

August 2026 Sediment Update

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***LTEMP Sediment Goal: Increase** and retain fine sediment [sand, silt, and clay] volume, area, and distribution in the Glen, Marble, and Grand Canyon reaches above the elevation of the average base flow for ecological, cultural, and recreational purposes.*



shoreline aquatic habitat



sand dunes



archaeological sites



beaches, campsites, and riparian ecosystem



fundamental part of pre-dam landscape



and major part of post-dam river and reservoir systems (navigation, turbidity, water quality, GPP)

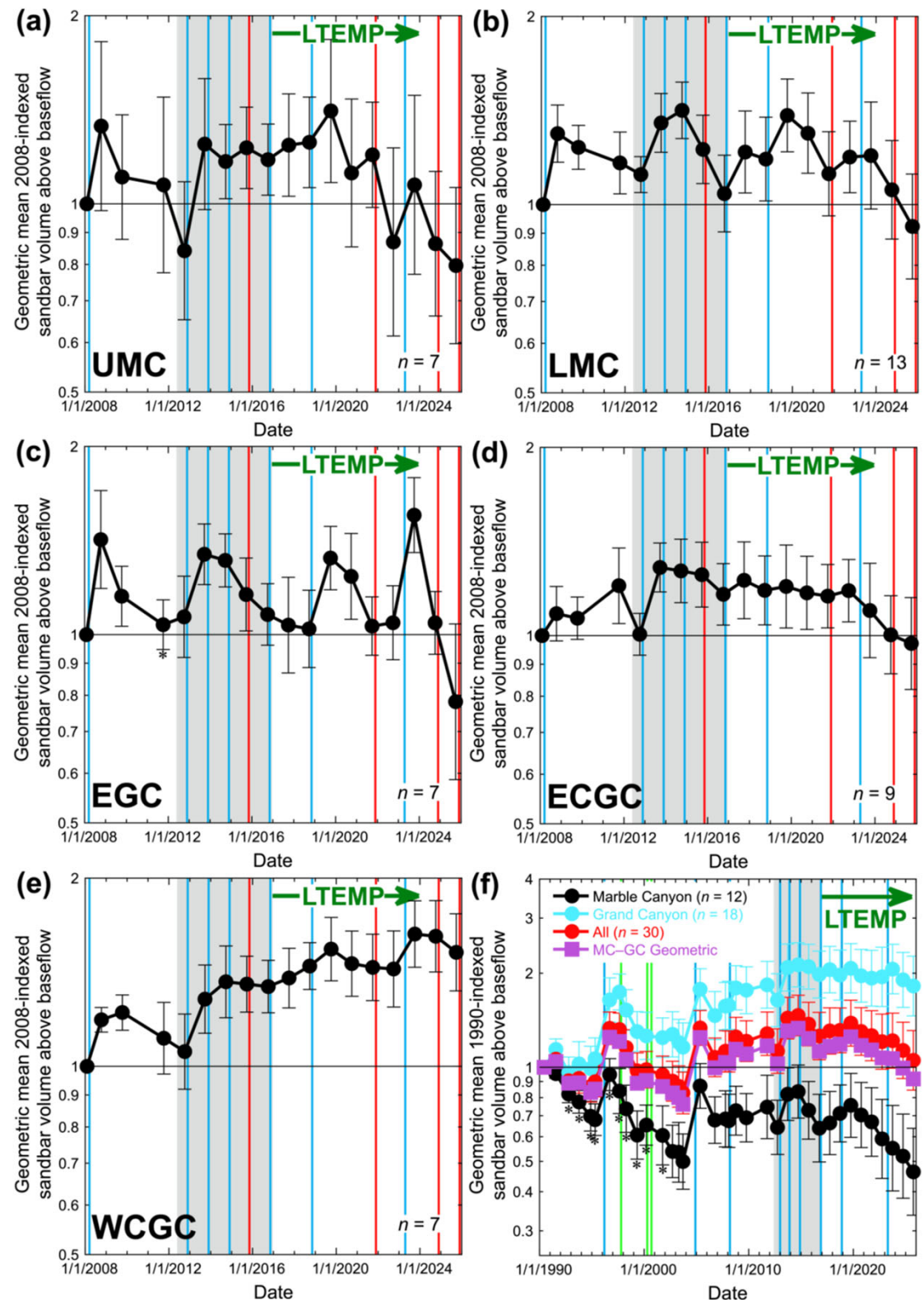
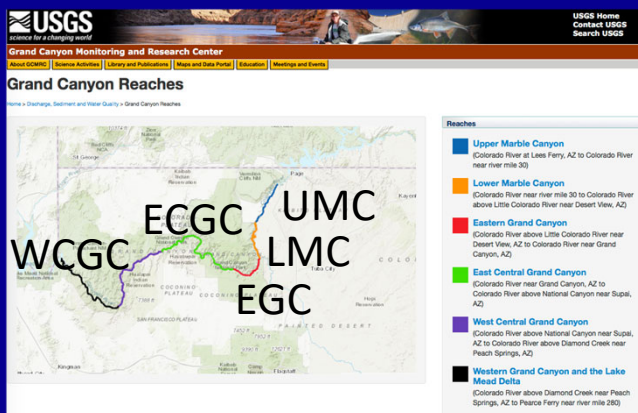
The LTEMP sediment experiment

- “HFEs would be implemented **when triggered** during the 20-year LTEMP period.” (DOI, LTEMP EIS, 2016)
- “Is there a ‘Flow Only’ operation (that is, a strategy for dam releases, including managing tributary inputs with HFEs, without sediment augmentation) that will rebuild and maintain sandbar habitats over decadal timescales?” (DOI, HFE-Protocol EA, 2011)

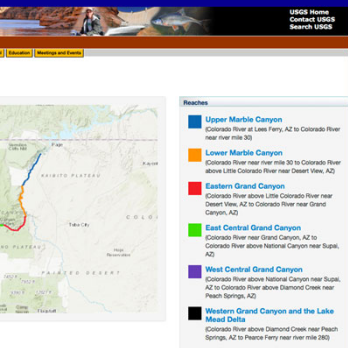
The typical sandbar is
now **smaller** above
baseflow (8,000 ft³/s)
than when the LTEMP
ROD was signed in
December 2016

Blue lines = HFEs

Red lines = Triggered
HFEs not implemented



Data from USGS (2026a)



We currently have a robust HFE trigger

- At least 400,000 metric tons of the carry-forward sand supplied by the Paria River since July 1, 2024, is still in Marble Canyon
- Since July 1, 2026, the Paria River has supplied an additional 310,000 to 460,000 metric tons of sand
- So, there are currently at least 710,000 metric tons of “new” Paria River sand in Marble Canyon, surpassing most past HFE triggers (2004, 2008, 2012, 2016, 2018)
- Previous HFEs triggered with between 310,000 and 2,300,000 metric tons of “new” sand in Marble Canyon

The LTEMP sediment goal has not been met

Remaining HFE questions

- It remains unclear whether sandbars can be sustained in the Colorado River in Grand Canyon National Park using the available sand supply, 50 years after Laursen and others (1976) predicted that dam operations would scour sand from the Colorado River in the park.
- This uncertainty arises because only 3 HFEs have been implemented since 2014 despite 7 Paria River triggers.
- Lack of HFEs has hindered scientific advancement by, for example, preventing advanced testing of whether HFE-deposited sandbars with lower slopes would be less susceptible to erosion during subsequent hydropower releases (Alvarez and Schmeeckle, 2013).
- Can lower-discharge HFEs be used to rebuild sandbars in the current situation (albeit at lower levels)?



Thank you

References

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