



RCC Pilotage Foundation Arctic and Northern Waters

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Caution

Every effort has been made to ensure the accuracy of this supplement. However, it contains selected information and thus is not definitive and does not include all known information on the subject in hand. The authors, the RCC Pilotage Foundation and Imray Laurie Norie & Wilson Ltd believe this supplement to be a useful aid to prudent navigation, but the safety of a vessel depends ultimately on the judgement of the navigator, who should assess all information, published or unpublished, available to him/her.

With the increasing precision of modern position fixing methods, allowance must be made for inaccuracies in latitude and longitude on many charts, inevitably perpetuated on some harbour plans. Modern surveys specify which datum is used together with correction figures if required, but older editions should be used with caution, particularly in restricted visibility.

This supplement contains amendments and corrections sent in by a number of cruising yachtsmen and women, in addition to those culled from official sources such as *Notices to Mariners*.

Note where details have been modified in this text do please remember to alter them on the appropriate plan.

This Supplement is cumulative. The most recent information is printed in blue.

Author's Caution

It must be emphasised that none of the charts, plans or sketch plans shown in this guide should be used for navigation, nor should they be in any way considered as substitutes for the official charts and other nautical reference materials which every vessel is obliged by international law to have on board.

In some places plotters can provide more detail than charts (depending on which chart series you are using). However it should not be forgotten that electronic components do fail and GPS satellites can be damaged by meteorites etc, or compromised by cyber interference. Thus the paperless navigator could be placing his vessel in danger in these complex rocky areas.

You will see many locals outside the marked channels but your insurance company may not be so impressed.

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Arctic Navigation

Page 16 The Egg Code (EA 2014)

Table 1 Add a dot (•) after the figure for medium, thick and multiyear ice (1, 4, 7, 8, 9).

Page 22 Over Wintering in the Arctic (TR 2015)

After 'properly plumbed in!', insert new sub-section:

'Trevor Robertson has over-wintered on two occasions on a small boat in the Arctic and once in the Antarctic. He is probably more qualified than anyone else to write on the subject and advises that "Having a companion makes a huge difference. The food is better and the bed warmer." He has kindly written the following notes for Arctic and Northern Waters:

Probably the best reason to spend a winter on a yacht in the Arctic is to see the full round of seasons, something that a vessel making a short summer dash to the north misses. Another reason is that ice conditions prevent a vessel completing its proposed voyage in a single season and the crew decides to spend the winter aboard and continue on the following year. A yacht that has decided in advance to spend a winter frozen in somewhere remote from a settlement can scout out a good location and perhaps ferry fuel from a settlement to the wintering site. However, if caught by an early freeze-up, the choice of where to spend the winter is going to be limited to finding the safest cove in the vicinity with little chance of getting extra fuel supplies. Either requires complete self-sufficiency for at least eight months. Wintering near a settlement is much simpler as food and fuel are available locally and help is at hand if the vessel is damaged or lost or if medical assistance is required. Having people around provides company through the long winter night, but at the cost of missing the experience of the remote, untouched icescape and its wildlife.

Many of the issues of choosing a site for the winter, preparing the boat, getting through the winter and breaking out of the ice at the end are similar whether near to or remote from a settlement. The rest of this section assumes the wintering site is remote, so some parts can be ignored if near a settlement.

The potential for crew problems when living in a cold, dark vessel through the winter should not be underestimated. Antarctic bases spend a great deal of effort screening numerous applicants for a few winter positions but still have a significant failure rate, and their living conditions are palatial compared to a yacht frozen in a remote bay. A single-hander is not going to have difficulties

with crew but has to cope with whatever problems arise alone and may find the long, dark winter's night hard on the mind. A larger crew on a bigger vessel has more comfort in the way of heat and light and people to solve any problems, but with a higher chance of conflict within the group. A couple who have lived and sailed together for long enough to be used to one another's quirks is undoubtedly the best crew for such a venture.

Provisioning for an unsupported Arctic winter is different to provisioning for an ocean passage. The minimum length of time between shopping opportunities will be about eight months and the amount of food required in the coldest months will be nearly double that usual in a warmer climate. Fresh vegetables, including potatoes and onions, turn to mush in the freeze-thaw cycles of autumn and few small boats can store enough refrigerated meat to last a year. This means the menu is going to be heavy on grains, pulses, legumes, rice and pasta and light on steaks, onions and potatoes. Vitamin supplements are a good idea, as is a well-stocked spice locker.

The menu will vary with personal taste, the size of the boat and how the food is stored, but some things are universal. It is going to be cold, requiring as much as 5000 calories a day in mid-winter. A generous ration of carbohydrates and fats will give this. Rice, pasta, flour and oatmeal keep well and are easy to cook. There are many fats to choose from, but vegetable oil, butter and full cream powdered milk are a good start. If the use of tinned food is kept to a minimum but without resorting to dehydrated food, a winter ration will amount to about 1kg per person per day.

Cooking through an Arctic winter takes a lot of fuel as the ingredients are cold and appetites large. The amount of fuel will depend on the boat and on individual practice, but is likely to be about 120 litres of kerosene or the equivalent in propane per person, increased to 200 litres per person if it is necessary to melt ice or snow for water. If using propane, a kerosene backup stove is wise as propane stoves fail at -42°C . Butane is of no use at all as its boiling point is about 0°C . All diesel oil must be winter grade. Any summer grade fuel left in the tanks will gel to an unpumpable sludge during winter.

The pile of gear necessary to survive unsupported through an Arctic winter is considerable when added to food and fuel for cooking. It will include clothes, gloves, mittens and boots, long mooring lines with chain slings to secure to rocks ashore, shovel, pick, crowbar, ice auger, pitons, a sledge, snowshoes, tent, extra sleeping bags, candles and a comprehensive medical kit. Only a large vessel is likely to be able to stow all this and still be able to carry enough fuel to run a heater all winter. Given enough notice, a small vessel may be able to ferry fuel from a settlement to its wintering site, but finding suitable fuel containers in a small settlement can be a problem.

The ideal cove for a wintering site has an entrance only a little deeper than the vessel's draft to keep out the bigger bits of drift ice, is small enough to run lines ashore to moor the vessel securely without aid of anchors and is surrounded by rocks to hold the winter ice in place. It must be deep enough that it does not freeze to bottom as this will cause pressure ridging. The vessel should not be moored directly to a dock or rock face where it may be caught in the shear zone that develops between the floating bay ice and the fixed ice foot attached to the shore. If possible the bay will have interesting wildlife and scenery and a sunny southern outlook. The effects of flash flooding when ice dams up the valley burst in spring needs to be considered if a stream flows into the bay.

Having chosen the winter site, moor with lines ashore so that the vessel is head to the prevailing wind and retrieve the anchors. If an anchor chain is allowed to freeze in, the vessel may be towed out to sea by it when the ice breaks up. The mooring lines need to be kept from freezing in for the same reason. While the ice is thin, the mooring lines can be broken out by hauling a dinghy down them. Once the ice is thick enough to walk on, lifting the lines on top of the snow each day will stop them freezing in. The time between the beginning of freeze-up and being able to walk on the ice is more difficult. All that can be done is to stand on deck and flick the lines clear of the ice for as far as possible and similarly from the shore if it is accessible. The middle section of each line will freeze in and needs to be chipped out as soon as the ice is thick enough to walk on. The rope will be near the bottom of the newly formed ice and will remain there, sinking deeper as the ice thickens, so the sooner it is freed, the easier the job will be. If a rope is left frozen in, it will end up at the bottom of 1.5 or 2m of ice and will have to be cut when the ice breaks out, just when it is most needed.

Once safely moored, the boat can be prepared for the winter. Exactly how the engine is laid up will depend on the installation. A keel-cooled engine with a dry exhaust requires nothing more than an adequate amount of anti-freeze in the coolant and can be run every week or two to keep the batteries full charged. A fully charged battery will not freeze and split its case. An engine with a heat exchanger and wet exhaust cannot be kept in commission once the cooling water inlet freezes and should be winterized by draining the heat exchanger, fogging oil into the cylinders and perhaps draining the block. The body of a seacock should be able to resist the pressure of water freezing in it, but using a dinghy pump to blow air through the line while closing the valve eliminates the problem entirely. Water tanks are best pumped dry before they freeze. Tanks freeze from the outside inwards so there is no problem in the autumn provided there is a small airspace to allow for expansion. However in the spring the tank melts from the outside, leaving in a large ice block surging around in the tank. This is noisy and detrimental to tank baffles and lining.

It is prudent to have a depot ashore to retreat to if the boat is lost, fire being the chief hazard. The cache will need tents, food, stove, fuel and clothes to keep the crew alive for up to eight months, depending on how far the wintering site is from the nearest settlement. The depot needs to be marked by tall spars so it does not become lost under snowdrifts. Tents should not be erected lest they be damaged or lost in winter storms. The food should be stored in containers strong enough to keep out an Arctic fox. A good quality plastic box will do. By repute, if there are bears or wolverines around, nothing will keep them out for long.

Arctic foxes are common across much of the Arctic. They are inquisitive animals and soon accept a yacht and its crew as part of their landscape, especially if fed occasionally. Arctic foxes are omnivorous and will gratefully accept offerings such as porridge, rice, stew or mouldy eggs (which they always cache). They are timid little creatures that become confiding in time. Rabies is endemic in the Arctic and any fox acting aggressively towards humans should be strictly avoided.

If it is not feasible to ferry fuel to the wintering site for some reason such as an early freeze-up, it will be necessary to do without heating for much of the winter. Living in a well insulated but unheated boat is not particularly difficult; certainly easier than it was for the Inuit who until



A fox will probably adopt the boat. They are appealing but be cautious as rabies is endemic in the Arctic

recently spent their winters in relative comfort in snow houses heated by nothing more than a stone lamp burning seal oil. A small vessel with a snow cover is quite habitable even when heated by nothing more than a couple of candles and the intermittent use of the cooking stove. How habitable will depend on insulation, size of the boat and numerous other variables but the temperature will probably rise above freezing once the cooker and candles have been lit for the breakfast and stay there for most of the day.

All portholes and hatches except the main hatch need to be double-glazed. Temporary double-glazing can be made using acrylic sheeting screwed in place or even more simply and equally effectively from cling film plastic stretched across the opening. To conserve heat, decide how much of the boat is going to be lived in through the winter then bulkhead off the rest and let it freeze. The ends of the boat are the obvious areas to isolate. This is best done with purpose-made sheets of foam but an effective insulated barrier can be contrived using cushions from the cabins that are being closed off. The smaller the living area left, the warmer and more comfortable it will be.

Before letting a compartment freeze, open all its locker doors as it is difficult to do this without damage if they are allowed to freeze shut. If possible empty these lockers of everything that is likely to be required during the winter as it will be hard to do so once the locker is encased in ice. Equipment and supplies that will not fit in the warm section of the cabin are better stored ashore than left in the frozen sections of the boat. Cooking and breathing will produce enough condensation for everything in unheated parts of the boat to be thickly encased in hard ice. Anything stored ashore will need to be dug out from under the snow but as it is in a dry environment, will not be frozen into a solid mass as it would be in the frozen ends of the yacht.

As a lead acid battery's capacity drops quickly as the temperature falls, it is essential for the battery compartment to be heated if the domestic electrical system is kept in commission through the winter. Few small vessels can carry enough fuel to do this and also run an engine to generate power, leaving no option except to shut down the domestic electrical system for the winter. Candles and kerosene lamps give safe and reliable light together with some heat. Depending on latitude and thus the length of the polar night, 300 candles or 20 to 30 litres of lamp oil (kerosene) per person should do, varying with individual preference and tolerance to discomfort.

Candles vary dramatically in quality and it is worth trying a couple before buying a large quantity. The best burn all the way to bottom with a steady, nearly smokeless flame that does not vary in height and do not leave a

puddle of wax behind. Puddled wax can be recycled by melting it into a shallow tin such as a small tuna can and burned using a wick made from a twist of toilet paper. Candles in proper holders are safer and more convenient than those stuck to a saucer or in a bottle. Even the best candles and most carefully trimmed lamp wicks eventually make the deckhead sooty, something that becomes obvious when the sun returns in the spring. Two candles or an oil lamp with a 2.5mm wick is usually enough to read by without strain, but eyes need more light as they get older.

Electric pumps and similar paraphernalia will of course be irrelevant for most of the winter so any essential for running the boat must have a manual backup. In fact no pumps except those used to transfer fuel are likely to work in midwinter. All critical systems must be able to run without electricity, which rules out Eberspacher-type heaters and Wabasco or Wallas types of cooking stoves unless they backed up by a system that does not need electric power. Preferred heaters are the drip fed type such as those made by Sigma, Refleks or Dickinson. They require no electricity and, having no electronic components, can usually be repaired if they fail.

Good ventilation is critical. Ideally there will be a dedicated air supply led directly to the heater. In addition the cabin needs a permanent vent that keeps out drifting snow without restricting the flow of fresh air. Dorade vents are not likely to work unless they have cowls at least 60cm high to keep them above the snow.

Great care is needed on the installation of any generator set, especially regarding its air supply and exhaust system. This seems elementary, but has been the cause of a depressing number of incidents of carbon monoxide poisoning on boats in the Arctic. Candles are safer and as they dim and gutter long before the oxygen levels fall to levels critical for humans so giving early warning if the air supply becomes restricted. Unfortunately they do not give warning of accumulating carbon monoxide.

As winter approaches, ice will form around the boat only to break out again in the next strong wind. Ice bumping around the hull is noisy and sometimes alarming, but rarely a serious problem. There is little point in wasting energy fending drifting ice off the boat with an ice pole as anything small enough to push away will not put any significant strain the hull or mooring lines. Ice snagging on the mooring lines is more of an issue as a rope stretching perhaps 100m to the shore can catch a lot of drifting ice, which puts it under great strain. Mooring lines can be partly cleared by flicking them over the drift ice nearest the boat. Ice caught on the mooring lines further from the boat can be cleared from a dinghy but this is difficult in strong winds, just when the problem is most acute. Using masthead halyards to lift the mooring lines above the ice generally causes more trouble than it saves.

As the ice thickens, getting ashore by dinghy becomes more difficult. Hauling a dinghy down a mooring line while chopping with an ice axe works for a while, but there will be a few days where the ice is too thick to break with a dinghy and too thin to walk on. When the ice is 75mm to 100mm thick, it will probably be strong enough to stay in place in a gale and should support a person's weight. For the first few weeks when walking ashore on the ice, the intertidal zone ice will be thin and broken, requiring use of a dinghy either as a bridge or for a short ferry ride to cross it. Care is needed if using an inflatable dinghy for this as some, particularly the PVC type, become brittle and easily damaged at low temperatures.

It is worth building a snow cover over the vessel as soon as the ice will support one. The difference in comfort this



A snow cover with opening built over the portholes to let in light.

makes is dramatic. Shovelling a pile of snow over the decks and around the hull works well, but in much of the Arctic there will not be enough snow on the ice to do this early in the winter. If the snow around the boat is scarce, it can be insulated by building a crude igloo with snow blocks cut from drifts ashore. Not all snowdrifts are sufficiently well packed for the blocks cut from them to be carried or sledged to the boat without crumbling. The Inuit can tell a drift's suitability for building a snow house by plunging a stick into it, but the same information can be had by trial and error. A pruning saw makes a good snow knife and in summer is useful for cutting kelp off anchors. Alternatively a machete or something similar can be used. Building an arch of snow blocks over each porthole to let in light makes the boat a much more cheerful place.

By mid winter all openings in the hull will be frozen shut rendering the toilet and galley sink useless. A stout bucket in the cockpit makes a good toilet with a similar one in the galley for slops. The contents of the toilet bucket will freeze solid in a very short time and can be emptied in down a tide crack, preferably a good distance from the boat. The best buckets for this are made of high density polyethylene (they have HDPE in the recycling information on the bucket's bottom) as they do not become brittle at low temperatures.

Streams continue flowing below the snow for a considerable part of the winter and getting water from them is simply matter of digging through the overlying snow towards the sound of the trickling water. HDPE buckets with clip-on lids are by far the best for collecting and carrying water. Jerry cans are slow to fill, allowing ice to build up around the top and preventing the cap from being screwed on. In cold weather, ice will completely block the neck before the can is full. Water buckets must of course be stored in the cabin to prevent them freezing solid.

After the streams freeze completely, probably in January, it will be necessary to dig a water hole in a lake. In midwinter a lake will have a variable thickness of snow over one to two metres of hard ice. The snow cover is no problem but digging a hole through the ice is hard, slow work. The minimum tools required are a shovel and pick, with a heavy crowbar and an ice auger highly desirable. A lanyard attached to an eye welded to the crowbar allows the crowbar to be retrieved if it slips through icy mittens into deep water. A water hole can be preserved for a couple of weeks by letting it freeze to a depth of 25mm or so then shovelling about a metre of snow over it for insulation. The next time water is needed, all that is necessary is to shovel the snow off and break through 100 or 150mm of ice. Eventually the bottom of the water hole, which is necessarily smaller than the top opening, will freeze shut and a new hole has to be dug.

Digging for water and hauling it to the boat is hard work but the saving in fuel compared to melting ice or snow is considerable. Cooker fuel usage will nearly double if it is necessary to melt ice for water. The conventional wisdom that melting snow for water takes more fuel than melting ice is incorrect. Ice requires less attention to melt as the pot does not need filling nearly as often, but a pot kept full of compressed snow requires no more of fuel to produce a litre of water.

Dramatic photos like those of the crushing of Shackleton's *Endurance* have led to the expectation that any vessel in ice will be subject to pressure and forced upward. In fact the opposite is true. Provided the yacht is in a sheltered bay and protected from the pressure of drifting ice, it will be dragged down as the ice thickens. If the vessel is moored far enough from the shore to be clear of the shearing pressures of the tide crack and in deep enough water that the sea does not freeze to bottom and cause pressure ridging, there is little lateral pressure on the hull.

The sea ice thickens from the top by freezing seawater-saturated snow lying on the surface of the floe, so the oldest ice is at the bottom. Unless a yacht can emulate the Fram and withdraw its rudder, propeller any other underwater projections, these will become embedded in the first-formed, lowest ice and pull the boat down as the ice thickens. Fortunately it will not be pulled down by the full thickness of the ice. Initially the ice is thin and relatively weak so the vessel's buoyancy will break the ice and it will float near its usual lines. As the ice thickens and envelops the propeller, rudder and other underwater appendages, the vessel will be dragged down until its buoyancy exerts enough pressure on the ice to allow it to rise a limited amount through the ice by pressure solution. Typically a yacht will be drawn down by 30 or 50 cm in the course of the winter, depending on the hull shape and depth of appendages.

Keeping the bow and stern clear of ice and turning the propeller regularly may stop the yacht from being drawn down at all, but breaking the ice under the flare of the hull is a miserable job. Ice has to be broken from the bottom of a pool of water while working in a kneeling position using a pick or crowbar and the ice fragments then scooped from the pool. Every stroke with the pick or crowbar sends up a show of water that instantly freezes to clothes, mittens and the boat. It is an exercise best avoided.

Living in winter on a small vessel with marginal heating requires a little fortitude and much patience. The alcohol for preheating the kerosene stove will itself need preheating before it will burn, pens do not write and toothpaste will not squeeze from its tube until warmed in an inner pocket, butane lighters are useless, liquid detergent freezes and rum is a slushy solid. However these are merely time-consuming inconveniences, not real problems.

Thin polypropylene gloves are a great comfort working in a cold cabin and also make a good base under two layers of mittens for working outside. These gloves get grubby when working in the galley and wear out quickly, requiring frequent darning. At least ten pairs per person are a good idea.

A vessel with a pressurized hot water shower will find the system frozen for most of the winter and needs to make other arrangements for the crew to wash themselves. Less mechanized boats will probably already have a system that can be adapted to a cold environment. Simplest of all is to sponge bath in a large plastic tub. Alternatively a shower can be had using a sun shower suspended from the deckhead or using a pressurized garden spray. There must

be a method of collecting the wastewater from these manual showers so it does not run into the bilges and freeze there.

Laundry is a nuisance but should not be neglected as dirty clothes quickly lose their insulation properties. It is easiest to carry the laundry to the water source and do it there but this is only possible down to -10°C . Below that clothes freeze to the side of the washing and rinsing buckets almost instantly and tear when pulled free. When that happens there is little option but to carry water to the boat and do the laundry there.



Doing the laundry beside a water hole in a frozen lake. This is only possible when the temperature is above -10°C . (Photo credit Annie Hill)

Drying clothes is equally problematic. There is an urban myth that clothes hung out in cold condition will dry by 'shaking the ice out'. Nothing of the sort happens to anything more absorbent or tightly woven than nylon fishing net. At temperatures just below freezing, clothes will dry by sublimation when ice evaporates without going through a liquid phase. Sublimation slows as the temperature falls and is imperceptible below -10°C . At this point clothes have to come inside to dry, to the detriment of the cabin's habitability.

Fortunately only the layers of clothes against the body gets grubby, so the only things that need to be washed on a regular basis are underclothes, gloves, socks and hats. Silk long underwear has much to recommend it as an inner layer, being comfortable and having less odour than polypropylene, but polypropylene is easier to wash and dry. A silk sleeping bag liner to protect the bedding is worthwhile and also saves a lot of washing. A coat dedicated for galley wear (or an apron) will protect other clothes from getting greasy and losing their insulation.

The length of the polar night depends on latitude. In most locations the sun will return before the coldest part of winter, which is usually in February. Despite this, with the return of the sun the hardest part of the winter is over. The joy the first sunlight brings is difficult to explain to anyone who has not spent a polar night isolated on a small vessel in the high latitudes.

After sunrise, the days get quickly longer until the first drips of water on south facing rocks herald the approach of spring. Sometime in May it will be warm enough to clear the snow cover from the boat which shortly afterwards will float free of the ice with a narrow moat all around. The stern may still be held down because the rudder and perhaps the propeller are caught in the ice. This is hard on the rudder pintles and uncomfortable for living aboard. If the propeller can turn, running the engine in gear will send (relatively) warm water across the rudder and should



Sails dug out and hoisted to check them and the running gear prior to breakout.

eventually free it. If the propeller is not free or if it is likely to strike fast ice when the boat jumps up to float in its normal lines, the ice will have to be broken away using a crowbar, pick and ice saw.

Once the boat is afloat, the toilet will pump out, the sink will drain and the water tanks can be refilled. As the hull warms up, the condensation frozen to the hull behind the linings and in the unheated bow and stern will begin to melt. The bilge pumps will still be frozen so there will be a period of several weeks during which this meltwater has to be bailed by hand. The amount will depend on the exhaust arrangements that were in place in the cabin and galley during the winter, but about 200 litres per person is likely.

Once the sea ice starts to puddle, the yacht needs to be converted back to being an ocean-going vessel in preparation for breaking out. The shore depot has to be brought aboard, sails bent on and hoisted, rigging checked, anchors and chains overhauled and machinery recommissioned.



Summer: this ice is rotten and about to break out

Breaking out of the ice is potentially dangerous. Ideally the ice will melt around the boat and gently drift away as small, harmless pans. However a gale may send the ice out with a rush, buffeting the vessel on the way, or the bay ice may break out as a single large floe weighing thousands of tonnes with the boat still embedded in it. Each situation will require a different solution and it is difficult to know in advance what it will be. All that can be done is have the dinghies ready to go, ice poles and spare lines to hand, anchors ready to run and the engine on standby.

The crew's immune system will take a while to get working again after its winter-long germ-free holiday. Everyone will probably come down with a respiratory infection when they first make contact with the outside world. Not much can be done about that other than to allow a few days for recovery before continuing with the new season's venture.'

Page 31

Before 'Personal protection and clothing', insert the following headings and text:

Selecting an anchorage (GB 2014)

Many of the historic anchorages referred to in the pilot books were selected by men commanding square-rigged vessels without auxiliary engines. Their criteria for anchorages were very different from today's small vessels and some historic anchorages may be totally unsuitable for a small boat.

Factors to consider when selecting an anchorage include:

- The presence of rivers (including dry beds of Spring run-off channels) tend to provide good holding in relatively shallow water
- A close study of the local topography should give a clue as to whether katabatic winds and/or wind funnelling are likely to be a problem in the prevailing conditions
- A shoreline which slopes gently down to the water is likely to have a gentle gradient under the water. Steep rocky shorelines often indicate an uneven seabed and deep water which may not be suitable for anchoring.
- The distance of the anchorage from open water is closely correlated to the risk of invading ice
- The absence of soundings should not discourage exploration. Modern yachts, cautiously handled, are manoeuvrable, and a forward looking depth sounder is a handy device

Anchoring techniques (AW 2015)

Normal anchoring techniques apply for most of the time when anchoring in the Arctic, however, it may be necessary to take into account deep water close to the shore or very strong winds. Strong katabatic winds are common close to high land.

It is not ideal to anchor on a seabed which shelves rapidly away from the shore into deep water. An anchorage can sometimes be made more secure by dropping the bow anchor whilst facing offshore and then taking stern lines ashore. The shore-lines (normally 2 triangulated lines) should keep the anchor pulling 'up-hill' and will secure the boat in off-shore winds. Lines can be secured to trees however these are unlikely to be found in the high Arctic. A bight of chain can be placed around a suitable rock and then shackled to the shore-line. This will help minimise chaff. Polypropylene rope is light and floats which makes it relatively easy to tow ashore with a dinghy. Polyprop lines are particularly susceptible to UV degradation so should be stored carefully when not in use.

Shore-lines can also be used to limit swinging room if necessary.

If anchoring on or near a steeply sloping sea bed, another technique is to use a second anchor instead of shore lines. The second anchor is set in shallow water in-shore of the main anchor and, like shore-lines, is deployed to stop the main anchor from dragging 'down-hill' and secure the boat in off-shore winds. The two anchor rodes can be shackled together, then more chain lowered so that the 'join' is lower than the boat's keel.

There is no substitute for a big heavy bower anchor and, as mentioned previously, carrying a variety of heavy anchors is recommended. Two anchors chained together 'in series' can provide additional holding in strong gales and katabatic winds. The shank of the 'first down' (anchor 1) is connected to the crown of the 'second-down' (anchor 2) by, say, 10m of chain. It may ease both the dropping and recovery of anchor 1 if a length of slack polypropylene (floating) line is made semi-permanently fast onto anchor 1 and the other end clipped onto anchor 2. The line can then be unclipped and used, perhaps with a halyard or winch, to lower and recover anchor 1 when anchor 2 is on the bow-roller.

The Faroe Islands

Page 44 Tidal information (NC 2014)

Add 'Local tidal stream atlases are excellent and are referenced to HW in Suouroyarfiroi, which is the sound to the north of Suduroy, (see local almanac). 'Vestfalskyrrindi' means the flood westward and 'eystfalskyrrindi' means the ebb eastwards. 'EK' and 'VK' on the charts are slack water. The yellow and black bars indicate areas where heavy overfalls can be expected when wind is against tide. The hatched areas are tidal races.'

Page 51 Trongisvágsfjørður (AW, 2014)

- *Change* no anchoring symbol in top left of plan to anchoring symbol.

Page 52 Tvøroyri (NC and AW, 2014)

- **Approach** *After* 'Punthavn.', *insert* 'The first set of leading marks and lights (Iso.4s and Iso.WRG.2s) on 289°T are clearly visible both day and night. The second set of leading lights on 317°T (Iso.R.2s) are clearly visible at night and dusk. The day marks are not so easily identifiable but this does not matter.'
- **Approach** *Delete* 'The police will want to check identification, and customs may also appear.'
- **Berthing** *Delete and replace with* 'The main harbour has been filled in and developed for commercial shipping only. Yachts may go alongside the wooden jetty, labeled 'Hvidenaes' on chart 85, to the west of the fishing boat harbour. The jetty is 21m long and has about 3m of water. There is water for one yacht only on the inside of the jetty as the depth decreases rapidly. Yachts less than 8m LOA may berth alongside the NW hammerhead. There is a water hose close to the jetty. Alternatively, anchor to the west of Hvidenaes in about 10m, mud. Vessels may anchor off Trangisvaag at the head of the fjord. The holding is good in thick mud. The small fishing boat harbour is unsuitable for yachts greater than 7.5m (26ft) LOA.'
- **Formalities** *After* 'immigration.', *insert*: 'The local Customs Officer, who is very helpful and relaxed, can be contacted on ☎ 00 298 222 925.'
- *After* '371055', *insert*: '(Mobile 00 298 210055 or 00 298 222509, Email havn@tvoroyri.fo)'
- **Facilities** *Delete*: 'Turn left from the harbour for a large supermarket, bakers and cafés' *and replace with* 'There is a supermarket, baker and cafés. The Kgl. Handii bar, which is 50m W of the harbourmaster's office, has an interesting ambiance, good home cooking and is very hospitable. There is a small museum and a tourist information office.'
- *Add*: 'A 2M walk north to Hvannahagi takes one to a series of spectacular pools which are a popular beauty-spot with both local people and tourists.'

Page 58 Tórshavn (AW, 2014)

- **Harbour plan** The red lateral mark Fl.R.5s has been moved NW to lie just off the Tinganes peninsula tip.
- **Harbour plan** The red lateral mark mark Fl.R.3s has been moved 2 cables south (just off the plan).
- **Harbour plan** A number of finger berths have been placed to the SE of the visitors' area in the Vestaravág basin
- **Harbour plan** The Information office is now in the town
- **1st paragraph** After '311762,' insert: '(Mobile 00 298 211762)'
- **Approach, last sentence** Replace '150m to the W.' with '300m to the SW.'
- **Facilities, 3rd paragraph** Delete paragraph 'The boat club.....a small deposit' and replace with: 'Showers and laundry facilities are available at the Marine Club (Bátafelagiðð). Tokens are available from Hotel Tórshavn which is close to the yacht harbour.'
- **Facilities, 4th paragraph** Delete sentence 'The Hafnia Hotel.....and also has tokens for showers and toilets'

Iceland

Page 71 Iceland Formalities (AA 2014)

After 'on arrival in Iceland and', delete 'just'.

After 'before departure.', insert: 'Customs can be contacted via the Coastguard (Ch 16) or the telephone number for the Reykjavik Customs (which is manned 24 hours a day) is: ☎ + 354 898 8493. An Officer will probably visit the vessel. Customs work closely with Border Control and it is likely that the Customs Officer will perform the border control functions. Customs Officers may check on visiting boats whilst they are cruising in Icelandic waters and it is helpful if the yellow customs form is left in a window when the boat is unattended. Customs should be given 2 hours notice of departure.'

Page 71 Useful websites (AA 2014)

Add:

Iceland Customs: <http://www.customs.is>

Iceland Border Control:

<http://www.innanrikisraduneyti.is/raduneyti/starfssvid/utledingamal/upplýsingar/nr/860>

Iceland Maritime Administration: <http://sigling.is>

Page 76 Useful websites (AA 2014)

Add Wave height prediction. (the numbers on the map are wave duration in seconds. The colours represent wave heights in meters): <http://sigling.is/vs/ArealKort.aspx>

Page 77 Iceland Shipping Forecast Areas (EA 2014)

In the diagram, add 'Denmark Strait' beneath 'Grönlands-sund' in the most northwestern area.

Page 78 Iceland Ship Reporting System (AA 2014)

Delete 'It may not be enforced for vessels less than 45m LOA.'

Page 84 Grindavik (AW 2014)

Photograph caption delete 'east' and replace with 'southwest'

Facilities After 'Regular buses', insert '(or an interesting signposted walk)'

Page 86 - 9 Reykjavik (AA 2014)

Berthing Insert 'Vessels may' before 'contact Harbour Control....'

Berthing Replace 'are likely to be directed' with 'should proceed'

Delete '2. There is a pontoon.....washing machine.'

After 'Reykjavik Yacht Club' insert '☎ +354 5528272'

After 'electric power.', insert 'Larger yachts may use the south side of the two 40m pontoons to the west of the Ingólfsgarður hammerhead. The northern side of the W pontoon is used by whale-watching boats.'

Delete 'showers.' and replace with 'shower.'

Facilities Delete 'Diesel is available.....by road tanker' and replace with 'Diesel is delivered by road tanker and can be arranged by phoning +354 5509933 between 0700 and 1700 on working days.'

Page 87 Reykjavik harbour plan (AA 2014):

Delete 'charts, chandlers, tent and awning maker'

Delete 'Reykjavik Centre'

Delete 'Chandler'

Insert 'Supermarkets' in position vacated by 'Chandler' to the W of Vesturhöfn

Delete 'Visiting Yachts' and symbol from dock W of Austurhöfn

Delete 'Tourist Office' and symbol

Delete 'Diesel' and symbol

Add 2 x 40m pontoons to W of Ingólfsgarður hammerhead

Move Brokey (Reykjavik Yacht Club) and symbol to Ingólfsgarður mole where the mole widens

Insert 'Harpa Concert Hall' where the yacht club used to be.

Insert pontoon between position E of yacht symbol to Ingólfsgarður with finger berths to the north.

Pages 113 and 117 (HC 2014)

The captions on two photographs on page 117 should be amended to read 'Höfn (Bakkafj rður) entrance' and 'Höfn (Bakkafj rður) harbour'. They should be moved to page 113.

Greenland

Page 124 Telecommunications (CW 2014)

Delete and replace with:

'Whilst all the major settlements on the Greenland west coast have good mobile phone coverage, both making and receiving calls on a UK mobile contract in Greenland is expensive. Free WiFi hotspots and internet cafés are not commonplace. The Seaman's hotels (Sømandshjemmet) and some hotels offer WiFi hotspots for an hourly charge.

It may pay to get a Tele Greenland pre-pay SIM card for telephone and mobile data which can be bought and set up at a Post Office. There are 2 prepay options available (as at Jun 2014):

SIMPLE - a data only SIM card suitable for an iPad, tablet, dongle, or laptop with a built in SIM card slot. Cost approx 300Dkr to initially purchase the SIM card and then 40 ore/Mb thereafter.

TUSASS - a combined voice and data SIM card suitable for data enabled smartphones such as the iPhone. Cost 300Dkr to purchase the SIM card and then 1.23 Dkr per min voice and 1 Dkr per Mb data.

In both cases quality is very good with good 3G connection speeds. The voice SIM card allows you to receive international phone calls at no charge, and since it is possible to dial a Greenland mobile number from a European landline for under 50p a minute, this offers a far more cost effective way than using a UK mobile.

To activate the service on an iPad or iPhone the following steps are necessary:

- insert the SIM card in the device
- enter the PIN number which comes on the scratch card with the SIM card -go to Settings/cellular data and turn cellular data on -go to settings/cellular data/APN settings and type in 'internet' in the cellular data APN field. The APN username and password can be left blank
- power off the device and turn back on to apply the new settings.

If outgoing emails are not being sent, it may help to change the SMTP outgoing server on your mail software to smtp.greenet.gl.'

Page 126 Pilots and charts, electronic charts (EB 2014)
Penultimate paragraph *After* 'asset for pilotage in the archipelago.', *add* 'one should be very cautious when using electronic charts, particularly on inner routes. Errors of 100m are common.'

Page 127
The second plan should read '1:80,000 series chart index'

Page 128 Marine Telecommunications
Modify the email address of AASIAAT Radio to read: oyr@telepost.gl

Page 132 Weather information (EA 2014)
Third paragraph *Delete* 'In addition,.....for the latest schedule).'

Page 132 Navtex
Add 'SIMIUTAQ (M) 60°41'N, 046°35'W (near Qaqortoq). Broadcasts at 0200, 0600, 1000, 1400, 1800, 2200 UTC (518 Khz)'

Page 134 Tide tables (EA 2014):
Add 'Tide tables are also available on the DMI Website.'

Page 135 Ice information (EA 2014):
Correct the Fax number for chart 1 to read: + 299 66 52 44

Page 147 30. Arsuk Village (AW 2014)
Delete text and replace with:
'Small pretty village and harbour. Prone to ice incursion and swell running in from the W. However, the harbour may be accessible when Qaqortoq and Paamiut are blocked with storis. Yachts may berth on the ferry dock in settled conditions however it is subject to swell and an onshore wind would make this berth uncomfortable.

In the 1970s the town was a centre for cod fishing and supported a population of 400 people. The population declined with the cod stock and is now 90 people. The channel between the island and mainland to the E of the settlement is protected with a chain ice-boom laid at a depth of 4m. Moorings were laid here for 33 cutters used in the cod boom years. Their integrity is now unknown. Diesel and petrol can be obtained from the pontoon in the channel. The pumps are available 24/7 and are operated using Visa or Mastercard credit cards.

The village is known for its art and craftwork. Supermarket and post office.'

Page 146

Insert new harbour:

27A Ellerslie Havn, Arsukfjord (AW 2014)
61° 11'N 048° 00'W **Chart D1146**
An almost landlocked and very attractive anchorage NW of Kangilinnuit. Anchor in 8m, thick mud, beneath a waterfall.

Page 151 AREA II

Insert above '38 Qeqertarsuatsiaat (Fiskenaeset)':
'Inner lead passage from Qeqertarsuatsiaat (Fiskenaeset) to Kangerluarsorseq (Faeringehavn) (CW 2014)

The last 8 miles of the inner lead route south of Kangerluarsorseq is very open and exposed, littered with rocks awash, relatively shallow in places, and probably best not attempted if there is any significant onshore wind or swell.

However, the inner lead route can be safely used at Evqitsut, just to the north of marker post 508, and thereafter southwards it is very well sheltered from offshore swell all the way from Qeqertarsuatsiaat. This part of the route is generally wide and easily followed even in poor visibility (provided you have radar since GPS positions cannot be relied upon), with no depths of less than 10m encountered.

Although not officially part of the marked inner lead route, if time permits an interesting and very scenic diversion can be taken to reach Qeqertarsuatsiaat by the 'back door'. Just south of marker 504 head NE up the Ugarsiorfiup Svudlua for 2 miles before turning SE down Tuno for a further 2 miles. Turn NE up Aniggoq and continue for 6 miles before once again turning SE for a further 6 miles to reach Qeqertarsuatsiaat.'

Page 151 38 Qeqertarsuatsiaat (Fiskenaeset) (CW 2014)
Delete ', but it is now a bit of a backwater although' *and replace with* 'and now'.

After 'ferry stops here', *insert following paragraphs:*
'Shelter in the small western harbour bight is excellent. Although the chart shows an anchorage in this bight, the depths in general seem to be significantly greater than charted and in most places are greater than 20m. The tides also swirl strongly into the bight setting up a circulatory flow, adding to the difficulties of anchoring.

However, there are 2 sturdy quays in the bight, one wooden, one stone, on which it is possible to safely berth with 3m depth at LWS. The 2 smaller floating pontoons in the harbour are only suitable for small motor boats and are filled with local craft.

The Royal Denmark fish factory also has a substantial wooden quay on the northern side of the village in the main sound where one could temporarily berth with permission. However, this berth is susceptible to swell in strong southwesterly winds.

24 hour fuel from credit card operated pumps on the wooden pier. Good store and bakery.
Water from stand pipes in village.'

Page 152 Kangerluarsorseq (Faeringehavn) (CW 2014)
Approach *Add new paragraph:*
'Although the anchorages in Kangerluarsorseq (41 Nordafar, 42 Orsivik and 43 Faeringehavn) make perfectly good passage anchorages in normal conditions, they do not have sufficiently good holding and shelter to be considered as comfortable places to sit out a gale. If a gale is expected then either (48) Nuuk to the north or (38) Qeqertarsuatsiaat (Fiskenaeset) to the south are more protected and secure bolt holes.'

Page 152 41 Kangerluarsoruseq (CW 2014)

Delete text and replace with:

'The anchorage just to the NNE of the abandoned fish plant provides excellent shelter in all but fresh south westerly winds when an uncomfortable fetch penetrates the anchorage. Holding is reasonably good in 7-8m in weed on stiff clay.

The Nordafar fish plant, built by the Norwegians and originally operated by a Norwegian, Danish, Faroese consortium (from which the name derives) although abandoned is still largely intact and an excellent example of Norwegian plants from that era, bearing a remarkable similarity to the whaling stations the Norwegians built and operated in South Georgia. Although the buildings are still largely intact the jetties are in a dangerous state of disrepair and are not suitable for berthing alongside.'

Page 152 42 Orsivik (Polaroil) (CW 2014)

Delete text and replace with:

'The bay immediately to the W of Orsivik, shown on the charts as Qasigiaqarfa or Sydhavn, has a number of anchoring possibilities in the mini bays around the edges depending on wind direction. Shelter is reasonably good provided the wind is blowing from a southerly sector but if there is any northerly element to the wind then the anchorage a mile further in the fjord, just to the NNE of Nordafar, provides much better shelter. Moderately good holding in very thick kelp and matted weed on mud in about 10 m.

If no tankers are expected, it may also be possible to go alongside the well maintained and fendered main quay of the Polaroil depot (6m approx at LWS). The small depot staff of 5 or 6 people maintain a listening watch on VHF Channel 6 and are very helpful and friendly.'

Page 152 Faeringehavn (old harbour) (CW 2014)

After 'underwater rocks to be avoided.'" *add* 'The marker posts shown on the chart are not maintained and some are missing. In view of the large number of unmarked rocks, entry and anchoring can now only be recommended in the most settled of conditions with good visibility and taking all precautions'

Page 155 Nuuk Approaches (CW 2014)

Approaches, second paragraph After 'less subject to ice.' *insert* 'Tidal streams run strongly in the Narrsaq Lob and reach up to 5 knots at springs in the narrows, and 1-2 knots elsewhere. If heading south, leaving Nuuk around HW Nuuk should ensure a fair tide is carried to Faeringehavn. Heading north, the ideal time to arrive at Saatut would appear to be around LW Faeringehavn.'

Page 155 Nuuk Formalities (AW 2014)

Delete 'the harbourmaster who is located in the Royal Arctic Building' *and replace with* 'the Harbourmaster who is located in the upper of two blue container offices on the main commercial quay in the container port.'

Add 'Alternatively, the Customs can be contacted on: +299 560220'

Page 156 Nuuk Facilities (AW 2014)

After 'in the approach at low water' *add* 'two rocks of unknown depth/height, but a definite danger to keel boats, lie off the far end of the re-fuelling jetty. The Orsivik store associated with the fuel station has a good selection of rifles which may be useful for a cruising yacht heading into northern waters where polar bears can be a threat. It also supplies/exchanges Kosangas cylinders'

Delete paragraph 'There are two big supermarketsas well as hardware' *and replace with* 'There are a number of well stocked supermarkets, a shopping mall and all the services one would expect in the capital. The swimming pool, which is in the Nuusuaq area, is worth visiting. There is a chandlery (Qalut Vonin) close to the Seaman's Hotel which has a good stock of equipment aimed at the local fishing market. A more comprehensive chandlery can be found at the 'Bådcentre' in Nuusuaq in the industrial estate behind the incinerator building with a tall rust coloured chimney. The Bådcentre can import spares efficiently. There is a Volvo agent at the small boat marina. Laundry can be taken to the Seaman's hotel. An alternative, and cheaper, option is to buy a laundry card (Vaskemashine kort) at the main Brugsen supermarket in town. The laundromat is a red coloured building on the left side of Kongevej Road which is passed on the right when walking into town. The Hotel Hans Egede serves good quality food.'

Page 157 Inner lead route to the west of Akia (AW 2014)

After 'attention to tides.', *insert* 'However, there are a number of unmarked rocks and the route cannot be recommended for most cruising yachts.'

Page 158 56 Maniitsoq (Sukkertoppen) (AW 2014)

Berth After 'Moor on', *insert* 'the outer pontoon of.'

After 'hotel' *insert* 'Keys for the marina are obtainable from the hotel. A charge is made for berthing and a deposit taken for the keys.'

Facilities Add 'Mobile phone and 3G coverage.'

Page 159 Tunu (Hamborgersund) (CW 2014)

After 'leading into Tunu (Hamborgersund)', *insert paragraph:*

'If the weather is fine then a side trip up the 6 mile long Sermilinguaq offers views which are at least the equal of those in Hamborgersund and possibly even better. At the head of the fjord the icecap descends almost to sea level, whilst the north facing shore sports a splendid collection of hanging glaciers and waterfalls, and the south facing one sheer cliffs teeming with Guillemot and Fulmar colonies.

Although un-surveyed, the mid line of the Sermilinguaq carries depths greater than 50m up to within a mile of the head of the fjord. It might be possible to anchor off the terminal moraine at the head of the fjord, but since the water is extremely milky with glacial silt at this point it would be unwise to approach too closely without either the aid of a forward looking echo sounder or taking soundings in a dinghy.'

Page 161 59 Timerlit (CW 2014)

Delete 'in 5m.' *and replace with* 'Good holding in mud and filamentous weed. Allow plenty of swinging room as the wind swirls around in the anchorage.'

The only thing that now remains of the old settlement is a single concrete foundation block.'

Page 163 64 Iserquk (AW 2014)

Delete paragraph for Anchorage 1 (64a) and renumber other anchorages accordingly.

Page 165 Sisimiut Facilities (AW 2014):

Delete 'which is reported to be no longer operating'

Insert 'Laundry can be dealt with at the Seaman's Hotel or, less expensively, by buying a laundry card (Vaskemashine kort) at the Brugsen supermarket in town. The Tuapannguanut laundromat is located to the west of the town centre off Nikkorsuit Road.'

Page 165 Sisimiut Facilities (EA 2014):

Delete 'Down by the harbour with a fair selection of charts.' *and replace with* 'There are two chandlers in the town: one near the shipyard and another (Sirius) which is 2 km from the harbour.'

Page 168 Aasiaat (EA 2014)

Facilities *Add* 'The shipyard has a chandlery shop and there is also a Qalut Vonin chandlery (near the shipyard). The DIY shop 'Stark', is very well equipped.'

Page 172 80 Ilulissat anchorage (JA 2014)

Add 'In 2014, a fishing vessel sunk in the middle of what was already an over-crowded harbour. An alternative anchorage can be found at 69°14'N 051°04'W in an inlet locally known as Hollander Havn, from where it is a 2 mile dinghy ride back to the town.'

Page 178 98 Mellemfjord (Akidlit) (GB 2014)

Delete '3M to the E, which is marked on the chart.' *and replace with:* '3M to the W, which is marked on the chart. At the point where the fjord turns SE, there is a pronounced spit on the southern shore. The water immediately behind this spit is deep (>20m) until very close to shore. A more suitable anchorage for smaller boats may be found towards the SE end of the bite created by the spit, opposite a dry river bed and about 100-200 metres behind the spit. The water here is 10-11 metres at high tide or less for those who do not mind being close to shore. There are reports of the anchor being quite difficult to set but, once dug in, holding well. The end of the fjord dries out extensively so vessels are advised not to proceed too far down the fjord in search of an anchorage.'

Page 181 99 Nuussuaq (Vaigat) (BS 2014)

Add paragraph 'A protected anchorage in easterly winds can be found off the spit at the NW of the Nuussuaq Peninsular (70°49'N 54°11'W). It is open to westerly winds.'

Page 181 101 Uummannaq (BS 2014)

Insert new anchorage:

101a Uummannaq, West Bay

70°41'N 52°00'W

A pleasant anchorage in the SW of the island, recommended in contrast to the crowded and ice prone main harbour, though quite a walk to the town. Best approached, and left, by keeping close to the shore on either side because of outlying reefs and rocks guarding the anchorage. Good holding in reasonable depth. Open to the west but some protection even then from rocks and reefs.



Dodo's Delight at anchor in Uummannaq's West Bay. Ben Ditto/Bob Shepton

Page 182 102a Ikerasak (BS 2014)

Second paragraph, after 'moored in the harbour', *insert:* 'The anchorage in the bay to the northwest of the Royal Greenland jetty, and more directly beneath the iconic peak has been recommended. Like all anchorages in the area it is subject to drifting ice floes.'

Page 183 102c Sermerdlat Kangerdluat (BS 2014)

Insert new paragraphs:

'An alternative anchorage can be found in the slot to the north of the anchorage referred to above. It is reported to provide good protection from all but west winds. Fresh water lake to southeast.

Another pleasant anchorage can be found at Kujatdlikavsak (70°30'N 50°55'W). It is well protected though a little open to the northwest. Fresh water lake above to the southeast.

There is an abandoned Inuit camp at Niaqornakavsak (70°36'N 51°13'W) on the NW extremity of the peninsula. This is reported to be an open but scenic anchorage with good fishing and a fresh water stream. Underwater reefs necessitate careful navigation.'

Page 182 (BS 2014)

Insert new anchorage:

102e Qaqugdlugssuit

Number of anchorages have been utilised on the Qaqugdlugssuit peninsula:

- Qaqugdlugssuit waterfall bank (70°42'N 51°10'W) - an open anchorage close to a waterfall and stream
- Qeqertanguaq (70°45'N 51°18'W). Subject to strong unpredictable katabatic winds but possible to get lines ashore. Not particularly recommended
- Anoritup nüa. A potential lunch stop on the north east corner of Qaqugdlugssuit, an inlet used occasionally by local dories. Open to the west, and under water rocks on the north side. A pleasant temporary stop
- Augpilagtoq (70°39'N 51°06'W). On the southern promontory of Itivdliaarsup by an old Fanghus. This is the venue for the festival in or around July where three local settlements meet together annually

Page 185 112 Maligiaq (Svartenhavn) (GB 2014):

After 'subject to swell', *add* 'Good holding is reported.'

Page 199 Upernavik Facilities (EA 2014)

Insert second paragraph:

'WiFi is available at the post office. Fuel can be ordered at the Polaroil office (behind the supermarket). Fresh water can be ordered from the Royal Arctic Line office who will arrange delivery by the Nukissiorfit Company (who deliver fresh water to all Upernavik's houses). There is no bespoke laundry but it may be possible to make an arrangement with Gina's Guesthouse or the hospital. It may also be possible to arrange for showers at the hospital.'

Page 201 129b Sarpinat (CW and BS 2014)

After 'or the smaller bay on the SW side.' *insert* 'The merits of each anchorage are hotly contested between two very experienced Arctic skippers. However, it should be noted that the smaller boat's rudder began to dry out on a rock when anchored close to the shore in the NW bay and the larger boat ran aground whilst entering the SW bay.'

Page 201 129c Umiarssuaqarfik (Elliot Bight) (JA 2014):

Third sentence *Replace* 'E' *with* 'SW'.

Second paragraph *Replace* 'W' *with* 'SE'.

Page 224 (BB 2014)

Insert new anchorage:

198a ROMER FJORD

69° 38'N 23° 30'W

Approach anchorage 69°43'N 23°42'W between Henry Land and Turner Island heading northwest for about 5 miles. A disused trappers hut is conspicuous on a point of land ahead. Anchor on rocky bottom in 10 metres off the shore and land by dinghy on gravel beach. Exposed to southeast and area subject to katabatic winds. Hot springs nearby. Better shelter may be had around the point but no information available at this stage.

Page 227 (BB 2014)

Insert new anchorage:

207a Storefjord

71° 06'N 21° 40'W

Between Kap Buddicom and Kap Jones. Long narrow fjord with no apparent anchorage until secondary fjord running north opens after 8 miles. Anchorage found one mile along Norrafjord 71°05'N 22°07'W off stream and small rocky spit on west side in 10 metres, which may give some protection should ice accumulations in upper reaches of fjord break free in strong current bringing it past the anchorage and out to sea. In ice clear conditions it may be possible to find shelter and anchor at the head of fjord but no further information available at this stage.

Page 227 (BB 2014)

Insert new anchorage:

207b Neild Bugt

71° 23'N 21° 45'W

From Kap Topham pass next un-named headland and steer 330°T towards low cliffs. When close, the entrance will open to sheltered lagoon in magnificent surroundings protected from major bergs. Glacier front appears stable. Water from stream.

Page 227 (BB 2014)

Insert new anchorage:

209 Antarcics Havn, Davy Sund

72° 02'N 23° 05'W

Follow coastline and turn into bay until suitable anchoring spot is found in mud and shingle. Sheltered from all but northerly winds in bleak surroundings.

Approaches to the North West and North East Passages

Page 229

Amend 1st paragraph to read 'Vessels departing from southern Ireland for a waypoint 120M south of Cape Farewell will sail about 1,200M if they sail the great circle route or about 1,600M if they sail by way of Iceland. A landfall in Nuuk will add another 450M.'

Page 229

2nd column, 1st paragraph *Delete* 'The distance from southern Ireland to Nuuk is about 1,600M.'

The North West Passage

Page 250 Marine mammals (GW).

First photograph *Delete* 'Bearded Seal' and replace with 'Fur seal (sea lion)'

Page 253 Birds (GW)

First photograph *Delete* 'Herring gull' and replace with 'Kittiwake'

Page 276 Pilotage notes

After 'discover 'new' anchorages.', *insert* 'Please refer to the notes concerning 'Selecting an anchorage' on page 31.' (As amended by this supplement).

Page 280 6. Tay Bay (GB 2014)

After 'can shelve rapidly.', *insert* 'Good shelter can be found whilst sheltering from an easterly gale, however, the anchorage is exposed to strong winds from the S/SE which enter the anchorage over the saddle at the head of the bay.'

Page 281 7. Dundas Harbour (JA 2014)

After 'a choice of two anchorages.', *insert* 'Good holding in 12m with some kelp. Katabatic winds from the ENE can be very strong.'

Page 282

Insert new anchorages as follows:

8a Cuming Inlet 74° 39'N; 84° 59'W (GB and JA 2014)

Proceed up the centre of Cuming Inlet. The Canadian pilot reports a rock one half mile off the shore at about the point where a glacier enters on the west side. It does not however, say which shore the rock is half a mile off. Fortunately, the inlet is 1.6 miles broad at this point so the centre should be safe.

Anchor behind a spit on the eastern shore 2-4M from the end of the inlet. Depths over a wide area vary between 10-15 metres. The bottom is kelp and rock so getting an anchor to bite is not so easy. The anchorage appears well sheltered from all directions.

The anchorage at the northern head of the inlet comprises gently shelving silt and could possibly be more protected from ice incursion. This anchorage is reported to be more secure than Dundas Harbour, 40M to the east.

8b Burnett Inlet 74° 36'N; 86° 10'W (GB 2014)

The anchorage is in the pool at the head of the inlet, on the east side of the island. The chart has soundings up to the island but none thereafter. Turn to starboard on entering the pool keeping about midway between the coast and the island. Depths should not be less than 10 metres. About 200 metres due east of the island is a large area of water 10-15 metres in depth. Holding is excellent in mud and fine mud. The water shallows towards the north and the outfall of the two rivers there.

Reported to give good shelter in both southerly and northerly gales with a slight swell making in round the corner. Shelter from the southerly winds however, is only apparent when almost in the pool. The anchorage has been reported as almost ice-free when there was thick ice at the mouth of the inlet.