FITTING OUT FOR HIGH LATITUDES:
What does it take to outfit a proven tropics cruising boat for a summer season in Alaska or Greenland or a one- or two-year voyage to Patagonia?

by

Beth A. Leonard

Safety in the high latitudes depends far less on the boat than on the equipment aboard. Almost anything and everything in the way of seaworthy bluewater boats can and have cruised successfully in the high southern and northern latitudes. Alvah and Diana Simon spent a year in the Chilean channels aboard their 30-foot plywood Golden Hind; Willy Kerr took his production Contessa 32 to Baffin Island in the north and Antarctica in the south. For the most part, the question of what boat to take to these latitudes has more to do with comfort than with safety. This is not the case when it comes to equipment. The crews we saw get into trouble in Patagonia, Scotland, the Faroes and Iceland did so not because of the boat itself but because, for example, they lacked good weather forecasting, adequate ground tackle or a way to get shorelines in place quickly and easily. Even the most well-equipped, tropical cruising boat will need some new equipment before venturing into the high latitudes, and that equipment will be essential for safety.

The high latitudes differ from the tropics in the frequency of gale- and storm-force winds, the possibility of short-lived but violent gusts from almost any direction, the prevalence of difficult, rock- and kelp-covered bottoms, the presence of large tidal ranges (in excess of twenty feet in some areas) and the resulting currents, and the remoteness and isolation of most of the cruising grounds. To stay safe in these areas requires better weather information and different anchoring, mooring and dinghy solutions than in the tropics.

Weather Watching

Wind speeds and directions in the tropics outside of hurricane season are remarkably consistent and winds over gale force rare. Weather information, while always useful, isn't nearly as critical as it is in the high latitudes where wind speed and direction change on a daily basis and gales occur weekly. In such an environment, reliable, accurate and timely weather forecasts were vital to our sense of safety and to our comfort level. Most of the crews we met had used SSB as their primary weather source in the tropics, by participating in the maritime nets and downloading weatherfaxes to their laptop. When equipping for the high latitudes, many began downloading

GRIB (Gridded Binary) files over the SSB as well. These provide a five-day prognosis for a requested area and need to be read by some sort of software. However, SSB signals and propagation become unreliable at higher latitudes and often fade out completely north or south of 60°. For those not interested in the Arctic or Antarctic, the SSB provides adequate weather information the majority of the time. But we averaged one day in three in the Chilean channels when we could neither hear the maritime net nor receive weatherfaxes.

For that reason, some crews added additional equipment that they used primarily to receive weather information. Several boats, including *Hawk*, carried Inmarsat-C, which provides free weather forecasting twice a day. While the forecasts only cover the next twenty-four hours, on several occasions they were the only warning we received before really severe weather blew through. The system truly works worldwide, though we did lose the signal in a few anchorages when we were backed up into a cove with our stern close to shore and a high mountain between the antennae and the satellite blocked the signal. While expensive to purchase initially, the equipment was developed for the commercial market and has proven to be bulletproof.

Others used Iridium phones to download GRIB files to their computers. Though this did provide long-range weather forecasts on demand, the slow rates of data transmission made it an expensive solution. Unlike Globestar, Mini-M and other satellite phone systems, Iridium coverage includes both the southern and northern high latitudes without any gaps and offers both voice and data capability. It was the preferred solution for those that already had an SSB and could afford to add one expensive weather system to their boat. Finally, several boats used their Iridium phones or SSBs to receive advice from shore-based weather routers, particularly when looking for good weather to round the Horn or head south to Antarctica.

But weather forecasting in the high latitudes remains unreliable, and no source will get it right anywhere near all the time. Systems frequently move more quickly or more slowly than expected; lows develop out of nowhere; high pressure systems stall and block an incoming low. Tracking the barometer on an hourly basis and matching it up to the various forecasts gave us the best idea of how quickly systems were moving and what was likely to happen next.

Getting Hooked

The combination of strong winds, tidal currents and rocky, kelp-covered bottoms makes anchoring a challenge in most high latitude cruising grounds. On some boats, ground tackle that had served well for years of temperate and tropical voyaging proved inadequate in the high

latitudes. Nothing beats weight to cut through kelp and find a purchase on an uneven bottom. Big heavy Fisherman anchors were popular among the high latitude sailors crowd well after they had been abandoned by other sailors, as they cut thru kelp and hooked onto rock very well.

To give some idea of how heavy is heavy enough, a 45-pound CQR proved inadequate for a Rhodes 41 until they increased its weight by a third by adding lead to the tip. Most of the charter boats sailing Cape Horn and the Antarctic were between 40 to 60 feet in length and carried 75- to 110-pound anchors on their bows. Our primary anchor, a 110-pound Bruce, is one size larger than recommended by the manufacturer for our 47-foot boat, but it never dragged once properly set.

For those who can't afford to carry that much weight on the bow, a tandem anchor solution offers a viable alternative. The secondary anchor is shackled on a six-foot length of chain off the front of the main anchor. If the primary anchor begins to drag, the secondary anchor sets and helps to reset the primary. This solution requires a windlass, preferably a powered one fitted with a rope gypsy, to raise and lower the combination. To make retrieval easier, a ten-foot length of line is tied to the shaft of the secondary anchor and to the chain aft of the primary anchor. To lower, the secondary anchor is dropped over the side, then the windlass is used to drop the combination as normal. To raise, the windlass is used to bring the primary anchor home to the bow roller. Then the length of line is untied from the chain and taken to the rope gypsy on the windlass. The secondary anchor can then be brought in using the windlass. Most people who used this solution used two large anchors. After repeatedly dragging their 45-pound CQR, the crew of a 45-foot pilot house ketch began using a tandem anchor arrangement with two 45-pound CQRs and never had any more problems.

With a proper anchor, chain does not need to be larger than what one would use in the tropics, and no one we knew upgraded their chain before heading for the high latitudes or after getting there. Those venturing to Chile, however, will want to be sure they have 300 feet of chain on board to allow for backing up close to shore in deep anchorages with large tidal ranges.

Getting Hitched

The high, mountainous terrain in some high latitude areas, particularly the Chilean channels, funnels and accelerates the wind and in gale conditions creates williwaws, katabatic gusts that can reach storm-force or greater. Rocky hills polished bare and scrubbed clean of all vegetation predominate in areas subject to williwaws, while small stands of trees along the

shoreline indicate niches protected from these winds. To get a good night's sleep, we learned to pull the boat as close to these trees as we could possibly get using. We spent many comfortable days tucked up into the trees in this fashion with barely any wind on the hull itself while storm force williwaws chased whitewater across the anchorage a hundred yards off our bow.

Those planning to spend a season in the Chilean channels should equip their boats with at least three 300-foot lines and one 600-foot line set up for easy deployment. In most situations, floating lines like Polypropylene or Spectra are preferable to nylon. These lines don't absorb water, so they remain lightweight, easy to handle from the dinghy and relatively free of kelp. However when anchoring in ice, lines that sink allow the ice to float over them, so nylon is preferred for Antarctica or winter cruising in the Chilean channels. Commercial fishing chandleries carry a wide range of Polypro lines that vary greatly in their feel and the way they coil. We used a four-strand line purchased from a chandlery in Ireland that proved easy on the hands and virtually kink-free. While ground tackle needs to be over-sized, shore lines can be somewhat smaller than normal because if the boat has been properly tucked into the trees they won't have to handle shock loads from waves or gusts. One-half to five-eighths-inch lines proved adequate for boats up to 50 feet.

We saw a variety of methods for deploying shore lines quickly. These included everything from fancy custom-made stainless steel reels mounted somewhere on to three hundred-foot coils of line draped around granny bars or handrails on deck. The reels make both deployment and retrieval quick and easy and are a good investment for anyone planning to spend a season or more in Chile. We used large mesh bags for deploying our lines, setting them up on the side deck before we reached the anchorage with the line led through large snatch blocks on the stern quarters. This worked very well for deploying but it took a half hour or so after retrieval to flake all the lines back into their bags. Where we could drop the anchor within five hundred feet of shore without swinging into anything, we would use a reel of 600 feet of 10-millimeter Spectra as a first line ashore. We would winch the boat into place using that line and then replace it with the Polypro lines at our leisure.

In much of the North Atlantic, including the Faroes, Iceland, Greenland and Norway, well-sheltered anchorages can be hard to come by in long, steep-to fjords subject to katabatic winds. Dockage, then, must often be found in boat basins along piers meant for trawlers and big ships, and the boat needs to be secured to these in a way that will keep her safe in gale to storm force winds on the beam.

To be of any use on these types of piers, fenders need to be at least eighteen inches in diameter or used with a stout fender board at least eight feet long. On many piers, bollards meant for big ships are too few and far between for yachts, but a six-foot length of chain can almost always be shackled to a beam or support. Lines can then be secured to the chain with a round turn to minimize chafe. Two-foot lengths of reinforced water hose the same diameter as the dock line can be positioned anywhere along the line where chafe might be a problem. Snatch blocks attached to the toe rail, stanchion bases or the pier can be used to get a fair lead when lines must pass cleanly around sharp edges or other boats. When docking, we set up the bow line up so it can be led to the rope gypsy of the windlass and lead the stern line to a primary winch. Once the bow or stern line is secured ashore, we use the winch or the windlass to help position the boat.

Large cleats allow adequate lines to be taken ashore whether mooring to a trawler dock or stern-to to trees. *Hawk*'s sixteen-inch cleats readily accommodate up to three of our three-quarter inch mooring lines. It would be well worth replacing under-sized cleats with over-sized ones before venturing into the high latitudes.

One Dinghy – or Two?

In the tropics, if a dinghy gets stolen or goes missing, a quick swim will get you home again. In the high latitudes where water temperatures rarely exceed 40°F, swimming is not an option. Dinghies are also critical for deploying and retrieving shorelines, making it essential to the safety of the boat and crew. In the tropics, cruisers have increasingly moved toward RIBs (rigid inflatable boats) with large (15 horsepower or more) engines. While these may be ideal for exploring glacier fjords or river estuaries, they will be cumbersome to deploy, difficult to maneuver and almost impossible to beach in snug high latitude anchorages.

A dinghy for shore duty in the high latitudes needs to be lightweight and easy to handle, something a short-handed crew can get overboard in a matter of seconds and easily carry fifty feet up a rocky beach. Rowing or motoring through the thick kelp along the shoreline in most anchorages is virtually impossible; thus, the normal procedure is to row or motor into shore and then ship the oars or tilt the engine up and pole in the last twenty or thirty feet through the thick mats of kelp. In most anchorages, the shore is steep-to with no beach, so the person in the dinghy must get hold of an outcropping or branch, toss a dinghy anchor ashore and then scramble onto the kelp-covered rocks. Light hard dinghies or lightweight inflatables (less than 70 pounds) proved most satisfactory for this task.

But an underpowered dinghy can be dangerous. One singlehander cruising aboard a 26-foot boat in Chile became hypothermic when the wind came up and he couldn't row his inflatable upwind against thirty knots to return to his boat. I had a similar experience when I took the dinghy without the outboard and then couldn't get back to *Hawk* in a remote anchorage. After that, we never left the boat without the outboard even if we didn't intend to use it.

Our ten-foot Zodiac inflatable with a high-pressure inflatable floor and four horsepower outboard has proven to be a good solution for high latitude cruising. We can deploy the dinghy by hand without using a halyard, and it rows well enough that in small anchorages we don't need to use the outboard. On some occasions we felt vulnerable only having one dinghy – if we ever lost it in a williwaw or damaged it beyond repair on the sharp mussels, we would have a serious problem securing the boat properly. Several boats carried two dinghies – a large, hard-bottomed inflatable with a large outboard for "expeditions" and a small, easily deployed rowing dinghy for handling shore lines.

Other Essentials

In addition to these basics, several other items proved essential to our safety and comfort.

Tools and spares. In places where yacht facilities are nonexistent and many hundreds of miles separate fishing boat facilities, cruisers have to be prepared to handle most repairs on their own. Most boats carried far more in the way of engine spares than they did while in the tropics, including a spare starter motor, water pump and set of injectors. Those in fiberglass boats brought enough fiberglass repair materials to fix a major hole in the hull. Several steel boats had small welders aboard capable of running off a generator. A small hand jack (2-4 tons) proved handy for any number of tasks from straightening bent steering gears to repositioning a rudder after a serious grounding. Those planning a season in the high latitudes should take along as much in the way of tools and spares as space, cost and skills permit.

Hands, feet and face protection. High latitude summertime temperatures average in the high forties to low fifties, with freezing temperatures overnight not uncommon. Frequent rain, snow and fog make conditions anywhere from damp to sopping wet a good percentage of the time. We found it wasn't hard to keep our bodies warm, but it took some time for us to find solutions to keep our hands, feet and faces warm and dry. Totally waterproof gloves – we used Neoprene diving gloves with reinforced palms – are essential for handling half frozen shore lines at the beginning and end of the day. Good "wind protection" fleece gloves worked well when

steering if covered by a waterproof over-mitt to keep them dry. Sole thickness is critical to warm sea boots – Evans purchased international orange sea boots used by the fishermen in Iceland with inch and a half thick soles which have proven much warmer and more rugged than heavy-duty offshore racing boots. When steering in hail, baklavas and ski goggles protect the helmsman's face and eyes.

Heavy-duty dive suit. Some sort of heavy dive suit is essential in case of having to go over the side to clear a fouled prop. A wet suit should be at least 6 millimeters thick (the local divers use 10-12 millimeter wet suits or dry suits with lots of insulation underneath) with booties, gloves and a hood of similar thickness. The hood is particularly important to prevent heat loss through the scalp and keep the whole body warm. We now carry a complete 'arctic conditions' dry suit.

Handheld depthsounder. A handheld depth sounder proved more than a toy in areas where the charts left a lot to the imagination. Evans often took the dinghy and sounded the cove we intended to anchor in, greatly reducing the probability that we might suddenly discover an uncharted rock as we pulled ourselves toward shore with a line. While a leadline would have worked just as well, the depthsounder required no fussing and worked at slow outboard speed, so we were more likely to actually use it.

Kelp cutter. In high latitude anchorages, kelp can foul the anchor and cover the chain, and it must often be cleared as the anchor is being retrieved. Every boat cruising Chile carried a tool for that purpose, usually a machete attached to a pole of some sort so a crewmember could reach to the waterline to clear the chain as it comes up. We used an over-sized stainless steel serrated bread knife attached to a fiberglass batten to minimize rust on the decks, but the ideal implement would be a serrated stainless steel blade in a sickle shape with a five-foot long carbon fiber handle. Kelp does have one great advantage – when seen just below the surface it usually indicates depths of 30 feet or less. By staying just outside the kelp line, we could be sure of having sufficient depths to enter an uncharted anchorage.

While none of this equipment is traditional "safety" equipment, all of it contributes to safety in the high latitudes and will help to ensure a less stressful, highly successful high latitude voyage.