

BEYOND THE BAY

30 April 2023

A1: BEYOND COMOX BAY

The following is a Non-Certified cruising course, offered by 19 Wing Comox Yacht Club, designed to provide 19WCYC Club boat renters who possess basic sailing knowledge (BCC or equivalent) the information required to safely cruise the coastal waters beyond Comox Bay. This will be a requirement for club boat rentals proceeding beyond the limits of Comox Harbour (past the Comox Bar or south of Buckley Bay). The course is being offered in a combination of student reading material (the following pages) and a series of “Tech Night” presentations delving more deeply into specific topics. These Tech Nights will be scheduled in the new year, prior to rental season.

Since our boats consist of three different makes, some of the details contained in the following sections will be dependant on which boat you will actually be using:

- Peter Duck is a 35 foot Mirage, Yanmar diesel inboard, wheel steering
- Wildside is a 29 foot Cal 29-2, Volvo diesel inboard, tiller steering
- Against The Wind is a 27 foot Aloha, Honda gas outboard, tiller steering

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SECTION 1: PLANNING

1.1 Destination

Your trip plan firstly depends on the amount of time you have available for your trip. The minimum amount of time you should consider for a trip to, say, Desolation Sound would be 3 days: one day to get there, one day touring, one day to get back. You should also keep in mind that the weather doesn't always cooperate. That 3-day schedule could stretch into a longer trip should a heavy weather system arrive without notice, with high winds and/or torrential rain. Should this occur, the best plan is to stay where you are, either on a dock or in a safe anchorage, and wait out the storm. This can add one or two days to your trip. Now your 3-day trip has stretched into 5 days. The best rule of cruising is, if you really need to be home in X-days, don't go in the first place, because there are no guarantees that you'll be back in time.

In order to give yourself some lead-time for incoming weather, listen to the weather channel on your VHF radio throughout the day. Weather updates are issued at 04:00, 10:30, 16:00 and 21:30 and can give you indication of what to expect over the next 2 days. Even though the weather prediction isn't always totally accurate for where exactly you are located, it will at least help you in determining your future cruising plans.

When renters start cruising for the first time, the normal reaction is to try to see as much as you can in the time you have available. This would mean moving to a different anchorage or dock each day, leaving limited time for exploring each destination. This can become a toll on you and your crew. Remember, cruising is supposed to be an enjoyable, relaxing adventure. Always allow time for getting off the boat, exploring hiking trails, seeing what visited locations have to offer, or just enjoying an evening sunset. Most long-term cruisers allow a minimum of two days for each stop; one day to get there, then one day to get to know the location, before moving on the third day.

So now, what are some of the "interesting" places you could visit. Within a one day's sail, with an accommodating wind, you could visit Henry Bay, Ford Cove or Tribune Bay on Hornby Island, Sturt Bay (VanAnda) on Texada Island or Powell River (Westview) on the mainland. You might also be able to visit closer destinations in Desolation Sound such as Savary Island, Lund, and the Copeland

Islands. Subsequent days sailings can get you to locations on Cortez Island (Squirrel Cove, Cortez Bay, Gorge Harbour, Von Donop Inlet), East Redonda Island (Pendrell Sound, Walsh Cove), West Redonda Island (Refuge Cove, Teakerne Arm), locations on the mainland (Tenedos Bay, the bay behind Otter Island, Prideaux Haven, Melanie Cove and Laura Cove) and Quadra Island (Heriot Bay and Drew Harbour). Each location has it's highlights and is well worth exploring.

One of the club benefits is the Joy of Reciprocals! Two of the ones closest to Comox are Deep Bay (across from Chrome Island) and Schooner Cove (near Nanoose Bay, north of Nanaimo). Other locations are beyond a day's sail, but plenty of choices. Our club has entered into an agreement with other yacht clubs, allowing reduced cost (or even free) dock space and amenities at their facilities. Visiting yachts would be expected to fly the club burgee (top starboard spreader), and produce club membership cards if requested. Full details for this are available on our website.

Take your time to really enjoy what the West Coast has to offer. In the Appendix, there is a listing of the above-mentioned and other locations of interest, detailing important information, such as which ones have fuel docks, which leads to the next subject.

1.2 Fuel Capacity and Range

Normally, when sailing, fuel capacity is not an issue, as the engine is only used for entering and exiting a dock or anchorage. However, when weather or schedule dictates, the engine is used for propulsion, which depletes the fuel supply. Fuel capacity and range under power is specific to each boat. Diesel engine specifications normally state consumption in litres per hour. Typically, you can expect a consumption rate of 0.1 l/hr/hp. For Peter Duck and Wildside, you should assume that you'll use approximately 2 litres per hour. Peter Duck's maximum fuel tank capacity is 75 litres, while Wildside's maximum fuel capacity is 58 litres.

For gasoline engines, which Against The Wind has, in absence of fuel consumption specs, assume 0.3 l/hp/hr, until experience over running hours provides a more reliable estimate. For Against The Wind (9.9 hp), assume a rate of 3 litres (0.3 x 10) per hour. The maximum fuel capacity of Against The Wind is 45 litres.

Always maintain a log of running hours, average speed under power, and the quantity of fuel purchased. This will allow you to verify the accuracy of the fuel consumption rate.

The simple formula to calculate range under power is:

$$\text{Range} = \text{Tank capacity} / \text{Consumption rate} \times \text{Cruising Speed}$$

For example, for Peter Duck, with tank fuel capacity of 75 litres, a consumption rate of 2 litres/hour, and an average cruising speed of 5 knots, it can be assumed that a full tank will give 37 hours of running time, for a range of 190 nautical miles.

$$\text{Range} = 75 / 2 \times 5 = 187.5, \text{ say } 190 \text{ nautical miles}$$

When determining range, always include a fuel reserve. One approach is 1/3 out, 1/3 back, and 1/3 reserve. Therefore, for planning your trip, you should be allowing for a fuel stop around the 130 nautical mile distance (190 nm x 2/3). Fuel tanks are constructed so that the fuel pickup pipe does not go all the way to the bottom of the tank in order to prevent sucking up sludge and water from the bottom. Therefore, **you can never use 100% of the fuel tank capacity**. In colder climates range may also be reduced by using a diesel heating furnace which takes fuel from the same tank as the engine. This is the case with Peter Duck, which has a diesel heater supplied from the fuel tank.

We live in an area of currents, which can help or hinder your fuel range. Assuming a normal motoring speed of 5 knots, if you are motoring against a 2 knot current, you won't be achieving your expected speed over ground (SOG) of 5 knots, rather you'll be making only 3 knots headway. Alternatively, if you are going with the current, you'll achieve better than your original expected speed of 5 knots, perhaps as much as 7 knots, thus extending your fuel range. Take the flood and ebb into consideration when planning your trip.

Another useful bit of information when planning your trip is to know where the fuelling stations are located, so that when you are in need of a refuel, you won't be too far away from one. It's prudent to plan your trip around fuel stops. In Desolation Sound, fuelling stations are located in Powell River (aka Westview), Lund, Refuge Cove, Squirrel Cove (at high tide), Gorge Harbour, Heriot Bay, and Campbell River. It would be prudent to call the fuel dock ahead (VHF or cell) to confirm availability of fuel, or if open. Pacific Yachting Magazine produces a guide to marinas and fuel stations with all of the pertinent information (Blue Book).

When planning your return to Comox, remember to leave enough time on that last day to visit the GasN'Go fuel dock to refuel the boat before returning the boat to the Club dock. During summer hours, the fuel dock is open until 8:00 pm, but it takes some time to refuel and other boats may be in line ahead of you, so plan to be back at 7:00 pm at the latest. If you return after the fuel dock is closed, you will be required to refuel the boat prior to the next renter's scheduled departure time, either by taking the boat back to the fuel dock the next day or by filling fuel cans and transporting them down to the boat to complete the process. The next renter rightfully expects to board a fully-fueled boat for his/her trip, just as you did. Use the 25 litre jerry can in the starboard lazarette while topping up the fuel tank, but replace it! (Diesel fuel needs to be circulated, not left stale).

1.3 Fresh Water Capacity

The average person uses 8 to 10 litres of liquids per day, not including showers. You should assume a **minimum** daily usage of 5 litres of fresh water per person, supplemented with other liquids, such as fruit juices, soft drinks, etc.

The Club boats vary in the amount of water they can carry in their tanks.

- Peter Duck can carry 100 litres of fresh water in the holding tank located under the starboard settee
- Wildside can carry 120 litres of fresh water in the holding tank located under the V-berth
- Against The Wind can carry 53 litres of fresh water in the holding tank located under the port settee

On a long trip, you'll need to think about how to conserve your fresh water:

- Showering on shore, swimming, or taking a sponge bath from a small amount of water in a sink
- Don't let the taps run while brushing your teeth or washing your face
- Marking drinking cups and glasses for individual reuse without washing
- Using sea or lake water to wash dishes, then rinse with fresh water
- Never run water into the sink unless the plug is in the drain

- Use hand or foot pumps if available
- When brushing your teeth, put a small amount of water in a glass and use that as a source of water
- When washing your face or body, put a little water in the sink and use that for washing
- Turn off the pressure water circuit on the electrical panel to prevent accidental loss of water due to crew carelessness or a fault in the system
- Use every opportunity to refill your water tank when available

Normally, you will be able to replenish your water supply at any of the fuel docks. However, during summer drought conditions, many locations such as Salt Spring Island restrict the volume of water a cruiser is allowed to take on. It is best to call ahead should this situation arise again.

1.4 Sea Sickness

Even the heartiest of sailors will, at one time or other, experience the effects of sea sickness, ranging from a mild annoyance to a debilitating extreme. Sea sickness is a result of a conflict in the inner ear, where the human balance mechanism resides, and is caused by a vessel's erratic motion on the water. Inside the cabin of a rocking boat, for example, the inner ear detects changes in both the up-and-down and side-to-side acceleration as one's body bobs along with the boat. But, since the cabin moves with the passenger, one's eyes register a relatively stable scene. Agitated by this perceptual incongruity, the brain responds with a cascade of stress-related hormones that can ultimately lead to sea sickness.

During the first few days of a voyage at sea, many people report problems with concentration. Sea sickness symptoms are usually progressive, starting with yawning, salivation, cold sweat, dizziness, headache, and fatigue, and culminating with nausea, vomiting, and vertigo.

Before departure on your trip, you should avoid rich, fatty or spicy foods, alcohol and coffee, all of which can increase your susceptibility to sea sickness. You should investigate the use of anti-nausea medication. Ginger root is a natural remedy for nausea, and ginger tea can be very helpful in lessening or eliminating

the effect. Medications such as Gravol work best if ingested at least 30 minutes before leaving the dock.

One of the best ways of avoiding sea sickness is to stay on deck or in the cockpit, focusing on the horizon. In this way, your eyes acknowledge the motion that your ears are feeling, resulting in a reduced chance of feeling sick. Stay below decks in the cabin cooking or doing chart work will cause you to be increasingly susceptible to the sickness. If you or one of your crew starts to feel ill, try the following suggestions:

- Keep the person warm and dry
- Eat small portions of easily digested foods, such as crackers
- Assume the helm, keeping your eyes on the horizon
- Should you have to lie down below, do so in the middle of the cabin, as low as possible, where there is the least amount of motion, and close your eyes

1.5 Personal Clothing and Safety Gear

There is no need to run out and purchase expensive sailing gear. Your normal attire for a week-long camping trip is sufficient for cruising, keeping in mind that it's normally cooler on the water than on ashore. Dress in layers of polypropylene, silk, or wool as a base layer, to wick away sweat, mid-layers for insulation, and an outer layer of wind and weather-proof material. Some suggestions for clothing selection are:

- Non-slip shoes, deck shoes or boots
- Rain suit or floater suit
- Warm woollen or fleece clothes
- Sun Hat or toque
- Long pants and shirt for sun protection
- Sailing gloves
- Sunglasses

- Bathing suit and towel
- Duffle bag

Safety gear should include a PFD of adequate size for every person on board that fits comfortably with at least one safety harness, tether and knife.

1.6 Menu Planning

Menu planning should start early in the trip planning stage. Take into account your crews' preferences and especially any allergies. Next is to take into account what facilities you have onboard. Our boats are equipped with a stove with only two burners, so meals need to be designed around that restriction. Our boats are equipped with only an icebox, so trips away from access to ice can be a problem for keeping foods fresh. Cruising should be an enjoyable experience, not a hardship of preparing and cooking meals.

You need to keep your menu planning flexible. When it's cold out, you should plan for at least one hot meal per day. In hot weather, make available a supply of drinking water, pop, and/or juices. For normal sailing trips, the best approach to meals is to have a hearty breakfast, then a light lunch, afternoon snacks, then supper.

Breakfast can be a simple self-serve meal of fresh fruit, juice, coffee or tea, hot or cold cereal, muffins, etc. If you prefer more elaborate breakfasts, they can include omelettes, pancakes, French toast or poached or fried eggs.

For lunch, deli wraps or sandwiches are easy to prepare then serve in the cockpit, especially if you were anticipating rough weather. If it's cold and wet, then a cup of hot soup and a hot drink will be appreciated.

Snacks between meals are good for energy and morale. Cookies, trail mix, candy bars are great and stay fresh for a long time. Many cruisers share appetizers once they are moored for the evening including fruit, cheese and crackers, nachos, vegetables and dip or more elaborate hors d'oeuvres.

Dinner should be balanced and simple to prepare, based on the facilities on board. A pre-cooked meal from home for the first night will give everyone a chance to get familiar with the boat's facilities.

Lastly, no one wants to be spending all evening cleaning up from meals, so minimize your variety of cooking utensils.

1.7 Provisioning

Remember – a well fed crew is a happy crew, so ensure you have plenty of food onboard for the trip, plus some. Running out of food, having food spoil, or forgetting that all-important ingredient for your special meal can ruin an otherwise perfect trip.

When planning your trip, consider where you'll be going and what re-provisioning opportunities will be available. Not only are grocery stores in Desolation Sound few and far between, it can be quite expensive to stock up at an out-of-way facility.

For food provisioning, you need to balance how much to bring and where to store it. Our boat galleys have limited counter space, few cupboards and even less storage space. You need to carefully consider what you will be bringing and how to use it. Some stocking tips for the boat are:

- Fresh produce will keep for several days outside of the icebox
- Pre-freeze items that can be used later in the week, like butter and juice
- Keep your beverages in a separate cooler from your food
- Limit the number of times you open your food cooler
- The shelf life of open packages is reduced significantly by the humidity on a boat, as well as inviting mould formation. Most perishable items will not last as long as at home
- Set up your food lockers based on meals – one for snacks, one for bread and cereal, etc.
- Plan meals that can be served twice (e.g. – steak that can be served as an evening supper, then as steak sandwiches the next day.
- Prepare your fresh food meals first and keep your canned food meals for later in the week

- Remove as much food packaging as you can before bringing it to the boat, in order to reduce the amount of garbage
- Avoid the use of glass bottles and packaging. Broken glass from an unsecured item during an unexpected motion can be very dangerous on a boat.
- Emergency freeze-dried foods (available at SOS, Valhalla, online) are a good supplement to extend your food supply. If you don't use them on your trip, they can go into your home emergency kits, or camping supplies.

1.8 Other Necessities

Since the Club boats are primarily intended for training first, and rentals second, they do not come with many amenities. A cruising boat requires a number of items that are not found on our boats and, as such, need to be supplied by the renter before leaving on his/her trip. These items may include, but not limited to:

- Cooking utensils (pots, pans, kettle)
- Meal utensils (knives, forks, spoons, cups, glasses, plates, bowls)
- Spices, butter, coffee, tea, sugar, other condiments
- Dish washing detergent, scrub pads, soap, drying towels
- Trash bags, freezer bags, plastic/aluminum foil wrap
- Food containers, for storing left-over meals for the next day
- Bedding, blankets, pillows (enough for all crew members)
- Bath & swim towels, wash cloths
- Toilet paper
- Cooking fuel
- Block and cube ice for the icebox
- Personal medications

Try to imagine all your daily activities, from the time you awaken in the morning until you retire at day's end. What other things will be needed to make your trip memorable? If you are travelling with children, it would be prudent to have a variety of games onboard. Remember, if you don't bring it onboard with you at the start of the trip, you won't have it later.

1.9 Sail/Float Plan

Whether leaving for a few hours or several days, a float plan remains one of your most important lifesaving tools. The float plan holds information on the route you plan to take as well as details about your watercraft and the people accompanying you on board. It is important to always leave a float plan with a responsible person before setting out. This person should be advised to alert the appropriate authorities (Coast Guard or police) in the event that you fail to return on schedule, so that they may come to your rescue. You should also file a copy of this Float Plan with the Club when making your rental booking. This can be done by sending your completed Float Plan to keelboatbooking@19wcyc.com. A standard Float Plan template is included in the Appendix. When undertaking a long trip, it is recommended to report your location daily, if possible, to your responsible person. Important - always let the person you entrusted with your sail plan know of your return, and of any delays, to avoid unnecessarily deploying a search.

SECTION 2: SAILBOAT SYSTEMS

2.1 Cooking System



All three Club boats use Alcohol for the cooking fuel. Alcohol is a slow cooking fuel that burns with a clear blue flame that is hard to see in bright daylight. The two-burner stoves use canisters to contain the liquid alcohol but it's actually the alcohol vapour that is being burned. Take care when working around the stove so as to not burn yourself. Keep flammable materials away from the stove. Water will not extinguish an alcohol fire, it will only spread it. The only way to extinguish an alcohol fire is to remove the source of oxygen. There is little risk of explosion of vapourized fuel.

Most users of alcohol stoves use Methyl Hydrate as the fuel. Methyl Hydrate can be purchased at many automotive stores (Canadian Tire) in 500 ml bottles for about \$6 or in 3.8 litre containers for about \$13. For initial fuelling or refuelling, remove the canister(s) from the stove to a well-ventilated location (cockpit) away from any heat source. If using the 500 ml bottles, pour directly from the bottle into the canister filling reservoir. However, if using the 3.8 litre containers, transfer the fuel from the larger container to a smaller squeeze bottle using a funnel, then use the squeeze bottle to fill the canister without spilling. To determine how much fuel to put into the canister to fill it, tip the canister to the vertical position. The liquid level should be just below the bottom lip of the filling reservoir. Store the remaining fuel container in a well-ventilated lazarette, away from any heat source.



On both Peter Duck and Against The Wind, when the stove has cooled down and when no longer in use, ensure the rubber seals are placed back on top of the canisters, to minimize fuel loss due to evaporation. On Wildside, ensure the caps are reinstalled on the canisters after use of the stove.

2.2 Power (battery drainage/recharging)

Our Club boats utilize two kinds of electrical circuit systems: Direct current (DC) and Alternating current (AC). There are a few concerns regarding electrical systems on a vessel. Current on both AC and DC power systems is potentially lethal, so safety is of the utmost importance when dealing with AC and DC circuits.

2.2.1 DC System

The DC Direct Current system delivers 12 volts and is supplied by the ship's batteries. It is used to start engine and run all the equipment designed to operate on DC power including pumps, cabin lights, navigation instruments, VHF radio, etc. The boats are equipped with two batteries connected to a selector switch that allows them to be charged simultaneously, but used independently:

- a starter battery for starting the engine
- a house battery for all other DC devices.

Each vessel is fitted with a multi-position battery selector, either

- a 3-position Off/On/Combine battery selector on Peter Duck or
- a 4-position Off/1/ALL/2 battery selector on Wildside and Against The Wind

With the Off/On/Combine battery selector, when starting the engine, use the “On” selector setting. Once the engine is running, change to the “Combine” selector setting. This setting is used both for charging the batteries while motoring, as well as operating the boat instruments while sailing.

With the Off/1/All/2 battery selector, when starting the engine, use the “1” selector setting (the start battery). Put the selector to “All” only if either battery does not have enough power to start the engine. Once the engine is running, change to the “All” selector setting to charge the batteries while motoring. If sailing without the use of the motor, use the “2” (house battery) selector setting.

As with all battery selectors, NEVER turn the switch to the “OFF” position while the engine is running. Turning the switch to “OFF” while the engine is running can result in the alternator self-destructing.

When charging your batteries, think each battery as a fuel tank. As long as you keep them topped up (charged), the system should run well. A fully charged battery is 12.6 volts at rest and between 13.5 to 14.5 volts with a charger. A fully discharged battery is 11.5 volts. The main battery charging sources are an engine-driven alternator or, when plugged into shore power, an AC-driven battery charger.

A boat with improper wiring or faulty grounding might be leaking DC electrical current into the surrounding water. This can cause electrolytic corrosion of metal parts of the boat in contact with the water and rapid depletion of the sacrificial anodes.

Since the DC system is your primary source of power when sailing, you need to understand that any power systems used while sailing are a draw on your house battery. This includes chart plotter, depth sounder, VHF radio, bilge pump, mascerator pump, fresh water pump, etc. As well, if you are not at a dock with shore power at night, the use of cabin lights will also draw down your power. Minimize the amount of power being used while sailing, by turning off any sources that aren’t immediately needed. Never use your start battery for house duties, for if you do, don’t be surprised if your engine won’t start the next morning. If this does occur, try starting the engine with your house battery, or if this fails, try using the “combine battery” selection. If all efforts fail, use the boat’s booster cables to get a boost for your start battery from a friendly

neighbour, hopefully one is available. Then run your engine, generating power with the alternator, to recharge your batteries.

2.2.2 AC System

AC is the same 120V Alternating Current that is used in your home. It is available by connecting a shore-power cord from the boat to a receptacle on the dock. When connecting to shore power at an unfamiliar marina, it is possible that the hot and neutral wires may be reversed at the outlet. A warning light on the circuit panel marked “reverse polarity” warns of this condition. If this occurs, disconnect the shore power immediately.

Failure to maintain the shore power cord is the single largest cause of problems with shore power systems. The power cord ends are exposed to salt water and over time suffer from corrosion and general wear. If you have a lot of equipment turned on and the power cord is more than slightly warm at the boat or dock connectors, suspect a problem and replace or service the connectors.

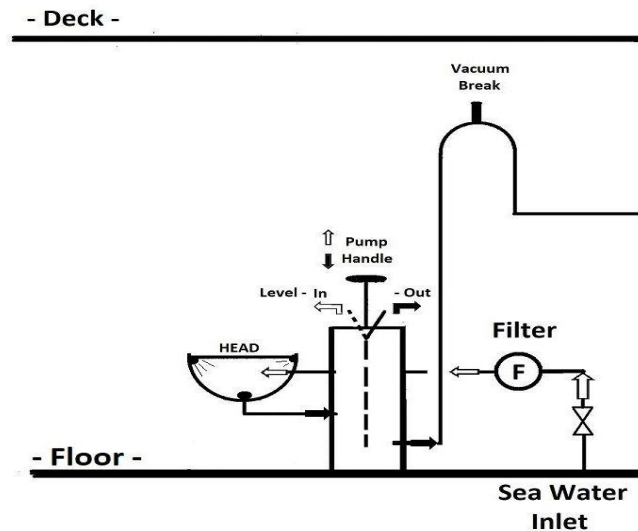
When connecting to shore power, connect the boat end of the power cord first, then the shore end of the cord last. When disconnecting from the shore, reverse the order, disconnect the shore end of the cord first, then the boat end of the cord last. This prevents you from walking around with the vessel carrying a live plug, and should you drop the plug into the water, will not generate damaging current. NEVER drop an energized cord in the water.

Before disconnecting the shore power, ensure that all power circuit breakers are turned off before switching off the boat’s main circuit breaker. This will avoid arcing. Then turn off the dock circuit breaker before disconnecting the power cord, to prevent from getting electrocuted and damaging the contacts. The arcing that will occur from unplugging a live cable will eventually burn the contacts inside the plugs and cause failure, as well as rendering the cable unsafe due to a fire hazard. Inspect the plug ends for discolouration and distortion of the insulation around the pins and sockets.

2.3 Black Water “Head” System

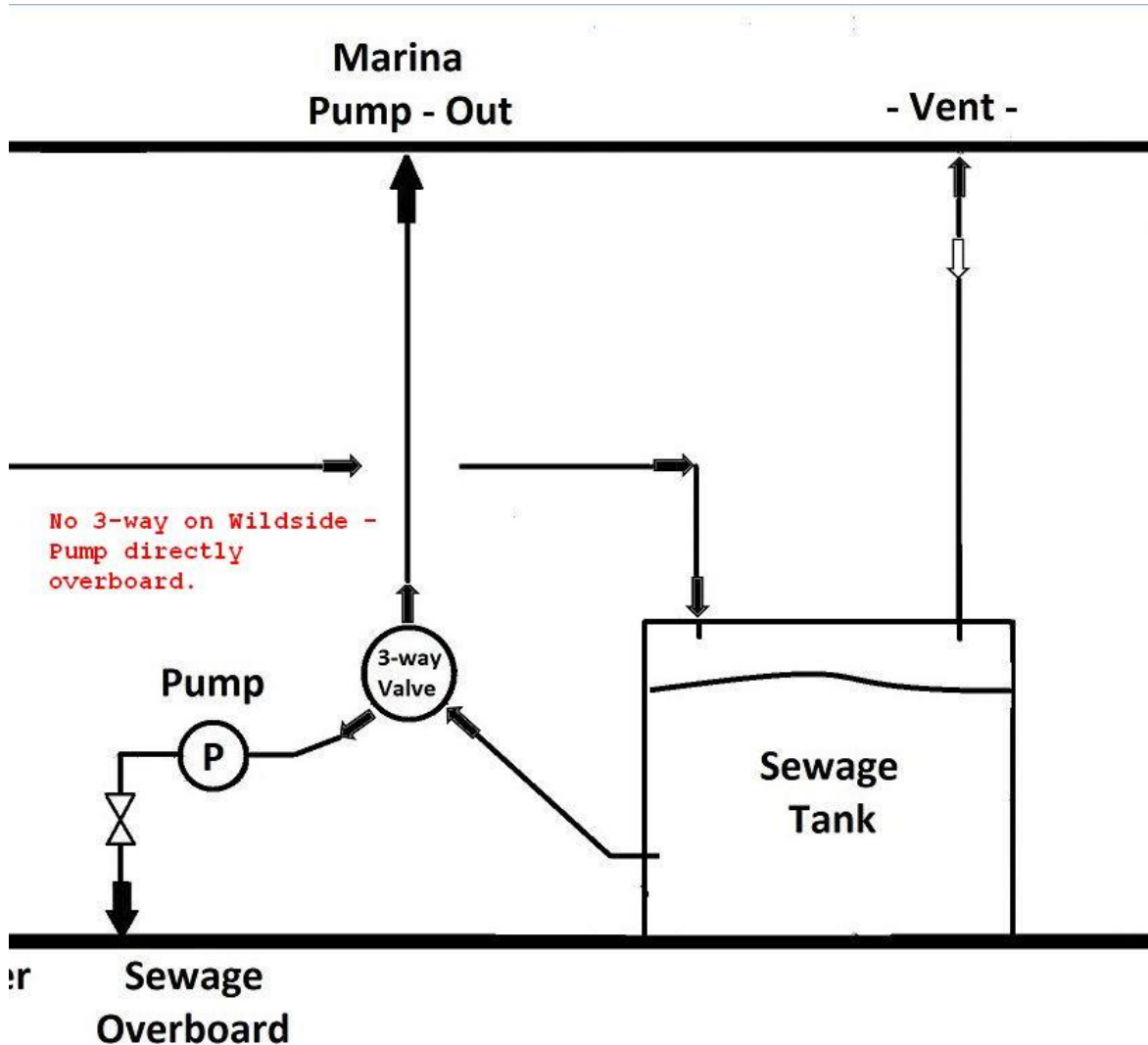
The marine head can be somewhat confusing to your guests so make sure that you brief each and every one of them on its use, before you leave the dock. Never assume your guests will know how to use it.

Only human waste and small amounts of toilet tissue should be put in the head. No food waste, no tampons or definitely no sanitary pads. Many cruisers like to keep a separate garbage bag in the head for such items, and use “baby Wipes” to finish wiping/cleaning, which also go into the head bag. Putting anything else through the head could block it and/or damage the pump. This could be an expensive fix and could quickly end your trip.



“Typical” toilet/head side of Black Water System

In order to use the head, open the toilet water seacock located below the sink or under the V-berth. Move the blue lever on the toilet to the water-in position (left) and pump a little bit of water into the bowl. After you have done your business, switch the blue lever to the waste-out position (right), then use the pump handle for about 15 pumps to completely empty the bowl into the holding tank. Leave the blue lever in the waste-out position when the toilet is not in use. Close the toilet water seacock when leaving the boat unoccupied. All instructions can be found on the plaque located on the door.



“Typical” Overboard/Pump-Out side of Black Water System

Each of the Club boats has a similar but slightly different system to empty the holding tank itself. Peter Duck utilizes a 70-liter holding tank, a 3-way diverter valve, and a **manual** pump-out pump. Against The Wind has a 70-liter holding tank, a 3-way diverter valve, and an **electric mascerator** pump-out pump. Wildside has a 23-liter holding tank with a **manual** pump-out pump which can only discharge overboard. There is no means of using a dock pump-out facility.

On average, one person creates from 10 to 15 liters of Black Water per day, most of which is raw water used for flushing the head. There are no level indicators on the holding tanks of the Club boats, so you need to be aware of how much black water is being sent to the holding tank, then decide how often the tank needs to be emptied, depending on the size of each boat's holding tank.

On Peter Duck, to empty the holding tank overboard when a minimum of 3 miles offshore, first **ensure the black water discharge seacock is open** and that the diverter valve is in the overboard pump-out position (you should see the word "**overboard**" on the diverter valve handle). Open the port side locker below the v-berth to locate the pump handle, which is attached to the pump by means of a string. Insert the handle into the pump and start pumping until the pump runs dry. You will feel noticeably less resistance. Close the discharge seacock to complete the operation. All instructions can be found on the plaque located on the Port side wall.

Against The Wind uses an electric pump to empty the holding tank overboard, rather than a manual pump. Again, **ensure the black water discharge seacock is open** and the diverter is selected for overboard. On the 12v circuit panel, switch on the circuit breaker entitled "Mascerator Pump" to power up the circuit. A blue light on the power switch located under the v-berth (to the right of the diverter valve) will light up to indicate that the circuit is ready to turn on the pump. Depress and hold the momentary switch until you hear the pump change frequency, indicating that the holding tank is empty (Listen carefully, as it may be difficult to hear the change over the noise of the engine). Once your pump-out is complete, release the switch and turn off the circuit breaker at the power panel. This breaker should be kept off when sailing or when the boat is unoccupied.

Alternatively, you can use dock pump-out facilities where available (the nearest one is located at the Comox Government wharf). The pump-out facility uses a vacuum system to remove the waste material from the holding tank. Move the diverter valve located below the v-berth to the pump-out position (you should see the word "**pump-out**" on the diverter valve). The Pump-out deck connection labeled "WASTE SYSTEM" located on the port side forward deck is then connected to the pump-out facility by means of a hose attached to the vacuum pump. Be prepared to assist the Wharfinger as instructed. Once the process is completed, ensure you return the diverter valve to the "**overboard**" position.

Wildside does not have a means of connecting to an on-shore pump-out facility, so to empty the holding tank, you must use the 3-mile offshore “overboard” process. The manual pump is located in the head itself, rather than in the v-berth area.

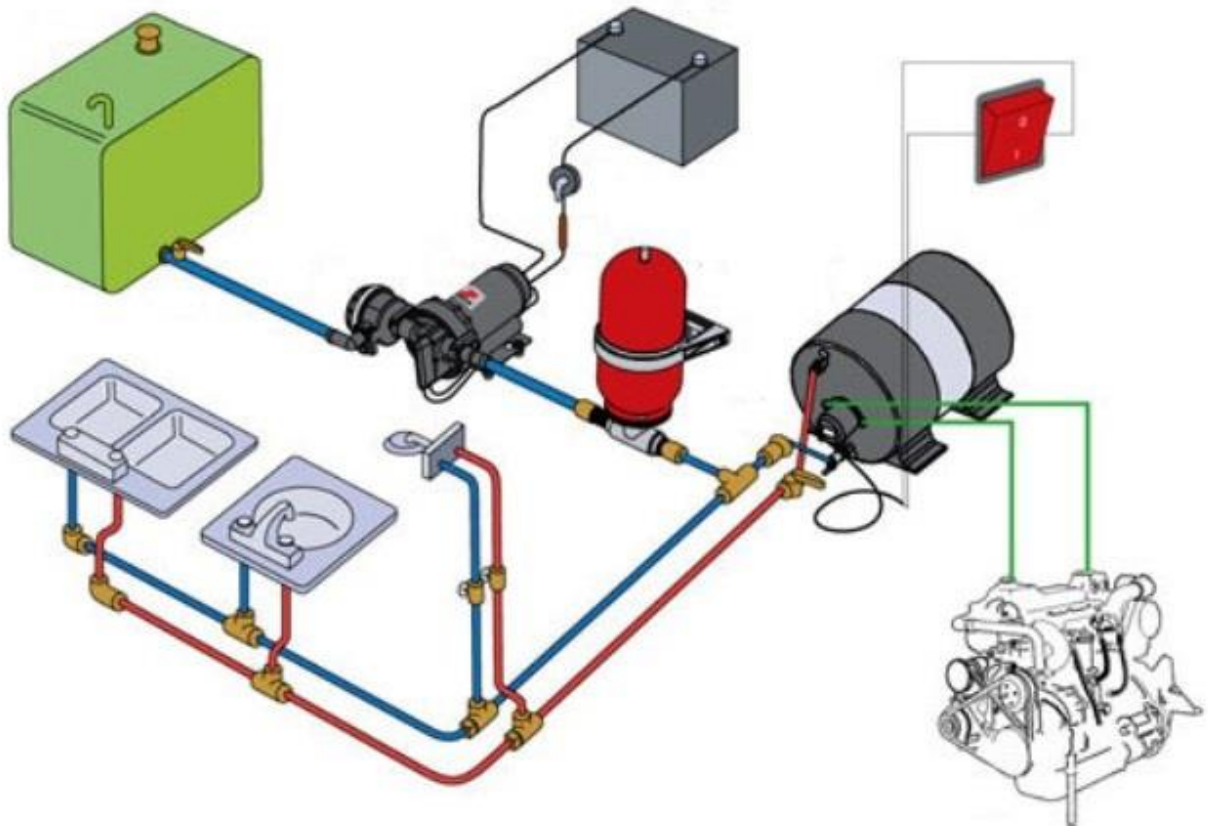
Nevertheless, whenever pumping overboard, NEVER pump out in an anchorage. ALWAYS pump out with a moving boat in deep, flowing (current) water, ebbing away from anchorages.

2.4 Refrigeration

Refrigeration on a cruising boat is meant to keep your perishable foods fresh as long as possible. Each of the Club boats is equipped with an icebox, ranging from 3.4 cubic feet on Against The Wind, 4.0 cubic feet on Wildside, and 5.0 cubic feet on Peter Duck. Place one or more blocks of ice in the bottom of the icebox, then place your perishable foods on top. If you like your drinks cold, bring along a bag or two of ice cubes. If you run low on ice, refills can be obtained at most marina stores. However, ice doesn’t last forever. In order to conserve your ice supply, you should:

- Keep your icebox as full as possible. A full icebox stays cold longer
- Limit the number of times of opening and leaving the lid or door open for extensive periods of time, to reduce the loss of cold air.
- Organize your icebox contents and know what you need and where it’s kept before opening
- Use a thermal cover over your food to minimize loss of cold air
- Pre-freeze food before your trip
- You can substitute pre-frozen water containers in lieu of ice, which also gives you additional drinking water once it has melted. When pre-freezing water containers before your trip, ensure that you fill them only two-thirds full, to allow for expansion during the freezing process
- Use every opportunity to replenish your ice when available

2.5 Fresh Water Distribution



“Typical” Fresh Water System

Typically, the onboard water distribution system on a cruising boat consists of one or more water tanks, a pressurizing pump, and tubing connecting the pump to cold water faucets at the galley and head. The water tank is filled by means of a connection on the port deck with the word “WATER” stamped on it. There are two types of pumps that send the water to the faucets – electric and manual. The 12 volt electric pumps pressurizes the entire distribution system and automatically switches on when a faucet is opened, then switches off when the faucet is closed and the pressure in the system is restored. A circuit on the 12 volt panel controls this pump and needs to be turned on when using, then turned off when not in use. If there is a small leak anywhere in the system, the pressure in the lines will

slowly decrease until the pump starts again to re-pressurize, causing cycling, which is both a draw on the power supply and a source of annoyance.

Some of the boats also have a manual pump operated by foot or hand controls, which control the water to a single faucet, thus eliminating the need to pressurize the entire system and reducing your power consumption. Manual pumps conserve water better than electric pumps, which is important if replenishment is not easily accessed.

Club Boat Fresh Water Systems are as follows:

- Peter Duck has a 12V electric pump located in the Port settee (circuit breaker identified as "Water Pump"), and a hand pump at the sink
- Wildside only has a hand pump at the sink
- Against The Wind only has a foot pump located at the floor level directly below the sink

Always check your Fresh water tank level before leaving the dock.

On Peter Duck, the water tubing is also connected to an inline water heater which heats the water before sending it to the hot water faucets. The water heater is heated by means of a coolant circulation loop which steals heat off the engine. The water heater is essentially a heat exchanger, with cold fresh water on one side of the exchanger and hot coolant on the other side. Typically, a water heater can be heated two different ways: with coolant as described above or by a 120 volt electric immersion heater when power is available at the dock. Unfortunately, the electric heater on Peter Duck is not functioning properly at this time. Wildside and Against The Wind do NOT have water heaters so, if you want some hot water for any reason, you'll need to boil it in a kettle or pot.

SECTION 3: WEATHER

3.1 Wind Formation

It is not within the scope of this course to expand on weather systems. However, there are some aspects of weather phenomenon which bear touching upon:

Predominant winds in Comox Harbour and out in the Strait tend to be Northwest (usually in fair weather or high pressure), or Southeast (often when in lower pressure systems or poorer conditions). Having said that, daytime heating of the land surrounding Comox Bay often results in a Seabreeze effect which means Southeasterly winds in the harbour, even though the forecast winds....and the actual winds in the Strait, are Northwesterly.

When a high pressure ridge forms on the west side of Vancouver Island, a southwesterly inflow funnels through Port Alberni Inlet, across the island through a gap in the mountains, finally emerging as strong outflow winds into the Strait of Georgia. Winds just off Qualicum Beach tend to be much higher than the surrounding areas during an inflow, and while the larger winds might be blowing down the Strait of Georgia from the north, strong westerly outflow winds will be blowing off Qualicum Beach, hence the name for them: "Qualicums". These winds can be extremely strong and bear having a knowledge of them. They are reliably predicted in the Environment Canada forecasts (and often not seen in apps like "Windy"). In the past several years, clearcut logging west of the Comox Valley has created a similar gap allowing a strong southwesterly outflow wind in our harbour – not as strong as a Qualicum, but usually occurring when the Qualicums are predicted.

Wind against Tide - the tide changes the shape of the wave. It slows the deep part of the wave in relation to the top of the wave, sort of trips the wave up. The waves become higher and unstable and start to break. In lighter wind/tide conditions we can use this knowledge to sail better because we can see the tidal currents in areas of ripples, to give us a better speed. It is important to understand that several areas have a reputation for being dangerous in such conditions. South of Cape Mudge (across from Campbell River) is such an area, especially when a strong flood tidal current (out of Discovery Passage) meets a strong Southeasterly wind from Georgia Strait.

Such conditions routinely create square standing waves over 10 feet in height.



3.2 Restricted Visibility

Boating in times of restricted visibility is dangerous, it can cause accidents or can cause the operator to hit a rock or any harmful object. For this reason, there are lots of restrictions for boaters during restricted visibility.

1. All boats/vessels must move at a safe speed, with Navigation Lights turned on. No speeding in times of restricted visibility, every vessel should be ready to maneuver when the weather changes.
2. Unless there isn't any risk of collision, if the driver/operator hears a sound or fog signal but can't see the vessel ahead, they must stop or reduce the speed to a bare minimum in order to avoid a collision.
3. With GPS and chart plotters available, it may be tempting to go ahead into a fog bank. If your plotter fails, can you find your way to safety? Keep a paper chart handy, marking your known (or last known) position and course, plotting every 15 minutes. It may be possible to follow a depth contour using your compass and depth sounder. Depth may also tell you when shore is approaching.
4. Courses plotted to the lee side of islands tend to work out well because the warmth of the land thins the fog and may accelerate the summer sea breeze. Courses that take you well inland are also helpful, as the air here warms up more quickly and disperses fog sooner.
5. The best way to avoid collisions in fog is to make noise. Always carry a powerful handheld signalling horn and know how to use it. Even if you don't always follow the rule about sounding a signal every two minutes

while underway in fog (one long blast for power vessels; one long and two short blasts for vessels under sail), you should be prepared to stop and signal when you know there's traffic around.

6. If you hear a boat approaching in fog and determine there is a risk of collision, the appropriate response is five short blasts on a horn. Short blasts are defined as one second each, but I've found slightly longer blasts work much better.

3.3 Estimating Height of Tide

I like to occasionally visit Roscoe Bay, in Desolation Sound. The entry into the bay has a shoal which, at low tide, shoals at lower low water (low tide), but the water level needs to clear your keel. Your tide books include instructions and tables to calculate the height of tide between high and low water, but we all know that precise calculations are impossible – the tables themselves are estimates only.

You don't need to know calculus to understand tides—you only need to know the Rule of Twelfths to determine the height of the tide at any time of day. Although it's approximate and doesn't account for every factor that might affect the tide, the Rule of Twelfths is ideal for the sailor on-the-go. It's especially helpful when passing over a shoal or entering a harbour at a mid-point in the tidal cycle. It's based on the understanding that the change in depth of water is not constant, but rather increases its pace until it reaches maximum ebb or flow, then decreases until slack water. It uses a simple six-hour cycle.

Think about the tempo of the tides like the motion of a swing. As you swing toward the highest point, you slow down before changing direction. Then you accelerate as you swing down, reaching your maximum speed at the bottom. Like the tides, your fastest point is halfway through the cycle.

Most tides, ours included, are semi-diurnal, meaning there are two high and two low tides a day, approximately 6 hours and 12.5 minutes apart. Between high and low tide the water accelerates to reach maximum speed (max flood or max ebb) then slows until it changes direction (slack water).

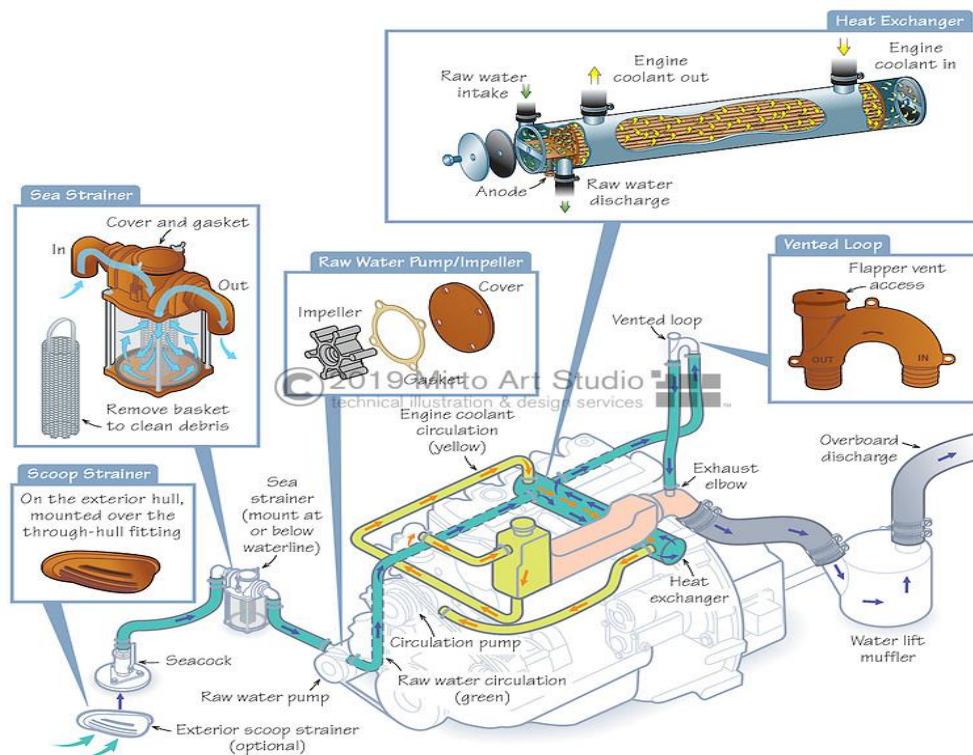
During the first hour, the water level rises by 1/12th of the total tidal range. In the second hour, it rises by an additional 2/12ths of the total. During the third and fourth hour, it rises by 3/12ths. Then the increase begins to slow down. In the fifth

hour, the water only rises by 2/12ths, and in the sixth hour it rises by 1/12th. The pattern is 1,2,3,3,2,1. The falling tide follows the same pattern.

It is important to remember that this method is an estimate only, and tide table predictions are also not gospel, so it may be prudent to add in a bit of a fudge-factor if you are planning to cross over a shoal or rock, or stay in a preplanned anchorage depth. Crossing over an obstacle with minimum clearance is best done on a rising tide.

SECTION 4: SEAMANSHIP

4.1 Diagnosing an Overheating Diesel Engine



“Typical” Diesel Engine Cooling System

The first indication of an overheating engine will be the temperature alarm sounding. If the boat is fitted with a temperature gauge, check the engine temperature. On Peter Duck, which is outfitted with a Yanmar 3GM30F diesel engine, normal operating temperature is 165 degrees C, with the high temperature alarm set at 185 degrees C. The most likely cause of a high temperature is a blockage in the system somewhere.

To discover the cause, start at the beginning of the system and work your way methodically along, starting where the cooling water enters. This is the raw water

seacock. Did you forget to open it? If it's open, then proceed to the next step. Close the seacock, then disconnect the hose from the discharge of the valve. Open the seacock, and see if water comes pouring out. If not, the seacock may have become plugged by sea-grass or you may have picked up a plastic bag which is blocking the water flow. You'll need to run a wire down through the seacock to clear the obstruction. Close the seacock and move to the next step in the system.

This is the raw water strainer. Check to see that it is clear of any obstructions. Jellyfish are an ongoing problem in our area and are almost invisible to the eye when blocking a strainer.

The next point to investigate is the raw water pump. On Peter Duck, the raw water pump is driven off the engine by means of a belt. Check the tension of the pulley belt, it shouldn't deflect more than a quarter of an inch when depressed midpoint between the pump and the drive pulley. A loose or slipping belt will not drive the raw water pump fast enough to generate enough cooling water flow to keep the engine within the operating temperature range. If it is nicely tensioned, proceed to the next step.

This next step involves removing the cover from the Raw Water pump, to check the condition of the impeller - the flexible part of the pump which forces the water through the engine. The typical problem with the impeller is that the flexible vanes which do the work become cracked or broken. Once this happens, the pump loses its ability to push the water forward, lowering the heat transfer in the exchanger, resulting in higher engine temperature. On Wildside, the raw water pump is driven directly off the engine crankshaft, with access to the impeller conveniently located on the front of the pump. However, on Peter Duck, the raw water pump needs to be removed to access the impeller cover plate. If the impeller vanes are damaged, replace the impeller with a new one from the Spare Parts container. Remember to install a new pump cover gasket as well.



Now is the time to restart the engine and check for overheating. If the engine runs within the temperature limits after a reasonable amount of time, then all well and good, you fixed the problem. If it does not, try removing the thermostat which sits below the coolant access cap. Replace the access cap and restart the engine. If it's still overheating, then you have a bigger problem that can't be fixed on water. You'll need to sail, or be towed, to a location where more major mechanical work can be performed. The likely culprit will be a plugged mixing elbow (the part that mixes the raw water discharge from the heat exchanger with the engine exhaust leaving the boat) which can coke up with carbon, choking off the elbow. The carbon build-up needs to be removed from the elbow, either mechanically or by "pickling" in an acid bath. Most radiator shops can perform this task.

4.2 "Bleeding" a Diesel Engine

For optimal performance, a diesel engine's primary need is a continuous supply of clean fuel. A symptom known as "airlock" occurs when this flow is interrupted by an air bubble, causing the engine to shut down and refuse to restart. By bleeding the trapped air from the fuel system, you can restore the flow of fuel and get your marine diesel engine running again. This skill is crucial for anyone who intends to be on the water for any considerable length of time.

4.2.1 Identify the Leak

Before you begin to try to get the air out of the system, you need to know how it's gotten in. Diesel engines should never run dry of fuel, as this is guaranteed to cause airlock. Other than this scenario, air intrusions typically occur when the fuel filter is changed out during routine maintenance. This can be prevented by filling the new filter with fuel and topping it off as it is absorbed, then applying fuel to the inside of the gasket before installation.

4.2.2 Back off the Bleed Screw

Where is the bleed screw on a diesel engine? You will locate it on top of the fuel filter fitted to the engine. Start by loosening the screw on the first filter by a half turn. You can loosen it further if required but don't pull it out – three or four

turns at most is generally the most that is necessary. Once you've loosened the bleed screw, grab plenty of rags, as the next step is going to get messy.

4.2.3 Operate the manual Fuel Pump Primer

Knowing how to prime a diesel engine involves finding the fuel pump primer lever or plunger. The fuel lift pump is mounted on the engine and connected to the primary fuel filter. Begin pumping the lever or plunger while keeping an eye on the bleed screw. You will see bubbles form as air leaves the system. Use rags or absorbent material to sop up the fuel as it bleeds out. When clean, bubble-free fuel is all you see, tighten the screw backdown (don't reef on it – over-tightening may strip the threads) while continuing to pump. This will maintain pressure and eliminate the chance of air re-entering the system.

4.2.4 Bleed Any Additional Points

Continue the above process with the secondary fuel filter if one is present. This may be all you need to do to get the engine running again. If the airlock persists, you may also need to bleed the injector pump and the individual injectors using the same procedure (just follow the fuel line to find them).

After completing the Fuel system Bleed procedure, leave the engine running for at least an hour, to confirm that the problem has been fixed.

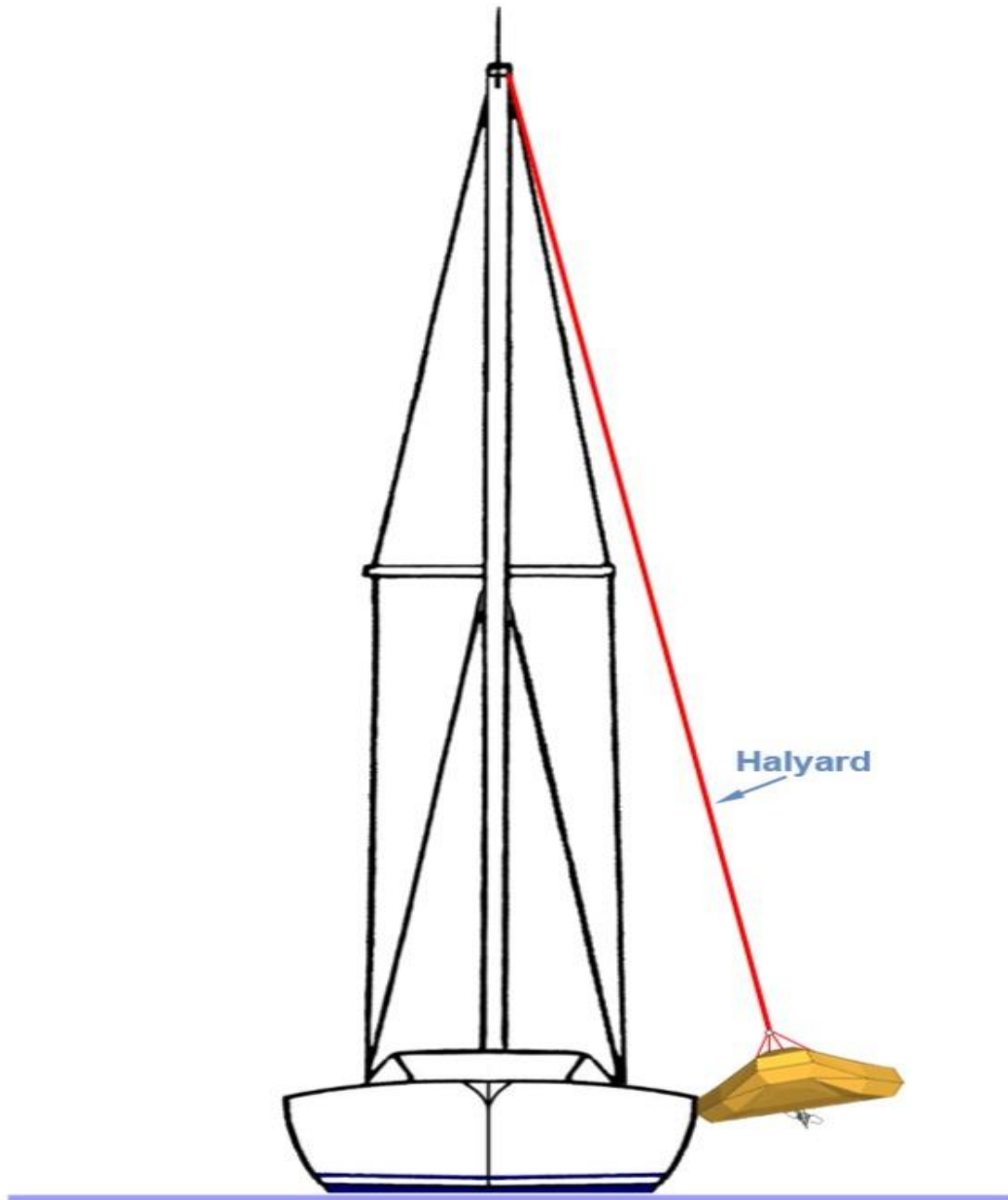
4.3 Travelling with a Dinghy

For cruisers, a dinghy is essential to allow access to shore, to ferry groceries and supplies back to the mother-ship, for exploring our anchorages, and often serves as the kids, or grand kids, "first command". The Club boats are supplied with a Walker Bay-style hard-bottomed dinghy for multi-day trips, for use to meet the needs of the cruising family. Unfortunately, when travelling, dinghies can be a real nuisance since they either need to be stowed on deck or towed behind the mother-ship. Losing a dinghy while transiting can be expensive. Most cruisers consider it unseamanlike to tow a dinghy when on a passage. For starters, the drag is considerable and can be a real impediment to sailing speed. Other reasons include the fact that a towed dinghy can be a distraction to the crew and a potential danger, if the dinghy gets loose and must be recovered. There's also the ever-present danger of fouling the propeller with the tow line if you're not careful when backing up.

4.3.1 Stowing & Securing a Dinghy Onboard

The smartest way to transport your dinghy is onboard. It's not that difficult to rig up a sling or some other device for the dinghy, attach the main halyard to it, and then hoist it over the lifelines onto the foredeck. After you have secured it to the deck properly, you can forget about it. The only drawbacks of this method are that it can compromise forward visibility and on-deck room.

See following diagram – using halyard to hoist the dinghy onto the foredeck



4.3.2 Towing a Dinghy

For short hops between anchorages, towing the tender is possible. However, it isn't just tying the dinghy to the mother-ship and hitting the throttle. First the tender must be empty. Remove paddles, oars, lifejackets, and any other equipment. Install any transom plug securely. Your towing bridle, hardware, and line are key. For very short distances with a hard-bottomed dinghy that tracks well and has a padeye on the stem (at least 6 inches below the gunwale so that the

bow rides high) you may be able get away with a single line directly between the tow and the big boat. For all other tows, especially with an inflatable, rig a tow bridle as follows:

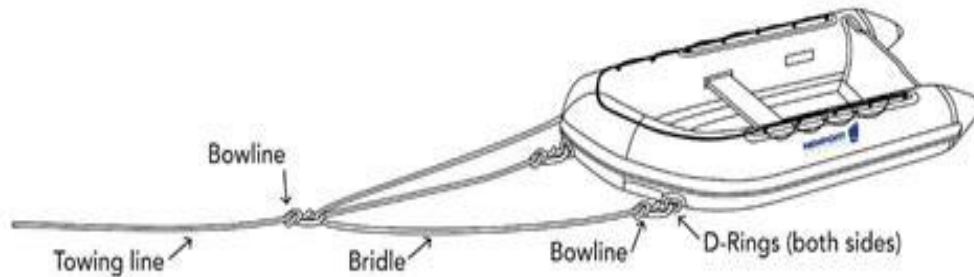
The single line attached to the bow of the dinghy can still be used as a back-up line – when towing, it should be a little bit slack, and the line should be a floating line. When stopping or reversing, you should shorten up the tow line to keep it from fouling the prop (we’ve all done it!).

The inflatable dinghy should have two stainless steel D-rings, one on either side of the bow. Connect the ends of a line to each of these rings so that you form a triangle that clears the bow of the dinghy by a few feet. Make sure that you pass this bridle through a bowline on the end of the towing line so that the bridle can slide side-to-side and keep the weight better distributed between the rings. Better yet, use a small block to completely avoid the two lines chafing. Do the same on the other end at the mother-ship, and attach the bridle to deck cleats. Slip a float on each end to keep the bridle out of the water, especially near the mother-ship's prop.

Towing a dinghy is not a “set it and forget it” procedure. Make sure to look back regularly to check that it’s still there, especially if the wind picks up or the sea state deteriorates. If the “dink” ships water from waves or rain, it will increase drag. A 4-foot by 8-foot dinghy with only a few inches of water covering the bottom translates into hundreds of pounds of weight/drag/stress on the dinghy D-rings, and slows your progress, decreasing fuel efficiency. It’s also possible for a dinghy to flip over and submerge, or even break loose, so keep a watchful eye on your tow at all times.

(See the diagram of a Typical Towing Bridle on following page)

Typical Towing Bridle



4.3.3 Securing a Dinghy Overnight

But as usefully as a dinghy is for getting around, it can become an aggravating annoyance at night when it is constantly bumping against the hull of the boat, keeping you from a restful sleep. The most common solutions to this are:

- Haul the dinghy onto the deck
- Raft the dinghy along side your boat, or to the dock, using an adequate number of fenders and lines
- Tie the dinghy to the transom with fenders and lines

Theft from boats and dinghies is fairly rare in the waters in which we play. However, two conditions can lead to unwarranted theft – when there are lots of people around, and when there's no one around. In both these cases, secure your dinghy to your boat or to a dock with lock and key. A secure-looking chain & lock will dissuade a thief from making off with your dinghy.

4.3.4 Going Ashore

Tides might surprise you. Take into account how long you and the dinghy will be ashore, and what the tide will do to the dinghy. On a rising tide, you may need to carry the dinghy up the shore for a short way and still use a long line to secure it – and you may still find the boat is afloat and a bit of a ways away. Many of our

shorelines are littered with oysters, clams, and razor-sharp mussels. Take this into account when moving the dinghy (and what footwear to have available).

4.4 Anchoring

The Club boats are supplied with a combination of chain and rope anchoring systems:

- Peter Duck has a 10 kg Bruce anchor, with 35 feet of 3/8" chain and 210 feet of 5/8" rope, total of 245 feet of rode.
- Wildside has a Danforth anchor, with 35 feet of 1/4" chain and 250 feet of 1/2" and 5/8" rope, total of 285 feet of rode.
- Against The Wind has a 10 kg Bruce anchor, with 27 feet of 1/4" chain and 215 feet of 5/8" rope, total of 242 feet of rode.

The first consideration of an adequate anchorage is the type of bottom. The best types for holding are sand and mud bottoms, with rocky, clay and grassy bottoms providing the least amount of holding power. Review your paper charts or the chart plotter to determine the location of these types of bottoms in each anchorage. The next thing to consider is the location in the anchorage for dropping your anchor. In all cases, the best location for anchoring is out of the direction of the prevailing wind and out of the direction of the in-coming waves. However, heed the Primary Rule – NEVER ANCHOR ON A LEE SHORE!!! Pick a location in the anchorage where a high bank or tall trees will provide a shield from the forecast winds. If there have been high winds blowing for a lengthy amount of time into the anchorage, the "fetch" will carry on for some length of time before dissipating. If your boat is located at an angle to the wave fetch, it will make for a very uncomfortable night of sleep, as the boat will rock and roll with the waves. If possible, anchor behind an island which will give you some protection from prevailing winds and waves.

Should there be a number of other boats located in the bay when you arrive, pick a spot which gives an adequate amount of room around you, but doesn't take up more than your fair share of the refuge. Don't be a BAY HOG! A good tactic is to approach another boat near the location you wish to anchor and ask where their anchor is located and how much rode they have out. This will determine whether you have room ahead of the other boat or whether you should anchor behind

them. If you choose to anchor behind them, then approach either their port or starboard quarter to within 20 feet (7 meters), lower your anchor, then fall back until you've put out a sufficient amount of rode to match your intended scope. As always, set your anchor securely.

In the Basic Cruising Course, you learned that you required a 5:1 or 7:1 scope depending on the type of weather you are expecting, if you have hope for a restful overnight stay. However, should the winds come up overnight as expected, that 5:1 or 7:1 scope will give you quite a large circle diameter of swing. Ensure there is adequate space between you and your neighbouring boats, so that you don't come in contact with each other if the wind swings around. However, be aware that boats on all-chain rode may not have as large a swing radius as boats on chain/rope rode. Identify neighbouring boats with all-chain rode and give them a wider berth.

Each of the boats has a secondary, kedging anchor (Danforth), with approximately 200 feet of rode.

4.5 Use of "Kelleys"

Kelleys (sometimes known as sentinels) are weights, purpose-made or kluged together out of whatever is at hand on the boat, that are attached to the rode somewhere between the anchor and the bow.

They are used to:

- contain and minimize swing radius in light conditions
- help dampen "sailing" at anchor
- keep a boat stationary when using bow and stern anchors
- help ensure that rode is kept down and away from the boat's keel, rudder, and propeller.

Dampening

Kelleys are often used to improve the absorption of the surge forces caused by wave action. This is very similar to the catenary effect of a chain. It takes a good deal of energy to straighten out the sag in a chain and this reduces the tugging at the (hopefully well) embedded anchor and on the deck hardware.

To be effective, a kellet used for dampening should be placed at the half-way point between boat and anchor. Placing it further up or down the rode reduces its effectiveness.

Improved Holding Power

Kellets are often used to improve an anchor's holding power. Placing a kellet in close proximity to the end of the anchor shank will improve its angle to the sea floor in lighter winds. Under these circumstances it will thus also improve its holding power. The further away from the anchor shank, the less effective the kellet becomes.

4.6 Recovering Fouled Anchors

A "fouled" anchor describes an anchor that cannot be freed from the anchorage bottom when it comes time for you to up-anchor. Sometimes this is due to the anchor becoming stuck in the bottom material, sand, mud or clay. This normally just requires an increased lifting effort in order to retrieve the anchor. The best way to remedy this situation is to pull in the anchor rode as tightly as possible, to the point that the bow of the boat dips towards the water. Cleat off the anchor line and let the buoyancy of the bow keep a steady strain on the line. Hopefully, the bottom suction will be broken in short order, and the anchor will be released. You can speed up this process by motoring around the anchor in order to break free. You can also back away from the anchor in the opposite direction to the one in which you set it. If you have the time available, or if the tide gods are smiling upon you, just wait until the tide rises, giving you sufficient tension to finally break free.

However, the anchor may become hooked on something on the bottom. It could be a rock, log, boom chain, or cables. The procedures mentioned above may not free you from a hooked anchor. If you suspect that your anchorage could potentially have foul ground, you should use a trip line and float. The trip line is a buoyant line with one end of the line attached to the crown of the anchor and the other end attached to a float. Ensure that the trip line is long enough to accommodate your anchoring depth plus the highest tide you are expecting during your stay. As you play out the anchor rode, also play out the trip line. Once the anchor reaches the bottom, release the float to float free. When it comes time to retrieve the anchor, bring in the rode until you are directly above

the anchor. Pulling on the trip line will tip the anchor so that it will release its grip on the fouling offender.

Another method of retrieval is to use an anchor “chaser”, similar to a trip line. Tie a bowline in a line then slip the line over the anchor rode. Row the line out ahead of the anchor point. The bowline will slip down the rode (use of a weight helps immensely) until it is over the anchor shank and hooks the flukes. Pulling on this line will hopefully pull the anchor free from whatever you’re hooked on.

If all else fails, and you still can’t retrieve the anchor, tie a float to your anchor rode, disconnect the line from your boat, then go off to find a diver who can perform the final retrieval.

4.7 Stern Tying

In many smaller anchorages, in order to accommodate the number of boats, it may be necessary to take a stern line to the shore. Stern lines also ensure a more constant pressure on the anchor rode, allowing for better holding power and prevents the boat from swinging. Use a floating line to tie the stern of the boat to a stationary object on shore. Avoid tying to live trees, to prevent damage to the tree’s bark. In many marine parks, eyebolts with chains attached have been embedded in the rocks to provide a secure point to which to tie. Check the water depth near the shore to determine how close you can bring the boat in. Set your anchor (minimum 5:1 scope) and test it using reverse gear, then back the boat **perpendicular** to the shore until you are as close to shore as you feel comfortable. The final location of your boat should be 90 degrees to the shoreline. **DON’T BE A BAY HOG.** Using your dingy, row your stern line ashore and pass it through the end of the chain, then bring the end of the line back to the boat, where it is tied off to an appropriate cleat. By doing this, having both ends of the line on the boat, you don’t need to go ashore again to cast off in the morning or during the night in case of an emergency. Tension the stern line until the boat remains in your desired location with minimal sideways movement.

The one location where it is nearly impossible to stern tie perpendicular to the shore is Deep Bay on Jedediah Island. The anchorage is so narrow, and the entrance to the bay faces the prevailing winds, such that you’ll need to stern tie at an angle to the bay. Drop your anchor on the west side of the bay, then back up towards the east side to pick up an eyebolt. Be careful that you don’t drop your

anchor over a neighbour's rode. In most cases it's considerate to ask your neighbour where his/her anchor is located. This anchorage can be quite busy during the summer, so extra precaution should be used when visiting here.

If, during the duration that you are stern tied, a strong wind comes up on your beam, the boat will put additional sideways pressure on the anchor which could result in the anchor dragging. If this happens, you may have to release your stern line and let the boat swing free in the wind. If this happens in close proximity to other boats, you may have to pull up anchor and anchor somewhere else where it's safer.

4.8 Rafting

Rafting is a term used to describe two or more boats tied together at anchor or at dock. At a dock, when slips are all occupied, it is a legal and accepted practice to raft up to 3 boats side by side, as long as you don't obstruct the waterway or fire route. The wharfinger will advise you to which boat you will be rafting. When alongside the other boat, an ample number of fenders should be deployed at the boat contact points at an appropriate height to ensure no damage to each hull is incurred. Secure your boat to the other boat using the standard spring and breast line procedure. Stagger the boats to prevent the rigging from entangling and damage, should unexpected waves rock the boat. Rafting etiquette states that, should you have to cross another boat to get to your boat, you do so as quietly as possible, especially if it was late at night. As well, always cross the other boat by way of the bow, and not through the cockpit, unless instructed otherwise by the owner of the other boat. Lastly, if your footwear is soiled for any reason, remove them before crossing the other boat or you may have a scrubbing duty before you leave the next morning.

If rafting at anchor, in all cases, the largest boat should set the anchor. Once secure, the other boat(s) move in to secure themselves to the anchored boat, again using the standard spring and breast line procedure. The anchored boat will decide whose lines you will use for tying to the other boat, either your lines or his. Normally this decision is based on whichever method is easier to de-raft. Another method would be to raft bow-to-stern which will ensure there is sufficient distance between the spreaders to eliminate the danger of damage. Most boaters like to use the bow-to-bow method, as it puts the lifeline gates on the boats close to each other for easier access between the boats. When it's time to depart, the

rafting boats leave first and the anchored boat leaves last. Again, when rafting at anchor, the normal rafting etiquette applies. Always ensure that your mooring lines are easy to cast off in the event of an emergency such as dragging anchor, fire, or heavy weather.

When rafting at anchor, only set out one anchor, especially if there's only two boats rafting up. You may think that two anchors will hold better than one, however, should the wind pick up overnight, the boats will swing around and intertwine the rodes. You'll be spending some time the next morning in a dingy trying to untangle the rodes.

4.9 Picking Up/Securing to a Mooring Ball

When available, a mooring ball is a safe alternative to anchoring, as it eliminates the danger of the anchor dragging if not set properly. However, you need to be careful which mooring balls you secure to, as some may have weak parts which have not been surveyed for a long time. These weak parts can break at the most inopportune time, leaving you to float away. Not the ideal situation!

The mooring ball is secured to the bottom of the anchorage by means of a weight, typically a block of concrete, which is heavy enough to resist the pull of the boat during even the strongest of winds and largest of seas. A heavy chain is shackled to the block, which then leads up to a swivel attached to the ring below the mooring ball. From the swivel, a second line is normally run to the floating pennant, to which you will be securing the boat. In some cases, the mooring ball may not have a floating pennant, in which case you will be securing to the eye on the top of the ball.

The proper procedure for picking up a mooring ball involves 6 steps:

The Set-Up – Bring two lines to the bow, one for each side of the boat, which will attach to the pendant on the mooring ball. Take one end of one of the lines over the top lifeline, then through the starboard bow chock, securing it to the starboard cleat by means of a loop or by belaying to the cleat. Do the same with the second line to the port cleat. Flake each line onto the deck, draping the bitter end of each line back over the top lifeline in preparation for the pick-up. Have a boat hook handy for the next steps.

The Approach – Approach the mooring ball from downwind or down current, whichever is strongest, at a slow speed, approaching the ball from either on the port or starboard side. We'll assume for this example that we'll be approaching on the starboard side. The crew on the bow should indicate by hand gestures or verbally which direction the skipper should steer the boat while approaching.

Stopping the Boat – As the boat approaches the mooring ball, the skipper slows the boat until it comes to a stop with the bow of the boat beside the mooring ball. You need to be close enough for the crew on the bow to reach the mooring ball with the boat hook. Should the wind or current push the boat away from the ball, the skipper may need to use the boat engine, shifting repeatedly from forward to neutral, in order to keep the boat positioned properly. Some people prefer to pick up the eye from the beam or beside the cockpit as it may be closer to the water (and the buoy).

The Pick-up – Once the boat is close enough, the bow crew uses the boat hook to hook onto the eyelet of the pennant (or eye) and raise it to a point when he/she can grasp it with his/her hand. Once this is accomplished, then the bitter end of starboard line is run through the eyelet (or eye), back under the lifeline and through the bow chock, then belayed to the starboard cleat. The rest of the line can be dropped back into the water. Once the starboard line has been secured, the bow crew gives a signal to the skipper that he/she can return the engine to neutral and/or shut the engine off.

Securing- In order to secure the port line, the bow crew can grasp the starboard line by hand and raise the pennant eyelet (or eye) to a point where he/she can run the bitter end of the port line through the eyelet (or eye), back under the lifeline and through the bow chock, then belayed to the port cleat. Again, the remainder of the line can be dropped back into the water.

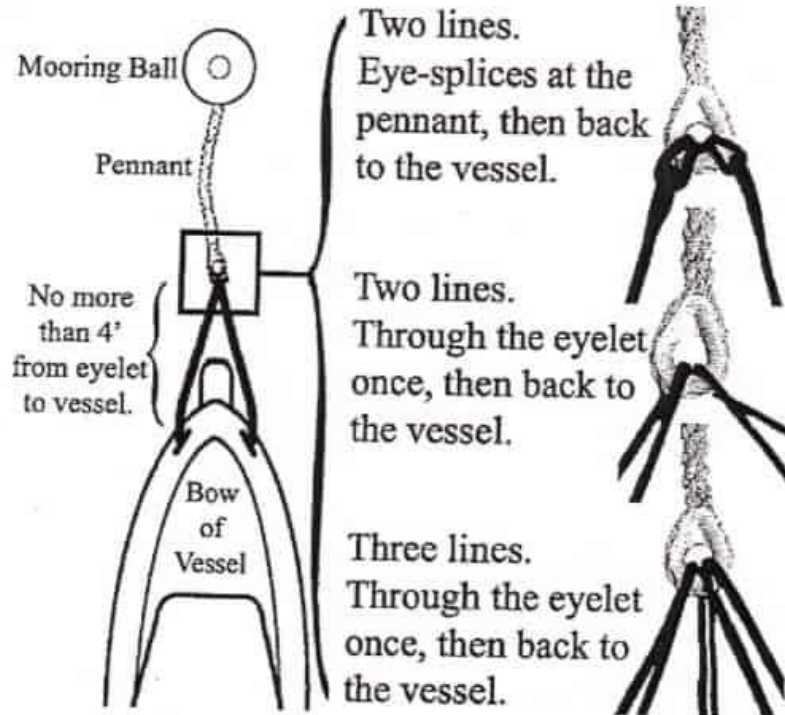
Final Checking – Lastly, you'll need to adjust the lengths of each of the lines equally so that the eyelet of the pennant is no farther than four feet away for the bow of the boat. In the case of the mooring ball not having a pennant, and you're connected to the eye of the ball itself, then the lines should have enough length so that the ball won't be banging against the bow of the boat (which can be very annoying at night while you're trying to sleep. This also ensures that the mooring ball won't damage the hull of the boat.

Too many times we have seen a boat secured to a mooring ball using only a single line run from the port cleat, through the pennant eyelet (or ball eye), then back to the starboard cleat. **DO NOT DO THIS!** As the boat moves around with the wind or current, the line will chafe on the eyelet or eye, until such time as the line will break, releasing the boat from the mooring ball. This will typically happen after you've fallen asleep, or when you're not paying attention, and now your boat is heading for a Lee Shore.

Diagram of recommended Mooring Ball Attachment Methods on next page

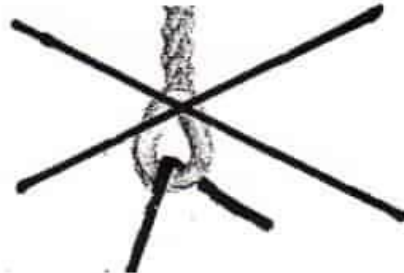
Recommended Mooring Ball Attachment Methods

(Additional lines may be used, but must not be attached to any other portion of the mooring system except the pennant eyelet as shown.) No metal may be attached to any portion of the mooring system.



EYELET AND FLOAT MUST STAY OUT OF THE WATER

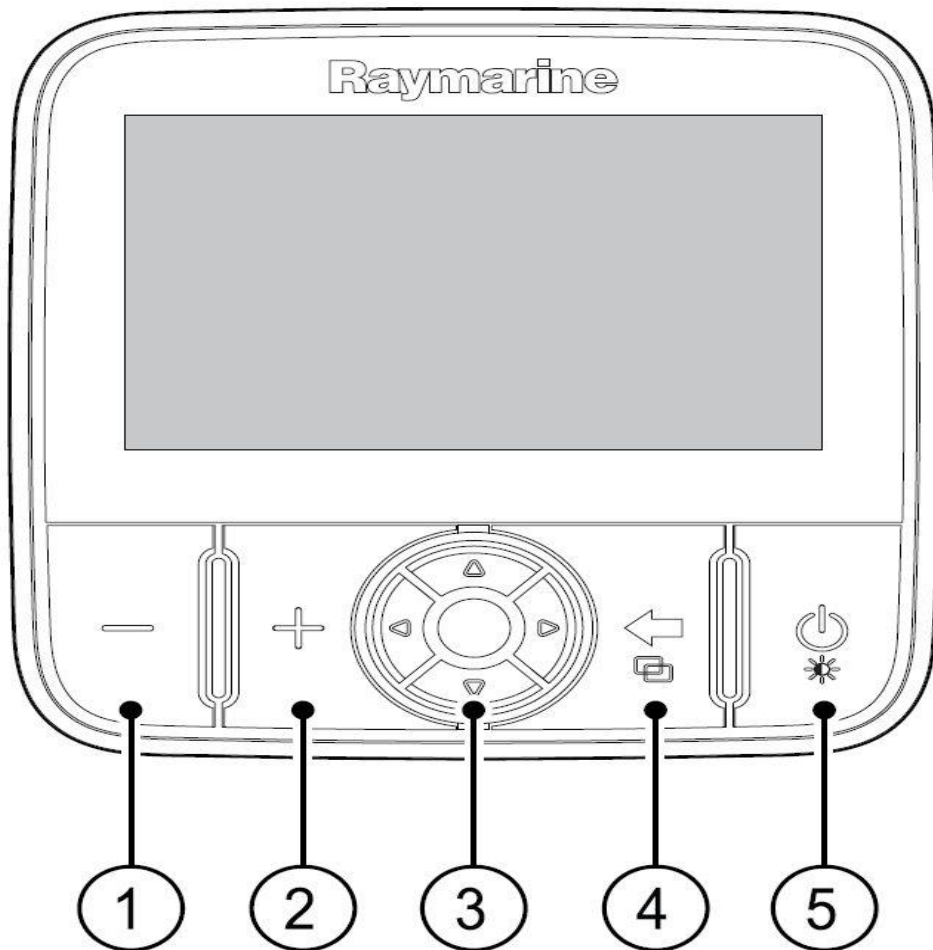
**DO NOT PUT YOUR
LINE THROUGH THE
PICKUP LINE LIKE
THIS**



SECTION 5: NAVIGATION

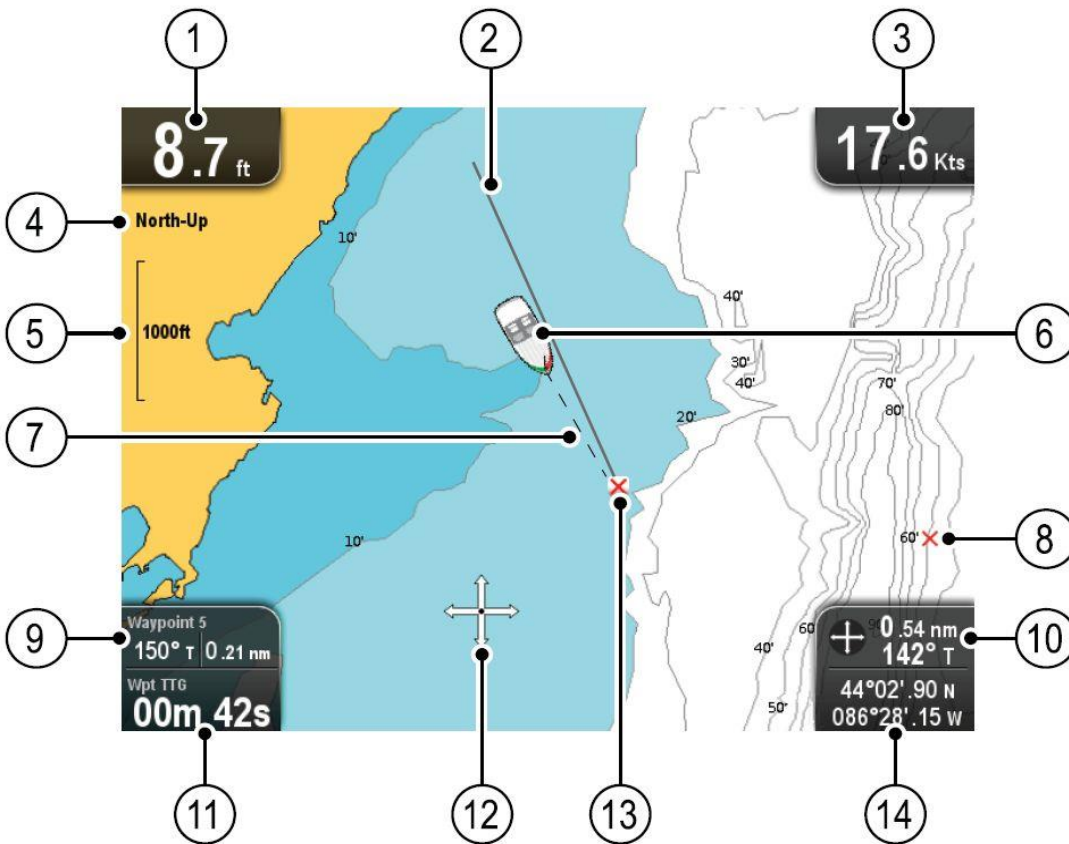
5.1 Chart Plotter Use

All of the 19WCYC boats come equipped with a Raymarine Dragonfly 5 Multi-Function Display (MFD), more commonly known as a chart plotter. Dragonfly 5 comes with an internal GPS receiver which provides an electronic chart with navigational features. It uses 2D perspective and provides a variety of cartographic information and charted objects. The application is loaded with **Lighthouse Charts**, **Navionics** and **C-Map by Jeppesen** world base maps.



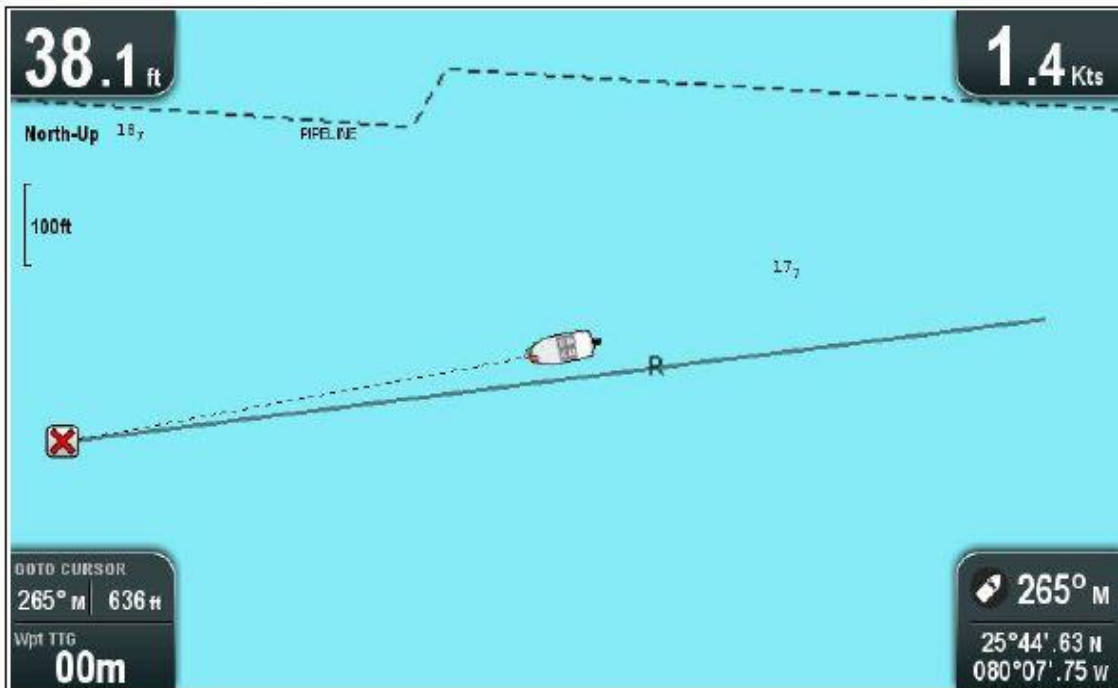
1	- button Zoom out / Range out
2	+ button Zoom in / Range in
3	Directional track pad with OK button — Used for navigating menus and applications and selecting items.
4	<p>Back button / View switcher button</p> <ul style="list-style-type: none"> • Press once to return to a previous menu or application state. • Press in the Chart application to exit cursor mode and centre the vessel on-screen. • Press in the Sonar or DownVision applications to resume scrolling from a paused state. • From the top level application state (Motion mode or Scrolling mode) press once to open the View switcher (DVS and Pro variants only).
5	<p>Power / Shortcuts page button</p> <ul style="list-style-type: none"> • Press once to power the unit on. • When turned on, pressing the power button will display the Shortcuts page. • Press and hold to turn the display off.

Chart application overview



1	Depth — Current water depth (only available with transducer connected).
2	Navigation origin line — During navigation, shows a solid line from the starting point to the target waypoint.
3	Speed — Current vessel speed (shown in selected system units).
4	Orientation — States the orientation mode that the chart is using (North-up, or Course-up).
5	Range — Chart scale indicator (shown in selected system units).
6	Vessel symbol — Shows your current position.
7	Vessel position line — During navigation, shows a dotted line from the vessel's current position to the target waypoint.
8	Waypoint — Inactive.
9	Bearing and distance to Waypoint — During active navigation displays the distance and bearing to the target waypoint (shown in selected system units).

Motion mode



10 Bearing - COG bearing
Bearing : distance : displayed

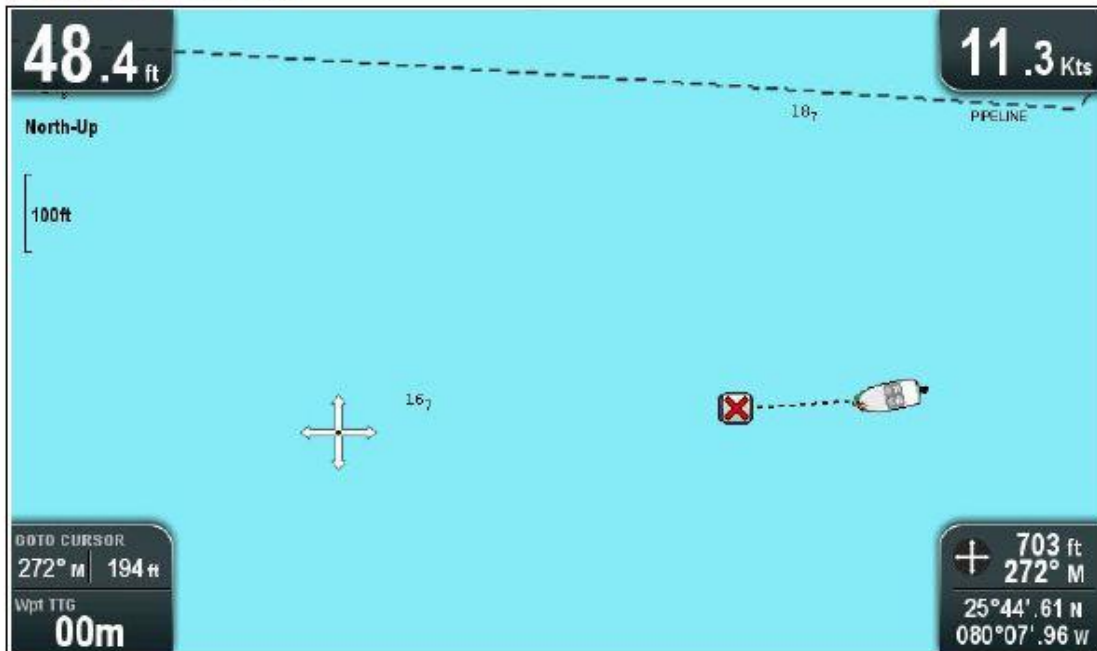
Motion mode is the default Chart application mode. In **Motion mode** the boat symbol remains centered onscreen and the Chart area moves around the boat symbol.

In **Motion mode** the controls behave as follows:

- pressing the **+** button ranges in.
- pressing the **-** button ranges out.
- pressing the **Ok** button opens the Chart application menu.
- pressing the **Back** button opens the **View switcher**.
- pressing any of the **Directional controls** enters **Cursor mode**.

11	Waypoint estimat on your Water t current selecte
12	Cursor around
13	Target
14	Vessel vessel Cursor coordin

Cursor mode



In **Cursor mode** the **Directional controls** are used to move around the Chart area. When the cursor reaches the edge of the screen the Chart area will pan in that direction.

In **Cursor mode** the controls behave as follows:

- using the **Directional controls** in any direction pans the chart area in that direction.
- pressing the **+** button ranges in.
- pressing the **-** button ranges out.
- pressing the **Ok** button opens the context menu.
- pressing the **Back** button returns the application to **Motion mode**.

9.4 Waypoints overview

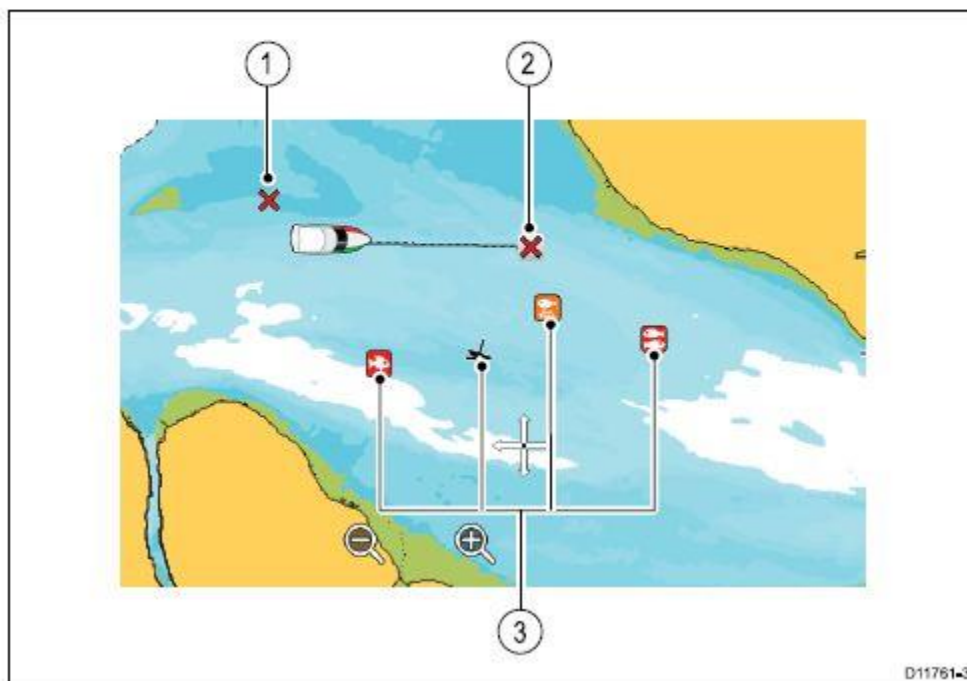
Waypoints are position markers used for the purposes of navigation. Your display can create waypoints, which can then be selected for active navigation.

There are a range of features for placing, navigating and managing waypoints, these can be accessed from the Waypoints menu and Waypoint context menu. Waypoints are represented onscreen using customizable waypoint symbols. Waypoints can be created, moved, deleted. Waypoints can also be exported or imported.

Waypoint display examples

Waypoints in the chart application

In the chart application both active and inactive waypoints are shown. An active waypoint is the one that you are navigating to.



Waypoint placement

Placing a waypoint

Displays with a GPS / GNSS receiver can use waypoints to mark points of interest.

1. Use the **Directional controls** to highlight the desired location with the cursor.
2. Press the **OK** button.
The context menu is displayed.
3. Select **Place Waypoint**.
A confirmation pop up message is displayed.
4. Select **Ok** to place the waypoint, or **Edit** to edit the waypoint details.

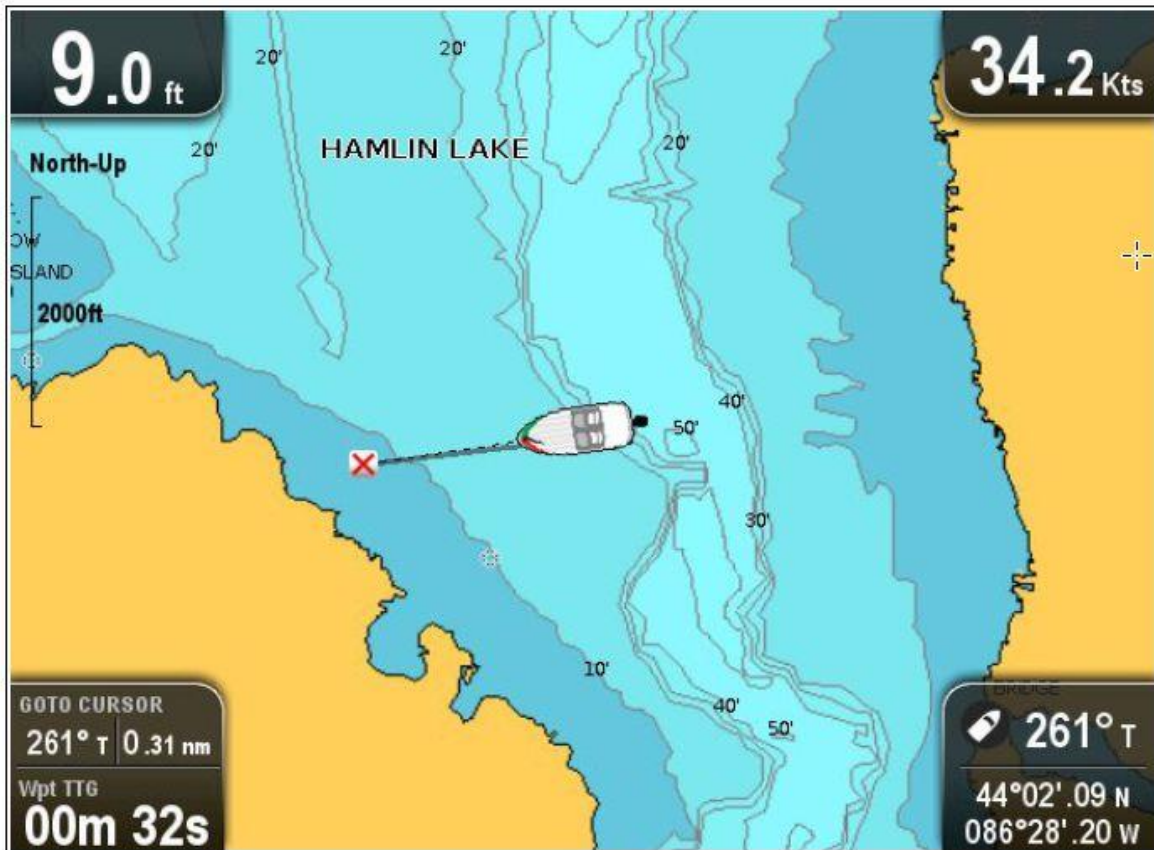
A waypoint is placed at the cursor's location.

Placing a waypoint at your vessel's position

From the Chart application:

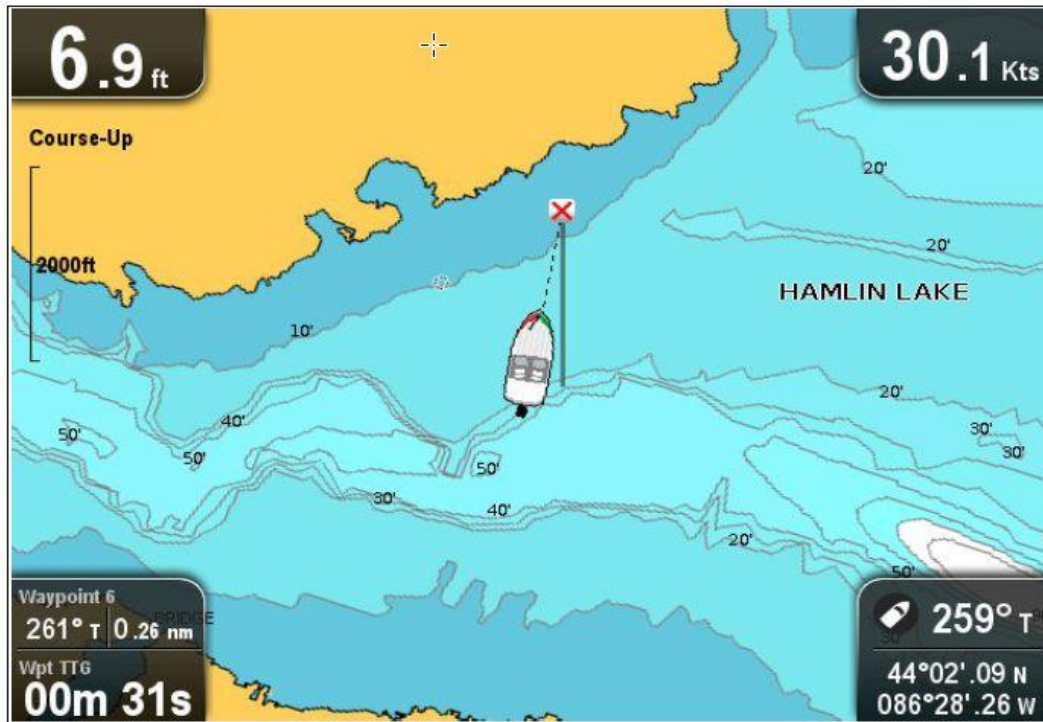
1. If required press the **Back** button to enter motion mode.
2. Press the **OK** button again to open the menu.
3. Select **Place Waypoint**.
A confirmation pop up message is displayed.
4. Select **Ok** to place the waypoint, or **Edit** to edit the waypoint details.

North Up



In **North Up** mode, the **Chart Orientation** is fixed with true north pointing up (this is the usual orientation for nautical charts). As your heading changes the vessel symbol rotates accordingly. This is the default orientation for the Chart application.

Course Up



In **Course Up** mode, during active navigation, the Chart application displays the vessel's current destination waypoint directly up. As your COG changes, the boat symbol moves accordingly. If you select a new course, the picture will reset to display the new course upwards.

If COG data becomes unavailable **Course Up** mode is suspended and the Chart application will set COG to 0°.

Setting the Chart Orientation

From the Chart Application menu:

1. Select **Chart Settings**
2. Select **Chart Orientation** (switches between North Up and Course Up).

APPENDIX: A1.1: Sail Plan Template (for Peter Duck)

Tel. # Victoria MCTS (Coast Guard) -----1(250)363-6611 or *16

JRCC (Rescue Centre) -----1(250)413-8933 or 1(800)567-5111

Vessel Name: Peter Duck Registration Number:

Vessel Type : Mirage 35 ft. (10.67 M) Sloop Sailboat, aux. diesel engine

Colour of Hull: White with Green trim Deck: White

Cabin: White with green canvas dodger

Number of Flares: 6 Number of Lifejackets/PFDs: 8

Home Port: 19 Wing Comox Yacht Club

Club Contact: Keelboat Captain email: keelboatbooking@19wcyc.com

MMSI: 316016747 Radios: VHF with DSC and Handheld VHF

Vessel Master: _____

Cell. Phone #: _____

Home Address: _____

Total Number of Persons Onboard: _____

Names of Crew and Contact #'s: _____

Departure Date/Time: _____

Entrusted Person with Sail plan (Name, phone #, contact time(s):

APPENDIX: A1.2: Sail Plan Template (for WildSide)

Tel. # Victoria MCTS (Coast Guard) -----1(250)363-6611 or *16

JRCC (Rescue Centre) -----1(250)413-8933 or 1(800)567-5111

Vessel Name: WildSide

Registration Number:

Vessel Type: Cal-2, 29.5 ft. (8.82 M) Sloop Sailboat, aux. diesel engine

Colour of Hull: White with Black trim

Deck: White

Cabin: White

Number of Flares: 6

Number of Lifejackets/PFDs: 6

Home Port: 19 Wing Comox Yacht Club

Club Contact: Keelboat Captain

email: keelboatbooking@19wcyc.com

MMSI: 316016746

Radios: VHF with DSC and Handheld VHF

Vessel Master: _____

Cell. Phone #: _____

Home Address: _____

Total Number of Persons Onboard: _____

Names of Crew and Contact #'s: _____

Departure Date/Time: _____

Entrusted Person with Sail plan (Name, phone #, contact time(s):

APPENDIX: A1.3: Sail Plan Template (for AgainstTheWind)

Tel. # Victoria MCTS (Coast Guard) -----1(250)363-6611 or *16

JRCC (Rescue Centre) -----1(250)413-8933 or 1(800)567-5111

Vessel Name: Against The Wind Registration Number:

Vessel Type : Aloha 27ft. (7.95M) Sloop Sailboat, aux. Outboard engine

Colour of Hull: White with Dark Blue trim Deck: White

Cabin: White

Number of Flares: 6 Number of Lifejackets/PFDs: 6

Home Port: 19 Wing Comox Yacht Club

Club Contact: Keelboat Captain email: keelboatbooking@19wcyc.com

MMSI: 316034619 Radios: VHF with DSC and Handheld VHF

Vessel Master: _____

Cell. Phone #: _____

Home Address: _____

Total Number of Persons Onboard: _____

Names of Crew and Contact #'s: _____

Departure Date/Time: _____

Entrusted Person with Sail plan (Name, phone #, contact time(s):

SAIL PLAN DETAILS (Accompanies Appropriate Boat Template)

Destination #1: _____

Routeing: _____

Apprx. Time Enroute: _____

Alternate Destination : _____

Planned Departure: _____

Destination #2:

Routeing: _____

Apprx. Time Enroute: _____

Alternate Destination: _____

Planned Departure: _____

Destination #3

Routeing: _____

Apprx. Time Enroute: _____

Alternate Destination: _____

Planned Departure: _____

Destination #4

Routeing: _____

Apprx. Time Enroute: _____

Alternate Destination: _____

Planned Departure: _____

Destination #5

Routeing: _____

Apprx. Time Enroute: _____

Alternate Destination: _____

Planned Departure: _____

Destination #6

Routeing: _____

Apprx. Time Enroute: _____

Alternate Destination: _____

Planned Departure: _____

Destination #7

Routeing: _____

Apprx. Time Enroute: _____

Alternate Destination : _____

Planned Departure: _____

Anticipated Final Arrival Date & Time: _____

DON'T FORGET TO NOTIFY YOUR RESPONSIBLE PERSON OF YOUR SAFE ARRIVAL!!!!!!If not back by this time, YOUR RESPONSIBLE PERSON WILL ACTIVATE THIS PLAN (notify Coast Guard or JRCC) – contact numbers at top of form.

SKIPPER SIGNATURE _____

A2: Interesting Places to Visit (* denotes fuel docks)

Ford Cove, Hornby Island

Tribune Bay, Hornby Island

Sturt Bay (VanAnda), Texada Island

False Bay, Lasqueti Island

Deep Bay, Jedediah Island

Lund *

Grace Harbour, mainland

Tenedos Bay, mainland

Otter Bay (behind Otter Island), mainland

Prideaux Haven, mainland

Melanie Cove & Laura Cove, mainland

Refuge Cove, West Redonda Island *

Roscoe Bay, West Redonda Island (requires a high tide)

Squirrel Cove, Cortez Island *

Gorge Harbour, Cortez Island *

Heriot Bay, Quadra Island *

Drew Harbour, Quadra Island

Places to be Aware of:

Copeland Islands – rock bottom

Tribune Bay – when wind out of the south or south-east

Savary Island – South side full of rocks and weed, North side not overnight

Manson Passage – Tempting route but shallow, with rocks bigger than my house

A3: First Aid Kit

Although the items listed for the minimum contents of a first aid kit are all important, the kits on the Club boats may not contain all of the items on the list, especially if they are deemed personal items. Ensure that your crew has brought with them their personal medications. Items in the kit should include:

- First aid manual
- Scissors
- Tweezers
- Needle *
- Bandages, Band-aids, Dressings, Medical Tape
- Selection of pain relievers: aspirin, Tylenol, ibuprofen *
- Seasickness remedies – pills, patches *
- Laxative – pills and suppositories *
- Diarrhea medicine *
- Antacid *
- Antiseptic
- Alcohol swabs
- Burn pads/ointment *
- Toothache drops *
- Sun block *
- Petroleum jelly *
- Decongestant *
- Calamine lotion *

- Antihistamine *
- Sunburn cream/ointment *

A4: Engine Spare Parts

19WCYC Club boats come equipped with a complete set of spare engine parts. However, you should check the inventory to ensure that nothing is missing. The following parts should be on the inventory:

- Fuel filter
- Oil filter
- Engine oil
- Drive belts (main engine, raw water pump)
- Engine coolant
- Fuses
- Hose clamps
- Raw Water pump impeller
- Tape (electric, sail repair, rigging, duct tape)
- Whipping twine, palm & needles

A5: Hand Tools

A tool bag located in a locker on each of the Club boats contains the minimum set of hand tools needed for a cruising boat, and include:

- Wrench set
- Socket set
- Adjustable wrenches
- Locking vice grip
- Pliers – needle nose, channel lock, standard

- Screwdrivers – Common, Phillips, Robertson
- Hammer
- Allan keys
- Wire cutters/strippers
- Multi meter with assorted male/female electric connectors
- Crimper for connectors