00:00:00 Introductions. Lynch has been a member of the bar since 1964.

00:01:00 Lynch practices natural resources law in Phoenix. He worked for the Marine Corps and at the U.S. Department of Justice before moving to Phoenix and working on the Central Arizona Project (CAP). He is a "spectator" to the Glen Canyon Dam Adaptive Management Program (GCDAMP) rather than a part of it.

00:02:00 Lynch says the Colorado River Energy Distributors Association (CREDA) was assigned two positions on both the Adaptive Management Work Group (AMWG) and the Technical Work Group (TWG) as a way to sideline him. He has been involved in Glen Canyon Dam issues since the early 1980s.

00:03:00 Glen Canyon Environmental Studies (GCES) started in 1992 under President George W. Bush. [GCES started in 1982 under Ronald Reagan and Secretary of the Interior James Watt.]

00:04:00 Q: In GCDAMP, there are representatives of each of the Colorado River Basin states and their water interests. Do you see yourself in that category of somebody watching out for state water issues? A: Lynch is involved in state water issues, but "my clients are primarily interested in the hydropower generation from Glen Canyon Dam." The dam is a major power source for the small utilities he represents.

00:05:00 Under current operations criteria, the dam is leaving hydropower capacity "on the table," unused. Hydropower can follow either load [demand] or generation [fluctuating power production from other energy sources on the grid], or it can follow both by using a dynamic signal.

00:06:00 The dynamic signal allows facilities to better coordinate power generation to what utilities need. At Hoover Dam, power generation is driven by water supply. At Glen Canyon Dam, it is driven by the 1997 Operating Criteria [resulting from the original EIS (Environmental Impact Statement)] and the 2016 Long-Term Experimental and Management Plan (LTEMP) EIS.

00:07:00 Q: A lot is changing in the energy field today, isn't it? A: "It's not that, it's the lawsuit." Some environmental groups filed suit against the U.S. Bureau of Reclamation (USBR) because the LTEMP process did not take climate change and the Drought Contingency Plan (DCP) into account.

00:08:00 There is also new litigation in Montana concerning climate change. "And these two cases, for the first time, bring up the subject of how a dam should be operated on a river system vis-à-vis climate change."

00:09:00 The Council on Environmental Quality (CEQ) issued guidance last year on how to deal with climate change in EIS processes. Lynch contends that CEQ does not regulate other entities, per a court ruling, and thus what it issues should be considered guidance rather than regulations.

00:10:00 CEQ guidance "migrated into the code of federal regulations" starting in the Carter administration. The 1998 court case called CEQ an advisory body.

00:11:00 The distinction has not accrued much attention, but Lynch thinks this is a big issue and more attention will be paid to it as climate change becomes a factor in National Environmental Policy Act (NEPA) processes.

00:12:00 Q: What potential does climate change have to affect management decisions at Glen Canyon Dam and on the Colorado River?

00:13:00 A: The issue has been taken from the executive branch and given to the judicial branch. The new draft NEPA regulations should apply to AMWG.

00:14:00 Dam operations have to react to current conditions, regardless of the reasons for those conditions. Normally this kind of action on dam operations would be NEPA-based and carried out by the Secretary of the Interior. Now the climate change question is in court. Lynch is involved in the Annual Operating Plan (AOP) process for the Colorado River.

00:15:00 Consultations in May, July and September result in the AOP for the following year. The AOP does not discuss climate change or the DCP.

00:16:00 The AOP process is based on information from monthly reports, called 24-Month Studies, that make water-level projections.

00:17:00 Q: You have a number of clients who are interested in hydropower in the Colorado River Basin. GCDAMP is a collection of stakeholders trying to solve complex problems. Understanding that you may not want to reveal your clients, please tell us what you represent, what you bring to GCDAMP in terms of your interests, and what you're hoping to achieve in being involved.

00:18:00 A: Lynch represents a state association whose member utilities, mostly small and rural, buy power from Western Area Power Administration (WAPA).

00:19:00 Q: Is the association you represent CREDA? A: No. CREDA is regional. Colorado River resource usage is unusual because "you have people that are both in the Colorado River water business and the Colorado River power business."

00:20:00 Entities involved both in buying power and getting water from the Colorado River have to be aware of how one factor can impact the two resources differently.

00:21:00 Most reclamation projects in the western U.S. have tension between water customers and power customers. Hydropower sales fund 95% of Colorado River Storage Project (CRSP) operations costs.

00:22:00 Hydropower costs must be kept competitive. The power business is changing, with new technologies offering lower prices.

00:23:00 Lynch contends that large-scale solar and wind power cannot be scheduled like hydropower generation can.

00:24:00 The power business is much more complex than it was 20 years ago.

00:25:00 Q: What kinds of relationships were there between the stakeholders, the interest groups, in the early years? Who was in conflict with whom over what, and how did that evolve over time? A: Colorado River management is driven by the Law of the River.

00:26:00 Most see power as incidental to water distribution, but power is "the checkbook."

00:27:00 Early on, CRSP hydropower was more expensive than coal-fired generation.

00:28:00 Coal-fired electricity soon rose in price, making CRSP hydropower increasingly attractive.

00:29:00 Now only Parker-Davis Dam generates power at a below-market price. Palo Verde Hub power is cheaper than hydropower from Hoover and Glen Canyon Dams. Entities still buy CRSP hydropower for operational flexibility.

00:30:00 In 1993 Lynch was part of a Glen Canyon Dam control room tour with a member of the U.S. House Energy Water Development Subcommittee and the USBR official in charge of the facility.

00:31:00 A dam worker was able to quickly rebalance the Colorado River Basin generating system when a coal-fired plant went offline.

00:32:00 This illustrated the value of Glen Canyon Dam hydropower. The dam is important for regulating fluctuations in the Colorado River Basin energy system because of its size.

00:33:00 A 2001 overload in eastern Idaho resulted in power outages in parts of Phoenix served by Arizona Public Service (APS).

00:34:00 Areas served by Salt River Project (SRP) retained service because Glen Canyon Dam could be ramped up. When a similar event happened two weeks later, power went out all over Phoenix because Glen Canyon Dam was already running at 100% to address another issue.

00:35:00 People do not understand the extent to which the energy system from British Columbia to the southwestern U.S. is interconnected.

00:36:00 Lynch thinks Glen Canyon Dam and the power it generates have been mischaracterized as bad, but that the lawsuit brought by environmental groups may change this (see Minute 7).

00:37:00 The lawsuit will examine whether AMWG has been doing things correctly.

00:38:00 Q: In the years you've been involved, do you think you've been able to accomplish anything in particular in terms of keeping the importance of hydropower on the table, or influencing dam operations decisions? A: Some. Early in the program, a study of impacts to beaches led to development of emergency operating criteria. USBR supported the criteria, but Lynch emphatically did not.

00:39:00 The 1997 Operating Criteria (see Minute 6) did not include "some of the more onerous things." ["Operating Criteria for Glen Canyon Dam in Accordance with the Grand Canyon Protection Act of 1992." United States Department of the Interior, February 24, 1997. http://gcdamp.com/images_gcdamp_com/2/28/GCD_Operating_Criteria_1997.pdf.] Lynch suspects the program was concerned he would sue. Q: Could you be more specific about what was in the emergency criteria that you thought was not a good idea, and how that changed afterward? A: The restrictions on dam operations were more severe. The 1997 Operating Criteria loosened them, but they were still problematic.

00:40:00 The upramp criteria were not based on scientific evidence. Upramping restrictions do not mean anything in the context of the other operations controls.

00:41:00 In Lynch's opinion, High Flow Experiments (HFEs) are not beneficial. New deposits of sediment often make beaches difficult to use, and they erode quickly.

00:42:00 Lynch claims [incorrectly] nearly all of the 110 beaches between Lake Mead and Glen Canyon Dam are the same size or larger than before the dam was built.

00:43:00 Lynch claims a photographic study done 100 years after the 1889 Stanton Survey Expedition [probably Webb, Robert H. Grand Canyon, a Century of Change: Rephotography of the 1889-1890 Stanton Expedition. Tucson: University of Arizona Press, 1996] showed the beaches looking exactly the same. [This claim is not supported by the evidence.]

00:44:00 Marble Canyon is narrow and channels the wind. Daily water level fluctuations before enacting the 1997 Operating Criteria were 10 feet. "That's all."

00:45:00 Lynch compares fluctuations with floods that could reach the 300,000 cubic feet per second (cfs) level. Now the maximum fluctuation is three feet.

00:46:00 Spring HFEs excite rainbow trout, which then out-compete humpback chub.

00:47:00 USBR uses dredges to remove sand from the Lower Colorado River at the request of U.S. Fish and Wildlife Service (USFWS). Lynch proposes the same dredges can be used to build camping beaches in Grand Canyon that will last decades.

00:48:00 The plan would more effectively support commercial river running. It would not help maintain backwaters, but Lynch says those are of little benefit to humpback chub.

00:49:00 Q: Can you explain briefly why hydropower interests are not enamored with HFEs? Is it because the water doesn't go through the turbine and generate electricity? A: Yes, it costs them money. It would be less of a concern if HFEs worked.

00:50:00 There is now a large sand bar at the head of Lake Mead. This will shorten the life of the reservoir.

00:51:00 Dredging the sand deposit would release contaminants downstream. Lynch thinks a "win-win" is possible but that it would be hard to alter the mindset of long-time GCDAMP participants.

00:52:00 The program has been running for three decades and new participants lack historical perspective.

00:53:00 Q: What's the change of mind frame that you said is needed in order to get a win-win situation? A: "People have to accept the fact that you have to do something mechanical in the Grand Canyon." Lynch qualifies this statement in two ways. Action to recover fish would only have to be done in Marble Canyon, and mechanical interventions like electrofishing of exotic fish are already used.

00:54:00 Managers are considering a significant mechanical action, dredging sand that has accumulated at the toe of Glen Canyon Dam.

00:55:00 Sand could be placed on areas in Marble Canyon above the 40,000 cfs line.

00:56:00 People object to mechanical interventions because Grand Canyon is a wilderness, which Lynch does not think is true. Bug flows are a recent phenomenon.

00:57:00 Lynch wonders why bugs cannot be stocked, in the same way rainbow trout are, rather than flattening the river on weekends to facilitate their hatching. Power demand is high on summer weekends. Lynch thinks there are management actions that would benefit resources better.

00:58:00 Hydropower is an important component of the push for carbon-free energy. There will be few other large dams built in the U.S.

00:59:00 More can be done to simultaneously improve hydropower and mitigate downstream impacts.

01:00:00 It requires stopping fights and thinking in new ways.

01:01:00 Q: Do you think adaptive management, as an alternative way of making decisions about resources, is a successful experiment, or a muddle that hasn't really accomplished what it sought to? What are your feelings about adaptive management and GCDAMP? A: "Well, let me ask you this question, what has it accomplished?" Q: That's why I'm interviewing experts like you. Some people think a lot has been accomplished, other people feel frustrated. I'm wondering what you feel about it.

01:02:00 A: Stocking non-native trout created the endangered fish problem. Brown trout also prey on rainbow trout, making people tied to the Lees Ferry fishery unhappy.

01:03:00 Many non-native fish have been stocked in the Colorado River.

01:04:00 Humpback chub populations are well above the target desired for downlisting, but USFWS struggles over designating them "threatened" rather than "endangered." Lynch attributes this to politics.

01:05:00 New environmental problems are surfacing in Grand Canyon, like the presence of striped bass. Lynch describes Dave Wegner as a nemesis of his.

01:06:00 He often disagreed with Wegner, but when they see each other they "commiserate."

01:07:00 Striped bass are native to the Atlantic Ocean. They were stocked in the western U.S. because they are good for sport fishing.

01:08:00 Lynch caught a large striped bass as a boy and had difficulty landing it.

01:09:00 Striped bass are voracious and, given the right conditions, would decimate other fish in Grand Canyon.

01:10:00 Grand Canyon was not natural habitat for golden and bald eagles. They arrived after rainbow trout were introduced. Green sunfish, another nonnative species, are now present below Glen Canyon Dam.

01:11:00 There is a breeding population of Asian carp in Cataract Canyon.

01:12:00 Sterile Asian carp are used to maintain canals and lakes in the Phoenix area; carp that can breed are illegal.

01:13:00 Management actions that raise water temperature will make the Colorado River environment better for warm-water invasive species.

01:14:00 Management actions to address problems can have unintended harmful consequences, as when beetles were used in an attempt to control invasive salt cedar (tamarisk) along the Virgin River.

01:15:00 Sometimes native species come to rely on non-native habitat components. Lynch thinks the individual agendas AMWG members pursue make it hard for them to perceive the overall picture.

01:16:00 GCDAMP has been active for decades with no endpoint in mind. "When does the experiment end? When do you get solutions?"

01:18:00 Lynch believes GCDAMP is "amorphous" and that it needs someone to take control of it. Participants are afraid to criticize others' research for fear their own will be stymied.

01:19:00 "The whole thing just isn't pointed toward a result." Lynch is frustrated that participants think trying things is good enough.

01:20:00 GCDAMP participants must develop a desire for answers, Lynch thinks. They need to seek solutions that provide value to all interests.

01:21:00 Ending comments and goodbyes.