LIVING RIVERS
COLORADO RIVERKEEPER®

January 31, 2012

Mr. Kirk LaGory
Glen Canyon LTEMP EIS Scoping
Argonne National Laboratory, EVS/240
9700 South Cass Avenue
Argonne, IL 60439

Re: Scoping comments for LTEMP EIS on operations of Glen Canyon Dam and impacts to Grand Canyon National Park and Glen Canyon National Recreation Area

Dear Mr. LaGory:

Living Rivers, Colorado Riverkeeper, Center for Biological Diversity and River Runners for Wilderness submit the following comments for the Long-Term Experimental and Management Plan (LTEMP) Environmental Impact Statement (EIS) to be prepared under the guidelines of the National Environmental Policy Act (NEPA).

The purpose and need for this proposed action as described in the Federal Register of July 6, 2011 is: to reverse the impairment of downstream resources caused by operations of Glen Canyon Dam (GCD) Glen Canyon National Recreation Area (GCNRA) and Grand Canyon National Park (GCNP), as mandated by the Grand Canyon Protection Act (GCPA), Endangered Species Act (ESA), and other federal laws.

The notice also lists the lead agencies for this EIS as Argonne National Laboratory, and two agencies of Department of Interior (DOI), the Bureau of Reclamation (Reclamation), and the National Park Service (NPS). The cooperating agencies include in part: US Fish and Wildlife Service (FWS), US Geological Survey (USGS), Western Area Power Administration (WAPA), and the First Nations.

I. EXECUTIVE SUMMARY

A. Visioning the LTEMP EIS

Interior's approach of creating management plans in incremental, piece-meal fashion with narrow time-frames has persisted for too long. The proposed 10- to 15-year management plan continues this short-sighted approach. The current drought could last another two decades or, contrarily, a probable maximum flood could arrive. These variables would have a significant impact on the ecosystem in Glen and Grand canyons below GCD.

Diminished reservoir levels at Lake Powell may require strategies to cool the river and to increase the level of dissolved oxygen. Conversely, maximum reservoir levels may require strategies to warm the river and decrease the export of sand from the river ecosystem in Grand Canyon and into Lake Mead.

Interior should not assume that the circumstances of the next two decades will be predictable and Interior should be properly prepared to take action under any future reservoir management scenario. The EIS team should therefore heed the two Secretarial Orders that address climate change in federal planning and to also utilize rigorous science (SO #3289[1] & SO #3305).[2]

Interior must look further into the future when undertaking this EIS. Interior should strongly embrace foresight scenario planning in the time-frame of a 100-years or greater, and allow for a broader, more realistic range of scenarios to be explored including: climate change, enduring aridity and catastrophic flood events.

Additionally, it must be recognized that Glen Canyon Dam has a lifespan, thus it's appropriate to consider what a plan would look like when GCD can no longer perform its primary function of storing water, storing sediment, and providing safe and reliable flood control. Especially as it relates to preparing a funding mechanism for such a plan, since it will be quite expensive to mitigate infrastructure that is compromised, and also a challenge to keep water deliveries uninterrupted and of good quality.

Furthermore, flow regimes and infrastructure necessary to provide more flexibility and diversity in the experimental programs of the Adaptive Management Program (AMP) have yet to be implemented or tried. For example, a temperature control device, mechanical sediment augmentation (which would also disadvantage hunt-by-sight non-native fish), floods timed with the spawning season, floods of higher magnitude to increase sand and carbon storage in the old high water zone, and low and steady flows immediately following the spring spawn, which would provide nursery habitat and increase the yield of the food base for the hatchlings.

The scope of this EIS must also include a much broader and aggressive range of experimentation other than the three high flow experiments of the recent past, limited mechanical fish removal, and two months of steady flows in September and October.

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[1] http://www.riversimulator.org/Resources/USBR/SecOrder3289.pdf

[2] http://www.riversimulator.org/Resources/USBR/SecOrderNo3305ScientificIntegrity.pdf

B. The Adaptive Management Program

In monitoring the progress of the GCD AMP for nearly 15 years, it is evident that were the program functioning properly, most specifically employing the practice of "learn by doing," then this EIS would be wholly unnecessary.

For example, since the signing of the Record of Decision (ROD) there is less sand, less archeology, the razorback sucker (RBS) is now extirpated, and the river is still deprived of the basic habitat elements to repatriate RBS and the other extirpated species.

"Doing" means AMP should be willful about solving management issues as they arrive (or change) through rigorous planning, research, experimentation, and monitoring programs, which includes finishing compliance documents in a timely manner without periodic suspension. From the beginning of the first Adaptive Management Working Group meeting of 1997, the program has proven not to have that kind of leadership. In fact, its dysfunction is precisely why this EIS is necessary.

The public can't help but notice that AMP has lowered the bar of achievement over the last 15 years. Instead of applying themselves to perform beneficial accomplishments, the AMP focuses on avoiding litigation. It is not uncommon to have major components of AMP meetings devoted to addressing possible, pending or existing litigation brought on by the public as result of the program's unwillingness to act in the public's interest and within the resource protection spirit that lead to its creation. As such, the AMP in its present form is counterproductive and its continued existence will only ensure further degradation of the ecosystem and contention from the public.

Therefore, the reformation of AMP, its mandate, structure and decision-making must become a high priority of this EIS.

C. Documents of Departure and a Contradictory Management Objective

The Biological Opinion (BiOp) of 2008 stated the Modified Low Fluctuating Flow (MLFF) regime is not harmful to humpback chub (HBC), which is a departure from the BiOp of 1994 and its recommendation for the Seasonally Adjusted Steady Flow (SASF) regime. The decision by FWS was based on status and trend reports published by the USGS. The documents explain that the populations of HBC began to increase slightly in the 1990s, which is when the MLFF regime was initiated.

This result does not necessarily mean that MLFF is the appropriate flow regime from GCD. It is quite possible that had the SASF flow regime been in place since 1996, the HBC may have been delisted by now and the RBS would not be extirpated. Until SASF is fully tested, this flow regime should not be eliminated from any alternative.

Additionally, SASF is most likely required to repatriate RBS and restore its critical habitat below the mouth of the Paria River—a mandate of the GCD AMP, but one which has been ignored since its inception. SASF is also likely required to increase the yield of

the food base of the Colorado River. This flow regime is also more likely to retain more sediment than MLFF. The 2005 State of the Colorado River Report (SCORE[3]) by USGS does specifically state that MLFF is not a successful flow regime for the retention of sand.

Moreover, the GCD AMP's whole approach to non-natives, especially trout, is baffling. Removing non-native trout in one reach, while concurrently maintaining a healthy non-native population of in another reach, is an objective that must be reevaluated, especially given that such a management objective is contrary to resource protection within the national park system.

D. Looking Back into the Administrative History

Fifty-years of progressive degradation of the nation's premiere national park is unacceptable. Upon reviewing the administrative record of dam operations since the development of the National Environmental Policy Act of 1970 (NEPA) it's clear how Reclamation has been overtly reluctant to adapt to new environmental policies as major federal actions occur.

This willful delay has only served to increase the degradation of park values over time and making its long-term recovery all the more difficult to achieve. Consequently, the park is in a situation where the urgency is far greater than it was 15-years ago when AMP was first chartered. This EIS must demonstrate that this lost time will be recovered and aggressive programming will rebound from this point onward.

E. Annual and Five-year Operating Plans

On March 3, 1997[4] the Federal Register published guidelines for developing an annual operating plan and the 5-year review as it relates to fulfilling the provisions of the Grand Canyon Protection Act (GCPA). It is not clear that the intent of the GCPA is fully captured in these two operating plans. For example, the balancing flows of Interim Criteria (2007) could have been performed in a manner that would have provided benefits to critical habitat, instead of disturbing the mass balance of sand and other basic elements of critical habitat such as the food base and near-shore warming.

This EIS must provide a better integration with these 1- and 5-year operating plans. For example, mailing the draft annual operating plan each spring to all the interested parties and then scheduling a brief consultation meeting at McCarren Airport in Las Vegas is wholly inappropriate given the importance of these guidelines.

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[3] http://www.riversimulator.org/Resources/USGS/score_2005.pdf

[4] http://www.riversimulator.org/Resources/GCDAMP/GCDAMPchronicle/FRN3march1997.pdf

F. Interim Opportunities for Immediate Change

Interior must immediately initiate SASF until the Record of Decision (ROD) for the LTEMP EIS is formally initiated. This is a situation that would be similar to the Interim Flow criteria that was instituted while the EIS process was underway in the early 1990s. Such action will allow sediment retention to once again become balanced in the ecosystem, and for the elements of critical habitat to be improved. Especially since Reclamation announced on January 6 (link),[5] that high volume balancing flows would be prematurely suspended due to dry conditions; the snowpack is currently 30% of the April 15 total average.

Additionally, it is not unreasonable to assume that the LTEMP EIS will likely be delayed, as was the case for the first EIS that began in 1989, or even suspended, as was the case for the LTEP EIS that began in 2007. This includes the two suspensions of the Environmental Assessments (EAs) to implement a temperature control device.

Initiating SASF immediately provides the ecosystem in the national park the best baseline to work with in the near future should delays or suspensions again occur.

G. A Brief Presentation of Proposed Alternatives

The table below summarizes the two alternatives that must be addressed by the EIS, both of which are discussed further in Section III.

Table No. 1: Two alternatives in brief for consideration of the LTEMP EIS

Alternative	Basic components and benefits in brief
A: Mimic the natural hydrograph and other natural processes	• Implement mechanical sediment augmentation. • Time spring freshets with the native fish spawn. • Implement selective temperature control. • Implement low steady flows in summer and fall. • Non-native fish removal. • Repatriate extirpated species. • Remove tamarisk and restore the native riparian plant community for sensitive bird species. • Implement replacement power without increasing carbon emissions, and without constructing dams and pump back hydropower facilities.

[5] http://www.riversimulator.org/Resources/USBR/LTEMP/GCDOperationsJanuary2012RickClayton.pdf

Alternative	Basic components and benefits in brief
B: Dam removal and a precautionary principle management plan	• Prepare for sediment filling the reservoir and aging infrastructure. • Manage for climate change including the need for land management practices to control dust on snowpack. • Revise flood control management in the historic floodplain below Davis Dam; reform planning and zoning laws to protect people and infrastructure. • Create strident programs to protect the watershed from pollution and permanently withdraw all fossil and nuclear fuel leases in the basin. • Replenish depleted aquifers to create a groundwater storage buffer for shortages and emergencies (drought and natural disasters). • Reform planning and zoning to reflect reality with available water resources without vulnerable and energy intensive augmentation technology. • Reform agricultural practices. • Restore the natural hydrograph and the sediment balance without the intensive capital outlay of additional infrastructure to mimic natural processes during the lifespan of GCD. • Avoid the inherent dangers of GCD failure, which include the vulnerability of a cost-saving, arch-cantilever dam design that utilizes closed spillways of inadequate capacity, and built in water soluble Navajo sandstone. • Increase water yield by reducing bank storage and evaporation. • Increase the range of riparian habitat and restore the connectivity of the major tributaries for native fish species. • The breakdown of leaf litter and woody debris would naturally augment the food web with much-needed carbon. • Create immediate jobs that include landscape restoration, non-native fish removal, and sediment stability projects. • Initiate sediment removal program at Lake Mead.

II. ADMINISTRATIVE HISTORY

A. The Adaptive Management Program

Since 1973, the public has demonstrated a desire for a functioning, natural ecosystem in Grand Canyon National Park (GCNP). Despite decades of interventions and litigation, there have been no deliverables. Forty years has been more than enough time to return the river corridor in Grand Canyon to mimic its pre-dam natural state, but so far this has not occurred, nor as evidenced by the limited information surrounding the scope and need for this EIS is there any indication that much change can be anticipated from the foregoing.

Nonetheless, we do commend Interior's decision to start this new EIS because it is indeed urgently required. Interior must start over and essentially return back to accepting the recommendations of the leading aquatic ecologists of 1993 (Clarkson, 1994),[6] the Biological Opinion[7] of 1994, and the visionary period of the 1995 - 1997 Transition Working Group (TWG Final Objectives, 1996).[8]

As we have suggested since our scoping letter of April 2, 2004,[9] the AMP as presently structured should be abandoned and something new put in its place. Basically the responsible agencies of DOI and sovereign nations (tribes) should comprise AMP and let the others participate on the same tier as the public citizen.

Typically, other AMP "stakeholders," especially WAPA, exert undue influence on the AMP's direction and decisions, as their aims (maximize power generation) run 180-degrees contrary to the habitat needs of the river corridor through Grand Canyon National Park. The Colorado River's natural hydrograph through Grand Canyon remains subservient to electricity generation. The same is true of non-native trout advocates. Since the Redwood Amendment of 1978, its amazing that a federal advisory committee is compelled to manage for a viable non-native trout population in the national park system. Moreover, it's equally inappropriate to limit beneficial habitat flows because river runners (who welcome and praise natural flows in other national parks) would be inconvenienced by high or low flows. If the natural hydrograph is accepted elsewhere, why not also in the Grand Canyon?

The following table of comments from academic reviewers of GCD AMP illustrates further how the AMP program as a body is derelict in its charge to stop the impairment of the river ecosystem in GCNP due to GCD operations.

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[6] http://www.riversimulator.org/Resources/GCDAMP/GCDAMPchronicle/Clarkson1994.pdf

[7] http://www.riversimulator.org/Resources/USFWS/BOgcd1994.pdf

[8] http://www.riversimulator.org/Resources/GCDAMP/GCDAMPchronicle/1996GCDobjectives.pdf

[9] http://www.livingrivers.org/archives/article.cfm?NewsID=578

Table No.2: Academic reviews of GCD AMP

Reviewer	Analysis	Remedy
Feller, 2008	• The GCD AMP has substituted collaborative decision-making among stakeholders for the hierarchy of priorities created by law. • The AMP has facilitated non-compliance with ESA and has given hydroelectric power production a higher priority. • AMP has actually stifled adaptive management by making agreements among stakeholders a prerequisite to changes in dam operations.	• Proposes a program for adaptive, but not collaborative, management of Glen Canyon Dam that would better conform to the law and would be more amenable to adaptation and experimentation than would the current, stakeholder-centered program.
Camacho, 2008	• At the beginning (1997) AMP adopted and implemented an approach that provides little chance for addressing and resolving complex natural resource problems. • AMWG expends most of its social capital on the details and technical questions of the AMP, instead of focusing on the resource issues. • The process is being utilized only to delay any action or to create the illusion that something is being done.	• There must be measurable clarity (transparent and measurable regulatory targets) for a multilateral process to be effective. • Effective leadership within DOI and AMP should provide that clarity.
Susskind, 2010	• AMP should not be considered a success because it has failed to address effectively the concerns that led to its creation in the first place. • DOI failed to follow commonly identified best practices in collaborative and adaptive resource management in structuring the AMP. • AMP missed multiple opportunities both to foster agency and stakeholder learning and to cultivate constructive engagement of the stakeholders who care the most about the Colorado River. • Hydropower advocates seem incapable of fashioning creative solutions that meet multiple interests.	• Identify appropriate stakeholder representatives. • Set clear goals and involve stakeholders in developing a collaborative process. • Use professional neutrals when appropriate and commit to building common ground. • Incorporate joint fact-finding to deal with scientific uncertainty. • Produce collectively supported written agreements. • Build long-term adaptive management capabilities.

References: Feller;[10] Camacho;[11] Susskind.[12]

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[10] http://www.riversimulator.org/Resources/GCDAMP/GCDAMPchronicle/FellerGlenCanyonArticle.pdf

[11] http://www.riversimulator.org/Resources/GCDAMP/GCDAMPchronicle/Camacho2008ampGCD.pdf

[12] http://www.riversimulator.org/Resources/GCDAMP/GCDAMPchronicle/aCautionaryTaleColumbiaSusskind2010.pdf

Another table is presented here, which highlights public intervention through litigation to address grievances in regards to impairment issues from operations of Glen Canyon Dam, the Colorado River Storage Project (CRSP), and others.

Table No. 3: Key public interventions on management of Glen Canyon Dam, Glen Canyon National Recreation Area and Grand Canyon National Park.

Date	Summary of Citizen Litigation
April 21, 1973 Friends of the Earth (FOE) v. Armstrong (360 F Supp, 165, 1973)	Joining FOE in this suit for relief and injunction are Wasatch Mountain Club and river outfitter Kenneth Sleight. The defendants are DOI and Reclamation. The purpose is to prevent the rising waters of Lake Powell from creeping into Rainbow Bridge National Monument (RBNM) as a violation of the Colorado River Storage Project Act (CRSP) of 1956, which states the intent to keep impounded waters out of RBNM. The case was upheld by the federal District Court in Utah, but was lost in the appeal process.
July 31, 1973 Grand Canyon Dories v. Walker	Plaintiffs forward to federal court a temporary injunction after two river trip concessioners respond to Reclamation's announcement (July 27, 1973) about extreme low water releases from GCD following extreme peaking power releases in the morning. The defendants are NPS, Reclamation and DOI; Walker is Director of NPS.
August 1, 1973 Dories v. Walker	A court order of dismissal was entered.
August 2, 1973 FOE v. Armstrong	• The defendants appeal and the court decides that CRSP does not prohibit Lake Powell from entering RBNM because Congress denied funding to construct a proposed concrete dike to keep Lake Powell reservoir water from entering the monument. • An appeal to US Supreme Court was presented, but the high court refused to hear the case.
Sept. 5, 1973 Dories v. Walker	Plaintiffs file an appeal stating that Reclamation cannot arbitrarily set operations of GCD without first initiating NEPA compliance procedures.
August 20, 1974 Dories v. Walker (500 F. 2d. 588)	• Plaintiffs bring forward a complaint to federal court on the issue of Reclamation's non-compliance with NEPA regarding operations at GCD and seek injunctive relief. • The appellants allege that operations at GCD interfered with the safe operation of float trips, and continuing operations are a major federal action, and therefore NEPA requires the preparation of an EIS. The court denied judicial relief on the grounds that no evidence was produced to show DOI had considered how NEPA applies. The court thus held, in those adolescent days of NEPA litigation, that a determination must be undertaken by the agency prior to any judicial review. • With this action DOI was effectively put on notice for future NEPA compliance and, in the following year, Reclamation did undertake a formal study to prepare an EA on operations at GCD, but it was not finalized for another 8 years.

Date	Summary of Citizen Litigation
Sept. 3, 1974 The Navajo Legal Aid Society files suit in federal court	A suit to keep Lake Powell reservoir water from inundating RBNM. The case will evolve into Badoni v. Higginson. Badoni is a Navajo medicineman and Higginson is Commissioner of Reclamation. Click here for history of Navajo legal claims.
Spring, 1977 Badoni v. Higginson (455 Fed. Supp. 641)	Navajo medicinemen allege that Reclamation had not complied with NEPA regarding not only operations at GCD and Lake Powell, but the entire CRSP. Plaintiffs sought to prevent destruction to a natural area and desecration of sacred areas at RBNM resulting from threatened inundation by Lake Powell. The district court ruled consistent with Dories v. Walker that the NEPA issue was not yet ripe for review. This decision was subsequently appealed by the plaintiffs.
Nov. 3, 1980 Badoni v. Higginson (638 F. 2d. 172)	• The Court of Appeals affirms the decision of District Court that NEPA compliance was not yet ripe for judicial review and acknowledged that Reclamation had formally decided to draft a comprehensive EIS (CEIS) for the entire Colorado River Basin Project: "The information gathered in the preparation of the DEA on the operation of Glen Canyon Dam and Reservoir is intended to be used in the preparation of a comprehensive basin-wide EIS, which will evaluate the operation of all the Bureau of Reclamation projects on the Colorado River and its tributaries. The determination to prepare a comprehensive basin-wide EIS on the Colorado River dams is a reasonable one within the administrative discretion of the Department of Interior" (Brief of Federal Appellees, Badoni v. Higginson, 1978, pp. 26-27). • The Court agreed that the government's decision to draft the CEIS, as opposed to a site specific EIS, was reasonable since GCD and Lake Powell were important links in the Colorado River development scheme and cannot be considered alone (Badoni v. Higginson, p. 181). However, the initial work in 1977 by Reclamation for NEPA compliance was abandoned, even though Congress had never specifically denied funds for such a project.
March 27, 1981 Badoni v Higginson	The plaintiffs appealed and the court maintained, as in EDF v. Higginson (655 F. 2d 1244), that the agency would seek funding for the CEIS. Reclamation decided instead to meet its NEPA obligations by continuing "its past practice of addressing cumulative and synergistic impacts in site specific impact statements for individual projects and their components in the Colorado River Basin." (Appellee' s Memorandum to Court, p. 1.) The Court of Appeals thus affirmed the District Court's decision based upon the government's original promise to complete the CEIS, but remanded the case to the District Court for determination of the legality of the government's shift from a CEIS to a site specific project EIS, emphasizing that NEPA compliance was required one way or another, and that EIS's must be prepared addressing cumulative impacts.
April 3, 1981 EDF v Higginson (655 FR 2d, 1981)	Environmental Defense Fund files a complaint against DOI and Reclamation in federal district court (District of Columbia) on the issue of a CEIS for the entire Colorado River basin. Joining EDF is Wilderness Society and Trout Unlimited.

Date	Summary of Citizen Litigation
April 20, 1982 EDF v. Broadbent	EDF, Wilderness Society, Trout Unlimited offer a settlement agreement in federal court (District of Columbia), wherein Reclamation and DOI agreed to prepare EIS's on Colorado River hydropower facilities, specifically addressing cumulative and synergistic environmental impacts within each document. The cases pending were thus dismissed pursuant to the stipulation filed and accepted by the court. Broadbent replaced Higginson as Reclamation Commissioner.
Dec. 21, 1988 NWF v WAPA	National Wildlife Federation, Grand Canyon Trust, American Rivers, & Western River Guides Association petition federal court to consolidate their complaint with a similar complaint by Salt Lake City (SLC v WAPA), for reasons of saving resources. This action, in both complaints, is based on WAPA failing to conduct a proper EIS in compliance with NEPA.
Sept. 29, 1989 NWF v. WAPA injunction	• A court injunction orders WAPA to stop its Call for Applications for Power. The reason is lack of preparing an EIS. Joining as plaintiffs are Trout Unlimited, Stonefly Society of the Wasatch, Utah Wildlife Leadership Coalition, Salt Lake County Fish and Game Association and Utah Wildlife Federation. Joining the defendant is Colorado River Energy Distributors Association (CREDA). • The Plaintiffs will prevail in District Court (Utah) and WAPA is ordered to prepare an EIS. WAPA is permitted to market power on a court approved interim plan, which still provides for the generation and sale of peaking power pursuant to their previous marketing criteria.
Feb. 15, 2006 CBD v Reclamation	Center for Biological Diversity, Living Rivers, Arizona Wildlife Federation, Glen Canyon Institute and Sierra Club allege violations of the GCPA, NEPA, and ESA. A settlement initiates the Long-Term Environmental Plan (LTEP) EIS, which is eventually suspended and then substituted with a 5-year experimental plan of high flow experiment and fish removal. The subsequent Biological Opinion (2008) became an embarrassing departure from the 1994 BiOp.
March 28, 2006 RRFW v NPS	River Runners for Wilderness, Living Rivers, Rock the Earth and Wilderness Watch challenge NPS and their 2005 Colorado River Management Plan, and their departure from the plan of 1979 to manage the river corridor as a wilderness area, addressing impacts from motorized recreation, and addressing inequitable river access that is presently dominated in the prime season by commercial outfitters.
Dec. 7, 2007 GCT v Reclamation	GCT allege violations by Reclamation of ESA in regards to harmful flow regimes from operations at Glen Canyon Dam that degrade critical habitat in Glen and Grand canyons. GCT will challenge the departure of the 2008 BiOp and prevail. The case is currently under appeal.

Table No. 4: References of Table No. 3

Citizen Group	Legal Documents Hyperlinked
Center for Biological Diversity	• CBD v Reclamation •
Dories v Walker	• 1973 injunction • 1973 dismissal • 1973 appeal • 1974 complaint • 500 F. 2d. 588 •
Environmental Defense Fund	• 1982 settlement •
Friends of the Earth	• 360 F Supp. 165, 1973 •
Grand Canyon Trust	• GCT v Reclamation •
National Wildlife Federation	• Consolidation of suits • 1989 injunction •
Navajo Legal Aid Society	• NPS history of Navajo legal claims • 455 Fed. Supp. 641 • 638 F. 2d. 172 • 1980 affirmation• Congress had not denied funds for CEIS • 655 FR 2d, 1981 •
River Runners for Wilderness	• RRFW v NPS •

B. Administrative History of Operations at Glen Canyon Dam

The tone within the environmental review documents produced by Reclamation in the 1970s[13] & 1980s[14] indicate a strong preference for compliance with legislation that authorizes water and power projects, over legislation that authorizes environmental protection. For example, while the FWS submitted a jeopardy opinion[15] for endangered fish facing extinction due to operations of GCD, Reclamation stated their dam operations would have a negligible effect on the downstream environment.

However, this preference is surprising given that natural resource protection legislation has existed for more than a century starting with the Antiquities Act of 1906 (authorizing National Monuments) and the Organic Act of 1916 (authorizing National Parks). These are both older than the Boulder Canyon Project Act of 1928 (BCP), and the Colorado River Storage Project Act of 1956 (CRSP).

While it is true the Reclamation Act of 1902 is the oldest of congressional authorization for water projects, that document does not preclude the rights that belong to federal reserve lands, as affirmed by the Winters Doctrine, Arizona v California, and The Redwood Amendment.

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[13] http://www.riversimulator.org/Resources/Legal/GCD/DraftEAgcdJan1976.pdf

[14] http://www.riversimulator.org/Resources/Legal/GCD/EAgcdUpratingJan1982.pdf

[15] http://www.riversimulator.org/Resources/USFWS/BOgcd1978.pdf

In 1977, when the Department of Energy was created, another federal agency joined the fold of Colorado River management: Western Area Power Administration (WAPA), which manages the distribution of federal hydropower resources produced at power plants operated by Reclamation. As noted early, this agency asserts itself inappropriately, and largely facilitates the degradation of park values in Grand Canyon.

Another challenge so far ignored by the AMP are the deficiencies of the BCP and CRSP that ensure that Glen Canyon Dam's design is adequate to handle severe and sustained drought or probable maximum floods. At best, present-day dam operations can only handle droughts and floods of small magnitude. Unfortunately, 30 million people now depend on a water delivery system that is vulnerable to extremes of climate. In another generation of time some 50 million people will to dependent on this infrastructure with even more vulnerability as climate continues to shift toward greater extremes; and as this infrastructure simultaneously ages, and as the reservoirs lose water storage space and flood control capacity to sediment filling.

The relentless development of the nation's water resources created situations whereby it became necessary for Congress to intervene with environmental protection laws to restore the balance. The most significant to date has been the National Environmental Policy Act (NEPA), 1970.

NEPA allows for a broad range of approaches to correct environmental problems. For example, an agency can take the high road, or the low road. In the case of Reclamation, it has tested the ground all too often to ensure that the lowest tier of environmental protection is provided. We acknowledge that improvements have been made in the agency over time, but these gradual changes occurred at the cost of losing an ecosystem in GCNP. Had the opposite approach been embraced by Reclamation immediately, or AMP for that matter, there would be absolutely no need to initiate this EIS.

Among other things, the intent of these environmental laws is to help preserve our natural heritage for future generations. It is not clear or understandable why Reclamation or WAPA would downplay these beneficial features for as so long as they have.

The table below illustrates how various branches of government have adapted, or not adapted, since the inauguration of environmental protection laws in the 1960s, and as it pertains to operations at Glen Canyon Dam and the management of natural resources in GCNP.

Table No. 5: Administrative History of NEPA (1970) compliance below the forebay of Glen Canyon Dam.

Event	Recommendations or Criteria	Action, Delay, Inaction, Comment
1967 - Humpback chub and Colorado pikeminnow are listed as species threatened with extinction.	None	Ongoing research by independent and concerned scientists.
1970 - Long-range Operating Criteria	Coordinate dam operations of the Colorado RIver basin on 1- and 5-year basis.	Reclamation arbitrarily coordinates dam operations without environmental or public review until 1997. It is not clear that this mandate at present is compliant.
1973 - Endangered Species Act (ESA)	Secretary to work with state agencies to monitor the status of sensitive species	Federal and state wildlife agencies initiate research & monitoring programs.
1974 - NPS begins studies to determine human impacts to natural and cultural resources. • Funds from the National Science Foundation provide baseline data for Lake Powell region.	• Improve management policies to mitigate impacts from increased visitation & dam operations. • Wilderness values are assessed. • Assess air quality and long-term climate.	• NPS initiates management plans under NEPA guidance and prepares a wilderness proposal. • Reclamation initiates studies to increase peaking power at GC Dam, install generators on river outlet works, and construct a regulation dam just above Lee's Ferry to capture the spikes and release a steady flow through generators. • Reclamation does not reference any NEPA compliance issues in their study.
1976 - Stockton and Jacoby present tree-ring climate data.	Address the over-allocation problems of the Compact and prepare for sustained drought.	Reclamation will not study climate induced water shortages until the SECURE Water Act is authorized in 2009. Reclamation is preparing a narrow study, but not a firm long-term action plan.
1978 - Jeopardy Opinion issued by FWS	Endorses the recommendations of the NPS studies	Cold water and constant daily fluctuating flows are the cause of the impairment.

Event	Recommendations or Criteria	Action, Delay, Inaction, Comment
1979 - Recovery plans for endangered fish are issued, and revised in 1984, 1990 & 2002, and partially in 2011.	• Continue research and monitoring; • Maintain or enhance refugia; • Remove threats from development; • Remove impacts of non-native fish; • Acquire water rights for habitat; • Develop and maintain genetically viable brood stock.	• Recovery planning arrives 6 years after ESA. • Cooperative agreements with Reclamation and the states arrive 15 years (1988) after ESA for the Upper Colorado. • Cooperative agreements for the San Juan River arrive 19 years after ESA (1992). • Cooperative agreements for the Grand Canyon arrive 23 years after ESA (1996).
• 1979 - Reclamation prepares EA for rewinding degraded generators at GCD, which will also increase the hydroelectric yield. • The EA undergoes revision in 1981 and 1982.	The EA and its revisions concluded that environmental and recreational impacts were insignificant or nonexistent.	• The rewinding project was underway as the EA was prepared and before the Finding of No Significant Impact (FONSI), which arrived in December 1982. • The impact is not really the small increase of generator efficiency. The impact is the normal everyday operations of peaking hydropower generation at GCD.
1980 - Hatch Amendment	NPS wilderness proposal for the Colorado River corridor in GCNP does not advance to Congress.	Prevented the use of appropriated funds to implement a management plan for the Colorado River which “reduces the number of user days or passenger launches for commercial motorized watercraft excursions, for the preferred use period.”
1982 - Phase I of Glen Canyon Environmental Studies (GCES) begins. • Phase II begins in 1989 and ends with the Record of Decision in 1996.	The studies are to focus on a broad range of ecological and recreation issues related to the operations at GCD, but were not to address any economic or societal issues.	After considerable investment for research and monitoring, the public demanded an EIS, which was initiated in 1989.

Event	Recommendations or Criteria	Action, Delay, Inaction, Comment
1982 - Reclamation and Army Corps modify flood control criteria of 1968.	• A minimum of 5.35 maf must be available in the basin's storage system by January 1st of each year. • 1.5 maf of storage space must always be available at Lake Mead.	• 1983 - April to July volume (13.6 maf) caused emergency spills at GCD and Hoover Dam; damage to all spillway tunnels occurred; massive flooding below Davis Dam. • 1984 - April to July volume (13.6 maf) was safely discharged through power plants and river outlets. • It is uncertain that GCD or Hoover Dam could safely manage, for example, the April to July volume of 1884 which is estimated to be 30 maf; it is quite certain that property damage below Davis Dam would be quite severe at this discharge volume.
1984 - spillways at Hoover and GC dams are repaired.	• Air slots are constructed to reduce cavitation in spillways. • Studies are conducted to assess probable maximum floods.	• Subsequent studies have revealed that floods even greater than the event of 1884 have occurred in the Colorado River basin in the last 1,000 years. • Flood studies by USGS and U of AZ prompt removal of uranium waste pile along the Colorado River near Moab, UT.
1988 - Many public service groups present briefs for a legal intervention to address hydropower impacts from GCD and prevail.	Conduct an EIS on operations of GC Dam and the impacts on GCNP.	• Secretary Lujan announces the preparation of an EIS on operations of GCD in 1989. • Note: Dam operations are managed by Dept. of Interior and hydropower distribution is managed by Dept. of Energy through the Western Area Power Administration.
1992 - Congress intervenes because the EIS is not produced in a timely manner by authorizing Grand Canyon Protection Act (GCPA).	GCPA mandates a final EIS in 2 years, an audit by GAO, and development of a long-term research/monitor plan through AMP.	The intent of GCPA is helpful, but it does not go into any great detail about how to mitigate operations of GCD, which essentially means that agency programs could range from marginal to effective. The degree of compliance is dependent on the leadership of AMP and the Secretary.
1993 - Lead scientists of aquatic ecology present their recommendations to restore native fish populations.	Warm the river, control non-native species, seasonally adjusted steady flows and sediment augmentation.	EIS writers endorse MLFF as the preferred alternative and WAPA asks that the proposed alternative be adjusted to accommodate for more hydropower flexibility by increasing maximum allowable flow and the ramping rate.

Event	Recommendations or Criteria	Action, Delay, Inaction, Comment
1994 - Critical habitat designation for the Colorado River Basin	• Razorback sucker (RBS): Colorado River from mouth of Paria River to Hoover Dam. • HBC: Colorado River from Nautiloid Canyon to Granite Park & the lowest 8 miles of Little Colorado River.	• RBS became extirpated under MLFF. • HBC population in LCR has stabilized under Interim Flows and MLFF, but it remains premature to remove jeopardy status. • The main stem elements still do not favor reproduction in the main stem under MLFF, nor to repatriate RBS and other extirpated species.
• 1995 & 1996 - Completion of Biological Opinion, EIS, and GAO audit. • Record of Decision signed. • Transition Work Group replaces GCES and begins the long-term planning process (Strategic Plan).	• First High Flow Experiment in March of 1996. • Transition team drafts AMP Charter, guidelines for GCMRC, goals and objectives of strategic plan, workshops for RBS recovery and temperature control device.	• High flow experiment built beaches and backwater habitat, but the length of the experiment sacrificed the mass balance of sand on the negative side. • The activities of the Transition Work Group reveal a higher degree of efficacy than the current AMP.
1997 - Technical Work Group (TWG) and Adaptive Management Work Group (AMWG) are formally established.	Procedural affairs become the dominate activity of the AMP.	• Activities initiated by the Transition Working Group languish in debate. • The administrative record of AMP on the official webpage does not begin until 1999. • TCD EA is suspended. • 2000 LSSF experiment is poorly executed.
2000 - Low Steady Summer Flow (LSSF) experiment	Initiate components of the Reasonable and Prudent Alternatives of the Biological Opinion.	• The planning for this experiment was fast-tracked and flawed, and long-term monitoring procedures were inadequate. • A comprehensive report of the LSSF experiment did not emerge until 2011 and knowledge gaps remain.
2001 - Revision of Recovery Goals	GCMRC comment letter resonates a decline in HBC in GCNP and recommends a more universal methodology of synthesizing the population data.	• Considerable programming is initiated to understand the status and trends of HBC in GCNP, which essentially breaks down into bean counting. • AMP becomes unbalanced as it focuses almost exclusively on HBC to avoid a legal intervention, which arrived anyway in 2006 and continues to this day.

Event	Recommendations or Criteria	Action, Delay, Inaction, Comment
2002 - Recovery plans revised	• Recommends warming the river. • Provide flows that advantage native fish. • Reduce non-native fish population • Provide management plan for Little Colorado River.	• AMP will initiate non-native fish removal. • AMP will provide steady flows in the fall but not the in the summer. • AMP will initiate high flow experiments, but not in the beneficial months of May or June. • LCR management plan continues to languish. • TCD continues to languish. • RBS recovery continues to languish.
2004 - High Flow Experiment	Occurs in November to take advantage of inputs from summer and fall monsoon events.	A simulated flood of shorter duration with less export of sand from the system.
2006 - LTEP EIS announced and eventually suspended	Generate a long-term planning document.	Generates a departure from the previous Biological Opinions and Recovery Goals. Essentially manifests that AMP will lower the bar of performance.
2007 - Little Colorado River (LCR) Watershed Coordinating Council formed.	LCR planning was first recommended in the recovery goals of 1979.	Overdue by 3 decades.
2007 - Interim Guidelines Record of Decision	Manage Lakes Mead and Powell as one reservoir; balance water storage in the two reservoirs equally.	• Essentially changes the Compact Point from Lee's Ferry to Hoover Dam. • Recent high volume balancing flows reduce mass balance of sediment resources in GCNP and renders near shore habitat during fall steady flows as moot.
2008 - High Flow Experiment	Occurred in March with considerably more sand to work with than previous experiments.	• Significant positive beach and habitat building followed by normal erosion of fluctuating flows. • Sediment in the old high water zone continues to degrade forcing the excavation of archeology sites.
2010 - Desired Future Conditions	Revisit the fundamental goals and objectives of AMP	• Some ambitious goals are presented. • Some departure from the goals and objectives of the 1996 Transition Work Group.
2010 - Development of protocol for high flow experiments and non-native fish removal	10-year planning document	Zuni uncomfortable with non-native fish genocide near sacred places at or near the mouth of Little Colorado RIver.

Event	Recommendations or Criteria	Action, Delay, Inaction, Comment
2011 - 5-year review of humpback chub	• Recommends warming the river. • Provide flows that advantage native fish. • Reduce non-native fish population. • Re-consultation if population drops.	• High volume releases in 2011 due to criteria of Interim Criteria reduces river temperature; • Disadvantaged young-of-the-year native fish and near-shore ecology. • Reduced the mass balance of sand for sandbar habitat.

Table No. 6: References for Table No. 5.

References	Hyperlinks to References of Table No. 5
Adaptive Management Program	• 1996 - TWG final objectives of long-term planning • 1999 - Science Advisors review Temperature Control Device • 2001 - Strategic Plan with Appendices • 2003 - Science Advisors review Temperature Control Device • 2010 - Desired Future Conditions •
Biological Opinions	• 1978 - Jeopardy Opinion of GCD • 1994 - BiOP of GCD • 2008 - BiOp of GCD • 2009 - Supplemental BiOp of GCD •
Congress	• Grand Canyon Protection Act • NEPA regulations • Endangered Species Act • National Historic Preservation Act • Redwood Amendment • SECURE Water Act •
Federal Notices	• 1967 - listing of Colorado pikeminnow as endangered • 1967 - listing of humpback chub as endangered • 1980 - listing of bonytail chub as endangered • 1990 - listing of razorback sucker as endangered • 1994 - Designation of critical habitat in Colorado River Basin • 1997 - Operating Criteria for GCD •
Litigation	• 1908 - Winter's Doctrine • 1964 - AZ v CA • 1989 - NWF v WAPA • 2006 - CBD v BOR • 2008 - GCT v BOR •
National Park	• 1977 - Synthesis and Management Implications of the Colorado River Research Program • 1979 - Colorado River Management Plan •
Agency & Public Comments	• 1981 - Environmental assessment of Glen Canyon Dam operations • 1990 - Agency recalcitrance and evasion regarding compliance with NEPA relating to GC Dam operations: A documented need for Congressional intervention • 2001 - GCMRC comments on the recovery goals for endangered fish •
Reclamation	• 1976 -Draft EA • 1977 - Report of Western Energy Expansion Study • 1982 - Draft Environmental Assessment • 1996 - Record of Decision, Glen Canyon Dam • 2007 - Mechanical Sediment Augmentation • 2008 - Evolution of Hoover Dam Inflow Design and Flood Study •

References	Hyperlinks to References of Table No. 5
Recovery Plans	• 1990 - Recovery goals of humpback chub • 2002 - Recovery goals of Colorado pikeminnow • 2002 - Recovery goals of humpback chub • 2002 - Recovery goals of bonytail chub • 2002 - Recovery goals of razorback sucker • 2011 - HBC 5-year review •
Science	• 1970s - Lake Powell Research Project • 1976 - Long-term surface water supply and streamflow trends • 1994 - Paleofloods in Grand Canyon • 1994 - Management of discharge, temperature, and sediment in Grand Canyon for native fish • 1999 - Driftwood and aquatic food web • 2002 - Aquatic food base monitoring and research • 2002 - Recent sediment studies refute Glen Canyon Dam hypothesis • 2004 - Statistical analysis of flood occurrence near Moab, UT • 2005 - Paleofloods near Moab, Utah • 2005 - State of the Colorado River in Grand Canyon (SCORE Report) • 2008 - Abundance trends & status of LCR population of HBC with data from 1989 to 2006 • 2008 - Is there enough sand? • 2009 - Abundance trends & status of LCR population of HBC with data from 1989 to 2008 • 2011 - Effects of Three High-Flow Experiments (USGS Circular 1366) • 2011 - Analysis of the 2000 low steady summer flow (LSSF) •
Sufficient Progress Reports	• 1990s - Sufficient progress reports, GCD (combined) • 1990s - Sufficient progress responses from Reclamation, GCD (combined) •
WAPA	• 1993 - WAPA requests modifying the range of MLFF •

III. ALTERNATIVES THAT MUST BE ADDRESSED BY THE EIS

A. Restore natural process in the river corridor in Grand Canyon

The paramount objective for the EIS must be the establishment of a process, or a dam operating regime, that assures the basic elements of habitat that existed prior to Glen Canyon Dam's construction to thrive, and as such the protection all native species present at that time. These basic elements must include:

1) Flows: a natural hydrograph includes a gradual increasing flood flow beginning in the late spring, followed by a gradual decrease in this flood flow in the early summer (April to July).

2) Temperature: The temperature of the river below the dam in the spring spawn must be at least 15 degrees Celsius to stimulate the full maturation of a hatchling. The temperature of the river in the late summer and fall must at least be 15 degrees Celsius at the mouth of the Paria RIver and 17 degrees Celsius at the mouth of the Little Colorado River.

3) Sediment and nutrient transport: must be sufficiently abundant and stable to sustain summer and fall nursery habitat for the hatchlings to mature.

4) Non-native fish eradication: to ensure there is ample food for the native species, and to also ensure young-of-the-year native fish do not fall victim to predation, the non-natives must be removed from the ecosystem from the base of the dam to the mouth of Lake Mead.

It is abundantly clear that adjusting flow operations at Glen Canyon, in and of themselves, cannot modify the elements of critical habitat in a consistent manner over long periods of time to bring about the necessary habitat conditions for Grand Canyon's restoration consistent with the Grand Canyon Protection Act. Tuning a dial here or switching a lever there, so-to-speak, is not how an agency should go about improving a debilitated ecosystem. More dramatic steps must be taken to increase the range of diversity and application of mimicry applications, such as a selective temperature control device, mechanical sediment augmentation, and mechanical non-native fish removal. There is no other way to test these applications until they are actually built and implemented. The GCD AMP has consistently ignored these issues and the resources has continued to suffer as a result. It's critical that all alternatives explored by the EIS address these issues and how the specific alternative will address them.

B. Integrating Dam Removal with a management plan based on the Precautionary Principle

Hoover Dam on its own has always satisfied the mandates of the Colorado River Compact and division of the two basins at Lee's Ferry is an arbitrary point on a map. The coordinated management of the two reservoirs (Interim Guidelines, 2007) demonstrates that Hoover Dam is now the new Compact Point. As former commissioner Floyd Dominy expressed aptly, Glen Canyon Dam is a "cash register dam." The revenue stream pays for upper basin irrigation projects on saline soils at high elevation. The trans-basin diversions above the Colorado Plateau render the salinity problem more grave and increasingly problematic. It is possible that the development scheme prepared for the upper basin is too ambitious and should be reevaluated with a programatic basin-wide assessment to improve water efficiency and best management practices overall.

Moreover, Glen Canyon Dam represents a safety liability to the entire Colorado River system downstream. Interior should not drain the reservoir to begin repairs and modifications. Instead, Interior should remove the dam and let the river flow free through Grand Canyon and liberate Glen, Cataract and San Juan canyons.

As has been highlighted by The One-Dam Solution[16] and elsewhere, water users within the basin would not be unduly burdened once Lake Powell reservoir is removed from the system. Moreover, diminishing inflows and increasing consumption may in fact cause the draining of the reservoir naturally, something Interior has yet to contend with in its scenario planning. An abundance of energy alternatives exist for those reductions in flow that may result in the decommissioning of power stations: alternatives which

[16] http://livingrivers.org/pdfs/TheOne-DamSolution.pdf

need to be explored regardless, due to the increasing threat of reduced inflows being insufficient to maintain the power pool.

Where alternatives do not exist, is for the unique river ecosystem that bisects the nation's premier national park and core component of the region's natural heritage. Glen Canyon Dam's decommissioning must be addressed as a viable alternative to achieve the objectives of the EIS generally, and more specifically the components addressed in Alternative A above.

Table No. 7: Administrative history of Glen Canyon Dam and its features.

Event	Comments
1953 & 1954 - Northcutt Ely testifies before the Subcommittee of Interior and Insular Affairs representing the California Colorado River Board. Ely was the executive secretary of Interior in the Hoover administration and lead author of the Hoover Dam Documents.	• Ely did not object to the CRSP and felt the upper basin had the right to develop its water resources. • However, he recommended a wait-and-see attitude toward the construction of Glen Canyon Dam. • Ely stated decades would pass before the upper basin would use its full allocation of 7.5 million acre-feet (maf). • When the upper basin does finally utilize its full allocation, it would likely be impossible to keep the two reservoirs full and hydropower would be curtailed at both dams. • In the meantime, Glen Canyon reservoir (Lake Powell) would needlessly evaporate water that otherwise could be utilized by the lower basin to spin generators and be put to beneficial use. • Note: Ely used these arguments in the 1960s for the proposed dams on the Colorado River in Grand Canyon, which were not built.
1959 - USGS hydrologists Walter Langbein and Luna Leopold study water storage efficiency.	Concluded the Colorado River basin will have excessive storage capacity and will experience diminishing returns in the water-yield. Did not really discuss the effect on water quality, but it is now self-evident that salinity has increased problems for the end-users of Colorado River water.
1961 & 1970 - Specifications of GCD are published. Schultz GCD Technical Report	• The dam site in Glen Canyon is wide and U-shaped with bedrock that has a porosity ratio of 25%. • A dam design similar to Hoover Dam (HD) would have intensive concrete construction costs and a cantilever arch design was chosen instead. • The GCD design still used more concrete than HD, but the longitudinal thickness of GCD at the base is half that of HD. • Unlike HD, the outlets at GCD are fixed horizontally. This design reduces the life span of Lake Powell considerably because sediment filling in the dead pool space at the forebay will compromise the safe performance of the river outlet works. • The outlet works are now also utilized to provide environmental services to benefit the ecosystem in GCNP and eventually that option will be unavailable. • Diminished reservoir levels in the future also mean that water quality for Glen and Grand canyons will be poor. Without the river outlets, cooling the river will also not be an option.

Event	Comments
1983 to 1984 - Spillway use is required and the integrity of the tunnels fail at only ~17% of total design capacity. GCD Spillway Test Rhodes	• In anticipation of Central Arizona Project becoming operational, Reclamation keeps Lake Powell full in the early 1980s. • Consequently there is not enough space in the reservoir to handle the April to July, 1983 snowmelt volume. It becomes necessary to use the spillways and the public and Reclamation now understand that the spillway design is flawed, as are the protocols of flood control management. • Spillway release procedures also demonstrate a preference to use the left spillway over the right spillway, and questions arise about the integrity of the right spillway. • Reclamation repairs the damage and installs air slots to reduce cavitation pressures. Spillway capacity is reduced from the original specification of 276,000 cfs to 208,000 cfs. • Left spillway is tested for one hour at ~50% capacity. Right spillway is not tested. It is unknown if the spillway problem has actually been resolved.
2003 - Lake Powell drops dramatically. • Impacts recreation and reduces hydroelectric yield. WAPA.	• Exposed sediment in the upper reaches of Lake Powell force closure of the boat ramp at Hite Marina and the floating marina is removed. • Park Service extend the concrete ramps at the other marinas. • Hydroelectric yield at GCD drops 30% in 2004 and by March 2005 to 40%.

Table No. 7 References: Ely;[17] Langbein;[18] Leopold;[19] Schultz;[20] GCD Technical Report;[21] GCD Spillway Test;[22] Rhodes;[23] WAPA;[24]

IV. CONCLUSION

After four decades of Interior's attempts to address the declining habitat conditions in Grand Canyon National Park's river corridor resulting from Glen Canyon Dam operations, it's critical now to treat this EIS opportunity as the major step forward in what must be a remedy to the ongoing failure of Interior's past ambivalence.

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[17] http://www.riversimulator.org/Resources/Testimony/ColoradoRiverBoard1954ocr.pdf

[18] http://www.riversimulator.org/Resources/USGS/Langbein.pdf

[19] http://www.riversimulator.org/Resources/USGS/Leopold1959.pdf

[20] http://www.riversimulator.org/Resources/USBR/GCDDesign.pdf

[21] http://www.riversimulator.org/Resources/USBR/GCDtechnicalOcr.pdf

[22] http://www.riversimulator.org/Resources/USBR/ReclamationHistory/GCDSpillwayTest1985.pdf

[23] http://www.riversimulator.org/Resources/Hydrology/ClimateColoradoRiverLimitsOfManagementRhodes1984.pdf

[24] http://www.riversimulator.org/Resources/WAPA/Warren2004.pdf

The management process is faulty from both the bottom-up and the top-down. From the bottom lies an AMP process that is guided by the whims of special interest, while the resource itself continues to suffer. From the top there is no clear mandate of what the real objectives are or should be, especially over the medium- and long-term. The ecosystem in Grand Canyon National Park is not WAPA's, trout fishermen's or river runner's playground to do with as they please. Nor is it Glen Canyon Monitoring and Research Center's scientific playground to tinker with trivial actions from a body dominated by these special interests. This is a world renowned riverine resource for which Interior, guided by the most rigorous interpretation of the sprit of those acts governing the National Park System, must step forward and act in the public's interest. If these special interest groups become frustrated with Interior's actions, they can challenge them in the courts and the court of public opinion. There is no substitute for Grand Canyon, and it should be managed in accordance with that principle, now and in the future.

As such, there must be new leadership, and new avenues for administering the will and mandate of this leadership. The GCD AMP has and will continue to be a failure, so the EIS must address how this will be remedied.

Unfortunately, the complexity of water issues in the basin have effectively taken the common citizen out of the process. The issues, policy, laws and science have become too burdensome, too one-sided, and has created a situation of bewilderment or malaise. It has been suggested by many authors and oversight agencies that an independent commission for the Colorado River basin should be established. These issues have arrived to a point in history where it is quite possible that Interior is not the best choice in providing a long-term management proposal for the Colorado River basin, as evidenced by decades of time under its watch having failed to provide the leadership necessary to provide effective change toward greater sustainability on several fronts.

The EIS should therefore evaluate the constraints impairing Interior's ability to address the complex challenges facing the Grand Canyon River ecosystem and Colorado River management as a whole. A key component of any alternative must therefore be mechanisms to give all the funding and authority to an independent commission that can provide basin-wide and comprehensive analysis of what must be accomplished and in a reasonable time-frame for the benefit of Grand Canyon and the basin as a whole.

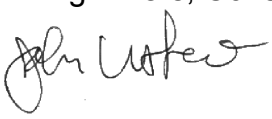
The EIS must also address Glen Canyon Dam's operations and impacts, in the full spectrum of its lifespan. All reasonably supported hydrologic and catastrophic scenarios over a century time-window must be explored in conjunction with evaluating alternatives. If climate change has taught us anything, it's that such long-range planning is critical now, something that Reclamation has been slow to recognize. If Glen Canyon Dam fails in a flood, or fails to provide water during a severe and sustained drought, then everybody will lose and this EIS will have been nothing more than stepping stone in that process.

Alternatives must also address specific strategies for habitat restoration in Grand Canyon's river corridor including: natural flow regime with associated temperature changes and sediment transport along with non-native species eradication. Most of these issues and the recommendations surrounding them have been on the table for decades, but it's time they are fully explored consistent with the present and long-term needs of a healthy, natural, Grand Canyon river ecosystem. And in exploring alternatives that can deliver these alternatives, a decommissioned Glen Canyon Dam must be included. As the past decade of inflows has illustrated, the likelihood of a naturally drained reservoir is no longer something water and energy planners can ignore, especially in light of the long-term environmental damage Glen Canyon Dam continues to impose.

Most importantly, it's time for Interior to have some real vision for what can be and should be done when it comes to water management through Grand Canyon. Interior must once and for all abandon its policy of tinkering with knobs and switches and then defend these actions in court explaining how the public should not expect them to achieve a better result.

Sincerely yours,

John Weisheit
Living Rivers, Conservation Director and Colorado Riverkeeper



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