

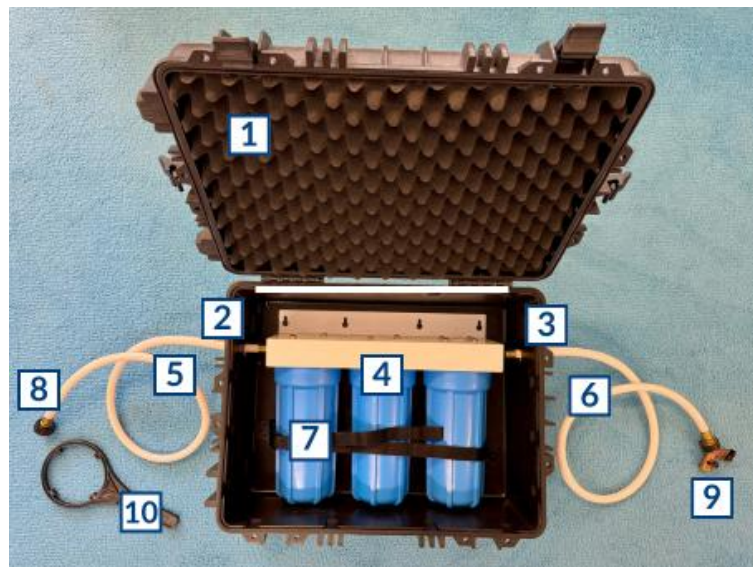
Building a DIY Portable Water Filtration Device



Plastic beverage bottles are consistently among the top five most collected items at beach clean-ups around the world, according to the International Coastal Cleanup. By building a portable water filtration system that provides potable water, we can reduce the need for single-use plastic water bottles. Depending on the system, the water filtration device can remove sediment, and chemical and bacterial contaminants, while also improving the taste of the water.

PARTS OF THE PORTABLE WATER FILTER SYSTEM:

1. Hard case
2. Hole for intake hose
3. Hole for hose providing potable water
4. RV water filtration system (two-stage or three-stage depending on needs)
5. Hose that connects to water source
6. Food grade hose that will provide drinking water
7. Furniture strap brace
8. Adapter to connect to dock or garden hose
9. Water tap
10. Water filter wrench



HOW TO BUILD AND SET UP:

1. Ensure the hard case is large enough to contain the specific water filtration system.
2. Drill holes (#2 and #3) in the sides of the hard case which will be large enough for the hoses to connect directly to the water filter system.
3. Place the hoses through the holes and connect hoses to the water filter system. Ensure that the hose that provides the drinking water is food grade.
4. Attach an appropriate adapter (#8), if needed, to the intake hose (#5) to be able to connect to a water source.
5. Attach water tap (#9) to the hose that is providing the drinking water (#6).
6. Attach the water system to the case using a furniture strap brace.
7. Connect the system to a reliable water source.
8. Close and lock the hard case. Turn on the water source. If any water is leaking in the case, use the water filter wrench (#10) to tighten the filters and check the hose connections.



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CONSIDERATIONS:

1. What type of water filtration device is needed?

It depends on the location(s) and water source that you will be using with the water filtration device. If the water is potable, but you are concerned about taste, sediment or chlorine, for example, we recommend using a two-stage filter. Generally, the first stage is a sediment filter that will trap sand, dirt, silt, rust, metal particles and slime. The second stage is a carbon filter that can remove chlorine, chemical contaminants, and helps improve the taste of the drinking water. Ensure that the filters are 1 micron.

If you are using the filtration system in a location that does not have potable water, you will want to use filter system that also removes bacteria and/or viruses. There are some devices that use an UV light in addition to the filter system and others that have a third finer filter (0.2 micron) to remove or reduce bacteria and viruses from the water. Ensure that the system you choose is meant for the water source available. Also, check with your local municipality to determine if there are any regulations necessary to follow before installing the system at your facility.

2. What is the maintenance required for this system?

Maintenance of the water filtration system consists of regularly replacing the filters so that the system is working properly and efficiently. Since devices and filters can vary, follow the manufacturers' recommendations on how often to replace them based on your use of the system.

3. What are some examples of specific parts for this system?

- Hard case (examples: [Pelican Case](#), [Pure Outdoor](#)), any hard travel case will work, just make sure to choose size that will fit water filtration device
- Water filtration system
 - Two-stage: ([example](#))
 - Three-stage: ([example with UV light](#), [example with third finer filter](#))

If you need help sourcing materials or questions on how to build and maintain the water filtration system, please contact info.sailorsforthesea@oceana.org.