

Surface Calm, Hidden Currents

The New Reality of Recreation Safety on the Guadalupe River After the Flood



Based on the safety brief by Qizhong (George) Guo, Rutgers University (July 2026)



After a major flood, the river may look familiar, but it may not behave the same way.

Nearly one year after the deadly July 2025 Guadalupe River flood, the immediate pathogen contamination from the original floodwaters is gone.

Safety must now be judged by two entirely new metrics:

Current Water Quality

Driven by recent rainfall

Reshaped Physical Hazards

Driven by geomorphic changes

THE MYTH

The river is still toxic from last year's floodwaters.

A year has passed, so the river is 100% safe.

THE REALITY



Biological Reality

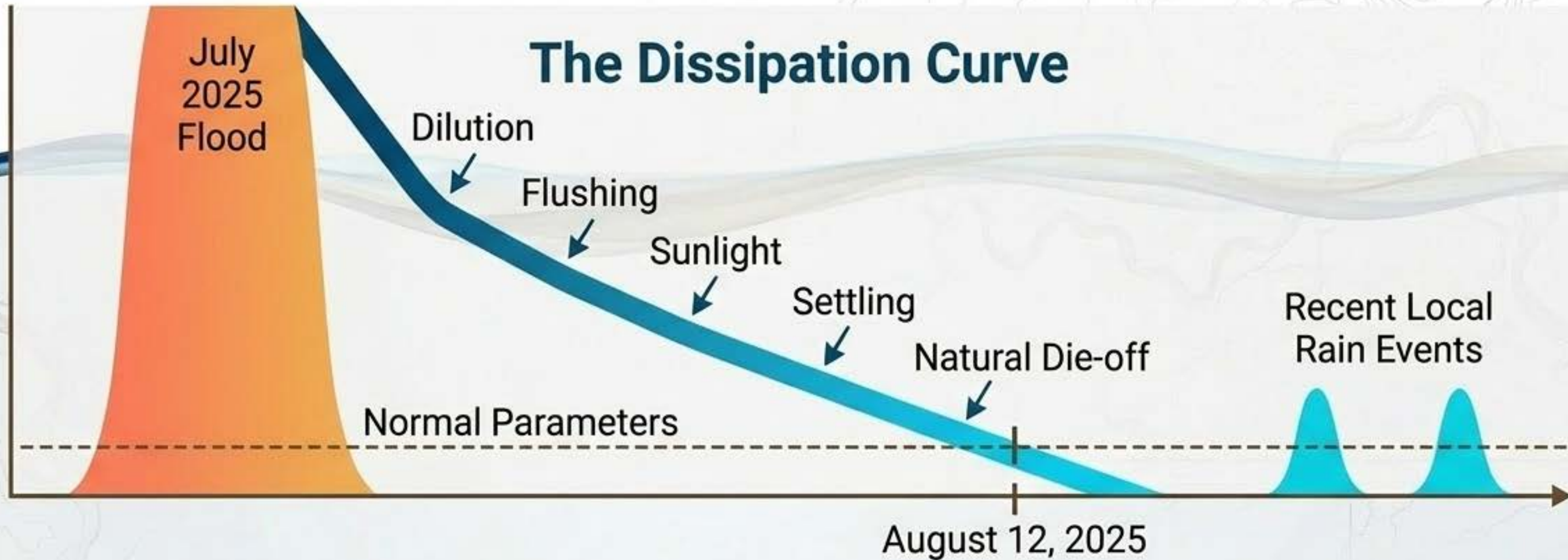
Pathogens from the flood have **dissipated**. Current bacterial threats are **temporary** and driven by **recent rainfall** and local runoff.



Physical Reality

The flood **permanently altered** the riverbed. A familiar surface now hides **new, structural hazards**.

Time Heals the Flood, but Rain Resets the Clock.



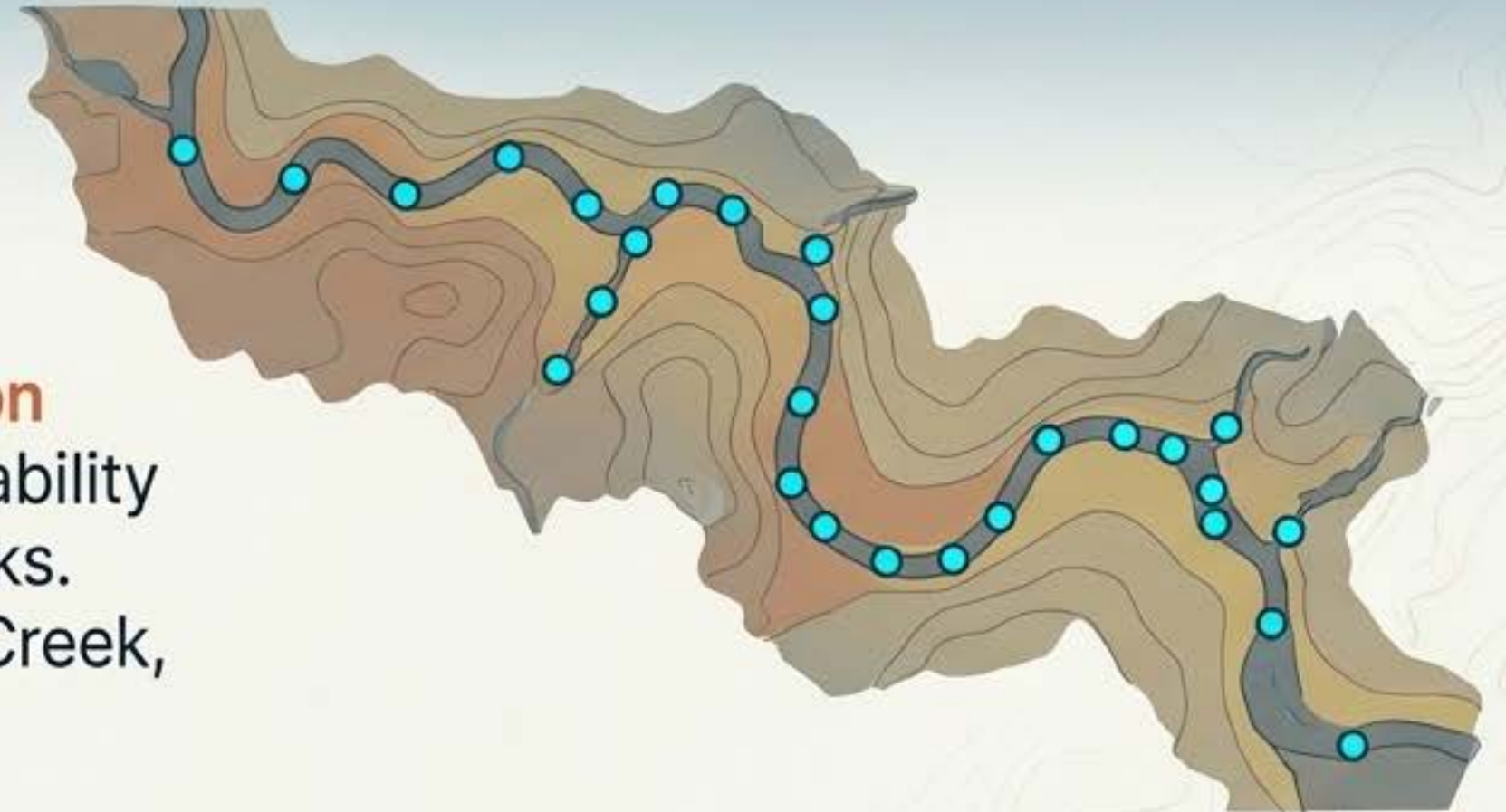
Key Insight: There is no fixed 'safe date' after a flood. While historical flood bacteria are gone, bacteria levels temporarily **spike** for approximately **5 days** following heavy rainfall due to runoff from steep Hill Country streets and hillsides.

Why We Test for E. Coli.



The Canary Concept: **E. coli** is rarely the primary pathogen of concern. It is the U.S. EPA's recommended **fecal indicator**—a reliable proxy signaling the potential presence of other disease-causing organisms.

Pre-Flood Context: The Guadalupe River is historically managed as a **safe contact-recreation** waterbody. UGRA's longstanding Summer Swimability Study monitors 21 sites over 15 consecutive weeks. Historically, issues were **localized** (e.g., Quinlan Creek, Town Creek) rather than uniformly unsafe.



Water Quality Standards

The Old Standard (Fecal Coliform)

Widely used historically, but U.S. EPA epidemiological studies proved it correlates poorly with gastrointestinal illness risk.

Texas Standard (Current PCR1)

Uses *E. coli*. Defines Primary Contact Recreation 1 (PCR1) to include high-ingestion risks: swimming, tubing, kayaking, and rafting.

Geometric mean:
126 CFU/100 mL

Single-sample max:
399 CFU/100 mL

New Jersey Standard (Benchmark)

Switched to *E. coli* but uses stricter protective values.

Stricter protective values
Geometric mean:
100 CFU/100 mL

Single-sample max:
320 CFU/100 mL

The Flow Rate Paradox

Flow Volume

Low Flow

High Flow

Hazard Type

Biological



Less water means less dilution. Any bacterial input (septic leakage, wildlife) results in higher concentrations.



Heavy runoff resuspends contaminated sediment from the riverbed into the water column.

Physical

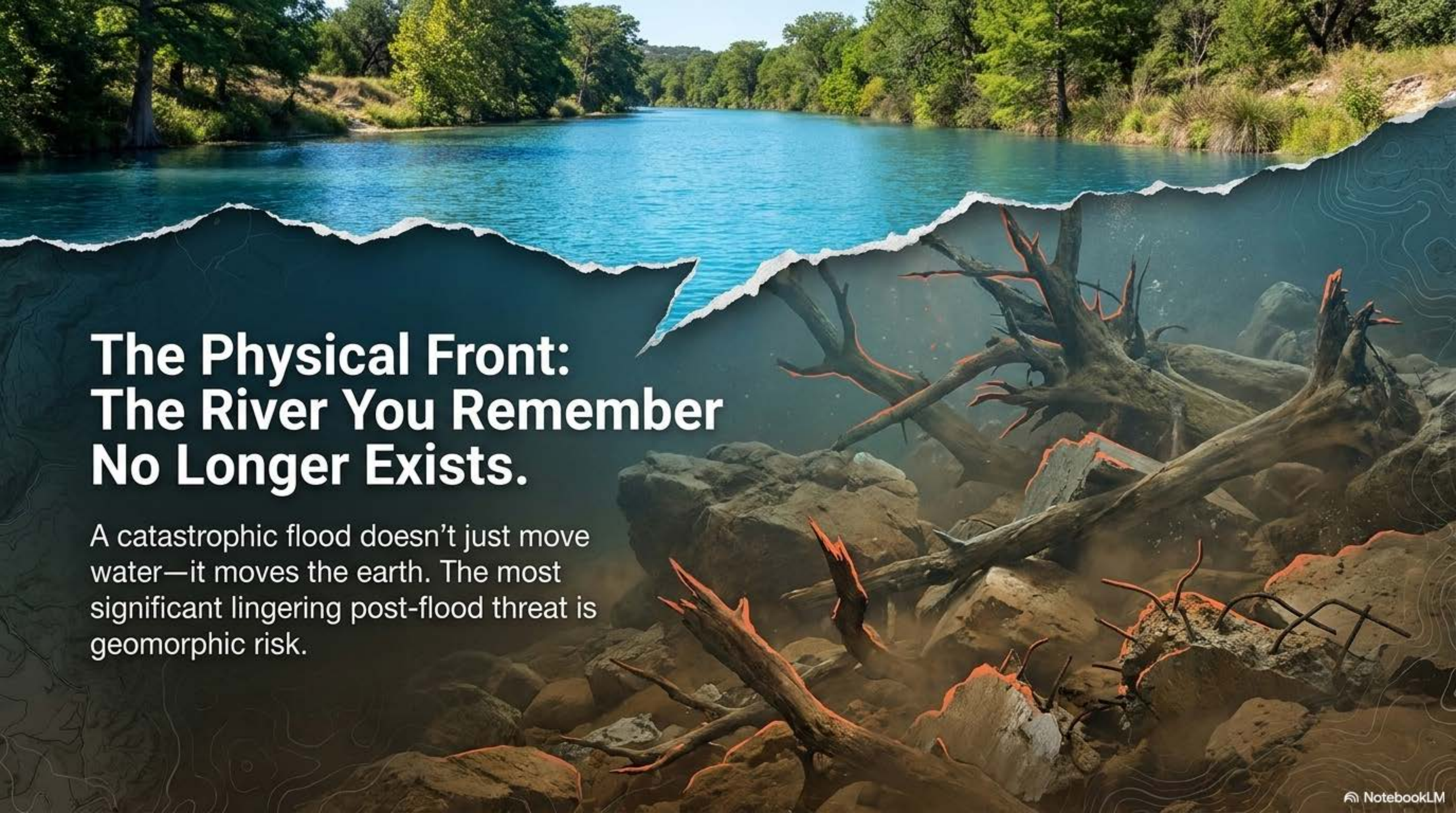


Exposes previously submerged rocks, ledges, and channel irregularities.



Creates stronger currents and mobilizes large, dangerous debris.

Takeaway: In a region prone to drought and sudden flash floods, “normal” summer flows cannot be assumed.



The Physical Front: The River You Remember No Longer Exists.

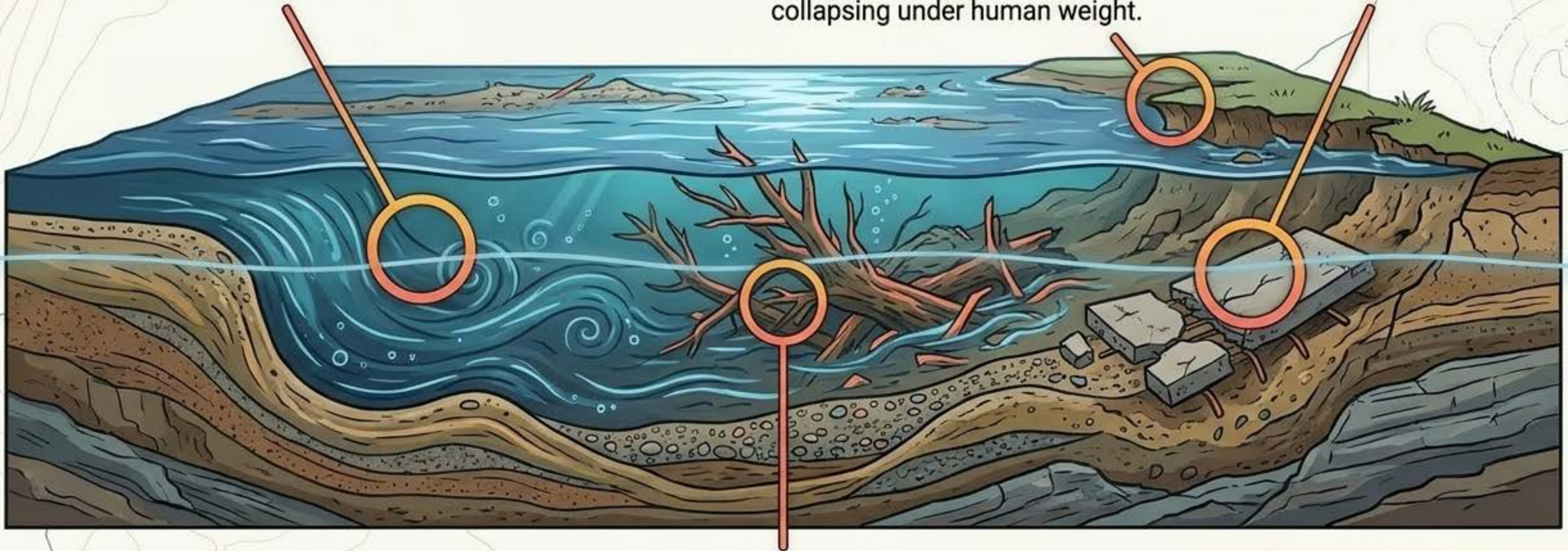
A catastrophic flood doesn't just move water—it moves the earth. The most significant lingering post-flood threat is geomorphic risk.

Post-Flood Anatomy: Hidden Structural Hazards

Scour Holes: Familiar shallow swimming areas may now feature sudden, steep drop-offs formed by swirling floodwaters.

Undercut Banks: River edges that look solid but have been eroded underneath, making them unstable and prone to collapsing under human weight.

Damaged Infrastructure: Undermined boat ramps and altered access points.



Strainers & Log Jams: Submerged trees that act like sieves—allowing water to flow through while trapping tubes, boats, and swimmers.

Similar geomorphic hazard warnings were necessary after flooding in King and Yakima Counties (Washington) and after Hurricane Helene (North Carolina).

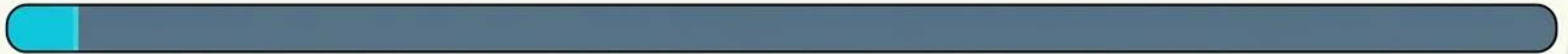
Cleanup is Active, but Far From Complete

The Effort: Kerr Together funded a 90-day pilot project utilizing non-profit dive teams to survey and clear 20 high-contact recreation sites between Hunt and Center Point.



Hunt

Center Point



The Reality: Due to low visibility and extremely heavy submerged debris (including rebar and concrete), divers estimate full clearance of just these 20 sites could take up to two years.

The Hidden Threat | Even when water quality is safe, cloudy water continues to hide jagged metal and broken glass.

The Danger of Memory.

Insight:

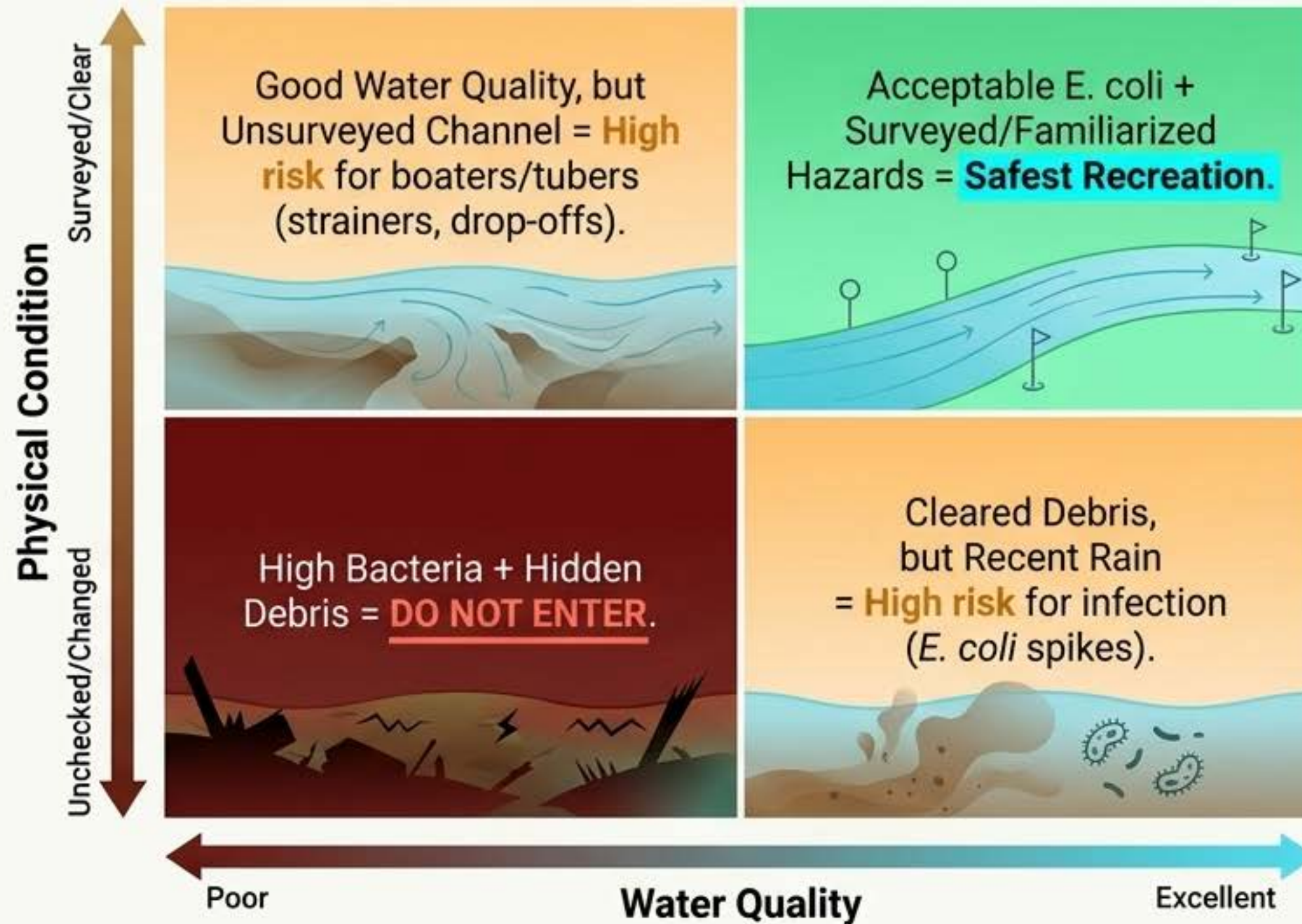
Local river users are at the highest risk. Years of visiting the exact same swimming hole or kayaking the same route creates a dangerous assumption of safety.



Takeaway:

Because the river channel has been fundamentally reshaped, relying on memory is a liability. You must evaluate the river as if you are visiting it for the very first time.

The Dual-Hazard Recreation Matrix



Synthesis: Safe recreation now requires a "Green" rating on both axes simultaneously.

Before You Enter the Guadalupe River:

The New Pre-Launch Checklist



Check the Water: Consult UGRA's RiverHub or Swimability Study for current **E. coli** levels before entering.



Check the Weather: Has it rained heavily in the last 5 days? Runoff elevates bacteria. **Wait it out.**



Check the Flow: Consult USGS streamflow gauges. Low flow concentrates bacteria; high flow moves debris.



Scout the Site: Never assume a familiar spot is unchanged. Actively look for **bank instability**, cloudy water hiding debris, and altered currents.