Paul Hirt:  **Jennifer Sweeney:** 

Paul Hirt

00:00:01

This is Paul Hirt and Jennifer Sweeney of Arizona State University interviewing Bob Lynch at his home in Phoenix, Arizona on January 20, 2019.

Bob Lynch

00:00:12

2020.

Paul Hirt

00:00:13

Ooh! We have gone into a new year and a new decade. Thanks, Bob. So that's a good example of, of why you're such an important person to interview because you are sharp as a tack (Laughter).

Bob Lynch

00:00:25

I'm glad I didn't shine my shoes. (Laughter) Besides, it's not a new decade. It's the last year of the old decade.

Paul Hirt

00:00:31

Well, technically it is, but most people think it's the beginning of the new decade. (Laughter) But you are right about that too. Um, why don't you just start out by telling us your name, the positions you've held in the Adaptive Management Program, and the years that you've been involved.

Bob Lynch

00:00:46

Well, my full name is Robert S. Lynch. I'm an attorney here in Phoenix. Uh, been a member of the bar since August 27, 1964. Uh (Pause) and uh, I practice natural resources law, which is how I ended up back here, having left law school and passed the bar and been sworn in, gone in the Marine Corps, got out of the Marine Corps into the Justice Department, and then back here to work on the Central Arizona Project. Uh, I really am not part of the Adaptive Management Program. I am essentially a spectator. Uh, you met–I don't know if you've talked to Leslie James. Yeah, well. Her predecessor was a guy named Joe Hunter, a lobbyist who held that executive director position, and when, uh, they were–after the criteria were adopted in '97, uh, the Bureau [of Reclamation] and [National] Park Service people were putting together the Adaptive Management Work Group [AMWG] and the Technical Work Group [TWG] and said that CREDA [Colorado River Energy Distributors Association] could have two positions on each, as long as I was not either one of them.

Paul Hirt

00:02:20

Why?

Bob Lynch

00:02:20

And literally he came and told me afterwards that he, that that was the deal, that they got two slots to keep me away. And, so I've been on the sidelines watching, uh, well since that started in the nine–in '97. But I have been involved in Glen Canyon Dam issues since the early 80s, when, uh, President Bush kicked off some of the–or not Bush, um (Pause).

Paul Hirt

00:02:55

That would have been Ronald Reagan, in the '80s.

Bob Lynch

00:02:56

Reagan, yeah. Uh, but there were (Pause, sighs) issues with regard to Glen Canyon Dam and (Pause) Lake Powell and the river. And then in '92, uh, Bush forty-three started, or got his Secretary of the Interior to start the Glen Canyon Environmental Studies. So that sort of formalized what amounted to a decade of debate, uh, over what was going on and what do–you know, and all of that. So, as a practical matter, uh, I've been on the sidelines poking people, uh, ever since.

Paul Hirt

00:03:51

Well, let's talk about that a little bit. What, um, what do you see as your role in, um, poking people (Laughter) from the sidelines in the Adaptive Management Program? I mean, you're a water lawyer among other things–.

Bob Lynch

00:04:04

Yes.

Paul Hirt

00:04:04

And, uh, kind of representing the state of Arizona. On the Adaptive Management Program, there are representatives of each of the [Colorado River] Basin states and their water interests. Do you see yourself, sort of, in that category of somebody watching out for those issues? State water issues?

Bob Lynch

00:04:23

Well, I get involved in state water issues, but my clients are primarily interested in the hydropower generation from Glen Canyon Dam. Uh, while there are other hydroelectric facilities in this Colorado River Storage Project, it's 70% of that. And, it's a major source of power for the small entities, the utilities that I represent, uh, in Arizona and, uh, one in (Pause) California. And, uh, and so we (Pause) are concerned because, you know, the smaller you are, the more important this resource is. And any particular–under the current criteria, any particular day of the week,

you're leaving six hundred to eight hundred megawatts of capacity on the table, not being used. Which is a power plant, you know, and, uh, not to mention load following for an enormous amount of solar when, if, you were to restructure how hydropower works. Right now, hydropower follows load [electricity demand], rather than generation. But it can also follow generation, and it can follow both with what's called a dynamic signal. And it's an electronic signal that is sent, limited number of them, to each generation facility, about what that particular, uh, utility needs. And it, the operators at the other end have a computer program that melds those to try to adjust, uh, the operation within the parameters of operation of the dam. Uh (Pause) at Hoover, um, the parameters are driven by water supply, and downstream waterworks. At Glen Canyon they are driv–the power generation is driven by the, uh, '97 criteria, and the subsequent criteria, the new EIS [Environmental Impact Statement] and ROD [Record of Decision]. So, people have to live within that and try to do what they can. Uh, but (Pause) things are about to get interesting.

Paul Hirt

00:07:11

A lot is changing in the energy field today, isn't it?

Bob Lynch

00:07:14

Well, it's not that, it's the lawsuit. (Long pause) The, uh, a group of environmentalists, headed up by a group called Save the Colorado, wrote the Bureau of Reclamation in July and said, "Your Environmental Impact Statement, Record of Decision for LTEMP [Long-Term Environmental and Management Plan] isn't any good, because you failed to take into account climate change, the Drought Contingency Plan [DCP] (Pause) a couple of other things. And, so that dragged on.

So they filed suit. And, the uh, CREDA has intervened.I have a stack this tall that I had to get through so I can craft an intervention for my client. Uh (Pause) and it, it's a novel issue. Everybody talks about climate change, everybody talks about what you ought to do about this, that or the other thing, but (Long pause) to the best of my knowledge, there's one other case where the issue of climate change–it has just been brought up this year in some litigation out of Montana. It's still in the, just finished the pleading stage. 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. Now you add to that, that the Council on Environmental Quality [CEQ] came out with draft and then final guidance on how to deal with climate change in Environmental Impact Statements, uh, last summer. I think they finalized it in August. And then came out with their proposed rewrite of certain portions of their quote, regulations, unquote. Uh (Pause) I think the comment period on that ends March 10. And so all of a sudden you have a, a changing field. One of the interesting aspects of that's going to be is that CEQ regulations aren't (Pause) uh, nobody talks about it. But the CEQ doesn't regulate anybody. And there's a court of appeals of District of Columbia case that says so.

Bob Lynch

00:10:00

When they were originally, uh, formulated, uh, they were called guidance. And I wrote a lot of review articles about how the agencies were responding to the CEQ guidance. Uh, apparently I was the only one who did. Nobody seemed to think it was important. But (Pause) then, during the Carter administration, they sort of migrated into the code of federal regulations, miraculously. Uh, and it wasn't until this case was–I think, I'm trying to remember, I think it was decided around 1998, I forget. I'm, I've been chasing too many ghosts. Um, when the court of appeals said, "Wait a minute. CEQ doesn't regulate anybody." You know? They're an advisory body in the executive office of the White House. You can put these things in the code of federal regulations if you want to, but they–they're not regulations. Well, for one reason or another,

that's (Pause) not really gotten a lot of traction. But, uh, with this issue of climate change, and CEQ (Pause) jumping into that, in the context of NEPA [National Environmental Policy Act], uh, it is going to get much more–it's like the old Chinese curse: "May you live in interesting times." No, this is, this is going to be, it's going to be huge. And, people don't understand, you know, uh (Pause) I'm not even sure the attorneys involved understand how big of a watershed an issue this is. But we'll find out. Uh, interesting enough, the judge to which the case was assigned is the former general counsel to the governor, who used to be a litigator at Snell & Wilmer. And then after his tour at the governor's office, uh, with another firm, a national firm here, their local office. Uh, we'll (Pause) see what he does with it.

Paul Hirt

00:12:38

How do you think the issue of climate change, or the reality of climate change had–what kind of potential does it have to affect management decisions at Glen Canyon Dam and on the Colorado River? You said you think it could be a big deal. In what way?

Bob Lynch

00:12:51

Well, it depends on what the judge does with the case. You know. Having filed the lawsuit, the, uh (Pause) issue about–to manage that issue has basically been taken away from the executive branch and given to the judicial branch. And the judge will examine NEPA. Uh, interestingly enough, the draft, new draft NEPA quote, regs, unquote, say that they can be applied to ongoing activities. Well, AMWG is an off–ongoing activity. Uh, what they do to the subject of (Pause) dealing with alternatives. Getting with (Pause) impacts like climate change, I mean, you have to say to yourself, uh, "What can they do about it?" You know. What does operating reservoirs on the Colorado River have to do with climate change? You have to react to what is happening, for

whatever reason–it doesn't make any difference what the reason is, you have to react to that. And, so what do you do about it? And, uh, that nominally would be an executive decision under NEPA, as the process of giving advice to a decision maker. Here, the Secretary of the Interior. But, now we're in court. The same questions being asked. And, come May, we will start the Annual Operating Plan (AOP) process, uh, for the Colorado River again. And I'm involved in that. And this last iteration just got signed here before, signed it last July. But, uh, they'll start this process again this spring, and I've even suggested to them that, instead of waiting 'til May, they ought to start earlier. But it typically has three consultations in May, July and September. And they put something together and give it to the Secretary, and then he approves it, and that's the Operating Plan for the next year. Well, this AOP (Pause) not only does not discuss climate change, it doesn't cl–discuss DCP. So.

Paul Hirt

00:15:50

The Drought Contingency Plan.

Bob Lynch

00:15:52

Right. Yeah. So I'm, uh (Laughs) I'm, it's going to be an interesting spring, because, because, uh, it's going to be interesting to see, uh, what people think they have to talk about in terms of hy–well, part of it is hydrology driven and, and the report itself, uh, is, is based on the August twenty-four-month study, and then the January twenty-four-month study that just came out. And then, ultimately, for the rest of that calendar year, the April twenty-four-month study, which is the end of March data. Right now, the predictions, uh–well, where we are now is, we've had a very good fall and winter, so far (Telephone ringing). Oh dear. Sorry about that. We were going to unplug that thing, weren't we?

Paul Hirt

00:16:49

I forgot.

Bob Lynch

00:16:50

Yeah.

Paul Hirt

00:16:52

Do you want to pause for just a second?

Jennifer Sweeney

00:16:53

If (Pause) it's all right. You can keep going.

Bob Lynch

00:16:56

[Calling to another person in the house] Anne, can you answer that and get rid of whoever it is?

Bob Lynch

00:17:00

Well, I was in the laundry room, but I'll try to get a hold of it.

Paul Hirt

00:17:03

That was a long ring, that last one (Laughter).

Jennifer Sweeney

00:17:05

It was.

Bob Lynch

00:17:06

Oh, it went away. It's, those are all uh–.

Paul Hirt

00:17:11

Solicitations?

Bob Lynch

00:17:12

Solicitation calls. That's all right. They gave up.

Paul Hirt

00:17:17

So if you don't mind, can we go back to something you said near (Telephone ringing)–.

Bob Lynch

00:17:20

Oh, jeez–.

Paul Hirt

00:17:21

The beginning and, uh–go ahead and pause.

Jennifer Sweeney

00:17:23

I'll pause.

Pause in recording.

Jennifer Sweeney

00:17:27

Resume recording.

Paul Hirt

00:17:29

If you don't mind, let's go back to something you said near the beginning of the interview. You mentioned that you have a number of clients who are interested in hydropower in the Columbia River Basin–.

Bob Lynch

00:17:40

Colorado River Basin.

Paul Hirt

00:17:41

Colorado River Basin. Did I say Columbia?

Bob Lynch

00:17:43

You did.

Bob Lynch

00:17:43

Yeah, I used to live in Washington state, so it just came out of me. Um, so the Glen Canyon Dam Adaptive Management Program is, is, um, in essence, it's a collection of stakeholders trying to solve complex problems. Um, and there are people who represent hydropower interests, water supply interests, wildlife interests, recreation interests, the national parks, tribal interests. Um,

could you tell us a little bit more about, um, if you don't want to reveal your clients, at least what–what you represent, what you bring to the Adaptive Management Program in terms of your interests, what you're hoping to achieve in being involved.

Bob Lynch

00:18:24

Well, I represent a state association, most of whose members buy power from the Western Area Power Administration [WAPA], generated among–at other places, other than Glen Canyon Dam, up and down the river, but including Glen Canyon Dam. And it is–and they're sm–primarily small, uh, agriculturally-based, or rural, towns. Uh, and, uh–.

Paul Hirt

00:19:00

Is this CREDA?

Bob Lynch

00:19:01

No, no. No.

Paul Hirt

00:19:02

A different organization.

Bob Lynch

00:19:34

No, CREDA is a regional, uh, association. Six states. But, the types of entities, uh, that are in CREDA are the same types of entities that are in my state association. Except that most of the ones we have are very small, and CREDA serves, uh, a number of them are quite large. Um, in any event, I, uh, I mean our, some of our people also get water off the Colorado River through the Central Arizona Project, and some of them get water off the river because they have their own water right, like the folks down in Yuma. And so, we're one of the few places in the country where you sort of meet yourself coming and going. That, that you have people that are both in the Colorado River water business and the Colorado River power business. And, so you have to be aware of the synergisms, uh, of decision-making, uh, you can see that the Central Arizona–Central Valley Project in California (Pause) oh dear. Um, and uh (Pause) hit the pause button. I'm afraid it's the–.

Paul Hirt

00:20:31

Right.

Jennifer Sweeney

00:20:31

I'm going to do the same thing I did last time.

Pause in recording.

Jennifer Sweeney

00:20:34

Resuming recording.

Bob Lynch

00:20:37

All right. Well, we were talking about the intersection of water and power issues. And, uh, in Arizona we have an almost, but not quite unique, situation, where an awful lot of the entities that buy power from the dams on the Colorado River also get water, uh, either through their own organization or sister organizations formed for that purpose. So, uh, you have to, you have to see both sides of every impact. Uh (Pause) and it, unlike most of the country, where–most of the western reclamation projects where, uh, you have water customers here and you have power customers over on the other side, they aren't the same people. And there is constant tension between them over who's paying for what and who's getting what. And uh, it's just, the nature of the beast. So, but (Pause) power pays the bills on these projects. 95% of the bills of the Colorado River Storage Project [CRSP] are paid by hydropower sales. And so it's, uh, something most people (Pause) especially if they're water or environmental people, don't want to talk about. But it is a cruel reality that you have to keep an eye on what hydropower costs, and, uh, who is, you know, are there people willing to still buy it?

Bob Lynch

00:22:37

Uh, and (Pause) the interesting thing about that is that, that fracking has changed the whole dynamic of the power business. Navajo Generating Station's not closing for environmental reasons. It's closed–it's already closed, uh, because it was no longer economical. It was cheaper to buy power at the Palo Verde hub west of Phoenix, than it was to run the plant. And, uh, other forces like that. Gradually, wind and–commercial wind and commercial solar, uh, not rooftop

solar, uh, are getting cheaper, and competing with other resources in terms of price. Their problem is that you can't schedule them. They either happen because the sun is shining or the wind is blowing, or they don't. And, uh, I remember driving to church one Sunday and a cloud came over the sky, and I said to Anne, my wife, "APS [Arizona Power Service] and SRP [Salt River Project] are ramping up." And the cloud went away and the sun came out again, and I said, "Now they're ramping down." And then–you know, and it went back and forth like that until we got in the parking lot. But it was true. That every time that cloud went between the sun and the earth, the utilities had to change what they were doing, because the electricity that would have otherwise been generated by the solar arrays (Pause) quit. Uh, so the complexities of what we do in the power business now are (Pause) monumental compared to what they were twenty years ago. And so, you know, but when we were talking about Glen Canyon Dam criteria, uh, and stuff like that, what it meant and what it would do to your power portfolio and this, that, and the other thing (Pause) you know we're in a different world.

Paul Hirt

00:25:00

Yeah, I imagine you've seen a lot of changes over time over the last, uh, three decades or so since the Adaptive Management Program began. Can you think back and reflect a little bit on what kinds of relationships between the stakeholders, the interest groups, there were in the early years? Um, who was, you know, in conflict with who over what, and how, maybe, that evolved over time as things began to change?

Bob Lynch

00:25:30

Well (Pause) the, uh, the river's driven by water. The river's driven by the 1922 [Colorado River] Compact, the Upper [Colorado River] Basin Compact, Arizona v. California, uh, and other stuff.

Collectively, the Law of the River. Uh, the 1930 Boulder Canyon Project regulations, the, uh, long-range operating criteria, now the shortage criteria, the interim shortage criteria [2007 Interim Guidelines], all of this stuff. Uh, and some other lawsuits. You know, but it's a huge collection of stuff. And power, to most people, is incidental to all the rest of this. And they keep saying, "Yes, this law says 'and power generation incidental thereto.'" But the "incidental thereto" is the checkbook. And everybody has always been able to show that the power was cheaper than everything. It wasn't, actually (Pause). When the commissioner of Reclamation testified in Congress about building the Colorado [River] Storage Project, he could, he said, "I can sell this power at six mills for fifty years and build everything that's in here." The mainstem reservoirs, the satellite projects, everything. Well, coal-fired steam was four and a half mills. So that's a, that's a very big difference, you know. It doesn't sound like much when you're talking about mills, you know, percentages of a penny. But when you multiply it by what's being generated, you're talking (Pause) today's price is, two hundred and fifty million? A year? Um, and 70% of that from Glen Canyon Dam, for this particular project. Um, so then, you know, the multiplier effect is huge, as long as everybody's buying the power.

Bob Lynch

00:28:07

And over decades, uh, it was just automatically assumed that the cheapest buyer you could possibly get, uh, was federal hydropower. Because that six mills being more than four and a half mills for coal-fired steam didn't last very long. It wasn't the six mills changed, the four and a half mills changed, dramatically. And so all of a sudden, uh, all this hydropower, the stuff that was already there, Hoover, Davis and Parker, the Parker-Davis Project, looked better and better and better. And, uh, and the Colorado River storage project power got into a position where it looked better and better and better. Uh, interestingly enough of those thr–those are the three major hydropower generating, uh, projects on the river. And, uh, among them only Parker-Davis is below market. CRSP and Hoover are above market, you can buy power cheaper at the Palo

Verde Hub than you can buy it from the government, uh, from Hoover Dam or Glen Canyon and the other dams north of there. But, people do it, to the extent it provides operational flexibility. Uh, way back when this decision-making process was getting started, we had a group of us sitting in the control center for Glen Canyon Dam with the congressman who, this was 1993, was the ranking member of the House Energy Water Development Subcommittee that appropriates the money for Reclamation and WAPA.And then after the ’94 election he became the subcommittee chairman, uh, with the switch, and it’s down in the middle of the dam. And uh, right in the middle of the room and the (Pause) Reclamation official who was in charge of the facility was there explaining things to him and that sort of thing. And there was a bank of generators on the side, generator controls on the side, and in the middle of the room there was a (telephone ringing). Oh jeez, I’m sorry.

Jennifer Sweeney

00:30:54

I’m going to pause.

Pause in recording.

Jennifer Sweeney

00:30:58

Resuming recording.

Bob Lynch

00:31:00

Well, so we were in the control room, and in the middle of the control room is at the desk, and on the desk is a red phone. And there was a young man sitting behind the desk. And the dam

manager is explaining everything to this congressman. And the phone rings. And the young man picks it up, and he listens, and he puts it down, and he walks over to the wall, and he starts punching a button on one of the units, bringing it off spinning reserve. And, a coal-fired unit in Northwestern Colorado had tripped off, for some reason, and the entire system in the Colorado River Basin was out of balance. And in the time it takes to tell this story, he had rebalanced the entire system. Now that's (Pause) incidental hydropower to everything else, thank you. But if he hadn't been able to do that, the system would have burned down. Electricity generates heat. It's why there are insulators. It's why there are, uh, circuit breakers, uh, like the one that may be faulty in my hot tub. Um, and, I never had to explain to that Congressman again what the value of Glen Canyon Dam and hydropower was because it is, uh, it's not a black start facility. The–Hoover is.It can go in and go from nothing to jump into the middle of a problem. But, uh (Pause) it plays an enormously big role in helping regulate electricity fluctuations in this whole interconnected system because it's–of its size. And, uh, and so while the hydropower is quote, incidental, close quote, to water and whatever, um, it's not incidental if your lights go out.

Bob Lynch

00:33:28

(Long pause) In the summer of 2001, before 9/11 [the September 11, 2001 terrorist attacks], it was very hot, and some power lines in Eastern Idaho overloaded, as they do, and when they do, they sag, and because of all these issues with regard to deregulation and everything, one of the things that a lot of utilities cut back on was tree trimming. And so these wires sagged into a cottonwood tree, arced, and that pulse went to Boise. And the guys at Boise, Idaho, couldn't react. And it went into the Bonneville Power Administration system, where there are no checks. Down the Colorado-Oregon [probably California-Oregon] Transmission Project [COTP] line to Northern California down to LA [Los Angeles], over here. By the time it got here (Pause) the um, uh, Bureau had ramped Glen Canyon Dam. And our lights, we get Salt River Project power.We get power from Glen Canyon Dam. Our lights stayed on. Over the other side of

Seventh Avenue [in Phoenix], their lights went out. That's APS. Uh, two weeks later, same thing happened, but the sag was on the COTP going from Grand Coulee down into Northern California. At that point, Glen Canyon was 100%, because there were rolling blackouts in California. And there was no other, there's no other power. And so our lights went out as well, because there was nothing to throw at the problem. But people don't understand, you know, that from British Columbia to northern New Mexico, this is all interconnected. And, and the problems, for instance, they're having in California now, really, uh, can have an impact on us. Uh, and, while California turns its nose up at resources outside the state, it doesn't when the lights go out. And they're going to go out again this summer.

Bob Lynch

00:36:05

Uh, so we're in, as you say, we're in a different world, and, and not one I would have chosen, but, uh, one I think that bears further reflection on how people view the hydropower, uh, generated at Glen Canyon Dam.It has been the whipping boy during this entire process. You know, it's bad, the dam is bad, the hydropower is bad. Uh, and I have waited a very long time for some precipitating cause that would force, perhaps, a recalculation of the relative values of things. And oddly enough, I think this lawsuit by the environmentalists may be that precipitating cause. Because it's, uh, it's going to examine what AMWG has been doing. And whether it's been doing it correctly. And the environmentalists are saying, "No, you haven't." This group of environmentalists. I (Pause) would love to see a poll among environmental groups as to which is, um, which of them like this idea of this lawsuit, and which of them don't. The more sophisticated ones, I think, probably don't like it at all, because it's, as I said, it's taking decision-making away from the executive branch and putting it in the judicial branch. But, we'll see where it goes. Uh, in the meantime, we've got to keep the lights on.

Paul Hirt

00:38:06

What do you think, um, in the years that you've been involved, do you think you've been able to accomplish anything in particular in terms of keeping the hyd–the importance of hydropower on the table? Maybe making s–having some influence on decisions that are made about, you know, operation of the dam.

Bob Lynch

00:38:25

Oh, some. Uh, the, when this all really got rolling, a professor from ASU [Arizona State University] and a couple of people took some readings from 40 L (Pause). That's a beach [along the Colorado River in Grand Canyon]. Uh, and said, "The sky is falling. We've got to have emergency criteria." And, Interior went along with it, and I yelled and screamed and whatnot. And then we got to the '97 criteria, and some of the more onerous things of those emergency criteria things went away. I thi–I like to think, in part, because they thought I was going to sue them and they, you know, as I said before, you know, I mean–.

Paul Hirt

00:39:17

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?

Bob Lynch

00:39:26

Well, the restrictions–the restrictions on Glen Canyon Dam were much worse, were tighter, more severe than what we ended up with in the ’97 criteria. And the problem with the ’97 criteria, for instance, one of their, their five controls. There’s, uh, a minimum, a maximum, upramp, downramp, and daily change. All right? There is no scientific evidence for what they have in the way of an upramp criteria. The problem is that, when they looked themselves in the face and said, “What do we do with this?” Uh, it was not six thousand, eight thousand [cfs, cubic feet per second] in the more nuanced version of that concept in the new decision-making, but they had to come up with something. They couldn’t bear, politically, saying, “Well, the five criteria, we don’t really need this one.” And as a practical matter, what they did was set the criteria, the criterion for upramping, your criteria under different water flows for criter–for upramping so that it didn’t make any difference. If the daily change is six thousand to eight thousand [cfs], then the ramping, upramping doesn’t make any difference. Because you eat it in an hour or two, and that’s not load following. And, um, um, so it, it really doesn’t mean anything. But I, I, I don’t know if I’ll live long enough, but I’m going to live to the point where people begin to think that maybe there’s a win-win situation in this. You know, they do these artificial floods [High Flow Experiments, HFEs]. They don’t do anything. I mean, I’ve been there, I’ve been on the river, I’ve had, been on the river seven times, starting in the ‘70s. I was on the river on a private trip in 2000 when they flattened the river, and I was in it, uh, in 2008, when they started the experimental flows, the floods. Which, of course, deeply incised the edges of the beaches so that you could hardly get onto them until it eroded. And every time they do one of those floods, the sand goes back in the river in about six months, almost all of it. Because, the flood can only put the sand up high enough (Long pause) to where the water is, and therefore, as the water withdraws and it dries out, but there is sub–uh, subsurface erosion, it loses its support and it falls back in the river. And so it really is (Pause) it’s not beach building.

Bob Lynch

00:42:41

There are a hundred and ten camping beaches between Glen Canyon Dam and Lake Mead. Virtually all of them in the lower river are as big or bigger than they were before Glen Canyon Dam was built. Uh, there's a Park Service photographic study that, uh, was done to mimic one that was, uh, [John Wesley] Powell did, under contract, to try to map a railroad to the river (Pause) along the river. And they did it on the–each spot, the very same day, very time–same time of day, and everything. And the (Pause) the amount of area of the river that is exactly the same is striking. And nobody wants to talk about it. The Park Service in Tucson has this photographic study comparison, a hundred years to the day, of each of those two. And the real problem is Marble Canyon. It's got (Pause) maybe 75% narrow, uh, configuration. It's configured to channel the normal westerly flow of winds. I know I've gotten a nasty sunburn from sand blowing in my face in Marble Canyon, and lost a nice hat that said "Coors" on it to the river, and my pillow, because, you know, it, it, that wind can get pretty fierce in that narrow. But even under the old criteria, thirty-one of–31,500 [cfs] and three [thousand] in the summer and one [thousand] in the winter, before the '97 criteria, in the narrowest reach of Glen–of Marble Canyon, the change in water level was ten feet. That's all. And you can tell. And you can tell pre-dam, uh, there'd be scouring floods up to 300,000 cfs. And some at a hundred [thousand cfs]. And you can go down there and you can see the striations of vegetation, where those lines are. And, uh, you'll see trees above 300,000 [cfs], you'll see some shrubs down, and then you'll go down below. But, uh, and you get down into where we are now and the maximum fluctuation is three feet instead of ten feet. And then from three to ten there are grasses and, uh, uh, salt cedar, uh, until the bugs get them. Uh, and, uh, uh (Pause) and that's where the problem is, the real problem. And it's an engineering problem.

Bob Lynch

00:45:52

Uh, in my view, instead of (Pause) trying to, you know, Einstein's definition of insanity was repeating the same thing over and over again and expecting a different result. Well, they've been

doing this, you know, these artificial floods, expecting a different result. The ones they do in the spring excite the rainbow trout. They reproduce more, they then out-compete, or they compete with and eat humpback chub. Uh, I mean this, the studies are there, they've been done. It's the fatal flaw of the spring HFE. The fall HFEs screw other things up. Uh, and you could go down there with some civil engineers and a survey crew. I used to work on a survey crew in high school. With a transit, and a level, and stake out the 40,000 cfs line. The Bureau of Reclamation's got dredges on the Lower Colorado River. They go through the national wildlife refuges, blowing sand out of the river at the request of the Fish and Wildlife Service to keep the channels open. Uh, and it works. And you can break them down, put them on trucks, drive them through the tunnel, [bypass tunnel in Glen Canyon Dam] uh, put them on pontoon boats, reassemble them, go down to where you need to purchase sand when the sand is accumulated and (Pause) put them together again. You put the little sonar bell in the water, and give it a beep and scare the fish away, you shoot the sand up to the grade stakes. Uh (Pause) you pull, you know, you break everything down, pull the sonar bell out, go up, pick up the grade stakes, float down the river. And the only people who will know that you were even there are the river runners. And you'll have a beach that'll be there a hundred years. Which is, you know, I mean, that's fine. What you're doing is promoting a, a business. Commercial river running. And uh (Pause) I mean the, the small group of people who do private trips (Pause) get along with whatever there is, but the com–you have to have a comfort zone for commercial river running and you have to have beaches that are nice, and you can do that. And, it wouldn't do anything for the backwaters, but humpback chub don't use the backwaters anyway, and besides they freeze over in the fall. And when they're not frozen over, the waterbirds eat the fish that are there, because it's shallow. I mean, this stuff is in the record. Uh–.

Paul Hirt

00:49:16

Can you explain briefly, um, why, uh, hydropower interests, um, are (Pause) not, uh, enamored with the idea of the High Flow events [Experiments]. Why, why would you not want the High Flow events to continue? Is that because the water goes–doesn't go through the turbine and generate electricity when–.

Bob Lynch

00:49:39

Yeah.

Paul Hirt

00:49:39

There's an HFE? Okay.

Leslie James

00:49:40

Yeah. It costs them money, it costs their customers money, and, and, and (Pause) if they worked, then it would be one thing. But when the sand falls back in the river–and the other aspect of it is, it does fall back in the river, then they do another one, guess where that sand goes? It goes into Lake Mead. Before they started this, it was a little bit of sand up at the head of Lake Mead. Now there's a huge sandbar up there. Quixotically, full of salt cedar and [the endangered] southwestern willow flycatcher. Which isn't playing the game fairly, and is nesting in salt cedar. Uh, which is not the script it's supposed to follow. And, and so you have this, this tension now, of uh, that whole thing. But the, this, that great big sandbar didn't exist before. The—we're pulsing sand down toward Lake Mead, we're shortening the life of Lake Mead, its ability to store water without being dredged, which is (sighs) and dredging a reservoir is an environmental

nightmare because of heavy metals and everything else that settles in the bottom of reservoirs. It's the nature of the beast. And, uh, and you can't very well sluice that stuff downstream without sluicing all of those, uh, uh, pollutants downstream. Uh, and (Pause) so, uh, to me, uh, we, we could get a win-win out of this. That's there. But it would co–it would need for people to alter a mindset. And we've had this mindset go through, what, how many generations? I mean, think of the people who started working on this, in the Glen Canyon Environmental Studies. And (Pause) that's what, uh, twenty–.

Paul Hirt

00:52:09

Forty, fifty years now.

Bob Lynch

00:52:10

No, it's twenty-nine years ago. 1992.

Paul Hirt

00:52:14

Oh, the Glen Canyon Environmental Studies began in the early 1980s–.

Bob Lynch

00:52:18

Well, all right, yes, yes.

Paul Hirt

00:52:18

And discussions about the problems associated with the dam even before that.

Bob Lynch

00:52:23

Yeah. So I mean, really, you're talking about three decades, so you have people who have, uh, literally graduated college, had a career, are retired, uh, and you have young people coming along, and I find myself dealing with people's grandchildren. Uh, and I start saying, "Well, you know, in 1970," and (Laughs) they look at me, um, or, not even that far back, but, um–.

Paul Hirt

00:53:05

What's the change of mind frame that you said is needed in order to get a win-win situation?

Bob Lynch

00:53:11

People have to accept the fact that you have to do something mechanical (Pause) in the Grand Canyon. Now, that's two lies cobbled together. First of all, you don't need to do it in the Grand Canyon, you can do it in Marble Canyon. And second, this isn't the only mechanical thing that's done. Uh, in spite of what people from, primarily, the Park Service and the environmental community will say, uh, in the, quote, Grand Canyon, the general term usually used for everything from Glen Canyon Dam to Lake Mead. Um, if–I mean they put helicopters down

there when they need to. Both for rescue and for whatever other [Unintelligible] they do, uh, uh, mechanical harvesting of exotic fish. They, uh, there is a, uh, mound of sand at the toe of Glen Canyon Dam, which is causing back pressure on its operation. And they are actively considering having to dredge that out of there, which means they would have to get one of those dredges I'm talking about that the Bureau has, break it down, put it on the trucks, take it through the tunnel, put it on, uh (Pause) reassemble it, or put (Pause) no, they would probably have to put it on the, on the boats and then re–and drive up a little to reassemble it. And then use it to try to sluice that, that sand mound away. I've been there, I've fished it. Uh, and it's a significant operational issue. Uh, it's mechanical. The stuff they do about exotic fish is mechanical.

Bob Lynch

00:55:39

We could do the sand preservation for commercial river running in Marble Canyon, where it's the only place where it would really be helpful. One trip. We get that sand perched above a 40,000 cfs line, which should be in the very narrowest part of the canyon, ten feet (Pause). Float everything down the river, come back in a hundred years. The only thing you would be facing at that point is wind erosion. And, uh, and it would work. But people go nuts when you say things like that to them. Because it's the Grand Canyon, it's a wilderness. Well, it's not a wilderness. And yet, if you did that, you wouldn't have to do the artificial floods. They, you wouldn't be worried about their adverse impacts on the endangered humpback chub. And then you, uh (Pause) I don't know about bug flows in the fall. Uh, that's a new, recent phenomenon. You know, they plant rainbow trout from time to time in the Lee [sic] Ferry fishery. I don't know why they can't plant bugs instead of flattening the river on the weekends. Um, it's not as economically consequential as doing things during the week, but it is more consequential in the summer when that power is needed. But, and it seemed to me that if you can raise fish and put them in the river, you can raise bugs and put them in the river, and it's an awful lot cheaper than

not generating electricity. But you've got to have the mindset to say, let's, let's think outside the box. Let's see, can we have our cake and eat it too?

Bob Lynch

00:57:49

Can we take this hydropower resource back toward what it was designed to be? Because of the benefits that can generate for just this load following, for supporting wind and solar, getting people off of carbon resources. Can, can, can we think about– this hydropower facility is very important to other policy issues that have now arisen and people are beginning to coalesce around, that (Pause) we need to have a more carbon-free environment. And there is a role for hydropower to play in that, existing hydropower, primarily, because most of the big dams that will ever be built in the western United States have been built. Uh, and that's just the way, that's the way life is. Uh, in part because, you know, there aren't that many more dam sites worth considering. But until people think, you know (Pause) improving hydropower at Glen Canyon Dam is worth trying. Can we marry mitigating downstream impacts and innovation with that, and see if we can make it work. Can we? I don't know. I mean, I think you can, I think there are (Pause) available solutions. I don't think it's rocket science. I think there are current applications of engineering and biology that can be applied. I think that the power customers, for instance, uh (Long pause) who fund, would fund so much of this, if they were not losing five million dollars a day in hydropower costs, might be very happy to spend five hundred thousand dollars on bugs, you know, I mean it's economics. Uh, but I, but, you have to have the mindset that looks at the whole picture and says, "Gee, is there a way we can do this for everybody?" Is there a way, you know, instead of fighting with each other, instead of bad-mouthing each other, is there a path forward on this that, that (Pause) where everybody wins. Uh, and, and (Long pause) I don't know if that's possible.

Paul Hirt

01:00:52

Yeah. Well that's, that is exactly the purpose of the Adaptive Management Program. It's kind of an experimental effort to bring all the stakeholders together to see if you can find, collaboratively agree on, on as many win-wins as possible. It's experimental, and it's an alternative to the normal way of making decisions. I wonder, and, you know, we can kind of wrap up this interview with this. I wonder, um, if you think that adaptive management, as an alternative way of making decisions about resources, is kind of an ex–successful experiment or more of a muddle that hasn't really accomplished what it's sought out to accomplish. What are your feelings about adaptive management and this particular program?

Bob Lynch

01:01:39

Well, let me ask you this question, what has it accomplished?

Bob Lynch

01:01:43

That's why I'm interviewing experts like you. Uh, some people think a lot has been accomplished, other people feel frustrated. I'm wondering what you feel about it.

Bob Lynch

01:01:53

(Pause) You know, uh–.

Paul Hirt

01:01:56

Democracy is messy, of course.

Bob Lynch

01:01:57

Of course.

Paul Hirt

01:01:58

And slow, and frustrating sometimes–.

Bob Lynch

01:02:01

And better than everything else.

Paul Hirt

01:02:03

Exactly.

Bob Lynch

01:02:04

But, well, let's put it this way. Under the old regime we didn't have green sunfish. Under the old regime, well, the Fish and Wildlife Service had [Unintelligible] on the river and created the endangered fish problem, uh, and put brown trout, German brown trout. They're from Germany. Because they are hard to catch. They fight like hell. Uh, and they mostly camped out in Bright Angel Creek, and in the river right around there. Now they're migrating up, and the people who make a living off the Lee [sic] Ferry fishery with the, uh, rainbows, are very unhappy. I mean, just like they were when the, when the [Arizona] Game Fish Department put cat loops [Kamloops?], it's a type of rainbow trout. It's a (Pause) a strain, in there, and nobody could catch it. And so they put Bel-Aires [another strain of rainbow trout] in there and they're really stupid. And uh, yeah, I, and a biologist friend of mine said that they should've put in Rocky Mountain, it's a different strain [Rocky Mountain trout is an informal name for a cutthroat trout subgroup indigenous to Colorado]. But the point is, it's a fish that's native to the west slopes of the, uh (Pause) Sierra Nevadas. Northern California and Southern Oregon, and it's not native here. We have two native trout, neither of them were in the Colorado River, it was a warm water river. They're in the, uh, Blue [River], the San Francisco, and the Little Colorado. The Apache [trout] and the Gila [trout]. Uh, and uh, and they're not very bright either, um (Pause) they're much easier to catch.

Bob Lynch

01:03:58

But, uh, the, um (Pause). The problem is that, that we just (Pause) look at this and they say–or now we've got, we've got humpback chub populations in some of the side streams. The original target for delisting humpback chub was three thousand, uh, reproducing adults. We're at nine [thousand]. (Pause) Fish and Wildlife Service is struggling with itself over downlisting this population to threatened. Not delisting. Downlisting. Uh, because it's the Grand Canyon. It's politics. And the politics is, is interfering with what is, should've been a science call, fifteen years ago. Um, and eventually, maybe we'll get there. I don't know if this lawsuit is going to

screw that up or not. But uh (Pause) we, uh, we have environmental problems now, we didn't have. I caught striped bass at the mouth of Havasu Creek. On one of our trips with the Bureau of Reclamation. As did a Bureau of Reclamation guy. And Dave Wegner (Telephone ringing) oh, what happened? Oh, I'm sorry.

Paul Hirt

01:05:41

I unplugged it but I–go ahead.

Pause in recording.

Jennifer Sweeney

01:05:43

I'm going to start. Resuming recording.

Bob Lynch

01:05:46

Well, you know Dave [Wegner] and I were nemesis, uh, and uh–.

Paul Hirt

01:05:58

Nemesis, you said?

Bob Lynch

01:06:00

Yes. [P.H.: Uh-huh.] Uh, he had his own idea about how he was doing things, and I wasn't particularly fond of the direction he was taking things. But, and there's, and–you can come back for another four hours and we'll talk about my relationship with David, but I still see him from time to time. And we commiserate. I used to see him when he went over, into (Pause) up on the Hill, in the minority staff for the Transportation Subcommittee [U.S.House of Representatives Committee on Transportation and Infrastructure] and my daughters–our middle daughter, who called, was chief counsel of the Crime, Terrorism, and Homeland Security Subcommittee, and her office was right across the hall. And then there was another subcommittee right next to her, so I could go into the basement of the Rayburn Building, get a three-fer. Uh (Pause). Now, um, to me, I mean, well, David let us–what we did is, he made us clean the fish, bag the entrails, put them on ice. We had a striped bass snack before dinner. Uh, and that stuff went back, uh, to have the scientists poke around and see what they were eating. But it–those fish had portaged [Unintelligible] (Pause). I mean, think about it. Um, and striped bass are an anadromous fish (Pause) native to the Atlantic Ocean, and, among other places, rivers, uh, that flow into the Atlantic ocean from the United States. And, uh, were brought to the West because they're great sports fish. I caught a sixty-pound one in San Francisco Bay when I was eight. Actually, it caught me. And my father and the boat captain got it aboard and they had to whack the thing and kill it before we could get it aboard, for fear it would bite somebody's leg off, and then (Pause) took it back to officers' quarters, um, my father was briefly stationed at the national arsenal [San Francisco Armory], uh, took great big chunks of the filet, threw it in the bathtub, poured ice over it, took the head, put it out in the empty lot next door that had a post on it, the bees took care of that. Then he went around trying to give fish away. But, striped bass are a wonderful fighting fish and wonderful sports fish and wonderful eating fish.

Bob Lynch

01:09:09

But they are the freshwater sharks of the United States, and they're in Lake Mead, and they're in Lake Powell for that very reason. And if you create a climate, between Glen Canyon Dam and Lake Mead, for them, there won't be any more humpback chub. Or rainbow trout, or even brown trout. Because they will dominate everything.It's, they're like golden ea–the golden eagles. I mean, everybody says, "Oh, the bald eagle, bald eagle." Uh, the only reason the golden eagle is not the symbol of the United States is it was the symbol of Germany. Before then, when they were trying to decide. But I–the golden eagle dominates the bald [eagle]. And I have–the Nankoweap Creek seep, which is (Pause) oh, Middle Granite Gorge, coming in from the north side, and it's a spawning area for rainbow trout. And I have seen bald eagles sitting, standing, alongside the creek, fishing, and the golden eagle come down, and the bald eagles leave. And of course, the Grand Canyon was never natural habitat for eagles of any kind, uh, until they introduced the rainbow trout. Uh, but um, but, it's, that's how big a threat (Pause) striped bass are to that ecosystem. Uh, there are, uh, well, nobody can explain how the green sunfish got into that little eddy up, below Glen Canyon Dam. They've tried to poison it out, they've done this, done that. It (Pause) they haven't fixed it yet. [Green sunfish are known to survive transit from Lake Powell to the Colorado River, through the dam penstocks and turbines. This phenomenon becomes more likely when the lake level is low and the surface is closer to the penstocks. https://www.nps.gov/glca/learn/nature/nonnativefish.htm].

Bob Lynch

01:11:13

Um, they haven't figured out the why the German brown trout are migrating north up the river. And, uh, they've got another fish problem, up in Cataract Canyon. Uh, the, uh (Pause) Asian carp. And, it's a breeding population. My biologists that I use tell me it's only a matter of time before they get down below the dam. They, uh, live a very long time. They eat everything, I mean, they eat moss and whatnot, plankton, and fish. Uh, they're used in the Salt River Project

system [to clean algae from the canals], and the triploids are used in the Salt River Project system, in every lake, on every golf course, here. We, uh, we were using diploids here, and some of them started breeding, and they were being purchased from hatcheries in Arkansas, and they passed a law that I got involved in, uh, to require triploids. And they had to go drain, uh, everything to get rid of these fish. And in the part of the Arizona Canal that runs through Sunnyslope [in Phoenix], we had all these Vietnamese come in and settle up there, and they were draining this and trying to capture these fish, and every time the SRP guys turned around, they would go down and steal the fish. I mean, it's Asian carp.Mekong River? Hello? Uh, it was, it was dinner. They couldn't believe it. And uh, but, now we have triploids, and uh, and they work and that's fine, but not in Catara–how they got in Cataract Canyon, God only knows. But they're there. And we have all these threats. Now these are warm water species. The water comes out of the dam at what, fifty, fifty-two [degrees Fahrenheit]? Uh, when they flattened the river in 2000, we bathed in the river. (Long pause) While camped at a beach in Middle Granite Gorge. It was that warm. That's not good. You can't have that, you can't flatten the river, and yet some people think flattening the river is, in fact, uh, the solution. But it can't be, because if you warm that river, nature's going to create a habitat that these other species will want to occupy. It's a basic principle of biology, as I'm sure you're aware, that a species will occupy whatever habitat it can, that's suitable for it. And, uh (Pause) and so we, you know, I mean, ever since this whole thing started, every time we've fiddled with something, there's–the law of unintended consequences has reared its ugly head.

Bob Lynch

01:40:39

Salt cedar. When we first started floating the river in the 70s, private trips, there was hardly any salt cedar at Lee Ferry. Um, and now there's this huge bosque. So they get this beetle, and they put it on the salt cedar in the Virgin River, and it does its job. And they thought, "All right, it will eat its way down the Virgin River and die, and just go away and be nice." Well, now it's

gradually working its way up the Colorado. But, the southwestern willow flycatcher is nesting, you know, he's not playing the script, you know, with the script, properly. And it's nesting in the salt cedar, it's adapting. Uh, and that has now created, you know, yet another problem. And all of this fiddling, uh, had, has (Pause) to me (Pause) put in question this (Pause) the way people think in this Adaptive Management Work Group, everybody has their own agenda. Everybody's pushing their own aspect of thing [sic] and their own personal belief. And nobody's looking at an overall picture. I mean, we've been–think how many decades we've been at this. And we don't have a solution, this is a–you said it's an experimental program. When does the experiment end? When do you get solutions? When can you say, "Aha. We have been conducting experiments here for forty years and we now have solutions. This is what we ought to do." We're not anywhere near there. You can't even get the people who go to the meetings to agree (Pause) on a particular strategy, other than doing the next study. And (Pause) you know, uh, that's what scientists like to do. God love them.

Bob Lynch

01:16:57

But, uh, if we're going to (Pause) if we're going to get somewhere, somebody has got to take control of this situation and shape it toward some realistic future, to me. And that's what's missing. It, it, it, there's no (Pause) there's no control here. It just, it's amorphous. And (Pause) everybody's study is fine. I mean, who's going to criticize somebody else's study, because then, if you do that, then when you do your study, they'll criticize yours. That's one of the problems you have with peer review, is you've got to be very careful about what you say about somebody else's work, you know–one of the things lawyers don't have to put up with, you know. We don't expect other lawyers to compliment us on our work. Nor do, should they expect us to compliment them. And you know, if you can't stand the heat, get out of the kitchen. Being a lawyer is, is a process of confrontation. And, but (Pause) to me, the whole thing just isn't pointed toward a result. Nobody's said, "Okay, you've got five more years and then you're done." Or,

you've got to do this, or you've got to do that. It's all, well, we have this next study we're going to do. And everybody says, "Isn't that wonderful?" And we've got this study. Isn't that wonderful that we've tried this? Well, the planting of the humpback chub in all these tributaries is work. But, what happens if we don't solve the German brown trout issue? What happens if people who like the idea of flattening the river let the river warm up and we get striped bass in the river? I mean, where (Pause) there's many, many things have been tried, and the "oops" factor has bitten us. And, it started with rotenoning [rotenone is a compound used to kill fish] the river that created the endangered fish problem in the first place, uh, because they wanted to put recreational fish in the river for people to enjoy. But there are solutions, but the solutions are going to require a change in mindset. In my view. People are going to want to have, uh, answers. And want to have each other's interests mature into solutions that make sense, and that provide value to each of the interests involved in the thing they're going to want everybody to win. And that ain't there now, not even close.

Paul Hirt

01:20:19

I think that's an excellent place to wrap up. That's probably one of the most articulate criticisms we've had of, uh, of the program, um, in our oral history interviews. So that was very valuable. Thank you. Thank you for that.

Bob Lynch

01:20:35

Well, that'll teach you to come to my house (Laughter). And drink my tangelo juice.

Paul Hirt

01:20:40

Mmm, that was excellent tangelo juice.

Leslie James

01:20:43

End of interview.