TESTIMONY OF ROBERT S. LYNCH, ROBERT S. LYNCH & ASSOCIATES,
BEFORE THE HOUSE COMMITTEE ON NATURAL RESOURCES,
SUBCOMMITTEE ON NATIONAL PARKS, FORESTS AND PUBLIC LANDS AND
SUBCOMMITTEE ON WATER AND POWER JOINT FIELD HEARING ENTITLED
"ON THE EDGE: CHALLENGES FACING GRAND CANYON NATIONAL PARK"

SHRINE OF THE AGES, GRAND CANYON, ARIZONA

APRIL 8, 2010

I am pleased to present this written testimony to the Subcommittees concerning challenges facing Grand Canyon National Park.

On a professional level, our firm represents public power and water providers in the Southwest and a state association whose 26 members and associate members receive water from the Colorado River directly or through the facilities of the Central Arizona Project (CAP); they also purchase hydropower from federal facilities on the Colorado River including Glen Canyon Dam as part of the Colorado River Storage Project. For ease of reference, my resume is attached to the Disclosure Statement filed with this testimony.

On a personal level, I have been coming to Grand Canyon National Park since I was a child. Additionally, on both a personal and professional level, I have had the pleasure of participating in raft trips on the Colorado River through the Grand Canyon a number of times over the last 35 years, including a trip in June 2008 just after the start of the current five-year experimental program as part of the Adaptive Management Program.

My testimony assumes that I have been invited to participate in this hearing because of my professional experience involving the studies first initiated in 1982, the Glen Canyon Environmental Studies, and those since 1996 conducted under the auspices of the Adaptive Management Program. I have been involved in this process since 1985 and have attended numerous meetings and received considerable data concerning operation of Glen Canyon Dam

and the status of the riverine corridor between the dam and Lake Mead. From that experience, I offer the following comments.

HYDROPOWER

First, I would be remiss if I did not congratulate the Secretary of the Interior, the Secretary of Energy and the Secretary of the Army for agreeing to the March 24, 2010 Memorandum of Understanding for hydropower. The Memorandum recognizes that hydropower is the largest source of renewable electricity generation in the United States. This focus on hydropower is certainly timely as we, as a nation, seek to expand the use of renewable resources for our energy needs. It is also timely because it emphasizes something that I have long felt has been missing from the Adaptive Management Program.

That program was established by the Secretary of the Interior almost 14 years ago to study the effects of his decision to restrict daily changes in water releases from Glen Canyon Dam, thus limiting the dam's operation for hydropower generation. The program's missing element, simply put, is a focus on what strategies could be employed to regain the one-half to two-thirds of the generating capacity of Glen Canyon Dam that is not being utilized under current criteria. As we sit here today, releases from Glen Canyon Dam will vary from 6,000 cubic feet per second at night to up to 12,000 cubic feet per second during the day. This means that the generators will produce 223 megawatts in the evening hours and overnight and 446 megawatts during the peak electricity demand hours during the day.[1] This for a facility whose nameplate capacity is 1400 megawatts and which is currently capable of generating over 1320 megawatts.[2] Indeed, were there a bona fide emergency, as occurred twice in August 2001, Glen Canyon Dam could and would be operated at about 1340 megawatts in order to keep the lights on in southern California, southern Nevada, and Arizona.

In my view, the Adaptive Management Program should be focusing on how we can recapture this enormous power resource that is going unused and being replaced by fossil fuel capacity. The program should be designing a downstream mitigation plan that addresses the interests that Congress directed the Secretary to address downstream of Glen Canyon Dam in the 1992 Grand Canyon Protection Act.[3] My message to you today is that we can have both hydropower and endangered fish recovery. We can have both hydropower and river rafting recreation. We can have both hydropower and a blue ribbon trout fishery at Lee Ferry. But we can't have these things, this win-win situation, unless the people collecting the information and doing the science are willing to focus on that proposal, to-wit: Examine ways and conduct studies with the goal in mind of having all of these resources maximized. That goal, that focus, does not exist today and it has not existed in the 28 years that Glen Canyon Environmental Studies and the Adaptive Management Program have been operating.

BEACHES AND OTHER SANDBARS

One of the objectives of the Adaptive Management Program is to find a way to stabilize beaches and to stabilize and possibly create backwaters with sandbars, primarily in the upper half of the some 250 mile path of the Colorado River from Lee Ferry to Lake Mead. To do that, the program has conducted three artificial floods, the latest being in the spring of 2008.[4] The purpose of these floods was to see whether, under these relatively low water conditions, sand could be deposited in some places that people could camp on and in other places where, presumably, juvenile fish could hide behind. The three experiments, conducted at different times and under different sediment conditions, have one thing in common. The sand deposition created by these artificial floods largely disappears within six months.[5]

No one should be surprised about this. These floods are attempting to recreate, in part, the behavior of the river before Glen Canyon Dam was built. One of the reasons dams were built on the Colorado River is that it was widely considered to be the most erratic major river in the United States. The environment through Glen Canyon, Marble Canyon and Grand Canyon prior to the construction of Glen Canyon Dam was generally and universally considered to be unstable, erratic and barren. The river corridor was barren (scientists call this a scour zone) because massive floods crashed through these canyons every year taking everything with them except sand, boulders and rocks.[6] The artificial floods merely recreate that instability. That is hardly problem solving.

One of the curious things about the history of the canyon is that much of its environment along the river has stayed the same over the 100+ years that people have been watching.[7] In 1890 a gentleman by the name of Stanton brought a crew through the Grand Canyon taking photos and attempting to locate a railroad right-of-way through the canyon.[8] One hundred years later, Dr. Robert Webb of the USGS led a team on this same journey replicating by date, time of day and location the photographic essay that Stanton had originally created.[9] Dr. Webb's study documented changes.[10] It also documented in many instances what beaches and sandbars were essentially identical to those photographed by Stanton one hundred years earlier.[11] How could this be? How could a 100,000 to 300,000 cfs floods rip through the canyon and leave essentially no trace on so many areas?

The answer to that question has not been studied. Were it to be studied, engineering principles that define these stable areas could be identified. Other areas where sand deposition either as beaches or sandbars creating backwaters could be identified as areas where this stability

could be replicated. Sand could be deposited in these areas either as beaches or sandbars. Most of the area needing this treatment is in the first 125 miles below Lee Ferry.[12]

Unfortunately, the Bureau of Reclamation has not been asked to provide this analysis. To me that is exceedingly strange because it is the very kind of work that the Bureau is engaged in and has been engaged in since the 1970's on the Colorado River below Hoover Dam. Has anyone told you that there are 427 backwaters on the Colorado River between Hoover Dam and the Mexican border?[13] Did you know that 96 of them are maintained by the Bureau of Reclamation?[14] Did you know that the Bureau estimates that each of them is likely to have a sustained life without rehabilitation of 20 years?[15] Admittedly, the physics of water movement from Glen Canyon Dam to Lake Mead is somewhat different that the physics of water movement from Hoover Dam to the Mexican border. But it is just physics. It can be analyzed. It can be applied. It is what engineers do. Solutions can be devised and executed. Stability in terms of sediment resources can be achieved. But that strategy is not being studied.

THE HUMPBACK CHUB

This endangered fish is the driving force behind much of the studies that have been and are being conducted as part of the Adaptive Management Program. The population of this fish in the Little Colorado River near its confluence with the main stem and in the main stem is one of six populations of this endangered fish within the Colorado River system. The other five are above Lake Powell.[16] Once thought to be in serious decline, the Grand Canyon population of the humpback chub is growing in leaps and bounds. At a meeting last week, scientists reported a recent survey of adult humpback chub in this population to be on the order of 7,650, about twice the recovery goal for this population of the species.[17] Just as significantly, in the litigation brought by the Grand Canyon Trust, a federal judge has noted this increase, not as spectacular in

materials presented to the judge as is the current information, yet the salient fact about this good news is that this humpback chub population is improving and no one knows why.[18] It took a federal lawsuit and a federal judge who actually read the documents to uncover the fact that this population of the humpback chub has been improving for what may be more than 10 years.[19]

Now the scientists have finally embarked, after 28 years, on studies to try to decide what exactly is the environment that this endangered fish needs. There has been much said about how little 2-inch endangered humpback chub need a backwater to hide in when they come out of the Little Colorado River, pushed out by high late summer flows in the Little Colorado River. Unfortunately, this oft repeated supposition cannot be substantiated. Recently, the scientists netted over 16,000 fish in backwaters and, if I am reading the chart in the report correctly, less than 100 were humpback chub.[20] But this is exactly what one should expect. The humpback chub is a canyon fish. Its natural habitat is in deeply incised canyons. These are mother nature's equivalent of canal systems. They don't have backwaters. They don't have beaches. Water flows through them and takes the sediment with it. So why would anyone believe that this fish, that has survived since prehistoric times, would need backwaters when in fact it is a fish that lives in canyons? And if it doesn't need backwaters, then we don't need artificial floods to create backwaters or maintain backwaters that it isn't going to use.

The threat to the humpback chub is not the lack of backwaters along the river, it is rainbow trout. The trout from Lee Ferry find their way downriver and eat the humpback chub. Scientists have come up with a perfectly good response. Electrofishing. In fact, they were so good at it over several years that they had to stop because they didn't have enough non-native fish, including trout, to harvest. Now there is some objection to that process continuing near the confluence of the Little Colorado River in the main stem. Last week, scientists put forth a

solution to that. Do the electrofishing just below Lee Ferry and down about 17 miles to an area around Soap Creek. Doing this would maintain a management barrier to trout going down river and attacking the chub and allow the captured trout to be brought up to Lee Ferry on these motorized boats because there is only one, fortunately navigable, rapid between Lee Ferry and Soap Creek. Sounds like a perfectly good solution to me. If it works, we have retained a tried and true control method and we have reacted successfully to sensitivities. We have, in effect, zoned the river, leaving the Lee Ferry trout fishery to be the blue ribbon trout fishery it is. That is a common sense solution. That is exactly what this program needs.

TEMPERATURE

What this program does not need is outrageously expensive modifications to the intake structures at Glen Canyon Dam. These temperature control devices are generally used to warm water. At Glen Canyon Dam, their use would warm water being released currently at 8-10° Celsius to as much as 15-16°. That increase would form the perfect bracket between trout-favored temperatures and warm water fish temperatures. Thus, both trout at the cold end and carp, catfish, bass, and other predators at the warm end would be enhanced at the expense of the humpback chub. That makes no sense whatsoever. It makes even less sense when current thinking from recent studies is that the cold water is actually protecting the humpback chub from its predators.[21]

CONCLUSION

In my view, what the Adaptive Management Program needs is a new focus. It needs to be directed to study the impacts of the 1996 criteria. It needs to be directed to examine alternatives that will restore Glen Canyon Dam's hydropower capability. It needs to be directed to examine more common sense ways to mitigate downstream impacts and stabilize downstream

resources. The taxpayers and ratepayers funding this exercise deserve it. The Grand Canyon deserves it.

Thank you for the opportunity to testify on this very important program.

ANNOTATIONS

[1] Western Area Power Administration CRSP Energy Market and Water Report, Tuesday, March 23, 2010, 9:57 a.m.

[2] Glen Canyon Dam and Powerplant Lake Powell, U.S. Bureau of Reclamation brochure, revised 2008.

[3] Grand Canyon Protection Act, P.L. 102-575.

[4] 2008 High-Flow Experiment at Glen Canyon Dam – Morphologic Response of Eddy-Deposited Sandbars and Associated Aquatic Backwater Habitats along the Colorado River in Grand Canyon National Park, U.S. Geological Survey, Open-File Report 2010-1032, found at http://pubs.usgs.gov/of/2010/1032 (hereafter "2008 HFE Report").

[5] 2008 HFE Report, pp. 42-3.

[6] Carothers and Brown, *The Colorado River Through the Grand Canyon, Natural History and Human Change*, University of Arizona Press, Tucson (1991), pp. 117-119.

[7] Grand Canyon, A Century of Change, Rephotography of the 1889-1890 Stanton Expedition, Robert H. Webb, The University of Arizona Press, Tucson (1996) (hereinafter "Webb"), pp. 197, 200.

[8] Webb, pp. 3-18.

[9] Webb, Introduction, pp. xviii-xx.

[10] Webb, pp. 183-189.

[11] Webb, pp. 190-192.

[12] See note 7 and Webb, pp. 198-200.

[13] Lower Colorado River Multi-Species Conservation Program Final Biological Assessment, U.S. Bureau of Reclamation, December 2004 (hereafter "MSCP BA"), pp. 2-54.

[14] Ibid.

[15] Ibid.

[16] Status and Trends of the Grand Canyon Population of Humpback Chub, U.S. Geological Survey Fact Sheet 2009-3035, April 2009, p. 1.

[17] Id., p.2; Oral report from the GCDAMP Nonnative Fish Workshop, Phoenix, Arizona, March 30-31, 2010.

[18] Grand Canyon Trust v. U. S. Bureau of Reclamation, et al., 623 F.Supp.2d 1015, 1018-9 (D. Ariz. 2009).

[19] Id., p. 1018.

[20] 2008 HFE Report, pp. 41-42.

[21] 2009 Supplement to Biological Opinion on Operation of Glen Canyon Dam, U.S. Fish and Wildlife Service, pp. 35-36, 67.