



TCEQ GENERAL INFORMATION

Water Quality Planning Division
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Flood Fact Sheet: Surface Water Quality Concerns

How does flooding occur?

Inland flooding occurs when water enters the watershed too quickly, exceeds the ability of the land to absorb it all, and tributaries transport the excess water downstream.

Flooding along the coast may result from weather events such as tropical storms and hurricanes, as seawater infiltrates the coastline and overcomes low-lying areas.

What are the different types of floods?

Flash flooding may occur due to the high rate and intensity of rainfall, and can develop suddenly as water levels rise and flows increase. Flash floods can develop very quickly in a relatively small area—even in areas that previously held little water—if heavy rains are concentrated in that location.

Flooding of major rivers and streams can occur when rain falls over an extended period in a concentrated area. With large amounts of runoff and upstream inputs from contributing watersheds, major rivers and streams may overflow their banks. Downstream areas may be affected, even if the area has received very little or no rainfall, and downstream communities may become isolated or need to be evacuated due to river flooding.

Flooding along the coast is often caused by storm surges, as strong winds push water and create high waves. Flooding occurs as waves move inland and breach coastal barriers. Natural barriers such as salt marshes, mangroves and wetlands—and manmade features such as seawalls and levees—provide protection against storm surges.

Flash, river, or coastal flooding can also contribute to flooding in urban areas. Lack of drainage may exacerbate urban flooding. In periods of extended heavy rain, the capacity of municipal drainage and sewer systems can become overwhelmed, potentially causing overflows.

What are the effects of flooding on surface water quality?

Rainfall can carry pollutants such as bacteria, nutrients, oil and grease, and other contaminants from the landscape into receiving waters as runoff. Flooding events can also transport water contaminated with blackwater (associated with domestic sewage)

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or greywater (other types of household wastewater not associated with sewage) into surface waters and standing flood waters.

What are the health risks of coming into contact with flood water?

According to the Centers for Disease Control and Prevention (CDC), flood waters can pose various health risks. These include infectious diseases, physical injuries, and illnesses from exposure to chemical hazards.

For those who have come into contact with flood water, follow the CDC guidelines for cleaning exposed skin, clothing, and other items.

How can I prevent these health risks?

Following a flood, practice good hygiene and be aware of potential hazards in flood water.

- Do not eat or drink anything that has come in contact with flood water.
- Do not expose open wounds or rashes to flood water.
- Be aware of unseen dangers in flood waters, such as chemical containers moved by flooding, displaced animals (including snakes), electrical hazards, and sharp objects.
- Remember that flood waters pose a risk of drowning, regardless of swimming ability. This includes swiftly moving shallow water and even shallow standing water.
- Take precautions when returning home and follow CDC guidelines.

Is it safe to swim in surface waterbodies in areas that have experienced flooding?

Natural water bodies may contain flood debris, dangerous organisms, or contaminants that can cause illness in people. The additional runoff from flooding can contribute to adverse water quality impacts, and the following should be taken into consideration before swimming in any natural water body. The CDC and other health agencies do not recommend swimming in:

- natural water bodies after a heavy rain
- water near sewer pipes, discharge pipes, or storm drain outlets
- stagnant water or water with dead fish or algae floating on the surface
- water frequented by livestock

What resources does TCEQ have to protect the public during a flood?

TCEQ has a number of programs to provide emergency responses and ensure non-interruption of public water systems and wastewater treatment.

The TCEQ's Emergency Response Team provides technical and regulatory assistance to manage waste and other residual materials resulting from spills during emergencies. Technical assistance is provided in other related areas such as spill notifications, contingency-plan issues, cleanup levels, and in-state funded cleanups.

Guidance has been developed to assist public water systems and wastewater treatment plants in preparing for a natural disaster. Resources are available to ensure that after a flood, water supplies are safe.

For owners and operators of wastewater treatment plants, information is available to answer questions about handling damages and accidental discharges in the event of a natural disaster, including contact information for TCEQ regional offices.

Resources

U.S. Centers for Disease Control and Prevention

[Safety Guidelines: Floodwater](#)

U. S. Centers for Disease Control and Prevention

[Preventing Swimming-Related Illness](#)

Texas Commission on Environmental Quality

[Emergency Response](#)

Texas Commission on Environmental Quality

[Preparing Your Public Water System for a Natural Disaster](#)

Texas Commission on Environmental Quality

[After the Flood: Is Your Water Safe to Drink?](#)

Texas Commission on Environmental Quality

[Wastewater Treatment Plants: Responding to Disasters](#)