THE CONFLUENCE

The Journal of Colorado Plateau River Guides

Number 31, Spring 2021

The Confluence

...wants to be the quarterly journal of Colorado Plateau River Guides. CPRG is a 501(c)(3) river and guide advocacy organization.

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Front and Back Cover Panoramic:

Looking upriver from just below the confluence of the Dirty Devil River.; Steward Expedition; 1932; Donor and Photographer: Charles Kelly; Utah State Historical Society; Provided by: The University of Utah: J. Willard Marriott Digital Library

The Prez Sez...

Welcome back boaters of the Colorado Plateau. This issue will branch off from our first two, that included oral histories and will include a comprehensive presentation on the conditions and situation at the take out for Cataract Canyon, as well as other fascinating articles. For anyone that has boated this stretch in the last two decades, the possibility of facing a challenging, unconventional, or completely non existent take out may not be a surprise. We hope this issue of The Confluence sheds some light on why that situation exists, and some possible solutions for a more prosperous future.

I recall attending a UGO meeting at red cliffs lodge as a guide, in the fall of 2013. One of the main topics of the meeting was going to be the situation at North Wash (Dirty Devil). 2013 was an especially rough year to get boats out of the water and I was personally let down by the persistently poor access for our iconic stretch of the Colorado that year. I experienced several harrowing and long take outs, a few lasting up to seven hours. By this time in my career, I had been going to Bullfrog or Halls Crossing Marinas when the takeout was not usable. I had also experienced seasons when the access was pretty mild due to favorable lake levels. The take out situation was going to be a consuming topic...business owners, park service engineers, UGO, the big wigs! I was excited to attend as a spectator and see what the solution would be. The meeting heard the complaints and suggestions from commercial outfitters, National Park Service civil engineers did a presentation that included blue-prints for adjusting the grade, adding proper substrate, and making the ramp at North Wash usable. I was thrilled the discussion was taking place, and quite hopeful that the following spring my first trip through Cataract would end with an approach to a usable ramp.

During the runout on the lake, I assured other guides the situation should be good, the ramp should have a nice grade, we should be sinking trailers and floating boats. Upon approach to the “ramp” I realized I was sorely misled.

Guides, and private boaters that travel this stretch know all too well the challenges of using this ramp when the lake conditions or maintenance does not provide. From a personal perspective, I’ve boated rivers in 3rd world countries that have consistently provided more proper take outs than the “ramp” at North Wash. Rivers like the Colorado can shift in biblical proportions during rainy seasons and on a weekly basis. Still, even small agricultural communities of little means can maintain proper access to a river stretch enjoyed by 1/100th of the user volume seen in Cataract Canyon (there are also no fees associated with these stretches) The take out for the Rios Toro, the Sarapiqui, and the Balsa, could all accommodate Westerns j-rigs on any given day in the rainy or dry season.

All climate models, and anecdotal evidence, suggest we are experiencing the dearth of lake Powell. Connections to people who work in water conservation districts in the state of Colorado, say phone calls with state and federal water managers consistently state that as-a-matter-of-fact Lake Powell will never reach full capacity again. You would have to be sniffing heroic amounts of stabond, or work for the Bureau of Reclamation public relations to stand by the hope, or suggestion that the reservoir will fill or for that matter have an effective future.

For the river people though, there is a future. It would be wise for the NPS or Glen Canyon National Recreation Area, to finally take charge and command the management of North Wash *after* both agencies have effectively treated the take out ramp like an unwanted child for twenty years.

As the reservoir continues to tank, rapids that used to exist pre Glen Canyon Dam begin to slowly emerge in Cataract Canyon. A small group of river boaters are immersed in a private investigation into the happenings of our river carving out its original channel. Their findings began up at Gypsum canyon, and have since brought them all the way to the ramp area at North Wash, with some eye opening revelations about the current geological and hydrological happenings in that area. The accompanying presentation is a condensed version of the original, but we hope helps convey what is happening down there.

The Returning Rapids team, led by Mike DeHoff and Peter Lefebvre wanted to shed some light on the situation at North Wash, in hopes it will bring clarity and provide education on the area, before future decisions about infastructure are made. Talk of extending the original Hite ramp has been another influencing factor for this presentation. The real possibility of a serious rapid forming in the area of the take out has helped prompt further research in this area for proper solutions. Foundationally, the Returning Rapids crew is also advocating for a safer, and more permanent solution. I encourage everyone, especially guides and private boaters who enjoy this stretch of river to get involved in doing the same. Letters can be written to several locations. Heidie Grigg: *heidi_grigg@nps.gov* Chief of Commercial Services, Glen Canyon National Recreation Area, Rainbow Bridge National Monument. Leslie Kobinsky: *leslie_kobinsky@nps.gov.* Concessions Management Specialist for Canyonlands. Leslie and Heidie oversee commercial contracts in Glen Canyon and Canyonlands. All river users should know that both Leslie and Heidie are working diligently within their agencies to improve the situation at the take out.

For the private boating community and the guiding community as well, you can contact the regional director by sending letters of grievance, more pleas for support, and suggestions to :

Mike Reynolds, Regional Director; NPS
12795 West Alameda Parkway
Denver, CO. 80225
Or pull out your phone and call *303-969-2500.*

The Utah Guides and Outfitters (CPRG is fortunate to sit on the board) have been meeting frequently with all of these folks and appreciate their time and dedication to the topic. We believe however too little has been done for too long, and a dramatic overhaul is due to ensure the continuity of commercial outfitters, private use, and safe take outs in general.

This presentation is a slice of the whole works. The team at returning rapids dedicate a huge amount of time and energy to this project. Their research comes from a compilation of findings pulled from various sources. They use historic photographs from the PT Reilly overflight, Doc Marston overflight, Kline library, Marriot Library, and a serious amount of personally dedicated time and resources to the cause. If there ever comes a day when you back a trailer safely down a concrete ramp next to another trip to take your boat out after a cat trip, this group should be acknowledged for their participation in the effort to get there. More information about the Returning Rapids project can be found at returningrapids.com, donations to the project can be made via their website, or a custom donation through the Glen Canyon Institute, with whom they contract through. We hope you enjoy this issue of The Confluence, and as always encourage you to get involved. Share your stories and send submissions to coloradoplateauriverguides@gmail.com. Have a great season.

-Colin E.

To the Editor,

I'd like to take a moment to respond to the book review by Herm Hoops of Otis Reed "Dock" Marston's book Powell To Power: A Recounting of the First One Hundred River Runners through the Grand Canyon, published in 2014 by Vishnu Temple Press (The Confluence, No. 30, Fall 2020).

Powell To Power was the result of Dock's decades long and painstaking research, a synthesis of the over 400 boxes of material he collected in his research. Dock was still polishing the final draft of the manuscript when he died in 1979.

To be clear, I didn't write the book. Dock did. With the assistance of The Huntington's Bill Frank, rare book dealer Bill Bishop, Christian Wright, Hazel Clark, Living River's founder John Weisheit, and others, Dock's work was copy-edited posthumously. The Editors Preface explains in great detail how we approached the copy-editing job. It is unfortunate that Herm didn't mention that fact.

Herm's drooling over Dock's collection is exactly why we brought Dock's book to print, allowing serious students of river history a chance to read Dock's work without going to The Hunting Library's Ahmanson Reading Room, now closed by COVID.

One must wonder why Herm relied on another person's review from Amazon to critique Dock's work without mentioning the Amazon reviews by well-known Grand Canyon river historians and authors such as Don Lago. According to Lago, Dock's "manuscript remained under restricted access until 2012. Now, thanks to Vishnu Temple Press, Marston's magnum opus is available. It's an essential, foundational book for everyone's river library." I agree with Herm that the book is useful as a reference. My copy is dogeared and full of sticky notes.

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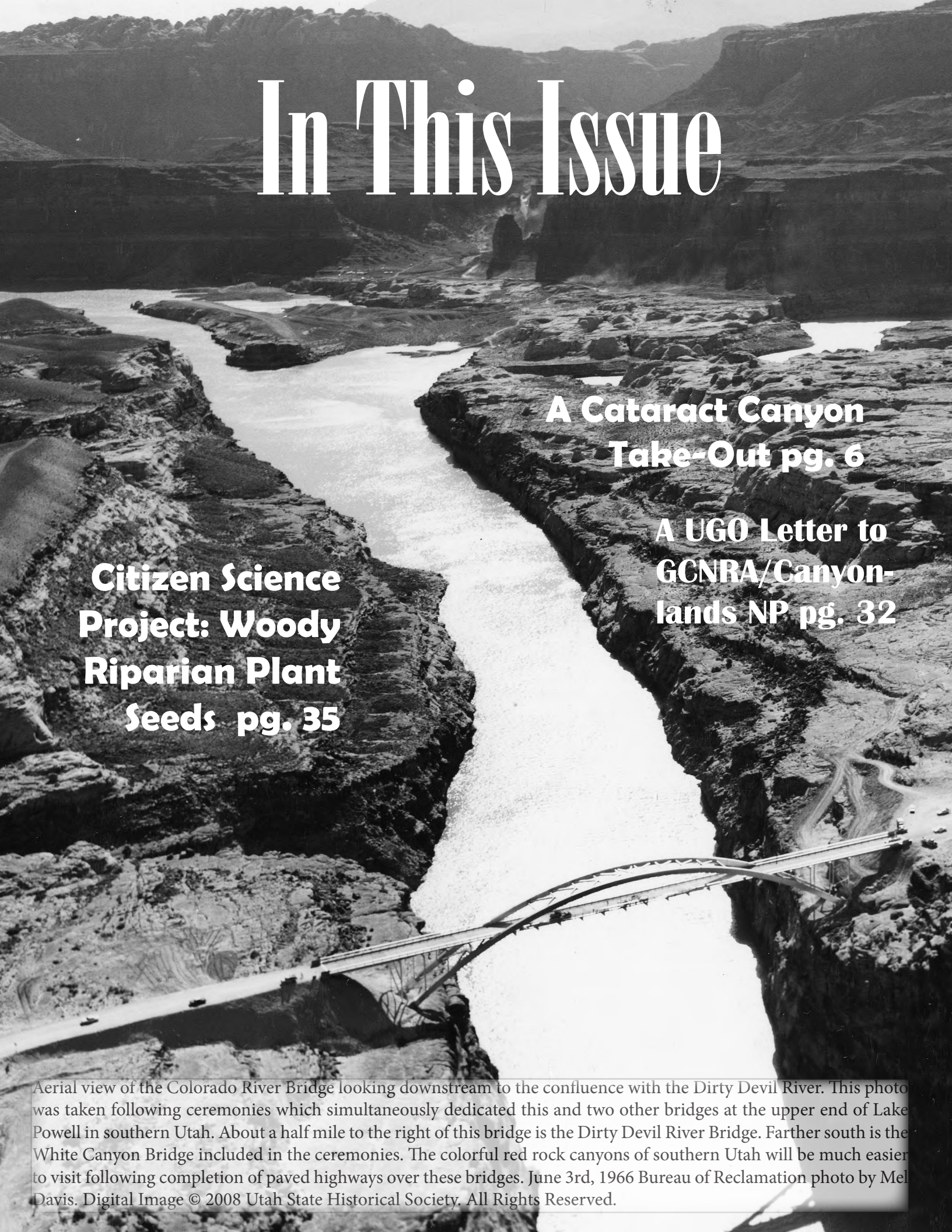
Out of the blue Herm attacks me as an apologist for Marston and presents only one example, which falls flat. I didn't write anything "against Powell, Stegner and Darrah and the glorious achievements made by the Powell Expeditions." Dock Marston wrote those things, and did so in Powell To Power after decades of study.

Citing sources is how we get closer to the truth of the past. I cite the widely recognized writer and historian Dock Marston's work, Powell to Power, as my source in defense against Herm's review.

Most cordially yours, Tom

Tom Martin has written numerous books and river guides about the Colorado River, is co-owner of Vishnu Temple Press, and volunteers for River Runners For Wilderness, a project of the non-profit Living Rivers.

In This Issue



Aerial view of the Colorado River Bridge looking downstream to the confluence with the Dirty Devil River. This photo was taken following ceremonies which simultaneously dedicated this and two other bridges at the upper end of Lake Powell in southern Utah. About a half mile to the right of this bridge is the Dirty Devil River Bridge. Farther south is the White Canyon Bridge included in the ceremonies. The colorful red rock canyons of southern Utah will be much easier to visit following completion of paved highways over these bridges. June 3rd, 1966 Bureau of Reclamation photo by Mel Davis.

FORMAT AND ACCURACY OF COORDINATES

9- 25- 20

You must set your GPS unit to the "position format" and "horizontal datum" appropriate for the task.

LATITUDE AND LONGITUDE: Read North (up), then West (left). Some formats have a minus sign before the longitude to denote West longitude (-109º). Prime Meridian adopted by most countries in 1884.

D.dd º Degrees and decimal parts of a degree. This format used by Grand County Dispatch, 911, iPhones, SPOT, PLBs, OnStar, and many websites.
The 4th digit right of the decimal is about 10 meters, the 5th digit is about 1 meter accuracy for latitude and less for longitude due to convergence. *You only need 4 or 5 numbers right of the decimal.*
To 1 meter: North 38.53847º x -109.51057º To 10 meters: 38.5384º x -109.5105º

D º m's" Degrees º, Minutes', Seconds" = what most people think they know.
One second of latitude is about 101 ft. One second of longitude is about 80 ft @ 38ºN.
38º 32' 18.5" x -109º 30'37.4" *You don't need tenths of a second, so 38º 32' 18" x -109º 30' 37" is good.*

D º m.m' Degrees and decimal parts of a minute. **AIRCRAFT** use this format.
One tenth minute latitude about 607 ft. One tenth minute longitude about 484 ft.
1/100 min = 60 ft, 1/1000 = 6 ft 1/100 min = 48 ft, 1/1000 = 5 ft.
So: 38º 32.308' x -109º 30.631 accurate to 5-10 ft.
38º 32.30' x -109º 30.63' accurate to 50-60 ft.
1 minute of latitude = 1 nautical mile = 1852 meters = 6,076 ft = 1.15 mi.

Note: If you are given a string of numbers but the sender doesn't know the correct words, ask where the decimal point is. Notice the point decimal is in a different place in each of the above systems.

UTM **U**niversal **T**ransverse **M**ercator = a type of map projection invented by the military.
Read RIGHT for Easting, then UP for Northing. UTM zones are 6º E-W, 8º N-S. No decimals needed.
All numbers are real meters on the ground ! We are in Zone 12 S. S does not mean "south."
Easting is meters from zone centerline. Northing is meters north of the Equator.
0629810 (Easting) x 4266613 (Northing) is accurate to 1 meter. GPS units not that accurate.
0629 x 4266 is the 1,000 meter grid printed on a lot of topo maps.
062 x 426 is the 10,000 meter grid on the 1:100,000 maps.
06 x 42 is the 100,000 meter grid. See NGRS.

NGRS **N**ational **G**rid **R**eference **S**ystem- The military way of making UTM confusing.
The 100,000 meter grid letters to cover Grand and San Juan Counties are WH, XH, WG and XG.
So: now we have XH2981066613, accurate to 1 meter.

Horizontal Datum: The old USGS topographic "quad" maps are built using the NAD27 CONUS horizontal datum. Everyone else now uses WGS84. If you are reading to or from a quad, make sure your GPS is set correctly.
Datum Shift: In this area, the datum shift between NAD27 and WGS84 for Lat/Long is in the range 10-100 meters to East and a few meters north. Changes to the UTM values are generally larger, around 200 meters, same direction.

Interesting note: The 3 park VCs form an equilateral triangle *approx* 23 miles on a side.

Bego's Corner

A Cataract Canyon Take-Out

An "easy" day at the North Wash Ramp August 2006, Steve Young

The intent of the following information is to show the continued challenges related to a reliable Cataract Canyon take out. From 2003 to present, river runners and other users wishing to take out from a Cataract Canyon trip or launch a boat in the Hite area have been dealing with an inconsistent, un-reliable, and at times hazardous access point to this area.

The following collection of information is intended to show the challenges, access issues, and safety concerns with the current Hite area/ North Wash Boat Ramp. Over the years, the main user group for the North Wash Boat ramp has been commercial and private river runners. In order to take boats out of the water, techniques have been developed to deal with the inability to safely get a trailer to the water's edge and get a boat out of the water. Equipment has been damaged, near misses have occurred, and the condition of the ramp has been a contributing factor to many incidents. When looked at collectively, the level of attention to this boat ramp issue begs for a different solution.

There are other issues coming into play that complicate decisions regarding the best course of action: future reservoir levels, a river that is flowing out of its historic channel, the presence of unstable lake sediments, and a river to reservoir zone that fluctuates up to 60 feet a year.

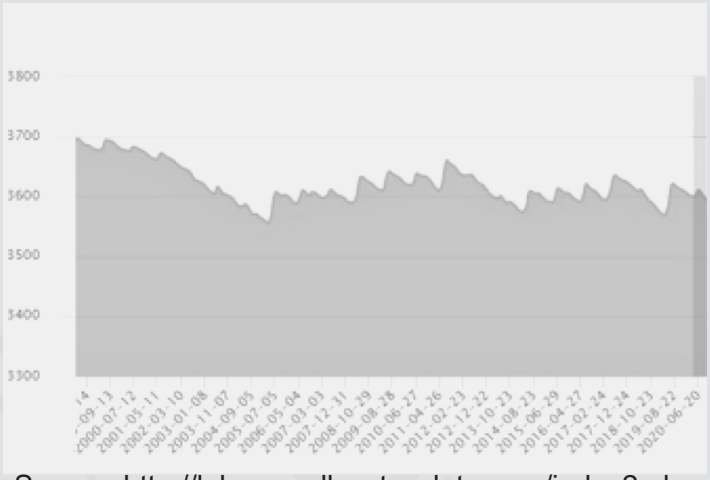
We hope that this report represents all the related issues to help inform a more permanent, safer, and reliable long term solution.

Cataract Canyon	2018	2019	2020
Commercial Trips	233	267	152
Commercial People	2814	2963	1628
Private Trips	154	182	239
Private People	1328	1660	2080

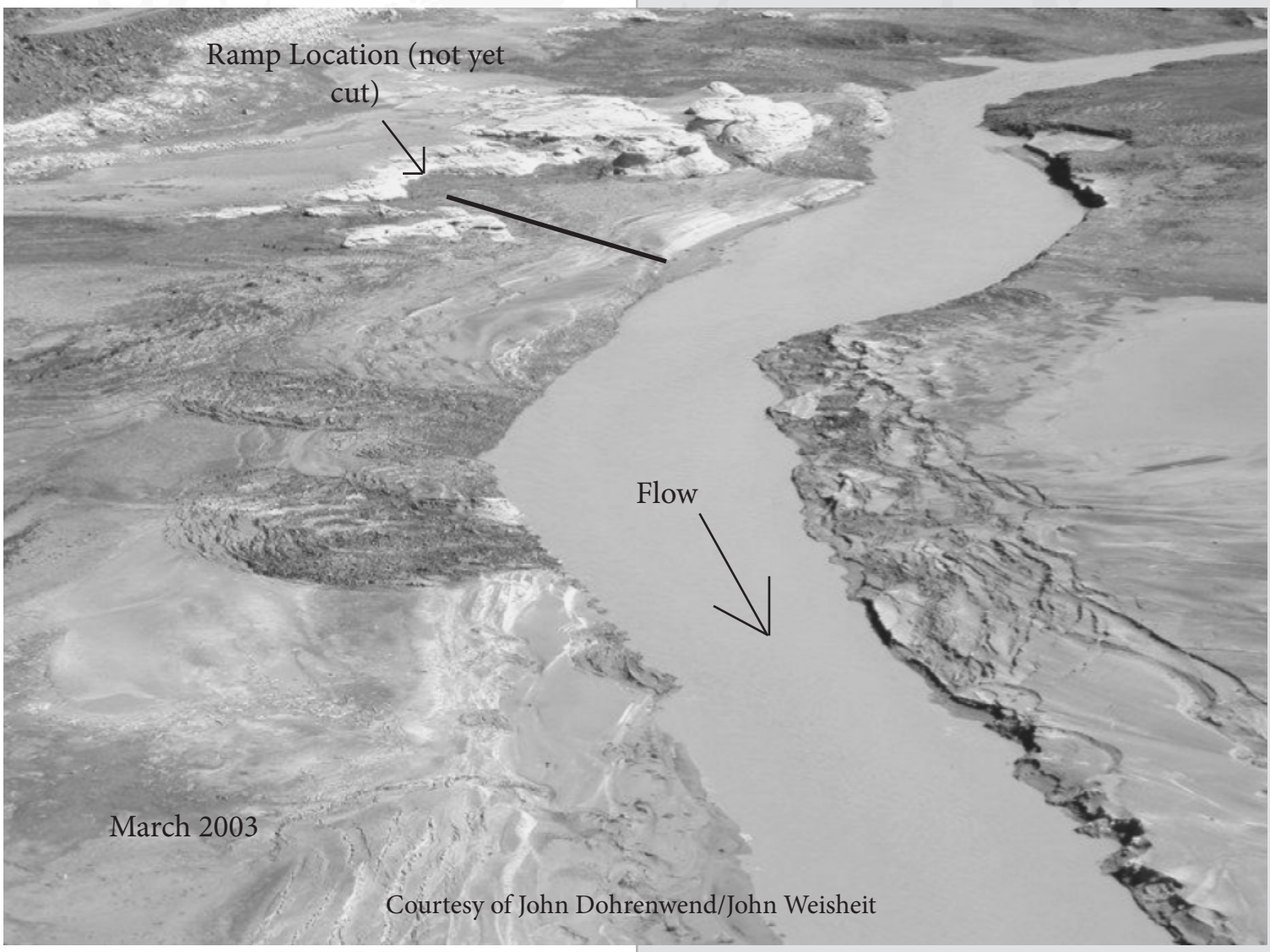
Cataract Canyon User Numbers, courtesy of Canyonlands National Park concessions office

In 2002 and into 2003, the level of Lake Powell drastically dropped from a long maintained level of 3670-3700 feet above sea level.

The drought of 2002-2003 was the beginning of a new average reservoir water level of 3600' (+/- 30 feet).



Source: http://lakepowell.water-data.com/index2.php



Courtesy of John Dohrenwend/John Weisheit

During the summer of 2003, a ramp was bladed through the sediment on river right approximately ½ mile below where the Dirty Devil River flows into the Colorado River's corridor.

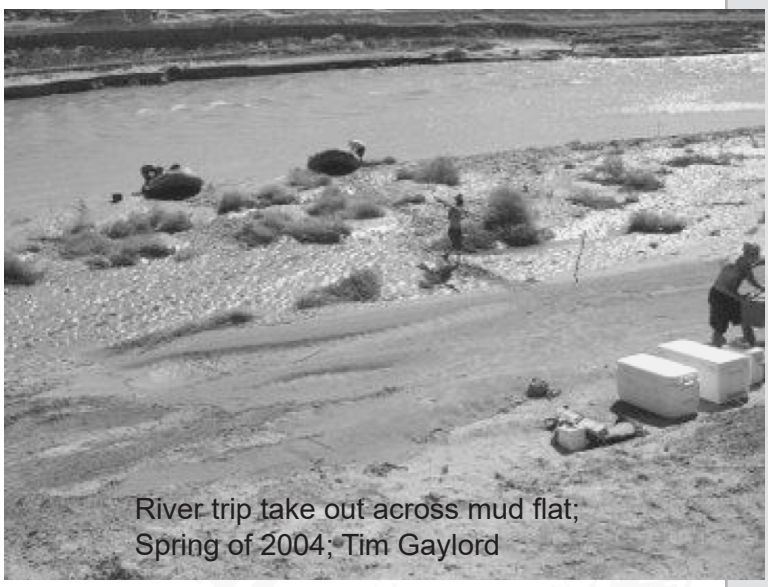
This new ramp was located near a pre-reservoir road to North Wash Canyon and became know as the "North Wash Boat Ramp."

North Wash Ramp Nov 20, 2003; Reservoir Elevation 3601 at Dam; John Dohrenwend/John Weisheit

The single lane construction of the ramp made it difficult for more than one group to take boats out of the river at a time.

The ramp was on the soft silt of river sediment, which made many parties not want to risk putting their vehicles/ trailer too close to the water's edge.

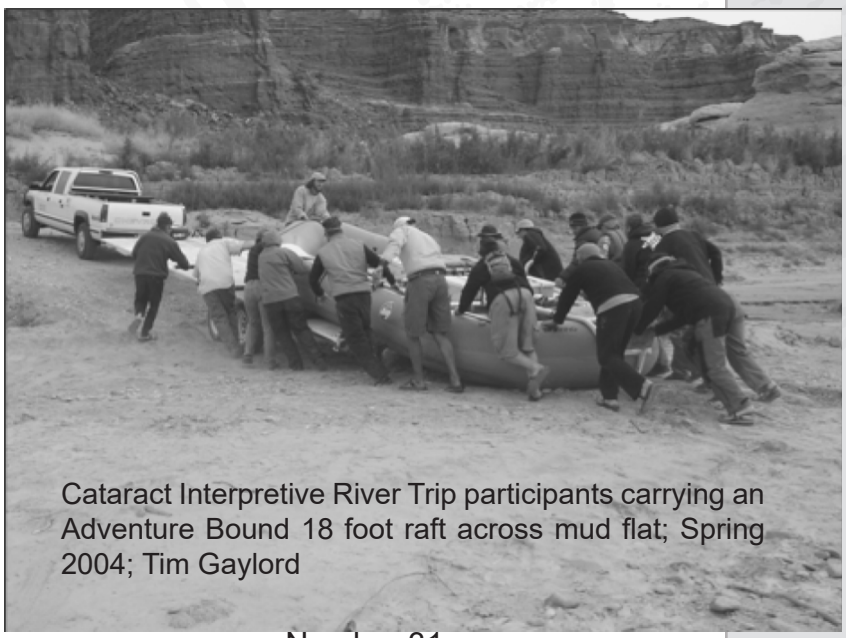
Holiday River Expedition boats being pulled up the single lane ramp from the water's edge
Holiday River Expeditions 2003, Tim Gaylord



River trip take out across mud flat; Spring of 2004; Tim Gaylord

In 2004, the river receded further from the toe of the ramp and a mud bar appeared. This further blocked users from accessing the river's edge. The combination of the soft lake sediments, varying river level, and mud flats at times presented groups with either a very steep ramp or cut bank.

Groups had to carry equipment across the mud bank and up the steep ramp to an area where a vehicle/ trailer could be safely backed down.



Cataract Interpretive River Trip participants carrying an Adventure Bound 18 foot raft across mud flat; Spring 2004; Tim Gaylord

If enough people were around, a raft could be carried across the mud flats to a trailer.

The task was time consuming and often there were not enough hands to use this technique.

Western boats getting roller tubed up ramp; June 2013; Tim Gaylord

Running a good river trip requires an ability to adapt and solve problems. This characteristic is inherent in most river runners.

Dealing with the ever changing boat ramp issue became just another problem to solve.

Many outfitters began utilizing a take out method known as “roller-tubing.”

Tubes that are made of the same material as rafts are inflated and laid out under the boats. A line is anchored to the raft and a vehicle or winch is used to pull the raft up onto the tubes and up the ramp’s slope.

A crew of people is required to shuffle the tubes as the boats are pulled along and up the ramp so they can be loaded onto a trailer.

This is a very time consuming process. It puts undue wear and tear on the boats and other equipment, requires the outfitter to be equipped with additional equipment, and has people working around highly tensioned lines.

Roller tubing 18ft rafts at North Wash; 2013 Peter Lefebvre

Over time, roller tubing became the go-to method to get larger boats from the water's edge to a trailer.

Often it meant that only one party could use the ramp at a time and it made for back-ups at the ramp.

Snout rig take out with roller tubes 2013; Peter Lefebvre

Close Calls at the Ramp

June 11, 2016; 46,000 cfs; Reservoir Elevation 3632 at the Dam
The ramp's unevenness and steep bumpy grade contributed to a boat shifting as it was pulled out of the water. The "S-Rig" shifted off the trailer as it was pulled away from the water's edge and up the ramp. Luckily there were enough people around to help get it back on the trailer.

2013 – While winching two 18' rafts up the steep ramp, a rope broke and the 2 rafts rolled out of control towards the river. Luckily no one was in their path.

2014 – While trying to load rafts onto a trailer submerged in the highwater current at the ramp, a fully loaded 18' raft was pinned against the submerged trailer. The force of the current started to push the trailer downstream and drug the truck a few feet with it. The pinned raft then flipped, washed free of the trailer, and floated down river. The boat had to be chased down and retrieved.

2018- During a heavy rain storm a dually truck and 40' trailer slid down the ramp on mud. Another truck had to be hooked to the truck and trailer to stabilize the situation and pull the works up the saturated lake sediment slick ramp.

November 2019 - The condition of the ramp was such that it didn't make sense to sink a trailer, it was too steep and muddy.

While winching a zodiac style boat onto a trailer, an anchor point broke and hit the person (Peter) operating the winch.

The steepness of the ramp was a contributing factor to the incident.

April 1, 2014

May 21, 2014

The Need For A More Durable Surface Than Lake Sediments

The Lake Sediments continue to prove that they cannot be a reliable foundation for a boat ramp. Credit must be given to the maintenance crews and their efforts to make the North Wash location functional. Over the years, the same issue keeps re-appearing: the lake sediment sloughs away after going through periods of saturation and de-watering, making it unreliable for vehicle travel.

The North Wash ramp is one of the few ramps that people dress differently for in order to take boats out (i.e. put on gloves/ special shoes, clothing, etc.). It gets special safety talks, etc.

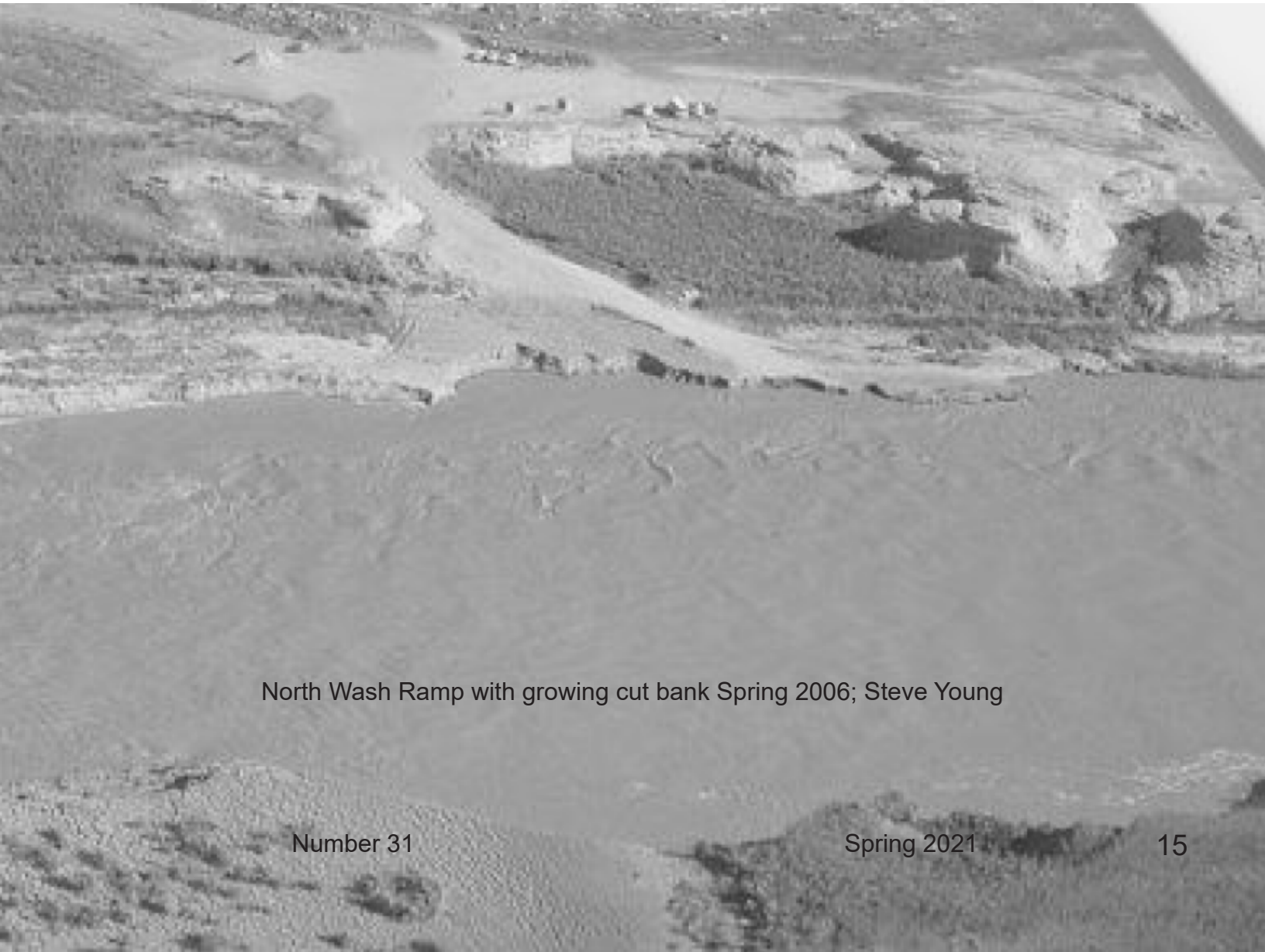
Many people have expressed concern that one day this ramp is going to cause serious injury or a fatality and that such an injury/ fatality may be the only thing that drives a reasonable change. Some concessionaires have stopped running certain types of trips because they do not wish to deal with the arduous/ unreliable nature of the take out. (For example: Adrift Adventures 2-day Cataract Canyon Trips). While researching this report a user reported “I am more concerned about what might happen at the take out than what could happen while running the rapids.”

October 23, 2020

November 24, 2020

Considerations For Any Cataract Take Out Location

- Water Levels and Annual River Fluctuation
- Future Reservoir Levels
- The Unstable Sediment
- Slope and Substrate
- Installation of an Upstream Barrier
- Regular Maintenance for Year Round Access
- A Ramp that can Accommodate Several Parties and Traffic
- Going Across the Delta is Not a Viable Solution

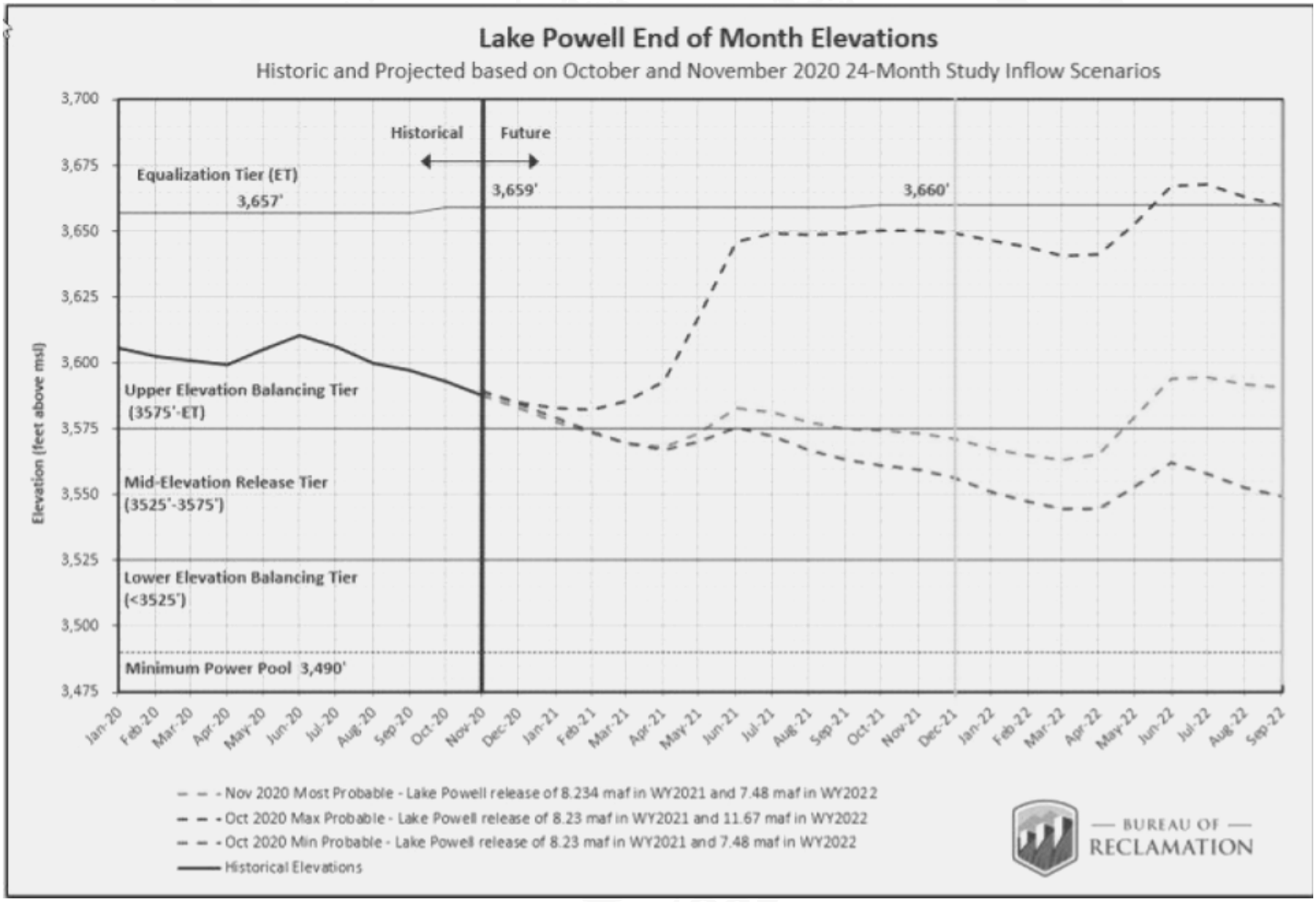


North Wash Ramp with growing cut bank Spring 2006; Steve Young

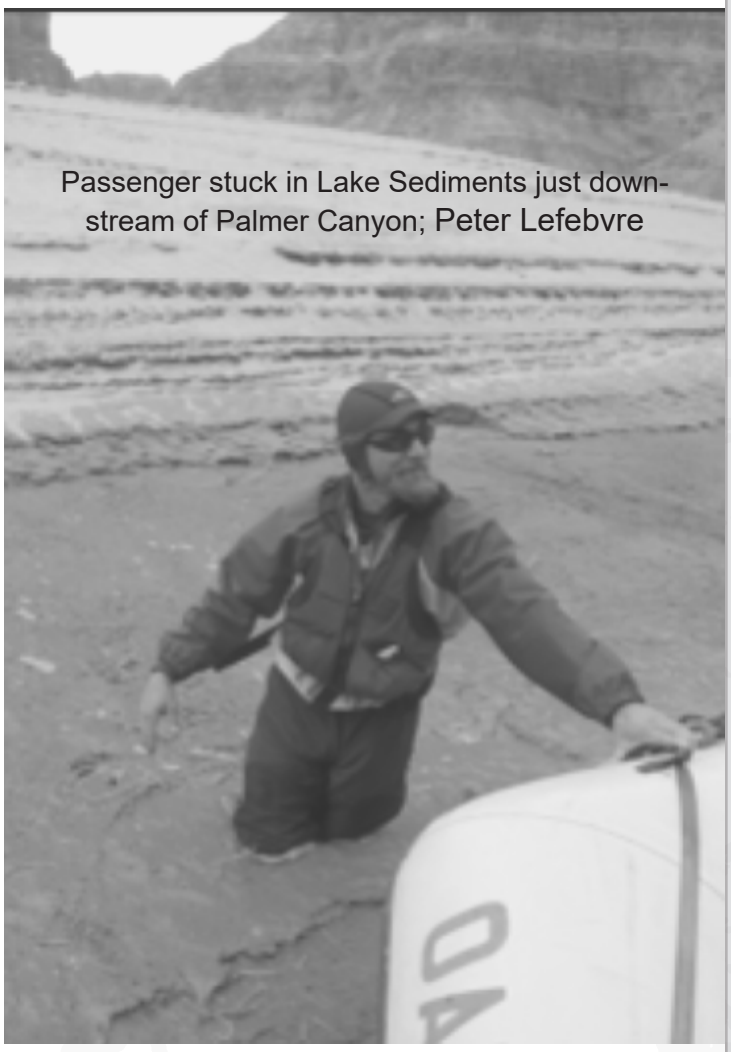
Water Levels and Annual River Fluctuation

It is possible that the take out for Cataract Canyon must accommodate the greatest water level fluctuation and sediment load of any access ramp on the entire Colorado River: The annual level of Lake Powell can fluctuate as much as 30-60 feet in one year.

The Colorado River through Cataract regularly has spring runoff high water peaks of 40,000 cfs with occasional higher levels of 70,000-90,000 cfs. This equates to a 20-35 foot fluctuation of sediment laden river water. The Colorado River's high water events can move, scour, and deposit a huge amount of sediment. Similar to the water fluctuation, the sediment that is moved by the Colorado through Cataract Canyon and deposited into Lake Powell may be the greatest annual load of sediment moved on any other section of the Colorado River. There needs to be as much of a sediment management plan as there is a plan for water and reservoir level management.



The ability to accurately predict the future levels of Lake Powell is outside the scope of this report. Forecasted reservoir water levels for Lake Powell as of December 10, 2020 from the Bureau of Reclamation show a 24 month projected reservoir level between 3,575' and 3,600'. The Long Term Management Plan concerning the collective management of both Lake Powell and Lake Mead will be revised by 2027. Currently both are under 45% capacity. Ideally, a Cataract take out would allow access from the maximum managed elevation of the reservoir all the way down to the minimum power pool of Glen Canyon Dam, 3,490'.



Passenger stuck in Lake Sediments just downstream of Palmer Canyon; Peter Lefebvre

The Unstable Sediment

One of the main things that the North Wash Ramp continues to show through the years is that the sediments are reliably unstable.

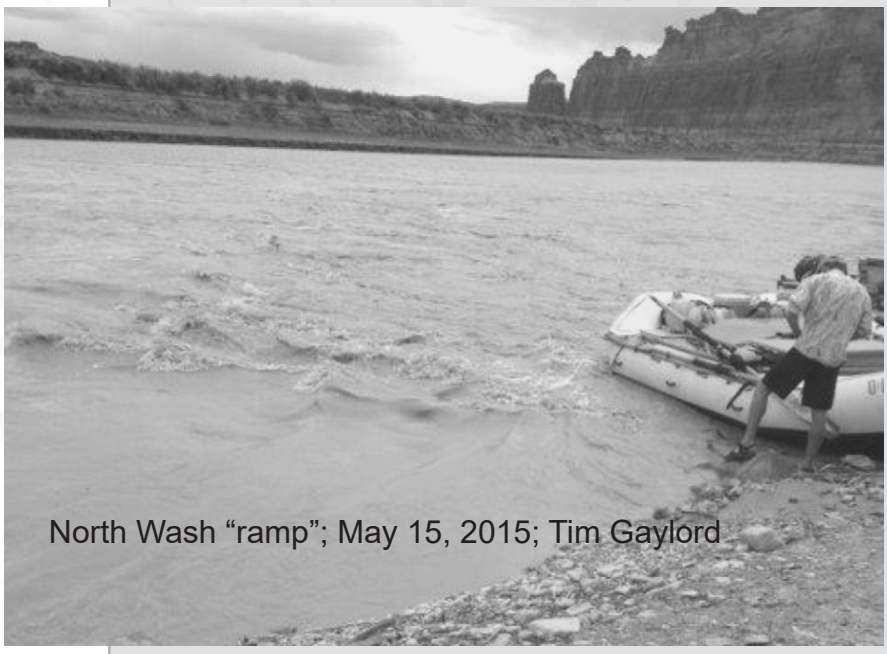
If dry, they prove too soft for regular vehicle travel. If cycled through periods of saturation and drying out, they slough away. If there is any groundwater present, this helps the sediment to migrate. When sloughing occurs, it can leave cut banks.

Where exposed to the current of the river, the river will always carve it away.In areas where the sediment is saturated, it is not always safe for foot traffic. In any construction of, or continued maintenance to, a ramp, we strongly advise not to use sediment as a base for any ramp.

High Water Current Diversion

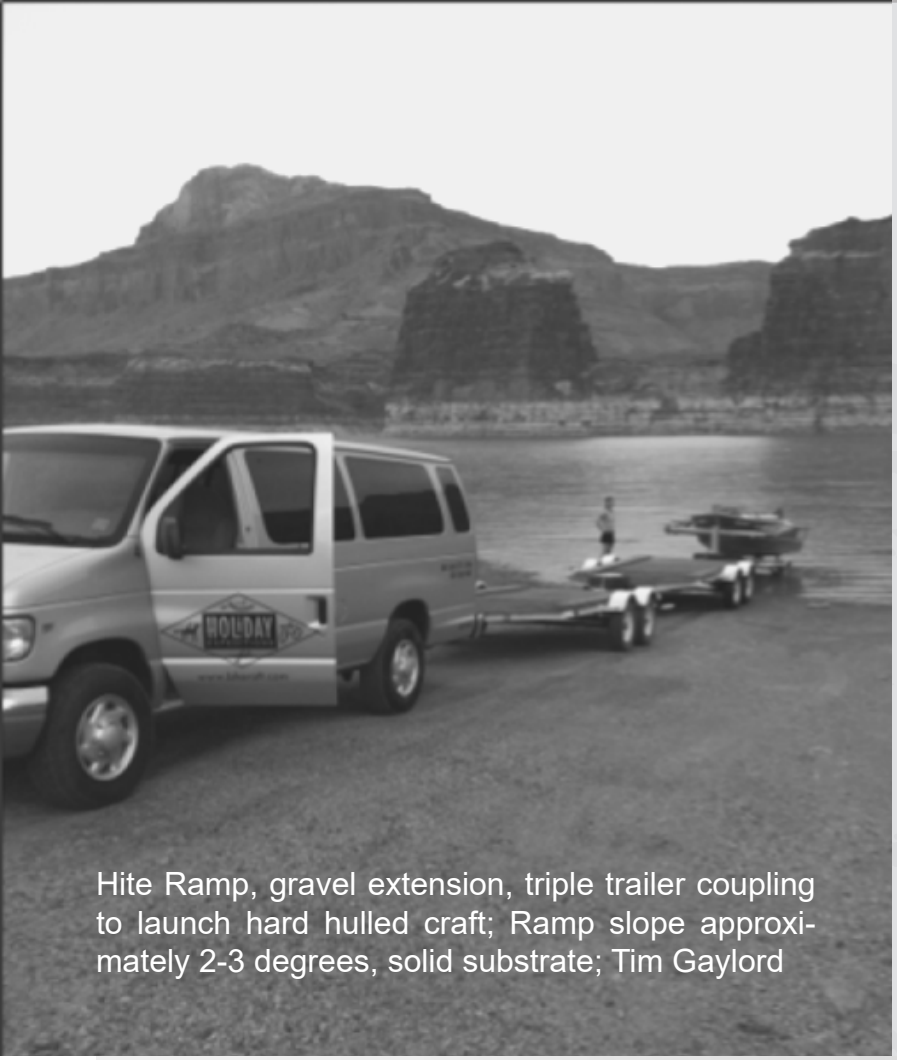
The challenges of dealing with a less than ideal ramp are compounded even more during highwater. Trying to trailer a non motored boat in 5-7 mph current is treacherous at best.

Some type of upstream jetty designed to form an eddy around the boat ramp would make for a more controlled boat loading location.



North Wash “ramp”; May 15, 2015; Tim Gaylord

Slope and Substrate



Hite Ramp, gravel extension, triple trailer coupling to launch hard hulled craft; Ramp slope approximately 2-3 degrees, solid substrate; Tim Gaylord

A good boat ramp needs to be between 6-9 degrees in slope.

Too shallow and it cannot allow a boat to be trailered.

Too steep and it is difficult for a 2 wheel drive vehicle to use and becomes an area where users can slip/ fall while using.

This is assuming the substrate of the ramp is an all weather durable surface with a reliable and even surface for vehicle traction.

Hooking 2 trucks together to pull a GCMRC boat out of the water; Ramp slope approximately 12-14 degrees, loose and soft substrate North Wash Boat Ramp; October 23, 2020; Meg Flynn

Waiting for your turn to take out; Tim Gaylord

A Ramp To Accommodate Demand

The ramp must be as wide as the current concrete ramp at Hite to accommodate multiple parties. It also needs to be wide enough for commercial companies to maneuver the large vehicles that they use to take out multiple boat river trips. For example: a heavy pick up truck and 40 ft trailer combo or a small semi truck.

Going Across The Delta Is No Solution

At times when the North Wash Ramp was in unusable condition for parties with larger or heavier boats, groups made a difficult decision to continue across the reservoir to take out at Bullfrog or Hall's Crossing. Parties that have done this have reported incidents and near misses related to the ever fluctuating channels inherent to the river-to-reservoir sediment delta (currently located just below White Canyon).

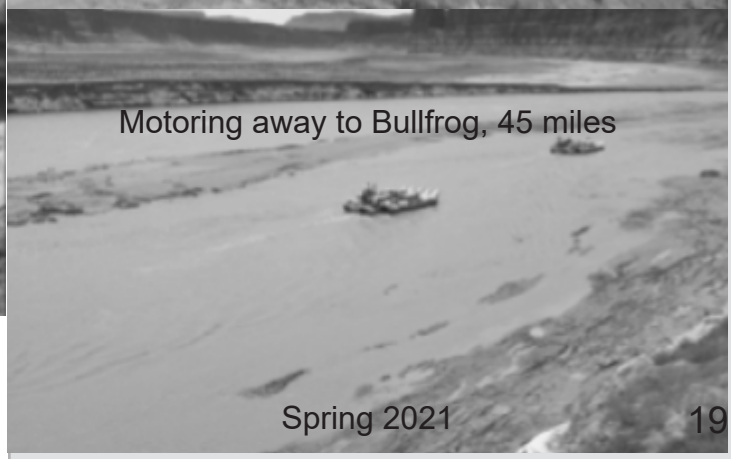
Western River Expedition can't take out

May 24, 2013 Photos; Tim Gaylord

Regular Maintenance for Year Round Access

The boat ramps utilized to put in for a Cataract Canyon trip are regularly cleared of sediment or worked on by maintenance crews 2-3 times a year: At the beginning of the river season, after the high water run off, and when the river has settled out to its base flow. Research for this report has made clear that users desire reliable year-round river access points. An approach focused on ramp maintenance only at the "beginning" of a river season does not meet the access needs of all users.

North Wash Ramp in Muddy Condition



Motoring away to Bullfrog, 45 miles

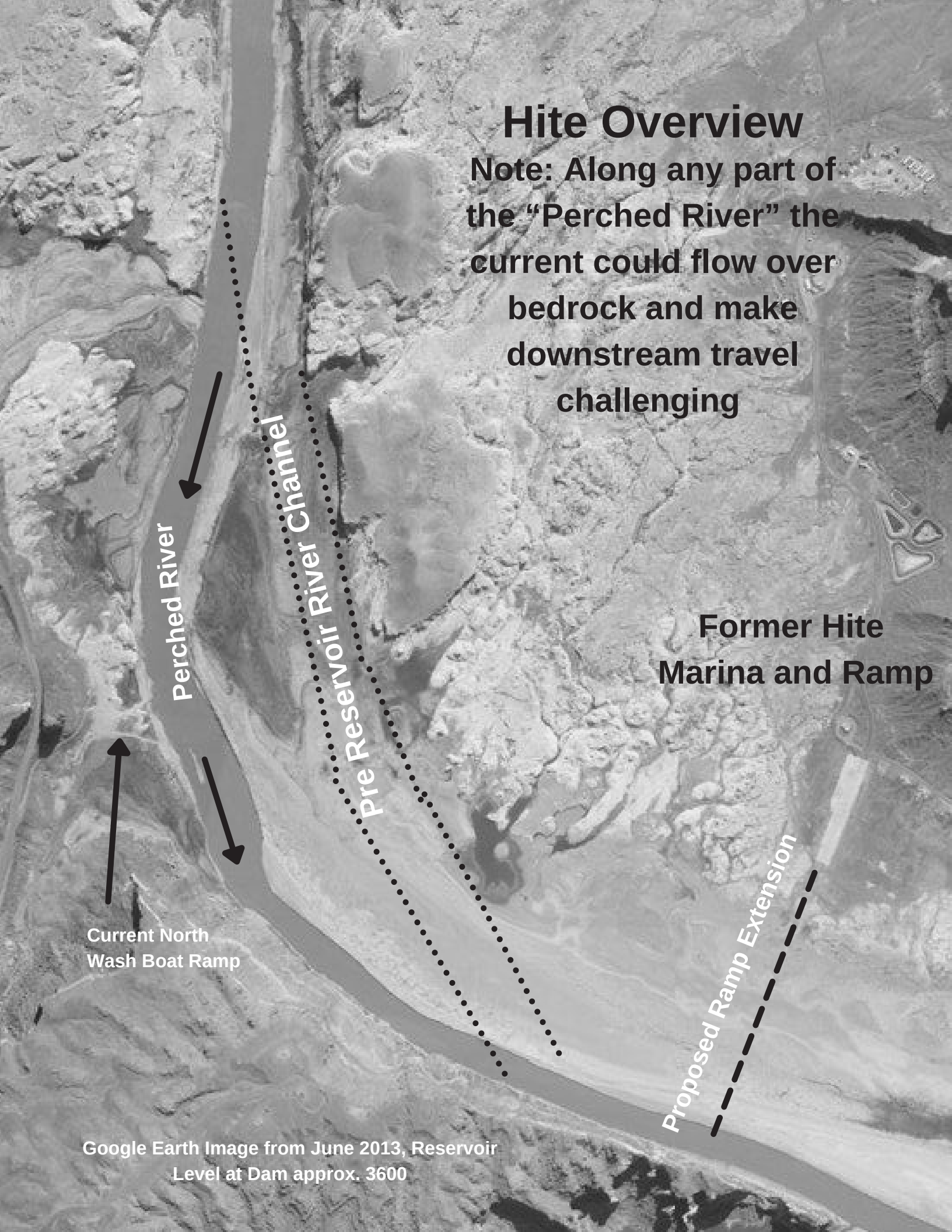
The current site of the North Wash Boat Ramp could still be a viable boat ramp/ access point if the following points were addressed:

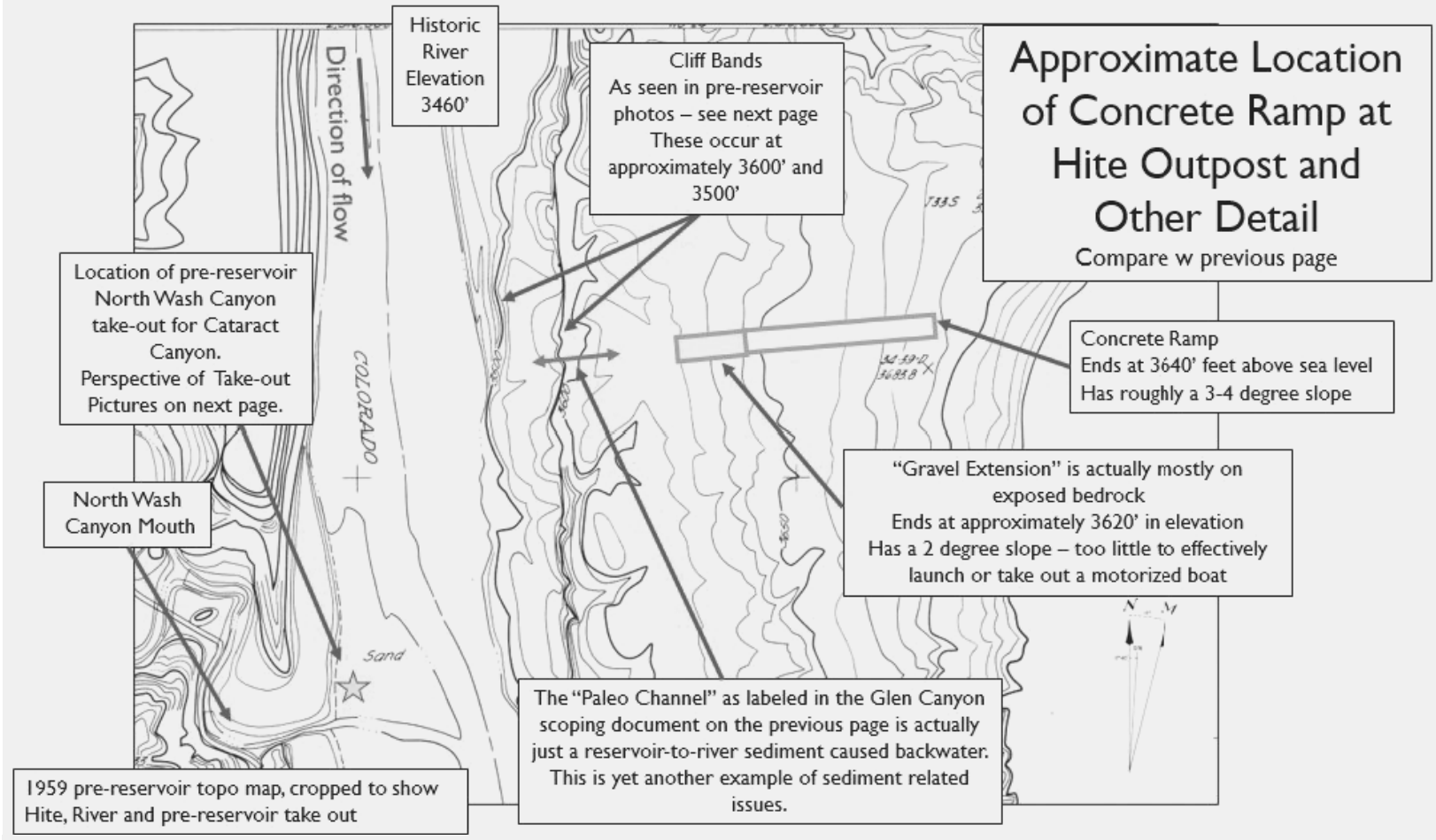
- The steepness of the ramp, durability of the ramp substrate, and sloughing of the sediments.
- A jetty or some other structure was put in place to push the main current of the river away from the ramp area.
- The narrowness of the ramp at water level was widened so that more than one party could take out at a time.
- The ramp was regularly maintained so vehicles with a trailer could get near the water's edge, the ramp area was kept at a reasonable slope, and was on a surface that offered durable traction in all types of weather conditions.

A Second Option: Extending the Concrete Ramp at Hite

The idea to extend the current concrete ramp at Hite Marina could be an effective solution provided it is executed with:

- An understanding of pre-dam area topography
- Mitigation of the unreliable nature of the lake sediments
- Anticipation of how to keep the ramp functional in the annual 30-50 feet fluctuation of the river-to-reservoir zone
- A plan to address the potential of a lake sediment caused waterfall that may occur just upstream of this proposed take-out location.


Hite Overview
Note: Along any part of the "Perched River" the current could flow over bedrock and make downstream travel challenging
Perched River
Pre Reservoir River Channel
Former Hite Marina and Ramp
Current North Wash Boat Ramp
Proposed Ramp Extension
Google Earth Image from June 2013, Reservoir Level at Dam approx. 3600

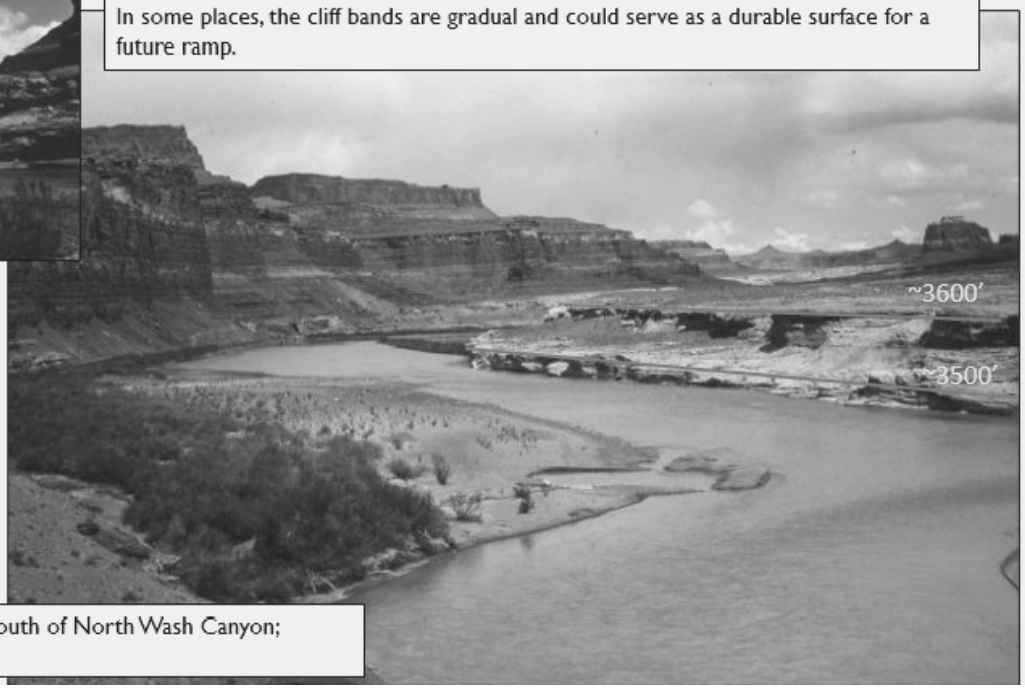


1959 pre-reservoir topo map, cropped to show Hite, River and pre-reservoir take out

Views from the Historic North Wash Take Out

Pictures from the area show that the current concrete ramp at Hite has a gentle slope that continues down from the toe of the ramp to the cliff bands (as shown on the topo map from the previous page).

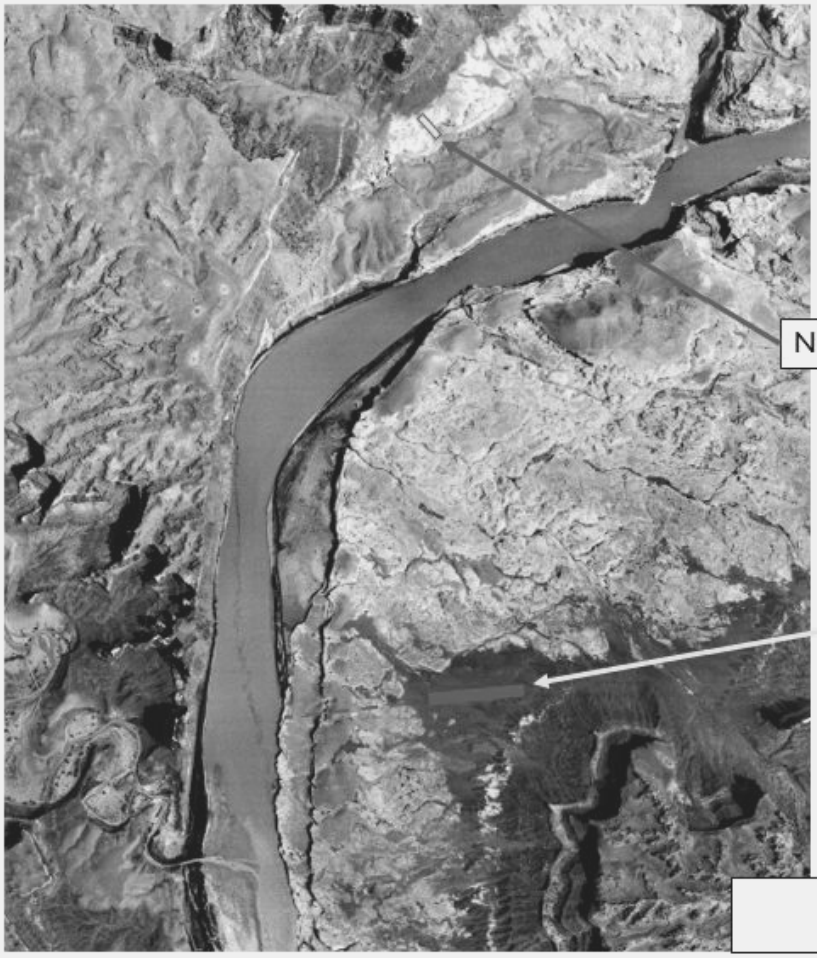
In some places, the cliff bands are gradual and could serve as a durable surface for a future ramp.



Pre-reservoir North Wash Take Out – River Right at the mouth of North Wash Canyon; 1964 Grant Reeder Pictures, courtesy of Stuart Reeder

Hite Area

Both ramps are shown overlaid on a pre-reservoir overflight picture.



Hite Marina Area 1959 USGS overflight pic cropped for detail

Panorama of ramps from Hite overlook; July 22, 2019; Tim Gaylord

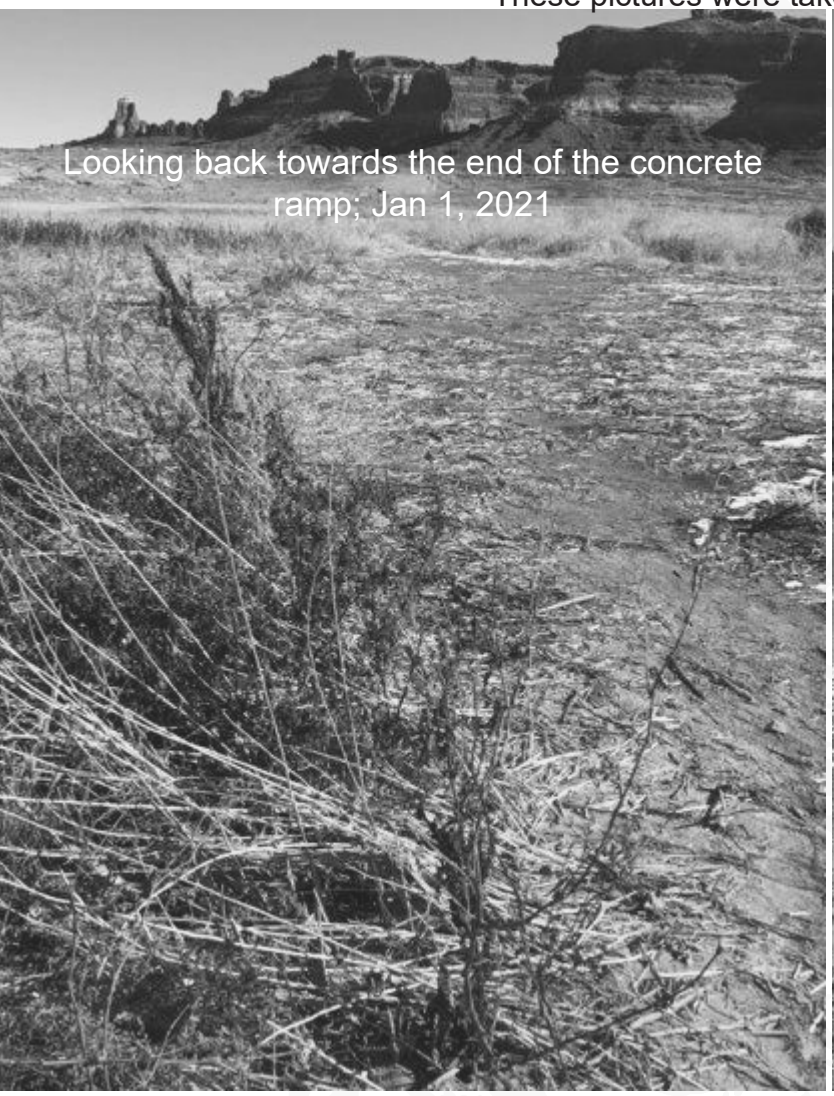
Any plan proposing a potential Hite Ramp extension should consider the long term maintenance challenge and accessibility issues posed by the backwater zone and sediment deposition that will occur at the toe of the ramp extension.

Panorama of ramps from Hite overlook; Oct 11, 2019; Tim Gaylord

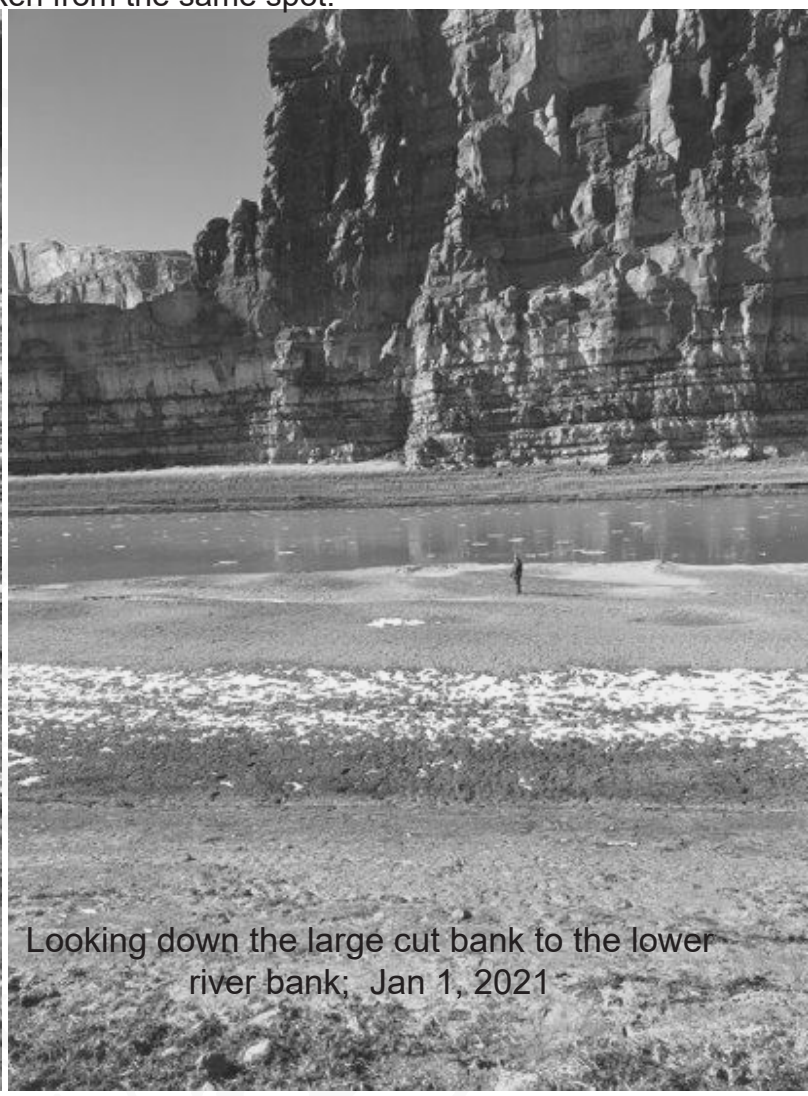
Is there an option to just scrape away all the lake sediments?

Since the topography shows that the slope of the ramp continues to the edge of the cliff bands, could the sediments just be scraped away? This would eliminate the variables related to building a road across a surface that has proved to be incredibly unstable.

These pictures were taken from the same spot:



Looking back towards the end of the concrete ramp; Jan 1, 2021



Looking down the large cut bank to the lower river bank; Jan 1, 2021

If choosing to extend the concrete ramp at Hite, please consider:

- Scraping away as much of the lake sediments as possible
- Making the extension wide enough to accommodate 3-4 vehicles/ parties so they can simultaneously interact with the area at the same time – and space for a large truck/ trailer to turn around.
- Designing the location so that boats may be loaded in an eddy and not in the main river current regardless of water level.
- The current will be migrating back towards the river left bank. This may create cut banks if not mitigated.
- What will be done if a rapid/ waterfall occurs in the perched river area?

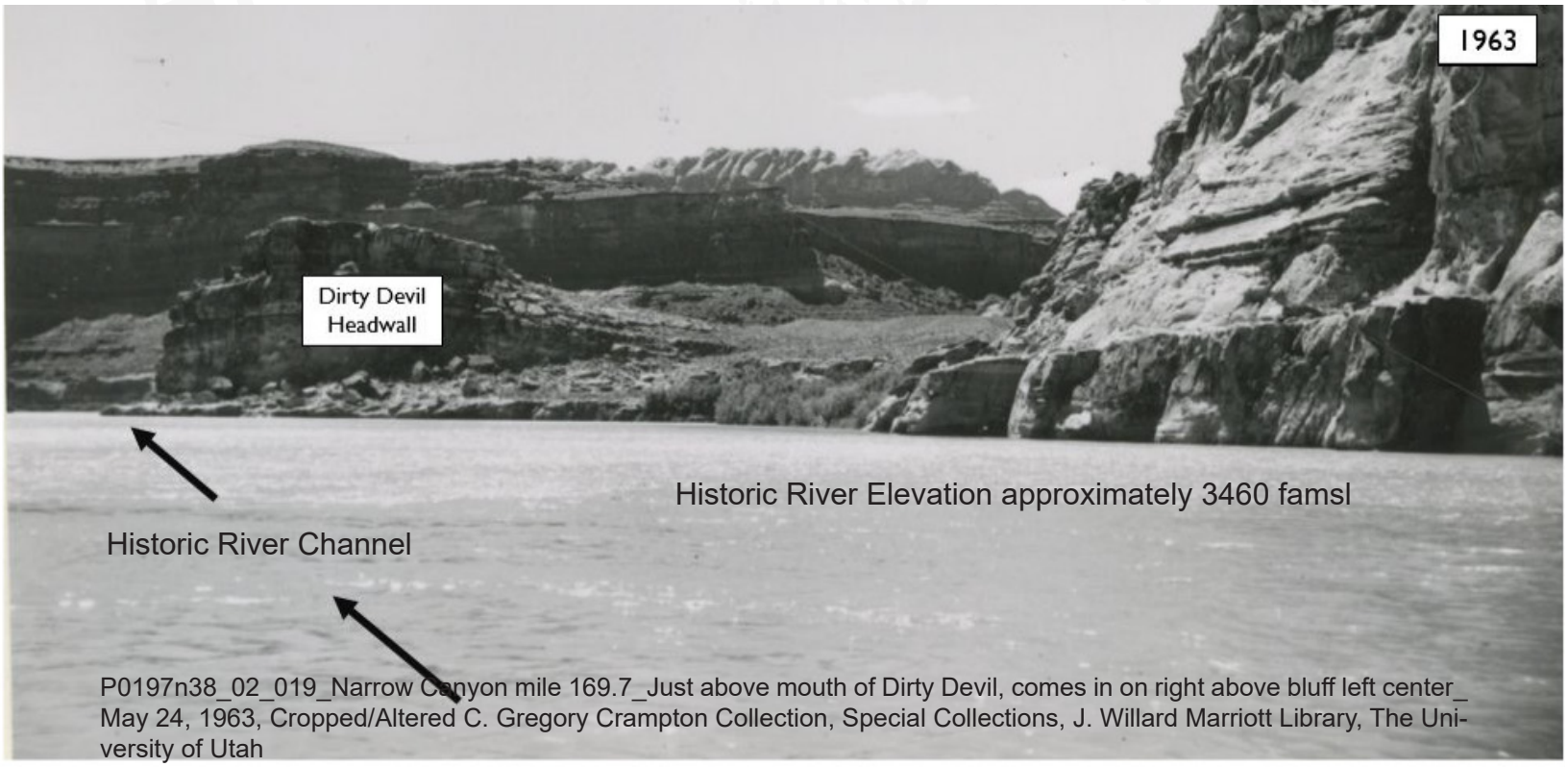
Unperching a river: Will there be waterfalls?

When Lake Powell dropped during the 2002-2004 drought and stabilized near 3600', the Colorado River just below its confluence with the Dirty Devil River settled into an area outside of its pre-Glen Canyon Dam channel.

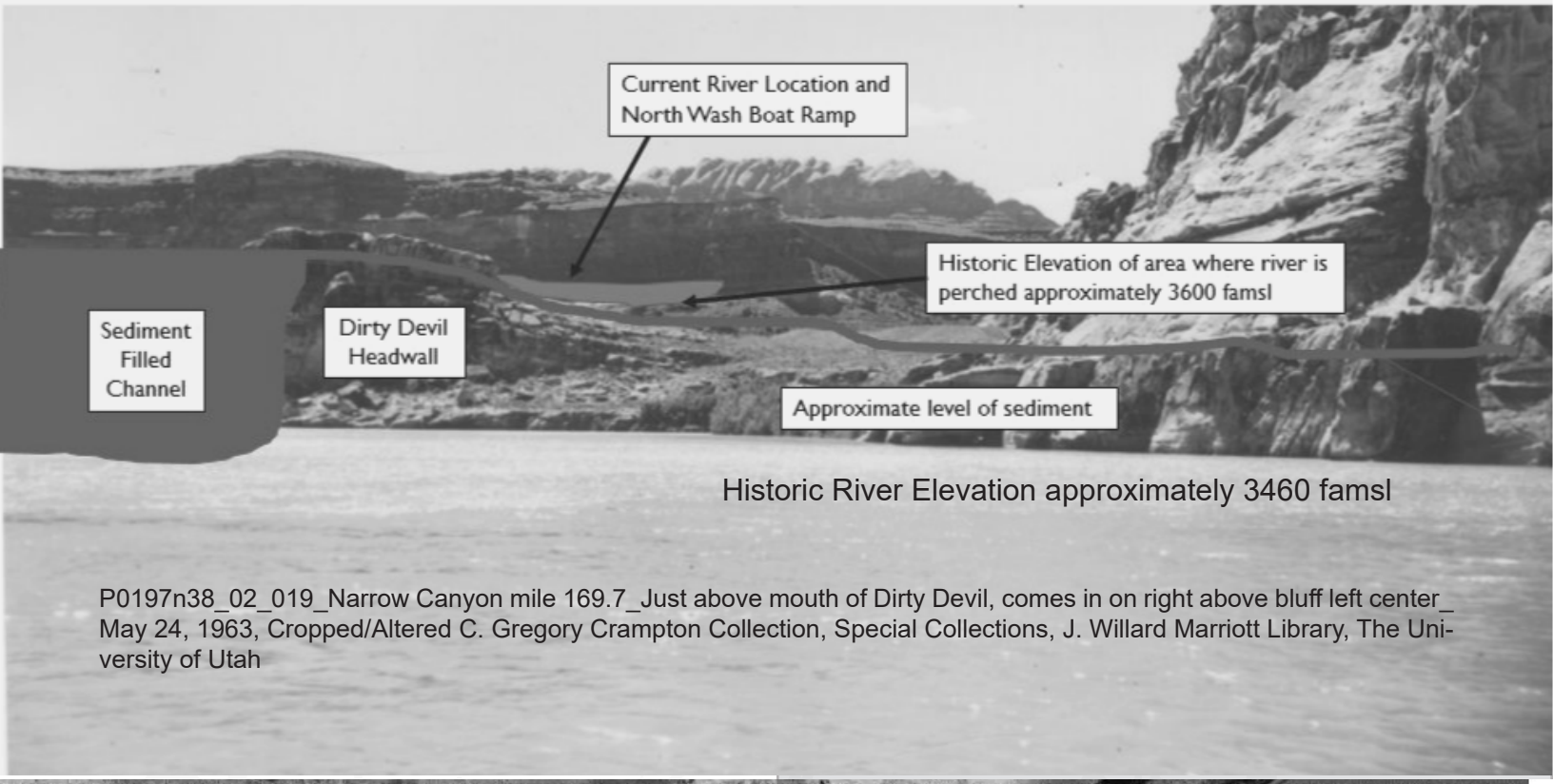
RS9383_P_557_420-6955 Mouth of Dirty Devil WL Rusho 4_62 Cropped and Enhanced Special Collections, J. Willard Marriott Library, U of U

North Wash Ramp Overview; 4_2008; Weisheit_Dohrenwend

It is currently "Perched" about 150 feet above its old channel as it flows by the current location of the North Wash Boat Ramp.

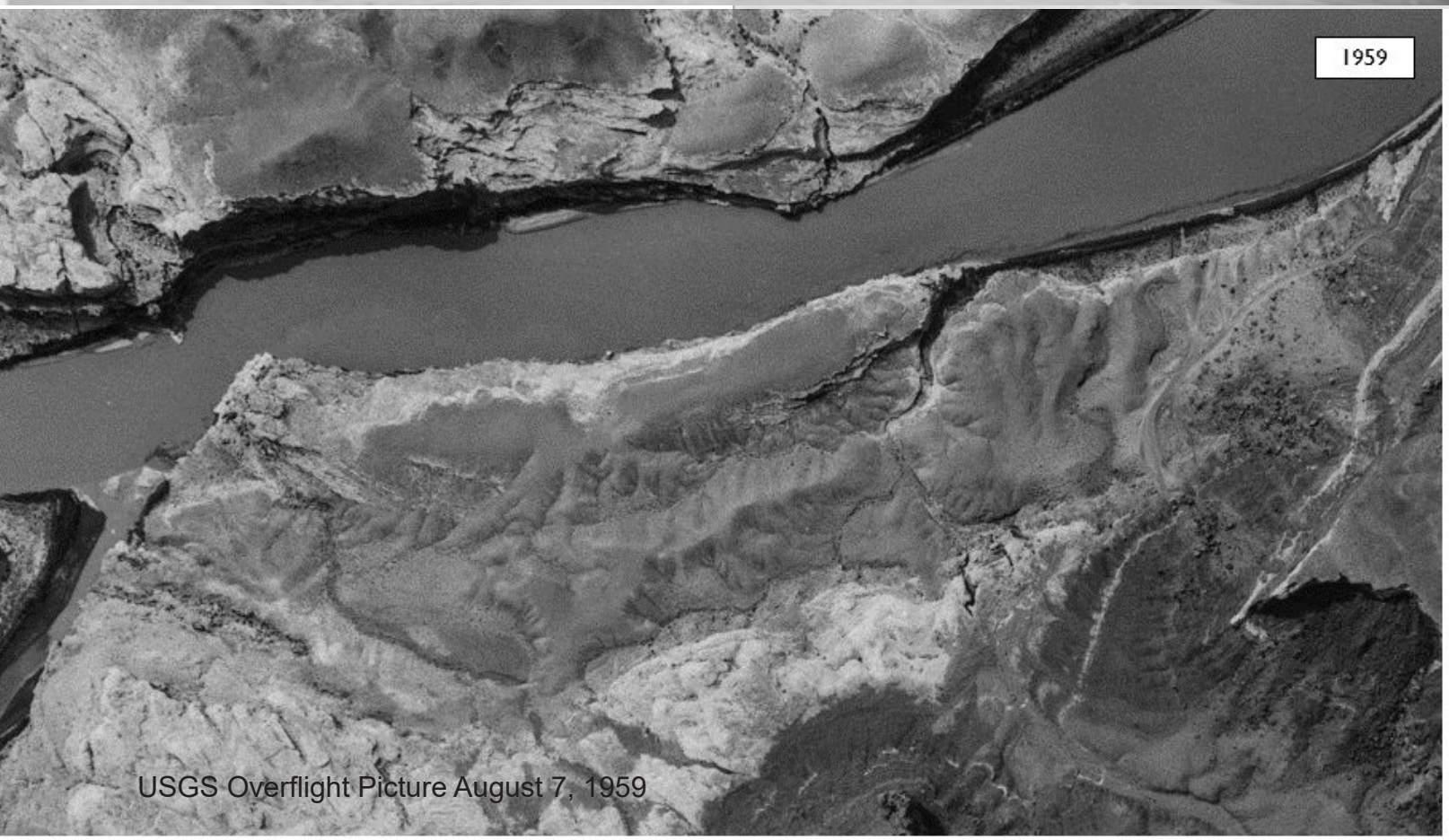


P0197n38_02_019_Narrow Canyon mile 169.7_Just above mouth of Dirty Devil, comes in on right above bluff left center_ May 24, 1963, Cropped/Altered C. Gregory Crampton Collection, Special Collections, J. Willard Marriott Library, The University of Utah

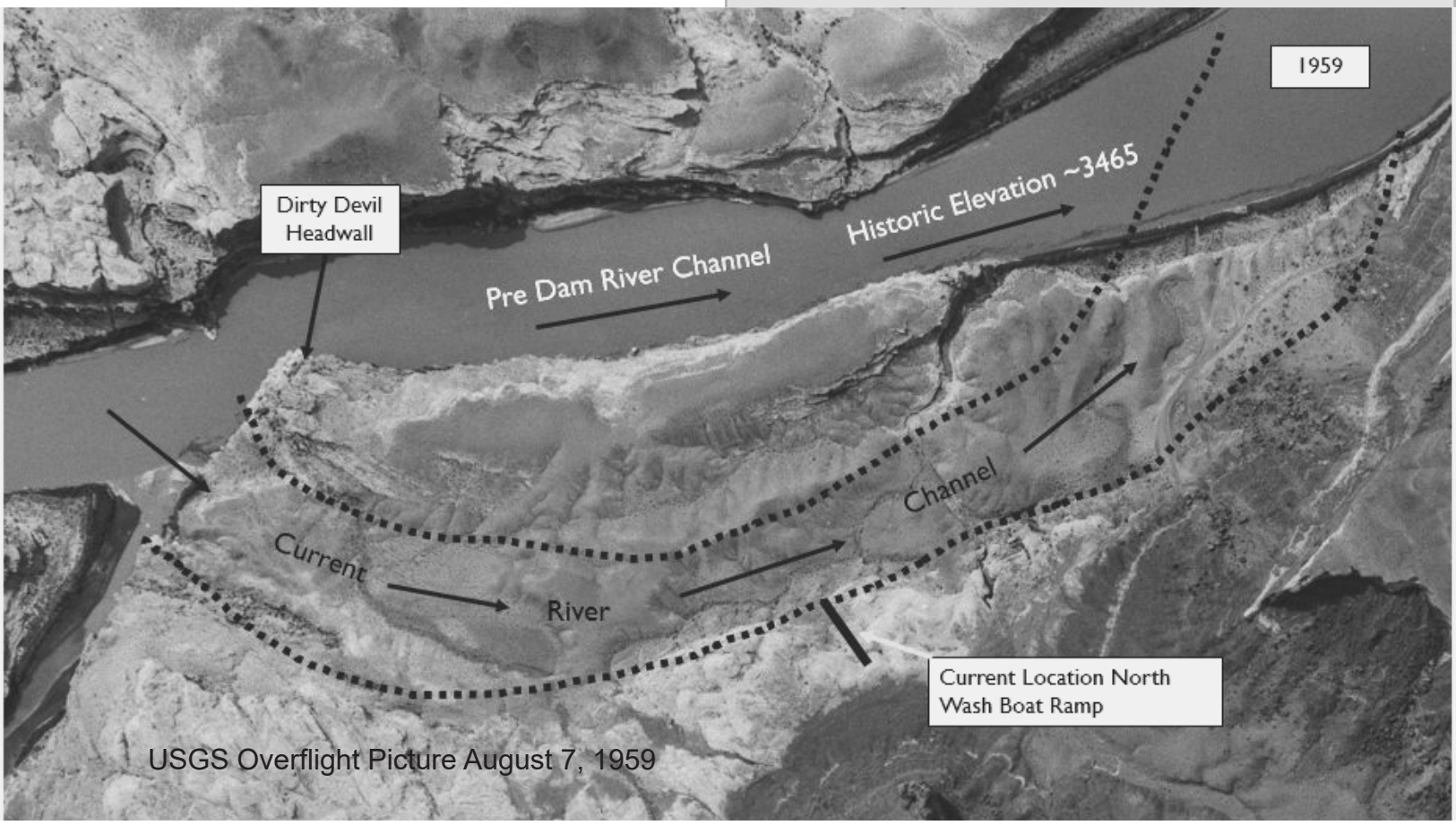


Historic River Elevation approximately 3460 famsl

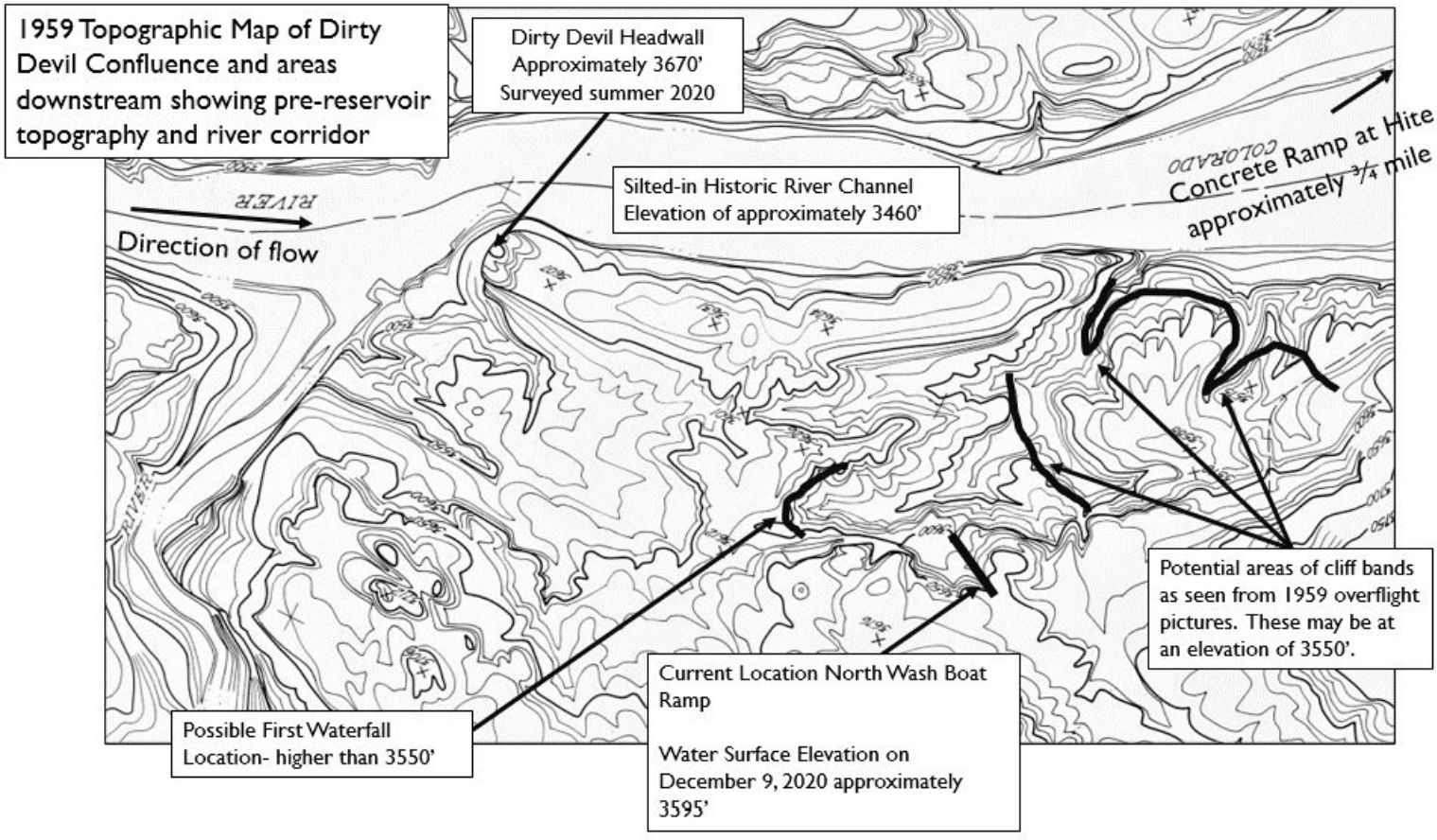
P0197n38_02_019_Narrow Canyon mile 169.7_Just above mouth of Dirty Devil, comes in on right above bluff left center_ May 24, 1963, Cropped/Altered C. Gregory Crampton Collection, Special Collections, J. Willard Marriott Library, The University of Utah



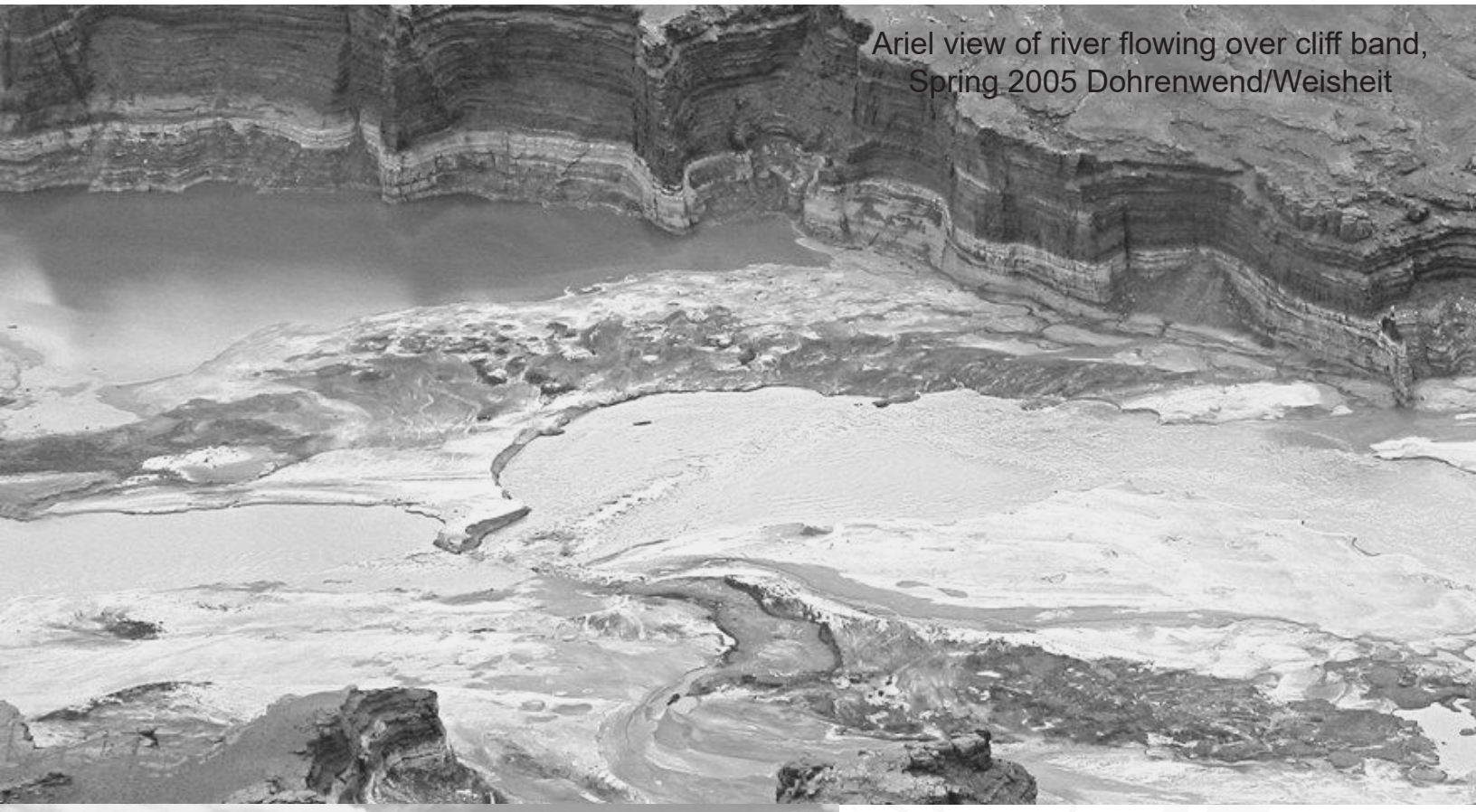
USGS Overflight Picture August 7, 1959



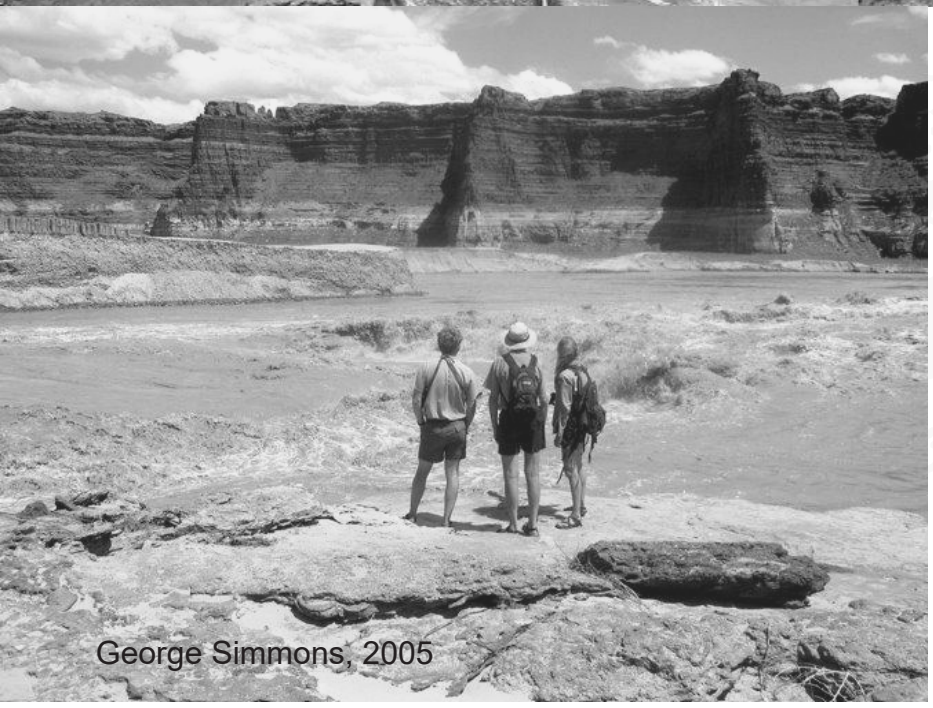
USGS Overflight Picture August 7, 1959



In the spring of 2005, the reservoir was below 3575' for the first time in over a decade. Just below Hite Marina, the Colorado River meandered across its delta mud flats. During a period in the spring of 2005, the river cut down to a bedrock cliff band, creating a new rapid. In the spring of 2005, the reservoir was below 3575' for the first time in over a decade. Just below Hite Marina, the Colorado River meandered across its delta mud flats. During a period in the spring of 2005, the river cut down to a bedrock cliff band, creating a new rapid.



Ariel view of river flowing over cliff band, Spring 2005 Dohrenwend/Weisheit



George Simmons, 2005

This was only a temporary feature. It disappeared as the river cut back towards its historic channel in the spring of 2005. Later that summer, as the reservoir refilled, it covered the area. However, several parties were caught unaware by this hydraulic hazard. Boats were flipped and lost.

Low reservoir levels exposed massive sediment deposits on the San Juan River Arm of Lake Powell. The river cut a random channel through the mud and struck a buried ledge of bedrock, which created this waterfall near Paiute Farms and below Clay Hills.

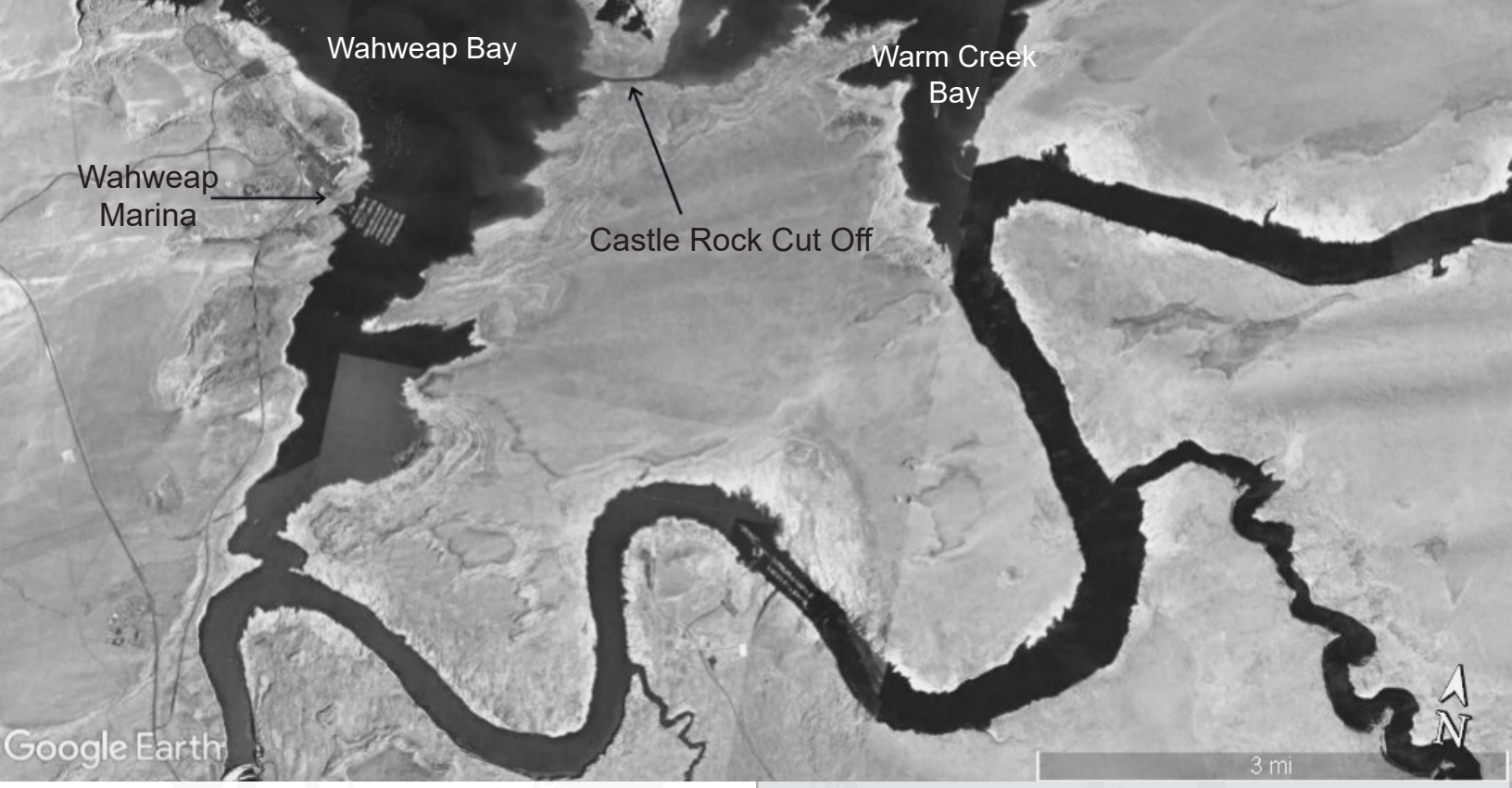
While not a well traveled section of river, this feature has acted like a secondary dam and is causing sediment aggradation on the San Juan River 25 miles upstream. This sedimentation has consumed rapids and altered other recreational resources well above the high water mark of Lake Powell.

If a Perched River Hazard Appears, The Key Issues Are:

- Access will be inhibited to users that may wish to go either downstream (from the current North Wash Ramp), or need to access the extended ramp at Hite from upstream.

- The river's ability to restore itself upstream of the waterfall (i.e. secondary dam) will be inhibited. The recently observed return of upstream rapids and riparian zone will stop and the sediment load will drop out as it aggradates above the new hydraulic feature. Over time, such an occurrence will consume the rapids that have returned in lower Cataract Canyon.

- Flows in the perched river channel just below the confluence with the Dirty Devil River can range between 3,000 CFS and 90,000 CFS making a any new rapid or waterfall that may form extremely dangerous and unpredictable.



The Dredging of Castle Rock Cut Off

Rationale:

- Shortens the “up-lake” travel for house and powerboaters by 12 miles
- Saves both time and fuel for reservoir related users

History and Dredging Operations

- Castle Rock Cut was first deepened in the 1970s to allow Lake Powell users quick access to up lake areas from the popular Wahweap Marina. The exact amount of channel widening, deepening is unknown.
- In 1992, Castle Rock Cut was “deepened” by approximately 8 feet. (During this time the reservoir level was as low as 3619 at the dam.)
- The proposal of 2008 channel dredging and widening would “entail the removing of about 250,000 cubic yards of sandstone” to cut a channel 80 feet wide and 2,300 feet long and 15 feet deep… This would allow boats to pass through the Castle Rock Cut when Lake Powell is approximately 3,600 feet in elevation.”

(source: http://www.onthecolorado.org/Resources/NPS/ScopingCastleRockCut.pdf):

If money can be spent to dredge a cut off near the Glen Canyon Dam to allow easier access for users, could money be spent to put the river back in its channel near Hite?

It is a complicated situation...

Our hope is that you have a better understanding of the complicated issues - past and present - related to Colorado River access in the Hite area. Infrastructure can be built to safely access locations regardless if they are reservoir or river. Those of us who worked on this report just want access to be safer and reliable. Many people visit the area to experience the beautiful landscape around Hite, Utah. What users have encountered over the past 17-18 years has been inconsistent and dangerous. We hope this helps. Thank you for all the maintenance of the ramps up to this point and any future work related to addressing this issue.

Looking out across the sediment delta near Farley/White Canyons; Jan 1, 2021

This report was compiled by:
Peter Lefebvre, Investigator Returning Rapids Project and Professional River Guide
Mike DeHoff, Principal Investigator, Returning Rapids Project
Editing and consultation assistance from Meg Flynn and Chris Benson, Returning Rapids Project

Thanks to photo contributors and their work documenting the changes over the past 20 years:
John Dohrenwend
John Weisheit, Living Rivers
Tim Gaylord, Holiday River Expeditions
Stuart Reeder
Steve "T-Berry" Young, Canyonlands National Park
Special Collections, J Willard Marriott Library, University of Utah
Chris Wilkowske, USGS, Utah Water Science Center
Grand Canyon Monitoring and Research Center
Utah Guides and Outfitters
Colorado Plateau River Guides

Thank you for taking the time to read this. More to come.
Contact the Returning Rapids Project research team at:
contact@returningrapids.com

More information, project updates, or to make a donation visit our website: returningrapids.com

UTAH GUIDES & OUTFITTERS
P.O. Box 1412 Moab, UT 84532 Cell 435-260-2870 www.utah-adventures.com

January 15, 2021
Heidie Grigg
Chief of Commercial Services
Glen Canyon National Recreation Area

Dear Heidie,

We are reaching out to request a meeting to discuss our concerns with GCNRA's plans regarding river/lake access in the Hite/North Wash area. This is an issue that has been ongoing since 2003 without meaningful resolution.

At the meeting you attended with Utah Guides and Outfitter membership in November, you indicated that the plan is to begin work on a causeway from the end of the current cement ramp to the river's edge on the Hite side in Spring 2021. This concept has been in play for 3 years now with little opportunity for input from the user group - commercial and private Cataract Canyon boaters as well as research groups - that would utilize this ramp. We have significant concerns regarding the ramp extension and its viability during fluctuating water levels.

Having a sustainable solution to the ongoing access problems in this area is of great concern and need. We recognize that "chasing water" in Lake Powell (and for that matter the whole western U.S.) is a challenging and controversial topic.

Cataract Canyon river trips, one of the most well-known and iconic in the West, present a unique situation as well. The entire trip falls in an area that is not accessible from locations within Canyonlands National Park (CNP). The put-in is on private land and the takeout is in Glen Canyon National Recreation Area (GCNRA). This creates the need for partnerships and infrastructure on both ends of the trip.

In the most recent concessionaire contracts for "Whitewater River Tours' " within CNP and GCNRA (January 1, 2018) there is language in the Operating Plan regarding CNP's and GCNRA's responsibilities with regards to lands and facilities. This includes maintenance of Park and NRA roads, trails, buildings, ramps, parking areas and other facilities. Access is one of the most basic and fundamental principles of visitor services.

We realize there has already been much discussion on GCNRA's end of things, and the wheels may already be in motion. But the amount of information we have gathered and ideas we feel should be considered are important to present and discuss:

UTAH GUIDES & OUTFITTERS
P.O. Box 1412 Moab, UT 84532 Cell 435-260-2870 www.utah-adventures.com

- The current state of ramp at North Wash and associated safety concerns, as well as potential temporary or permanent fixes.
- Viability of the Hite causeway at fluctuating water levels, as well as timeline for the 2021 boating season.
- Current lack of ability to launch EMS/rescue response to this uplake area and lower Cataract Canyon area due to the conditions of the ramp at North Wash.
- Possibility of the river cutting through enough silt to form a waterfall/rapid just above and/or below the current North Wash ramp, similar to the ones that formed at Pearce Ferry, San Juan River (Piute Falls), and just downstream of Hite in 2005.
- Possibility of returning the river to its original channel to bypass possible waterfall area near North Wash.
- Historical perspective of these areas to help form possible solutions.
- Long term plans for the Hite area. It was indicated that it was moving towards land-based recreation in most recent meetings?
- What the projected goals are for Lake Powell water storage and elevations.

In the past, the most significant meetings we have had with our NPS partners have been when the Park and Recreation Area superintendents were able to be present and participate in these types of discussions. There has been turnover in certain positions within CNP and GCNRA, and the topics and viewpoints regarding this area have not always been passed along.

Please read the attached document, "A Cataract Canyon Take-out," for an in-depth, pictorial perspective on the history of the issues affecting the take-out for Cataract Canyon river trips. We are hopeful that a virtual meeting could be set up between this group, CNP and GCNRA, during the week of January 25, 2021, to present this material and hold discussions on how best to create sustainable solutions.

Thank you for taking a close look at what we have provided. We look forward to hearing back from you.

Sincerely,

Lance Plank
President
Utah Guides and Outfitters

CC:
Patrica Trap, Superintendent, Canyonland National Park
William Shott, Superintendent, Glen Canyon National Recreation Area
Leslie Kobinsky, Concessions Management, Canyonland National Park

Additional Signatories

Mike Dehoff - Principal Investigator
Pete Lefebvre - Investigator
Returning Rapids
Moab Utah

Michael Fiebig
Director, Southwest River Protection Program
American Rivers

Hattie Johnson
Southern Rockies Stewardship Director
American Whitewater

Eric Balken
Executive Director
Glen Canyon Institute

Tim Gaylord
Director of Operations
Holiday River Expeditions

Jason Taylor
Western River Expeditions

Brenda Milligan
Sheri Griffith River Expeditions

Seth Davis
Regional Manager
OARS Canyonlands

Brian Martinez
Navtec Expeditions

Lance Plank
Colorado Outwardbound School
Southwest Program

Colin Evans
Colorado Plateau River Guides (CPRG)

Ben Muhlestein
Canyon Country Discovery Center

Dallin Tait
Wild Expeditions

Kathryn Blitz
Wild West Voyages

Cody Little
Tsé Kooh Outfitters

Steve Hazlett
Worldwide River Expeditions

Bus Hatch used to say once they would launch their trips: “Now were safe, now we’re on the river!” I want to remind everyone to take care of yourself this season, ESPECIALLY at the put-ins and take-outs. It’s easy to lose focus of safety when you are in a hurry get home (or on the water), but most safety issues I have seen on river trips were at the boat ramp. If anyone asks you to perform a task that you see is unsafe, speak up! It doesn’t matter if it’s your boss, the ranger, or the river gods themselves. If your company is using dangerous methods to load and unload boats, bring up your concerns with management. Your health and safety are not worth it. Use proper lifting techniques, stretch, drink water, cover up, and don’t put your fingers anywhere they can get smashed. You only get one back, two knees, and 10 fingers. River guides have always been strong, innovative, and always willing to do the hard work to make every trip a success, no matter what challenges present themselves. One thing they’re not is stupid, so don’t do stupid things at the boat ramp and get hurt this year. And with another low water year ahead, North Wash won’t be the only ramp that challenges the methods used by outfitters to access the river. If you are doing any sort of mechanical lifting or pulling, please be sure that all equipment is functional, rigging is hooked up properly, and the team is communicating well. Take-outs won’t be as smooth as a highwater year, so prepare yourself mentally and physically. Be gentle with your ramp neighbors, give them a hand. A little kindness goes a long way. See ya on the river this summer, Have a great season everyone!

-Marshall Dvorscak

When and where are woody riparian plant species releasing their seeds?

A new citizen science project within the Upper Colorado River Basin aims to find out.

By: Luke Gommermann

The writings and photographs composed by members of early expeditions along rivers of the Colorado River Basin depicted free-flowing waterways that maintained their courses through the forceful fury and fickle nature of uninhibited hydrologic flow. In those days, the active (or unvegetated) river channel tended to be broad and was speckled with abundant, barren sand and cobble bars. While dense vegetation was not uncommon within the larger river corridor, growing conditions within the active channel would ultimately prove unsustainable for plants due to either too little, or too much, water. Seedlings that happened to have the fortune of taking root on bare, moist sediments following high spring flows often expired from desiccation during periods of low base flows during the remainder of the year. Young plants that survived desiccation eventually paid the ultimate price as raging floods would uproot, bury, or damage these colonizers into nonexistence.

However, throughout the 20th and continuing into the 21st centuries, the combined effects of several forces greatly diminished these river's ability to restrain plants from inhabiting active channels. Over this time, the water flowing through river corridors of the Colorado River Basin was, and continues to be, altered by dams, diversions, and climate change. Collectively, these forces have changed the timing, magnitude, and volatility of water flows.

A hydrologic regime that was once effective at restraining plant colonization within active channels has become more amenable to plant growth. Meanwhile, the introduction of non-native and invasive plant species, such as tamarisk, has increased the vegetative community's collective ability to successfully expand into formerly uninhabitable channel areas. As a result, today's river channels have narrowed considerably, with portions of former channels becoming choked with woody riparian vegetation.

The forces that have altered these river flows are likely here to stay, at least for the foreseeable future. In today's modern and managed setting, rivers lack the brute force options produced by an unfettered flow regime to clear vegetation from their channels. Instead, river managers, faced with limitations imposed by existing legislation, infrastructure, and climatic conditions, will have to learn to use what water is available to inhibit the ongoing encroachment of vegetation into active channels and help these rivers maintain their courses.

As a PhD student in the Watershed Sciences Department at Utah State University and a Lead Biological Science Technician with the National Park Service's Northern Colorado Plateau Network, one of my doctoral research objectives is to provide river managers with a clearer picture of what the flows that limit encroaching plant growth would look like.

But to do this, I'll need a lot of help, particularly from those of you who find yourself working or recreating along rivers of the Upper Colorado River Basin over the next several years.

This is because a key piece of information is missing. Whereas it is well known that the colonizing plants that are invading river channels are most vulnerable as seedlings, when these plants release their seeds is only generally known (e.g., native coyote willow typically releases it's seeds during the descending limb of spring peak flows whereas tamarisk typically releases it's seeds several weeks later). Further, even though these plants are all growing within the Upper Colorado River Basin, they experience a broad range of climates that can affect when local seed release events occur. It is unknown, for example, how much earlier tamarisk growing along the lower Green River releases its seeds before tamarisk growing along the upper Green River. Secondly, variation in climate from one year to the next can also affect when plants release their seeds. For example, it is unknown if tamarisk growing in one place releases its seeds any earlier in years when spring precipitation or temperature is above average compared to years when spring precipitation or temperature is below average.

If river managers are provided with a clearer picture of how the seed release of aggressive colonizing species like tamarisk and coyote willow varies with space and time across the Upper Colorado River Basin, they would be better able to time releases of flows along regulated rivers (such as the Green, Colorado, and San Juan) that most effectively reduce these seedling's survival. To resolve this issue, I've decided to begin a citizen science project to track the timing of seed release of tamarisk and coyote willow across the Upper Colorado River Basin. Because this same information could also be used to encourage growth of seedlings of desirable plant species, I am also interested in tracking seed release by cottonwood.

Citizen science projects use observations collected by everyday people to generate scientific datasets. I'd like to ask all of you who will be traveling along any river corridors of the Upper Colorado River Basin over the next several years to take pictures of these three species (tamarisk, coyote willow, and cottonwood) and record some simple information with each picture.

You can then send these pictures and information to this Citizen Science project's email address (***WoodyFlowersAndFruitsUCRB@gmail.com***) or, if you use the iNaturalist app, you can upload your observations to this citizen science project's iNaturalist site (search "Woody Plant Flowers and Fruits Of Upper Colorado River Basin" at *www.iNaturalist.org*). To be useable as an observation, it must include the following:

One or more identifiable picture(s) of the plant (tamarisk, coyote willow, or cottonwood) that shows if the plant is in flower, is releasing seeds (i.e., in "fruit"), or neither in flower nor releasing seeds (i.e., not in "fruit").

Location: what river are you along and where along the river was the picture of the plant taken (e.g., GPS latitude and longitude, name of nearby campsite, or approximate river mile is sufficient)

Date: when was the picture taken

Note that to be helpful for this project, even collecting and submitting just one picture of each of these three species somewhere along a river you are traveling along will be useful. In addition, observations that depict when these three species are NOT flowering or releasing seeds are just as important as observations that depict when these three species are flowering or fruiting.

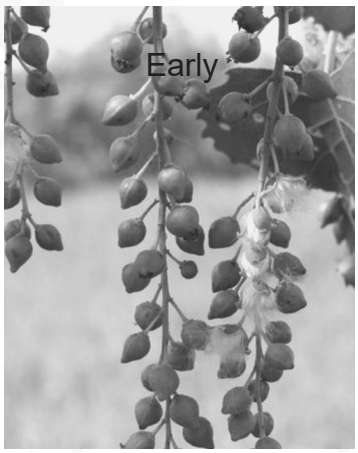
Become a River Scientist, Help a River Scientist!

Beginning in 2021, I need some extra eyes on the river over the next ~5 years to help me document when and where these 3 species are flowering and fruiting!

Fremont Cottonwood

Flowers: reddish, early spring

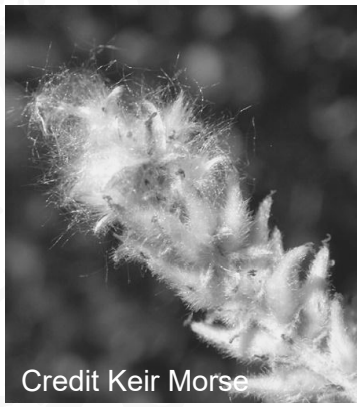
Fruits: green, hanging to cottony/windblown



Narrowleaf Willow (Coyote/Sandbar Willow)

Flowers: yellowish, tiny stalks

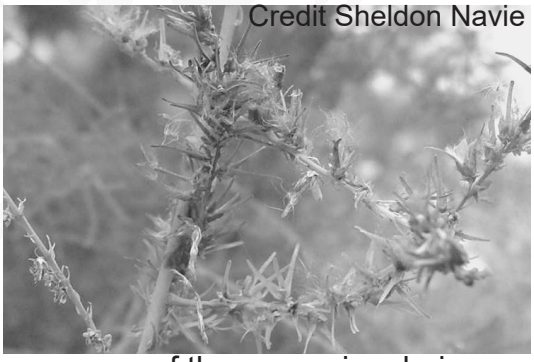
Fruits: elongate, greenish clusters to cottony



Salt Cedar (Tamarisk)

Flowers: pink or white sprays of tiny flowers

Fruits: elongate little spikes turning cottony



How to Help? Take a photo(s) of this flyer. When you see one or more of these species during your trip, take a picture, record the river, date, and location (e.g., name of campsite, approximate River Mile), and note if they have flowers or fruits (I need to know when they do NOT have flowers and fruits too!). When you are back in service, either:

text/email your pics/notes/questions: *WoodyPlantFlowersAndFruitsUCRB@gmail.com*,
or submit them to this project's **iNaturalist** app or webpage: Woody Plant Flowers and Fruits of the Upper Colorado River Basin. Thank you!