more recent practical experience as an ice navigator in Canada’s northern waters.¹ While the Royal Canadian Navy (RCN) is now making ice-operations an element of its capabilities with the introduction of the Harry Dewolf class of Arctic & Offshore Patrol Ships (AOPS),² I had to seek out this experience post-retirement and since then have made four transits of the Northwest Passage (NWP). This has given me the basis for identifying a little more personally with some of the stories this article will recount.

Vitus Bering’s dominance of Pacific-Arctic place names allows us sometimes to forget that he was neither the first nor the most significant of European explorers in this area. As early as 1648, Semyon Dezhnev did what Bering himself did not accomplish – transiting his namesake strait (which Dezhnev did in a southerly direction) – thus setting the stage for early Russian colonization of Alaska. Bering, however, is well known for charts of his 1741 voyage, which demonstrate the significant disparity at that time in knowledge of the Pacific Northwest compared to the Russian far east. While the coast of Kamchatka was well detailed, the Pacific Northwest remained a vaguely situated and hazy outline, despite Bering’s touching on the Alaskan coast.³ Otherwise, Bering seemed to have contributed very little to the leadership or accomplishments of his second expedition beyond leaving

¹ An early attempt to get practical experience was, as Flag Lieutenant to Commander MARPAC in 1985, to propose myself as a candidate for the recently announced “cross-pollination” programme, to sail in the Arctic with the Canadian Coast Guard for six weeks. The Admiral fixed me with a humourless gaze and replied, “Sure, we’d all like to run away to sea,” and “binned” my request.

² The first of these ships, HMCS *Harry DeWolf*, completed its inaugural Arctic voyage in 2021, circumnavigating North America in the wake of her predecessor HMCS *Labrador*, who first did this in 1954. I was able to speak to the Captain of this ship by VHF radio as they crossed our path northwards in Baffin Bay on 17 August 2021.

³ See, for instance, Lydia Black, *The Russians in Alaska, 1732-1867* (Fairbanks: University of Alaska Press, 2004); and W. Bruce Lincoln, *The Conquest of a Continent: Siberia and the Russians* (New York: Random House, 1994).

his bones and name to the geography. At least that is the impression given by the delightfully acerbic account of his naturalist, Georg Steller, who treats his commander unfairly and harshly for irresolute exploration of the Alaskan coast and needless interruption of important biological prospecting. Bering accomplished much in his previous voyage and probably deserved better than to be interred prematurely on his namesake island. Steller himself is well memorialized in the natural history of the Pacific Northwest through giving his name to jays and sealions among other wildlife, notably the extinct "Steller's Sea Cow."⁴

The name of Bering's strait was in fact given by James Cook in his final act of exploration. Cook, whose *ne plus ultra* quote of "going further than any man" could be interpreted as a self-criticism for excessive pride by standing into danger at his furthest-south, might have equally applied this sentiment to his furthest north: achieving 70°44'N latitude on 18 August 1778, when he was turned back by pack ice at the aptly named Icy Cape.⁵

Other European explorers (other than fur traders) were scarce in the years following Cook. Jean-François de Galaup, comte de Lapérouse visited Alaska in 1786 but did not enter the Arctic, thereafter continuing to establish a long-standing mystery of a disappeared expedition, foreshadowing Franklin by sixty years.⁶ Meanwhile the Russians were busy colonizing Alaska, confirming the existence of the Polar Sea, and hypothesizing the presence of islands to the north of Siberia (among which was Wrangel Island, which figures later in this story).⁷

The British, having vanquished Napoleon, made their superfluous naval officers busy in the second quarter of the 1800's with a three-pronged approach to the Arctic.⁸ Beechey's western approach with HMS *Blossom* in 1826 was meant to complement and join with William Parry's forcing of the Northwest Passage by sea from the east in HMS *Hecla* and John Franklin's overland/river approach down the MacKenzie. Beechey got as far as, and named, Point Barrow (at 156°21'W longitude) failing by just 146 nautical miles from joining his tracks with those of Franklin's second expedition on the shores of what would become the Beaufort Sea. Point Barrow, as the northernmost point of Alaska, was then and remains

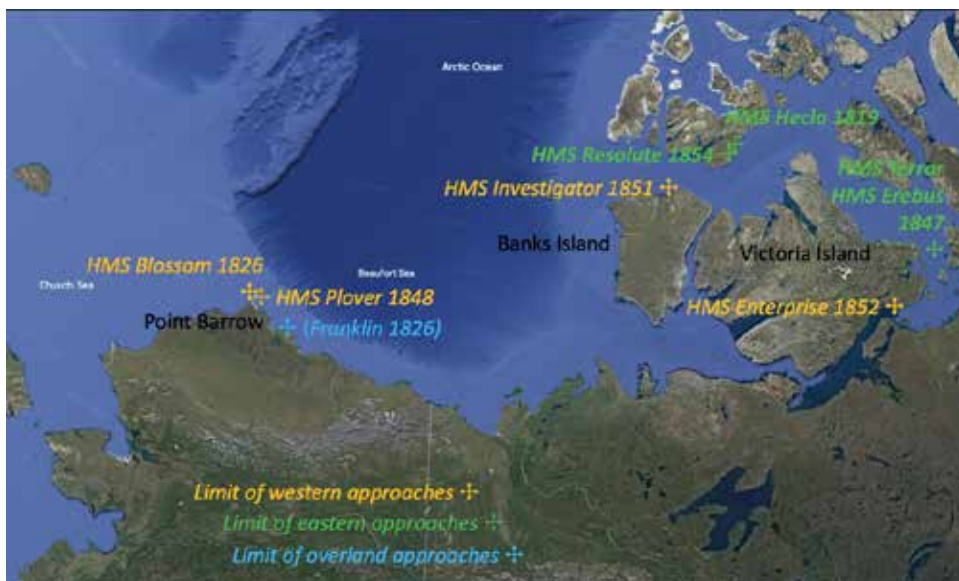
⁴ F.A. Golder, *Bering's Voyages* (Volume II) (New York: American Geographical Society, 1925). The sad story of the expedition's end is also told in Stephen Brown, *The Island of the Blue Foxes* (Toronto: Douglas and McIntyre, 2017).

⁵ On 30 January 1774, Cook attained 71°10'S, and noted this sentiment as the presence of myriad "ice hills" impeded his further progress to the south. George Vancouver later claimed the *ne plus ultra* distinction for that voyage by having been out on the bowsprit before Cook reversed his course. J.C. Beaglehole, *The Life of Captain James Cook* (Stanford: Stanford University Press, 1974), 365. See also David Nicandri, *Captain Cook Rediscovered* (Vancouver: UBC Press, 2020), which deals extensively with Cook's polar forays.

⁶ John Dunmore, *The Journal of Jean-François de Galaup de la Pérouse 1785-1788. Vol. 1 and 2* (London: Hakluyt Society, 1994/1995).

⁷ Black, *The Russians in Alaska, 1732-1867*.

⁸ See, for instance, Hugh N. Wallace, *The Navy, the Company, and Richard King: British Exploration in the Canadian Arctic, 1829-1860* (Montreal/Kingston: McGill-Queen's University Press, 1980).



Royal Navy Voyages into the NWP, early to mid-1800s.⁹

a critical western gateway to the Arctic, guarded by the clockwise gyre of the Beaufort Sea which typically presses the heavy Arctic ice-pack against the coast until late July.¹⁰

Western approaches to the Arctic intensified in the wake of the disappearance of Franklin's third expedition, which set sail from England in 1845. Captains Moore and later Maguire in HMS *Plover*, aided by Kellet in HMS *Herald*, made the earliest rescue attempts from this direction, with no more result than Maguire's significant contributions to Arctic ethnography during two years spent locked in the ice at Point Barrow.¹¹ Collinson, in HMS *Enterprise*, proved western accessibility of the Canadian Arctic by getting as far as, and wintering, in Cambridge Bay (on the south coast of Victoria Island, effectively the mid-way point of the Northwest Passage) without realizing at the time how close he was to the final resting place of Franklin's ships, about 150 nautical miles to the east,¹² McLure, however, was

⁹ Various sources, primarily *Chart 5100* (Discoveries in the Arctic Sea 1616-1927, with Additional N.W. Passage Tracks to 1954), Admiralty Hydrographic Office, London, 1956 and *Pilot of Arctic Canada Volume 1*, Canadian Hydrographic Service, Ottawa, 1959, Figure 4.

¹⁰ Detailed in Barry Gough (ed.), *To the Pacific and Arctic with Beechey; The Journal of Lieutenant George Peard of HMS Blossom 1825-1828* (Cambridge: Hakluyt Society, 1973)

¹¹ See John Bockstoce, ed., *The Journal of Rochefort Maguire* (London: Hakluyt Society, 1988).

¹² This may have been one of history's greatest missed opportunities: had the expedition interpreter been embarked in *Enterprise* rather than *Investigator*, Collinson might have been able to understand and follow-up Cambridge Bay Inuit reports of ships beset in the ice east of Victoria Island. William Barr, *Arctic Hell Ship* (Edmonton: University of Alberta Press, 2007) 181. As it was, Collinson's sledging parties explored as far as Gateshead Island, 50 nm northwest of where *Erebus* and *Terror* were abandoned in 1848. The discounting or ignorance of Inuit testimony is a subject well-covered by David Woodman in *Unravelling the Franklin Mystery* (Montreal/Kingston: McGill-Queen's

the big winner: having abandoned his ship HMS *Investigator* on the north coast of Banks Island, he joined the eastern parties on foot over the ice, becoming the first to formally “complete the NWP.”¹³

A few interesting bits of historical trivia attach to this period. First, in completing the NWP, McLure joined HMS *Resolute* at Winter Harbour. This ship was also subsequently abandoned in the ice but then, in a perfect “Marie Celeste” moment, was flushed out of the Arctic to be salvaged by American whalers, refitted by US Congress, and presented back to Queen Victoria in 1856. When this ship was eventually broken up, a desk made from its timbers was presented to the US President, and the “Resolute Desk” remains in use in the Oval Office. The ship that actually rescued McLure and the surviving Resolutes was HMS *North Star*, under the command of William Pullen – he had just previously completed epic boat explorations from HMS *Plover* in the western Arctic, and would become the great-uncle of a latter-day explorer, Captain Thomas Charles Pullen of HMCS *Labrador*.¹⁴ An odd coincidence is that, between Arctic expeditions, Franklin himself commanded HMS *Rainbow* (1830-32) – this was the sixth of nine British ships of that name, of which the eighth became the RCN's first ship on the west coast. And finally, Lady Franklin, whose untiring rescue efforts can be credited with as much exploration as her husband, visited Victoria, BC in both 1862 and 1880, at that date a significant feat of travel endurance for someone then in her sixtieth and seventy-eighth years.¹⁵ So, in the Pacific and Arctic, as elsewhere, the threads of history are densely and elaborately woven.

Exploitation as much as exploration has always been a driver of Arctic activity, and it is a surprise to recognize how early this started in the Pacific. From the time of Bering, at which the Pacific Northwest was metaphorically the “dark side of the moon” to Europeans, to the 1800s, the hunt for seals, otters, and whales had increased rapidly such that by 1852, over 200 whale ships were cruising the waters north of the Bering Strait each season.¹⁶ Here again, the correlation of Arctic navigation with high risk became apparent. In 1871, thirty-three ships of

University Press, 1991) and *Strangers Among Us* (Montreal/Kingston: McGill-Queen's University Press, 1995) and Dorothy Harley Eber, *Encounters on the Passage* (Toronto: University of Toronto Press, 2008).

¹³ This is variously spelt as McLure, McClure, or M'Clure. On CHS charts his namesake strait is the latter.

¹⁴ I was able to hear Captain Pullen lecture at the University of Victoria in 1985 on the subject of his experience as Ice Navigator in the *Linblad Explorer*, one of the first cruise ships to venture into the Canadian Arctic. This ship was recently sunk by ice in the Antarctic.

¹⁵ Dorothy Blakely Smith (ed.), *Lady Franklin Visits the Pacific Northwest (Diaries of Sophia Cracroft)* (Victoria: Provincial Archives of British Columbia, 1974).

¹⁶ See, for instance, John Bockstoce, *American Whalers in the Western Arctic: The Final Epoch of the Great American Sailing Whaling Fleet* (Fairhaven: Edward J. Lefkowitz, 1983); James R. Gibson, *Otter Skins, Boston Ships, and China Goods: The Maritime Fur Trade of the Northwest Coast, 1785-1841, 2nd Edition* (Montreal/Kingston: McGill-Queen's University Press, 2022); and Murray Lundberg, *Thar She Blows! Whaling in Alaska and the Yukon, ExploreNorth*, <https://explorenorth.com/library/history/whaling-alaska-yukon.html>.

the American whaling fleet got trapped by ice against the Alaskan shore and had to be abandoned. In a miracle of endurance and coordination, 1219 persons made their way by foot and whaleboat over the ice to rescue ships, with no losses. As late as 2016, marine archaeologists found remnants of this calamity on the north Alaskan shore.¹⁷

Other western entries to the Arctic were less well-informed and not as lucky. The 1879 voyage of Lieutenant George De Long in *USS Jeannette* (ex-HMS *Pandora*, not an auspicious name) started with the intention of forcing the ice-barrier to obtain the ice-free Polar Sea promised by the crack-pot theories of August Petermann among others.¹⁸ De Long's ship was gripped fairly early in the Beaufort/Chukchi Sea ice and drifted toward the East Siberian Sea, where it eventually sank. The crew then made their way over ice to the Anzhu Islands and from there to the torturous labyrinth of the Lena delta, and eventually to civilization. The story is a salient one, combining elements of personal pride, armchair expertise, and media hype in a sorry tale of loss – only thirteen of thirty-three crew returned.¹⁹ The danger of the Arctic was real, and this may have contributed to the assignment to the Alaska patrol of the ice-ship *Bear*, one of the longest serving vessels in combined US Revenue/Naval/Coast Guard service.²⁰

Nor was Canada exempt from such experience. Glory cloaked in scientific or nationalist objectives was behind two related failures originating in the Pacific Northwest. The Canadian government funded Vilhjalmur Stefansson's Canadian Arctic Expedition in the western Arctic from 1913-1918. Departing from Victoria, the last of the "old-fashioned expeditions" in the Arctic Archipelago had the primary objectives of "discover[ing] new land along the 141st Meridian" and mapping the

¹⁷ Bradley W. Barr, *Search for the Lost Whaling Fleets of the Western Arctic*, NOAA Ocean Exploration, <https://oceanexplorer.noaa.gov/explorations/15lostwhalingfleets/background/background.html>. Barr indicates that between 1849 and 1912 more than 160 whale ships were abandoned and lost off the north Alaskan coast.

¹⁸ See Philipp Felsch (trans Olivier Mannoni), *Comment August Petermann Inventa le Pôle Nord* (Paris : Éditions de la Maison des sciences de l'homme, 2013). Petermann was a prolific and talented cartographer who did much to collate existing geographic knowledge of his time. However, his belief in the power of the Gulf Stream and North Pacific sea currents to create an ice-free polar sea led to his championing of this medieval-esque theory. See also Jörg-Friedhelm Venzke, "The 1869/70 German North Polar Expedition," *Arctic* 43, no. 1 (1990): 83-85; D.T. Murphy, *German Exploration of the Polar World: A History, 1870-1940* (Nebraska: University of Nebraska Press, 2002).

¹⁹ The indefatigably self-promoting newspaper baron James Gordon Bennett, owner of the *New York Herald*, was a key sponsor of this expedition, as he was of the famous Stanley expedition to find Dr Livingstone in Africa. Hampton Sides tells this story very compellingly, dealing extensively with the role of the popular press in hyping this kind of nationalist heroics. See *Kingdom of Ice* (New York: Anchor Books, 2015)

²⁰ See, for instance, John Muir, *The Cruise of the Corwin: Journal of the Arctic Expedition of 1881 in search of De Long and the Jeannette* (Dunwoody: Norman S. Berg, 1917).

²¹ See, for instance, Sides, *Kingdom of Ice*; Jennifer Niven, *The Ice Master* (New York: Hyperion, 2000); and *The Voyage of the Chelyuskin, by members of the expedition* (Alec Brown, trans.) (New York: Macmillan, 1935).



Marine Disasters in the Western Arctic.²¹

edge of the continental shelf in the Beaufort basin. Captain Bob Bartlett, master of the expedition ship *Karluk*, summed up the first voyage in what must be one of the grimmest opening lines in exploration annals: “We did not all come back.”²² His experienced captaincy of *Karluk* did not prevent it from being trapped in the ice 362 km beyond Point Barrow in September 1913, transported, and crushed on 10 January 1914.²³ The party then made their way over the ice to Wrangel Island. To save the group, Bartlett and an Iñupiat hunter, Kataktovik, undertook a dangerous march across the ice to the Russian coastline and then to Alaska, where they dispatched a rescue mission which rescued the surviving fourteen of twenty-five original crew in September 1914. One survivor, William Laird McKinlay, who joined the British army soon after his rescue, remarked that, “Not all the horrors of the Western Front, not the rubble of Arras, nor the hell of Ypres, nor all the mud of Flanders leading to Passchendale, could blot out the memories of that year in the Arctic.”²⁴

Much suspicion following the rescue attached to the performance and motives of Bartlett and Stefansson, the expedition leader. Early on in *Karluk*'s besetment, Stefansson took five companions on an excursion to hunt caribou, during which a blizzard shifted the vessel's position towards Siberia while the hunting party made

²² Robert Bartlett, *The last Voyage of the Karluk* (Boston: Small Maynard and Company, 1916), 1.

²³ The use of the prefix His Majesty's Canadian Ship (HMCS) is questionable as the ship was not under naval command and is elsewhere referred to as a Canadian Government Ship (CGS) or Dominion Government Ship (DGS).

²⁴ See William L. McKinlay, *Karluk - The Great Untold Story of Arctic Exploration* (London: Book Club Associates, 1976); and Niven, *The Ice Master*.

for the Alaskan coastline. Allegations of abandonment, however, were leveled at Stefansson by several members of the expedition. Meanwhile, Stefansson viewed the rest of the crew's torturous stay on Wrangel Island as an opportunity. Later, in 1921, against the wishes of both the Canadian and British governments, Stefansson tried to "claim" Wrangel Island with a meagre colonization effort of five persons (again not including himself).²⁵ The only survivors of this expedition were the Inupiat cook and seamstress, Ada Blackjack, and her cat Victoria, who were taken off in 1923 after almost two years on the desolate island.²⁶ Stefansson actually conducted some epic explorations in the Canadian Arctic, discovering several islands north of Parry Channel, but the *Karluk* and Wrangel Island affairs were not his shining moments.²⁷

All of this must have seemed too close to home for the Russians – there was similar angst in Canada over Norwegian explorer Otto Sverdrup's probing of the High Arctic Islands between 1898-1902, unexplored but nonetheless gifted by Britain to Canada in 1880.²⁸ After their first landing on Wrangel Island in 1911, the Russians might have fairly considered their own claim to have been made. Since 1910 they had been busy with hydrographic surveys originating out of Vladivostok, and between 1914-1915 two icebreakers completed the Northern Sea Route (NSR) from Vladivostok to Archangelsk.²⁹ This resulted in a firm claim of the island by the Tsar in 1916. In 1933 an attempt was made to force the passage in the opposite direction, proving the commercial utility of the NSR. The SS *Chelyuskin* sailed on her maiden voyage in August 1933, only to get beset in the Bering Strait in September. Among the ships activated to try rescue *Chelyuskin* was the former CGS *Earl Grey*, one of several ex-Canadian ships in Soviet service at the time. By February 1934, the ship had drifted back toward Wrangel Island and sunk, leaving the crew and passengers marooned on the ice. Subsequently a massive airlift rescue was executed, with flights out of both Anadyr, USSR and Nome,

²⁵ He was not the first to do so; a party landed from the USRC *Corwin*, searching for the lost *Jeanette* expedition, had already done so in 1881. On the Wrangel Island affair, see, for instance, Janice Cavell and Jeff Noakes, *Acts of Occupation: Canada and Arctic Sovereignty, 1918-25* (Vancouver: UBC Press, 2010); and Richard Diubaldo, "Wrangling Over Wrangel Island," *Canadian Historical Review* 48, no. 3 (1967): 201-26.

²⁶ This ordeal is told by Jennifer Niven in *Ada Blackjack: A True Story of Survival in the Arctic* (Paris: Hachette, 2012).

²⁷ See, for instance, Vilhjalmur Stefansson, *The Friendly Arctic: The Story of Five Years in Polar Regions* (New York: Macmillan, 1921); Richard Diubaldo, *Stefansson and the Canadian Arctic* (Montreal: McGill-Queen's University Press, 1978); and Trevor H. Levere, "Vilhjalmur Stefansson, the Continental Shelf, and a New Arctic Continent," *British Journal for the History of Science* 21, no. 2 (1988): 238, 240.

²⁸ See, for instance, T.C. Fairley, *Sverdrup's Arctic Adventures* (London: Longmans, 1959); and Gordon Smith, "Sovereignty in the North: The Canadian Aspect of an International problem," in *The Arctic Frontier*, ed. R. St. J. Macdonald (Toronto: University of Toronto Press, 1966).

²⁹ L.M. Starokadomsky (W. Barr, trans.), *Charting the Russian Northern Sea Route* (Montreal: McGill-Queens/Arctic Institute of North America, 1976). William Barr has elsewhere written extensively on this subject.

Alaska. By September 1934, having rebuilt the makeshift ice runway thirteen times, 104 persons were rescued, a truly remarkable achievement for that early period of aviation history.³⁰ The Soviet government awarded the Order of Lenin to the intrepid air crews that participated in the rescue effort, including two US air mechanics in Nome.³¹

During this period of firsts, similar achievements were made in the Canadian Arctic, and these also touched on the west coast. Amundsen's three-season inaugural transit of the NWP in 1906 (*Gjoa*, 70 ft) was followed by a Canadian ship of only slightly larger dimensions thirty-four years later – the Royal Canadian Mounted Police ship *St. Roch* (104 ft) under command of Sgt. Henry Larsen. *St. Roch*'s initial eastwards passage from Vancouver was similar in reverse to Amundsen's route, but her later one-season voyage west in 1944 pioneered a route that is still the preferred for deep-draft traffic (notably the SS *Manhattan* in 1969).³² The third transit of the passage was made by the brand-new RCN icebreaker HMCS *Labrador* (269 ft, 6490 tons displacement) in 1954.³³ This voyage was notable for a number of firsts: a maiden voyage, the first deep-draft transit of the NWP (via Prince of Wales Strait) and, by the time *Labrador* returned to her home port of Halifax, the first circumnavigation of North America. It is also notable that the sizes of these first three vessels through the NWP is nicely representative of the variety of traffic seen since – everything from adventurers to purpose-built ice-

³⁰ See, for instance, John McCannon, *Red Arctic: Polar Exploration and the Myth of the North in the Soviet Union, 1932-39* (Oxford: Oxford University Press, 1998).

³¹ This was a period of intense efforts by the Russians to acquire icebreakers, many of which they sourced from Canada or British shipyards. See David Saunders, "Icebreakers in Anglo-Russian Relations 1914-21," *International History Review* 38, no. 4 (2016): 814-829, <https://doi.org/10.1080/07075332.2015.1105277>. Interestingly, the Russian author Yvgeny Zamiatin, who wrote the dystopian novel *We*, was by profession a naval architect who studied and oversaw construction of Russian icebreakers in the UK.

³² On the wartime voyages of *St. Roch*, see Shelagh D. Grant, "Why the *St. Roch*? Why the Northwest Passage? Why 1940? New Answers to Old Questions," *Arctic* 46, no. 1 (March 1993): 82-87, <https://doi.org/10.14430/arctic1326>; Shelagh Grant and P. Whitney Lackenbauer, "*The Adventurous Voyage*": *St. Roch and the Northwest Passage, 1940-42 and 1944* (Antigonish: Mulroney Institute on Government Arctic Operational History Series, vol. 7, 2019); and Peter Kikkert and P. Whitney Lackenbauer, "'On Hallowed Ground': *St. Roch*, Sovereignty, and the 1944 Northwest Passage Transit," *The Northern Mariner* XXIX, no. 3 (Fall 2019): 213-32.

³³ HMCS *Labrador* conducted four seasons of Arctic exploration under RCN command, with notable cooperation of the US Navy and US Coast Guard in supporting Distant Early Warning (DEW Line) sites construction, before being turned over to the Canadian Coast Guard in 1958. Her first captain (later Commodore) O.C.S. Robertson was a key advisor in USS *Seadragon* during her 1960 submerged transit of the NWP. See, for instance, George P. Steele, *Seadragon – Northwest Under the Ice* (New York: E.P. Dutton, 1962); P. Whitney Lackenbauer and Elizabeth Elliot-Meisel, eds., "*One of the Great Polar Navigators*" *Captain T.C. Pullen's Personal Records of Arctic Voyages, Volume 1: Official Roles*, DCASS No. 12 (Calgary: Arctic Institute of North America, 2017); P. Whitney Lackenbauer, Adam Lajeunesse, and Jason Delaney, *HMCS Labrador: An Operational History* (Antigonish: Mulroney Institute on Government, Arctic Operational History Series, vol. 1, 2017).

capable vessels, and lately including ice-strengthened cargo vessels.³⁴

In the 1950s, another kind of vessel began to encroach significantly on the Arctic. The 1958 transit of USS *Nautilus* (SSN-571) under the North Pole, demonstrated the awesome covert endurance of nuclear submarines as well as the challenges of obstacle avoidance in three dimensions. This achievement, on the third attempt, was enabled by the ground-breaking work of the United States



Routes through the Northwest Passage.³⁵

Navy's Arctic Submarine Lab in San Diego and its development of upward-looking ice-detection sonars.³⁶ Of course, this activity did not long go unchallenged by the Soviets. In 1963, the Soviet submarine *K-181* (a Project 627, November class nuclear submarine) surfaced at the North Pole. Since then, there have been many recurrent submarine transits of the Arctic and many documented instances of submarines in Canadian waters.³⁷

³⁴ I am most familiar with the latter, having been for the past four years (and currently) engaged as an Ice Navigator in ships of the most voluminous trade in the Canadian Arctic – exporting roughly six million tons of iron ore annually out of Baffinland Iron Mines' Milne Inlet terminal.

³⁵ These are in order of the most straightforward, deep draft to less accessible, shallow draft routes, as followed by the Scott Polar Research Institute (<https://www.spri.cam.ac.uk/resources/infosheets/northwestpassage.pdf>)

³⁶ William Leary, *Under Ice; Waldo Lyon and the Development of the Arctic Submarine* (College Station: Texas A&M University Press, 1999).

³⁷ Adam Lajeunesse documents a number of these, in Canadian waters, following examination of

Concurrent with this, there has been a long record of drift research in the polar sea. The experiment pioneered by Fridtjof Nansen in *Fram* between 1893 and 1896 – which curiously, was partly stimulated by discovery of remains of the *Jeanette* on an ice floe off south-west Greenland in 1884 – has been continued in a series of drift stations established directly on the ice surface. The Soviets/Russians have dominated this activity, with few gaps since the late 1930s. Similar western activities have been less sustained and reached an apogee in the 1980s.³⁸ Lately, however, such efforts have combined defence and scientific objectives, harnessing military mobility and logistics in the service of environmental research. We have seen that this is a common Arctic theme. Much of this activity is on the permanent icepack of the Arctic Basin and does not have a particularly Pacific nexus.

But one aspect of Arctic research that does have a clear western leaning (at least here in Canada) is the technological effort to enable oil and gas exploration and exploitation. This peaked in the 1980s with the rush of activity in the Beaufort Sea, leading to significant developments in artificial island construction, ice-resistant exploratory platforms, advanced icebreaker design (which continues with the use of ice towing-tanks developed at the time), and innovative means of underwater survey.³⁹ This last has a particularly west-coast connection as International Submarine Engineering (ISE) in Vancouver is a world-leader in autonomous underwater vehicles for hydrographic and military applications. From their 1981 semi-submersible DOLPHIN (Deep Ocean Logging Platform with Hydrographic Instrumentation and Navigation – a name to rival any of DARPA's tortured acronyms) ISE has developed deep-ranging Autonomous Underwater Vehicles (AUV) of significant endurance. Used in extensive under-ice surveys, these vehicles are helping to define Canada's Arctic claims to the continental shelf and seabed.

Over the years, various scientific, commercial, and governmental incentives have led to an increase in traffic in Canada's Arctic waters, defined in accordance with the Arctic Waters Pollution Prevention Act and subsequent regulation as all waters within 200nm of our coastal baselines. Such traffic has traditionally been dominated by fishing vessels, tug and resupply traffic, and government ships. Increasingly, we have seen this traffic joined by passenger ships, adventurers, and pleasure craft. Recently, this has even included vessels as marginal as small fiberglass yachts and personal watercraft.⁴⁰ Some of this has been stimulated by

the papers of Dr. Waldo Lyon, the founder of the USN Arctic Submarine Lab. Adam Lajeunesse, *Lock Stock and Icebergs* (Vancouver: University of British Columbia Press, 2016), Appendix, Table A2.

³⁸ William Althoff gives a good account of this activity up to 2004 in *Drift Station* (Washington: Potomac Books, 2007).

³⁹ The particularly advanced *CANMAR Kigoriak*, launched in 1979 by Saint John Shipbuilding and Drydock in New Brunswick and designed to be shut down cold and wintered in between active seasons in the Beaufort Sea, remains in Russian service. Similarly advanced icebreakers *Terry Fox* and *Kalvik*, built by Burrard-Yarrows in Vancouver and Victoria in 1983, remain in service with the CCG and Russian private interests respectively.

⁴⁰ Not all of these were one-season transits. The record includes fibre-glass yachts as small as 9.1 m,

projections of an “ice-free Arctic” that minimizes the risks and incentivizes a “see it before it goes” eco-tourism boom.⁴¹

The record of voyages rather than vessels indicates that much of this activity is on the margins and may consist of multiple voyages by single vessels; this is especially true of fishing vessels in Baffin Bay, and it also reflects multiple seasonal resupply voyages to northern communities. The record of full transits clarifies this picture somewhat (see Figure 1). From generally a handful of seasonal transits

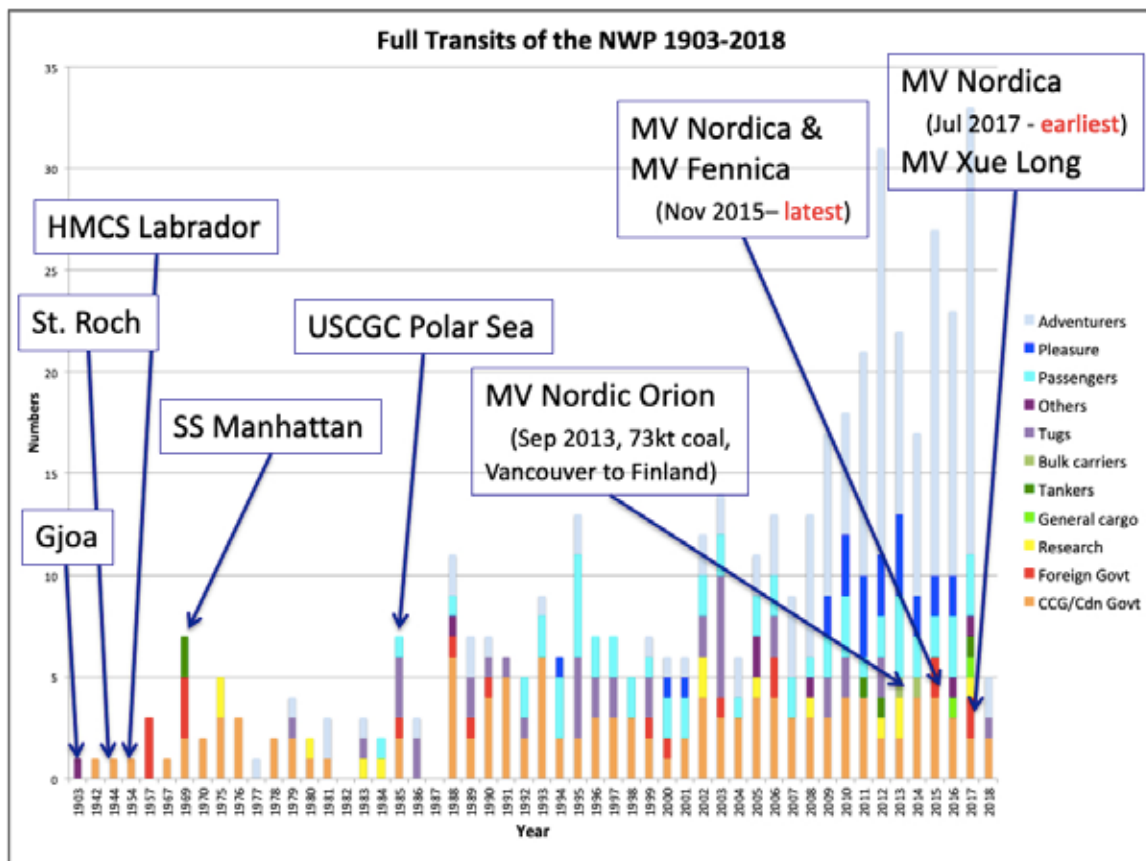


Figure 1. Record of Northwest Passage Transits.⁴²

fast rigid hull inflatable boats (notably those modified by Shockwave Engineering of Sidney, BC), a Hobie-Cat sailing catamaran, kayaks, and a stand-up paddle-board. It is hard to avoid the impression that this is a race to the bottom – to see who can survive the most marginal expedition. The prize for one-upmanship must go to David Scott Cowper, who completed eight NWP transits in his 14.6 m motorboat *Polar Bound*, some of them solo. The complete list of NWP transits is maintained by the Scott Polar Research Institute at <https://www.spri.cam.ac.uk/resources/infosheets/northwestpassage.pdf>.

⁴¹ This trend was exemplified by the 2016 transit of the MV *Crystal Serenity* (68,870GT, 1040 passengers, 655 crew), escorted by the British Antarctic Survey research ship *Ernest Shackleton*, in which I served as assistant ice-navigator. The voyage was preceded by years of planning and extensive coordination with Canadian authorities and Inuit communities.

⁴² Sources: NORDREG Canada, and Scott Polar Research Institute.

thirty-five years ago, we see in recent years fifteen to thirty transits each year, over half of which are adventurers, pleasure craft, and passenger ships. Among these recent transits have been some notable voyages. In 2013, MV *Nordic Orion* carried a shipment of coal from Vancouver to Finland through the NWP, a feat that has not however generated a shipping stampede through this purported “new Panama canal.” In 2015 and 2017, we saw the latest and earliest recorded transits of the NWP, in November and July respectively, by the robust Finnish icebreakers MRSV *Nordica* and its sister-ship MRSV *Fennica*, redeploying home after work in the Sakhalin Islands. In 2017, the Chinese research ship *Xue Long* completed a circumpolar summer voyage from her home port in Shanghai by taking the NWP (with myself onboard as ice-navigator).

This last voyage in particular has excited a lot of interest, including the supposition that the Chinese have been scouting submarine routes in Canadian waters.⁴³ *Xue Long* (built in the Ukraine in 1993) has been active for many years as a scientific/resupply vessel for China's Antarctic research stations. Deployments to the Arctic have been less frequent, but this one was seen as clearly signaling China's interests and recent pronouncements as a “near-Arctic” nation. In this case, the arrangements indicated a willingness to respect Canadian sensitivities, with an embarked Canadian ice navigator, a Department of Fisheries and Oceans (DFO) observer, and two Canadian hydrographers. Nonetheless, there was a robust level of mutual observation, not least of all when we anchored fifteen nautical miles off Nome, Alaska under close and sustained USCG surveillance. I was politely quizzed about Canadian Arctic policy while onboard, and slyly examined on the practice of navigation, but I was not interrogated in any determined way about Canadian Arctic security. At one point, however, I was subject to a mildly derisive question about “Warship Edmonton.” This diminutive Mine and Coastal Defence Vessel of the RCN hailed us off Cambridge Bay and demanded that we immediately surrender our DFO and Hydrographic Service hostages. *Xue Long*'s master was plainly entertained by the use of such an ostentatious title for a small ship with no visible armament.⁴⁴ In any case, the military “extraction” of *Xue Long*'s Canadian scientific contingent appeared the result of a miscommunication between departments concerning landing arrangements, a complete surprise to those onboard, and the MCDV only added an *opera bouffe* flavour to what was a true comedy of errors.

Regarding Arctic accessibility, the public and the media sometimes see what they want to see. The truth is that the undeniable, historic levels of temperature rise in the Arctic, and the well-documented decline in both ice coverage and volume, overwhelm common appreciation of the underlying variability of sea ice.

⁴³ See, for instance, Levon Sevunts, *Pentagon Warns of Chinese Submarines in the Arctic*, *CBC News*, 4 May 2019, <https://www.cbc.ca/news/politics/china-arctic-military-submarines-pentagon-1.5123287>.

⁴⁴ This disparity is addressed considerably in the displacement but not so much in the weaponry of the *Harry DeWolf* class.

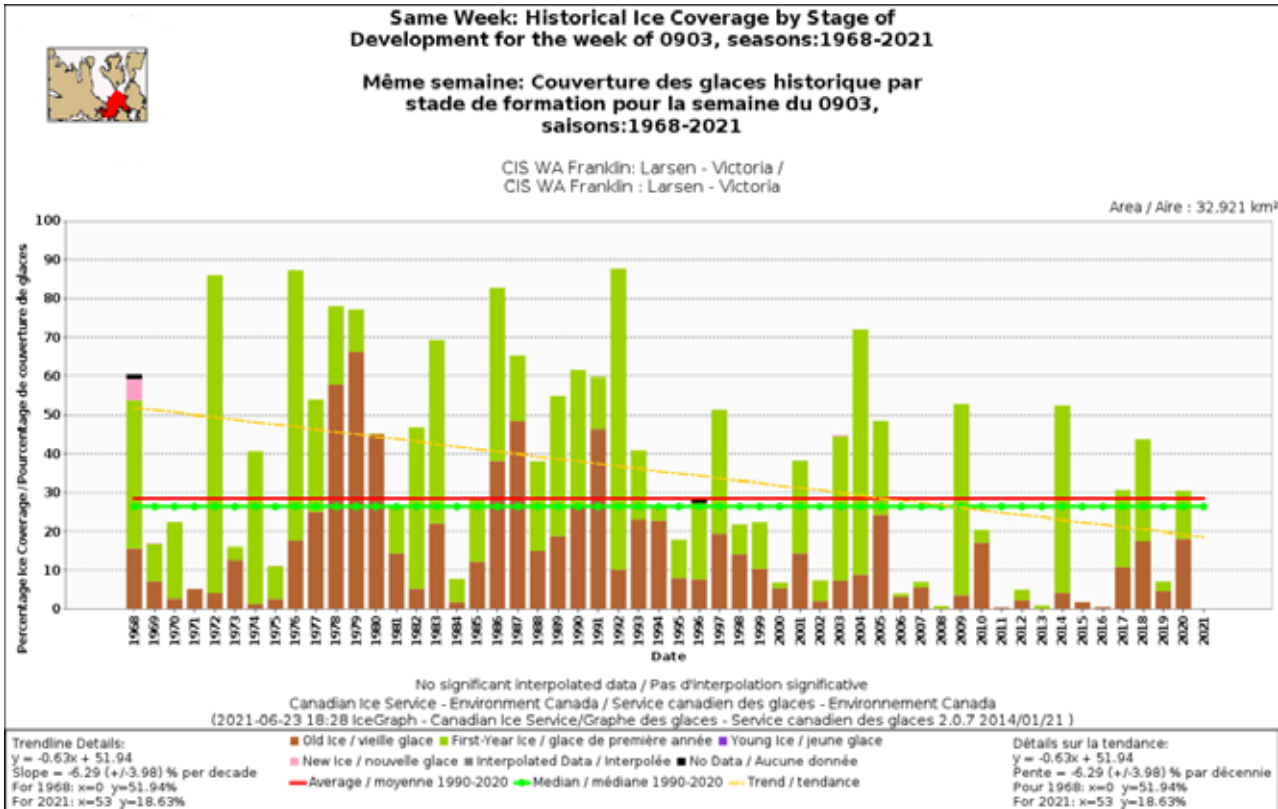


Figure 2. Historical Ice Coverage, Victoria Strait, first week of September.

The Canadian Ice Service makes available through their website lengthy archival records, and these can be assembled to the viewer's requirements by area, date ranges and year-to-year comparisons of various criteria. Such graphs of ice coverage also distinguish between first-year ice and the old ice – that is, multi-year, harder and more dangerous ice. From these records we know that ice coverage both in the central Arctic (Franklin, Larsen, Victoria Strait) and the Beaufort Sea is generally well below forty-year (or even thirty-year) averages, but some recent years have been as heavy as occasions thirty or forty years ago. And one of the consequences of lesser coverage is more mobility of ice, which can impede navigation as more dangerous multi-year ice migrates into southern channels.⁴⁵

The pattern of seasonal ice decay also underlines why the Arctic remains linked with the Pacific (see Figure 2). Let me explain the scheme of this slide: the colours represent increasing percentage of ice coverage, from green which is 1-3/10ths, through yellow and orange to red, which is 9-10/10ths (almost total) coverage; grey is consolidated complete ice coverage that is locked “fast” to the shore and immovable; and within each ice regime, an egg-like symbol represents the partial

⁴⁵ The prevailing currents and winds drive heavy ice from Viscount Melville Sound down M'Clintock Channel into Victoria Strait.

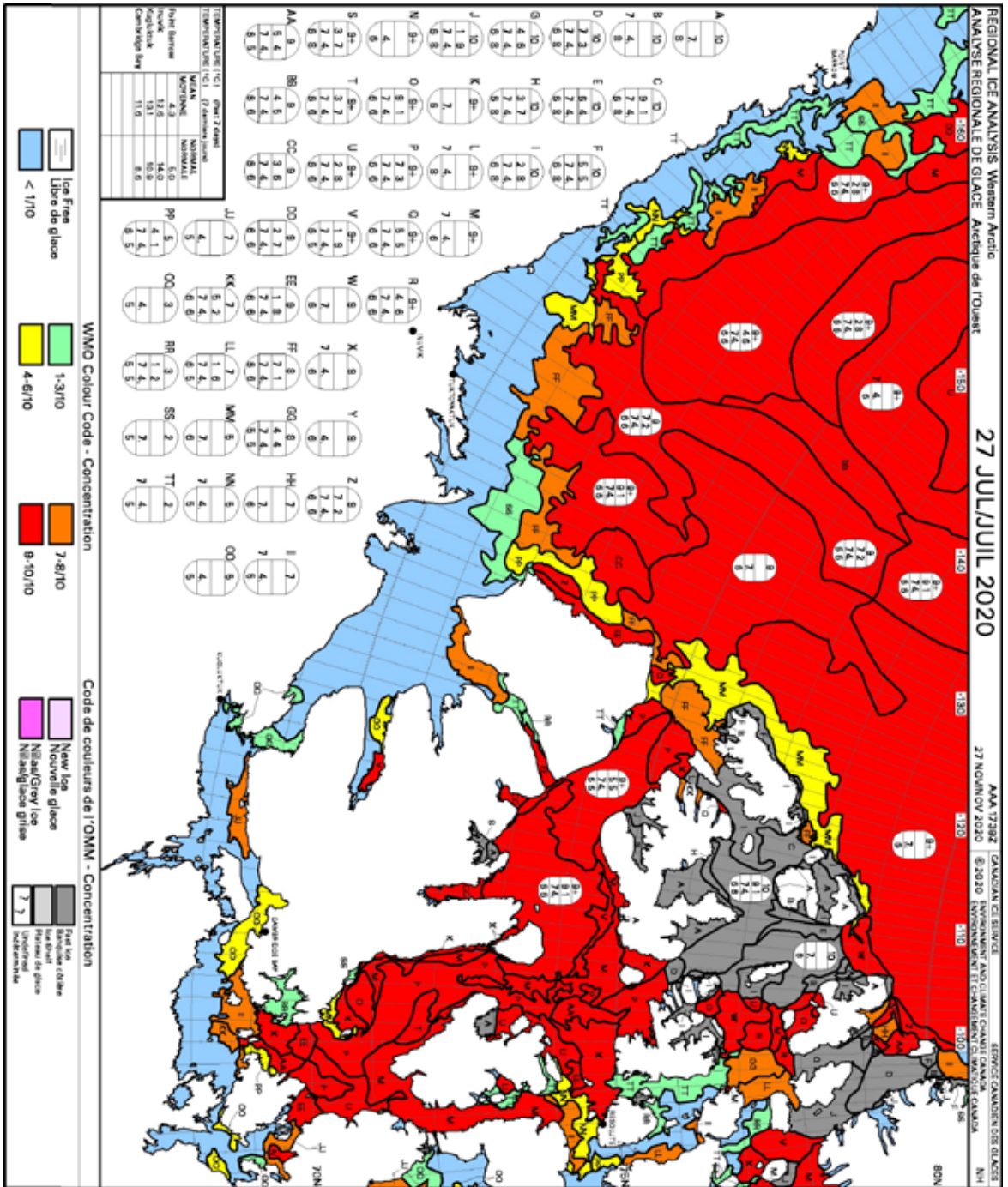
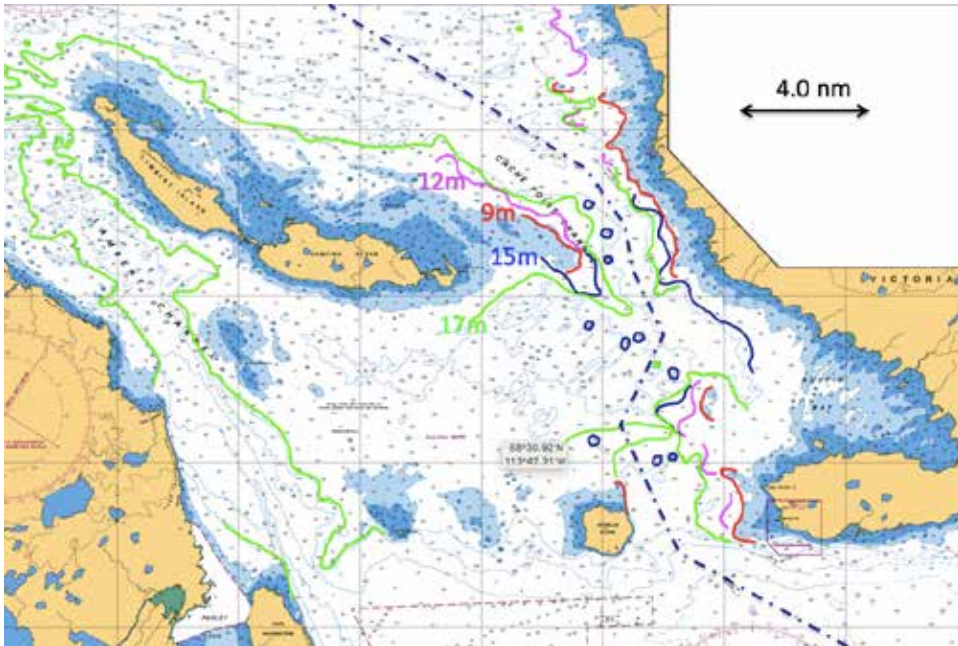


Figure 3. Ice Concentrations, Western Arctic, 27 July 2020.⁴⁶

concentrations of different ages (hardness) of ice and the size of ice floes. This slide shows the situation at the end of July 2020, the date at which the path past Point Barrow usually becomes clear. Much as Collinson in HMS *Enterprise* 170 years ago was able to get as far as Cambridge Bay while Franklin was locked up in Peel Sound for a couple years, the ice still favours a western approach by retreating from the Alaska coast while the central Arctic remains choked with land-fast ice.

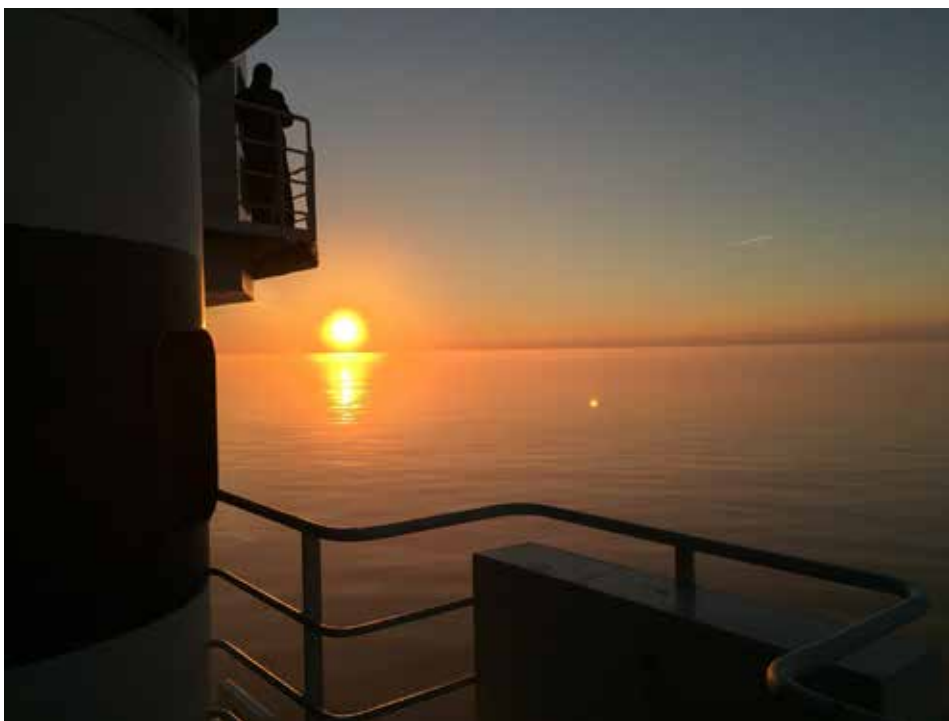
So, by the end July or beginning of August, the way to Victoria Strait may be mostly open water, while the key bottleneck of the Arctic Archipelago (Larsen Sound – Franklin’s graveyard) is not often clear except for a brief window in late August to early September. All of this is highly variable, however, greatly subject to wind-driven currents and weather conditions, and a fatal trap for the unprepared. In fact, this variability in Arctic ice coverage was part of Franklin’s problem. Previous reports of accessibility to the central Arctic would have led him on, even while he was contending with an unappreciated period of heavier ice conditions in the mid-1800s.⁴⁷ Some suggest that he did well to get almost as far as King William Island (in which vicinity his ships were found in 2014 and 2016) but this ignores



Cache Pt Channel. (Canadian Hydrographic Service chart 771001, Lambert Channel and Cache Point Channel)

⁴⁶ Source: Canadian Ice Service, <https://iceweb1.cis.ec.gc.ca/Archive/page1.xhtml?lang=en>. This site provides access to CIS archives of past weekly or daily ice charts by region, going back to 2004.

⁴⁷ B.T. Alt, R.M. Koerner, D.A. Fisher, and J.C. Bourgeois, “Arctic Climate During the Franklin Era as Deduced from ice Cores,” in *Franklin Era in Canadian Arctic History, 1845-1859*, ed. Patricia D. Sutherland (Ottawa: National Museums of Canada, 1985), 69-92.



Bering Strait, 14 July 2017. Western approach to the Arctic – deceptively calm and inviting. (Photo courtesy of the author)

that it took him a couple of years to get this far. Nor is it correct to suggest that he was foolish to attempt the Peel Sound to Victoria Strait route. Even at that time, given general ice movement in the central Arctic, this would have been a better bet than the westerly route through Barrow, M'Clure, or Prince of Wales Straits. Franklin may have been unlucky under adverse conditions, but similar risks exist today even in stronger ships with lighter ice cover.

It is important to recognize that the NWP is not just one route – in fact, it is a number of routes that each carry their own risks. These risks are subject to both historical experience and practical considerations, as the size of vessels increases. The challenges of speed-time-distance for small, wind-powered modern vessels are similar to those faced by Franklin so long ago. As much as such vessels may be aided by auxiliary power, there are no sources of resupply enroute, so self-sufficiency also traces its precedents to Franklin's time. For these smaller vessels, currents in tight straits may be a serious risk, as is the prospect of grounding in shallow, poorly charted areas, possibly inaccessible to available rescue resources. Finally, the combination of draft, current, and other navigational constraints conspire to make many paths of the NWP unviable for large commercial traffic.

An example is Cache Point Channel, the main navigational constraint (other than ice) in the favoured southerly branch of the NWP (see map above). For a ship of less than 9 metres draft the tracks through this bottle-neck are fairly straight forward. But should the ship's draft approach fifteen metres, the path becomes

torturous, and at sixteen to seventeen metres it becomes impassible. This, with the variability of ice, explains why ships carrying upwards of eight to ten thousand containers on carefully tracked “just-in-time” oceanic liner schedules will see little advantage in the supposed short cut through the NWP. More so for submarines: they are not only constrained by bottom depth but also by the top-cover of ice which may extend ice keels tens of metres below the compacted and ridged surface ice, leaving no room for submerged operation.

So where does this leave us? Clearly, regional history is endlessly fascinating in all the human, environmental, and technical challenges of this area of study. It can be, by turns, inspiring, tragic, perplexing or merely disappointing in the unforeseen, unrealized opportunities. It can be frustrating in the remaining complexities and the failure to confidently (reliably) apply the lessons of the past to the future. And it can be mildly amusing, or intriguing, in the random trivial correspondences that make a connection between events widely separated by time, culture, or geography.

For this brief overview of the Arctic, through the perspective of an active Pacific mariner, there are a few salient take-aways. Firstly, that selfish or myopic motivations are as prevalent today as they were 200 years ago, although climate change is providing a great incentive to think more “globally” and holistically. Secondly, the part of Canada’s Arctic estate and interests that stands to be most contested, or at least in direct contact with competing interests, is that which is most easily accessed from the Pacific (both by ourselves and by others). Thirdly, Canada must be aware and alert for foreign interests that run counter to our own, but we should not read conflict in every interested or active approach to the Arctic. Finally, Canada must generate the capacity to have a robust presence in the Arctic, coordinated and resourced appropriately from both temperate coastal bases.

One final thought: a significant common element in Arctic history is disaster as a stimulus for action. The Franklin, *Jeanette*, and *Karluk* expeditions, and the US Whaling Fleet disaster – all of these provided significant impetus in their day to improved geographical knowledge and rescue capability in the north. Today, the drivers of commerce and individual adventurism are bringing ever more people to these challenging locations, lured by the apparent ease of polar travel. Canada’s plans for appropriate polar-capable vessels for the Navy and Coast Guard will help address worst-case scenarios arising from an inevitable increase in maritime traffic in this region, but it is important that such programmes do not languish, or lag, due to an over-optimistic appreciation of the risk involved or political manoeuvres.

During his naval career, RAdm Greenwood commanded HMCS Ottawa, CFB Halifax, and the Canadian Pacific Fleet, and had appointments as Deputy Commander of the RCN and Commander Maritime Forces Pacific. Upon leaving the RCN in 2012, he established Greenwood Maritime Solutions Ltd. Holding a current certificate as Master Mariner, he spends summers as an ice-navigator in the Canadian Arctic. (Contact: nsg@greenwoodmaritime.com)