

# River floods

Here is a list of key facts all about flooding rivers. You can find out what causes floods and which floods caused the most damage. Read on to find out more.



Fowey, Cornwall after high tides, strong winds and torrential rain hit the town in February 2014.

## What is a flood?

**Definition of a flood:** An overflow of a large amount of water beyond its normal limits, especially over what is normally dry land.

## Synonyms for flood.

**Other words for river include:** inundation, swamping, deluge, torrent, overflow, flash flood, downpour, cloudburst, freshet.

# Top 10 Deadliest floods in history.

	River	Country	Year	Lives lost	Cause
1	Yangtze River	China	1931	2,500,000 - 3,700,000	River flood
2	Yellow River	China	1887	900,000 - 2,000,000	River flood
3	Yellow River	China	1938	500,000-700,000	River flood
4	River Ru	China	1975	231,000	Dam failure
5	Indian Ocean Tsunami	Indonesia	2004	230,000	Tsunami
6	Yangtze River	China	1935	145,000	River flood
7	St Felix's Flood	Netherlands	1530	100,000+	Storm surge
8	Hanoi and Red River	Vietnam	1971	100,000	River flood
9	Yangtze River	China	1911	100,000	River flood
10	North sea flood	Netherlands	1212	60,000	Storm surge



## Interesting fact:

**1931 China floods - Heavy snow in the previous winter led to high amounts of snow melt, coupled with an unprecedented nine cyclones in one month led to the world's worst flooding disaster in central China.**

# Causes of river floods

## River floods can be caused by:

- **Heavy rain.** When the rain falls at a rate higher than it can disappate in the soil or be carried away by drainage systems like storm sewers.
- **Snow melt in Spring.**
- **Deforestation.** The removal of trees in a river basin which act like a sponge soaking up large amounts of water.
- **Weather events like cyclones, typhoons or hurricanes.**
- **Beavers - building dams in low-lying areas.**



This street flooded after heavy rainfall. It was made worse by the buildings and the roads helping carry the water away quickly instead of allowing the water to soak into the soil.

## Can be made worse by:

- **Saturated soil.** After a previous period of prolonged heavy rain.
- **Impermeable surfaces.** Like concrete in urban areas which leads to quicker runoff than normal.
- **High suspended matter.** After fields have just been tilled, they can lead to muddy runoff water which carries more sediment and blocks river channels more easily.
- **Landslides or debris in rivers forming dams** which help create localised flooding.

# Causes of coastal floods



Key West in Florida after a storm surge.

## Coastal areas can be flooded by:

- Tidal surges caused by low pressure and high winds.
- Tsunami caused by tectonic activity at or near the sea.
- Major weather events like hurricanes, cyclones and typhoons.

## Catastrophic floods

### Catastrophic floods can be caused by:

- Dam failures.
- Earthquake or volcano activity leading to tsunamis.

# Benefits of floods



A low lying river delta during a flood.

Floods have been occurring naturally since the earliest records began. Not always doom and gloom, they do also have many benefits. Including:

- Recharging underground water supplies.
- Making soil more fertile through sediment deposits.
- Killing pests in fields by flooding large areas.
- Floods help spread nutrients to lakes and other rivers.
- The viability of hydroelectricity in areas that often flood.

# Recent river floods in the news

**Australia - Brisbane River floods 2011**

**China - Yangtze River floods 1998**

**Europe - Danube 2013**

**UK - River Severn floods 2007**

**UK - River Thames floods 2014**

**USA - Mississippi floods 2011**



Parts of the River Danube reached record flood levels in 2013.

# Damage caused by floods

Floods can have many devastating effects and they are classed as a disaster when there is loss of life or significant damage to property. The list of effects can include:

- loss of life
- damage to homes and buildings
- damage to infrastructure like bridges, railways and roads.
- damage to sewerage systems leading to polluted waterways



Many plants do not survive being soaked underwater for prolonged periods and this can lead to loss of crops and loss of harvest later in the year. Similarly, livestock can be lost due to the rising floodwaters.



After the floods of New Orleans in the aftermath of Hurricane Katrina, many homes were uninhabitable making their residents temporarily homeless.

- damage to power transmission leading to blackouts
- damage to power generation affecting areas that are not flooded.
- loss of or damage to clean drinking water
- spread of disease after the flood due to lack of clean water.
- damage to roads hampers the rescue efforts.
- damage to and loss of crops and farm animals.
- loss of business and economic production in areas affected by floods.

# How to protect against floods



**Build a flood barrier. In the case of the Thames flood barrier in London, it can be raised and lowered when needed, allowing ships to continue to travel up the river when there is not a flood.**



**Build a barrier along the banks of the river. These can be temporarily made higher with the use of sandbags. These are called levees where they occur naturally.**



**Control the flow of the river with a weir. These also have the added benefit of making the river more navigable to boats.**



**Store the flood water behind a dam. And release it later when the flood threat has diminished. Dams can also be used to create hydro electricity. The Aswan dam on the river Nile has prevented flooding along the Nile every year since it was built.**