

WATER READINESS BRIEF

from the Bainbridge Prepares' WASH Team (Water, Sanitation & Hygiene)



*Water readiness is one of the least expensive “insurance policies” you’ll ever purchase.
YOUR peace of mind begins with stocking your own water supply.*

Real-World Reality Checks

AUG 8, 2023: LAHAINA, MAUI, HAWAIIAN ISLAND FIRE

- ▶ As of Jan 13, 2024: Significant areas remain under the Unsafe Water Advisory due to VOC in water (benzene, et al).
- ▶ Maui County orders: “DO NOT drink or boil tap water. Boiling, freezing, filtering, adding chlorine or other disinfectants or letting water stand will not make the water safe.”
- ▶ Maui County providing potable water using “water buffalos” (water tanks on wheeled trailers) in 4 locations.
- ▶ Source: <https://www.mauirecovers.org/news/unsafe-water-advisory-removed-for-portion-of-lahaina-near-safeway>

JAN 1, 2024: NOTO PENINSULA, JAPAN EARTHQUAKE: 7.6 MAGNITUDE + ~ 14 FOOT TSUNAMI (> 1,300 AFTERSHOCKS)

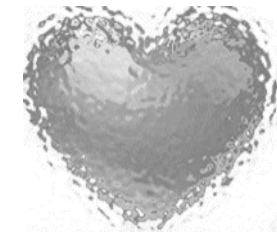
- ▶ Uplift extended part of coastline 800 feet seaward. About 97,000 people were immediately displaced.
- As of Jan 12, 2024:
- ▶ Power and water supplies were still cut, communications were disrupted.
 - ▶ Some districts are isolated with roads cut off and food, water, blankets, and fuel, basic needs are still in short supply.
 - ▶ The quake caused fires that burned hundreds of houses.
 - ▶ More than 3,877 houses are reported collapsed/damaged; 24,144 people (~ 40% of population) are in evacuation centers.
 - ▶ Telecommunication infrastructure remains out of service. Satellite is only link.
 - ▶ Seasonal weather: High: 50 F; Low 31 F; Snow and rain common.
 - ▶ Sources: <https://www.space.com/japan-earthquake-january-2024-shifted-coastline-photos>
 - ▶ <https://www.jrc.or.jp/english/relief/2024NotoPeninsulaEarthquake.html>

CASCADIA 2022 AFTER ACTION REPORT

- ▶ “Statewide water (hydration) critical infrastructure impacts, delivery system capabilities, supply chain demand and needs, and local water planning efforts are not well understood.” [Reference: <https://mil.wa.gov/asset/6390e374e0f21> ; Page 14]

Real-World Reality Checks, The Bottom Line

- ▶ **WATER IS ESSENTIAL TO LIFE.** Humans can live about three (3) days without water. To enable your body to function properly, you need two quarts or a half gallon of water per day.
- ▶ **YOU ARE RESPONSIBLE** for your emergency preparedness, which includes water, food, supplies, equipment, and plans. You must stock your own water supply to avoid putting an unnecessary resource demand on your neighbors due to a lack of personal planning and preparation. Having your own water buys you time until you are resupplied, repaired, or evacuated.
- ▶ Substantial help from outside Bainbridge will take weeks, and perhaps months, to arrive.
- ▶ There will likely be a significant number of residents and non-residents (guests and workers) dependent upon temporary on-island housing, food, water, and sanitation, perhaps for weeks until they may return to their homes.
- ▶ Depending on the level of destruction and injury, large portions of the island's population might be eventually evacuated off-island to more easily supported centers, but this may take months to complete.
 - ▶ ***THE GOOD NEWS is that prepared neighbors in prepared neighborhoods are more effective in their response to a disaster until help arrives.***



Individual Water Readiness

Key Planning Considerations

- ▶ *How much do I need?*
- ▶ *How much water should I store?*
- ▶ *How should I store it?*

Factors that increase water requirements

- Ill, infirmed, pregnant, infants, and elderly may require higher degrees of hygiene and hydration to remain healthy.
- Some medications recommend higher water consumption.
- Extended periods of heavy work in of high temperatures and humidity.
- Preparation of dehydrated foods.
- Care of pets and livestock
- Treatment of casualties.
- Damage to and spillage from stored water supplies
- Sharing with neighbors and non-islanders stranded on island

How much potable water (safe to drink) do I need?

Bainbridge Prepares and multiple state and federal agencies recommend having immediate post-disaster access to not less than one gallon of **potable** water per person for 3 weeks.... = 21 gallons per person.

Knowing all of this information, do you believe this to be sufficient for your family's needs?

Bottom Line...

Immediate access to a minimum of 30 gallons per person,... yet more is always better.

We are buying time until we are resupplied, repaired, or evacuated.

How comfortable and confident do you want to be until then?

How much should I store?

Plan for the worst, hope for the best

- ▶ ALL of the 30-gallons (100%) should be stored as potable water.

Make it easy on yourself postevent. Plan for:

- ▶ Being injured or having to care for those who are.
- ▶ Needing to prepare and maintain temporary shelter and food prep.
- ▶ Destruction of normal water distribution systems and lengthy delays in their repair.
- ▶ Lengthy delays (i.e.: months) in delivery to Bainbridge of potable water.
- ▶ Contamination or destruction of current natural ponds and streams

How should I store my water?

- **QUESTION: "Under which conditions must I prepare water for use?"**
- **ANSWER: "Be ready to "Stay" and "Go"**

1. **Stay in / near your home to use your supplies yet be ready to evacuate quickly with some of your supplies.**
2. **Go (evacuate) quickly with some of your supplies:**
 - On foot, or
 - In vehicle

Easily portable yet rugged water containers improve your adaptability to circumstances.

"Water Readiness" for "Stay at home"

1. **Minimum 30-gallons per person. Preferably 60-gallons per person. (5-gallon jugs are available to make total weight manageable.)**
2. **Aquamira Water Treatment Kit treats the water stored in 5-gallon jugs for 5-years.**
3. **Chlorine bleach, unscented is another option (Sterilize containers; treats water)**
4. **Canned water (Blue Can) allows you to store water in smaller spaces.**
5. **OPTIONAL: Roller bases for 5-gallon jugs make it easy to move the water around for cleaning of the storage area, elevates water above ground-level spills, and eases loading for evacuation.**



"Water Readiness" for "Stay at home"

Sample cost estimate

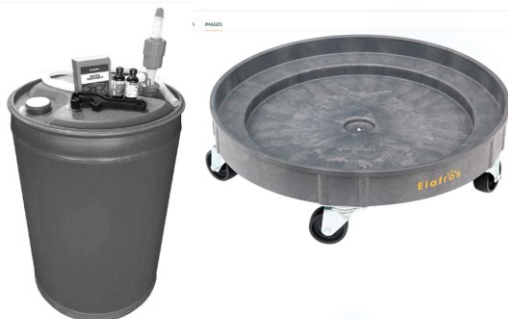
Line #	Item & Purpose	Quantity Required	Unit Price (No tax or S&H[\$])	Total Price (No tax or S&H [\$])	Sample Purchase Vendor
1	ITEM: Water containers (2.5 gallons) PURPOSE: BPA-free Water containers	12	\$ 36.00	\$ 432.00	Amazon
2	ITEM: Aquamira Water Treatment PURPOSE: Cleans, stabilizes 60-gallons of water for up to 4 years	1 Kit	\$ 16.00	\$ 16.00	Aquamira
3	ITEM: Clorox Unscented Bleach PURPOSE: Sterilizes water containers; sterilizes water.	1 x 64-oz bottle	\$ 9.00	\$ 9.00	Target
4	ITEM: Dolly PURPOSE: Allows easy movement of heavy water containers	3	\$ 40.00	\$120.00	Ace Hardware Bainbridge
				Total	\$ 577.00

Note: Neither Bainbridge Prepares nor its staff endorses any specific vendor of these supplies. Vendors are cited only as examples of suitable products.

“Water Readiness” for “Stay at home”

Prioritize the smaller jugs, and augment with larger containers (More is better!)

- 55-gallon drum
- Water treatment kit
- Hand pump
- Dolly



“Water Readiness” for “Stay at home”

Sample cost estimate: 55-gallon containers

Line #	Item & Purpose	Quantity Required	Unit Price (No tax or S&H [\$])	Total Price (No tax or S&H [\$])	Sample Purchase Vendor
1	ITEM: 55-gallon drum kit PURPOSE: BPA-free Water container with water treatment kit and hand pump	1 kit	\$ 187.00	\$ 187.00	Amazon
2	ITEM: 55-Gal wheeled dolly PURPOSE: Allows easy movement of heavy water containers	1 per 55-gal drum	\$ 70.00	\$ 70.00	Amazon
			TOTAL	\$ 257.00	

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“Water Readiness” for “Stay at home” Berkey Filter

Travel Berkey Water Filter



- Gravity water filter
- 1.5 gal to 6 gal capacities
- Removes a wide range of contaminants, including VOCs.
- Not suitable for salt water.
- Debris-heavy water should be pre-filtered before putting it through the Berkey system.
 - Use any strong, fine, flexible material to pre-filter (t-shirt, cheese cloth, fine mesh screen)

“Water Readiness” for “Stay at home” LifeStraw



- Gravity water filter
- Excellent filtration of bacteria, parasites, suspended solids.
- Not effective on chemicals.
- Not suitable for salt water.
- Debris-heavy water should be pre-filtered before putting it through the LifeStraw Use any strong, fine, flexible material to pre-filter (t-shirt, cheese cloth, fine mesh screen).

Want 50 more gallons at home?

- Ensure you have a hose with a valve for your water tank (~ \$25)
- Immediately after the event, recover water from your tank BEFORE you turn on other water in your home, in order to avoid polluting clean water in the tank with potentially contaminated water from city systems



“Water Readiness” for “Stay at home”

If space inside individual residences is a challenge, but space is available in yards, consider establishing a neighborhood storage shed.



Long Term Water Storage

Your water should be stored to ensure post-event it is:

- **Survivable:** To be useful, your water containers must survive the event intact. Consider storing your water under a well-built shelf, and off of the floor. Avoid storing all water in the same location. Don't depend upon only one source of water.
- **Accessible:** Make it is easy / quick to access and easy / quick to load in your car or carry with you.
- **Portable:** Store water in containers that you can use wherever you need them, at home, on foot, or in car. Consider having different sizes of containers, depending on where you might use it and your ability to lift / carry it.



Long Term Water Storage

- Use BPA-free, rugged containers
 - Clear retail containers are convenient but not sufficiently rugged to survive initial impact nor use under exceptional conditions.
- Store in cool (not freezing), dry, dark, clean area
- Protect against contamination & pests

"Water Readiness" for "Stay at home"

Rain water collection can add substantially to water readiness for individuals and entire neighborhoods, but you'll need to:

- Ensure tank and piping survive earthquake and tsunami
 - Consider flexible pipe connections
- Economically dispense the water from your collection tanks.
 - Do you need a hose and valve?
- Be equipped and trained to convert "rain water" to "potable water"
 - Filter & treat



"Water Readiness" for "Go in vehicle"

Load your Go Bag first, then add as much water, food, and shelter as you can within available time.



Minimum Water:
3-Gallons per person
and per pet.

Portability of containers improves your adaptability to circumstances.

"Water Readiness" for "Go on foot"

Objective: Water for now; water for later

2 qts water in
metal containers

Gravity filter

Transfer pump

Water treatment tabs

All in your "Go Bag"

Total 5.5 lbs; \$170 (ex tax)



"Water Readiness" for "Go on foot"

Sample cost estimate

Line #	Item & Purpose	Quantity Required	Unit Price (No tax or S&H [\$])	Total Price (No tax or S&H [\$])	Sample Purchase Vendor
1	ITEM: Water Bottles PURPOSE: 2-quarts of water for Go bag	2	\$ 45.00	\$ 90.00	Amazon
2	ITEM: Waterdrop Gravity Water Filter PURPOSE: Filter water when stationary	1	\$ 30.00	\$ 30.00	Amazon
3	ITEM: Hand water pump PURPOSE: Transfer water from large to small containers	1	\$ 42.00	\$ 42.00	Amazon
4	ITEM: Aquatabs 397mg Water Purification Tablets (100 Pack). PURPOSE: Treat water after filtration	1	\$ 30.00	\$ 30.00	Amazon
				TOTAL	\$192.00

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Water Readiness Products

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Available on Amazon.com:

- ▶ Scepter 2.5 Gallon True Military BPA Free Water Container
- ▶ Saratoga Farms 5-Gallon Stackable Water Storage Containers with Lids, Emergency Water Storage Kit
- ▶ Augason Farms 6-07910 Water Filtration and Storage Kit 55 Gallon
- ▶ ELAFROS 30 Gallon and 55 Gallon Heavy Duty Plastic Drum Dolly
- ▶ Hydro Flask Wide Mouth Bottle with Flex Cap
- ▶ Waterdrop Gravity Water Filter Straw, Camping Water Filtration System
- ▶ Action Pump 506 8 oz. PVC Piston Drum Pump with 22" Discharge Hose

Available on other websites:

- ▶ Berkey Water Filters: USAberkeyfilters.com
- ▶ Lifestraw Community: Lifestraw.com:
- ▶ Aquamira Water Treatment, 1-oz: REI.com
- ▶ Clorox Disinfecting Bleach , Regular, 121-oz: Target.com
- ▶ Projex Plant Dolly 360-lb: Acehardware.com

Relevant Earthquake and Emergency Response Information Resources

- ▶ Cascadia and Seattle Fault Tsunami Model Videos: <https://www.youtube.com/@WAsateDNR>
- ▶ FEMA Hurricane Ian Response and Recovery: <https://www.fema.gov/fact-sheet/hurricane-ian-response-and-recovery>
- ▶ Centers for Disease Control (CDC) Preparing a Home Water Supply:
<https://www.cdc.gov/healthywater/emergency/preparing-a-home-water-supply.html>