



boatman's quarterly review

the journal of Grand Canyon River Guides Inc.

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Future of Glen Canyon Dam

Future of Science

Bridge Canyon Dam

Selective Withdrawl

New Organizations

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Mary Gibbs

Condors Fly

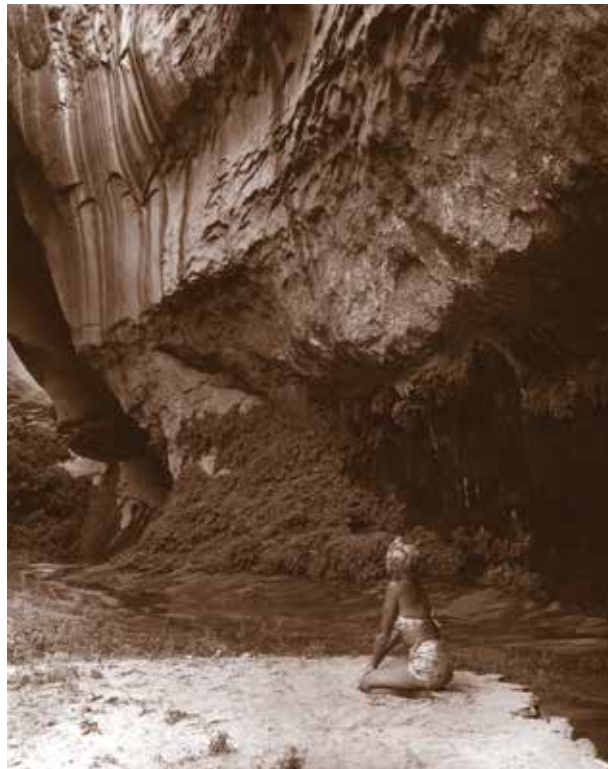
Pork Chops

Numbers Game

Dams and Silt

Katie Lee

October 1, 1955, Glen Canyon...
Each new discovery surpasses the last—it seems the tougher these canyons are to penetrate the more beauty they hide. I leave a part of me in the arms of Navajo Canyon; leave blood and tears in exchange for what I've seen and will remember all my life. Over, under and around Wingate boulders, thru water in tunnels of tumbled rock, past rabbitbush, datura and stunted cottonwood, we make our way to the base of the Kayenta... Ah-hhh, bedrock at last!



Kate Lee in Grotto Canyon, 1957

As we round a bend and come over a small rise, I feel like I've been hit in the middle of my everything. I grab for Frank's arm and say, Wait a minute, Bigfeets, I don't think I can take much more of this ... it's too beautiful! Suddenly I'm crying. He nods, takes my hand and squeezes hard. When I look at him there are tears in his eyes as well.

I stop to ask myself, what's here that triggers an emotion so overwhelming it brings tears? It's not like theatre where our emotions are aroused by what we hear, and we cry over words and evolving situations. This is rock... inert... water, air, aromas, silence, light and shadow-play. Words would mock this scene.

Our tears have come unexpectedly because we're thankful to the point of overflowing. We've just been handed a spectacular gift—rare, flawless, stunning to the senses, and the privilege has touched our hearts in a wash of humility, ne love. I am humbled and bow my head before these generous Canyon Gods, glad to be one who can shed tears.

Floyd Dominy would probably stop here and take a piss.

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If it isn't one thing...

It's another thing. All seemed fairly calm; many issues seemed on the brink of resolution, and we had only to keeping the office running. Then suddenly the phone exploded. The rather dramatic fee increases for private boaters took up a week or two of phone time, and you'll see some of the facts and opinions about that in this issue...

And if it's not another thing...

IT'S ONE THING...

The aircraft noise issue metastasized. A final rule was announced, yet offered no resolution. Rhetoric and law suits ensued even before full details of the new rules were available, (at least before they were available to the environmental side of the fracas.) So all those letters you and I have written must be written again. It's a common strategy to wear down those on the opposite side of an issue—usually those who aren't making millions from status quo—until they finally give up in frustration.

Sometimes it's a lot of things...

Then there's the dam. As the Glen Canyon Environmental Studies team is dismantled, we are presented with many challenges for the future. How can we achieve continuity in monitoring? How can we make the Adaptive Management process work? Who's in charge? What about changing the water temperature? On a bigger scale, the future of the dam itself is being questioned. How long can it last? How long *should* it last?

Few people have stronger opinions about the dam than our featured boater this issue, Katie Lee. Whether or not you agree with her, you've got to credit Katie for not sugar coating anything. Hers is a wild blend of emotion—intense passion for beauty lost beneath a reservoir which she refuses to call "Powell", and simmering rage toward those who facilitated that loss.

At our fall meeting, we reexamined the goals of our organization and addressed a number of questions. We were founded to provide a common voice for the community to speak out—not for ourselves, but for the Canyon and the experience it offers. Are we doing our best toward our primary purpose of protecting Grand Canyon? In our dedication to "providing the best possible river experience", doesn't that include all boaters—commercial and private alike? With these ideals, how will we face the difficult decisions to come and still manage to hold together as a community?

For those who were unable to attend the fall meeting, we need your input. If you like how things are going, tell us. If you don't like what we're doing, all the more reason to tell us. And if you *really* don't like how things are going, we've got three directors seats and the vice president/president elect seat up for grabs in the

spring. Think about running. We need your perspective and we need your energy.

Happy New Year,



Jeri Ledbetter

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. Board of Directors Meetings are held the first Monday of each month. All innocent bystanders are urged to attend in person or by speaker-phone. Call for details.

Officers

President	Jeri Ledbetter
Vice President	Andre Potochnik
Secretary/Treasurer	Lynn Hamilton
Directors	Kim Crumbo Bert Jones Bob Grusy Larry Stevens Jon Stoner Tim Whitney

Our editorial policy, such as it is: provide an open forum. We *need* articles, poetry, stories, drawings, photos, opinions, suggestions, gripes, comics, etc.

Written submissions should be less than 1500 words and, if possible, be sent on a computer disk. PC or MAC format; MS 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 January, April, July and October. Thanks.

Our office location: 9½ East Aspen, Flagstaff, Arizona

Office Hours: 10-4 M-W-F

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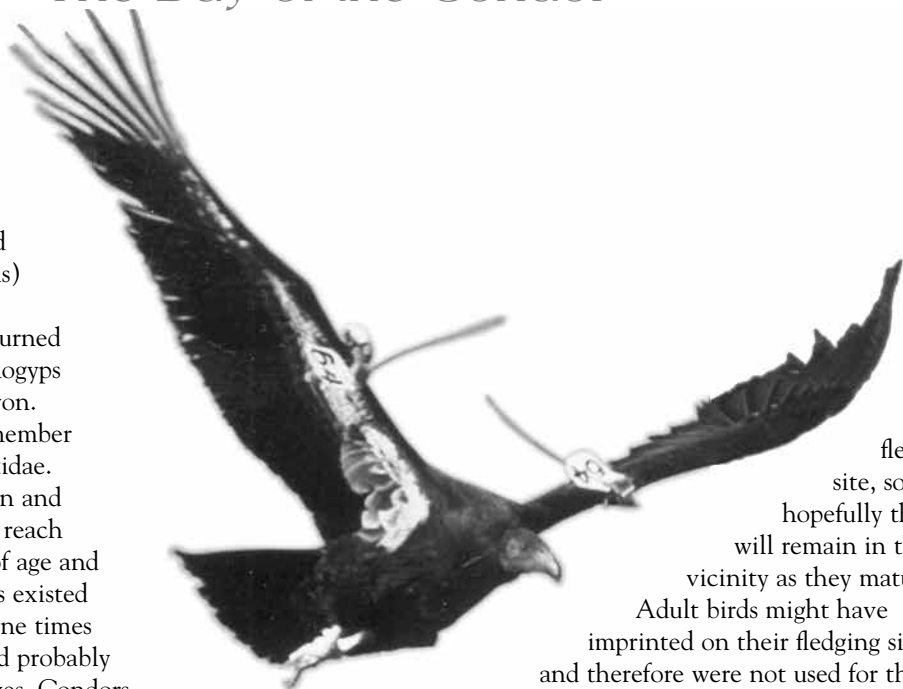
The Day of the Condor

This was an important year for Grand Canyon birds. Tom Fergason and Sharon Hester independently reported the first scissor-tailed flycatcher (*Tyrannus forficatus*) observed in the park, and a remarkable political effort returned the California condor (*Gymnogyps californianus*) to Grand Canyon.

California condors are a member of the vulture family, Cathartidae. They have a 9.5 foot wingspan and weigh up to 22 pounds. They reach sexual maturity at five years of age and may live for decades. Condors existed in the Canyon from Pleistocene times until about 1924, roosting and probably nesting in Grand Canyon caves. Condors are opportunistic scavengers, feeding on large road-killed mammals and dead whales. Baldness protects them from excess build-up of decaying meat on their heads. Condors often forage socially, and may fly more than 100 miles per day at speeds of up to 50 mph. Like many of us, these birds are late risers, warming up until mid-morning, and returning to their roosts in late afternoon. Condors do not build nests, but lay their 5-inch, 10 ounce egg on bare ground on the floors of caves or crevices. Their eggs hatch after 56 days, and both parents regurgitate dead meat chunks to their adorable offspring.

This species declined throughout its range during this century, with virtually all deaths associated with human activities. In 1987 the last remaining 27 California condors were taken into captivity, and an intensive breeding program was initiated in the attempt to save North America's largest bird species. Thanks to the dedicated efforts of biologists, such as Noel Snyder, the Peregrine Fund (director Bill Burnham and project coordinator Bill Heinrich), and U.S. Fish and Wildlife Service (FWS) Condor Project Director Robert Mesta, the condor population reached 120 birds in 1996. The FWS, the Bureau of Land Management and Arizona and Utah State wildlife departments promoted a Condor release program to reinstate this species across its historic range.

On 12 December 1996, four female and two male condors were released from holding/rearing pens at the top of the Vermillion Cliffs in House Rock Valley. These birds were seven months old, an age at which condors fledge. Condors apparently imprint on their



natal fledging site, so hopefully they will remain in the vicinity as they mature. Adult birds might have imprinted on their fledging site and therefore were not used for this release.

The release of the California condors was attended by 500 tripods and nearly 1,000 enthusiasts, school children and politicians, including Bruce Babbitt, Fife Symington, John McCain, and numerous environmental groups. Peregrine Fund director Bill Burnham emceed the festivities, and Jones Benally, an elder of the Navajo Tribe, blessed the ceremony. A rearing pen door opened at 10:30 a.m., and Arizona's first free condor in 72 years hopped up on a rock and spread its wings, as if to take a bow. The other condors soon followed, and gradually disappeared from view. Within one hour a FWS staff person radioed the news that a condor was seen soaring over Highway 89A, creating a six-car traffic jam. Additional condor releases are scheduled in New Mexico and annually in Arizona, until a viable population has been established. The released birds will be supplied with food until they can forage successfully for themselves.

Some of the condors have remained in the vicinity, and as many as 500 condor enthusiasts per day have visited the viewing site to observe these magnificent birds. How long will it be until these birds rediscover the Grand Canyon caves their ancestors occupied? Will the same fervent enthusiasm attend the establishment of a second population of endangered humpback chub or Kanab ambersnail?

Elizabeth A. Baldwin and Lawrence E. Stevens



Photo: California condor fly free over Grand Canyon.
Robert Mesta, U.S. Fish and Wildlife Service

A Swarm of Fees

For some time we have expected fee increases for private river permits through Grand Canyon.

After all, a private trip has always been a great deal—at least concerning fees paid to the Park. Private boaters have been paying \$25 to get on the waiting list, \$50 to launch, and the \$4 per person entry fee, allowing 16 people to launch on an 18-day private Grand Canyon trip by paying a mere \$159 to the Park. Surely the Park's associated costs must exceed this amount, so the murmurings we heard about a fee increase were not surprising. After all, depending on the outfitter, commercial passengers pay \$10 to \$20 per person per day to the NPS.

Should boating in Grand Canyon be government subsidized? Congress thinks not, in this age of spiraling deficits. Most fees that the NPS collects go straight into the black hole of general government funds, and although unwilling to cut back tobacco or corporate subsidies, Congress has become increasingly stingy with funding for national parks. Facing a financial crisis, the NPS must use new and innovative methods to protect their valuable resources.

The *fee demonstration program* is one such innovation which allows the NPS to charge higher fees while keeping the majority of the increased revenue in the Park where it is collected. Entrance fees to Grand Canyon are increasing from \$10 to \$20 per car load, with the Park retaining 80% of the extra money. There are additional fees for backcountry hikers—\$20 for the permit plus \$4 per person per night. This *fee demonstration* revenue cannot be used for salaries or services which are currently provided. Proceeds from increased entrance fees will be channeled into improvements in visitor services at the South Rim in accordance with

the General Management Plan. Backcountry fees will finance expanded backcountry office hours as well as resource protection and trail maintenance.

Recently, the NPS began working on plans to increase private boater fees for *fee demonstration* as well as *cost recovery*. The river subdistrict office had come under fire for not following NPS guidelines which require an annual cost analysis of the services provided, and adjusting the fees to reflect these costs. So now they're trying to catch up—this has resulted in a set of fee increases which some find alarming. The amount a private permittee will be required to pay for the trip mentioned earlier would now exceed \$1900

Examined individually, each fee doesn't seem all that unreasonable, but when considered together they may seem staggering, particularly with such short notice. Private boaters with launches scheduled this summer, some who have waited as much as 8 years for the permit, received a letter shortly before Christmas notifying them that they must pay an additional thousand dollars or more to launch.

As in the past, those wishing to remain on the waiting list must notify the Park of their "continuing interest" during a 6-week period which began December 15th. This year, however, they must also pay \$25. If this fee remains unpaid by the end of March, the name will be dropped from the list; (the one year "grace" which was previously allowed for forgetting to file is no longer accepted.) Having to pay to wait in line—perhaps paying hundreds of dollars before they set foot in the park—doesn't sit right with many private boaters. Those who choose to wait until their number comes up will pay substantially more than those who obtain a permit by picking up a cancellation. (More than 1/3 of permittees last season were on the waiting list two years or less.)

The waiting list fees are designed to recover costs of managing the list, although many question how it could possibly cost so much to keep a name in a computer database. The launch fee, as originally approved in the last Colorado River Management Plan, was imposed to "offset the costs of the required river orientation program at Lees Ferry and funding for river monitoring and rehabilitation of fragile river corridor areas impacted by recreational users." Previously \$50, this fee has increased to \$200.

The additional \$4 per person per day "impact fee", part of the new *fee demonstration program*, can not be used to support any service which is currently being provided. Where,



then, will it go, and is it necessary? When pressed, NPS officials offered varying possibilities. River Subdistrict ranger Patrick Hattaway suggested an increased number of patrol trips, but offered no evidence that a need for them exists.

How to spend money from river use fees is already an issue. The recently adopted Colorado River Fund (CRF) will provide approximately \$800,000 annually from commercial operations. But the CRF is limited to "capital improvements" which "benefit river runners," and the NPS and outfitters are still confounded by how to spend it all. Money has a way about it, though; rest assured, it will be spent. The challenge is to apply it toward projects that add value. The CRF seemed to generate revenue merely for revenue's sake, with no clear plan. The private boating fee structure, as proposed, seems to be headed down that same wayward path.

Predictably, those who can afford the fees have been far more supportive of them than those who can't. Some hope that the increased fees will reduce the size of the ponderous waiting list; others feel that ability to pay isn't the appropriate criteria to shorten the wait. Although NPS officials deny this as a motivation for the increased fees, several admitted that it might be an added "benefit."

The new fee structure establishes other inequities as well. As is the case with the current commercial permit system, the new fees encourage larger, faster trips by making smaller, more leisurely trips much more expensive. With an equal wait in line, a two person private trip will pay three times as much per day, and a one person trip six times more, than each participant on a 16-person trip would be charged. As we look towards the Colorado River Management Plan with the hope of reducing the disincentives for longer, smaller commercial trips, why apply similar disincentives to the private sector? And by collecting a significant amount of money from those on the waiting list, aren't we becoming even more indebted to the current system, thereby reducing our flexibility to change it within the CRMP if that seems the appropriate course?

The small group of NPS officials which has been involved with the decisions were directed "from the top" not to solicit input from the public as it "would take too much time." Apparently, few opinions were solicited from NPS personnel either. The sense of urgency is palpable, no doubt partly due to increasing pressure to recover costs. Justifying the decision-making process by citing the dollars which would be lost should the fees not all be implemented this year, NPS officials display a business mindset which, no matter how sympathetic we are to their dilemma, is cause for alarm. When rangers are forced to think and respond like corporate executives, financial pressures could impede their making good

resource decisions.

The new system also appears to be unnecessarily costly and complex. We are told that it will require at least two additional employees simply to manage the myriad incoming fees. Permittees will be allowed to pay fees by credit card, and since the NPS has promised that some fees collected in advance are refundable, they must be braced for a dizzying array of adjustments for last-minute or mid-trip changes. There *must* be a simpler way. Rather than further embracing the tired old user day system which encourages shorter, bigger trips, why not charge a set fee for each participant on a private trip? If the NPS feels the need to charge \$100 per private boater, wouldn't it be simpler to just charge that amount rather than piling up a complicated array of individual fees? The NPS could charge \$100 to get on—and stay on—the waiting list and, a \$100 per person launch fee, generating similar revenues, yet allowing them to be spent on needed services rather than on additional accounting personnel.

On November 26, Secretary Babbitt stated "Our highest priority as we implement the test fee demonstration program is to articulate to the public the need for their participation and support... public input, suggestions, and feedback are crucial to the success of this... project." Reasonable fees, reasonably applied, with clearly defined goals, can and will receive public support... at least until the American public convinces Congress to support National Parks rather than tobacco farmers and military aircraft manufacturers.



Jeri Ledbetter

<p>Private River Trip Cost Recovery Fees \$100 to get on the waiting list (previously \$25) \$25 annually to stay on the list (new fee) \$200 launch fee (previously \$50)</p> <p>Fee Demonstration Program \$10 per person entrance fee (previously \$4) \$4 per person per night (new fee)</p>

Typical Private Trip		
14 people, 15 days		
New NPS System		
Waiting List	(to get on)	\$100
Annual Renewal	(10 years @\$25)	\$250
Launch Fee		\$200
Entrance Fees	(14 people @ \$10)	\$140
Backcountry Fees	(\$4 x 15 days x 14)	\$840
Total		\$1530
Something Simpler		
Waiting List		\$100
Launch Fee	(\$100 per person x 14 people)	\$1400
Total		\$1500

New Fees? Send Them to the Rim!

As onerous as additional fees for private trips might be, what we really need to ask ourselves is “What will the money be used for?” The initial gut response is something like: “This is our money and it damn well better stay within the corridor.” But on reflection I think the proper goal is to make surer it’s *good* for the corridor, and so, I suggest that these fees would be better spent on the rim. In fact, we should insist that it be spent anywhere *but* within the river corridor. My reasoning goes something like this.

First and foremost, what do we need done along the river? Very little, I think. The current annual resource trips are effective and successful in the partnership between guides, outfitters, and park. And the Colorado River Fund is about to come on line, with more funding than we know what to do with. Perhaps help at the checkout at Lees Ferry would improve things but we don’t really want anything added to the Canyon; not outhouses, boat tie-ups, scenic viewpoints, museums, or curio shops. What’s left to spend money on then? That’s right: more “protection” trips. Unless a strong case can be made that more enforcement is necessary on the river, and that there is no other “self-policing” solution available, I see no justification for additional trips. Nothing against our friends who do the patrol trips but we’ve worked hard to build a good relationship on the river, to address and solve problems as they arise; and things are working pretty well. More oversight is not the answer. But one thing is as sure as the sunrise; if there is money, it will be spent.

That’s where the rim comes in. There is no doubt additional funds can be effectively used in the maintenance of the infrastructure that surrounds the river corridor. This is more than simple charity on our part however; like the shell around an egg, we need that infrastructure to protect our little, underdeveloped haven. Without the concentric shells provided by the park boundaries, the rim, and the back-country, the river corridor would be a vastly different place. The various semi-urban experiences available throughout the park allow the river to retain its wilderness character. So the best thing we can do for the river is to support the rim.

It’s hard to swallow these fees, I know. For such a long time we’ve enjoyed sweet, cheap freedom of the river. But our National Parks, under fire from those that would exploit or eliminate them, deserve our help. The current fees will not eliminate any of us from going down river; I know, it’s the principle. Well, if they get too high, we *should* raise holy hell. But user fees are a fact of life today and four dollars only gets you a Big Mac and fries at Tusayan. If we’re going to pay them, let’s make the fees as fair, as simple as possible, and put them where they will do us the most good. Keep them out of the river corridor.

Tom Moody

Grand Canyon Private Boaters Association

As boating rivers in the American west becomes ever more popular, advocacy and information are vital to the private boater. Federal Agencies are actively seeking input into the use of the rivers they administer. United voices are steering change in use patterns on these rivers. The voices for the private boater in the Grand Canyon, though many, have never before been unified. With this in mind, I would like to extend an invitation to you to join the Grand Canyon Private Boaters Association.

This organization will be open to all individuals interested in private river trips in Grand Canyon. It is this diversity of interest which will be our united strength. Some of the many issues which we hope to address include allocation of user days, increasing communication among the various parties involved, disseminating river related information, and participating in river management planning. This last issue is of vital importance as Grand Canyon National Park begins its revision of the Colorado River Management Plan. Our goals include working with government agencies and the commercial sector to insure continued river access to the Grand Canyon private boater.

In order for all this to happen, we need both your financial and written support. Do you have any articles or river related stories and or poetry you’d like to see in GCBPA’s newsletter, *The Waiting List*? We are also seeking your financial support. A \$20 donation covers a year’s membership, \$135 covers an eight year membership at 50 cents a mile, and \$277 or more, at a dollar a mile, gives you a lifetime membership.

So come join us, and let’s go boating.

Tom Martin, *president*
GCPBA



Box 2133
Flagstaff, AZ 86003
520/214-8676

Guides Defending Constitutional Rights

Dave Edwards, with Guides Defending Constitutional Rights, stopped by the office for a black bean burrito lunch the other day to tell us a bit about their fight against the current drug testing policy in Grand Canyon. Here's what he said...

Guides Defending Constitutional Rights is a group of high minded individuals in the river community who see that this type of search goes far beyond the guiding community, that it affects all Americans. This is an affront to our constitutional rights—it's despicable and it's loathsome.

For me it has to do with Article IV of the Bill of Rights. It has nothing to do with narcotics, their use, or their possession, all of which are illegal.

To really understand this, you have to view American citizens as being good people, law abiding, upstanding, and innocent until proven guilty. In this instance, we are compelled to prove ourselves innocent; it goes against everything that we have stood for in this country.

This is one of the examples of a search being done for the convenience of authorities, regardless of the inconvenience of citizens, regardless of the humiliation, the degradation and the shame that comes with such a search.

You cannot understand what we are doing unless you have pride in your own human dignity. It would be a psychological impossibility. Just as the historians tell us, the loss of one's rights comes very easily. Oppression moves on cat's feet.

What's happening in Grand Canyon reflects what's happening in our society in general. On the face of it you'd think that certainly it's just the people at the South Rim, but it's nationwide, an accepted paranoia, a way of life for the people in our government. They imagine a violation, then find some way to counteract it. That's what's happening in Washington DC, in the army and throughout the country. The government is running on low voltage paranoia. It's not good.

I despise drugs and their use. I despise what it's done to our country. I'm far more conservative than any of these ninnyes who are coming up with these draconian measures. Drug use is a criminal offense under our present law. But the guarantee against unwarranted search—search without probable cause—is one of the foundations of our constitution.

I don't think this thing is about me. I want everybody to understand that I represent a community of guides in Grand Canyon, and a lot of people who are not guides but are very interested in this constitutional issue. If I weren't the plaintiff, there are dozens of other guides who could, and would, take my place. I can only hope that I will fairly represent the guides in this

community, and that I will be able to conduct myself in a way that doesn't bring any discredit to this community.

Many, many people have come up to me and said that they thoroughly support this stand, that they're thinking of the Constitution and the Bill of Rights. They're not drug users to my knowledge; they know that this is an important issue, and they're backing it on that basis. New guides, old guides, men, women...

David Hinshaw, an attorney and former boatman has been working with us on this for some time. And we have now hired Deborah Fine, a lawyer who came from a very highly regarded firm in Phoenix, Lewis & Roca, and now lives, to our good fortune, in Flagstaff.

We need to raise quite a bit of money. Most of my friends have contributed a good bit, and I've given as much as I can. Our initial fund raising, done by networking among friends and fellow employees, has raised a great deal, but we are still only about 30 or 40 per cent of the way towards what we imagine it will cost. I hope that others will think of this issue—their contributions will be greatly appreciated. Just as importantly, their thoughts will be greatly appreciated. If they would write us and tell us their thoughts & ideas on this issue, we would all benefit.

I especially don't like working people being treated in this way, as they often don't have a voice—which is exactly why it happens.

By contributing to this fund and legal effort, people are helping to give themselves a voice in this matter. One of the basic ideas in having a democracy is that words have power.

Just as a participant, not speaking from legal a standpoint, I would hope that our results would affect all Americans. We have to go the way of human dignity, which is to follow our Bill of Rights, and take the consequences.

This is the best burrito of my life.

*David Edwards
Guides Defending Constitutional Rights
Box 1123, Flagstaff, AZ 86002*



Time to Recycle Good Will

A few weeks ago a member of our community fell on hard times. Al White, co-owner of R&W Recycling in Flagstaff, was seriously injured in a work accident. It looks as if he may be permanently paralyzed and the medical bills are skyrocketing. A fund has been set to help Al with the medical expenses.

R&W has been a good friend of the river community for several years. Had it not been for their help, the guides and outfitters' successful recycling program would never have gotten off the water. But recent times have been rough. The hometown company lost its bid for the curbside recycling contract for the City of Flagstaff to a larger firm from Ohio. In the epitome of bad timing, loss of the contract had forced R&W to drop Workman's Compensation coverage on the company owners.

A benefit concert and raffle is being planned for February at Monsoon's in Flagstaff. You can call the GCRG office to get the dates as they are firmed up. Here's how to help now. Send donations to:

Al White Fund
Acct. # 234839839
Bank of America
4550 N. Hwy. 89
Flagstaff, AZ 86004



Darah Sandlian

Thanks.



Downstream of Dams

Michael Collier, Bob Webb and Jack Schmidt put out a really nice USGS Circular last year called *Dams and Rivers: Primer on the Downstream Effects of Dams*. It's ninety-some pages long and chock full of interesting information and Michael's stunning aerial photographs. You'll be amazed at the wide variety of different changes and processes that take place below a cork.

And what's really cool is they're free. Contact Bob Webb, USGS, 1675 Anklam Road, Tucson, AZ 85745



Joy Foundation

Last year I received the Joy Ungrich Carber Memorial Scholarship for the Whitewater Academy for Teens. This scholarship is awarded to help support the development of women boatmen. The academy trip was six days of learning, new friends, and fun. It was a week I will never forget—especially the time I got caught on an oarlock during a flip drill.

I learned everything from tying knots to righting boats and safety skills. Three days of the course were spent on the water. We were able to get a feel for the boating experience, and I was given the chance to row. The instructors were great, and I met some very interesting people and made a lot of friends.

The 1997 scholarship is still open for applications—to apply you must be female—for the Whitewater Academy for Teens you ought to be a teen as well. For other courses you should be planning to work as a commercial guide. Write Canyonlands Field Institute for more information at Box 68, Moab, Utah, 84532.

It was an honor to get a scholarship named after such a great and adventurous woman. In her 40 years she truly made a difference in people's lives, and continues to do so even now through her scholarship.

Guides Training Seminar

The 1997 GTS is shaping up magnificently. We will meet new NPS people, reveal results of the 1996 beach-building spike flow, discuss the hard realities of substance use and abuse, learn natural history, and hear some new spins on old stories. As usual, we will have the GCRG Spring Meeting with election of officers, great food and live music. It will take place at the Hatch warehouse, Cliff Dwellers Lodge, 10 miles west of Marble Canyon. If you're lucky, you might even see the California Condors glide magnificently overhead and eat dead meat. Mark your calendar and be there!

Friday, April 4: GCRG Spring Meeting
Sat.-Sun., April 5,6: 1997 Guides Training Seminar
Tues., April 8-22: GTS River Trip

FAA Misses the Point...

On December 31, the FAA presented a long-awaited final rule regarding aircraft over Grand Canyon. This rule is significantly weaker than the draft version proposed last summer, which the FAA admitted would not achieve the mandate of substantial restoration of natural quiet. Scheduled to take effect May 1, its provisions include curfews for some tours, expansion of flight free zones, and a temporary cap on the number of aircraft allowed to operate over Grand Canyon.

The “cap”, placed on aircraft rather than on operations, is temporary, rather elastic and essentially meaningless. Operators who convert to quieter aircraft will be exempt from this limitation, and new businesses utilizing quieter technology will be allowed to enter the market. Since even the quietest aircraft operate at decibel levels which require the use of headphones to prevent hearing loss, any gains made by the transition to these aircraft will be lost by allowing still more of them into the airspace. Congress passed the 1987 Overflights Act, recognizing that there were already too many flights; now there are twice as many. While virtually every other form of Grand Canyon visitation is limited, the FAA seems incapable of grasping the concept that such restrictions are necessary to protect the resource and the visitor experience.

Flight curfews apply only to tours in eastern Grand Canyon. Between May 1 and September 30, no flights are allowed before 8:00 A.M. or after 6:00 P.M. During the remainder of the year, they will not be allowed before 9:00 A.M. or after 5:00 P.M. However, in western Grand Canyon, the heavily used routes originating in Las Vegas are exempt from the curfews.

Flight free zones have been enlarged, but not as much as in the draft proposal. The Toroweap/Thunder River and Shinumo flight-free zones were merged, eliminating the flight corridor between which is rarely used for tours. Particularly disappointing was FAA’s disregard of support for the proposed Marble Canyon flight free zone, which was eliminated.

In the most heavily used Dragon Corridor (which crosses upriver of Crystal rapid), a “dogleg” proposed by air tour operators was incorporated into the rule. While it moves heavy traffic away from the Hermit Basin, it will do nothing to mitigate the noise impacts to the river corridor and will shift noise to points on the South Rim which are now relatively pristine.

The rule calls for the National Park Service and the FAA to develop a noise management plan within 5 years, which defers the most difficult decisions, as well as any solutions. In promising continued public input, it also commits us to at least 5 more years of the mind

numbing meetings and rhetoric. It seems like a decade of that would have been sufficient.

Expressing outrage, tour operators have promised to challenge the rule in court, presumably to seek an injunction to halt its implementation. A coalition including the Sierra Club, National Parks and Conservation Association, Grand Canyon Trust and Grand Canyon River Guides have banded together in kind, requesting court intervention to implement a stronger rule.



Jeri Ledbetter

... and could you write a letter?

The FAA announced a proposed rule regarding transition to quieter aircraft technology. The proposal places aircraft into three categories, and requires a transition over the next decade from the loudest of aircraft, Category A, to the quietest technology available, Category C. Proposed guidelines are far too lenient; the loudest of helicopters used by tour operators rest safely within Category B, and will therefore not be fully phased out until 2008. (The proposal calls for a phase-out of Category A aircraft by 2000).

The rule also suggests establishing a tour route over National Canyon, through a flight free zone, limited to Category C aircraft. The flight free zone protecting National Canyon was one of the slight wins within the final rule, and should not be cast aside.

Please take the time to write a letter before March 31, in triplicate, to: Federal Aviation Administration, Office of the Chief Counsel, Attention: Rules Docket (AGC-200), Docket No. 28770, 800 Independence Avenue, SW, Washington DC 20591. You can send comments by Internet to the Rules Docket—marked Docket No. 28770—to the following address: nprmcmts@mail.faa.dot.gov. For more information, access our internet site at <http://www.rhinonet.com/quiet/> or contact our office.

Please stress in your comments that:

- Tour operators should be required to convert to the quietest technology available.
- We should not allow whatever gains are made by this conversion to be lost by allowing more aircraft into the airspace. The cap on the number of aircraft should be firm and permanent.
- Specifications for categorizing an aircraft’s noise efficiency should be more stringent than those proposed.
- No aircraft—even the less noisy ones—should be granted a route through a flight free zone. More appropriate would be to restrict the heavily used Dragon Corridor to all but Category C aircraft.

Please send a copy of your comments to GCRG.



Dear Eddy

Boatmen,
The time has come to stand up and be counted. For 23 years I've seen the screws tighten slowly, ever so slowly. Regulation here, regulation there "for the good of the Cañon." Some were; most were horseshit, politically correct regulations. Now we're down to it. Peeing in a cup.

I never thought I'd do it. I did it to show I could, I guess. Ken Sleight's words ring in my ears right now. I can remember him standing up, fists clenched and saying "Don't budge an inch".

He was so right. You cannot give these gum shoes one inch, not one! Because that's how they take your rights and freedom—one inch at a time.

We as an independent outfit of *excellent* professionals need to make a stand and be heard—not just by the Park Service but by other people in this country as well, that this infringement of our rights, guaranteed by the U.S. Constitution, will not be tolerated, at least not without a big fight.

Let the movement start with the Grand Cañon River Guides and other outfits will rally to the cause. So lawyers, guns and money—let's crank up the fight!

Doc Nicholson

The article in the fall *bqr* on Bill Beer really struck home. Bill made a comment that "...Margaret was far more than half that team." My grandmother Mag (my Dad, Garth Marston, gave her the Mag moniker early on as Margaret is a mouthful for a two year-old) called herself a rim runner. While Dock regaled us with river stories, Mag gave us a feel for the Canyon and the country beyond. There's a whole lotta truth in what Bill said. It's been 30 years since she died but she's as much part of our river as Dock is. She was the grandest of ladies.

The *bqr* is super. Keep up the great work!

Nate Marston



Note: Art's letter, below, was sent in a couple years back. We wrote him back and the letter was filed away. Recently Art called to say he wished we'd publish it. Here 'tis...

Dear Friends,
Enclosed find my 1993 dues. I have given this renewal a lot of thought particularly after reading the last newsletter.

Two issues bother me. They both involve attitudes toward other users of the canyon. The first is the concept that John Hance was *simply greedy*, along with any one else that seeks their living in Grand Canyon other than river guides and park rangers. This idea was editorialized in an article regarding the Bat Guano mine towers and Roy Webb's comments about preserving Grand Canyon mining history.

The second issue hits very close to home with me: Airplanes in Grand Canyon. As many guides know, I spent 25 years on the river and then joined an air service which was built by flying river customers to and from their trips and also provided support in emergencies. Lake Mead Air was begun by Earl Leseberg and most of the outfitters remember Earl as their Guardian Angel in the 1960s and '70s. Earl would go far out of his way to check up on trips when radios weren't very good and there weren't too many other trips on the river to assist an expedition in trouble.

For background, I was the person that first pointed out the degradation of the beaches to the park service way back in 1967. I was later responsible for the creation of Glen Canyon Environmental Studies through my personal association with Bob Broadbent, who was the Commissioner of Reclamation. Furthermore, I was the person who suggested the *no motor* season and I was also the person who suggested *no flight zones*. These concepts were promulgated as an acceptable and reasonable compromise between various canyon resource users.

In my opinion there is a selfish attitude among many guides that the only people entitled to make a living in and around Grand Canyon are *oar/paddle guides* and park rangers. I would like to see some serious self-examination of these issues by the *elitist members* of our organization who believe they are the only ones that care about the canyon.

Sincerely

Art Gallenson

The Whale Foundation

Last spring I wrote an article in this quarterly with the idea of starting an organization to assist boatman. That article and concept of the Whale Foundation was essentially a brainstorm of ideas based on conversations with concerned members of our community.

The response has been very encouraging. Many of you have expressed an interest in this project and a willingness to help or provide your services. It is very much appreciated.

Between the last article and this update was a very busy river season. It seems the only extracurricular thing I get done during the season is my laundry. No excuse, just a note on reality. The winter is here and the ball is rolling again. Here is the latest:

Bob Grusy, Bill Karls and I have been communicating, and attempting to divide up priorities and tasks. The Whale Foundation has received some money and we are in the process of setting up accounts.

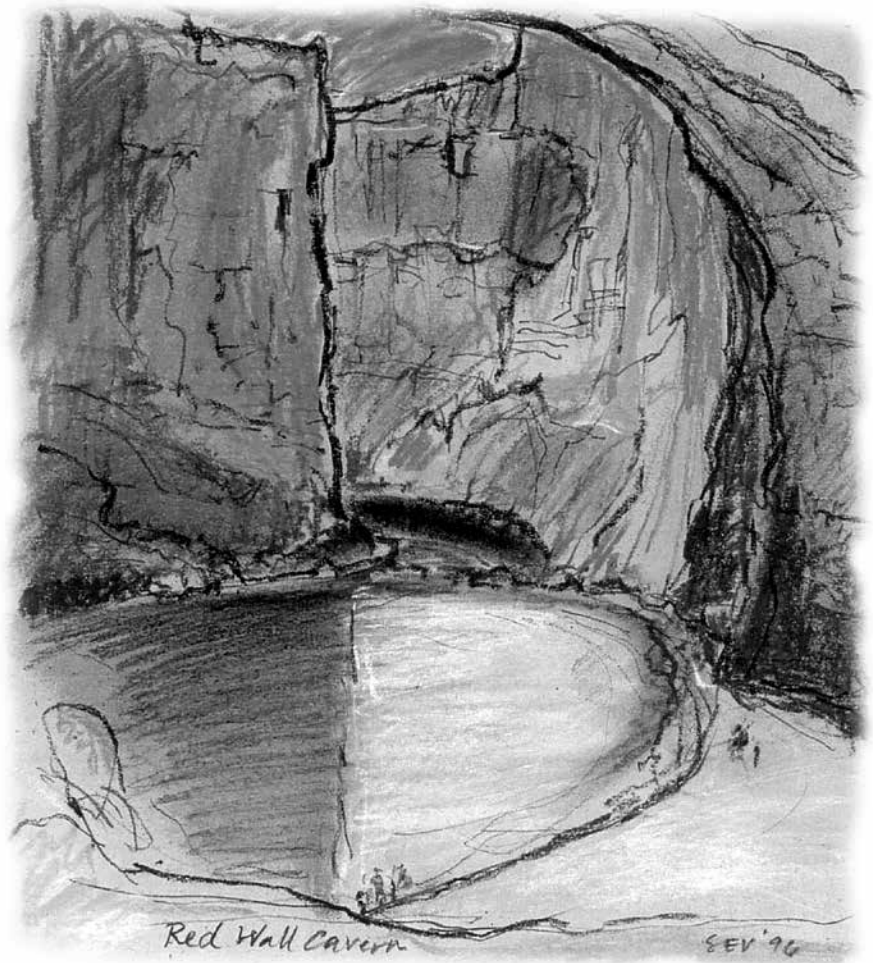
What is the first priority? To set up a mental health awareness and assistance network.

Our immediate goal is to compile a resource directory so individuals can anonymously obtain information on issues such as depression, substance abuse, and other topics. The directory would include national and regional organizations who distribute information via phone, mail, or the internet. Packets of information will also be available through the Whale Foundation.

In addition, the directory would establish a network of phone numbers and contacts for those individuals who want more information, or may want to see a counselor. This will be set up so the individual's anonymity is upheld. We don't want to know who's using these services, we just want them to be utilized. We have had a number of mental health professionals volunteer their services to get this going.

Another idea with potential is a mentorship program. Perhaps there are those within our community who have gone through some of these issues and are willing to share their experience with their peers? Please contact us if this interests you.

Next steps include raising more money, establishing



a Whale Foundation advisory committee, setting up the mailing and counseling services, and after that—setting up the next set of potentially positive goals (career counseling network, financial planning network, etc.).

What can you do? Get in touch with us. I know damn well that there are a lot of people in this community that have much more intelligence and energy than I do, so let's get after it.

So much has happened in the last couple of years. The river business is changing and those of us who are in it need to evolve as well. Some of what has occurred has been good, while other things—such as losing some of our good friends—has not. Yet the memory of those fine folks can inspire us to achieve something great for the future. Here is an opportunity to get involved and make something happen.

Please contact Bob Grusy at thegruse@aol.com or 520/774-4172, Bill Karls at 105433.2077@comp or 970/247-9364, or Robby at robp@edf.org or 510/848-4041.



Robby Pitagora

The Best Life In The World, It's a Hard Act To Follow

What is the path to becoming a river guide? I think it is safe to say that few of us have followed in anybody's footsteps or in anybody else's wake. I dare say there is no routine path to becoming a boatman, or a boatwoman. A few of us may have started out with a waterborne goal, but I think just the planting of that hydroponic seed is a serendipitous act. I hope that all of us feel that just for us to find a suitable fecund pool in which that seed can take root is truly a blessing.

Wherever we go with rivers, there are more up times, emotionally, than down for quite a while. And while the rivers we are running may be metaphorically matched by the wild runs in our lives, life on the river is for the most part an emotional high—adrenaline is the common drug, and it's a natural high.

Many of us find a kind of home on the river, especially those of us fortunate enough to end up on a river like the Colorado through the Grand Canyon, where there is sufficient time and variety of experience and terrain to keep it always new and fresh. The trips are long enough so that the bonds that develop within the crew and passengers can be sufficient to provide ample reward. It's great! It's always different and it is usually good, plenty damned good. In fact, there ain't much better—a steady diet of adventure, excitement, rewards, and acknowledgment. Even the routine is rarely mundane.

So how long can one remain a river guide? Well, you aren't going to get rich unless you are particularly

clever or exceptionally lucky. In fact if you keep at it you are going to have to improvise some unconventional methods just to get ahead, meaning into the nebulous median of middle-class society. So what at first seems like the best of all rides might eventually become a sort of rut, but a pretty fine rut at that.

Depending on how we have looked ahead downstream we may be able to break out of this rut. We may just resign ourselves to this adventuresome path and see where it takes us. Chances are that once we realize that the financial earnings are not sufficient to keep our life styles up to the level of our fantasies, we have to start looking for new paths to find a reasonable alternative or supplement.

But some of us don't make that transition very well, plus the adventures of old don't provide us with as much adrenaline anymore and it takes much more energy to generate the thrills and excitement. This is a sad state to reach without a plan for new alternatives. When our diet has consisted of considerable adrenaline-generating adventures and then we cut that out without providing a healthy substitute, it is going to throw us into an imbalance of spirit.

In addition to the excitement of the river, we have had an appreciative audience of people, our river customers, who tend to be successful in their own walks of life. When we get cut off from this audience our self image can deteriorate. These are the elements of the erosion of self-esteem. If we are not able to find some viable alternatives then our own sense of how we fit into the world becomes very precarious.

Now I'm not saying that we can't be successful river guides late into our lives, but we need to develop some new approaches that still provide for our identity as river guides from a level of energy output that we can sustain, so that our enthusiasm doesn't wane to imperceptible when our passengers need a shot of energy from us. In the short run we can cover for each other when energies are flagging. But what do you do when one of your pards is consistently running on low, when his spark doesn't have the energy in it necessary to keep things running? What can you do? Well, you have to cover for them, but it is going to be apparent pretty quick, if to no one else, then to them. Then their self-esteem erodes.

In my case I was abruptly cut off from the river. This is a tough situation. My brain injury, sustained in an auto accident last winter, has thus far left me sufficiently disabled that I probably will not be able to work again as a river guide. After 25 years of being a boatman this is a pretty harsh severance.

Living a life composed mostly of adrenaline producing experiences where little is contrived, it is difficult to adjust to living our lives where we generate our own emotions that are not the direct result of the experience at hand, particularly excitement. As we move away from a life based



on thrills and adulation it may become more difficult to experience happiness and joy. We are suddenly responsible for creating our own experience rather than just immersing ourselves into it, into the life of a river guide. Eventually it can become our perception that there is less joy in the world and it becomes a more dreary place. This has a particularly deadening effect on a spirit that once knew joy and danced spontaneously. This deadening of the spirit can be emotionally debilitating and eventually can erode the desire to live. Held in comparison to an earlier spirit of enthusiasm and joy, the lack of understanding of the impending transition and the loss of the innate ability to return to the state of bliss can cause one to lose sight of the purpose of living and even anticipate an end: death. Pursued to its logical conclusion, with no deviation, this is the path to suicide.

Many of us may be strangers to the thought of suicide, but the path is more available when there is a suggestion in place. In my case I have a family history of suicide: my maternal grandfather, long before I was born; my older brother when I was 37; and a maternal uncle a year later. Suicide hasn't been a major issue for me, although it has occasionally appeared as an abrupt and easy, but cowardly, escape. Now recently, partially disabled, and cut off from the life of adventure and acknowledgment, my life has looked pretty dreary and I didn't see that I had that much to contribute. So I began to let thoughts of suicide drift in and float around. Of course it depressed me a lot, but like a persistent fly it just wouldn't go away. I finally told my wife about this thought and despite my wild imaginings that my removal would be some sort of relief to her, she convinced me of quite the contrary—she would be devastated. So I decided I had to assure her that I wouldn't resort to this escape.

The one thing that I was still confident in was my capability of giving my word of honor to something. So I promised her that I would not commit suicide. Once I had given her my word to not take this exit then it was no longer a readily available alternative for me.

Now I am making a pointed attempt to expose myself to sources of joy: experiences that are available to me that I remember having given me happiness or a sense of accomplishment. I am careful not to bite off more than I can chew and to put myself in the company of people with whom I am confident I will know success and happiness. I expose myself to chances when I am confident of success or achievement and work myself up to greater and greater challenges. It is important for me to remember the sources of my greatest joys: the natural out-of-doors, and friends.

A long career as a river guide does not lend itself to an easy transition to life's next stages. One possible path leads to depression and even suicide. I don't pretend to have any solutions or even suggestions of how to avoid this terminal path, but I think this is an issue which the guiding community would do well to understand better. The specter of a devastating, potentially terminal, transition may present itself to someone near and dear to us all.



Bob Melville



beyond and below
trumbull's stomping ground
down one fifty onto esplanade
we tramp with heavy packs

west into winter sun
days spent route hounding
side canyons behold old dwellings
chance overhangs showcase pinturas de colour

fremont shamans lived in this,
other worlds
ensuing anasazi, paiute, cowboys
leave root roasters, lithics, flatware

ice clear nites give way
to gemini showers
summer's triangle even lingers still
three seemingly equilateral sky diamonds

topped off by recent rain, melted snow
tinajas offer occasion drinks
few views of yonder river
prove its thick buckskin flow

dysodia's determined inflorescence
bobcat tracks and scat
lone calls of rock wren reaffirm
not all sleep in dormant season

tucking up from the traverse
another sad so long spoken
not without canyon's grand finale
pronghorns flash, dance in the pinion

Rhonda Barbieri

Bill Diamond

This fall the river community lost an Original. Bill Diamond died November 11th. William August Diamond was born Sept 11th, 1932 in Provo, Utah, and moved to Castle Dale, Utah when he was 16. In Castle Dale he worked as a cowboy on surrounding cattle ranches and it was here he met his wife, Patricia. They were married on December 1, 1950 and later at the LDS Temple in St. George. Over the next 8 years Bill worked as a coal miner, a local policeman and an Emery and Carbon County deputy sheriff. Additionally he helped his father-in-law run his cattle ranch and devoted his spare time to teaching himself the art of photography—not just taking the pictures but developing them in his own laboratory. Thus it was that, after an injury in the coal mine, he was well qualified for a position with the Bureau of Reclamation in their photography division and police department. Bill and Pat moved their family to Page, Arizona in December, 1958. His primary duties as a photographer were to take progress photos of Glen Canyon Dam and to record crime scenes. Bill was on the first Page police force, the “Page Rangers,” and was a Coconino and Kane County deputy Sheriff.

With the completion of the dam, Bill continued to work for the Bureau of Reclamation and in 1966 was asked to be the photographer on a trip run by Jerry and Larry Sanderson that included Congressman Tunney of California. His abilities were such that on his second trip in July 1967 he piloted one of the motorized rafts. That trip left with 10 congressmen and their families and included C.B. Morton, Sam Gibbons, and Morris Udall. In a subsequent letter to Floyd Dominy, Commissioner of Reclamation, Mo Udall wrote of Bill’s “...great skills and outstanding judgment... he displayed unusual abilities as a boat pilot, guide and counselor. We believe the Bureau is most fortunate in having a person such as Mr. Diamond in its employ.” Bill’s association with the Bureau was to be short-lived however. With his appetite for the river whetted by those first trips he soon formed

a partnership with Jerry Sanderson as Sanderson River Expeditions. Those early years saw the huge Sierra Club charters, the boom of the early seventies and the crafting of river companies into the professional organizations we recognize today. Bill was a working owner, running over 70 trips in those years. He was instrumental in designing the boats (the S-Rig) frames and equipment that are still used today by a variety of companies.



The year 1978 saw Bill and Jerry divide the company, and acquisition of Harris Boat Trips by the newly formed Diamond River Adventures (DRA). In retrospect this was an extremely bold move during a time of uncertain motor use and other provisions of the Colorado River Management Plan. Throughout this time Bill remained upbeat about the future of commercial river running. To the relief of many he remained true to his vision in the early eighties when he resisted the temptation afforded by Del Webb to become part of a mega-company comprised of Sanderson, Arizona River Runners, Fort Lee and Diamonds. As the eighties became the nineties DRA

matured under Bill’s direction into his ideal: a family business—owned, managed and guided by the family. The sense of family envisioned by Bill and Pat has overflowed to both crew and passengers. Almost from inception DRA has offered high wages, health insurance, profit sharing and Christmas bonuses. Bill was among the first to take on the responsibility of managing 401K plans for employees.

He also built on the idea of “Rat Parties,” originally held at the Sanderson warehouse, then creating 3-day bashes at the Diamond Cabin in Southern Utah. These affairs included family friends, employees, past clients and other outfitters. Later it was the impromptu mid-summer “Pool Parties” at his house which were riotous affairs where Bill would tell improbable river stories that invariably turned out to be true.

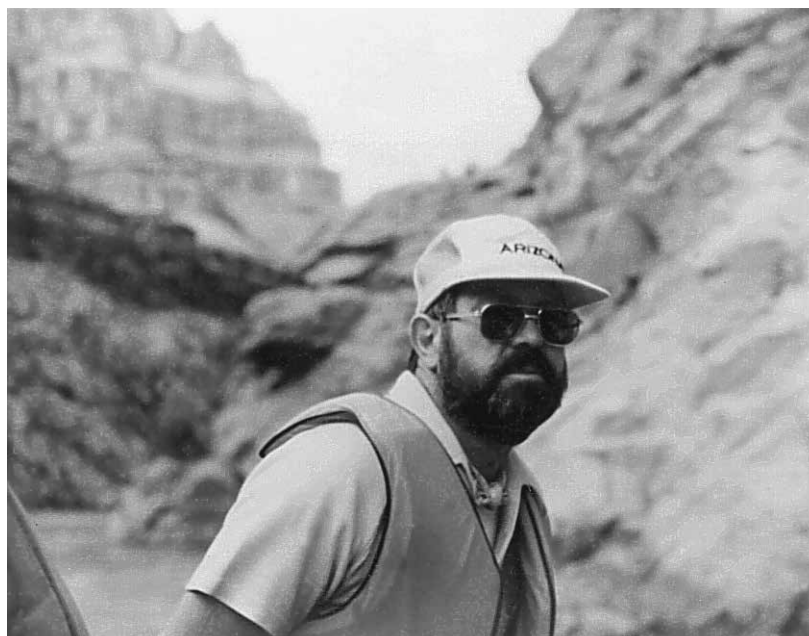
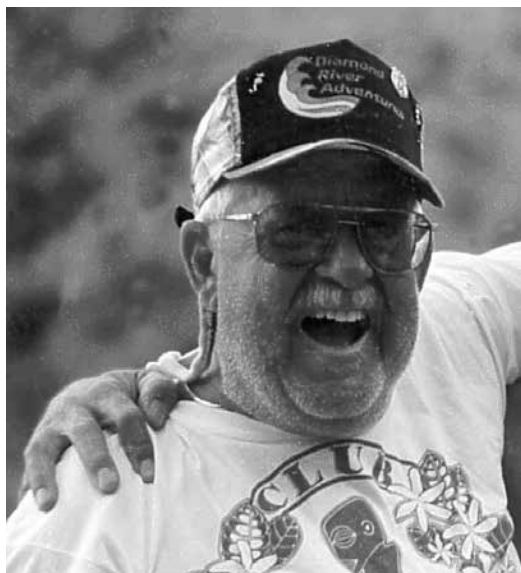
In an era when all river pilots worth their salt had a nickname, Bill’s was S.O.B., testament to the fact that in those wild times someone had to be the hard guy.

To hear Bill tell it however, S.O.B. stood for Sweet Old Bill and so Sweet William was a second moniker. In the nickname lies the truth about Bill Diamond: a tough guy with a heart of gold. A shrewd businessman who asked for more than it was worth but, who would give it away if you really needed it. Bill was a stern, demanding, but fair boss who continually confounded employees with moments of levity. The title Company President was lost on him. Bill often did the jobs that no one could or wanted to do. On any given day you could find him welding frames, sewing straps, watering plants, chauffeuring late arrivals around Page for last minute items or picking up trips at Diamond Creek. After last summer's flash flood stranded the take-out truck at the river it was Bill who had to lay rocks through the creek to get the wrecker to the river. Since his early teens Bill was never without a job, priding himself on being self-sufficient and beholden to no-one. The idea that he might slow down or delegate "dirty" jobs to someone else would never have occurred to him.

Bill Diamond's greatest love was not the Colorado River. His love and inspiration was his wife, children, and grandchildren. Their slightest accomplishments were a source of great pleasure and much bragging. With the passing of this pioneer, however, the river and its community are the poorer. Thankfully, he leaves behind him a legacy and tradition that his family intends to honor and continue through the river company he built. He was loved by many and will be greatly missed.



The Diamond Family



On March 24, 1996, the Canyon lost one of its great admirers. James Gilbert Bayer lost a brief, hard battle with cancer. Bayer, as all of his friends knew him, had a long, intimate affair with the Canyon and the River. He was born on June 8, 1929 in California and thereafter he moved and lived most of his life in Arizona. He spent as much time as he could hiking into the Canyon's depths. In the 1970s he started swamping on river trips with relatives and friends, and he added his own special touch on all trips he was associated with. After swamping a number of years, he was encouraged by his pals to become a boatman and run his own boat. This he did, and again, he added his own special magic, not only to his own trips, but to all trips he came into contact with.

Bayer worked as a guide/leader for Grand Canyon Expeditions through the 1985 season. From this point on, until his untimely death, he continued to hike the Canyon and do private boating trips in the Canyons and the Rivers of the Colorado Plateau. If you knew Bayer, you knew of his gift, and not much more needs to be said. If you did not, hopefully you'll hear a few stories around the campfires.



O'Connor Dale

River Runner/Historian P.T. Runs the Last Rapid

“Pat Reilly is a breed apart. He’s one of the last of the real pioneers, perhaps the best informed person on the human history of the Grand Canyon.” Martin Litton presented those accolades to P.T. “Pat” Reilly in *Where God Lost His Boots*, a 1984 documentary on the Reilly-Litton reunion river trip. Unfortunately, the river runner and historian, who was number 109 on Marston’s lists, ran his last rapid on 14 October 1996 at the age of eighty-five.

Reilly began his boating career on a 1947 Norman Nevills San Juan trip. On his first Grand Canyon run in 1949 with Nevills, Pat was once again a boatman. He claimed he got interested in the historical aspects because Norm’s flare for the dramatic led him to alter history for a good story. In one of P.T.’s last published articles, Utah Historical Quarterly’s *The Lost World of Glen Canyon*, he wrote that “Nevills, tending to add as much color to his trips as possible, elected to call this feature [a large arch 2.3 miles upstream from Glen Canyon Dam] Outlaw Cave, supposedly after a man named Neal Johnson who Nevills said used the place to evade the law... Since this feature was known as Galloway [after Nathaniel Galloway] long before Nevills came on the scene, there is no reason to rename it for a character of imagination.”

One of Pat’s last river trips was as a historical interpreter with Art Gallenson of Grand Canyon Expeditions



P.T. Reilly at the oars, Elizabeth M. Reilly and Joe Szep as passengers. Boulder Narrows, 6/11/57, 120,000 cfs, Dwain “Nort” Norton photo.

in June, 1982. The water wasn’t particularly high that week, and boats became stacked up at Hance on the 15th (with flows anywhere between 3,000 and 8,000 cfs). I was following Michael Denoyer down the river. We had been stalling around all morning waiting for some water; as we slowly motored and drifted to our ultimate fate, we came upon Pat and Art drifting also. In a letter to Denoyer the next month, Pat wrote: “This year at Hance was an eye-opener for me. I never saw so many BFRs exposed, and the 13 rigs and approximately 200 people at the head were more people than I saw in the canyon during my entire career, even including Georgie’s large parties which I saw twice during the late 1950s and early 1960s.”

Reilly led his own non-commercial trips from 1953 to 1964. Although at least three other trips left within days in June 1957, Pat’s was the only oar-powered trip to run on that highest-recorded Colorado River flow of 126,700 cfs. From the 11th to the 16th, when the trip ended at Bright Angel, the entire run of Marble Canyon and part of Grand Canyon had been done at over 114,000 cfs, the highest water ever attempted by oars through these canyons of the Colorado River.

In response to Denoyer’s question about a Dwain “Nort” Norton photo of Pat passing Boulder Narrows on June 11, 1957, he related this observation from his river log: “Tuesday, June 11, 1957 (Volume at LF 122,000; at BA 118,000) ...We play the LH side as we approach



P.T. taking it easy, mile 179.6; 9/22/84, “Where God Lost His Boots” trip.

Boulder Narrows and land in a cove on the edge of the slide. It looks fantastic. The boulder on the LH shore is completely covered and there is a strong eddy, heavy with drift, rolling upstream. The mid-stream boulder is also covered, the log gone from the highpoint and the large RH hole filled in. Higher water has made the RH channel OK and the hole by the RH projecting boulder at the foot is nearly filled in. The water pours over the vertical downstream face of the big point and we watch large logs take this dive and never do see some of them come up. We can see about 10 ft of this hole, but not the bottom. We take pix, then I run LH channel with Susie and Joe. OK. Ship 3" as we crashed large lateral from eddy. This maneuver required nearly a 180 degree pivot in a comparatively short distance. We pull into eddy to photo others as they run..."

The narrator in *Where God Lost His Boots* proclaimed that "the dory is Pat and Martin's legacy." Pat referred to the dory's handling as "you can spin those things like a knob on an outhouse door." Several photographs in this article show the various hard-hulled row boats with which Reilly was involved: the "Norm," a Mexican Hat Expeditions sadiron boat of Nevills' design, 1950; one of Pat's cataract-style boats, 1957; and the *Ticaboo*, a Litton dory, 1984.

Author of enumerable articles and book reviews in scholarly journals such as *Utah Historical Quarterly*, *Journal of Arizona History*, *The Masterkey*, *Cave Notes*, *Plateau*, *Sierra Club Bulletin* and *Dialogue*, Pat also made a 16mm film in 1955-56 with Tom Cox entitled *Below the Rim*. He proofread *In the House of Stone and Light* and *Time and the River Flowing*, the story of the "flush-on-down" Reilly-led river trip in April, 1964, when the Bureau of Reclamation closed the gates at Glen Canyon Dam.

Reilly was willing to share his knowledge of river and canyon history. He also allowed use of his vast photographic image collection and donated copies of his river logs to archival departments at the University of Utah and Northern Arizona University.

The presenters for "*Grand Canyon: The Next Century of Change*" (see that article elsewhere in this issue) dedicated the proceedings to the memory of P.T. and for his willingness to share his notes and photographs of the pre-dam Colorado River. Coordinator Bob Webb said: "I owe P.T. Reilly a great deal, and his passing is a great loss to me." In his *Grand Canyon, a Century of Change*, Webb wrote: "I especially thank P.T. Reilly, who contributed in one way or another to most of the interesting aspects of this work...Reilly graciously loaned photographs (he had) taken that replicated Stanton views or showed other aspects of change in Grand Canyon."

Reilly wrote *Search for the Site of the Hansbrough-Richards Tragedy*, the first sidebar for Webb's book. Pat



P.T. at South Rim headquarters presenting Norman Nevills' life jacket to Supt. Harold C. Bryant, 5/31/50, photo by Asst. Supt. Jim Eden.

had contemplated matching the Brown-Stanton party photograph for several trips. He had a good inkling of the camera location from previous experiences in 25-Mile rapid. In the early 1950s below the rapid "the strong current swiftly carried the boat toward an overhanging cliff on the left...I noticed the strong current as it hit the cliff and plunged downward, and I realized that this probably was the place where Hansbrough and Richards had overturned and lost their lives in 1889." On his 1959 trip, Reilly flipped in 24 1/2-Mile Rapid and floated through 25-Mile. "As the boat and I cleared the rapid, a very strong current caught my legs and straightened them out toward the left wall. I was sure then that I knew how (they) had drowned." "In the 1950s, water higher than that which the Stanton crew had experienced in 1889 prevented my positive identification of the site, but on April 29, 1964, our party landed on a small fan at mile 25.3. I walked directly to the location from which Nims had taken the picture documenting where Hansbrough and Richards had drowned." In regards to flips, Pat quipped: "I know now how a handkerchief goes through a washing machine."

But Pat was not willing to suffer fools. You better have your homework done before you asked questions. He did not easily offer answers to the simple questions, those whose answers should be common knowledge, or at least known with some effort on the part of researchers. Several times a year since 1993, I accompanied Karen Underhill, Head of the Cline Library's Special Collections and Archives, to P.T. and Susie's home in Sun City. On my first visit to look at black and white prints, arranged by river mile, Pat said that every



P.T. in the Norm at mile 238.8 on the Wright-Rigg Mexican Hat Expeditions trip when Ed Hudson's powerboat, the Esmeralda II, was rescued, 7/27/50.

photograph in the set was taken for a purpose. He pulled out one, handed it to me, and then asked what I knew of the photo. I lucked-out by identifying the site of the Hansbrough-Richards drowning. My answer received a "very good," what I figured to be about a "B+"—good enough to be invited back. Pat then informed me of the rest of the answer, the one that would have earned me an "A."

One topic Pat was hesitant to reveal too much information about was Lees Ferry. For two to three decades, researchers have been waiting to read what will turn out to be the seminal work on the Ferry. In two volumes, publishers have been reluctant to publish until it is shortened. Pat's wife of almost fifty-nine years, Elizabeth M. "Susie" Reilly, is now discussing the prospect with another round of publishers. An example of what may be found in the work is that in 1964 P.T. and Susie, assisted by Ranger P.D. Martin, completed what is probably the only survey of the Lees Ferry buildings, buildings that the Park Service demolished in 1967.

From 1947 to 1984, Pat made forty flights over the Colorado, San Juan, and Green rivers and Grand Canyon, sometimes as pilot, sometimes as photographer. March 21, 1955, and again on April 16, 1956, he photographed a large natural bridge on the Sinyala fault, which neither P.T. nor anyone in the plane noticed. On April 26, he discovered Keyhole Bridge while examining the slides. Martin Litton, Bill McGill, and Pat hiked from the river up 140-Mile Canyon to document and photograph the bridge on June 29, 1956, one of the last major geographic discoveries in North America. A rock replica of the bridge found at the top confirmed that, once again, native peoples had visited the area long before explorers, adventurers, and river runners.

Reilly had a good sense of humor and could often be found playing a practical joke. It seemed that there was a certain amount of competition between and amongst that generation of river runners, and one-upmanship was not uncommon. Pat told how Norman Nevills wanted to best Dock Marston. Borrowing one of the Nevills' family skulls from the lodge at Mexican Hat, P.T. took a picture of Norm at South Canyon with the 1934-found skeleton lying on the ground—the photo showing the formally headless skeleton with a new skull. Georgie White was not immune either. Camped at Hance one trip with Georgie camped above, he and Nevills retrieved a broken oar floating in the eddy. P.T. had an idea to fake the oar as belonging to John Wesley Powell. He carefully carved initials and a date in it, prematurely weathered it, and left it in camp to be found by Georgie, who turned it into the Park Service.

Sometimes the competition could be carried a bit far. On Dock Marston's Huntington Library copies of Pat's definitive Desert Magazine articles on E.B. "Hum" Woolley, Dock had cut the author byline out of the pages. But through it all P.T. maintained his respect for the river's history. In late 1951, he met Arthur Sanger at the Los Angeles Adventurer's Club and learned of a previously unknown Colorado River traverse in 1903, led by Woolley and accompanied by Sanger and John King. Reilly alerted Marston, who came down from Berkeley to meet Sanger. Dock and P.T. copied Sanger's log.

A bit of Reilly's philosophy might be revealed from some 1984 quotes: "This is a canyon that is so remote, very remote, beyond your eyesite; it is so remote it could be where God lost his boots." "Relaxing on the river is the easiest thing in the world, as far as I'm concerned. When I'm in the canyon, and I come back, and I find that all the things that have people shook-up like a sackful of chickens don't really matter." "Well, I try to appreciate everything the canyon has to offer, and I know that, and you couldn't do it in ten lifetimes; but you can do the best you can."

River runners and historians of the Colorado River and Grand Canyon will miss P.T. and his vast knowledge. Our condolences to Mrs. Elizabeth M. Reilly, herself number 126 through the Canyon, on the passing of her husband and partner, Pat Reilly. Fortunately, P.T. left a grand and valuable legacy in his published works, research papers, and photographs that all will appreciate for a long time to come.



C.V. Abyssus

All photographs courtesy of the P.T. Reilly Collection, Cline Library, Northern Arizona University. Special thanks for permission to quote and use photographs go to: Mrs. Elizabeth M. Reilly, Cline Library Special Collections and Archives, Dwain "Nort" Norton, and Michael Denoyer.

Adopt A Beach



March 1996, Preflood photo.

Last March the call was sounded...and river guides rallied. The Adopt a Beach program burst out of the starting blocks, following the experimental beach-building “flood” release. We chose 44 sand bar camps in 3 critical reaches—stretches of river where beaches are scarce, highly eroded and/or highly visited: Marble Canyon (RM 8-41), Upper Gorge (RM 75-114), and Muav Gorge (RM 130-167). River guides photographed the beaches and asked questions like: did the beach-building “flood” actually work?, are the new beaches lasting?, and, what changed the beaches afterwards?

Adopt a Beach originated with the idea that the extensive on-the-ground experience of river guides can contribute to scientific and monitoring work on sand bars. This approach connects several loose ends in the broader river community. It enfranchises guides with a sense of investment, knowledge, and participation in canyon science. It gives GCRG a sound basis for advocating policy about river management. Grand Canyon Monitoring and Research Center gains an important source of information. It gives the public direct knowledge of the health of the Canyon’s beaches. In general, we can build bridges between guides, scientists, the public and a place that we are all deeply concerned about. So, how else can *you* participate?

Now, anyone can “adopt” one of our selected Grand Canyon beaches and help support the program by making a tax-deductible contribution of \$100 per year of participation. The contribution shows a personal commitment to the stewardship of a favorite patch of white river sand and to the study. Adopters will receive an annual summary of results including participants. This way, anyone can adopt a beach, by giving a donation and/or volunteering to photograph it. There is no limit to how many people can adopt a particular beach. Contact the GCRG office to sign up.

After it was all said and done, we were able to use 262 photos for our final 1996 evaluation. (Those disposable cameras aren’t so bad after all.) Of the 44 beaches



April 28 Lots of new sand, especially up high. New sand covers much talus. Steep edge toward river, but flat above. Dune in mid-section.



June 15 The beach is getting cut back by the summer fluctuating flows; Flows seem to be cutting more beach away each week. More of a bench is forming in the eddy.

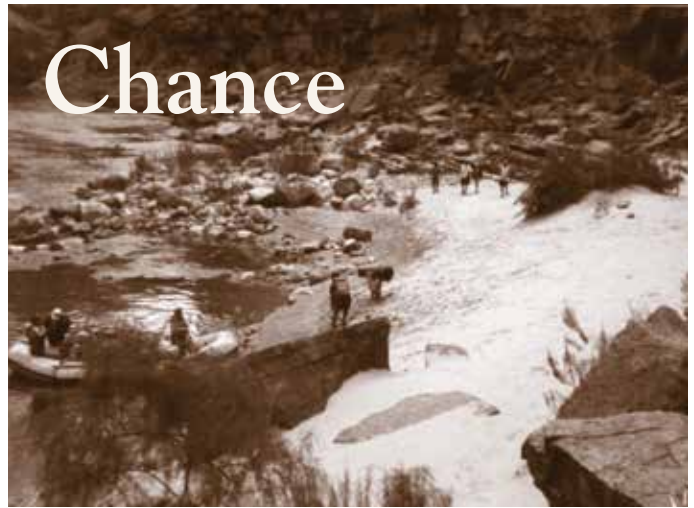


August 23 Now gently sloped with a larger, flat bench in the eddy. Summer flows, wind, and people have contributed to the shape. Easier to camp now. (No change shown in September photo).



Last

March 1996 Preflood photo



Chance

September 9 Smaller beach with more Muav ledges exposed from wind and maybe from people pushing sand downhill. Campability about the same as in July.



April 4 Lots of new sand. Steep beach slope. Muav ledges now covered with sand. Easier to camp because more room.

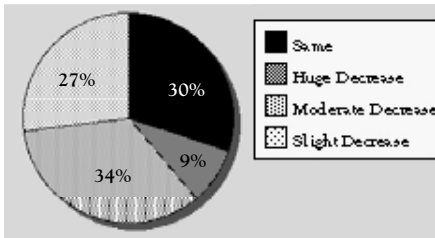


June 21 Beach cut back from fluctuating flows. Flat spot created for kitchen area. Beach has gotten lots of use—sand drifting to river from people traffic. Wind-blown in spots with Muav ledges starting to get exposed. Now easier to camp (less steep).

in our sample set, we ended up with an average of 6 photos per beach, taken from shortly after the spike to mid October. In short, 82% of the beaches gained sand, mostly in vertical relief; 11% stayed about the same; and 7% (3 beaches) lost sand. 110 mile took a pretty hard hit. But other beaches that lost in area, gained in high mounded sand, such as Ross Wheeler and upper National.

For the beaches that increased, guides reported that camping was easier because of the improved quality of beaches, in spite of the tough hike up ubiquitously steep slopes — a small price to pay for many new and improved beaches. By August, most steep slopes and cutbanks had dissolved to attain semi-stable, gentler inclines that afforded easier access.

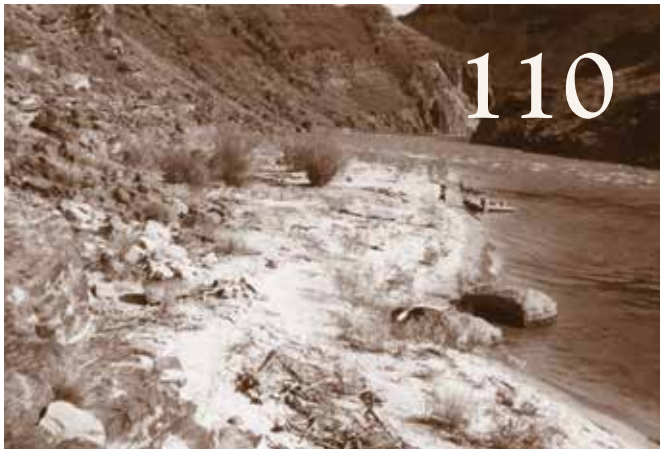
So how did the beaches do through the summer after the spike flow hit them? Thirty percent were able to hang on to their sand with minimal changes, whereas 70% showed some kind of decrease. Out of the beaches that decreased, we identified several forces that were responsible for lost beach sand through the summer. Within the three reaches, 55-71%



end of season progress report

of beaches were noticeably cut back by the summers fluctuating flows of 15,000 to 20,000 cfs. Eighteen to 41% of beaches were visibly impacted by people, resulting in sand being pushed down

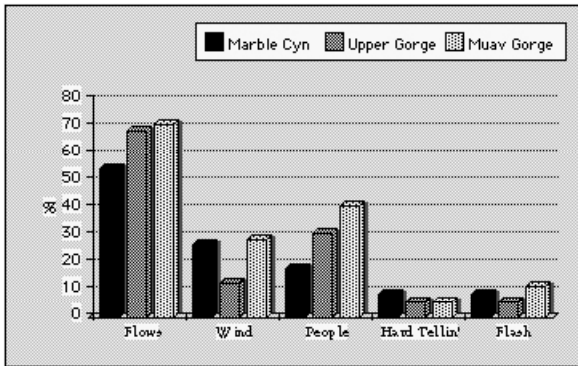
steep slopes. Meanwhile, wind reworked cutbanks, scoured and mounded beach sand on 13-29% of beaches. Flash floods and gullying from rainfall blew out sand on 6-12% of beaches. On less than 10% of beaches, we were at a loss as to why they decreased.



March 1996 Preflood photo

When the relatively high summer flows subsided, 84% of beach fronts remained stable, as reflected by a gentle slope and low-water bench extending into the eddy. Interestingly, many guides reported on the process of gentle beach slopes, alluding that campers were pushing sand downhill. So, not only are we helping to change beach shape, we are ultimately contributing to beach-front stability... merely by loading and unloading boats.

The end result of the 1996 boating season is a net positive gain in sand for over 80% of adopted beaches. The spike had deposited plenty of sand, enough that erosive processes at work this summer could not strip away all that



processes that contributed to beach deterioration

beaches had gained. Only 11% suffered a net loss, mainly from the combination of the spike and summer flows. Nine percent remained or returned to the same old beach as in preflood time.

These were only some of the compiled results. Full results will be displayed at the Guides Training Seminar this spring. We will be looking for more volunteers there, to monitor beaches, and ask the next big question: how will the newly elevated 25,000 cfs maximum flows change the beaches?



Kate Thompson, Andre Potochnik, Kelly Burke



July 7 The spike "reamed" this beach. Where there was once a nice, huge beach is now a cove. Some sand deposited up high. Fluctuating flows have cut beach back more since May. Harder to camp (much smaller)



October 6 Since July, the cutbank has retreated about 2 feet. Cove has filled in more with sand, making a bench in the eddy, which is exposed in the low water.

Beaches you could adopt

Marble Canyon

Badger Salt Wash 19 Mile 20 Mile
North Canyon Indian Dick Silver Grotto
Nautiloid Tatahatso Bishop Buck Farm

Upper Gorge

Nevills Hance Clear Creek Zoroaster Trinity
Salt Creek Schist Camp Boucher Crystal
Lower Tuna Shady Grove Ross Wheeler Bass
110 Mile Upper Garnet Lower Garnet

Muav Gorge

Below Bedrock Galloway Stone Creek 133 Mile
Racetrack Tapeats (mouth) Lower Tapeats Owl Eyes
Backeddy Kanab Olo Matkat Last Chance
First Chance Tuckup Upper National Lower National

River Runners and the Numbers Game

Suppose you spent two weeks traveling half way around the world to be at Grand Canyon for all of 10 minutes. Should you be counted among the 5 million presently visiting the Canyon, or should you have to stay say... at least an hour? How about hikers? Should we only count those who make it to Phantom? Or Indian Gardens?

As for travelers on the river, how should they be counted? If you have over 200 trips in the canyon should you only get credit for your first, and only if it was all the way from Lee's Ferry to Grand Wash Cliffs? Finally, if the mighty Colorado claimed your life during a traverse and became your watery grave, should your presence be acknowledged?

For decades, the year 1949 has been viewed as a somewhat mythical milestone in Grand Canyon River travel. It has been used in multiple reports as the year when river travel in Grand Canyon finally topped one hundred people.

Total? Like most everyone I assumed this number included everybody as it was never annotated to indicate otherwise. Pretty mind-boggling number when one considers that twenty-some thousand (I'm getting ahead of myself) are going in a given year now. I also assumed that it was completely schist solid accurate. Untouchable. After all, it came from the guru of Colorado River historian gurus, Otis "Dock" Marston, the indefatigable river lore packrat, (to whom I feel

deeply grateful for his foresight, motivation and perseverance toward his invaluable contribution to our historical understanding of river running in the canyon). And out of no disrespect for Dock, it was never actually an intention to challenge, or discount this figure. It just sort of happened.

A few years ago, I got curious about the fatality rate of river running in Grand Canyon. So, I just started counting numbers. First, I tried to track down every river running related fatality known to have occurred within Grand Canyon boundaries as we know them. Then, I took my numbers of deaths, and divided it by numbers of travelers per Marston's list, the only list I knew of. After a while, it dawned on me; the numbers didn't add up. Much to my surprise, I found none of the people who died were counted on his list, and that wasn't all. Neither was anyone who didn't make the full traverse from Lee's Ferry to Grand Wash Cliffs, and he gave you credit for your first trip only, even if you made multiple traverses. Subsequently, he left off a lot of people. For example, Norman Nevills, despite seven traverses by 1949, was only credited for one. Among those completely excluded were the Howlands and Dunn from Powell's first trip, Powell's entire second trip, Stanton's entire first trip, and Glen and Bessie Hyde. Why? Seemed pretty exclusive and misleading, and even unfair. I mean gee whiz, if you died there, you at least should've been counted as having *been* there. Well, there are probably several reasons Dock did it this way. First, it's tough to get full numbers of everybody. Second, he may have looked at a full traverse kinda like reaching the summit of a mountain. Anything less, didn't count even if the last 40 miles of it had to be on Lake Mead (Ironically, Howlands and Dunn had actually gone further on the wild Colorado than Marston, all the way to Separation Rapid, which was under Lake Mead by Marston's first trip, but he still didn't give them credit). Finally, and probably most importantly, it was the only way Marston could've been counted in his own honorary "First One Hundred" list of river travelers.

Right or wrong, I started making my own list, and initially, it wasn't too hard. However, after exhausting the common, accessible sources, things changed. Reliable accounts became more obscure and harder to find, especially if you didn't know they existed in the first place. Fortunately, I found Richard Quartaroli. Richard is research librarian for Glen Canyon Environmental Studies and had been working on a historical list as well. Together, we were able to collaborate to get historical numbers together. And they kept pouring in at first, from old trip logs like P.T. Reilly's, to newspaper accounts of little known traverses forwarded



to us from Diane Grua at NAU Special Collections. After a while, we felt we had gotten a pretty darn close to the total numbers of historical river travelers, at least to about 1951. Much to our surprise, it turned out the river was a much busier place than is widely believed. About three times busier at that. In fact, total travelers topped 100 by 1914, and 300 by 1949. And although Dock only considered 12 of the 45 river runners from '49 for his exclusive list, he sort of indirectly acknowledged the presence of the others, albeit somewhat less glamorously, by suggesting a stoplight for the river in 1950. By the mid 1950s as numbers of travelers increased, and more people were leaving and joining trips from different locations, even indefatigable Dock fagged out on keeping his list going. That's when the Park Service took over, and they continued to count numbers similarly to Dock, at least for a while. As the fledgling river travel industry matured and river use skyrocketed into thousands in the late 1960s, the NPS realized more accurate tabulation was necessary to monitor use. So in 1967 separate distinction was made between commercial passengers and crew, and noncommercial (private) river runners, and in 1970, the "user day" system was established. From my perspective, this really didn't matter much because I still just simply needed totals. At that point it also seemed pretty ridiculous to worry about a few dozen travelers or even a hundred or two with the kinds of numbers that were now popping up. So, with a sigh of relief, I felt the job was pretty much done, and it was just a simple matter of addition. By this time I had also fortunately managed to beg Larry Stevens and Chris Becker to help me out (and they foolishly agreed), as well as co-authoring a monumental, painstaking study incorporating river injuries too. Well, unfortunately, we did a mountain of statistics using NPS reported numbers of "total recreational users" (currently at over 23,000 per year), before we discovered this didn't include everybody. "Recreational users" make up only commercial and "private" noncommercial passengers. So who's left? "Non-recreational users" of course, who are: commercial crew (guides), NPS related personnel, (administrative, patrol, resource etc.), researchers (GCES, USGS, etc.), and "other" (i.e. special use). Nonetheless, as we still needed totals to give our fatality and injury rates any sort of validity, it was necessary to continue to pester Susan Cherry of the NPS River Office for the numbers on these individuals as well. Fortunately, she patiently obliged. Surprisingly, when it was all said and done, we found that total river travelers actually surpassed 27,600 in 1991, and nearly a half million people made trips in the last 25 years alone. No wonder it seems crowded.

Anyhow, the good news is we were able to come up with the fatality rate, and it's low (another long story). As for the total numbers of river travelers, it was nice to clear the water somewhat. And while I'm sure that

numbers like Dock's 100 by '49, and his "First One Hundred" list will always be around, out of respect for the adventurers and explorers who were there but weren't counted, especially for those who lost their lives along the way, I think they deserve at least a footnote.



Tom Myers, MD
Grand Canyon Clinic

Table of River Travelers on the Colorado in Grand Canyon

Year	#	Year	#	
Pre-Dam Travel				(numbers in parentheses) from a list compiled by Otis R. Marston. Only includes individuals on their first, full traverse of Grand Canyon from Lee's Ferry (RM O) to Grand Wash Cliffs (RM 276.3), (i.e. excludes fatality victims or other shorter trips, or credit for multiple traverses).
1864	4	1958	80	
1867 ¹	*	1959	120	
1869	9 (6)	1960	205	
1871	27	1961	255	
1872	11	1962	372	
1889	8			
1890	13 (7)	TOTAL 1,782		
1895	4	Post-dam Travel		
1896	2 (2)	1963 ³	8	
1897	2 (2)	1964	38	
1903	3 (3)	1965	547	
1904	3	1966	1,067	
1908	2 (2)	1967	2,099	
1909	4 (4)	1968	3,609	
1912	5 (2)	1969	6,019	
1914	4	1970	9,935	
1915	5	1971	10,885	
1923	13 (9)	1972	16,432	
1927	27 (13)	1973	15,219	
1928	8	1974	14,253	
1931	7	1975	13,640	
1934	11 (7)	1976	13,097	
1935	7	1977	11,038	
1937	8 (6)	1978	13,325	
1938	12 (8)	1979	13,789	
1939	6 (3)	1980	17,155	
1940	15 (7)	1981	19,599	
1941	13 (4)	1982	19,658	
1942	21 (8)	1983	17,857	
1943	3	1984	18,532	
1944	6	1985	21,174	
1945	2	1986	24,499	
1946	3	1987	23,960	
1947	7 (4)	1988	25,386	
1948	15 (6)	1989	25,734	
1949	45 (12)	1990	26,095	
1950	24 (7)	1991	27,606	
1951	44 (29)	1992	27,008	
1952 ²	20 (19)	1993	27,758	
1953	40 (31)	1994	27,182	
1954	27 (21)	1995	27,649	
1955	70	TOTAL 521,852		
1956	55			
1957	135			

¹ James White claimed to have floated the Grand Canyon on a makeshift log raft. Stanton (1892) refuted this contention and asserted White more likely began his trip at Grapevine Wash (RM 279), outside of Grand Canyon boundaries.

² Data from 1952 to 1962 remains somewhat incomplete due to lack of reliable data on repeat travelers, and individuals joining and leaving trips prior to take out. It is presumed that actual numbers are higher.

³ Glen Canyon Dam officially closed its gates on March 12th 1963. Subsequent flows were so low, river use dropped drastically.

Girls Grill Golden Brown Pork Chops Where Hyde Party Stretched Meager Passions

Girls grill golden brown pork chops where Powell party stretched meager rations.

RON SMITH



Many of us grew up on the river with the old blue Belknap guide and it's terse little captions of various photos. For some entirely unknown reason, one in particular seems to have wedged itself into many of our so-called brains: The girls grilling golden brown porkchops.

Turns out that was Loie Belknap doing the grilling back in October of '66. Last October Loie, now Loie Evans, cooked a trip for us and we figured, what with the current rephotography craze, that we owed it to posterity to re-photograph the chop shot. We had narrowed it down to somewhere below Havasu, and I was sent ahead to try and find the spot.

Now it also turns out that I had been on a sweep scow trip a few weeks earlier where we reshot an old Glen & Bessie Hyde photo on an obscure sand spit below Tuckup. It's the furthest downstream of any of the identifiable Hyde

photo sites, and although it doesn't really tell us what became of the Hydes, they did take turns photographing each other on the scow. So maybe they were still speaking. No one really knows what happened after that.

So there I was, floating along with the Belknap guide open to the golden brown girls, watching the distant horizons slowly fall into place until finally it clicked in. It wasn't just somewhere near the Hyde photo spot. It was the exact spot. Like within a foot. Just looking in different directions.

Coincidence? You figure it out.

Brad Dimock



above, (downstream):
Kenton Garva's match, with Loie and her daughter Lynn, 22. Another coincidence? (thanks to Hance Associates for creative printing)

below, (upstream):
Jeri Ledbetter on a warm August morning, 1996

background:
Computer scan of an actual golden brown porkchop, grilled by the girls, 1996. You can almost taste it.

above, (downstream):
Ron Smith's original shot, with Loie, 22, and Sheila Smith.

below, (upstream):
Bessie Hyde on a cold November day, 1928

(photo courtesy Emery Kolb Collection, Northern Arizona University Cline Library photo # 568-4015)



Transition: GCES to GCMRC

As the Fall 1996 bqr stated, Glen Canyon Environmental Studies (GCES) has finished leading research efforts on the Colorado River through Glen and Grand Canyons, and ceased to exist as of 23 November 1996, just short of its 14th anniversary (6 December). Some of the former GCES staff have temporarily joined the new Grand Canyon Monitoring and Research Center (GCMRC), but are still located at the old offices. Dave Wegner, GCES Program Manager, has resigned from the Bureau of Reclamation effective 31 December 1996, and founded EMI (Ecological Management International), a private consulting firm (124 N. San Francisco St., Suite G, Flagstaff, 779-5350). L. David Garrett is the GCMRC Chief and is located at the US Geological Survey (2255 N. Gemini Dr., Building 3, Room 343, Flagstaff AZ 86001, 520-556-7095).

One might wonder why this occurred. The Glen Canyon Dam Final Environmental Impact Statement (EIS) proposed several organizational elements. Item 1 stated: "To support the designee and the AMWG (Adaptive Management Work Group), it is recommended that the Secretary (of the Interior) establish a research center within the U.S. Geological Survey (USGS) and/or National Biological Service (NBS) with a small permanent staff in Flagstaff, Arizona. The center would be responsible for developing the annual monitoring and research plan, managing all adaptive management research programs, and managing all data collected as part of those programs. All adaptive management research programs would be coordinated through the center." When Secretary Babbitt signed the Record of Decision, 9 October 1996, GCMRC became legally mandated although it had been operational for about a year.

Organizationally, GCMRC is a bit convoluted. Since it was established by the Secretary of the Interior, it is under the Assistant Secretary for Water and Science. Dave Garrett's programs answer to the Secretary's office, but he is supervised by Dr. Finn, chief of the Biological Resources Division of USGS. All of the employees in GCMRC are hired into the Upper Colorado Region, Salt Lake City, of the Bureau of Reclamation, as GCMRC staff, because the Bureau administers all program options for the new center.

What is important is that long-term monitoring and adaptive management research will continue along the Colorado River corridor through Glen and Grand canyons. Most of the researchers and boatmen will look familiar. The staff for the center will include some new people as well as many employees of GCES. All past research of GCES will be incorporated into GCMRC through special synthesis program plans for 1997-1999. These results will then be evaluated for application to other western riverine corridors.

Dave Garrett, Chief, GCMRC
Richard Quartaroli, Research Librarian



Dave Wegner's Bureau of Reclamation career has concluded with his resignation and a disconcerting amount of flying mud. The Glen Canyon Dam EIS project which he directed for 13 years has shut down as planned, although the transition into the Grand Canyon Monitoring and Research Center (GCMRC) was not as smooth as we might have hoped. Wegner's parting remarks about the bureau and the transition process received national press and raised a lot of eyebrows. His comments, although somewhat sensationalized and taken out of context as newspaper reporters can often do, reflect his passion for the Canyon, his concern for the data collected over the past 13 years, and his desire to see what we have learned from it put to use.

Poised at the crossroads, we desperately want the new river management process to succeed and move forward. In his new position, Dave Garrett faces a daunting task. We cannot afford to allow the vast wealth of knowledge of the GCDEIS scientists to scatter to the winds. The new administrators at the GCMRC need the support and commitment of all those involved with the Adaptive Management Workgroup of which we are a part.

It is appropriate for us to acknowledge, however, how far we have traveled in the past 13 years, evidenced in part by this spring's Flood flow; downstream resources have been recognized as a priority within the Bureau of Reclamation. This has been no small feat, and could not have been accomplished without Wegner's unrelenting devotion to doing the job right, no matter the consequence. The consequences have clearly been great.

In the early Reagan/Bush years of the GCDEIS, Wegner proved himself to be an amazingly resilient political survivor. He was actually *finding* downstream impacts of dam operations, which was the last thing some powerful individuals wanted back then. At one point his job description was terminated, with a new description put in place. Although many expected that would be the last of Dave Wegner, he reappeared in the new position, apparently unscathed. That ability to survive the powerful political winds was absolutely vital to implementing interim flows, producing the EIS, orchestrating this spring's flood flow, and obtaining the Record of Decision. Whether you agree with the outcome or not, we must all agree that what we have is definitely better than what we once had.

Working within a sparse, low budget office behind a cheap steel desk piled high with reports, Wegner demonstrated an uncompromising dedication to the Grand Canyon and to the science that would help protect it. But during the past 13 years, Wegner had to step on a lot of very large toes. This fall as he was shunted away from Grand Canyon—and even away from any position involving downstream effects of dams—he stomped on a few more. We will undoubtedly see more of Dave Wegner, albeit perhaps not with the Bureau of Reclamation. We wish him the best.

Jeri Ledbetter



“...recovering hippies and river rats...”

On November 6, 1996, NAU's Cline Library hosted *Grand Canyon: The Next Century of Change*, a book signing and series of presentations. The Daily Sun reported that “(a)bout 100, most of them middle-aged scientists who looked suspiciously like recovering hippies and river rats, showed up.”

US Geological Survey authors Bob Webb, Ted Melis, and Michael Collier autographed their latest publications—*Grand Canyon: A Century of Change*; *When the Blue-Green Waters Turn Red: Historical Flooding in Havasu Creek, Arizona*; and *Dams and Rivers: A Primer on the Downstream Effects of Dams*. Presentations by the authors and Dave Wegner and Larry Stevens of Glen Canyon Environmental Studies, Lew Steiger of Grand Canyon River Guides, and Tom Moody of Grand Canyon Trust followed. Here are some excerpts of their talks that night.

Karen Underhill, NAU Cline Library, Special Collections and Archives, opened with a dedication of the proceedings to P.T. “Pat” Reilly, Canyon and River historian, who “ran the last rapid” the prior month. Many current researchers had conferred with Reilly concerning his record of the River in pre-dam days, and Webb and Melis have used P.T.’s visual images extensively in their rephotographic work. Underhill compared the Grand Canyon to the three elements in the classic definition of an archives: “It is a physical place, which is unsurpassed in beauty. It offers natural materials which document the development of our world, literally from the day the earth cooled until the present, and manufactured materials which chronicle human history. Last but not least, an assortment of programs have been established with the mission of preserving this treasure for humankind.”

Bob Webb

When you look through these books of old photographs, you look at them with some longing, with some history. You could almost walk inside those photos and be there. As much as I would like to go back into those old photos, and as much as I would like to say that we could recreate that Grand Canyon, we cannot. If we took that dam away, we wouldn't get back what's in those photographs. We'd get back something different; a hybrid of things. We'd have bigger sand bars, but the tamarisk would still be there; and we'd not get back those endangered fish, for example. We need to live with what we've got. We have a major hydroelectric structure across this river. We can't let this structure be operated the way it has in the past, where there's absolutely no concern with what's going on downstream. My

vision of Grand Canyon, fifty or one hundred years from now, is, in order to get certain things back, in order to stabilize the system that has certain values that we all appreciate as part of one of the premier national parks in this country, we're going to need to do several things: more frequent floods through the Grand Canyon; we need to put some sediment back into the river, and we need to think about how to do that. So, we're going to have to go beyond and modify some of the ways that the dam is being operated and some of the structural elements of it. But at least we can have some of the things back that those old timers experienced.

Ted Melis

The tributaries impose greater control on this river than nature did before the dam or than man does after the dam. Each debris flow that occurs now from these tributaries has a greater impact on the mainstem than it ever did before. The challenge is to think about the future in a global climate change environment, where debris flows are occurring more frequently than ever before, a regulated river that is no longer able to modify those rapids and flush away that material, and what are the long-term effects on the ecosystem: mainstem productivity, fisheries habitat, sediment storage. I maintain that in a hundred years we may not recognize this river at all because it's so absolutely changed by these debris flows, that until very recently nobody paid much attention to. We may see radical changes in the sediment inputs from the Paria and the LCR to such an extent that portions of Marble Canyon would be blocked by silt bars that would make it difficult to boat. This would fly in the face of everything that we've come to think of in terms of Marble Canyon being sediment (deprived). That could change in a few years to a decade as we move into another erosional cycle. There was something different going on in the Colorado River drainage in the late 19th century/early 20th century, and whatever that was, whatever was driving it, whether it was human impact or climate, seemed to abruptly end sometime around 1940. I maintain that could turn around again tomorrow, it could turn around again in twenty years, in fifty years, and we could have a totally different system modified by tributary inputs alone, regardless of human impacts and regulation by the dam.

Dave Wegner

Dams and natural river ecosystems do not mix! Rivers are dynamic and vibrant environments that flow with the intrinsic power of life, are the arteries that define

and support the tapestry of the landscape itself. Rivers are not meant to be man constrained, choked, or limited in their ability to respond to the dynamic environment that gave birth to them. Dams fragment the rivers to a point that now entire ecosystems and species are either threatened or lost. This is wrong. It is somewhat ironic, but without science and without data we could not prove the obvious. Dams, while temporarily good for humans, spell doom and destruction for the natural and dynamic nature of rivers. Science and scientists must be active parts of the future management of the Colorado River. These authors and their books provide the ability to enlist you, the public, in making the scientific voice heard above the bureaucracy and the bull shit. Scientists must speak up.

Michael Collier

I think that in years to come we're going to realize that one of the best results that the flood of '96 had was on other rivers beyond the Grand Canyon. Each river is different: Platte River, Rio Grande, Snake River, Green River. The science that has come out of the Grand Canyon in the last thirteen years, or the Steve Carothers years before that, will go beyond just Grand Canyon. Taking an intelligent look at not just the single use of generating electricity or creating floods will call for a set of prioritizations that are difficult to make, but worthwhile to attempt. I'd like to finish with one paragraph out of my publication on dams and rivers:

We should not confuse the role of scientists with those of engineers or politicians. Nevertheless, no one works in a vacuum. Our ideas and observations will be put to test, not just in the rarefied atmosphere of academic science, but integrated into the very real world that runs according to cost per kilowatt-hour, water rights, and mandated protection of the natural environment. Scientists dealing with the downstream effects of dams—at levels ranging from basic research to applied engineering—must formulate questions whose answers can ultimately make a difference. To strive for anything less is to be just another bureaucrat.

Lew Steiger

We ought to come up with a better way to manage the flow of people. The biggest heartbreak is that the user-day system—how we count heads and decide who gets to go down there—isn't ideal; it was designed for different circumstances. When we start looking at Grand Canyon in century-sized bites, from Stanton to today is a pretty big increase in river traffic. The traffic of humans, when I try to look ahead to 2096, I just wonder if the system we have right now in place this instant is adequate to the task.

We all, collectively, would do well to address that side of things in the very near future, when the Colorado

River Management Plan comes up for review. What do we do with the user-day system? What about wilderness designation for as much of the Canyon as possible? What do we do about overall traffic into the next century? Thinking about those thorny and very different issues now is the least we can do, just for all the people and all the living things that will be following in our footsteps.

What's cool is making the mental leap, when I think about Grand Canyon characters—when I think about Robert Brewster Stanton and what he knew and what he dreamed of when he started and then to make that leap and coming all that incredibly long and comic and tragic and occasionally inspiring way that we've come as a culture to arrive in this room tonight... I think it's cause for a fair share of optimism where the future is concerned, too.

Tom Moody

One term we use for far-reaching looks into the future is 'vision;' for visions give us more than simply a prediction of future events, they give us a target on which to aim, a path to follow. They do more than forecast the future: they influence it, giving hope, inspiration, and guidance to those who embrace it; they look past what we can reasonably infer from our knowledge of the past and of the present. I suggest that we consider such a



vision for the Colorado River forty years in the future.

The year is 2036 and it's spring. The Colorado River is raging by, and it's very different from what we see today. The twin vectors of economics and environment, that historically conflict, have now come together along a similar path. The consequence is that the quality of life long measured in economic terms is now also measured in the state of the environment that surrounds society. A high value has been placed on free-flowing rivers and natural ecosystems and restoration efforts on river systems are under way all around the country. Concurrently, rising environmental consequences of controlled rivers has radically changed the cost/benefit ratio of these large dams. There are no more large dams on the Colorado River. The flood is about 130,000 cubic feet per second, the largest in 40 years; and there are thousands who have come to see it. People up and down the river are rejoicing, celebrating the anticipated good and bountiful harvest from the sediments that will be deposited on the flood plains that they now farm. The flood is expected to recharge aquifers throughout the basin. Thousands of tons of sediment accumulating in Glen Canyon are also heading downstream to redeposit upon the beaches in Grand Canyon and beyond. The river is in balance.

A remote possibility? Possibly, but not unlikely. This represents a departure, but the power of a vision lies in the fact that the future is composed of more than simply a progression of the past and present. One of the things that we carry to other river systems is an understanding that all things will change. Guides on the river watched the fluctuating clear, cold water move past with no hint, no clue, no hope that these things could change. But it did. It was not an easy task, but fundamental changes have taken place in the operations of Glen Canyon Dam and our outlook on the river. There's no reason to believe that it's not going to continue.

Forty years is actually a long time to look ahead. Stanton could not have visualized Boulder Dam being completed in 1933. In 1923, few could have visualized Glen Canyon Dam. Whether or not the vision presented this evening comes to pass, the future of the Colorado River will be very different from what we see today. Its shape depends more on decisions that lie before us than on those that lie behind.

Larry Stevens

Unfortunately, (pre-Glen Canyon Dam) photographs do not show us how much the Colorado River's aquatic food base and fish had already changed by A.D. 1900. By 1911, carp and catfish dominated the lower Colorado River. Spencer Johnson reported that Colorado squawfish runs ceased at Lees Ferry in 1929, as construction began on Hoover Dam. Introduction of non-native plants, such as tamarisk, altered the vegetation assem-

blage in the 1920's.

The 1995 EIS resolved the value of Glen Canyon Dam to society. Despite recent, well-intended discussions about draining Lake Powell and dismantling the dam, you and I and 34,000 other members of the American public decided through that EIS process to maintain and operate Glen Canyon Dam in perpetuity, while simultaneously trying to improve the integrity of the downstream ecosystem. I think most of the world wants this to be a healthy, appropriately functioning ecosystem, one which supports its unique species and physical processes. However, the public is largely ignorant of the extent of ecological changes, and of the dangers associated with trying to return to the pristine condition.

I suggest that management of the Colorado River in Grand Canyon for the pristine, "natural" condition is inappropriate: 1) we know little of the pre-dam food webs and native fisheries; 2) the basic process of flow frequency, sediment transport, and temperature variation have been interrupted by upstream dams; 3) the post-dam river supports many new and valued populations of native species; and 4) (even though) the confluence of the Green and Colorado rivers, along with Cataract Canyon, provide the only large reaches of the Colorado River system that can serve as scientific controls against which to measure change in the Grand Canyon, the native fish in those reaches are in serious trouble—Glen Canyon Dam may well be protecting the remaining native fish in Grand Canyon from intense competitive pressures from warm-water native species. Also, tamarisk and other non-native plant populations are actively reproducing along the lower Green River, while the tamarisk population along the mainstream in Grand Canyon is largely in a decadent, nonreproducing condition.

Thus, management of the Colorado River for its "natural" condition is not possible, it is not best, and it is not feasible. Pursuit of the "manage-for-natural" strategy in Grand Canyon is blind romanticism that can only further damage the integrity of the remaining river ecosystem, and will further threaten regional biodiversity.

I am not in favor of dams on rivers. However, nearly all rivers in this country are regulated, and it is time we began assessing the long-term economic and environmental costs of these ecological alterations. There is no return to the mythological pristine condition, but there can be sensible management of existing resources and landscapes to preserve that which remain.

C.V. Abyssus



Contact Diane Grua, Cline Library Special Collections and Archives, to view a videotape of the presentations.

Glen Canyon Temperature Control Studies

Prior to construction of Glen Canyon Dam, the Colorado River would warm seasonally from near freezing to about 85°F. Since construction of the dam, cold water (about 50°F) has been drawn year round from the depths of Lake Powell through fixed level intakes and then released downstream. Near the dam, these cold releases are tolerated by the (non-native) trout fishery, but are below optimal. As the water moves further downstream, it warms to about 60°F, but this is not quite warm enough to allow endangered warm water fish (humpback chub) to reproduce in the mainstem of the Colorado River.

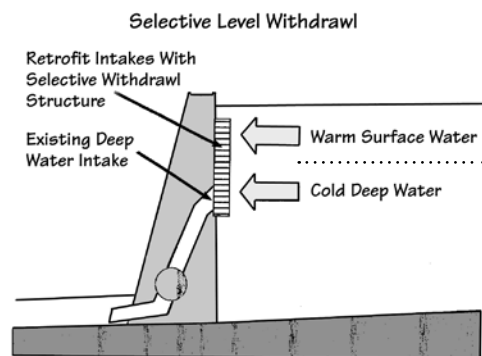
In their biological opinion on the operation of Glen Canyon Dam, the U.S. Fish and Wildlife Service recommended that temperature controls at the dam be investigated by Reclamation. Increasing the dam's discharge temperature is believed to be a key element in the recovery of native fish (humpback chub) near the Little Colorado River. Reclamation agreed to study the feasibility of temperature controls in its EIS on the operation of Glen Canyon Dam.

To appreciate the interest in temperature controls, one has only to look upstream at another major dam in the system. Much like Glen Canyon Dam, discharge temperatures from Flaming Gorge Dam were cold and steady before temperature controls were installed in 1978. After the dam was retrofitted with a selective level withdrawal structure, release temperatures in the summer were increased from 50°F to a peak of nearly 70°F.

The addition of temperature controls at Flaming Gorge Dam has had a remarkable impact on the river system below the dam. Trout growth rates immediately below the dam have increased significantly in response to the warmer water. At the same time, native fish are doing better downstream (in the reach near the Yampa River). In their 1981 report on macroinvertebrates and fish populations above the mouth of the Yampa River, Paul Holden and Larry Crist of BIO/WEST concluded that, "The outlet modification of Flaming Gorge was expected to increase downstream water temperatures during spring, summer, and fall periods, which it did. This caused the Green River above the mouth of the Yampa River to follow a more natural yearly temperature regime. This in turn created conditions acceptable to more benthic invertebrate taxa, because [temperature] cues for life history

development were present. Increased diversity, due to a more equitable distribution of abundance among taxa, was a significant result." They went on to observe that diversity and reproductive success of warm water fish increased near the mouth of the Yampa River while cold water species declined in abundance and predominance. In many ways, the situation and problems at Glen Canyon Dam appear to be remarkably similar to those at Flaming Gorge Dam.

Preliminary work done by Reclamation on temperature controls for Glen Canyon Dam suggests that releases from the dam could be warmed in July, August, and September. During the warmest part of the season, release temperatures might be increased by up to about 18°F (release temperature would be up to about 68°F). Much as they did at Flaming Gorge, these warmer releases are expected to improve growth rates for the cold water sport fishery immediately below the dam. Then, as the water moves downstream to the vicinity of the Little Colorado River, it would warm enough to support recruitment of young native fish. Warmer summer flows may also increase the biodiversity of the invertebrate population by providing seasonal temperature cues, but may cause some potential adverse impacts that need to be investigated. For example, warm water released from the reservoir caused Flaming Gorge Reservoir to cool. Lake Powell is larger and may not have this problem, but if it does, it may impact the lake's forage fish which are sensitive to winter temperatures. Another concern is that warmer water in the lower reaches of the river may allow non-native (warm water) fish to compete with native fish. There may be ways to deal with these problems. These and other potential impacts will be studied in detail over the next several years.



more work will follow. The two studies include: (1) temperature modeling of the river/reservoir system and (2) a study to look at how warm water releases might impact the productivity of the river below the dam. These studies should be completed in 1997. In 1998, Reclamation plans to begin an environmental assessment of the potential impacts, costs, and benefits of the facility and its operation.

David Trueman, Program Manager
Bureau of Reclamation



The Monkey Wrench Superintendent

A dam is ruining one of America's greatest rivers. Though the river was supposed to be protected by a park, the dam was built and operated in complete disregard for its consequences to the park. Irregular water levels are damaging the ecosystem and camping beaches. Encouraged by a prominent conservationist named Brower, who believes passionately that the river ought to run free, the park's superintendent, a beautiful 24 year old woman, obtains a court injunction ordering the draining of the reservoir. When she strides onto the dam and orders the spillways opened, the dam authorities point a rifle at her and warn her that if she touches the control valves, they will shoot her...

This isn't the wishful plot of some unpublished Edward Abbey novel. It's a page of American history that has been nearly forgotten. This story, which happened a century ago, has remarkable parallels with our own experience with Glen Canyon Dam. The extraordinary woman at the center of this story deserves to be a hero of Grand Canyon river guides and people everywhere who believe in the value of wild rivers.

The river in this story is the Mississippi. For 350 years after Hernando de Soto became the first European to see the Mississippi, the river's source remained a mystery. Minnesota's intricately interconnected lakes, plus the fact that the infant river was small and flowed north instead of south, caused much confusion and debate. Only in 1889 was Lake Itasca in northern Minnesota proven to be the source by the expedition of Jacob Brower.

Jacob Brower may not have been an ancestor of David Brower, the Sierra Club leader who in the 1960s prevented Grand Canyon from being dammed, but they are certainly kindred spirits. At age 21, during the Civil War, Jacob Brower discovered the grandeur of the Mississippi River when he traveled from his home in central Minnesota to serve in the U.S. Navy on the lower river. After a career as a state legislator, railroad builder, and newspaperman, Brower indulged his enthusiasm for exploration and archaeology by



trying to discover the route of the Coronado expedition. Then Brower achieved his own fame as an explorer, spending two months surveying the Lake Itasca basin and proving that the tiny, swampy creek flowing from it was the true headwaters of the Mississippi. Brower was enthralled by Itasca's pine forests, the tallest in the state, and felt that the headwaters were important to all Americans and ought to be preserved. He used his legislative connections to introduce a bill proposing Itasca as a state park. This was less than 20 years after Yellowstone became the world's first national park, and the whole idea of creating parks to preserve natural areas was still new and baffling. In the entire country there was only one other state park, Niagara Falls. By one vote the Minnesota legislature established

Itasca as a state park, but failed to appropriate funds to actually buy the land. Brower became the park's first—unpaid—superintendent, and began a long struggle to acquire the land and protect it. He knew the timber companies would soon arrive at Itasca, and they did.

By 1903, logging at Itasca had reached a crisis. Huge tracts of land had been stripped, the trees dumped into the lake. The prospect of driving logs hundreds of miles down the Mississippi was irresistible for the timber companies, and the only obstacle was the smallness of the headwaters. To create a better canal, they built a timber and mud dam a quarter of a mile downstream

from the lake. The rising water obliterated the original headwaters and began raising the level of the lake, flooding the shoreline, meadows, forests, creeks, and camping beaches.

Earlier that year, Minnesota's Governor had appointed a new park superintendent. Twenty four years old, Mary Gibbs was the first female manager of any state or national park in the world. She was appointed upon the death of her father, who had served as superintendent for two years. Mary had assisted her father in his duties. The Governor was a timberman and wasn't expecting Mary Gibbs to cause the timber companies any trouble.

Before long, Mary Gibbs showed up at the dam and demanded that the sluice gates be raised and the water lowered. She said that the timber company hadn't received legal permission to build the dam and was violating a 3-week old state law forbidding them from flooding the park. She threatened to have them arrested and prosecuted. The timbermen replied that they had legal rights to cut the timber and she had no right to interfere.

Three days later, this time with several witnesses, Mary Gibbs returned to the dam. According to a timber company affidavit filed against her in court a week later, she "in a loud, threatening, malicious and unlawful manner, commanded affiant, and those working under him, to raise sluice gates of said dam, and undertook, without warrant of law, to arrest M. A. Woods, one of the employees of plaintiff...that by threats of prosecution and arrest said Mary Gibbs, defendant, greatly alarmed affiant, and other employees." Again she was rebuffed.

The next day Mary Gibbs returned with the sheriff, and an arrest warrant. The sheriff began to read the warrant but the lumbermen threw it back at him. M. A. Woods, rifle in hand, declared "I'll shoot anyone who puts a hand on those levers." The Sheriff meekly handed the warrant back to Mary Gibbs. Gibbs stared at Woods and declared: "I will put my hand there, and you will not shoot it off either." She strode onto the dam. She said later that she didn't think Woods was bluffing, "I don't think it was a very smart thing for me to have done that as he might have just done what he said." Mary gripped the sluice levers and pushed as hard as she could. The levers wouldn't move. It took six strong men to push the levers and raise the gates.

But having outnerved the timbermen, Mary Gibbs and the sheriff, as described in the affidavit against her, "by force of arms wrongfully removed affiant and Joe Belmore... to the village jail at Bagley, Minnesota... in removing said Belmore, said parties intimidated, maltreated, and greatly alarmed affiant, that said Mary Gibbs still threatens to interfere and prevent... and continue to intimidate... by discharging firearms and threatening to further prosecute affiant if he returns."

Having failed to intimidate Mary Gibbs, the timber company turned to its lawyers and got the county judge to issue an injunction threatening Gibbs with arrest if she returned to the dam.

Mary Gibbs went to the state Attorney General, who overturned the injunction against her, and secured an order to open the sluice gates and lower the reservoir to 18 inches.

Mary Gibbs got to watch the mighty Mississippi River being set free. But not for long. The next week, the Governor appointed a new park superintendent who would let the timbermen have their way. The dam remained in operation for another 14 years.

Before Mary Gibbs left Itasca, she selected logs for building a beautiful rustic lodge on a bluff overlooking the lake. The lodge remains today, named for the Attorney General who helped her defend the park. Today a million people a year come to Itasca from all over the country and the world. Perhaps most of them take for granted the idea of a park preserving a great river in its natural state. But we need to remember that this idea is only as strong as the people who believe in it and fight for it.

Perhaps Mary Gibbs had a unique personal reason for her fight; in her grief for the father she loved, she wished the park to remain an undisturbed memorial to him and his work. But I'm sure that Gibbs shared the awakening national consciousness that led President Teddy Roosevelt to declare at Grand Canyon on May 6, 1903, one week after Mary Gibbs lost her battle: "Leave it as it is."

Mary Gibbs lived the rest of her life very quietly, almost completely forgotten by history. But it is important that we don't forget such models of courage and commitment. She died at age 104 in 1983—shortly after the reservoir behind Glen Canyon Dam was finally filled.



Don Lago

Material for this article was supplied by Connie Smith, Lake Itasca State Park Naturalist; Steve Nielsen, Minnesota Historical Society; and Charlie Maquire, Ranger at Mississippi River National River and Recreation Area.

Charlie, a longtime regular on Prairie Home Companion, has done more than anyone to recover Mary Gibbs' heroism from historical obscurity. He has toured Minnesota performing his ballad about Gibbs and Jacob Brower. He will be doing a program about her at the Mesa Community & Conference Center, 201 North Center St., Mesa, AZ on March 14 from 3:45 to 5:15. For more information call ASU Women's Studies, 602/965-2358.

The Glen Canyon Institute

A few months ago The Glen Canyon Institute hosted its second annual meeting and seminar in Salt Lake City. Their main premise is that, since Glen Canyon Dam has a finite life span, we should allow Glen Canyon to begin restoring itself now by lowering the level of Lake Powell by some 200 feet. The main event of the weekend was the premiere of a film of Glen Canyon, shot some 40 years ago by David Brower, and narrated by Brower himself. Brower, at a spry young 84, believes that lowering the level is not enough. It should be drained entirely, with the concrete hulk left as a monument. Katie Lee, who also spoke and sang that night, said no, don't even leave the dam there—they might decide to use it again.

Below is an excerpt from a piece by Dr. Richard Ingebretsen, Director of The Glen Canyon Institute. On the facing page, an excerpt from a recent piece by Brower.

You can contact The Glen Canyon Institute at 451 East South Temple, #154, Salt Lake City, Utah 84111 801/322-0064

Rivers have always been divided into upper and lower water users. As water flows downstream, lower water users get “free” water. To prevent the lower Colorado River user states from getting “free” water, and to provide water for reclamation, in the 1950s, the Bureau of Reclamation proposed the Colorado River Storage Project (CRSP). A number of dams were to be built including ones in Echo Park, Split Mountain and Glen Canyon. Glen Canyon dam was “needed” so that only 7.5 million acre feet of water would flow downstream to “lower” water users, an amount agreed upon back in the 1930s in the Colorado River Compact.

Despite geologists’ doubts about its design, hydrologists’ assurance that the water storage would be wasteful and power engineers’ prediction that kilowatts could come cheaper from a longer-lasting resource than from a short-lived public power dam on the over-engineered, silt-laden uniquely beautiful Colorado River, Glen Canyon dam was built. With its rising water, millions of acres of the most beautiful scenery in the world was destroyed, including over 3,000 Indian ruins and 200 miles of the Colorado River. Glen Canyon contained over 200 side canyons, almost all of which were spectacular to hike in. Lake Powell covered a natural bridge over 1/2 the size of Rainbow Bridge, called Gregory Natural Bridge.

Lake Powell does not put water on land. There is no delivery system in the reservoir to feed water to any cities or farms. It simply lies stagnant, evaporating and flowing into the side walls. The Bureau of Reclamation estimates that the lake evaporates over 550,000 acre feet of water each year and also loses over 1,000,000 acre feet of water each year into the sandstone. This total of 1,550,000 acre feet of water lost each year could better be utilized by cities and farms downstream. Lowering the level of the reservoir would allow that water to flow naturally downstream to Lake Mead where it can be utilized.

Lake Powell is a “temporary” reservoir, as it is filling in with sediment at the rate of 68,000 acre feet each year. At this rate, it will be completely full of sediment

in about 300 years. However, the reservoir will probably have to be drained and the dam torn down much sooner. In perhaps as little as 100 to 150 years, when the silt fills the reservoir to just one half full, it will cover the eight intake tubes to the generators. At this point, water may rise rapidly and in fact “top” the dam and cause uncontrolled flooding downstream.

Over time aggraded silt will back up many miles into adjoining canyons— up into Cataract Canyon— up many miles into the Canyons of the Escalante destroying that priceless canyon—and up under Rainbow Bridge to a depth of 60 feet.

Downstream, Grand Canyon’s native river ecosystem is suffering. The canyon below no longer sees the sediment rich annual flows of high water in the spring that it once depended on, and the water is a steady 47 degrees year round, far from the pre-dam highs and lows.

The Sea of Cortez estuary, which supports just over 10,000 species of life is rapidly dying because not enough Colorado River water or nutrients now reach it. These could potentially be supplied from the water now lost at Glen Canyon.

We have the ability today to begin the process of restoring the natural treasures of Glen Canyon. Cathedral of the Desert, perhaps the single most beautiful geologic feature in the State of Utah lies barely 80 feet below Lake Powell when the reservoir is full. Lowering the level of the reservoir a mere 100 feet would begin to restore this magnificent feature for all to see. A further 100 foot lowering of the reservoir would begin to bring back all of lower Cataract Canyon, including 26 of the biggest rapids on the Colorado River now flooded there. It would also restore and free spectacular Dark Canyon that sedimentation has already filled.

The delightful canyons of the Colorado above Glen Canyon Dam are a national treasure. Its time to bring them to the surface again.



*Dr. Richard Ingebretsen
Glen Canyon Institute*

A Concept from the Archdruid

Unless Glen Canyon Dam is removed, on purpose or by accident, its reservoir will eventually fill with sediment—rock, boulders, sand, and silt. The sediment will pile up ninety feet higher than the water itself at the reservoir's present head. Another foot or so of sediment per mile of river will accumulate upstream and be that much higher still. All in all, the news is bad, messy, and will cost the future far more than dam builders want you to know. It also means that the hydroelectric power generated with reservoirs is not a renewable resource. You can't run a generator on sediment. They don't want you to know that either.

In 1956 neither Congress nor President Eisenhower knew what was at stake at Glen Canyon, nor for that matter, did the Sierra Club. I was its executive director then and I knew, but I was not permitted to do what I could have done to help block the Colorado River Storage Project until such time as it made sense. I failed to insist that I be given permission. Of my several failures, this is the finest of all so far. So in 1956, the construction of Glen Canyon dam began with a blast. The dam violated not only one of the most magnificent gestures of the Earth, but also the Colorado River Compact. In the years since 1963, when the inundation began, this great mistake has literally blown away, through useless evaporation from the reservoir, two years' average flow of the entire Colorado River. Yes, the reservoir does make sure that water will flow downhill, in a regulated manner. But it also severely diminishes the quality of water that Arizona, California, and Nevada get, and doesn't deliver Mexico's share of the Colorado over the border in a condition fit for mixing with bourbon, as Congressman Clair Engle pointed out in one of the many Congressional hearings I testified at. It did all this to put hundreds of man-years of labor where it wasn't needed and millions of kilowatt-hours in Phoenix and Las Vegas that could have been, and still can be, put there less expensively, and, to put it calmly, without such an irresponsibly profligate, recklessly unconscionable waste of irreplaceable water.

So having learned what is at stake, will you please help solve the problem by letting the Colorado River run through Glen Canyon dam? Let the dam stand as a monument to blind progress until that kind of progress is needed again, if it ever is. But how can we bring this new meaning to "The River Runs Through It"? Well, in order to build the dam in the first place, they had to bypass the river. So just reopen the bypass (not exactly a simple procedure) and enlarge it enough (perhaps with a double bypass; surgeons are good at it) to accommodate the river in full flood. The Grand Canyon and

all its magic will be grateful for that. Just remember the essentials about Glen Canyon dam. It illegally violated an Interstate Compact that should take precedence over laws enacted by Congress. It wastes water by unnecessarily evaporating enough of it to supply two cities the size of Denver—and there is none to waste. There are far less wasteful sources of power than that produced at the expense of Glen Canyon. The wasted Colorado River watershed can be healed with a long overdue effort. Flushing far less soil down river will keep Lake Mead alive longer, as well as the places that rely on the water supply the river provides: Wyoming, Colorado, Utah, Arizona, New Mexico, Nevada, California, and Mexico. The restoration of Glen Canyon can do wonders for the people whose minds were bent out of shape by the ecological terrorism inflicted upon the Colorado River by the well-intentioned, if misguided, perpetrators. In any case, if one or two or more centuries from now Lake Mead fills with sediment and future generations want to waste the water at Glen Canyon, the dam will still be there ready to plug the river and downsize its mission. The news that should have been good, and still can be, is that the Glen Canyon region could be the most magnificent gem of the National Park System—the Escalante National Park that Franklin Roosevelt dreamed of. It is possible if you want it to be.

At the very least, we will end, for a century or two, the annual waste of 700,000 acre-feet of water. (Remember, each acre-foot would fill a football field with twelve inches of water from goal to goal, and if it were filled with Tanqueray gin, each acre-foot would be worth \$22,000,000; mere water would be worth a bit less.) There will also be a great new national park, and millions of people—generation after generation—will be free to enjoy the canyon's beauty again and celebrate its recovery in perpetuity—an asset worth more than Bill Gates. As each of the native species of plants and animals returns, we can shout "Welcome home!" and throw a big party. The music of canyon wrens and rapids, not power boats or jet skis, will provide all the decibels we need. And all of this because you learned from this book what you could do to restore the place no one knew well enough—and who knows how many future generations may know so much better.



David R. Brower
Berkeley, California
April 13, 1996

excerpt from the foreword to *Canyons of the Colorado*,
by Joseph Holmes, published by Chronicle Books
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Climate Change Dooms Dams

Massive dams are much more than simply machines to generate electricity and store water. They are concrete, rock and earth expressions of the dominant ideology of the technological age: icons of economic development and scientific progress to match nuclear bombs and motor cars.

More than 400,000 square kilometers (155,000 square miles)—the area of California—have been inundated by the world's 40,000 large dams. Freshwater resources, because of a host of human assaults, but especially because of dams, are the most degraded of the Earth's major ecosystems. Dams are the main reason why one-fifth of the world's freshwater fish are now either endangered or extinct.

The number of people flooded off their lands by dams is in the tens of millions—30 million would be a conservative estimate, 60 million more likely. Very few of these people ever recover from the ordeal, either economically or psychologically. And dams kill people, because they spread diseases such as malaria and because they break.

Now the future of every dam on Earth is threatened—not by environmental protests or economic constraints—but by the Greenhouse Effect and the world's changing climate.

Static Dams, Changing Climate

Dam designers work on the assumption that historic hydrological data such as average annual flow, annual variability of flow and seasonal distribution of flow are a reliable guide to the future. As global warming takes hold, however, there are likely to be significant changes in seasonal and annual rainfall patterns and other factors affecting streamflow, such as the rate and timing of snowpack melt and the nature of watershed vegetation.

Historical and geological evidence over past millennia indicate that even small changes in climate can cause major changes in the size of floods. Reservoir sedimentation can be affected significantly. In arid areas, an increase in average annual precipitation of only 10 percent can double the volume of sediment washed into rivers.

Calculations of the amount of water available to turn turbines, the maximum flood that spillways will have to discharge and the rate at which reservoirs fill with sediment will thus become more unreliable as global warming takes hold.

Insurers increasingly are convinced that global warming is to blame for the greater frequency and severity of violent storms, floods and droughts since the late 1980s. This extreme weather already has resulted in burst dams, increased sedimentation and reduced hydropower capacity.

A 1991 report from the United Nations Intergovernmental Panel on Climate Change noted that “increased runoff due to climate change could poten-

tially pose a severe threat to the safety of existing dams with design deficiencies. Design criteria for dams may require re-evaluation to incorporate the effects of climate change.”

Political Hydrology

Just as dam builders often skimp on geological surveys, so have they shown themselves willing to begin construction with seriously inadequate hydrological data. When there is not enough water to turn a dam's turbines or fill its canals (or so much water that the dam is threatened with breaching), an “act of God”—drought or flood—invariably will be blamed for the ensuing electricity shortages or inundation. However, an “act of dam builder” may be the likeliest place to lay the blame.

Hydrologists cannot predict exactly how much water will flow into a planned reservoir. To make a “best guess,” they project past streamflow data into the future. A lack of reliable hydrological data, however, frequently does not stop dam builders, who often build first and then hope for the hydrological best. The dam-building fraternity has shown a pattern of overestimating annual flows and underestimating peak floods.

Overestimates of average flows mean that many dams fail to yield as much power and water as predicted. The huge Buendia-Entrepenas reservoir in central Spain, built in the late 1950s during General Franco's decade-and-a-half dam-building binge, has never been able to supply more than half the capacity of the aqueduct built to transfer water to the Mediterranean coast. In early 1994, the reservoir contained just 17 percent of its capacity.

In Thailand, with lower-than-expected rainfall and higher-than-expected leakage through its limestone bed, the nation's largest-volume reservoir, Srinakharin, completed in 1977, has never filled. During 1991, Thailand's 25 largest dams held a total of just under half of their combined usable capacity. By 1992, this figure fell to just over one-third. Bhumibhol and Sirikit, World Bank-funded dams that impound the second-and third-largest reservoirs in Thailand, contained only 7 percent of their total usable volume in March 1994.

Authorities building India's Sardar Sarovar dam refused to accept the overwhelming evidence that much less water is likely to be available than was assumed when the project was planned in the 1970s. Engineers designed Sardar Sarovar with the assumption that more than 27 million acre-feet of water flowed down the Narmada River in three out of every four years. Yet in 1990, the 42 years of flow data then available recorded an average flow of just 22.7 million acre-feet. More recent figures indicate the flow may be even lower.

Mud Against Dams

All rivers contain sediments. A river can be considered a body of flowing sediments as much as one of flowing water. When a river is stilled behind a dam, its sediments sink to the bottom. Every reservoir loses storage to sedimentation, although the rate at which this happens varies widely. Despite more than six decades of research, sedimentation still may be the most serious technical problem faced by the dam industry.

In a 1987 World Bank study, Professor Khalid Mahmood of George Washington University in Washington, DC, “roughly estimated” that around 50 cubic kilometers (1.8 million cubic feet) of sediment—nearly 1 percent of global reservoir storage capacity—is trapped behind the world’s dams every year. Mahmood calculated that around 11,100 cubic kilometers (39 million cubic feet) of sediment had accumulated in the world’s reservoirs by 1986, consuming almost one-fifth of global storage capacity.

In the US, large reservoirs lose storage capacity at an average rate of around 0.2 percent per year, with regional variations ranging from 0.5 percent per year in the Pacific states to just 0.1 percent in the Northeast. Major reservoirs in China lose capacity at an annual rate of 2.3 percent.

By far the world’s muddiest river is the Yellow, which flows through the easily eroded, loess soil of north-central China. The average concentration of sediment in the Yellow is nine times greater than any other major river. Soil scientist Daniel J. Hillel describes it as a “rippling tide of liquefied mud, resembling thick lentil soup.” The record of reservoirs built on the Yellow is, not surprisingly, atrocious.

Engineers built Sanmenxia (Three Gates Gorge) chiefly for flood control on the lower Yellow, with technical assistance from the Soviet Union. Construction began in 1957. Chinese hydrologists who protested that the reservoir soon would fill with mud were accused of being rightists and silenced. Within just three years of reservoir impoundment in 1960, the river had deposited more than 50 billion tons of sediment at its upper end, raising the riverbed by several meters and threatening upstream areas—including the ancient capital Xian—with serious flooding.

The Sanmenxia fiasco was repeated at other reservoirs constructed on the upper Yellow River in the late 1950s. The 57-meter-high (187 feet) Yangouxia Dam lost almost one-third of its storage capacity before it even began operation. By 1966, three-quarters of Yangouxia’s reservoir had filled with sediment.

In India, government statistics on 11 of the country’s reservoirs with capacities greater than one cubic kilometer (35,000 cubic feet) show that all are filling with sediment 130 to 1,650 percent faster than expected. In 1993, the US Army Corps of Engineers concluded that sedimentation

could reduce the life of El Salvador’s 135-megawatt Cerron Grande Dam to 30 years—as compared to the pre-construction prediction of 350 years.

Sedimental Journey

The amount of sediment carried into a reservoir is at its highest during floods. In the US, for example, half of a river’s annual sediment load commonly is transported during only five to 10 days’ flow. During and after a particularly violent storm, a river may carry as much sediment as it would in several “normal” years. Mudslides caused by earthquakes and volcanoes also can have a dramatic and unpredictable effect on reservoir sedimentation. Global warming, which experts predict will cause more intense storms, likely will increase both the unpredictability and rate of reservoir sedimentation.

In July 1993, the sediment scoured off upstream mountainsides during a single 30-hour stormburst cut the storage capacity of Nepal’s Kulekhani hydrodam by nearly one-tenth. When completed in 1981, Kulekhani had a predicted life of 75 to 100 years. But sediments could put the 114-meter-high (374 ft) dam out of operation around the turn of the century.

Despite all the uncertainties surrounding reservoir sedimentation, authorities very rarely stop planned projects due to a lack of adequate sediment data. In fact, time and again, dam planners have made hugely over-optimistic predictions that reservoirs will fill much more slowly than they actually do.

Chixoy is one of a number of very expensive hydrodams built in Central America during the 1970s and 1980s with loans from the World Bank and InterAmerican Development Bank, despite the very high and accelerating rates of erosion in their watersheds.

Around the world, dams are rapidly filling with sediment, leaving small, impoverished countries like Guatemala, Honduras and Costa Rica with huge debts and a desperate need to build new power plants to reduce their dependence on their white elephant dams.

Dams open up remote areas to road builders, developers, loggers, farmers and miners—accelerating deforestation and soil loss. When insufficient resettlement land is available, ousted farming families may have no choice but to clear land further up the valley or hillside.

Deforestation and soil erosion both are increasing rapidly around the world and, it should be assumed, that when dams are built, soil erosion in their watersheds will increase over the projected economic life of the reservoir.

It is difficult to find any examples of the successful implementation of watershed anti-erosion measures in the tropics and subtropics. While these schemes may be recommended in project plans, they rarely are implemented. Dam-building agencies are usually more interested in putting their funds toward building dams than planting trees and digging field terraces.

Excerpted from Silenced Rivers: The Ecology and Politics of Large Dams by Patrick McCully

Bridge Canyon Dam

In 1941, I was assigned to work on the Bridge Canyon Damsite when I was stationed in Phoenix. We moved a large drill crew into the canyon about 40 miles upstream from the Pierce Ferry on Lake Mead. We worked for a little over a year in the canyon, drilling four damsites and finally selecting the best site which was then called the Lower Gneiss Damsite. A complete exploration and materials investigation was made. This was during the war and involved traveling up the river by a boat and staying in a camp for 30 days at a time. The Bridge Canyon Damsite is considered one of the best concrete sites still left in the Western United States but because its high construction would involve storing water in the lower end of Grand Canyon National Park, it has received such opposition from nature groups similar to the Sierra Club, that it will probably not be built. Vaud E. Larson had charge of the work with an office in Kingman and the crews were supervised out of there.

The work at Bridge Canyon was unique for the Bureau in several respects. One of the most difficult parts of the job was that it was done during the war when men and equipment were very hard to get. The accessibility would be difficult at any time but during the war when boats, drills, gasoline, men, and all types of

supplies were at a premium, it took a lot more effort to make a normal amount of progress. During the early part of the work in 1941 until June of 1942, Lake Mead was pulled down to a low level in order to make some repairs to the spillway at Hoover Dam. This meant the river was cutting through the silt beds in the canyon part of the reservoir and these vertical banks of silt were constantly caving into the water and forming large sand waves which retreated up the river. This meant that all boating up the river was in constant waves all the time. We built some 30-foot open boats which only drew about 6 inches of water. These could negotiate the river section very well and could carry about 1,500 pounds of freight.



above: boats and barges at the dock
left: Bridge Canyon City



[One of the folks who helped build the boats and served as a boatman prior to Murdock's arrival was Buzz Holmstrom] When we were first establishing the camp, Henry Hart as boatman made the trip from the camp down past the head of Lake Mead to Pierce Ferry each day. Here he loaded food, lumber to build the camp, gasoline for the drills, and all types of supplies. These trips up

river from Pierce Ferry to the damsite took about 4 hours. Later, after the spring runoff in June, the Lake was filled back up to the point where all the silt beds were under water and traveling became easier. For awhile during May and June, when the river was running up to 90,000 second-feet and carrying a constant string of logs and floating debris, we could not put a boat on the river.



Author Neil Murdock looks grimly at his hand while the old driller (who has most of the chips) awaits the rest of them. "We had no business playing poker with those old boys," said Murdock.

During this time we tried to haul gasoline and supplies in from Peach Springs by packhorse with Indian packers. This was a makeshift arrangement at best, but it did make it possible to keep drills operating most of the time although at times we ran out of food and during one 2-day stretch, we were forced to dynamite catfish in the river for our sole food supply. One stick of dynamite in a large hole in the river would produce 200 or 300 pounds of catfish, only half of which could be retrieved but these were fairly good eating and unless you had to eat them too often, they were okay.

It took about 3 months to establish the camp in the canyon which consisted of a tar-paper cook shack with tables, a walk-in refrigerator attached, and tents for sleeping accommodations for the men. We had a small generating plant which furnished lights and fans for the swamp-type air conditioners which were a necessity in this canyon. During the day, the temperatures in the summer would get up to 120° and the rocks would retain the heat all night so that even at midnight, it would still be around 110°. The coolers, therefore, were necessary or the men would be unable to sleep.

The tour of duty during those times was 6 days a week so all members of the crews would work 26 days continu-

ously and then have the four Sundays off at one time so it meant 26 days in the canyon and four days out. Most of the drillers and the surveyors had families in Kingman. It was 80 miles from Kingman to Pierce Ferry by rough auto road and then 40-miles up river by boat. Everyone received \$2 per diem, which just covered the cost of the food, and everyone furnished his own bedding. The

Government furnished cots with mattresses and a sleeping tent. We made an extra effort to serve excellent food in the canyon because that was about the only luxury available. We finally, after several tries, found an excellent cook who had been a chef in some big hotels. Unfortunately, he liked the bottle and when he got paid and was close to a bar, he forgot completely about his job. Even worse than that, he would not go back to the job as long as he had any money. We found out that the only way we could get him back was to find out which bar he was in and about the time the truck got ready to head back into the canyon, usually about 4 o'clock in the morning, two or three of the strongest drillers would sneak in and grab him, drag him out, put him on the truck, and fight him all the way to Pierce Ferry. He would be cursing every step of the way, but we could get him back in the Canyon. After about a day and a half of seeing pink elephants and snakes, he would recover and thank us for getting him back on the job.

We had four Hualapai Indian rodmen who worked throughout the whole '30s and were excellent climbers. They camped by themselves in a tent near ours, but did not want to eat with the rest of the crews. We were using other Hualapai Indians in Peach Springs Draw, excavating test pits for concrete aggregate. When that work was completed, we wanted to bring them into the canyon to help build trails and move drills. We did



home

get two of them who said they would like to come down and so we took them in on the boat but all the way up the canyon on the boat, they were scared speechless. They just kept looking at the high walls and after we got them up to the camp, they stayed with the other Indians, but they would not let them turn the lights off at night and made them stay up with them all night. They were scared something would happen down in the canyon and, when the boat left in the morning, they left with it.

During January 1941, we hired Harry Aleson as a boatman to run the river between the camp and Pierce Ferry. Harry is widely known as one of the old-time river rats who has run every river in the West, including the Mackenzie River from its headwaters to the Arctic Ocean. Harry was an excellent boatman and knew the Colorado River like a book. He had a life long ambition to run up the Colorado River through Grand Canyon. He had even cached gasoline from the rim down onto strategic spots so that he could some day make a run up the river and would have his gasoline ready for him. One night after dinner, before it got dark, Harry decided to run up to the Bridge Canyon Rapid which was about 1 1/2 miles above where one of the drills was working off a barge in the center of the river. Harry went up to this rapid and tried running it with our boat. He was alone, the rapids were too steep for him, and he overturned the boat. He was afraid of drowning and did not have a life jacket on, so he stripped off all his clothes, shed them into the river, and climbed onto the bottom of the over turned boat. The drillers were busily working on the barge when one of them looked up and saw Harry coming around the bend standing on the bottom of the boat which was submerged a couple of inches below the surface of the water. One of them cried out, "Look out, here comes Jesus Christ walking on the water."

Harry continued down the river and climbed off onto the barge, but he wrecked the outboard motor which was attached to the boat, and this made the drill foreman, Ray Gossett, so mad he fired Harry and that was the end of a good boatmen.

Besides the drill work, we completed two horizontal drifts back into the abutments of the dams site, 200 or 300 feet in depth, and these were used to determine the quality of the rock and the number of fractures back in the abutment.

The survey crews varied considerably during the year and a half but, as mentioned before, most of the rodding on the steep, vertical cliffs was done by Indians who were very adept at scaling the walls and would scare anyone watching them and just worrying whether they were going to be able to get from one point to another without falling.



above: where the aggregate was going to come from, with help from a little dynamite and a lot of gravity
left: ordering more groceries by radio phone.
Murdock on right.



A complete railroad was surveyed, headed by Oscar Miz who had had lots of experience in railroad relocations. He came here from Shasta Dam in California. He located the railroad down the vertical cliffs to the dams site and also a highway which could be built. At that time, it was considered an absolute necessity that a railroad be taken to the bottom of the canyon. Since then, it has been proven that a big dam can be built without a railroad. An example is Glen Canyon where everything was hauled by big trucks rather than by rail. This was a formidable job to locate a railroad along



chow time

vertical cliffs, some of them 500 and 600 feet vertical. Much of this had to be done by triangulation and it was a feather in Mr. Miz's cap that this work was accomplished.

I wrote geology reports on four damsites which were called the Upper and Lower Gneiss sites and the Upper and Lower Separation Damsites. The Lower Gneiss was selected as the best and much more work was completed on this than on the others. For instance, the depth of bedrock was much shallower at the Lower Gneiss than it was down below at the Separation Canyon sites.

During our stay in the canyon, a consulting board consisting of John Hammond and Mr. Savage of the Denver Office, and Dr. Berkey from Columbia University who at that time was acting as the Geologic Consultant for all the major Bureau work. They came into the canyon and spent about a week looking over the layout and preparing for final designs which, at that time, we thought would be forthcoming immediately after the war. All my end of this work was completed in March 1943 when I was transferred from Arizona to Salt Lake. The drilling work at Marble Canyon site, which was fully as interesting and spectacular as that at Bridge Canyon, was done during the 50's, and I was not as intimately acquainted with that work since it was handled out of Boulder City and I was located in Salt Lake.

Marble Canyon Dam is located just above the confluence of the Little Colorado and the main Colorado. Access was so difficult into the canyon here that an inclined cableway was built from the high rim down into the bottom of the canyon by the Region 3 crews. This cableway was about

3,000 feet long and about 2,000 feet in vertical elevation. All drills, equipment, men, including barges and everything required, were taken down this inclined tramway to the bottom and then boated to the dam axis. This is probably the most spectacular investigation program ever undertaken by the Bureau. The site is in limestone and while it is considered adequate for a dam, it is not as economical or as attractive for a power site as the one at Bridge Canyon. This work also was under the direction of Vaud E. Larson and the Regional Office at Boulder City.

With the opposition now organized to prevent any construction in any of the spectacular canyons in the West, it seems very doubtful that either of these dams will be constructed within the next 20 years.

J. Neil Murdock

*from Early History of the Colorado River Storage Project
May 1971 U. S. Department of the Interior, Bureau of
Reclamation*

More on the Marble Canyon Dam next issue...



the big New Orleans boat



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some things never change

Katie Lee, continued from page 1

“**A**nger is as powerful an emotion as love,” Katie said as we packed up to leave her home, perched on a cliff in Jerome, Arizona. “And I’ve kept mine alive all these years, over that God Damned dam.” Then she added with a wry smile, “It keeps me going.”

Something must. At seventy seven Katie is as quick, sharp and vociferous as ever, especially when it comes to talking about the one place she truly loved, Glen Canyon, and how it was destroyed by Glen Canyon Dam. Katie Lee, long known as a folk-singer and vocal opponent of the dam and the reservoir it created, took time out from work on her upcoming autobiography “All My Rivers are Gone” [an excerpt of which opened this story] to share a bit of her story with us.

I was born in 1919... I’m a westerner, born and bred. I was raised in Tucson. My dad was a contractor. My mother was a housewife, and a lot smarter than my dad about money matters and things, because she actually got us through the Depression... After being in Tucson, I remember we spent six years in Hollywood. My dad built the first houses above Sunset Towers, up on those hills—like the houses here in Jerome, you know, they went straight up and down the mountain. When the crash came, why, he just sort of fell apart. He said, “Well, I just can’t...” He said, I can remember that phrase, “Down and out, down and out.”

My mom took the reins, took my brother and me, and went across the Yuma desert when it was nothing but railroad ties, a boardwalk across the Yuma desert dunes ... and she saved all that property we had in Tucson, and collected the rent, and we moved there for good then. My dad came over a few months later, I guess it was... My dad was a kid, he never grew up, thank God, because he kept the kid in *me*—he let me have the kid in me. My mother was the artistic, intellectual type, and my dad was the earthy one.

I don’t remember, in my years in Tucson, ever going inside until evening. So I think that’s probably where I got the affinity for the land and the desert—especially the desert. I would go back East to my aunt and my grandparents a couple of times in the summertime, spend a couple of months in the green, green, green, and I couldn’t wait to get back to the reds, oranges, yellows, blues, purples. I thought green was a bad color. (chuckles)

So after I got out of college, graduated, got married—during the war, this was—married an idiot. (laughter) That’s what we always do *first*, we always marry idiots. Anyhow, I married and had a son, and I left my Ronny with my ex-husband and his new wife, because he’d gotten married to a lady by then. And I came back to pick him up six months later.

I mean, I was really out there in Hollywood, living on ten bucks a week, practically not a nickel, *really* struggling... I had the leading role in this play at the Pasadena Playhouse, and then I had some other roles in

theaters around Hollywood, ‘til I finally wedged my way into casting offices and places like that, where people knew me, put my name in the big book, you know, and my photo and parts I had played... I struggled along until I got onto radio, and then I had really good parts in radio, national radio shows. I had a running part on the *Gildersleeve* show, the *Halls of Ivy* show with Ronald Colman and Bonita, his wife, where I played a part called Glory Golightly. And I was a country girl, was the forty-year-old freshman wife. Then I did the summer shows with Gordy MacRae on the railroad hour. These are all national shows, broadcast all over. And so I was making a *decent* living, but still always a struggle. And *always* I kept thinking in the back of my head, “Geez, what am I *doing* here?”...

I stayed there for six years and I worked in pictures and I worked in television, and I was on the first television show that was broadcast statewide out of Hollywood called *Armchair Detective*. I played character parts, I played walk-ons, I played little tiny bit parts, and never star parts, nothing like that. But I made it okay. And in that time, at the time right about the middle of there, like around ‘51 or ‘52, I started playing guitar. I had been playing it before—I mean, not very much, but I learned to play my guitar down in Mexico, really, in 1942... I’d done a lot of singing with my cowboy friends, people I knew in Tucson, we’d go out in riverbeds at night and sing and warble, and I’d go down to Nogales with these guys and we’d sing in the warehouses. (laughs) That’s where we learned all our Mexican songs—*great* place to do it... And all the girls would climb all over my two friends, and they’d brush them off and start singing. The girls probably wondered what I was doing there. I *knew* what I was doing there (laughs) I was learning the music...

Then I came back, went to Hollywood. It was there I also ran into Burl Ives, who really, really set my career going. But in 1953, in the summer, I came home to do a show at the Temple of Music and Art. First time home for the little-town girl, back from the big city,

back from Hollywood... The reviews were great. After the show, Tad Nichols came over to the house for the party my mom gave me, and he brought a guy named Jim Rigg with him, and he said, "Katie, I've got a movie that you've got to see." So I sat down there in the living room in my mom's... and I watched Tad Nichols' first power boat run through the Grand Canyon. And I looked at that thing, and I couldn't believe what I was seeing. I thought all those people had to be *dead*. The bottom of that boat, when it got into Lava Falls—which I knew nothing about at the time—just spun around. You couldn't see (chuckling) anything but water, like they were all going down a hole. And then it pops out and slams down and the camera jars up like crazy, and finally focuses back into this incredible washing machine.

... I saw that thing, and I said, "My God, you're right. I have to *do* that! *But*, how can I? I'm just a little twit out there in Hollywood, trying to make a buck, and it's \$500 for the upper half and \$500 for the lower half?" And he said, "Go back to Hollywood and make money." So I did. And I will not forget this night, I was *sound* asleep, I had just gotten sound asleep, and the phone rang, and it's Tad on the phone. He says, "Kay?" (sleepily) "What? Wait, who are you? What's this?" "This is Tad," he said. "You want to run the Grand Canyon?" And I said, (sleepily) "Don't be silly, I haven't got any money." He said, "No! Somebody has canceled. Jim says you can come for your food, fifty dollars, and bring a friend—make it a girl, if you can," he said. (laughter)

Steiger: Some things never change.

Lee: (laughing) Some things never do. No, he said, "Bring some classy-looking broad with you," *that's* what he said. And I said, "Yeah, okay." But he said, "And bring your guitar, that's the deal. You can sing to the other passengers, and you have to be in Flagstaff tomorrow by noon." This is 10:30 at night, the night before!

I thought, "Golly, I'll ask Julie." Well, Julie Winslow was my Jungian teacher. I was studying Jung with her, Carl Gustav Jung—psychology. So I phoned Julie. I said, "Do you have any other students that might want to... I've got to leave here within an hour, and they have to pack." She said, "Well, I can go." Well, I nearly fell over. I thought, "That'd be great!" Then I thought of Tad. Well, Julie (laughs) was fifty-five years old.

The night before we got up there at Art Greene's (laughs), which was their habit, Jim and Bob, they showed *Danger River*. And of course that just gives everybody the trembles. You know, you get on that boat, and your adrenaline starts racing so fast, you don't see anything, you don't know anything, you just think, "Am I going to live, or am I not going to live?" And so my first impression of the river was just, you know, fear. I

was just scared to death.

... We did the whole thing in eight days. This is this twenty-one-foot CrisCraft kit boat, built by Jim and Bob and friends, and their other brother, Jack.

But that was my first experience, and of course I had to run Lava Falls, so I was the third woman, according to Dock Marston's record, which is (chuckles) quite faulty, I understand, but what the hell, he tried. I was 175 to run all the rapids in the Grand Canyon, clear from there to Pearce's Ferry, which is where we got out.

Steiger: Well, if you were the third woman....

Lee: Julie was the fourth. I was in the lead boat...

And my first impressions... first of all, it's the adrenaline, and that's supplanted by the fear, and then the relief that you're still alive, and you don't really start to look around and check out what the place is all about, until you get over those first couple of days of this incredible rush of everything coming at you at once. God knows the scenery is enough to knock you back, but you don't have time to think about it, or to study it, or to get in tune with it, or *anything*. So until you've run it two or three or four times, I don't see how you can have any affinity with that place. You may be terrified, you may remember it all your life, but that's part of what rivers are about to me.

See, rivers to me—life is a river to me. And if I'm going to be on that river, by God I have to check out what's going on, with me, and with total observation, finding out who I am, what the river is, what the side canyons are, what's in the rock—all that. I have to know about *that*, or I don't know about *me*, and I *sure* don't know about the river.

Steiger: Don't let me get us too sidetracked, but there's a couple of things: For starters, on this power boat trip, the first one that you did, they actually had passengers. Who were those guys?

Lee: One was a botanist, the other one was a doctor. That's it, a botanist and a doctor, Julie, myself, Tad, Bob, Jim—that's seven. There was one other person on that trip, and I can't remember now who it was. I've got 'em all written down, but I just don't remember.

Steiger: Essentially we're talking eight people, two boats...

Lee: Yeah, including the boatmen.

Steiger: And you guys had everything stored—those boats had little cabins.

Lee: Everything stored in the cabins, yeah. And under the boat seat. And when I went down with Tad, and we went through Lava Falls, he lost the camera. It flipped straight up in the air, did about four turns, and came down in *my* lap...

And I can remember looking back to see where Bob was, because, you know, we pulled out in an eddy to wait for him... And all we can see is this, the nose, just doing like this, until finally (whistles) up it goes, splat.

I thought every screw in that boat was going to come loose when we hit. We did the same thing... As far as I'm concerned, there was *never* a boatman to equal Jim Rigg. The guy was *incredible*, incredible. He was so fast, that he could get himself into anything and get out of it, whereas Frank Wright, in all the years that he boated, never once ever tipped a boat over, never once got wet—except, you know, yeah, sure, he got wet, but I mean he never got.... He never was anyplace he wasn't supposed to be. They were sensational boatman—two of 'em—so different: Frank, who was a natural, and Jim, a natural in a totally different way. Frank just *knew*. He never moved hardly at all. He hardly ever touched the oars. And when he touched the oars, they were looonnng, smooth strokes, he knew where he was going and how he was going to get there. Whereas Jim wanted probably the adrenaline rush, and he'd go just a little bit too far, you know, but (chink) so fast he could get himself out of it.

I knew as soon as I was finished with the power boat run, that I wanted to really go in the cat boats, because actually, Jim had said that. He said, "You're going to like the cat boats a lot better. We don't have this noise, and we don't have this smell. We're doing this just to see if we can't make a little bit more, you know, make it a little bit more commercial in order to make a few bucks." And he said, "You know, we want to try it, see if it works anyway." And it didn't, really.

You can only get four people in that boat comfortably, with all their gear and stuff, and the food for eight days. And it was a fast trip like that.

I really wanted to get in those cat boats, because down there, you're fish-eyein', man, you are six inches from the surface of the water, and you *really* get to feel what that water's all about. It doesn't slop around!

Steiger: Okay, so the first Grand Canyon trip, you probably didn't see anybody. Did you see anybody else?

Lee: ...yeah, we saw Dock Marston, down around Diamond Creek, on the first trip. In fact, Jim stopped and talked to him... we didn't see anybody else on the first one. On the lower half, this next one after 1955—that's where we ran into [Georgie], or she ran into us, *again and again and again...*

[Katie reads aloud a passage from her manuscript] *Journal note, July 17, Day Four, CFS 7,620.* "Low. Tapeats Creek, Sweet Mother of Jesus, there they are, all over the beach like ants. So what Frank said might



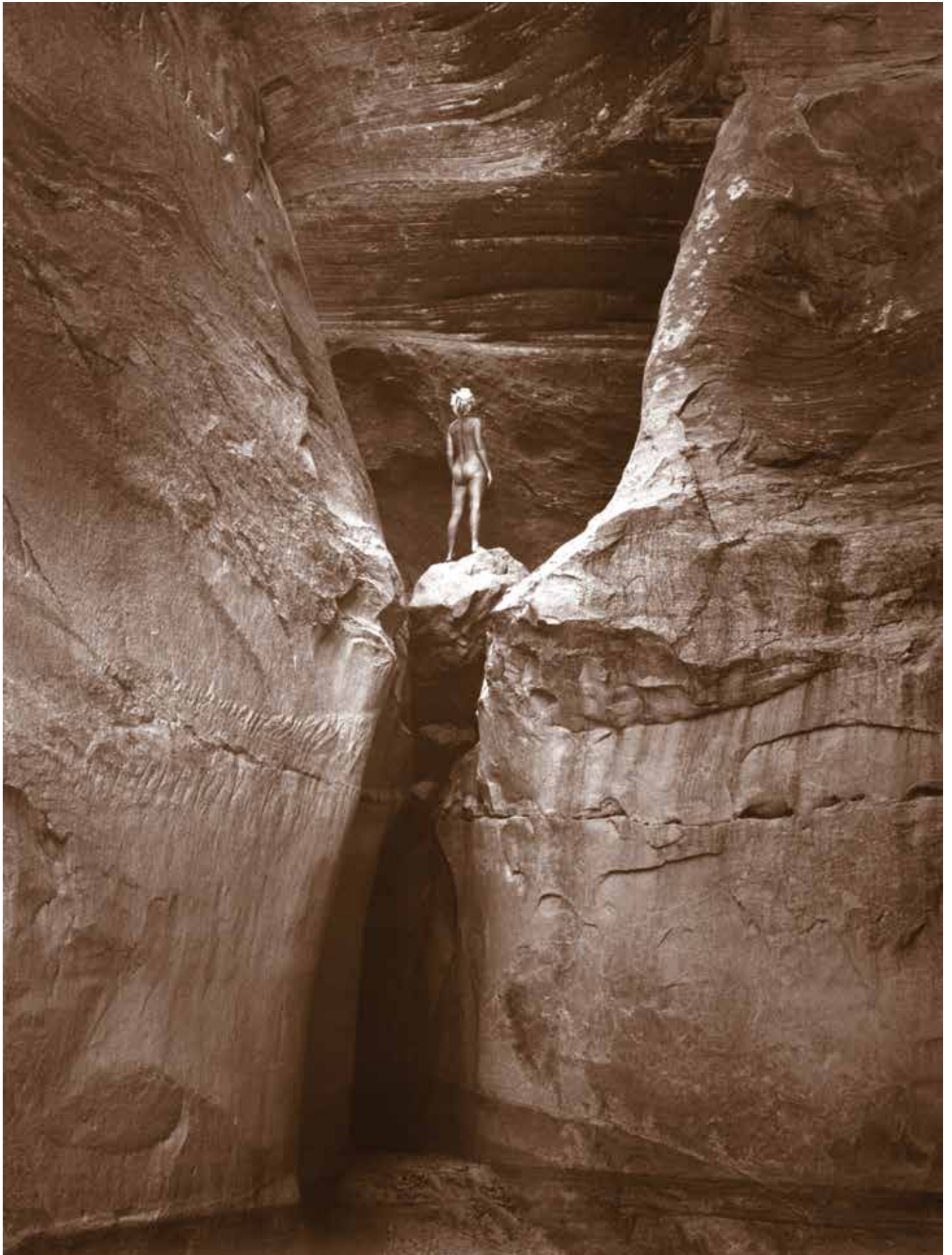
the Lollipop in Lava

happen, but prayed would not, has. The garbage scows of Georgie White and her twenty-seven passengers. These are not boats, understand, but big black neoprene rafts, inflated rings with a soft, squishy bottom. They look so ugly and unrelated to this place, like turds in a punch bowl. We begged Frank to go on, to put them out of sight...

Well, she is the first, and probably not the last of her type to run the river. Up to now, people with some sensitivity—more than a dead pig in the sunshine—have managed to stay out of each other's way. I don't think there's ever been that many people through the Grand in a single party before, and with luck, we won't see her again.

[Later that trip, at Lava...] We portage our gear, stepping around the hippo riders who've come down to watch and take pictures of us. They think we're chicken. We think they're knotheads. Our last boat is lined and ready for the rest of the run, when her barge/garbage scow/whatever you want to call it, comes through. Three bridge pontoons, tied together, with an outboard on the middle one. Now I've seen everything. We laugh until the tears stream from our eyes at this show. They lumber, flop, and slump, bump, ooze, slide, backwards, stop dead, squash, flap, and boiiinnng over every rock and into every hole in Lava. Absolutely no way to control them. For sure all the skill of the sport is gone. Just point the thing and go, hoping the front—or the rear, it doesn't matter—stays headed downstream, which of course, it doesn't. It wallows sideways, one barge flips on top of the other, making a people sandwich, a Georgie White special, with arms, legs, heads and bodies sticking out the side. She calls it—so help me this is true—'thrills with safety.' We call it a freak show...

Steiger: (laughs) Say what you really think, Katie.



erotic sinuosity

My parents never made me feel shame about my naked body. They were not nudists in any sense of the word, but neither did they make something rare, unusual, or unhealthy of my brother or me seeing them nude, or they us. Up through my teens, most of the time we lived in the country, where I could go about uncovered during the heat of the desert summer, without offending anyone, or creating a spectacle. I spent my free time in the canyons of the Catalina Mountains outside Tucson, in private nooks, far from hiking trails and the eyes of the curious, where I swam free, bare, naked, tout ensemble, buck ass nude, birthday suited in the altogether. There I learned, as I suspected long before, that if I cared to feel nature's pulse, be heir to her gracious gifts, I needed to go unencumbered to her living streams and rivers. When propriety forced me to be clothed in those waters, I actually felt unnatural, or shamed, as they say Eve felt when what's-his-name pointed to her pudenda, making the poor thing self conscious, along with her boyfriend. As for me, I didn't always grab for a leaf when a boyfriend—mine or someone else's—entered those waters. Because of this holistic attitude, I've been a magnet for many names, from obscure, as well as familiar sources. They'll say I'm a nudist, a show-off, or an exhibitionist. I'm immodest, a heathen, a pagan—I like that one—indecent, risqué, and host of others. All of the above are in the eyes of the beholder, and have nothing whatever to do with me—except pagan, that's true.

from
All My Rivers Are Gone.

Don't sugarcoat it.

Lee: Now, here's the crux of that trip:

"When we reached the dead water of Res. Mead and Jimmy came up in the Lollipop to tow us to Temple Bar, I knew there was another thing bothering me. I didn't like this nuthin' place to end such a wild and rugged trip. Didn't enjoy being towed across miles of funny-smelling, hot, glassy water. Furthermore, Georgie White's gross behavior had done much to tarnish the splendor of the trip. Still more. Glen Canyon Dam was becoming a political war, in need of more of us to fight it down. Yet even before it would obliterate 200 miles of the Colorado above, and make it a crippled wimp through the Grand Canyon below, the old style of river running would be crowded out. With the dam would go seclusion, the untrodden beaches... the quiet, the peace, and saddest of all, our specially-designed-for-these-rapids little oar-driven, two-passenger cataract boats, which couldn't possibly bring in revenue enough to vie with all the Georgie Whites sure to follow. What was in the wind proved to be a storm moving in on us, tearing away the footings of tradition, and replacing them with a landscape strange and busy, an instant city built on a wilderness waterway. The old, warm, silt road, paved and icy gun-metal blue—big floating condos, leased through a term we'd never even imagined: user days, new rules, restrictions, traffic, clutter, crowds, noise. I remember crying much of the time across that reservoir, though my notes say nothing about it.

Steiger: Maybe we should just talk a little bit about... how you got from the Grand Canyon to the San Juan.

Lee: Well, it was actually Jim Riggs' idea, after we did this power boat run, to talk to Frank and find out if I couldn't come and pay for my way on these trips by singing to the passengers on the trips I was on. And Jim and I at that time—you know, there's one thing that nobody mentions when you take a river trip: you're supposed to fall in love with your boatman. Well, we did. Sometimes they fall back in love with *you*. So Jim and I had this thing going—and he actually came out to the coast for a pre-med semester at UCLA. And that's when we would go back to Lake Mead—Res. Mead—because the power boats were in a hangar up there at Boulder City, and we'd work on the power boats. And that's when we named it the *Lollipop*. But when everybody came off of their Mexican Hat trip, down from—it was a big, long one that Frank did that year—went from Wyoming... I was there to sing, 'cause Jim had sort of wormed me into that, to sing. And by that time I'd written a couple of river songs, and I had learned all the other songs that were already there on the river, and Frank Wright was duly impressed.

I thought it was my duty to get as many passengers as I possibly could. Nobody told me to do this, but it's also the way that I found out I had a talent I really didn't *know* I had, and that was writing well enough to get something published in a newspaper...

I wrote articles in the *Arizona Highways* about 'em. Every time I was in a different town or someplace, when I started to go on the road after I left Hollywood in '54, I wrote for the newspapers, for the *Chicago Tribune*, for the *St. Louis Globe-Democrat*....

Steiger: Was this to promote Mexican Hat Expeditions?

Lee: This is to promote Mexican Hat, to get Frank Wright and Jim Rigg some customers, because it was not all that easy in those days. They only had four boats, but they needed two passengers for each boat, with \$500 for the upper and \$500 for the lower. So in those days, those had to be professional people, not people like you and me who'd really just love to go on a river. People like us didn't have any money. So it would be doctors and lawyers and big businessmen—the kind of guys that go on tours like that, to go out. This was a brand new thing for them to do. Not many people *knew* about running



Singing: Katie; Shirtless: Rigg brothers; Jim reclining, Bob sitting

down the Grand Canyon, for Christ's sake. But I worked real hard to get them, to pay back what I was getting for nothing. Because (a) I knew I had to *have* it from then on, it was like a drug, and (b) I wanted to repay those people, especially Frank. Jim pulled out after a while, but Frank was the one that lived in Blanding, had a family. That was his work. He'd been with Norm for... ever since Norm started.

By 1954 I wanted to get the hell out of Hollywood, because I wasn't doing a thing there that I really wanted to do, and I'd started to sing a lot more. So Burl set up this deal for me in Chicago in the fall of 1954, and by that time Jim Riggs' and my little affair had gone out the window, and I had done a San Juan trip with Frank, and two other trips with Jim down the Glen...

Burl... gave me a publicity party, he made sure that his press girl was there to take care of all the details. And from then on, I was off and running. I worked steadily for three years, and I had to—in order to quit working—I just had to say, "I am leaving, I am going on the river." "You can't do that." I said, "Oh yeah, I can do that. I am *doing* that. Everything's moving a little too fast here, and I need to do this." I was out there in front of those people every night, standing up there all duded and dolled up, all makeup and pantyhose and high heels and fancy dresses. You just can't know how good it felt to take off all my clothes and get back to nature, and feel that water running over my body, and feel the sand pickin' away at my skin, and feel a rock, and... getting in step with the stone. It takes about three days before you get your balance in the slickrock.

But what's important, as far as I can see, is having that place, *always*, in the back of my mind. I can get there, and when I really needed it, I could be where I had to be, in order to get cleaned out.

Of course you know we've become slaves to places like that, and you fall in love and you're at the mercy of... I was certainly at the mercy of that river, after the first two trips. Couldn't do a *thing* about it. I just knew that I had to have that to keep in balance, because there couldn't be two more opposite things. You know, an actress, all duded up, all a-glitter, knowing all the smart phrases, doin' the whole protective act, keepin' the men off her back—except the ones she wanted—and then the opposite side, pure nature, stripped down. The most necessary thing, you just can't *be* with nature unless you go there empty. I like to feel the wind and the rain and the earth and the sand on my bod—I don't want clothes on.

I found out that the Glen Canyon was a *much*, much more... much deeper place to be, because there was time to contemplate there. There's where the river is a totally different personality. It's like he's just laid back, and he's got all these beautiful little siblings flowing into him, sort of keeping him company. And he's not upset, he's not in a hurry, he's just getting ready for the big drop, which is coming a little bit later. But he needs that space in there, to contemplate. And the more I went to the Glen, the *less* I really wanted to go back to the Grand. The Grand was big and powerful and scary and... and rough, sort of like a... Sort of like a quick physical fuck, is what it was like. Whereas the Glen was a very soft, love-making place. You know, time to roll over and look at each other—make love, not just screw...

Those two to three weeks on the river—sometimes I'd take three trips a year. I went back to the Grand Canyon twice, because I wanted to see it and feel it in the cat boats, get the real feel of the water and the river and not just go zapping down there in a power boat...

[But] there are 125, maybe more, canyons from Hite to Lee's Ferry. All of 'em had grottos, water, running streams, fascinating, beautiful, heavenly, incredible places. Some of 'em were tiny little fluted canyons. (And that's another thing: If I get the guy that started calling those things "slots"... Slots, you know, you got those in Las Vegas—lots of 'em, they're machines. Those canyons had far too much character to ever be called slots. What I call 'em—and I call 'em a lot of names—I call 'em fluted canyons, I call 'em crevices, I call 'em.... Mostly, they're just erotic sinuosities. They are *fantastic*. You can go along each wall and touch, and each wall is curves. You can feel the next curve and the next curve. Slots they are not.)

Steiger: You know, I haven't heard.... It's funny that you call the Colorado "he." So many people refer to it as "she."

Lee: Well, I know... To me, it's totally irrelevant. The spirit of the place has no gender... I would get up on top of the cap, and I would see... that here's the femininity of it, all these bodies, all these humps and boobs and chests and bottoms and legs all stretched out there, lolling into each other and hugging the earth. I can see that. Whereas down on the river, there were these wonderful straight, strong, chesty walls with masculine shoulders and arms up on top. To me, because I'm a woman, why, to me it's masculine. And since the river turned out to be my real lover anyway, I couldn't hardly have a girl. I like men. (Goddam, I sure like men.)

I got a lot of work, I worked all the time. I was making really good money for a folk singer in those days, but you know, somebody on the road, anybody can tell you who's been in the biz, that you spend *everything* you make, practically, because you have to get your clothes, you have to buy this, buy that—gasoline, you travel. I travelled everywhere for the first few years in a little Studebaker Hawk.

I was doing coffee houses and clubs then. See, I opened the Gate of Horn in Chicago. I was called back from New York, 'cause from Chicago I went to New York. And that was another great big step. That was after this first Glen Canyon trip with Frank and Tad, where I *really* got to know the river, and it got to know me.

I call those [the trips she went off to do] the “we three” trips. “We three” meaning Frank and Tad and I. Frank had never done that before. He had never gone on a trip just for fun... He's a very responsible human being, and he was *always* worried about everybody, and he wanted everybody to have a good time, and he had to keep all that inside of him. But we made a deal on that San Juan trip. I said, “Frank, if you really want to go, and we can get Tad, and maybe somebody [else], but just maybe just you and me and Tad. (I've known Tad since we were in school, or just after I got out of college, and I've known him for years, and he's just like a big brother to me.) And you've never had a chance to lay back and enjoy the river. Tad and I can do the chores and the cooking and you can bring your camera and you can just photograph until you're purple. And we can go in the fall, when there isn't anybody here. You always do this in the summertime.” And Tad had told him about the light. He said, “You know, Frank, this is not the same place as it is in the summertime. It's a totally different bag of tricks. The light changes everything in here in the fall.” The low light. So as it turned out, we talked him into it, and he supplied the boat and we split up the food and Tad and I did most of the chores, or tried to. Frank has a habit, he ain't used to sitting around, not doing anything. But we hiked him all over hell, and I tell ya', I drug him up through some cold pools that must

have shriveled him. He must have thought he had two sets of tonsils. I know Tad thought *he* did.

...I found out, after this “we three” trip that I could not do any commercial runs: I did one more for Frank, and then I said, “This is destroying everything I come here for. I want nobody here. I don't want anybody here [unless it's] somebody I know personally. I will not take anybody down this Canyon that I don't know, [I want to go with someone] that knows when to shut up and let everybody have their own thoughts.

But that's the way it was with Tad and Frank, we all knew when to communicate with just signs or eyes or anything, and no speech... talk covers up what Nature has to say, and that's why it's so nice to go with just a few people or three people that know when to shut up, than people that don't... We didn't talk a lot on the river, at night in camp, sometimes, most times. We never swore, either, because Frank wouldn't have it. (laughs) I used to say “Aw shi...nuts!” And one day Frank asked me “Katie, what are these Ashi nuts you're always talking about?”

And I sang every night. Frank loved that music—so did Tad.

One of the turning points for me, advertising that, is really very funny. I was doing a show in Chicago one night, a talk show, but I wasn't talking, I was on there to advertise the fact that I was singing at the Gate of Horn. This is '56. But I was on this show that night, and there were several other people, all different—not just entertainers—people from all walks of life that had something to say, or that the press had found interesting. ...and I look down the row here, and here's this woman with a little brown suit on, and a little brown hat with little faux feathers in it... and she looks really strange in this outfit, and I'm thinking, “What in the hell? Who's that?” And the man who's the head of the show looks up and he says, “And we have on the show tonight Georgie White, who has come here to tell us about this incredible river run down the Grand Canyon Rapids of the Colorado River,” and on and on he goes. And I'm looking like, “Holy fuck bombs! I don't believe this!”

[She] was on this show with me, and she's advertising this river that I'm trying to protect. It just dawned on me right then and there that I'm doing the wrong thing. *Never* am I going to write another article about this river—never.” And by that time I had found out what Tad and Frank and I... I really had gotten possessive about the place, and I didn't want anybody else down there anyway—ever.

Steiger: So you decided to stop publicizing it.

Lee: I sure did. But you see, you know, we all shit in our own little nests sooner or later, and I was sure doin' in it mine. That's what I call it now, but at the time I was just *blind as a bat* about that. I was doin' it for Frank

and Mexican Hat Expeditions, but that's no excuse, 'cause by that time, I was in. I mean, nobody was payin' my way anymore, and I was payin' my own way. And I thought, "God, look what I'm doing!"

Steiger: You mean, just publicizing the river was not a good thing to do.

Lee: Not the thing to do. And I had concerts to do all that year. I was showing Tad's film and singing the river songs, and I was doing a *whole mess* all over the Midwest. I was doing these women's clubs. And I had six months of those to go. But after that, my heart was not in it at all, and I quit doing that kind of thing.

Steiger: Katie, you've done a whole bunch of albums. There must be five or six of them, at least.

Lee: Oh at least, I'll say.

Steiger: If not more, but there is one devoted to the river....

Lee: Well, the first one I did [*Folk Songs of the Colorado*] was in 1960, and it was for Folkways.

But the albums... the first one I actually did was called *Spicy Songs for Cool Nights*. And then the next one, somebody, this guy got ahold of me and wanted me to do *Songs of Couch and Consultation*. Everybody was being analyzed in those days. (laughs) And this was a hot seller.

So I did two of them, and that second one was called *Life is Just a Bed of Neuroses*. And there again, I was pulled and pushed and tugged around, you know, like, "You're going to make a whole lot of money, Katie."

"God, I've got to keep this momentum going!?" And I said, "No, I'm sorry. I'm real sorry, I've got to go to the river. I'm all screwed up, I don't like this, there's something wrong here. I've got a trip...." "Well, you can't go to the river, you've got to make a lot of money." And I said, "No, you're gonna make a lot of money, and I'm gonna lose my mind. *I'm going to the river*. See ya' when I get back!" And there went the momentum. I couldn't have cared less.

I still had a career, I still had... I just knew that there were certain things that I couldn't do. I could never be famous. I got right up there at the top, and then took one look at it, and it was just like looking over a precipice and you either spread your wings and [you're] dyin' or flyin', and I knew I couldn't fly. I just *knew* it, not in me. I'd insult people. You know, people would get in my hair to the point where.... I didn't want to be another Frank Sinatra or any of those people that turned out to have more hate in them than joy.

...[But] looming over [Katie's life on the river] was the fact that we were going to have to fight this dam which was coming in at us from all angles at that time. Up until then we'd



just sort of pushed it off and said, “You know, this can’t happen, they’re not going to do this, they *couldn’t* do this. Nah, no way.”

...we tried *not* to talk about it on our “we three” trips, because we wanted to forget that and enjoy this place and get to know it. It wasn’t a sure thing, then, yet at all. We still had hope that we could fight it down. It wasn’t until just the following year, you know, that the shit hit the fan, because then’s when Moss just changed—all you did was just change the language in the law, and I didn’t understand stuff like that. You know, I thought a law was a law. Well, I sure learned a lot in a hell of a hurry...

I started in ‘53. In ‘56... it was three years before we knew we had a fight that was going to be bigger than one we could handle. I mean, I’d started writing my letters to Goldwater way back in ‘54. So I’d sit down and write four-page, single-space letters to people. If I’d been smart, I wouldn’t have done it to Goldwater in those days. But I was so apolitical that I had no idea what you did, I just did the best I could. But anyway, I had written him, and within, you know, six, eight days I got an answer back. Barry did read the thing, but it was just, you know, trying to explain, you don’t want to do this.

Steiger: Well, he, of all people, probably should have known.

Lee: That’s just exactly right, but he, of all people, is a fucking politician, just like all the rest. And now, he’s *still* one, because now it’s the thing to do to be sorrreee. So he’s politically correct, right to the end. He’s sorry now, along with Udall and the rest of them. “Oh, we shouldn’t have done that.” Big fuckin’ deal! I told you long ago you shouldn’t have done it...

Steiger: But what you got from him then was, “Sorry, this is happening.”

Lee: Oh, “Arizona needs this water,” and “this is for silt control of Lake Mead,” and all that. As if I gave a damn about silt control in Lake Mead! So (sigh) yes, I wrote very logically as well as very emotionally, because that’s the way it is, you know. By that time I was involved with that Canyon, and it didn’t take long to get *involved* with it, but it took a long time to understand that it was *really* going to go.

Steiger: Now, what was this, as far as the law?

Lee: The law itself? It was that no water was to encroach on a national monument.

Steiger: And this is referring to Rainbow Bridge?...

Lee: Yeah. It was a national monument. They were going to inundate a national monument—they couldn’t do that. So we were, you know, we didn’t *know* it, but we were just grabbin’ at straws. We were all people [who were] not politically-minded. Hell, I never even joined the Sierra Club until after David Brower saved Grand Canyon. And I never blamed David for Glen—he blames himself. When I talked to him two weeks

ago I said, “I was not one of those that blame you for inundating Glen. There’s just so much one man can do, David, and the Wreck the Nation Bureau was going to build a dam, whether you liked it or anybody liked it or not...”

[Katie pulls out her manuscript again...back to 1955...]

Through binoculars we see three lone figures high on the rim opposite Sentinel Rock—survey party, tripod and plane table. They called to us and some called back—not me. We note inscriptions on the rock by the dam site from other river rats who are livid about its possible construction. I got some hot things to add, but Frank says no. There’s no way anyone on our trip would have answered the Bur-wreckers if we still hadn’t been certain by law that nothing could destroy our Glen Canyon, nothing as unspeakable as a dam, even with such dumbfounding evidence before our eyes. Interesting word, dumbfounding. Dumber than dumb it found us. But I was starting to panic. I had just found a place on earth that could save my life, and some black-handed bureaucracy was already clawing to take it away from me.”

Down in the... snaky narrows are rocks like those I saw in Twilight Canyon across the way. Huge baked-potato-looking ankle-breakers, and I wonder why on earth that these boulders, acting as crushers in a mad flash flood haven’t rammed through this thin buttress to the river. The answer’s right in front of me—time—in time, it will. Here come the tears again. These animals who want to inundate everything! All this purity put to rest under putrid, still water. Don’t they realize spots like this are disappearing from the earth at an alarming rate?! Sure they do! They just got shit for brains. What’s a few hundred miles of sandstone to a politician? I’ve tried not to let these thoughts rain on my parade, tried to soak up every sight, sound, smell, and emotion, like a blotter, and keep them forever in my vision and my heart as protection against the drought of spirit, against the storms that batter my soul. But each day, as the threshold of earth’s awesome beauty and power move higher in my sight, more frightening is the knowledge that my own species, and only mine, has in the past, can and will in the future, eradicate whatever it chooses, for whatever reasons it dreams up, followed by the most bitter, bottom-of-the-barrel thought of all, What if this Canyon really is victimized and I can never come to this blessed shelter again?”

*Life magazine came out with a stupid article about how they were going to irrigate, you know, with all this water. And I’m lookin’ at fifty miles of sandstone on both sides of the river, and I’m about to tear that magazine in 14,000 pieces and stuff it up ‘em, because I’ve never heard of anything quite as stupid as *that*. They were gonna irrigate on.... Well, I wrote a silly little poem about it. In fact, I was into writing bad poetry at the time, because that was the only way I could express myself. I couldn’t even sing it!*

The River to the Dam Builders

You've silenced me! You've cut my chattering string!
Are you glad that I no longer sing?
Are you proud, now in my millionth year,
Proud to see my journey's end so near?
And when you've covered o'er my secret carvings back
beyond,
will you feel might at having laid my restless waters still?
I'm sure you will!

You never knew, nor took the time to find
What strange and wondrous scenes I left behind.
Nor felt the blanket pressure of the stars
Hold you against the warmth of my sandbars.
My deep and winding crevasses you've never climbed with pounding heart
To turn, and down the fluted sides in wonder let a tear fall through.
No! Not you!

You have no tears! You've dollar signs for eyes!
Not one of nature's wonders made you wise.
Your only thought was how to cloak the facts.
Which man can we buy? Who'll get the fat contracts?
I nearly flipped my stream that day I saw my face in LIFE.
You had me growing corn on rock where even God had never tried!
Oh how you lied!

Only a few who stood with me alone
In the twilight bottom of a bowl of stone
Only those who followed me in wild elation
Will feel each drowning inch with suffocation!
To them I leave a truth the likes of you will never find.
It can't be bought, or sold, nor spit upon, nor torn apart.
It is the heart!

This poem was written in 1955, in November after I got off of this trip.

So that's it. I was pissed, and that's what I said.

Steiger: Well, there's a lot of water under the bridge since then, huh?

Lee: A whole lot. But, my conscience is clear. I have never, ever backed up.

October 13, 1956 *We went on down a mile below.
Little men were crawling all over the walls, from the top via little rope chairs—all alien, and all silent and busy, marking the walls for blasts. Tomorrow—no, Monday—President Eisenhower presses a button in Washington and the first blast falls off the wall to begin construction officially. Must have it official, by all means! A cable crosses the Canyon at the top, bold white numbers splattered all over the desert varnish, a fly-speck trail of them down both walls where the abutments will eventually go. Oh, how I wish I had a million tons of dynamite! Boats dot the shore, flags, survey equipment, tools, and hydro-glyphics peculiar to those who know about drilling diversion tunnels into walls, to fool rivers into escape*

tunnels, while they silently and slyly build up a wall in front of his path to hold him back for the power they think he'll produce for them, at a cost ridiculous, and a reason nameless, except to those few who will line their purses with the money from the mighty contracts.

"Back to the boat and down our river. I cannot hold back the tears of anger and resentment, of the wrongdoing, when there is a right way. I know what they are destroying, they don't care! I cannot fight harder, I haven't the money to buy the dynamite, and that would be the wrong way anyway. Even though it would be the only way to fight rotten politics, I haven't the strength alone to shout the truth, nor the means for it to be heard. I would be named a queer type of eccentric. At this point I can only hate those who set it in motion, write my songs of protest to let a few see and hear, and pity the man to whom the almighty buck means more than great Nature's beauty, wonder, and spiritual elevation. Our language will never intertwine, our semantics will remain a barrier forever, and for that I am glad.

Steiger: Looking back on that, if you'd have known then what you know now, do you think there was any stopping that thing? It seems like you guys were battling overwhelming odds.

Lee: Oh! The odds were so ridiculous that.... Well, there were no... we had no way to publicize any of this. Sierra Club was the only one that could get any message out at all, and the Sierra Club had no membership then. What, 50,000 people, maybe, or less.

But we did *not* have any numbers to battle this. And another reason I wrote these articles was to try to get people involved, to let them know. Go down that canyon and see—you won't want it dammed. Because the minute we got people on the river, we talked their ears off.

I remember being in the Canyon on the '57 trip, the day before President Eisenhower pushed the button and blasted the first blast off of the walls. And that was in September or October of 1957. October 30 or 31, toward the end of the month. I was in the canyon, we'd just gotten out the day before. In fact, we were up at Art Greene's and I heard the sound, and I remembered. It just brought me to my knees. I couldn't handle it.

Steiger: Well, it seems like there were so few people....

Lee: I had done everything I could do.

Steiger: Well, as far as who knew Glen Canyon, about the time this deal was being made....

Lee: Yeah, but you see, it's just a vicious—it's a *Catch 22*. You've got to get the people in there. This is what the Sierra Club was in there for. You gotta get the people in there to know what it's about in order to get them to stand up and fight. And in so doing that....

Steiger: You've already....

Lee: You've already fucked up your place. If you

want the privacy, if you want the solitude, if you want the mystery and the treasures that a place like this can bring to you, you shut your mouth about it, and you don't tell anybody nuthin'! So we defeat our own purpose.

Steiger: [looking at Katie's log] here's a Glen Canyon, '59, '61, '62.

Lee: The only year I missed was '60. That was the year I married a second idiot. No, '58 I married the second idiot. Oh, God! (whew) Anyway, I only stayed married to him three years, and the first idiot three years, and then I got married again, *way* late, in '68, to a real wonderful human being, who had to go and die on me. Did you ever meet Brandy?

Steiger: Uh-uh.

Lee: One of those [trips was with] that second idiot I married, Gene. I took him on the river one year. I had a lousy time, actually, as far as the river trip was concerned, because I was trying to show him everything. You know, trying to get him to ... feel and understand what's not possible to transmit.

Oh, he was a very much outdoor person... he tried hard. It's just that, again, how could you know the place or become acquainted with it if.... It's like a person. If you want to know somebody, you have to get to know them, you have to see them a lot, you have to talk to them, you have to get to know their personality and whether you like 'em or whether you don't like 'em. If they're friends, then they stick with you, you know. That's what this river was. It was just a matter of getting to know what it was all about. *And* its changes, and its crazy little mysteries that *nobody's* figured out, and I don't *want* anybody to figure 'em out. I mean, that Canyon ... breathed. Laugh at me if you want, but it did. Had a funny little thing it did in its side canyons that somebody else has discovered recently in other parts of this country in the slickrock country—it has a pulse.

Steiger: Now let's see here. When the dam closed....

Lee: It closed on January 21, 1963. I ran it in October or September of '62.



we three: Katie, Frank Wright, Tad Nichols

Steiger: And never went again.

Lee: Well, no, never went on the river again—there was no river to go on. I went back on Res. Foul, on Cess- Foul, Utah's Urinal, Arizona's Piss Pot. Yes, I went back, in a boat called *Screwd river*, but it had a space between the "d" and the "r." (chuckles)

Steiger: Hmm, I wonder who named that boat?

Lee: My boat. It was a little runabout ski boat, had a little 75 Johnson motor on the back of it, and I went back and tortured myself four or five times, maybe more—'til it reached Hite— *the* Hite, not that thing they call Hite now. Hite is eleven, thirteen miles downstream, the *real* Hite. Underwater. Yeah, I went back. But Frank and Tad wouldn't go with me. I had to get other people.

Steiger: Frank and Tad didn't want to—they just didn't want to go see it.

songs of couch and consultation



sung by katie lee

- *shrinker man*
- *the will to fail*
- *the guilty rag*
- *stay as sick as you are*
- *hush little sibling*
- *real sick sounds*
- *repressed hostility blues*
- *i can't get adjusted to the you who got adjusted to me*
- *schizophrenic moon*
- *properly loved*
- *gunslinger, (a ballad for adult westerns)*
- *it must be something psychological*

Jung. In order to, you have to know, you have to feel, you have to see.

Well, it's just like Brandy: I knew Brandy was going to die. He told me he was going to die before I married him. And he said he only had three years to live, and I said he had more, and he did have more, he had five. But when we knew that dam was going in, we knew exactly how long we had. We just hoped, you know, that a lot of bad things would happen, but nothing bad happened, to the dam—not yet! But once we knew that, then I had to just—I decided to drink until I was drunk with it. And in so doing, you know, because this was going to have to last me the rest of my life—and it has. You see? It has lasted. The fact that it's gone.... Well, it's not gone to me, it's in my head, I can see practically every turn in that river. I can still see the sandbars and feel it

all. And when I'm really up tight, I just lie down and shut my eyes, transport myself back to that place. It saved my life, and it has kept on saving it.



Lew Steiger
Brad Dimock

Thanks to Katie for photos by herself, Marty Koehler and Tad Nichols.

Katie sells tapes of her songs by mail, and should soon have her book to press. For more information, write: Katydid Books & Music, Box 395 Jerome, AZ 86331

Lee: They didn't want to go with me and watch me fall apart.

They were smarter than I thought. They knew what I was going to spend my time doing. Not seeing my way, tears so much I couldn't even drive the boat. But I had to go see it.

Steiger: But—[back to those river trips]—you're going through this place on these later trips, where you already know, (but at first you didn't know that its goose was cooked)...

Lee: No. But you see, that's the reason when you finally know, Lew, then everything becomes indelible, and you see it with a wholly different eye. You see it so that it's so engraved on your memory you can remember the smells, the colors, the feeling, everything. You know, your eyes are windows to the soul, and your soul is nothing unless you analyze. You know, analyzation fills—that's what makes your soul, that's what makes you who you are. You've got to look at things.

Steiger: This is according to Jung, huh?

Lee: No! it's according to me! Not according to

Happy 80th!

Both Kent Frost and Martin Litton are turning eighty in a week or two. The river experience has benefitted greatly from these guys, and still does. Thanks, you guys. We'd like to wish you all the best on your next eighty, and we hope to go boating with again real soon.



Story Time

Boatfolks are working on collecting river stories, and they need your help.

Steve Bledsoe is collecting stories about the early years of full-blown commercial boating—from about '65 to '75 in Grand Canyon. Wild tales about trying to or failing to figure it out. strange boats and clueless moves. You know you've got a few once you get to thinking about it. He's looking for written stories, but if you can't write but can talk, that'll work too. Write, call or e-mail him tonight.

Steve Bledsoe
702 E Cherokee
Flagstaff, AZ 86001
520/525-1250
e-mail sbled0521@aol.com

Mary Ellen Arndorfer is working on a collection of tales of the big water in '83. Those were some pretty exciting times, so try to remember what really happened. Her plan is to try and have a few beer and barbeque parties with a big circle of folks and a microphone. The first one will be at Jeri and Brad's house, 1000 Grand Canyon Avenue in Flagstaff, starting around 6PM February 7. Give her a call at 520/525-2585 if you'd like to be a part of it.

Standing Wave, a new paddling magazine with a literary bent is about to print it's first issue. They'll be looking for good non-fiction, fiction, poetry, and stuff that defies those categories, as many whitewater tales do.

Black and white photography, too, that "addresses the relationships of whitewater paddlers to the contemporary, fluid world of rivers. Write:

Standing Wave
c/o Eliot Treichel
Box 12287
Prescott, AZ 86304-2287



Mad River Runners Museum

Breck O'Neill (remember R&O River Expeditions?) is starting up a river runners museum at his Mad River Boat Trips operation up in Jackson, Wyoming. He's looking for old boats, oars, motors, life jackets, pictures and whatnot. He's up for donations but is also buying some stuff. Get in touch with him if you've got anything you think might be appropriate.

Box 2222
Jackson, Wyoming
800/458-7238
e-mail madriver@wyoming.com



Swiftwater Rescue

There'll be a **Swiftwater Rescue Technician 1** course at Lees Ferry on April 2-4 and it'll cost \$185
Contact Julie Munger for information 209/533-2697



Inscriptions, Plaques and Stevens Guides

C.V. Abyssus and Early C. Corax are willing to purchase several copies of Larry Stevens' *The Colorado River in Grand Canyon*, specifically: Second Edition (1984/85?); Revised Second Edition (1986); Third Edition, 2nd Printing (1988/89?); Third Edition, 5th Printing (1994); and any early copies of the non-waterproof or non-water resistant editions.

We are also photographing and compiling a list of inscriptions, plaques, memorials, and other memorabilia that seek to commemorate people and/or events along the Colorado River corridor of Glen and Grand canyons. While we neither condemn nor condone the placement of these physical reminders, we feel it is important to document them: we are interested in their existence, their historical significance, and their story. If anyone wishes to inform us of the existence of these items, your cooperation would be greatly appreciated. If you consider them too confidential, let us know and we will not mention them to others. This list, items on the list, or locations will not be shared with anyone without your consent, unless otherwise commonly known.

Please contact us if you have the Stevens' Guides for sale or wish to contribute to the list. Thanks.

PO Box G, Flagstaff AZ 86002-0958, 520-779-2687.



Area Businesses Offering Support

A few area businesses like to show their support for GCRG by offering discounts to members. Our non-profit status no longer allows us to tell you how much of a discount they offer, as that is construed as advertising, so you'll have to check with them. Thanks to all those below.

Yacht True Love Bill Beer, Skipper Virgin Island Champagne Cruises	809/775-6547	Deborah Fine Attorney at law 308 N Agassiz, Flagstaff AZ 86001	779-1713
Expeditions Boating Gear 625 N. Beaver St., Flagstaff	779-3769	Laughing Bird Adventures Sea kayaking tours Belize, Honduras and the Caribbean.	800/238-4467
Canyon Supply Boating Gear 505 N. Beaver St. Flagstaff	520/779-0624	Mary Ellen Arndorfer, CPA Taxes 230 Buffalo Trail Flagstaff, AZ 86001	520/525-2585
The Summit Boating equipment	520/774-0724	Terri Merz, MFT 1850 East Flamingo Road #137 Las Vegas, NV 89119 Individual/Couples/Family counselling. Depression/Anxiety	702/892-0511
Chums/Hellowear Chums and Hello clothing. Call Lori for catalog	800/323-3707	Dr. Jim Marzolf, DDS Dentist 1419 N. Beaver Street, Flagstaff, AZ	779-2393
Mountain Sports river related items 1800 S. Milton Rd. Flagstaff	779-5156	Snook's Chiropractic 521 N. Beaver St. #2, Flagstaff	774-9071
Aspen Sports Outdoor gear 15 N San Francisco St, Flagstaff	779-1935	Fran Rohrig, NCMT, Swedish, Deep Tissue, & Reiki Master	527-0294
River Rat Raft and Bike Bikes and boats 4053 Pennsylvania Ave. Fair Oaks, CA 95628	916/966-6777	Dr. Mark Falcon, Chiropractor 1515 N.Main, Flagstaff	779-2742
Professional River Outfitters Equip. rentals Box 635 Flagstaff, AZ 86002	779-1512	Five Quail Books—West River books 8540 N Central Ave, #27, Phoenix	602/861-0548
Canyon R.E.O. River equipment rental Box 3493, Flagstaff, AZ 86003	774-3377	Willow Creek Books, Coffee and Outdoor Gear 263 S. 100 E. St., Kanab, UT	801/ 644-8884
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Winter Sun Indian art and herbal medicine 107 N. San Francisco Ste #1 Flagstaff, AZ 86001	774-2884		



Thanks to all: to Sandra Vlock for her wonderful drawings, to all you writers and photographers who send us stuff, and to all you whose stuff we haven't printed yet. We'd be nowhere without you. The *bqr* is printed with soy bean ink on recycled paper by really nice guys.

Wilderness First Aid Courses

Whitewater Advanced First Aid (Wafa) March 25—29, 1997 (5 days)

Cost: \$245

Wilderness Review Course March 31—April 2, 1997 (2-1/2 days)

Prerequisite: must be current WFR, WEMT, or Wafa

Cost \$145

Place: Albright Training Center, Grand Canyon National Park South Rim

Lodging: Cheap at Mather Campground, \$26 per person per night at Albright cabins

Meals: On your own; small kitchen in each Albright cabin

Both classes include CPR certification

Class sizes are strictly limited. Guides and private boaters welcome. Send your \$50 *nonrefundable* deposit with the application below to Grand Canyon River Guides to hold a space. Courses are already filling, so act now.

Circle One: Wafa Review Course Circle One: Cabin Campground

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If you're not a member yet and would like to be, or if your membership has lapsed, get with the program! Your membership dues help fund many of the worthwhile projects we are pursuing. And you get this fine journal to boot. Do it today.

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Night Time in the Big City



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In the early 1940s the Bureau of Reclamation set up shop at the head of Lake Mead to do exploratory work on the proposed Bridge Canyon Dam. In this issue, geologist J. Neil Murdock tells about life at Bridge Canyon City.



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