KATARA

Hallberg-Rassy 310

Owner's Notes

Welcome! Katara has contributed to the enjoyment of many, and we hope it will be so for you. We can't pledge that a pod of five orcas will swim beneath her, a bear will greet you on the beach or that you'll be spy-hopped by a Humpback whale (all true) – but we can guarantee that she's fully vetted and equipped for safety and fun in the islands.

This guide provides important information about basic operations and Katara-specific things you will want to know. Feel free to contact us if you have additional questions.

We're also happy to offer a couple of things unique to Katara. First, you are welcome to spend a night at our 40' slip in Friday Harbor if you'd like a night in town. Second, we'd be happy to shuttle and host you for coffee at our place nearby on the south end of San Juan Island (48.464144, -123.04783) with frequent views of whales and other sea creatures, foxes and large birds looking down to Mt. Rainier, across to the Olympic Mountains and over to Vancouver Island. It's unique—especially if you're new to the area—but there's so much to explore! Feel free to be in touch if you'd like to check availability.

Wishing you peace, fair winds and wonderful memories – Marc and Megan Frazer
206.225.0705 (cell, text preferred)

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Specifications and Vessel Information

Hallberg-Rassy 310, Hull #120 built in Sweden in 2020. CE certified for category A -- unlimited ocean voyages **Vessel Official Number - 1304234** (Coast Guard Certificate in cabinet beneath VHF radio; the number placard is affixed opposite the head, beneath the closet opening)

Hull ID: SE-HRM-31120-L920 MMSI: 368149320 FCC Registration: 0029656600

U.S. Customs Re-Entry Decal – Exterior on starboard aft cockpit.

Washington State Marine Parks Annual Permit Decal – Located on the cabin exterior, port side.

Coast Guard Boarding Document – Refer to the Charter Guest Reference Manual (white binder), Section 5 Documentation. Explains what to expect if you are boarded by the Coast Guard and where to find the information/equipment they may ask to see as part of their safety inspection.

Namesake – Katara is a superhero from *Avatar: The Last Air Bender* who can "bend" water.

<u>Useful Manuals</u>

Manuals are aboard from Hallberg-Rassy and for all systems described in this guide. We have separated manuals into two piles – the first being those that may actually be helpful, and these are located in the gray zip folder beneath the electrical panel (where the Coast Guard certificate is) – and the rest which you should almost certainly never need (e.g. installation schematics) are in the cabinet beneath the bow berth.

Hallberg-Rassy 310

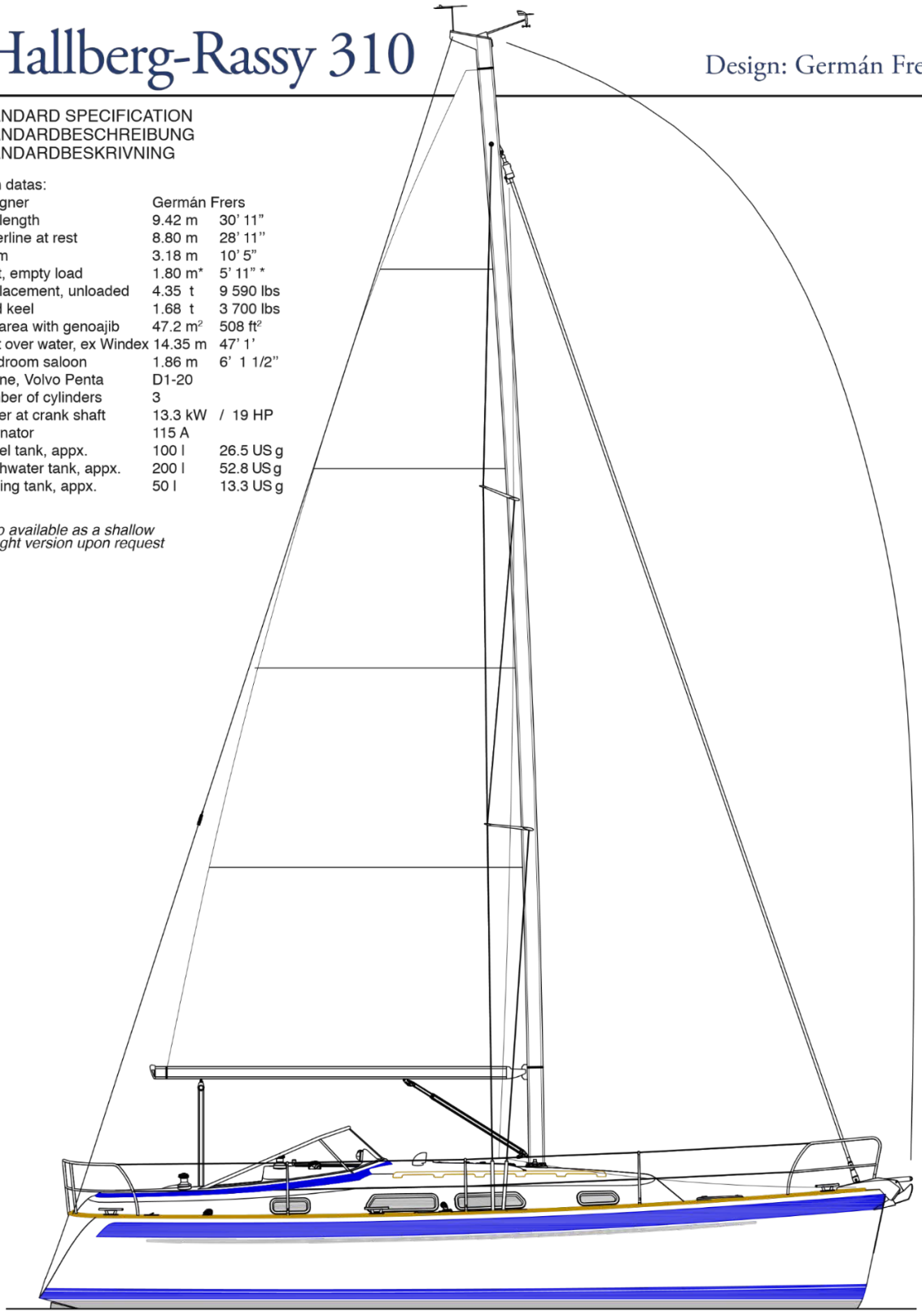
Design: Germán Frers

STANDARD SPECIFICATION
STANDARDBESCHREIBUNG
STANDARDBESKRIVNING

Main datas:

Designer	Germán Frers	
Hull length	9.42 m	30' 11"
Waterline at rest	8.80 m	28' 11''
Beam	3.18 m	10' 5"
Draft, empty load	1.80 m*	5' 11" *
Displacement, unloaded	4.35 t	9 590 lbs
Lead keel	1.68 t	3 700 lbs
Sail area with genoajib	47.2 m^2	508 ft^2
Mast over water, ex Windex	14.35 m	47' 1'
Headroom saloon	1.86 m	6' 1 1/2"
Engine, Volvo Penta	D1-20	
Number of cylinders	3	
Power at crank shaft	13.3 kW	/ 19 HP
Alternator	115 A	
Diesel tank, appx.	100 l	26.5 US g
Freshwater tank, appx.	200 l	52.8 US g
Holding tank, appx.	50 l	13.3 US g

**Also available as a shallow draught version upon request*



Hallberg-Rassy

Electricity and Diesel

Two large lithium batteries beneath the bow berth provide most of the boat's power needs. A separate battery beneath port berth powers engine start-up. All batteries are automatically being charged when the engine is running. Switches for both are in the panel port side beneath the bench next to the head. Please leave the switches on / as you find them.

At idle, the battery charges about 20% per hour. If we are motoring +/- a couple hours a day (or even every couple of days), we typically don't worry about having enough power. Touch the round white circle at the top of the black screen adjacent to electrical panel to see what percent of power is remaining. The 30Amp shore power cord is in the lazarette, white canvas bag.

*<u>Please **never** change settings on the electrical panel!</u>* The current settings are correct. Altering settings risks opening a can of worms that can be complicated to resolve, especially if information is needed from the factory in Sweden (it has happened). Other than checking battery remaining, please leave the panel alone.

Katara holds 26.8 gallons of diesel fuel. The tank is filled through a deck inlet, midship starboard side. The cruising range in calm waters at cruising speed is approximately 388 nautical miles.

The fuel gauge is located in the cabin, next to the VHF radio.

Cockpit and Dodger/Sprayhood

The length of the cockpit is 7' 9'' to the washboards. We often sit leaning on stern rail, legs up on bench.

There is a friction locking knob for the helm wheel located beneath the wheel. We use this feature at anchor to keep the rudder from moving around. If the wheel feels stiff to turn then check that the wheel lock has been loosened. The wheel lock should only be used when the vessel is moored and not while underway.

Visibility is increased when standing with one foot on each bench. Grip the backstay for added stability.

The boom / mainsheet can be stored to the side when motoring or at anchor. The sprayhood can be rolled away neatly into a protective cover (see sailing section). The washboards store in the cockpit locker. Fenders can be stowed in the dinghy when underway.

A table is available for use, mainly when not under sail, found in the lazarette.

Engine

Katara's engine is a Volvo Penta D1-20 with saildrive and three-bladed folding propeller. Engine access is provided by lifting the companionway stairs, which operate on hydraulic lifts. The key is in the cabinet along with the Coast Guard certificate beneath the electric panel.

<u>Starting the Engine</u>

No key is required to start the engine.

1. Ensure the throttle is in neutral – which means the green tape aligns on the steering column (note that neutral is NOT straight up and down.
2. Press the "ON/OFF" button for one second to turn on the ignition (pressing longer turns it off).
3. Press the "START" button, which will start the engine.
4. Listen/look for water discharging from the aft starboard end of the hull. If water is not in the exhaust immediately shut the engine down and contact SJS.

Allow 5-10 minutes of warm up before placing a load on the engine. It stresses a diesel engine to be placed under load when cold. Conversely, allowing a diesel engine to idle too long will cause carbon build-up.

<u>Running the Engine</u>

- Engage forward or reverse gear by moving the transmission directly from Neutral to Idle-Forward or Idle-Reverse (the transmission will click into each setting), pause momentarily, then move the throttle forward/backward smoothly to your desired RPM setting. Engaging the transmission in jerky incremental steps can slip the clutch, causing damage over time.
- To keep the transmission "healthy" when shifting from forward to reverse and vice-versa, pause ~2 seconds in neutral before shifting gears.
- An economical cruising speed of 6 knots is achieved at 2200-2400 RPM. Please <u>*do not*</u> exceed 3000 RPM; it's hard on the engine and fuel consumption goes way up with very little increase in speed. We recommend keeping the engine speed under 2500 RPM for most operating conditions.
- To avoid sucking in air or sludge when the fuel level approaches ¼ of a tank, refuel when the fuel drops below ½ full and before it reaches ¼ full.

Boat Handling with the Engine

San Juan Sailing offers free handling instruction before you leave for your charter if you'd like to practice with Katara or just bone up on your boat handling skills. Spending 30-60 minutes practicing getting in and out of the Bellingham marina can be wise; it gets crowded.

Operating in Forward

Because the saildrive/propeller is almost directly below the engine, the wash from the prop takes a moment to reach the rudder; anticipate this delay when maneuvering in tight spaces. A short burst of throttle will direct water at the rudder, which if already turned, will result in a short, sharp turn with little forward movement – a strategy that can be handy when turning in confined spaces.

Please have the bow thruster controller turned on (black rubber button on panel starboard stern) and be prepared to use it if needed to prevent a collision, or anytime you are turning your bow into a breeze. Use the bow thruster in short bursts to decrease your turn radius.

Good technique, especially in breezy conditions and some current, is to give a very brief burst of throttle (about 1500 RPM), then quickly go back to idle forward or neutral. This will quickly increase boat speed and therefore steerage without using up precious sea room ahead or behind. Then as you begin to slow down, as long as you still have sufficient sea room ahead or behind, you can repeat the throttle burst as needed.

In reverse, Katara has a starboard prop wash. This means the stern of the boat pulls slightly starboard when in reverse (and is why we prefer a starboard dock tie).

Autopilot

The autopilot may be used to hold a heading when motoring or sailing. The autopilot controls are on the small display, starboard stern. We typically use the remote when not behind the wheel. Press "PILOT" button (bottom right) to activate. Press arrow keys to alter course to port or starboard by 1 degree (short press) or 10 degrees (long press, good for avoiding logs). To tack, press mode—tack—arrow for tack—pilot—then it will execute the tack). Press "standby" to regain wheel steerage. See user guide in cabinet beneath the interior electrical panel for additional information.

Use the small Philips head screw driver and replacement batteries as needed from inside the cabin table.

Docking

Whenever you are departing or arriving at the dock have a crew member designated as the "**roving fender**" team mate. If you are going to accidently "touch" a boat or other object, lower the fender to the point of contact. This has saved us from problems several times over the years.

Unless there are high winds, we typically motor in the marina in Idle-Forward, which will produce a boat speed of about 2 knots. About 4 slips from our target dock, we shift to neutral and glide in. Fine-tune as needed with

bow thrusters. Use the engine to stop the boat at the dock, and don't shut down the engine until the vessel is secured at the dock.

When coming into our docks in strong winds, or if you'd just like a little assistance on arrival, hail "San Juan Sailing" on **VHF Channel 80**. They'll be glad to offer some coaching and/or catch your lines. In fact, most marinas in the Islands will help you if you hail them and ask for assistance. Asking for docking assistance is a sign of smart seamanship.

Using the Bow Thruster

The bow thruster allows you to control bow alignment using short bursts when docking or departing.

- Activate the thrusters at the helm control panel, starboard, by pressing black button which then lights up red
- Thrusters are controlled via the black rubber foot buttons at the base of the helm. Step on the port button to swing the bow to port, starboard button to swing the bow starboard.
- Most of the vessel maneuvering should be done using the engine and rudder. The thruster is an aide, not the primary steering device. Use minimally, in short, up to 5 second bursts, for small corrections during your final approach into the slip or to keep from hitting another vessel or dock.

Shutting Down the Engine

1. Allow the engine to idle for a few minutes in neutral to cool down.
2. Press the "STOP" button, which will stop the engine. Then press the "ON/OFF" button.

Electronics and Instruments

Katara is equipped with digital displays providing all the important data needed to operate successfully, including a multifunctional display and four additional displays showing depth, speed, wind angle, heading and more. These are powered on via the main interior electrical panel.

Multifunctional Display

The multifunctional display is your primary digital map / chartplotter, and provides access to radar, AIS and more. Please refrain from changing settings beyond the typical functions like chart scale, radar range and AIS overlay. The user manual can be found in the grey zippered bag in the cabinet below the main control panel port side.

The POLARS setting has been programmed with Katara's details and gives you a performance benchmark. The multifunctional display shows how well you are sailing factoring in conditions. We've often thought we were optimally trimmed, then learned through POLARS that we were only at 85% of possible speed.

A.I.S. (Automatic Identification System):

AIS information supplements marine radar, which continues to be the primary method of collision avoidance for water transport. AIS vessels appear on the chart plotter as triangles (must have AIS overlay turned on). The triangle points in the direction that the vessel is moving and if you touch the screen over the triangle the system will give you additional information (such as name, size, speed, bearing, etc.) about the vessel. Likewise, the system transmits this same information about Katara to others with AIS. They may try to contact you via VHF channel 16 to verify your course intent.

In addition, AIS allows San Juan Sailing/Yachting to provide faster assistance in case of unplanned maintenance issues as well as alert the office of Katara's return approach. Vessels with AIS can be viewed in real-time through mobile device apps and websites like www.marinetraffic.com that will reveal vessel name, course, speed, track, and other information.

AIS requires each vessel to have a nine-digit MMSI (Maritime Mobile Service Identity) number to transmit position and data. Katara's MMSI: 368149320

VHF Radios

VHF radios are located inside to port of the companionway stairs and on the starboard end of the instrument array. Turn on VHF on the electrical panel; this turns on the radio in the cabin. The cockpit radio turns on via a long hold on a button on the top / crown of the radio.

Always monitor Channel 16. As the nearest vessel to an emergency, you may well be able to save a life or a boat. You will also receive important broadcasts from the Coast Guard about known hazards. Channel 16 is also used to initiate boat-to-boat contact. After contact, move to channels 68, 69, 72, 74 or 78. We listen to weather channels 1-10 (whichever gives the best reception, normally 4 in the San Juan Islands) before we sail in the morning and prior to anchoring for the evening. Listen for the reports identified as "Northern Inland Waters". San Juan Sailing monitors channel 80 during office hours (closed Sundays).

If you are struggling to make out a transmission, chances are it doesn't have anything to do with you. For example, you may be just within range to hear boats announce imminent passage through Active Pass in Canada even if you're sailing in the U.S. – which wouldn't be especially relevant for you – or a less experienced boater may be calling in a radio check on 16 (use channel 09). Our experience is that when the need is present for communication about navigation, marine life or with marinas, the signal will be perfectly clear.

Sails and Rigging

Katara is a classic sloop. Sloops date to the 17th century, offering a sailboat rig that is popular because it can sail upwind effectively and the systems are ideal for a small crew.

Full sails can be carried in 15 or even 20 knots. Depending on how the weather is trending, we start reducing sail (reefing, but with furling sails) around 18 knots+/-. It's great to be able to adjust both sails to any size desired. We have tried every combination such as deploying just one of the sails or one sail furled more than the other – it all depends on your appetite, currents, wind direction – the options and adjustments that can be made are essentially endless. Take a peek at the sail trim books located in the cabin, use the POLAR setting and/or see if you can hit the performance targets shown at the end of this guide – not to be in a hurry, but to see how well you can actually play your instrument, so to speak. The art and science of sail shape can be a lot of fun.

The experience of actually sailing Katara is best with the dodger down and secured with its blue cover. The cover is in a gray nylon bag in the lazarette. This allows you to access lines and make adjustments more easily. For example, pulling out the mainsail is easier if you don't have the dodger bar above your head. Out of laziness we often just leave the dodger as-is, but it does limit mobility

Start installation by lining up the two white triangles above the windscreen. The windscreen provides some shelter with the dodger down, and the windshield opens to let breeze through.

On a downwind tack, you must unzip at least a foot of the dodger sides. You will likely blow out the zipper if tacking downwind without easing the zipper for the mainsheet to have room.

Primary Mainsail Controls

Katara does not have a traveler. The mainsheet / mainsail attaches to the center D ring. The mainsheet can be stowed to the side when not in use but must be attached to the D ring in the center of the cockpit to function safely.

In addition to the mainsheet – the outhaul, boom-vang and backstay are the primary levers to control sail shape for optimal sailing as well as to *feel* safe. Power up or power down using the various levers, including the ultimate lever – which is sail size.

The mainsheet and how you point the boat relative to the wind are your biggest "levers." Flattening the mainsail depowers the boat and reduces heel. This can be achieved by pulling the outhaul aft, bringing the bottom of the sail further back on the boom, or lowering the boom by making the boomvang tighter (take care not to crush the sprayhood/dodger, if up). Tightening the backstay (stern, port) tightens the rig and depowers the mainsail and the jib. The tip of the mast is pulled aft and down which opens up the leech of the main so it twists more near the top allowing more air to spill off; with less pressure higher up, the boat heels less.

Conversely, to power up the sails, loosen all those same controls incrementally.

The topping lift is more of a back-up than anything since the boat has a boomvang, but it needs to be adjusted periodically to assume a comfortable tension that does not interfere with the mainsail being where you want it to be. Take care note to tighten the boom onto the sprayhood / dodger.

Please do not change halyard tension on the mainsail. The halyard is set correctly and the line is marked. Too much halyard tension risks binding the furler.

<u>Pulling Out the Mainsail</u>

1. Attach the boom / mainsheet to the D ring, in the center of the cockpit.
2. Move the lever on mast winch from "rachet" to "free". The rachet setting is used when reefing / reducing sail.
3. Make sure the boom is level/horizontal/perpendicular to the mast, adjusting using boom-vang while the topping the lift is loose. If the boom is not level, the sail could jam because it is designed to pull out level. Look for parallel spacing between the sail and boom.
4. Ease mainsheet a bit (~a foot).
5. Uncleat "furl in" and "furl out" (it is a continuous line)
6. Wrap the outhaul 4 turns clockwise around the winch (since it is a smaller line)
7. Position the boat on a slight starboard tack (wind coming over the starboard side). Unlike a standard main, it is best to have wind in a furling main when deploying, similar to deploying a furling jib. The wind adds even pressure all the way up the mast and helps the sail deploy. Point **5-10 degrees** off the wind on a starboard tack (wind coming over the starboard side, sail coming out on port side). You're looking for just enough wind to help the sail come out, so adjust your angle to wind to keep the power / amount of wind appropriate to the task.
8. Use a winch to pull the sail out via the outhaul. During this process, the furl in / furl out line runs free. Note that the winch turns both ways – one way is faster, but harder. Keep your back straight.
9. When fully deployed (or deployed to the degree you wish), close the furl in / furl out cleats. Adjust the backstay and boom-vang to conditions, and snug up the topping lift.

<u>Reducing Mainsail Size</u>

1. Again point 5-10 degrees off the wind on a starboard tack.
2. Set the on-mast winch to "rachet" instead of "free." This allows you to pull the sail in but not let it go out – which is helpful since you're probably reducing sail because the wind is coming up. (But remember—it <u>must</u> go back to "free" in order to pull the sail out again!)
3. Uncleat furl in / furl out lines and give the furl in line three wraps around the winch.
4. Uncleat the outhaul – but keep pressure on it to release as much needed for the sail reduction, either by using the aft starboard winch, or by hand depending on conditions.

5. While being mindful of what's happening with the outhaul (it needs to go in as you reduce sail), give as many turns on the furl in line / winch as needed to achieve your desired sail size.
6. Aim to have a vertical batten just at the opening of the mast to provide the most effective load on the sail.

Typically, though not always, the reduction of mainsail size is followed (or preceded) by a correspondingly large reduction in the size of the jib.

If you've never sailed with a tiny main in big conditions, it's good to feel so in control while it's nuts all around you. Katara has fared well all the way up to stormy ocean conditions. Adjusting to proper sail size for conditions makes all the difference.

Pulling In the Mainsail

To bring the sail fully in, just continue the same process for making the sail smaller until it is wrapped up the point of the heavier triangle of material at the clew of the sail.

The entire sail does not go into the mast; if you bring that triangle in, it could jam. Keep a bit of tension on the outhaul in order to get a nice tight wrap of the mainsail inside the mast. If you furl the main without any wind pressure on it (if you're becalmed), tension on the outhaul line is the only force that will get you a nice tight wrap inside the mast. A loosely furled main inside the mast could mean a tough next deployment or, in the worst case, a jammed main. Don't pull it in more than the picture with circle showing sail fully in.

Adjust the boom vang, backstay and topping lift as needed. Keep the boom level so it's ready to use next time.

Pulling Out the Jib

1. To deploy the roller, release the black and white furling line from the clutch at port stern. Make sure that line can run freely otherwise the jib can't come out.
2. Unlike the mainsail, the jib can be deployed on either a port or starboard tack. For a starboard tack, wrap the jib sheet three turns clockwise on the port winch.
3. Make sure the starboard sheet is free. Keep your back straight, and crank to desired size.

If you are managing a little too much wind, trying moving the jib cars back and sheet in to flatten the jib.

Pulling the Jib In / Reducing Jib Size

1. Close the furling clutch (port side, stern) and pull the black and white line through while keeping tension of the jib sheet to ensure a tight wrap.
2. Turn into the wind.
3. Pull in the black and white line while keeping tension on the jibsheet. Use sailing gloves located along the wall in salon. If you're truly into the wind you shouldn't need a winch. Just pay close attention that

the furling line or sheet is not stuck. As is true almost universally with all the systems – if it's too hard, something's probably not right.

The jib cars, midship both sides, impact sail shape. In bigger winds / to depower, pull the car back. This flattens the sail shape. Conversely, moving the car forward allows the sail to take greater shape.

A whisker pole is attached to the forward part of the mast and can be used to keep the jib deployed effectively in light winds. This only makes sense when you'll be on a tack for a long time (more than an hour) because it takes effort to deploy. If you do use it, the first or second hole is best. A reasonable tutorial can be found at www.youtube.com/watch?v=czoi63XfWTQ.

Keeping all the lines tidy helps prevent problems. For example, keep the jib retrieval line wrapped neatly on the rail so that it doesn't go into the water or wrap around the rudder or prop.

Cabin Details

<u>Main Saloon and Cabins</u>

Headroom in the saloon us 6' 1 1/2''. All skylights include a blackout shade and screen.

Lights are controlled via swiches on walls for overheads and touch-sensitive "buttons" on individual small wall sconces. We also like the string of lights in a round black case found inside the closet opposite the head.

The table has foldable sides and a top opening for storage. Inside you will find a hand-bearing compass, tape, knives / leatherman, and more.

Both settees are 6' 7'' long sofa, and the back cushions of both can be raised so that the whole width of the berth can be used for sleeping accommodation. We have tried every sleeping arrangement – together, using both cabins, sleeping in the salon (less rocking if conditions are rough) and sleeping on deck.

Stowage in the main salon is in the cabinets, along the galley wall and in the companionway step.

For longer trips as a couple, we typically divide the boat in half so that each person has a cockpit bench, salon sofa and a stowage net (found in starboard mid-ship fabric shelves). That way you can always find your stuff, and not have someone else's stuff where you want to sit or lay down.

In the forward cabin each side / cushion in is 6’ 9’’ long, foot end 36 cm and aft end 176 cm wide. Stowage is along the wall, in the cabinet beneath the jib, and in the starboard vanity.

The aft cabin has a double berth, size 2.06 m where it is longest and 2.01 m where it is shortest. 1.43 m wide where it is widest and the foot end 1.00 m. Stowage is along the wall and in locker with shelves. The aft cabin has a full door and a window up to the helm.

Stereo

(coming)

Heater

Katara has a Webasto forced air heater controlled via a small black unit and wheel above the main electrical panel (see white circle, right). The heather uses diesel from main fuel tank.

- Press power and heater will come on set to 70 degrees Fahrenheit.
- Adjust up or down by turning and then pressing wheel at desired temp
- To turn off, press and hold the power button for 2 seconds, light will turn white from green. Takes a few minutes to fully turn off.

It is fine to run the heater all night though if it’s very cold you will eventually see an impact on your fuel level.

Galley, Stove and Barbeque

The galley is stocked with dishes and cookware. The pull-out cutting board and companionway stairs provide additional work space. The two-burner gas cooker is gimballed and should be kept locked unless underway. The stove is powered by a propane tank found in a dedicated locker at stern starboard. The San Juan Sailing staff checks propane levels weekly to assure that you don’t run out.

To light a burner:

- Turn on the red solenoid switch above the main electrical panel (see red arrow, above).
- Make sure the gimbal lock at the bottom of the stove/oven is secured. That way, if someone leans on the stove or grabs the oven handle, it won’t tip and spill pot/pans on the cooktop.
- Press in and rotate knob for desired burner—and while holding it in, press ignition button at right.
- After the burner lights, hold the knob in for a few seconds to heat the safety “thermocouple”, then release.
- Turn the knob to the desired heat level.

- Turn the red solenoid switch off when you are done.

The process is the same for lighting the oven. Once when stranded in Winter Harbour because of bad weather we baked a salmon in the oven. It worked, but we decided that stove-top or barbeque cooking is a much easier option.

The ideal thermostat setting for the fridge is "5" on the dial located at the back of starboard sliding cabinet next to sink. When loading the fridge, it helps to remove one basket. Take care that the heavy lid doesn't close on your fingers, especially underway, but even at anchor.

Barbeque. The barbeque (outside on the stern rail) has its own dedicated fuel source.

To operate: xxxxxx

Water

Capacity and Operations

Katara has fresh water holding capacity of 200 litres / 53.6 US gallons. The water gauge is next to the electronics control panel. Filling of water tank is through deck inlet, port side.

The water pump switch on the main electrical panel must be turned on to produce water pressure. We leave it on 24/7. Occasionally it will go off on its own due to a loss of pressure but it happens infrequently and lasts only a moment. It could, however, possibly wake a light sleeper, in which case turning off for the night is fine.

Using the salt water foot pump saves fresh water and is perfectly effective at a first pass at the dishes.

It takes about 30 minutes of running the engine to get the water hot, but it tends to stay hot for a long time.

State parks do not have pressurized water to refill tanks, but all points of civilization do.

Showers

Katara has two showers. Both require the main control panel's water pressure switch to be on.

The primary shower is incorporated into the head. The sink faucet extends to become the shower head, and the entire head becomes the shower. Press the blue drain button as needed (just below the counter edge at port).

The transom shower features both hot and cold water. To operate, lower the dinghy (described below), open the stern safety lines and then lower the swim ladder to free up a small bathing platform. Find the quick-connect showerhead and black cord in the small locker next to starboard helm (where propane tank is stored). Connect to the standing coupler at stern starboard; turn on and adjust temperature using the metal knob. Once done, turn the knob back off so you don't drain all your water.

Head and Holding Tank

Katara's has a pump action toilet. As with all marine toilets, you are less likely to get a clogged toilet if you don't put anything in the toilet that has not been eaten. The alternative is to deposit toilet paper in a wastebasket in a sealed plastic bag. The holding tank is 13.3 gallons with a view port in the wall above the toilet. Each pump provides about a quart of water, or about 50 pumps *into the holding tank* before needed to be emptied (versus pumping pee straight out, which has no limit).

1. Set levers

just pee

pee & poo

2. Do business, then Pump

A. Move black level to "flush" position (left side if facing toilet, picture shows water in bowl)

B. Unlock handle and pump a few times for pee, a few more for poo. For best results pump slow and evenly.

C. Move black lever back to "dry" position, give couple more pumps as needed

D. Re-lock black pump handle as shown at right. Failure to leave the lower level as shown in the picture risks bringing water into the boat.

3. Re-Set levers

Leave in this position

If the toilet pump starts to resist your flushing effort, don't force it. A couple additional pumps will usually free any obstructions.

Don't overfill the holding tank! With two people on board, the tank will need to be emptied every few days depending upon use. When possible, we use heads at state parks and marinas to extend the time between pump-outs.

It is illegal in U.S. waters to discharge holding tanks overboard. In Canada, it is illegal to dump sewage within three nautical miles of shore. It's a lot better for marine life to use pump-outs.

The pump out is accessed midship, port side above the head.

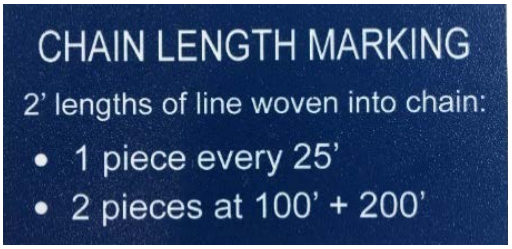
Anchors and Windlass

Katara has an annual mooring pass for all marine park buoys (possibly the only boat in the fleet to have this). Using a mooring ball and taking the dinghy ashore is the easiest at-rest arrangement. We use a heavy snap hook on the mooring line to avoid chafe, with a loose secondary line. When leaving, we unhook the heavy hook using the dinghy or pulling it up with boat hook (easier or harder depending on conditions). The snap hook can be found in a tupperware midship beneath the starboard bench, by the toolkit. If you don't use the snaphook you should at least use two lines, and possibly give a single turn around the primary to limit chafe.

Katara's main anchor is a Delta anchor, 16kg, with 131 feet of chain and 170 feet of nylon rode. The breaker for the windlass is in the top-opening cabinet beneath the port settee next to the head.

Deploying the Primary Anchor

1. Keep the engine on for power.
2. Untie the red safety line tied to the anchor. There is no safety to release on the windlass.
3. Open the anchor locker to make sure there are no obstructions. You want the chain and nylon rode to run freely.
4. Press the Anchor/windless power button next to the helm, starboard side.
5. Determine precisely where you want to anchor. Aim for a depth of 20-40 feet (though you can anchor up to 50 or even 60 feet reliably with special attention to what's happening with the tide). Ultimately you want a 5:1+/- scope, bow to bottom, or maybe 4:1 in calm crowded anchorages. Things to consider: Will your depth be higher or lower when you wake up in the morning? You should know the answer to that question. Is the sea state reasonable? (not *crazy* current or swell) Does the anchorage leave you exposed or protected from incoming weather? How will the boat swing relative to other boats or obstacles? We tend to look for room at anchor by planning in advance and taking time to motor over specific locations/ options for dropping the anchor when we arrive. We also like to have a plan B in our pocket in case things don't look to our liking.
6. Have one person at the bow and one at the helm – and be ready to communicate by agreeing on the essential information you'll be sharing such as, "which way is the anchor rode pointing now?" An arm signal from the person on the bow in the direction of the rode can make all the difference.
7. Turn the boat in the direction you wish to anchor, typically into the wind, and picture how far the boat will go from where you drop anchor to the point is ultimately secured. At least several boat lengths, especially considering how much further than that if the tide is dropping, providing more scope.
8. Drop the anchor using either the foot peddle at the bow, or the toggle switch at the stern helm starboard. Note the amount being deployed as shown on the chain/rode counter, also stern helm starboard. Once the # of feet showing on the rode counter equals your current depth, put the boat in reverse, idle (minimum) speed, returning to neutral repeatedly / as needed. The point is to lay out your rode at an angle rather than in a pile. If needed make a correction with the bow thruster (short bursts). Your goal is to balance the payout of anchor and speed going backwards.



9. At 131 feet the rode switches from chain to nylon. In addition to the electronic rode counter, it is good practice to note the chain length markings.
10. Once the anchor is fully deployed, give one last brief burst on the throttle in reverse, then see what happens. If the anchor is well set, the boat will spring back a bit via the nylon rode. Line up objects on shore to determine if you are holding.
11. The windlass is not designed to hold the boat while anchored. Once deployed, use the boat hook (or lean over) to attach a snubber to the chain if you have deployed only chain (in a shallow anchorage, like 20-25'). The snubber hook can be found in a tupperware midship beneath the starboard bench, by the toolkit. We use the 8-plait white line found in a bag attached to the bottom of the lazarette bench. If you've deployed more than the 131' of chain, the nylon rode itself is stretchy enough to function as its own snubber but it must be cleated off to put tension on the cleat, not the windlass.

12. Turn ON the anchor light overnight, located on main control panel in cabin.
13. Turn OFF the anchor power (next to helm).
14. Deploy the Anchor Riding Sail depending on conditions (optional). It is designed to reduce swinging and strain on the rode. As the boat begins to swing, a fin directs a correcting force to a windward wing, and the boat is pushed back into alignment.

In storm conditions (or storm forecast), you can increase scope if there is adequate room to leeward. If anchored in a small cove, you may wish to deploy a line ashore to reduce swing (stern ties are necessary in some crowded Canadian anchorages). Webbing of 185 feet can be found in a spool on the rail. Deploy the line with the dinghy while the spool unwinds. If sufficient length, bring the line around a secure shore object and back to the boat to a transom cleat for ease of retrieval. Again, use a cleat – the spool itself will not hold. Use a winch to re-spool the webbing.

A manual winch may be used to tighten the windlass clutch if it slips when raising the anchor. In an emergency, if the anchor needs to be lowered quickly, the clutch can be loosened. Keep enough tension on the clutch so the chain pays out at a controlled rate – keep an eye on the chain pile and be prepared to tighten the clutch if a knot of chain is pulled up.

A secondary Bruce anchor (10kg, 50 feet of chain and 150 feet of nylon rode) is available for additional holding power if a storm is anticipated, but best if set before the storm hits. The secondary anchor is deployed manually via the dinghy. Your goal is an angle between the two anchors in the range of 45 to 90 degrees. The anchor is in the bow locker, the rode is in the lazarette.

<u>Raising the Anchor</u>

1. Start the engine for control and windlass power.
2. Agree on a plan of action and communicate throughout the process about where the rode is now so the helmsperson can turn and go in/out of neutral.
3. Remove the snubber or uncleat the rode.
4. Turn the anchor power back on.
5. Idle speed forward in the direction of the rode and go in and out of neutral as needed. Use bow thruster if needed. Your goal is to move forward via engine power as the windlass begins pulling in the anchor; the anchor will loosen as you get more directly above the anchor. Don't let the boat be pulled by the windlass; it can cause major problems.
6. Use the foot peddle at the bow or toggle swich at the helm to raise the anchor (typically we have the person at the bow raise the anchor because that position provides the best view of what's happening). Keep communicating about being in or out of gear, and where the boat needs to be positioned.
7. The person at the bow should open the anchor locker and watch that a "mountain" of rode does not pile up. Go in neutral and assist the mountain down the hole as needed.
8. Be especially careful / go especially slow in raising the anchor when it comes into view. You do not want to pull it into its cradle with force; it should (ideally) *just* make it in there, where it can be reattached to the swivel and dyneema safety. If the chain is torqued, it's too tight and will damage the system. To nest the anchor in its final position aboard may require you to manually swivel the anchor with the boat hook (or foot).
9. Clean off the anchor as required.

Dinghy and Outboard

Katara is equipped with a 7' 10" Achilles 240AL aluminum-bottom inflatable dinghy.

Dinghy Davits

Before lowering the dinghy, make sure the aft drain plug is secure, then untie the white and yellow line tethering the dinghy to the rail / davits.

To lower the dinghy, use the sailing gloves found in the cabin. Stand with the steering wheel to your back. Unfurl the white lines from the rail, then carefully uncleat from the top while maintaining tension and control. Slowly lower the dinghy to the water, pushing it out periodically with your foot. Once the dinghy is in the water, open the stern safety lines and lower the swim ladder.

Leave the drain valve (located in the stern) open when hoisted to let any accumulated water drain out. Close it when ready to use the dinghy.

When leaving the boat for more than a day, or in a monsoon, lower the stern to allow rain water out.

Using the Outboard

Rowing ashore is often the easiest option, but for longer distances (or just for fun), an ePropulsion Spirit 1.0 Plus electric outboard can be found in the lazarette.

1. Once the dinghy is lowered into the water (with drain plug closed!), the dinghy engine can be attached to the transom. One person in the dinghy, one person handing over the engine. Although the outboard is relatively light, it should be handled carefully and could easily fall in the water.
2. Carefully loosen the mounting screws on the outboard bracket keeping one hand on the outboard handle at all times or tie the motor off to the inside of the dinghy.
3. Attach the battery found where propane is stored next to the helm, starboard side. There is also an extra battery in the closet opposite the head.
4. Attach the blue safety magnet to the tiller handle.
5. Press power, and drive using throttle.

The electric outboard is good for putting around, not for waterskiing. If traveling about 3.5 knots and using between 350-500 watts, you can go for about 2 hours on a full battery.

When on shore power, and using the fast charger found in the bag with the extra battery, it takes about 3 hours to charge a battery from empty to full.

There is a foot pump in the lazarette in case the dinghy needs inflation. Unscrew just the top section of the inflation portal and insert pump end. If you unscrew the entire hole, that portion of the dinghy will deflate.

If you need to make a repair, the repair kit can be found in in the tools and spare parts storage compartment located under the bow berth.

Landing the Dinghy

It is fine to take the dinghy up onto a beach, and even to drag it up the beach since it has a metal hull. If motoring, tilt the prop all the way up before reaching shore and row those extra few feet.

Raising the Dinghy

The dinghy davits are designed to hold the dinghy, not the engine. Please always remove the outboard motor (both the throttle / prop and the battery) before hoisting.

When underway, raise the dinghy all the way up, pushing it out with your foot as it comes up. (Again, if it's too hard, something's not right.)

Secure the dinghy to avoid swinging. We use the white and yellow line to tether the dinghy, then tighten the yellow and white line upon itself, thereby increasing tension.

Spares and Tools

A full toolkit can be found beneath the starboard bench in the cabin.

Extra fuel and oil filters, impellers, coolant and head repair kit can be found in the cabinet beneath the bow berth.

Safety Equipment and Emergencies

Lifevests and Safety Equipment

Lifevests are located in the starboard side storage, midship across from the head and behind the bow berth door (assuming the door is not being used to close off the bow berth).

An air horn and flares can be found in the cabinet beneath the bow berth.

Fire

If you have a fire at the stove, turn off the red gas solenoid switch at the electrical panel.

Three fire extinguishers are onboard: (a) center cabin in front of companionway stairs; (b) in the lazarette mounted to the wall; and (c) inside the engine compartment.

Logs and Rocks

Logs are very common, as are rocks—but both can and should be carefully avoided. Keep an eye out and pay close attention to your depth and chart details. Logs often travel in packs, and there are many swirling from time-to-time in the currents and cross-currents of the islands.

If you do hit a log or run aground – immediately take stock of the damage, especially looking for any incoming water. Once you are in a safe situation, contact San Juan Sailing at 800-677-7245 and proceed to the nearest harbor and have a professional diver check the hull, keel, prop, and rudder before proceeding.

Bilge Pumps and Leaks

There are two bilge pumps: one manual and one high-capacity electric emergency bilge pump. The manual unit is located on the side of the starboard bench. The pump cover plate doubles as the pump handle.

The emergency pump is automatic and controlled by a switch (which stays on) in the cabinet port side by head door.

If you discover a leak while underway (has not happened as of the writing of this document), make sure the bilge pumps are running and then determine the source of the water. There is a diagram showing the location of the through hulls in the notebook. Wood plugs can be found in the cabinet beneath the bow, along with flares and an air horn. Get the crew on deck and into life jackets.

Steering Failure

An emergency tiller can be found in the cabinet beneath the bow berth. Use a winch to remove the hatch cover at the base of the steering column.

Crew Overboard

1. Throw flotation to the person in the water – the LifeSling mounted on the port side stern rail or a Type IV PFD or cushion.
2. Assign a crew member to keep eyes on the person in the water at all times. There is also a MOB button on the chart plotter so you will know where they are.
3. Use one of the procedures discussed in the skipper's meeting to get back to the person and to help the person back onto the boat.

List of Equipment Locations

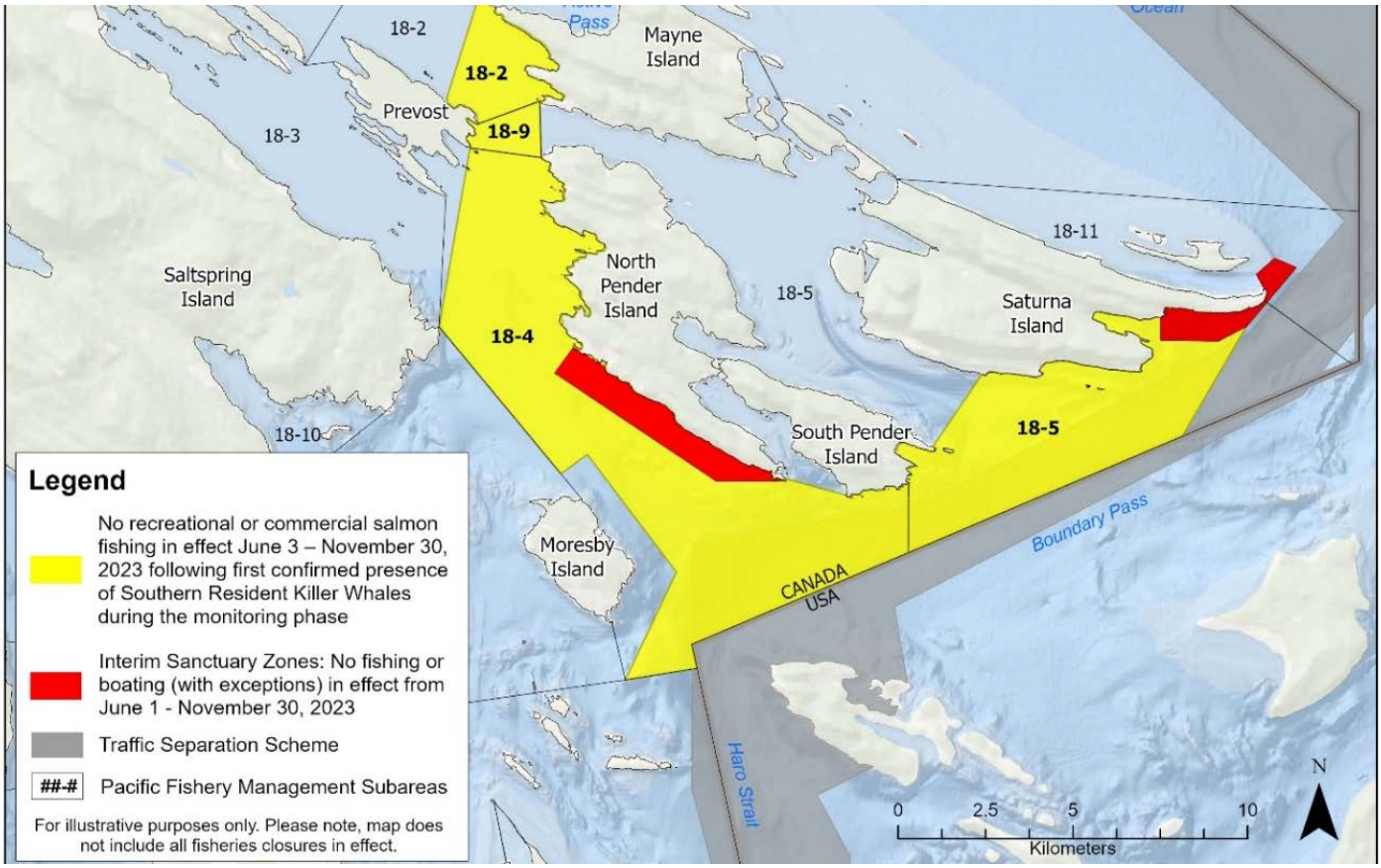
You are not likely to need many of these items but should know their location.

- Bilge Pump (Manual) and Handle. Located in the cockpit, starboard side.
- Emergency Tiller. In the cabinet beneath the bow berth.
- Fire Extinguishers (3): One fitted to the saloon table, one in engine compartment and one in lazarette.
- First Aid Kit. In main cabin, midship starboard cabinet.
- Flares (Pyrotechnic - 3). In the cabinet beneath the bow berth.
- Flashlights. Next to main electric panel and next to companionway stairs.
- Horn, handheld. In the cabinet beneath the bow berth.
- Life Sling. Port stern rail. Please review the cartoons on the face of the case for procedures. The lanyard is secured to the boat so that tossing the floating harness allows it to tow behind the boat like a ski tow rope. Circling the person overboard will draw the recovery line near them.
- PFDs – Inflatables (3). Located across from the head. Safety officer: please check for "green" visible at bottom of clear canister before each cruise. That verifies the auto-inflate function when immersed. Inflatable PFDs are acceptable to the Coast Guard, but only if they are being worn.
- PFDs - Foam Vests (2). Located across from the head.
- Propane Solenoid. Above the main electrical panel.
- Radar Reflector. Located on the front of the mast, about 2/3 up.
- Shore Power Plug. In white and green canvas bag in the lazarette.
- Tools. Beneath the starboard bench in the cabin.
- Spares. In the cabinet beneath the bow berth.
- VHF Radios. VHF base unit inside cabin, second unit in cockpit.
- Wooden Dowels / Plugs for leaks and through-hulls: In the cabinet beneath the bow berth.
- Windlass Clutch Release/Tighten tool: Use winch handle. A second winch handle can be found in the cabinet beneath the bow berth.

Whale No-Go Zones

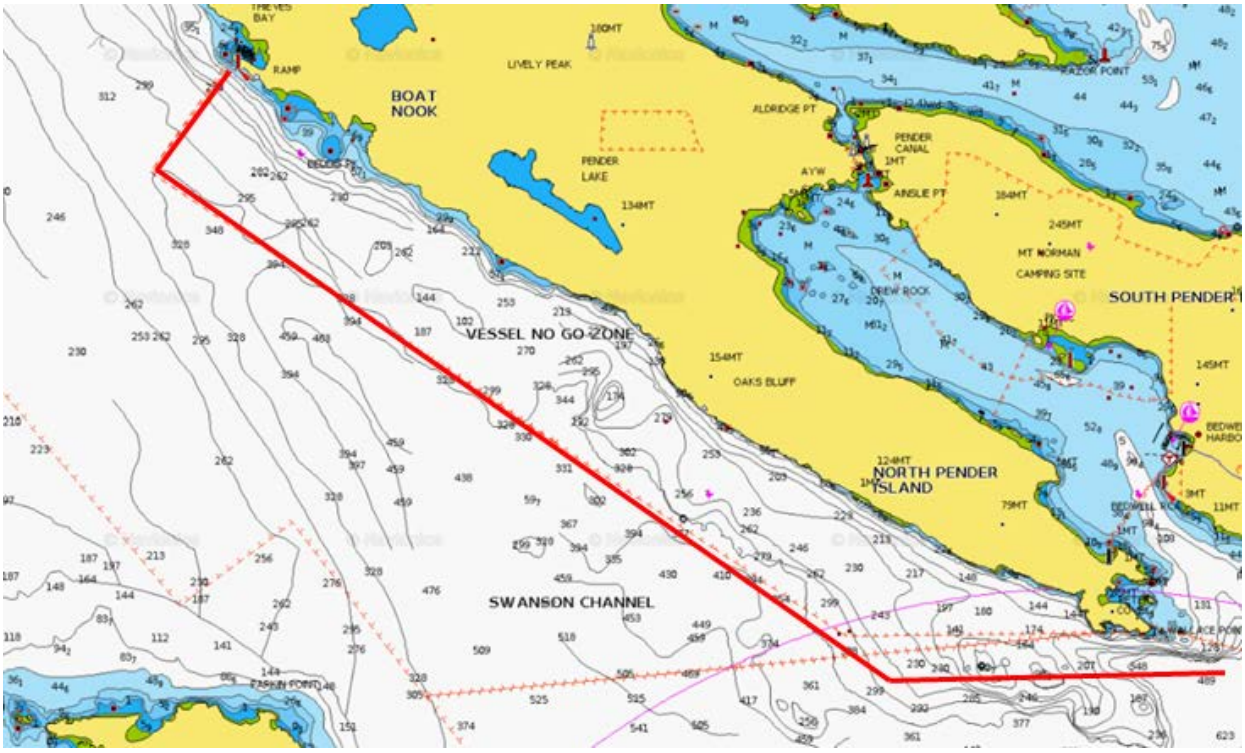
Our local Orca Whales are a wonderful part of the Puget Sound but are having a difficult time surviving due to declining salmon runs. These whales use echo location to find and catch their food. Therefore, noise pollution from marine vessels makes it harder for them to thrive. In an effort to decrease human impact both the Canadian and US governments have implemented rules. We provided you a summary of these rules in the packet you receive when you arrived and there is more information in section 10 of the white reference book onboard Katara. In general, stay at least 400 ft. away from the whales. Sometimes they come to you, if this happens shutdown the engine and turn off the instruments (assuming this is safe to do). They can hear the pings of the depth sounder – this is why we have you turn off the instruments.

In Canada they have gone a step further by creating some zones where boats are not allowed. This further improves the environment for the whales. The red areas in the diagram below show these zones.

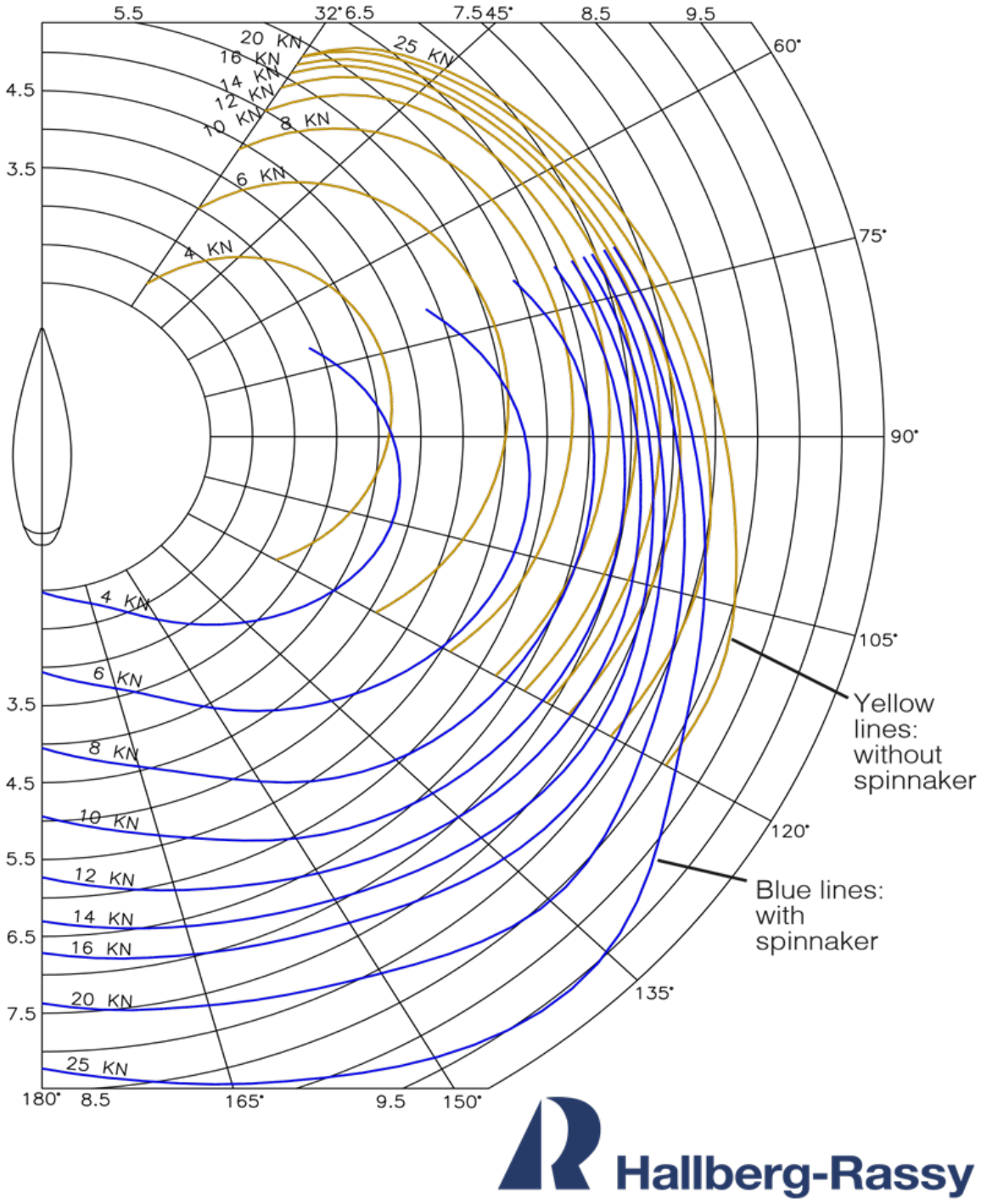


Note this is just to the west of Bedwell Harbour, so be especially careful when in that vicinity. They monitor the area closely and the Canadian government has put teeth behind this effort. From their website: “If you do not comply… you could face: administrative monetary penalties up to a maximum of CAN $250,000; or penal sanctions under the Canada Shipping Act, 2001.” Neither sounds good.

Here is an example of what it will look like Katara's chart plotter. We have used darker red lines than the lighter dotted lines you will see on your plotter. Best to stay well clear.



Theoretical Speed Diagram



Troubleshooting and Contact Information

In addition to the more user-friendly manuals (in gray zip folder beneath the electrical panel), comprehensive manuals can be found in the blue canvas bag in the cabinet beneath the bow berth.

For longer charters (> 7 days), we recommend performing the following inspections at least once:

- Unlock the companionway stairs using the key found in the gray folder beneath the electrical panel.
- Lift the companionway steps to access the engine compartment. Look around and below the engine for any signs of oil or other fluid leaks.
- Check the coolant level.
- Inspect the raw water strainer for debris. When facing the engine on your knees—and watching that you don't hit your head on the stairs—you'll find the strainer to your right (port side) upper back of engine.
- Unscrew the top of the strainer, clean out any debris, then replace it.
- Check belt tightness by deflecting the belt inward with your fingers; it should not depress more than an inch or so.
- Check the oil. The dipstick is to your lower right on the engine / port side of boat. If low on oil, add oil found with spares in the cabinet beneath the bow berth. Do not overfill, add a small amount slowly, then re-check the oil level.
- The fuel filter is on the left (starboard) side at the front of engine. On the right as you look at engine is the water pump and the blue water lines that pump water from the tanks to the sinks and showers.

In case of an engine overheat alarm, check for eelgrass clogging the strainer.

Contact Information

San Juan Sailing: 360-671-4300 or 800-677-7245. For assistance on arrival, hail "San Juan Sailing" on VHF Channel 80.
Parker Armstrong, Maintenance Pro: 360-870-6320 (text, cell)
Marc Frazer, Owner: 206-225-0705 (text, cell)

Final Summary of Important Things

1. Don't bump the sink faucet with your elbow and jeopardize your water supply. It has happened.

2. Make sure to turn off the stern shower knob, and confirm water is no longer coming out.

3. Remember the throttle is a little counter-intuitive. The throttle is in neutral when the green tape on the throttle and steering wheel aligns.

4. When sailing downwind, unzip the dodger at least a foot on both sides of the windscreen. Failing this the mainsheet will press against the dodger and blow out the zipper. Better yet, sail with the dodger down.

5. Do not pull the mainsail all the way into the mast; it may become stuck and unable to deploy again.

6. Make sure the wheel is not locked (knob beneath compass at helm).

7. Push the dinghy out with your foot when hoisting or lowering so that it doesn't get stuck on the rail and rigging.

8. When in reverse, prop wash is to starboard, meaning the stern will pull slightly to starboard.

9. Don't overfill the head holding tank!

10. The mainsheet / mainsail must be attached to the D ring in the center of the cockpit to function safely.

11. The dinghy davits are designed to hold the dinghy, not the engine. Please always remove the outboard motor dinghy before hoisting.

12. Avoid whale no-go zones identified by the Canadian government. There are stiff penalties and they monitor the area. Be paranoid about it.

13. Careful not to let the refrigerator door close on your fingers.

14. Remember you don't need to pay for marine parks use in Washington State since Katara has the annual sticker for all of 2024. Technically you're still supposed to fill out paperwork on shore; we rarely do.

Most important, have fun and be safe!

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Notes:

1. Add hammock
2. Confirm bilges and fire extinguishers