

# 2020 Periplus to Northwest Passage 7<sup>th</sup> Edition



*In those Northwest voyages where navigation must be executed in most Exquisite Sort" (John Davis 1594)*

by Victor Wejer, Toronto, Canada, March 2020  
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The feedback of many NWP sailors collected over the years with most grateful contributions and review by Antonin Barrier-Moulis (A.B.) Mirabelle, Eric Brossier (E.B.) Vagabond, Steven Brown (Novara) Novara, Ken Burton (Nadon), Jimmy Cornell (J.C.) Aventura, David Cowper (D.C.) Polar Bound, Graeme Esarey (G.E.) Dogbark!, Henk Haazen (H.H.) Tiama, Susanne Huber-Curphey (S.H.) Nehaj, Richard Hudson (R.H.) Issuma, Capt. W. Jacobson (W.J.) Vagabond'eux, Michael Johnson (M.J.) Gitana, Andy Jamieson (A.J.) Infinity, Claudia Kirchberger (C.K.) La Belle Epoque, Robin Kisling (R.K.) Margane, Jens Kjeldsen (J.K.) Kigdlua, Piotr Kuźniar (P.K.) Selma, Ernie Lyall (Taloyoak), Eric Maffre (E.M.) Breskell, Vincent Moeyersoms (V.M.) Alioth, Bo Mogensen (Aasiaat Radio), Arthur J. Osborn (J.O.) Empiricus, Ali Parsons (A.P.) Arctic Tern, Randall Reeves (R.R.) Möli, Larry Roberts (L.R.) Traversay III, Pablo Saad (P.S.) Mandragore, Robert Shepton (R.S.) Dodo's Delight, Clive Shute (CL.S.) Kamaxitha, Charlie Simon (C.S.) Celebrate, Wolfie Slanec (W.S) Nomad, Enrico Tettamanti (E.T.) Plum, Richard Weber (R.W.) Arctic Watch, Eef Willems (E.W.) Tooluka, Carl Zaniboni (C.Z.) Salty. Intended to be updated annually.

The RCC Pilotage Foundation book **Arctic and Northern Waters** by Andrew Wilkes (initial publication by Imray, Laurie Norie and Wilson in May 2014) Edition: Rev 1st Published: 06 Sep. 2016 ISBN: 9781846238284 covers everything you will want to know about sailing in Arctic waters. It includes detailed passage planning and selected port information for Faroe, Iceland, Greenland, the Northwest Passage, the Northern Sea Route and their approaches.

This **Yacht Routing Guide to the Northwest Passage** by Victor Wejer is a compilation of further port and anchorage information which will be updated annually. The RCC Pilotage Foundation is very pleased to be able to make this guide available to you via a download from the RCCPF website. However, the RCCPF has had no part in the production of this guide and accepts no responsibility for the accuracy of the information contained within.

## CAUTION

This guide contains selected information and thus is not definitive. It does not contain all known information on the subject in hand and should not be relied on alone for navigational use; it should only be used in conjunction with official hydro-graphical data. This is particularly relevant to the plans, which should not be used for navigation. The information provided in this guide may be out of date and may be changed or

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## East coast Baffin Is. Heading North

Eastern seaboard of Baffin Is. and Labrador coast is known for its constant fog and icebergs flowing with Labrador Current south, it is not a recommended route for any sail boat to cruise those waters. Most of the navigation charts are not very precise including Canadian and many electronic. See final notes on Arctic Charts.

### **Kimmirut (Lake Harbour)** 62°51'N / 69°52'W.

Located above tree line. Very safe harbour from all winds. Village with all support and airport. Tricky approach due to many small rocky isles and shoals. Most of approach covered by chart 5455 is not surveyed. Charts position WGS84 may be off by 2 Nm. Local Inuit Pilot at Beacon Is. 62°42'N / 69°43'W can be get at times. It has wooden pyramid. Anchorage 0.4 Nm SE of Sealer Narrows is not recommended in bad weather. Tidal stream in Lake Harbour is negligible. Used by whalers in 1800<sup>th</sup>. (inf. by Ernie Lyall).

### **Clephane Bay** 65°54.50'N / 62°28.40'W.

Anchored in 15m with good swinging room, fair holding and excellent protection. Estimated the Navionics charts were off 0.25 Nm to the south and the Cmap NT+ gave position as 65°54.21'N / 62°28.47'W (Novara).

**Pangnirtung** – 66°08'N / 065°50'W. Accessible 0.6 Nm NW off landing beach. Poor holding. Sudden gales. Fuel and water from town. Airport.

### **Novara Bay** (own name) 66°48'N / 61°37'W.

This bay 15 Nm north of Cape Dyer is offering greater protection than the bay 5 Nm to the south that is mentioned in the sailing directions. The Cmap charts are reasonably accurate except for a small islet. This islet is not shown on the Navionics charts but these also proved to be out by some distance. Some other charts show position of islet. Anchored in 14m with good holding just of the rocky shore. The entrance to the bay was partially blocked by the 2014 winter fast ice. (Novara).



**Cape Dyer** 66°39'N / 61°21' W. Anchorage in Sunneshine Fjord. Fair holding but poor shelter. Strong tidal stream. Sudden gusts, Radiobeacon, Airstrip.

**Coronation Fjord** 67°12'N / 64°45'W.  
A Spectacular anchorage about ¼ Nm off the calving face of the glacier. Found an alluvia flat to anchor in about 15m with good holding surrounded by high rock walls and within touching distance of the glacier. (Novara).

**Broughton Is.** Qikiqtarjuaq 67°33'N / 64°01'W. Very good holding with shelter available. Charts are off to the west. No reliable GSW84 positions. Fuel and water from village. Airport.

**Okoa Fjord** 67°38'N / 065°59'W.  
Anchorage in deep water off a side glacier run off gully, sitting anchor and 3:1 slope without digging in to avoid snagging any big boulders. Another spectacular anchorage beneath huge cliffs. Expect sudden torrential rains turning all trickling streams into torrents and 100's of waterfalls. Hanging glacier an indeterminable distance up galley does not give safe feeling spot! For a mountaineer it would not do to be avalanched boat! (Novara).

**Nedlukseak Island** 68°07'N / 65°57'W.  
Within strong headwinds anchor in a small bight on the W side of the island in 8m close to the shore to gain the most shelter. Poor anchorage and exposed in westerlies. Charts still ½ Nm out. (Novara).



**Tanner Bay** – Cape Hooper – C-maps and Raster charts for Cape Hooper Upper & Lower Anchorage and Approaches are off. (Novara). Important notes at Chart 7193 are placed and separate for Approach parts that state "...correction must be moved 2' 11" southward and 3' 26" eastward to agree with this chart".

**Lower Anchorage** 68°26'N / 66°48.5'W.  
Open to the South and east with strong gusts coming down from the high cliffs. Good holding in 15m but uncomfortable in strong winds. Offset 2.5 Nm from Navionics charted position. (Novara). For Lower Anchorage CHS states "...correction must be moved 2' 12" southward and 3' 29" eastward..."

**Upper Anchorage** – Cape Hooper – 68°27.6'N / 66°48.7'W.  
A far better anchorage offering good shelter and good holding in 10m to 15m. An emergency shelter and service huts ashore. 2.75 Nm offset from Navionics charted position. (Novara). For Upper Anchorage CHS states "...correction must be moved 2 minutes southward and 3' 36" eastward..."



**Cape Hooper** 68°24.6'N / 66°37'W. Poor holding and open to NE winds is obtainable. (Novara).

**Arctic Harbour**, Aulitving Island 69°31'N / 067°33'W.  
Little shelter that can be filled outside with many icebergs. The position according to the GPS is about 4 miles further west, so during approach it was interesting to find sailing way over the island. "Well protected, strong S winds, no ice. Plenty of ice outside at sea. Holding was good." (E.W.)



**Clyde River** 70°26'N / 68°37'W .  
Very good holding and protection from all except southerly winds. Its WGS84 location may vary by 0.35 Nm West. Foggy place mornings and evenings. Good place to clear entry to Canada. Fuel from village, water from stream. Airport.

**Sam Ford Fjord**  
- Kigut Peak anchorage – 70°32'N / 71°00'W.  
A superb anchorage on the south side of Sam Ford Fjord at the mouth of a river and wide valley leading to glaciers and mountains. Spectacular mountain scenery. (Novara)

**Sam Ford Fjord** - Walker Arm 70°33'N / 71°26'W.

An amazing anchorage under enormous rock walls. Deep water anchoring and lines ashore.

Place of Dodo's Delight and Bob Shepton plus Piolet D'Or team for climbing. (Novara)

**Sam Ford Fjord** South Side 70°45'N / 70°27'W.

Anchor in a small bight on the southern entrance to the fjord behind a rocky promontory.

Fair shelter from the South and west but open to the north and east. Poor holding. (Novara)

**Cape Eglinton** 70°47'N / 69°25'W.

Take the last chance of a good anchorage under the lee of Cape Eglinton in 8m with good holding.

Protected from the north and west this anchorage would be exposed in winds from the south and east. The charts are reasonably accurate along this stretch of coast. (Novara).

**Round Island** 72°09'N / 74°38'W.

A poor anchorage but useful in the strong northerlies. Anchored on a shelf in 20m close to shore. Inadvisable with winds from any other direction. (Novara).

## Greenland, West Coast

**Smallesund Havn** 61°33.089'N / 49°15.651'W, we marked it on our Navionics. We were surprised that the Sailing Directions gave clear instructions to take this path. The bottom came up to abrupt stop at 2-3 knots of speed. We struck our keel as we draw 2 mtr. where the center pin is located, while on our way to the "preferred anchorage". Avoid 7 mtr. sounding given path on the chart. (J.O.)



**Irkens Havn** 63°04'N / 50°47'W Eqalugissat on Mannisaat Is. (R.S.)

**Nuuk** 64°12.88'N / 051°46.34'W. Easily accessible fuel dock in the Eastern Corner of Quinnorput Bay, with 3 meter depth at low tide. (V. M.)

**Sisimiut** 66°56.45'N / 53°41'W. Western approach has to be taken carefully. There are underwater rocks near fairway. Head to 66°56.76'N / 54°10'W from that point take COG 90° to 66°56.76'N / 53°55'W then follow COG 92.5° onto range beacons 2 sec. yellow light and 4 sec. yellow light for about 5.6 Nm. Then red light on starboard into the harbor. Tides may exceed 4.5 mtr. Sisimiut has airport accepting only STOL aircrafts for local flight. Facilities for

fuel, repairs and medical assistance with possible wintering on dry. Cost for 19 ton 40 feet boat is DK 2740,- for haul out & lunch plus some monthly charges.

Mr. Bent Lyberth is no longer there with help in harbour as he retired. Contact Skibs-EL, Foto Radio Service located next to wharf for any information within town & harbour. (R.R.)



**Ilulissat (Jakobshavn)** 69°13'N / 51°05'W.

Attractive place due to its proximity of one of the most productive glaciers named **Sermeq Kujalleq**. As one of the major harbors it can get filled with ice growlers and floes with no warning and it happens every year. According to some theory one of the ice bergs from this glacier caused collision with RMS Titanic on April 14<sup>th</sup> 1912. This led to the establishment in 1914 of the [International Convention for the Safety of Life at Sea](#) (SOLAS), which still governs maritime safety today and since 1913, the United States Coast Guard has been tasked with the management and operation of the patrol, known as the [International Ice Patrol](#).



**Upernavik**

Important to point out that the safest anchorage in the Sortehul is:

**Qornoq kangigdleq** 72°44'N / 55°44'W. Shelter can be had either side of the promontory depending on wind direction. In the **Sarpinat** 72°46'N / 56°04'W for smaller bolder boats there is a more sheltered anchorage in the south west corner, gained by going close in along the southern rocky shore. Beware of rock at the end to starboard. Good when you get there! This was base camp for the first ascent of Sanderson's Hope AD2000 (R.S.)

**Qaanaaq (Thule)** 77°27'N / 69°14'W.

A safer anchorage has been reported (*"Tooluka", 2012*) to the west, on the western side of the drying reef. "A shallow bay gives wonderful protection there from SE wind and ice, as only the smallest of pieces of ice can move over the reef at high tide." But there is only a narrow passage to get into this bay. 77°27.8'N / 69°17'W least depth on entering: 3,5 m., close to low water. In the bay itself it gets a little deeper. Attempts were made to find a way out of the bay further west, successfully. There may be a deeper passage, but that would need reconnoitering. Small Hospital, Airport (R.S.)

### **Northwest Passage Heading East through Fury & Hecla**

Starting at Brentford Bay the usual Way Points that icebreakers take are:

WP0083 - 71° 30.00'N,092° 00.00'W  
WP0084 - 69° 55.00'N,088° 00.00'W  
WP0085 - 69° 55.00'N,086° 00.00'W  
WP0086 - 69° 56.00'N,085° 30.00'W  
WP0087 - 69° 55.00'N,085° 00.00'W  
WP0088 - 69° 52.00'N,083° 15.00'W  
WP0089 - 69° 48.00'N,083° 00.00'W  
WP0090 - 69° 46.00'N,082° 50.00'W  
WP0091 - 69° 43.20'N,082° 40.00'W  
WP0093 - 69° 42.30'N,082° 30.00'W  
WP0094 - 69° 41.50'N,082° 27.00'W  
WP0095 - 69° 41.50'N,082° 00.00'W  
WP0096 - 69° 37.00'N,081° 30.00'W  
WP0097 - 69° 25.00'N,081° 00.00'W  
WP0098 - 69° 07.00'N,080° 30.00'W  
WP0099 - 67° 06.70'N,080° 30.00'W  
WP0100 - 63° 48.00'N,078° 20.00'W  
WP0101 - 63° 48.00'N,076° 00.00'W

**Fury & Hecla Str.** 69°55'N / 84°34'W. It is very wide strait with few anchoring places near northern shores. Southern shores despite charts showing some deep enough points are mostly shallow with drying rocks in many places. Constant Easterly currents regardless tidal stage 2-3 kt. Approach only when ice is less than 1/10. Magnetic variation reaches 48° W.

**Labrador Narrows** 69°43'N / 82°37'W.

Avoid sailing west through Labrador Narrows as it is only good for crafts with powerful engine.

Approach 2 hrs before LW slack at Bonne Is. Tidal Station. Currents are well above 5 kt. heading East. Keep center of strait as counter currents and eddies are present. It is not very long strait at about 3.5 Nm and it could take only approx. 20-30 minutes to make it. Extra time to use before slack will be spent to clear notorious cross currents and eddies on the east side of Narrows into Foxe Basin. No any known safe anchoring places available.

After completing, the nearest place to rest is Igloolik Island with Inuit village of the same name.

**Igloolik** 69°22'N / 81°45'W.

Good sheltered place to anchor in Turton Bay off landing beach. Approach only from East. Watch for kelp and

some rocks on the E. & SE of island. The village is very active with all supplies available. Airport.

### **Foxe Basin**

Heading to Cape Dorset. You will need about thirty hours to cross Foxe Basin, very shallow, very much unsurveyed. And currents are strong and unpredictable! (E.B.)

**Cape Dorset** 64°14'N / 76°33'W.

It is accessible from Hudson Str. With approach from the East. Nice Inuit village with all supplies available. Airport services.

Expect to see first ice bergs in Hudson Strait and turbulent eddies with high tides.

Next stop will be in Labrador, not at Button Islands.

### **Northwest Passage Heading from East to West**

The major note from David Scott Cowper (Mable E. Holland, Polar Bound).

"The boats that come up to the Arctic are entering a hostile area weather-wise and should be fully aware that their boat must be capable of withstanding 80 mile per hour winds, ice and being nipped in the ice, which could easily crush their vessel, and make provisions for encountering these conditions with possibly the carrying of sledges, tents, extra food, skis, chainsaws, come-ons etc.. In addition, they should have very good heavy duty ground tackle. Another important item in my view, is that all boats should carry enough paper charts as opposed to relying on electronics." ..."Venturing forth in many cases in unsuitable vessels which are not strong enough to deal with robust conditions. If I was advising anyone on a suitable boat, strength would be the major factor at the expense of speed. I would also insist on about four watertight bulk heads up to the deck level to give a boat a fighting chance if it was holed of being able to survive. The other areas on a boat that are vulnerable are, of course, the prop shafts and rudder" ...

**Albert Harbour** 72°45'N / 77°26'W, separated by Beloeil Is. from Baffin Is. within approaches to Pond Inlet. Entry from east with good holding in mud and sheltered from all winds. Ice may drift in. Exit can be done at the west end with caution between Baffin Is. and small isle on the west side of Beloeil Is. Used by whalers at the end of 1800<sup>th</sup>. GPS coverage is nil due to high cliffs obscuring satellite signal. (M.J.)



**Pond Inlet** 72°41'N / 77°58'W.

Open anchorage under constant threat from heavy ice flows. Fuel and water from village. Proficient machine shop available for repairs. Good place to clear entry to Canada. Airport. In the fjords some 40 miles south west of Pond Inlet, and south of Eclipse Sound: Charts may differ from GPS positions by as much as 1.5 Nm.

**Emerson Island** 72°22'N / 79°03'W.

Several possibilities for anchoring in the open bay on west side of island. (R.S.)

**White Bay**

Anchorage can be made on west shore of White Bay, on the south side of the small spit on east side of **Curry Island** 72°26'N / 79°25'W.

It may be possible to anchor on the north side, but beware of an extensive reef across the entrance. (R.S.)

**Cape Hatt** 72°29'N / 79°46' W. Small bay south of Cape Hatt offers excellent shelter from nearly all winds. See soundings. Anchored in 25 ft. 200 ft. off E headland w/only 3-1 scope. Its landlocked feature was used by many Arctic



sailors. (R.R.)

**Deep Cove** off Milne Inlet 72°11'N / 80°24'W. Strongly recommended by "Jonathan III" (2011) (R.S.)

**Tay Bay** 73°30'N /80°43.0'W – Navy Board Inlet. Muddy clay bottom with fair holding. Good shelter from just all winds and ice for small boats. No settlements.



**Wollaston Islands**

a.k.a. Wallaston Islands 73°43'N / 80°55'W. At north side of biggest islands that has small bight indentation of shore line, attempts were made to anchor at approx. 73°43.8'N / 80°58.0'W in 4 m. During gusty SE 8-9°B anchor was not holding at all. Most likely due to its rocky bottom. (W.J.)



**Navy Board Inlet** is known for its tunnel like accelerated winds mainly due to its high elevation shores as it is barely 4.5 Nm wide at its narrowest point. (W.J.)

**Elwin Inlet** 73°21'W / 84°W, very deep up to shores, no good for small sail boats anchorage.

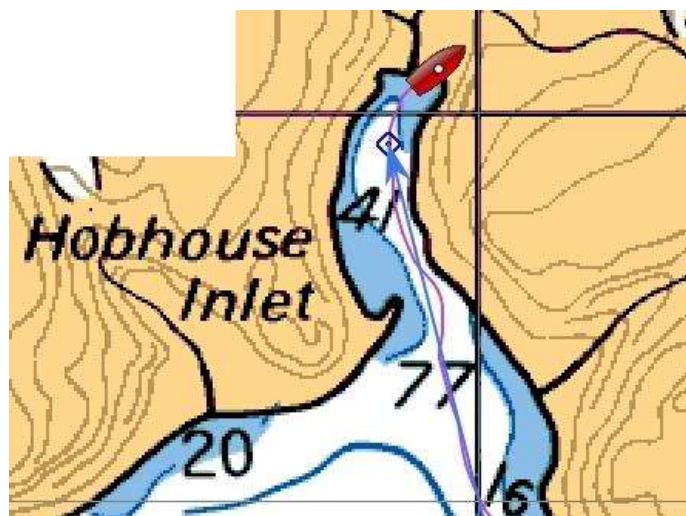
**Baillarge Bay** 73°23'N / 84°41'W, very deep up to shores, no good for small sail boats anchorage.

**Nansivik Mine** 73°04'N / 84°33'W – Admiralty Inlet. Excellent holding. Solid wharf available for mooring. May have some construction workers camp. Access to Arctic Bay airport. 2.5 Nm east of wharf good anchorage can be found further in English Bay. No fuel or water.

**Arctic Bay** 73°01N / 85°07'W. Excellent holding. Fuel, water from village. Airport.

**Dundas Harbour** 74°32'N / 82°25'W and Johnson Bay 74°31'N / 82°23'W – Lancaster Sound.

Former RCMP outpost over the ridge. 2 locations. Deeper into the bay better shelter can be found during northerly gales.



**Cuming Inlet** 74°34'N / 85°W. A superb fjord, a bit of trip up to anchorage well worth it. On west side anchorage with protection from the north. A bay on the east side further up providing protection from the south, good holding. Muskox and walrus. (A.P.)



Cuming Inlet by Arctic Tern

**Blanley Bay** 74°30'N / 87°24'W. Good for short stop over, unknown depth anchorage. No settlement.

**Graham Harbour** 74°31'N / 88°10'W. Excellent anchor past mid spit and shelter from all winds and ice. Soundings by C.K. No settlement.



**Stratton Inlet** 74°30'N / 86°38'W. Good anchor at the head of the inlet (A.P.)

**Hobhouse Inlet** 74°30'N / 87°00'W. Very deep up to shores, anchor in NE end. Charts are off by approx. 0.4 Nm West. Chart by "Tooluka". Anchorage at 74°50.2236'N / 87°00.7635'W. Some sailors liked it, some didn't. (E.W.) No settlement.

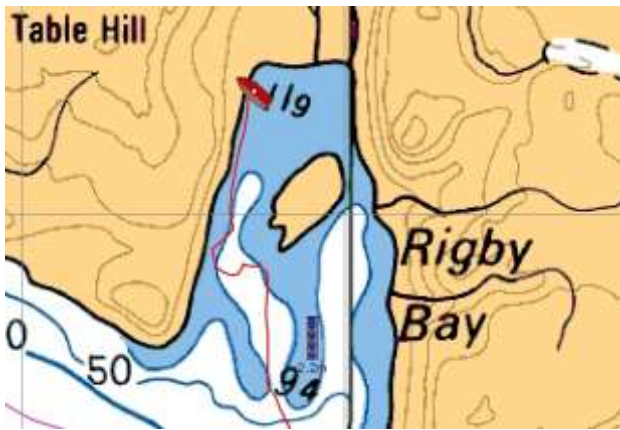


Hobhouse Inlet by Libellule

**Rigby Bay** 74°34'N / 90°03'W used by "Tooluka" in 2013 for shelter. The unnamed island position in the middle is off by some 0.2 Nm west. Entrance found close to the west shore. Anchored at 74°34.992'N / 90°02.8192'W good holding. No settlement. (E.W.)



Rigby Bay by Arctic Tern



**Scallon Cove** at Radstock Bay 74°45.40'N / 91°10.70'W, used by few boats in 2013 for shelter. Good holding and good shelter from all but SSE winds. Water ashore. No settlement. (L.R.), (A.P.)

**Kearney Cove** 74°43'N / 90°45'W, on opposite side of Radstock Bay has better shelter from SE but parts of it may be a bit deep for small boat anchoring. No settlement. (L.R.)

**Erebus & Terror Bay, Beechey Is.**

74° 43'N / 91°6'W

Place of three graves of late Franklin expedition crew are at the far west end. In odd years can be filled with ice and not accessible. Select Union Bay from north separated by the sand spit instead.

**Resolute Bay** 74°41'N / 94°52'W – Barrow Str.

Poor holding available for smaller vessels in open bay. Deeper vessels in open roadstead. Can be swamped with ice at no notice. Advisable to enter on western side, for depth. Fuel and water from village. Airport.

**Polaris Mines** NW off Resolute. 75°23'N / 96°53'W.

Sheltered from all directions.

**Bridport Inlet**, Melville Is. 75°01'N / 108°45'W.

Good for large vessels available off south shore.

**Arctic Watch** 74°04.2N / 93°48.7W, at Cunningham Inlet north side of Somerset Is. Never listed by any Pilot Books. It is an Arctic Lodge a tourism establishment for wildlife viewing since 2000. It is inhabited, annually from about 20 June to mid August. Operated by Richard Weber & Josee Auclair. Inlet is very shallow just above 0.6 m. pending chart information or own soundings. Tides can reach 1.5 m. Very quaint place not ready for any rescue. It may offer only the very final rescue for very stranded who will abandon their boat at the entrance to the Inlet. No entry with any motorized craft. Was frozen solid in 2013. Contact only by [mail@arcticwatch.ca](mailto:mail@arcticwatch.ca). or skype telephone number: +1 802 375 7379. Active 1070 mtr. long airstrip with connections to civilized world. (R.W.)



**Port Leopold** 73°51'N / 90°18'W – Prince Regent Inlet. Water in harbour has a dangerous looking light tinge. Anchoring quality fair. Shelter from N winds, ice may enter any time. Abandoned HBC outpost. In past used by whalers and Thule.

**Batty Bay** 73°14'N / 91°24'W - Somerset Island. Kennedy wintered there. Tides are 1.2 to 2.1 m.

Good shelter from almost all directions except a strong easterly winds. Shallow area of 2 meters depth almost all along the entrance to the bay, except at the southern side where there a channel depths is around 6 meters, in good visibility you can see the channel if you have a person on the first spreaders of the mast. Good holding at the head of the bay in 10 meters in front of river mouth.

Some ice moving around inside the bay on the currents.

The way points to follow in and out of the bay are:

WP1 - 73° 13.33'N / 091° 22.27'W

WP2 - 73° 13.29'N / 091° 22.60'W

WP3 - 73° 13.33'N / 091° 23.13'W

WP4 - 73° 13.50'N / 091° 24.50'W

WP5 - 73° 13.62'N / 091° 24.83'W (H.H.)

**Cresswell Bay** 72°40'N / 93°00'W, generally shallow with few soundings.

**Port Bowen** 73°13'N / 89°00'W. Parry wintered there. Avoid south point entrance. Anchorage at North Cove in 8 m.

**Port Neill** 73°09'N / 89°10'W. Well sheltered in NW part, mud with good holding. No settlement.

**Fitzgerald Bay** 72°09'N / 89°45'W, has very low and fronted shallow waters. Pilotage there is tricky with sand banks.

**Levesque Harbour** 71°54.6'N / 94°28.2'W. Off Smellie Point offers safe anchor from all winds. Used by M'Clintock and many other in 2013 during gales. No settlement.



**Brentford Bay west approach or east approach.**

No entry to HAZARD INLET please. The entry to it is unknown despite the charts are showing 7 mtr. Its good place for kayak. Just avoid it. The same applies to Port Kennedy and Possession Point.

Many different nautical charts show the area with different soundings or unknown. The Icebreakers use there only one and is safe to Fort Ross in Depot Bay to follow those WP's from the north/south on the Prince Regent Inlet side:

WP1 - 71° 57.00' N / 093° 50.00' W  
WP2 - 71° 55.50' N / 094° 03.00' W  
WP3 - 71° 56.50' N / 094° 08.00' W  
WP4 - 71° 57.45' N / 094° 12.50' W  
WP5 - 71° 59.30' N / 094° 12.50' W  
WP6 - 72° 00.00' N / 094° 13.00' W

The same applies for, in reverse when leaving Brentford Bay East.

### Note for Bellot Str. Crossing:

The entry to Bellot is described in ARC 402 and 403 that you should have. 1.5-2 hrs. before High Water at Ft. Ross for westbound route enter following range beacons to avoid Magpie Rock if you can see them. In the strait keep rather to the north side as south side gets counter currents. On the exit no short cuts. Sail out strait ahead west for at least 5Nm. Stay away from Pemman Rock.

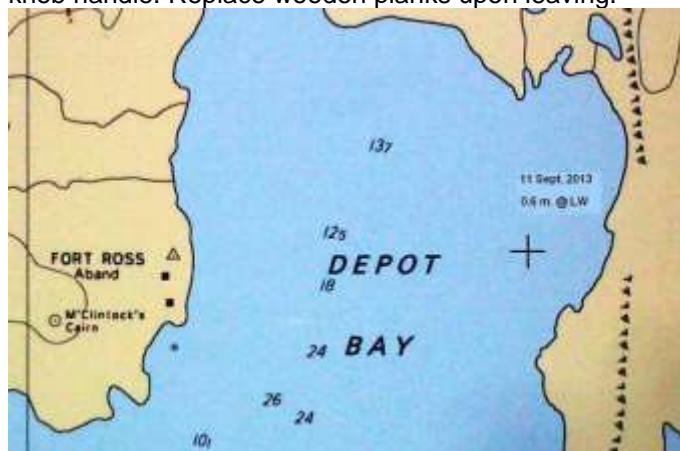
For eastbound enter center of Bellot Str. 1.5-2.0 hrs. before Low Water at Ft. Ross, watch for Magpie Rock eddies at the exit to Brentford Bay. Timing of tides in Bellot from Canadian source is not accurate and differs about 90-105 minutes sooner than reality. Use WxTides32 from Open CPN table.

It is much different approach than to those French Tides model. There is no anchoring or mooring place in the strait that can be used.

### Depot Bay at Ft. Ross 72°00'N / 94°13'W.

Anchorage in mud and gravel good for W winds only. Anything from WNW to ENE Gale force winds should be avoided in Depot Bay. Communication by VHF radio limited with west end of Bellot Str. At 72°00.65'N / 94°12.10'W shallow water of 0.6 m. during ebb.

Place may get engulfed with dense fog with no warning. Abandoned Hudson's Bay Co. outpost, new book inside south hut to sign by visitors. The key to the hut may be found under the stone at right hand corner of hut if new lock was installed as original key was misplaced by some visitors during 2013/2014. Otherwise no key, use door knob handle. Replace wooden planks upon leaving.



Near Ft. Ross a good shelter from ice and wind can be found in a bay WSW off **Brands Is.** at 71°57.70'N / 94°29.0'W. Holding is fair and shelter excellent. Entry can be taken via the channel south of Brands Is. Care must be taken on this route as, channels is generally deep, there are shoals and rocks that covers & uncovers during tidal water levels, some of which are uncharted. (L.R.)

In addition to this note more explanation is provided from Larry.

A lot of eddy currents developed in that area in the strongest parts of the tidal flow. During two attempted transits of the Strait and final successful transit, it was noticed the drifting ice was bunched together with considerable force in those eddies. Concerned to stay well away from such moving ice. Marked in pink on the attached chart the areas thought were worst; though imagine with a lot of ice, there would also be a lot of pressure between Brands Island and Long Island and even into the channel between Depot Bay and Long Island.

The area referred to containing unmarked shoals was out of the main tidal stream; marked it in yellow. This area had much less current but the ice **was** moving in wind and current and ultimately caused to reject anchorages at the two triangle marked spots. They are at bay 71° 57.7'N / 94° 29.0'W and small bight 71° 57.6'N / 94° 25.8'W. The anchorage suggested in the area is the one marked by the anchor symbol in the closed bay to the WSW of Brands Island. While obviously, ice can be anywhere, there was no current in this bay and do not believe there is enough fetch for wind driven ice to seriously threaten a small vessel. Still recommend this anchorage but, in the light of the events of the last 2018 summer, the approach and exit south of Brands Island might be the safer one, particularly if there is ice around.

The eastern approach to Bellot is very unfriendly other than at slack water. The description of ice coming from every direction is very much what can be expected when the tidal current is flowing. It is a very serious place for small boat navigation!





Approximate wreck location of 2018 “s/v Anahita” (FRA) is at 71°59.48’N / 094°25.15’W in 48 mtr.



**South of 71°06’N** the electronic charts end displaying much details of shore line and soundings of Boothia Gulf. Sailors need to maintain extreme caution.

**Cape M’Clure** 72°54’N / 96°41’W – Peel Sd. Channel between Prince of Wales Is. and Pandora Is. nearly always blocked by shallow waters. Not for navigation.

**Young Point** 72°41’N / 97°00’W – Peel Sd. Very shallow bay with excessive shoaling at the mouth of streams.

**Morgane Inlet** (own name) 72°05.506’N / 95°06.311’W – Peel Sd. south of Fitz Roy Inlet. Anchor in 6 mtr. with good shelter from N and E & SE winds. (R.K.)

**False Str.** 71°59.3’N / 95°08’W – Peel Sd. Shelter from all but westerly winds. Good holding 1 Nm within entrance in 7-10 m. Preferable place for waiting out proper time before crossing Bellot Str. No settlement. (R.S.)



**Willis Bay** 71°56’N / 96°38’W – Peel Sd. Good shelter from all winds with fair anchorage.

**Jonathan Shoal** 71°43.94’N / 95°41.30’W. Reported by “Jonathan III” (2012) after hitting rock at 2.1 m. depth. Acknowledged by Canadian Hydrographic Service in Notice to Mariners.

**Akukitsoq Harbour, (Greenlanders [those with the fur-annoraks] Harbour)** - 71°50.72’N / 95°18.58’W, assumed name at North end of Gibson Is. Small Bay with good shelter from winds and ice. Near high hills offers good lookout toward Franklin Str. ice (J.K.)



**Coutts Is.** 071°49.537'N / 095°29.775'W, shelter from W to NNE winds & ice in the small bight on approach to Bellot Str. (H.H.)

**Cape Maguire** 71°34.78'N / 095°54'W, unknown name bay, very uninviting with sudden ingress of heavy ice if any in vicinity flowing in with tidal current. Avoid !!! (E.T.)

**Tasmania Islands Teleport Shoal** 71°19.6610'N / 96°41.0320'W, own name. Reported by "Teleport" (2011) tidal rips in apparent 40 m. depth.

**Charlie's Channel** – (own name), Tasmania Islands, 71°17'N / 96°39'W, the short passage between Toms Is. & Tasmania Is. used in 2017 probably first time. Tasmania Islands charts are very sketchy with not much details.

Refer to **71°11.83'N / 096°25'W Hartstene Pt. – tidal station**

The approach to the channel from the north has some difficult spots.

Way Points heading South:

071° 18.904'N / 096° 36.260'W

071° 18.364'N / 096° 38.030'W

071° 17.701'N / 096° 38.667'W

071° 17.336'N, 096° 38.399'W

071° 16.771'N / 096° 38.658'W

071° 15.959'N / 096° 38.890'W

071° 15.017'N / 096° 38.548'W

071° 14.421'N / 096° 38.887'W

071° 13.399'N / 096° 39.136'W

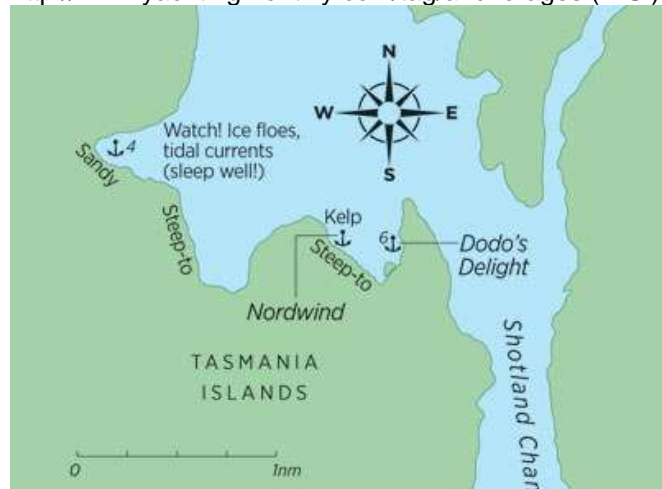
071° 12.247'N / 096° 39.016'W - end of route

Depth approx. 15 m. with opposite 1-2 kt tidal current about 1.5 hrs. before H.W. at Hartstene Pt. (C.S.)

**Sophie Louise Cove** assumed name 71°15'N / 96°32'W.

A pleasant anchorage by a beach at the far western end of this cove. However ice floes on the unpredictable tidal currents can be a problem. See more at:

<http://www.yachtingmonthly.com/tag/anchorages> (R.S.)



### Larsen Sd.

Tidal currents in these waters are very prominent causing movement of ice accelerated by the strong winds. Sailing during strong westerly winds in heavy ice along west coast of Boothia Peninsula is not advisable. Reference tidal points at Admiralty Is. (Driftwood Pt.), Tasmania Is. (Hartstene Pt.), Seal Bay (King William Is.) and False Str. (Bellot Str.) can be used. Please note that some tidal points are not listed in Canadian Tide and Current Tables for Arctic and Hudson Bay, Volume 4.

**Weld Harbour** 71°07'N / 96°22'W, very good shelter even for winter with good steel hull boat. Jetfuel depot nearby, lots of Muskox. (E.B.) Southern part good for boats with less than 2 m. draft. Used extensively during 2017 navigation season for shelter.



**Pasley Bay** 70°36'N / 96°09'W – Larsen Str.

Used by St. Roch to winter. Fair holding and shelter except for W winds. No settlement.

**Cape Victoria** 69°52'N / 96°08'W, charts can be off by 0.8 Nm. Anchorage available at south side during fair weather only. Some shoals are reported in vicinity. (W.J.)

**Oscar Bay** 69°45'N / 95°39'W, offers good anchorage in sand for small vessels except for NW winds bringing ice from Larsen Sd. Watch for ingress of ice brought during tidal currents not specified anywhere. (W.J.)

**James Ross Str.** Has undocumented difficult currents causing shift of ice at about 6 hour intervals in its northern part.

At 69°42.4167'N / 95°43.50'W chart 7760 shows doubtful shoal. The depth is 32 m. (M.J.)

**Josephine Bay** on the North side of St. Roch Basin. At 69°38.57'N / 94°43.8'W anchorage in 8 m. sand.

Generally 20-30 m. deep. Gary River estuary offers good and safe anchorage and granite hills to 100 m. high with some shoals near shores. Sudden dense fog may be encountered in all Josephine Bay. No settlement. (W.J.)

**Taloyoak** (Spence Bay) 69°32'N / 93°32'W.

Difficult approach. Good anchorage except in SW winds. Entrance to harbor must be held to the southeast. September gales funnel large waves into the harbor and has a very late thaw.

Pilot book ARC 403 page 8-14 is a good description of approach.

At low tide when entering the inner harbor anchorage rocky in 4.9 mtr. Looks better, deeper in the bay. Inner harbor has anchor points on land for supply vessels to moor.

Daylight approach only and lots of morning fog here. Fuel at airport and fresh water available from lake few hundred feet inland of inner harbor. Two grocery stores and most friendly

and welcoming village. Not acceptable port for wintering. No crane or heavy equipment. Used by only few sail boats in past. (J.O.)

**Wilkins Point**, off route – Rasmussen Basin. Unsheltered with good holding for larger vessels 0.4 Nm of beach.

**Gjoa Haven** 68°38'N / 95°53'W King William Is.  
Good holding and shelter from all winds off landing beaches. Some Banking at the Northern Store. Fuel and water from town. Airport.

**Gladman Point** 68°38.634'N / 97°44'W – Simpson Str.  
Obtainable south of entrance to bay and off former landing beach.  
Abandoned DEW Line facility. Tide monitoring point.

**Simpson Strait**, crossing at slack water near Eta Island 68°32.22'N / 97°23.37'W which has many tidal breakers and eddies.

**St. Magnus Island** 68°36.2'N / 097°46.0' W, anchor depth 7.8m, 150m off the beach, good holding and protection from southerly winds to wait before making (the East bound passage) into Simpson Strait towards Gjoa Haven. (S.H.)

**Queen Maud Gulf**, 68°31.59'N / 099°53.19' W. WNW off Wilk Island. Soft mudbank at approx. 1.2 mtr. (H.H.)

**Hat Island** 68°19'N / 100°06'W - Queen Maud.  
No anchor near 68°18'N / 100°00'W small Islands. Good holding elsewhere. No settlement.

**Hat Island** 68°17.5' N/100°07.4' W, at 5.30m, good holding. The big bay on the Southwest side of the Island, off a rocky and sandy beach. Sheltered from N - NE – E winds. If there are strong head winds from the NE Hat Island is the only anchorage in the area. Its a good place to wait (on a East bound passage) for entering Requisite Channel towards King William Island. Charts error: Hat Island and also Requisite Channel are charted 0.35 miles too far to the East. (S.H.)

**Ellice River** 68°01.30' N / 104° W, in the Campbell Bay south of Spalding Islets offers outstanding Arctic Char fishing. Contact Bill Lyall in Cambridge Bay or at: [manager.ikaluktutiak@arcticco-op.com](mailto:manager.ikaluktutiak@arcticco-op.com)  
Approach to Ellice River requires very intricate navigation skills due to many shoals and rocks along the way.

**Jenny Lind Bay** 68°38'N / 101°45'W - Queen Maud  
Anchorage with good shelter except from SE winds. No settlement.

**Jenny Lind Island**, 068°36.64'N / 102°09.14'W, good shelter from strong Easterlies on the eastern side of unnamed island in 4-5 m. (H.H.)

**Parker Bay** 68°49'N / 103°12'W. Officially uncharted. Possibility of hiding from incoming ice from SE-SSE behind small unnamed islet at 68°50.21'N / 103°10.18' W

in 5 m. as per Vagabond'eux information dated 20 Aug. 1986. The middle of bay has shoal with many places at 1.2 m. muddy bottom. (W.J.)

**Cambridge Bay** 69°06'N / 105°04'W Victoria Is.  
Good holding in central part of arm and off landing beach on N side of entrance. No charge fuel delivery during business hours otherwise \$157,- after hours per boat. Water delivery is \$100,- + cost of water. Propane available with North American style 20 lb. cylinder exchanged for \$80,- at Kitimuth Supplies. WiFi available at hotel restaurant. Some repairs can be done and capable machine shop present. For boats to winter using local crane to lift on shore the charge is now CAN \$2500,- per lift. Major airport.

**Cape Alexander** 068°55.180'N / 106°13.896'W.  
Little bay 1.5 Nm SSW off Cape Alexander. Can be very vital as a shelter from just about all winds and ingress of ice. Depth 5-6 m. (H.H.)

**Dease Str. & Coronation Gulf** from Finlanson Islands to Lady Franklin Point. Generally south of 60°20'N.  
Includes Kent Peninsula, Duke of York Archipelago, Home Islands, Lawford Islands, Barens Islands, Coupler Islands and Black Berry Is. positioned as much as 2 Nm off WGS84. Be aware.

**Byron Bay** 68°55'N / 108°30'W. Good holding in 25 ft. black & red mud. Protection from N-SW winds. Open to S-E winds. Gradual slope of bottom from beach to anchor 1/4 mile off head. *Arctic Tern* anchored there in 2014 to escape W40kt winds. (R.R.)

**Sinclair Creek** 68°44'N / 108°57.6'W.  
Unsheltered anchorage is available over rock and shingle bottom.

**Disappointment Harbour** - own name.  
68°35'N / 110°27.10'W.  
"disappointment" because it's a little too big and a little too shallow. I can't quite tuck in far enough. But a nice spot for anything less than a hurricane.  
Two approaches lead. South, below Murray Point and SW entering between rocks & isles in deep water. Entering harbour make wide berth to avoid rocks in SE corner. This place offers complete protection from Coronation Gulf with 20 ft. mid bay where anchorage can be taken in mud with excellent holding. It favors windward headland in strong winds to avoid fetch. (R.R.)



**Edinburgh Is.** 68°31'N / 110°41' W.

Fair anchorage in one of the bights in about 10 mtr. on East side of island. Will shelter against NW & W winds. (W.S.)

**Baychim Harbour** – off main cruise

Anchorage obtainable in NW part of the harbour.

**Port Epworth** 67°43'N / 111°54'W.

Available in the west and east arms. Excellent anchorage. Shallow draught vessels only.

**Kugluktuk** 67°49.7'N / 115°05.6'W. Should be approached with caution. Good holding 0.8 Nm NW of hamlet. Some time fuel available from village. Airport.

**Lady Franklin Point** 68°29.1'N / 113°14.5'W.

0.4 Nm off landing beach. Barges if any, anchor with stern lines to shore. A small hut offers shelter for stranded.

**Chart 7776 & CA373343** 69°08'39"N / 113°47'52"W.

The shoal with known depth of 3 meters Rep (2019) as per Notice to Mariners dated 25 Oct. 2019 (Department of Fisheries and Oceans Canada 6604572-01) (E.M.)

**Muskox Bay** 69°13'N / 113°40'W

(*Vagabond'eux* own name).

Excellent anchor holding bottom with mud while rather shallow. Good shelter from all but southerly winds and ice. Small unoccupied Inuit cabin. Fog frequents the area (1986 W.J.)

Visited extensively in 2015 by *s/v Selma* (P.K.)

In 2019 *s/v Breskell* visited finding extensive shoaling in front of the bay with some 1.2 mtr. depth half cable away from entry to the bay. (E.M.)



**Read Is.** 69°13'N / 113°53'W.

Abandoned Hudson's Bay outpost. Long narrow bay offers 2.7 m. depth for small craft. 0.2 Nm North of island in 9 m. water has sand and mud with good holding. (W.J.) SE of island offers solid holding in sand in 15 ft. at small bay 69°12.133'N / 113°49.93'W. South part of this bay has a shoal and another between Read Is. & Igloodik Is. breaking swell from west. Good rest place with worry free of anchor watch. (E.M.)



**Sutton Is.** 68°54.323'N / 114°17.681'W anchorage. The unnamed bay on the east shore offers shelter from gale winds from South, North and a little less from the West winds. Soundings inside the bay not available but good for mid size icebreaker. Bottom comes gradually to the beach and makes easy landing. Anchor holding not the best due to rocky bottom. Ice accumulation may not be as prominent after prolonged westerly winds. (A.B.)



**Bernard Harbour** 68°46.8'N / 114°46'W.

Large vessels at 1 Nm north of Chipman Point. Untenable w/NW gales. No settlement.

**Cape Young** 68°56'N / 116°54'W. Unprotected obtained at 0.5 Nm off former beach landing. No settlement.

**Ulukhaktok (Holman)** 70°44'N / 117°46'W.

Poor holding and exposed to south winds. Easier anchorage at Queens Bay for sail boats in 6 m. Fuel and water sometime available from village. Internet access at library next to school. Health Center, Airport. (R.H.)

**Fresh Water Bay on Diamond Jenness Peninsula**

70°36'N / 117°28'W fresh water available at the far end west arm of bay from the stream 70°38.1N / 117°29.6'W. Proceed in the middle with no less than 13 m. water until close to creek. Anchor in 5 m. loose gravel/poor holding. (R.H.)

**Tysoe Point** 69°35.5'N / 120°43.2'W. 0.4 Nm offshore anchorage but exposed to wind and ice.

**Pearce Point Harbour** 69°49.4'N / 122°41.4'W.  
Its charts follow GPS position with no offsets. Fair holding and protected from all but north winds. Difficult holding during gale winds. Careful selection of anchoring should be made according to Sailing Directions ARC 403. In less than gale winds good ground tackle should hold. Only sheltered anchorage for next 200 Nm. No settlement.



**Darnley Bay** 69°45'N / 123°40'W at many places gets foggy for some 20 days a month. There is a constant set of currents in the bay.

Letty Harbour 3 Nm South of Racing Is. at 69°51'N / 124°26'W offers full shelter off abandoned trading post in 3.7 m. depth.

**Cape Parry** 70°11.8'N / 124°32.3'W.  
Available in Cow Cove with poor holding but fair shelter from E winds. Not much recommended.

**Wise Bay** 70°06'N / 124°43'W.  
See chart 7686 appearing accurate with no noticeable offsets for the detail of Wise Bay inset. The mooring buoy is still there to use and place offers very good rest. For bigger sail boats choose middle of the bay. (CL.S.)

**Summers Harbour** 70°07.7'N / 125°04.6'W.  
Excellent protection from sea and ice with good holding. See chart 7686 appearing accurate with no noticeable offsets for the detail of Summers Harbour inset.

**Franklin Bay** 69°50'N / 126°00'W known for its Smoking Hills. It gets similar dose of fog as Darnley Bay.

**Baillie Is. Snowgoose Pass**, 70°34'N / 128°06'W.  
Shoaling and silting due to strong tidal currents, not recommended for deep draughted yachts! Smaller boats with less than 1.8 m. draught may pass by keeping to the middle of the channel but only with good visibility and during fair weather. Islands wrongly located according to radar observations. (J.C.)

**Nicholson Island**, Liverpool Bay 69°56.1'N / 128°52.7'W.  
Close off outer side of Hepburn Spit. Not recommended to sail due to erratic tidal currents.

**Sachs Harbour**, Banks Is. 71°58.4'N / 125°17'W.  
Very clear water. Ice threat with NW winds. Better anchorage 6 Nm W. Not used much by sailors as is off the beaten track. Fuel and water if available from village. Airport.

**De Salis Bay**, Banks Is. 71°26.9'N / 121°37.2'W.  
Sheltered from all but north to west winds on East side of the bay. Alternate in NW part of the bay. No settlement.

**MacKinley Bay** 69°56'N / 131°09'W.  
This is the great anchorage as it used to be the old oil field turning basin for anchorage and dredged channel was no less than 7.6 meter all the way in. Electronic charting was dead on. There is even break water man made stopping swells entering anchorage. Possible mooring at concrete wharf. This is not on charts. (C.Z.)

**Hutchison Bay** 69°44'N / 132°10'W.  
Abandoned oil rig. Unknown depth appearing shallow for bigger boats.

**Tuktoyaktuk** 69°27'N / 132°59'W.  
The harbour is relatively deep and sheltered. Fuel, water and repairs available. Airport and full Banking Services. Best to stop at near Northern CO-OP where fuel station is located. Watch for possible over charges for fresh water supplies. (P.S.)

**Inuvik** 68°21'N / 133°44'W. Located some 100 km inland on MacKenzie River. The only NWP presently available wintering place for boat with lifting keel as the river is very shallow in many places 1.5 mtr. Storage on dry with Northwind Marine Yard. (W.S.)

**Shingle Point** 68°58.8'N / 137°16'W.  
Good anchorage on south side of Escape Reef. Shallow !

**Herschel Is. Pauline Cove** 69°34'N / 138°55'W.  
Good anchorage in 6 m. Historical and very quaint place. Herschel Island Territorial Park is just about the only place you'll be able to spot a Polar Bear in Yukon, though they can be found on the North Slope as well. Never stray too far from camp without a firearm for protection. Workboat Passage; the depths are much greater than the charts show. Use tender first to check the depths to be able to seek shelter from a lee shore and looming ice. Infinity (2018) never had less than a meter of water beneath 3 mtr. keel. Anchored just to the East of the sand spit. A vigilant anchor watch is required as there are currents which push a



lot of ice through the channel. It gets often foggy. (A.J.)

**Komakuk Beach** 69°36'N / 140°11'W.  
In open roadstead with good holding, alternative in Thetis Bay.

**Demarcation Bay** 69°41'N / 141°19'W shallow water to get in, use the north entrance, Inuit fishing summer camp. (E.B.)

Demarcation Bay is not how it looks on the chart, the sandbar and little islands are all joined and there is only one gap now. Again, we did a tender trip first to confirm the depths and found nothing less than 4 mtr. in the middle of the channel. The locals, who were staying in a hunting camp, confirmed that the sand spit moves a lot and so do the depths so anyone venturing in would be well advised to check the depths first. We found Demarcation Bay to have perfect 360 degree protection, good holding and has a very uniform angled bottom. We could have anchored almost anywhere in the lagoon. Furthermore, not only is there good fishing to be had but a large river/stream which provides good drinking water. (A.J.)



**Barter Is.** (AK) 70°09'N / 143°37'W.

Extensive shoaling to 1.0 m.

At Kuvritovik Entrance 70°07'N / 143°47'W shelter can be found with 2.2 mtr. under keel (R.S.)

The entrance to lagoon of Simpson Cove can be messy ! and scary ! But offers a very good hold and shelter in strong easterlies !! Anchor in mud in 2 mtrs. at 69°58.718'N / 144°50.932'W (R.K.)

**Flaxman Island**, 70°12'N / 146°13'W.

I am pleased to tell you that this morning 25 July 2015 we managed to get through that ice choke point off Flaxman Island. We stayed in shallow water 5 to 6 metres depth, encountered maximum 5/10 ice but managed to find our way around. Yesterday we were in areas 6 to 8/10 east of Prudhoe Bay, got into some dead ends but found ways around. Last night we diverted south of Duchess Island (Maguire islands) - the latest Canadian chart was wrong, location of the sand banks was wrong, depths all wrong... we had to lift centerboard up so as only draw 1.2 m. to avoid going aground, and also when leaving via Mary Sachs entrance early this morning.

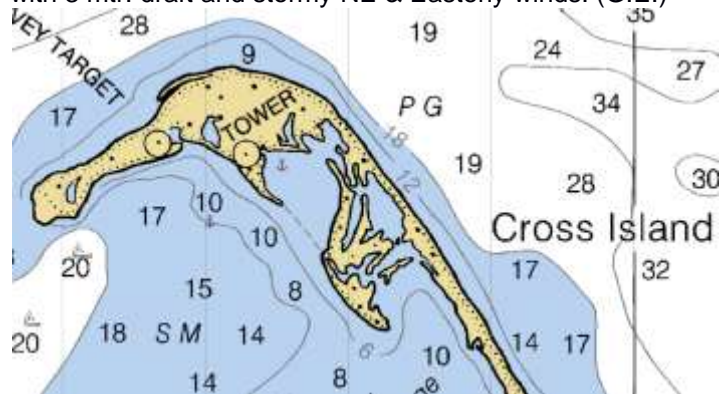
Sand banks have shifted also west of Flaxman...So far, so good, and it may sound easy but you do have to have a boat like Aventura (aluminum, centerboard that reduces draft from 9 feet to 4 feet in an instant), and good crew. (J.C.)

**Pole Island** 70°18.10'N / 147°05.14'W, in the Stockton Island group anchored in just under 4 mtr., with a crescent shaped island that offered protection from the N through ESE. The island is further E than charted, and larger than it shows on the chart as well. (G.E.)

**Tigvariak Island**, Mikkelsen Bay, Reliance Pt. 70°12.41'N / 147°10.54'W. About a mile long spit. East side at 70°13.140'N / 147°09.790'W enough depth for Open 60 sail boat with 3 mtr. draft so further North and South. Good shelter against SW gales. Surprise! The island was not where charts said it would be and chart shows less water. (G.E.)

**Cross Is.** (AK) 70°29'N / 147°57'W.

Good anchorage, watch for shoaling. Ex. whaling station. Island is actually located about 0.51 Nm SW. Excellent place against E & W winds. Two places to choose: 70°29.303'N / 147°59.423'W and inside lagoon after giving a wide berth to sand spit in front of rusty barge in 5 m. depth at 70°29.400'N / 147°58.94'W (W.S.) At 70° 28.4590'N / 147°58.2425'W, 70°28.521'N / 147°59.418'W and 70°28.459'N / 148°00.280'W safe depth for larger boat with 3 mtr. draft and stormy NE & Easterly winds. (G.E.)



**Cape Halkett** (AK) at Harrison Bay. Anchor at 70°46.12'N / 152°15.2'W in 2.7 m. was not found in 2014 mainly due to extensive shoaling. Unknown quality of bottom.

**Elson Lagoon** 71°21'N / 156°21'W.

Shelter and rest can be found in the lagoon to the north east of Point Barrow. Enter through Eluikak Pass. It offers shifting sand bottom with approx. 3 m. depth and some shelter from west winds. Walking distance to Pt. Barrow (R.S.), (M.J.)

Next is **Point Barrow** (AK).

Gravel beach landing only. Airport, Hospital. The hospital is a qualified Acute Care facility and State certified Medevac Service.

NSB Search & Rescue provides Critical Care Air Ambulance Service.

Emergency Services have coastal helicopter and floatplane access.

Emergency service is provided by 911 Telephone Service volunteers and health aide.

Borough Volunteer Fire Dept/EMS/Search &

Rescue/Medevac (907) 852-0234 or (907) 852-6111

**US Coast Guard**, District Seventeenth, PO Box 25517, Juneau, AK 99802-5517, Tel: (907) 463-2000, (907) 463-2004, <http://www.uscg.mil/d17>

**Peard Bay** 70°50'N / 158°35'W.

Have seen its casualties. Its not the place to visit or storm. Shifting sand banks and mainly very shallow.

**Wainwright** 70°36'N / 160°07'W.

Is subject to shifting sand banks and information should be sought by radio before any attempt to enter. (R.S.)

**No shelters till Point Hope.**

**Point Hope**

As its name indicates the shelter can be found to the north or south of Point Hope. To the north:

Karen's Cove 68°27'N / 166°19'W (assumed name). It is south of Kowtuk Pt. Anchor in 7 m. off beach by curve of the shoreline. NOAA charts there are off by 0.23 Nm West. It may be possible to enter beginning of the lagoon, well hidden a little to the west, but it is still ten miles from the settlement.

To the south:

The shore is very steep-to in the vicinity of the settlement. The best anchorage is approximately 3 miles to the east. Once through Bering Str. **Port Clarence** offers good shelter with its Teller place/Grantley Harbour and airstrip while most will be proceeding as fast as possible for **Nome** (Alaska) where USA border crossing clearance can be get. (R.S.) (E.B.)

For those arriving to seek winter shelter in Alaska can be intimidating and difficult. Anchoring in kelp should be discouraged. The following places are recommended:

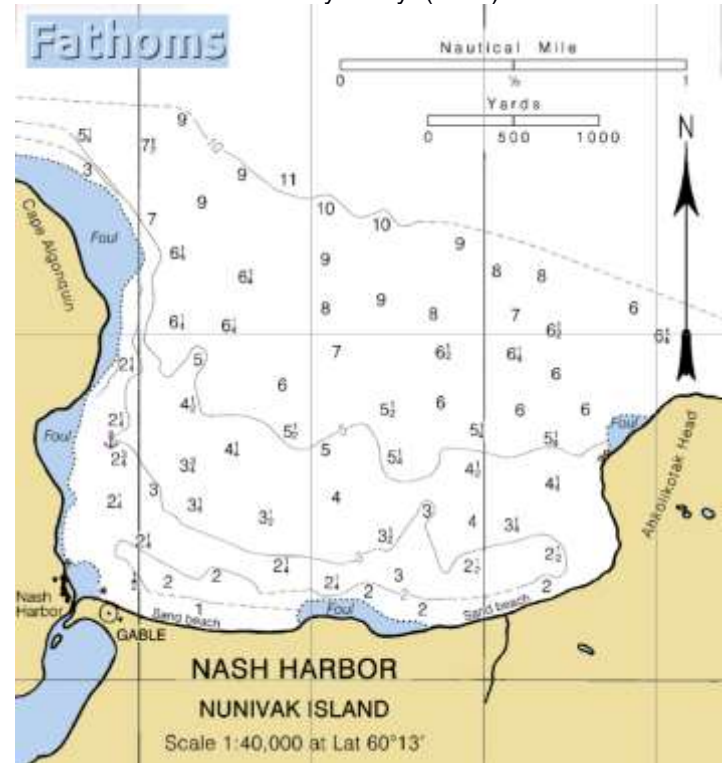
**Nome**, 64°30'N / 165°25'W. US Customs Port of Entry. Proper port with nearly all facility. Limited wintering, only for smaller boats on dry, contact Rolland Trowbridge for help at (907) 434-1516.

**Nunivak Is.** 60°20'N / 166°37'W. This little bay next to Nash Hbr. offers some landing. Watch for plenty of kelp primarily on the south shores and dangerous shoaling in Etolin Str.



**Nash Harbor** 60°12.69'N / 166° 56.16'W.

Quaint place from all but Northerly winds, some kelp evident. Used for shelter by many. (W.S.)



**Hagemeister Str.** In Bristol Bay 58°46'N / 161°08'W.

Good shelter from prolonged Westerly & Northerly storms.

**Security Cove** in Kuskokwim Bay 58°41'N / 161°54'W, offers good place for anything but Northerly winds.

**St Paul, Pribilof Islands**, has sheltered harbor (Port of Refuge). Docking is \$2/ft. for each 12 hours (so \$4 ft/day). Groceries available. Anchoring on the lee of the island is also possible. Not recommended for wintering.

**Urilia Bay** 54°54.364'N / 164°20.573'W.

This anchorage has excellent protection from southerly gales and good holding while waiting for better conditions/currents in Unimak Pass. (C.S.)

**FALSE PASS**...After we took UNIMAK PASS we spoke with fishermen at King Cove and a tug with barges who told us that they all use FALSE PASS rather than UNIMAK PASS because it saves about 100 miles off the passage if a stop at Dutch Harbor is not needed. The tugman said he goes through with anything with a draft less than 12ft. Hopefully, some future voyager can add a few waypoints to make False Pass a viable route. (C.S.)

During windy approaches to False Pass from Bering Sea the crossing can be difficult. North swell and shore break conditions in the entrance add difficulties. Follow very well marked channel and with deep draft may touch the bottom. Local knowledge is essential. Crab pots are everywhere with floating ropes in between. Water & electricity available at pontoon. Small grocery store and propane when operator is there. Fuel at the dock. No Wi-Fi. (R.K.)

**Dutch Harbor**, 53°54'N / 166°31'W.

is a major fishing port with all services available. US Customs Port of Entry. Potential place to winter in-water.

**Sand Point** (Humbolt Harbor) 55°20'N / 160°30'W, major fishing port with 150 ton travel lift. All services available including repairs. Good wintering on dry. (R.K.), (V.M.)

**King Cove** 55°02'N / 162°19'W

Gives good shelter and facilities. Shower, Wi-Fi at Harbor office. Grocery store and chandlery in front of harbor. Fuel and laundry at Peter Pan office. Propane refill by Harbormaster. Travel lift for haul out. Check for wintering availability. (R.K.)

**Herring Lagoon** 55°58'N / 158°41'W, Anchor in 4 mtr. Nice bay with a bit rolling swell from south. (R.K.)

**Kodiak**, 57°47'N / 152°26'W.

is a major fishing port with all services available. US Customs Port of Entry. Potential place to winter in-water.

**Homer** 59°36'N / 151°25'W. Crowded wintering either in water or on dry. Many services.

**Halibut Cove** 59°35'N / 151°14'W. Pristine Alaska place. Reachable by boat or sea plane only. Former fishing place now resided by artists and business people. Electricity on shore. Possible wintering for sail boats in water, no services.

**Seward** 60°07'N / 149°26'W. Some yachts wintered in water, available on dry as well. Many services. Road to Fairbanks.

**Yakutat**, 59°33'N / 139°44'W.

is a small fishing town of about 500 people. Airport. Small boat harbor has good protection, inexpensive docking (no electricity for transients). Many boats run aground on rock outside harbor. Follow both daymarks to avoid the rocks. (R.H.)

**Chignik**, 56°18'N / 158°24'W.

is a fishing harbor. Travel lift. Fuel at Fishing Dock and propane likely available. (R.H.) Access to Internet and grocer store open from June to end of August only. A lot of bears wondering around and good place for fishing. (R.K.)

**Hoonah (Inside Passage, near Juno)**

58°06.5'N / 135°26'W has a 250 ton Travelift and a large gravel pad to store boats ashore. Potential place to winter boat ashore (or in water, but harbor is small). (R.H.)

**Sitka**, 57°03'N / 135°21'W,

is a fishing port of about 8000 population. All services available, and a potential place to winter in-water. (R.H.)

All Alaska ports and harbors have access to the airports.

For contact with Alaska Harbor Masters check most recent updated entries on Internet in advance.

**US Customs and Border Protection** issued New Procedures for Small Boat Reporting Beginning 2016 Release Date: December 22, 2015.

**The Polar Bears** protection issue was published in 2016 by US at: <http://maritime-executive.com/article/polar-bears-win-120-million-acres-of-alaska> so be aware.

**Canada Search and Rescue**

The Canadian Armed Forces (DND) are responsible for coordinating all Search and Rescue (SAR) activities in Canada, including Canadian waters and at the high seas off the coasts of Canada. A Joint Rescue Coordination Centers (JRCC) are situated in the Canadian Forces base at Halifax, Victoria & Trenton to coordinate activities in the regions. The JRCC is the headquarters of a coordinated network of agencies trained and responsible to search for and aid vessels in distress. There are Canadian Coast Guard officers at the JRCC who are on continuous watch to arrange the response to marine SAR incidents. Maritime Rescue Coordination Subcenters (MRSC) are maintained at St. John's, Newfoundland and Quebec City. These centers function as subcenters of the above-mentioned JRCC. MRSC St. John's will coordinate the necessary response measures during marine SAR incidents in the waters off the coasts of Newfoundland and Labrador. MRSC Quebec will similarly respond to SAR incidents in the waters off the province of Quebec. **All distress situations and requests for assistance should be directed to the appropriate JRCC or MRSC via the nearest Canadian Coast Guard Radio Station, Vessel Traffic System Center, or by any other available means. The JRCC and the MRSCs can be contacted, as follows:**

The most important place to contact in distress in Arctic is:

**Central & Arctic Region, JRCC Trenton**  
**Tel: 1-800-267-7270 or 613-965-3870**  
**Fax: 613-965-7190**  
Email: [jrcctrenton@sarnet.dnd.ca](mailto:jrcctrenton@sarnet.dnd.ca)

Others are as follows:

Pacific Region, JRCC Victoria  
Tel: 1-800-567-5111 or 250-413-8934  
Fax: 250-413-8932  
Email: [jrcvictoria@sarnet.dnd.ca](mailto:jrcvictoria@sarnet.dnd.ca)

Atlantic Region, JRCC Halifax  
Tel: 1-800-565-1582 or 902-427-8200  
Fax: 902-427-2114  
Email: [jrcchalifax@sarnet.dnd.ca](mailto:jrcchalifax@sarnet.dnd.ca)

MRSC Quebec  
Tel: 1-800-463-4393 or 418-648-4325  
Fax: 418-648-3614  
Email: [mrscq@sarnet.dnd.ca](mailto:mrscq@sarnet.dnd.ca)

MRSC St. John's  
Tel: 1-800-563-2444 or 709-772-5151  
Fax: 709-772-2224



Email: [mrscsj@sarnet.dnd.ca](mailto:mrscsj@sarnet.dnd.ca)

All Canadian government ships and aircraft are available for search and rescue duties when required, as are all Canadian registered ships in accordance with the Canada Shipping Act.

In addition, the Canadian Coast Guard operates a number of specialized vessels whose prime mission is search and rescue under the guidance of SAR Trenton.

Medical assistance in Canadian part of NWP is provided at most places with qualified nurses, for more severe cases the lift by aircraft to Yellowknife Hospital or University Hospital in Edmonton is available. The return flight from Cambridge Bay to Yellowknife may cost approx. \$3500,- per person.

Canadian gun permit fee in 2014 was \$50,- and is usually good for 2 months unless requested otherwise (for boats wintering). Inquire at local RCMP detachment.

#### The note about **Canadian Coast Guard (CCG)**

The Canadian Coast Guard is the civilian unit. Formed in 1962, the coast guard is tasked with marine communication, navigation and transportation issues in Canadian waters, navigation aids, ice breaking, marine pollution response, fishing protection and providing support for Arctic vessels and other Canadian government initiatives. The Canadian Ice Service assigns Ice Services Specialists (ISS) on the larger Canadian Coast Guard icebreakers. Telephone: 1-877-789-7733

The agency existed for nearly a century before that, under different names and under a variety of Ministries (at times split between the Fisheries Patrol and Hydrographic Survey missions in one department, and the Lighthouse Supply and Ice breaking missions in another. At no time has the CCG been part of Canada's military as USCG who can board any vessel at sea at any time. Now it is under the governing of Department of Fisheries and Oceans.

Pond Inlet and Cambridge Bay, Nunavut has now official immigration officer during summer time while the rest of Canadian Arctic uses its local Royal Canadian Mounted Police (RCMP) to do the clearance. For all aliens leaving Canada it is not required to report to authorities.

From practical point of view any vessel transiting Canadian Arctic or Labrador Coast upon arrival at any settlement shall report to local RCMP detachment and show the crew's valid passports for entry. Failure to do that may lead to substantial monetary penalty as it happened to one sail boat crew in 2016. They had to pay \$1000,- fine in Resolute, cause they went for a shower before checking in. In many cases it is done at the very relaxed mode as officers are getting a break from monotonous duty and gladly invite sailors for the tea after it.

Also please note, any Harbour in Canadian Arctic does not have so familiar Harbour Master. Using VHF Radio at all of places is not answered.

#### **NORDREG Canada vessel registration.**

**The Northern Canada Vessel Traffic Services Zone North of 60 Parallel.**

**Regulations apply to every ship of 300 tonnes gross tonnage or more.**

**For smaller vessels it is advised to do registration as well due to safety concerns.**

**Contact: [iganordreg@innav.gc.ca](mailto:iganordreg@innav.gc.ca) or phone: (867) 979-5724**

#### **GREENPOS and KYSTKONTROL, Greenland**

**See full text at: <https://tinyurl.com/y7hzcprh>**

**Contact information:**

**Aasiaat Radio can be contacted on VHF, MF (not 2182 kHz) and HF ITU Channel 409 and 608.**

**Furthermore on telephone +299 386 993,**

**fax +299 892 777 or via mail [oyr@telepost.gl](mailto:oyr@telepost.gl)**

**INFORMATION ABOUT THE GREENPOS SYSTEM: As of December 1st 2002 THE GREENPOS system is mandatory for ships traveling to Greenland. The ships report their position, course, speed and actual weather information every 6<sup>th</sup> hour.**

**For the safety of navigation in the waters off Greenland, ships reporting systems have been established with the purpose of monitoring ships' navigation in these waters and, if necessary, to cause search and rescue operations to be launched.**

**Two systems have been established: One – called GREENPOS – for ships engaged on voyages to and from Greenland waters, and another one – called KYSTKONTROL (coastal control) – for ships engaged in coastal trade between Greenland ports and places of call.**

**The first is mandatory for ships passing to and from Greenland.**

**The second is mandatory for ships (>20BT), sailing in Greenland waters.**

**SAR Greenland, JRCC Greenland telephone: +299 364 000, Email [jrcc@jrcc.gl](mailto:jrcc@jrcc.gl)**

**GREENPOS and KYSTKONTROL reports are free of charge.**

Greenland worked with DMA, to develop a program, that suits small sailors and boats with a small internet connection.

**This is a program that can be reached on**

**<https://arctic.barentswatch.net>. The program delivers ice, AIS, safety, weather, forecasts,**

**Greenpos and SAR in a connection\_cheap\_way.**

**According to [berrentswatch.no](http://berrentswatch.no) ArcticWeb has been**

**renamed to Arctic and has moved from**

**"[arcticweb.barentswatch.net](http://arcticweb.barentswatch.net)" to "[arctic.barentswatch.net](http://arctic.barentswatch.net)".**

ArcticWeb is still reachable through

**"[arcticweb.barentswatch.net](http://arcticweb.barentswatch.net)" where you will be redirected**

**to "[arctic.barentswatch.net](http://arctic.barentswatch.net)". For this to work correctly you may have to clear your browser cache and a thing called**

"appcache" for the "[arcticweb.barentswatch.net](http://arcticweb.barentswatch.net)" site. Assuming you are using chrome try entering chrome://appcache-internals/# and delete all entries with

<https://arcticweb.barentswatch.net/> in them. Open arcticweb, hit F12, click the network tab and check the disable cache. Reload the page and then hopefully things will work. Clearing the browser cache and appcache is browser specific and guidance to clear it for other browsers can be found on the internet. Some of you have had problems logging in and the easiest way to use Arctic in the future is however to type <https://arctic.barentswatch.net> in your browser. Hope that's clear.

### Notmar

Notmar.gc.ca email notification service provides with Section 2 - Chart Correction notices only. Users wishing to receive the complete Monthly Notices to Mariners publications electronically can do so by subscribing on page at <http://www.notmar.gc.ca/subscribe> Mariners are responsible to apply the complete Notices to Mariners publications (Section 1 -5) in accordance with the Canada Shipping Act.

To view all sections of the Notices to Mariners publication visit [www.notmar.gc.ca](http://www.notmar.gc.ca) and select the appropriate publications from the left side menu under "Notices to Mariners". For more information on marine safety or other Canadian Coast Guard programs and services please visit [www.ccg-gcc.gc.ca](http://www.ccg-gcc.gc.ca).

### Notice to Mariners – Feb. 2012.

Mariners are reminded that chart 7725 and 7731 are drawn on an unknown datum, positions plotted from the global navigation satellite system may be in error by 0,5 NM positioning methods such as range and bearing should be used.

### Notice to Mariners – Nov. 2017.

Chart 7736 / CA473317 - Simpson Strait

**Delete:** green port hand spar buoy, marked 17 – 68°31'47.0"N / 097°22'46.7"W

**Notice to Mariners** issued on 1 April 2019 dated 15 March 2019. Eta Island in Simpson Str. where two Range Beacons were moved to new locations.

The area where about are main tidal rips are present. The most southerly Beacon is a General Purpose Lattice warning mark with Radar Reflector and doesn't serve as Range Beacon.

Reposition front leading beacon to 68°32'16.5"N / 097°23'45.1"W. Reposition rear trailing beacon to 68°32'13.7"N 097°23'22.4"W. It all concerns Chart No. 7736 and ENC S-57: CA473317.

### Notices to Mariners: 2019-09-28 to 2019-10-25

<https://www.notmar.gc.ca/corrections-en.php?chart-carte=7011&date1=2019-09-28&date2=2019-10-25&chart-carte=7011&date1=2019-09-28&date2=2019-10-25>

<https://www.notmar.gc.ca/corrections-en.php?chart-carte=7776&date1=2019-09-28&date2=2019-10-25>

[25&chart-carte=7776&date1=2019-09-28&date2=2019-10-25](https://www.notmar.gc.ca/corrections-en.php?chart-carte=7776&date1=2019-09-28&date2=2019-10-25)

<https://www.notmar.gc.ca/corrections-en.php?chart-carte=7784&date1=2019-09-28&date2=2019-10-25&chart-carte=7784&date1=2019-09-28&date2=2019-10-25>

List of all cancelled charts and their updated replacements. By Canadian Hydrographic Service.

Date modified: 2019-11-05

<http://www.chs-shc.gc.ca/charts-cartes/withdrawn-retires/index-eng.html>

### Final Notes on Canadian Charts:

Chart Catalogues Index (PDF) publication is available at: <http://www.charts.gc.ca/charts-cartes/paper-apier/index-eng.asp?step=1#h2>

Select any.

Catalogue 1 - Atlantic Coast - 2012 (11.1 MB)

Catalogue 2 - Pacific Coast - 2012 (30.0 MB)

Catalogue 4 - Arctic - 2013 (7.95 MB)

Good US NOAA Charts can be get from Internet.

### Weather and Ice Reporting via Internet:

#### For Alaska - weather:

<https://www.weather.gov/afg/marine>

#### For Canadian Arctic - weather:

[https://weather.gc.ca/marine/index\\_e.html](https://weather.gc.ca/marine/index_e.html)

#### For Canadian Ice Service:

<https://www.canada.ca/en/environment-climate-change/services/ice-forecasts-observations/latest-conditions.html> (NEW for 2020).

### Canadian Arctic Nautical Charts and Charting Deficiencies

One of the principal problems with charts in the Arctic concerns the horizontal datum on which the actual chart is based. With more and more vessels using accurate positioning systems such as the Global Positioning System (GPS) or the Russian system (Global'naya Navigatsionnaya Sputnikovaya Sistem - GLONASS), the greater the problem will become. Regarding GPS, the positions are referenced to the World Geodetic System (WGS 84) which is virtually equivalent to the North American Datum 1983 (NAD 83). If you are navigating on a NAD 83 chart with GPS there would be no corrections to apply. If you wanted to plot on a NAD 27 chart you must manually apply the appropriate corrections.

In 1997 there were 245 charts listed in the Arctic Chart Catalog. Only 55 charts (22%) have sufficient accuracy or detail to facilitate accurate plotting of positions obtained by GPS, which requires a chart base relative to the NAD 83 horizontal datum. There are 49 charts that specify that positioning with GPS can lead to positioning errors up to some defined magnitude, which may be as much as 4 nautical miles. The remaining 141 charts did not have any information about the horizontal datum of the chart. For bathymetry (depth soundings, bottom composition, etc.) it is estimated by the Canadian Hydrographic Service that less

than 25% of the Arctic waters are surveyed to acceptable, modern standards. Much of the data has been collected by random vessel's track soundings or over ice spot soundings.

Sailors should proceed with due caution and prudent seamanship when navigating in the Arctic especially in poorly charted areas or when planning voyages along new routes. Additional information may be found in the Annual Edition Notices To Mariners.

### **Effect of High Latitude on Compasses and Electronic Aids Compasses**

The magnetic compass can be erratic in the Arctic and is frequently of little use for navigation:

The magnetic compass depends on its directive force upon the horizontal component of the magnetic field of the earth. As the north magnetic pole is approached in the Arctic, the horizontal component becomes progressively weaker until at some point the magnetic compass becomes **useless as a direction measuring device.**" If the compass must be used the error should be checked frequently by celestial observation and, as the rate of change of variation increases as the pole is approached, reference must be made to the variation curve or rose on the chart.

The gyro compass is as reliable in the Arctic as it is in more southerly latitudes, to a latitude of about 70°N. North of 70°N special care must be taken in checking its accuracy. Even with the compensation given by the latitude corrector on certain makes of compass, the gyro continues to lose horizontal force until, north of about 85°N, it becomes unusable. The manual for the gyro compass should be consulted before entering higher latitudes. The numerous alterations in course and speed and collisions with ice can have an adverse effect on its accuracy. Therefore, when navigating in the Arctic:

### **Principles of High Latitude Navigation:**

Navigating in high latitudes requires great care in the procedures and in the use of information. The remoteness of the Arctic and the proximity to the North Magnetic Pole has an affect on the charts that are supplied and the navigation instruments that are used with them. This section discusses some of the effects and limitations on charts and instruments used in the Arctic.

In high latitudes, the meridians are not the familiar parallel lines of the Mercator chart but radial lines converging at the poles. Thus Ice Charts provided by Canadian Ice Service are plotted on Polar Stereographic projection to show real shape of ice occupied particular waterways. Mariners prefer using a Mercator chart, so to preserve the look of a Mercator chart a polar grid is used. A grid is printed parallel to a meridian, usually the Greenwich meridian. On a Transverse Mercator chart the fictitious meridians found on this type of chart would serve this purpose. Because the meridians cross all grid lines at the same angle they are fictitious rhumb lines. The direction that is chosen as the reference for the grid is north, so then all parallel grid lines can be taken to be extending in the same direction. The direction relative to the grid lines is then known as the grid direction. If a magnetic compass is

used to follow the grid direction then the corrections of variation and convergency can be combined to a single correction called grid variation or grivation.

### **Charts:**

There are two areas of concern with the use of charts in the Arctic. These are consideration of the uncommon projections used and the accuracy of the surveys.

### **Projections**

To compensate for the fact that the meridians converge as they near the pole the scale of the parallels is gradually distorted. In the high Arctic, Mercator projections suffer too much distortion in the latitude direction to be used for anything but large-scale charts. As the latitude increases the use of rhumb lines for visual bearings becomes awkward, as it is necessary to add ever larger convergency corrections. As the Arctic becomes better surveyed there will be more Mercator charts, but other projections such as Lambert Conformal, Polyconic, and Polar Stereographic are used as well. Until about 1985 most of Arctic Charts were of Polyconic projection. Polar Stereographic is becoming the most popular as it provides minimum distortion over relatively large areas. The number of different projections makes it important, when changing charts, to check the type and any cautions concerning distances, bearings, etc. For example, the habit developed with Mercator charts is to use the latitude scale for distance, which is not possible on Polyconic charts. Particular care must also be taken when laying off bearings in high latitudes, as a convergency correction may be needed even for visual bearings.

### **Accuracy**

The accuracy of charts in the Arctic can vary widely according to the date of survey. The more frequently traveled areas, such as Lancaster Sound, Barrow Strait, and the approaches to Polaris and Nanisivik mines, are well surveyed, but many charts are based on aerial photography (controlled by ground triangulation) combined with lines of reconnaissance soundings. Even new editions of charts may be misleading as some information on them may be dated. The appearance of depth contour lines on new charts does not indicate any new information. Production priorities may result in new information being added to large-scale charts only. Precautions to be taken when using charts for Arctic areas include:

- checking the projection and its limitations
- checking the date of survey and / or the Source Classification Diagram
- using range and bearing to transfer positions from chart to chart
- checking for evidence of reconnaissance soundings,
- using the larger scale map in preference to the smaller scale map; and
- checking for the method of measuring distances and taking bearings.

### **Radar**

In general, Arctic or cold conditions do not affect the performance of radar systems. Occasionally weather conditions may cause ducting, which is the bending of the radar beam because of a decline in moisture content in the atmosphere. This effect may shorten or lengthen target detection ranges, depending on the severity and direction of

the bending. A real problem with radar in the Arctic concerns interpretation of the screen for purposes of position fixing.

### **Position Fixing**

Problems encountered with position fixing arise from either mistaken identification of shore features or inaccurate surveys. Low relief in some parts of the Arctic make it hard to identify landmarks or points of land. Additionally, ice piled up on the shore or fast ice may obscure the coastline. For this reason radar bearings or ranges should be treated with more caution than measurements in southern waters. Visual observations are always preferable. Sometimes it is possible to fix the position of grounded icebergs and then to use the iceberg for positioning further along the track, if performed with caution. Large areas of the Arctic have not yet been surveyed to the same standards as areas further south, and even some of the more recently produced charts are based on aerial photography. To decrease the possibility of errors, three lines (range, or less preferably bearings) should always be used for positions. Fixes using both sides of a channel or lines from two different survey areas should be avoided. Because of potential problems, fixes in the Arctic should always be compared with other information sources, such as electronic positioning systems.

### **Global Positioning System (GPS)**

The Global Positioning System, or GPS, is a space-based radio-navigation system which permits users with suitable receivers, on land, sea or in the air, to establish their position, speed and time at any time of the day or night, in any weather conditions.

The navigational system consists nominally of well over 50 operational satellites in many orbital planes, and an orbital radius of 26,560 kilometers (about 10,900 nautical miles above the earth). Of the all satellites, are considered fully operable and some functioning, deemed 'spares'. The orbital planes are inclined at 55° to the plane of the equator and the orbital period is approximately 12 hours. This satellite constellation allows a receiver on earth to receive multiple signals from a number of satellites 24 hours a day. The satellites continuously transmit ranging signals, position and time data which is received and processed by GPS receivers to determine the user's three-dimensional position (latitude, longitude, altitude), speed and time.

GPS was declared initially operational in December 1993 with full operational capability being declared in July 1995. GPS provides two levels of service - a Standard Positioning Service (SPS) for general public use, and a Precise Positioning Service (PPS) primarily intended for the use of the U.S. military. The SPS point accuracies within 100 meters in the horizontal plane and 156 meters in the vertical plane, 95% of the time. However, the US Department of Defense, deliberately introduced errors in the satellite's clock oscillator frequency in a seemingly random, though controlled manner, consequently degrading the accuracy to those given for SPS. This deliberate introduction of errors is known as Selective Availability. The US president has proclaimed that the level of SA will be reduced to zero within the next seven years and when this occurs the horizontal position

accuracy for stand alone civilian GPS receivers will improve from the previously stated 100 meter level to the 30 meter level.

Although the satellites orbit the earth in a 55° plane, the positional accuracy all over the globe is generally considered consistent at the 100 meter level. For a ship at a position 55° North or South latitude or closer to the pole, the satellites would be in a constellation around the ship with the receiver actually calculating the ship's Horizontal Dilution of Precision (HDOP) with satellites possibly on the other side of the pole. With a ship at or near the north pole all the satellites would be to the south, but well distributed in azimuth creating a strong fix. The exception to this is the vertical component of a position which will grow weaker the further north a ships sails because above 55°N there will not be satellites orbiting directly overhead. Other than Selective Availability, there are a variety of sources of error which can introduce inaccuracies into GPS fixes especially in polar regions such as tropospheric delays and ionospheric refraction in the auroral zone. The troposphere varies in thickness from less than 9 kilometers over the poles to over 16 kilometers on the equator which can contribute to propagation delays due to the signals being refracted by electromagnetic signal propagation. This error is minimized by accurate models and calculations performed within the GPS receiver itself. The ionospheric refraction in the auroral zone (the same belt in which the aurora borealis / aurora australis phenomena occur) caused by solar and geomagnetic storms will cause some error. Sunspot activity is on an 11 year cycle and this activity is expected to peak at about the year 2022. If the datum used by the GPS receiver in calculating latitude and longitude is different from the datum of the chart in use, errors will occur when GPS derived positions are plotted on the chart. GPS receivers can be programmed or reset to output latitude and longitude based on a variety of stored datums. Information on the chart will describe the horizontal datum used for that chart and for those not referenced to NAD 83 which is WGS 84, corrections will be given to convert NAD 83 positions to the datum of the chart. The title block of the chart will describe the horizontal datum used for the chart and will give the corrections to convert from the datum of the chart to NAD 83 and vice versa.

**Notice by U.S. Homeland Security National Cybersecurity and Communications Integration Center** concerning Memorandum for U.S. owners and operators using GPS to obtain UTC time.

**BACKGROUND:** The GPS Internal Navigation Time Scale "GPS Time" is based on the weighted average of GPS satellites and ground station clocks. GPS Time is used for user navigation solutions. A nanosecond error in GPS Time can equate to one foot of position (ranging) error. The Week Number (WN) parameter is provided via a ten (10) bit parameter—or "counter". The valid range of values for the WN parameter is 0 to 1023 (or 1024 total values). The WN parameter is incremented by one each week. At the end of the 1024 th week, the counter experiences a rollover (resets) to 0. Each WN rollover event defines a new GPS Time Epoch. The WN value is referenced to the start of the current GPS Time Epoch. The last WN rollover was August 21, 1999. GPS Time is currently in the second Epoch.

**The WN rollover was on April 6, 2019.**

GPS Time is adjusted by the U.S. Air Force GPS Directorate to maintain alignment with UTC as provided by the U.S. Naval Observatory. A GPS device that provides UTC time does so by converting GPS Time to UTC using multiple parameters – including WN – conveyed in GPS. GPS devices with a poorly implemented GPS Time-to-UTC conversion algorithm may provide incorrect UTC following a WN rollover. Additionally, some GPS devices that calculate the WN value from a device-specific date rather than the start of the current GPS Time Epoch may provide incorrect UTC at some other device-specific date.

Your precise navigation position depends on precise UTC time.

### **Radios**

Radio communications in the Arctic, other than line of sight, are subject to interference from ionospheric disturbances.

Bad propagation is common. Whenever communications are established alternative frequencies should be agreed upon before the signal degrades. Use of multiple frequencies and relays through other stations are the only methods of avoiding such interference.

### **INMARSAT**

Use of INMARSAT services in the Arctic is the same as in the south, until the ship approaches the edge of the satellite reception. At high latitudes where the altitude of the satellite is only a few degrees above the horizon, signal strength is dependent on the height of the receiving dish and the surrounding land. The 1990 repositioning of the Atlantic West satellite has extended its area of coverage to include most of Lancaster Sound and Barrow Strait. As the ship leaves the satellite area of coverage the strength of the link with the satellite will become variable, gradually decline, and then become unusable. When the strength has diminished below that usable for voice communications, it may still be possible to send telexes. Upon the ship's return to the satellite area of coverage there may be problems in obtaining the satellite signal and keeping it until the elevation is well above the horizon.

### **MSAT - A Regional Communications Satellite System**

Early in 1996 a new telecommunications network, called MSAT, was commercially introduced. MSAT is a Canadian-owned satellite-based network targeted primarily towards mobile users operating in rural and remote areas. Currently its initial services include: voice (telephone), 4.8 kbps data, facsimile, dispatch radio, electronic mail and voice mail.

MSAT Mobile Communicators are compact, with antennas approximately 20 centimeters high and 20 centimeters in diameter and have been specifically developed for marine applications. The equipment and service costs are significantly lower than those charged by international mobile satellite service providers and due to the satellite's optimal geostationary position over the equator, excellent coverage is available over the Arctic, the Caribbean and 200 nautical miles off the east and west coasts of North America. The MSAT equipment was successfully used from Halifax en route to Resolute, Cambridge Bay and Tuktoyaktuk during an evaluation of the satellite's coverage in the 1996 shipping season. MSAT provided a

reliable, efficient and inexpensive method for the reception of ice information in the form of verbal consultation, the paper facsimile generation of ice charts, and electronic mail of text descriptions of ice conditions from the Canadian Ice Service to the ship. The only weak link has been the dissemination of large graphics files such as SLAR or RADARSAT imagery because they are just too big to be sent through the present 4.8 kbps data processors. MSAT Network upgrades being introduced will include packet-switched communications for applications such as vessel tracking using Global Positioning System technologies.

### **IRIDIUM**

Iridium as of end of 2017 has over 60 satellites to service communications world wide including Arctic regions.

Additional X-Gate package from GMN provides excellent and reliable E-Mail services and attachment of ice chart imaging. The Pilot package gives freedom of Internet access including tracking.

### **Tracking GSM or satellite?**

**The Global System for Mobile Communications (GSM) is equivalent to a mobile phone signal and it doesn't cover Arctic regions.** Iridium's 66 satellites guarantee total global coverage, including in polar regions and mid-ocean. If you are heading further afield or if you require two-way communications Iridium should be your choice.

**Fixed or portable?** Fixed trackers can be securely mounted, wired into a 12V supply and hidden from view. Portable trackers for the active person are a lifestyle purchase, useful for crews rather than boat owners.

**Mapping portal,** How does your chosen tracker export and display your positions? Not all trackers come with their own mapping portal, so bear that in mind. Popular devices like Spot, DeLorme InReach, Yellow Brick are reliable for Arctic usage all the time.

In 2016 Garmin made acquisition of DeLorme and Spot and will remain as a part of Garmin's offering.

Other European supplies also offer different devices with variety of features and prices suiting sailors. Selective options will have to be used for comprehensive results.

Tracking services Shiptrak or Pangolin are useless for Arctic tracking requiring 10 minutes reporting intervals for secure & proper guidance.

**Notes to the places:**

If no note about safe anchorage or specific anchor bottom holding that means no information is available. If no emergency landing strip mentioned it means no aircraft can land for lift off.

Note to cellular phone users: Greenland, Nunavut, Northwest Territory and Yukon are not covered with roaming that Europe, North America can enjoy unless satellite connections are in place. For Alaska North Slope shore it is very limited while starting from Barter Island it gets increased and from Nome more frequent localized while Alaska roaming service has to be in place. Places of Alaska Peninsula gets black spots off high hills as well as Homer, Seward, Prince William Sd. and Alaska Inside Passage.

Internet users can enjoy good connections in Greenland as it is linked through fiber optics cable to Nuuk since 2009. Its G3 connections can be used by purchasing user card. Communities in southern Yukon and Northwest Territories

also have speedy fiber connections. The rest of Arctic Canada unfortunately relies on slow satellite signal of mainly no more than 1200 baud while practical is about 600 baud. Canadian Government has set a download speed goal for Nunavut, Nunavik and Nunatsiavut to 3 mbps for 2017, a step down from previous commitment. So, the need to turn off the updates to operating system is needed in order to avoid locking computer.

Arctic Fiber, a Canadian company, initiated the project to build the first Asia-Europe telecommunications line through the Arctic. Logistics delays are uncertain now. Alaska connections to Anchorage, Kenai, Homer, Seward and Kodiak are through the cable including Anchorage, Juneau, Seward, Ketchikan, Warrenton, Sitka, Angoon, Petersburg, Wrangell and Prudhoe Bay. No Nome to Barrow is included.

#### **Parcels**

Many emergency parcels with spare parts air lifted to Arctic or Alaska were missed in past and not delivered on time. To make sure of prompt delivery the **Way-bill Number** has to be printed on parcel by shipper in big **Letters / Numbers** visible from the distance by the warehouse personnel. It will ease identification fast.

Adding **URGET** slogan visible from miles away may help. Address to c/o (care of) / Poste Restante, Airport name or Postal Station including its postal code, boat name and recipient name. In order to avoid custom duties hassle, the best is to ship from local place like Canada or USA. For American parcels to Alaska use US Postal Service which is faster than courier as Postal contracts with airlines specify Mail cannot be bumped from flight. Any shipment to Nome, Alaska can be made through UPS as they provided very speedy service in recent years of just few days from Eastern Sea Board of US.

#### **Other Notes:**

Typically **Kenn Borek** Aircrafts can land nearly anywhere in Arctic and provides an emergency lifts. They work with Aklak Air and Unaalik Aviation. Contact at: Kenn Borek, 290 McTavish Rd. NE, Calgary, AB T2E 7G5 phone 403-291-3300, 1-800-536-1149 toll free, [admin@borekkair.com](mailto:admin@borekkair.com) and Resolute Bay, NU, Canada, P.O. Box 210, X0V 0V0, **ph. 867-252-3845, [yrb@kbaops.com](mailto:yrb@kbaops.com)**

Geographical positions reported by Vagabond'eux are very accurate as they were using Sat-Nav system, predecessor of today GPS. At that time they were fortunate to get only once a day an accurate position regardless cloud cover.

Obtaining reliable GPS signal in the Arctic depends on "visibility" of satellite signal coming from south direction. Any obstruction of horizon below 3° will make signal very weak or unavailable.

For other support notes refer to Royal Cruising Club Pilot Foundation (RCCPF) as well as Canadian Hydrographic Service Sailing Directions **ARC400, ARC 401, ARC402** and new **ARC403**. **Those books can be downloaded from Internet for free at:**

<http://www.charts.gc.ca/publications/sailingdirections-instructionsnautiques-eng.html>

**"Manice"** book (pdf format) Manual of Ice very essential to read ice visually and its codes at:

[http://publications.gc.ca/collections/collection\\_2013/ec/En56-175-2005-eng.pdf](http://publications.gc.ca/collections/collection_2013/ec/En56-175-2005-eng.pdf)

Effective April 1<sup>st</sup> 2013, in an effort to adopt and focus on newer technologies, the Canadian Coast Guard (CCG) did cease the printing of its List of Lights book & Annual Edition of the Notices to Mariners. Instead Internet based Notices are in place. For Canadian Arctic it only applies for approaches to Tuktoyaktuk Harbour List of Lights book. Also note, NOAA as of 1 January 2020 stopped selling traditional paper charts.

According to the Geographical Names Board of Canada many Arctic names are now changed to Inuktitut language of native Inuits.

Eclipse Sound officially is now **Tasiujaq**

Pond Inlet is now **Tursukattak** (inlet)

Pond Inlet is now **Mittimatalik** (town)

Baffin Bay is now **Saknirutiak Imanga**

Cambridge Bay is now **Ikaluktuutiak**

Tuktoyaktuk is now **Tuktuyaaqtuuq**

Barrow is now **Utqiagvik**

Sachs Harbour is now **Ikahuaq**

Holman is now **Ulukhaktok**

#### **Note by Ken Burton, RCMP Inspector**

##### **Community Culture and Customs-for the visitor**

When visiting an Inuit community some advance knowledge is always a good thing. Following these simple community guidelines will go a long way to ensure that your visit is safe and enjoyable.

Minimize the potential of spreading any ship-or aircraft-based germs, by cleaning your hands thoroughly prior to visiting. This is equally important on your return to the ship or aircraft. Do not visit or interact with community members if you are ill.

Canadian currency are expected while in Greenland Danish Krone not Euro. Only a few sites offer credit card transactions (usually the visitor center, Co-Op or Museum). US currency is accepted while not everywhere, although normally at par with the Canadian dollar. Banking infrastructure is very limited. Do not expect to find any financial establishments in the more remote areas. Carry cash with you.

##### **English is spoken**

Shore facilities are very minimal and may be difficult to access or find (washrooms or fresh drinking water). Do not expect to find coffee bars or other services consistent with what you might expect in larger southern centers.

Most communities have a Co-Op store of some description. These are hybrid hardware, general merchandise and food stores. A community visit can be an enjoyable and educational experience for all. Set aside any preconceived notions and social bias. Enjoy a sincere and non-judgmental visit and truly appreciate the uniqueness of these communities.

Some general information, along with guidelines, are presented below.

- Speak to the people directly and not “about the people”. Most Inuit will happily engage in conversation with a sincere visitor.
- Avoid purchasing food or perishables from the community store if at all possible. Usually this food has been flown in at significant cost, and is intended for the community members and not for visitors.
- Avoid commenting on or photographing commercial items for sale in the stores. Often items for sale in the far north are sold at many times the value of the same product in a southern store.
- Avoid bartering situations, and pay fair market price for the product or service you are receiving. Be aware that the art item that you are acquiring may be subject to your home country import laws. In the USA, one of the applicable laws is the Marine Mammal Protection Act. This act makes it illegal to “import any marine mammal or part or product” back into the USA.
- Never bring alcohol or drugs into a community. It is illegal to barter alcohol for artwork in the territory.
- Keep off the middle of the road (there are no sidewalks). Walk on the side of the road only.
- Never approach any dogs (sled dogs) without the owner's permission. These are working animals and not family pets.
- Never take their photograph without obtaining permission. If they do not answer you or look away and frown, consider that to be a “no” and please do not take their photograph.
- Avoid photographing into people's homes and businesses.
- Never visit a community graveyard without a specific purpose and permission. Grave sites are not tourist destinations.
- Wear appropriate clothing and shoes for the anticipated weather and terrain.
- Respect private property as well as any community cultural remains. This includes not making cairns, piles of rocks or Inuksuks of any kind.
- Do not pick any plants or flowers.
- Heed warnings about polar bears or muskox.
- Do not expect to find open Internet access. Although the communities are well wired with modern digital services, the architecture of the system is based on the community needs. It does not need additional visitors flocking to various Facebook and websites.
- Consider removing muddy footwear before entering any buildings.
  - Expect to see animal remains or animal products in the process of being butchered or being processed. It is normal for northern communities to leave the head of a slaughtered whale prominently displayed, facing the ocean on a community beach. This is a deep sign of respect for the animal and it is intended to demonstrate this respect to any passing whales.

The Internet Links and Emails addresses included may change since the date of publication. Be aware.

Also those Links and Emails may not respond directly by “clicking on” as different computers and operating systems may react different way. In such case just copy them into your Browser or Mail and execute appropriately.