

The Sacramento-San Joaquin Delta (Delta) is where freshwater from California's two major rivers meet and flow to the Pacific Ocean.

The Delta was once a vast wetlands area that frequently flooded. Like many deltas around the world, the Delta has nutrient-rich soils. Beginning in the 1850s, its wetlands were drained and converted to highly productive agricultural lands.

Water that once flowed over the wetlands is now contained by levees. These channels have created a network of Delta islands or "tracts." In the Legal Delta (as defined in Water Code §12220) there are 980 miles of permanently maintained levees.

While levees do provide flood protection, they do not eliminate the risk of flooding.

Floods are the most common, most destructive, and most lethal natural hazards in California and around the world.

The Delta is particularly vulnerable to flooding due to levee failure. Levee failure can occur from stormy conditions, especially with high wind, waves and tides, integrity issues, and water seeping through them. Delta levees face additional risks due to subsidence, sea level rise, and the potential for earthquakes to occur in the area or nearby.

Levee breaks can even occur on sunny days, as in 2004 when a levee on Upper Jones Tract failed. It cost well over \$50 million to repair the damage and recover the island.



After the Flood

Drink bottled **water** – never assume that drinking or using well water after a flood or other sources is safe. Just because the water looks crystal clear doesn't mean it is safe to drink. Consider all water unsafe until local authorities announce that the public water supply is safe.

Be aware of **potential chemical hazards** you may encounter during flood recovery. Flood waters may have buried or moved hazardous chemical containers of solvents or other industrial chemicals from their normal storage places.

Avoid contact with flood waters. Coming into contact with a dangerous chemical may make it necessary for you to remove and dispose of your clothing right away and then wash your skin to reduce or remove the chemical. Open wounds and rashes exposed to flood waters can become infected.

The only way to know for sure if your property has been contaminated is to have the soil and water tested.

If you discover any **propane tanks** (whether 20-lb. tanks from a gas grill or household propane tanks), do not attempt to move them. These represent a very real danger of fire or explosion; call the police or fire departments immediately.

Car batteries, even those in flood water, may still contain an electrical charge and should be removed with extreme caution by using insulated gloves. Avoid coming in contact with any acid that may have spilled from a damaged car battery.

Clearly mark and set aside unbroken containers until they can be properly disposed.

Leave damaged or unlabeled chemical containers undisturbed whenever possible. Do not combine chemicals from leaking or damaged containers, doing so might produce dangerous reactions.

Keep children and pets away from leaking or spilled chemicals and other hazards.

Avoid **oil spills** – if you notice oil in the water, stay away from it and contact local authorities to avoid breathing the chemicals in the oil or getting them on your skin.

Preventing Flood Contamination in the Delta



Steps you can take to prevent potential contaminants from entering the water during a flood.

Produced by



SACRAMENTO - SAN JOAQUIN

DELTA CONSERVANCY

A California State Agency

www.deltaconservancy.ca.gov

Consequences of Flooding

Flood risk in the Delta endangers thousands of lives and homes, a robust agricultural economy, and the state's major freshwater conveyance systems. The Delta also contains critical transportation and energy infrastructure and is a unique area of historical significance.

The most obvious and immediate threat to health and safety is the danger of drowning, but the potential impacts of flooding to water quality are serious threats that can linger long after the flood event.

Flood waters are likely to contain contaminants from upstream farms and rural septic systems, urban lawns and roadways, industrial sites, or overflow from municipal sewage systems.



Some of the most likely contaminants include raw manure, sewage (which contains infectious organisms), animal carcasses, agricultural and urban chemicals, fuel and oil, heavy metals, or other chemical contaminants. Propane tanks, both big and small, also are commonly carried by floodwaters and present an explosive hazard in addition to a contamination hazard. Pollutants can also enter floodwater as a result of the soil mixing with water. There is also a potential for saltwater to enter flooded areas in the Delta.

In addition to contaminating drinking water and water used for irrigation, there are also many potential consequences of degraded water quality to agricultural production. Contaminated post-flood waters can also mean soil contamination; damage to and lost crops; as well as loss of future agricultural production; loss of livestock; increased susceptibility of livestock to disease; damaged farm machinery; and other environmental damage to the Delta's ecosystem.



Steps You Can Take to Protect Water Quality

There are steps you can take to prevent potential contaminants from entering the water during a flood.

Prior to a Flood Event you can:

- Inventory and know the harmful effects of hazardous materials you have in your house and on your property. Make sure you can easily take the inventory with you when you evacuate.
- Store chemicals so they do not mix and produce dangerous reactions.
- Safely dispose of household and agricultural chemicals (pesticides, herbicides, fuel, oil etc.) you no longer use – find out more from your counties' household hazardous waste program (see our contact information).
- Store chemicals downwind and on high ground, if possible.
- Use secondary containment for fuel tanks, as well as pesticide storage, to provide extra protection from spill.
- Tie down fuel or propane tanks and other loose equipment or material if possible.
- Talk to your county's agricultural commissioner's office to find out what more you can do to store chemicals in a safe way and how you can recycle pesticide containers.

Be familiar with what is in your area! The types, amounts, and location of chemicals and contaminants in the water will vary based on what is kept at flooded facilities and homes, the weather conditions and the extent of the flooding.

For more information on how to prepare for a flood or other emergency contact your county's Office of Emergency Services:

Contra Costa: (925) 228-5000
<http://www.co.contra-costa.ca.us/158/Emergency-Services>

Sacramento: (916) 874-4670
<http://www.sacoes.org>

San Joaquin: (209) 953-6200
<http://www.co.san-joaquin.ca.us/oes>

Solano: (707) 784-1600
<http://www.co.solano.ca.us/depts/oes>

Yolo: (530) 666-8150
<http://www.yolocounty.org/government/office-of-emergency-services>

California Office of Emergency Services:
<http://www.calema.ca.gov>

Do you have these in your household or on your property?

- Motor oil, transmission or brake fluid
- Fuel
- Antifreeze
- Agricultural or household pesticides
- Disinfectants or cleaners (ammonia, bleach, window or glass cleaner, etc.)
- Paint, paint thinners, paint strippers, stains, or varnishes
- Batteries

Call your county to find out how to dispose of hazardous substances at a hazardous waste facility nearest to you.

Contra Costa (800) 750-4096

Sacramento (916) 875-5555

San Joaquin (209) 468-3000

Solano (707) 784-6765

Yolo (530) 666-8856