Non-Stop Adventure

56,000 Miles at Sea…And Counting

STORY AND PHOTOS
BY JENNIFER AND JAMES HAMILTON

Jennifer entering Swallow's Cave, one of several excellent dives in Tonga's Vava'u Group.

When we bought our first boat back in 1999, a coastal cruiser that we named *Dirona*, the salesperson asked how many hours a year we expected to put on. "Fifty, maybe a hundred," we replied. We both worked full-time in busy software jobs in Seattle and were expecting to take short vacations to visit the San Juan and Gulf Islands, and possibly range as far north as Desolation Sound.

We sold *Dirona* 10 years later with 4,100 hours on her, after circumnavigating Vancouver Island and travelling throughout the northern British Columbia coast, including winter trips to Desolation Sound, Princess Louisa Inlet, and the Broughton Archipelago. We loved that boat, but pushed it way beyond its design point. Friends who had moved from a similar boat to a Nordhavn 57 encouraged us to get a safer and stronger vessel. We concurred, and wanted more range. 220 gallons of diesel won't take a powerboat far offshore.

Ocean Passage with "Training Wheels"

In February of 2010, we took delivery of our second boat, a Nordhavn 52, that we also called *Dirona*. We didn't buy the Nordhavn with the express purpose of traveling around the world, but we did hope to cross a few oceans.

By late 2011, we'd made two major offshore passages. The first was a 900-mile, 5-day run from Seattle to Southeast Alaska in the summer of 2010. We traveled nonstop offshore rather than taking the conventional Inside Passage route. The following summer, we made a 1,200-mile, 7-day run from Seattle to Prince William Sound. The direct route on this trip took us 125 miles offshore.

We referred to these two trips in jest as "ocean passages with training wheels." We were simulating multi-day ocean passages as a learning experience, but if anything went wrong or we found ourselves uncomfortable running uninterruptedly at sea for multiple days in a row, we could just turn east. These trips gave us the confidence that we could safely and comfortably cross oceans with only two people aboard.

A Quick Blast Around the World

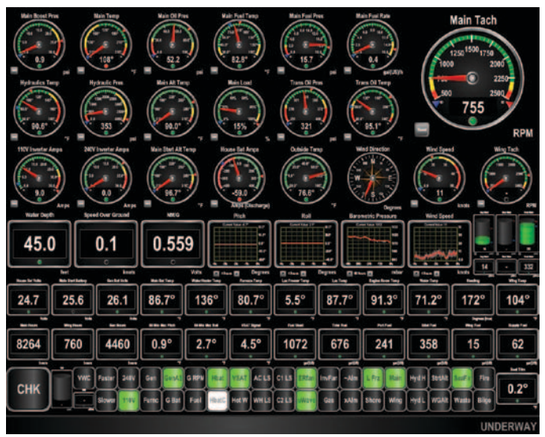
One evening in the fall of 2011, while enjoying a glass of wine in our cockpit with the lights of downtown Seattle behind us, James suggested a "quick blast around the world." On this plan, we'd take some time off work, do a quick circumnavigation and return back to work. Jennifer loved the idea and put together an itinerary that would take us around the world and back to Seattle in about 18 months.

We had great jobs at the time, so taking a year and a half off just about guaranteed that the jobs we returned to wouldn't be as good. But we knew it was important to take the trip then, rather than waiting for retirement. Long trips at sea get harder as you get older, and our health might not be good enough once retirement time came.

We did go around the world, but the actual trip was quite different from the one we'd planned. We took 42 months instead of 18, didn't return to work in Seattle, and James never did take time off (he continues to work full-time). In this first of a series of three articles, we'll describe where we went and why, how we planned the trip, various aspects of being underway, such as watch keeping and weather routing, and the communications options and organizational approach that allow James to continue to work in the technology sector no matter where we are in the world. Subsequent articles will cover logistics such as fueling and managing spares, and how we rigged *Dirona* for the trip.

Plans Change

Our initial itinerary would take us west from Seattle to Hawaii in early 2012, across the Pacific via the Marshall and Solomon islands to reach Australia just past midyear. Then, we would cross the Indian Ocean via Cocos Keeling and Mauritius in the fall, around the Cape of Good Hope by the end of 2012, and north to Gibraltar by early 2013. We'd then cross the Atlantic, transit the Panama Canal, and return to Seattle in late 2013. Our actual route, shown in the sidebar itinerary on page 63 bears little resemblance to the original one, except for Hawaii, Australia, and South Africa.

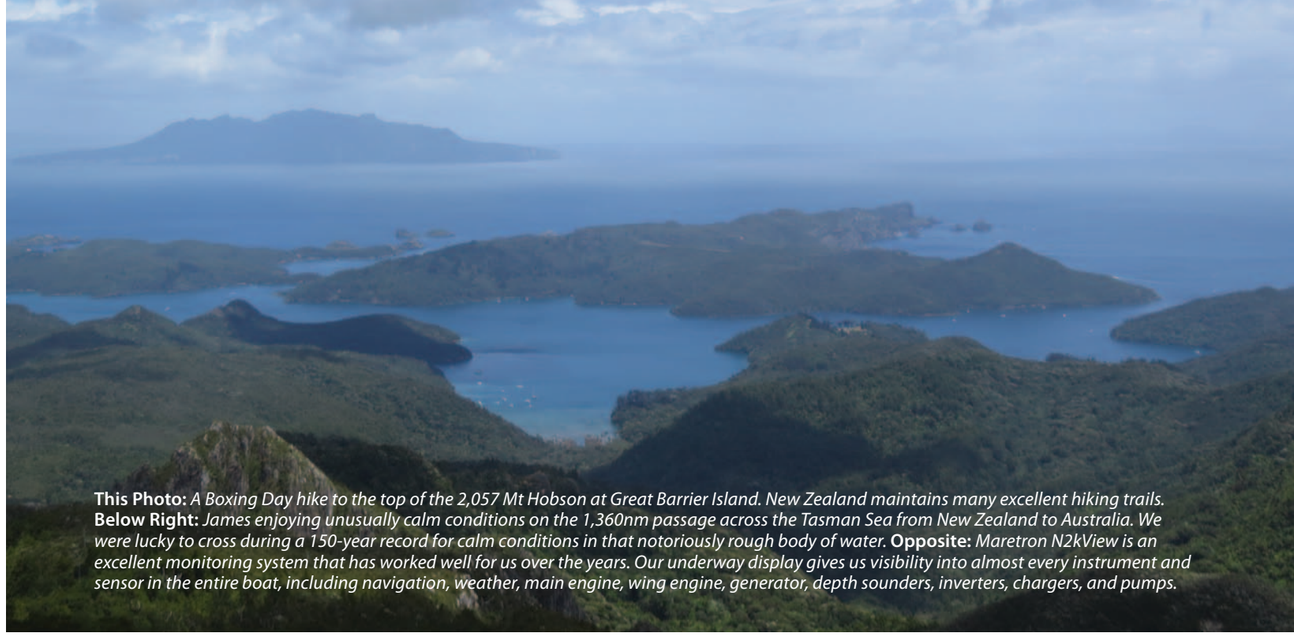


GRIB Data

The GRIB data isn't an actual weather forecast, but rather a computer-generated raw weather model data that meteorologists use to create their forecasts. Several national meteorology services, such as NOAA and Météo France, produce GRIB data that is available for free or with a fee from a number of sources, as are viewers to interpret the data.

For making passage decisions, we use GRIB models from two NOAA models: WW3 and GFS. We download and view the WW3 data through our PC chartplotter software MaxSea. (See https://youtu.be/LV1O1Bgf5wI for a sample visualization prior to our crossing to Hawaii.) We obtain the GFS data through Saildocs.com and use their viewer, ViewFax. Both download services are free. The WW3 data includes wave period, which we use for making passage decisions. We use GFS partly for a second opinion and partly because Saildocs can produce longer-range forecasts with smaller files than MaxSea when we're data-constrained.

You don't need to be a meteorologist to interpret the GRIB data, but you do need a basic understanding of weather systems. A good introductory resource is the *USA Today*'s The Weather Book. More detailed treatments that we've found useful include the United States Power Squadron Weather course, Marine Weather Handbook by Steve and Linda Dashew, and Modern Marine Weather by David Burch.



This Photo: *A Boxing Day hike to the top of the 2,057 Mt Hobson at Great Barrier Island. New Zealand maintains many excellent hiking trails.* **Below Right:** *James enjoying unusually calm conditions on the 1,360nm passage across the Tasman Sea from New Zealand to Australia. We were lucky to cross during a 150-year record for calm conditions in that notoriously rough body of water.* **Opposite:** *Maretron N2kView is an excellent monitoring system that has worked well for us over the years. Our underway display gives us visibility into almost every instrument and sensor in the entire boat, including navigation, weather, main engine, wing engine, generator, depth sounders, inverters, chargers, and pumps.*

The first evolution of this plan was to continue working for six more months while James finished a couple of projects. We couldn't cross to Hawaii during the northern hemisphere cyclone season (July through October), so delaying past June meant we couldn't cross until November, not a great time to be out in the North Pacific. So we traveled to San Francisco in early autumn and both worked remotely for a few weeks until we could safely cross to Hawaii.

That summer, still in Seattle, we had dinner with Don and Sharry Stabbert who have cruised the world extensively in their Northern Marine, *Starr*. They encouraged us to take the trip, but thought it would be a crime to miss the Marquesas and other South Pacific destinations just in the interest of speed. Over the course of a great meal, they influenced our trip greatly. It's amazing how often the trip has changed base on the advice of someone we know, or suggestions from locals.

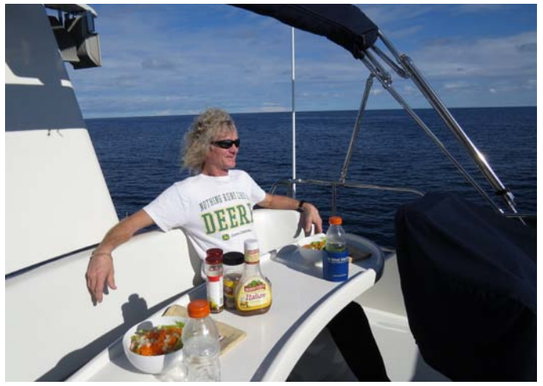
The Parrot Threat

Before we left Seattle, a friend with a strong South African accent asked if we were worried about the parrots. "But they're just little birds," James replied. The "parrot threat," as we've come to call it, definitely is a concern for us, but has only impacted our itinerary on the Indian Ocean and Southern Atlantic crossings.

Our pirate protection device is "distance"–we just don't go where pirates are reported to operate. The area near Somalia and the entrance routes to the Suez Canal are considered very high-risk zones. More recently, pirates have been reported as far south as the Seychelles and as far east as the Maldives. While we would have loved to travel through the Suez Canal into the Mediterranean Sea, we instead crossed the southern Indian Ocean via Rodrigues and Reunion, and rounded the Cape of Good Hope to reach the Atlantic. It's a longer run, with more weather risks, but there have been no reports of pirates.

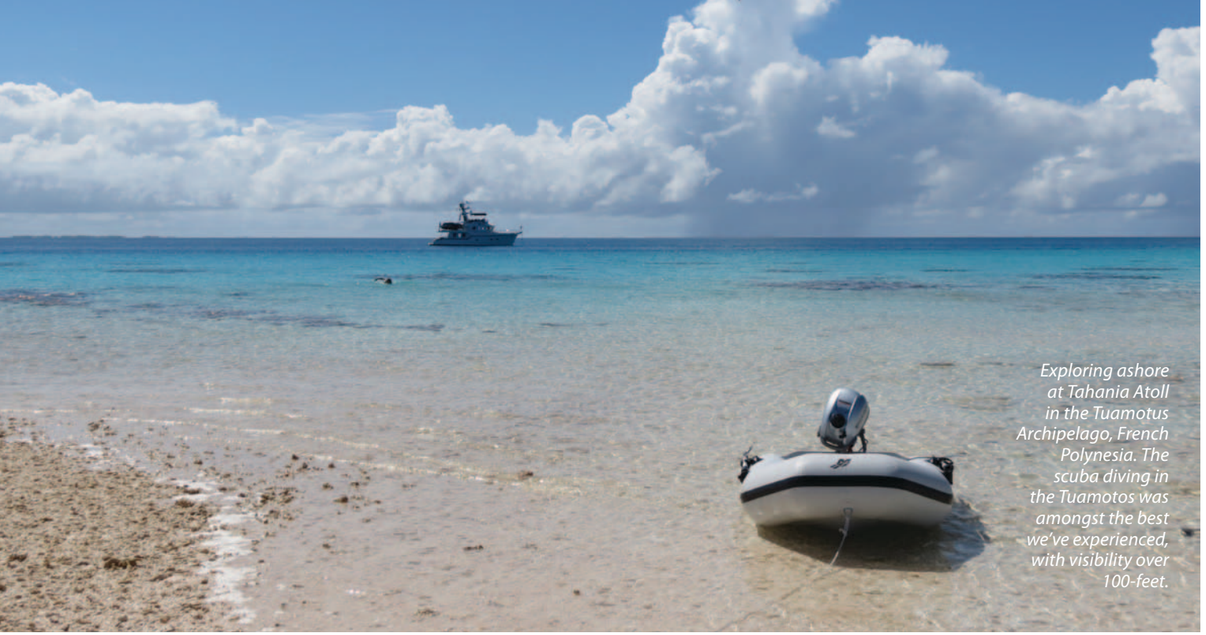
Weather Routing

A passage longer than five or seven days is beyond the extent of accurate weather predictions. In longer passages, the best way to minimize the chance of bad weather is to travel at the time of year when big weather systems are statistically less likely. And of course, we chose a time to leave when no weather systems are in the area or expected.



We choose not to use weather routers and depend upon our own analysis of weather models and reports. Our main source of weather routing information is GRIB data, a standard format used to store and exchange weather information that can readily be downloaded on a satellite connection (see the GRIB sidebar on page 60 for more). We find the GRIB data quite reliable, and a weather system has never surprised us at sea. The model data is less accurate for coastal waters, so we augment the GRIBs with local forecasting information when available.

For longer passages, such as the 3,000-mile Indian Ocean crossing, or passages with a reputation for bad weather, such as the 1,360-mile Tasman Sea crossing between New Zealand and Australia, we study the weather patterns for weeks or even months in advance so we know the typical weather patterns as well as the optimal time for getting underway. We got lucky with our Tasman Sea crossing and managed to pass through during a 150-year record for calm seas.



Exploring ashore at Tahania Atoll in the Tuamotus Archipelago, French Polynesia. The scuba diving in the Tuamotos was amongst the best we've experienced, with visibility over 100-feet.

In deciding when to leave, we find wave period a better predictor of comfort than wave height. We prefer to avoid conditions where the significant wave height in feet is greater than or equal to the wave period. For example, 12-foot waves on an eight second period is uncomfortable, but 12-foot waves on 16 seconds just gently moves the boat up and down and isn't even annoying. The day we left South Africa, the other cruisers weren't heading out into 12-foot seas, but because they were on 10-second periods, they were not bothersome to us.

Working While Cruising

The first six months of remote working seemed productive, and toward the end of that period, James was offered an opportunity for six more months. Six more months became another six more months, and four years later, it continues.

When we left Hawaii, Jennifer stopped working and took over weather routing, course plotting, clearance formalities, in-port activities and forward-looking plans, such as arranging fuel and moorage, provisioning, cooking, and managing our blog site (www.mvdirona.com).

James finds that working aboard is a mixed bag. Clearly having money continue to come in is good, but the time work takes has slowed the trip by at least a factor of two. And, of course, while working, James does occasionally need to return to Seattle. So we must arrange moorage in a location that is safe for the boat and Jennifer since she doesn't always come back at the same time. This requires careful planning and dictates a schedule. Many experienced cruisers have commented that there is nothing more dangerous than being beholden to a schedule. Excessive respect for schedules causes people to make mistakes and take on weather that they should have avoided. We mitigate this risk by planning to arrive a week or two before flight time so we can always wait out bad weather and still make our flight. The consequence is that three weeks back at work ends up costing closer to five or six weeks in total. This is wasteful and sometimes frustrating, but it is just the price of drawing a paycheck.

Taking longer isn't really a concern as long as the trip remains enjoyable and James is still effective at work. Several times, James has concluded that he'd need to take a break at the end of the current "six more months," but these periods always pass. And, when looking back, they don't seem like a big deal. Sometimes these frustrations are driven by remote work. Getting things done when you're not in the office every day is sometimes a little more difficult. Even more common is the combination of work, the voyage, and maintenance to *Dirona*. Over time, we've concluded that any two of the three can work, but attempts to do all three at the same time invariably yields frustration.

When the boat needs maintenance work, we schedule it during a down period. When the maintenance issues are resolved, then it's back to focusing on the trip. The approach of not forcing all three at once makes the trip slower but far more enjoyable.

Connectivity

Another challenge with work is connectivity. James needs to be on email all the time and available when needed by phone. The only option is satellite communications and this is between 100 to 1,000 times more expensive than cellular. Our annual bill for all satellite communications exceeds $25,000, without including equipment amortization, which is close to unaffordable. But we've come to accept the bill as an "investment" that allows the trip to continue.

We have three satellite systems on the boat. The primary is a KVH V7 mini-VSAT system which offers, by far, the best value for bandwidth and a high standard of service. But the Ku-band satellite system does not cover all places in the world, so, for these areas, we depend upon the Inmarsat BGAN system. BGAN is ten times more expensive that mini-VSAT, but we use it only to fill the KVH mini-VSAT coverage gaps. As a final backup we have, but rarely use, the Iridium service. Iridium lacks the bandwidth to support James's communications needs, but if all else fails, it will at least support a phone call. And Iridium covers the entire globe, including the Polar regions.

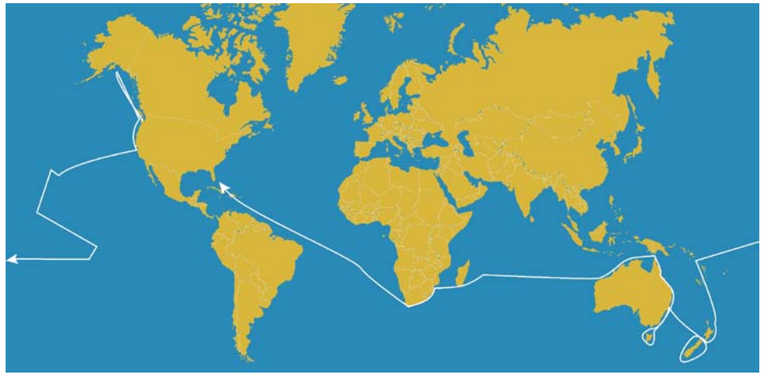
Managing the Plan

To help manage and plan our itinerary, we put together a simple spreadsheet with a destination on each row. We enter the number of days we'd spend in a certain place, how far to the next place, and the speed we'd run on each passage. We also noted the storm seasons and the best times to make a given passage to match our passage dates up as closely as possible to when the weather was statistically calm. The spreadsheet would then calculate the date we'd depart, how long the passage would take, and when we'd arrive. Of course, we wouldn't actually leave on those dates unless the weather looked good for the trip. But it gave us a ballpark. Generally the arrival and departure dates all carried forward from the first row, but we also could enter fixed dates when we needed to be somewhere for a specific time, such as travelling for work.

The table below shows a portion of the spreadsheet for the Marquesas in French Polynesia through Reunion. We could see when we'd arrive in New Zealand based on how much time we allocated to various destinations along the way. And we could see at a glance if our travel dates line up with the statistically optimal time to make each passage.

We filled in the spreadsheet with more detailed plans when applicable. For example, our original itinerary for New Zealand was simply to arrive in early October and stay there for six months. We learned that the best time to visit Fiordland and Stewart Island was during the Southern Hemisphere summertime, January and February, so we updated the itinerary to include those and other destinations. Visa restrictions limited us to nine months in New Zealand, so we tracked that on the spreadsheet as well.

The spreadsheet made it clear to us that our plan for New Zealand felt tight and that we wouldn't have enough time in Australia to see everything we wanted to see and still be able to cross the Indian Ocean at the optimal time to round the Cape of Good Hope. So, we increased our time allocation in New Zealand by two months and Australia by almost a year, planning to cross the Indian Ocean during the calmest time, but a full year later.



DESTINATION	DEPART PREVIOUS	ARRIVE	PASSAGE DISTANCE	PASSAGE DAYS	PASSAGE SPEED
Seattle					
San Francisco	9/07/12	9/12/12	850	4.5	7.9
Hawaii	10/25/12	11/09/12	2011	12.3	7.1
Palmyra Atoll	3/15/13	3/21/13	956	6.2	6.5
Fanning Island	3/31/13	4/02/13	209	1.6	5.3
French Polynesia	4/4/13	4/15/13	1403	10.9	5.4
Beveridge Reef	6/16/13	6/21/13	930	5.2	7.4
Tonga	6/25/13	6/28/13	383	2.1	7.5
Fiji	7/10/13	7/15/13	550	3.2	7.3
Vanuatu	9/2/13	9/4/13	484	2.8	7.3
New Zealand	9/23/13	9/30/13	1111	6.3	7.4
Australia	5/15/14	5/22/14	1368	7.1	8.1
Rodgrigues	8/23/15	9/12/15	3023	19.2	6.6
Reunion	9/22/15	9/24/15	472	2.9	6.8
South Africa	10/17/15	10/25/15	1386	7.5	7.7
St. Helena	12/23/15	1/04/16	1711	11.8	6.1
Caribbean	1/8/16	2/3/16	3689	25.7	6.0
Palm Beach, FL	3/5/16	3/14/16	1424	8.7	6.9

On Passage

Life aboard *Dirona* while on passage is business as usual, particularly when the weather is calm. James works, we still fix mechanical systems and install new equipment, cook meals, do laundry, and blog the trip. Same as ever. Some of this is made possible by modern communications. Being connected means life on passage is not that different from life in port, except the hikes are a little shorter and we operate to a shift schedule so that someone is always at the helm.

Dirona is equipped with an off-watch berth in the pilothouse. Initially we used it on passage but ended up concluding that it was too hard for the person at the helm to be quiet enough. With the off-watch person sleeping down below, one of us gets better sleep and the one at the helm isn't so constrained.

In calm conditions, we generally don't get tired at all, regardless of the passage's length. We arrive refreshed and usually spend the day exploring onshore. The main time we get tired is when conditions are rough. The master stateroom is located amidships, parallel with the keel, making it the best place to sleep in rough weather, but sometimes the motion even there can be difficult. We'll slide around on the berth, keeping us awake, and James has even been tossed out of bed into a doorway on one particularly large roll. It sounds unusual, but we've learned we actually sleep better and are more comfortable on the floor in rough conditions. If the 60-minute maximum pitch or roll exceeds 10-13 degrees, we sleep on the floor, wedged

Jennifer with a giant tortoise at Rodrigues, Mauritius, in the Southern Indian Ocean. We landed there after a 19-night, 3,023nm crossing from Dampier, Australia.

between the berth and the bulkhead. Using this approach, we've slept comfortably even in heavy seas.

James has only been seasick once during the trip, and Jennifer doesn't seem to mind rolling, but she'll get seasick fairly quickly in pitching conditions. A scopolamine patch solves the problem, but she doesn't like the side-effects of the medication, such as dry mouth and drowsiness. Her general rule is if our maximum pitch is much more than 10 or 12 degrees in 60 minutes, it's time for a patch.

Watch Keeping

We started off with the fairly conventional four hours on, four hours off watch schedule. We then shifted to 3.5-hour watches during the night and informal watches during the day. We ran this schedule through the South Pacific and New Zealand, where Jennifer had the helm from 20:00 to 23:30 and again from 03:00 to 07:30 while James slept. James had the helm the rest of the time and we took all meals together, with Jennifer sleeping for a few hours before and after lunch, in addition to the late-night sleep.

We didn't find this shift schedule ideal due to breaking up sleep and because it didn't work for single-night passages. James usually wasn't tired enough to sleep at 20:00 on the first night and Jennifer wouldn't get enough sleep if we arrived somewhere the next morning at daylight.

On a single-night passage between Tasmania and Melbourne, we experimented with a new routine. Jennifer went to bed at 18:00, slept well, and James was tired and ready to sleep at 22:00 when Jennifer woke. Jennifer took the helm and was fine until 05:00. So that was the new watch schedule. James get a solid seven hours of sleep and Jennifer can sleep from 18:00 to 22:00 and from 05:00 until as late as she wants. We have lunch and dinner together, but not breakfast, and overall feel better rested and are spending more time together at sea.

After dangerous weather, we feel human-error is one of our biggest risks at sea. As a guard against the person on watch falling asleep, we use a Watch Commander Pro watch alarm. If the alarm isn't pushed within a preset time, the unit first flashes a light for 30 seconds, then emits a beep for 30 seconds, and then sounds an external alarm or siren. We consider it an essential piece of safety equipment for overnight passages. The alarm is mounted so that the person on watch has to stand up and hit the reset button–you can't just be half-asleep and blindly reach for it. And it can only be disabled by a key that is tucked away in a drawer.

Automation and Reliability

When we go to sea in *Dirona* there are usually only two people onboard. That means automation and reliability are important to us, and we want early warning of problems or unusual conditions. We invest significant time up front to make the boat run as automatically as possible at sea.

Most autopilots have NAV mode, which essentially asks the pilot to steer to a plotted route rather than just in a specific direction. We rely on this form of automation heavily as it removes the burden of constantly having to adjust course on passage to account for winds or crosscurrents. And it improves fuel economy by keeping us on the great-circle route.

For monitoring, Maretron N2kView is an excellent and good-value monitoring system. It has worked very well for us and allowed us to incrementally expand what we monitor over time. This system monitors the NMEA 2000 communications bus to give us visibility into almost every instrument in the entire boat, including navigation, weather instruments, main engine, wing engine, generator, depth sounders, inverters, chargers, and pumps.

We've designed several displays in N2KView. The image on page 60 shows the display we normally use when underway. The displays can be configured almost any way desired. Our first focus is that the system be easy to use even when we're tired or managing difficult weather. It looks complicated, but, in fact, the first-level read is just scanning for green lights at each gauge and checking that there are no orange or red indicator lights along the bottom of the display. As long as we're seeing nothing but green lights, we know the boat is in good shape and everything is functioning properly. It's an easy virtual engine room check that we can perform quickly and frequently. We also do full, physical engine room checks four to six times a day.

If something goes wrong we want to know immediately and have more information at our fingertips in order to take quick action. If an indicator light turns to a warning light, it'll get noticed quickly and the detailed data to more fully understand the problem is immediately available on the same display in a more detailed gauge, graph, or numeric display.

Conclusion

We now have now traveled 56,000 miles in *Dirona* and have been around the world from the continental U.S. and back over the course of four years. We have traveled through 100-foot-high locks, anchored off 300-foot glaciers, seen two volcanos in action, enjoyed some of the best diving in the world, and traveled as far as 3,700 miles nonstop in a single passage. We've watched the New Year's Eve fireworks in Sydney, Australia, the 4th of July celebration in Boston, and attended sailboat, Sprint Car, and even Formula One races. It's been an amazing trip and, even with all we have seen, perhaps the most amazing thing is we are nowhere near ready to move on from boating. Rather than heading back to Seattle, our plan for next year is to cross the Atlantic again and explore Europe and the Baltic Sea

The next two articles in the series will cover some of what we learned on how to rig a powerboat for long-range cruising and how we provision for being away from civilization for sometimes as long as seven weeks. ■

About the authors: Jennifer and James Hamilton are authors of Waggoner companion guide Cruising the Secret Coast: Unexplored Anchorages on British Columbia's Inside Passage. They have been cruising under power since 1999 and moved aboard full-time in 2009. In 2016 they completed a four-year trip around the world in their Nordhavn 52, Dirona, *and have since travelled the North American east coast as far north as Newfoundland, Canada. They maintain a blog at mvdirona.com focused on trip highlights, mechanical systems, and equipment, and approaches they've found useful. The site also includes a live map showing real-time boat location, current weather, fuel-on-hand, and current fuel consumption rate.*

RESOURCES

Circumnavigator Jimmy Cornell has a number of publications that we depend on for trip planning. World Cruising Routes gives distances and waypoints for principal world cruising routes, along with a discussion of weather concerns for that route and recommended passage times. Cornell's Ocean Atlas contains worldwide pilot charts that depict monthly average winds and currents for all oceans of the world, and is useful for determining the best time to make a particular passage. And World Cruising Destinations provides a snapshot for offshore voyagers of 184 countries that includes cruising attractions, ports of entry, formalities, and climate and recommended cruising season. We also used Cornell's web site, noonsite.com, which appends from World Cruising Destinations with information on local services, and is updated with recent experiences from the cruising community.

The National Geospatial-Intelligence Agency publishes worldwide Sailing Directions that we found quite useful. These can be downloaded for free on their web site and have detailed information on local harbors and coastal hazards. We also used local cruising guides, travel books such as Lonely Planet, and web-based sources to plan our itinerary in more detail.

Visit www.goo.gl/m92ppr for more information on our communications systems and www.goo.gl/LjrUaD for how we've set up the Maretron N2kView display.

At Marjorie Falls in dramatic Fiordland, New Zealand. Fiordland was on our list of special places to visit for nearly as long as we have been boating.