

Tricks of the trades

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“I wrote down this collection of tricks and advice as if I could send it back to the clueless younger me who was preparing Karaka for sea in the polluted harbor of Hong Kong, years ago. This is all the stuff I wish I had known earlier, but that I had to figure out mistake by mistake. I hope it will be helpful and useful to other sailors.”

Tom Blancart.

ANCHORING TIPS	6
ANODES	7
BANGING NOISES	7
BARBECUE	7
BATTERIES.....	8
BETTER BREAD CRUST.....	8
BILTONG.....	8
BOAT MAINTENANCE BOOK	9
BUCKETS	10
CAT LOGISTICS	10
CHARTERING	11
CHEESE	14
CIGUATERA	14
COCKROACHES	14
COCONUTS.....	16
COOKING GAS SAFETY	17
COOEE CALL	17
CORAL CUT TREATMENT.....	18
COSTS OF CRUISING.....	18
COURTESY FLAGS	18
CREW – COST SHARING	19
CREW FINDING AND SELECTING.....	20
CREW – LIFE ON BOARD	22
CREW - MORAL.....	23
DECK CUSHIONS	24
DECK LIGHTS	24

DINER BELL.....	24
DINGHY CHAFE GUARD	24
DINGHY TOWING.....	24
DRUM SKINS.....	25
DUCT TAPE SAIL REPAIR	25
DUST PAN FUNNEL	25
EARPHONES	25
ENGINE CHECK	25
EXTENSION CORDS.....	26
FINES	26
FIRE STARTER	28
FISHING SETUP	28
FLIP-FLOP SURGERY	28
FRESH WATER AND ANTI FOOLING	28
GRIB FILES	29
GUNS	29
HEAT EXCHANGER CLEANING	30
INVENTIVE STORAGE.....	31
I SEE A WHITE BOAT AND I WANT IT PAINTED BLACK	32
JIB HANKS	32
JIMMY CORNELL.....	33
KAYAK SAFETY	33
KILLING FISH.....	33
LOGBOOK	34
MARINE TOILETS.....	34
MULTITOOL.....	35
MATTRESSES.....	35

MONSTERS	36
NAVIGATION	36
NEAT PAINTING	37
NAVIGATION COMPUTER SYSTEM.....	37
NORTH, MAGNETIC COMPASSES AND STEEL HULLS	38
OAR SAFETY	40
OVERBOARD TOOL LOCATOR.....	40
PANTS ZIPPER	40
PINEAPPLE CHICHA	41
PIRATES	42
PLASTIC BAG KNOTS	44
PREVENTER.....	44
PROVISIONING	44
PUKUK, OR THE ART OF SALVAGE	44
RAIN CATCHING.....	46
RATLINES	47
REGISTERED BOAT LENGTH.....	49
RIGGING TERMINALS.....	49
SEASICKNESS	49
SHARKS	50
SIPHONING FUEL OUT OF JERRYCANS	51
SOLAR PANEL MOUNTS	52
SUPERSTITION.....	52
TRADING.....	52
FISHING KNOT	54
VENTILATION	54
UNDERWATER WINDOW	54

<u>UV DAMAGE</u>	<u>56</u>
<u>WATER BOTTLES</u>	<u>56</u>
<u>WIND INSTRUMENTS</u>	<u>56</u>
<u>WINE</u>	<u>56</u>
<u>TO COME... ..</u>	<u>57</u>

Anchoring tips

If you want to learn how to anchor your boat properly, read a book about it. Those are just little tips. The anchor chain on a boat the size of Karaka takes huge amount of strain.

If the chain is simply locked on the anchor winch, the winch can suffer serious damage over time. To prevent this from happening, the strain needs to be relieved from the winch and taken to a strong point.

On Karaka we are not short of strong points, so I have two short length of ½ inch yacht braid, the left overs from an old halyard or sheet, secured to the deck in two different places with a bowline or a splice. The other side is tied directly to the chain right after we drop the hook. The knots are simple rolling hitches, a foot or two from the anchor winch, before the chain goes over the roller and out of the deck. Once tied on the chain, we let roll out a foot or so of chain to release pressure on the winch. This system have survived severe conditions with no problem. Once in the while one of the line gets worn and it is simple and inexpensive to replace it. In case of an emergency it could be cut.

A little function on my GPS has saved my boat from washing on the rocks several times : the anchor alarm. I heartily recommend to any sailor to make sure his or her GPS has the function and then to use it all the time. It works by setting up a waypoint right where you drop the anchor, then set up the gps to bip and make a ruckus if you get further than a set distance from that waypoint. The GPS system being reliable to a few meters, you can have the alarm set so it doesn't trip if the boat swings around the anchor, but beeps as soon as the anchor moves.

It is loud enough to wake you up in the middle of the night so you can take immediate action.

When anchoring in lagoons with scattered coral on the bottom, tie a line with a buoy to the chain about 10 meters from the anchor to lift it from the bottom and prevent it from wrapping on rocks. A fender usually is enough, just make sure the buoy keeps the chain above the top of most coral heads so that it doesn't get caught when the boat swings. Another trick in conditions where there is a lot of scattered coral on the bottom and fouling the chain is almost assured, is to drop only the very shortest amount of chain as possible, make sure the anchor is hooked solid, and then have no chain lose on the bottom. It obviously works only in shallow water where you can dive to free the anchor afterward. A strong anchor is compulsory.

Pull on the chain by reversing with the engine to dig the anchor in just after dropping it.

Always dive on the anchor just after dropping it to make sure it is laid and dug in properly.

Anodes

Dissimilar metal, if present in a saline solution such as sea water, will create an electrical current between them. The electric power generated is very small but the effects on the two metals is dramatic. One will slowly dissolve while the other one will gain matter. It is called galvanic corrosion, or electrolysis. It is something we need to be careful about on boats, especially metal boats. What happens is that some of the electrons of the weaker metal are passed on to the stronger metal. To counteract this phenomenon a piece of a weaker metal than the material the hull is made of is attached to the hull. This weaker metal will dissolve instead of the hull. Those sacrificial pieces of metal are called anodes. On a steel boat they are usually made of zinc.

The standard method for attaching those anodes to the hull is to bolt them on, but since a perfect electrical contact is primordial, it is actually much better to weld them on.

Banging noises

It is not okay to let halyards and topping lifts bang against the mast when it is windy. It is damaging to both the line and the mast, is annoying to the crew, and is infuriating to the other boats nearby.

Barbecue

You can make your own barbecue yourself and it doesn't take much material or money, just a bit of sweat and some skills. Here is the recipe.

Take a 25Lbs propane bottle (empty of course) made of steel, and remove the valve. Fill it with water to the brim and let it sit for a few days, so that the most of the left over gas goes away. When you consider it safe, empty the water and split the bottle in half through its length. You can use a grinder(it won't explode) or an hacksaw if you don't have access to power tools. The first barbecue we made we cut open with a hacksaw and it didn't take more than four hours for two people. Piece of cake. It will help if you cut a few holes in the bottom part, so as to increase the air intake for the fire when you close the lid, but I guess that is optional as I have seen some BBQ without.

Once the bottle is split in half, scrub its inside well with soap to remove the gas perfume deposit as it stinks. Then you need access to a welding machine to weld a mount on it, use your common sense and imagination to see what would fit your boat. It could be mounted on the rail, or sitting on four legs and a piece of wood, whatever. I think it is best if the barbecue hangs outside the boat, for safety reasons. The last step is to make some kind of hinges to link the two halves. I first used door hinges on mine but they melted and rusted, so I instead designed a simple hinge out of a couple plates of stainless steel and some rods.

The first time you use your brand new barbecue, you will need to make a fierce fire and let it burn for a while, so as to remove the low quality paint the gas company used. Once the paint has peeled off, and the barbecue has cooled off, scrape the rest of the paint, sand, and repaint the outside only with high temperature paint. Don't hesitate to lay it thick or your barbecue will be rusty and won't look very good.

Batteries

The deep cycle batteries with the best quality to price ratio are the 6 volts golf kart batteries.

To make a 12 volt system out of 6 volts batteries is a simple process of wiring them together properly.

The brand Trojan is the most widely available with their model T105. I had a set of T105 for 8 years and they were still in decent shape by the time I decided to change them. I changed them anyway because I found a cheap deal for replacement and otherwise the old ones would have failed me somewhere in the middle of the Pacific where I would not have been able to get cheap ones.

Take the batteries out of your spare hand help GPS, otherwise they will leak over time and ruin the GPS.

I heartily recommend a battery monitor. It is a simple little device that tells you exactly the state of charge of your batteries at any time and while the device itself is not cheap, on the long term it helps you make your batteries last longer and so saves you money.

Better bread crust

Put a small amount of water in a cup in the oven when you bake bread to have a thick crunchy crust.

Biltong

If you don't have a fridge to keep the fish meat you catch, you might consider a simple recipe to make fish jerky or more specifically fish Biltong, which is the South African version of it.

This recipe was passed to me by a South African so I guess you can call it Biltong Well made it is remarkably tasty and doesn't need to have that awful fishy smell you get when you buy dried fish in the local markets. It is a particularly good way to prepare those truly huge monsters that are too tough to eat in a normal way as the Biltong will be tough and chewy anyway. The recipe works well with red meat such as beef or venison as well.

You need some oily fish filets, pelagic such as tuna, bonito, mackerel, wahoo, barracuda, jack, yellow tail, etc are the best. Groupers and most reef fish don't dry so well for some reasons.

You also need a bowl of vinegar, any kind will do (don't use up all your balsamic for it because the flavor will be lost) and another bowl of spices of your choice. The traditional recipe is black pepper and coriander seeds, but really anything will do and you can be creative with the flavors. You can also do without the spices but the Biltong will not be as good.

The basic idea is to take all the moisture from the meat without it spoiling during the process. It is best to use clean filets without bones or skin. Cut the meat in strips about 2 cm wide, 1 cm thick, and as long as you want although around 10 cm is the best for a quick individual snack.

Drop the strips of meat into the vinegar for about 30 seconds, so as to let the vinegar acids cook the outer layer of meat. It should turn a bit white. The next step is to roll the meat in the spices so as to cover it with it. Once you have your meat covered with spice, take a sail repair needle and some heavy twine and make a string of meat, going twice through with the needle preferably through a thick part of your fish strips. I find it best not to make the strings too long, a couple feet at the most, because if your knot comes lose like that you loose less overboard. Attach the string somewhere outside, the ideal being out of the sun but exposed to the wind. The wind dries the fish, while the sun makes it sweat.

Depending on the weather, it might take a couple of days to be cured, but in some areas it takes longer and yet in some others it will never dry. In really humid and windless climate you might have to take the whole lot inside the boat at night. Never leave it under the rain either.

For really humid climates an alternative recipe is to cook the strips of meat just like if you wanted to have it for diner, make a nice sauce and fry it or bake it, and then hang it in the wind just the same. The cooked fish will dry and it is pretty nice as well.

Once dry it will keep for a couple months although it usually gets eaten faster than that especially if let to hang outside where everybody can pick at it all day long. If the fish smells real bad and becomes gooey instead of dry, throw it away, use it as bait or feed it to the cat.

Boat maintenance book

There is always something to fix on a sail boat and most of the systems are complex and intimidating to the neophyte.

An excellent source of information about how to install and troubleshoot boat systems is the famous book by Nigel Calder called "The boat owner's mechanical and electrical manual". I have consulted several other books about the same subjects and this one beats them all hands down. If you have a boat, you should own a copy of the

latest edition.

Buckets

On board a boat, you need to have buckets. There are many use to them, from doing dishes and laundry, having a shower, bleed a fish, serve as an emergency toilet, make a musical instrument at a party, a seat for an extra guest or a bail if you are sinking. Those buckets will take a lot of abuse and you will lose many of them. If you buy the buckets they sell you in the hardware stores you'll realize they are expensive and inadequate. The best bucket available is the 5 gallons plastic bucket used for engine oil.

Choose the ones with a metallic handle for extra strength when you buy your oil. You can clean the residue of oil with dish soap. To soften the edges and avoid marking your topside when you draw a bucket of water, you can seize a ring of rope around the rim.

An alternative to obtain them is that in most countries you can buy those buckets second hand for real cheap if you ask at the food markets. They come with an air tight lid and they make great containers for food storage if you buy flour, rice or oatmeal in bulk.

Cat logistics

Having a cat on board is very nice but a few points of logistic need to be considered.

Cat are usually very clean animals but they need a cat box, a nice cozy and clean place to have a crap.

The perfect cat box on a boat is the radome. Discard the useless electronic inside the circular box of the radar and cut open a door in the cover. Fill the bottom part with sand from the beach or better even, some pebbles from a construction site, and let kitty have a ball. It works also with a life raft case.

To clean the box, just dump the contents overboard, rinse a couple of times and refill. It is waterproof but you will need to make sure nobody step or sit on it as it is quite fragile.

To store extra cat litter, a bucket with a lid is ideal. If the litter get soaked and you don't have clean replacement, use shredded news paper, or even a bare box in a pinch.

Dry cat food under the form of pellets keeps forever and is easy to store. The only catch is that a cat will not eat dry food that has become soggy, so the bag of food need to be sealed to preserve freshness.

For that reason it is best to buy the food in small bags instead of in bulk. As an alternative, cats love dried fish.

A cat that never leaves the boat does not need to be neutered or even vaccinated so you can pick up a kitten anywhere and not bother with vets and papers. Even with a legally registered cat, it is still illegal to import pets into most country without going through some incredible amount of red tape and paperwork, and it usually involves some time in a cage as quarantine. Luckily for cats on sailboats, they don't need to go through all that to see the world. In most country they will ask if you have a pet when you arrive, but if you assure the quarantine officers that the animal never leaves the ship, it won't be a problem and they leave it at that. Even the strictest and most stubborn of quarantine officers can be swayed if the cat is cute enough. Cats are perfectly happy staying on board all the time anyway. When tied to a dock, it is best to attach the cat with a leach to make sure it doesn't escape and run ashore, as it could be expensive for you and disastrous for the cat if it is caught ashore illegally. In the official paperwork, the penalty is called "destruction of the animal".

It is a good idea to ensure that your cat is scared to death of the water and that it understands that the edge of the boat is a dangerous place. Most of the cause of death for ship cats is reported to be falling overboard. Another longevity factor is whether the cat goes to shore often or not. Cats who go ashore will suffer from accidents and disease.

Chartering

I have done my fair share of chartering over the years, and while I haven't grown rich from it, I learned a few things. I am not an expert at it by any means, so what follow is mostly based on my personal experiences and other people might disagree with my views on the matter.

Chartering is a business. People who charter their boat are professionals. They work hard to make a buck. I regularly meet newcomers to the cruising community who, encouraged by old books, think they can make easy money doing charters wherever they stop. It is not like that anymore. Chartering a boat for profit nowadays is not easy, and the returns will be low for the amateur. The way charter companies make money is out of reach for the transient cruising skipper. To make good money chartering you need to be set up legally, and operate from the same place for at least a season. Setting your boat to do charter legally is usually a bureaucratic nightmare, especially if you are not a citizen of the country you wish to operate in and that your boat is not registered there. Most countries make chartering simply illegal to foreigners. In the best of cases it will cost you a bunch of money to get permits. You will be required to comply with safety regulations, which in most cases

are much more strict than what they are for cruising boats, meaning you will have to invest in extra safety equipment. It is also an usual thing to have an insurance for the boat that covers risks to the passengers, and those are rarely cheap.

Once set up, you need to market your trips. If you are on your own, it will be very difficult. What you will need to do is to have local tour companies and hotels advertise and sell your tours. Those will take a percentage of your profit and do anything they possibly can to lower your margin. You will then have to compete with the other boats who have been doing the same tours for years, meaning that you will have to keep prices low at least until you built up a reputation.

Taking charter clients on your boat is not like going sailing with friends or with crew. Clients are always demanding, expecting service and perfection, and they do not care about your boat or your well being. People do not like the idea that you are making a profit out of them, and they will always ask for as much as possible for as little money as possible. They will be outraged if they think you are making a big margin and cutting down on the costs. It is almost like they are expecting you to work for free.

They will only see that you are spending your day sailing out there, the perfect job right?, and be oblivious of how much hard work it is for you to take care of them. They also will consider they have earned the privilege to do anything they want just from paying for the tour. Most charter client will be clueless to the things of the sea and will have to be pampered like young children to prevent them from hurting themselves and damaging the boat. A typical charter trip moves through several locations during the day to keep the clients entertained, and drinks, snacks and meals are expected, making your sailing day very full indeed. A charter boat wears down much faster than a cruising boat and you will have to do a lot more maintenance to keep the boat seaworthy and looking good.

All this means that at the start, you will be working very hard for not much money. The two main ways to be profitable doing charter is to be high class and exclusive, but you need the boat adequate for it, and the service skills to go with it. You need a fancy big boat with all the gizmos. Your cooking needs to be above average. You need the proper connections to get clients to your boat. The other way is to go for volume, to take as many people as possible for cheap. Standards will be lower but it still is a lot of work to herd your cattle-like clients. The low class charters will be extremely damaging to the boat. In my young days I was first mate on a 100ft classic schooner working in Costa Rica, and among the horrors that happened to the boat, I saw people empty their drinks into the deck vents before going for a refill, people extinguishing their cigarettes on the varnished table, and once, I spotted an inebriated tourist urinating against the fore mast...

During a charter, whatever happens, the client is king, so you have to suck it up and keep smiling. Even when you have to clean up their puke or unclog the toilet.

Chartering is a good way to make a living, but do not mistake it for cruising. There is an option that I have heard of but that I do not find very practical for a live aboard boat. It is to rent your boat to a charter company. In effect you leave your boat to them and they charter it and maintain it, while you go away traveling or visiting family or whatnot. The only problem is that the boat still takes a lot of abuse, especially since you are not here to keep an eye on things, and also that it means you will have strangers in your home while you are away, which I personally wouldn't feel comfortable with. From what I hear the money is not that great either, although it is usually enough to cover all costs and break even, meaning you save on storage while you are away. It is more suited for people who have a boat somewhere that they use only part of the year.

One possible way to make some money chartering with a cruising boat is to take people from one country to another, like it is done between Panama and Colombia on the Caribbean side. There is a booming charter trade going on there, mostly for backpackers. Cruising boats are routinely approached and asked to take people across. The rates are between 350 and 500 dollars per person for 5 days, including a 200 miles passage and a couple of days at some beautiful islands.

No set up is required and a few back and forth trips with 5 or 6 passengers can quickly replenish a cruising kitty. The downfall of this is that many cruising skippers do it for the money only and take as many backpackers as they can cram on their small spartiate boats, feed them badly, don't even provide them with adequate bunking, and are very slack with safety, resulting in a lot of backpackers having a very bad experience. As a result hostels and tour companies booking the trips will favor boats that are regular and who have a proven history.

This kind of deal is very area specific and I haven't heard of any other place where something like this exists.

The most practical way for a cruising boat to earn some money chartering that I am aware of is to do some illegal charters. The risks are not too bad if you do only one or two trips, but you will have to keep under the radar, meaning that you can not advertise openly.

The way to do this is to walk on the beach or hang out in hostels and bars, and approach people directly, offering them a trip on your boat.

By not using intermediaries you save money and avoid trouble with the authorities. There won't be any need for insurance and extra safety gear or any other expenses. Nobody has to know that those people coming on your boat are not just friends of yours. You will not charge them much, usually about 2/3 of the equivalent on a professional charter boat and you will only take a few select clients. You won't get rich doing this but you can make some extra funds. You have to be careful as if you stay too long in the same area and do it too often, people will start talking and you will start to get trouble for it. Authorities are very unkind to illegal charterers and you will be fined heavily. Also keep in mind that local charter companies can be ruthless if you undermine their business. I've heard of anchor cables being cut at night, holes drilled under waterlines, and denunciations happening.

It is also possible to make a profit out of your crew, by asking more money than you

need for running the boat so as to cover your personal expenses and a little more for comfort. You could probably sustain yourself that way but I cannot recommend it to you. There are ethical and practical limitations to this, as mentioned in the “Crew – cost sharing” section of this document. If you feel like doing this anyway, the honest and ethical thing is to be up front with your “clients” and not to deceive them into thinking they are just “sharing the costs”, a wide spread practice.

Cheese

To keep cheese on board without a fridge, the simplest way is to dry it. Just cut some hard cheese in blocks and put it to dry in a windy but not sunny place out of reach of insects. In a couple of weeks it will become hard as Parmesan and will keep months like that, with maybe only some mold on the outside.

Another technique to get some hard cheese that will still melt when you want it for pizza or grilled cheese sandwiches or quesadillas, is to fill a jar with blocks of cheese and then top it up with cooking oil. Sealed tight the cheese will keep like that for months. The oil will take a cheesy flavor that is great for pasta and stuff too.

But if you want to go all out, it is relatively simple to make decent cheese on board using UHT or powdered milk. Check recipes on the internet or in cooking books. The easiest kind is curdled with lime juice, but it is also possible to make more elaborate cheeses using rennet. Praise cheeses.

Ciguatera

Ciguatera is a toxin that is released by coral when it is disturbed or damaged. It accumulates in fish and make you really sick when you eat contaminated fish. Toxicity in fish can very very localized and vary even between two spots a mile or less apart, so always ask a local fisherman what kind of fish is okay to eat. In a pinch, try to see if flies land on it, if they do, then try with ants (who are more sensitive) and if the ants eat the fish, then it is probably okay, so try feed it to a stray dog or cat (young feral kids are not okay). If the stray appears to be okay the next day then you can eat it too. Ciguatera is extremely toxic to cats, so what will make you slightly sick will actually kill a cat. Be careful if you have a cat on board.

Cockroaches

Cockroaches are a curse. Most of the boats I know have them, including mega yachts. Once on board it is almost impossible to get rid of them. They can come hidden in fruits and veggies from markets (banana bunches, pineapple heads, cabbages, etc), in cardboard boxes, in egg boxes, in backpacks, in folded sails back from the loft, etc. They can crawl up your dock lines and some of them can even fly to your boat. The

big ones (*periplaneta americana*) are no big deal and can be easily found and killed. The little ones (*blatella germanica*) are the worse. When you start seeing them, it means you have a major infestation.

The first step is to clean the boat thoroughly, put all food away in containers and put some mild poison everywhere. The old school cheap recipe is boric acid mixed with powdered milk and some water to make a paste. Boric acid is sold in pharmacy. A more efficient option is ant poison in the form of fipronil gel. Fipronil is what the pros use, if you can't locate some in the store, go buy it direct from the pest controls guys. Roaches build resistance to poison much like bacteria to antibiotics, so do your best to be thorough and kill them all or sooner or later they'll come back with a vengeance and will eat fipronil for breakfast. Another poison that can be used in combination with fipronil to ensure maximum casualty is : acetamipride. To put cockroach poison a bit everywhere without making too much of a mess, put it on old coins (it doesn't take long to accumulate a lot of spare change from countries you visited and will not go back to in a hurry). They can be collected once the infestation is under control along with all residues of poison. Don't clean up the dead roaches too soon, as they are contaminated with the poison and will be eaten by the healthy roaches. Make sure you put poison everywhere in huge quantities, otherwise some roaches will survive and start a new colony. Swatting roaches feels good but is not a good idea as you are unlikely to really make a dent in their population if there are so many you can swat them, they make a nasty smudge when squished, and more importantly you are only going to get the slow ones and so you will accelerate their evolution and end up with superoaches (next time you have to deal with a creationist who denies evolution, give him some of your cockroaches so that he can see it happening for himself).

A good way to get rid of the easily accessed ones is to use a vacuum cleaner. Kill them with a spray in the bag, don't just throw them overboard, they would just climb right back in.

It is important to keep the boat ultra clean, make sure there is no food anywhere for the roaches except the dead ones and the poison. Additionally you can make inexpensive roach traps with strips of duct tape strategically positioned and glasses of stale beer with the lip touching a wall, so that roaches will go in for a drink and being unable to climb slippery glass will drown.

If the first step doesn't work, (it rarely does) then you need to spray. Use the toughest shit you can find, put LOTS of it and do it at least twice at a two weeks interval so you get all the ones that were still in their eggs when you sprayed and survived. Remove food and animals, leave all the rest, including clothes and bedding, even if it makes it necessary to clean them afterward. Roaches can hide in the craziest places. Spray surfaces and cracks but also saturate the air with it and leave the boat sealed for a few hours (roaches can survive more than 40 minutes without air). The most radical option, if you can get your hands on it, is the stuff they use in shipping containers. It is not legally available for purchase by random people. It is like a tiny smoke grenade that effectively replace all the air in the sealed boat with

ozone. Roaches don't stand a chance with that stuff. They will try to escape the boat at all costs so stand ready on deck with a flip-flop or any other decent weapon to gleefully squish them as they run for their lives. I am investigating ozone generators as I'm writing this, as they seem to be the ultimate solution.

There are few natural predators that will be effective to contain a population of boat roaches. There is a kind of small spider that eat quite a lot of them, if you can stand the cobwebs. Geckos are another option but you are going to need a lot of them, they don't eat that much and roaches reproduce very fast.

Extreme temperatures will also kill roaches, they are not resistant to freezing nor to the extreme heat of the inside of a closed boat in a tropical boatyard for extended periods of time with no water.

Another cheaper, healthier and more sensitive option is to learn to live with them, because they are tougher than we are and it is unlikely you will get rid of them entirely. They are not that dirty and if you keep your boat clean you will not see them very often.

On the positive side, cockroaches are themselves useful, as they are predators to other annoying pests, so if you have cockroaches you never have the others. In a fight between bedbugs and roaches for example, roaches win. For that reason alone I stopped feeling so bad about having a roach infestation on board. Bed bugs are much much worse than roaches.

Coconuts

Coconuts are wonderful. They are found on most shores in the tropics and except for some specific areas like the San Blas island in Panama, they are free for the taking.

Young coconuts are for drinking only as the flesh has not developed yet. All the nutrients are in the Juice. You can recognize young coconuts by the fact they are still on the tree or else by their color and texture. They are smooth and firm and light green. To open one, you need a machete and something hard to put the coconut on. Hold it by the top, which is the side where it was attached to the tree. The other side of the coconut (the bottom) is three faced, forming a point. Chop the edges off on all three side with clean sharp cuts. If you did it right, you will see some of the inner shell showing through the fiber. On young coconut it is soft and you can poke a hole through it and drink the excellent juice in it.

Sometime it is fuzzy like champagne. With slightly more mature coconuts, once you are done drinking it, you can hack it in half and eat the gooey flesh inside, using a spoon or a sliver of the outer shell.

Mature coconuts are the ones found on the ground after they have fallen from the tree. They are usually dark brown or gray in appearance with a tough wrinkled outer shell. Before trying to open one you need to make sure it is not cracked by shaking

it. If you can hear water sloshing inside it is good, if not discard it. If water drips off it when you pick it up, it is not good either.

To open it the best is to use a spike like the locals do.

You can make coco milk by grating the white flesh of the coconut with a special grater or with a cheese grater, and then put the gratings in a pan with the juice and mix it. Then grab a hand full of the grated flesh and press is as hard as you can until a white goo come out. That is your coco milk and it is excellent in many kind of recipe. You can use the left over dry fiber in cakes or breads, if you have got all the milk out though, this should just be bland cardboard tasting fiber. However, if the grated coconut is used before squeezing the milk, it will add flavor to any meal especially Thai curries or fish dishes, the recipes are countless.

Roasted coconut is also very good, just crack a mature coconut open and drink the juice, then put the whole coconut in a fire until it smells ready. If you don't crack it before putting it in the fire it will explode.

The shell of the coconut is very hard and can be carved into bowls, ashtrays, cups or even jewelry.

Cooking gas safety

Propane and butane are the two gases used in kitchen stoves and ovens. It is a very volatile substance that is extremely flammable. Both propane and butane are heavier than air, so that they do not fly away, but instead sink to the lowest point available. On a boat that is a real danger, as it means the bilge could fill with gas over time in case of even a small leak. To prevent this from happening, a sensible thing to do is to install the gas tanks outside of the boat, in a special compartment with a vent that enable leaked gas to pour into the sea, not into the cabin. Another sensible thing to do is to install a solenoid, a remote magnetic switch, activated from the kitchen , that cuts off the gas right next to the tank.

On Karaka we always had one, but originally it was real hard to teach the crew to remember to cut it off after use. To remedy this problem I rigged three red flashing LEDs in the line so that nobody can fail to notice the gas is on. Like that if somebody forgets to cut the gas off, it doesn't stay on very long.

Cooee call

On Karaka we use the cooee call for long distances, like when somebody is on the beach and wants a ride home, or when hunting/gathering in the jungle and looking for each other. The cooee call is originally from the aborigines of Australia I believe. It is

a low coooooo followed by an explosive EEEEEEE! The two tone call is easy to yell very loudly, carries a very long way and is very distinctive. In places where a loud whistle or call would be drowned in the ambient noise, the cooee call is always heard and recognized. The other advantage is that it is unlikely other people will be using it outside of Australia and NZ so when you hear it you are sure it is for you. It works in crowds too. If it becomes too popular, each boat can develop its own tonalities.

Coral cut treatment

If you get a coral cut, rub lime juice on it. It stings like hell but kills all the micro-organisms so that your wound doesn't get infected and so you don't end up with a festering sore for weeks and have to take antibiotics.

Costs of cruising

This is going to be controversial, and it varies with the location and the type of cruising, but based on my experience, not counting the personal costs such as food and booze and outings and such, sailing a 53ft boat in the tropics can be done with as little as 12 000 dollars a year, including long term maintenance and gear replacement. I doubt it could be done long term with less as less money would mean less maintenance and the boat would gradually fall apart. It could definitely be done more comfortably with a lot more, hiring workers to do the work, getting top quality gear instead of second hand, indulging in marinas instead of anchoring out all the time, motoring instead of waiting for the wind, etc... The rule of cruising is that it costs about as much as you have. Costs do increase exponentially with the size of the boat especially since bigger boat means bigger crew and that means that safety and seaworthiness are not optional.

At the other end of the size range, it could probably be done for less than 2000 dollars a year by a thrifty solo sailor on a 23ft boat.

Courtesy flags

When you visit a country the law requires that you fly a small flag of the visited country in your rigging. This small flag is called a courtesy flag. Marine stores sell flags for the surrounding countries for about 10 or 15 dollars each. There is a big business in them. Thing is, you don't need them.

First of all, in the vast majority of countries, nobody will ask where is your flag or bother whether you have one or not. The only people who might say something are the various officials who might come to visit your boat. Normal people in the street are not even aware you need one. If some petty official asks you why you are not flying a courtesy flag, this will happen either on arrival or on departure.

If it is on arrival, the best answer is that you haven't been able to purchase one in the country you came from. Promise you will get one as soon as possible.

If it is on departure, most likely you will have been in the country for a while, and then you can say that your flag got ripped in the wind and that you had to take it down. You can then say that you are currently sewing it back together, but make sure not to say that if the troublesome official is on board as he might ask to see it. In case some annoying patriot gives you hassle, it is fairly easy to make a temporary flag out of cardboard and markers or paint. When it fades or falls apart after a few days you can come back to the excuse that it fell apart. You won't even have to lie this time. There is no law that states that a flag needs to be made of fabric.

Of course, in extreme cases you might have to buy one or to sew one yourself but it doesn't happen often. Use your judgment.

Crew – cost sharing

Sailing alone is not necessarily a lot of fun. Some people really like it, and I enjoyed it myself on some occasions, but I do the bulk of my sailing with other people, the crew members. There are many ways to deal with crew members on a small private sailboat.

On Karaka, we share the expenses, meaning that each crew member on board contributes between 100 and 140 dollars a week. Usually that does not include the food costs which are shared by all equally on top of that. This contribution is exclusively non profit boat funds, I do not use it for personal purposes.

I prefer to keep it non-commercial and not to consider my crew members as clients, not making a profit out of them. It is a personal choice; I think life is nicer that way. I think that turning those people into clients would spoil the whole feel of the experience. It just wouldn't be the same.

One of the important things I feel is that we are doing something real, we are not buying and selling some good time. We are living. Unfortunately it costs money. And I'm not in a position to be doing charity and paying for it all. The deal on Karaka is to ask money to pay for the expenses, because it costs money to run a boat, and as long as a crew member is going to enjoy a trip, using the ship, sailing, learning new skills, discovering places, diving, fishing, sleeping on board, using the toilet, the stove, the lights, there is absolutely no reason for me to pay for it all. It is not like if it was a hardship to endure, the crew members are on board to enjoy themselves and share all aspects of the boat.

I wouldn't sail such a big boat on my own if I was not sharing it with others. Karaka is much more than “my” boat. It is not really a private boat anymore. I prefer to think of Karaka as a floating community, with each participant contributing something to keep it going, hopefully in direct proportion to what he is getting out of it. Although it is simpler for me to officially own and operate the boat, in effect Karaka is partly

owned and operated by every crew member. Pooling the resources to make things happen seems to me a very sensible thing to do. It's a win-win situation and it is not utopian, it has been working for years now with dozens of different people. For further writings on the ethics of asking the crew to pay for the expenses, I have a text on my website where I explain my side of things, check it out:

<http://karaka.org/cost.html>

Over the years I have experimented with various ways to do this, and I also have asked friends on other boats how they do it. It turns out that it is better to ask for as little money as possible. The reasons are multiple. The main one is that it broadens the scope of people who can join, so that you can get as crew some young and impoverished people too, or people from countries where making a lot of money is not easy. I find that people who have less money tend to be more interesting than people who have a lot. There is a certain mentality about being thrifty and you have to have it to sail on a boat like Karaka.

With a low contribution, you are getting more applications, meaning you have more applicants to choose from, and that enables you to be very picky and select only the best. The second advantage is that with a low weekly contribution, the crew can stay long term without ruining themselves. It is nicer to have crew long term than to have to replace them every other week. The other thing with short term crew is that you'll find yourself always on your way to a suitable place to drop off and pick up crew, cutting off on your island time. Financially, it is paradoxically advantageous as well, as the boat is always full, and you have a steady income of funds. If the contribution is too high people are harder to find and they stay less time, it is not only more work and you are always sailing with strangers, making it close to actual charter work, but on the long term you get less funds for the boat as you sail often with empty bunks. So don't make the mistake to ask for too much money, by comparing it to an actual charter fee for example, you would regret it on the long term and it might even turn you off taking crew. Ask only the strict minimum you need to run the boat and you'll get the best crew and the best experiences.

Crew finding and selecting

Getting the right crew on your boat is not an easy thing. It takes a lot of work and effort, some luck, and a great deal of psychology. The bulk of our crew contacts me via email after reading my ads and posts on crew finding websites.

Now and then I pick a crew among the backpackers and couchsurfers we meet but I do not find it the best way to select crew. The thing with backpackers and couchsurfers is that you have no way to interrogate them in depth, question their motivation, and put their dedication to the test like you can do with people who are far away, who have time to exchange several emails and who have to travel long distances to join. Backpackers are prone to spur of the moment decisions. When they meet a nice sailboat with a crew position available, most of the backpacker's first

reaction is: “whoa, cool! I'd like to do that”. And then decide on the spot to join without much more research into what sailing is like, who you are or anything. Then more likely than not, a week later they will change their mind and jump ship to take on another adventure. I prefer my crew to stay a long time on board, at least a couple of months and six month to a year is not infrequent. That way they fully participate in the life on board, truly learn the ropes, and so we get to know each other and feel comfortable.

So the internet seems to me to be the best way to find and select crew for the long term. I post ads on the free crew finding websites. The most popular are <http://www.floatplan.com>, <http://www.7knots.com>, <http://www.crewbay.com>, and www.couchsurfing.com has subgroups about couches on a boat and boat hitch hiking.

On the crew finding websites, your ads need to stand out from the crowd. Too many ads are posted by lonely older sailors on an average white boat looking for a female first mate, and those get very little attention by the people who are worth taking as crew. Your ad needs to be honest and clear, to the point, showing that you are in control, as every skipper should. You need to attract interest while also conveying a sense of trust, of seriousness. People who will apply are slightly scared about contacting a stranger to go offshore on his boat, so they need to feel you are experienced and safe. The best way I have found for that is to limit the ads to the bare essentials, directing the would be applicants whose eyes you caught to a boat website. I guess you have been on Karaka's website if you are reading this, but otherwise have a look: <http://karaka.org/>. The goal of the website is to provide information to the would be crew members, so care should be taken to be clear and thorough and honest. You do not want to paint too nice a picture of the boat and of sailing, you can not deceive people into coming to crew, they need on the opposite to have enough motivation to do this despite the less attractive aspects of the life at sea. So the website should be bluntly informative, not a piece of sleek marketing. Your views and preferences and tastes should also be reflected on it. The website acts as a filter.

Once the crew wannabe has perused over the website for a while, he or she will know whether they want to sail with you or not. Some people will be repelled by some details or by your bluntness, others will be attracted. I find that people who are attracted by honesty make good crew members. Also, the applicants end up writing to you about a crew position, they take the first step, and that means it is something they are dedicated to do. That is very important.

On the website I ask applicants to email me with a short biographical sketch so I can have an idea of their background, abilities, and interests, also a short description of what attracts them to sailing on Karaka, what they feel they'll be contributing to the crew and what they hope to gain, along with a recent photograph. That is all hard stuff to write about yourself but if the applicants make a an effort, that usually is enough to give me a good idea of the kind of person they are, and if I like what I read, I then respond with more details about the coming trip and deeper questions

about them. It depends on the person but we usually exchange several emails over the course of a few weeks before I decide to take somebody on or not. The exchange is two ways and many a crew has told me that what really decided them beside the website was the extent of the email exchange and the care to talk about every aspect of them joining.

As for who to select, I have little advice to give, as it really depends on who does the selecting. I tend to prefer selecting a varied crew, with no strict age, gender, background or nationality preferences. I do not think it is necessary to select crew with sailing experience as most motivated people will be able to learn the basics in a very short time and I do not need their expertise to sail Karaka. I find it a good idea to build a diversified crew with all kind of different people who will learn and share with the others. Attitude and motivation is really what matters the most.

On the website I have a document called the “crew agreement” . It is a piece of semi legal bullshit I adapted to Karaka's need and I require the crew to read it. Check it on the website. It's purpose it to put on the table some issues that are hard to address otherwise. Most crew read it and then forget about it, but some feel safer printing copies and having them and me each sign one. Over the years I have never had to resort to it to settle an issue, but I think it is very likely because the document's content was acknowledged at the very beginning, so that no misunderstanding could occur.

When the crew flies in, most likely than not the immigration service in the country your are will be requiring a proof of exit. Usually for most traveler that proof is a return ticket, but in the case of a crew joining a boat, a proof of that will be required. It doesn't need to be fancy, a simple letter with names and passport numbers and boat details and details of the trip including the estimated date of departure will do. I have a sample that I send to each crew and they can then fill the blanks, print it, sign it for me and carry it with them when they fly in.

Crew – life on board

Every boat is different and so I won't get into details of the life on board that are specific to Karaka here.

I find it preferable to overlap new crew with old crew, not changing the whole crew at once if I can help it. That way the old crew who has mastered handling the boat can show and teach the new crew. It also helps to keep the same atmosphere if old hands are still on board when new comers arrive. The new crew blends in and do not start a new mood from scratch. They also feel at ease right away as they do not feel they need to put me and the boat to the test, since there are other people on board who already trust me.

For teaching specific tasks like steering, I find it very efficient to teach the skill in

depth to one crew only, and then have that crew practice for a while before he or she in turn teaches the skill to another crew. Teaching is a great way to learn, as it forces you to articulate the technique in simple terms. Once started, you can then have a chain of learning and teaching until every one on board is proficient, having learned from another crew and taught somebody as well.

For watches, I like to keep them short. Usually we are many on board and so we can keep the watches to two hours like this:

- 5 crew: 2 hours on, 8 hours off
- 6 crew : 2 hours on, 10 hours off.

The one I prefer though is to have 7 crew on board, and then to have each crew do a two hours shift while I stay on stand by. It is particularly good when the majority of the crew are new comers who don't feel very confident, as I can be around to help them a lot. If I have to stand a watch of my own I get tired and grumpy and tend to let people fend for themselves, which is okay for experienced crew but not for beginners.

For cooking, I find that no set rules are necessary, on a big crew there is usually always somebody willing to cook something and there are always willing helpers to chop stuff. I prefer to have meals in common than having everybody preparing their own snacks. For dishes it is the same, usually they get done with no problems. The cook usually cleans pots and counter top that he messed up, while everybody cleans his or her own bowls and plates. It is very rare that I have a messy crew that does not keep the boat reasonably clean so I almost never have to resort to set up turns. It helps that my standards are pretty low to start with.

A big issue with big crews is to have the means to get everybody ashore without hassle. A good dinghy is essential, but with only one boat the logistics to have everybody ready to go and come back at the same time are annoying to the extreme. It is much better to have not only a nice big dinghy but also a flotilla of smaller crafts such as kayaks and canoes so that anybody can go to shore independently at any time.

Crew - moral

To keep your crew in high spirits during long and arduous crossings, a simple use of psychology does wonders. The rule is that the crew is happier if the performances are better than expected, and alternatively, feels miserable if the performances are worst than expected. That means that the performance comes second, the crew's happiness depends primarily on expectations.

To ensure good moods on board during passages, you need to lower expectations before departure. To do that you need to be honest to start with and emphasize how rough it may get, how slow a sail boat usually is, the chances of contrary winds and bad weather, the lack of sleep and proper meals, etc. It is also good to announce an

estimated time of arrival much later than your likely ETA.

A good motivated crew should not be deterred by all this (and it is also a good way to make sure the crew truly is motivated). If things go wrong and the passage takes longer than it should have nobody will be surprised while if all goes well every body will be pleasantly surprised. So the key to a happy crew is to make sure you are honest to yourself and your crew and don't paint an idyllic picture of the crossings to come.

In the same order of idea, when you are almost there, avoid telling the crew things like "three more days to go, guys" as things might go wrong, the wind might turn, and if it take four more days to go, the last day you will face a lot of discontent. Better to talk about miles to go than days to go.

Deck cushions

If there is one thing okay to steal in life, it has to be the waterproof mattresses from beach chairs in the fancy resorts. They make the best deck cushions... sometimes they even come with little pillows attached...

Deck lights

The best deck lights are warm glow (not multicolored) Christmas lights. They can be run on an inverter and strung all around the party area. To make cool improvised lanterns, put cellphones under water bottle. To keep candles lit outside in the wind, take a cup filled with sand , put your candle in the sand, and then make a protection out of a cut-off plastic bottle.

Diner bell

When you have a big crew, it is a good idea to have a bell to ring when diner is ready.

Dinghy Chafe guard

To protect the hull of the big boat when you have a rigid dinghy (fiberglass, wood or aluminum) rivet or screw a split water hose all around as rubbing guard. Put the rivets or screws from the top so that they do not scratch anything.

Dinghy towing

Never ever tow your dinghy unless the distance is very short(less than a few minutes trips) and the sea extremely calm. You will lose it or damage it otherwise.

Drum skins

I have a couple of nice drums and djembes on the boat, but they are not usually made to survive the damp salty air for very long. Inevitably, the skin will fail sooner or later. The ideal is to find a goat skin, but in this day and age it is not always something you find on the shelf at the supermarket. Another option for a drum is to use sail cloth. It is durable, clean and white, easy to work with, usually available on a sailboat, does not stretch and gives the drum a tight clear sound.

Duct tape sail repair

Now, this is a real classy trick. If for some reason while under way you notice a minor rip in a sail, but the conditions are not favorable for you to take that sail off and make a proper repair for it, just use duct tape. You need quality tape, thick and UV resistant. Tape across the tear and then along it on top to hold the first layer from fraying. Do it on both sides. If you feel creative you can also hide your repair by drawing something around it with more duct tape, a smiley face or a sailboat or a sun or such silly things.

This will not work for a major rip that goes across seams or where the edge of the sail is ripped, but for non structural, inside panel repairs, it is very efficient and will last at least a few weeks, time enough to get into harbor and take care of the sail properly.

Dust pan Funnel

Most sinks on boats are too small to put a big pot or a bucket in them. To fill one of those anyway, use a (clean) dustpan as an open sided funnel, with the handle as the spigot.

Earphones

To always know which earphone is the left and which is the right, even during your watch at night, tie a distinctive knot on one of them.

Engine check

Religiously checking the cooling water level, oil level and belt tension before starting the engine will prolong its life by avoiding failure related to those. It also puts you in a position to have an overall look of the engine to spot anything unusual.

Extension cords

In the boatyard, when you have to run long extension cords(with at least one link, two cords), don't just plug them straight to each other, tie an overhand knots so they don't come off.

Fines

Sometimes, because you didn't know, because you didn't care, or because you didn't think it mattered, you will break some minor immigration or custom law. Some official will reprimand you and then charge you with a fine. Those fine can be small, or they can be incredibly heavy.

In the case of a heavy fine, you need to do everything you can to avoid paying it. During the argument, you need to be paying close attention to the mood of the officer. You need to get him to laugh if you can, that will soften him. If you see a picture of his kids and wife, get him to talk about them. If he has a bible opened on his desk, ask him how his church is doing(even if you are a hard core atheist). You need him to like you or he won't even listen to you. Be very nice and respectful, speak in his language.

If you feel him closing up or being defensive, you need to stop immediately to argue with him and either talk about something that will soften him or bite the bullet and pay the fine. If you don't he might raise it or find other offenses to charge you with.

Here are a few hints about how to lower a fine :

- -Denial doesn't work. It is better to please the official by agreeing with him that you committed the offense, if such is the case. That will surprise him and it will make him think your are a decent person.
- -Claim ignorance. Nobody should ignore the law but... there are many countries and there are many laws. It is impossible to know them all especially when the law contravened is not international, not obvious and more important, harmless. Express surprise and try to find examples of countries in which your offense is legal and tell an anecdote about it to emphasize how benign it is. Invent if need be.
- -Minimize the impact of the offense, show that you did little wrong, that you didn't harm anybody. It is a good idea to compare your offense to a much worst one, such as "it is not like if I robbed a bank or killed my brother". Take care to avoid any reference to drugs or bombs though, people get edgy when those are mentioned.

- -Ask to see the official paper on which you can read the exact legal amount for the fine (it is also a way to make sure he is not trying to swindle you). Argue that the law is there to serve the people and that as such the fine should be according to the wrong done to the people, not according to some set amount arbitrarily decided by a random law maker who had no idea about the circumstances in which the offense was committed. Insist to your tormentor that only he is in a position to judge the severity of the offense. That is a way to boost a petty official's ego by putting him in a position to decide something with authority.
- -Ask the official what is the purpose of the fine. He most likely won't have a coherent answer. Explain to him that beside paying back any harm done, a fine is not a punishment for an offense, but that the role of the fine is to ensure the law is respected, it is a deterrent. The purpose of your fine is to teach you a lesson so you don't contravene that law again. The catch is that since you committed the offense out of ignorance, you obviously won't do it again now that you know. You don't need a fine to convince you to respect that law, you just need to know about it. As such, it is evident that your fine doesn't need to be heavy.
- -Ask the question about where the money from your fine will go. He probably won't have a clear answer to that one either and that's actually a good way to ensure he is not trying to get a bribe. If he is then once he admitted it you have a very strong bargaining position. In any case , tell him the money will go to the government. Tell him that you hope the government of his proud country doesn't need your committing offenses and paying fines to support its economy. Insist that since the government doesn't need or even expect the money from your fine but that you, on the other hand, really need it to support your ailing mother, sick child, broken engine, whatever, it would only be fair that the fine should be minimal.
- -Once all that have been laid down as a background, you have him in a corner without him having the first clue about it. Pretend you are now ready to pay the fine, but referring to all the previous arguments, argue that since fine there has to be (since it is the law to pay a fine when an offense is committed and that you are the kind of person who respects the law), the fine should be as small as possible. He will not have a strong position to refute that and might even ask you how much you think you should pay, so go right ahead and propose a fine of one dollar. If anything it will make him laugh and you can bargain from there.
- -If he tells you one dollar is nothing, it might be a good idea to tell him how I got a 53ft sailboat for that amount of money. He will express disbelief but that will divert him and it is a good way to start talking about something else to soften him, then start over. By that time he if he is still talking to you then that means he is amused and that you are doing good.

You have to play it by hear and this might not work every time but I once reduced an announced fine of 9600 US dollars down to 60 US dollars using those arguments in Tobago. I got a receipt too.

Fire starter

Don't burn your fingers lighting a fire or the oven with a lighter, light up a spaghetti and use it as an extra long match instead. Another fire starting trick is to wrap a piece of an old T-shirt(cotton) around a thin piece of wood, dip it in kerosene or paraffin and use it as fire starter.

Fishing setup

For fishing while under way, the most efficient technique is to troll, or tow, some kind of lure behind.

Fishing poles and reels are expensive and in order to be strong enough to successfully land the big pelagic species you target while offshore, they need to be of the heavy kind. A simpler and cheaper system is to get second hand reels and mount them on the railing on the stern of the boat. Spooled with very heavy line, such as 150 lbs test, you can use the reel to warn you of a bite, and then fight the fish by hand, pulling on the line with a pair of gloves.

To make sure the line you are pulling in on deck does not get tangled, do not hold the extra length in your hands but let it fall at your feet. If you don't disturb it, the pile on the deck will be untangled and ready to get back in the water.

Flip-flop surgery

Use one of those bread bag plastic clip to save a flip-flop with a split hole.

Fresh water and anti fooling

Marine anti-fouling is designed to work in salt water. Boats who sail on lakes and rivers have a different kind of anti-fouling If you take your salt water anti-fouled boat to fresh water for more than a few weeks, your anti-fouling will come off. First all the growth will die, and that is great, but then the water will make its way under the paint by osmosis and will accumulate in bubbles under the paint.

With time those bubbles will spread and eventually burst, and your bottom paint will be ruined. Beware.

Grib files

At sea you need to pay attention to the weather, it goes without saying. The best forecast available for free is what is called a Grib file. You need to download the program (for free) on the website (zygrib is the best current one) and then connect to the internet with the program. It lets you chose the area you are going to download data for and then gives you a forecast for every three hours for seven days with wind arrows overlaid a rough map, barometric pressure lines and rain previsions. It is extremely accurate up to three days, less so afterward. It is also possible to get the file while at sea via a satellite phone (expensive) or through the SSB radio (less expensive but complex).

There are also two new great tools when you have access to the internet, both based on the same concept:

<https://earth.nullschool.net/> & <https://www.windytv.com/>

Guns

We have no guns on board. I used to have a .22 LR riffle but the customs seized it in Mayotte when they searched the boat. It would have been no use for defense anyway.

I don't think a gun would be much use for defense unless it is something scary and powerful like an AK47 or a shotgun, and the risk of ending up in jail in a third world country if you carry this kind of weapon on your yacht is definitely not worth it. Even with one of those, the rare case where you would use it would be a desperate one and I'd rather take my chance and do my best to avoid the situation altogether than to rely on a gun to get me out of it. I have no intention to get into open warfare with anybody over material goods and I would rather not kill another person. I don't believe I have the skill or the will power to use a gun efficiently anyway. Starting to shoot, or even just showing the gun, is a commitment and after that negotiations are out of the question, somebody will get hurt. Showing a gun implies you are ready to use it. It might discourage some attackers but it might also force them to use their own weapon. Thieves don't attack you to kill you but to take your stuff. In the worst case scenario I would give my stuff away. My life has more value than my stuff.

For cases of night burglars and pushy fishermen, some scary looking machetes, a couple of spearguns and a few fit crew members would be enough of an opposition to deter attackers. Avoiding the risk in the first place is the best anyway.

On a yacht, any illegal weapon needs to be concealed from the authorities not only during border crossing but most of the time as well in case of police control. Outside of the US, very few countries will allow possession of fire arms to civilians. Fines and jail sentences are applied, especially to visiting foreigners. Officials will come and board to search your ship at random time, and there is little one can do about it. It is rare but one time is enough. Getting a license is a solution but it costs and it is usually impossible to get one in a foreign country if you are not a resident. With a license, you still have to declare your gun at custom on arrival in the country, and the normal procedure if you do that is for them to lock your gun in a safe at the police station until you depart, which apart from being an extra hassle will not help much in case you need the gun while in the country. A concealed weapon is no use in case of a surprise boarding from thieves, as getting it out of its hiding place while threatened by armed robbers would be tricky and dangerous. The very idea of a surprise attack is to catch you unprepared.

Showing your weapon around or warning locals that you are armed is likely to prevent you from attacks but will also show the locals that you don't trust them, which is likely to insult them.

Insulting the locals is never a good idea. It will also very likely attract the authorities...

Getting hold of a decent gun is harder than it seems too and they are expensive.

They don't like humidity and salty air and deteriorate quickly.

So altogether, I don't think having a gun on a yacht is a good idea.

Heat exchanger cleaning

Marine engines are cooled not by air but by salt water being put in contact with the coolant in the engine. The salt water is then evacuated and it carries away the heat. The contact is made through a heat exchanger, which is a big pipe with many smaller pipes inside. Inside the small pipe circulates the cold salt water and around them the warm engine coolant.

With time, the salt water leave a deposit of salt and calcareous matter, and the small pipes become clogged. As less water can go through and the wall separating the cold from the warm water is thicker, the engine overheats. If the engine overheats too much, it can cause all sorts of very serious trouble. So if your engine chronically overheats but you can't seem to find the cause, it is very likely your heat exchanger is clogged. To clean it you need to open both ends, scrub everything you have access to, and then push something through every single of the small pipes. What works best is the cleaning tool for a 22LR rifle. You need to be careful what you use to clean those small pipes because if you poke a hole through their walls your heat exchanger is ruined.

An alternative to cleaning the heat exchanger by opening it is to soak it with some

kind of acidic solution, like vinegar for example. Yet another option is to take your boat up a fresh water river or a lake for a few weeks, and motor around. The fresh water will clean your heat exchanger for you.

Inventive storage

Space is always a premium on a boat, and so in order to make use of every nooks and crannies, sailors have to be inventive. The king of space savers is the hammock. We rig small mesh hammocks here and there to store fruits and veggies, clothes, etc... we also hang baskets from roofs and walls. Another great space saver is the wall pockets, a simple contraption made of scrap canvas, that is nailed to a bunk's wall. On it are sewn several canvas pockets of various sizes, so that the bunk owner can store all the stuff that usually rolls around everywhere, clothes, books, jewelry, art projects, music instruments, water bottles, etc etc.

Playing music is very nice, but most boats are too small to make room for guitars. Sailors who ship one anyway will find that when the boat rolls and pitches, the guitar gets trashed around.

A solution is to make a mount for it.

For one of the guitar and the ukulele, I made Z shaped pieces of aluminum and screwed them on the roof in the saloon . One of the Z bars has to swivel. The inside of the Z bars are fitted with felt to avoid marking the finish of the guitars.

I also used the same system to mount my BMX bike on the wall of the engine room. I was lazy and made the Z bars out of aluminum but it would look much better if they were made of varnished wood.

Bamboo is great. You can do all kind of things with bamboo. It is durable, quite good looking, easy to work with and easy to find. Make things out of dry bamboo or it will split with time, varnish or paint it or it will mold. Bamboo holders are easy to make and can be used for many things, winch handles holders for example. You can also make multistory holders for cutlery or tooth brushes. For people who feel creative, those holder can be carved and decorated any way you feel.

One last little trick is our famous spice holder. It is a simple piece of wood screwed to the roof of the kitchen, to which is screwed several jar lids. The jars are filled with spices and screwed into their lids.

They stay out of the way, they never roll around and break, and as a bonus we can see when we are running out of something.

For storing dry food in bulk such as rice, flour or pasta, we use 5 gallons plastic buckets with lids.

Instead of having a drawer full of tangled charger cords, put each individual cord inside the cardboard tube of an empty toilet paper roll.

I see a white boat and I want it painted black

Most boats are painted white. Why, I don't know. To all look the same presumably. My boat used to be painted as white as everyone else but since I have painted her black I have found several good advantages to it.

She looks like a pirate ship. Everybody notices us, we stand out in a crowd. (it also helps when you come back home drunk so you don't get on the wrong boat) Dirt and rust streaks won't show. We can use cheap and strong car tires for fenders without worrying about making black streaks on the topsides. Bad paint jobs won't show (shadows, lumps and drips are black too) You can buy paint in bulk from fishing boats and cargo ships.

And finally, it is a myth that it gets warmer inside a boat painted black. I've lived in the tropics for years in the same boat painted first white and then black, and I haven't noticed a difference.

Jib hanks

Some boat have rolling jib as their head sails, but without entering the polemic, I prefer hanked on sails. Hanks are some kind of clips that are fixed on the sail and that you attach to the fore stay. They hold the sail close to the cable when it is up, but allow for the sail to slide up and down when it is hoisted and dropped. Hanks are usually made of bronze and are quite durable.

Their only weak point is the way they are attached to the sail. Most hanks have a stupid little appendage that is bent in after being passed through the grommet on the sail. Once thus mounted, usually when they are new, they then are considered permanent. The problem arise when there is a repair to be made to the sail and the hanks need to be removed, as it is near impossible to remove them without breaking them. Each hank cost between 6 and 10 dollars and there are usually over 15 of them on a normal jib. It goes quickly up to a lot of money to replace them. A way to salvage those broken hanks is to drill two small holes, one near the broken part and one on the head of the hank (see picture) and to sew the hank on the sail with a needle and some strong twine. It is best to make a figure eight between the two holes and to finish by a lashing, a series of hitches.

One thing with hank on sails is that they are changed often while under way. That means taking them off the fore stay, folding them and stowing them away. On Karaka I have five jib stored on deck for use depending on the conditions and it can get confusing when you are looking for that damn storm jib in the middle of the night in rough seas and you have four sails to chose from. The usual tactic is to have a bag for each sail with their name on it for easy recognition, but the sail themselves need to be marked too, if only to make it match with the bag. The best location for a mark

is near the tack of the sail. Use a permanent marker on both side. The easiest system is to attribute numbers to the sails. I use the smaller number for the smaller sails and the bigger numbers for the bigger sails because it seems logical to me, although racing boats usually do the opposite.

Jimmy Cornell

Jimmy Cornell is a sailor who has been three times around the world last time I counted and who is famous for having put together two of the most useful databases available for the cruising community.

The first one is a book called “World Cruising Routes” in which he explains the world's weather patterns and gives information for most of the passages a sailor might want to undertake, including way points, expected weather, winds, currents and storms. It is invaluable when planning a voyage.

It is a good idea to have a copy on board if you intend to sail to far off destinations.

The complementary volume is called “World Cruising Destination” and is not usually worth getting a print copy of. It gives details of countries and ports with info about clearance, facilities and such.

As a cruising guide book, it is necessarily out of date as soon as it is printed, so that the Cornell family started an excellent website called www.noonsite.com where all the info they post is available for free on line. It is constantly updated by input from people who are actually sailing out there and that makes it the best source of information about the countries you intend to visit by boat to be found anywhere.

Kayak safety

Never leave a kayak in the water at night. It is way too easy to steal. If you are not thinking of ever reselling your kayaks, it is a good idea to paint or carve your boat's name on them. Nobody can claim it is not your kayak if your name is carved on it, and it will make them less likely to get stolen. (this works for outboard engines too)

Killing fish

Some of the fish you catch taste much better if you bleed them. All tunas and most sharks will be greatly improved by bleeding. To bleed a fish, put him still alive head first into a bucket and either cut its throat, the narrow bridge between the belly and the under side of the mouth, or sever the arteries on both side by making a deep slit just behind the side fins, in its armpit in a sense. In both case thick and dark blood should gush and the fish should die within minutes.

Some fish are too big to put in a bucket, or too lively to cut their throat, in which

case the less messy solution is to pour some rubbing alcohol in their gills. Do not use expensive rum as it takes quite a lot to kill a fish and that is a waste.

Logbook

I keep a log book. It is a cheap agenda with a few days per page. I keep it to a minimum but log down the crew on board, fuel and water intake, gas bottle changes, filters and oil changes and things like that for future references. I also write down every anchorage with depth, bottom composition, latitude and longitude, as well as engine hours and odometer. The odometer is a function of the GPS that tells me how many miles the boat has sailed since Hong Kong that help me compute how many miles we sail on each trip.

During crossings I enter in the log the various waypoints I use, and a couple of times a day I make an entry about our position, speed, and wind condition. Sometimes I write down comments or things that happen, such as fish caught, sea condition or communication with other ships.

Marine toilets

Marine toilets can be a source of endless worry for the boat owner, but it doesn't need to be.

The standard marine toilet is a complex and fickle piece of engineering that more often than not get clogged and requires to be taken apart to be cleaned (a lovely job). You can't put paper into them, they often break down, they are complex to operate for the guests who have never used them before, and they can create a siphon that could sink your boat if not operated properly. In a word, they are a mess.

Luckily there is an alternative. There is a company called Lavac who designed a type of marine toilet that are simple to use, strong and reliable. Just what you want.

They work by a system of vacuum. You close the lid and apply pressure on it with your hand or your knee, effectively making it air proof. Then you pump about 20 times a standard diaphragm bilge pump mounted after the bowl, on the outtake pipe. At first it pumps the waste out, then it pumps the air inside the bowl and creates a vacuum, this vacuum siphons in some clean water, and as you keep pumping, the water circulate through the whole system, flushing it. Simple and efficient.

Lavac toilets are expensive but well worth it, but if you want to save money and can't manage to pukuk one, you can make your own for cheap by adapting a normal marine toilet. You need to make a proper seal to the lid, some sticky foam would do. When rigging the pipes you need to make sure both the intake and the outtake have an anti-siphon loops going higher than the water line even when the boat is heeling. On the intake pipe, at the highest point, you need to make an anti siphon mechanism. Poke or punch a hole through your pipe and plug it with the little plastic cap at the butt of a ball pen. Poke a tiny hole with a needle through the ball pen cap and that's

it. When you pump a little air will get through the tiny hole but not enough to break the siphon, but when you stop pumping, this little amount of air will be enough to stop the water from over filling the bowl. To adjust the amount of water left in the bowl after flushing, you need to experiment with different size of tiny holes in the ball pen cap. Sometime after a few years of use the tiny hole might get clogged with salt (only salt, it is on the clean side of things) and in that case the bowl will overflow as the siphon can go on unbroken. To fix this just make sure the hole is open.

To liven up the marine toilet, on Karaka we have the walls painting with blackboard paint. Not only is it easier to clean, but it can also be used as a blackboard, to make lists of things to do, write poems, draw cartoons, or share your favorite quote. Nothing like a nice graffiti to make a nice atmosphere while taking a dump.

That said, in areas where the water is warm and clean, it is hands down cleaner, nicer, healthier and anythingelseier to jump in and have an aquadump. Just do your business naked in the water, and let it float away.

Multitool

On board a boat, there is always something broken. You constantly have to mend and fix things. Most of those things are small and can be fixed easily and quickly. The best tool for those jobs is a multitool knife of the “Leatherman” kind. I have a “Wave” and I think it is the best.

Leatherman tools have a life warranty for free so that when yours starts to miss a few tools and won't lock anymore, you can send it for a refit and it will come back as new.

To make sure you always know where your knife is, you need either to have it attached to your belt, which is inconvenient when you are going around naked or in swim shorts, or you need to find a place to mount it inside the boat. I have mounted the pouch of mine to the wall near the companionway stairs, a central place on the boat. Everybody can use it and it is always available as everybody puts it back inside it's pouch immediately after use.

Mattresses

Not all bunk on a boat have proper spring mattresses, usually they only have foam mattresses. Not all foams are created equal. To make sure the bunk is still comfortable, select only closed cell foam. Any other kind does not hold compression and will feel like sleeping on a piece of cardboard.

Monsters

Never look behind the oven with a flashlight.

Navigation

Fortunately, with the advent of the GPS system, nobody has to use a sextant anymore.

Celestial navigation is complex, inaccurate and slow, and thus should be considered unsafe and obsolete. Despite this, celestial navigation still has a lot of romantic appeal in the mind of people who have never tried it or who have never had to rely on an accurate fix to ensure their safety. It is still a perfectly valid back up system, but it has been relegated to just that, a back up. The GPS system is reliable, easy to use, fast and accurate beyond belief. Not using a GPS while sailing makes everybody on board take unnecessary risks. It is also much more work. No modern sailor does that anymore on a regular basis.

The GPS system automatically updates your position every second with an accuracy of roughly 10 meters. The best navigator using celestial navigation will be hard pressed to get a position within a few miles in less than 20 minutes. It makes a huge difference when sailing between coral atolls or entering a bay while running in front of a storm for example.

All it takes to prevent you from calculating your position using a sextant is to misplace your pencil so you can't write down your calculations. You also need an accurate time piece, and if your watch is off by merely a few seconds, your fix will be miles off.

The argument that you can not rely on the GPS because it is an electronic device is flawed since you can get as many as you want for cheap for back ups, including battery powered ones, for the price of a sextant. Furthermore, the problem is not solved by using a sextant. GPS units nowadays are no more likely to fail than a mechanical sextant is. You can drop a sextant or spill your coffee over your almanac and that would ruin them too.

You can nowadays get little computers who store the almanac and perform all the calculations for you if you give it the sight reductions from the sextant. It cut down the math and the book consulting but if you are going to rely on a little electronic device, why not use a GPS instead?

Some people argue that the GPS system is sometime down for maintenance, or that the satellites are old and will fall down any day. There is little truth in that but even if it was the case it is still better than a system that does not work at all when the sky is overcast and when you can't see the sun or the stars.

Celestial navigation is a fine art, but the modern sailor should use the most appropriate tools to keep himself, his crew and his ship safe. I'm not against celestial navigation per se, I guess it can be rewarding and challenging to use it now and then, but I don't think it should be touted as an essential navigation skill as most navigation books do. I think it is misleading. I also think the authors of navigation books are for the most part older sailors who are expert in celestial navigation and who have spent all their lives basking in the glory of being expert in their art. They are now faced with the fact that their expertise is obsolete and it must hurt. I see their feeble attempt at impressing the mind of would be sailors with the need of learning celestial navigation as an attempt to salvage their own self importance. If celestial navigation is now useless because any random landlubber can find his precise location at the sweep of an I-phone, then there is no need for extensive and expensive navigation courses, navigation experts or their arcane knowledge. I'm sad for those old salts left behind by technology but I recommend to all sailors to store their sextant away and make sure they know how to use their GPS.

Neat Painting

When painting with a brush directly from a small pot, stretch a rubber band so that it lays across the opening. You then don't have to wipe your excess paint on the sides of the pot where it is going to be making a mess.

When using cheap brushes, you can avoid having the lose hair ruining your work by removing them before hand, wrap some masking tape around your hand, glue out, and rub your new brush on it, lose hair will stick to the tape.

Navigation computer system

Using a laptop for navigation is a smart move. Ship chandlers and marine stores try to sell chart plotters units to everybody and the only reason I can see for that is that they cost a lot of money. A laptop does the same job and more, and is much cheaper. You can usually find old laptops, up to ten years old, that are thrown away by people who upgraded. You can get them for less than 50 dollars or even for free if you ask around. There are a lot of them. You don't need something fancy anyway. The only problem is that they won't last very long so make sure you have spares. If you have some funds, there are used rugged laptops, like the Getac B300 or the Panasonic Toughbook. There are outrageously expensive new but older models can sometime sell cheap, I got a Getac B300 on amazon for 400\$ and I'm delighted with it.

On your navigation laptop, you will need to install a nav program. The best that is free to download is called openCPN. For the charts, the best is to ask around the anchorage. Everybody has some version or another of the Cmap – CM93 charts and you can copy them (it is illegal of course, they are what you call pirate versions). Those charts cover the entire world with great degrees of accuracy and you can exchange charts with other boats when you get somewhere that is not covered by

your database. The whole world takes about 2 GB of storage. To get that amount of charts for a chart plotter could cost nearly 10 000 dollars although price are dropping and I haven't checked recently.

Also, there is an excellent linux based operating system to download on www.navigatrix.org that comes with openCPN.

To connect the laptop to a GPS, the easiest is to get an external antenna on USB.

It is usually a good idea to keep the navigation laptop dedicated to navigation and not to use it for internet or anything else, so as not to burden it and risk having it fail or get infected by a virus. It is getting more and more common for sailors to use a smartphone or a tablet for navigation. Navionics makes a decent chart plotter app and it is very nice and convenient to use during watches or to let the crew play with. A word of warning, electronic charts should not replace paper charts in any case. Computers fail all the time.

The last trick about laptops on boats is that they can run directly on the 12 volts system. Some don't but they are rare and most laptop will happily accept a 12 volts Dc input. You only need to remove the batteries(12 volts would ruin them otherwise, they need around 19 or 20 volts) and cut the power cable somewhere between the laptop and the transformer (you don't want to use the transformer), then splice the two cables to the positive and negative, making sure you checked for polarity. Usually when you cut the cable you have one white wire and a bunch of uncovered wire around it. The white is positive and the open wire is negative. That's it. No need for the waste of converting the Dc power from the batteries to Ac power with an inverter, and then back to Dc again with the transformer. It saves a lot of power and you never have to rely on a fickle inverter again.

North, magnetic compasses and steel hulls

Several hundred years ago, the Chinese found out that a piece of metal, if let be, will always point in the same direction. They invented the compass. Their boats were made of bamboo and it worked well for them, but they didn't foresee the problems I would face by trying to use the stuff on a boat made of steel itself. On a steel boat, a normal compass doesn't work. The magnetism of the hull gets in the way.

That is a problem. On a boat, you need to know where you are going if you ever want to get there, there are no roads to follow or street signs. Another problem with the magnetic compass is that the magnetic pole is constantly moving about. The reading from a compass needs to be compensated. And if that was not enough, you need to re calibrate the compass when you sail to different area of the globe. There are clever ways around all that but it takes a professional to adjust a marine compass, and it takes an expert professional to do so for a steel boat.

I am neither a professional nor an expert so since I can't do this myself for years I did without a compass instead.

To know where we're going, we can use the reading on the GPS screen, that is mounted conveniently in view of the helmsman. It gives a digital reading of the

course on ground, that is the way the boat is actually going, as opposed to the way the boat is pointing. It takes a bit of practice to get used to, but is more accurate than a compass. The other advantage (other than it works and the compass doesn't) is that it tells the information you really want to know, including drift from current and leeway. That is very useful to avoid rocks and reefs. Also, since the GPS gives me a course to steer according to the true north (the north of the north pole, not of the magnetic pole) I can relate it directly to the charts without compensating, which saves time and prevent possible errors in navigation.

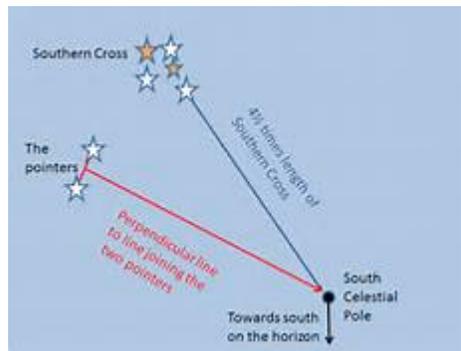
I have now installed a magnetic compass in the cockpit, because I found a cheap unit. It is a repeater compass, the actual compass is in a little box mounted high up on the mizzen mast and a wire gets the data to a display in front of the wheel. It is pretty convenient.

At night, there are two accurate ways to find the north using the stars. If you are in the northern hemisphere you have the star called Polaris in your sky. It is the north star. To find it you need to locate the big dipper, also called Ursa Mayor, shaped like a big saucepan. Up and in line with the two stars opposite the handle of the saucepan you have a faint star in the middle of a clear patch and that is it.

The north star is only 1 degree away from the axis of the earth so when the earth turns, the star stays almost stationary in the sky. All the other stars seem to be revolving around it. Once you have found the north star, imagine a line going from it down to the horizon, and that is true north.



In the southern sky you don't have any stars near the axis of the Earth so finding the south is a bit more complex. You need to use two constellations for that. One is called the southern cross and the other the pointers. To find south, you need to imagine an extension to the long length of the cross, and a line perpendicular to the line formed by the two pointers. Where those two imaginary lines meet is the southern pole. From that imaginary point you need to imagine a line going down to the horizon and that is your south.



Oar safety

Do not expect your crew to understand the value of a good pair of oars. No matter how nice looking they are and how much we rely on them, they will get broken, stolen and lost. To at least try to limit the damage, always ship the oars when not in use. One thing I do also is to physically tie down the oars to the dinghy so that they can not be removed. The best way to do that I have found is to have a line tied to the pin of the rowing system on the oar itself, passing through the oar lock and tied to a piece of wood too big to be pulled back through the oar lock. The line should be long enough for the oar to be shipped when not in use. It makes it harder for thieves to steal the oars and it also prevent the oars from washing overboard and floating away.

Overboard tool locator

It happens quite often that while at anchor, some piece of gear or a tool falls over the side and sinks into the depths... as the boat swings on its mooring, the exact location of your lost stuff is near impossible to locate, and if the water is deep and the visibility low, that usually means you can forget about it. One way to avoid losing gear that way is to always have handy a locating system. Mine is an old foam buoy I found on the beach, carved to make a spool out of it. On it is wounded a thin line about 30 meters long with a weight at the end, mine is a piece of lead. As soon as something falls over the side, you drop the whole thing after it. The buoy stays on the surface and the lead goes straight down, landing right next to whatever you lost. Then you have time to equip yourself and dive after it, following the line to the bottom.

Pants zipper

Sailors are renown for wearing the rattiest clothes, so here is a trick to make your pair of shorts last longer: when the fly zipper gets old and doesn't stay up anymore,

put a key ring on it and pass it around the button when you put on the pants.

Pineapple chicha

This is a bit tricky to make right but the result can be very rewarding. Pineapple skin contain a sort of yeast that will make the pineapple ferment. During fermentation sugars are broken down and converted into alcohol.

To make chicha, you just need to use the leftovers of a pineapple you ate, skins and tidbits you cut off, and put them in a big pot with water and sugar. Cover it and let it ferment for about 36 hours. The length of fermentation depends on several factors and that's why it is tricky to make good chicha.

Temperature, stage of fermentation, ripeness of the pineapple when cut, amount of water, amount of sugar, they will all affect the results. Chicha making is an art more than a science.

After roughly 36 hours of fermentation, your pot will not look like something you feel like ingesting, but don't be put off, although if you don't feel like sampling the stuff right out of the pot, then you waited too long. The chicha by then should be sweet and good smelling. Drain the rotten stuff and any solids through a cloth, an old pillow case works well. Bottle the obtained chicha in glass bottles with screw on lids. Leave an inch or so of air at the top of the bottle and add a tea spoon of sugar to each bottle before screwing the lid on. Shake once and then let sit between 6 and 24 hours. The extra time in the bottle will make the drink fizzy, while the sugar and the yeast will have produced alcohol. The result, when done right, is delicious and slightly intoxicating, something very close to a sweet cider.

The most common problem is to leave the pineapple skins ferment too long, resulting in a very sour drink that will not be fizzy. If left too long in the bottle, the chicha will also take a bitter vinegary taste that is unpleasant. The more you wait the more alcohol content, but don't be too greedy or your chichi will be undrinkable. If you don't seem to be able to produce anything tasty, try a shorter fermenting time and more sugar. It may happen that the chicha will smell terrible when you open the bottle, but still taste very good, so don't be put off by the smell, it is just gases resulting from the fermentation process.

Given the price of pineapples in most places, apart from leftover and skins from the ones you eat, the cheap way to make chicha is to ask the stall keeper at the market for discarded rotten pineapples. You can usually take as much as you can carry for free. Pineapples go off very fast and the waste in the markets is big, people just throw them away. Choose ones that are rotten and fermented, but not liquefied yet.

Try to make sure the pineapple you use is organic, or at least not saturated with chemicals... they spray really nasty shit on pineapples, based on the assumption that you will not eat the skin. Don't make Monsanto chicha if you value your health. I

suspect that when the chicha fails to ferment properly, it might be linked to chemicals having killed off the fermenting agent, which is a bacteria.

Pirates

I used to say pirates were not a worry but then we got attacked in Colombia and although it was mostly bad luck they got us, I can't honestly say pirates are not a worry anymore. For up to date pirate attack reports, a good reference on the internet is www.noonsite.com, which has a piracy page. Piracy those days is considered to be limited to well defined areas, mostly the red sea, Indonesia/Philippines and some areas in the Caribbean, mostly Venezuela and Haiti. The bulk of the attacks occur on big commercial ships and are the planned acts of organized mafias. Opportunist attacks on yachts are rare. There was a peak period around 2009/2010 but it seems to have calmed down recently.

There are 3 main kind of pirate attacks on yachts.

The worse one is the kind that is happening mostly around Somalia and the south of the Philippines, where organized mafias take over boats and keep them hostages for ransom. They usually come heavily armed and ready to kill if they meet resistance. They don't care about the boat but about the people on board and the money they can ask for them. Yacht have been taken over as far as 1000 miles offshore and the whole of the north western Indian ocean as far east as the Maldives and as far south as Madagascar is considered dangerous by the sailing community. Things have calmed down in the Indian ocean of late, but there is renewed risk now in the south Philippines, with several kidnapping and even some executions. Related to this type is the possibility of being looted by a crew of desperate Haitians trying to flee their country in a badly built and unseaworthy craft with no food and no water storage and who would try to steal your boat to save their lives. The risk was increased after the earthquake but it probably is less probable nowadays. Those are a worry and I'm not sure what can be done against them except avoiding the risky areas, sailing in convoy with other boats and keeping a tight watch if you have to sail in a risky area and taking evasive action if suspicious vessels are sighted.

The second kind is the one we experienced, a boarding while underway by pirates in a small craft who approach the yacht pretending to be harmless fishermen, asking for water or cigarettes and who then take the boat by surprise by jumping on board with weapons, usually small guns and machetes.

They are not usually violent unless they meet resistance, and are only interested in stuff they can use themselves or resale easily. How thorough they are in their search for valuables depends on the time they estimate they have before risking being intercepted by the police or the coast guards. A good way to make them go fast is to tell them the police is warned and on its way, by faking a VHF call for example or claiming one has been made. Giving them what they want is also a good policy as people who resisted have been hurt or even killed. There are ways to keep them off the boat and every skipper will tell you he has an infallible system, but from my

experience, short of carrying heavy weaponry such as shotguns and hand grenades and being very suspicious of any boat that comes closer than 50 meters (which is very impractical), the average cruiser has little chance to prevent determined pirates to board. The areas where such attacks occur are known and special care should be taken in those areas or they should be avoided if possible, but ultimately, it boils down to bad luck if such an attack occur.

They are rare and given the number of boats sailing all around the world, the risk of being boarded by pirates, statistically, is less than being mugged when walking in a city. It is just part of the risk of having a life...

The last type of pirate attacks are more a type of burglary, armed men boarding at night while anchored. Those boardings can be severe and crew have been shot, stabbed, beaten or strangled as people who wake up to find strangers in their cabin usually react violently, triggering a violent reaction in the already nervous burglars. This kind of attack occurs frequently on yacht anywhere in the world but no more frequently than burglaries on land. A little common sense could have avoided most cases I know about. Location is a key factor, being anchored with a rich looking yacht in front of a third world slum where millions of people are struggling to survive is asking for trouble.

Remote anchorages where poor fishermen hang out present the same chance for opportunists, who might see this isolated pile of luxury equipment as a gift from god. A night watch in dodgy anchorages is enough to discourage most thieves.

The attitude of the crew is important too. One thing is to give the impression to would be attackers that to board this ship would mean a big fight. The best though, is to be friendly with the locals.

Learning the language, talking with people ashore, joking with kids, helping the old lady to carry her jug of water, eating in local restaurants, buying in the local market, showing interest in the people and their culture, are going to show the eventual thief that you are friendly, interesting and that stealing from you is not so nice. Looking scared of everybody, avoiding any local business, shopping and eating only in marinas and tourist spots, on the opposite, are going to build a gap between you and the locals and they won't think twice about taking everything they can from you.

Displaying a lot of riches on deck is also asking for trouble. All the expensive gear should be stashed away to avoid tempting people who might have to work years to afford equipment such as fishing reels or outboard engines. That is plain common sense that applies anywhere, not only on yachts. So there is no need to be worried about pirates, but it is important to be careful about them, the same way there is no need to be worried about barracudas or earthquakes, but it is important to be careful about them.

Plastic bag knots

To untie those annoying plastic bags knots, twist the loose end as much as possible and then push it through the knot.

Preventer

While running downwind, the proper set up is to have the sails sheeted all the way out. In case of an accidental gibe, the main boom will then swing with great force and speed all the way across the deck, whacking anybody in its path and then crashing into the rigging on the other side, usually resulting in some kind of damage if not injury. To prevent that from happening, it is a good idea to rig a line that is called creatively a preventer. It needs to be tied near the end of the boom, and then anywhere strong as far forward as possible. The further forward it is tied, the best angle it will have to take strain in case of a gibe. Having it tied near the end of the boom will ensure that should the strain become extreme, the boom does not snap in two where it is held by the preventer. A common cause of boom failure is to have the preventer tied at the center of the boom and then in big seas have the end of the boom and the clew of the main sail dip in the water, creating huge forces at the preventer attachment point, forces so big that the boom just bends and then breaks where the preventer is attached.

Preventers are also very useful in light winds, to prevent the boom from crashing back and forth in the swell. Tied with the preventer and sheeted in tight, the boom will be set solid and will stay put, keeping the sail in shape and trimmed as it should. It is not only more efficient, it also reduces the nerve wracking noises.

And finally the preventer line, being tied secure on the boom, will have to be coiled and stowed when not in use, at anchor for example. A good way to kill two birds with one stone is to use the preventer to tie the mainsail down.

Provisioning

To carry many plastic grocery bags at once without hurting your hands: use a carabiner or a big shackle as a handle.

Pukuk, or the art of salvage

“Pukuk” is a verb in the Aleut language of the people of the Bering Strait which literally means to pick at bones. It is used as an expression meaning “to get the good stuff out of something discarded” and another less politically correct definition is “to salvage without the intention of returning”. A more politically correct definition could

be “recycling” or “liberating”.

Pukuk is not always called that but it is a very important part of the life of the sailor and can take many aspects. There is a fine line between the act of pukuk and the act of stealing and it needs to be acknowledged. The difference is that to steal is to take something that belongs to somebody without his consent while pukuk is to take something the previous owner has discarded and will not miss.

The dodgy gray area in between is about taking without asking stuff that the owner will not miss because he doesn't realize he owns it anymore and would probably throw or give away anyway if he did. While everybody should try to avoid stealing things from people who might need them, a cost conscious sailor will always be open to the opportunity of a nice pukuk.

Pukuk starts with beach combing, a mere stroll along the waterline looking for washed out items.

You can find all kind of stuff on the beach, I personally scored clothes, shoes, flip flops, jerrycans, a hand pump, a nice glass pitcher, and often some long liner's plastic buoys. Of those buoys I managed to get about 25 one time on a deserted beach, and sold them for 15 dollars each later, which goes to show that the benefits of beach combing are not trivial.

Another opportunity for a pukuk is dumpster diving, looking into dumpsters for things you might be able to use. There is an incredible amount of stuff thrown away by our society and it almost always pays to visit landfills and dumpsters. The dumpsters at the back of supermarkets or near fresh produce markets are often overflowing with edibles in good condition, most of the time still in their packaging.

The best dumpstering score I have heard of was done by my younger brother who once salvaged a small car out of a landfill and then went on to travel from France to Kazakhstan and all the way back with it.

For the pukuk minded sailor, the dumpsters of marinas and boatyards are gold mines. The amount of gear discarded by wealthy yachties is astounding. In marinas you can often find boat parts, ropes, sails, dinghies and such lying around in dumpsters waiting to be picked up. They are usually the result of a boat owner upgrading his boat at the beginning of the sailing season. In boatyards you can always find paint brushes, sandpaper, roller trays, masking tape, buckets and interesting pieces of metal and wood, without counting the odd boat part as well. And I'm only talking about the stuff that is literally thrown away, in the dumpsters.

In popular anchorages there is always a few derelicts boats moored, abandoned there by their owner for various reasons. They usually look very bad and completely trashed, and unless some local has settled on board, they are ripe for the picking. You can salvage solar panels, winches and winch handles, wind generators, cleats, compasses and such from them. You usually have to be discreet as people might

object to your right to pukuk, but I think it is obvious that salvaging unused gear that will otherwise slowly decay is a positive thing as long as you make sure the boat is not merely in storage.

On the same order of idea, you can pukuk a lot of stuff off wrecks, if you keep your eyes out for them.

They are not always under water and it is frequent to find boats washed up on the beach or on a reef.

Most of the valuable stuff will have been taken away unless you are lucky enough to arrive before everybody else, but the hard to get gear will more often than not still be on it. Boats that are insured are usually not stripped down by the owner before they are abandoned. I salvaged solar panels, wind generator and winches out of a wreck from the tsunami in Malaysia and my best score was about 70 000 dollars worth of fishing equipment out of a wrecked 52 ft sport fishing boat in Costa Rica. The salvaged gear got seized in court and disappeared behind red tape but we kept a good amount of it anyway. In the San Blas islands we helped a french couple try to get their 45 ft sailboat out of the reef they were stuck on, but the boat ended up being a complete loss and they abandoned her. The locals salvaged all the gear while we were sailing in another area but they after sold all the stuff for peanuts to visiting sailors, and many managed to score incredible deals for excellent gear in excellent condition.

Underwater wrecks can be explored too, and while most of the gear will be either gone or destroyed, you can still find good stuff on them. I pukuked my self steering wind vane out of the wreck of a sailboat that was laying 5 meters under water near a reef in the Chagos archipelago. The whole rig from that boat had been saved and was on shore on a deserted island waiting for a pukuker who needed it.

The thing is to keep your eyes and your ears open and you will find that the world is full of stuff waiting for you to help yourself.

There is absolutely nothing unethical about pukuk as long as you make sure you don't drift into stealing. Sometimes just asking is the best, and people might happily give you the stuff they don't need if you show them you can make a good use of it.

That is actually how I got my boat. Karaka was discarded, abandoned, and was about to be trashed when I expressed an interest in her, and that is why she got officially given to me by the owner. He made me a bill of sale for one Hong Kong dollar(about 12 cents US at the time) to simplify paperwork, and that is to this day my best pukuk ever.

Rain catching

There is never enough water aboard a cruising boat. People who actually run out of water at sea are few and far between but most yachts are fitted with small water

tanks. To fill water, there are several options, such as tying to a dock and fill from a tap, carry jerrycans from shore to your boat in your dinghy, or invest in an expensive and troublesome water maker. The best solution though, in the right type of climate that is, is to catch the rain. It is also best to have as big a tank as the boat design will allow.

To catch rain all means are valid. The most efficient is to plug the drains on the deck and let the deck catch the rain, then open the water tank filling(usually situated on deck) and let the water flow.

The only problem with that system is that the deck needs to be spotless. It is always a good idea to let the rain fall and rinse everything for 5 or 10 minutes before catching it for consumption.

The next best technique is to have a tarp or awning adapted for rain catching. Ours is a big rectangular piece of heavy duty plasticized canvas, tied taut between the two mast. It provide shades and shelter in all weather, but in addition to this, it is fitted with a plastic sea-cock right in the middle. When it starts raining we lower the boom onto which the tarp usually rests until the canvas sags, making a big funnel with the hole at the bottom. We then attach a plastic hose to the fitting under the hole and direct the water to the tank fitting. Our tarp is about 15 square meters or 150 square feet and during a heavy tropical rain shower we can catch several hundred liters of water with it. The attaches for the tarp need to be very strong as they can get under a lot of strain from both the wind and the weight of the water.

To catch rain while under way, what we do is to reef the main sail, but without tying it fully, so as to create a big pocket with the extra sail. Then we hold buckets under the back of the sail where the water drains of.

If the water you collect or bring from shore is dubious to you, it is possible to kill all germs in it by adding a bit of bleach in the tank. To remove the bleach from the water you drink (bleach is bad for you) you will need to install a filtration system in the line between the tank and the tap. A 5 micron carbon filter will remove all taste of bleach from the water and needs to be changed only once every few months.

Ratlines

Ratlines are the rope ladders the ships of old had on their sides so that the crew could climb the rigging to go tend the sails. They are rarely seen on boats nowadays, mainly because sailors now have less reasons to go aloft, but also because boat designers have found out that all this windage and weight high up is detrimental to the stability of the boat. They have come up with an alternative in the form of mast steps, which are efficient and light and strong. I prefer ratlines but then I have the ship suited for them. Mast steps can be a problem when halyard get caught in them. Ratlines otherwise are safer than mast steps to climb, there is more to grab on, and since they are tilted at an angle, you can not really fall. Unlike as with mast steps,

you can stop comfortably half way on the ratlines, to check a reef for example. At the worst of rolling and heeling over, the ratlines will at the worst be vertical. But I guess the best thing about them is that they look terrific.

To make ratline, you need at least three anchor cable. Usually modern sailboats have two cables (the shrouds) going up at an angle and meeting just below the spreaders. Those can be the outside anchors.

You can then run a line, the best is a three strand rope but anything will do really, from the spreaders down to the deck. You will need a lot of tension in that line, so you might want to rig something like a block and tackle. Traditionally, at the bottom of that line you have something called a dead eye, which is a round piece of wood with two or three holes in it. You can make a pair quite easily yourself. The main line wrap around the dead eye and then a smaller line runs back and forth between a strong point on deck and the holes in the dead eye. When you want to adjust tension, you can use the leverage of the small line running back and forth.

Once you have your three anchors, you will need to calculate the length you want between the steps, and then seize some twine on the outside cables where your rungs are going to be attached.

That is to prevent your knots to slip down when you step on the rung. Stainless steel cable is very slippery, galvanized cable less so.

To make you rungs, start by making a clove hitch around the middle cable. Then make a rolling hitch with the bitter end of your rope on one of the side cable. (I think it is best to do that on the fore cable).

Make that rolling hitch very tight, then adjust the central clove hitch to make the first half of the rung taut, and then cut your line with enough extra to make another rolling hitch on the other cable to finish the rung. Make a whipping on both ends to avoid the line fraying. On one side seize the line to itself after the rolling hitch to make it permanent, then tighten everything. (see pictures), and move to the next rung. You can make some extra hitches after the non permanent rolling hitch if you feel like it.

Make sure the space between the rung is always the same or it will look bad.

After a week or so, every line will have taken some slack, and you will need to re-tighten everything.

After that you will have to re-tighten the whole thing only about once or twice a year. It is best to climb by favoring the middle of the ratlines, not the edges, as the clove hitch on the central anchor is much less likely to slip than the two knots on the edges, since it is tied to a rope and not a slippery cable.

Registered boat length

It is a good idea to cheat a bit on the registered length of your boat if you can. Depending on the procedures in the country you register your boat in, you might be able to shave off a few feet on paper by omitting a bowsprit or a wind vane, or even better, substitute the length at the water line to the length over all. The benefit is that most marinas and boatyards charge by the foot of length over all, so you can save a lot of money on the long term. In most boatyards, the person you pay the bill to will not come to see the boat but will refer to the registration papers to calculate the bill. A few feet missing will go unnoticed most of the time.

My boat papers say that my boat is 43ft long, which is true at the water line while the real over all length as measured by the Panama canal authorities is 53 ft. It makes a difference when I have to pay a dollar a foot a day or more for a haul out.

Rigging terminals

Mechanical rigging terminals such as Norseman, Stalock, etc, are way better than swages and well worth the extra expense as they very rarely fail, last forever, can be re-used and can be installed anywhere by anyone.

Seasickness

Seasickness is real. Some people can barely function even on a boat at anchor while some people seem totally immune to it. It might be genetic. There is some physiological evidence that the motion of a boat will make people queasy, mostly from a disparity between the inner ear's balance system and what the person sees. Seasickness is worse when down below and performing complex tasks. It is also enhanced by strong smells, such as cooking smells or engine room smells. People get more seasick on an empty stomach and usually feel better if they manage to eat something. The first symptom is usually drowsiness, and laying down for a nap will cure it.

In my experience, most people get seasick to some extent. My understanding of it is that while almost everybody gets seasick, what differs is not the severeness of it but how people deal with it. Proud strong people who like to be in control are rarely showing signs of seasickness. People who are convinced they are going to be seasick are most of the time turning green as soon as they step on the boat. There is a very strong psychological aspect to seasickness. Seasickness is something that can be overcome by strong will. A good example of that is that when somebody gets seasick, it is a good idea to have them perform a task, such as raise a sail or steer. They will almost immediately feel better. The intensity of seasickness is directly correlated to how much responsibility you have on the boat.

Captains are almost never seasick, they can't afford to. They have to learn how to conceal their seasickness and keep functioning despite it. Crew can indulge in not being 100% and have no incentive to pretend they do not feel seasick since they'd rather go lay down than be asked to do something. Most of my crew would agree that I never get seasick. That is not true, I just hide it well and never let it get so bad that I can't function.

Also, people who feel seasick at the beginning of a trip usually feel better after a few days. In my understanding, they are still feeling a bit seasick but they have learned to cope with it, mostly how to avoid seasickness getting overwhelming.

Seasickness tablets and patches do work. So do pressure bracelets and voodoo spells, prayers and snake oil. If somebody truly believes something will relieve him of seasickness, then it will. I heard of a case of a hippie girl feeling very seasick but refusing to use the big pharma stuff on moral ground, relying on herbal medicine instead. Everybody on board made fun of her about it, shaking her confidence in it. The herbal stuff didn't work. After a few days of misery she gave up and put a patch on. Instant and lasting relief. A few days later she realized she hadn't put the patch on properly and that it fell off almost right away so that it could not have possibly helped her. She cured her seasickness just by thinking she would be cured of it by the patch she thought she was wearing.

Sharks

Sharks are the terror of the sea. Their wickedness is without bound. Creepily, they sneak on you when you expect it the least, and rip you to shreds. The world over, waters are unsafe from their mere presence. Extermination is the only solution. BULLSHIT!

Not long ago a photo went viral on Facebook. It showed a massive and very toothy great white shark with a diver next to it. The caption read : "Here is a photo of the most dangerous animal on Earth.

Every year, it kills millions unprovoked. And right next to it, a great white shark swims peacefully."

That sums it up. Sharks are relatively harmless, especially compared to humans. Only a few species are truly dangerous, and even those don't attack humans on a regular basis. We're simply not food for them and since we are so good at killing them, they tend to avoid us.

Sharks are actually fascinating creatures, and given some basic precautions are taken, it is not only safe to swim with them, but also an incredible experience. The bulk of shark attacks around the world, and they are few and far between, are aimed at surfers and spear fishermen. Surfers look like a seal or a turtle in distress to an hungry shark and are sometimes mistaken for a prey. Spear fishermen are rarely

attacked themselves directly, usually the shark is after the quarry of the fisherman. A simple precaution is to ensure the shot fish is taken out of the water immediately, never shooting when excited sharks are around, and always have a way to get out of the water in a hurry. In place where sharks are abundant and we still feel like going spearfishing, we always tow a boat and have somebody designated as the shark repellent, keeping guard for the fishermen with a long pointy stick, and poking curious sharks away if need be. Sharks hate to be touched so a soft poke will usually make them scamper. Obviously if the shark is a 14 ft hammer head, you don't poke him, you give him your fish and respectfully get out of his way.

I personally did a lot of spearfishing with sharks around, and never really had a problem with them.

Sometimes they can get annoying, stealing the fish on your spear one after the other, but they very rarely get aggressive. The same thing goes for barracuda.

I have to mention I had a terrible accident once in Cuba while spearfishing, not with a shark, but with a barracuda. He nearly took my arm off while trying to steal a fish from me. It was clearly a freak accident as the barracuda was after the fish I had shot and only bit me by mistake. I did not take the fish and myself out of the water fast enough.

So sharks are not a worry. Actually they are getting fewer and fewer, mostly due to over fishing for shark fin soup, but also due to the destruction of reefs and the complete annihilation of their food supplies in certain areas. We are still lucky to have sharks around, as they are a key species in the reef ecosystem, and at the rate they are being exterminated, 20 or 30 years from now, there might very well be no more sharks. I can't start to imagine what humans will do once the so called terrors of the sea will not be there anymore to regulate marine ecosystems and that the world fisheries collapse.

Siphoning fuel out of jerrycans

Sometime there are no fuel docks and you need to go to a service station with jerrycans to get fuel.

After a bothersome trip back to the boat, you are faced with the task of emptying all this fuel into your tank without making a mess. If the boat is rolling and the tank fitting is small, it won't be easy to pour it down. Most people siphon their fuel with a pipe by sucking hard to make the fuel come. The result is usually either a mouthful of fuel or a mess on the deck. To avoid this, place your pipe in the jerrycan and the other end in the tank fitting. Place a rag around the mouth of the jerrycan to make it air tight, then insert a small pipe into it (a pen without the ink works well) and blow into the jerrycan. The increased pressure will drive the fuel into the pipe and the siphon will be started. Make sure your pipe reaches all the way to the bottom of the jerrycan because it will be near impossible to use this technique again if the jerrycan

is not full.

If you really have to pour the fuel down, wet the deck with salt water first, so that any spilled fuel will skim on the surface and will be easier to clean. Use dish soap to clean fuel spills and also to stop fuel slick in the water to spread.

Solar panel mounts

I don't need to explain how great solar panels are. Every cruising boat should have at least a few. Solar panels work best when exactly perpendicular to the sun rays. To achieve this on a sail boat, they need to be able to be moved, or at least swiveled. Most boats have them mounted on an arch over the stern, and

I guess that is the best solution if you can have it. We have a ketch and the mizzen sail is in the way so we can't do that. We have the solar panels mounted on the rails on either side of the stern. We didn't bother with an intricate mount system, instead we merely tied them on the rails. I drilled a few holes along the length and made a separate lashing with twine at each hole.

I only had to change the lashings after five years and it took me 20 minutes. To hold the panels up there is a piece of wood with notches. That piece of wood will need to be tied on to the boat or you will lose it otherwise.

The panels might need to be lowered when sailing close hauled into strong wind as when the boat heels the wind can get under the panel and crash it over the other side, which can be damaging (and also nerve racking if that happens in the middle of a storm in the middle of the night when you can't see what happened to cause such a terrible racket).

Superstition

Sailors are notoriously superstitious. I am notoriously not. I do not think it is a problem to leave on a Friday. I do not care if people whistle on board. I do not care if they call something by a non nautical name. I do not care if somebody yells at the sky during a storm asking god if that's all he's got. I certainly do not mind having women on board.

And I honestly haven't noticed any unusual streaks of bad luck in consequence.

Trading

Trade is a good way to replenish your funds. The world trade is regulated by tax laws and avoiding to pay those taxes is a way to make good money. Nothing is easier to import goods without going through customs than by sailing on a private sail boat. Custom officers do not expect you to engage in trade, especially not in common

goods, they might be suspicious of illegal activities but not of common good trade.

The obvious illegal goods such as drugs, weapons and illegal immigrants are to be avoided in all cases, they are just not worth the trouble. Many skippers have ended up in jail for drug offenses and have had their boat confiscated. Apart from the ethical aspect of dealing in harmful substances, I don't think it is smart to start an amateurish drug traffic since you can not compete with the pros, who will resent your input, and you are not experienced enough to avoid repression from the shore side authorities who keep a close watch. It make the whole thing very dangerous and it is very unlikely you will be able to pull a deal through even if you don't get caught. Beside people who have connections, only very desperate or stupid people attempt it.

So what's left for you to trade are common legal goods. It could be anything, as long as you can buy it for cheap and sell it for more money without paying import tax. Alcohol and tobacco products are high profit but customs usually search for those. The offense for trading in those is usually not severe so it is worth trying your luck.

For example, I bought rum in bulk in Madagascar for about 1 euro a liter. I sold it in the island of Mayotte, 200 miles further, for 10 euros a liter. I could have made a killing had I not been caught by the customs who came to search the boat as soon as we arrived. They found the rum and made me pay an import tax of about 5 euros a liter. I still made a 500% profit.

A good way to avoid taking risks is to trade in second hand goods. Used gear is not taxed. For example, you can get cheap boat equipment somewhere and carry it to some remote islands where import tax is high and sell your stuff for good money in a boatyard. Some people buy clothing and shoes in thrift stores and sell them in markets in the pacific islands for much more than they paid for them. In remote locations there is also a very high demand for music instruments, such as guitars and ukuleles. I've heard that art trading can be profitable as well, especially if you sail in remote parts of the world where you can buy cheap mass produced art and craft and then sail back home and sell them to art dealers in posh neighborhoods, presenting each one independently as a unique master piece.

The best way to avoid paying taxes on new goods is to declare them as boat spares. You are sailing on a sailboat, and as such you are entitled to carry as much spare parts as you feel it is safe to do. A custom officer can not tell the difference between your spares and goods for trade. I bought as much rope as I could afford in a factory in Cape Town, about 2 kilometers of it, sailed across the Atlantic and then sold it in Brazil and through the Caribbean making on average a 500% profit on my investment.

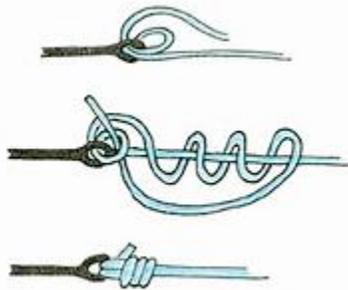
Another kind of good deal available is to befriend sailors from tankers and cargo ships, and buy from them 5 gallons drums of marine paint for very cheap, then sail to a yacht boatyard and offer the paint to the people fixing their boats. I once sold such

drums of paint for half the price the paint was fetching in the store and still made a 400% margin on it.

The thing is to be discreet as all this is illegal and you don't want to pay fines. There are deals everywhere if you look for them and do a little bit of research. The possibilities are endless.

Fishing knot

To tie your lures to the line, you need to use the trilene knot.



Ventilation

A good ventilation on board is very important when sailing in the tropics. The 12 volt fans sold in marine stores are the best but unfortunately they are very expensive, especially if you need to outfit many bunks. A cheaper alternative is to buy 12 volts computer fans in an electronic supply store. They costs about 1/10th of the price and work quite well. They also are silent, small and compact. They use less than half an ampere of power for the big ones which is also a plus.

To install them you need a little switch as they are not equipped with one. You can be creative and make beautiful mounts for them, but since they tend to vibrate, a rigid mount will rattle. We find it best to hang them with strings, twine or shoelaces. You'll need at least three points of attach so they don't swing around, and then you can adjust the length of the strings whenever you want to adjust the direction of the air flow.

Underwater window

Yes, we have an underwater window. It is not a bad joke. I had wanted one for years, but was discouraged from installing one by the bad press they got on boating forums. Then one day I met a steel boat with one of them installed and after that I

just had to make one for Karaka. During our big refit in Mexico, despite the doomsayers and the jaunts of the other skippers, I finally got round to it.

I chose to make it in an area where it would be seen all the time, below the water line obviously, on a flat part of the hull, and still relatively out of the way so as not to risk damage to it. The only place adequate was at the foot of the galley, under the oven, where I had a nice flat panel of metal apparent.

I cut the hole using a plasma cutter, making it round and about 22 cm in diameter. On the inside just next to the hole I welded a 0.5 cm lip which aim is to prevent the glass from moving side way. Then I made a giant washer/counter plate out of stainless steel, with the inside diameter just slightly smaller than the diameter of the hole in the hull. The clear part is lexan on the outside and tempered glass on the inside. I figured the glass was less likely to get scratched so it was better for the inside. I think now I should have done the opposite. Lexan is 250 times stronger than normal glass and tempered glass about 5 time stronger than normal glass. A composite window of lexan and tempered glass of a thickness of 15mm is the equivalent of over 1.5 meter of normal glass. The difference in flexibility between the two materials makes it more resistant to sharp impact as well and is what they use for bulletproof glass. So according to my calculations, the glass on my window is as strong or stronger than the surrounding 6mm steel plating. To secure the window to the hull I bolted the counter plate through the hull with 8mm bolts, 8 of them. According to my calculations, all together they should be able to take tremendous punishment. To limit drag and make the whole thing more streamlined, I used rounded headed bolts, from the outside in, with the nuts on the inside. The bolts pass through the counter plate which then applies even pressure all around the glass.

To make the whole thing waterproof I used 3M 5200 compound and also painted the bolts on the outside.

To protect the window when not in use I put a clear glass cooking pot lid over it on the inside. I have had no problem with leaking so far. There is some condensation between the lexan and the glass but it is minimal. My biggest issue has been to keep it clean from the outside. Despite the antifouling all around, the lexan get covered in algae and slime very fast. If left too long in nutrient rich waters, barnacles start growing on it and need then to be scrapped off, which scratches the window.

Other than that I am delighted with it. In most ports the water is too murky to see anything, but while out in the islands the views from the windows are incredible. When anchored in clear water, it is like having a giant aquarium under your feet. Sailing slowly over coral bottom is also fascinating. Under way the deep ocean blue is also a nice addition to an otherwise glum kitchen floor, with the occasional dolphin, whale, turtle, jellyfish, shark, tuna, dorado or marlin passing by.

An unexpected extra as well is that when looking for a spot to drop the anchor, I can now go check what the bottom looks like under the boat.

So altogether the window is a great addition to the boat and I would recommend it to anybody cruising in areas with abundant sea life and clear waters.

UV damage

The sun is extremely damaging to both sails and lines, so put them away as soon as you're done with them, or at least cover them the best you can.

Water bottles

In the tropics it is extremely important to drink plenty of water. Dehydration is a serious problem. It is a good idea to have everybody on board have a personal water bottle, so that water intake can be monitored. People are also more likely to drink enough if they do not have to go to the sink to get water in a cup every time they are thirsty.

Wind instruments

Fancy boats have wind instruments. Real sailors scoff at those. For wind speed it is easy, there are only three wind speeds: not enough wind, nice wind and too much wind. Use your guts.

For wind direction, everybody is naturally equipped with great wind sensors. The one I find works the best is the hand. Point your stiff arm into the general wind direction with the hand in a flat vertical position, like a karate chop, and move it side to side. When your hand is pointing straight into the wind you can feel wind on boat sides of the hand. When too far one side or the other, you feel a difference of pressure. It works equally well using your nose and hears, just move your head side to side until you feel equal pressure in both hears, you are then looking straight into the wind. A third technique for the lazy is to have a small flag in the rigging, obviously the flag will show the wind direction but it is not as accurate, mostly due to how the flag is attached and how stiff it is.

Wine

Pour cheap boxed wine into a nice glass bottle or decanter. It really makes it taste better (it is not only psychological).

To come...

Used sails
Couchsurfing
Baggywrinkles
Rust
Life raft service
Keep moving in light air
Writing articles

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