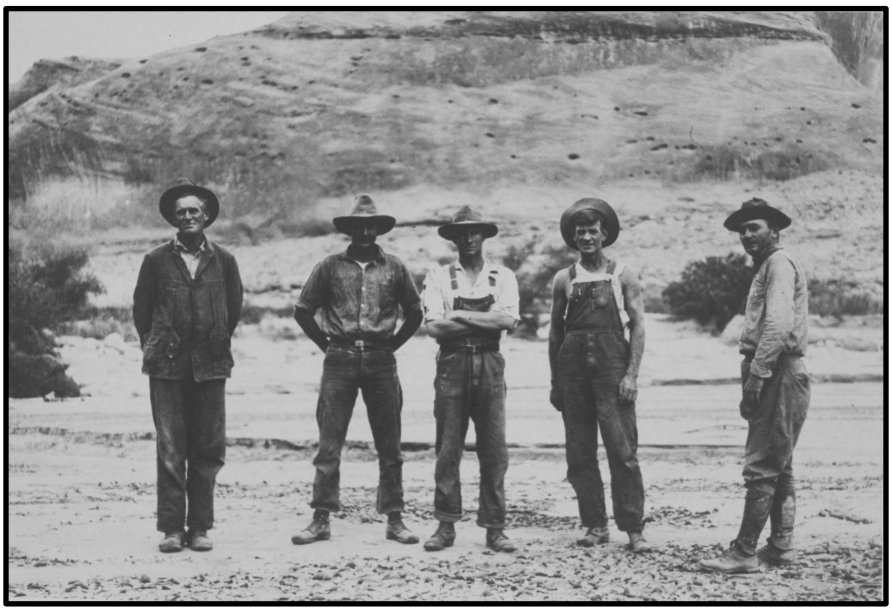
Lowest San Juan River

Trip Report October 19-21, 2021
Flow (San Juan nr Bluff): ~650 cfs
Reservoir Level: 3544.6', 30%

Dedicated to the members of the 1921 Trimble Expedition



Members of 1921 Trimble Expedition - Christensen; Hyde; Blake; Loper; Trimble, (Allen and Miser not in photo). They launched about two miles below Sand Island near Bluff, Utah on July 18, 1921, joined the Chenowith party at the San Juan/Colorado confluence on October 5, 1921, and took out at Lee's Ferry on October 8, 1921. A total of 82 days (source).

***Patrol Objectives*:**

- Scout out a section of river we had only dreamed of (or had nightmares about). We got a little taste of what we'd find during a September 9, 2021 packraft day trip to Fatt's Falls (the big waterfall located at Piute Farms, old river mile ~53.5). It left us wanting more, especially since the four miles between Clay Hills and FF behaved much more like a river than the drudgery/unpredictability of the Slickhorn to Clay Hills segment.
- Match historic photographs from the 1921 Trimble Expedition and others. Of course, once we returned we discovered more historic photos that we wished we would have had. Next trip...
- Take sediment samples for USGS to measure heavy metals.
- Document the often overlooked lowest 75 miles of the San Juan River.
- Commemorate the 100 year anniversary of the 1921 Trimble Survey and report.

***Logistics*:** Launching a river trip at Clay Hills requires considerable forethought. Portaging the waterfall is one thing, but it's trivial if you choose your boat/packing style wisely. The greatest factor to consider is how to get out. One must decide between somehow traveling the long distance across the reservoir to Halls Crossing or figuring out where and how to hike out. We opted to hike out at the Great Bend which was, unfortunately, short of the current delta location. We dropped our 'takeout' truck near remote Nokai Dome, then drove to Clay Hills for the launch. We used simple bucket-boat style packrafts, which worked great.

Tuesday 10/19: After the shuttle was set, we launched at Clay Hills at 1:30 pm. Paddled nine miles, took six photo matches and one sediment sample. Camped at Mikes Canyon on a nice dryish beach just upstream of Mike's mouth.
Wednesday 10/20: Paddled fifteen miles and stopped for 3-4 photo matches and took three sediment samples. Exited river at the Great Bend (using a medium-spicy scrambling route that is not for everyone and may not be usable at all as silt banks change). Walked an hour to a delightful campsite with good water.
Thursday 10/21: Hiked about ten miles to the truck.

***General impressions*:** Not surprisingly, we saw no other humans on this trip. We noticed a few older footprints on our hike out. It is possible that we know who passed this way before us. There are segments as you proceed downstream where remnants of the full reservoir level are high above, sections with the expected Dominy banks with tamarisk (the wasteland look that we thought we'd see a lot of), and trash from vacations and river debris past. These are reminders of the reservoir, but there are also several areas with lush native vegetation, river cobbles, and a handful of highly campable beaches, indicative of a natural system coming back. The river itself, for the most part, follows the rules we river runners come to expect, such as current and depth on the outside of bends. The gradient on this segment feels slightly steeper than the miles between Slickhorn and Clay Hills, likely because it is below the waterfall/check dam and the delta continues to move downriver as the reservoir continues to drop and the drought persists. The current and gradient increased noticeably in the Great Bend, presumably as we were closer to the delta.

Note: For this trip report we decided to honor and use the historic 1921 USGS Plan & Profile maps produced by the Trimble Survey. Each map sheet is a work of art. In these maps, like the Colorado and Green Rivers, miles increase going upriver. The San Juan's confluence with the Colorado River is Mile 0. Modern river running maps and guides for the San Juan are the opposite with miles increasing going downriver, with Sand Island as Mile 0. In the future, for the Lowest San Juan, it will likely be more logical to add on to the modern mileage system at Clay Hills for a variety of reasons.

Clay Hills to Piute Farms. This topo map and satellite overlay illustrates the difference between the historic channel and the new channel carved through reservoir sediment. Old river miles do not correlate well in this area as the new channel carved a longer route.

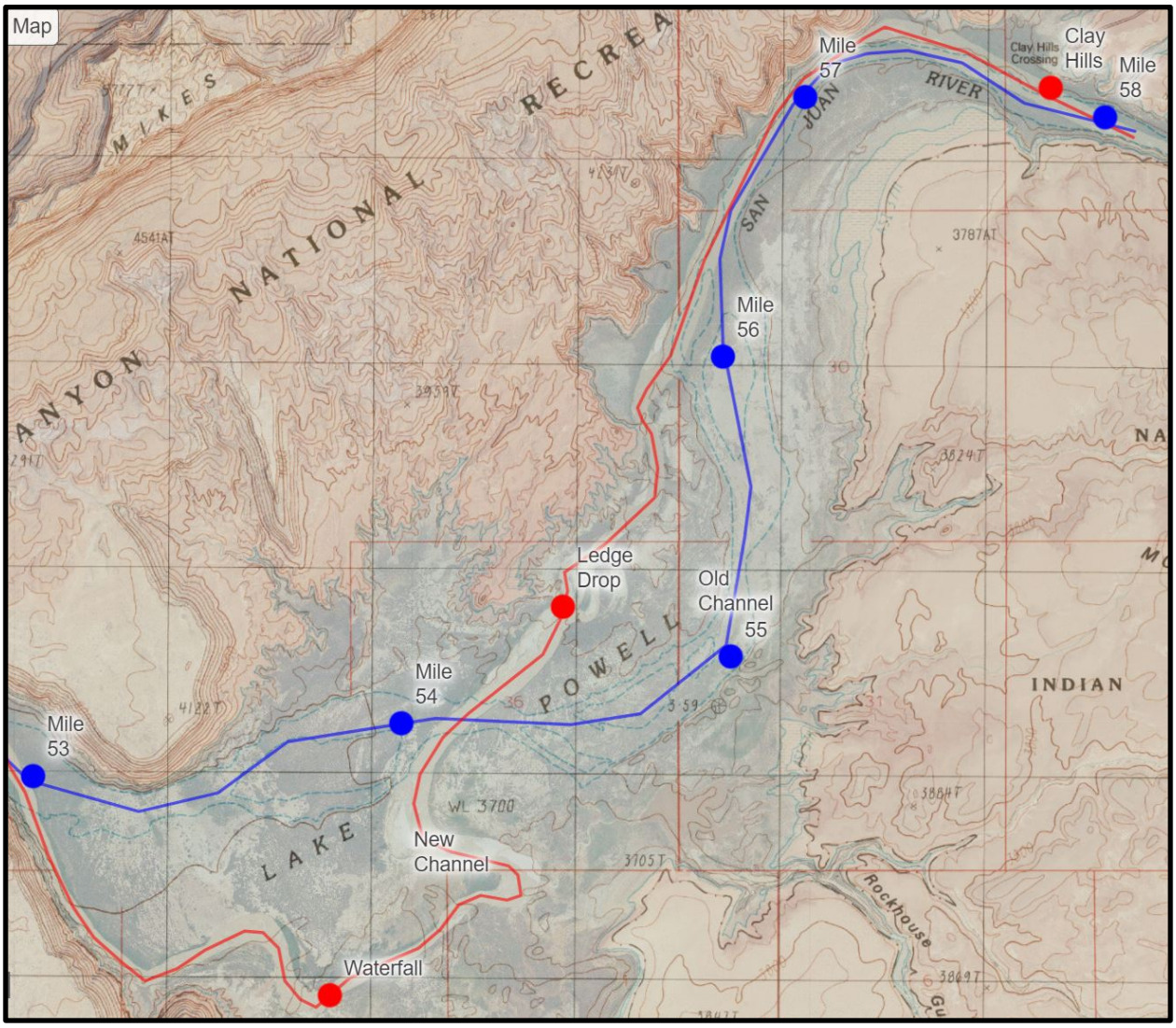
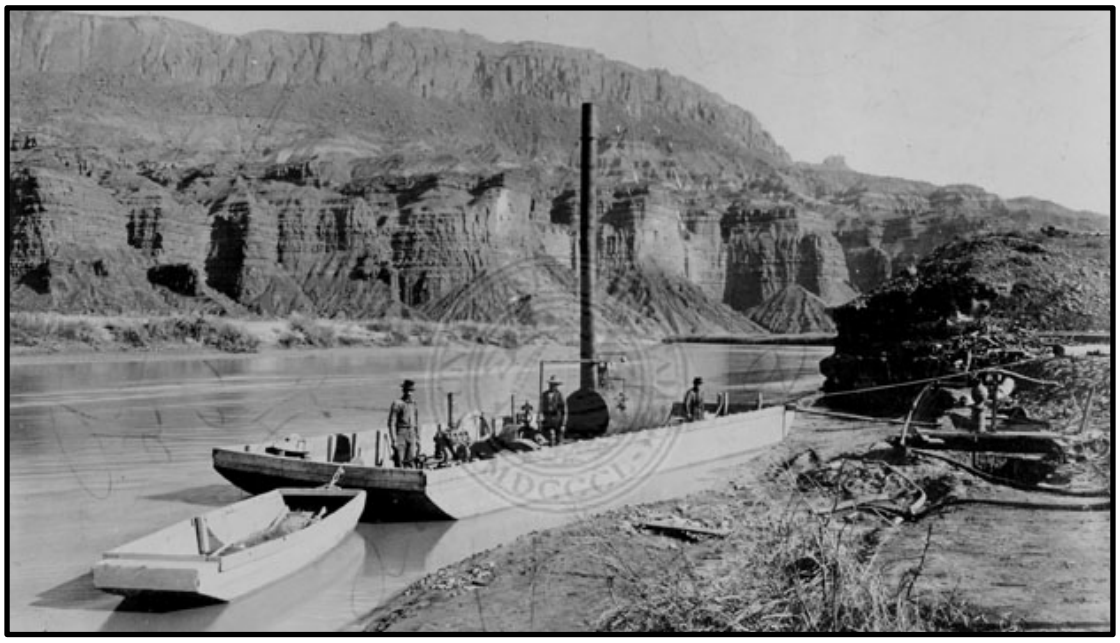


Photo Set #1 - Below Clay Hills
Old River Mile 57
Tad Nichols, 1955
Source: Cline Library - NAU.PH.99.3.1.7.24 https://archive.library.nau.edu/digital/collection/cpa/id/9574/rec/73
Retake: October 19, 2021 2:07 pm

Looking upriver just a mile below Clay Hills. While not a perfect match, this set shows the changes in vegetation, narrowing channel, and equipment used.

Photo Set #2 - "Williamsburg" 1894
Old River Mile 56ish
Source: University of Utah Marriott Library https://collections.lib.utah.edu/ark:/87278/s67662g4
Retake: September 9, 2021 12:42pm
This classic photo appears in many archives and books and is often cited as being taken at Williamsburg or Copper Canyon. According to Crampton, Williamsburg was a mile upriver from the mouth of Copper Canyon at old mile 48 on river left. However, matching Mikes Mesa and the cliffs

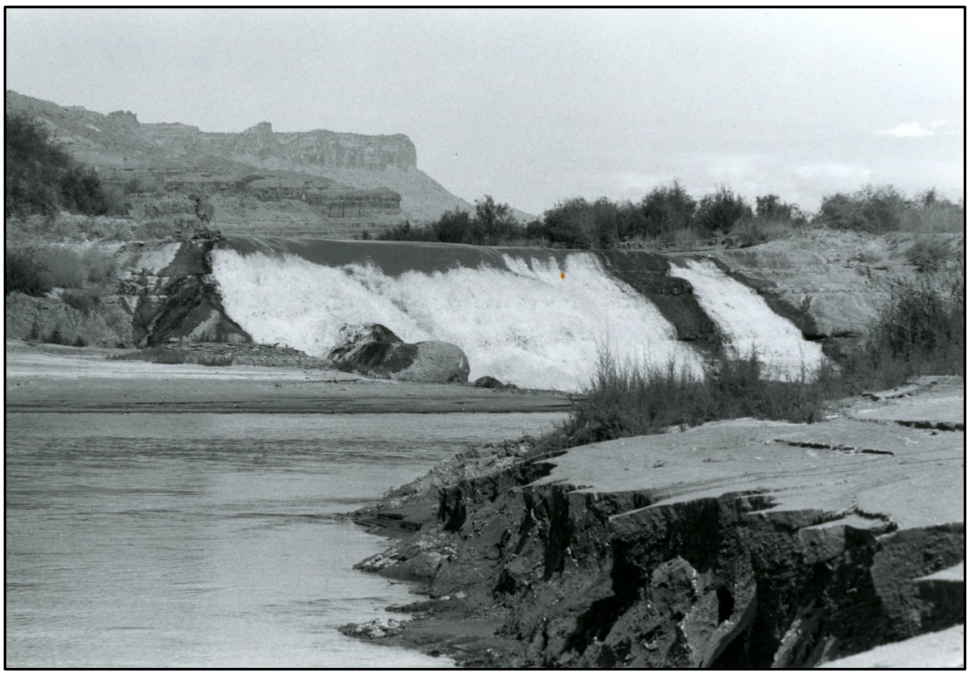
below in the background proves the actual location of this photo is about eight miles upriver, just below Clay Hills. We were lucky as this close match is just a random photo from our September trip. This area was known as Gable Camp during the 1890s Gold Rush. Interestingly, the boat in this photo was repurposed as the ferry downriver at Lee's Ferry.



We observed cobbles (up to bowling ball size) in lake sediment above the ledge drop. It seems most plausible that this is a prehistoric cobble deposit that the new channel has found. Or did these come from upriver through the miles of sediment? This was the only area where we observed cobbles.

Nice gradient above Ledge Drop (9/9/21)

Ledge Drop. The channel is braided here but the drop spans all channels. This could be the same location as the waterfall in 1991 (https://collections.lib.utah.edu/ark:/87278/s6b01235).



A cut bank of Dominy Formation between the Ledge Drop and the Waterfall (9/9/21)

Chad at Fatt Falls and the San Juan Garbage Patch

Another angle on Fatt Falls and the San Juan Garbage Patch

Former location of Piute Farms Marina and concrete boat ramp (9/9/21)

Photo Set #3 - “Rapid Below Clay Hills”
Old River Mile 52
1921 USGS Trimble Expedition

Source: University of Utah Marriott Library, https://collections.lib.utah.edu/ark:/87278/s6q56nv3
Retake: October 19, 2021 4:55pm
We had little idea where this photo location was or if it was looking upriver or down. The photo description simply stated, “Rapid below Clay Hills.” Luckily, we found it. It proved difficult to match with any precision due to the shifted, narrowed, and perched channel. The photo is looking upriver with Mikes Mesa in the background.

Photo Set #4a - Mikes Canyon Looking Upriver
Old River Mile 49.6
1921 USGS Trimble Survey
Source: Robert N. Allen. Scan from H.D. Miser USGS Water Supply Paper 538

Retake: October 19, 2021 6:35pm
We raced the setting sun to find this spot. Changes in the river are apparent. While hard to see in the retake, note the balanced pointed rock in the left foreground has not moved.

We were treated to a dramatic moonrise as a reward for our photo-matching efforts.

Clip of Dick Sprang's 1950s map notes. He marked the 1921 Trimble photo locations at Mikes Canyon (Clay Gulch). Did he take photo matches, too? Where are they?
Source: https://archive.library.nau.edu/digital/collection/cpa/id/66035/rec/53

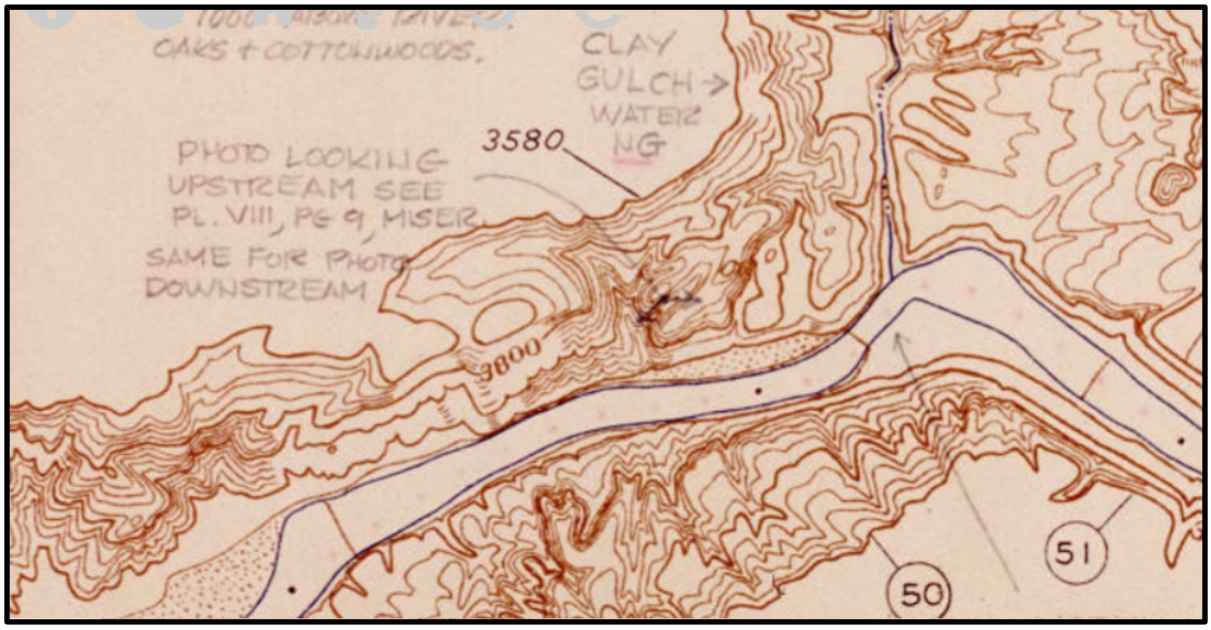
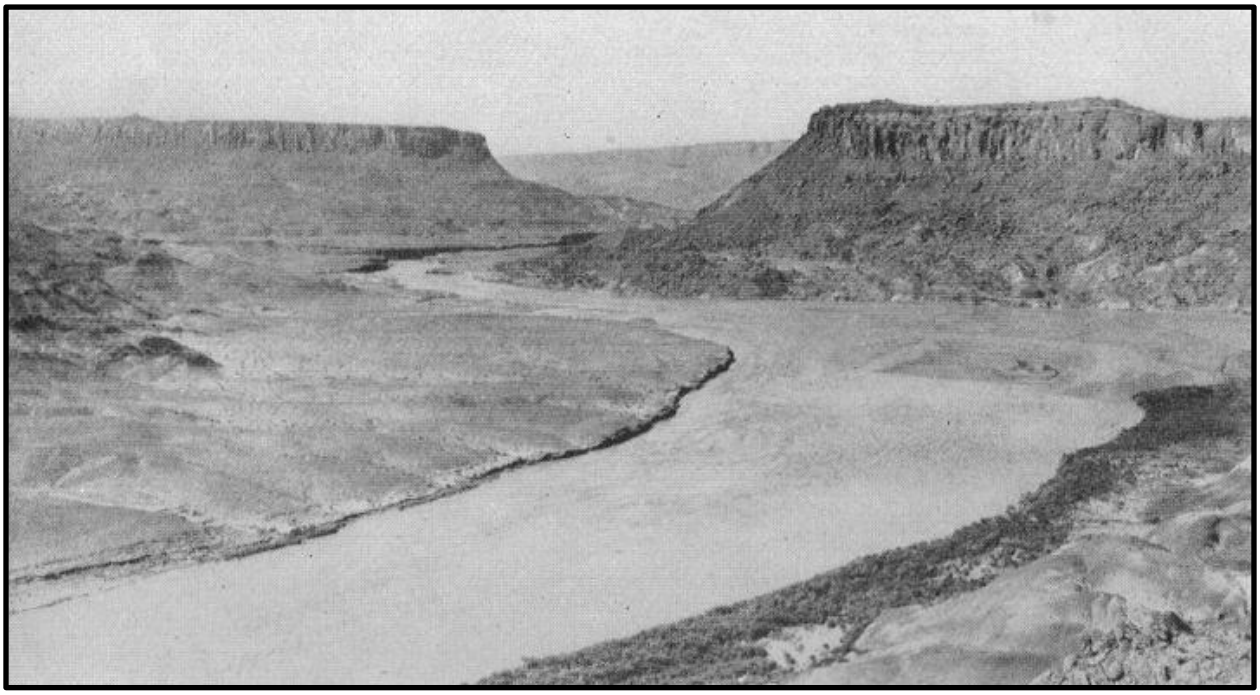
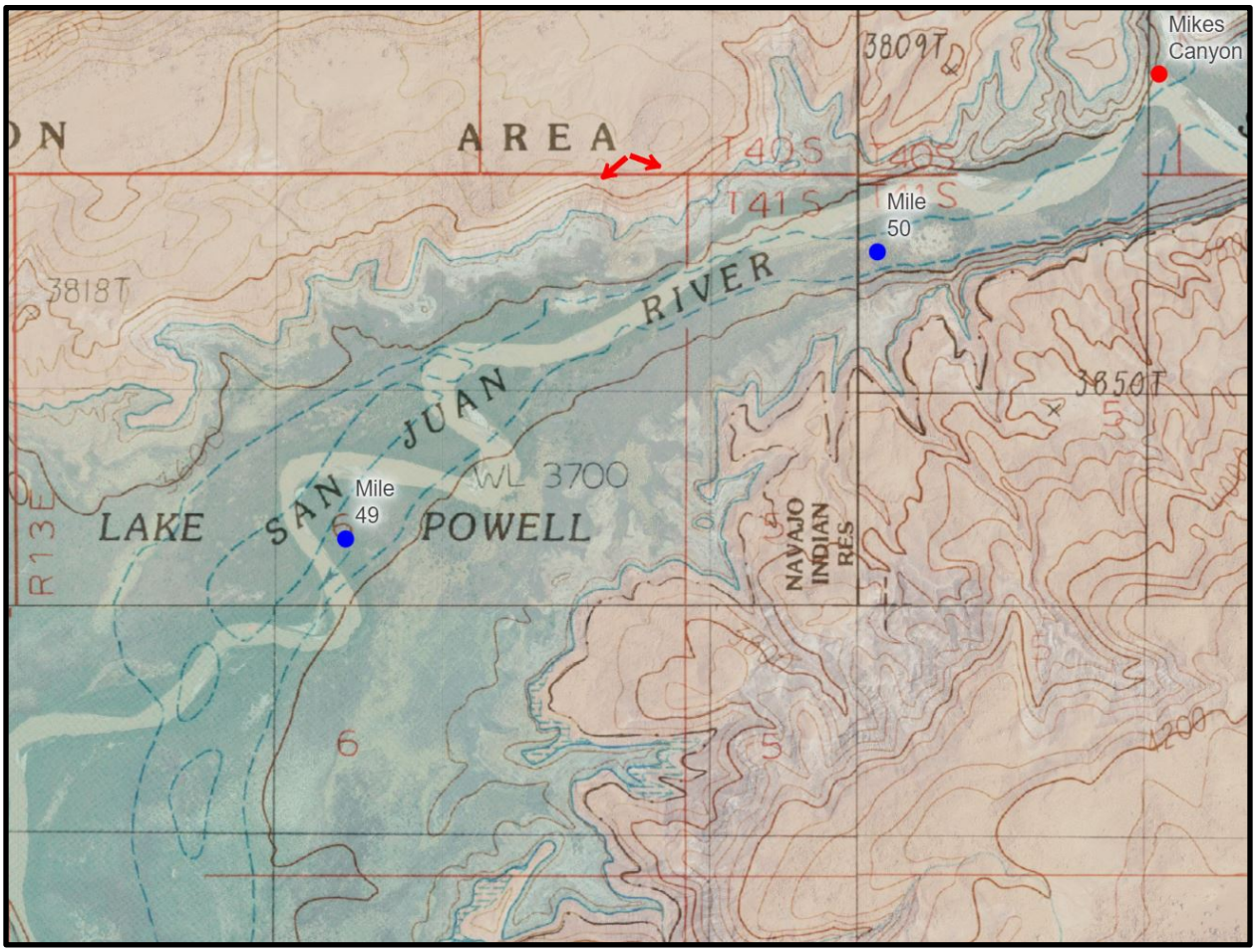


Photo Set #4b - Mikes Canyon Looking Downriver
Old River Mile 49.6
1921 USGS Trimble Survey

Source: Robert N. Allen. Scan from H.D. Miser USGS Water Supply Paper 538
Retake: October 19, 2021 6:38pm
Changes are apparent in the river channel!



This satellite and topo map overlay illustrates what we're calling "Mikes Wiggles." The much narrowed river meanders through reservoir sediments. Red arrows mark photo locations of 4a & 4b, the same photo locations Dick Sprang marked.



Lush native vegetation abounds in Mikes Wiggles, with dense willows and occasional cottonwoods.

Dominy cutbank at the mouth of Copper Canyon. We were hoping to catch the mouth of Castle Creek, immediately upstream, but dense willows blocking its mouth made it difficult to discern. We went too far!

Photo Set #5 - Nokai Anticline “Sock Walk”
Old River Mile 44.7
1921 USGS Trimble Survey

Source: Robert N. Allen. Scan from H.D. Miser USGS Water Supply Paper 538
Retake: October 20, 2021 12:00pm
Thinking this photo location was a short distance from the river, we somewhat foolishly walked in our neoprene socks. The location, looking downriver toward the mouth of Nokai Canyon, ended up a bit further and more complicated to get to than we anticipated. We struggled to find the exact location and the terrain has possibly changed over the past hundred years. Spending more time wandering around (with proper footwear) may reveal the exact location.

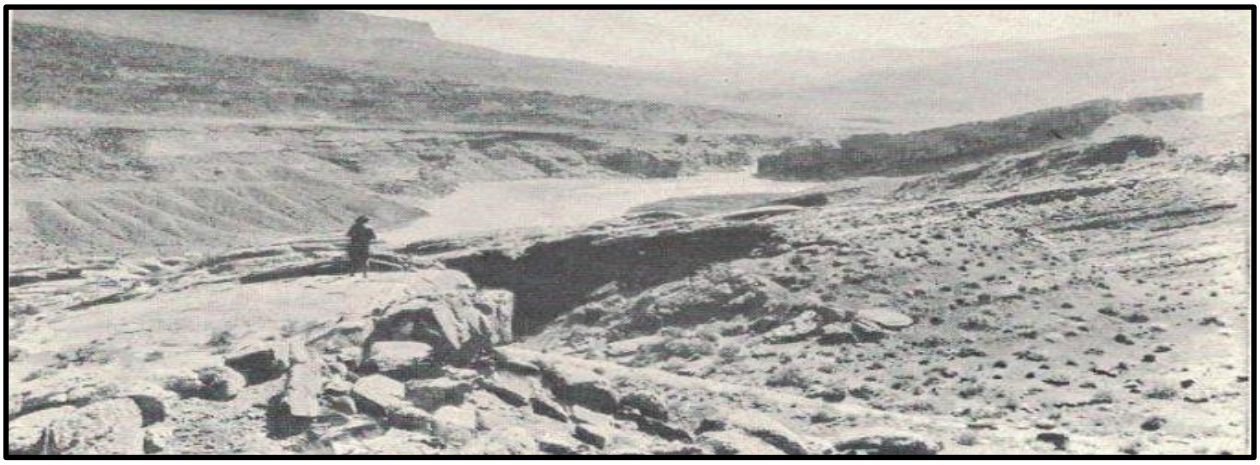
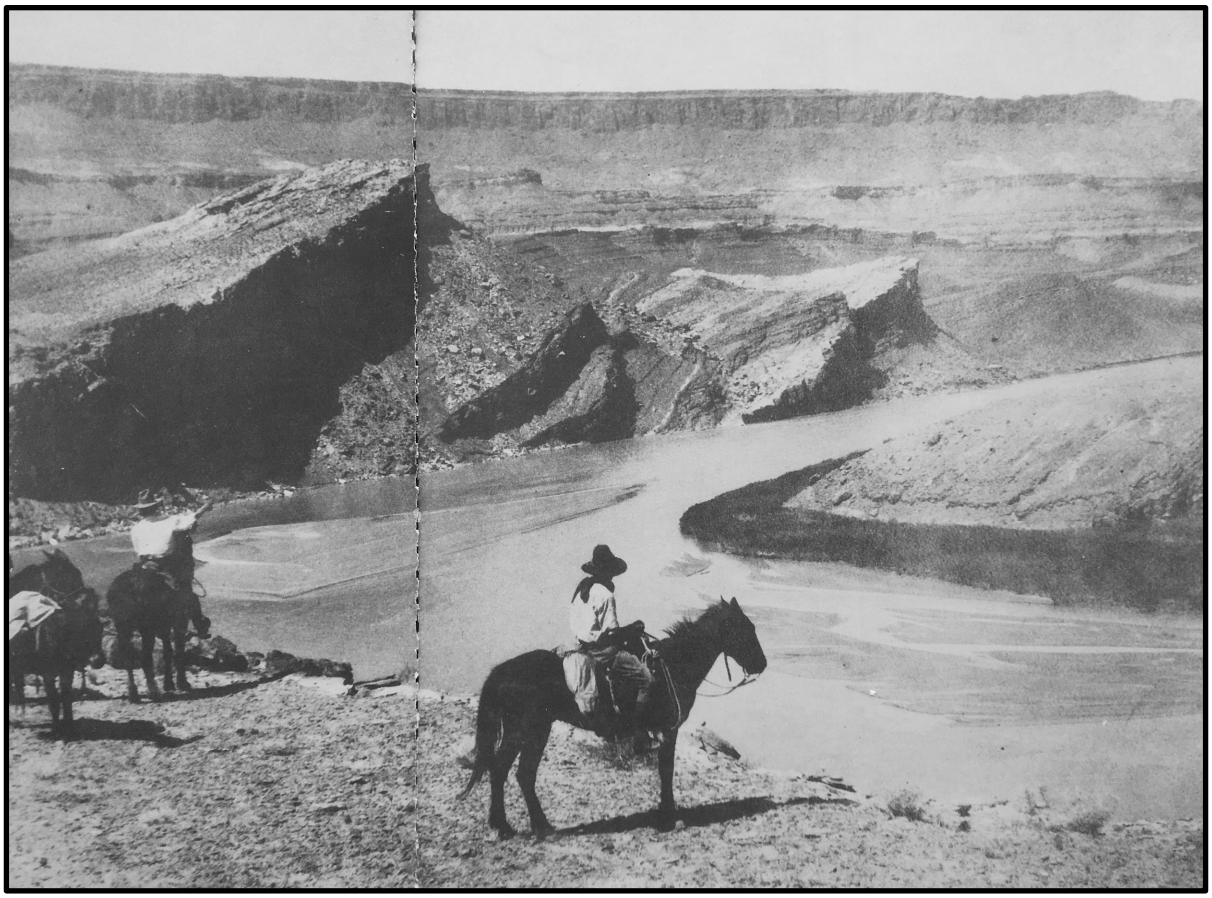


Photo Set #6 - Nokai Anticline Looking Upriver
Old River Mile 44.6
Tad Nichols, 1955
Source: NAU.PH.99.3.1.7.58. https://archive.library.nau.edu/digital/collection/cpa/id/9554/rec/172

Retake: October 20, 2021 12:29pm
Not a perfect match perhaps due the the sediment height of the channel and buried foreground but shows the increase in vegetation.

Chad takes a Dominy sample at the mouth of Nokai Canyon.

Photo Set #7 - The Horses Photo
Old River Mile 44.5
About 1910, Zahn Collection
Source: Gregory Crampton's Ghosts of Glen Canyon book
Retake: October 20, 2021 1:42 pm
This incredible view looking down river near the mouth of Nokai Canyon is one of Brandt's favorite photos from this section of river and he's wanted to match it for years. He has yet to find the image in any digital archive. Note the depth of sediment on the rock fin outcropping and the now buried ridge on the inside bend. The changes in the river channel are hard to miss. The actual photo location is at the top of an old bulldozer road cut and the ground the horses are standing on may be a bit lower due to the disturbance. The dozer cut is visible in the retake in Photo Set # 5.



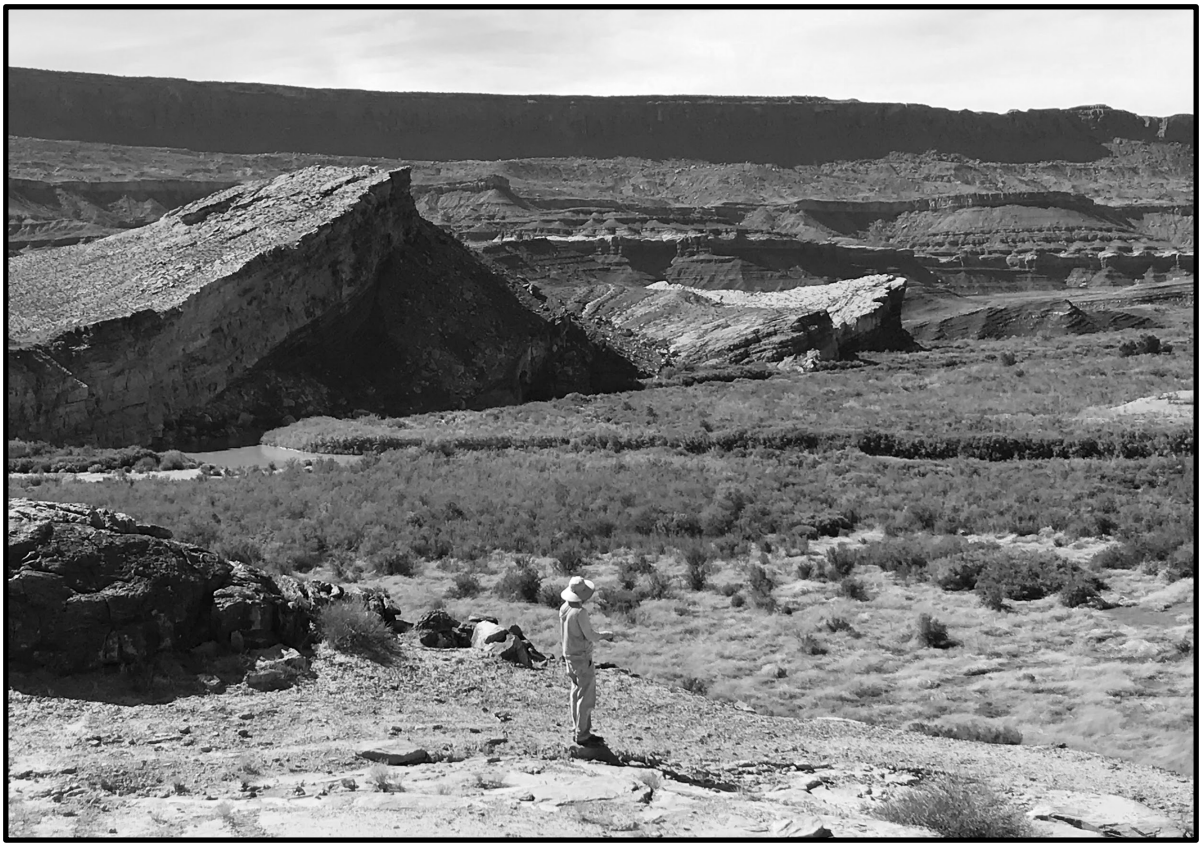
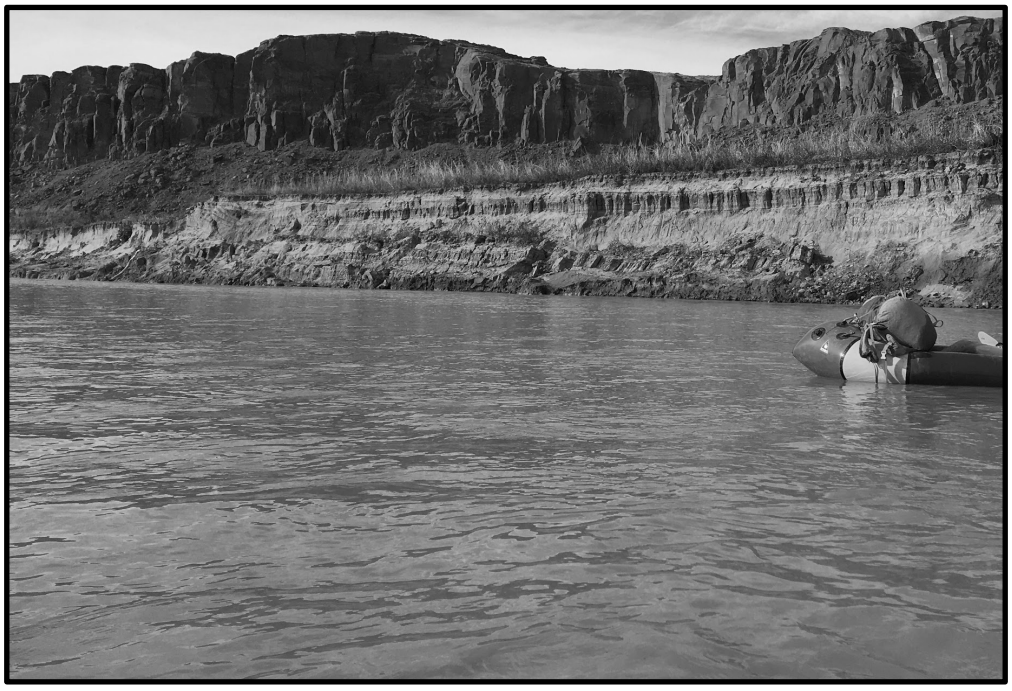


Photo Set #8 - Boaters at the mouth of Nakai (sic) **Creek**
Old River Mile 44
June 25, 1962
Source: “Ghosts of Glen Canyon” Revised 2009 edition. C. Gregory Crampton, Marriott Library Special Collections
Retake: October 20, 2021 1:06pm

Photo Set #9 - Spencer’s Camp/Mine

Old River Mile 38.5
Albert H. Jones, 1909-1910
Source: Northern Arizona University. Cline Library, NAU.PH.2006.12.4.A.54,
https://archive.library.nau.edu/digital/collection/cpa/id/16922/rec/77
Retake: October 20, 2021 4:19pm
This is another post-trip chance photo matchup as we didn't find this historic photo until after the trip. In this set, looking down river, the river used to be much wider.



Brandt enters the Great Bend

Looking upriver at Old Mile 36.5, river left

Looking downriver at the same location.

Collecting a fluvial sediment sample at the same location.

We observed clay balls in a few locations. These were at Old Mile 36.5 river left.

Chad takes a sample of Dominy formation at Old Mile 36.4 river right.

In the Great Bend, Chad floats by what we're calling Eagle Rock at Old Mile 35.9 river right.

Sand waves in the Great Bend!

Conclusion: This was an excellent introduction to the long-wondered mysteries (to us, at least) that lie downstream of Clay Hills. We deeply aspire to return in 2022 to match additional historic photographs, learn more, observe change, and go farther. Perhaps 2022 will also hold in store an interagency effort to bring the many diverse and talented people together for a San Juan River science trip or discussion. Finally, we would love to paddle through the delta and beyond, which will require more head-scratching and logistics-fun to pull off.

See you on the river,

Brandt Hart & Chad Niehaus
BLM San Juan River Rangers
Sand Island Ranger Station
(435) 672-2222

November 2021

P.S. We are on the lookout for a copy or scan of the 1964 University of Utah Anthropological Paper #70, The San Juan Canyon Historical Sites, by Gregory Crampton. Thanks!