



**GRAND
CANYON
RIVER
GUIDES**

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Grand Canyon River Guides, Inc
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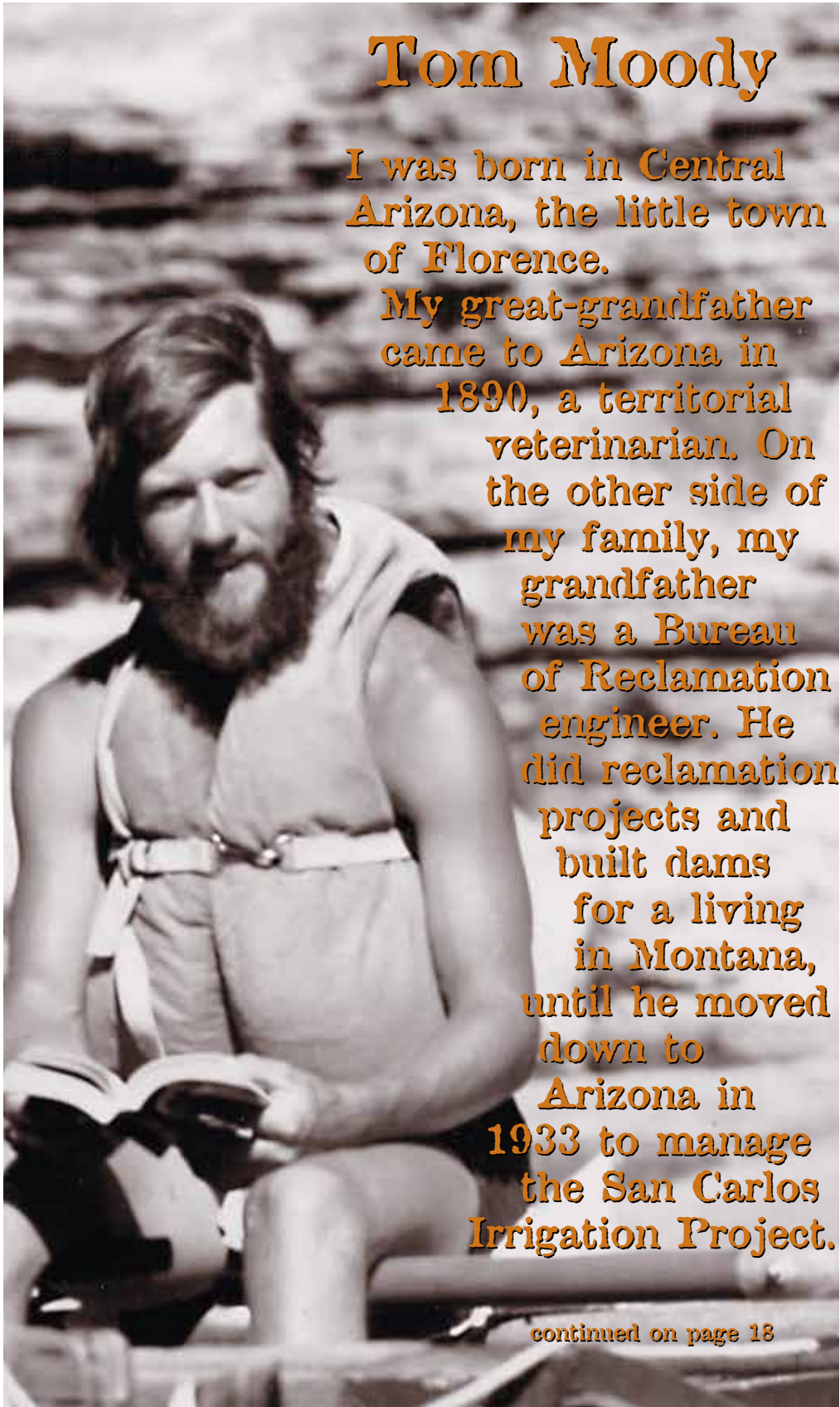
boatman's quarterly review

Tom Moody

I was born in Central Arizona, the little town of Florence.

My great-grandfather came to Arizona in 1890, a territorial veterinarian. On the other side of my family, my grandfather was a Bureau of Reclamation engineer. He did reclamation projects and built dams for a living in Montana, until he moved down to Arizona in 1933 to manage the San Carlos Irrigation Project.

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boatman's quarterly review

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

Grand Canyon River Guides
is a nonprofit organization dedicated to

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

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

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

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

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

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Plan and Profile of the Colorado River

GRAND CANYON is a World Heritage Site and one of the Seven Natural Wonders of the World. I remember Grand Canyon National Park Science Coordinator, Dave Haskell, speaking at the 1995 GTS, commenting that no matter what the issue was at Grand Canyon, there would be someone with concern about it. That's a very important point to remember, not only for the Park Service, but for all of us drawn to "this place called Grand Canyon," one of the extremely high-profile "jewels of the crown."

Thus flows the Colorado River. All activities concerning the River are also high profile; the Colorado is often referred to as the most-regulated river in the world. But even with this profligate profile, the Colorado River and its system lack a plan, a coherent all-encompassing course of action. A package of laws, decrees, and agreements entitled "The Law of the River," originated and added to in a piece-meal manner, govern the course of the Colorado River. It is time to look at this package and to re-evaluate it, to realize that the Colorado River and its tributaries are interwoven, and that any action concerning one part affects the others. As we have no other recourse, it is time to conceive a plan, one that will encompass the whole, which is indeed grander than the sum of its parts.

You may have noticed that Grand Canyon River Guides has a somewhat increased profile of late. GCRG joined Grand Canyon Trust and Southwest Rivers in an April 3, 2002 press release highlighting the continued decline of the humpback chub population and the deterioration of the beaches in Grand Canyon. Our AMWG/TWG representatives Andre Potochnik and Matt Kaplinski continue to fight the upstream battle for resource protection concerning adaptive management; please read Andre's report for an update. The "GCRG Adaptive Management Clearinghouse" list-serve will soon be up and running; more information will be forthcoming through the *bqr* and www.gcrg.org.

We posted the results of the Glen Canyon Dam poll in the last issue and promised a statement from the Board in this issue. With the hope that we are not quoted out-of-context, the statement of the current Board of Directors in calling for a basin-wide EIS is entirely consistent with the feelings of previous Boards over the years and the membership who responded to the poll; I encourage you to read it and to re-read past issues of the *BQR* for those pertinent articles.

The Colorado River Management Plan meetings have not yet been set, but we are anticipating that they will be held late summer. The Board and interested members have met twice and will meet again to discuss GCRG's

position and role in this important process. Everyone knows what the problems are; it is now time to prepare solutions. If you have any ideas, please write or send an email to the office for us to consider.

The “Old-Timers GTS” is now a part of our social history. If you were lucky enough to be there, I don’t need to tell you how wonderful, informative, and fun it was. If you couldn’t make it, please read Lynn’s “Homage.” In trying to keep the weekend on schedule, I failed to announce two things: nominations are still open for Board of Directors’ positions, so please let us know who would best represent GCRG for the next two years (self-nominations are welcome); and there is a

GTS evaluation survey in the packet, so please mail or fax them to us.

I’ll close here with a GTS quote from Martin Litton as he narrated some dory river film: “Water running over rocks. Normal people don’t go there.” So, please, continue to act abnormally and run those rivers.

Richard Quartaroli

Executive Director’s Plea

GCRG’S FINANCIAL STATUS has been so solid the past few years; it’s hard to imagine that we might lack endless funds. Sadly, this current fiscal year (July 1, 2001 to June 30, 2002) has been tremendously difficult financially, with reductions in both BQR funding levels and general contributions despite our efforts. Whether due to the tragic events of this past fall, the poor economy, or mere chance, it’s nevertheless extremely distressing that we find ourselves in dire straights as this fiscal year draws to a close. It’s not particularly surprising though when you realize that this newsletter, as a single (albeit wonderful) project, takes approximately \$38,000 to produce each year. We’re working frantically on our end to rectify the situation and hope to rebound in the next fiscal year, but we need all of our members to rally now with an infusion of contributions to bolster us until the situation is stabilized. There are many ways you might help—individual contributions and/or corporate sponsorships (think tax deduction!), funding ideas, personal contacts, paying your dues on time, etc. We’ve re-published our “We Need Your Help” article in the back of this issue, risking redundancy to drive home our point—we need help and we need it now. Not only is the future of the BQR in jeopardy, but Grand Canyon River Guides’ future as well. The Colorado River through Grand Canyon would be a very different place without our continued efforts. And there’s so much we still need to do. As Richard mentioned above, there are always areas of concern that need addressing. This is your organization. Please help us through these hard times so that we may continue to strive towards our goals.

Lynn Hamilton

Dear Eddy

IN 1984 I WAS A CUSTOMER on a Wilderness World (wiwo) trip with Jimmy Hendrick as Trip Leader, Dan Dierker, Jeff (a first year guide), and others. Jimmy pretty much was convinced I was a narc doing undercover and so kept his distance. My first impression of Dan was not favorable—it seemed he had a big mouth and was full of himself. As the trip progressed, I learned he had a heart just as big. My fond memories of this trip are Jimmy taking all of us into the tunnels at Marble and talking about rivers and dams, Dan showing me the “ceramic lady” up Havasu (for which he was scolded because dudes were not supposed to be taken there), and Jimmy letting me ride on the baggage boat. Well, as it turned out, the baggage boatman was more into doing other things and then sleeping it off, at which time I took over on the oars.

Then it really hit me and I thought rowing this boat down the Grand was a pretty cool thing to do. I made up my mind on that trip that some day I was going to row my own boat through the whole thing. Within one year I had taken a rowing school and quit my full time real job. Within two years I became a full time river guide, which I still am to this very day. Within three years I took my own boat all the way down the Grand, and have done five subsequent trips.

So all of us need to keep in mind that we river guides do make an impression on customers, some subtle and some not so subtle. When the day comes and we lose sight of that, as Dan says in his interview “It becomes just a job”, it is time to step aside and let somebody else step in.

Oh, and Jimmy and Dan, by the way, thanks for the input.

Anonymous

GCRG Statement On Glen Canyon Dam

THE QUESTION OF WHETHER to remove or decommission Glen Canyon Dam or, instead, to leave it operating as a hydropower and water storage facility will continue to spur debate among Grand Canyon River Guides' membership for as long as the dam stands. Despite debate, however, GCRG members do hold a single majority opinion. A poll of our membership in the fall of 2001 revealed that our majority opinion (55 percent) is as follows: The u.s. government should conduct all appropriate and necessary research to compile a full-scale Environmental Impact Statement delineating the impacts of Glen Canyon Dam and its power plant operations on the Colorado River's upstream and downstream resources, including the national parks, monuments and recreation areas in its watershed—and this new EIS should be conducted with the decommissioning of Glen Canyon Dam to be considered and included fully within the range of all alternative operational options. Additionally 34% of GCRG membership called for decommissioning the dam.

In view of the now clearly evident reality that Glen Canyon Dam and its power plant operations have been and still are creating a series of unnatural and new riverine environments and ecosystems, on the Colorado River and its canyons, GCRG, including its Board of Directors and the majority of its guide and general membership, insist that it is now urgent to

design a Glen Canyon Dam EIS to meet the criteria of the National Environmental Policy Act and the Endangered Species Act. This EIS should and must address dam and power plant impacts to the entire river system from its headwaters to the Gulf and should do so openly, scientifically, in a timely manner, and in one free of political restrictions or sophistries.

Further, it is our position that present and future management decisions should not merely address short-term goals but instead should aim primarily at fostering long term sustainability of the resources of the entire Colorado River system.

As stated many times in the *boatman's quarterly review* by previous GCRG Boards, Grand Canyon River Guides considers its above position regarding Glen Canyon Dam to be consistent with its twin primary goals of protecting Grand Canyon and fostering the best possible visitor experience within it. Our hope is to accomplish this by adhering to the spirit and law of the 1916 National Park Organic Act and by promoting long-term sustainable use of the Colorado River system while protecting and/or restoring its irreplaceable canyon ecosystems.

Michael Ghiglieri

Sego Lilly—*Calochortus nuttallii*

SEGO-LILY was an important food plant not only to the Native Americans, but the settlers as well. It is reported to have saved the Mormon settlers from starvation when grasshoppers destroyed their crops.

The bulbs are both nutritious and quite tasty. They can be eaten raw, but were usually roasted over charcoals or boiled. The bulbs were also dried and stored for future use. Flour was made from the pounded dried bulbs, and used to make bread and as a thickening agent. The seeds were ground into a meal and used to make cakes. The lovely creamy white flowers are considered a delicacy and can be eaten raw in salads.



Sam Walton

Medicinally, it is reported that the juice from the leaves was used topically for pimples. A tea from the whole dried plant was given to women after childbirth.

These days the lilies are rare and endangered in many areas. Since harvesting the fragile plant will destroy it, we ask that it not be used in the wild. However you may want to include this beautiful plant in your garden.

DeeAnn Tracy

The Cooperative Resource Conservation Program— A Joint Effort Between the Grand Canyon's Professional River Guides, the Outfitters, and the National Park Service

MY NAME IS BRIAN HANSEN. I have been a guide for Arizona River Runners and have worked full-time in the Grand Canyon for 22 years. In the spring of 1999, I was hired by the Colorado River Fund, Inc., a non-profit charitable organization run by the sixteen river outfitting companies who operate in Grand Canyon National Park, to serve as the project manager for the Cooperative Resource Conservation Program (CRCP). This program consists of a series of cooperative river trips run by outfitters, guides, and the National Park Service, paid for by the Colorado River Fund (CRF).

My job is to help organize, lead, and document the cooperative resource trips that take place under the auspices of this program in the fall, winter, and spring months. As of March 30, 2002, we will have completed about two-thirds of the original project, and there are several more trips yet to come. That means the program should continue for at least another two years.

For the most part, things have gone smoothly. A great deal of resource related work that would not have happened otherwise has been accomplished. So far, about 85 guides have taken part in the program and these guides go to their respective companies and talk about what they did, thereby informing other guides and passengers about the cooperative nature of the program and the work that is being done along the river corridor.

Funding for the Cooperative Resource Conservation Program comes from government fees paid by the outfitters for the privilege of operating within Grand Canyon National Park. A total of \$451,000 was budgeted for twelve cooperative resource trips. Each trip is sponsored by an outfitter responsible for donating equipment, transportation, and other support services, while bearing legal liability for all non-park service personnel who accompany the trip.

The sponsoring outfitters are reimbursed for expenses such as food, gasoline, and payroll costs for the guides who run the trip. But it should be noted that this program is intended to have a meaningful philanthropic component. That means that the outfitters who sponsor these trips do not make money doing so. They contribute their services and equipment free of charge. This also means that wages paid on these trips are the minimum allowable by law. The idea is for all concerned to give something back to the resource we all care so deeply about.

All Cooperative Resource Conservation Program

projects are selected, scheduled, and approved by the National Park Service. On each trip, each participating department at the park is required to obtain legal clearance, (commonly known as "compliance"), from the park's head compliance officer. The level of compliance necessary depends on the type of project that is proposed, as some are endeavoring to do things in more sensitive areas than others.

Generally, the park's compliance work falls into three main categories:

1) CATEGORICAL EXCLUSION (CE)—A CE is a finding by the administrating agency, in this case the National Park Service, that covers projects with minimal impact that have been determined as normal operations and usually occur in areas already disturbed. Good examples of this are trail repair and elimination of non-indigenous plants. This type of compliance also gives department heads the ability to make some decisions while on-site, but only if the situation requires an immediate decision. A good example of this was the controversial removal of the large boulder on the Tapeats Creek Trail. It was assumed by some that the boulder was removed simply to make the trail easier to negotiate, but this was not the case. During the winter the boulder had shifted and had become unstable to the point that one person could move this 2000 pound rock with minor effort. Since this was clearly a safety hazard, the folks who work in the park's Trails Department had full authority and the responsibility to remove it and the safety hazard it represented.

2) ENVIRONMENTAL ASSESSMENT (EA)—An EA is a significantly higher level of compliance and is more difficult to obtain due to the higher cost and complexity usually involved. A good example of a project that requires an EA is the maintenance of Beamer's Cabin at the Little Colorado River. Since this site is on the National Register for Historic Structures, and because it is an archaeological site that pre-dates Puebloan occupation, a significantly higher level of compliance had to be completed before work could begin. This also involved working with non-NPS agencies including the Programmatic Association of Native American Tribes (PANAT) as well as the State Historical Preservation Organization (SHPO).

3) ENVIRONMENTAL IMPACT STATEMENT (EIS)—An EIS is the highest and strictest level of compliance that exists. Projects that require this type of compliance are dealing with significant, long-term issues that concern impacts to the environment. Getting this type of compli-

ance is extremely expensive and time-consuming. It is a major undertaking. The Cooperative Resource Conservation Program does not involve projects of the magnitude that would require an EIS. In order to illustrate the type of project on the river corridor that would require one, a good example would be the upcoming Colorado River Management Plan (CRMP) revision, which is expected to cost in excess of \$2.5 million and will take three years to complete.

Once the park's legal obligations for compliance work have been satisfied, it's my job as the project manager to work with Linda Jalbert, my counterpart at the South Rim, to put a cooperative resource trip together to actually do the work that has been identified. In doing so, I coordinate with the outfitter and the guides who will run the trip to iron out the logistical glitches that always come with any river trip. I also work directly with the NPS people who will participate.

The staff at Grand Canyon National Park is divided into different departments, each with a different mandate and set of responsibilities that together serve to protect and manage the Grand Canyon. Each department is funded in different ways and can receive funding through many different government programs. In recent years, many departments have had their funding reduced to the point that they cannot complete the projects they wish to accomplish in the river corridor. Sometimes this even means that projects that their Park Service mandates specifically state they must do, cannot be undertaken for lack of funds.

Since the CRF provides a sizable chunk of funding, it was determined about three years ago that the Cooperative Resource Conservation Program was a beneficial way to spend a portion of this money. The idea is a simple one in theory but complex in practice: taking care of the resources along the Colorado River within the park. This program has helped and it's a situation in which all the participants win, whether they are NPS, the public who uses and cares about the river corridor, the guiding community, or PANAT.

Of course, since so many different groups are participating in this program, there will be differences of opinion. Discussions of these differing opinions between the participants circulate through the community, and by the time I hear about them again, I often don't recognize the events that I participated in firsthand.

I took the time to describe the issue of compliance because I think this is an area that is often talked about but not very well understood. I wish people unfamiliar with the Cooperative Resource Conservation Program would understand that all the participants take compliance issues very seriously. Nobody wants to do anything that does not have legal clearance, especially in the political atmosphere that exists today.

On occasion, some projects that have passed compliance have been reconsidered and done in different ways,

or not done at all. In my opinion most of these disputes hinged on philosophical differences and ignorance in general. Regardless of the reasons, we have always managed to educate ourselves, change a few things and create a positive atmosphere of compromise within the legal parameters that are set for us. I feel that once someone has gone on a cooperative resource trip and had the chance to work with the park service and to understand more completely how they are trying to take care of the resource, they cannot look at the Colorado River and its use in quite the same way.

My point is that many projects have been done and care has always been taken to protect and preserve the essence of the backcountry as a wild and primitive place, even if it is, in fact, a heavily used resource in a major national park. Care is also always taken to strengthen and enhance the extraordinary relationships on which this program relies. I sincerely believe that this program has done more to educate its participants than any other that I have known. This is important because these same players are those that will determine the rules that will comprise the new CRMP, which in turn will effect every person who goes on a river trip on the Colorado River in Grand Canyon for the next twenty years after its implementation.

I hope that this article has helped to eliminate the confusion some have experienced about the Cooperative Resource Conservation Program. If anyone has further questions, please e-mail me at granqueso@msn.com. Also, all reports written by me about each cooperative resource trip are available to anyone who is interested.

Thank you and see you on the river.

Brian Hansen
PROJECT MANAGER CRCP



A Few Words About the National Environmental Policy Act

BEGINNING OVER 38 years ago, Congress began passing a series of environmental legislation with the intent of preserving regions of our country for future generations. The Wilderness Act was passed in 1964, followed by the National Environmental Policy Act (NEPA) in 1969 and the Endangered Species Act in 1973. These three federal actions are perhaps the strongest protectorates of many of our wildlands today, and balance strong legislation such as the 1872 Hardrock Mining Act. Of the three preservationist acts, perhaps NEPA has done the most to create a greater environmental awareness and to inspire our land managers to have a deeper look at their planning processes.

NEPA case law can be abstract, but the following experience I had with opposing a development plan in Yosemite demonstrates how NEPA law can help create a friendly partnership with park planners. In January of 1997, a warm spell melted the Sierras and flooded Yosemite Valley floor, damaging roads and buildings. It was declared an emergency, and Congress immediately granted \$178 million for repairs. In rapid succession, Yosemite National Park came up with a development plan for the Yosemite Lodge area, an Environmental Assessment (EA), and a Finding of No Significant Impact (FONSI). It was a blur of planning activity, and only 200 people had gotten the chance to submit their comments on the EA, mostly people who had responded to my internet offer for free climbing gear if they wrote a letter to the park with their thoughts and concerns. Climbers especially had cause for concern, as Camp 4, one of the last traditional walk-in campgrounds and meeting place for generations of climbers, was on the edge of the already over-developed lodge area.

The approved plan as presented to the public was a simple one-page text affair that emphasized the restoration of the river's riparian zone. Very little was mentioned of the extensive development of 17.5 pristine acres. After procuring a detailed architectural plan that was smuggled out of the park offices, I printed a thousand copies of a brochure called "Yosemite Crisis: Hotels or Campsites?" with reproductions of the unpublished maps, and distributed them on cars parked in the lodge area at night. The maps visually clarified the sprawl of hotels, parking lots, and employee dorms that was to take place. Camp 4 was to be closed indefinitely and reopened years later at a fraction of its former size. The adjacent Swan Slab area, then a serene public area, was to become an exclusive back yard for dozens of new four-plex hotels. Dozens of beautiful old growth hundred feet high Ponderosa pines were to be harvested to make room for the new buildings and roads.

Concerned Yosemite denizens pulled hundreds of

construction survey stakes in the area, and with the aid of the Ruckus society, I began planning a portaledge protest that was to take place high up in the fated trees. Fortunately, the illegal protest became unnecessary when Tom Frost, a legendary pioneer of El Capitan climbing, entered the picture with the inspiration and the required funds to hire a NEPA lawyer, Dick Duane, who immediately began a discussion with the Park Service.

After nearly a year of discussions, a turning point occurred during a meeting at the San Francisco NPS headquarters in April, 1998, which came about solely because we were working through legal channels. The "closed-door" meeting was hosted by John Reynolds, the western regional director of the Park Service, and was attended by Stan Albright, the superintendent of Yosemite, and eight invited climbers, including Dick Duane, Yvon Chouinard, Tom Frost, Jim McCarthy, and myself. The park wanted to listen to our concerns, and each of us gave a talk on our feelings and thoughts of the matter (having spent over 2000 nights camping out in Yosemite, I spoke of the visceral difference of sleeping outside verses staying in a hotel). Tom had become our leader and spiritual advisor, and implored us not to say or do anything negative to our friends in the Park Service, despite our impulses and feelings.

Late in the day, after a full day of discussion, the park proposed to us a "compromise". If we agreed to drop our legal pressure, they would only build three multi-story employee dorms in the eastern half of Camp 4, rather than four dorms, as called for in the already approved plan. The hotel development plan for the Swan Slab area remained unchanged. After a moment of stunned silence on our parts, Tom stood up with a speech that nearly brought me to tears. He calmly told them that we loved them and that we felt they were our brothers. Then, he made the analogy that it was our belief that the ship they were sailing was not only off course, but it was in the wrong ocean, and he assured them that we would help them find their way. The lack of acrimony must have stunned them, and as we quietly got up to leave, John Reynolds walked us to the door, mentioning that he agreed with our beliefs, but that his hands were tied by congressional pressure, and only a strong wind could change things. We interpreted Mr. Reynold's comment as the go-ahead to request the injunction, as it was the only way even the park could halt the bulldozers and chainsaws. In the spirit of friendship, we filed the lawsuit the next day. Things turned around quickly: the issue attracted national media attention, and the park immediately began an NEPA scoping process that involved organizations representing hundreds of thousands of people.

The NEPA also allowed user groups (who lacked the benefit of lobbyists) to broaden their influence, such as the American Alpine Club who now work as partners and co-planners with the Park Service.

NEPA actions are likely to be at the core of the determination of the future of Grand Canyon National Park in the coming years. It is important that the boating community takes part in the decision making process. Some cogent NEPA points can be summarized:

NEPA outlines the requirements of an agency of the federal government when a decision is made that “may have an impact on man’s (sic) environment”. A full scale NEPA is required only when a “major federal action” occurs.

Participation in the scoping process is the responsibility of all user groups. Park planners welcome valid concerns if presented well and amicably. People intimately involved with an area are perhaps the only ones that can communicate vital key information, and individuals and groups involved from the beginning can offer the most insight.

A full scale NEPA can’t necessarily prevent development from taking place; for example, our NEPA lawyer told us that if the park wanted a restaurant on top of Half Dome, it could happen even after a NEPA process with ten million opposing comments. Yet the NEPA study requires an extensive investigation of alternatives, and generally results in a better solution that balances the ubiquitous conflicting demands of use.

Although activism and indirect action can help others to become engaged, approaching decision-makers directly as friends and co-planners with legal representation is the most effective. Generally, only a lawsuit can turn a cursory EA into an EIS, yet only a well-financed group should consider initiating a NEPA lawsuit, as legal actions are expensive and time consuming.

Timing is everything, and good will goes a long way.

John Middendorf

The 2002 River Season

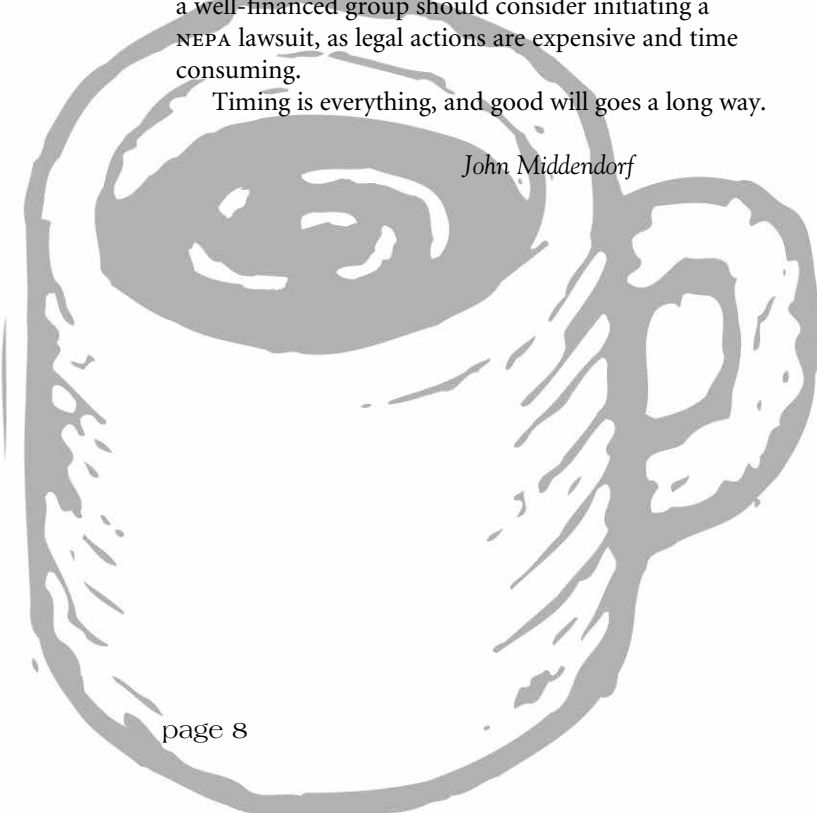
WITH THE 2002 RIVER SEASON upon us I would like to thank all the river guides for the fine job they did during the past season. I would also like to thank all of the guides I encountered on my trips down the river last season for their cooperation and help while doing my regular Public Health inspections

The illness reporting procedures that we started last season seems to have worked very well. I think that we had very good reporting of illnesses as they occurred. In total we had 38 cases reported from commercial trips and three from private trips. I expect for everyone, this was a welcome relief after the previous season’s outbreak. I will be following this program closely again this season. We would like to have any gastro-intestinal illnesses reported. This does not include the occasional stomach ache from over eating or the like. However, when in doubt, report it. The data we receive from these reports will help us track illness trends as well as recognize an outbreak early so that proper action may be taken to help reduce future illness on the river. I would again like to stress that illness or lack of illness on a trip is not reflected in your rating or evaluation as long as we receive proper illness reporting. This information is crucial to helping us help you make the river experience enjoyable and illness free.

Proper water treatment has again come up in discussions. I want to stress that proper water treatment is essential to reducing the incidence of viral related illnesses which was most probably the cause for the 1994 and 2000 outbreaks. Proper water treatment must include filtering through a one micron or smaller filter followed by disinfection. You can use two drops per gallon of chlorine or another approved disinfectant such as iodine and let stand for thirty minutes before use. Disinfection must be used even with the UV type filters since UV is not yet an approved disinfectant at this time. You can reduce the odor and taste of chlorine by adding the chlorine to the container before filling. This helps mix it completely and helps aerate the water as you fill the container. By holding the water for about twelve to eighteen hours before use, most of the chlorine will have dissipated. This is the same level of chlorine that most cities, including Flagstaff, use for their water, so it should not be a significant problem getting people to drink it. Now that the waterline to the boat beach at Phantom Ranch is completed, you should be able to reduce the need to filter water, especially for motor trips.

I hope to see many of you on the river this summer. Feel free to contact me if any of you have questions or comments. My office is in Flagstaff and my number is 928-226-0168.

Jim Nothnagel



Stewardship

THE GRAND CANYON National Park River Rangers and Resource crews need your help in taking better care of the Canyon. New trails are appearing in fragile soil crust areas, and more trash is being left behind at the popular camping beaches. In addition, it seems that the “Leave No Trace” ethic has been forgotten. Too many balanced rock sculptures, rock cairns, stick sculptures, driftwood shelters, sand castles, drip castles, and large deadmans are being left on beaches and up the side canyons.

The Colorado River through the Grand Canyon is a unique river experience. Few other rivers in America are so removed from roads, ranches, towns, bridges, and the like. When you leave your deadman or sculpture behind, you have deprived other river runners the opportunity to see unspoiled, natural beaches and river banks. If you must alter a beach for your pleasure and comfort, please return it to its natural condition before you leave—dismantle any sculptures or structures you or someone else have built, remove any rocks that you brought down to the beach, and dig out the deadman. On park river patrols we have been collecting and documenting trash found on popular camping beaches. Usually we can fill a quart or gallon baggie with what we find in the sand. This is in addition to what we grab out of the eddies and along the strand lines. Please help the canyon out by having everyone in your group do a sweep for trash (especially cigarette butts) before you leave camp and head downstream.

Regarding trails in the Grand Canyon—don’t make any. The biotic soil crusts in the canyon are easily damaged by a single person’s carelessness, and once broken, the crust will no longer hold sand or soil in place—“Don’t Bust the Crust!” The park’s river rangers, resource crews, and commercial guides on resource trips have spent many, many hours rehabilitating and obliterating “social” trails, and protecting sensitive and fragile areas. Campsites can be very heavily impacted by back and forth traffic in camp to the kitchen area and between sleeping areas. All camping activities should be limited to areas below the historic high water line, out of the mesquite or desert zones, and off of fragile soil crusts, dunes, or upper terraces. The goal is to restrict impacts to the more resistant post-dam sandbar areas that can be regenerated by flood flows.

The canyon and its beaches have benefited from years of good stewardship on the part of many of those who care for the place dearly. Please accept our thanks for your continuing care.

*Grand Canyon National Park River Rangers
and Resource Crews*

San Juan River Guide

A NEW GUIDEBOOK has hit the streets, the *San Juan River Guide* by Lisa Kearsley. It is a well illustrated, comprehensive guidebook that gives people a great overview of the area.

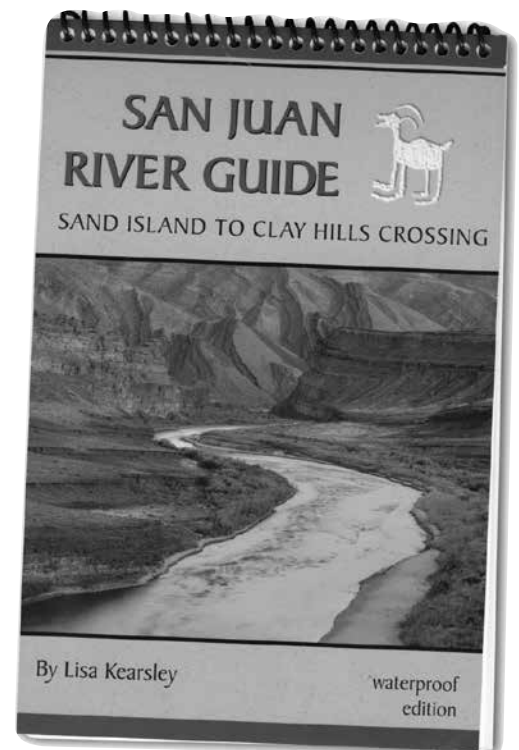
One of the book’s best features is its river map from Sand Island to Clay Hills Crossing. The map is updated, it faces downstream, it is detailed with 100 foot contour intervals, and it has site-specific information boxes with page references to the text for those who want to learn more about what they’re passing. It also starts at the back of the book so is easy to find and follow.

The book’s other sections include a San Juan River overview that gives the reader a feel for the entire river. Logistics and Safety goes over the nuts and bolts of different aspects of San Juan trips.

Human History spans from the Paleo-Indians to the environmental movement. It includes informative charts showing ceramic development and rock art types. Geology, written by Wayne Ranney, provides a forum for understanding the dynamic geologic processes in the region. And finally, the biology section not only discusses present-day challenges, but provides a background

for how the plants and animals arrived at their present state—and where they’re heading. The book also has a mini field guide with illustrations and interesting facts about the most noticeable plants and animals on the San Juan. High quality illustrations and maps are found throughout the book.

Anyone who reads this guidebook will have a more thorough understanding of and deeper appreciation for the San Juan River and the challenges it faces. The book is available in regional bookstores and on the web at www.shivapress.com.



Paying Homage To The Old Timers

THAT'S WHAT IT WAS ALL ABOUT—paying homage. The 2002 Guides Training Seminar (GTS) land session, “Old Timers: Celebration of the Past” met and quickly surpassed our expectations, turning into one of the best attended events ever with over 250 people drinking in the images and words of the presenters over the March 23–24 weekend at Hatchland in Marble Canyon. An amazing number of old timers were in attendance (some speaking, some just enjoying it like the rest of us): Kent Frost, Bob Rigg, Larry Sanderson, Bill Mooz, Gaylord Staveley, Brad Dimock, Don Briggs, Martin Litton, Vaughn Short, Steve Carothers, Dave Mortenson, Al Holland, Thorn Mayes, Loie Belknap Evans, Sandy Nevills Reiff, Joan Nevills Staveley, Dick McCallum, Ted Hatch, Paul Thevenin, Claire Quist, Rob Elliott and Fred Burke—some older than others, but all rich in experience and young at heart. We're sure that many more old



timers were there in spirit—those who couldn't come due to conflicts or health concerns as well as those who have passed on before. It was our privilege to honor them all by listening to their stories and their poetry, viewing their films and slides, and learning from their experiences. Lew Steiger (a legend in his own right) filmed and taped it all for posterity with the end product being archived at Northern Arizona University Special Collections at Cline Library.

We were extremely honored that Superintendent Joe Alston kicked off the GTS on Saturday morning, followed by other NPS personnel discussing a wide variety of park issues. A “worthy causes” section included Grand Canyon Youth, a new plant identification guide, the Adopt-a-Beach monitoring program and the Whale Foundation projects. Can't beat things that help out kids, the Canyon, beaches and boatmen! To round out the event, we had wonderfully enlightening talks from our Arizona Humanities Council (AHC) scholars (Bill Swan, Robert Glennon, Doug Kupel and Gary Hansen) on topics such as the intricacies of water law and Colorado

River history (in amazingly cogent ways that we could all understand), the role of Lees Ferry, and Native American interactions with the River. Numerous other interesting talks on such diverse topics as dam management, hydrologic forecasts, trail history, butterflies and much more followed. We also learned about wildly different modes of river travel, from Norm Nevills' “horse trough” boat, to dories and the *Flavell II*, to the *Sandra* and the *Julius*, Buzz Holmstrom's boat, a Powell boat, speed boats, air mattresses...you name it! Talk about visual aids! Many of these boats (or their replicas) were at the GTS, and those that weren't, we saw through film footage or slides. It gave us all a deeper appreciation of the evolution of river running and a glimpse into what it must have been like when technology, techniques and equipment were not so advanced as they are today.

To top it off, three of Flagstaff's best photographers, Dave Edwards, Geoff Gourley and Kate Thompson, combined their considerable talents, spending the entire weekend taking pictures of the notable folk, thereby continuing the “Legends” series pioneered by the late Dugald Bremner. In addition to capturing the old timers on film, the three expanded their scope to include photographs of more contemporary guides. Doing so serves to crystallize the cross generational link in this vital community while underscoring the fact that the more recent generations of river runners have already begun to make their own history. The result will be an incredibly valuable photographic record and yet another way to pay homage to river running history.

This program was made possible in part by grants from the “Moving Waters” program of the Arizona Humanities Council (an example of your federal tax dollars returning to Arizona to benefit you and others in this community!), the Grand Canyon Conservation Fund (a non-profit grant-making program run and managed by Grand Canyon commercial outfitters) and Teva Sport Sandals. Once again, Ted Hatch and Hatch River Expeditions gave us a home in Marble Canyon, an area that is near and dear to every river runner's heart. Thanks Ted, Sarah, Steve and Eva! We thoroughly enjoyed the wonderful food whipped up for the hungry masses by the intrepid Emily Couture and Jennifer Hicks. A fabulous mix of bluegrass, country and western swing by Second Harvest gave that “old timey” rollicking fun feel to Saturday night (of course some of the talented band members work on the river!) They were an instant hit with the river crowd. Thanks also to the commercial river outfitters for their participation and support, to the National Park Service for their assistance and contributions to the event, to all the old timers and speakers who came to share their knowledge,

to the AHC scholars for their expertise and to the GTS committee and many, many volunteers who made this program such an overwhelming success. We'd like to also thank Marble Canyon Lodge for letting us hold a Coconino Food Handler's class on Friday, March 23rd (thank you Marlene Gaither!) as well as our GCRG spring meeting held on the lawn with three California condors wheeling and soaring in the distance. And last but not least, thank you to GCRG member/jeweler extraordinaire Todd Weber for his prompt production of our "Rat Pins" (we still have some for sale at \$10 a pop so get one while they last!) and to Katie Lee for parting however briefly with her exceedingly precious original rat pin to use as a guide for our revised version.

The GTS questionnaires that we passed out showed that 80 percent of responders thought that this GTS was either better (or even much better) than those in the past. Approximately 93 percent loved or at least liked the idea of a GTS theme as in this year's program. The highlights folks mentioned include everything we've talked about here. The low points (for those who felt there were any) included the need to get more women speakers and Native American representation as well as more interpretive talks (geology, archaeology and the like). They even touched on practical matters such as the need for more lunch lines and outhouses. Just a reminder—it is not too late to send in your questionnaire, either by mail, fax or bringing it by the GCRG office. It will help us in planning for future GTS's.

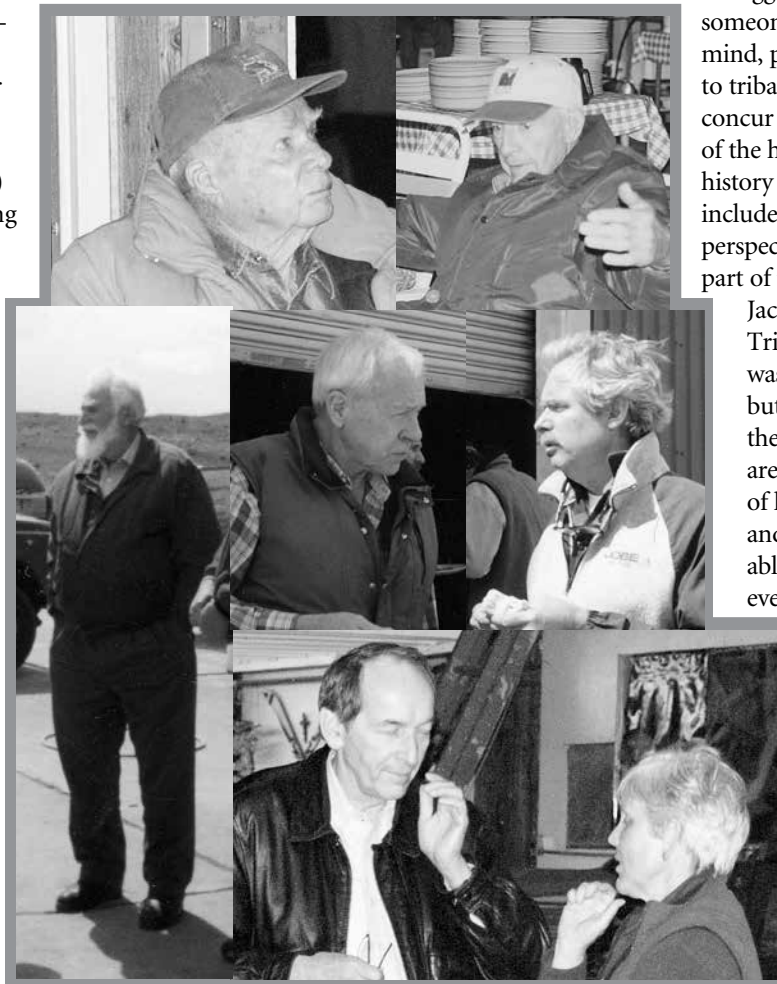
To comment on the comments—we wholeheartedly agree with (and thank you for) all your rave reviews, both written and verbal! The weekend was everything we'd hoped for and more. As to the low points—this GTS was based on an old timer's theme and things were simply more male dominated back then with a few exceptions. Lois

Jotter Cutter, for example, would have given anything to be at the GTS and Georgie's been gone for several years now, but we were exceedingly pleased to have in attendance Sandy Nevills Reiff and her sister Joan Staveley as well as Loie Evans (Bill Belknap's daughter). Our regular speaker invitee list includes many women, but in a given year, the number of women speaking is contingent upon who accepts those invitations. And as always, we're open to suggestions, so if you have someone in particular in mind, please let us know. As to tribal representation, we concur that any examination of the human and cultural history of the region should include traditional tribal perspectives as an integral part of that picture. Loretta

Jackson of the Hualapai Tribe Cultural Center was scheduled to speak but couldn't come at the last minute. We are very appreciative of her good intentions and hope she'll be able to speak at future events. Numerous other

representatives from Hualapai, Havasupai, Navajo, Hopi and Southern Paiute tribes were extended invitations as well (not once, but twice). We did try and will continue to do so. As to having more interpretive talks, we

provided a smattering as time allowed, and will most likely go back to our regular program next year so you can soak up all the "ologies" your heart desires—archaeology, biology, geology and the like. As to lunch lines and porta potties, we can only but agree, although it was difficult to anticipate the size of crowd. But hey, there's always room for improvement—even beyond one of the best GTS's we've had in a long time, and certainly one that will be talked about for years to come!



Clockwise from top left: Fred Burke, Kent Frost, Gray Staveley & Al Holland, Bob Rigg & Loie Belknap Evans, Martin Litton.



GTS River Trip 2002

WHAT DO YOU GET when you put a bunch of boatman on the river for two weeks with so called “old timers” who have lived and loved the river for decades, expert speakers on everything Grand Canyon, and absolutely glorious weather? A fantastic 2002 GTS River Trip!

Over eighteen boatman from eleven different outfits participated, with a motor rig from Grand Canyon Expeditions, a paddleboat from OARS, oar boats from AZRA, Canyon Expeditions, and OARS, Mat Royden’s cargo cat, and a kayak paddled by John Middendorf. The Park Service was well represented, to say the least, with river rangers Dave Desrosiers and Brenton White, Deputy Superintendent Kate Cannon, and Superintendent Joe Alston. Noel Eberz made sure everyone who wished to had the materials to participate on the “Adopt-a-Beach” program, and we launched on a

picture perfect sunny day with a total of 31 people under the leadership of trip leader, Fred Thevenin, with the assistance of his sister Theresa.

The highlights of this trip were the “old timers”. Kent Frost won us all over with his wit and wisdom, and wonderful stories of floating Glen Canyon, crossing Lees Ferry before the bridge, tales of hiking with Katie Lee and trips with Norm Nevills. Al Holland provided us with some great river history, moved us to tears with tales of Glen Canyon, and gave everyone food for thought on future financial planning (buy that house!) Bob Rigg entertained and informed us about river running “in the old days”, as did Bill Mooz, who also told of his river adventure on an air mattress. It was incredible to have these “living legends” on the river with us and to hear what they had to say about the history of river running, and life in general.

Our speakers included geologist Peter Huntoon,

who talked about anything and everything geological, but especially the faults and spring systems, and the slumps and slides that changed the river channel many different times in the area around Deer Creek. Nat White from Lowell Observatory got in a star talk almost every night, with very cooperative clear skies and many visible planets. Clay Nelson told us about all the work going on with the endangered Kanab amber snail, and its weird parasite that sounds right out of a bad science fiction



Overlooking 50 Mile Canyon.

Nat White

movie. The guy chasing lizards was Geoff Carpenter, a herpetologist, who in addition to setting us straight on the lizard identification and behavior, talked about the importance of biological surveys and continued research in the canyon. I was the trip “generalist”, and tried my best to identify plants and birds for folks, and talked about condors and ravens and the bats at Stanton’s Cave. Superintendent Joe could usually be found rowing one of the park boats with an incredibly big grin on his face, before hiking out with Deputy Superintendent Kate at South Canyon. Rangers Dave Desrosiers and Brenton White led us on some great hikes, including one from 50-Mile canyon up and over to Little Nankoweap, as well as informing us about current park management issues.

Other speakers joined us the second half, including archaeologist Helen Fairley, who did a terrific job explaining the very complex archaeological record in Grand Canyon, as well as leading discussions about its

protection in the future. Kristen Straka gave a talk on the aquatic food base in the river (basically everything that the fish are eating and what those critters are eating) and the importance of a healthy aquatic ecosystem. We were also joined by Jim Reilly, Acting Chief Ranger, and Mike McGinnis, Wilderness District ranger, who also talked about park issues in between turns at the oars.

Kitchen duty, meal preparation, and groover set-up were all shared and things went smoothly like a well-oiled machine. The food was fantastic and no one went the least bit hungry. One of the great things about this trip (besides the weather) was the dayhiking. Rather than stop at the usual “tourist attractions”, we did hikes almost every day to places like Bert’s Canyon, Little Nankoweap, The Tabernacle, Monument, Tuna, Hakatai, Stone, the up-and-over route to Deer Creek, Specter, Tuckup, Parashant, Matcat, Blacktail...well, you get the picture! We also did many beach clean-ups and hauled out an incredible assortment of trash.

The take-out at Diamond went smoothly with everyone cooperating and like magic, gear got back



Kent Frost contemplating the river

Nat White

trip—you made it look way too easy! We also owe a big thank you to the Grand Canyon Conservation Fund for their funding support, all the outfitters and speakers, and the NPS for making this wonderful trip possible, plus GTS river trip coordinators Noel Eberz, J.P. Running and Lynn Hamilton—we couldn’t have done it without you!

On a personal note: Although the canyon is my passion and I have taught for Grand Canyon Field Institute as a naturalist for many years, this was my *first* river trip. I didn’t have any preconceived notions about the “river community”, the politics, and the issues...I was like most passengers in that regard. What I saw was really a river family. Yes, you have problems, and “discussions”, and you learn and grow and just make it up as you go along, like most families. I saw a real caring for and stewardship of the place called Grand Canyon, and I know that whether on a motor rig, an oar boat, dory, or paddle boat, that you will pass on that caring and honor for this place to your passengers. They are in good hands. Thank you so much for welcoming me into the river family, and making my first experience such a great one.

Sally Underwood



Peter Huntton giving a geology talk

Nat White

to where it needed to go and the motor rig continued down to Pierce to take out. It was an outstanding two weeks with new friends, new information, and a new river season to look forward to. Sincere thanks to Fred and Grand Canyon Expeditions for providing equipment, food, and doing the incredible job of leading this

boatman’s quarterly review

Adopt-a-Beach Update

SOMETIMES IT GETS FRUSTRATING to adopt and monitor one of these “sons of beaches” (referring to the new generation of beaches since the closure of Glen Canyon Dam). Many of our precious beaches have been reduced to piles of boulders interspersed with sand, or they are smothered with tamarisk thickets. Big white sandy beaches seem to be a thing of the past in Grand Canyon, but have faith. Year 2003 holds some hope for bringing back some of those camping beaches or parts of them, as the Bureau of Reclamation is on board for another so-called “flood flow,” pending approval by the Secretary of the Interior. This flood flow would be much like the 45,000 CFS release in 1996. This one, however, is planned to be of shorter duration and is slated for much earlier in the year, like in January.

The last “flood flow,” or Beach Habitat Building Flow of 45,000 CFS in 1996, tremendously increased beaches throughout the corridor, but only temporarily. Since then, sand from this deposit has been continually reworked into the river or blown further up slope. So, we (the collective we of stake holders, managers, and tax payers) will try our hand at playing God again with the impending flood flow tentatively scheduled for January.

In light of all the flood talk out there, I figured a brief summary of Adopt-a-Beach results since 1996 will remind us of the need for periodic Beach Habitat Building Flows (BHBFS or flows exceeding power plant capacity), and yearly High Maintenance Flows (HMFS or high flows within power plant capacity).

■ How many beaches

increased in size following the BHBF of 1996?

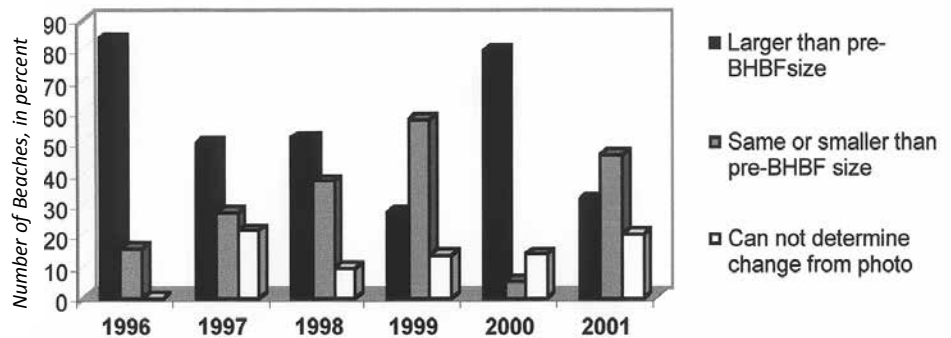
Photos from post-BHBF of 1996 show beachfronts and camping space up to the top of the newly formed deposit. Over 80% of all adopted beaches increased in size, mostly gaining in elevation. Three beaches showed a net loss in area: 110-Mile Camp, Ross Wheeler, and Upper National. Even here, parts of beachfronts and sandbars were removed, but the camp above about 31,000 CFS gained sand and increased in elevation. Two critical factors impeded a potentially higher net gain from the BHBF: (1) the sharp drop off in flow from 45,000 CFS to 8000 CFS overnight; and (2) the long-duration, high-fluctuating flows (up to 28,000cfs) that followed the BHBF and continued through summer of

1996. These combined factors resulted in huge cut faces of beachfronts that calved off all summer long, vastly reducing the area of the new deposit.

■ How long has the BHBF sand deposit held up on beaches?

To date, portions of this deposit can be still identified in the field at each site on most beaches. But it does not show up well in photos any longer, due to reworking of the deposit and mature established tamarisk blocking the views. Most beaches lost a majority of this deposit by fall of 1997 (Figure 1). Results for 1998 and 1999 show a sustained number of beaches losing sand. By fall 1999, over half of the beach sites had returned to their pre-BHBF condition (at least up to and somewhere beyond the 30,000 CFS line, as determined from photos). Secondary causes to decreased beach size included gullying and flash flooding from rainfall and reworking of sand due to campers, according to guide responses.

Figure 1: Longevity of beaches since the 1996 Beach Habitat Building Flow (BHBF). Analysis based on end-of-season photo for each year compared to pre-BHBF photo.



■ Is there still evidence of spike flow deposits on beaches from year 2000?

The High Maintenance Flows (HMFS) of year 2000 helped replenish sand to beachfronts, but only to the extent of the HMF flows’ limited stage heights of 30,000cfs. By fall 2000, 78% of beaches were again larger than their pre-BHBF condition (Figure 1). This indicates that HMFS are beneficial to maintaining campsite area, as long as fluctuating flows remain low. A year later, by fall of 2001, most of HMF deposits had been eroded to the extent that 45% of beaches had again returned to their pre-BHBF condition. ½MF deposits last as long as Glen Canyon Dam can keep flows below about 15,000 CFS (estimated from guide responses, repeat photos,

and analysis of hydrographs surrounding the 1997 and 2000 HMFs). In conclusion, beaches need temporary high flows on an annual basis, given there is enough sediment in the system.

■ What flow regime provides the best camping?

The 8000 cfs constant flows of summer 2000 took the cake here. During the Low Steady Summer Flows (LSSF), guides reported that 77% of beaches showed much improved camping, in terms of useable space and accessibility. Camps contained either more sandy beachfront property, decreased rockiness for better boat parking, or a relatively flat bench for reliable kitchen set-up and sleeping during the hot season. Guides also commented that many more beaches became available for camping, such as Clear Creek, Olo, and Talking Heads, that would otherwise have been extremely small or under water with higher flows. Conversely, flows during summer of 2001 fluctuated between 7000 and 14,000 cfs, which made camping comparatively harder due to decreased and unreliable camping area.

■ How to find more information?

For further clarification of the methods and analyses employed in this study, please refer to the forthcoming final report of the 2001 Adopt A Beach Program. As always, it will be sent to adopters who request them, appropriate agencies, and other interested parties. Call Lynn Hamilton at the GCRG office, or download an Executive Summary from www.gcr.org/ab/html.

Hang In There And Thank You Adopters!

REMEMBER THAT PART of our duty, as guides, is to voice our concerns to land managers about preserving and enhancing what beaches are left. Adopt a Beach offers this opportunity as a collective voice. Our little program does make a difference to the big picture. Get involved and sign up for a beach today.

The folks who helped keep Adopt a Beach going this year include (in alphabetical order): Lynn Hamilton, Abigail Sullivan, and Kate Thompson. Thanks to Andre Potochnik and Matt Kaplinski for representing the recreational interests and results of Adopt a Beach to interested managers (that would be the Adaptive Management Work Group and Technical Work Group). We especially thank everyone who adopted a beach in 2001 and all of you who signed up for the 2002

Matkat Hotel



Before Fall spike of 30,000 cfs. Taken 8-29-2000.



After Fall spike of 30,000 cfs. Taken 10-16-2000.



Taken 8-13-2001.

season. It's a great way to give back to the place we all love. And, please, we still need more adopters! Just give Lynn a call and she will send out a packet in time for your next river trip. This program is completely dependent on your participation, and the results that have been directed through the Adaptive Management Program are due completely to all of your hard work in photographing and commenting on the condition of

our camping beaches year after year. Finally, we extend our gratitude to our contributors: the Grand Canyon Conservation Fund, a non-profit grant-making program established and managed by the Grand Canyon river outfitters; the Grand Canyon Monitoring and Research Center, for their dedicated support of this program; and all individual contributors.

Kate Thompson

Adopt-a-Beach 2002 Adopters

BELOW IS THE LIST of 2002 season AAB adopters by beach mile/name. We heartily thank all those who have signed up so far. However, as you can see, we have some gaps that we must fill. Won't you help? The 2002 season photo documentation will be especially important in light of the proposed experimental flows (see Andre Potochnik's article in this issue). Our Adopt-a-Beach Program offers a frequency of monitoring that is vital to researchers, providing a clear photo record of the evolving state of Grand

Canyon beaches. We need to get 100% of our beaches adopted for 2002 and double adopting (especially on priority beaches) is even better! We will also be adding a few beaches in the Glen Canyon reach and below Diamond Creek within the next few weeks. We'll be happy to set you up with everything you need. Your efforts help us to protect Grand Canyon! Give Lynn a call in the GCRG office if you're interested. We've got packets ready and waiting!

8.0R Badger

11.0R Soap Creek.....Jeff Sorensen
 12.2L Salt Wash.....Andre Potochnik
 16.0L Hot Na Na.....Kevin Johnson

19.1L 19 Mile.....Mark Franke
 19.9L 20 Mile

20.4R North Canyon.....Nancy Redfern
 23.0L 23 Mile

29.3L Silver Grotto.....Matt Winfrey
 34.7L Nautiloid.....Mike Hipsher
 (lower).....Tillie Klearman

37.7L Tatahatso.....Jon Toner
 38.3L Bishop (Martha's).....Geoff Carpenter
 41.0R Buck Farm.....Marijka Billingsley
 65.6L Nevills.....John Middendorf
 76.6L Hance.....Larry Hopkins
 83.0L Grapevine

84.0R Clear Creek.....Tim Whitney
 84.5L Zoroaster.....BJ Boyle
 91.6R Trinity.....Andre Potochnik
 96.1L Schist Camp.....Dave Stratton, AJ Reeves
 96.7L Boucher

98.0R Crystal.....Daniel Graber
 99.7L Lower Tuna

107.8L Ross WheelerJeff Sorensen, Bob Dye
 108.3R Bass
 109.4R 110 Mile
 114.3R Upper Garnet
 114.5R Lower Garnet
 (need same adopter for upper & lower Garnet)

131.1R Below Bedrock.....Bert Jones
 132.0R Stone Creek.....Michael Ghiglieri
 133.0L Talking Heads
 133.5R Race Track.....Jacob Sack
 133.7R Lower Tapeats

134.6L Owl Eyes.....Steph White
 137.0L Backeddy.....Nancy Helin, Jeff Sorensen
 143.2R Kanab.....Drifter Smith
 145.6L Olo.....Brenton White (NPS)
 148.5L Matkat
 149.5L Upset Hotel

155.7 Last Chance.....Dave Desrosiers (NPS)
 164.5R Tuckup.....Susan Wykstra
 166.4L Upper National.....Larry Hopkins
 166.6L Lower National.....Nicole Corbo

(Note: Bolded beaches are high priority beaches)

Protecting the High, Wide, Lonesome: National Monument Planning

Perhaps the chief value of the Lonesome Country is that in between its flashes of gaiety and enriching experience are wide mesas of stillness where the mind may rest and renew itself in search for lost meaning and new paths.

J. Lauritzen, 1951

GRAND CANYON-PARASHANT and Vermilion Cliffs National Monuments are two such places in Lonesome Country still possessing those all-too-rapidly vanishing qualities of solitude and remoteness. Created by President Clinton under the Antiquities Act in 2000, they are two of Arizona's five new national monuments, both on the Arizona Strip. In the new monuments lie stunning canyons such as the Paria and the Parashant; the Paria Plateau and the southern part of the Shivwits Plateau, which form important watersheds for the Colorado River and the Grand Canyon; the Grand Wash Cliffs region; and desert badlands, sandstone slick-rock, and brilliant cliffs.

It would be nice if the story ended here. Unfortunately, conservationists are concerned that the Bush administration, which campaigned on rolling back the new monuments, will try to undercut them through the recently announced management planning process. The final management plans will specify the actual management of the new national monuments, including energy development, off-road vehicle use, grazing, and the placement of visitor services.

The Bureau of Land Management's (BLM) Arizona Strip office, the lead agency for both northern Arizona monuments, recently announced a 90-day public comment period and will host a series of public meetings to gather public input on the issues to be considered by the planning effort. For Grand Canyon-Parashant, the National Park Service (NPS) also has oversight because Lake Mead National Recreation Area includes lands within the monument.

The proclamation establishing each monument clearly identifies the unique features for which it was created. Grand Canyon-Parashant, for example, was established to protect the vast, biologically diverse, impressive landscape encompassing an array of scientific and historic objects. This remote area of open, undeveloped spaces and engaging scenery is located on the edge of one of the most beautiful places on earth, the Grand Canyon. The proclamations focus on remoteness, scientific and historic objects, geologic wonders such as the Navajo Sandstone of Coyote Buttes, and the traces of Ancestral Pueblo cultures, Spanish explorers, and Mormon settlers.

If the management planning process is to provide real protection to Grand Canyon-Parashant and Vermilion

Cliffs National Monuments, the management plans must:

- Eliminate the numerous, nonessential roads that disturb wildlife, soils, and archaeological sites and develop a transportation plan that is consistent with the preservation purposes for which the monuments were created;
- Assess the negative impacts of grazing, especially within the Mojave Desert regions (desert tortoise habitats), and develop appropriate management steps;
- Protect and restore native fish species threatened by invasion of non-native species and the impacts of Glen Canyon dam within Vermilion Cliffs National Monument;
- Provide better protection for archaeological resources, which are threatened by pot hunters and off-road vehicle use;
- Curb unrestrained recreational use and development, specifying that all visitor services be developed outside of the monuments;
- Protect and restore springs and seeps, biological hot spots that are critical sources of water for wildlife in an arid climate; and
- Identify and protect lands qualifying for wilderness designation—the strongest existing form of multi-species protection.

For many of us on the river, the sheer rims of the north side are shaded with mystery, from those who long ago gave up the river and left, seeking in that direction civilization and finding misfortune. We take the mystery and remoteness of these places for granted, thinking they are insulated from change, but we should not. As a new river season dawns it is hard to focus on a sluggish bureaucratic process, but your input can help secure these new national treasures. If you care about the Lonesome Country, please send written comments to the BLM (contact info below) before July 31, 2002.

Diana Hawks, (435) 688-3266
Dennis Curtis, (435) 688-3202
Bureau of Land Management
Arizona Strip Field Office
345 E. Riverside Drive
St. George, UT 84790
Fax: (435) 688-3388
arizona_strip@blm.gov (for email comments)

Kelly Burke
GRAND CANYON WILDLANDS
COUNCIL

Tom Moody

I WENT TO THE GRAND CANYON once on a family vacation in 1958. Otherwise, I really didn't have a lot to do with the Canyon and the Colorado River, other than living in Arizona. I guess just growing up in Arizona gives one a certain amount of appreciation for water, the Colorado River, and use of our river systems and development that you get in any other western state, but maybe not so much in the East.

I first went down the Colorado River through Grand Canyon in 1969. My mom, Gwen Moody, dragged the entire family down the river. We went down on a Hatch River Expeditions trip.... I didn't go willingly, although I wasn't against it. It was the year I graduated from high school.... Three, single, thirty-three foot pontoons. The boatmen were Dennis Massey, Steve Amos, and Fred Burke. I guess it's safe enough to say that I had a great time. In fact, the swamper's name was John Thibedeau [phonetic spelling], I still remember him. He played the guitar—he added one extra string to the guitar, to make it sound a little distinctive. Basically, I just threw-in with John Thibedeau, and I was a second swamper for the trip. I just ran around scrubbing pots and doing whatever I could. That was just my natural reaction to it. The next year Fred and Carol Burke, along with a number of other people who happened to be on the same trip, that same Hatch trip, started Arizona River Runners. And, I got a chance to get a job with Arizona River Runners.

STEIGER Wow. So, how old were you on that first trip then?

MOODY: Seventeen. I worked for Arizona River Runners for five years, 1970 through 1974, I guess, those five seasons. It was pretty easy then to move up in the ranks, and so I had my own boat the first year, and I led my first trip the beginning of my second year; it was not uncommon in those days for you to be the youngest person on the trip and also leading the trip. [I] progressed through that...and worked for Dick McCallum for Grand Canyon Youth Expeditions (later Expeditions) for probably the next ten years on and off. At the same time, I went to Africa in 1976 and began working for Sobek Expeditions on trips around the world, and that led to another direction.

In the late 1970s Ross Garrison, Terry Collier, and myself—started a little adventure travel company that did sailing trips in Hawaii and river trips in central Utah and hiking trips. That was called Gypsy Wind Expeditions. I started another little company called Plateau Trails in the late 1970s that is still alive, which was also meant to just be a little adventure travel

company. It never really amounted to much, but it's been a good vehicle.

By 1983, in Alaska, I decided to try something else, and so I bought a commercial fishing permit for salmon, and worked up there for ten years during the summer-times. In 1983 also...Brian Dierker and Mike Yard and I put in a proposal to the Bureau of Reclamation to run the river logistics portion for science trips for Glen Canyon Environmental Studies I, which started in 1984, and went to 1987.

And then where? Then I guess the next thing in the river running, was the beginning of GCRG, which must have been in 1988, or somewhere about that time. And then, actually being the president of GCRG, after Kenton [Grua], and that led to more involvement in advocacy for rivers and subsequent work with Grand Canyon Trust and on other river issues; and probably led to changes. I went back to school, and got a civil engineering degree and now a lot of my work isn't to do with commercial river running, but it's work with either advocacy towards rivers or technical engineering approaches to river assessment and restoration. That's part of my life, according to the Colorado River.

* * *

STEIGER Let's just go back to that very first trip. You said they had to drag you down the river.

MOODY: Well, I just mean that, it wasn't my idea, I didn't lobby hard with my mom to go down the river. She's the one that made the arrangements. It was a charter trip put together by several families that my mom and dad knew, but we didn't know them really closely. The Hayes family, he was the Chief Justice of the Arizona Supreme Court, that family; and I don't even think I can remember all of the families that were on that particular trip. There were about thirty people on the trip....

STEIGER So, there were two outside rigs, without tubes, and then a boat with side tubes. (MOODY: That's right.) Do you remember, did you stay on just one boat the whole time?

MOODY: No, we moved around. I remember we camped at the standard Hatch places. We camped at House Rock the first night, Nankowep the second night, Cardenas the third night, Lower Bass the fourth night, I don't remember where we stayed the fifth night, I don't remember that one. The sixth night we stayed at 185 Mile camp, which used to be very heavily used and then just basically never got used—big beach there. And then we camped at Diamond Creek, so we'd get out

early the next morning.

STEIGER Do you remember doing much hiking?

MOODY: No, no. Wasn't much hiking. I mean, we went to Elves Chasm and we went to Deer Creek, and we went to the Little Colorado.

STEIGER Do you remember seeing other people?

MOODY: No, I don't remember seeing any other people. At Lee's Ferry, we were the only ones. Ted Hatch flew down. When a three-boat trip left Lee's Ferry, it was like a big deal. Ted flew down, Ted helped push the boat out, and collect checks.

STEIGER And get the money, yeah! (laughter)

MOODY: There were several families on the trip who ultimately became stockholders in Arizona River Runners, and the idea, at least as I understand it, was hatched on that trip.... I got along very well with Fred and Carol, they were very good to me and they appreciated the way I worked the year before—unbeknownst to myself—and so I was able to get a position.

STEIGER Based on that one trip. So for you, at the end of that trip, you thought this is something you'd want to pursue.

MOODY: "This is something I want to do," yeah, absolutely. Absolutely. I had no idea that they were going to start a company.

STEIGER And somehow you ended up back there the next summer.

MOODY: Yeah. The next summer of 1970 we lived at Lee's Ferry. Fred was the USGS man at Lee's Ferry and we lived in the house up on the hill, the western house, across from John and Sue Chapman who were the Park rangers there. The warehouse was down in one of the little stone buildings down near the ferry.

STEIGER When you say "we," that means the whole Arizona River Runner crew?

MOODY: The Arizona River Runner crew wasn't very much. It was Fred and Carol and myself.

STEIGER That was the company?

MOODY: Well, it was really the company—and Bruce Hayes, who was the son of Judge Hayes and his wife, on the trip before, he had run some trips, I guess for Hatch, you know the year before. And he ran the first ARR trip and it went out in May, and it was full of crisis. They lost an entire, brand new Mercury outboard when he backed out of Havasu and went down the rocky left side.... Of course, all the equipment was new. Moki Mac and the Quist brothers supplied the frames and rubber, so Moki Mac had stock in the company.

STEIGER In exchange for that they got....

MOODY: Stock, right.

STEIGER Wow, pretty good deal for Moki Mac.

MOODY: Yeah, as it turned out, it was a very good investment. The first ARR trip that went down was full of catastrophes, and they lost a brand new engine;

ripped boats in Crystal, I think; and anyway, it was lucky that it got off. In fact, we actually picked it up, and on the way back from that trip the truck caught on fire while we were driving on Route 66. So, that was really the ill-fated trip, unfortunately, but it got better after that.

STEIGER And when the truck caught on fire, it burned up a bunch of equipment?

MOODY: It burned up some equipment. We unhooked the trailer and threw engines and stuff out of the back of the truck, and put out the fire so the truck didn't burn up.

STEIGER So you weren't on that trip?

MOODY: I wasn't on the first trip, I was on the second trip. The second trip was a single boat run by Don Neff. I have to say I idolized Neff and worked every minute I



Fred Burke, Charles Moody, young Tom Moody

could. We hiked a lot but I can remember collapsing by the trail I was so tired. We stopped at places like Buck Farm and Specter Chasm to go for hikes. These were not commonly hiked at that time. In fact I don't know whether I've been back to Specter Chasm since. Neff gave me the exploring bug.

The next trip was a one-boat trip with Steve Amos and myself, and I think we had like four passengers. I remember that trip because we probably camped at almost all the same places. We camped at House Rock though, for sure. And, we didn't get the boat pushed off early enough in the morning; and so we didn't leave that beach until 3:00 in the afternoon when the water came up again because that boat was totally beached.

STEIGER It was a big beach then too, wasn't it?

MOODY: Big beach, yeah. You could hardly see the water from behind the boat. (laughter) It was a really

big beach.

STEIGER It was a big beach, and the fluctuations were a lot more extreme than they are now.

MOODY: They were pretty darn extreme. A lot more extreme than they are today, that's for sure. Anyway, we just ran that trip, and that was the second trip, and that was my first trip.

Why I say that it was basically Fred, Carol, and myself is because a variety of boatmen were hired to do the few trips—Steve Amos did two trips that year, Clair Quist did a couple trips, Bob Quist did a trip, Bruce Hayes did a trip, and Don Neff did a trip—so I was the only one that did probably more than two trips that whole year—I did six trips that year.

STEIGER And you were swampin' all of those, or you got a boat?

MOODY: I had my own boat by August. On the fourth trip I had my own boat.

STEIGER So you swamped three trips and then it was okay. (MOODY: Right.) And that was the rule, was you had to have three trips.

MOODY: Minimum of three trips, which was also the maximum too, (chuckles) generally. And now you have to have six trips before you have your own boat. Second trip with Steve Amos. Third trip was with Clair Quist, and Joe Baker (son of Pearl Baker) from Green River was also on that trip. It was a trip that had a lot of friends of Clair's from Green River, so I don't know how that was actually chartered, or whether it was a Moki Mac trip that Arizona River Runners ran, or what the deal was. But, Clair did that trip, that was a one-boat trip. Then I think I did a trip or two with Moki, with Bob Quist. And then I did another trip when I had my own boat behind Bruce Hayes, which was an adventurous trip too, but we made it. Finally Don Neff asked me to swamp a Grand Canyon Expeditions trip that same year, that August.

STEIGER So, you were seeing every kind of water level. It was extreme fluctuations.

MOODY: Yeah, and also you had low water in the spring, and high water in the summer. This was not really early in the spring. I didn't start until late May, or something, because I was going to college and I got out of college and came up and went to work. Then I went to college that fall too, so I didn't really see the off season. But, it was generally pretty high water, big fluctuations, but not really a big problem.

I remember the first time I went through a hole. It was swamping for Neff. The back end of the boat went through the hole in Crystal.

There was a big sweeping hole and I remember the ride. It didn't hurt anything, shook things up a bit, but it wasn't a sharp hole. I just plain missed the cut.... I had no clue on how hard you had to push. (laughs)

The trip that I had my own boat, I couldn't even remember where Elves Chasm was, but that's the way that goes. It was a real rainy trip. For some reason, I made the serious mistake of getting in the lead, and we were supposed to stop at Olo Canyon. I missed Olo, completely, never even saw it (STEIGER Oh boy.) and went on down. Gay Stavely of Canyoneers was camped at the Ledges, which is the only other camp that anybody really knew of or used in those days in that section of the river, and we went by Havasu and camped below. Fortunately Havasu was pouring red, that was the only saving grace, it was a very, very rainy monsoon season and Havasu was just pouring red. So, it wasn't exactly Shangri La that day, anyway. Still Bruce Hayes, the lead boatman, was mad. I learned a very valuable lesson that day; don't get too big for your britches.

STEIGER So, it wasn't a total faux pas. (MOODY: Felt like it.)

MOODY: I remembered better, not so much that first year, but in subsequent years, like the second year, 1971,



Young boatman, paying attention, 1971.

which wouldn't have been that much different, and I was more aware of what was going on...

Our rigs were inside rigs with basket frames, no floors in the boats and side tubes. So, they were pretty much state-of-the-art at the time. They were basket frames, twenty horse-powered Mercury outboard engines with pointed-end side tubes on 'em, the Sanderson style. Except the boats had two frames: front frame and rear frame and the hard front end, which I think made a big difference in flipping over. (STEIGER In stability, yeah.) No hard front frames rafts ever flipped over, I don't think—or at least didn't until 1983.

It was pretty adventurous from a boatman's point of view. There was sort of a standard procedure, but it was pretty limited on what you did. You stopped at certain stops, and you camped at the same camps all the time.

...It was just enough, really, to get the boats on the water and get 'em down the river—you know, was really the bigger thing. And so, therefore it was a different kind of adventure. It was definitely an adventure just to get it done. There were lots of examples of boats that didn't make it, or people that didn't get out on time, or you know crisis or accidents. I think [people's] expectations were different. Arizona River Runners had very good food. Fred and Carol made sure that it wasn't what they had experienced at Hatch. We cooked over open fires and we carried a little shovel with a toilet paper roll on it—that was the extent of it. We built fires on the sand and cooked entirely over fires. We had dutch ovens and it was just the standard procedure. I don't remember seeing a lot of other boats on the river on any of those trips. We did see other boats, almost certainly. I don't remember runnin' over anybody. That was the great expansion in river... in total numbers of use at that particular time. There's a big difference in 1971 from 1970, and a big difference in 1969, it doubled almost every year from 1965 on.

STEIGER Every single year?

MOODY: Every year. It got big fast.

STEIGER And, why was that? I wonder what accounts for that? Just that it was so much fun?

MOODY: You know, that's an interesting question that ought to be put in the light of sort of a national thing. But, as far as Grand Canyon was concerned, I think... Bobby Kennedy and his family went down in 1966, and I think there were big stories in Life magazine about it, and then I think between that and the Powell trip, where National Geographic had stories about it, that those were things that coincided with a society that had, for the first time, disposable income and a bit of an itch to go beyond just driving your car around on a vacation. And so it seemed to catch on. Maybe there was some river running in other places, but I think that to a large extent Grand Canyon was the first sort of big, big thing. And especially to grow at that rate.

STEIGER What did it cost, do you remember?

MOODY: The number I remember is \$330 for eight days.

STEIGER Three hundred and thirty bucks. So, when they run a trip with four people, you're talking \$1,300.

MOODY: I'm not sure it made money.

STEIGER It didn't?

MOODY: It wouldn't necessarily have made money. The important thing was to make sure the trips got off. You know.

STEIGER If you scheduled the trip, you had to go.

MOODY: You produced the trip—not that you made money on every trip. I doubt that Arizona River Runners made money the first year. That would be pretty astounding. They just did whatever they could to be a viable company. And then building a reputation and getting the logistics down so that you'd make money later on, which they certainly did, I'm sure they did. Which I know they did.

... I was fortunate to be able to do trips with Clair Quist and Bob Quist, and Steve Amos and Don Neff. You know, all right off the bat. So I got a really broad education, exposure to different ways of doing things. All of those people were all really good boatmen, and they all had a different way of doin' things. Maybe I didn't get into ruts that way. Maybe I had a lot of things to choose from. Because it wasn't very long before I was on my own. (laughs)

* * *

STEIGER I wonder if you should just give a little thumbnail description of some of those guys? Do you feel like doing that? Neff, Bob, Dave...

MOODY: Don Neff was a wrestling coach in Salt Lake City. He grew up in Mexican Hat, Utah. His family ran the Mexican Hat Trading Post. They knew Norm Nevills and he worked for Mexican Hat Expeditions. I don't know if he worked for Norm Nevills or for the Rigg brothers, or what era. But he ran those sadirons down through the San Juan and also through Glen Canyon. And, then [he] worked for the Grand Canyon Expeditions, and Ron Smith in Grand Canyon. He liked Fred, and Fred liked him, and so he came over to do a trip just to help ARR out, and have a good time. He was a classic character, a young, short, blocky guy with a great way with people. All the ladies were always swooning over him, I don't think he ever so much as thought of taking advantage of that, other than he just enjoyed being... (Steiger laughs) Yeah, pawed. That's the truth. He could get anybody to do his work for him. In some ways he seemed lazy, but it was just a game that he played. I'm sure that he felt that it was important, and I would agree, that you get as much participation as possible. So he would always have lots of people doing

things to help out, helping out on the crew, and that was a good thing. I did the ARR trip with him that first year, and then later on that year he invited me to come over and swamp—again, because I just ran myself ragged from first light to the last light doing whatever I could to serve my gods, my boatmen gods, which was the way I looked at ‘em. I think that was healthy. I went over and did a two-boat trip with he and John Sorweite [phonetic spelling]. But, anyway, that’s who Don Neff was, and Don Neff ran trips for quite a long time after that for Dick McCallum. A pretty interesting character, and left quite a swath behind him. There were lots of people who learned to run the river from Don Neff. That’s not inconsequential, so, he lives on in the Colorado River even if he doesn’t run trips down there anymore.

Bob and Clair Quist are two of three brothers—their other brother is Richard—the Quist brothers. Their father was in partnership with Moki Mac. Their father ran a lot of Boy Scout trips through Glen Canyon with Moki Mac, which was Moki Mac Ellison, I think. So, they were brought into the river business, or the river trip community experience really early on. They had their own little company, which was started by their dad called Moki Mac Expeditions. It was sort of an offshoot of what they were doing with the Boy Scouts. There were, as always, very few professional guides. Clair was an auto mechanic. (STEIGER Clair Quist was.) Yeah, he worked on foreign cars, he worked on British imports, Jaguars, and things like that. He was a great mechanic. Then he’d come down and do this in the summertime. His brother, Bob, was doing some kind of odd jobs. Clair was the first one, I believe, to be really a boatman, and he’s the one that somebody said, “Here Clair, we need this trip done.” And he said, “I can’t do the trip, but here’s my brother Bob’s telephone number, call him.” This kind of deal. They were very different people. Clair had a big grizzly beard, and a really kind of gruff demeanor—he’s a sweetheart despite all his outward projection. He was, again, a big strong guy, rough guy. Bob was more of happy-go-lucky: same kind of build, but clean-shaven and lighter hair, and round face and kind of a happy-go-lucky, easy- goin’ guy. Two very different people.

Who else was it? Who else in that first year? Steve Amos. Steve Amos was in engineering college at University of Utah, Salt Lake. He grew up in Phoenix, and knew some of the people who started ARR, and knew Fred and Carol because he’d been on Hatch trips with them, and got along very well. He was a very good boatman, but he was only looking at it as a summer job while he was going to school. Then he was going to graduate and go on and do other things, which is ultimately what he did. Very shortly after that, he just disappeared off the commercial river running scene. I think he came back and did a private trip down there,

but I don’t think I have seen him since.

STEIGER Dave Mackay?

MOODY: Well, Dave Mackay. If you were to look at the genesis of river running in Grand Canyon, you’d find it’s kind of like a family tree. You’ll find lots of different sprouts coming from each of the branches, each of the nodes. One of the nodes was Jack Currey, and lots of guides worked for Jack Currey, and then subsequently went off and sometimes got their own companies, and Dave Mackay was one of those.... I don’t have any idea how he got started with Currey. But, he ran J-rigs for Currey, and ran lots of them. Somehow, again, he got to where he knew and liked Fred and Carol, and came over and did a trip for them. He had a break in his schedule. One of the commonalities among all those guides that I happened to run with, was they all took great pride in how well they ran the boat. That was very important to ‘em, and they all had great expertise in how they ran. They took that very seriously, and worked very hard at it. So, I got exposed to people... whose big goal was how well you ran the boat.

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MOODY: The thing that has been special for me throughout all of my time in commercial river running business or in that community, has been the sort of special groups of people who would happen to collect at one time or another. I’ve gone through three that I can think of. One of them was ARR and that group of people. Then later on it was with Expeditions and the group of people there, and then also with Sobek Expeditions. I had three periods where I was working with crew over a period of time that just turned out to be, you know, magic in the interactions of all those. And the first one was ARR. A lot of that had to do with Fred and Carol, because they created a very special environment there, very much a family environment. We all ate together at their table. Then, Fred hired a cook and we still ate together. We were still a family. That was a very unique.... We were in a very remote place, we only had a radio-phone that was connected to the Jimmy (GMC) truck horn, and so in the middle of the evening all of a sudden the truck horn would take off, or you’re leaning against the front of the truck while you’re rigging a boat or taking a break; and all of a sudden the horn would go off and scare the daylights out of you. So, we were in a remote place. There was no TV, there was not really any radio reception, and there was no telephones, and so that actually helped to make it a more special experience.

STEIGER Yeah, when that horn would honk you’d have to run out. They were booking trips off of that phone, off of the mobile truck phone.

MOODY: That was the company truck phone.

STEIGER That was pretty hilarious.

MOODY: So, that made the place special. But, none of those situations that I just talked about there ever lasted forever. We did expect them at the time to probably last forever, but in reality, looking back on it, there's no expectation that they should have lasted, or could ever have lasted forever. But, each one of 'em, they went through phases, and people grew and situations changed, and that's what happened at ARR the first time. It came as quite a shock to me to be part of it. But, you know, I grew and I got interested in other kinds of river running... I got interested in the dories, and I got interested in Martin Litton, and in rowing down the river. That's just the direction that I needed to go. I was tired of running motorized trips I think.

STEIGER How come?

MOODY: Just because I needed to do something different. I think we ran the very best motorized trips there ever have been. I mean, there may be ones that are equal, but I don't think there's ever been any that were better than that. So, I think we did a great job. And, I think that the operation was great and the situation was great, but it was just that I wanted to do something different. I wanted to row, and I had looked at it that I was a part of Arizona River Runners, and so I wanted Arizona River Runners to row. It's true also that I had a lot of say, I was [by this time] middle management is what we were called at the time, Peter and myself. I had stock in the company because we had been given the opportunity to buy stock in the company which was a very nice thing. We didn't appreciate it—we took advantage of it, but I don't think we appreciated it until later.

STEIGER How generous it really was.

MOODY: How generous it really was. And, what Fred and Carol were trying to do was make us as much, and the company, as much a part of us as possible. That's very laudable. What happened was, from my point of view, that I wanted us to do rowing trips as well. And, there was not as much money to be made in rowing trips. I don't think Fred and Carol for a minute ever wanted to make as much money as possible, but they had a great debt, big debt, and they had a lot of stockholders that they felt they needed to answer to, so that they needed to make that money. And it didn't make any sense to them to upset the cart, and go rowing.

STEIGER Yeah, things were just goin' good, they'd just built the thing up. It was rollin' along pretty well.

MOODY: So, unfortunately that didn't really work out very well. We were not able to ever sit down and talk about what it really was. And instead we just kind of grew further and further apart. We became two camps, which should never have happened, but it did. And it kind of tore a lot of things apart. And in the end, at the end of the season in 1974 I had a meeting with Fred

and Carol. It had actually gone from the point where we almost lived together, to where we only really spoke when we had meetings, set up meetings, where we would sit down and talk, which is a long ways apart—an indication, looking back on it, of where we both were. And we had a meeting, and during that meeting, as I understood later, they were going to tell me that I wasn't going to be asked back. But at the meeting I also told them that I wasn't going to come back.

STEIGER So, it was kind of a mutual thing.

MOODY: It was a pretty mutual thing. We didn't talk about it ahead of time, but it was pretty mutual.

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So, I didn't come back to Arizona River Runners in 1975. Instead I ran a few trips for Dick McCallum. Don Neff was working for McCallum then, and I'd seen him on the river and talked to him and met Dick McCallum and called him up and started working for him—which was the right thing for me to do.

STEIGER So, were you runnin' one of those triple-rigs in the beginning?

MOODY: Yeah, I ran triple-rigs, exactly, with Dan Dierker on the other oar.

STEIGER Yeah, and this is were they had three Green Rivers—these are eighteen-foot, pretty good rafts—tied together.

MOODY: Right, with everything, fourteen people and all the gear for twelve days.

STEIGER Pretty wild way to go down the river.

MOODY: We had like, ten-foot oars on each end.... You just grabbed on to 'em and.... (STEIGER Flaied?) You did your best. Yeah, and I started running with Dan Dierker and Brian Dierker and I rowed the other triple-rig with Dan Dierker.

STEIGER So, it would be Brian and Don on one triple-rig, and you and Dan on the other?

MOODY: No, just one triple-rig.

STEIGER One triple-rig was a trip.

MOODY: Never ran more than one triple-rig on trips I was on. We would run another boat—usually one of the big snout rigs that Brian would run, one of the youth rigs which were single, aluminum frame, that had four oar stations, a sweep oar, and four passengers—kids. Usually the youth would be on those and there would be a sweep oar on the John Wesley Powell rigs that the boatman would have. They were a very interesting rig. (STEIGER Cool!) Somewhat scary, early on, because you'd have to run House Rock, for instance, on the first day, with a crew that didn't have a clue as to how serious this really was. (laughs)

STEIGER How badly they really wanted to get those strokes in right.

MOODY: Exactly, how really important it was for

them to do well.

STEIGER Brian talked about that like he was just pleading with people, you know.

MOODY: “This is really important, guys.” And House Rock was a lot worse rapid in those days. The hole was really hard, and it used to be a really devastating hole for those triple-rigs, because you would never miss them. You’d almost always hit that [hole], and the rear boatman would then get “crack-the-whipped,” and you’d lose your rear boatman on a regular basis. So, it was just really a tough thing.

STEIGER What would happen, would it get sucked under?

MOODY: No, it would just get snapped like a whip. The rig itself always came through the hole, they were very stable rigs. They were tied underneath so they couldn’t pancake, which is what Georgie’s had done a few times. So, they were really stable. I mean, it would be amazing for anyone to ever flip, and I don’t think they ever did—GCYE [never] did. But, they go through like a snake, and so the first boat would go through, and then the middle boat would go through, and then that one would go through, and when it came out it would just whip like that, crack-the-whip. Just like the old outside rigs, where they’d put a buckin strap, they’d hang on.... The outside rigs were the same way: when they’d go through a hole, they get whipped and sent flyin’. In fact, Fred used to put a buckin strap over his legs when he’d go through the rapids to stay on. That was an old cowboy rodeo trick.

STEIGER But then equipment kind of evolved there at Grand Canyon Youth?

MOODY: Yeah, well maybe I had some influence on that, or they were just ready to change; but we did change then to snout rigs. So they were two 22-foot snouts with a steel frame between ‘em and a front platform that we would carry six people on. And those were a big improvement, because at least you had both oars in your hand. But they were hardly light.

STEIGER You might not have as much power...

MOODY: The snouts probably had as much power, because the triple rigs were so heavy, that even with two people you just only had so much. But, you know, even with the triple rigs you could maneuver, you got really good at it. There was a skill level to it, get good at it and you’d stay in the current when you needed to, and you’d be able to make runs. You had to work really closely with the other guy, as you might imagine. And the other guy basically held your fate in their hands.

STEIGER The one that was the downstream one.

MOODY: Well, both. I mean, both. At different times, either one of them, you know. We could go at length over the techniques for the triple-rig of how you need to do it, but if both boatmen didn’t do it right, you know, one or both would suffer. Lava Falls was an especially

critical—every rapid had a different way, of course, a different thing that went on with the triple-rigs. Lava was especially difficult because there was no choice. You ran the right side, and there was not a lot any of us could do with the right side in those days—we just ran the right side. The boats were so heavy and low that they didn’t rise up when they hit a wave, they just went right through it. So, the first boatman when you dropped through the slick by the ledge and hit the “V” wave, the front person just shipped his oar and got down as low as they could, because the wall of water that would come across would just sweep across that boat, through the middle boat, to the outside boat, and you’d have to have everybody hanging on really, really tight. And it would fill all the boats to the brim with water. Then the whole boat would turn 180 degrees, so then the back boat would be always the one that took the lower hole.

STEIGER Wow! It would always spin.

MOODY: Always spin, 180 degrees. And it almost always would spin another 180 degrees when it went through that lower hole and come back out right again. But the problem was, (STEIGER Then you’d be totally full of water.) they’d be logged with so much water, and the Green Rivers had very baggy bottoms, big bottoms in ‘em—loose bottoms—and we had trouble with losing people out of the boat. We were never gonna flip over, there was never any feeling you were gonna to flip over. So, it was confusing as to why we would have people in the water after the Lava run, until we realized that they let go because they thought the boat was sinking. (Steiger laughs) And, so you’d have to tell them, “It’s not going to sink, even though there’s more water inside than there is outside.”

STEIGER Well, God, you know, if you had swimmers out there, I guess it’d be pretty hard to go get ‘em with your boat full of water. (MOODY: Well, you sure didn’t go get ‘em.) They had to swim back to you.

MOODY: Yeah, they had to come to you, but you were an easy target. No, then you had to row like the bejeezus to get away from Lower Lava—really, really hard. And bailing like mad.

STEIGER Everybody bailing, yeah. Pretty wild.

MOODY: Yeah, it worked. But the snout rigs were a big treat, because then we each had our own boat, which is where we all wanted to be. We all really wanted to each have our own Green Rivers, single boats, because that was the ultimate, was to be able to have four people in your boat, each person to have a boat of realistic size. Slowly, the economics caught up with it.

STEIGER That crew was also pretty hot. That was you, and the Dierker boys, and Mike Yard, (MOODY: McCallum.) Mac and then Dugald Bremner....

MOODY: Yeah, Dugald Bremner arrived a couple of years later. Dugald was kind of the late seventies or something—1979 or 1980 or something like that. [The

crew] was Brian Dierker, and Dan Dierker, you know, both Flagstaff boys, friends of McCallum, students of McCallum. Dick was a counselor at the high school, and an educator, and adopted these two boys, especially Brian.. And Mike Yard, who was a childhood buddy of Brian's, also a Flagstaff boy, their family has been in Flagstaff for quite some time, and their fathers were both doctors. Brian had worked for McCallum since he was probably in diapers—they'd all gone down the river. Perhaps Mike hadn't, but Brian and Dan had both gone down on the first youth expedition trip in 1970.

That was one of the trips that we saw—on my very first trip with Neff; the first youth boat and Dick McCallum. And I remember Don Neff got his old friend, Dick McCallum, to crawl underneath our ARR motor rig and patch a hole that Don had put in it in Grapevine. It just gives you an idea of the strength of Don Neff that he was able to convince his buddy to crawl in the wet sand underneath the motor rig at Phantom and patch the hole for Don so he didn't have to do it. (Steiger laughs) And Dick was perfectly happy to. That was the beauty of Don Neff, he could get you to do all kinds of stuff for him, but you didn't resent it. We were just happy as the dickens to do it for him.

STEIGER Oh my gosh.

MOODY: I had a funny story with Don. These guys were gods to me—I mean, I looked up to them and they could do no wrong. I just wanted to do anything I could for them, anything. And Don liked to drink. A lot of people like to drink on the river today—but then, they really did, and there wasn't such a prohibition for it, and Don used to like to drink on occasion. The last night of probably the first trip I ever did with him, which would have been my second trip ever, or something—first or second trip—we were at Granite Park underneath the big tree, the big willow tree at Granite Park. Everybody had gone to bed and our campfire was right there by the boats, and the water is high and there is only one boat, one big motor rig parked against that tree. And the water had come up, it comes up in the evening there after you've parked, and so it's sloshing up, high water. And Don had gone to sleep—or passed out—by the fire. Everybody else had gone to bed. So, it was just me and this one other guy, I can't even place his face, but he was on the trip too, a passenger. Don always slept on the boat—in fact, all these boatmen always slept on the boat. You just always slept on the boat. I still like to sleep on the boat. I mean, it's just ingrained. In the motor rigs you always slept on the boat. Don was just laying there in his shorts on the beach, and I thought what I should do for him, for my hero, is like get him up on the boat, put him to bed. But he weighed about 160

pounds, he was just solid. He was like five-foot four and 160 pounds, he was just square, and he was limp. And, we grabbed him and lifted him up—two of us, one on his arms and one on his legs—and we tried to swing him up on this snout rig, which is three-and-a-half or four feet above where we're standing. (Steiger laughs) And we didn't quite make it. (STEIGER Oh no!) And, we hit the boat, and the boat went out about three or four feet and we couldn't hold him anymore (laughter) and we dropped him into the water. The water is about four feet deep right there, so he woke up from being passed out, in the ice-cold water over his head. And of course, as soon as we let him go, he dropped in the water and the boat hit the end of its line and came back over the top of him. So, he immediately, like the athlete he was, he just immediately [went] “boing!” You know, every muscle was tense and he just tried to come right out of the water, but there was the boat right above him and he just ran right smack into the boat and went back down again.

I was appalled. I had done the worst possible thing! I might as well have thrown myself in the river, because I had done this to the person that I cared the most [for], and respected in the whole world. Anyway, he came up sputtering and cussing a little bit, and just wondering what in the world were we trying to do, et cetera, and crawled off into his sleeping bag. And the good news is, the next morning he didn't seem to—oh, I'm sure he remembered it, but he didn't seem to have any hard feelings, (STEIGER: Oh my God.) for what we tried to do. There was a couple of times—once when I missed the camp at Olo, and the second time when I threw Don Neff in the river—two times when I could have changed my entire river future, if that had gone bad. Two “faux pas” that I was lucky to get away with. I tried to remember those, so that when other people did stupid things around me, I was able to forgive them as people had forgiven me.

* * *

MOODY: I ran Tatshenshini River trips for Sobek Expeditions beginning in 1977, the first year there. I went to Ethiopia in 1976, and then went to Alaska and made Alaska trips up through—1983 was the first year that I fished, and I still ran a Tatshenshini trip. But, then that was a different reason to go to Alaska. So I only ran spring and fall trips for McCallum. I ran 'em every spring and every fall, all those trips, which worked out great for me. Then in 1980 I decided to stay down here, I didn't go to Alaska, and we did thirteen trips that year. That was a really big year, great year. Big year, from starting in March and going through the end of October, early November.

STEIGER That was kind of a big water year too,

huh? Was that a high water year?

MOODY: It was the year the dam filled, 1980. (STEIGER That was the first fill.) In late June, early July, it went to 45,000 cfs, which was big for us, we'd never seen that. Water went to the back of Redwall Cavern—not very deep, but it went back there.

STEIGER Was it 1980 or 1981? When was it that they began to rewind the turbines in the dam? That was somewhere right around there. Maybe they'd already done it by then.

MOODY: No. No, it was probably 1981. They were planning to do it.

STEIGER And that was when there was all this talk about, "Okay, now we're really gonna have peaking power," and all that.

MOODY: Yeah, well you know, this is all evolution, and one of the most powerful forces is what lives in people's minds. We'd sit down there through all the seventies, and we'd look at Glen Canyon dam, and we read Aldo Leopold and we read Ed Abbey and we read... (STEIGER Rod Nash?) Rod Nash, yeah. We believed that the Colorado River should run free. We read David Brower, we knew about the fights. We'd stop at Marble Canyon dam site and talk about the importance of the fights there. But, you know what? At least for myself, I had the feeling that Glen Canyon Dam was a lost cause. It was the way it was. In general we saw current operations was the way it was always going to operate, because we had lost that battle—or Brower had or whoever. No, we had lost that battle. That was just the way it was. And so we could rant and rave about it, and we could imagine in the evenings over beers what it would be like for the dam to go and for the wave to come down and how high would it be? And would you want to hide on your boat?, and how big of a boat you'd want, and all those sorts of things, which we did. But, we never thought, really, that it would happen. And then when the reservoir filled and the dam spilled that first time the Bureau decided that it was time to overhaul the turbines, and while they were at it they would just rewind 'em a bit more and get a little more power out of 'em—something kind of broke the enchanted spell. Something about, if you can make 'em more so this way, then why can't you make it less so this way? That maybe it doesn't have to be that way. And then the Bureau of Reclamation had some public meetings, very cursory public meetings, because (STEIGER They were required to.) the National Environmental Policy Act was in place in 1969, so they did have to. But they didn't expect it to be anything. I remember one of them was in Flagstaff High School, and I still remember sitting through that and listening to—they had two microphones for public comments, and the place was packed. There were four or five Bureau of Reclamation people sitting down on the stage, and people went up, one after another, to go

to the microphones to ask pointed questions about what was going on, and what was this, and why was that. The Reclamation people were doing the "slow down" tactic, stalling tactic. They'd slowly sit down, and then somebody would ask a follow-up question and then they'd say, "Oh, can you take that, Bill?" and Bill would slowly stand up from his seat and walk over to the microphone and say a little somethin' and then turn and slowly walk back to his seat. The person would go, "Well, what do you mean? What about this?" And they'd slowly stand back up and walk back up. It was interesting. They were not pleased to be there. It took hours... But I think that was the beginning of, sort of the realization by the public—by the river running public in particular—that things didn't have to be that way.

STEIGER So, they had these little hearings and they basically went for the ultimate stall, which was they said, "Well, we'll study all these things."

MOODY: "We'll study them." Exactly.

STEIGER "And we'll have Glen Canyon Environmental Studies..."

MOODY: Right, very carefully named Glen Canyon, not Grand Canyon, so it would have a lot less impact. Yup, very little funding, and they're gonna drop a young biologist to run the program, and it's certain to fail. No other chance. That's the genesis of GCES-1.

STEIGER And the plan was, "We'll just send this kid, Dave Wegner, out there."

MOODY: Right, and "let him flail for a year, and wrap it up." GCES-1 was tasked with studying the way Glen Canyon Dam was then being operated and was specifically restricted from making recommendations on other operations. Designed to accomplish nothing.

STEIGER "And when nobody's looking we'll fade away into the night."

MOODY: "It'll die out, it'll die out." But of course it didn't actually work out that way.

STEIGER Well, so what did happen? And what was your part in that, I mean, how did that go? How did Humphrey Summit...? Didn't you guys get the contract?

MOODY: Well, I think that what happened is that it succeeded in spite of itself. It succeeded for a number of reasons. It succeeded, one, because the public wasn't really ready to let it die, the public collectively. Individuals weren't really ready for it to die. They weren't just going to let it go away. So that gave some foundation for others to be more actively involved in making it a success. Dave Wegner came on and started doing the best he could. And unfortunately for the Bureau of Reclamation, it turned out that he was extremely hard-headed and tenacious, and actually kind of thrived on a lack of support; you know, fighting the good fight and the uphill battles.

There were scientific river trips planned and there was to be a contract to do the river logistics. They had

planned very limited science. Ten trips over three years.

STEIGER That was it. That was GCES-1.

MOODY: There was a bid that went out for a contract to run river logistics for the Arizona Department of Game and Fish that was going to do the fishery studies, because they were going to do a little bit of sand studies and a little bit of fishery studies, and that would be good. And it was ten trips over three years. Steve Carothers saw that opportunity, and urged Brian Dierker and Mike Yard and myself to bid on it. There were several outfitters who also bid on it, including Fred Burke and Arizona River Runners, who had been doing some trips, science trips, and sort of saw how that worked into that company. They saw it before most everybody else did, which is typical of Fred. There was another private entity, but otherwise it was outfitters. And lo and behold, Humphrey Summit Associates, which was what our little company ended up being called, won the contract. It was immediately challenged by Arizona River Runners, on the basis that the commercial outfitters had the right to run commercial trips down there, and nobody else had the right to bid on those except those concessionaires. And that didn't prevail. So, it turned out in the end to be about sixty-five trips over the next three years, not ten trips.... It was a lot of trips.

I think that we can get into Humphrey Summit and what all that entails, but as a prelude to it, I think that that involvement was crucial, because the guides that worked on those trips cared very much about the resource and helped to bridge, sort of, any barriers between scientists and the resource....

The other thing I think is really critical was the fact that this was a little paria, this little research project was a paria. Everyone knew what the Bureau of Reclamation had in mind. It was no secret. (STEIGER It was gonna be a rubber stamp deal.) Well, they had a specific charge not to make any recommendations for changes in operations. "You can learn anything you want, but you will not come up with any recommendations for any operational changes." They pretty much drew the line, you know. "You can muck around all you want, but just don't mess with the status quo." So, in the end, if you look at GCES-1, they don't actually recommend changes. It gets a lot stronger of course. One outcome of the fact of the general knowledge of what this project was supposed to be, is that no big-name scientist would touch it with a ten-foot pole. Nobody would touch it. They're not going to be associated with a failure. It wasn't going to go anywhere. So, as a result of that, there was an opening for a lot of other scientists. You know, younger, hungrier scientists—the Bryan Browns, the Susan Andersons, Jack Schmidts—who didn't have long credentials, but were good thinking people, who were more open perhaps, to falling in love with the

resource—dedicated to the resource, [rather] than sort of a career track or the scientific community. And, I think the outcome of that is that we got a lot better science, with less money and politics. We got very good science—let's not hammer away at other scientists, but I'd say we got very good, dedicated scientific work in GCES-1.

STEIGER What was your first impression of Wegner? Did you have any expectations about him?

MOODY: He was a scared scattered rabbit. He had no office or anything. The guy was just driving around in his car. I think we tried to protect him, and in turn, he, at other times protected us. No, he was a skinny little guy moving ninety miles an hour—it's not that much different than he is today. (chuckles) You know, he really had to hit the ground running, and he didn't really know what to expect—none of us did—the way the political environment was swirling around. Or where this thing should go, or how he was supposed to make it go. I guess "scattered" is what I'd say, but I don't mean that with any disrespect whatsoever. I think that's what he needed to be at that particular moment, to figure it out. I think there were just decisions made on a day-to-day basis for quite a long time.

We did end up doing ten trips that one summer. We had six trips in a two-month period. That fall, we had some serious cash flow problems for Humphrey Summit, because we got paid thirty days after the trip was over, and since we had six trips in a two-month period we had to front six trips' worth of guides' pay, food, the whole nine yards. That came as quite a bit of a surprise to the little guides that had had a hard time keeping their checkbooks balanced up until that point. To guides that were used to living off their tips. (STEIGER All of a sudden here was....) Yeah, we went to the bank and got a loan for \$100,000.00. Well, that was an experience. And you know, to see it coming, it was a fast time for us, like it was for everybody. But, Wegner just kept piling on the trips—which was great!

STEIGER So, how did Wegner evolve? Or how did the situation evolve from your perspective?

MOODY: Well, it was always changing. Sometimes he'd be available and sometimes untrackable... It just was moving so rapidly, and Wegner, you know, got his feet more on the ground, but you know, it was constantly shifting ground... I think part of what happened during that, Wegner learned a lot and grew a lot and became a lot more self-assured and powerful, an influential person. Steve Carothers, who was always on top of it, continued to grow. I think that we did as well. And that sort of showed in what's gone on since then, in everybody's lives, including your own. It came at an opportune time maybe, for people to grow. There were a lot of people involved who had been in the river business, say, for fifteen years. And so they were actu-

ally very ready for some river-associated, but different growth experience besides just running ten trips, you know? I think, I don't know, that would be my observation.

STEIGER I wonder, what were the key questions that surfaced?

MOODY: Scientific questions?

STEIGER Yeah, and some of the key pieces of information, or is it germane to get into them?

MOODY: Well, that's a tough one, and maybe Wegner could say that. But, you know what? There was never enough time for it to be strategic. First of all, it was expanding what resources to look at—from the fish, which was just tributary sampling, no main stem sampling. It was with a backpack shocker in the tribs [i.e., tributaries]. I don't even think they even knew why they were gonna sample it. Two, the sediment. I'm not sure if they had a very clear idea, other than understanding how the system works, kind of thing, you know? It ended up birds were a big aspect, and the vegetation turned out [to be a big aspect], but they weren't at the beginning. But, another thing happened, Mother Nature picked a very interesting time to get rambunctious. (STEIGER To rear her magnificent head.) When the floods hit in 1983, the charge of Glen Canyon Environmental Studies One was to examine fluctuating flows, the impacts of fluctuating flow operations on the downstream environment. "But don't make recommendations for changes." And so, it was a problem, because through much of 1983-1987 there were no fluctuating flows. See, 1984 was the first year of science. (STEIGER Yeah.) There were no fluctuating flows. And of course there were a lot of people's logistics and plans invested in going down there and studying it.

I think there were two things that really made GCES-1 work: One, is it really cemented in people's minds that Glen Canyon Dam really didn't control the Colorado River in the manner that we thought it did. The Colorado River still had quite a bit to say about it, so maybe we did too. And, the second one was, it really blew apart the tidy little, "We're gonna look at this and this and this, and nothing else," game plan that had been developed. Because the gauging stations and cables were down there the USGS took [fluctuating flow] sediment measurements at 45,000 cfs, constant. They had to take measurements of something.... The water came up and trips were at Lee's Ferry, and they said, "Do we go? Or don't we go?" It was like, "Gotta go! We're planned to go." It's not fluctuating flows. So, I think it really pried open the nice little box that had been planned for it. Maybe it would have been pried open anyway—I don't know the answer to that, but I think it had a big, dramatic impact on the whole scheme of things right there.

STEIGER I remember that subsequent to 1983, some-

where in there we became really alarmed about just the beach erosion. And in a selfish way, you might say, on the commercial side, I remember people kind of started squawkin' about, "Well, these beaches are eroding really rapidly now." I mean, first it was this hypothetical thing that we would tell people, "Someday the beaches will be gone." And then it was like, "Holy moly! we could conceivably flush all the sand out of here! within our lifetimes, within the course of our careers." I remember that got the guiding sector kind of galvanized.

MOODY: And then as the scientists started uncovering things—once they opened up Pandora's box and they started bringing it out, then people made, you know, hypotheses, and ideas were forwarded for discussion and what not, which had never been brought out before. And they had fertile ground, they landed in fertile ground—people were ready to try to understand that better and to have a basic change in the paradigm for the canyon.

STEIGER And what were some of those ideas, or what were the key ones?

MOODY: Well, one, the sand. You eventually will erode all the sand away from the canyon.

STEIGER If there's "X" amount of sediment going out every year and none coming in.

MOODY: Right! Just stop and think, and you go, "You're gonna lose everything there is." It turns out today we understand a little bit better, and that may not be the case. But, that was what we knew, and the way we understood it then, and it was an alarm. We also began to understand the changes that had taken place since then. That helped to galvanize people, you had something else to choose from. You had another view, another landscape from which to make a choice.... Then that just was, again, fertile ground for discussion or concern. As I remember, the real political uproar didn't really happen until the end of GCES-1. That ended in 1986. It ended, and it had a report in 1987.

STEIGER So, what happened there? Somewhere in there things got heated up, and what were the things?

MOODY: Well, partly it came up with some very concrete conclusions.

STEIGER It said, "Well, actually fluctuating flows...."

MOODY: Are bad. And high, uncontrolled, clearwater releases are bad, and that the dam does have impacts on the downstream. Maybe there was a little more to it, but those were the essential ones, I think. And then it was dropped, nothing happened. The Bureau of Reclamation didn't take action on it, Congress didn't take action on it, Department of Interior didn't take action on it, nobody took action on it. The only thing that was going to drive it on was politics, was public outcry, and so people took GCES-1 and started shaping a political advocacy campaign out of it.

STEIGER How did that transpire? Were you on that

trip with Jack Schmidt? (%OOBY: Yeah.) The Middlebury College kids? (%OOBY: Uh-huh.) Dan said that Jack Schmidt had a profound influence on everybody's thought process. That the germ of the Grand Canyon Protection Act came from something that he said on this trip that didn't have anything to do with science. Do you recall anything like that?

MOODY: Well, yeah, I have a copy of what we called the "Beach Bill." We used to sit around at night, and Jack and I used to talk about these things, we became good friends and we used to talk about the politics of it all the time. That was actually the beginning of probably 1988 or so, and this was the time of trying to figure out, well, we couldn't seem to get anybody to take any action on what GCES-1's recommendations were or conclusions were. And so, we bandied around a Beach Bill. We thought we could just introduce a bill that would just simply say stop losing sand.... There was just so much waffling everywhere, that nobody could agree on—of course that was part of the strategy—agree on what should be done, or what should we do. The idea was we would just introduce a bill that would be very straightforward and say there will be a certain amount of sand that will always be there. It was over a ten-year running average.

STEIGER Now, you guys believed that there were operational options that were doable that could bring that about?

MOODY: Well, this was a little bit like the Clean Air Act, see? You set standards. We didn't care how they got met, it really wasn't up to us. I think we did have some wording there about using natural processes, so that we didn't have sand pumping—you know, just pump sand on these big barges out of the bottom of the river up onto beaches. (STEIGER Oh, and riprap 'em and like that.) Yeah. So, I think that we tried to have something there, but it just simply said that this average volume in area of sand will remain constant by reach-to-reach on a ten-year rolling average. And it was up to the Bureau of Reclamation and others to make sure it happened. I'm sure we had ideas for how that would happen. But it didn't matter, you do whatever you needed to do in order to meet the standards. You could look at floods, could look at sedimentation, look at changes in the dam operations—whatever it took. That was the idea.

STEIGER So, then what did happen?

MOODY: Well, our bill hardly made it out of the Canyon. I don't see any way it was the genesis for the Grand Canyon Protection Act but it made us feel good. I was in Washington when the Grand Canyon Protection Act was released by Congressman George Miller in its first draft form. I was there to testify. We went there to testify before the House Interior Committee on National Parks.

STEIGER Now, things really snowballed there, didn't

they? There was GCES, and then all of a sudden that was completed, (%OOBY: Uh-huh.) and then nothing much happened.

MOODY: No, there was like three years before GCES-2 started.

* * *

I'm not sure exactly how GCES-2 started in its first little formative state. But my guess is it was a consequence of the political pressure that was being applied. The political pressure was pretty high, and the Grand Canyon Protection Act was introduced by George Miller at the same time we were back testifying before the Senate, Mo Udall's Interior Committee. There was George Miller and Bruce Vento, both Democrats. The Democrats obviously controlled the House of Representatives in those days, and it was their committee. They had subcommittees on National Parks; Vento was the chairman, and Miller was the chairman of the one on water, I guess it was. Water resources. So the subcommittees of the Interior, committees of the House of Representatives. But, while we were back there, Dan Beard, who worked for George Miller, largely wrote the Grand Canyon Protection Act. He was later to become the Commissioner of the Bureau of Reclamation, which I think is pretty ironic, that in that short a period of time—he went from writing legislation to modify traditional reclamation operations to Reclamation Commissioner .

STEIGER Who appointed him?

MOODY: Babbitt—Clinton.

STEIGER So, he became commissioner in 1995?

MOODY: In 1995. So, in five years or so, you go from writing a bill ... (STEIGER That flies in the face of everything the Bureau of Reclamation stands for.)

%OOBY: ... to being the Commissioner of the Bureau of Reclamation. That is some indication of how fast the paradigm on Reclamation, and in particular Glen Canyon Dam, shifted.

STEIGER It'll be pretty interesting to see if it swings back now with the Clinton administration in so much trouble.

MOODY: We'll see. I don't think so, myself.

STEIGER I remember where Grand Canyon River Guides was concerned.... there was some kind of spring meeting where Babbitt came and really did light a fire under everybody. He came and spoke here in Flagstaff. (%OOBY: First GRS.) Were you there? Do you remember him talkin'? I missed it.

MOODY: Yeah. Bruce Babbitt attended the first GRS sponsored by GCRG. It was in Flagstaff and he spoke. I think his basic message was you all have a lot of experience in the Canyon, you have a voice, you can make a difference. And then the GCRG directors had a meeting

with him, too.

STEIGER What was that like? Did he say good stuff? How was the meeting?

MOODY: Well, he did. He was very supportive.

STEIGER He was about to run for president, wasn't he?

MOODY: Right. He was just very supportive, for doing the right thing and getting involved and having a voice and making yourself heard. That's about as much concrete stuff as I can remember. But I remember that he was just very pro on it. Very supportive of the whole thing.

STEIGER Yeah, and then the guides kind of raced out there and started generating all this mail, kind of right away. (MOODY: Yeah.) That's what I recall.

MOODY: Before that time there was some concern. Before the Grand Canyon Protection Act gave us all something to sort of galvanize around and put pressure on. (STEIGER Something safe!) And that did a lot. But before that time, there were lots of potential deals to be cut in order to, you know, help take the political pressure off incorporating changes into Glen Canyon Dam. One of them was to just raise the minimum flows released from the dam from 1,000 CFS to 5,000 or 8,000 CFS. This is one you were aware of.

STEIGER Yeah, all they wanted to do is raise the low. (MOODY: Raise the low.) (Steiger laughs) And we were like, "Bullshit!"

MOODY: Some of our friends were involved in that, or other organizations. And I think they meant well, they just didn't have really a clue of what the full range was, and they were trying to work the political things behind the scenes. But, I think that was an important thing for Grand Canyon River Guides to come in at that time. And, I think Kenton was really a main voice at that time; that it's not just a matter here of raising the minimums up 'til we can get our boats through.

...And, then the Grand Canyon Protection Act was introduced. We tried to pass it in 1988 and 1989 and 1990. It had to slowly build its way up. It was the impetus for GCES-2.

...GCES-2 I think was in place, and then the Environmental Impact Statement was put in motion, and then GCES-2 became the instrument to do science for that EIS.

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MOODY: I actually did make a conscious decision, at a point, after I had been living a pretty free-form life on the Colorado River; and then I'd worked overseas for Sobek and in Alaska; and I didn't really feel like I had much roots. I'd taken a lot from things I'd done, and I hadn't really taken time to give much back. And so, one of the conscious decisions I made was to dedicate some time to giving something back to the Grand Canyon, in particular. And that was at the right time for me to do

something, so that's part of at least my frame of mind at the time. I probably was more tenacious at that moment on Grand Canyon issues than I would have been at some other time, or maybe than other people were at the same time, I don't know. It was really a synergy of lots of things happening at the same time. You know, I was fortunate to be a part of it. I mean, I'm glad you were there. Dan Dierker, Brad Dimock, Kenton Grua. It was the Bob Melvilles and Kenton Gruas on the river that were constantly generating letters and keeping that fire alive. So, everybody had a little part to play.

STEIGER Well, and the people we took down really responded with a bang. (MOODY: They did!) I mean, I think there was a point where I had heard that we generated more mail on a single issue than Congress had ever gotten. I don't know who said that (MOODY: It might have been!), but I find that hard to believe actually... But we did generate a lot of mail. It actually worked. The law, after three tries, it finally got passed. Was it right on the eve of the election?

MOODY: It was on the eve of the 1992 election, I remember it was Halloween night. We were out here having our fall guides meeting and party, our Halloween party for the fall GCRG meeting in Flagstaff... Snowy, cold night—kind of snowy. Ed Norton [Grand Canyon Trust] called us out there and told us, which was really nice of him. Yeah, it got passed. We put a lot of pressure on—it would have been signed that night—it passed earlier, but there was a question about whether Bush would veto it or not. He didn't do it, he signed it.

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STEIGER I wonder if you had to sum it up, if it would even be possible? I mean, what were the most important things you learned out of that, you know? Did you learn lessons that could be applied elsewhere for the next EIS in the next place?

MOODY: Well, here. There are a couple of things that I learned or were reinforced really strong. The first one, and the most important to me is, there's nothing that you can't do. That you can make your voice heard. I mean, we went from just a bunch of rag-tag boatmen—I mean, I think we should have thought more highly of ourselves, but that's really what we thought we were, and that's really where we were in terms of status, if you just step back and look at us in 1980. We were not a viable political force. We turned out bein' that way. So, in this democracy, for all of its weird faults, there is always that potential for doing the right thing, and being heard, and making a difference. A small, focused group of people who have a logical, coherent, and clear viewpoint can make a tremendous difference. That's in sort of the big picture. And in the smaller picture is that dams and things like that are not a permanent part

of our landscape. We've gone a long ways, tremendous distance in the last fifteen years at Glen Canyon and in western water reclamation as a whole. Tremendous change in paradigm, shift of paradigm.... We went from business as usual: maximizing power generation and water storage, to encompassing environmental, social, cultural, aesthetic values. And not only in just name, but in reality. From never spilling water out of a dam, to spilling water simply for the downstream resources. Wasting good water. That's going to have ramifications. It, in itself, has ramifications because it happened. Also, because there are individuals all over this country and in other countries who now look at floods, artificial floods, as a potential means in management. People from Brazil were just up here. People from China have been over here. (STEIGER Looking at this.) Yeah, as well as other dams and facilities in the United States. I mean, spills is just one factor of it, okay? But, they're now looked on as a viable alternative. They were not a viable alternative.

STEIGER: Now, isn't it true in China that they have dams that have been around for a lot longer than any that we have here in this country, and that they deal with the sediment issue better? Somebody was telling me that they have this technology where they have these big gates on the bottoms of these dams so they can move the sediment through. Do you know anything about that?

MOODY: Well, I don't know precisely. But, I know that there are other methods. But, they're not for dams like this. When Hoover Dam was built, it was the biggest thing ever built. Glen Canyon was near the biggest thing ever built. The dams you're talking about that open the gates at the bottom do not store 25 million acre-feet of water. Well, for one thing, the wedge of sediments is a hundred miles upstream. There is no sediment at the base of the dam. It's a hundred miles upstream, so it wouldn't do you any good anyway. You'd have to drain the whole damn lake. But there are other ways it could be. They have siphon systems in Northern Italy, in small, high-sediment streams, small dams where they siphon the sediment that's against the dam over the top, periodically. So, there are other ways, but not for dams this size. We didn't know how disruptive dams of this size are to the whole river system and to themselves until we built them. We are only beginning to realize it now. I wouldn't want anyone to get me wrong, in that. We've come a tremendously long ways in adaptive management, it's a good way to go right now, but it's not the end—it's not the final solution to conservation and restoration of the Colorado River. The ultimate solution has to be to remove the dams, to find a replacement for the positive benefits of the dams for society, and remove them so that we can have the other benefits that they don't allow.

STEIGER: Now, why is it that you have to have that

removal?

MOODY: Because that is not a restored river ecosystem with those dams in there. The river is cold and clear, you can't have the migration of the native fishes. The native fishes are dying out. The hydrology is not the same. The temperature is not the same. The fauna is not the same. The flora is not the same. Nothing is the same. It's an artificial system. So if you want to restore it to the natural processes—it doesn't have to look exactly the same as it did in 1890—but to restore those natural processes, you can't do it with the dams. Maybe you can do it with low dams, I don't know. You can't do it with high dams, you can't do it with high dams.

STEIGER: Low dams, just because the water would be warmer?

MOODY: It's less of an impact, right. I mean, you could do things like you're talking about. Flush sediment through. You could drain it without having such a big hole in the ground. Also, look at the canyons that are lost. The lower part of Grand Canyon, Glen Canyon, you can't inundate the river and call it restored either. If you care about the restoration of the natural system, whatever that means, however you want to define it, there is no way that Glen Canyon Dam can fit into that definition. You're kiddin' yourself. Or you can talk about a naturalized system, which has been presented by Carothers and Brown, but I don't buy it myself. You know, it doesn't work for me. That's not a value for me.

STEIGER: That was in the book that those guys wrote?

MOODY: Yeah, the Grand Canyon is now a naturalized system. And, so you can manage it for it's naturalized state—and you could. And in some ways that's what we are doing right this second, but is that our end goal? No, not for me it isn't. Not for environmental conservation it isn't. For some people, it can be. That's where I came from. But I think that part of what's happened at Glen Canyon is it has changed people's thinking in a fairly fundamental way. We no longer look at dams and structures like Glen Canyon as permanent features of the landscape. That is immensely powerful, and that's why Glen Canyon Institute exists, is because of that change in paradigm. We just don't think it is. People think you're crazy if you say you're gonna take out Glen Canyon [Dam], but they used to think you were even crazier when you said that, and one of these days they're not gonna think you're crazy, they're gonna think you're the sanest person around; and that's when a change will take place.

...All high dams are doomed from the start. They collect sediments until they're of no use. In many cases the sediments are toxic and become an expensive problem themselves. We can debate whether the life of Powell is 75 years or 700 years but the fact is every day the benefits of the reservoir decrease a little and the

eventual costs increase a little. There will come a time when it simply makes more sense to decommission than operate.

We'll find a better way to do it. The Southwest is not going to dry up, it's simply gonna figure a better way to do it. And anyone who doesn't think there's a better way to produce power and manage water than the way we're doin' it now, is missing the boat. We've always found a better way to do it. Believe me, there are better ways than high dams, I'm sure there are! I don't know exactly what they are, that's to be figured out.

STEIGER I'm just wondering why the distinction, why high dams, as opposed, you know....

MOODY: Well, small dams, they have less of an impact to a system. All I'm saying is there may be a way that we can find out to live with low dams, but I'm pretty convinced that we can't find a way to live with high dams. That's all. I leave the door open for low dams. I'm an engineer, I'm not really one that says, "Everybody has to leave the western United States for us to get this together." I don't think that's realistic, and besides I'm gonna stay here. (laughter) Me and you. (STEIGER Yeah.) I guess I'm leaving the door open that if we can find ways for low dams, we're gonna find alternatives to water storage, usage, and power. Maybe they'll involve low dams, maybe they'll involve no dams, and the river can just run free. That would be great! But maybe not. Probably it'll be some mixture of the two. So I'm not ruling out low dams. That's all I'm saying, I'm not saying low dams are good, or they're all right. They are less damaging. They are less damaging.

STEIGER I wonder if we do nothing, if we just keep running the dam like we're running—so the big problems are just that it eventually—the biggest one is that the lake silts up finally. Is that what you think it is?

MOODY: Well, the question being, "What if we don't do anything?" I think I have to rephrase the question, because I don't think that's viable as it is. We will continue to make changes to the operations of Glen Canyon Dam, because our society values are changing. You know, you've got to look at trends out there, and we do. But we have the tendency—because trends are unknowns—we have the tendency to believe those trends that we like, and not believe those trends we don't like. For instance, we like to believe the trend for the explosion of growth in population in Southern Nevada that is now at a million-and-a-half people is going to keep on going, until it's eventually, whatever, 30 million people. Well, it may not happen. There are many factors that will play into that. But whether it does or not, the trend in this society is toward greater appreciation and higher values over our lost riparian resources, okay? Our rivers and streams and all of our environmental resources. And as population increases and wild places shrink, I think that it's reasonable to

expect that those are going to become greater concerns, not lesser concerns. So, there are changes in values in society, and that's what we're seeing here. And I think there'll be increasing pressure. If something's not done at Glen Canyon, there'll be just increasing pressure to make changes which will lower the benefits of water and power that the dam was first predicated on, and we will have a realization of increasing costs to other values that weren't factored into the equation of Glen Canyon Dam. And then the [specific?] question. So that's how I'd rephrase the question. I don't think we have a chance of doing nothing. It isn't going to stand still. The question is, "How will it change?" Or "What will individual components look like?" If the question was, "Well, what about Page? How do we convince Page that Lake Powell is no longer viable?" You can't now, but the picture will certainly change. Recreation is a big component to these lakes now, and it wasn't a component 20 years ago, although that was part of their selling pitch for the dam. I don't think anyone really believed that it would be as big as it is now, or foresaw that. So, it is big. It's likely to get bigger here in the short term. I suggest that there will be changes, very reasonable changes in society that would have profound impacts on something like recreation at Lake Powell, and one of them would be a significant escalation, a tripling of the price of gas, or quadrupling the price of gas—say 4.00 a gallon. Not an increase out of reason, but simply up to where it is [in] the rest of the world, its real cost. We're not insulated from that, because we import 80 percent of our gas, so we're not insulated from prices of gas. Well, if the price of gas is that much more, there's going to be a lot less long traveling, high petroleum use in recreation. And, a lot of people in Page will start putting their money somewhere else, because that's the wise thing to do. It'll make the newspaper stories and all, but it won't be a conspiracy. It will just be a hard fact of life, and people will make adjustments.

STEIGER Another thing you questioned was the ability of 'em to keep that lake full.

MOODY: Well, the other side of the coin is, "What's the value of the product they have to sell?" And, this is the golden age of houseboats. They have a brimming full blue lake against a slick rock background. One of the interesting things I remember of the Glen Canyon project was a study presented by a renowned hydrologist on the future of Lake Powell. He simply said that it was more likely that the reservoir will go dry than have another 1983 spill. If we go to a drought period, like others we've had this century, if the Upper Basin were to actually utilize the water that it has a legal right to, you're going to find Lake Powell dry more often than you're going to find it spilling. And a Lake Powell that has a smelly 300-foot bathtub ring, and you've gotta drive a mile from Wahweap Lodge to get to the water,

is not going to be nearly the recreational extravaganza that it is right this second. It's so easy for us to look at what we see now, and just project it ahead as if the world doesn't ever change. But it will change up there just as what we saw at Glen Canyon Dam and its operations have changed. It will change. So I guess what I see for Page is over time—and it shouldn't happen in a five-year period, or there's gonna be a lot of people hurt really badly—but over some period of time, the value of that product there is going to decrease and the cost of utilizing that product is going increase. And the combination of those two things is gonna be just like everywhere else in this country where things have changed, you know. Cincinnati's not what it once was, railroads are not what they once were. Things are going to change. People will adapt to it, and the world will be very different thirty years from now than it is today. (laughs) Amen!

STEIGER Boy, you can't even imagine, can you?

MOODY: What was it like thirty years ago? I mean, it was 1968, okay? We were just itching to get on this bandwagon.

STEIGER Yeah, you were just fixin' to go down the river.

MOODY: And the whole world will look a lot different from 1968.

STEIGER I'd like to think that we could turn the corner away from this ... direction we've been going in, just in terms of development and growth, et cetera. But, I don't know, it's interesting in the river community, you know, geez the outfitters are beside themselves because in Grand Canyon River Guides there was a letter written recently that had the word "wilderness" in it. (MOODY: Yeah.) People are just so threatened by that. (MOODY: Yeah.) And a lot of guides too—I'd say the sentiment among the ranks of working guides seems to be—seems to be—kind of four-square against wilderness legislation, which is ironic.

MOODY: The Wilderness Act has come to become a symbol in a polarized viewpoint that is really hard to reconcile. But, I don't think that it's the same thing. I would think of that as a signal of the lessening of a commitment toward environmental protection. I think it has certain connotations to people on both sides that creates very strong emotions, beyond what the reality of it is. As far as environmental, I am very involved now in stream restoration, in looking at ways to restore streams and riparian areas, from an engineering/techno standpoint. And I think there is more potential there, and there will be more potential over the next thirty years for people putting resources and time and commitment into that, than we've ever seen. And it will be because they care about it, because they want to do it. Not because they have to because the EPA makes 'em, but because they want to. But we'll have to find ways

that isn't one side wins and one side loses. It's kind of incumbent upon us to find this solution. The solution has to not have bloody losers. That's part of the wilderness problem, is that each side thinks of themselves as bloodied victims on one side of that battle. As long as that exists, that's very intractable. (STEIGER Yeah.) I think there is tremendous potential, and we'll find better ways to do things. I don't mean to be too optimistic, it's not without its hard times.

STEIGER Well, it will be interesting, this whole turn of the millennium, to see if we can squeak through there.

MOODY: I think we'll learn to do things better. And part of doing better is not just making more money, it is doing it better. It's not pure yet, and maybe it never will be, I don't know. But it's better. As long as it keeps getting better....

STEIGER Okay.

MOODY: Rah! rah! (Steiger laughs) Sis boom bah!

STEIGER Okay, we'll stop this right here, don't you think?

MOODY: Sounds good!



Tom and Charlie Moody..
Old dog teaching young dog new tricks.

Long Term Decline of Sediment & Native Fish Initiate Proposed Experimental Flows for Glen Canyon Dam

GLEN CANYON DAM and the Colorado River ecosystem continue to hit the news in the past few months. Long term monitoring now clearly shows that sand and endangered fish are in serious decline in the river ecosystem of Grand Canyon. The preferred alternative from the Glen Canyon Dam Environmental Impact Statement (EIS) is not achieving a sustainable ecosystem as anticipated. This is frightening news for these two critical resources in the Colorado River ecosystem and the many other resources dependent upon them.

So what?

The driving principle of the Grand Canyon Protection Act of 1992 is to manage the dam “to protect, mitigate adverse impacts to, and improve the values for which [these national parks] were created, including natural and cultural resources and visitor use”.

Some selected quotes from the Glen Canyon dam Record of Decision (ROD) follow:

“The goal of selecting a preferred alternative was... to find an alternative dam operating plan that would permit recovery and long term sustainability of downstream resources...”

“Nearly all downstream resources are dependent to some extent on the sediment resource.”

“Modified Low Fluctuation Flow is selected for implementation because it satisfies the critical needs for sediment resources and some of the habitat needs of native fish, benefits the remaining resources, and allows for future hydropower flexibility...”

“If impacts differing from those described in the final EIS are identified through the Adaptive Management Program, the maximum flow restriction will be reviewed by the Adaptive Management Work Group and a recommendation for action will be forwarded to the Secretary.”

ON SEDIMENT AND ENDANGERED FISH

In 1999, scientists presented a new and compelling sediment paradigm for the Colorado River ecosystem, which challenges fundamental assumptions of the Preferred Alternative of the EIS and ROD. Fine sediment is not being stored in the main channel for use in periodic restoration of sand bars and beaches. Some relevant facts follow:

Most of the river sand in Grand Canyon today comes from the Paria River and Little Colorado River, which supply about six percent of what entered the ecosystem before Glen Canyon Dam. Most of that sand enters the river in short flood pulses in the late summer/fall monsoon rainy season, and does so variably from year

to year.

Sand is being eroded mostly from the upstream one-third of the river, stripping sand from eddies in the daily fluctuating zone (1.4 million tons in the past two years).

United States Geological Survey (USGS) cross-sections of the river channel show no net accumulation of sand in the channel with present dam operations. This is consistent with recent reports by sediment researchers.

Sand bar areas and volumes have decreased under Record of Decision flows. The Glen Canyon Dam EIS predicted 73 percent chance of sediment accumulation in the main channel after fifty years with ROD flows. Six years of monitoring data indicate no accumulation in the main channel, with continued erosion of sand from eddy complexes.

Habitat Maintenance Flows of power plant capacity (31,000 CFS) have not successfully stored sand in the channel, and have not mitigated loss of sediment from the eddy systems in the active fluctuating zone. Artificial flood flows can only store sand if there is available sand in the system to be deposited.

Grand Canyon Monitoring and Research Center (GCMRC) scientists recently produced population trends in humpback chub over the past decade. The population shows a precipitous decline since 1993. The causes are not well understood.

Predation of young humpback chub and competition for habitat by introduced fish like trout, carp, and catfish appear to be part of the problem.

The only known reproducing population of the Grand Canyon humpback chub is in the Little Colorado River.

ACTIONS TAKEN

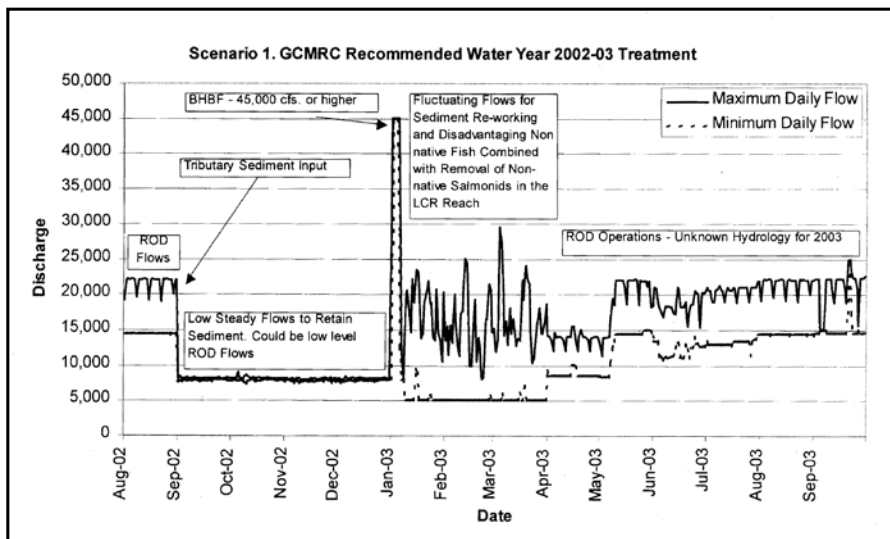
During 2001, a Technical Work Group (TWG) committee led by Matt Kaplinski met to discuss the evidence on sediment decline. They put forth a proposal to the Adaptive Management Work Group (AMWG) to address the problem. In January, 2002, Andre Potochnik worked with a group of environmental and recreational members of the AMWG to produce and shepherd-through AMWG floor motions as follows:

AMWG Sediment motion #1. Accept TWG Sediment Report: The AMWG concurs with the findings in the TWG white paper *A Report from the Technical Work Group Ad-hoc Committee on Sediment: Summary of Recent Findings and Recommendations for Future Actions*.

AMWG Sediment motion #2. Design sediment conservation experiment for 2002–2003: In concert with the Reasonable and Prudent Alternative flows for native fish, during 2002–2003, request that the Grand Canyon

Monitoring and Research Center (GCMRC), in consultation with the TWG, design an experimental flow sequence that tests hypotheses for conservation of sediment. Report to AMWG in April, 2002 on the proposed experimental flow sequence.

Consequently, GCMRC developed an experimental flow proposal for 2002–2003 that comprehensively addresses both sediment and native fish depletion. The proposal also recommends additional treatments over multiple years. This proposal establishes a strong rationale for dam release hydrographs designed to conserve sediment and disadvantage rainbow trout, with supporting efforts to mechanically remove predatory non-native fish from the river in selected areas. The first proposed GCMRC hydrograph with caption is replicated below.



Scenario 1. This scenario provides for experimental flows aimed at both conserving sediment and benefiting native fishes. From October 2001 through June 2002 the dam follows normal rod operations. Following significant sediment inputs in the July–December 2002 period the dam is operated at a constant 8,000 cfs following sediment inputs (or perhaps a low level, e.g. 5–9,000 cfs ROD flow) until January 2003. In January 2003 a Beach Habitat Building Flow (BHHF) of limited duration is conducted. This is followed by high experimental fluctuating flows for the main portion of the non-native spawning and emergent/juvenile season (January through March). From April–September 2003 operations would follow monthly volumes under the rod. This portion of the hydrograph would be repeated in WY2003–04. Concurrent with the experimental flow treatment, mechanical removal of rainbow and brown trout in the Little Colorado River (LCR) reach (described above) would be implemented. This overall treatment (flows and mechanical removal) has the most potential to result in measurable responses, which improve the Lees Ferry trout fishery, reduce non-native predation/competition on native fish in the LCR reach, enhance native fish habitat, and increase sediment retention in the Colorado River ecosystem.

Other hydrographs were included in the GCMRC treatment plan that were variations on this central theme, depending on whether sediment influx occurred, and when it might occur. We are not convinced that sand deposited by a large spike flow in January will

be conserved by large fluctuating flows that follow in January–March. However, this is a difficult balancing act with the native fish. We understand their rationale and are willing to support their effort in the interest of doing good science and acting on real needs of the river ecosystem.

At the April AMWG meeting, the GCMRC experimental flow treatment plan was condoned and GCMRC’s work was set out for them. Now the work really begins. This is a very low water year and minimum releases from the dam will occur. Time will tell as to whether the Paria River will deliver the necessary sediment for restoration of Grand Canyon beaches. They are in very bad shape.

This is a bold experiment. It is a major test of how well the Adaptive Management Program works; science informs policy, then policy is developed in response to

that science. It is an interactive process that will hopefully lead us to protecting a place that means so much to us all.

GCRG is currently developing an AMWG site on its web page and an AMWG list serv so that we can hear from you. Thanks for your support.

Andre Potochnik
ADAPTIVE MANAGEMENT
WORK GROUP

Matt Kaplinski
TECHNICAL WORK GROUP

NOTE:

A year with significant sediment inputs would be defined as a period of 1 to 30 days during which the Paria River contributes at least its long-term, annual average input of sand (about 1.4 million metric tons, or greater), to the Colorado River. These inputs may occur as either one discrete flood of many cumulative inputs over the course of a month.

In every scenario where a BHHF is proposed to be released in January 2003, the BHHF should have a magnitude of at least 10,000 cfs above peak powerplant discharge, or higher depending on lake elevation.

Splash Dams, Folk Songs, and Those Damn Contradictions

AFTER A PRESENTATION on Buzz Holmstrom to an environmental group in Portland recently, a twenty-something fellow approached me. He was part of the small, well-educated, and environmentally-aware audience that crowded into the room that rainy morning. (I could barely imagine myself being so well-informed on anything at that age.) Afterwards, they had asked the sort of questions every presenter hopes for—the kind that shed light on your subject while making the presenter sparkle in the process. The group was as smitten with Holmstrom as I had been for years. This particular fellow had posed some of the more insightful comments.

He offered to lug some of the video gear out to the car. I shoved the projector and the overweight screen in his direction. He grabbed both with an enthusiastic smile.

On our way down the stairs our conversation rambled over familiar territory—our favorite Oregon rivers, the drought, Grand Canyon, dams, future river trips we hoped to make. And, of course, Holmstrom—dragging the windfall out of the woods, making a trip without permits, how good the good old days must have been...

Separated by a couple of decades of age and experience, we were members of the same tribe. Sort of.

It was in the parking lot that the young fellow cut to the chase, springing the real questions that must have been roiling about his fertile mind the moment he offered to carry the gear downstairs. The gaze on his face suggested formidable issues, borne of sincerity and commitment.

“How is it that Holmstrom, who loved the rivers, who waxed lyrical and spoke of the spirit of things, how could he work for government agencies that were exploiting the rivers, i.e., building dams? How could he not realize he was, in a sense, helping to close the very rivers he drew inspiration and sustenance from, the waterways he cherished. How could that be? Wouldn't he have been aware of this contradictory behavior, that he was compromising his values?”

Eghads! And I hadn't even located my initial morning fix of caffeine.

The great thing about being smart, young and idealistic is that one can ask take-no-hostage questions with a twinkle in your eye. There in the public lot, with my parking ticket expiring, the rubber was trying to meet the road and the famous words of a long-ago boatman to a fearful passenger who was undecided about transport through Lava Falls, rang in my ears, “*I don't care which boat you're in, but it's time to get in the boat!*”

Good questions deserve good answers. The mature

adult, however, learns numerous techniques to avoid exactly these kinds of questions. If you don't know them, well, there's still time. There are good reasons for shirking this sort of interrogation—like getting through the day. My temporary, river-protecting sherpa was no fool; verging on the cusp of adulthood at a far younger age than I could ever claim, he had at least had the courtesy to not ask these questions in a crowded room of other idealists and lovers of rivers.

Indeed, these same kinds of questions, in different guises, had run through my head at times a *long* time ago. *How long ago was that?*

Eghads!

I mumbled a few glib remarks, hoping to throw him off the scent. Like a seasoned veteran, he sidestepped my pale answers and waited. People with surplus commitment and sincerity can be scary at times; they don't know how to let you slide away gracefully.

When in doubt, though, I did what the English always do—answer a question with a question. Throw them off course. A knowing glance or a dose of smug superiority helps. *Have you ever been down the Colorado River?* I asked. But before he could answer, the gray Portland skies opened up and delivered a five-minute downpour of rain and salvation. We shook hands. I got in the car and slipped away, breathing a sigh of relief.

On the way home, of course, I fretted over Holmstrom and dams. It was far more fun to focus on an opponent's or a hero's contradictions than my own. By definition certain individuals who find themselves admired, revered, or reviled, are asked to carry a certain amount of symbolic luggage. For reasons still unclear, we attach ungainly portions of our dreams, longings, even failures to these spiritual sherpas.

So what did Buzz think of dams, if he thought about them at all? After all, river runners that read books think highly of Holmstrom for a variety of reasons—his boat building skills, his rowing ability, his humility and reverence for the Canyon, the mix of boldness and modesty, even his very human contradictions. Could he be called an environmentalist? Did he have some sensibility akin to an environmental consciousness, or was that something born of affluent times, a p.o.v. one can afford after a good education, a certain standard of living, a ton of hindsight and a hell of lot of free time? Who knows? Are all river runners de facto environmentalists? This line of questioning was leading, I suspected, to a bad run.

The first dams Holmstrom encountered would have been during his youthful days on the farm outside of Coquille, Oregon. "Splash dams" were sprinkled along the upper reaches of the North and South forks of the Coquille River. Indeed, the Coquille watershed had a reputation as the best river system for splash dams in Oregon. Middle Creek, which looped through the Holmstrom farm, was no exception. On its upper reaches where the best timber grew, loggers had built splash dams for decades.

The benign, even playful name, reminiscent of children frolicking and Sunday afternoon picnics, hardly does justice to the environmental damage these ingenious structures wrought upon the river and surrounding land. A brief description of the dams themselves will suffice; afterwards, one can easily imagine the environmental carnage.

Getting the logs to the mills as cheaply and quickly as

possible was the problem/goal, especially in the steep, inaccessible forests of the coast range of Oregon, Holmstrom's backyard. The idea behind splash dams was simple: construct a wooden dam, usually at the end of the dry season when water was at its lowest, across a creek, stream, or river; cut as much timber as possible and drag it, push it, or slide it to the dry stream bed; wait for the early

winter rains (a "freshet" was the sudden overflowing of a creek due to heavy rain or melting snow) to build a head of water behind the dam; wait for just the right moment (too much rain would send the log float downriver into the valley and over the banks onto the farmer's fields or right past the mills down to the Pacific ocean; too little water would cause the massive flotilla to lock up, creating a tangle and snarl akin to a boatman's bad hair the morning after a Lava celebration that could only be released with large quantities of dynamite) then open the spill-gate of the splash dam, releasing a monstrous surge of logs, debris, and water downstream, releasing the logs. It was called a log drive. If one can set aside the visions of environmental ruin temporarily, if one can put oneself in a working man's caulk boots in the 1920s and '30s, the job of log-surfer probably produced enough adrenaline that a modern boatman might find this line of work, well,

interesting.

Log drives, and stray logs, were a seasonal occurrence for Holmstrom. It is difficult to imagine him not curious or excited about a fast-moving river of logs passing by his front door. A blooming riverman, he did what any waterman or would-be surfer would do—he tried to ride the damn things. Don't ask why! Like most of us, he probably practiced an early version of "disconnect." There's the splash dam; here's the log drive. So what? This is really fun! Or this: All of his life Holmstrom loved to fish. One would think that, sooner or later, he would have connected the dots, if not in exact, scientific language, between habitat destruction and fish population. Surely he would have been aware of the disputes between the loggers, farmers, and fishermen along the river valleys that run out to the Pacific. Then again... perhaps not.

Beginning in the 1930s, local farmers and commercial

fisherman (and a few fly fisherman) begin putting up a fuss that turned into a big stink. They took the biggest logging companies to court. Then, as now, the issues were more complex than they appeared. Some of the companies actually tried to improve their practices. After seventy years of service, however, the last splash dam was torched in December, 1956. An era had ended.



Holmstrom's next meeting with dams would come years later, after he had run the Rogue and Salmon Rivers, the latter of which had no dams and remains damless to this day. (Hot damn!) Of course, this encounter was as poetic as it was "up-close-and personal." On Thanksgiving Day 1937, he rowed his wooden boat up to the concrete face of Boulder Dam after his eleven-hundred mile journey and gave it a nudge. Pure Holmstrom. *Reach out and touch...* just to make sure, I suppose. To finish the epic journey properly. Or was it an act of futile, yet stubborn defiance, to butt up against the massive structure, an insect stinging the behemoth? Get outta my way! Under the circumstances, however, it's difficult to imagine our man questioning the presence of this structure looming over him.

And yet, he spent four-and-a-half days rowing across Lake Mead. It must have occurred to him...that the

river was disappearing. At the foot of Lava Cliff rapid he had written, “*Sometimes I feel sorry for the river-it works every second of the ages carving away at the rocks-digging its canyons-carries a million tons of silt per day—& again I feel sorry for the mountains and rocks with the river gnawing at their insides...*” The next year Separation and Lava Cliff would disappear under the encroaching waters of Lake Mead. Obviously, he noted their absence. Yet, his journals and letters say nothing of how he felt. Which could mean everything, or nothing.

Holmstrom’s next significant “close encounter” with dams occurred in April, 1938 on the Clegg cross-country river journey. That same year the mayor of Portland began a campaign to cleanup the Willamette River, a river so overwhelmed by industry pollution the stench could no longer be ignored. The Mayor, in an attention-getting effort, placed a fish in a cage and lowered it into the Willamette. (There were few animal-rights activists in those days.) Five minutes later the cage was hauled up, the fish quite dead for lack of oxygen in the water. Since there were few if any studies, the question of deformities, reproduction rates, or habitat loss literally fell on deaf ears. Thirty years would pass before Portland was ready to listen.

Not fifty miles outside of Portland, the Clegg party of three boats came up against recently-completed Bonneville Dam on the Columbia River. This time Holmstrom was able to go *around* the dam via the Cascade Locks, largest in the world at the time. He could actually *avoid* fierce Cascade Rapids, which may have been no more “unnatural” for Holmstrom then going “upriver” with Vancouver, B.C. socialite Edith Clegg. Common sense and good wages would have told him as much.

Not long after, Woody Guthrie rolled into Portland at the behest of the new Bonneville Power Administration. In 1941, they had hired the unemployed, left-leaning radical Woody to make up songs celebrating things modern-day conservationists and environmentalists tend to frown upon: dams. These songs would come to be known as the Columbia River Songs, though they might just as well be called the damn Columbia Dam Songs.

Folk singers, then and now, have been known to go against the grain of things, to swim upstream, to back unpopular causes. That’s their job, I guess. What the hell was Woody doing? Writer Robert Sullivan, in a special to the Oregonian, put it this way, “Woody did seem to buy the argument that the rivers were in fact ‘wasted,’ as most people of the time believed. This was a time when technology was a problem-solving godsend, when government assistance seemed the only way out of the devastating economic Depression. Guthrie was shown the fishladders and told that a trade-off was possible... Guthrie was no government patsy; he worked for the

BPA because he seemed to believe that this was America’s great socialist moment.” So how would have *Roll On Columbia* sounded to Buzz? Or to my questioning friend in the parking lot?

While these contradictions might well befuddle modern-day lovers of rivers and folk music, Woody and Buzz, I suspected, would have repaired to the nearest tavern and drank a beer or three. They would have had a good laugh. Both were working men, both knew what it was like to be unemployed and country poor. *It’s the economy, stupid!*

This was not the age of irony.

Finally, in April 1940, Buzz went to work for the Bureau of Reclamation at Echo Park on the Green River. There is little poetry and no ambiguity about what he is there for—site evaluation for a future dam. Jack-of-all-river trades, he drilled and blasted the rock walls, constructed roads over impossible terrain, rigged machinery, rowed and built boats, and wrote happy letters to home. One would give much to be a stow-away in Holmstrom’s mind. Was this contradictory behavior for him? Did he see it as such? Was the gap between his love of rivers and what he was doing to earn a living on the river small and invisible, or grand and overwhelming? Did he simply ignore the apparent contradictions, neglecting to put them side by side under a bright, steady light.

For a variety of reasons, the project collapsed and the Bureau sent Holmstrom, along with two engineers, to Desolation and Gray Canyons to examine several more potential dam sites.

The icing on this sticky upside-down cake came in December, 1941 when Buzz went to work at Bridge Canyon Dam site in Grand Canyon. Bridge Canyon Dam! A dam that would have flooded the very heart of Grand Canyon. He was on the river again—rowing and building boats in a place he loved, with people he felt comfortable with, earning money. One takes a breath and wonders.

In February, 1942 he returned to Portland and enlisted in the Navy.

So where did this swift assembly of facts leave me? What did they add up to, if anything? What reply would serve to quell the quandary the young environmentalist had unleashed on the modest gas-station attendant from Coquille? It is difficult, if not impossible, to imagine Buzz thinking of rivers as “wasted,” like Woody. It is equally difficult to believe that he didn’t appreciate cheap electricity and jobs in the middle of the Depression. The river runner/ working man/poet, who wrote of the Colorado River and its Canyon as if they were sentient beings, also bored holes in the Canyon walls and hauled engineers down the river looking for dam sites.

Contradictory behavior? To the young environmen-

talist, perhaps. In a post-ironic age of uncertainty and frequent change, with contradictions as numerous as the driftwood in Forever Eddy below Granite, the spotlight is always on. The gaps between words and behavior know no sanctuary; the difference between the venal and garden-variety contradiction is, at times, hard to distinguish.

Perhaps Buzz could not imagine all the rivers ever being dammed, no more than his father and brother could imagine that one day the timber would be all but gone.

Perhaps he knew, but kept his mouth shut.

Having elevated Holmstrom to the height of hero, pioneer, spiritual forefather, and role-model, it was easy to see how the gap between his words (not to mention his best deeds) and some of his actions made the young environmentalist twitch.

Was it fair for the young environmentalist to apply a modern standard and value to certain Holmstrom actions? After all, hadn't some of Holmstrom's values transcended time and place? Hadn't we "adopted" Buzz to represent certain things? Lifted the parts of his life that fit well into our own set of values and aspirations? Yes, no, maybe.

Did Buzz understand what was about to happen to the rivers? Probably, in the same way one might make out a speck on the horizon that turns out to be, with time, the outline of a ship. More time passes before one is able to identify its flag or country of origin. Even then, one must wait until it docks to see what its cargo holds. Holmstrom hardly viewed dams with the same urgency that many do today. There simply weren't that many around. Neither were there flocks of environmental organizations, degrees in environmental studies, or instant media.

Did Buzz fret over them or his apparently contradictory behavior? Somehow, I think not. He may have been more puzzled, possibly saddened, than anything. He was a working man who loved rivers. He had a boat and a wild idea. Off he went...down the river, following his dream, leaving behind the land of contradictions and paradoxes and politics, seeking sanctuary, breathing deeply the air of beauty and solitude and silence, if only for a short time, refreshing his spirit in preparation for his inevitable return to the fray.

To the young environmentalist I would confess a reoccurring vision, where memory and imagination dove-tailed. Perhaps it would help to close the gap.

I am standing on the Black Rock above Lava Falls; it's early morning and the sunlight is warm on my back. The day is fresh, promising. The roar of the rapid rings through my ears, literally filling the air. There's a smell I can't quite describe, but will never forget. It's hard to take my eyes off the river; I stare, break it into parts—the ledge, or the slot, the immense hole in the middle of the right run—as if

they were separate or distinct from the river itself. I think if I memorize the parts, the whole river will offer up a clue, a blessing, a passage through the maelstrom. If I take its pattern to heart somehow the river's secret will give itself to me. Thick of tongue, heavy handed, heart-pounding, I am smitten, thoroughly lost...the dark rocks below, the slow-motion wave breaking upstream; the smooth inviting tongue, its tip and edges sharply calm; the white froth, the plumes, the clouds floating just above the torrent; the spray rising from dark green transparent caves and tunnels...I inhale slowly, breathing in the air and the sunshine, the water and the walls, the skyline, the wet dancing darkness before me... happy to lose myself in the rapid below...

...I might as well be standing beside a splash dam, the logs shooting out the open gate, with a peavey pole in my hand and a hard hat on my head. The growl of the river, the groaning of the logs against one another, the sound of boulders moving along the bottom of the dark muddy river... My heart pounds as I step onto one of those floating logs... balancing, riding, turning over the water...like a dance...my job is to keep the log drive moving down river, to avoid jams and crackups. And not fall into the river. To do so, to slip into the dark crevices between the logs, is to invite injury, if not death. I can smell the sea air blowing in from the coast, that fragrant mix of the ocean and forest and the farms downstream...I am part of a fraternity...Working men, trying to earn a living, practicing a rough craft...on the river.

Believe it or not, they called themselves "river rats" in those days. I wondered, if the young environmentalist had been born in that time and that place, would he have heard the fierce music of a splash dam? Or seen the damage of men's handiwork downstream. A bit of both, I imagine.

Vince Welch

Jack Sumner Looks Back

LESS THAN A YEAR BEFORE HE DIED, Jack Sumner received a letter that prompted him to reflect on his life, especially on the Powell expedition. The letter was from Lewis Keplinger, with whom Sumner and Powell had climbed Long's Peak in 1868. Keplinger had gone on to a distinguished legal career in Kansas City, while Sumner had remained a hardscrabble frontiersman. Now, from across this divide of years and fates, Sumner wrote back to Keplinger. Sumner's letter has remained unnoticed in the Keplinger collection at the Kansas State Historical Society. Powell historians consulted this collection only for Keplinger's account of Long's Peak, and neglected to examine the whole collection. This letter is the first document to surface in decades in which a participant discusses the Powell expedition.

Sumner's letter is largely consistent with the accounts he gave to Robert Stanton in this same time period, but this consistency is news in itself. Sumner knew that Stanton was writing a book, and Sumner wanted to influence history's verdict on Powell and himself. Sumner's private letter to Keplinger had no such motive, and thus offers a sincerity check on his controversial anti-Powell statements. If anything, Sumner is even more blunt with Keplinger, declaring that he overthrew Powell's abusive leadership and assumed total command of the expedition.

What did Keplinger make of Sumner's complaints about Powell? In 1919 Keplinger wrote to Stanton: "I know that Jack Sumner felt unkindly to Major Powell. I knew both and some allowances may be made for any derogatory statements Jack may have made." In 1912, unaware that Sumner was long dead, Keplinger wrote to a friend: "He is a very forceful character...The success of that expedition was largely due to Mr. Sumner. Major Powell himself has told me since that but for Sumner he never would have got through the canyon alive." What's new in this letter is Sumner's account of his wild post-Powell adventures.

A few notes: Sumner always said it was he and Hall who continued on to the Gulf, and Dellenbaugh and Stanton agreed, but most later historians have said it was Hawkins and Hall, a mistake presumably arising from the assumption that since Sumner's river diary ended at Yuma, so did he. Since Stanton contacted both Sumner and Hawkins in later years, his verdict on this question should have carried the most weight. A. C. Lankin was a member of the 1868 group. When Sumner speculates that Walter Powell suffered from "petticoat dementia", he presumably means syphilis, perhaps a Powell family secret.

Paradox, Colorado Sept 14, 1906

Mr. L. W. Keplinger

Kansas City, Kansas

Dear Old Friend, It seems that after 38 years you Remember your old Friend "Jack". Well I am greatly Pleased to get a letter from you and will try to answer it. things have not went as well with me as they have with you. I will try to give you an Idea of the ups and downs since you Parted with us on oak Creek. I Remember the Long's Peak Episode very well. But I think it was August 4th 1868 that we reached the top. It is of no consequence now. After you left us we proceeded on to White River where we Built cabins and Spent the winter Hunting and Exploring the Country. in March we left that camp and proceeded to old Fort Bridger where we sold our stock and came Back to Green River Wyoming where we took Boats for the great unknown and we had a Hell of a time of it getting through. After you left I had to take charge of the Sextant so it kept me Pretty Busy for 20 hours out of the 24. Must catch a Star as you can for about 800 miles. lost a boat and lots of Supplies in Green River. at the Mouth of uinta river Powell neglected to get Supplies and we were nearly Starved in consequence. we were 111 days from Green River Wyoming to the Mouth of the Virgin River where the Powells left us and went to Salt Lake and I have seen neither of them Since. I took the two Boats left and with Bradley, Hawkins and Hall proceeded on down the Colorado River. Bradley and Hawkins Stopped at Ehren Burg Arizona. Hall and I went on to the head of the Gulf of California then came back up the River about Old Fort Yuma and Being Level Broke we commenced Killing a few Deer to Sell to the Mexicans and what few whites were there. One day while hunting the Apaches Jumped me and I had to kill two of them. as they appeared to be Government pets I had to walk from the Colorado River to owen's valley—500 miles—California. as you probably know I am a little too Hot-headed to Submit to an arrest under such trivial pretexts. When I struck Owens valley I found a job and went to work cutting cord wood for a Mining Company. After working two months I wanted my money so I could Start back to the Rocky mts. the Boss Refused to give me my money or a horse he owned. Which of course caused a row. there was nothing left for me to do but adopt drastic measures. So I took Horse saddle and Bridle away from him and his Pet henchman who happen to be the Sheriff at the time. I Rode the Horse alone across that Sink of Hell, Death Valley; across Nevada Desert; Utah and Back to Green River Wyoming. lived on my Gun the entire distance. after that went onto the plains and Hunted Buffalo, Wolves, and occasionally a Damed Sioux to vary the monotony of my life. for the last 25 years I have lived west of the range Engaged

most of my time in Mining with various ups and downs. Mostly downs. I have a wife and three grown Sons all Doing for themselves two of them Publishing Newspapers and one a farmer. I am the same old wanderer that I always was and will Probably wind up under a cedar tree fit Subject for Wolf Bait. this is a great Copper Country and I have some pretty fair Prospects and if I have good luck with them I may be able to make you a visit a K. C. when we can smoke a pipe and perhaps Boost a bottle. you ask about the Colorado River party. here is the list as far as I know and Believe Correct. ten started from Green River. J. W. Powell. Walter Powell. O.G. Howland. Seneca Howland. George Bradley. Frank Goodman. and Jack Sumner. Andrew Hall. Bill Dunn. Goodman quit us at Uinta river. the two howlands and Dunn were killed. Powell states by Indians & I Say Killed by the Mormons, Part of the Same old "Mountain Meadows" massacre gang.

Of course you know J. W. Powell is Dead. Walter Powell is in the Bug House Bradley Killed accidentally at San Diego California. Hall Killed by Road agents in Arizona. all that are left are Wm R Hawkins and myself. Hawkins Joined the Mormons and has two or more women and had when I saw down on the Gila River three years ago a good sized Kindergarten of his own which he has doubtless increased since.

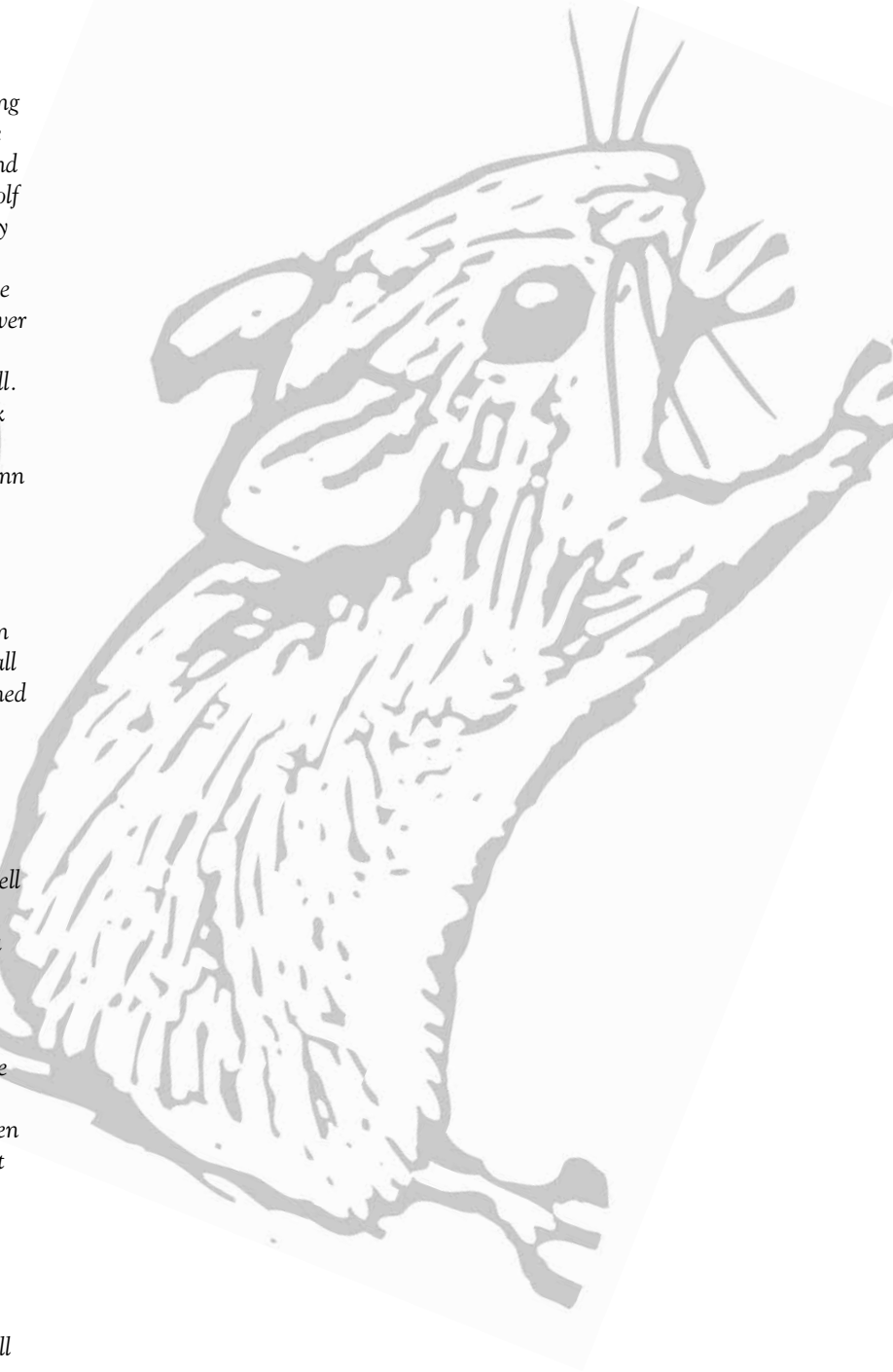
I Presume you remember A.C. Lankin, the fellow that stole the mule and grub on your first trip to Bear River. Well he Scrimped and Saved until he had accumulated \$30,000 then went into his room in Rawlins Wyoming, whrote on a card "life is not worth living" and Sent a Bullet through his head.

So J.W. Powell Says I Saved his Bacon a time or two did he? Well from Reading his Report one would think there was no one in the Party but Capt Powell and himself. he Evidently didn't tell you of the row in Cataract Canon when I got so damed mad at his abuse of howland and Dunn that I had to "Speak out in meeting", which culminated in my taking full command of the Expedition and Keep it to the end. Poor Walter was crazy when he was in the Park and got worse. Petticoat Dementia or a plain case of rats in the Garret I don't Know which.

Well I Guess I have written enough to tire you, so I will close. hoping to hear from you again soon. If you know of any one wanting Copper prospects tell them to drop me a line. If you want some Specimens of the copper will send them.

Yours most truly Jack Sumner
Paradox Montrose Co. Colorado

Don Lago



The Changing Rapids of Grand Canyon— Crystal Rapid

IN THE BEGINNING, Crystal Rapid wasn't even noteworthy among Inner Gorge rapids. In the 1980s, it was the most-feared rapid on the river. Now, Crystal is kinder and gentler, owing in part to the 1996 controlled flood and the recent tendency for lower releases from Glen Canyon Dam. Crystal Rapid also represents the

largest geomorphic channel change in the recorded history of the Colorado River, and its geomorphic history has spawned a mythology that transcends its difficulty as a whitewater run (Webb, 1996).

Because few people noticed the rapid amid the raging whitewater upstream and downstream, we know only a little about what the rapid used to be like. Robert Brewster Stanton photographed the rapid from several angles in 1890 (Figure 1). The only river trip that had a problem here was the 1915 Tadge-Russell trip; they eventually sank one of their steel-encased boats among rocks that probably came from Slate Creek in a prehistoric debris flow. In 1923, the u.s. Geological Survey surveyed the water-surface profile through Grand Canyon and worked on the reach from Hermit to Tuna Creek Rapids on August 30–31, 1923. They found that the rapid dropped sixteen feet (4.9 meters), and Claude Birdseye, the expedition leader, remarked in his diary that “the waves are high but the fall is distributed over about one-third mile, so it is easy to run.”

That all changed in December 1966. Much has been written about the 1966 storm in the southwestern United States, and some have greatly exaggerated its magnitude and significance. Between December 4 and 6, rainfall ranged from fourteen inches at the North Rim Entrance Station (8,700 feet elevation) to 2.08 inches at Phantom Ranch (2,570 feet elevation) and probably averaged five inches over the Crystal-Dragon Creek watershed (Webb, 1996). Debris flows occurred in Prospect Canyon (Lava Falls), Bright Angel Creek, Lava-Chuar Canyon, and Nankoweap Creek as well as in Crystal Creek. Webb and others (1989) estimated the discharge of the debris flow to be about 10,000 cfs, most of which was sediment. The change to Crystal Rapid was awesome (Figure 2); the debris flow constricted the river by about 80 percent and increased its drop, some of which was removed by the 1983 flood from Glen Canyon Dam.

Some hydrologists and geomorphologists have been fooled by Crystal Rapid, responding in part to its awesome whitewater and overlooking some readily available information. Cooley and others (1977) provided ample documentation of the Crystal Creek

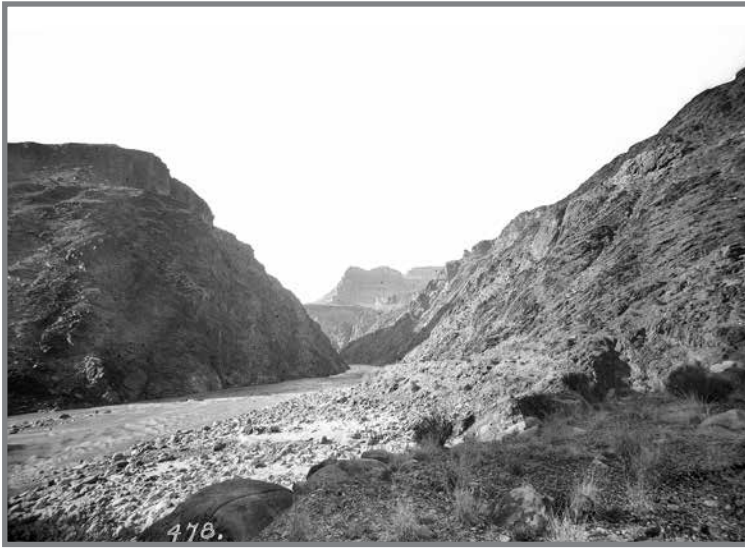


Figure 1 A—Crystal Rapid, February 8, 1890. Robert Brewster Stanton stopped at Crystal Creek to let Harry McDonald leave his trip and to climb the Tower of Ra. This view is from the high-water scout point on river right. (R.S. Leding, courtesy of the National Park Service).



Figure 1 B—Crystal Rapid, February 1, 1990. The 1966 debris flow pushed the river about 250 feet towards the left, moving the deep-water part of the channel away from the right bank. (Ralph Hopkins, Stake 1471).



Figure 2 A—The 1966 debris-flow deposit at Crystal Rapid, February 6, 1967.

Because few river runners did winter trips in the 1960s, the changes caused by the 1966 debris flow weren't known until early 1967. Examining flood damage throughout Grand Canyon, the U.S. Geological Survey landed a helicopter at the mouth of Crystal Creek and took a photograph of the awesome new debris fan. (Byron Aldridge or Harvey Butchart).

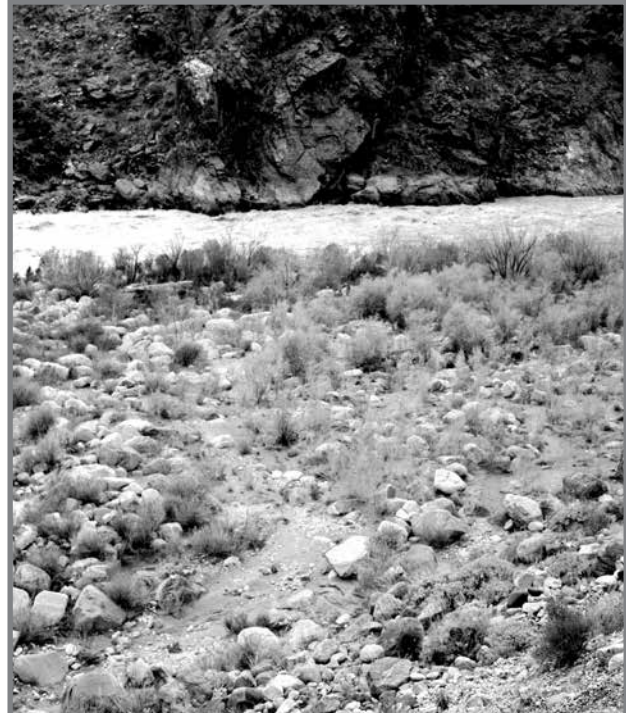


Figure 2 B—The 1966 debris-flow deposit at Crystal Rapid, February 27, 1993.

The debris fan is now partially covered with tamarisk, brickettbrush, and arrowweed, and some rocks can be seen in the same places. The river widened by less than 50 feet, mostly during the 1983 flood. (Robert H. Webb, Stake 2737).

debris flow, despite the fact that computationally they treated it as if it were a clearwater flood. They found that the debris flow covered some archaeological sites, and some have chosen to interpret this as meaning the debris flow was the largest in Crystal Creek during the last thousand years (as discussed in Webb, 1996). Not so; another debris flow of similar size occurred sometime within the last 300 years, and a reasonable recurrence interval for the 1966 debris flow would be about 200 years (Cooley and others, 1977; Webb and others, 1989; Webb, 1996). The amount of deposition and size of boulders led Kieffer (1985) to conclude that a flood of 400,000 CFS would be required to remove the debris fan. However, the debris fan was reworked during both the 1983 and 1996 floods, with boulders more than six feet across being swept downstream. In fact, the Rock Garden that separates the rapid into two parts was mostly formed during the 1983 flood.

Between the 1983 and 1996 floods, and particularly at discharges below 30,000 CFS, Crystal posed severe challenges to motorboats and oar boats alike. No one in their right mind would purposefully go through the top center hole, and at most water levels the left side wasn't

an option. The typical run was either to slam the bow of a motorboat into the right bank just below the head of the rapid and pivot around, running the rest of the rapid backwards (the "turn-around run"), or with precise timing crash through the strong right lateral, simultaneously hoping not to be surfed into that center hole or the softer and less-hazardous hole just downstream. The hole that Kieffer characterized as a "hydraulic jump" forms downstream of a large block of schist in the left center of the channel just below the mouth of Slate Creek. This hole grows in the mid-20,000 CFS range, peaking in that stupendous breaking wave observed at about 70,000 CFS in 1983. The final challenge of Crystal Rapid is to avoid the center run over the Rock Garden, which can be real difficult if the motor isn't running or an oar or two is missing.

Surprisingly, Crystal changed during the 1996 controlled release. About 1,100 square feet of area was removed from the debris fan, mostly boulders. The top-center hole is now softer and no longer breaks perpendicular to the current. The right lateral, too, is softer, owing to the removal of a key boulder; this makes the pull to the right less strenuous even if the adrenaline

is pumping hard. In recent years, few motor guides seem inclined to do the turnaround run, opting instead for a straight-forward right run. It even seems as if the left run is more available now, although that could just be because of the nature of recent flow releases from Glen Canyon Dam. The 1995 flood in Crystal Creek may have been partially responsible for some of these changes, because a few new boulders were thrown into the river and then rearranged by the 1996 flood. As the story of Soap Creek shows, a few new rocks here and there can tame a rapid's waves.

There is no doubt that Crystal has had a major impact on the Colorado River through the Inner Gorge. The exact nature of these changes was unknown until 2000, when the Grand Canyon Monitoring and Research Center arranged a Light Detection And Ranging (LIDAR) overflight of the river corridor with one intent of developing a new longitudinal profile for the Colorado River. LIDAR is a sophisticated laser-based imaging system used to develop very detailed topographic data. Despite all the years of research in Grand Canyon, the 1923 USGS was the only systematic data available on the water-surface profile of the river. We recently analyzed the 2000 LIDAR data, matching both the 1923 USGS data (normalized to 8,000 CFS discharge) and the LIDAR data (obtained at 8,000 CFS discharge) to a common river-mile distance. Because of inaccuracies and difference of interpretation of the center of the river, the two data sets do not precisely overlap and must be adjusted. Part of our adjustment was based on the fact that the elevation at the heads of both Hermit and Tuna Creek Rapids have not changed historically. In contrast, both Boucher and Crystal Rapids aggraded appreciably between 1923 and 2000.

Comparison of the LIDAR and 1923 data (Figure 3) shows several things about Crystal Rapid and its effect on its neighbors. The drop through the rapid is now 21.3 feet (6.5 meters), down from its post-1966 high but considerably higher than what the rapid had in 1923. Because of the 1951 debris flow in Boucher Creek and the backup from the Crystal Creek debris flow, Boucher Rapid is now raised, on both the upstream and downstream sides, above what it was in 1923. As previously discussed in the BQR, Boucher simultaneously is drowned out by Crystal Rapid and also drowns out the bottom of Hermit Rapid. Returning to Crystal's direct effects, the LIDAR data clearly shows "Lake Crystal" and subtly shows that some of the debris from Crystal may have washed downstream towards Tuna Creek Rapid, raising the bed slightly between the two rapids.

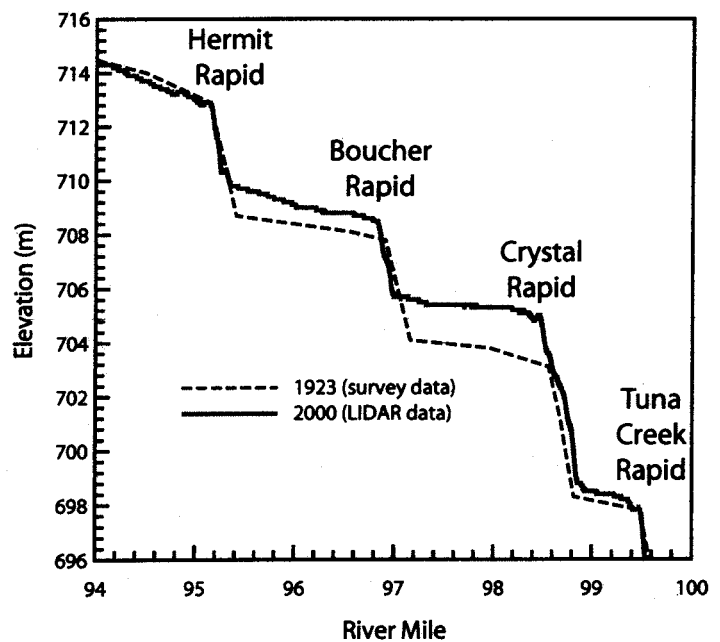


Figure 3. Changes in the water-surface profile of the Colorado River from Hermit to Tuna Creek Rapid, 1923-2000.

The tributaries giveth, and the river taketh away. When the water drops from the floods that occasionally are released from Glen Canyon Dam, some rapids can be significantly changed. Although we think that much of the debris fan at Crystal Rapid would disappear if a flood the size of the 1884 event (300,000 CFS) occurred, or even if the 1921 event (220,000 CFS) were repeated, the fact is that it is unlikely a flood larger than the 1996 event (47,000 CFS) will occur anytime soon. Crystal is here to stay, and fortunately, for the time being at least, it isn't the raging monster that some of us once beheld. And this rapid continues to change.

Bob Webb and Chris Magirl

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Serendipity

SERENDIPITY. A fine word, the way it rolls around on the tongue. A nice way of saying dumb luck, or being in the right place at the right spot to witness a big rockfall without worrying about it crushing you.

It was serendipity that came into play when the University of Utah gained access to Nathaniel Galloway's diary and a selection of the photos taken by Raymond Cogswell during the 1909 Stone-Galloway river expedition. Because of serendipity, we were able to gather these two elements together in the digital world and put them up on the Marriott Library website, so that they can be viewed and admired and seen by people the world over, even Grand Canyon river guides! Because of dumb luck, you can go to the Marriott Library's web page and see scans of the original pages of Galloway's diary from that trip, and view a hundred of the fine black&white images that Cogswell made during the voyage.

Let me explain how serendipity made this possible: one day I was sitting in my office in the library, doing whatever it is I usually do, and the phone rang. Hoping it wasn't another media company trying to weasel out of paying use fees, or an activist telling us we had mistakes on our Japanese-Internment camp web exhibit, I answered. The woman on the other end identified herself as a descendant of Nathaniel Galloway, and said she had some photographs from him; would I be interested in copying them? Well! That made me sit straight up. It turned out that she was a granddaughter of Parley, Nathaniel's ne'er-do-well son; her grandmother was Loretta Luck, that appropriately named if ill-used woman who was the one who swore out a warrant for Parley for non-support, which landed him in the Uintah County jail in Vernal about 1930.

About that same time—more serendipity—Frank Swain was a deputy sheriff, and would often be visited by his cousin, Bus Hatch. Bus and Frank listened to Parley's tales of going down the river with his father; and with Clyde Eddy, and were inspired to give it a try themselves. Parley, sensing a way out of jail, told Bus and Frank if they would loan him the money for his bail, he would build them a boat and take them down the river. They did so, whereupon Parley promptly jumped his bail and disappeared, and was not seen in Uintah County thereafter; he froze to death in a sheep camp in central Utah not long after that. But luck was not through with Parley and Bus, for it was Parley who rescued the Galloway-style boat from the rocks in Lodore, where it had been abandoned by the Todd-Page party in 1926, and who sold it to Hod Ruple

in Island Park, where it so happened Bus saw it on his first serious river trip in 1931. Bus took measurements from the boat and built his own, and took it and others like it down the Green in 1932; Cataract in 1933; the Grand in 1934, and on and on. So in an odd way Parley not only fulfilled his end of the bargain after all, by helping Bus build a boat; he helped Bus start Hatch River Expeditions, the river business that became the dynasty it is today.

We copied all of the photos in the nice, leather-bound album, and returned it to her in a nice, specially made phase box as a way of saying thanks for letting us add these images to our collections. Then a few years passed, and I was asked to give a river history talk at the public library in Richfield, Utah. I did so, to a sparse crowd (this was just two weeks after September 11); but among them was a local woman, who, it turned out, was likewise a descendant of Nathaniel Galloway, this time a granddaughter of Galloway's daughter Eva. Eva wasn't so colorful or ill-fated as her brother Parley, but she did have a sense of the family's history, and passed down a precious artifact from generation to generation. Nathaniel Galloway spent his last years in Richfield, but I didn't know that some of his family had stayed in the area. So when this great-granddaughter opened a small metal box and showed me Galloway's original, penciled diary from the 1909 trip, my eyes just about popped out and my breath caught as I held the child's copy book in my hands. This was blind luck if I had ever seen it; even more so, as I talked with her after the program. It turned out that she was planning to go out of town, but was friends with the librarian, who told her about the program, not even knowing of her river history connections. She delayed her trip to come to the program and show me the diary. I was able to persuade her to let me take it with me back to the library, where we scanned each page at a high resolution, and I returned it to her when I passed through a month later on my way to give another talk.

Finally, it just so happened that the powers-that-be in the library were looking for a scanning project that involved western water, as part of a larger digitization effort. When I heard that I proposed that we scan the photographs from Cogswell; and put it together with the diary as a digital exhibit. And so we did; you can see the results at <http://www.lib.utah.edu/digital/galloway>.

You can browse the photographs, which are arranged in down-river order; or you can look at the original diary pages, with Galloway's unique spelling and grammar; or you can read the transcribed text of the diary; or you can view them both side by side.

Here's an example from November 8, 1909:

“Running out of the granite and around the big bend Powell's Plate[au]. A short distance below the nooning place we enter the granite again and run a few rough rapids. When we land at the head of one much rougher than the others and decide we can run it. I and Mr. Stone came through all right, but Mr. Dubendorff struck a rock with the stern of his boat and the waves tipped the boat over striking him on the forehead and cut a gash 1= inches long. Duby and the boat both came through the rapid Duby going under every wave and the boat came through upside down. I caught the boat and towed her in. I and Mr. Stone stripped off our clothes and wade in and tip it right side up. I and Duby bail the water out as he had reached there by that time. We cross over to the other side.

Make camp. A fire is built and Duby exchanges the wet clothing for dry ones taken from the wrecked boats and rubber bags made specially for keeping clothing dry in case of a wreck.”

The events of that day, of course, were later commemorated by the USGS, who named the rapid after Dubendorff; the side canyon that creates it after Galloway; the creek after Stone, and the butte overlooking it all after Cogswell. So due to serendipity, modern river runners can actually see the source documents from an expedition that we all know about.

Roy Webb

Businesses Offering Support

Thanks to the businesses that like to show their support for gcr by offering varying discounts to members.

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Again, We Still Need Your Help!

THE TRAGIC EVENTS of this past year have had negative repercussions on non-profits everywhere, as funds were understandably shifted to areas of far greater need. Our organization has not been entirely immune. Consequently, GCRG has experienced a reduction in funding levels for the BQR. While we are extremely appreciative of the funding we've maintained over the years, we must pursue additional funding avenues to offset the considerable (and ever increasing) costs of publishing the newsletter. Unfortunately, in the meantime, the burden is carried by our already strained general operating budget. The BQR has increasingly become our "identity", and we are thoroughly committed to maintaining its high quality despite this financial pressure. Here's how you can help:

Contributions: Whether large or small, your tax-deductible donations contribute significantly to the financial health of our organization and its many programs. It helps you too, come tax time!

Pay your dues: It may seem like a small thing, but GCRG relies heavily on membership dues. It remains our largest income source so keep those dues current!

BQR funding ideas: If you know of any funding source (an individual, a foundation, or a corporate sponsor) that might be interested in supporting GCRG and our *boatman's quarterly review*, please let us know!

Encourage others to join: If you know of other guides or Canyon aficionados who are not members of GCRG, please encourage them to join!

Volunteer: Our mountains of filing are threatening to topple over. We could sure use somebody (or several somebodies) to come by and give a hand with that as well as other easy chores. Sure would help!

It takes all of us working together to keep GCRG strong and keep the Canyon spirit alive. Please help us if you can... Thank you for all of your support!



Care To Join Us?

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. We are a 501(c)(3) tax deductible non-profit organization, so send lots of money!

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*benefactors and patrons get a life membership, a silver split twig figurine pendant, and our undying gratitude.

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Wes and the Boys celebrate the 225th anniversary of the U.S. by boating the streets of Flagstaff.
Greg Eastwood as William Dunn; Michael Ghiglieri as trapper Jack Sumner;
Richard Quartaroli as the Major.
"Emma Dean" courtesy Regan Dale and George Wendt, OARS/Dories]

Thanks to all you poets, photographers, writers, artists, and to all of you who send us stuff. Don't ever stop.
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boatman's quarterly review

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