

Upgrade Water Quality Onboard for Better Health

As they say “clean water is no accident”. There is more to having clean water aboard than filling up from a city water tap. Someone who gets sick onboard can ruin everyone’s fun. Is the freshwater in your boat free of particulates, chemicals, heavy metals, bacteria, protozoans, and viruses? We are ready to help you ensure that the water aboard your boat is ready for you to use or consume at any time. This article will provide an overview of how the system we’ve designed can work for you.

We’ve been on a quest for quality freshwater all our adult life. From our 20’s to 40’s we were whitewater kayakers plying rivers around the country. One of our treats from time to time has been extended river trips. For trips longer than 48 hours you usually have to rely on what’s under you for your drinking supply. We learned early that quality drinking water is a critical element to a successful river run. One case of diarrhea on your boat makes everyone wonder if there “is something” in the water and can force a change of plans that makes all unhappy.

On our first river trip down the Grand Canyon (1980), we learned how to sediment the water in a 5-gallon bucket for a couple of hours then hand pump a Katadyn reverse osmosis pump system to “make water”. It was a drudge job after a strenuous day on the river where we would sit in front of the pump and make water for an hour at a time. During that trip, one member became sick and couldn’t eat without throwing up or having diarrhea. We couldn’t do much for him. He was very uncomfortable and we worried when we might catch what he had and how it might impact our journey. When the trip was over we found out that he had Giardia. It’s a small protozoan parasite that upsets your GI system. We learned that he probably contracted it on a camping trip just before our Grand Canyon departure. To say the least, his situation made us pay strict attention to good handwashing hygiene and keeping a bleachy clean kitchen.

On our most recent trip down the “ditch” in 2015, we used a new system with a sediment filter with an LED water sterilizer which was wonderful. Both systems worked equally well (no sickness) but the time and energy spent to make clean, safe water with the later was a clear improvement. As soon as we used it, we began to wonder how to get it on our sailboat.

In 2000 we purchased our first cruiser sailboat. It was a pretty spartan affair and we would just bring a cooler with water bottles and carry a 5 gal carboy for overnights. On our next boat, we had a sink and some tankage. Today we liveaboard and are coastal cruisers. With all the concern about COVID 19, contaminants, and “boil alerts”, safe drinking water is worth thinking about as an important upgrade for your boat especially if you overnight on it.

There are several systems out there to make better-tasting, filtered drinking water on your boat. Often these are plumbed in at the galley sink for filtered drinking water. The installation is usually straightforward and the plumbing is restricted to only the cold water. I don’t know about you but I might like to get a glass of water from the head sink or I might inadvertently imbibe a little water when showering or when washing my face. Why shouldn’t all water be CLEAN coming from any source on the boat? When we began to design our upgrade we took this as a core tenant for the project. We wanted clean water from every source available on demand.

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For offshore sailors, you might consider a watermaker. They are wonderful but can't be operated easily in many coastal spots where there is suspended sediment without changing filters often. In 2016-18 we completed a circumnavigation. We had a high capacity watermaker onboard. The system worked well. We always made enough water to have for each stopover and always had desalinated water for drinking. If you are planning to cruise offshore, a watermaker is a must-have. If you are a coastal cruiser like us now and will be filling your tank from a marina tap, you can't be certain about the quality of water you will be loading.

Let's talk about system sizing, we are two people aboard. We have three water tanks and carry about 110 gallons of tankage. When at the dock we leave the two forward tanks dry and run off the stern tank. Just after each tank, we have a coarse wire strainer to capture gross contaminants. We then put the main filtering system just behind the pressure accumulator. We chose both a sediment filter and a carbon block filter to pre-clean the water for our boat down to .5micron. This should be enough filtering to eliminate most bacteria and other contaminants. After the filtration, we added a UV-C LED system that is activated when water flow is detected, a final polishing step. This is an instant-on device that draws less than 1amp(12v) when powered on. In general, UV-C LED technology uses an ultraviolet light source to inactivate pathogens which means they can't replicate. The Aquisense PearlAqua Micro effectively inactivates pathogens and viruses in the water stream through their patented UV-C LED reactor technology. This small device fits nicely in line with our system and has a very long lifespan.

What about the system cost? We estimate that our rebuild/upgrade cost about \$1K in parts. There was a good day's labor to make the changes for our boat. The ongoing cost is about \$60 per year in filters. The Aquisense PearlAqua used in our installation has a lifetime of about 10K hours of use. It's a great value. Our time aboard is the only thing we can't replace. We want to make sure that we can enjoy it as much as possible and limit the amount of risk due to health issues. This system provides pretty inexpensive and reliable insurance.

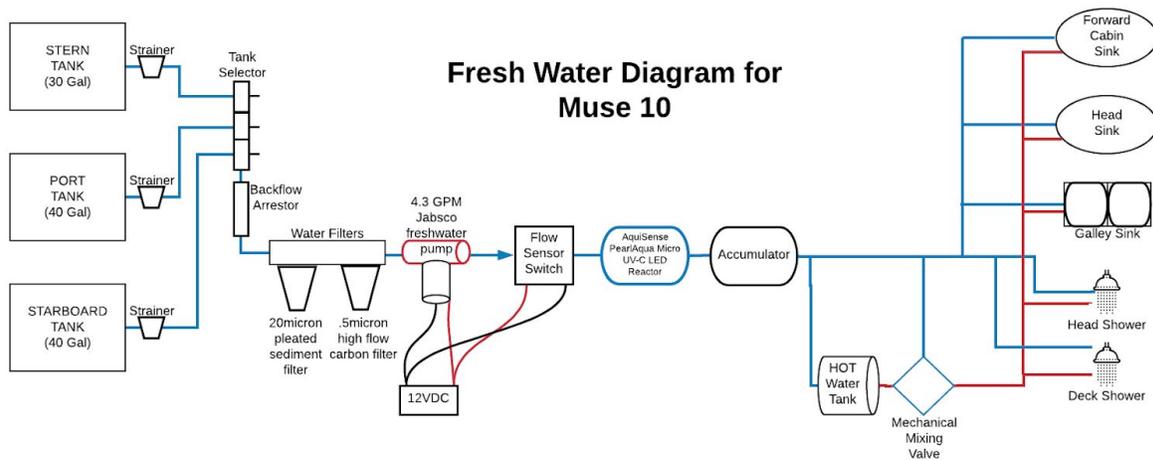
Here's to your health.



PearlAqua is a registered mark by Aquisense

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Diagram of a simple marine system:



Benefits of an Upgraded Freshwater System Onboard

- Lower the chances for someone onboard to get sick
- You won't have to wonder if the water you are taking on board is subject to a "boil" alert
- Water from the system tastes better than tap or chemically treated water
- Be more comfortable that water on the system is safe to drink
- Depend less on bottled water and save room for other things in your cooler
- The system we use is scalable from small to large craft
- These systems are very energy efficient
- These systems can be added to about any boat freshwater plumbing plan

Flat Island Boatworks is your source for innovative yacht upgrades and marine service on the Eastern Gulf Coast. Located in Pensacola, Florida, they are ready to supply, design, and install a system that can provide clean freshwater in your galley sink or throughout your boat. Whether you have a coastal cruiser or a bluewater boat ready to ply the globe, Flat Island Boatworks have solutions that will meet your boating needs.

Contact Flat Island Boatworks via email, phone or stop by our new office in The Pensacola Shipyard.

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Sam Moore provides consulting for **Flat Island Boatworks**. He has a Bachelors's degree in Microbiology, 15 years of experience in Clinical Laboratory Medicine, and twenty years in technology innovation. He holds a 100 Ton Masters USCG rating and is an ASA instructor. Sam and Karen live aboard their Sabre 402. The couple has over 40K bluewater miles.