

boatman's quarterly review

Fritz

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boatman's quarterly review

...is published more or less quarterly
by and for Grand Canyon River Guides.

Grand Canyon River Guides
is a nonprofit organization dedicated to

*Protecting Grand Canyon
Setting the highest standards for the river profession
Celebrating the unique spirit of the river community
Providing the best possible river experience*

General Meetings are held each Spring and Fall. Our Board of Directors Meetings are generally held the first Wednesday of each month. All innocent bystanders are urged to attend. Call for details.

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Our editorial policy, such as it is: provide an open forum. We need articles, poetry, stories, drawings, photos, opinions, suggestions, gripes, comics, etc. Opinions expressed are not necessarily those of Grand Canyon River Guides, Inc.

Written submissions should be less than 1500 words and, if possible, be sent on a cd or emailed to gcrg; Microsoft Word files are best but we can translate most programs. Include postpaid return envelope if you want your disk or submission returned.

Deadlines for submissions are the 1st of February, May, August and November. Thanks.
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Prez Blurb

Greetings all you wonderful gcrg members and bqr readers! The winter of 2007 is coming to a close which means the start of another river season in Grand Canyon and the beginning of a new era! The revised Colorado River Management Plan comes into play while changes arise and Grand Canyon National Park sees a changing of the guard (or guardian so to speak).

First of all, I would like to recognize Joe Alston who has just stepped down from his role as Superintendent of Grand Canyon National Park—Joe, thank you for your leadership and dedication; hopefully we will still see your smiling face behind the oars on this wonderful river we all know you love and care about! I would also like to extend a warm welcome to Steve Martin who has just taken over the helm. A bit about Steve...he comes full circle since he started his career in the National Park Service at Grand Canyon in 1975. Since then he has logged over thirty years of experience as a manager, superintendent and park ranger in numerous parks around the U.S. including Grand Teton National Park. He comes to us from the Deputy Director position of the nps, a post he held since April of 2005. Steve, we look forward to working with you in protecting and defending this magical river through Grand Canyon—welcome home!

Grand Canyon monitoring news...Since the revised crmp will modify several aspects of river trips with potential consequences for visitor experiences, Grand Canyon National Park is developing a "Visitor Experience Monitoring Plan" (vemp). This plan aims to assess whether the revised crmp management actions are meeting prescribed visitor experience goals and objectives (standards). The plan will focus on three different areas: (1) use information (number of trips, people, user days, etc); (2) on-river experiential impacts (such as river encounters, attraction site encounters, camp competition, etc); and (3) non-commercial permit system (off-site) impacts (an annual report will be issued describing statistics such as number of users that applied and received permits by season or segment, and the disposition of users on the former waiting list). This monitoring in addition to assessing visitor experience consequences of the 2006 crmp will provide important input during the next plan revision (expected in ten to fifteen years). Researchers at Oregon State University have been contracted to help park staff develop the vemp. An initial report developed a list of monitoring options and their advantages and disadvantages. Under nps direction, a sub-set of those options were more fully

developed. The Draft vemp reviews types of information (indicator variables) to be monitored, and describes methods that will be used to monitor them. The vemp will be finalized in Spring 2007 after feedback has been received. Grand Canyon River Guides plans on helping the park with this process as much as possible and we encourage you to get involved as well—this is our workplace and our livelihood!

As the oar/prop/paddle turns...What's new in the world of gcrg? Well, Grand Canyon River Guides and Grand Canyon Private Boaters Association have collaborated to create a brand spanking new courtesy

flyer for all you Colorado River voyagers! It's fresh with great ideas, tips, and pictures...look for it soon at an outfitter or Lees Ferry near you! We've put quite a bit of work into overhauling the old one and we urge you to read it, use it, love it—bring some on trips with you (put it out as bathroom reading for passengers)—just get it out there! Hopefully it will help make life and etiquette on the river groovy for everyone!

I hope your transition into summer is a smooth one—let's make this one of the best river seasons ever!

Marieke

Dear Eddy

From a letter to gcrg, dated August 1, 2006

I am pleased to have the opportunity to sponsor Howie Usher as part of the Adopt-a-Boatman Program/Colorado River Runners Oral History Project. Howie has guided well over 100 trips down the Colorado River through Grand Canyon beginning with Wilderness World in 1979 and later, with Arizona Raft Adventures (azra) starting in 1986. Usher is an exceptional river guide; indeed there is no one with whom I would rather run Crystal at high water or hike a side canyon. He tells a pretty good story too.

However, Howie's Grand Canyon expertise extends far beyond his ability as an oarsman. He is also a scientist who has devoted much of his academic career to researching and teaching about the ecosystem of the Colorado River in Grand Canyon. Usher began his career by studying with eminent environmental historian and Grand Canyon activist Dr. Roderick Nash as an undergraduate student in environmental science at the University of California at Santa Barbara (ucsb). Howie obtained a position as a research biologist for the Museum of Northern Arizona upon earning his Bachelors in Science in 1977 from ucsb, and he made his first research trip down the Colorado that same year. Usher also conducted research as an assistant to Dr. Stephen Carothers of Northern Arizona University on several major studies including the Grand Canyon Burro Project, the Bright Angel Creek Study, and the Department of the Interior's Grand Canyon Aquatic Flora and Fauna Study, published in 1981.

Howie also began his pursuit of a Master's Degree in Aquatic Biology in 1983 with Dr. Carothers and Dr. Dean Blinn as his major advisors at Northern Arizona University. Usher's masters thesis, entitled *Cladophora Glomerata in the Colorado River Through Glen and Grand*

Canyons: Distribution and Exposure Tolerance, which he defended in 1988, remains the definitive work on how fluctuating water levels downstream of Glen Canyon Dam have affected algae, the primary sustenance for the microorganisms and freshwater shrimp upon which native and nonnative species of fish feed. Howie remained actively engaged in research and scholarship after obtaining his Masters in Science and published articles in several leading scientific journals including one in the *Journal of Phycology* in 1990. That important scholar such as Blinn continue to cite Usher's work almost twenty years later demonstrates that Howie's research was foundational at the time he conducted it, and that it remains cutting-edge scholarship today. Currently on the faculty at Mingus Union High School where he has taught courses in biology, bio-ecology, and environmental science since 1987, Howie also conceived of, and developed, the ongoing Verde River Watershed Research Project (and obtained the requisite funding from the Arizona Department of Environmental Quality beginning in 1995) as a hands-on learning experience for high school students in the Verde Valley.

One would be hard-pressed to find another person whose life's work has involved the research, teaching, and communication of Grand Canyon issues to such a large and diverse audience. Although Howie's modest and unassuming demeanor would preclude him from self-aggrandizement, he has truly made a difference in enlightening people as to the importance of taking the necessary—and sometimes difficult—steps to preserve the magical riparian ecosystem in Grand Canyon. From my perspective as a Grand Canyon historian, I believe that the inclusion of Usher's oral history is indispensable to the Colorado River Runners Oral History Project.

It is a privilege to sponsor a man with such impressive Grand Canyon/Colorado River credentials as part of

the Adopt-a-Boatman Program. Please contact me if I can be of any further assistance.

Byron E. Pearson, Ph.D.
Associate Professor of Environmental History

Note: For an updated spreadsheet of Adopt-a-Boatman sponsorships, as well as a complete listing of oral histories and their status, please refer to Grand Canyon River Guides' website at www.gcr.org.

From a recent letter to gcr.org

Thank you for your recent announcement on the Guides Training Seminar (gts) coming up. Knowing that you remain at the Canyon stewarding our magnificent Grand One sits deeply in my heart.

Most of you wouldn't remember me, or my husband Curt Sauer, as we lived on the South Rim, and Curt worked for the nps as part of the River Unit. That was 1979–1984. Some of you might remember and curse him for setting up that lottery system on a computer...

One of his great passions for the three years that he was in charge of the River Corridor was this very same trip. And neither of us has ever forgotten the generosity and love all the companies showed us when our son Damian was born, in 1984. He is now an nps Firefighter, stationed in the Mohave Preserve. This past summer was brutal.

That this gts trip continues is a remarkable tribute to this organization, the passion amongst guides, and the liaison between businesses and the National Park Service. I honor you.

I owe much of my confidence in the wilderness to my experiences on the river, all the companies I ran the river with, the men and women who worked with me to make them happen, the women guides that made my all-women river trips remarkable, taking the time to teach me.

I now am giving back as a spokeswoman on behalf of the Parks when given the opportunity, speaking from my experiences as a mother raising a family in them, partnering with a woman in climbing events for women here in Joshua Tree, advocating Leave No Trace, developing experiential-ed courses to take into the cities, and writing to stimulate interest in funding our Parks. Curt is serving as Superintendent of Joshua Tree National Park until he retires in a few years. He remains on fire with the nps mission, however!

Thank you for the privilege of knowing folks who steward the natural world in the absolute finest way possible. And that's you.

Ms. Connor Sauer

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Adopt-a-Boatman

By now you may have heard of gcrg's newest program: Adopt-a-Boatman, which is a public funding mechanism for our Grand Canyon River Guides Oral History Project. The gist is that our members can help fund an interview with a river runner of their choice, with full sponsorship equaling \$750 to cover all associated expenses. The program has positively leapt out of the starting gate with numerous sponsorships, some full, and some partial (that's where you can help). The low-down is as follows:

Full sponsorships have been received for interviewing the following boatmen:

- Tim Whitney (Fort Lee Company, Sobek, Arizona River Runners)
- Howie Usher (Wilderness World, Arizona Raft Adventures)
- Allen Wilson (arta)

And, partial sponsorships for the following folks:

Interviewee: Lew Steiger (Arizona River Runners, Grand Canyon Dories, oars, Grand Canyon Expeditions)

Amount Needed: \$250

Comments: Yes, we're planning on "interviewing the interviewer." We may need to tie him down and ply him with appropriate quantities of beverages, but it would be worth it to hear his stories!

Interviewee: Dick McCallum (Georgie's Royal River Rats, Grand Canyon Expeditions, Grand Canyon Youth Expeditions/Expeditions)

Amount Needed: \$400

Comments: You may recall that an oral history interview with Dick McCallum appeared in Volume 7:2 of the bqr. What that interview didn't cover is the story behind the loss of Expeditions' commercial river running concessions permit in the mid-1990s.

As a reminder, you don't need to come up with the "amount needed" by yourself. If you want to get a few like-minded friends together, that's fine too. Hopefully one of the two partial sponsorships shown above captures your interest enough to have you running for your checkbook! Checks can be made to gcrg and mailed to po Box 1934, Flagstaff, az 86002.

We extend our sincerest thanks to the various sponsors we have had to date for their generous contributions to this fledgling program and their strong commitment to the preservation of these memories. All sponsors will be listed in the Major Contributors section of the Fall issue of the bqr. Details and updates on this program are

also available on our website, www.gcrg.org.

We hope you'll be patient as it will take us quite a while to work through all of these interviews, and a bit long still to publish them. Gcrg has a previous commitment to the Arizona Humanities Council for the next four issues (including this one) to highlight the stories and perspectives of female river guides—a segment of the guiding community that sorely needs acknowledgment.

We've certainly got our work cut out for ourselves—ain't it grand!

GCNP Working on Coordinated Effort to Prevent Quagga Mussels in Colorado River

From a Grand Canyon News Release Dated February 1, 2007

Quagga mussels, a type of invasive mussel commonly referred to as zebra mussels, have moved to the western United States, and Grand Canyon National Park is working with other agencies and land managers to contain the spread of this invasive species. The first report of the quagga mussel west of the Rocky Mountains was from Lake Mead National Recreation Area, downstream of the Grand Canyon, on January 6, 2007. Quagga mussels were discovered in the Boulder Basin area of Lake Mead, on an intake tower and spillway structure at Hoover Dam, downstream of the dam at Katherine Landing, and in Lake Havasu. Currently, Lake Powell and the Colorado River as it runs through Grand Canyon are believed to be free of mussels. However, quagga mussels pose a major threat to the Canyon if they are introduced.

Joe Alston, Grand Canyon National Park Superintendent said, "Since quagga mussels were discovered in the western portion of Lake Mead, we have been working with many parties to develop procedures to prevent entry of the invasive mussels into Grand Canyon National Park. We expect to complete agreements on procedures by the end of February, before the intensive boating season in Grand Canyon. We are fortunate that the infestation to date appears to have not yet reached the eastern portion of Lake Mead, but because of the close proximity and potential for spread, we will be aggressive in our approach to prevent quagga mussels from entering the Colorado River in Grand Canyon.

Zebra and quagga mussels are normally spread by attaching themselves to boats, which are launched in one lake and then later moved into a different lake. Both quagga and zebra mussels are microscopic in juvenile life stages, making them impossible to detect based solely on a visual inspection.

In waters where they exist, quagga mussels commonly multiply into the billions. They filter tiny pieces of organic matter and plankton out of the water. Each individual mussel can filter about one quart of water each day, so that a large population of quagga mussels can consume the food that should support the natural food chain in an aquatic system. This and other body functions of quagga mussels typically result in serious adverse effects to native aquatic life.

Park staff is working with staff's from Lake Mead nra, Glen Canyon nra, usfws and Arizona

Game and Fish in an effort to coordinate a response to contain the spread of the quagga mussel. River users and recreational fisherman are the most likely vectors for moving the invasive mussel into the Colorado River in Grand Canyon through river rafts and gear used in infested areas.

Currently, visitors can help keep Grand Canyon free of invasive mussels by:

When taking your equipment out of the water:

- Drain the water from your motor, live well, and bilge on land before leaving the immediate area of the lake.
- Completely inspect your vessel and trailer, removing any visible mussels, but also feel for any rough or gritty spots on the hull. These may be young mussels that can be hard to see.

Before driving out of the local community:

- Flush the motor and bilges with hot, soapy water or a five percent solution of household bleach.
- Wash the hull, equipment, bilge and any other exposed surface with hot, soapy water or use a five percent solution of household bleach.
- Clean and wash your trailer, truck or any other equipment that comes in contact with lake water. Mussels can live in small pockets anywhere water collects.

When you return home:

- Air-dry the boat and other equipment for at least five days before launching in any other waterway.
- Do not reuse bait once it has been in the water and allow all fishing tackle to air dry for five days before fishing in other lakes and streams.

Visit www.100thmeridian.org to find out more information about quagga mussels.

National Park Service

Mark Your Calendars!

Friday, March 30th: Please join the effort to fight the onslaught of Sahara mustard!

Small crews will scour the Paria Beach and roadside areas for Sahara mustard plants and manually remove them using geology picks and shovels. The work party will meet at the Paria Beach parking area at 1pm and work until about 4pm. Please come with enthusiasm, water, sneakers or boots, and gloves if you have them. We'll provide the tools and equivalent energy. If you have any questions, please contact Lori Makarick at 928-226-0165.

Saturday and Sunday, March 31–April 1: Guides Training Seminar Land Session

Come and learn from the best about the natural, cultural and human history of Grand Canyon and current resource management issues. The event is open to the public (you don't have to be a guide to attend) and will be held at the Hatch River Expeditions warehouse in Marble Canyon, az. Check out the outstanding gts Land Agenda at www.gcr.org. We're covering it all: tribal perspectives, archaeology, geology, plants, fish...you name it! Cost is \$35 (or \$30 if paid before March 1). If you're sponsored by an outfitter, they'll pick up the tab. Other highlights include:

- *The Whale Foundation Health Fair* (see their announcement in this issue for details). You can't afford not to take advantage of this outstanding opportunity!
- *Gcrg Oral History Project Update: A lot more than fair, the ladies speak up!*: Get up to speed on gcrg's endeavors to capture the memories of Colorado River runners along with our current focus on female river guides in Grand Canyon. Our Humanities Scholar, Richard Quar- taroli, will be presenting this talk at 11:30 am on Sunday, April 1st. This program is made possible in part by a grant from the Arizona Humanities Council.
- *Dave Insley and the Careless Smokers*: Come and rock out to one of the most original artists in the Southwest! The gritty Americana, rockabilly style should raise the roof at our gts party, and you'll be hoofin' up a storm—tell your friends and don't miss it!
- *Leave No Trace Workshop*: Spend an hour after the gts (after lunch on Sunday) to develop your skills to promote responsible outdoor ethics. All participants will receive a certificate of participation. Please sign up with Lynn at gcrg (928) 773-1075 or gcr@info-magic.net.

Arizona
Humanities
Council
Sharing cultures. Enriching communities.

So bring a chair, a mug, pen and pencil, and get ready to learn cool stuff! Please dress warmly and in layers as the warehouse can be chilly and who knows what the weather will do. We'll provide dinner on Friday night (for those who arrive early), three meals on Saturday, and breakfast and lunch on Sunday. You can camp or get a hotel room in the Marble Canyon area.

Hope to see you there!

- **Monday April 2–Sunday, April 8: Guides Training Seminar River Session (Upper Half)**
- **Sunday, April 8–Monday, April 16: Guides Training Seminar River Session (Lower Half)**

Regardless of whether you are a trainee, a new guide, or an experienced veteran, the gts river trip provides the intensive on-river interpretive training needed to hone your skills. Details are:

- *Cost*: \$180 for upper half or \$230 for lower half (unless you're sponsored by your outfitter).
- *Requirements*: Must have work in the canyon in 2007 to be eligible. First priority will be given to guides who are sponsored by an outfitter, then to all interested guides and trainees who have trips for the 2007 season. Freelance requirements are: 1) must have all your medical requirements and other guide certifications fulfilled as specified by Grand Canyon National Park, or 2) you must be a licensed guide on another river, actively working towards becoming a guide in Grand Canyon.
- *Note*: With our reduced trip size this year, demand is incredibly high! Again, priority will be to accommodate those guide sponsored by their outfitter.

Note: The GTS wouldn't be possible without support from: the Grand Canyon Conservation Fund—a non-profit grant-making program established and managed by the Grand Canyon river outfitters, the Grand Canyon Association, the Arizona Humanities Council, Teva, Hatch River Expeditions, all the individual river outfitters, our wonderful speakers and volunteers. Thanks for making these interpretive training sessions available to the river community!

Guide Profiles

Mark Pierce, Age 38

Where were you born & where did you grow up? I was born and raised in Salt Lake City, Utah.

Who do you work for currently (and in the past)? Western River Expeditions, Snowbird Ski and Summer Resort.



How long have you been guiding? This will be my 17th season.

What kind of boat(s) do you run? J-rigs, row rigs.

What are your hobbies/passions/dreams? My hobbies are skiing, dirt biking, snowboarding, and boating. My passions are my family and the Grand Canyon and my dreams are just to have a comfortable life with my family.

Married/family/pets? I am married with a 4 year-old Australian Cattle Dog.

What made you start guiding? It's all Trent Keller's fault!

What brought you here? Trent Keller brought me on my first trip. I was working construction and landscaping in Salt Lake at the time, and thought I needed a change of pace. So, I asked Lynn Keller for a job and wound up staying for so long because of the opportunity to meet so many people and work in one of the most scenic places in the world.

Who have been your mentors and/or role models? Trent Keller, Bill Skinner, the owners of Western River Expeditions, Paul Thevenin.

What do you do in the winter? I work at Snowbird Ski and Summer Resort and try to get as many days on the mountain as I can.

Is this your primary way of earning a living or do you combine it with something else? Yes, this is my primary way of earning a living.

What's the most memorable moment in your guiding career?

One of my most memorable moments was going up to scout Crystal and meeting up with an old boatman, Scott Elber, who was on a private trip. He asked me which way I was going to go. So, I said, "Left, of course!" I got through okay, until I got to the rock bar, where I promptly got stuck. Not for too long, maybe about five minutes. All we had to do was let some air out of a chamber, and the boat washed right off.

What's the craziest question you've ever been asked about the canyon/river? One of the silliest questions I think I have been asked was, "Do we end up back at the start?"

What do you think your future holds? I hope it holds more of the same for as long as possible.

What keeps you here? The people I work with (all of you), those I get to meet, and the Canyon itself that keeps me here.

Evan Tea, Age 32

Where were you born & where did you grow up? I was born in Salt Lake City (fifth-generation Utahn), but quickly moved to Silver City, New Mexico. From there it was on to Texas, Ohio, New York, and, finally, back to Utah by the time I was twelve.

Guiding History: I started guiding on the scenic stretch of the Snake River in Grand Teton National Park, from Jackson Lake to Moose, in 1995. Hauling up to four boat-loads of tour-bus passengers down the river each day in twenty-foot "Green River" style row rigs. Actually, the very first boat I learned to run on the Snake was an inflatable sweep scow—we piled twenty people into the boat, and, while the "skipper" stood up front and kept the folks entertained, I was in the back (attempting to) maneuver the rig down the braided river channels with one big sweep-oar. After a summer of trips, and if you still had both your hands after attempting high-speed landings (Eddy? What's an eddy?) all season, the company figured you could take your own row rig. I spent a season on the sweep scow, and the next three rowing my own boat. No whitewater to deal with, but lots of excitement in the spring when high water washed hundreds of spruce trees into the channel—more dangerous than a lot of whitewater stretches I've rowed since. During the off-season, I was attending Utah State University in Logan and doing occasional private trips with the outdoor recreation program—San Juan, Desolation, Westwater, and, of course, the Moab Daily.

After graduation, I drifted to Albuquerque. A couple

of months into a dirt grey winter and I started getting anxious for another river season. I'd been backpacking in the Grand Canyon since I was a little kid—sort of a family connection because my grandfather was a seasonal ranger on the South Rim in the mid-1950s. Working on the Colorado had been a dream since I was about fourteen and read the *Monkey Wrench Gang* for the first time. I'm sure watching the imax movie in Tusayan at an impressionable age didn't help, either. I looked over the list of outfitters in the back of a Larry Stevens map and started making phone calls. Western made me the best (and only) offer that winter. I started swamping in '99 and by the end of that first season, I was running my own J-rig. Sixty-something trips and nine seasons later, I'm still here. On my own time, I usually stick to southern Utah and Idaho rivers, but have taken a few runs in Africa, Central America, and South East Asia, too.

School: I studied at the University of Utah in Salt Lake for a couple of years before taking a winter off to run lifts at Big Sky, Montana. Returned to Utah State and eventually received a B.S. degree in Environmental Studies/Anthropology. I took a few years to guide, travel, and play—including a two-year Peace Corps stint in Tanzania, East Africa—before returning to the University of Utah to pursue a law degree. I'm about half way through and starting to focus on public interest law and immigration issues.

Hobbies/Passions: When I started working in the Canyon, I kept hearing older guides talk about all the amazing places they would go during the off-season. I had never really been further than Tijuana, Mexico, but at the end of one of my first river seasons, my younger brother and I threw on backpacks and tromped across China for a month or so...and, like that, I was hooked on seeing the world. Since then, I've spent two years teaching environmental education in rural Africa, trekked around the Himalaya for a couple of months, and bounced around India, South East Asia, and Central America. I'm fascinated by world history and other cultures, especially those of East Africa and Nepal/Tibet. I'm also lucky in that my parents live in Bangkok, Thailand—gives me an excuse to visit the tropics every so often.

Family: No family of my own, save a couple of miserable looking cacti and a half-dead ficus. At the risk of jinxing anything, I'll keep my personal life personal. My younger brother is also a guide in Grand Canyon.

Mentors / Role models: Ok, start humming



“Kumbaya.” Western, like most river companies, is a family—not just a place to draw a paycheck. Everyone I've ever worked with, both on the water and in the warehouse, has had a positive, if not entirely healthy, influence on me. You just learn different things from different people and at the end of the day, it all adds up. Then there's Ray at Ferry and Garth at the helicopter pad, and everyone in between that you meet along the way. I won't even try to list all the people in the river community who have influenced me or who I consider to be role models or friends—there are just too many. I will mention a guy named Bill Guheen up in Jackson. He was my first “river boss” and year in and

year out, for who knows how long, he has taken a new group of young wanna-be guides under his wing—treats them like his sons, really—and shows them the ropes. And then there's Pablo Thevenin, Greg Woodall, Bill Skinner, Pinchy, Ian Pugh, MP, Hanel, Wiley, Jason Brown...the list goes on.

Most memorable moment(s) of my guiding career: Flying out at Tuna Creek after a little Crystal mishap—and back in the next day to retrieve the boat, flash floods in Ryder, Tuna Creek, Deer Creek, Separation, watching a sunrise at Gneiss Canyon instead of the Twin Towers falling on September 11th, running down the middle of Hermit at 18,000 cfs in a hailstorm, sharing someone's lifelong dream by taking them down the Canyon, my first clean run in Hance, coming around the corner and seeing Red Wall cavern for the first time—or the fiftieth, banana and avocado wars with the oars crew at Pancho's, hiding out under a tarp on the back of my boat while all hell breaks loose in the sky above, midnight hikes trying to find that gorgeous passenger (or guide) on the other trip, learning the hard way that dry-ice bombs have no place in the Grand Canyon, watching Martin Litton drift past in his dory, seeing waterfalls pour off the Redwall between Havasu and Fern Glen during a monsoon storm, noticing that change that takes place in our passengers when they finally “get it” and understand why I do what I do. Man, I don't even know where to start. Every single day in the Grand Canyon is memorable—isn't that why we do this?

What keeps me in the Grand Canyon? If you're reading the bqr, you already know...

Education From a Spider

Our Wilderness First Responder (wfr) courses are so jam-packed with critical information that “zebras” often get glossed over. Paul Nicolazzo, my first wfr instructor, termed “zebras”, those events that you’re not likely to see. Black widow spider bites are a zebra. Black widows seem to prefer their solitude, so that if they are disturbed, they are much more likely to scurry away than bite someone. However, bites do happen, and can result in serious maladies.

My experience with black widow spiders was limited to sharing overhangs with them in Grand Canyon on many river and backpacking trips. On one early trip, my climbing partner was bit, but it didn’t affect his performance, and we shrugged it off. I have a different perspective now. Here’s why.

A sharp pain (like a red ant bite) woke me up just before dawn, August 25th. I never laid eyes on the creature. I had been sleeping in the dirt a few miles south of the San Juan River in New Mexico. I reached under my left arm, grabbed the small round object, and flicked it away. As consciousness crept in, I realized I should figure out what bit me. I switched my headlamp on and scoured the area, but couldn’t find my former bed mate.

Beginning my planned activities for the day, I drove twenty minutes north to Aztec Ruins National Monument and started to collect and press plants for an nps-sponsored inventory. Within an hour, achiness, soreness, and general malaise began to settle in. The discomfort in my abdomen, chest, and diaphragm was so strong that I wondered if this was what it was like to have a heart attack. But naw, I was over-reacting. Still, how about that pain in my left arm? Of course, that was the arm that was bitten. The muscles next to my spine were really sore too. It felt like my chronic lower back issues were cropping up, except that the soreness extended the entire length of my spine. I wished I could just throw up or have a good crap, and then feel better. I managed a small dump, with no improvement. That would be my last bm for eighty hours! The sun rose full force. My body temperature rose intolerably and I couldn’t thermoregulate. I realized that I could come up with no explanation for how poorly I was feeling. Another hour passed. My discomfort and anxiety continued to increase until they became so severe that I could no longer ignore them.

At 09:30, I drove twenty minutes to Farmington, nm, site of the nearest regional hospital. During the drive, as my symptoms worsened, I became increasingly anxious. I considered all the possibilities, or so I thought. Maybe I was having an allergic reaction to what bit me, but naw, no hives, or other signs of vascular dilation. So, I figured, it must be my heart. It never occurred to me that I could be

suffering a normal reaction to a black widow spider bite.

At a stop light in Farmington, I asked an adjacent driver where the hospital was located. He sensed the urgency of my question. “Just after the Safeway, turn left.” After a couple of miles, I found the Safeway, but no reasonable left turn. I turned in at the Farmington Chamber of Commerce. They said I needed to find the next Safeway, another few miles down the road. Wow. I really wanted to get there now.

The er folks really took notice as soon as I mentioned chest pain. Within ten minutes, md, Lynn Naumann examined me. My blood pressure was 20–25 points above normal and my pulse rate was high. Lynn volunteered that I might be suffering from a black widow spider bite, but didn’t think they were very common here. She didn’t give me the impression that I was going to keel over from heart failure any minute. By this time, I was so uncomfortable that much of my body was shaking uncontrollably, and part of me wished that she was wrong. It would have been a relief to just keel over. I had no idea that a black widow spider bite could do this to a person. Lynn was very sympathetic, and gave me the only two drugs that (I later learned) could improve my comfort level. One was an opiate-derived pain killer, and the other a serious muscle relaxant. She said that to rule out a heart condition, I needed to stay overnight at the hospital. They would run some blood work, which entailed abstaining from water or food from midnight until 8am. No problem, since I had no appetite. Lynn’s suggestion to stay in the hospital sounded pretty good, since I sure didn’t feel like going anywhere else!

Safely ensconced on the fourth-floor with drugs on board, I actually fell asleep for a few hours, the most healing thing I could do. This was the last sleep I would get for another 36 hours. I had electrodes plastered all over my body, and the nurses and aides checked my vitals manually at regular intervals. My blood pressure and pulse dropped to normal (120s/70s and 60s), and remained at these levels for the rest of my stay.

Somehow the fourth-floor doc never learned that my mechanism of injury was a spider bite. As long as I was in his care, he continued to treat me as a heart patient. The consequences were significant. That evening, when I asked for more muscle relaxant and serious pain killers, I was denied, and given aspirin instead. At every shift change, nurses tried to give me high blood pressure medication! I politely refused this treatment, pointing out that my blood pressure was normal. If they had bothered to look, they’d have seen that from my chart! Perhaps they wouldn’t give me the drugs I asked for because they feared that I was just another Farmington

dope head looking for a “fix”.

My night in the hospital was horrendous. I was in severe discomfort and unable to sleep. I know this because every time I thought I had drifted off and hours must have passed, it was only five or ten minutes from the last time I checked. My sweaty body stuck to the sheets from alternating sweats and chills. All this time I figured that the doc knew best and his prescribed drug program was appropriate. Now I know better.

Internet sites suggested that the symptoms might last for four days. For me, it was six days before I regained my appetite and found pleasure in walking, even then, with some tingling needle points in the bottoms of my feet. The Poison Control Center told me that opiates and muscle relaxing drugs are the only treatment for black widow spider bites, except for an antivenom, which is so dangerous that it is only administered to those whose lives may be in jeopardy.

The next day, exhausted, I couldn't sit still. Stillness equaled more discomfort. Needing distractions, I watched a couple of movies while hoping the hospital would discharge me soon. The nurse explained that the doc would have to see me first, and he wasn't coming anytime soon, because it was Saturday. I finally got out of there at noon, the doc admonishing me to watch my diet, and to quit eating all the fatty foods that were stressing out my heart. Ha! I bet my heart is in better condition than his!

Still needing to keep my mind off my continuing discomfort, I drove back to Aztec Ruins and resumed work. Collecting plant specimens wasn't too bad, but standing still to press them caused severe pain in my lower leg bones and feet. I kept at it until 17:30 and then found a motel room. Totally exhausted, I dropped 800 mg of Ibuprofen thinking I would be fast asleep in no time. How wrong I was! Laying still, my discomfort increased. Pain all over, no relief in sight, extremely agitated. I was trash, desperate, and could not think my way out of this one. After hours of rolling around I called the Poison Control Center. Those folks indicated that aspirin and ibuprofen have no effect on reducing pain or discomfort from black widow spider bites. I now knew this from personal experience.

Back to the Farmington hospital that night (this time as an outpatient) got me drugs that I hoped would allow me to get some much-needed rest. While waiting for sleep to overtake me, I read the precautions on the drug containers. They said that I should take Benadryl to counteract the itching that I was going to experience. The other meds hadn't caused itching, so I didn't think much of it. That is until the itching came on; another restless night. Bummer! I had been so psyched to take the drugs that I needed, and get some real rest. I gave up on drugs after that.

So much for my narrative. I should reiterate the

effects this envenomation had on my body. All my muscles were sore and spasming. This included my intestines, diaphragm, and heart. I don't think my testicles have any muscle in them, but they hurt too. My eyes and my teeth were the only parts that never got sore. Think about this. Every muscle. This means you don't feel like putting anything in your digestive tract; your gi tract shuts down for the duration. I finally managed a small dump during the fourth day after onset. I ate and drank small quantities of food and fluid, and never threw up, but eating wasn't pleasant. At the end of the fourth day, my lower legs and feet were still tingling and painful. My third, fourth, and fifth nights after onset were characterized by waking up once or twice an hour in a cold sweat, then rolling around until I drifted off again, perhaps an hour or two later. My thermostat was messed up the whole time; like a fever, in that I chilled easily, and then overheated. The bite site was sore for six days, with a persistent small red spot twelve days later, but never any necrosis, swelling, or other sign of more serious local damage or infection.

Keep in mind that while most black widow spider bites aren't this serious, some are life-threatening. Antivenom is rarely used since it may cause more deaths than the spider bites. A new antivenom is in clinical trials. If approved, this may become the treatment of choice.

My appreciation for black widow spiders has soared. For years I slept in areas that harbored black widows. I always figured that if I left them alone, they wouldn't bother me. I may not be so blasé in the future. And if a passenger on a river trip gets bitten, and starts developing symptoms like I've had, I will do my best to convince them to be evacuated, so that they can get appropriate medication. Hopefully, they will be among the group of bitees who have a less severe reaction than I did, or more appropriate medical care.

Thanks to the Arizona/ New Mexico Poison Control Center and Jude McNally for giving me the real scoop on black widow spider envenomation.

Glen Rink

Farewell

This farewell arrived some time after the fact, but is a noteworthy tribute to a member of our Grand Canyon community.

Don Elston

Don Elston, a geologist who was active in Grand Canyon studies, died at home on February 14, 2006 from complications following pneumonia. He was 79.

Don was a veteran of WWII and Korea.

After completing his advanced studies, Elston joined the U.S. Geological Survey in 1952, working on the Colorado Plateau Uranium project out of Grand Junction, CO, where Gene Shoemaker was also working.

After that project closed in 1958, Don went on a meandering path that involved work on coal, salt anticlines, and the Nevada Test Site, eventually becoming, at the behest of Shoemaker, one of the first scientists of the then-forming Astrogeologic Studies Group, in 1962. This group was in Menlo Park, CA at the time, but moved to Flagstaff, AZ in 1963.

In the space business, Don initially was involved in the Manned Lunar Exploration Studies, part of the Apollo program of lunar exploration. It was here that I first met him. This program eventually led to his preparing geologic maps of potential landing sites on the Moon, training Apollo astronauts, and then being part of the Apollo 17 mission.

Simultaneously, Elston became interested in paleomagnetic studies and set up a laboratory in Flagstaff in 1970 to pursue them. This work soon focused on the Proterozoic rocks of the Grand Canyon, the aim being to determine the location and path of continents as they moved in response to plate tectonics in those far-off times.

I accompanied Don on his first Grand Canyon research trip in 1972. By today's standards, the operation has an unbelievable air about it: some six or seven scientists, maybe even a couple more, vast amounts of equipment and supplies (a little beer too), all packed onto an artha-rig snout rowed by none other than Al Wilson, aka Crazy Al, resplendent in blue-green muumuu and a floppy hat in the fashion of the 16th century. There were the days. The ride was a good one because the ponderous boat took the mean course between crests and troughs, something of an advantage in the big holes, in all of which we inevitably landed since the boat in no way could be rowed to avoid them (left run at Bedrock, anyone?). At that time no

one had worked out an effective sanitation system yet, so the beaches stank and were littered with charcoal and other even less desirable substances. As we approached the Lcr, we were astounded to see 15-foot standing waves over the island, produced by a flood of brown water shooting out from the tributary. This flood vastly exceeded what was coming down the mainstem, and carried an interesting assortment of objects, including dead cows. That was the flood that washed out the sewage treatment plants in Holbrook and Winslow. Since nobody had then heard of doing anything to river water before drinking it, things got a little gassy down there for a while.

The Grand Canyon work got Don interested in how the darn thing was formed in the first place. Being an advocate of an old canyon, and knowing the evidence along the river's course in the Pearce Ferry area showed that no river existed through there between maybe 18 and five million years ago, Don came up with the notion that during that time the Colorado River drainage basin ceased to function for many millions of years, causing the already-old canyon to become filled with gravel, meaning that nothing issued forth into the Lake Mead country until later. We had a few discussions about that.

In retrospect, I feel that two things stand out about Don. First, he was one tough dude, not only because he served in two very tough wars, but also because he overcame physical problems such as polio when he was a young man, and decades of heart problems when he was old. None of these handicaps slowed down either his body or his mind, which could best be described as inquisitive and restless, the second characteristic. Don made it a habit of coming up with novel and unusual ways of looking at things, often proposing notions that caused a substantial stir. Time will determine how the ideas hold up, as, after all, is the case with all of us.

With Don's passing, another chapter in the amazing book of scientific exploration of the Grand Canyon has come to a close. It just won't be the same without him.

Ivo Lucchitta

A Quart of Hayner

At sunset a cold wind picks up on the rim of Grand Canyon where a handful of us have gathered. Patches of snow fill rimrock hollows, and in the gorge below the winter light hits Sumner Butte, standing four-square and solid. The rock mass honors Jack Sumner, head boatman on John Wesley Powell's epic descent of the Colorado River. Powell became a national hero, while his right-hand man drifted into obscurity.

We have come here to toast Jack Sumner and investigate a mystery. It has to do with whiskey. We stand stiffly with hands deep in pockets, as Brad Dimock unpacks his portable river bar, a well-padded plastic bucket. Like a magician with a top hat, he keeps pulling out an improbable number of Hayner Whiskey bottles, some empty and some refilled with rot-gut, shot glasses etched with the Hayner logo, and finally the relic itself—a pint of genuine Hayner with the seal intact and in its original box. The whiskey likely played a role in a bizarre incident involving Powell's boatman.

The gathering has drawn Al Holland, Richard Quararoli, Roy Webb, Mike Anderson, and Tom Myers—all with a penchant for rivers and their histories. Tim Whitney is on hand as the designated stand-in for anyone who fails to show or slips on the icy rim.

Reading the label, Brad notes the conspicuous "rx" symbol on the front meant to reassure the abstemious of its curative properties. At this stage of the game, we all know how to take our medicine, and Dr. Myers is on hand to make sure it's administered properly.

After extracting the bottle from its box, Brad breaks the seal. He pours out shots the color of charred oak and toasts the memory of Jack Sumner.

Ho! Stand to your glasses ready!
'Tis all we have left to prize.
A cup for the dead already...
Hurrah for the next that dies.

"To Jack Sumner," I add, "May your knife always be sharp."

In 1902, more than thirty years after the Powell expedition, Sumner was found unconscious near Green River, Utah. He had castrated himself in an apparent suicide attempt during a fit of dementia or alcohol-induced despair. The doctor who treated him admired his surgical skill and noted, "Operation was very successful."

No one knows for sure what drove Sumner to such extremes, but Brad suspects Hayner Whiskey was the accelerant, if not the match. A year after the suicide attempt, Sumner sat by a campfire in Glen Canyon with other prospectors. A miner had just returned from Lees Ferry where he had seen three men preparing for a downriver run through Grand Canyon. "I'll bet you a quart of Hayner," Sumner said, "they don't make it." The reference to Hayner caught Brad's attention, and he began to dig.

Before Prohibition put the Hayner Distilling Company out of business, it barreled the 1914 run in expectation of saner times to come. When the law was repealed, another distillery bottled the now-aged whiskey. Brad made a diligent search and found an unopened bottle for sale on eBay, which cost him \$165 after a flurry of bidding. "I just had to find out," he said, "what Jack Sumner was drinking that made him castrate himself."

Brad sent out invitations to various historians and sun-addled boatmen who might be willing to toss \$25 in the hat for a two-ounce shot. Six of us bought in. Hayner had been the most popular whiskey in a time of serious whiskey drinkers, but he warned us to bring a chaser in case it had turned to varnish. Instead we find the years have smoothed out the rough edges while preserving the long-forgotten taste.

Even before the full dosage is reached, the cure is taking effect. The warmth it brings, they say, is an illusion, but then we live in a world of illusions. A sip of Hayner may not have solved the puzzle of why Sumner pulled out his skinning knife one night on the banks of the Green River. Some things, I suppose, are better left unknown. But it's enough to honor the first of the boatmen. I sprinkle a few drops over the edge of the canyon, an old Hopi custom, and leave it at that.

Scott Thybony



Back of the Boat— The Whale Foundation News Bulletin

WingDing V

The 5th Annual WingDing was held on Saturday, February 3, 2007 at the Coconino Center for the Arts in Flagstaff and was a successful and fun filled rendezvous of the Grand Canyon river family. River passengers Mac Fairley and Dale Peterson, financial supporters of the Whale Foundation and Grand Canyon River Guides came all the way from Alabama to be part of the celebration! About 350 of us bid on 165 silent auctions items and twelve stunning live auction items. Thank you Martha for another sumptuous dinner, Dan Hall and Matt Kaplinski for the hilarious live auction, Jess Pope and Bill Vernieu for organizing the music and all the volunteers who helped set up, clean up, bake desserts, run the auction, the raffle, the beverage table, the front table and meet and greet. A sincere thanks to you all.

GTS Health Fair

We want to remind everyone that the Whale Foundation will again host a Health Fair at the spring gts on Saturday, March 31st. Our health care professionals will offer free screenings for skin cancer, colon cancer, breast cancer, blood pressure, diabetes and cholesterol, plus oral examinations, eye examinations, discuss family health histories and more. We will also have informative pamphlets available on pertinent health issues. If you are an uninsured or under-insured member of the river community we strongly encourage you to take advantage of this incredible opportunity, and it's free.

Whale Foundation Board of Directors

The Whale Foundation welcomed Sharon Hester to the board recently and we want to thank her for donating her considerable time and talents in support of our river family. If you are interested in volunteering for the Board or in other capacities, please give us a call at 928-774-4288. We look forward to hearing from you!

Kenton Grua Memorial Scholarship

The Whale Foundation has added a second granting cycle to the Kenton Grua Memorial Scholarship with a deadline of November 1. Three scholarships were awarded to Brian Hansen—arr, Jon Olivera—Hatch and Susan Detering—wra. Support from throughout the Grand Canyon family has allowed the Foundation to award seven \$1500 scholarships to guides seeking further education in 2006 and we hope to continue this into the years ahead. All applications are blinded before a rigorous review to insure impartiality. Applications may be downloaded from the website or mailed from the office. The next application deadline is June 1, 2007.

2006 Whale Foundation Accomplishments

Health Services Committee 2006:

Providers: (all practice independently of the Foundation)

9-Mental health counselors	7-Physical therapists
8-Physicians	4-Massage therapists
1-Health insurance broker	2-Dentists
3-Certified financial planners	1-Optician
2-Transition planning counselors	3-Psychiatrists

Counseling: Free or reduced cost to individuals. (Some professional fees were reimbursed by the Whale Foundation). Counselors saw 64 individuals (43 in 2005) for a total of 96 hours (an approx donated value of \$6,170 at \$65./hr)

Physicians: Two Flagstaff health care professionals served 14 guides free of charge donating \$1,561 worth of medical services.

The Whale Foundation Training and Outreach in 2006

The February *Active Listening Seminar* was attended by 18 individuals...November's professional presentation, *Sexual, Substance Abuse and Hazing Issues* had 30 participants. The Whale Foundation provided lunch and a mileage payment for out-of-town participants. In 2006 the Whale Foundation received donated professional services (at a value of \$4,720) to our Education and Outreach efforts (four bqr articles, 2006 Spring gts panel presentation, the gts Health Fair and two training seminars.)

Kenton Grua Memorial Scholarship 2006

New...Two granting cycles; June and November.

Seven \$1500 educational scholarships were granted to:

<u>June</u>	<u>November</u>
Ken Baker—Freelance	Brian Hansen—arr
Sam Jansen—Can Ex	Jon Olivera—Hatch
Lars Niemi—Freelance	Susan Detering—wra
Eric Christenson—azra	

Annual Health Fair at the 2006 Spring GCRG GTS

Health professionals provided free screenings (a value of \$750/patient) to 34 guides at the 2006 Spring Guides Training Seminar. The health care professionals' generous donation represents a total value of \$25,500. The Whale Foundation paid \$172.84 for blood work.

Grand Canyon Conservation Fund—Grant Recipient

The Whale Foundation wishes to thank the Grand Canyon Conservation Fund for once again continuing their financial support of our community education/outreach efforts.

The Next Decade of Adaptive Management

With the completion of ten years of the Adaptive Management Program for Glen Canyon Dam, it's important to look back at our accomplishments and failings, and to ask whether this approach to managing a complex river ecosystem is working. Here are few quick points I'll make from my own perspective:

The process of multiple stakeholders, most with little scientific background, using scientific approaches and knowledge to make collective decisions is cumbersome and slow. This is exacerbated by mutual suspicions, conflicting agendas and by the struggle to keep up with the emerging and voluminous scientific knowledge. It is difficult to make confident decisions under this cloud of uncertainty as to outcomes. And, with most of the money concentrated in the hydropower and basin state representatives, it's a challenge to advocate for environmental improvements that could potentially compromise power generation. Having said that, when consensus is reached it can be very satisfying.

Fortunately, we have come a long way in understanding the sediment dynamics and distribution of sand bars throughout the canyon. We are fairly confident that running sediment-triggered high releases from the dam as frequently as possible will help to mitigate the tremendous loss of sand bars and beaches over the past few decades since the dam was built. Sand bar erosion from fluctuating flows and gully runoff combined with vegetation encroachment continues to reduce the amount and quality of campable space along the river, even as more river permits are granted under the new crmp. The failure of the amp to reach consensus on running a Beach Habitat Building Flow (bhbf) in early 2007 points up the necessity of incorporating sediment-triggered high flow experiments as an integral part of the Long Term Experimental Plan for the management of Glen Canyon Dam.

We are only beginning to understand the aquatic food base and how it changes...and how it affects animals further up the food chain—the endemic fish of the Colorado, and particularly the humpback chub.

Removal of thousands of non-native fish near the mouth of the lcr by Grand Canyon Monitoring and Research Center has presumably opened up main stem ecological niches for the chub, especially given the noticeably warmer water released from the dam during the last six years of drought and low lake levels. It will be interesting to see if the chub can take advantage of this change and expand their breeding habitat into the main stem. If so, a major program goal will be accomplished providing support for building a selective withdrawal structure on the dam.

It is tragic to witness the continuous loss of ancient archaeological sites along the river corridor. Clearly, with only five to ten percent of the pre-dam sediment coming

through and no big floods to deposit that sediment to protect the sites, natural gully erosion is taking its toll. The only mechanism to address this decline on a system-wide basis is by implementing bhbf to help protect these non-renewable resources. The amp clearly needs to commit to the mandates of the Grand Canyon Protection Act and the National Historic Preservation Act by attaining the positive sediment balance necessary for the preservation of cultural resources along the river corridor.

The amp stakeholders generally concede that the Modified Low Fluctuating Flows mandated by the eis in 1996 have stabilized the ecosystem somewhat, but have not resulted in the long-term sustainability of resources as hoped. So, Reclamation is now embarking on a new eis to develop a long-term experimental plan (lstep). The lstep is planned for a ten to fifteen year period and will institute a series of flow and non-flow measures that should give us a better idea on how to reoperate the dam to meet the intention of the Grand Canyon Protection Act of 1992. Do stay tuned to this eis process, and provide your input when requested later this year, so that we can strongly advocate for a plan that optimizes chances for long-term sustainability of natural and cultural resources on the Colorado River in Grand Canyon. Search for: usbr.gov/uc/rm/gcdlstep/index.html.

As co-chair of the amp Public Outreach committee, I helped develop a program website for the general public to better understand the amp. The site just went live, check it out. Search for: gcdamp.gov.

This very brief statement begins to convey the progress and challenges in the amp. I continue to believe that this model for solving complex socio-ecological issues is a useful, if somewhat flawed approach. The Adaptive Management Program could benefit from a thorough external review to ensure that the program is meeting its environmental and monitoring commitments and is indeed "improving the values for which the Glen Canyon National Recreation Area and Grand Canyon National Park were established."

I'd like to give thanks to John O'Brien on the Technical Work Group, Lynn Hamilton on policy and administration, and Matt Kaplinski for continuing insights in gcrg's participation in the Adaptive Management Program. And, we wouldn't have the staying power without the continuing support of commercial river guests who contribute a dollar per river day to the Grand Canyon Conservation Fund. Their annual grant helps us to pay the bills that make our participation possible. Thank you!

Andre Potochnik

Adopt-A-Beach Campsite Monitoring: A Comparison of Campsites Before and After the November 2004 High Experimental Flow

Introduction

Since 1996, the Adopt-a-Beach (aab) project has been monitoring beach/campsite changes in the Grand Canyon through the use of repeat photography. Both commercial guide and private boater volunteers obtain cameras and data sheets from the Grand Canyon River Guides (gcrg) office and photograph

their chosen beach(es) whenever they go down the river. Photos are taken of a yearly average of 38 designated beaches from pre-determined point locations, and supplemented by observational data written by the photographer (Thompson and Pollock, 2006). This report focuses on a comparison of information documented by the adopters before and after the High Exper-

Camp name	River mile	Sand +	Sand -	Sand -	Better	Worse	Same
Soap	11.0	Y			Y		
Salt Water Wash	12.2			Y			Y
Hot Na Na	16.3	Y			Y		
19 Mile	19.1	Y					Y
North Canyon	20.4	Y			Y		
23 mile	23.0	Y					Y
Silver Grotto	29.3	Y			Y		
Middle Nautaloid	34.5	Y			Y		
Lower Nautaloid	34.7	Y			Y		
Bishop/Martha's	38.3	Y					Y
Buck Farm	41.0		Y			Y	
Nevill's	75.2			Y			Y
Grapevine	81.3	Y					Y
Schist	96.0			Y			Y
Boucher	96.7	Y			Y		
Crystal	98.0			Y			Y
Tuna	99.7	Y			Y		
Ross Wheeler	107.8			Y			Y
Bass	108.3	Y				Y	
110 mile	109.4			Y		Y	
Upper Garnet	114.3	Y			Y		
Lower Garnet	114.5	Y			Y		
Below Bedrock	131.1			Y			Y
Stone	132.0			Y			Y
Talking Heads	133.0	Y			Y		
Racetrack	133.5			Y			Y
Lower Tapeats	133.7			Y			Y
Owl Eyes	134.6	Y			Y		
Backeddy	137.0	Y			Y		
Kanab	143.2			Y			Y
Matkat	148.5	Y			Y		
Last Chance	155.7			Y			Y
Tuckup	164.5	Y			Y		
Upper National	166.4			Y			Y
Lower National	166.6			Y			Y
Travertine Falls	230.0			Y			Y
Gneiss	236.0			Y			Y

TABLE A

imental Flow (hef) in November 2004.

To conduct this comparison, digital images of photos were collected from those taken by aab for the years 2004 and 2005. The latest seasonal photo taken for a particular beach in 2004 was compared to the earliest photo taken of that beach in 2005. For most sites, photos for the next latest and earliest dates, respectively, were also used to confirm the comparisons, and to lend insight into trends following the November 2004 release. The objective is to compare the beaches as close to the hef event as is possible with the photos available. Of the 37 beaches considered in this study, 28 of the 2004 photo dates were in September or October, six were from August and the remaining three earlier in the year. Of the 2005 photo dates, 30 were collected in March, April or May, and five were taken in June, with the remaining two obtained later in the year. In other words, 32 of the comparisons, or 86%, were made using photos taken between August 2004 and June 2005. One of the 38 beaches with photos available, Olo Canyon, at river mile 145.6, was removed from this study because the 2005 photo was taken after a major flash event and no evidence of the hef could be evaluated.

Methods

When comparing the photos, eight criteria were used to gather the empirical data used for the evaluations. These included an estimated river flow in each of the photos, usually confirmed by flow data available through the Grand Canyon Monitoring and Research Center (gcmrc) website, evidence of any flattening, mounding or scouring of sand in the photos, a change in area of sand cover between 2004 and 2005, vegetation covered or possibly removed as a result of the hef, rocks covered/uncovered by the hef that would indicate a change in camping area, a change in the loading/unloading areas used by river parties who stop to lunch or camp at the beach, and comments made by the aab photographer on the datasheet when the photo is taken. Due to the variety of river flow levels between the comparison photos, change in the 'parking' at a particular beach was usually difficult to evaluate, and was considered only when recorded by the aab observer. This means that six identifiable changes could be used to determine if the hef created camping conditions at the beach classifiable as "Better," "Same" or "Worse." Knowledge of the study sites by the investigator and, therefore, inferred change, were also considered, though this did not determine the final classification used for any particular beach. If two of the criteria indicated substantial alteration, or if three or more of the criteria showed obvious change between the 2004 and 2005 photos, the beach was classified as either "Better camping," or "Worse camping." Otherwise, a classification of "Same" was used for that beach, indicating that the hef did not affect the beach relative to its recreational usability. A

spreadsheet of the beaches in the study and the resulting classification for each is in Table a.

Results

The objectives for both the 1996 Beach/Habitat Building Flow (bhbf) and the 2004 hef were to "redistribute accumulated sediments from the channel bed to eddies" and related beaches (Topping 2006, Kaplinski 2006). The first consideration made by this study was the accomplishment of this objective. Of the 37 beaches under consideration, 20 (54%) showed an increase in the amount of sand present after the 2004 flood event. In some instances this increase was marked and usually commented on by the photographer. However, because the photos collected by aab cannot presently provide quantifiable information, it must be sufficient to simply classify these beaches as having increased in mass, but not necessarily surface area. Of the 37 beaches, 16 (43%) did not show a perceptible increase when compared to the pre-flood. One beach, Buck Farm, rm 41.0, showed a decrease in the sand/beach area. This was supported by comments by the guide photographer. In other words, only 3% of the study sites showed a decrease in sand as a result of the 2004 HEF. (Figure 1).

Regarding the increase of areas for suitable camping as a result of increased sand deposit, there is not a direct

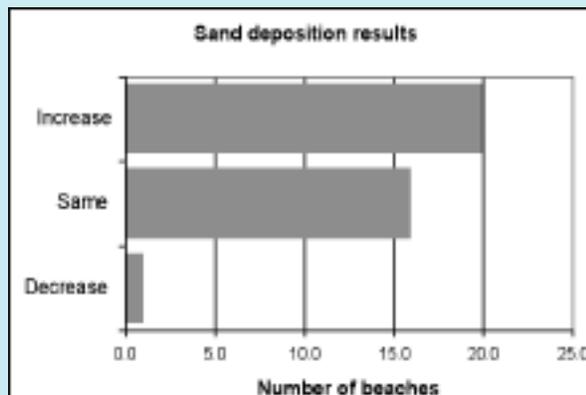


Figure 1

one to one correlation. Of the 20 beaches in the study that showed an increase, fifteen (75%) are considered to have changed to a "Better" campability classification, four (20%) remained the same, and one (5%) actually degraded in respect to camping acceptability. Bass camp, RM 108.3, received a considerable increase in sand deposited from the flood, but no perceptible change in the overall camp area was seen, and the resulting cutbanks and poor loading/unloading conditions that persisted on the subsequent photos resulted in a "Worse" designation for the beach. Other considerations that may have resulted in a "Same," or unchanged designation for a beach after the event, despite an increase in sand deposit, included mounding of sand in camp as a

result of the eddy “vortex,” scouring of previously used areas by return channels, or an increase in the slope and elevation of the sand at landing areas. (Figure 2). These factors are addressed further in the Conclusions portion of this report.

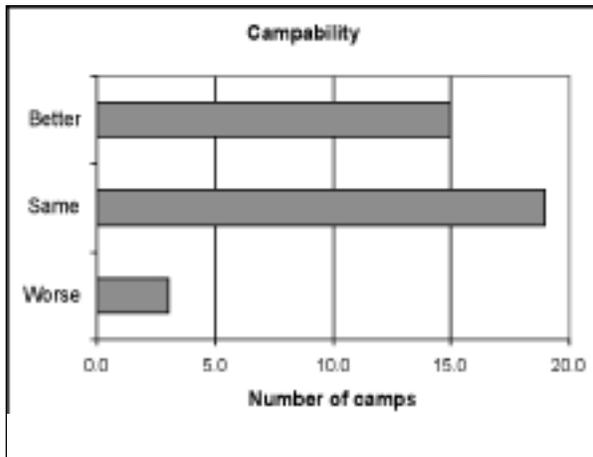


Figure 2

In the 16 instances where the sand deposit remained the same, fifteen resulted in classification as having experienced no change overall from the flood event. One beach, 110 Mile camp at rm 109.4, was classified as degraded in its camp acceptability because of a huge deposit of driftwood throughout the camp, creating less sleeping area as well as hazardous walking around the beach and, especially, on the trail to the usual toilet location. Admittedly, the addition of driftwood at a camp could be perceived as a bonus to people using the campsite in the colder months of the year. But, for consistency in this evaluation, it was designated as a degraded camp.

In *Campsite Area Monitoring from 1998 to 2005: The Effects of the November 2004 High Experimental Flow on Recreational Resources in the Colorado River Ecosystem*, Kaplinski et al (2006) noted that eroded sediment from beach areas and increased vegetation are the two main factors in loss of campsite area. In this aab study, the covering of previously visible rocks by new sand deposition was noted frequently. The covering or removal of vegetation at the beaches was also noted. At twelve (80%) of the fifteen beaches considered as campsites in which conditions improved, the covering of rocks and/or the removal of vegetation was a predominant factor. This usually consisted of low cobble bars being covered in the middle or rear areas of the camps, and the removal of baccharis or other bushy plants in landing and potential activity areas. In one instance, a tamarisk tree about five to six feet tall was noticeably absent in the 2005 comparative photo.

Another interpretation for the results of this study are the effects the flood had per reach in the river corridor. Of the eleven beaches considered that are located in

Marble Canyon, nine (82%) showed an increase in sand, one (9%) remained unchanged and one (9%) degraded. In the Upper Granite Gorge, the eleven beaches sampled resulted in six (55%) showing sand increases, five (45%) unchanged, and none were designated as being degraded from the flood event. In the Muav Gorge, thirteen beaches had photographic comparisons in which five (38%) increased in sand deposition, eight (62%) remained the same, and none was degraded. Downstream in the Lower Granite Gorge, two beaches were sampled and both showed no appreciable change. These results support the quantitative findings of Kaplinski et al (2006) which found that sand deposition on beaches from the November 2004 hef decreases in magnitude the further downstream the beach is from the dam. (Figure 3).

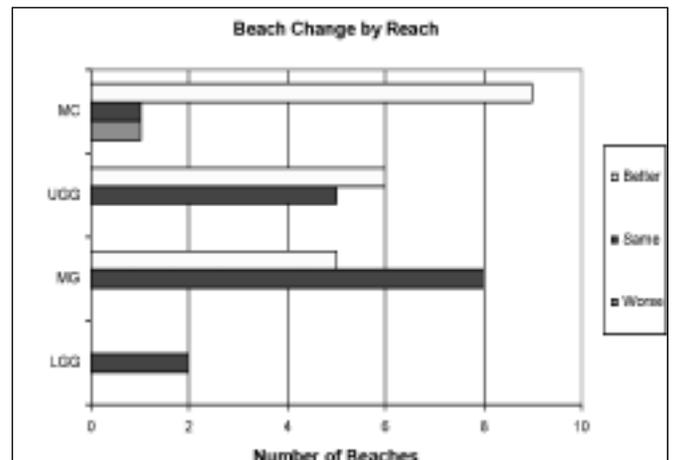


Figure 3

One comparison not addressed by this study is that of the results relative to beach sizes. To say that a smaller beach, like Owl Eyes for example, changed more or less than Backeddy beach, is not possible with the information collected.

Conclusions

One of the things immediately evident in reviewing the results of this study is the substantial number of beaches, 54%, that were recipients of sand deposition, but only 75% of those are designated as “Better” or improved for camping. Ultimately, only 41% of the 37 beaches being considered received a designation of “Better” following the flood event. This only reflects the immediate observations of the photographers and the aab investigator. All of the beaches that displayed an increase in sand deposition, and especially those few that ‘grew’ taller but diminished in overall area, showed a marked vertical gain in sand. This sometimes resulted in steeper slopes at the landing area, or, at worst, severe cutbanks, mounding in the camp areas, or other geomorphic features that do not make a beach more inviting as a camp. This does not mean that a beach is on the ‘permanently disabled’ list. Over the continuing season, fluctuating flows, human use and more natural processes will often help to create a



River Mile 114.3, September 2002



River Mile 114.3, September 2004



River Mile 114.3, August 2005
Park uses new sand deposit as landing area for evacuation.

more attractive campsite. All who boat on the Colorado for even a short period of time have seen these effects. The study of these beaches and the evolution of possible changes through 2005 is currently in process and may

reveal differing results from those just presented.

Conversely, subsequent photos of many beaches indicate that erosion from both human and more natural actions will degrade a previously designated “Better” camp. Sand erosion by water and wind, undercutting and the resulting cutbanks, gullied camps from side drainage flashes, and increased vegetation can reverse the beneficial effects of the hef that this study presents.

The remaining study of the 2005 photo collection will perhaps show that, as some people have proffered in response to contemplation of the pros and cons of another “controlled flood,” ultimately, the more sand you have out of the river channel and onto the beach, the better the campsite, and the longer it will last.

Acknowledgements

The Adopt-a-Beach project would like to express sincere gratitude to all of the adopters and acknowledge their wonderful efforts at gathering the photos that contribute to an archive of beach changes in the Grand Canyon. Your contribution of time during your river trips, and especially your on site, often personal, beach comments are invaluable. Particular thanks is extended to the Canyon Explorations crew who took the time to document the beaches during their Spring training trip in 2005. Your March/April documentation is a big asset to aab. And a huge banner of thanks to Lynn Hamilton at gcrp for your support and your continued pursuit of funding to keep this project alive. All of the stakeholders and researchers, current and future, owe you a gracious tip of the hat. Finally, thank you to the Grand Canyon Conservation Fund, the Public Outreach Ah-Hoc Committee of the Adaptive Management Program, and individual contributors for believing that the Adopt-a-Beach project is worthy of their support.

Zeke Lauck

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Fritz

I grew up in the Lehigh Valley, in Pennsylvania. Just always was a quiet little nature girl—kinda tomboy. And so...spent a lot of time in the outdoors, and basically ran off to the West as soon as I got the chance. Went to Boulder, Colorado my first year of college to pursue some degree in environmental conservation and, uh,...didn't really care for being at the big school and ended up at Prescott College. That was kind of the big springboard to really jumping into the outdoors in the Southwest. I don't know...met a lot of great people there, and went on a lot of great adventures. Had an interest in science, was the nature girl, and pursued that as well as outdoor stuff, and I guess that's where I got my first taste of the river. My first river trip was Diamond-down. 1975. It took me awhile before I got a chance to do a full river trip in Grand Canyon, but that's where I started learning how to run rivers, and kayaking, mostly, first.

The thing that stands out in my mind...couple of things—one, we rode down there in the back of a U-Haul truck, with the door closed...of a box-truck, yeah. So I had no idea what was going on, or where we were going, other than we were going to some river trip, whatever. I mean I had the basics, but just not being able to see...and rumbling down the Diamond Creek road back then...[Steiger: You guys rode all the way from Prescott in the back of a closed truck?] Right, so we ride down there in the back of this box-truck, rattle down there and just get out at Diamond Creek. We were completely plastered in dust. Got on the boats and went down to Travertine or something, and I...first river trip ever, so we went through like Diamond Creek Rapid and those couple little rapids and I remember thinking: "Neeahh." Wasn't as exciting as I thought it would be. (hoots, laughs) And then of course the next day we ran 231 and 232 and I was like, "Ok, that's more like it...I think I like this."

* * *

Carol Fritzingler—a.k.a. Fritz to this community—has had a stellar career that includes rowing stints with the National Park Service in Utah; and, among others, the old Grand Canyon Dories, Wilderness World, and Expeditions, in Grand Canyon. For the last eight years she's been logistics coordinator for the Grand Canyon Monitoring and Research Center. Along the way she's been markedly successful at marriage (to boatman Dirk Pratley) and motherhood (daughter, Willa). She also, somehow in her copious spare-time, managed to co-found the new Grand Canyon Youth program, which has engaged over 1000 kids in hands-on river adventures so far.

In addition to possessing the common traits of beauty and brains—which Fritz shares with practically all the women who somehow managed to gouge their way into her generation of Grand Canyon boatmen—she's always come across as one who doesn't suffer fools gladly: a woman who is forthright, grounded, confident, and extremely competent at pretty much everything she does. And, oh yeah, pretty much fearless, too...I remember Jimmy Hendrick explaining once, as a preface to a huge right side of Lava Falls river story (where it seems like maybe Fritz made it right side up but Jimmy didn't...) that yes, it was totally huge over there but it was a no-brainer, he had to go over there, even though everybody else was going left, because Fritz had already made up her mind to go right and Jimmy, therefore, had no choice in the matter whatsoever, he had to go right too...

This interview took place January 17, 2007 at the gcmrc warehouse in Flagstaff. —Lew Steiger

* * *

Fritz: I'm the youngest of four. The rest of my family is still there in Pennsylvania, there's a family business—landscape business. **[Steiger:** So everybody is pretty outdoorsy, in your family?] Kind of...not to the extreme I was. I had the bug more than the rest of my family. My family didn't camp. But I always wanted to. So, I joined the Girl Scouts so I could go camping with them. Then



An early start with gardening at the family landscape business in Pennsylvania.



Carol Fritzinger, one of 12 students chosen to mark trails in Utah.

While the rest of the seniors had their noses in books during the last weeks of school, nature-lover Carol Fritzinger responded to an attack of spring fever by spending the month of May in the canyonlands of southeastern Utah. Her mission included marking trails, mapping Indian ruins, and chipping steps into sandstone slopes.

Privileged to be one of 12 high school students in the country chosen by the National Student Conservation Association, Carol helped to provide some 300 miles of hikers' trails through Canyonlands National Park near Moab, Utah.

"We didn't call it 'cutting trails' because that sounds like you're ruining natural growth. We care for the ecology and don't damage anything," she gently reprimanded.

Education away from her classmates, who were busily entering the final weeks of school, was, she noted, "So easy outdoors. I call it growing. It was the kind of learning that makes you grow—and know how much you can really do."

It took special permission from the school board for her to spend the time away from her formal studies. Her plane fare was her only financial responsibility.

Upon her return to classes, there were only five school days left in which to make up the four weeks of studies. It must have been enough time since she was notified when she came home that she was elected to the National Honor Society.

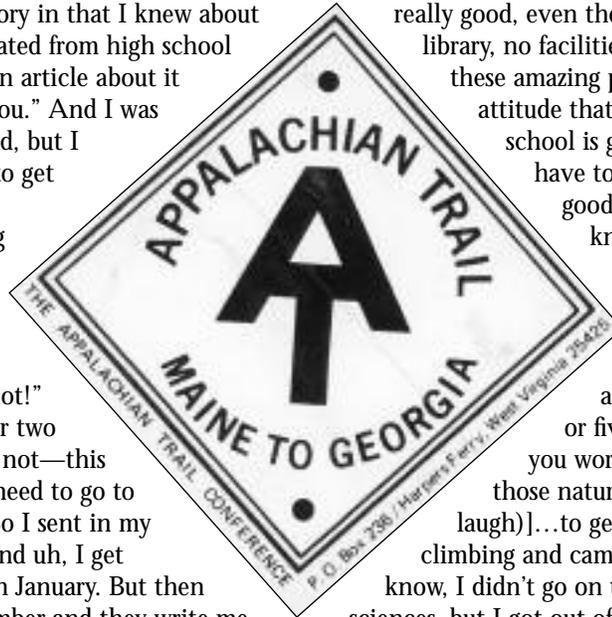
Another surprise, while still in Utah, Carol received notice of being the recipient of the Zephyr Award in swimming. "The information came by ranger who learned of it over short wave radio," Carol laughed.

While her love of the Lehigh Valley's lushness is great, the quiet and stillness of the never-ending desert is somewhere she wants to return. "Your values change when you're on the desert," she said. "The pace is slower and your observation is heightened. You also learn to carry enough water wherever you go." Carol plans to attend the University of Colorado in fall to study environmental conservation.

Two-page spread entitled "Environmentalist" from the 1974 Whitehall High School yearbook.

eventually I was part of this hiking club, that was part of the Girl Scouts, and did a lot of backpacking on the Appalachian Trail, and then eventually, with a few friends hiked the full length of the Appalachian Trail, when I was nineteen. Two thousand miles. Maine to Georgia. Lot of fun. That's about a six month deal. Go for a long walk...I was already at Prescott College, yeah. So I took a semester off and did that.

I mean that's a story too [getting to Prescott], but I...well that's an interesting story in that I knew about Prescott College when I graduated from high school because my mother had seen an article about it and said "This place...this is you." And I was so...I wanted to go there so bad, but I was afraid that I wasn't going to get accepted. So I agonized over sending my application so long until eventually it was too late, and I never sent it in. So I went to Boulder instead, and I was there about a week and it was just like: "I'm an idiot!" I was in Colorado for a week or two and I finally just said "Ok, I'm not—this Boulder place is not for me. I need to go to that Prescott College place." So I sent in my application in the fall of '74, and uh, I get accepted. So I'm going there in January. But then along comes November, December and they write me a letter, "Well, sorry but we've gone bankrupt. You can't come." So I was like, totally crushed. "I blew it!" So I signed up for the next semester at Boulder, went back there, started to figure it out a little bit, but um...get this letter from Prescott College. "Hey, we're thinking about keeping it going. You want to come?" "Uhhh, well, I think so." So this friend that I went to school with in Boulder loaned me his Mustang, like a '65 Mustang, and on spring break a couple of girlfriends and I drove down there to Prescott to visit, when they were...so now they're in the basement of the Hassayampa Hotel [all of Prescott College]. And I talked to Craig Spillman—Dave's dad—who was the admissions director. He said, "Well if you want to come in the fall, you still can." (laughs) So I said I would. Came back there that fall. Yeah, Jim Stuckey was the president. So, when I got there in the fall of '75, you know the first thing you do is go on orientation. Even though it was my second year in college, it was my first year at Prescott. And they said—there were 48 of us—they said "What we had decided was that if there was 50 kids show up, we'd keep this thing going. And now 48 of you have shown up. So, why don't you just go off to orientation and while you're gone we'll decide (laughs) whether we're doing this or not." So we went off on orientation [a month outside] up to the Escalante, came back and they'd decided to



keep it going. [Steiger: Even though they were short the two kids that were gonna be all their profit, no doubt...] But I mean it was great, there were some great faculty that stuck it out there. Mike Goff, Carl Tomoff, Stuckey, Craig Spillman, and Maggie Asplund.

Steiger: What was it about Prescott College that made you think that was the place for you?

Fritz: Well the experiential education stuff suited me well, the hands-on. You know I just think that it was really good, even though we had no campus, no library, no facilities and no nothing, we had these amazing people and we also had this attitude that: "If this little experimental school is going to survive, we're going to have to work really hard and make it a good thing. Or else it's a joke." You know? So I thought there was a really good atmosphere of working hard academically in which, when you have a really good pool of faculty and you have classes with four or five kids in them... [Steiger: So you worked hard academically? In those natural sciences, did you? (both laugh)]...to get my degree in hiking and climbing and camping out! I would say so. You know, I didn't go on to pursue a higher degree in sciences, but I got out of it what I wanted out of it. And yeah, I worked hard. I thought hard about stuff.

Steiger: What would you say you studied the hardest at? And what...when you say the sciences, like biology? Geology? What were the things that drew you the strongest?

Fritz: Oh, the natural sciences...anything that would be considered part of an environmental studies program now. It's hard to...because back then we didn't have the traditional academic names for things. Field ecology, stuff like that.

* * *

Yeah, we didn't have anything. We had a couple little Avon Redshanks that we would take on the Verde and Diamond down, and kayaking and stuff, but we also did a bunch of trips where we came in at Whitmore Wash. We drove all the way around to the North Rim and we carried the boats down the Whitmore Wash Trail. Carried the Redshanks down there. They only weigh like sixty pounds and we were young, we didn't know any better. It was a way to get a bigger piece of the river. Well you know...Ok, so the Park boundary didn't officially change until 1976. In those days we would just say, "Well, it's still...[Steiger: On that other side!] Yeah. This is Lake Mead Recreation Area! We started doing



Fr itz and Prescott College gang taking a break at Grand Gulch while paddling from Sand Island on the San Juan to Hall's Crossing on Lake Powell, 1978.

these things before they changed the Park boundary, but then we continued to do them on that pretense even though it probably wasn't totally legal. But nobody ever bothered us about it. And I probably did four or five of those. The most amazing one I did was that year of the really low water. 1977. We drove clear up there, you know, St. George and then a hundred miles of dirt road, down to the Whitmore Wash deal. We got out of the car at the lava flow there, and looked down at the river. It was just this little blue stream, perfectly clear blue stream. It was like: "Holy shit! Can we even do this?" It was when they had the water completely shut off, so a lot of the water was just coming out of the Little Colorado and Tapeats and Havasu. I mean it looked blue from that perspective. But we said, "Well we're here. Let's do this." So we carried all the stuff down. I remember it was really amazing cause the water was super warm and super clear, too. And, I mean...like that rapid Little Bastard was a big problem. But one of the things I remember the most was that beside all the rapids, in all the little micro-eddies at the rocks were these giant schools of carp. Thick, like you could just scoop them up with your hands. They were just jammed into all these micro-eddies at all the rapids. And some of the rapids were pretty interesting: Little Bastard, 231 and 232. And we had these little stupid paddle boats. We would just carry the paddle boats down and we had those old generator bags...tie the stuff to the bottom of the boat and off we'd go, but...we were taking this group

of kids down from Phoenix, it was a "youth" trip, oddly enough, and when we finally got to the lake, the river was so low and the lake was high, I think, so there was zero current, starting at Separation. We had no motor support at all, so we just commenced paddling in these little paddle boats at Separation with these kids. 'Cause what we'd always used to do was just night float with the current—well there was no current. So I don't know, we night-floated and woke up still in sight of Separation. (laughs) And then started paddling and paddling and paddling, and basically we were already a full day behind at that point, cause the river was so slow. And then it took us another couple of days to paddle across the lake. So we were pretty late, but (laughs) the one thing I remembered then was we were paddling, you know, all day

long, it was hot, trying to keep these kids motivated. Imagine paddling...from Separation to Pearce and it was so hot and zero current, trying to motivate these kids, and then...we started hearing this motor boat, from a long ways off, and everybody's going "Ahhh, somebody's going to come and save us!" It was coming from upstream, we were out in the middle of nowhere. Finally we see it coming and we're like "Hallelujah! Here comes a motor boat!" It finally catches up to us, and it was (Steve) Carothers. We kind of knew about him because we were Prescott College, and he was doing science stuff and we knew who this guy was...but he just drove right past us! (laughs) This is the way I remember it anyhow—it was a long time ago, so it might not be true, but he drove right past us. He went past and then he, uh, he gets a little ways past us, to where we can't like, latch on to him. Then he stops and turns around to talk to us. He goes "Look, you know, I'm on this low water too and I don't have enough gas. If I tow you guys I'm going to run out of gas and then we'll all be screwed. So I'll tow you for a couple miles and give you a break." So he did, and then cut us loose again. And that was it. Yeah.

Steiger: (laughs) He thought it over as he went by. He couldn't just leave you. (both laugh)

* * *

I took a roundabout course getting to Grand Canyon—

even though I got a taste of the river running thing and always loved water, so that was something I spent a lot of time doing—boating in crazy places in kayaks and stuff— I actually went off and worked for the Park Service first off, in the Northwest. I worked up in North Cascades as a backcountry ranger there for four years, in the late '70s, when I was finishing up at Prescott College. That was another piece of the West that I wanted to take a look at, and I ended up getting a job up there. So...not much river running, but a lot of outdoors. Eventually got sick of being rained on. Also wasn't necessarily that happy with the Park Service once they decided that I should go to law enforcement school. So that was pretty much when I took off from there.That was right about the time where that was becoming the thing in the Park Service. It was beginning to be a prerequisite to get a job in anything but strict interpretation. I mean, I had a great job up there. Worked in the backcountry. Wandered around in the North Cascades. Didn't see hardly anybody around. And that was a pretty amazing place to get to look at. I did trail work. I did revegetation work. I talked to anybody I saw, you know, made sure they had their permits or whatever. I didn't see that many people. I wondered why they paid me to be there, often. But, the last year I worked up there was 1980, so that was the year Mt. St. Helens was blowing up and...whether or not that was the cause, it was a really rainy summer. And I knew about the Southwest already. Because I liked being outdoors all the time, it was a lot easier being outdoors in the Southwest. So, I came back. The next year, actually, I stuck with the Park Service. I got a job in Dinosaur where I worked for the Park Service but was detailed to the Fish and Wildlife Service to do fish work on the upper basin. So that was a really good introduction to what's going on in the water. And it was a pretty amazing summer. Worked for eight months for those guys... all over the upper basin, basically. I ran an electric-shocking boat for them, and saw a lot of native fish. It's probably a lot different now, twenty-some years later... Cause the whole river environment has degraded that much more in that amount of time. [Steiger: But when I think of up there, I mean there are some undammed stretches...] Yep. But there's been a lot more non-natives that have come on the scene and have made impacts on the native fish.

* * *

Steiger: So what were the circumstances of your first full Grand Canyon trip? [long pause] That you want to talk about? (both laugh)

Fritz: 1979. Paddled a C-2 with Brad Dimock. There were mostly Prescott College folks on that trip. Prescott College private, basically. Stuckey was even on



Ranger Fritz in North Cascades National Park.

part of that trip. Day Delahunt. Wayne VanVoorhies. Bunch of people, Prescott-related. Well we had been doing...there was kind of a gang of four of us that did a lot of adventuresome things beginning in the late '70s. So Brad and I and then Wayne VanVoorhies and this gal Kim Reynolds—we went off and kayaked the Escalante and the East Verde and the Little Colorado, and skied all over the North Rim and did stuff together, whatever. So one of the things we did was, we'd go to these kayak races down in Yuma, of all places. And Brad somehow had gotten this C-2, so I paddled it with him in those races. It was his idea to take it on this Grand Canyon trip. I didn't know any better. Whatever. It was a Grand Canyon trip. So we paddled the C-2. It worked pretty well. I mean, we swam a few times. It hurt our knees. But, shoot, I was just so buzzed from

being there, that C-2 was just part of the adventure. We did some crazy things. Hey, it was my first trip, I didn't know any better. Brad had been a Canyoneers boatman and he was used to plowing that big boat through wherever he felt like. So the one place...Ok the one place that stands out in my mind was: in low water we drove into the hole in Fishtail. (laughter) And we swam. Years later when I started knowing my way around I asked Brad "What the hell were we doing?" He said, "Well, I just wanted to see what would happen." (laughter) No, we had a blast. It was fun. But that...you know, I was completely taken. I knew I was hooked, right then and there.

Then like I say I started weaving this path, of working my way there. Finished up my year in the North Cascades and came back to Flagstaff in the winters and lived here with Brad and those were those early '80s, big wet years. So we skied our brains out all winter and then went back to work.

Yeah, left the North Cascades, went to Dinosaur. That was an amazing experience. Especially considering what I've ended up doing here, now. I mean that interest

in fish persists in what I do here [at gcmrc] now. I saw some amazing things in Dinosaur. I had this cool little fourteen-foot boat that had both motor and oars on it. We actually did our shocking—we drift-shocked. So we did the shocking work with oars, but then of course I'd have to motor back up, and you know I had never had a motor in my hands in my life. First night out, I didn't even know which way to turn the tiller to steer it. But, that was a sharp learning curve. And we worked all over the upper basin. They hired two Park Service people because it was the first year they worked on the Yampa. The Park Service was participating in this project that the Fish and Wildlife Service was doing on the upper basin. So they hired two boatmen, me and another Prescott College guy—Steve Munsell. We ran these boats and we worked in Dinosaur but we also worked ggon the upper Yampa, we worked on the White River, we worked all the way downstream as far as Mineral Bottom, you know...Desolation and all the flat stretches in between...and looked at fish. Looked at Squawfish. Course you can't call them Squawfish now, they're Pike Minnows. But they were Squawfish then, and they'll



Just another thing to do. Fritz running Atomizer Falls on the Little Colorado River, 1983.

always be that to me. The most amazing thing that happened besides just learning to i.d. fish and learning more about where they hung out, was we'd do these trips on the Yampa, netting-shocking combo trips, just sampling trips, and it wasn't a big water year, so the Yampa was pretty low, and it was dropping out pretty quick. So we're doing one of these sampling trips and we come downstream and we start catching—we're on this certain stretch of the river, like sandstone, really kinda shallow, meandering bottom, we start catching Squawfish—a bunch of them. We're figuring out "Shit, there's a bunch of..." and they hadn't been there on previous trips. The river was low—we had these hundred-foot trammel nets that we'd set at night—but the river was so low we finally figured out you could kinda use the trammel net like a big seine, river-wide seine, cause there were all these Squawfish. So we started scooping the whole river with this hundred-foot trammel net, using it like a giant seine, and we'd come up with hundreds of these Squawfish—anywhere from foot-long fish to...the biggest one we caught was maybe a meter. There were hundreds of them! So we eventually stumbled onto this, like, spawning aggregation of Squawfish that no one had ever really realized happened before. So, when we caught big fish we'd radio out to Vernal and they'd send out a biologist who would radio-tag those fish. In this two-three mile stretch of river, we caught maybe twenty fish big enough to radio-tag. Then—you know, just amazing in the first place, stumbling onto this spawning aggregation—radio-tagged all these fish and then continued our work throughout the rest of the season, but in the fall, then, we followed these fish that had gotten radio-tagged. First they'd fly with aircraft to locate them and then they'd dispatch us...by now the water's really low so we'd go out in canoes or kayaks with our radio-tracking equipment and we'd follow these fish. So all these fish that had come together and spawned on the Yampa were now dispersed into their winter grounds. There were fish that swam up across Mountain Canyon [?] up into the upper Yampa; there were fish that swam back down the Yampa into the Green and up the White River. There were fish that went down into Desolation and hung out down there. So it was like "Whoo..." you know? And we just stumbled upon this...Yeah, they're still around in the upper basin. I don't know what their numbers are like, and whether or not people have followed up on that whole deal, but I know it was a pretty remarkable event.

Steiger: So even though you'd never run a motor before... how did you talk your way into that job? Just said "I can run a boat?"

Fritzing: "I'll run a boat!" So...it was pretty fun. Pretty amazing year. But, you know I

came really close to getting fired, and the guy who ran the project for the Fish and Wildlife Service—this old character Harold Tyus [?] kinda saved my ass. Cause he liked me...No, it wasn't a law enforcement issue. I didn't have to wear an outfit or anything for that. It was over, mostly, just being a...I don't know, cocky little shit or something. (laughs) Insubordination!...was the crime. (laughs) Yeah. I wasn't putting my lifejacket on...which I'd learned from the Dories. (laughter) Yeah, Martin Litton taught me that. So anyhow, it was a really, really incredible season. I learned a lot, and I've taken that with me to this place [gcmrc] for sure, an interest in the fish.

So, not quite ready to make my break for Grand Canyon, I still am doing trips...you know I built up lots of comp time, so I probably did a mid-season trip that year, rowing a baggage boat for the Dories or whatever, still getting a couple Grand Canyon trips a year. Then the next year I go, "Ok, I don't want to work for the Park Service anymore, I'll go to work for the blm." So I got the river-ranger job on Desolation in '82. Definitely working for the blm was more my style: a more educational approach versus law enforcement approach to management. And I enjoyed spending time on Deso, that's a pretty incredible place as well. There were two river rangers there...Scotty Moseman, who works for Claire [Quist] and I...so one of us would be at the ramp and the other'd be boating and we'd switch back and forth, so yeah, there was a lot of river time involved in that. But by then I'm kind of, making more and more contacts and that year at the end of my season I came down here and did two trips, one rowing a baggage boat for McCallum [Grand Canyon Youth Expeditions] and my first paid boat for Dories. So '83, then, was when I



In Flagstaff in the early 1980s with Brad Dimock..

finally said “Ok, I think I can put a full season together.”

Steiger: Well what about this whole...being a woman and breaking in and all that...was that tough?

Fritzinger: I don't know...it was not something that, in my whole life, I ever really considered as something I needed to think about. (laughs) Obviously. I don't know. I never was bothered by...if I wanted to do something I didn't really care what gender I was, you know. I suppose maybe there was...maybe at Dories there was more of a thing there. But elsewhere, I didn't really find it as a barrier.

Steiger: Oh? More so at Dories than other...?

Fritzinger: Oh well, yeah. You know, I was Brad's girlfriend, and whatever...I was maybe a little too wild for those guys. I don't know. (laughter) Hard to sort all that out. (more laughter) I wanted to work there, you know, that was fun. I got to do six or eight dory trips. That was my first paid trip, then, in '82, with the Dories. I rowed a dory for the first time in '82. I rowed the *Ootsa Lake*, metal boat, a lot because my dad and a bunch of his friends chartered a good portion of the trip. So that was my first paid trip. It was fine. It was fun. I didn't know shit, but...**[Steiger: Wasn't that low water, '82?]** Yeah, so that was the only low water trip I ever did in a dory. 'Cause then the rest of my trips in a dory were all high water, which was amazing. I was really amazed, for how tippy those boats were, how amazingly stable they were too...like the stuff you could do in those boats at high water, was amazing.

Well that first one was the only trip I rowed an aluminum boat. The rest of the time I rowed a little Briggs boat. The *Okeechobee*, is what I rowed. But, I think only six trips or something, all in '83 and '84.

Steiger: So being a boatman, it was Dory trips first? And then gcye?

Fritzinger: Dory trips first. But then, when I made the break in '83 it was all a mix of WiWo [Wilderness World]; gcye [Grand Canyon Youth Expeditions]; and Dories [Grand Canyon Dories]. It was a great mix. I used to say, “Starting out as a free-lancer, I learned a lot of different ‘right’ ways to do stuff.” (laughter) It was a good education. I met a whole lot of different people. Lot of different styles. Lot of information. And because of my background, I was way into the “interp” part. That's why I say, you know, on my first trip, when I took my dad down, first paid trip in '82, I didn't know shit, you know? I wish I could've brought him back years later, when I'd learned a lot more about the place.

* * *

Working for McCallum was a good thing. Basically what happened, I started off freelancing and then made my move to the best home for me, and that happened to be Grand Canyon Youth Expeditions. I got to work there

with Brian [Dierker] and Mike Yard and Dugald [Bremner] and Dan [Dierker] and other characters starting out, and then there was that whole breakdown; that whole changeover there. Then eventually the next generation took over, with Jeff Behan and myself and then eventually [Geoff] Gourley joined us...so the whole Grand Canyon Youth thing was...you know, when I came to work for Dick McCallum it wasn't Expeditions, it was Grand Canyon Youth Expeditions. In the beginning Dick McCallum was the high school counselor and he'd started it as a youth program, that's where all those guys got started at it. That was one of the things that attracted me, to go to work there. But, right when I came to work there was just when the Park had given them a longer contract—that was about the time he was abandoning that concept. So there wasn't...youth trips ended about the time I got there. There were still like the occasional remnants of a youth trip. But basically it had turned into a commercial operation at about that time. So I just always made the most of running with kids whenever we had kids, and had a lot of fun with that but always in the back of my mind was that there should be some kind of youth program.

I got busy just being a guide and not worrying about saving the world or anything and...but it was always in my head that we should do this. We should do some kind of youth thing. So I would talk to kids on trips about it and they would be like “Yeah, do it! Start a youth program!” (laughs) “There should be one!”

[Steiger: Did you actually get to do one at all—like those ones Brian and Yard and those guys did?] No, I never did a trip with the big youth boat, I never did. It was still going on the water when I started working there but I was never on a trip with it...I still had this in my head that we should do this, and um, you know, talk about stuff but never do it kind of thing. It wasn't really until later, McCallum was almost done but he was still going. I did a science trip...well, big change in my life. I get married [to Dirk Pratley] and now I have a kid. Willa was born in '95, so that was kind of the end of my full time guiding. Although, I still did a few trips a year, even after Willa was born. But, just the year before McCallum sold I did a science trip. It was a Hopi trip, actually, so it was for gcmrc and the guides on it are Martha [Stewart], Jon Hirsh, Nancy Helin and Jeff Behan...I'd worked with Martha before because McCallum kind of took her in after her deal at azra, but that's another story. But I'd never done a trip with Hirsh before. So we were just sitting drinking beer one night and...I had no idea, but he independently had had a similar idea. He had a little different concept of it, more in terms of it being a Hoods-in-the-Woods kind of program. But that wasn't my idea. Mine was just...anybody who wants to go should be able to go. In fact I like the idea of mixing kids of all backgrounds. So

we drank beer on this trip and said “Ok, let’s do this!” So...that was basically the founding of the new Grand Canyon Youth. I get back off the trip and tell McCallum “Ok, we’re going to do this. If you end up with extra user days for the winter, could we try and sell a youth trip in the spring and just give this idea a try?” And he agrees to that, and then, later, tells us he’s going to sell the company. So then I worked on a proposal, with Jon and Martha, to buy the company. And our concept was to use it as a non-profit youth company and turn it back to its original roots. But in the process things got a little weird because of the differences Jon and I had about the program, to where we withdrew our offer, and then re-submitted an offer with just Martha and I, to buy the company. Which he turned down, obviously. Sold it to the Schniewinds [Canyon Explorations]. But still allowed us to...that was part of the deal when he sold to the Schniewinds was that we could still have these user days in the spring and run the pilot trip for the new Grand Canyon Youth. So we did that in April of ’98, and then things (laughs) evolved and it...[Steiger: Still going!] It’s going, and it’s amazing and I’m really incredibly proud of what’s going on. Because it turned into a real thing. Eventually, I mean we ran it as all volunteers and there were a lot of politics—Jon eventually left the organization. I hung in there. We worked hard as all volunteers. There were a lot of different people along the way—when it became more and more difficult to keep it running—who came in and put a lot of energy into it and kept it alive.

Steiger: Were you getting companies to donate user days? Or were they administrative?

Fritzinger: No. Nobody ever donated user days. (laughs) We raised money and bought trips. Yeah. And then, you know, like I say there were a few key players...I mean I was always in there, but it was kind of killing me. Cause then I got this job [at gcmrc], full-time. When we started Grand Canyon Youth I wasn’t working here yet. I was working—building cabinets. So it was my schedule, to do whatever I wanted with. But suddenly I’ve got a kid and a full time job, and am running Grand Canyon Youth. And Grand Canyon Youth is starting to fly! It was just like unbelievable. I’d be answering the phone, you know, gcmrc, gcy...eventually it became apparent that we needed to have an employee at Grand Canyon Youth. We were able to secure the funding...that’s another story, but, um, a generous donor agreed, if we took a few steps toward getting our shit together, to support funding for an employee. So we took those steps. Wrote a five year business plan, put our board together, incorporated, got our 501(c)(3), got our ducks in a row, and interviewed for an executive director. And we had a lot of good candidates. All the way through the process of interviewing I thought “This is going to be tough. This is

going to be tough.” And then the last person we interviewed was Emma Wharton and it was like...[Steiger: No-brainer.] knocked my socks off. I wasn’t...from her resume I wasn’t too sure she was the one, she was so young and, I don’t know, she sounded like a teenager over the phone. You’ve probably met Emma. [Steiger: I did a trip with her. So I know.] She came on board and just took what we’d started and ran with it. So now, I mean, we’ll probably have over five hundred participants in the program this year. Twenty-seven trips or something like that. It’s really going, and it’s really amazing, and we have our second employee now. I talk to Emma just about every single day. So I’m still tightly tied into it. [Steiger: Lot of kids going down the river now.] Oh, a boatman farm. (laughter) It’s turning into. [Steiger: Just what we need! More boatmen!] Yeah, really. But it’s pretty amazing. That pilot trip we did, me and Jon and Martha were all on it, as well as Nicole Corbo and Greg Reiff; it was with New Start, it was a really hard trip. It was an April trip. We were in paddle boats. It was cold. It was windy. The kids were not...that much fun. (laughs) And I was kind of thinking “I still believe in this thing, but maybe I’m not the one that should be a guide.” I’ll find better people. Like, I’m too old now, or something. So I’ve done a few trips on the San Juan with Grand Canyon Youth, but I basically avoided the whole guiding aspect of it until last year. We happened to have...usgs and Grand Canyon Youth have a partnership, where we use, on two of our trips, youth volunteers. Do a project. And, uh, Kaplinski was supposed to do it, it’s a survey project! But then he was going golfing in Scotland, so I said, “Ok, I’ll do it.” and was on the trip. And Emma and Dennis [Emma’s husband] were boatmen. It was outstanding. I was just totally blown away by how amazing it was. Also, incorporating the science into it, I thought, was a real bonus as well. Had some really excellent kids; and a few challenging kids that were fun too. It really kind of brought me full around, to say, “Not everybody believes in this thing, and that’s fine. But it’s a good thing and I’m glad it’s happening.” It’s amazing to see a big idea that you just talk about over a beer turn into something real. So yeah, I’m incredibly proud. And I love Emma. She’s one of the most incredible...I told her the other day, “Even if Grand Canyon Youth failed, died, I’d be grateful just ’cause I got to meet you.

* * *

Steiger: Well I’m looking on the wall here and am seeing these pictures behind you. I see one...I want to get a river story out of you. (laughs) You want to tell me your...I’ve heard Kyle Kovalik’s version of that ’83 trip you guys did [referring to a photo on Fritz’s wall]. I don’t know if you could stand to tell me that story or not?



Kyle, Fritz, Helen and Brad doing their five-day high water trip in 1983.

[Fritzing: It's the same story.] Well, but it's never the same story if two different people are telling it!

Fritzing: Well...Ok I'll tell you that story. So, '83, it was my first full season. Pretty memorable first full season. (laughs) I got to see the high water, and maybe even the high water story is a better story. I mean it's amazing how few people are around anymore that were there for that. It was such an amazing thing; something that, as post-dam babies, none of us ever thought we'd see, and there it was. Got to see the high water. But that trip happened before the peak. Brad and I were going up to Deso to do a dory trip. Water was coming up. We kinda thought we'd miss it. Actually Helen [Yard] was going with us up there. We thought we were going to miss the high water, the peak, and so the Park was offering companies the chance to do training trips. So Kyle wanted to do a training trip, and we wanted to go see the high water. So we put that little trip together. The four of us took off at about 50,000 cfs [in one 18-foot Caligari], late in the afternoon one day, figuring we could make it through the Twenties in the daylight and then go as far as we could. So, that's what we did. We went downstream and made it through the Twenties and then it got dark. Really dark. That's one of my best

memories of that, is floating through where the Redwall is really pretty, between South and Thirty-six Mile there, and...there was just the starlight and we're on this big river. Rowed way back into Redwall Cavern and came back out in the starlight, and then it got, like, cloudy, and the starlight went away and it got really dark. Then we had heard about Harding...so it's two in the morning or something and we get down there and Brad's rowing. We go through some little thing and Brad said "That was it! We're through it!" (laughs) Kyle and I are like "No we're not!" (laughter) "It's still coming!" It was pitch dark. So we hadn't...we got down there and we got through it. Brad ran Harding, we got through that alive. We were glad it was over. Got down to Nankoweap and Brian [Dierker] was camped there with Expeditions, Brian and Mike [Yard]. We rowed in there. Took us awhile to figure out even how to get into that eddy...and camped with them. That was the first night. Next night we...or next day we went down there, rowed in on the big blue lagoon [Little Colorado], where that picture was taken. I think we visited with people all day. I think we only made it to Ninety-four Mile that night. We had this deal, where one of us would row Hance, one would row Crystal, one would row Lava. So, maybe

Kyle did Hance, and Brad did Crystal, so I got Lava. I remember...you know, it was my first full season so that...I don't think by the time we got to Lava that they thought that that was such a good idea. (laughs) But I was sticking with it. (more laughter) And we got through everything without incident, basically. From Ninety-four Mile we went to Last Chance. That was a big day. [Steiger: So it was like, three nights on the water? Four days? Or four nights?] We spent four nights but our last night was down at Two-twenty with that other [WiWo] trip. So then I ran Lava. We lived. Even though they were... [Steiger: I gotta say, I remember Kyle, he told me this...the way he told it, he said "God, I was such an ass!" (more laughter) He said you guys had looked at it from the right and then he got worried you weren't going to be able to row across and run it on the left. And going across he was all twitching and everything and you said, "Shut up, Kyle!"] Yeah. I mean, they had every right to be nervous, but I wasn't gonna turn it over to 'em. No. That one was mine. I think Lava was the most straightforward of those three anyhow. So, whatever. I ran Lava. But then we ran into that trip down at Three Springs. And that's the trip where Behan had fallen and torn his ankle off on. So [Geoff] Gourley was his guest, and Gourley had taken over Behan's boat. So those stories are all tied together with Jimmie's [Hendrick] story of Behan tearing his foot off...

We took out with them the next morning. So yeah, we spent four nights. But like I say, it was never meant to be a speed trip. It was just...it was a training trip and it just happened to be that we needed to get it done because we had to go to Deso. So, even the takeout was epic. We eventually got back to town, went up to Deso. I led that trip, it was the first trip I led, was a dory trip running Deso...a six-day Deso at 60,000 [cfs], so that was pretty interesting...you know, I had been a ranger there the year before, so I knew Deso well, but still. Trying to figure out how to do a six-day trip at 60,000 was pretty...

But the big story then was we came back from Deso and then the water was coming to its peak. So then I had an Expeditions trip with Brad and Brian and Dan, that launched when it was 60,000. We got the peak at the Little Colorado, so we ran the gorge on 92,000. That's when we got our last message. "Be Safe. Camp High. 92,000." We'd actually laid-over on the Little C—way up there on the blue lagoon. But yeah, the next day we went out and ran the gorge. It was pretty interesting. Like, being a new boatman and all. My major landmarks would be Sockdolager Rapid and Grapevine Rapid (laughs), which didn't exist. So...

Steiger: It's funny, cause I don't even remember... Honestly. I mean I never even thought of you as being like, a new kid or anything like that.

Fritzinger: Well, and see that's what I say when you

ask me about, like, "Did you think being a woman was an obstacle?" You know, what I would say was "I grew up that way." It got me in trouble as a kid sometimes, 'cause I was always, you know, kinda cocky. That's how I got almost fired up there in Dinosaur...

Working for Martin there was a little bit...I mean, the girls were all cooks! It wasn't until, like, I remember the day that Kenton's back was hurt. I was in the warehouse; and Ellie Tibbetts finally got offered a boat. (laughs) And she was the first one that he even let row a dory. Then Lori Cooper rowed one and then, I think I'm the next woman who did at Dories. But I was never going to be a cook, you know. I wasn't interested. I knew what I wanted to do and if they didn't let me do it, then "Oh well," I'd go somewhere else. And that's eventually what happened. You know, one of the dory trips I got was because it was a woman's charter and they wanted a woman trip leader and Ellie didn't want to be a trip leader. So I got that job. [Steiger: How did that go?] It was fine. Bego and Brad were along, just in case we needed a man. (laughs) Bego wore his skirt. I got another trip that way. The only trip I ever did for ou [Outdoors Unlimited] was the same thing. They wanted a...and that was all women. But yeah I just never...I don't know, Prescott College was pretty equal-opportunity and the river community is way more...like, one of the connections I made on the river was meeting these guys who ski-patrolled at Alta, and they gave me a job. I went up there and ski-patrolled for four years at Alta, which was an amazing opportunity—a pretty good life to live, being a Grand Canyon guide in the summer and an Alta ski patrolman in the winter. It was sweet. But when I went up there, that's when I saw way more sexism than in the river community. We're a little more liberal, happy-family here on the river when it comes to that, than it is elsewhere in the world. I saw a big difference up there. You know, not that I wasn't welcomed up there as well. But it has a different edge to it, and it made me really appreciate our community here a lot more. It definitely had an edge to it that I wasn't used to.

Steiger: Yeah, my recollection of that whole...I mean I was just a snot-nosed kid, but it seemed like when I first started...there weren't that many women who were gettin' to do it, but there were a handful... Georgie White! Fritz here is pointing to a picture of Georgie on the wall behind her running the ledge in Lava Falls.

Fritzinger: Actually no, I was pointing to that picture of having a beer with her, me and double-A [Ann Anderson] and Georgie and Marty having a beer at Deer Creek.

Steiger: Oh yeah, that's a good one. I didn't even realize that was you in that. That's how good I can see. I was looking at the triple rig. That is the ledge in Lava?

Fritzinger: Yeah that was cool. That was a day that



Georgie and Fritz, having a beer, probably. Photo: Geoff Gourley

the Bureau was there taking pictures. I was there on an Expeditions trip and there was...I think Big Fella [Bruce Helin] was there on a...I don't remember who-all was there. I'm pretty sure Big Fella was there too on an oars trip. We heard that Georgie was coming, and we'd always heard about her run there...[Steiger: "Hey this'll be good..."] Yeah, "Let's watch!" So this picture was taken by one of those Bureau guys. I come to work here eight years ago, and I'm kind of finding my little home, and on the floor of somebody's office, like pinned to a piece of cardboard, I find that picture. It's like: "That's mine." (laughs)

Steiger: I'm confiscating that! Yeah, that's a great picture. Did we finish talking...you were talking about the 92,000...did I spin you off of that topic? Was there anything memorable...oh, the whole thing? (laughs)

Fritzinger: Well, there are huge memories. There's stories about every day of that trip that were amazing. Plus it was my first full season and I was taking it all in and it was...no, I have lots and lots of stories about that particular trip. Like that's when [Dr. Michael] Ghiglieri flipped after we ran Crystal on the next day, after the peak. And Granite Narrows. Finding camps. Scouting Diamond Creek. All of that crazy stuff.

Steiger: Him flipping after you ran Crystal? He was on a different trip?

Fritzinger: He was on an oars trip. We were both scouting Crystal together the day after the peak. It's 87,000, or whatever. We were all standing up there shitting in our pants, and finally, Brian decides he's gonna go. I'm like, "I'm going with you!" (laughter) So we went out there to run it. [Steiger: You two guys were the first ones?] The two of us, yeah. So, you know the water was so high it's up in the rocks and bushes up on the delta. So I'm staying pretty close behind Brian. (laughs) He enters up there in the rocks and he hits this rock, and it tumbles. I could hear it tumbling. He moves this rock. I'm going "Ahhh..." You know, he's cleared a more inner passage and I'm feeling really good about that. I come along and I come rowing in there and I'm

even closer in to shore than he is. I end up hitting this tammy, and the tammy just kind of hovers for a second and then it goes down and I go right over it, and as I do, I can hear everybody up on shore cheering! (laughter) Because now I've cleared an even further inside passage. And so...um, I don't quite know how this worked, because the water was so high. But there was a beach at the lower end of the delta, there, where there still is now, way above Thank God Eddy, the upper eddy. So, going down the shore we pulled in there and everybody eventually ran and did fine. We all pulled in to that beach together and had lunch. And were really glad to be alive. So we had lunch and then...when you left there, like a boat would pull out and it would just be "Tttttfeeeeeww..." they'd be gone. Ghiglieri pulls out and it was like, he's gone, but you could tell, something was wrong. He ended up turning over just in that right hand channel, beside the island. I don't know, I think there was some wave down there that got him. So then the rest of us all pulled out to try and... 'cause we'd picked up all our people right there. We'd been running empty. Picked up our people at lunch. So now he's turned over with his folks. So we all took off to go pick up the pieces. And we were able to catch him and all his people and get him over by...Sapphire. Put it all back together. [Steiger: That's a long...well no that's pretty good, at that level.] Yeah that was pretty good. It wasn't like Pete Weiss's run to Elves Chasm. Yeah. But, you know, we just were blown away. Like, we thought we had it made. We'd made it past the hole. [Steiger: But no.] But...yeah. Lotsa high water stories...and then just what happened after the high water, to the place, you know. We're trying to build beaches here, this outfit, by sending 40,000. (laughs) When we were doing that thing in '04 I kept going "40,000. Woo. You call that a flood? That's not even an average annual high water spring runoff." It's like, there were some incredible beaches after those high water years. [Steiger: Yeah, but it was awful heavy, you know. I mean just the grain size and stuff, didn't last.] Yeah it was coarse-grained. And then the vegetation, that arrow-weed came in. But just being able to watch that...you know, from that event onward.

Steiger: I feel fortunate that I didn't have to row Crystal all that many times at that really bad stage. But it's interesting that you—here you are, it's your first year and here's all these guys that you were talking about when it was *big*, everybody's standing up there shaking in their boots and Brian's ready to go, and you're ready to go right behind him. (laughs) You didn't see any point in watching the runs of any of those other masters of the universe that were up there?

Fritzinger: (laughs) I've never liked scouting rapids. Didn't like it then and I don't like it now. Let's go and get it over with. Like I was saying earlier, that was just



High-water Crystal, 1983.

part of my nature. I just, did what I did. It's a little easier now that I'm older cause people don't give me shit about being cocky, 'cause I'm old enough now.

Steiger: Well I'm fixing to run out of tape here at some point. But I feel like I'm blowing it here. Tell me what would be an intelligent question for me to ask you. (laughter) I know there's something...[Fritz thumbs through *Yacht* magazine] what's that?

Fritzinger: High water dory pictures. God, those boats were fun at high water. See, that's where I got in trouble, I think. Was I took this dory down the right side at Lava at like, 30,000 and then...I don't think that went over too big. [**Steiger:** But you made it, though?] Yeah. [**Steiger:** That really pissed everybody off.] Whooo. [**Steiger:** Yeah, we've got this thing, they've got this thing...I've got it too. I don't know what...Lava at certain; after about...I think the worst stage is 11,000

myself personally, the corner-pocket water.] I was one of those people that was running right at the high stages 'cause I really liked it, and I never turned over at those stages, nor did I ever turn over at Crystal at the high water. But I did flip at Lava at like, 11,000, and I turned over in Crystal with WiWo before the high water. I like to say, I think I was probably the last, or one of the last people to flip in the "old hole".

Well you've got to read your audience too. I mean, you got a bunch of older people that are really cold...you're not going to go for it in House Rock. You've gotta know your conservative runs too just to have them all in your bag of tricks and use them appropriately.

Steiger: But in high water, what I came to find, was that being conservative—which I certainly am—basically meant going right down the middle! (laughter) I

didn't want to get near those eddy lines! So pretty much the most conservative thing I figured out after awhile that I could do was just stay out there in the big stuff, stay away from the sides.

Fritzingler: I think that's the hardest thing about the high water to describe to people, is the fact that the eddy fences were like, six-feet tall. And I can't even sort that out in my own head now. I know it was like that. But how did that work?

Steiger: Were you on that trip where Dennis Harris—they had a line of boats tied on shore and he pulled over to shore at the top of the line and just stacked into these other guys and the upstream current caught him and flipped him underneath the whole deal?

Fritzingler: Oh yeah, I was there. That was at 50,000. Down at Two-sixteen Mile at that camp that isn't there. Yeah there was this camp there, we just pulled in to say howdy and then Dennis flipped. Behan and I were parked together and Dennis, his boat came up underneath our two boats. **[Steiger: Oops!]** It was crazy. One of those things where no one would—people wouldn't necessarily believe that story if it was just you, but there was another trip there. We all saw it. It happened.

Steiger: But back to the dories...you were just talking about...

Fritzingler: Oh, fuck the dories. (laughter) They were fun. I'm glad for the opportunity. I'm glad I got to work for Martin Litton. All that, but you know, like I said earlier, and you know we could tell dory stories or high water stories, or whatever...but it wasn't the most important thing. Besides, I spent 17 years working for McCallum as an Expeditions boatman, that was my true home. We had such a great crew and a lot of fun years working together. We had this crazy reputation, "the orange menace," which I guess we deserved to some degree. Hell, we were just having so much fun with our folks. I think what was less known about us though was that we all had great people skills and that's what made us a great crew. Everyone knew a lot about the place too. Not just the "I'm going to stand here and lecture you about this place because I know this stuff," style but figuring out what folks are interested in and running with that to make the most of their trip. It all makes for good stories, but the most fun was the people...in the beginning... 'course I was so stoked to be there you know, I just ran off all that energy of being



Preparing for pre-Lava festivities with Expeditions. Photo: Geoff Gourley



Guiding for Expeditions. Photo: Geoff Gourley



"Orange Menace" running Hermit. Photos: Geoff Gourley

there, but as time went on the thing about guiding was about...the people, and having fun with the people. And there's no doubt about that—that's the most amazing aspect of that job, for me anyhow; and I think for a lot of people. The most amazing thing is...sure you know the place and sure you love being there and sure you love running big rapids, but, it's all about having fun with a bunch of people—your own crew and all the folks who show up on river trips—that's what it's all about. And, uh...you know when I quit guiding, I didn't do it by choice. Dick McCallum sold the business and, you know, things changed with Can-Ex for a brief time, then I came here to gcmrc...and I missed it, bad. I missed commercial trips bad. And then I came here, and this has been a good fit for me. This has had its roller-coaster aspects, but I missed commercial trips. I love that work. And the more I learn about the place and the more...I would say, like, in the beginning when I was running off that energy of being stoked about being there, that only lasted so long and then, like, am I burned-out? Or do I not like people? Or whatever, but then there was this kind of

transition of... knowing more about the place and knowing how to take care of myself in that place, and then being turned on by just sharing that place with people and sharing your knowledge of the place and having fun with people. And being a row-boatman too, I mean sitting there all day long, when you're on all day long with folks on the boat and figuring out what people are interested in and just...running with those things...or not! You know, when you have a bunch of people that just like to hang out and watch the place. But just tuning in to whatever people are into, and having enough love and knowledge of the place to where you could tune into whatever it was that people wanted to make the most of and get out of it...that was the best thing. Yeah, I missed that bad when I came here. But what I've realized here, now, is that it's kind of the same thing. You use all the same skills with scientists on the river that you do with your folks, and a lot of those people are here for the first time too. Not all of them are. You have a lot of repeat clients here! (laughter) But, you know, I have projects like this food-base project...I did



Expeditions crew, Dennis Harris, Fritz, Geoff Gourley, Tom Sheeley. Photo courtesy of Geoff Gourley



Fritz and Jeff Behan on an Expeditions trip. Photo: Geoff Gourley

their first trip with them last year and at the end of the trip there was this whole emotional “trip’s over,” tears kind of thing and it was like those guys just had their first Grand Canyon experience and they’re looking at it from

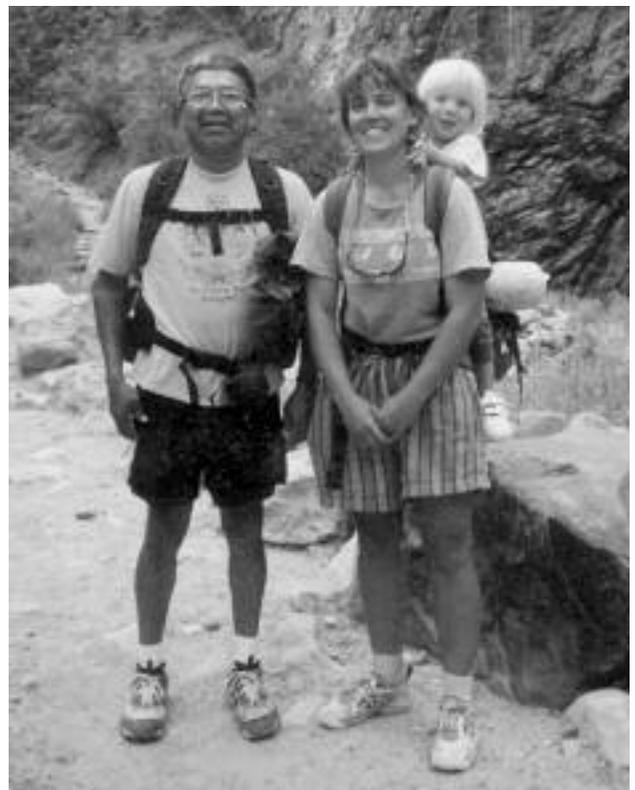
a different perspective ‘cause they’re doing science but, ah, it’s not so different. It’s...there’s a really good exchange with these folks too, in that they’re learning stuff. I’m always learning stuff from them. I learn more



Photo: Geoff Courley

about the place from them, now, too, and am able to share my perspective of the place after looking at it for thirty years now with, you know, nature-girls' eyeballs too, watching the place change and being interested in all this science stuff, but not formally pursuing it. But just talking to them about what they're learning...is what makes it interesting. Of course that's not my whole job here. I only do a couple of trips a year. But it's kind of brought me back around. Just enjoying that same aspect of working with people.

When things turned around for me, as far as, realizing that the people job of being in Grand Canyon was what made it really fun...the thing I also realized was that it was an incredible opportunity for meeting people. And certainly I've taken plenty of people down the river that I never really needed to meet. But I've also met the most amazing people—in a format that you would never...you know? There on a boat for weeks, with some. Most every trip has some incredible people that you never would have had that opportunity to get to know. And that's...that was the best thing. That's what I



Hiking out of a science trip with Hopi singer Orville, and Willa..



Photo: Geoff Gourley



On Lodore with Willa, 2006..

really loved about guiding.

This program was made possible in part by a grant from the Arizona Humanities Council. AHC has designated the Grand Canyon River Runners Oral History Project as a “We the People” initiative of the National Endowment for the Humanities. Any views, findings, conclusions, or recommendations expressed in this publication do not necessarily reflect those of the Arizona Humanities Council or the National Endowment for the Humanities.

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Announcements

JOBS

Hiking Guide Positions

Angel's Gate Tours is looking for experienced Grand Canyon guides to lead sightseeing tours, day hikes and the occasional backpacking trip in Grand Canyon. We are specifically recruiting experienced Grand Canyon boatman and other Grand Canyon backcountry professionals. Please contact us if you meet the following requirements:

- Minimum wfr (preferred) or wafa certified, with cpr. (More advanced med certs are also acceptable).
- Good driving record. (1 minor ticket is usually ok)
- Must be able to pass Arizona dot physical (this is pretty simple, basically it verifies that you can see, hear and move well enough to drive a vehicle).
- Outstanding Grand Canyon knowledge. (You know your schist from shi-nola, and can present complex material in an entertaining manner).
- Hiking experience on all South Rim trails.

This is an excellent opportunity for Grand Canyon backcountry professionals that need to spend more time in town due to family, children, dog issues or other constraints. The majority of our tours and hikes depart from and return to Flagstaff daily. Please visit our website at www.SeeGrandCanyon.com and call (928) 856-1698 to schedule an interview. Angel's Gate Tours is an eoe.

Job Opportunities at PRO

Wanted Full-time Drivers and Foodpacker for River Season. Please contact Professional River Outfitters info@proriver.com or 928-779-1512.

Job Opportunities at GCY

Grand Canyon Youth has a full 2007 schedule and we are looking for guides who are excited about working with middle and high school students. Our season runs March–August. We have trips on Diamond Down, the San Juan River and Grand Canyon. If you are interested in receiving more information about the guide schedule and requirements please email Reed Allen our Assistant Director at reed@gcyouth.org

Job Opportunities at Hualapai River Runners

Hualapai River Running (hrr) wants to hire two dynamic crew supervisors to help improve the customer service aspect of hrr. Individuals will be responsible for training, mentoring and supervising hrr River Guides.

Hrr is also looking to hire river guides with experience and excellent customer service skills.

Hrr has an excellent maintenance department which keeps our equipment and vehicles in good working order. HRR offers competitive wages, paid sick leave, workers, compensation insurance, longevity pay, profit sharing and periodic raises based on evaluations.

Interested individuals may submit an application or fax a resume to Earlene Havatone at 928 769-2410. Applications are available in the hrr Human Resource Department in Peach Springs. These positions will remain open until filled. All offers of employment are conditioned upon passing of a drug screen.

Grand Canyon Semester 2007

Northern Arizona University in cooperation with Grand Canyon National Park is now accepting applications for Grand Canyon Semester 2007, an interdisciplinary and experiential program for students of all majors. This is an excellent opportunity for undergraduate students from universities across the nation to earn college credit while working with writers, artists, scientists and community leaders of the Grand Canyon region. Students study multiple aspects of the Grand Canyon including geology, botany, archeology, political science, and history from leading experts all while hiking, rafting and meeting around the campfire. If you know of someone who may be interested please refer them to www.grandcanyonsemester.nau.edu or call 928-523-5159.

Cold Weather Gear Needed

Do you have any fleece (pants, jackets, etc) or rain gear (tops and bottoms) that you aren't using any more and are clogging your closet? Grand Canyon Youth is looking to expand our stock of cold weather gear for use on our youth trips. If you have something to donate please bring it to the Grand Canyon Youth office located at 309 1/2 Bonito Ave (down the alley behind the blue house) during office hours 8:30–5:00 pm.

For Sale

18' avon Super-Pro with frame and oars. Contact Jared at (801) 718-0338.

Telling Stories About the Origin of Grand Canyon

In anticipation of the Guides Training Seminar, bqr includes this article about some ideas on how to explain the origin of Grand Canyon. Wayne Ranney will give a talk at the gts and his book, "Carving Grand Canyon" will be made available at a generous discount from the Grand Canyon Association (gca). Gcrg gives a hearty thank you to gca for their financial support of the gts and the discounts they provide to river guides.

Each year, about 22,000 people are awed and inspired on river trips through the Grand Canyon of the Colorado River. River guides are lucky to repeatedly transport paying guests downstream, many of whom have expectations that can vary between wanting a life changing experience for some, to others who just want a thrilling whitewater ride. Whatever the expectations of our guests, they may harbor hopes that river guides are knowledgeable and aware of the many theories regarding the origin of the canyon. Truthfully however, it's never been easy for anyone, even geologists, to talk about how Grand Canyon was formed. That's because there's no single, simple answer to this question; to this day the canyon remains a mystery and an enigma, perhaps forever unknowable to us. River guides should probably say something to guests about how and when the canyon was created. But how do you tell a story that has no answer? That was a dilemma I faced when I agreed to write a book called, *Carving Grand Canyon*. Along the way I stumbled onto some interesting ways to tell a story that has no readily accepted ending!

Now I do not claim to have some magic way to engage every law school graduate who's just out spending daddy's money riding the rapids. However, all too often we miss the golden opportunities presented to us when otherwise disinterested folks show up on the boat ramp looking tentative and worried about camping for a week in the wilderness. I have enjoyed experimenting with selected parts of the Grand Canyon's origin story that might intrigue diehard cynics or those who just never stop to think about how rivers actually carve canyons. These stories need not be long-winded affairs given only by degree-holding geologists on the relative merits of headward erosion versus the catastrophic spillover of lake water. Telling stories that are controversial can provide river guides with rich material that can spark people's curiosity and may initiate stimulating conversations on those long quiet stretches below Redwall Cavern.

Several short "vignettes" regarding the rivers' origin can be presented to guests at any time on a trip without needing to gather everyone around for a group lecture. The trick is to find those parts of the story that intrigue

you and become familiar with them. Eventually, you'll be able to string together a couple of neat ideas and begin to sound like the expert everyone expects you to be. A working knowledge of the basics of the story really helps when people press you with more questions (and they will). Along the way, some of your folks will get jazzed by the notion of a river being "born", others will not. But if the stories resonate with you, they'll resonate with others and your peeps will soon begin to pepper you for information. Each and every idea can be thrown out there without having to give a formal lecture. Try using these and many others from the book and watch what happens. People can actually start to "get it"!

I'll give you some examples. One part of the story that really intrigues me is the idea that when the Colorado River was born sometime between 80 and 90 million years ago, it went the other way. I guarantee you that everyone who hears this, said in that way, will find it fascinating. Sometimes, I'll just be sitting on the boat and will say to nobody in particular, "You know when the Colorado River first established its course, it went in the opposite direction it does today." And then I'll just wait there in silence and see who takes the bait. A few folks may not give a shit. But in my experience most of those who hear this tantalizing thought will want to know more.

And when they do, there are many fabulous stories you can expound upon. You can mention the Great Cretaceous Seaway, the last one to ever inundate Northern Arizona with sea water. When it finally retreated to the northeast away from the Grand Canyon, it left the blank canvas upon which the river established its initial course on this featureless, virgin landscape. The early river had its headwaters to the southwest, in a range of mountains that geologically resembled the Andes in South America today (where tributaries of the Amazon descend from the mountains onto a rather flat and featureless plain—just like Northern Arizona 80 million years ago). No one ever saw this ancient range of mountains (called the Mogollon Highlands by geologists), yet we know they were there in part because of some elusive gravel deposits they left behind. However, it is the larger tectonic history of western North America that gives us the bigger view of the rivers' history during this time. And as unbelievable as that story may sound, it is the one aspect of the Colorado Rivers' origin story that most geologists agree upon! I find this fascinating.

Another intriguing idea you can talk about is how in the Grand Canyon most of the small tributaries have cut their canyons just as deep as the Colorado has. Think about it, Kwagunt Canyon has no permanent water in it.

Neither does Horn Creek, Specter, Bedrock Canyon or many of the others. Yet those drainages enter the Colorado River at grade, meaning at the same level as the main river. How is it that a drainage with no running water in it can cut a canyon just as deep as the Colorado? It doesn't seem to make sense. But people will be amazed when you point this obvious fact out to them. And if you do it early enough in the trip, they'll take it upon themselves to continually point out to you all the side canyons downstream that behave in this way. You can smile with satisfaction when you realize that you've just helped someone become an astute observer of the Grand Canyon.

The reasons for this unexpected relationship gives you another opportunity to talk about how rivers cut their canyons. Most people think it's the water in the Colorado River that actually has carved the Grand Canyon. But the evidence from the side canyons suggests this cannot be, otherwise we'd see dry tributaries with high, hanging valleys looming above the channel of the Colorado. It's not water that cuts these canyons, rather it's the eroded material that the water carries with it—the sand, gravel and house-sized boulders. When storms release water as runoff, it carries lots of rocky material with it and this is what is able to chisel down into the bedrock. The water in floods cannot carve into the landscape, it doesn't have that power. It is the rocks that are carried with the water that does the cutting. The evidence is right there for everyone to see for themselves.

Another way to talk about a complex subject in a noncomplex way is to bring up the very topic of why it's been so hard to decipher the story of the Colorado River (which is also the story of the Grand Canyon for without the river there would be no Grand Canyon). The reason for this is because as the river carves deeper into the landscape, it causes the canyon to become wider, thus progressively removing more and more evidence from the earliest incarnation of the river and canyon. Any widespread sand and gravel that would have been deposited by an early Colorado River has since been swept away and is forever destroyed and



Map by Bronze Black

taken from our view. Still, whatever hard evidence is missing on the landscape can provide an opportunity to tell an interesting story about why it is missing. It involves thinking about aspects of how the Canyon gets wider.

If one were to look at a profile of the Grand Canyon from the rim to the river, they would see a stair-stepped canyon composed of many alternating vertical cliffs and angled slopes. Most every river guide could draw this profile from memory. It turns out that this profile is most likely in some sort of equilibrium with respect to gravity, meaning that the angle of its overall slope is well established

and “comfortable” within the walls of the canyon. The angle is not too steep nor too gentle; it's in equilibrium. But as the river has cut deeper, it necessarily has steepened the canyon's profile from below, whereupon widening migrates upslope working to attain its former profile. Increased deepening causes increased widening and so the canyon has constantly reshaped itself through time. Along the way it has removed the earliest evidence for the river's history. For this reason, it's possible that we humans may have arrived here too late to ever know with certainty exactly how and when the canyon formed.

These previous stories are landscape and process oriented ways to talk about the canyons' origin. I also utilize to great effect the historical theories that have been generated by a cadre of geology “all-stars” concerning the origins of the canyon. There have been some great episodes in deciphering the origins of the canyon and this too is fertile ground for discussions. I never let a trip go by without reciting word for word the immortal but ultimately flawed observations of Lieutenant Joseph Christmas Ives, who was not a geologist but who nevertheless penned his immortal words about whether the Grand Canyon would have any value in the future for our country. See page 60 in the book for this gem of a miscalculation.

After you tell the Ives story, you will have just set up your guests to hear about the very first geologist to ever view the canyon, itself an interesting thing to ponder. It was John Strong Newberry who accompanied Lt. Ives on

his historic journey of discovery but who had a much more informed and favorable response to it. Don't let the larger lesson illustrated in this difference of reactions to the canyon escape from your spiel—that someone's perspective and informed nature can determine their relative happiness. Both Ives and Newberry were dogged on their trip by a lack of reliable water sources as their Mojave and Hualapai guides repeatedly bolted, leaving them stranded without knowing the location of springs. Yet Newberry was continually fascinated by the "Big Cañon" as he called it. He made the most basic observation of it, that it was erosion by running water that ultimately was responsible for the chasm. This might seem all too obvious to us today but in the mid-19th century geologists didn't know the extent to which running water could carve landscapes.

Without a geological background, a valid first impression of Grand Canyon could be that it was formed by a giant fault or rift in the earth's crust that was only later occupied by a river; an example of this type of river is the Rio Grande in New Mexico. Newberry however, trained as a geologist, noticed that the stratification on either side of the Colorado River was "conformable", that is, not offset by faults and so must have been formed "wholly by the action of running water". Up to this time, no other place like the Grand Canyon had been found or studied on the planet and Newberry's initial observations of the Grand Canyon revealed the most basic fact of the canyon's formation. Every geologist who came along after Newberry left behind their impressions for the origin of the canyon and retelling whatever stories interest you can be a worthwhile endeavor. I like recalling those stories from John Wesley Powell, Clarence Dutton, Eliot Blackwelder, Chester Longwell, Charlie Hunt and our own Ivo Lucchitta.

Through the years I've learned ways to get folks to ask the questions I want them to ask. I enjoy telling the story of the river starting out going in the opposite direction not only for its own shock value but also for how it gets people to ask how it eventually "turned around". I rarely bring up drainage reversal myself because I know it will come up on its own. So if the river started out going the other way, how and when did it reverse its course? This one idea is the rocky rapid that has snagged many an attempt to tell this story and is the foremost reason why Grand Canyon origin stories don't get told. Sadly perhaps, no one knows when drainage reversal occurred. But that doesn't stop a host of modern geologists from trying to figure it out. Although there is no economic reason to decipher this story, it is enough of an intellectual challenge that people keep trying.

Still, we can say some things. A northeast flowing river system may have remained in some form upon the landscape until as recently as 17 million years ago. That's when the San Andreas Fault was born, a pivotal event in the Grand Canyon story. When this fault

became active, it lowered the region to the southwest of the Grand Canyon where the Mogollon Highlands used to be. Rivers in the area would have been affected by this tectonic lowering and may have become compromised, dried up, ponded or reversed. As the San Andreas Fault continued to rip through the southwestern part of our continent, it caused more subsidence and the river was increasingly directed towards the corridor along which the lower Colorado River flows today. Perhaps the course of the river within Grand Canyon was already etched on the landscape by this time. Perhaps even a shallow incarnation of the Grand Canyon was already carved. By about 5.3 million years ago, the Colorado River was flowing southwest off of the edge of the Colorado Plateau and into the Gulf of California.

With the beginning of the Ice Age between two to three million years ago, large volumes of water traveled through the Grand Canyon, moving huge boulders along the bed of the river. In combination with the continued lowering of the western canyon (along the Toroweap and Hurricane faults), these huge meltwater floods scoured deeper into the Redwall and Tonto Group formations to the east. Eventually, perhaps as recently as only one million years ago, the Vishnu Schist and Zoroaster Granite were exposed creating the three granite gorges. As the river's track was deepened, other forces of erosion such as undercutting and gravity made the canyon wider, revealing the spectacle we see today.

These are the broad outlines of how the Grand Canyon came to be—a river that started out going the other way; a drainage reversal initiated by the birth of a famous fault; and Ice Age deepening of the canyon from glacial meltwater. Uplift of the landscape was a huge factor as well but the exact timing and frequency of this uplift remains completely unresolved. Since the sea last left the area 80 to 90 million years ago there has been at least 17,000 feet of vertical uplift! But geologists cannot agree when this happened. Some think it all occurred prior to 40 million years ago, some think the most important uplift occurred in the last five million years. How amazing that a canyon so magnificently displayed could reveal such conflicting evidence. Some geologists think the canyon was cut to its present depth 80 million years ago. Some think that catastrophic floods played a role 5.3 million years ago. It is part of the intrigue and mystery that lends to the charm of this phenomenal landscape. We may never know the specific details but remain humbled by the results!

I encourage you to read the book and glean whatever parts of it fascinate you, so that you can reach your full potential as a canyon expert. The story has been hard to tell because it has been hard to decipher. But it's getting easier as a wider audience participates in the discussion. Happy storytelling!

Wayne Ranney

Similarities:

An Indian Medicine Bag Versus The White Man's Wallet

When Mormon missionary Jacob Hamblin returned from his 1862-'63 expedition to the Hopis he was accompanied by three Indians, one of them thought to be Chief Tuba. It was customary for the Hopis to send a religious teacher when long journeys were to be made. In this case the Indian leader carried a small sack in which were some consecrated meal, wool, cotton and eagle's feathers. To this sack was attached a stick taken out each morning, marked by a cut to count the number of days spent on the journey. On arriving at the *Crossing of the Fathers* the Chief sprinkled a handful of medicine bag contents on the water and prayed for a safe crossing. It was so ordained.

It wasn't until years later that noted Utah historian Dr. William R. Palmer revealed the significance of this mysterious Indian sack. Palmer was so revered by the Paiute Indians that he was adopted as a member of the Coal Creek Band. His explanation was published in the *Utah Historical Quarterly*, 10:1-13. It reads as follows:

Significance of the Segovie Bag:

"Once there was an Indian who always lost everything that he had. He spent most of his time hunting for the things he had lost, and sometimes he even lost his name. He was a good and brave man but because he was so afflicted no one dared to trust him.

His tribesmen feared that if he ever had children they would be like him so they asked the Medicine Man to talk to Shinob, the god, about it. The Medicine Man went off alone into the mountains, and when he came back he said the Shinob had told him what all the Indian mothers were to do. He said, 'When a baby is born the mother must put a little piece of itself in a buckskin bag, and the baby is to wear this piece of himself always until he is a young man. When he is brave enough to go off into the mountains alone he is to hide his medicine bag where no one can ever find it and he must never forget where it is himself.' 'Where can we get a piece of himself?' the mothers asked. 'A piece of his segovie (naval cord) will be a piece of himself,' the Medicine Man answered.

Since that day, before her baby is born, the Indian mother prepares its medicine bag. Generally it is carefully made and beautifully decorated with beads, because it is to be for her baby, a priceless possession. When birth occurs, a bit of the umbilical cord is cut off and sewed up in the bag and the baby wears it upon his person until the adolescent day when he proudly marches away alone to hide it. All through his youth he is taught what that bag he wears means and why he must

never forget where he puts it. That is to be his lifelong secret which he must never divulge to any one else. As long as he can remember where he hid his 'Segovie' he will not forget other things and his people are to consider him of sound mind.

When the Pahutes [sic] now see an Indian hunting around for something he has lost, or acting absent-mindedly, they call out to him, 'Hi friend, what is the matter? Have you lost your Segovie?' Then everyone laughs at the pertinent joke and the absent-minded Indian comes suddenly to himself.

The Segovie bag is to be disposed of when a youth is old enough to make his trip alone into a mountain or desert. At that time he acquires another medicine bag that has utmost significance. This new bag will be for him a luck bag, a charm and, decorated with brilliant beads and porcupine quills, must be worn by him for the rest of his life. The medicine it contains has been compounded exclusively for him by a trusted medicine man and the ingredients it contains are known only to the wearer and the person who compounded them.

There may be arrowheads, a bit of snake root, a lizard skull, ashes of eagle feathers, or a few pine nuts. Each ingredient carries a special spirit or power—four arrowheads pointing together means friendship, the lizard head long life and the ability to hide from an enemy, eagle feathers the courage and straightforwardness of the eagle, good and life are stored in the pine nuts and the snake root will ward off dangers from poison reptiles.

A loop of buckskin can secure the talisman around the neck or it may be worn under the clothing. The bag is a Pahute's [sic] most prized possession and, if worn in faith, will ward off every variety of evil."

The Wallet

Even though he was steeped in Indian folkways and legends, Palmer nevertheless interpreted the meaning of Segovie and adult medicine bags through a white man's eyes. It is only fair that an attempt be made to view the contents of a modern wallet from the understanding of an early twentieth century Indian. His knowledge of today's technology and economic advances would be nil. His vocabulary would be limited to describing wallet objects as he might comprehend them in his time, environment, and culture. In his own words it might go something like this:

The *Birth Certificate* is proof that Ocean Grandmother delivered this person into the fourth world and announced his kinship to all other living things. It is

a birth under the sign of the Thunder Moon (July), a good omen for a long and happy life.

A *Driver's License* gives permission to drive the wagon in all directions of the four winds, to mingle with other tribes and to show the warrior policemen that the driver is a person of skill and good judgment.

The *Credit Card* is the white man's "spirit wampum." It is good anywhere and for everything. This insures a person of worth and trust to pay all debts.

A *Blue Cross and Blue Shield* card guaranteed entrance to the great sweathouse of the shaman, there to be probed, bled and juices examined until he is delivered from demon spirits by the witch doctors.

Golden Age passes are given to the ancient ones by the Great White Father in Washington. This permits the bearer to enter the pictureland of plants, animals and rocks, without paying wampum—but warns to carry out all waste, to touch not a pebble or stick and leave only moccasin tracks.

Seniors Special Fun Tag for Utah State Parks is issued by the Great Captain in the Capitol to people of many, many moons and at no cost. They have permission to drive their off-trail wagons in any direction, to crush the tiger beetle and endangered Bearclaw poppy and leave marks in the soil crust to start gullies and wash away the soil. *This is great fun?*

A *Social Security and Medicare Card* insures that the old warrior will not starve, that his hogan will be warm and that clothing will cover his body. The great "Tribal Council" in Washington will pay for witch doctors, sweat lodges and bad-tasting medicine.

Paper Wampum is the white man's "cash". As a magic substance welcomed by all people, it pays all debts, bribes and fines. Enemies try to steal it, friends cheat each other for it and children hope that parents will not spend it all before they go to the great wigwam in the sky.

Conclusion

Like the exclusive Medicine Bag, the wallet is a highly personal, very private possession, crafted to meet individual needs and those practices dictated by the culture. It would be an invasion of privacy to snoop into a person's wallet. Contents have to do with the owners well-being and help to make his life easier and better. Both bag and wallet have a quality of mystery, of magic, of spirituality, a window to the soul. Each is designed to fit the personality of the holder—so much so that the

contents could be an index for a personality profile.

An Indian carrying corn pollen and *Datura* root in his medicine bag may play quite a different role in his tribal band than one carrying an eagle's claw, a rattlesnake fang and a scorpion tail. In the same vein a person with ten credit cards in his wallet would create suspicions about his financial responsibility. A wallet lacking cash hints of a hen-pecked husband; a hypochondriac's wallet may be laden with pills; a solid citizen's contains a packet of family pictures.

The Segovie Bag is replicated by the white man's "wallet building" in giving a child a coin purse. A wallet pocket calendar matches the Indian traveler's notched stick; a health spa membership card activity is akin to the spiritual cleansing of an Indian sweat lodge; a Labor Union membership card represents Clan membership; an icon or a cross or other religious talisman illustrates a common belief in a higher being.

Comparisons raise many questions. Does the wallet of a white man have contents decidedly different than that of a black man, or a Latino? Is the stealing of a wallet or handbag by a purse snatcher analogous to the Indian's "counting coup"?

And speaking of a handbag, everything said about the mystery and magic of a man's wallet goes double for a woman's purse—but let's not get sucked into that bag of tricks.

Wesley P. Larsen

Note: Contents of the wallet represent an 81-year-old retired school teacher, middle class, conservative, living in a rural community with less than 800 population. Does not drink, smoke or gamble. Votes in every election.

Handshakes

Those of us interested in the history of things—an endeavor that is based on time—often find ourselves trying to lend substance to what otherwise is a rather impalpable concept. Just what is time?

Time cannot be visualized directly. Instead, it is necessary to relate it to some physical event such as the rise and set of the sun, the phases of the moon, the movement of the hands of a clock. But even these fail when trying to grasp time so long that it greatly exceeds our ability to visualize it.

Geologic time is an excellent illustration of this dilemma. In geology, one million years is what you might think of as the unit of currency. But, just how long is one million years? Do you have a gut feeling for this length of time? Chances are you do not, and many geologists do not either, in spite of working with millions of years on a routine basis. In my talks on the geology of the Grand Canyon, I try to put a face on one million years by comparing it to something we are familiar with, say a human generation.

Define a “generation” as twenty years, good enough for our purposes. Then, how many generations separate us from the time when Christ was born, 2000 years ago? One hundred, right? You could even sit down and write that number of “begats” in a short time. And how many generations between us and the time, some 1300 years bc, when the Achaeans—Agamemnon, Achilles, Odysseus, the lot—crossed the Aegean Sea in their black-sailed ships, driven by Helen’s beautiful face and bent on the destruction of bronze-age Troy? If my math is right, we are looking at 165 generations, an amazingly small number. Now, however, how many generations in one million years? Fifty thousand. That, at last, is a very big number, and it is the visualization of such a number, understood as a measure of biological activity, and combined with the realization that Earth’s history is measured in many millions of years, that brought about the amazing revolution that took place in the early 1800s about how we view ourselves and the Earth around us.

But now let us turn to a different measure of time, and one of some interest to us Grand Canyon folks. I am talking about that measure of time that involves the minimum number of people who could physically shake hands with each other during the interval in question.

For us river-running types, historical events down in the Canyon began with Powell’s expeditions in the late 1860s and early ’70s. In reality, Powell’s most significant contribution probably was the creation of the U.S. Geological Survey in 1879. Powell was not the first Director—Clarence King was, for political reasons. But he was the second Director, remaining in that office

from 1881 to 1894. Powell died in 1902.

The third Director was Charles D. Walcott, the elegant geologist of Chuar basin and Nankowep trail and much else besides (I still think that the coffee grinder up Chuar Lava Creek was brought in by Walcott). So, Powell and Walcott not only could, but assuredly did, shake hands.

Our story now turns to a truly remarkable geologist by the name of Levi Noble, a life-long member of the usgs. Noble was born in 1882 and died in 1967. He attained a doctorate at Yale in 1909, based on a dissertation on the Proterozoic and Paleozoic strata of the Grand Canyon. This work was generated by a hike of his down the south Bass Trail with H.E. Gregory—another great geologist—in January 1908. Noble met Bass and also Walthenberg, who seems to have been his assistant there and also for later work in Death Valley. It was Noble who studied and named the various formations of the Unkar group—Hakatai Shale, Bass Limestone, Shinumo Quartzite etc. By the way, did you know that “Hakatai” is a Havasupai word that allegedly refers to “a large roaring sound caused by a fierce wind or the dashing of the waters”?

Walcott kept tabs on Noble, and gave him his unpublished field notes, and offered assistance, so the two men most likely shook hands or at any rate could have done so if they wished. Noble went on to pioneering work on Death Valley and the San Andreas Fault. It was his fascination with this fault that led him, in retirement, to live in a ranch house literally astride the San Andreas, in the hope that he could experience the fault as it moved. And it is here that the fourth and final section of this story takes place. Are you ready for it?

In the late 1950s a bunch of us Caltech undergraduate students were returning from some field exercise in the Mohave Desert. On the way to Pasadena, our prof took us to Pearblossom, at that time a tiny hamlet on the north side of the San Gabriel Mountains, which border the Los Angeles basin on the north. And there, astride the San Andreas, was a ranch house, and in that ranch house was the legendary Levi Noble, patiently waiting for the fault to move (alas!, it never did). He was a trim and sprightly old man, that I remember, and one utterly in love with the Earth and its geology. I don’t remember whether we shook hands or not, but most likely we did.

So there you have it: Powell, Walcott, Noble, Lucchitta (I would never place myself in such a rank—this is strictly a matter of chronology). Just four people to the beginning of it all. Isn’t that amazing? Actually, the list should properly include five people, the other being Eddie McKee, who introduced me to the Canyon

and its delights. So the torch should have passed through him, but happenstance produced a short-circuit leading directly to Noble.

This sort of thing blows me away, just how few human lives that touched each other occupy the time between now and our creation myth. And, you know, I feel so very privileged to have been able to work in a place that has occupied the minds and hearts of such predecessors. How could it have been predicted? Certainly not through reason or expectations. After all, who in their right mind could have foreseen a path that led from birth in central Europe shortly before World War II and its disasters to geological work in the Grand Canyon? I am grateful, believe me.

People interested in the birth of the usgs and in Powell and Walcott as Directors could do worse than looking up Mary Rabbitt's masterly exposition in *The Colorado River Region and John Wesley Powell, 1969*, U.S. Geological Survey Professional Paper, 669.

Those interested in Levi Noble should consult: L.A. Wright and B.W. Troxell, 2002, *Levi Noble: Geologist*: U.S. Geological Survey Open-File Report 02-422.

This report is available on the web at <http://pubs.usgs.gov/of/2002/ofr-02-422/OFR-02-422-508.pdf>

Ivo Lucchitta

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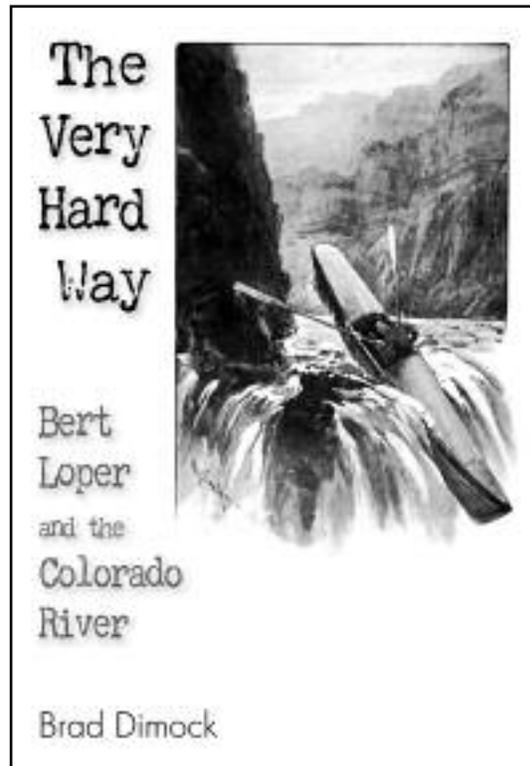
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Loper at Last

After six years' obsessing, I'm tickled to announce that my biography of Bert Loper has gone to press with a debut in Flagstaff on March 7.

It is a fat book detailing the long life of a man born the day Powell discovered the San Juan, and who died just weeks after the first motorboat went through Grand Canyon. As such I had to incorporate much of the history of river running. It's quite a story. 472 pages. Hardbound \$29.95, Softbound \$17.95 from Fretwater Press (www.fretwater.com). The March book tour takes in Flagstaff, Grand Canyon, Page, Prescott, Glendale, Tucson, Bluff, Cortez, Durango, Moab, Logan, Salt Lake, Springdale, Kanab, and the gts. Check www.fretwater.com/berttour for details. Thanks to everyone in the river community who helped make this book a reality. See you all somewhere along the way I hope.

Brad Dimock



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The Mysterious Hum Woolley

The most obscure of all Grand Canyon boatmen remains Elias Benjamin "Hum" Woolley, who in 1903, at age sixty, built what sounds like a sophisticated whitewater boat and headed for the Colorado. He took two young assistants, Arthur Sanger and Sanger's cousin John King. Theirs was the first trip to begin at Lees Ferry and, in spite of some wild boating, came through unscathed.

Dock Marston jotted down the following comments when talking to Sanger about Hum Woolley:

"Sandy complexion...Had fat belly...Walked on balls of feet...Was stout... Bushy mustache...Uncouth... Kinda dirty... Always had something to eat in pocket... Kept pipe in same pocket... Sloppy hat... Small man, big shoulders... Smoked... Drank coffee... 170#, 5'7"... He looked like a coyote under a brush heap."



Thanks to all you poets, photographers, writers, artists, and to all of you who send us stuff. Don't ever stop. Special thanks to the Walton Family Foundation, the Arizona Humanities Council, "Circle of Friends" contributors, and innumerable gcrg members for their generous and much appreciated support of this publication.

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boatman's quarterly review

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