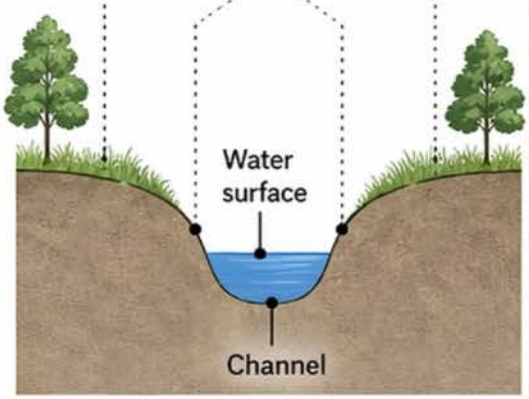
What Bankfull Flow Is and Why Rivers Spill Over

Bankfull flow is when water fills the river channel up to the top of its banks.

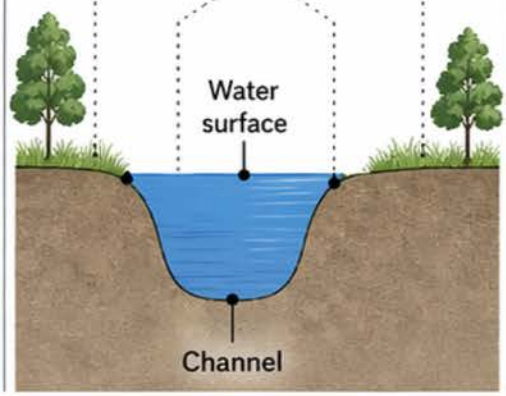
Overbank flooding happens when flow exceeds channel capacity and spreads onto the floodplain.

Rivers naturally rise and fall, and some overbank flow is a normal part of river behavior.

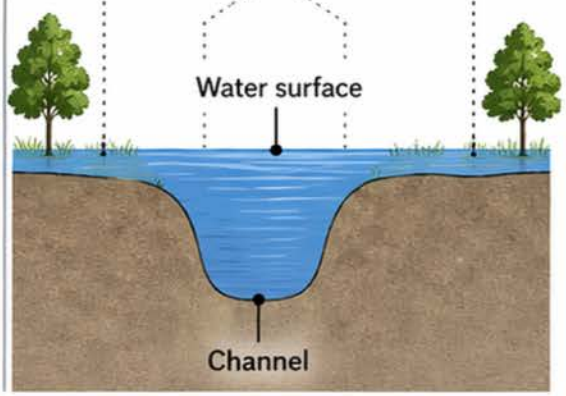
1 Low flow



2 Bankfull flow



3 Overbank flood



Bankfull flow is often close to the level where a river begins interacting strongly with its floodplain.

Not all flooding is catastrophic; some flooding is part of how rivers function.

Why rivers spill over

Heavy rainfall

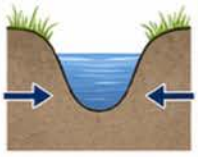
Intense or prolonged rain adds more water to the river system.

Snowmelt

Warming temperatures melt snow, sending large volumes of water downstream.

Runoff from the watershed

Water flows over land and through tributaries into the main river.



Channel limits

Every channel has a maximum capacity. When flow exceeds it, water spills over.

Why this matters for policy

- helps explain where water naturally goes
- supports floodplain and infrastructure planning
- helps distinguish normal river processes from damaging flood events

Key takeaway

Rivers are designed to overflow sometimes; floodplains are part of the river system.