

Flood Time Food Safety

Dr. Paul Priyesh Vijayakumar, Ph.D.

Floodwaters promote the spread of foodborne illness after a disaster, because harmful microorganisms that cause illness grow and multiply more readily in water.



Image Credit: Food Poison Journal



Image Credit: iStockphoto

Why are floodwaters so dangerous?

When water flows, carrying debris with it, it can also carry millions of microorganisms wherever it goes. Clean water (potable) and food is an important concern, especially after a natural disaster with a flood. Floodwaters contaminate soil in agricultural lands, water, and food with harmful substances like chemicals, sewage, and industrial waste.

How to keep food safe?

Prevent food and utensils from coming in contact with flood water by placing them on tables or other elevated surfaces.



Image Credit: <https://katieblogness.wordpress.com>

What not to do:

- Do not pick and eat produce from a flooded garden, because some of the contaminants cannot be destroyed by washing or cooking.
- Do not eat food or drink water that has come in contact with flood water.
- Do not eat food stored in non-waterproof containers, including those with pull tops, snap-lids, screw or crimped-caps, plastic wrapping, and cardboard.
- Do not eat damaged canned food, such as cans with visible holes, leaks, punctures, swelling, rusting, and dents.
- Do not use wooden cutting boards after they have come in contact with flood water, because wood is absorbent and can never be completely sanitized.

Infant, toddler, and child Items:

Infants, toddlers, and some children have weak immunity, which means that even tiny amounts of bacteria in food and water can make them seriously ill. Discard all baby foods, bottles, nipples, and pacifiers; it's not worth taking the risk to clean and reuse them.

Steps for washing:

1. **Cleaning:** Metal pans and utensils should be thoroughly washed with soapy hot water or tap water.
2. **Sanitizing:** After step 1 use a sanitizer to kill harmful microorganisms.
Effective Sanitizer: 1 table spoon of regular bleach to 1 gallon water
3. Repeat these steps to clean floors and kitchen counter tops.

Disposal and salvage:

Throw away unusable, contaminated food in double-bagged trash bags to keep them from re-contaminating surfaces you just cleaned.

Commercial foods in metal cans and retort pouches (shelf-stable juice or seafood pouches) can safely be saved by using the **USDA-FSIS guidelines outlined below:**

1. Remove any removable labels, since they can harbour dirt and bacteria.
2. Wipe away any dirt or silt.
3. Thoroughly wash the outside of the cans or retort pouches with soap and water, using hot water if possible.
4. Rinse the cans or retort pouches with water that is safe for drinking, if available, as an extra precaution, since dirt or residual soap will reduce the effectiveness of the bleach sanitizing step.

5. Sanitize by immersion in one of two ways:
 - Place in water, bring the water to a boil, and continue boiling for 2 minutes
 - Mix 1 tablespoon of unscented, liquid chlorine bleach for every 1 gallon of clean water (preferably drinking water) and completely submerge the cans and pouches in it for 15 minutes.
6. Air-dry cans and retort pouches for a minimum of 1 hour before opening or storing.
7. Re-label your cans or retort pouches, including the expiration date (if available), with a marker.
8. Food in reconditioned cans or retort pouches should be used as soon as possible.

Water for drinking and cooking:

Drink only bottled water that did not come in contact with the flood water.

If clean, bottled water is not available, then

- a. Filter water through a water filter (or a clean cloth).
- b. Bring it to a boil and keep it at the boiling temperature for 2 minutes.
- c. Store the boiled water in a clean, closed container on a high table or surface, to prevent flood water from reaching it.

Personal hygiene:

Wash your hands thoroughly with soap, using warm water, if available, at least 20 seconds, especially between a cleaning and eating activity. Thoroughly wash your hands before preparing food for others, or when feeding your infant, toddler or, child, and any elderly person.

References and useful resources:

1. Keep your food safe during emergencies, USDA-FSIS
http://www.fsis.usda.gov/wps/wcm/connect/d3506874-2867-4190-a941-d511d3fcae71/Keep_Your_Food_Safe_During_Emergencies.pdf?MOD=AJPERES
2. Flooding: Food Safety Advice – Food Standards Agency
<https://www.food.gov.uk/science/microbiology/flood>
3. Tirado, M. C., et al. "Climate change and food safety: A review." *Food Research International* 43.7 (2010): 1745-1765.

Reviewed by Dr. Gregg Rentfrow, Ph.D.