BEYOND CONJECTURE: LEARNING ABOUT ECOSYSTEM MANAGEMENT FROM THE GLEN CANYON DAM EXPERIMENT

Alejandro E. Camacho*

INTRODUCTION

> We have an unknown distance yet to run, an unknown river to explore. What falls there are, we know not; what rocks beset the channel, we know not; what walls rise over the river, we know not. Ah, well! we may conjecture many things.
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> The wonders of the Grand Canyon cannot be adequately represented in symbols of speech, nor by speech itself. The resources of the graphic art are taxed beyond their powers in attempting to portray its features. Language and illustration combined must fail. The elements that unite to make the Grand Canyon the most sublime spectacle in nature are multifarious and exceedingly diverse.[1]

Since at least when John Wesley Powell first led his famous expedition exploring its canyons in 1869, the Colorado River has been a substantial source of uncertainty, holding many mysteries in its vastness for the many humans and other species that have increasingly come to rely on it. Though the scientific uncertainties with the Colorado may no longer be of the navigational variety that Powell endured, they are no less significant. For just as long a time, this uncertainty has been paired with a universal recognition that the Colorado River is of indescribable value, serving as a vital natural resource for transportation, recreation, sustenance, energy, and other diverse uses. Increasingly, these uncertainties and competing resource demands have taken their toll throughout this vital ecosystem.

In response to these uncertainties and escalating resource demands, the U.S. Congress and delegated administrative agencies have set up a variety of regulatory institutions, indeed to "conjecture many things." In particular for the segment of the Colorado River downstream from the Glen Canyon Dam, a decade ago the U.S. Department of the Interior established the Glen Canyon

* Associate Professor of Law, Notre Dame Law School. I would like to thank Andrea Alpine, Kirk Emerson, Joe Feller, Dennis Kubly, and Mary Orton for their comments and helpful insights into the Glen Canyon Dam Adaptive Management Program and the Adaptive Management Work Group. I would also like to thank Bret Birdsong and the Saltman Center at the UNLV Boyd School of Law for inviting me to participate in this engaging conference and Dan Cory for his valuable research assistance.

[1] JOHN WESLEY POWELL, CANYONS OF THE COLORADO 247, 394 (1895), *available at* http://www.gutenberg.org/etext/8082.

Dam Adaptive Management Program ("AMP"), comprised of a federal advisory committee (the Adaptive Management Work Group) as well as several scientific and technical supporting bodies.[2] Similar to other recent regulatory experiments,[3] the AMP has been advanced as a collaborative and adaptive approach both to decrease scientific uncertainty in support of regulatory decision-making and to help manage contentious resource disputes—in this case, the increasingly thorny conflict over the Colorado River's finite natural resources.

In contexts similar to the Glen Canyon Dam AMP, many scholars and practitioners have emphasized the value of integrating public participation, collaborative decision-making, and adaptive management into regulatory processes to assist in the resolution of natural resource disputes.[4] In this vein, I have argued before that meaningful stakeholder participation should serve a central role in the management of natural resources and the regulation of land use and that regulatory processes should account for the uncertainty inherent in regulatory decisions by making such processes more adaptive.[5] Particularly as compared to traditional, prescriptive regulatory processes that provide uniform but inflexible restrictions on private action too often at the expense of long-term environmental or other public values, multilateral, adaptive regulatory

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[2] *See infra* Part I.

[3] Recent federal regulatory experiments include the Habitat Conservation Plan ("HCP") program under section 10 of the Endangered Species Act ("ESA"), 16 U.S.C. § 1539 (2000); regulatory negotiation under the Negotiated Rulemaking Act of 1990, 5 U.S.C. §§ 561-570a (2000); and the negotiation of Final Project Agreements under the Environmental Protection Agency's Project XL. *See* Regulatory Reinvention (XL) Pilot Projects, 60 Fed. Reg. 27,282 (May 23, 1995).

[4] *See, e.g.*, THOMAS C. BEIERLE & JERRY CAYFORD, DEMOCRACY IN PRACTICE: PUBLIC PARTICIPATION IN ENVIRONMENTAL DECISIONS 74-75 (2002) (suggesting early public participation is effective in incorporating public values and thus leads to better outcomes); Mary Grisez Kweit & Robert W. Kweit, *The Politics of Policy Analysis: The Role of Citizen Participation in Analytic Decision Making*, *in* CITIZEN PARTICIPATION IN PUBLIC DECISION MAKING 19, 25-26 (Jack DeSario & Stuart Langton eds., 1987) (describing negative impacts of only providing late participation opportunities); Stephanie Tai, *Three Asymmetries of Informed Environmental Decisionmaking*, 78 TEMP. L. REV. 659, 693 (2005); *see also* Jody Freeman, *Collaborative Governance in the Administrative State*, 45 UCLA L. REV. 1, 21-33 (1997) (proposing a normative model of collaborative governance as a more effective and legitimate process for resolving regulatory disputes); J.B. Ruhl, *Taking Adaptive Management Seriously: A Case Study of the Endangered Species Act*, 52 U. KAN. L. REV. 1249 (2004); *cf.* Donna M. Nagy, *Playing Peekaboo with Constitutional Law: The PCAOB and Its Public/Private Status*, 80 NOTRE DAME L. REV. 975, 1063 (2005) (describing Administrative Procedure Act's call for widespread early participation in rulemaking, before policy decisions get "chiseled into bureaucratic stone" (quoting Alcaraz v. Block, 746 F.2d 593, 610 (9th Cir. 1984))).

[5] *See generally* Alejandro E. Camacho, *Can Regulation Evolve? Lessons from a Study in Maladaptive Management*, 55 UCLA L. REV. 293 (2007) [hereinafter Camacho, *Can Regulation Evolve?*]; Alejandro Esteban Camacho, *Mustering the Missing Voices: A Collaborative Model for Fostering Equality, Community Involvement and Adaptive Planning in Land Use Decisions, Installment One*, 24 STAN. ENVTL. L.J. 3 (2005) [hereinafter Camacho, *Mustering Part 1*]; Alejandro Esteban Camacho, *Mustering the Missing Voices: A Collaborative Model for Fostering Equality, Community Involvement and Adaptive Planning in Land Use Decisions, Installment Two*, 24 STAN. ENVTL. L.J. 269 (2005) [hereinafter Camacho, *Mustering Part 2*].

processes have considerable promise as regulatory tools for addressing the increasing number of natural resource disputes in the U.S.

Unfortunately, the Glen Canyon Dam AMP exemplifies how existing regulatory programs that have promised a more collaborative and adaptive approach to decision-making have been adopted and implemented in a manner that provides little chance for addressing and resolving complex natural resource problems. This brief Article modestly attempts to reflect on what the Glen Canyon Dam AMP and the circumstances surrounding its creation and implementation can teach us about the challenges of creating successful multilateral and adaptive management protocols in natural resource management. Born in the shadow of the law and improvised with too little thought as to its structure, the Glen Canyon Dam AMP serves as a lesson on the limitations of existing regulatory approaches in integrating meaningful participation and a systematic process for adapting regulation.

I. OPACITY AND COLLABORATIVE ECOSYSTEM MANAGEMENT

A notable lesson provided by the Glen Canyon Dam AMP experiment comes from the opacity and improvised nature of its creation, and in particular the formation of the Glen Canyon Dam Adaptive Management Working Group ("AMWG"). The roles of the Glen Canyon Dam AMP and AMWG in reconciling the various conflicting resource uses for the ecosystems of Glen Canyon are at best murky, perhaps revealing an abdication of responsibility by the ultimate authority on this important resource question—the U.S. Congress. This opacity and the extemporized creation of the Glen Canyon Dam AMP have served to cripple severely the AMP's efficacy at achieving any comprehensive and systematic resolution of the complex and contentious disputes surrounding Glen Canyon Dam.

A. Resource Competition and Regulatory Evasion in Glen Canyon

A number of increasingly competing legal mandates continue to govern the existing resource uses of the Grand Canyon and Glen Canyon ecosystems. The Colorado River Compact in 1922 allocated Colorado River water between the four states of the upper Colorado River Basin and the three states of the lower Colorado River Basin.[6] The 1922 Colorado River Compact and subsequent amendments[7] (collectively commonly referred to as the "Law of the

[6] Colorado River Compact of 1922, art. III(d), 70 CONG. REC. 324 (1928) ("The States of the Upper Division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of ten consecutive years . . . .").

[7] The Law of the River incorporates a variety of compacts, federal laws, court decisions, and decrees, contracts, and regulatory guidelines. These most notably include the Colorado River Storage Project Act of 1956, 43 U.S.C. §§ 620-620(o) (2000); the Colorado River Basin Project Act of 1968, 43 U.S.C. §§ 1501-1556; the Upper Colorado River Basin Compact of 1948, ch. 48, 63 Stat. 31 (1949); the Treaty on the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, U.S.-Mex., Feb. 3 1944, 59 Stat. 1219; and the decree of the Supreme Court in *Arizona v. California*, 547 U.S. 150 (2006) (incorporating decree in *Arizona v. California*, 376 U.S. 340 (1964), and subsequent amendments). For a more complete list and collection of the sources of the "Law of the River," see Bureau

River") place a strong priority on the water use rights of these seven state parties.

Operation of the Colorado River in the Glen Canyon area for hydroelectric power began a few decades later. The Glen Canyon Dam was approved under the Colorado River Storage Project Act of 1956[8] to store water for use by the upper Colorado River Basin or delivery to the lower Colorado River Basin.[9] In addition to satisfying water rights as directed by the Law of the River, the Glen Canyon Dam was to serve a secondary purpose as a source of hydroelectric power[10]—a function that has become increasingly important to numerous states and consumers over time.[11]

Yet this use of the Colorado River as a source of energy has come with considerable cost to other resources. Following construction in 1963, concerns began to surface regarding the Glen Canyon Dam's effects on the downstream ecosystem of the Colorado River.[12] By fundamentally altering the landscape and ecosystems of the Glen and Grand Canyons, it became evident that operation of the Glen Canyon Dam was having a detrimental effect on a number of native species, including the local extirpation of four fish species and the decline of the humpback chub (*Gila cypha*).[13] Operation of the dam has led to a drastic decrease in sediment essential to the formation of the humpback chub's habitat and as a defense from predation.[14] In addition, a lower and

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of Reclamation: Lower Colorado Region—Law of the River, http://www.usbr.gov/lc/region/g1000/lawofrvr.html (last visited May 18, 2008).

[8] 43 U.S.C. §§ 620-620(o).

[9] Robert W. Adler, *Restoring the Environment and Restoring Democracy: Lessons from the Colorado River*, 25 VA. ENVTL. L.J. 55, 80 (2007).

[10] *Id*. at 80-81.

[11] *See* Jeffrey W. Jacobs & James L. Wescoat Jr., *Managing River Resources: Lessons from Glen Canyon Dam*, ENV'T, Mar. 2002, at 8, 10 ("Hydroelectric power generated at Glen Canyon Dam is of vital importance for maintaining peak supply to a multistate power grid operated by the U.S. Department of Energy's Western Area Power Administration."). The water of the Colorado River drives turbines that generate 11.5 billion kilowatt-hours of energy per year. Adler, *supra* note 9, at 58.

[12] *See* RUSSELL MARTIN, A STORY THAT STANDS LIKE A DAM: GLEN CANYON AND THE STRUGGLE FOR THE SOUL OF THE WEST (1989); GORDON A. MUELLER & PAUL C. MARSH, LOST, A DESERT RIVER AND ITS NATIVE FISHES: A HISTORICAL PERSPECTIVE OF THE LOWER COLORADO RIVER (2002), *available at* http://www.fort.usgs.gov/products/publications/10026/10026.pdf; Robert Dolan et al., *Man's Impact on the Colorado River in the Grand Canyon*, 62 AM. SCIENTIST 392, 392-401 (1974).

[13] Adler, *supra* note 9, at 59-60. The locally extirpated species include the bonytail chub, roundtail chub, razorback sucker, and Colorado pikeminnow. *Id*.; Joseph M. Feller, *Collaborative Management of Glen Canyon Dam: The Elevation of Social Engineering over Law*, 8 NEV L.J. 896 (2008).

[14] *See* Glen Canyon Dam Adaptive Management Program, Sediment and River Sand Bars in the Grand Canyon, http://www.gcdamp.gov/keyresc/sediment.html (last visited May 18, 2008). For a discussion of the effects of the Glen Canyon Dam on sediment in the river generally, see Eric Booth, Sediment Responses to Construction and Recent Adaptive Management of Glen Canyon Dam, Colorado River, Arizona (Mar. 10 2005), http://www.geology.ucdavis.edu/~shlemonc/html/trips/Grand%20Canyon%20Web/html/reports/PDFs/Booth.pdf.

more-uniform water temperature affects humpback chub reproduction and development.[15]

Several federal resource laws have been developed to manage precisely these types of impacts on biological resources. The impacts on native species and habitat occurring along the Colorado River arose at the same time as a growing awareness of environmental degradation throughout the United States, prompting the U.S. Congress to enact the National Environmental Policy Act ("NEPA")[16] and the Endangered Species Act ("ESA").[17] NEPA is a procedural statute that requires the preparation and disclosure of a detailed environmental impact statement ("EIS") for major federal actions (including permit approval) significantly affecting the quality of the environment.[18] The more substantive ESA expressly forbids harmful actions against species listed as threatened or endangered.[19] In addition to prohibiting the "take" of any endangered species by any person,[20] the ESA prohibits any federal action[21] that would "jeopardize the continued existence"[22] of any listed species or result in the modification of its "critical habitat."[23] Any federal agency planning an action that *might* jeopardize a listed species or modify its critical habitat must obtain a "Biological Opinion" from the Fish and Wildlife Service ("FWS") or National Marine Fisheries Service ("NMFS")[24] that evaluates the action's impacts on the species. If the action would jeopardize a listed species or mod-

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[15] *See* U.S. GEOLOGICAL SURVEY, GRAND CANYON HUMPBACK CHUB POPULATION STABILIZING (2006), *available at* http://www.gcmrc.gov/files/pdf/fs_2006_3109.pdf; Glen Canyon Dam Adaptive Management Program, *supra* note 14.

[16] 42 U.S.C. §§ 4321-4375 (2000).

[17] 16 U.S.C. §§ 1531-1544 (2000 & Supp. IV 2004).

[18] *See* 42 U.S.C. § 4332(2)(C). The EIS must include a detailed evaluation of impacts and alternatives and provide public opportunities to comment through early open "scoping" meetings, a public comment period on the impacts of and alternatives to the proposed action, and agency responses to comments made on the proposed agency action.

[19] *See* 16 U.S.C. § 1533(b) (2000 & Supp. III 2003); 16 U.S.C. § 1538(a) (2000).

[20] 16 U.S.C. § 1538(a)(1). The statute broadly defines "take" to include to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." *Id.* § 1532(19). Subsequent judicial opinions have upheld expansive regulatory interpretations of this language to include substantial modification of habitat. *See* Babbitt v. Sweet Home Chapter of Cmtys. for a Great Or., 515 U.S. 687 (1995) (determining Service interpretation of statutory definition of "harm" to include "significant habitat modification or degradation" that significantly impairs breeding, feeding, or sheltering patterns was reasonable); Palila v. Haw. Dep't of Land & Natural Res., 639 F.2d 495, 497 (9th Cir. 1981).

[21] Action includes any activity "authorized, funded, or carried out, in whole or in part, by Federal agencies." 50 C.F.R. § 402.02 (2007).

[22] 16 U.S.C. § 1536(a)(2) (2000 & Supp. III 2003); *see also* Tenn. Valley Auth. v. Hill, 437 U.S. 153 (1978) (finding jeopardy determination must be made strictly without regard to costs and benefits of the proposed agency action).

[23] 16 U.S.C. § 1533(b)(2). If a species is listed, the Services must designate critical habitat in areas where the species is found or which might provide additional habitat for the species' recovery. *See id.* However, FWS has only designated critical habitat for thirty-six percent of listed domestic species as of June 2006. *See* EUGENE H. BUCK ET AL., THE ENDANGERED SPECIES ACT (ESA) IN THE 109TH CONGRESS: CONFLICTING VALUES AND DIFFICULT CHOICES 3 (2006), *available at* http://www.ncseonline.org/NLE/CRSreports/06Nov/RL33468.pdf.

[24] The FWS must be consulted for actions affecting terrestrial or freshwater species, while the NMFS must be consulted for those affecting marine species.

ify its critical habitat, the proposed action may proceed only if the FWS or NMFS proposes and adopts any "reasonable and prudent alternatives" to avoid those impacts.[25] The humpback chub has been listed by the FWS since 1967 as an endangered species.[26]

These and other environmental laws provide support for conserving and protecting the vulnerable biological resources in Glen Canyon and Grand Canyon. Yet, changes in dam operations to protect the humpback chub would affect if not directly conflict with both the water use rights provided for in the Law of the River and the power output specifically promoted by the Colorado River Storage Project Act of 1956 and subsequent amendments.[27] With these various seemingly rigid laws in place, there was no clear guidance in any of these legal frameworks as to the relationship of their competing mandates.

Ostensibly in response to this conflict in this key segment of the Colorado River, Congress enacted the Grand Canyon Protection Act of 1992 ("GCPA").[28] However, instead of resolving the conflicting mandates of the Law of the River and the ESA, it provided a host of confusing and conflicting directives to the Secretary of the Interior ("Secretary") that have led to extensive delays and to this day cause considerable confusion.[29] Despite its brevity, the GCPA contains various impenetrably conflicting directives. First, the Secretary must operate "Glen Canyon Dam . . . in such a manner as to protect, mitigate adverse impacts to, and improve the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were established . . . ."[30] Second, the Secretary must fulfill the first directive "in a manner fully consistent with and subject to" the Law of the River.[31] Last, nothing in the GCPA "is intended to affect in any way—(1) the allocations of water secured to the Colorado Basin States by any compact, law, or decree; or (2) any Federal environmental law, including the Endangered Species Act."[32]

The first two directives provide conflicting mandates of protecting the Grand Canyon's and Glen Canyon's natural resources on the one hand and the water rights established under the Law of the River on the other. Thus, Congress provided a mandate for the Secretary to protect two competing resources despite their irreconcilable directives. As if that were not enough, the last provision further muddies the water by expressly carving out of the GCPA's scope the water rights established under the Law of the River (despite mandating their

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[25] 16 U.S.C. § 1536(b)(3)(A).

[26] *See* Native Fish and Wildlife: Endangered Species, 32 Fed. Reg. 4001 (Mar. 11, 1967); *see also* Determination of Critical Habitat for the Colorado River Endangered Fishes: Razorback Sucker, Colorado Squawfish, Humpback Chub, and Bonytail Chub, 59 Fed. Reg. 13,374 (Mar. 21, 1994) (to be codified at 50 C.F.R. pt. 17).

[27] Adler, *supra* note 9, at 79.

[28] Grand Canyon Protection Act of 1992, Pub. L. No. 102-575, §§ 1801-1809, 106 Stat. 4600, 4669-73.

[29] *See* Adler, *supra* note 9, at 85 ("Given the difficulty the Bureau of Reclamation and other agencies faced in deciding which existing laws had priority, an answer from Congress surely would have been welcome. Unfortunately, the new law could be used in an introductory philosophy text as an example of circular logic.").

[30] Grand Canyon Protection Act § 1802(a).

[31] *Id*. § 1802(b).

[32] *Id*. § 1806 (citation omitted).

protection earlier). Finally, it also avoids any attempt at reconciling the conflict between the water uses protected by the Law of the River and the biological resources protected by federal environmental regulation by carving out federal environmental laws from its purview. In short, the GCPA's circular language demonstrates Congress' at best careless abdication of its responsibility to provide any guidance over how to resolve the competing uses of the Glen and Grand Canyons.

Instead, Congress tendered the management and resolution of this intractable conflict to the Secretary of the Interior, who then established the Glen Canyon Dam AMP as an ongoing, collaborative regulatory salve. The GCPA obliges the Secretary to manage the dam's operation and develop an EIS on the impacts of such operations.[33] Because of the existence of substantial scientific uncertainty regarding the effect of dam operations and other resource use activities on the downstream ecosystem, it also directs the Secretary to establish "long-term monitoring programs and activities" "in consultation with" the governing federal agencies, the Secretary of Energy, the basin states, American Indian tribes, academics, environmental organizations, the recreation industry, and power users.[34] In compliance with this brief instruction,[35] in 1995 the Secretary adopted an EIS for turbine upgrades to Glen Canyon Dam that proposed an "adaptive management" process whereby the effects of dam operations on downstream resources would be monitored and assessed.[36] In 1996, the Secretary created the Glen Canyon Dam AMP, including (1) the AMWG, a twenty-five member federal advisory committee;[37] (2) the Grand Canyon Monitoring and Research Center ("GCMRC"), a U.S. Geological Survey scientific research program;[38] (3) a Technical Work Group ("TWG"), filled by representatives from the same groups as the AMWG and purportedly tasked with liaising between the AMWG and GCMRC;[39] and (4) an independent science advisory

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[33] *Id.* §§ 1803-1804.

[34] *Id.* §§ 1803(b), 1804(c)(3), 1805(a), (c).

[35] The Bureau of Reclamation was already preparing an EIS prior to the passage of the GCPA, but the GCPA established a deadline and other procedural requirements for the Secretary of the Interior and Bureau to follow. *See* ROBERT W. ADLER, RESTORING COLORADO RIVER ECOSYSTEMS: A TROUBLED SENSE OF IMMENSITY 144-46 (2007).

[36] *See* U.S. DEPARTMENT OF THE INTERIOR, RECORD OF DECISION, OPERATION OF GLEN CANYON DAM, FINAL ENVIRONMENTAL IMPACT STATEMENT (1996), *available at* http://www.usbr.gov/uc/rm/amp/pdfs/sp_appndxG_rod.pdf [hereinafter ROD]. The full text of the Final Environmental Impact Statement can be found at the U.S. Bureau of Reclamation's website. Operation of Glen Canyon Dam: Final Environmental Statement, http://www.usbr.gov/uc/library/envdocs/eis/gc/gcdOpsFEIS.html (last visited May 18, 2008).

[37] Members of AMWG are listed at Glen Canyon Dam Adaptive Management Program – AMWG Members, http://www.usbr.gov/uc/rm/amp/amwg/amwg_members.html (last visited May 18, 2008).

[38] Information about the GCMRC can be found at Grand Canyon Monitoring and Research Center, http://www.gcmrc.gov/ (last visited May. 18, 2008).

[39] Members of the Technical Work Group are listed at Glen Canyon Dam Adaptive Management Program – TWG Members, http://www.usbr.gov/uc/rm/amp/twg/twg_members.html (last visited May 18, 2008).

committee.[40] Together, these various institutions were designated as the brain trust for tackling the complex issues facing the Glen and Grand Canyons.

B. The Perils of Regulatory Opacity

With an ad hoc origin and an unclear congressional mandate, the Glen Canyon Dam AMP is a prime example of the hastiness and opacity that is all too common in the first generation of collaborative regulatory approaches to addressing natural resource conflicts. Like other early collaborative regulatory experiments, it relies on a hasty and uncertain mandate.[41] Because Congress has not provided *any* substantive guidance regarding how to balance the various competing priorities of water, power, and the environment, the AMP is able to serve as a makeshift measure that allows the core decisions affecting the Glen Canyon Dam to be ignored by the ultimate decision-maker on resource management—Congress—and deferred as late as possible by the Secretary.

The shortcomings of such opacity are borne out by the disjointed and slow-moving nature of the AMWG for the decade since the AMP was initially established. Though the AMP has adopted a detailed strategic plan that includes a mission statement and a range of goals for the Colorado River ecosystem, an ad hoc committee of the AMWG concedes that "several of the goals are in apparent conflict with one another" and that many stakeholders "have never committed to defining or achieving specific resources objectives or desired future resource conditions."[42] Tellingly, after a decade of being in existence, "quantifiable targets have not been established for AMP goals including the AMWG's priority resources (humpback chub, sediment, and cultural resources)."[43] In short, the fundamental conflict over how to reconcile the various use priorities of the Colorado River has not been addressed in any thorough way by the AMWG, and it remains no closer to resolution.

In response to this confusion, perhaps rationally over the decade, the AMWG often ends up focusing on "the details of the AMP, sometimes duplicating TWG efforts, instead of focusing on high-level executive issues and recommendations to the Secretary."[44] For example, the AMWG has spent extensive time in detailed discussion over the line-item budget for the GCMRC,[45] as well as discussing the adequacy of the GCMRC's science plan

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[40] A description of the Board of Science Advisors can be found at Purpose and Goals – Glen Canyon Dam Adaptive Management Program, http://www.gcdamp.gov/aboutamp/pg.html (last visited May 18, 2008).

[41] *See* Camacho, *Can Regulation Evolve?*, *supra* note 5, at 302, 310, 349.

[42] *See* ROLES AD HOC GROUP, GLEN CANYON DAM ADAPTIVE MANAGEMENT WORK GROUP, REPORT AND RECOMMENDATIONS TO THE SECRETARY'S DESIGNEE 5 (2007), *available at* http:/ /www.usbr.gov/uc/rm/amp/amwg/mtgs/07may22cc/attach_03a.pdf [hereinafter AMWG ROLES AD HOC GROUP REPORT].

[43] *See id*.; *see also id.* at 9 ("Clear timeframe planning is not apparent."); Telephone Interview with Andrea Alpine, Ctr. Director, Sw. Biological Sci. Ctr., U.S. Geological Survey (Dec. 21, 2007) ("The GCMRC needs strong defined threshold values to do its job effectively.").

[44] AMWG ROLES AD HOC GROUP REPORT, *supra* note 42, at 8.

[45] Telephone Interview with Mary Orton, The Mary Orton Co., LLC, Facilitator, Glen Canyon Dam Adaptive Mgmt. Work Group (Dec. 17, 2007).

despite little technical expertise to do so.[46] Surely the Glen Canyon Dam AMP collaborative experiment is destined to failure if its apex deliberative body concentrates its limited deliberations and expends most of its social capital on the details and technical questions of the AMP. Yet, given the extensive regulatory ambiguity and finite deliberation opportunities, such a circumstance is perhaps to be expected from any effort by the AMWG at collaboration.

Even supporters of the AMWG process concede that there has been and still is substantial uncertainty regarding what the function of the AMWG should be in addressing this regulatory dispute.[47] Though belated, an ad hoc committee of the AMWG recently concluded that "collaboration among the AMP participants and the overall effectiveness of the AMP would be improved if [the AMWG were to] [e]stablish and agree to a common mission/goal for the AMP."[48] The committee also concedes that "[t]o clarify progress in meeting its responsibilities, the AMP should define measures of success."[49] Though occurring a full eight years after the AMWG was created, at least the AMWG is now seeking to clarify what Congress and the Secretary should have in 1997 when the AMWG was created.[50]

More alarmingly, this substantive opacity is exacerbated by the limited procedural guidance provided by Congress to guide the AMWG's exercise of its authority. In fact, many of the participants in the Glen Canyon Dam AMP have identified the confusion regarding the roles, responsibilities, and functions of the various program components as "the most urgent issue" facing the AMP.[51] Without any clearly defined procedural decision-making framework, the GCPA invites a procedural opacity that encourages powerful interests to dominate the collaborative process while allowing the Secretary to evade accountability for the ultimate decision.

To begin with, neither the GCPA nor the AMP's operative documents provide any clear information as to how to harmonize the AMWG process efficiently with the ESA's Biological Opinion process or the procedures of other environmental laws. As a result, there has been considerable uncertainty as to the relationship of AMWG decisions with those provided in the FWS's Biological Opinion for the humpback chub under the ESA.[52] At a minimum then, this inattention to the AMWG's regulatory design has made for a less efficient regulatory process from the outset.

More fundamentally, the Glen Canyon Dam AMP's regulatory design that obscures the relationship of the AMWG with the Secretary has limited the effi-

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[46] Telephone Interview with Andrea Alpine, *supra* note 43.
[47] Telephone Interview with Mary Orton, *supra* note 45.
[48] *See* AMWG ROLES AD HOC GROUP REPORT, *supra* note 42, at 4.
[49] *Id.* at 7.
[50] Unfortunately, to date the thorough and constructive recommendations of the AMWG Roles Ad Hoc Group have not been formally adopted by the Glen Canyon Dam AMP and the Department of the Interior. Telephone Interview with Andrea Alpine, *supra* note 43.
[51] *See* AMWG ROLES AD HOC GROUP REPORT, *supra* note 42, at 2; *see also id.* at 8 ("Some AMWG members do not seem to have a clear understanding of their role, in particular pertaining to giving advice and making recommendations to the Secretary of the Interior.").
[52] The lack of clarity is exacerbated by subsequent regulatory decisions. For example, the U.S. Fish and Wildlife Service's 1994 Biological Opinion was vague as to the extent that adaptive management is to be incorporated into the Reasonable and Prudent Alternative.

cacy of this collaborative regulatory mechanism while buffering the Secretary from accountability for the AMWG's determinations. To be sure, the decisions of the AMWG's precise composition, its operating procedures, and the ultimate substantive decisions are made by the Secretary; the AMP makes clear that the AMWG is merely an advisory body to the Secretary.[53] The AMWG makes mere recommendations to the Secretary, which the Secretary is ostensibly free to ignore or reject without explanation.

This detachment undoubtedly serves to shield the AMWG from attacks that it is usurping the Secretary's function,[54] but it is at odds with the justification for the AMWG. As an alternative to conventional regulatory programs—in which agencies are the hub of the regulatory process and many stakeholders are at best peripheral commenters on agency proposals—multilateral, collaborative decision-making bodies like the AMWG are justified as a way to (1) provide valuable information for shaping regulatory decisions that are more satisfactory to stakeholders and the general public, (2) enhance accountability for governmental services and decisions, and (3) thwart the potential for agency capture and corruption.[55] Simply put, collaborative and adaptive processes like the AMWG are created to help make regulatory processes and outcomes better. Presumably, the AMWG's Charter objective of providing "advice and recommendations to the Secretary of the Interior relative to the operation of Glen Canyon Dam in accordance with"[56] the GCPA is based on the assumption that the AMWG creates a better process for making decisions pertaining to Glen Canyon Dam operations.[57]

Unfortunately, the AMWG's structure raises doubts about its ability to improve upon conventional regulatory processes. As currently designed, the AMWG falls short of ensuring effective participation and does little to thwart capture or increase the Secretary's accountability. Because the AMWG is merely an accessory to the regulatory process—without any explicit link to final regulatory decisions—there is no way to know with confidence whether

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[53] *See* GLEN CANYON DAM ADAPTIVE MGMT. PROGRAM, STRATEGIC PLAN (2001), *available at* http://www.usbr.gov/uc/rm/amp/pdfs/sp_final.pdf.

[54] AMWG ROLES AD HOC GROUP REPORT, *supra* note 42, at 9.

[55] *See* Thomas C. Beierle & Jerry Cayford, *Dispute Resolution as a Method of Public Participation*, *in* THE PROMISE AND PERFORMANCE OF ENVIRONMENTAL CONFLICT RESOLUTION 53, 63-66 (Rosemary O'Leary & Lisa B. Bingham eds., 2003) (discussing the instrumental, substantive, and normative values of public participation); Michael C. Dorf & Charles F. Sabel, *A Constitution of Democratic Experimentalism*, 98 COLUM. L. REV. 267, 317 (1998) (discussing fundamental value of direct and continuous participation); *id.* at 288 (stating local participation in service provision evaluation can serve to increase the accountability of regulatory institutions).

[56] Charter of the Glen Canyon Dam Adaptive Management Work Group, Federal Advisory Committee, Bureau of Reclamation, July 19, 2006, ¶ 2, *available at* http://www.usbr.gov/uc/rm/amp/amwg/pdfs/amwg_charter.pdf.

[57] Similarly, the EIS's directives that the AMWG would "[p]rovide the framework for AMP policy, goals, and direction," "[d]evelop recommendations for modifying operating criteria and other resource management actions," and "[f]acilitate coordination and input from interested parties" seek to improve the regulatory process and decisions over conventional regulatory decision-making. U.S. BUREAU OF RECLAMATION, U.S. DEP'T OF THE INTERIOR, OPERATION OF GLEN CANYON DAM: FINAL ENVIRONMENTAL IMPACT STATEMENT 36 (1995), *available at* http://www.usbr.gov/uc/envdocs/eis/gc/gcdOpsFEIS.html [hereinafter FEIS] (follow "Chapter 2" hyperlink).

the AMP is obtaining participation that actually leads to better (or even better informed) decisions or obtaining such participation in an efficient or fair way. Even some of the AMWG members have asserted that there is a "lack of clear communication and understanding of how recommendations are relayed to the Secretary's office and how the Department of the Interior (DOI) responds to these recommendations."[58] To its credit, in response to these concerns the Secretary's Designee has responded in writing to AMWG recommendations for the past year.[59] Nonetheless, as the Secretary can deviate from recommendations without explanation, stakeholders still have a substantial incentive to circumvent the AMWG process to alter the final decision. Indeed, in numerous instances, stakeholders have lobbied the Secretary seeking a rejection of the AMWG's recommendations after extensive deliberation by the AMWG.[60] Much human capital thus is expected to go into an advisory body for which we are unclear about its mandate and how it even influences the ultimate decision.

Furthermore, the murky relationship between the AMWG's recommendations and the Secretary's decisions (or indecision) allows both the AMWG and Secretary to evade responsibility for reconciling the competing use priorities of the Colorado River or other difficult decisions regarding management of the dam. AMWG representatives can always absolve themselves of responsibility by saying it is the Secretary's ultimate decision, and the Secretary can use the AMWG or its muddled procedural process to deflect criticism or even delay resolution of substantial issues. In short, the decision-making process continues to rely on the same hierarchical, ultimately unilateralist New Deal and Interest Representation models of regulatory decision-making[61]—and thus is subject to the familiar critiques of conventional command-and-control regulation as ineffective, inefficient, and undemocratic,[62] and arguably is subject to less accountability than provided by even traditional regulatory processes.

Though insufficient attention was given to the AMWG when it was established, like many other early collaborative regulatory processes, it has still ended up serving as a de facto surrogate for more traditional regulatory decision-making. Though unfortunately neither the AMP nor any other public or private entity has performed a systematic study evaluating the AMWG's decisions, anecdotally the Secretary normally adopts the recommendations of the

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[58] AMWG ROLES AD HOC GROUP REPORT, *supra* note 42, at 11. In response to these concerns, an ad hoc committee of the AMWG recently recommended: "The Secretary's Designee . . . convey the outcome of these discussions and the final DOI decision in writing to the AMWG within 45 days of the AMWG meeting. A written status report will be provided if a final DOI decision is not reached within the 45 day process." *Id.*

[59] *See* Correspondence with Mary Orton, The Mary Orton Co., LLC, Facilitator, Glen Canyon Dam Adaptive Mgmt. Work Group (Jan. 15, 2008) (on file with author).

[60] Telephone Interview with Mary Orton, *supra* note 45. As one might expect, this has been particularly the case in circumstances in which the recommendation is not a unanimous recommendation but rather one based on super-majority vote. *See id.*

[61] *See* Richard B. Stewart, *The Reformation of American Administrative Law*, 88 HARV. L. REV. 1667, 1711-90 (1975); Richard B. Stewart, *Administrative Law in the Twenty-First Century*, 78 N.Y.U. L. REV. 437, 440-43 (2003).

[62] Administrative regulation is regularly characterized as inefficient, ineffective, and undemocratic. *See* Freeman, *supra* note 4, at 3, 35; Philip J. Harter, *Negotiating Regulations: A Cure for Malaise*, 71 GEO. L.J. 1, 6-7 (1982).

AMWG.[63] The first lesson, then, from Glen Canyon Dam is that providing ad hoc, vague directives for experimental, collaborative regulatory processes invites delay and indecision to the detriment of those resources harmed by inaction—perhaps biological resources like the humpback chub,[64] if not others as well. While the opacity might allow for interesting and valuable regulatory experiments in the meantime,[65] that alone does not make the lack of transparency and clarity a good thing.

This lesson serves as an addendum to a familiar supposition by proponents of collaborative regulatory processes that such approaches should rely heavily on the particular stakeholders to devise the process for and outcome of the dispute resolution.[66] The experience of the Glen Canyon Dam AMP in fact is more congruent with other empirical studies of mediation in public policy disputes that have found that mediation is ineffective when either "participants do not recognize each other's rights," or "when the process is being utilized only to delay any action or to create the illusion that something is being done."[67] The failure of Congress and the Secretary to provide the AMWG *any* guidance regarding the relationship of these competing priorities, nor the authority or responsibility for resolving this fundamental dispute, allowed the AMWG to serve as a way to evade or delay a serious, comprehensive resolution of this conflict. As such, it practically ensured that the AMWG would be disappointing as a collaborative regulatory experiment.

II. Adaptation and Regulatory Experimentation

Similarly, the experience of the Glen Canyon Dam AMP suggests that another form of clarity—transparent and measurable regulatory targets—is fundamentally important for a multilateral process to be effective. When regulatory programs like the AMP fail to set concrete regulatory goals and deadlines, it becomes almost impossible to develop a method for systematically evaluating the regulatory process itself. This weakness, exacerbated by the persistent fail-

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[63] Telephone Interview with Mary Orton, *supra* note 45.

[64] *See* Adler, *supra* note 9, at 72 (stating humpback chub population has "plummeted from over 10,000 in the early 1980s to fewer than 3000 by the early 1990s, although some recovery appeared evident by late 2005").

[65] *See infra* Part II.

[66] *See, e.g.*, Lawrence Susskind & Jeffrey Cruikshank, Breaking the Impasse: Consensual Approaches to Resolving Public Disputes 77-78 (1987); Lawrence Susskind, *An Alternative to Robert's Rules of Order for Groups, Organizations, and Ad Hoc Assemblies That Want to Operate by Consensus*, *in* The Consensus Building Handbook 3, 26-27, 43 (Lawrence Susskind et al. eds., 1999). *But see generally* George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 J. Legal Stud. 1, 17 (1984) (stating that parties are more likely to litigate than engage in settlement negotiations when their respective legal rights are uncertain).

[67] Lawrence Susskind et al., Mediating Land Use Disputes: Pros and Cons 19 (2000); *cf.* Carrie Menkel-Meadow, *Getting to "Let's Talk": Comments on Collaborative Environmental Dispute Resolution Processes*, 8 Nev L.J. 835, 846 (2008) ("What happens when, in the domestic context, legal rules are ambiguous or arguable or have not kept pace with environmental or technological change? If a powerful 'have' wants to grab resources or delay through objections, continuing to litigate and contest legal doctrines and meanings may remain an option.").

ure of regulatory institutions to engage in systematic monitoring and assessment of regulatory programs, is all too often overlooked or neglected by both governmental regulators and scholars of administrative regulation.

The AMP was and is a regulatory experiment, proposed as a novel way to attend to a variety of competing and conflicting use demands on a network of vital natural resources.[68] This experiment included both collaborative and adaptive regulatory features. The first *collaborative* characteristic, embodied by the AMWG, proposes providing a range of interested and affected stakeholders meaningful involvement in regulatory decision-making.[69] Presumably, this feature was adopted in the belief that doing so is more likely to lead to better regulatory decisions than traditional regulation that relies almost exclusively on agency resources and presumed expertise.[70] The second *adaptive management* element, most directly embodied by the GCMRC, emphasizes a reliance on long-term monitoring and research protocols that seek repeated monitoring and, if necessary, adjustment of regulatory restrictions to account for new information or changed circumstances that arise during implementation.[71] This adaptive element, envisioned as providing more cost-effective and effective regulation, is particularly important in circumstances like those surrounding the Glen Canyon Dam EIS, in which information is uncertain and regulatory conclusions are necessarily tentative.[72]

Though it is certainly possible (and to some even probable) that integrating collaborative and adaptive management features into a regulatory process could make the regulatory process and resultant outcomes "better," whether including such features in the AMP program will actually do so is undeniably unproven. Through passage of the GCPA and the Secretary's creation of the AMP, Congress and the Secretary evidently decided to engage in a regulatory experiment. Yet in their haste to carry out this trial program, neither Congress nor the Secretary has bothered to structure the AMP program to function adequately as a systematic experiment on regulatory decision-making.

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[68] *See* Glen Canyon Dam Adaptive Management Program Home Page, http://www.gcdamp.gov (last visited May 18, 2008).

[69] Grand Canyon Protection Act of 1992, Pub. L. No. 102-575, §§ 1803(b), 1804(c)(3), 1805(c), 106 Stat. 4600, 4670-72.

[70] *Cf*. Camacho, *Can Regulation Evolve?*, *supra* note 5, at 304-05 ("[S]ome practitioners involved in species-conservation disputes saw the HCP program as a necessary alternative to the ESA's conventional but inflexible, expensive, and ultimately ineffective approach to resolving resource conflicts . . . . The HCP process was thus seen as fostering better agency decisions by incorporating participation, rigorous and comprehensive data gathering and analysis, and subsequent monitoring and adaptation into the regulatory process.").

[71] *See* Grand Canyon Protection Act § 1805(a).

[72] *See* GLEN CANYON DAM ADAPTIVE MGMT. PROGRAM, *supra* note 53, at 1-2 ("Due to the significant levels of uncertainty surrounding the resources of the Colorado River ecosystem and the effects of dam operations on those resources, the Glen Canyon Dam Environmental Impact Statement stipulated an adaptive management approach. This approach allows for scientific experimentation that adds to the knowledge base of effects of the operation of Glen Canyon Dam, primarily on downstream resources, and results in the development of recommendations to the Secretary of the Interior regarding additional operational changes."); *cf.* Menkel-Meadow, *supra* note 67, at 850 ("[T]here is growing recognition that many governance decisions . . . might need to be transitional, contingent, and flexible, with ongoing processes and opportunities for reconsideration and reopening and renegotiation as conditions change and political systems mature.").

For a regulatory program to be effective—including but not limited to any program that relies on collaborative and adaptive features—the responsible agency must collect and respond to information learned about the program during its implementation.[73] This need is simply made more manifest in the context of a nascent regulatory experiment, such as the Glen Canyon Dam AMP. And though the AMP does incorporate an experimentalist approach to resource management that attempts to monitor, evaluate, and adjust regulatory decisions during implementation, Congress, the Secretary, and the AMWG have not developed a similar feedback mechanism at a more macroscopic, programmatic level: to monitor, evaluate, and adjust the regulatory program in response to information gleaned as the AMP has aged over the past decade.

To its credit, unlike almost all other regulatory programs,[74] the Glen Canyon Dam AMP does include a well-resourced, formal information gathering and assessment apparatus—the GCMRC—that is charged with the scientific monitoring and research of the Colorado River ecosystem.[75] The AMP also includes a Technical Work Group, proposed as the liaison between the AMWG and GCMRC on scientific and technical issues, and Independent Review Panels, whose primary responsibility is "to assess the quality of research, monitoring, or science being conducted by the Adaptive Management Program and to make recommendations to improve it."[76] This emphasis of the AMP on scientific information gathering is particularly robust as compared to other regulatory programs. Given adequate guidance from the AMWG on the priorities for inquiry, these institutions are very capable at studying any scientific or technical questions that the AMWG considers relevant to making long-term resource management decisions.[77]

However, though the AMP adopts a process for monitoring and evaluating dam operations, the AMP does not systematically monitor and evaluate whether the regulatory program's processes are being effective at achieving program goals. Straightforward but valuable information about the activities of the AMWG are simply not compiled. How often are AMWG recommenda-

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[73] *See* Camacho, *Can Regulation Evolve?*, *supra* note 5, at 335-44; Barry L. Johnson, *Introduction to the Special Feature: Adaptive Management – Scientifically Sound, Socially Challenged?*, 3 CONSERVATION ECOLOGY (1999), http://www.consecol.org/vol3/iss1/art10/ ("[A]daptive management considers change and cooperation as inherent to management. . . . To help develop new institutional arrangements, we might apply adaptive management experiments not just to the resource, but also to institutions themselves."); J.B. Ruhl, *Is the Endangered Species Act Eco-Pragmatic?*, 87 MINN. L. REV. 885, 935 n.221 (2003).

[74] *See, e.g.*, Camacho, *Can Regulation Evolve?*, *supra* note 5, at 337 (stating that with regard to the ESA's HCP program, "the Services and Congress have wholly failed to develop a systematic and coordinated framework for learning about HCP decisionmaking processes, making it impossible to evaluate and adapt the program's data-gathering, participation, monitoring, and adaptation methods").

[75] *See* GLEN CANYON DAM ADAPTIVE MGMT. PROGRAM, *supra* note 53, at 6.

[76] *Id*.

[77] Unfortunately, even these promising features of the AMP have been squandered because of the aforementioned opacity of the AMP's goals. *See supra* Part I.B. The GCMRC has periodically asked the AMWG for clear guidance on the scientific questions that the GCMRC should investigate, so as to be most helpful to the AMWG in making its resource management determinations. Yet to date the GCMRC has received limited direction. Telephone Interview with Andrea Alpine, *supra* note 43.

tions based on a consensus? On a super-majority vote? How often are AMWG recommendations adopted by the Secretary? This and more information would undoubtedly be useful in assessing the effectiveness of the AMP's regulatory framework in achieving meaningful participation and resource management, and even perhaps reinforcing the accountability of the regulatory actors to Congress and the public.

Similarly, in assessing the value of adaptive management in the regulatory process, key questions are not methodically and publicly assessed, such as: What management experiments have been adopted by the AMWG for implementation by the Center? Have such experiments utilized active[78] or passive[79] adaptive management? How costly are they? How often do they lead to changes in permanent management decisions? Unsurprisingly, then, more complex questions that go to the root of the AMP's process for facilitating effective participation, gathering information, and making management decisions are ignored. These include: (1) Is the composition of the AMWG representative of the parties potentially affected by dam operations? (2) How much non-stakeholder public involvement is there in AMWG deliberations? (3) Does the Secretary engage parties ex parte outside of the AMWG process in his or her deliberations? (4) How effective is the TWG as a liaison between the AMWG and GCMRC? (5) How if at all do the TWG and Independent Review Boards improve the scientific information and/or conclusions provided by the GCMRC? These questions are rarely evaluated, and the AMP has never been adjusted to respond to their answers.

A concrete example of the AMP's wasted opportunity is the much-admired series of Glen Canyon Dam experimental floods. The Secretary's 1995 EIS and associated 1996 Record of Decision for turbine upgrades to Glen Canyon Dam provided the opportunity for a series of experimental flood releases from the dam as part of the AMP's efforts to learn more about the downstream ecosystem and ostensibly guide future dam operations.[80] After much study and deliberation, over the decade since its creation, the AMP has engaged in two high flow experiments and another two significant test flows.[81] These experiments have been praised by many as successful examples of exactly the kind of adaptive implementation that is needed in natural resource management.[82]

Certainly, these experiments have revealed important information, particularly regarding the sediment and nutrient dynamics of the ecosystem down-

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[78] *See* Availability of a Final Addendum to the Handbook for Habitat Conservation Planning and Incidental Take Permitting Process, 65 Fed. Reg. 35,252 (June 1, 2000) ("Active adaptation is developing and testing a range of alternative strategies.").

[79] *See id.* ("Passive adaptation is where information obtained is used to determine a single best course of action.").

[80] *See* FEIS, *supra* note 57; ROD, *supra* note 36.

[81] Adler, *supra* note 9, at 100-01.

[82] *See, e.g.*, Holly Doremus, *Adaptive Management, the Endangered Species Act, and the Institutional Challenges of "New Age" Environmental Protection*, 41 WASHBURN L.J. 50, 78-79 (2001); Vicky J. Meretsky et al., *Balancing Endangered Species and Ecosystems: A Case Study of Adaptive Management in Grand Canyon*, 25 ENVTL. MGMT. 579 (2000); Bernice Wuethrich, *Deliberate Flood Renews Habitat*, 272 SCI. 344, 344-45 (1995).

stream from the Glen Canyon Dam,[83] and perhaps even temporarily improved habitat for the humpback chub.[84] The full value of this information for natural resource management at the Glen Canyon Dam and more generally, however, is substantially hindered by the uncertainty of the regulatory program. The AMP provides no concrete deadlines or guidance delineating when information gleaned from such regulatory experiments can and must be used to adjust long-term management protocols. Put another way, the EIS and GCPA are silent on how much of a reduction in uncertainty must occur for management protocols to undergo adaptation.

This practice of failing to delineate clear goals, standards, and deadlines for adjusting earlier management decisions has contributed to the lack of adaptation of long-term operations at the Glen Canyon Dam. To date, a decade after the AMP was established, there still have been no adjustments of long-term management operations at the dam.[85] Instead, the Bureau of Reclamation is ramping up yet another EIS process to study a variety of alternatives for a long-term experimental plan for the future operation of Glen Canyon Dam.[86] Without a defined feedback loop for integrating information learned about the efficacy of experimental management protocols, the otherwise valuable experiments have not resulted in any regulatory adaptation.

Regulatory programs like the AMP can (but typically do not) serve as important, active tools for teaching us how to make the law itself more effective at integrating effective public participation and adaptive management. Regulatory agencies, and ultimately Congress and the public, should be periodically and systematically evaluating all regulatory programs by articulating and evaluating these questions: (1) What are the goals of a regulatory program (e.g., increasing democratic participation, cultivating valuable substantive data, and achieving sufficient environmental protection)? (2) How effective are the program's adopted procedures at attaining these goals? (3) How can the program be adjusted to better achieve these results? Experimental regulatory programs like the AMP and even more traditional programs must be made transparent, and their operative goals clear and measurable, in order to make it possible to evaluate and adapt the regulatory process itself to account for lessons learned. Such goals, standards, and systematic assessments serve to cabin the uncertainty that exists when the program is initially created and facilitate regulatory learning that can be used not only to improve the Glen Canyon Dam AMP but future regulatory programs as well.

III. Structuring Collaborative Processes

The Glen Canyon Dam AMP also provides another important (though perhaps unsurprising) lesson for the burgeoning use of multilateral regulatory

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[83] Adler, *supra* note 9, at 100; Doremus, *supra* note 82, at 79.

[84] Adler, *supra* note 9, at 100; Doremus, *supra* note 82, at 79.

[85] Telephone Interview with Dennis Kubly, Chief, Adaptive Mgmt. Group, Envtl. Res. Div., Upper Colo. Reg'l Office, U.S. Bureau of Reclamation (Dec. 18, 2007).

[86] Glen Canyon Dam: Long-Term Experimental Plan – Reclamation – Upper Colorado Region, http://www.usbr.gov/uc/rm/gcdltep/index.html (last visited May 18, 2008). The long-term plan is currently slated to be completed by October 2008. *Id.*

approaches to addressing natural resource conflicts: The procedural structure of the multilateral working group plays a considerable role in its effectiveness at even addressing, let alone reconciling, public disputes. In particular, the Glen Canyon Dam AMP shows that the composition of the stakeholder group, the decision rule adopted for group votes, and the role of the convenor are each crucial and require more reflection than the Secretary provided for the Glen Canyon Dam AMP.

The AMP's key stakeholder group, the Adaptive Management Work Group, includes twenty-five members that represent a relatively broad range of interests. These include the convenor (the Secretary's Designee-representative), various federal agencies,[87] states,[88] recreational interests,[89] hydropower interests,[90] Native American tribes,[91] and two local environmental groups.[92] Though the group is reasonably diverse, there is still a question regarding whether the group is sufficiently representative. This is in large part because of the operative rule chosen for voting on AMWG decisions. The AMWG's operating procedures dictate that "[t]he group should attempt to seek consensus but, in the event that consensus is not possible, a vote should be taken. . . . Approval of a motion requires a two-thirds majority of members present and voting."[93] The exact point in time when consensus may be established to be impossible—thus paving the way for a super-majority vote—is never delineated in the AMWG's operating procedures. The Secretary's Designee, not the mediator-facilitator, decides on his or her own option when to switch to a two-thirds vote.[94]

The Glen Canyon Dam AMWG demonstrates that decisions as to the structure of the regulatory program—stakeholder group composition, the adopted decision rule, the convenor's role in decision-making—can function to allow a stakeholder group to suppress meaningful participation and collaboration rather than cultivate it. The exact group composition perhaps plays a smaller role in a consensus-based process; as long as the stakeholder group is broad and diverse, decisions made by the group can reasonably be considered

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[87] Federal agencies include the Bureau of Indian Affairs, Bureau of Reclamation, National Park Service, U.S. Fish and Wildlife Service, and the Department of Energy-Western Area Power Administration. Glen Canyon Dam Adaptive Management Program – AMWG Members, *supra* note 37.

[88] The Arizona Department of Water Resources, Colorado River Board of California, Colorado River Commission of Nevada, Colorado Water Conservation Board, New Mexico State Engineer's Office, Utah Division of Water Resources, and the Wyoming State Engineer's Office represent the seven Colorado River Basin States. In addition, the Arizona Game and Fish Department is a party. *Id.*

[89] These include the Federation of Fly Fishers and the Grand Canyon River Guides. *Id.*

[90] Two federal power purchase contractors are members: the Colorado River Energy Distributors Association and the Utah Associated Municipal Power Systems. *Id.*

[91] The Hualapai Tribe, the Hopi Tribe, the Navajo Nation, the Southern Paiute Consortium, and the Pueblo of Zuni are all active AMWG members. In addition, the San Juan Southern Paiute Tribe is an in active member. *Id.*

[92] The Grand Canyon Trust and the Grand Canyon Wildlands Council are the two environmental members of the AMWG. *Id.*

[93] Operating Procedures of the Glen Canyon Dam Adaptive Management Work Group, Jan. 17, 2002, *available at* http://www.usbr.gov/uc/rm/amp/amwg/pdfs/OP_02apr24.pdf.

[94] Telephone Interview with Mary Orton, *supra* note 45.

without much controversy to be reflective of the various affected interests and thus quite persuasive in guiding public policy. As such, in circumstances in which consensus was reached by the AMWG in developing a recommendation, there is a fairly strong argument that such counsel should be quite influential (if not determinative) in shaping the ultimate decision.

However, when the decision rule is less than consensus, the exact composition becomes crucial, and the probative value of decisions made by such a group is less clear. There is no clear, objective formula for deciding what proportion of votes should be allocated to recreational, hydropower, and environmental values and interests, let alone federal agencies, states, and tribes. Did the Secretary, by allocating two votes to environmental groups, implicitly decide that environmental interests are less important than the interests of American Indian tribes, of which there are six? Is the determination of a federal agency such as the Fish and Wildlife Service of equal weight as the preference of a recreational organization? Whether intentionally or not, with a majority or super-majority decision rule, the precise breakdown of votes ends up serving as a de facto determination as to the relative prevalence—if not value—of the various interests at stake. Yet there is no record of any public discussion as to the relative merits of various interests ever taking place.[95] Instead, the AMWG's composition is quite likely the product of hurried lobbying efforts by a range of interested parties behind closed doors and ultimately an unexplained and unsupported determination by the Secretary. As a result, an AMWG's ad hoc committee concluded that "some stakeholders feel disenfranchised because some interests have more representation on the group; this is especially significant when consensus is not achieved and issues get resolved by a vote."[96]

Though it is likely that these design questions were not considered in any detail when the AMWG was established—certainly not publicly—they undoubtedly have an effect on the actual operation of the multilateral group. As there are no time constraints or other detailed protocols governing when to seek consensus and when to follow a two-thirds decision rule, the convenor's discretion becomes of critical importance in determining how the AMWG actually functions. As the Secretary's Designee has changed periodically, each has taken different approaches. Several of the Secretary's Designees have been quick to bring agenda motions to a two-thirds vote rather than further seek a consensus.[97] Tellingly, particularly recently the one interest that has been able to fairly consistently put together a two-thirds majority is hydroelectric power, working with states (and sometimes tribes) who increasingly have been concerned regarding the expedient availability of economical energy.[98]

An ad hoc committee of the AMWG in fact recently acknowledged that "consensus building is often frustrated by the fact that the AMWG can simply develop a recommendation to the Secretary with a vote."[99] As a result, stake-

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[95] Telephone Interview with Dennis Kubly, *supra* note 85.
[96] AMWG ROLES AD HOC GROUP REPORT, *supra* note 42, at 6-7.
[97] Telephone Interview with Mary Orton, *supra* note 45.
[98] Telephone Interview with Andrea Alpine, *supra* note 43; Telephone Interview with Dennis Kubly, *supra* note 85.
[99] *See* AMWG ROLES AD HOC GROUP REPORT, *supra* note 42, at 3.

holders consistently in the minority are increasingly seeing little incentive to expend their limited resources in a process that consistently ignores them, turning instead to costly litigation to address issues the AMWG has not confronted.[100] Ultimately, such public law litigation may indeed serve a destabilization function suggested by some scholars[101] and encourage the reengagement of a collaborative approach to addressing the resource conflict at Glen Canyon Dam. Yet, the fact that key stakeholders have returned to the adversarial model with all its shortcomings—not to review the AMWG's activities, but to address issues that the AMWG has failed to address—provides evidence of the deficiency of the existing AMWG as a forum for even tackling, let alone resolving, the Glen Canyon Dam's natural resource challenges.[102]

Because neither Congress nor the Secretary nor the AMP has publicly and rigorously considered these structural questions, or monitored them for their effectiveness at attaining their intended results, the AMWG's recommendations become considerably less probative. Recommendations based on a supermajority vote certainly do not indicate a consensus of opinion; they instead reflect a particular voting block's preferences that the Secretary very well might have surmised without such a time- and resource-consuming forum. Furthermore, such AMWG recommendations may not reflect the opinion of those most knowledgeable about a particular issue, but merely a strong interest group. Though such a circumstance would certainly not be unique to a collaborative multilateral process, it does serve as yet another lesson of the need to attend to the design of decision-making institutions more scrupulously than has been done in the past generally and the Glen Canyon Dam AMP in particular. It also reinforces the need to monitor and evaluate such institutions closely to determine whether they are achieving the goals they were set out to address.

By pointing out the structural inattentiveness in the formation of the AMWG, I do not mean to suggest that consensus is always the superior decision rule for multilateral stakeholder decision-making processes like the AMWG.[103] There is certainly value to a consensus decision rule—some schol-

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[100] *See* Complaint For Declaratory and Injunctive Relief, Grand Canyon Trust v. U.S. Bureau of Reclamation, No. 3:07-cv-08164-DGC (D. Ariz. Dec. 7, 2007) (lawsuit by environmental group participant of the Glen Canyon AMWG against Bureau of Reclamation for violating the Endangered Species Act and National Environmental Policy Act).

[101] *See* Bradley C. Karkkainen, *Getting to "Let's Talk": Legal and Natural Destabilizations and the Future of Regional Collaboration*, 8 NEV. L.J. 811 (2008); Charles F. Sabel & William H. Simon, *Destabilization Rights: How Public Law Litigation Succeeds*, 117 HARV. L. REV. 1015 (2004).

[102] Indeed, the Secretary's Designee recently took the unprecedented step of deciding to move forward with preparation for another experimental test at Glen Canyon Dam without asking the AMWG for its recommendation. *See* Notice of Public Meeting, 73 Fed. Reg. 500 (Jan. 3, 2008); Shaun McKinnon, *Flood May Help Revive a River: River's 3rd Planned Flood May Aid Fish, Environment*, ARIZ. REPUBLIC, Feb. 28, 2008, http://www.azcentral.com/arizonarepublic/news/articles/0225coloriver-fish0225.html; Memorandum from Brenda W. Burman, Deputy Assistant Sec'y – Water & Science, Sec'y's Designee for the Glen Canyon Dam AMWG, to the Glen Canyon Dam AMWG (Dec. 20, 2007), *available at* http://www.gcmrc.gov/research/high_flow/2008/files/2008_potential_hft.pdf.

[103] Similarly, there certainly is merit to providing the convenor discretion in carrying out his or her duties, and it is conceivable that the current composition of the AMWG is the optimal arrangement.

ars have pointed out that a consensus rule promotes a perhaps more valuable form of participation because all represented interests must be taken into account.[104] A consensus rule can also enhance the credibility of regulatory decisions because the parties and public at-large are aware that all substantially affected parties have been persuaded that the outcome is satisfactory.[105] However, in certain circumstances a non-consensus decision rule may be plausibly preferred. Even if consensus is understood to require something less than unanimity,[106] achieving consensus is simply more difficult than obtaining a majority or even super-majority.[107] Though there are many examples where consensus was achieved even in an acrimonious setting,[108] a consensus rule undoubtedly is more likely to encourage holdouts that can result in deadlock and perhaps ultimately the under-use or under-protection of resources.[109] In short, though perhaps not as effective at achieving all the participatory virtues of a consensus rule, a decision rule requiring less than unanimity still may reasonably be chosen as being more likely to lead to decisive action.

Nor does this critique of the Glen Canyon Dam AMWG argue that multilateral dispute resolution mechanisms have no value except in circumstances in which agreement is obtained. It may certainly be the case that despite regularly failing to lead to consensus, a multilateral stakeholder group like the AMWG may still be valuable. There is growing empirical evidence in natural resource and other regulatory contexts that even where agreement does not occur, a multilateral stakeholder forum can expand available information, improve stakeholder relationships, and increase participant and public confidence in governmental institutions.[110]

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[104] *See* Camacho, *Mustering Part 2*, *supra* note 5, at 318; Jody Freeman & Laura I. Langbein, *Regulatory Negotiation and the Legitimacy Benefit*, 9 N.Y.U. ENVTL. L.J. 60, 132-33 (2000); Philip J. Harter, *Fear of Commitment: An Affliction of Adolescents*, 46 DUKE L.J. 1389, 1411, 1420 (1997).

[105] *See* Camacho, *Mustering Part 2*, *supra* note 5, at 318.

[106] While there is no general agreement as to what constitutes consensus, most mediation professionals agree that consensus does not require all parties to be completely content with the result, but rather that the agreement is one that affected parties can tolerate, particularly compared to the parties' other options. *See* LAWRENCE SUSSKIND, CONSENSUS BLDG. INST., USING ASSISTED NEGOTIATION TO SETTLE LAND USE DISPUTES: A GUIDEBOOK FOR PUBLIC OFFICIALS 2 (1999); Susskind, *supra* note 66, at 6-7, 32-33.

[107] *See* Camacho, *Mustering Part 2*, *supra* note 5, at 317-18.

[108] *See* SUSSKIND, *supra* note 106, at 7, 10, 16; Norman Dale, *Case 10, Cross-Cultural Community-Based Planning: Negotiating the Future of Haida Gwaii (British Columbia)*, *in* THE CONSENSUS BUILDING HANDBOOK, *supra* note 66, at 923, 923-50; John Forester, *Dealing with Deep Value Differences*, *in* THE CONSENSUS BUILDING HANDBOOK, *supra* note 66, at 463, 464, 479-92; Michelle LeBaron & Nike Carstarphen, *Case 15, Finding Common Ground on Abortion*, *in* THE CONSENSUS BUILDING HANDBOOK, *supra* note 66, at 1031, 1031-50. R

[109] *See, e.g.*, Hanoch Dagan & Michael A. Heller, *The Liberal Commons*, 110 YALE L.J. 549, 590 (2001); Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621, 622-26 (1998).

[110] *See, e.g.*, SUSSKIND, *supra* note 106, at 22; Beierle & Cayford, *supra* note 55, at 60-61 (finding that more intensive participatory processes such as negotiations and mediations are typically more successful than hearings and meetings on measures such as incorporating public values into decisions, improving decision quality, resolving conflict, building trust, and educating the public); Juliana E. Birkhoff & Kem Lowry, *Whose Reality Counts?*, *in* THE PROMISE AND PERFORMANCE OF ENVIRONMENTAL CONFLICT RESOLUTION, *supra* note

Finally, this critique of the Glen Canyon Dam AMWG does not suggest that a multilateral stakeholder approach to resolving natural resource disputes is inferior to the more traditional, notice-and-comment mode to administrative decision-making. The traditional regulatory approach fragments the information-gathering and decision-making authority and responsibility regarding these important natural resource disputes to a range of different administrative agencies. One need only consider the various state, tribal, and federal agencies participating in the AMWG to see that without the AMWG, there would be at least as much uncertainty regarding the appropriate accommodation of the many competing authorities governing the Glen Canyon Dam. Furthermore, traditional notice-and-comment regulatory decision-making too regularly treats public participation as a procedural burden,[111] rather than as a crucial way to obtain valuable information and to improve accountability.[112]

The point is that there is little evidence that Congress, the Secretary, or the AMWG considered these structural issues in any careful and public way. Furthermore, neither Congress nor the Secretary nor the Glen Canyon Dam AMP has ever systematically monitored or reviewed the structural characteristics of the AMWG's adopted decision-making process—including the convenor's role and the decision rule—to assess how effective they were in achieving progress toward the program's goals. As a result, whether the AMWG's considerable outlay of public and private financial and human resources has been worth it is at best of unknown value—which alone should be considered a disappointment.

CONCLUSION

The Glen Canyon Dam AMP serves as a valuable illustration of the flaws of existing regulatory processes purporting to incorporate collaboration and regulatory adaptation into the decision-making process. In doing so, it provides considerable information on ways that future collaborative experiments might be modified to enhance their prospects at success. In fact, any regulatory program, experimental or otherwise, could benefit from a careful consideration of the lessons of the Glen Canyon Dam AMP.

In its own haphazard way, the Glen Canyon Dam AMP encouragingly provides an opportunity for regulatory learning that the Department of the Inte-

55, at 27, 36 (summarizing studies reporting that participants found environmental mediation processes more satisfying); Mette Brogden, *The Assessment of Environmental Outcomes*, *in* THE PROMISE AND PERFORMANCE OF ENVIRONMENTAL CONFLICT RESOLUTION, *supra* note 55, at 277, 287 ("Multistakeholder processes increase both scientific and individually held knowledge about the natural environment."); Camacho, *Mustering Part 2*, *supra* note 5, at 311, 313; Laura I. Langbein & Cornelius M. Kerwin, *Regulatory Negotiation Versus Conventional Rulemaking: Claims, Counterclaims, and Empirical Evidence*, 10 J. PUB. ADMIN. RES. & THEORY 599, 625-26 (2000) (concluding that negotiated regulations typically result in significantly higher participant satisfaction with both final rules and the overall process).

[111] *See, e.g.*, Camacho, *Can Regulation Evolve?*, *supra* note 5, at 317; *cf.* Camacho, *Mustering Part 1*, *supra* note 5, at 35-42.

[112] *Cf.* Camacho, *Mustering Part 2*, *supra* note 5, at 279, 301 (arguing that participation can thwart corruption, provide important information about the interests and preferences of affected parties, and enhance governmental accountability).

rior, and indeed other regulatory agencies, would do well to heed. As a straightforward but frequently disregarded lesson, the AMP demonstrates the necessity for greater attentiveness to the design of regulatory processes. As for any type of experimental regulation, regulators need to reflect thoroughly about the specifics of collaborative regulatory experiments, including the types and forms of participation by interested parties, stakeholder group composition, the decision rule, and the role of the convenor in facilitating decision-making. Simply leaving collaborative and adaptive approaches to the vagaries of improvised politics is a sure-fire way to ensure that the regulatory innovation does not succeed.

Perhaps more importantly, regulatory programs need to integrate into the program's institutional fabric mechanisms that allow the regulatory program to be scrupulously evaluated and adapted in furtherance of the program's public goals. To this end, there must be some measurable clarity as to the purposes of the regulatory program at the outset. Though some proponents of collaborative regulatory approaches emphasize the value and even necessity of developing regulatory solutions in an ad hoc manner,[113] at least a preliminary formulation of the program's goals and standards for attaining such targets is necessary for the program both to progress and to be evaluated. Regulatory innovation also requires a structure for monitoring and evaluating the administering agency's ability to achieve program goals, and a method for adapting the program to perform better.

Undoubtedly, the experience in Glen Canyon demonstrates the considerable challenges regulatory designers face in integrating multilateral stakeholder groups into decision-making, fostering collaboration instead of conflict, and using subsequent information obtained about early regulatory assessments to adjust these regulatory judgments. Yet the considerable, long-established defects of conventional regulatory processes unavoidably counsel for the continued exploration for regulatory approaches that are more democratic, efficient, and effective. Though there is much to take issue with in the design of the Glen Canyon Dam AMP, few would argue with the value of increasing the adaptive capacity of programs in attaining regulatory goals or in pursuing regulatory processes that attempt to link participation to when decisions are actually made. However, by building a more systematically experimentalist architecture into administrative processes, ultimately regulators—and indeed Congress and the public at large—can seek to forego Powell's "conjecture" in favor of experience.

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[113] *See supra* note 66 and accompanying text.