Preliminary Field Reports from the April High-Flow Experiment

GLEN CANYON DAM ADAPTIVE MANAGEMENT PROGRAM,
TECHNICAL WORK GROUP MEETING, JUNE 14, 2023

GCMRC Project D: Effects of Dam Operations and Vegetation Management for Archaeological Sites

USGS
science for a changing world
Grand Canyon Monitoring and Research Center

Vegetation Management and HFE: Basalt Camp example 2018 - 2023

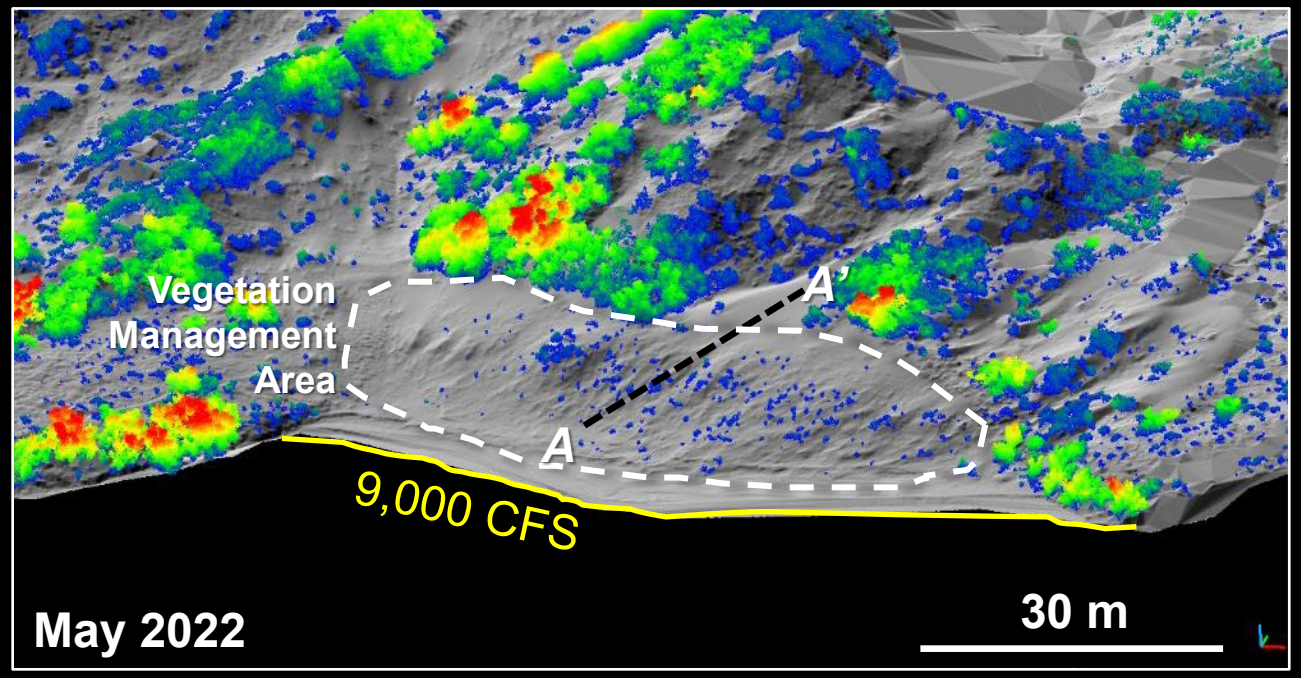
- NPS with Ancestral Lands Conservation Corps tribal crews have worked to remove invasive plants annually on sand bars since 2019

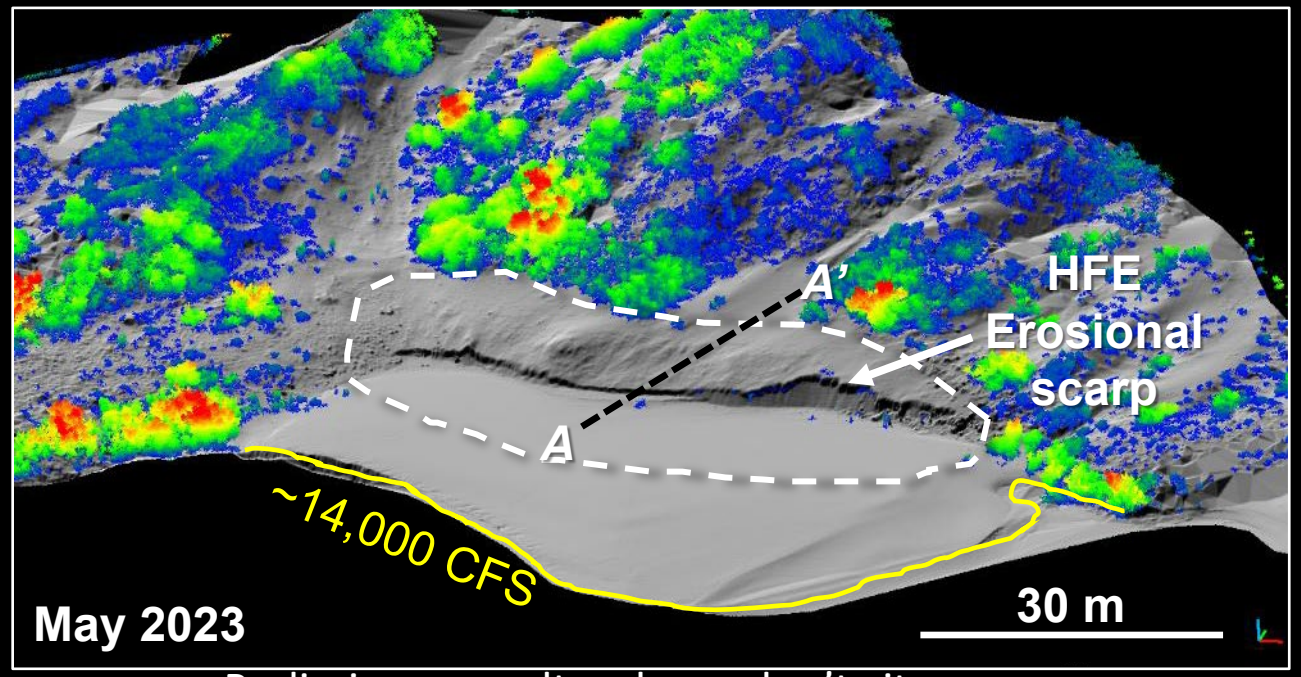
- 2023 is first HFE since the effort began
- **Project Objective:** USGS evaluating whether removal of riparian vegetation barriers located between river sand bars and archaeologic sites increases the resupply of windblown river sand to archaeological sites & thus increases the probability of achieving the LTEMP goal of preservation in place?

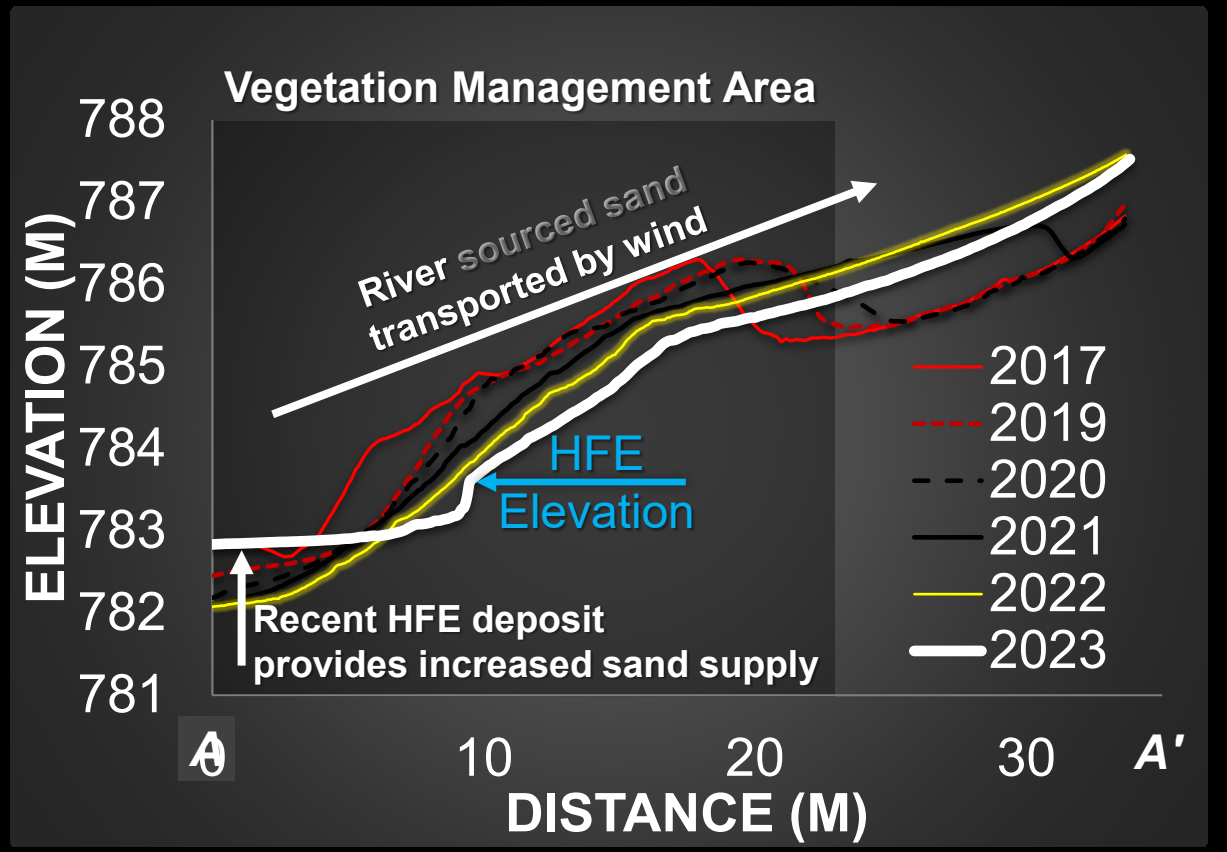
USGS science for a changing world

Preliminary results, please don't cite

Lidar monitoring at Vegetation Management Sites: Observations at Basalt Camp







Preliminary results, please don't cite

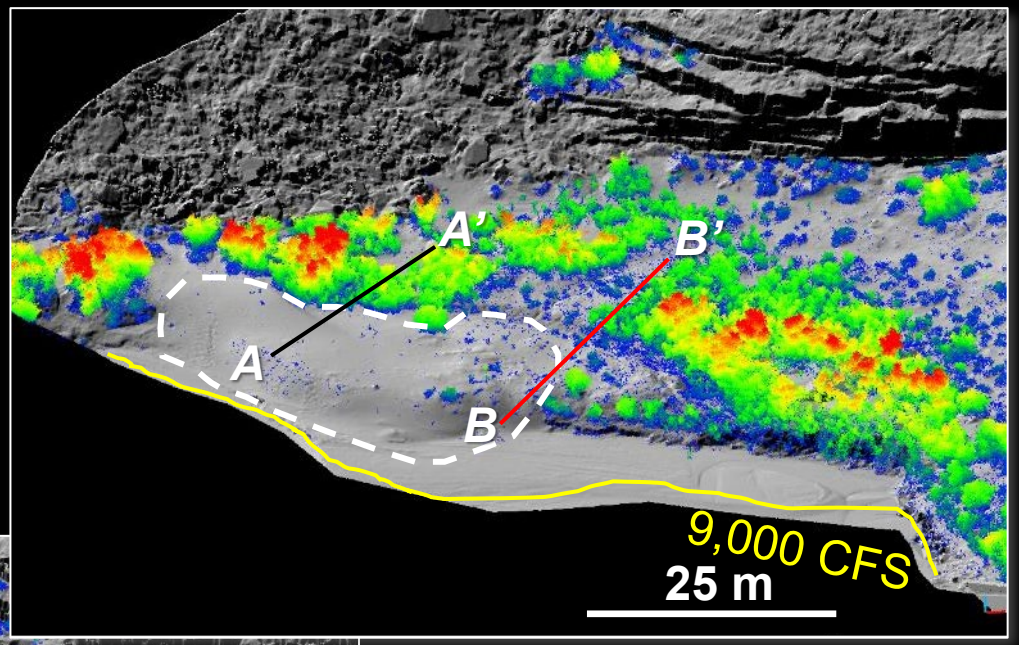
Vegetation Management and HFE: Mile 122 Camp example 2018 - 2023

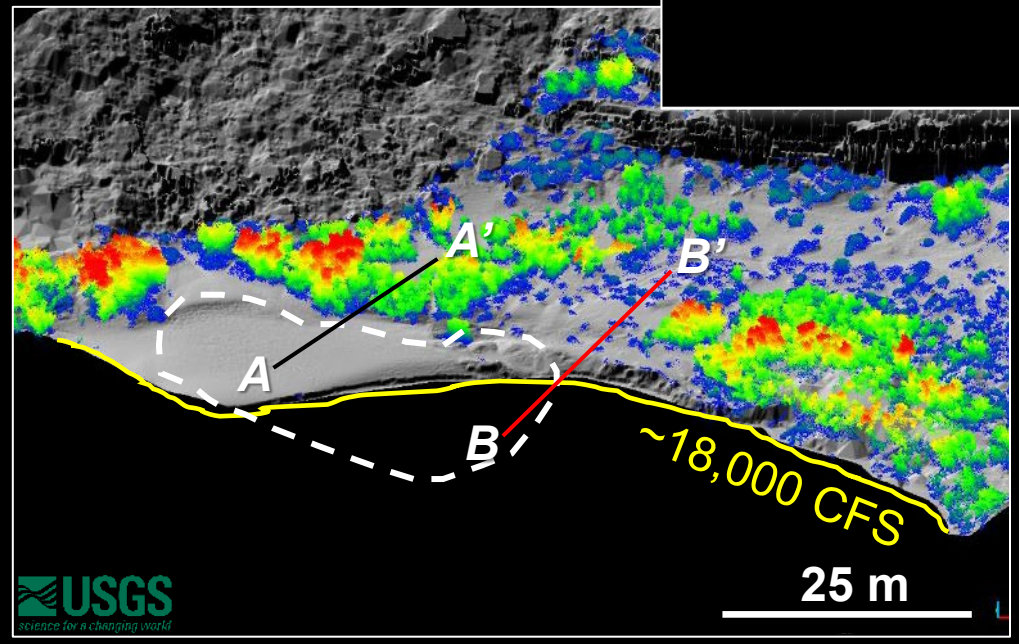
- Lidar monitoring occurs at 6 vegetation management sites
  - 2 sites (Basalt and 122 mile camps) are also sand bar monitoring locations
  - Sites respond uniquely to management actions

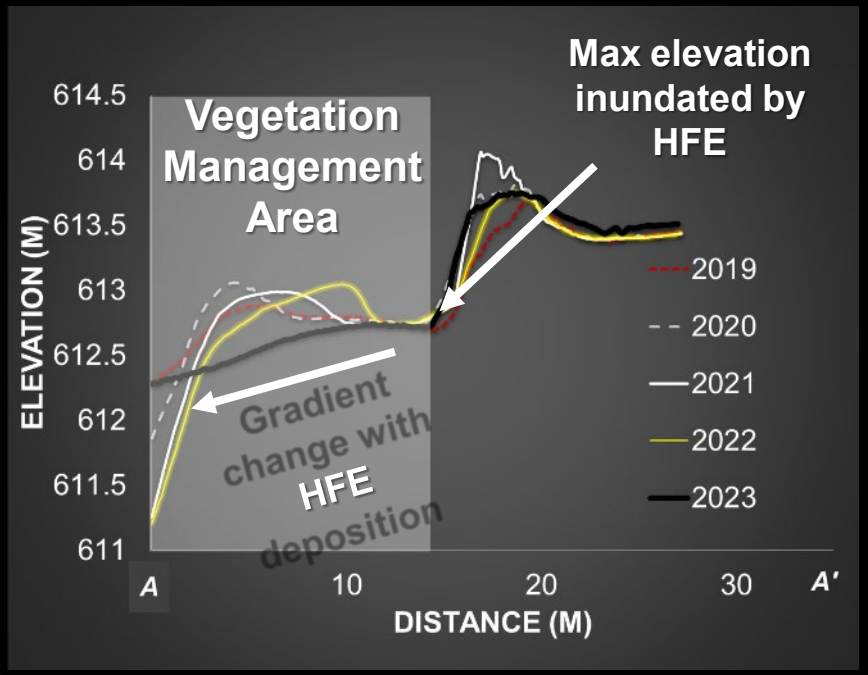
USGS science for a changing world

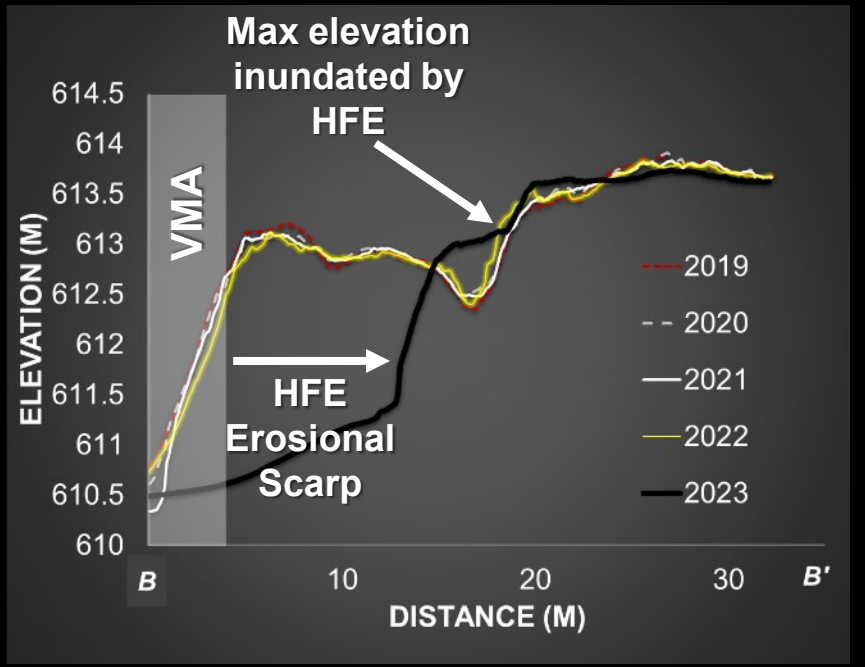
Preliminary results, please don't cite

Lidar Observations at Mile 122 Camp









Preliminary results, please don't cite

Vegetation Management and HFE: Summary of Preliminary Field Observations

Preliminary results, please don't cite

Journal of Environmental Management
Volume 342, 15 September 2023, 118036

Research article

Archaeological sites in Grand Canyon National Park along the Colorado River are eroding owing to six decades of Glen Canyon Dam operations

Joel B. Sankey [a], Amy East [b], Helen C. Fairley [a], Joshua Caster [a], Jennifer Dierker [c], Ellen Brennan [c], Lonnie Pilkington [c], Nathaniel Bransky [a], Alan Kasprak [a d]

Show more

https://doi.org/10.1016/j.jenvman.2023.118036

Highlights

- Integrity of 362 Colorado River archaeological sites assessed 60 years after damming.
- River-sourced aeolian sand decreased since 1973, making most sites more erosion-prone.
- Proportion of sites eroding by gully processes has increased since 2000.
- Erosion limits management goal to maintain or improve site integrity *in situ*.
- Environmental management opportunities: floods, low flows, riparian plant removal.