Transcription: Grand Canyon Historical Society
Interviewee: Emma Benenati (EB)
Interviewer: Tom Martin (TM)
Subject: Emma recalls Grand Canyon hikes, higher education, working for GCES, mid-1980s to mid-1990s timeframe
Date of Interview: 07/17/2019 Part 2 of 2
Method of Interview: In person at Tom Martin's home
Transcriber: Anonymous
Date of Transcription: 01/26/2020
Transcription Reviewers: Sue Priest, Tom Martin
Keys: Marble Canyon hiking, Sierra Club hikes, George Steck, Bert Fingerhut, non-impairment mandate, Stan Beus, Steve Carothers, Northern Arizona University, SWCA, Grand Canyon river trips, Brian Dierker, Pete Resnick, Dave Wegner, GCES (Glen Canyon Environmental Studies), Steve and Cindy Bledsoe, OARS, Dean Blinn, Larry Stevens, Jeffe Aronson, Linda Jalbert, GCMRC (Grand Canyon Monitoring and Research Center)

TM: Today is July 17th, 2019. This is part two of a Grand Canyon oral history with Emma Benenati. My name is Tom Martin and this interview is conducted at our kitchen table. Emma, thank you very much for your willingness to chat today on part two of this Grand Canyon history. How are you?

EB: I'm fine, thank you.

TM: Great. Last time we wrapped up with you recounting some of the amazing hikes that you did in Grand Canyon in the 1980s and you were talking about a number of explorations that you did up in Marble Canyon, which was rare at the time. One of the questions I had for you was, were you aware of any other women hikers up in Marble Canyon hiking, doing the kind of hikes you were doing at the time?

EB: No, I wasn't. Those hikes, I either did them with a group and actually they were mostly affiliated with Sierra Club. I'd get to know a leader and then the leader would put together a private trip and then they'd call up people. In that group there were women.

TM: Like who?

EB: I can't remember but they were friends. So that's how those sort of hikes happened. For example, a person I did several hikes with was Bert Fingerhut, who is a very wealthy financier from New York City who I imagine wanted to give back something because he invested, if I remember correctly, in Xerox and I forget...FedEx. That's where he made his millions. Then he moved out to Aspen. He was also the one involved in the bank fraud. [laughs] But aside from that, he contributed to Sierra Club and other nonprofits. I kind of knew him through Sierra Club. So what he'd do because of his connections, is he would find out who the local experts were—cause I did a hike with him in Death Hollow—and he finds the local renowned experts and then he gets them somehow... I don't know if he paid or whatever, and then they would come along on the trip or they would advise him. He's done that with southwestern more kind of reticent people who don't want to be in the limelight but know a tremendous amount. He somehow connects with them.

TM: Oh, interesting.

EB: So while I was with his group and hiking, I did some pretty cool hikes. The Shinumu to 29-mile to Eminence with Stan Steck and his son…wait, George Steck…and then his son Stan came in and visited us and then hiked back out. Stan was a ranger somewhere when he kind of popped in and visited us.

TM: So 29-mile to Eminence, 29-mile Canyon, this is the trail that goes in the Reclamation trail built at the Fence Fault for the Marble Canyon dam site work, is that right?

EB: We did pass that. We passed that after a day or two. We drove off of 89A on the rez and then went right in 29-mile. I think it was maybe the second night, possibly, or the third night where we ended up at the dam site where they drilled. That was a very cool hike.

TM: So you're on top of the Redwall. All the way down to Eminence and then out there. What a nice loop.

EB: Yeah.

TM: The trouble with that is where'd you find water?

EB: We went down to the river every night. And we did some… Like Shinumu it's really close to the river.

TM: But from there…

EB: Yeah. Every night.

TM: …downstream.

EB: Yeah. So like at the dam site, right near Redwall Cavern... And George knew another way, the night before to…

TM: There's the Pin route that goes down there.

EB: Yeah. That's what we took. [laughs] That's what we took. That was pretty cool. We had kind of webbing rigged up and we went right down the limestone face.

TM: Mhm. Right down that sloping limestone face?

EB: Yeah.

TM: And then further south from there, you would go past the Marble Canyon dam site and the little camp at the top of that. But then water would have had to come out of potholes cause you don't get down to the river.

EB: There was another route George knew that we got down.

TM: Tatahatso?

EB: Sounds familiar. But I remember every one was climbing involved.

TM: Or the Bridge of Sigh.

EB: Yeah.

TM: But that's not…

EB: That's on the other side, isn't it?

TM: Well, the Redwall breakdown is on river left. There's the bridges on river right on the west side, but you guys are on the east side and there's a walk down to the river there.

EB: Yeah.

TM: So yeah. Okay.

EB: It was scrambly, scrambling thing that we did each time. And then at Eminence we went down to the river as well.

TM: Okay. To get water before you went up.

EB: We actually camped at the river.

TM: Oh, wow.

EB: Then we took this wrong route out because... Oh, no, George took the right route but the leader of the hike, Bert, he's sent us right up the gully. And we…

TM: This is Bert Fingerhut?

EB: Yeah. It was awful.

TM: Oh, yeah. You can't get out that way. Oh no.

EB: There's George on the horizon on the correct... But of course, we were like, Bert was our leader so we followed him up this heinous gully.

TM: What can you tell me about George Steck?

EB: He was very nice. He did get mad a couple times at Bert cause Bert would insist on doing something or doing something his way and not listen to Bert, I mean not listen to George, where I'm sure George knew better cause, you know, the canyon was his second home. But he was just easy to get along with. I remember everyday he made a quart of instant coffee. He had instant coffee and some kind of creamer powder, probably, and sugar. He mixed that up and he would drink that. That was something he really looked forward to. Yeah. Cold.

TM: Alright. His refreshment, his chill refreshment.

EB: It was just like, you know, cold/regular water. He had a dry sense of humor. Was not a bragging man at all for all his experience. He was not always speaking for everybody to hear at all. He probably should have spoke more. I don't know if everyone in the group really recognized the significance of him there. But yeah, he was just like a member of our group.

TM: Nice. So he was typically doing the route-finding and he knew where all the down routes were.

EB: Exactly. He knew exactly.

TM: Who else was on those trips? Do you remember?

EB: I don't. It was just this kind of... Bert had some groupies that always were following him and somehow I got asked on the trip, too.

TM: So at this point, being a child of Detroit, what was the Grand Canyon teaching you and telling you?

EB: Let's see. At this point, I was in love with Grand Canyon and I wanted to go as many places as I could within the confines of my job/work. I always said whenever I would go into it or go there, that Grand Canyon always teaches me a lesson. Either a lesson on life or a lesson on being in the outdoors or a lesson on camping. But I don't know if I could say one now. It's just like, oh, I should have done this or this is how I should have planned or this is the route I should of... There is always something to be learned.

TM: Did your time on your hikes in Grand Canyon help you in school to be a better teacher in Phoenix when you would leave the Canyon and go back to work?

EB: Well, it probably gave me a refreshed attitude about life and work for sure. Definitely. I maybe would put into my lessons about nature or something, but at that point I really wasn't an activist or an advocate for nature. I was going to say, compared to today things were a lot calmer then, there wasn't as many people, but somebody who had hiked in the canyon say in the 50s or something would probably say, "Oh my god, we're in the 80s now. It's really horrible." You know, that's that base thing. I came into the canyon in say the 80s and so that was my base and so it seemed fine. Now I think, oh my god, it's a zoo. It's like people coming say to Flagstaff, they think, oh, Flagstaff is great. Well, I think it's a zoo. And I'm like, you don't know what it used to be like. They say, yeah, I think this is great. So it's just interesting how everybody's base level… Which is kind of worrisome because if everybody's base level keeps getting worse and they accept that, we're never going to get better. Then there's also people who say you can't return to what it was in the past, but I don't think I agree with that, with the conservation and the overpopulation and everything.

TM: Well, this is a fascinating question for you because the national parks are built on an act of Congress called the Organic Act, and you know this, which has a basis of non-impairment for future generations. That concept of non-impairment, in theory, doesn't change no matter what the population is. So when the people in 1954 were writing about the increased number of river runners and were concerned about it then, we think about non-impairment. So today it's not that the population has increased by three or four, that non-impairment mandate still holds true. When do you think you became aware of the non-impairment mandate? Just simply for thinking about the structure of the national park as a way to sort of start building a foundation for resource protection or environmental awareness?

EB: I became aware…this kind of leads into it just cause I was doing a bunch of backpacking and I was a teacher. I learned about this class called the Geology and Ecology of Grand Canyon taught by Stan Beus who was mister geology of NAU. I mean, he was the geology department.

TM: He wrote the book.

EB: He wrote the book. [He] and Steve Carothers were the professors of that course. I saw it in the NAU catalog and I thought, cool, I get to go on a river trip on this class.

TM: So this would be a summer course?

EB: Mhm. Mostly they were educators in there and it was a six week course. What I didn't realize was that we would... I saw the river trip but I didn't realize we would get a huge amount of fabulous information on ecology and geology of Grand Canyon. That's kind of where I actually fell in love with geology from that course.

TM: And this was what year, do you remember?

EB: '88.

TM: So the summer of 1988?

EB: Mhm.

TM: Okay. What do you remember about Stan?

EB: Oh, he was soft spoken. Very knowledgeable, but you know, not a pontificator. I always said he sounded like a preacher. His voice was very soothing when he would talk in lecture. He was a good sport when we'd go on the river trip with him. I did this class twice, '88, '89. Brian Dierker was on

there and Pete Resnick were boatman. They would tease Dr. Beus. We called him Dr. Beus. They would tease him or they'd do something to his camp and he was always so good in natured. He would always take the teasing real well. Yeah.

TM: And what do you remember about Steve Carothers?

EB: Steve was very charismatic and very knowledgeable and more opinionated. He would tell us. Opinionated. Maybe there's not as much to be opinionated with geology, but with the ecology and stuff. He was fun and we learned a lot from Steve. In fact, Steve was on my committee for my PhD.

TM: Okay. So tell me more about that first trip in the summer. Well, tell me about the whole class, summer of 1968, sorry, 1988.

EB: '88. That class is one of my best memories because it was at NAU when NAU was probably only 13,000 students. We stayed in a dorm and we would walk down the center mall to the geology building. The old geology building that's attached to biology and I just love that. It's the physics and astronomy, geology building. I love that building. I love the history in it. I remember inside it was cool and kind of dim. We'd meet in there. Every day we'd have class and then we'd usually go on a field trip in the afternoon. We went all over Northern Arizona to cinder craters, to parks. Yeah, it was fabulous. It was field and lecture. Then the culmination of the trip was the river trip. It was a 12 day river trip. We all had projects we had to do because the purpose of this was… Each of us had a project and we'd write up a report and then we would submit it to the national park. Some people studied beach erosion, some people studied wildlife along the rivers, some people studied rock layers or sand layers. These were ongoing topics that they had that they'd done for years. So people would either contribute to them or maybe do something a little different and then we'd write it up.

TM: And what did you do?

EB: I can't remember my first years, but my second year in '89 I did... No, the first year I did like lizard wildlife along the river. Steve Carothers was in charge of that. The second year I did human impact, or it was tamarisk. The tamarisk and its allelopathy. Larry Stevens was the ecology professor on that. Steve Carothers was on our trip and a boatman in '89, but he didn't have time, I think, to teach. That was when he was just getting his SWCA rolling. He was growing bigger and bigger, as we know.

TM: This is the Southwest… SWCA stands for?

EB: Oh, Steven W. Carothers and Associates, SWCA.

TM: Which is a company that he founded to do archeological censusing of project sites before roads were built…

EB: Construction. Yeah.

TM: …construction is built.

EB: Yeah. Basically, his environmental company did environmental surveys in order to provide permits for development in general.

TM: Right. So in 1989 you were looking at the impacts of tamarisk with Larry Stevens. What do you remember about Larry?

EB: Larry was also kind of reticent, but clearly confident. Had a tremendous amount of information to share. I mean its fabulous fun to be around him because he's just full of information and facts and stuff.

TM: And very easy to share that information.

EB: Yeah. Mhm. It was kind of funny... There was like two big 37 foot boats and then Larry, of course, would not sit on a motorboat, although he did in the future when we did research trips. But he, of course, had his own 18 foot rowboat. It was kind of funny, there was these big boats and then there's Larry. At first nobody wanted to be on that rowboat, you know, cause it was all splashy. So then there was a group of four of us that went on Larry's boat. Then as the trip went on, everybody wanted to be on Larry's boat and we'd be like, "Oh, no. We're on this."

TM: [laughs] You lost your chance.

EB: "This is our place." And "Oh, we're going to have some big rapids today. You wouldn't want to be on it." I think we almost dominated his boat for the whole trip. Yeah. But that was…

TM: The boatmen you mentioned, Pete Resnick and Brian Dierker, were they chartered motors or were they Park Service boats? Do you remember? Were they NAU boats or Carothers boats?

EB: Gosh, I don't remember. Actually as I think about it, I think they were snouts and they were Carothers' snouts.

TM: Okay. So they were 22 foot long.

EB: Yeah. You know, yeah.

TM: That makes sense.

EB: Because this was probably under a research permit. I know Stan Beus had a grant. I forget where it was from…in Washington some big grant for education purposes. It was probably a research permit, which meant they used their own boats.

TM: Yeah. Okay. That makes sense. Alright.

EB: As newcomers to Flagstaff—of course, we were still living in Phoenix teaching—we were fortunate, I think, to be introduced to sort of the core group of Flagstaff Colorado River runners, you know, Brian Dierker, Steve Carothers, Stan Beus, Pete Resnick.

TM: What do you remember about Brian?

EB: Brian. [laughs] He was a ton of fun. He has a very loud presence. He's a big man, and god, it was just fun being around him. I feel like he and Pete and Steve Carothers also made the trip fabulous being around them.

TM: And Pete Resnick, what can you say about Pete?

EB: He was just nice. A gentleman. Friendly. Everybody sort of dims when Brian Dierker is around, like just kind of fade in the background of Brian Dierker.

TM: It's easy to do.

EB: Yeah. [laughs] You can't compete with that.

TM: Yeah.

EB: So it was on those trips, the second trip, where we were... I think we were at Grapevine, could have been Grapevine cause there is a place to hike in there. Kinda sketchy. Dave Wegner hiked in and told us that Secretary of the Interior Manuel Lujan has decided that we're going to do an

environmental impact statement on the Colorado River and money is going to be coming. He kind of invited us to participate or work on it or study, you know, you could get your master's degree. So that sort of changed the trajectory of my life and Joe's life cause we were both teaching. I really was pretty happy, but we saw this opportunity.

TM: So you were on a track to get your master's anyways as a teacher?

EB: No.

TM: No?

EB: No. Because of this I did. I got a masters in earth science under Stan Beus because of these classes.

TM: Was that totally a didactic masters? Did you have to have to do some research at all?

EB: I had to do a oral presentation/oral exam. There was not a master's thesis with this, there was a oral exam/presentation.

TM: Uh-huh. And what did you focus on?

EB: I focused on deserts, landforms in deserts. I just talked about the formation of the Western United States and the landforms. I can't…

TM: Sort of here are the Rocky Mountains, here's the Pacific Ocean, here's the land in between, and here's how it got that way?

EB: Yeah.

TM: Which is still being debated today.

EB: Yeah. I don't know if… I may have said a older hypothesis on how Grand Canyon was formed. But since that class with Stan, I have been fascinated with geology.

TM: Cool.

EB: Yeah. But then we moved… So after that, Joe and I moved. We moved from Phoenix teaching to Flagstaff.

TM: When you went back for your master's, so…

EB: It was something I could do from Phoenix. I just took classes. I worked with Stan Beus and actually his cohort. He was a teacher from Missouri. I can't think of his name...Frank. Frank. I can't think of his last name, but he helped me put together a program.

TM: So driving back and forth?

EB: No, just helped me design the classes. I took classes in NAU, I took classes at ASU. So in other words, I didn't have to be on campus to…

TM: Okay. Let's back up a minute. Can you tell me about Dave Wegner?

EB: Yeah. Dave Wegner. We got know Dave… I just met him and I was like, “Oh, who's this tall, skinny, blonde guy telling us about this EIS? And what's a EIS?” Then when we decided to move to Flagstaff, which was very scary cause I had to leave my job, we started to work for GCES, Glen Canyon Environmental Studies. I was doing surveys through GCES, which Dave Wegner was in charge

of. He was the Bureau of Reclamation director of that program. They were in that office down on Birch, that six or seven story building.

TM: It was the Federal building with the FBI on the same floor. [EB laughs] Downtown Flagstaff, was the tallest building in Flagstaff at the time.

EB: At the time.

TM: Still. Yeah.

EB: But he…

TM: Set up shop there.

EB: Uh-huh. I don't know when... Glen Canyon Environmental Studies had been going since when, the 70s or… how old is that? I should know because I gave a talk on this and I wrote a little monograph for the Grand Canyon historical presentation stuff. It's in my article. I just don't have it… [laughs] But anyway, I got to know Dave because I got onto river flow research trips. Remember they were running the crazy flows. They'd go down to 5,000 CFS and then we'd go down and we'd measure the erosion on the beaches.

TM: So let's flesh that out a little bit more. This was a study to look at flow releases from Glen Canyon dam and different flow releases. Very high, very low, very quick, very slow, lots of low steady, lots of high steady, in between steady. Those flows would run for five days or seven day and then a team of people would amass into the canyon. Boats would go down empty to Phantom Ranch where people would hike in and join them. And then those boat crews, some would race forward and then start surveying assigned specific beaches on a one or two week basis for months.

EB: Yes.

TM: How did that go?

EB: How did it go? Let me think. Cause, at the time I still didn't quite get the big picture. I realized that the dam has an effect on the downstream resources, but I'm still like, “Oh, this is my job. I'm doing river trips every two weeks.”

TM: They were fun. You got to see the canyon and sort of go from beach to beach and set up a total station, a survey station. Someone would run around with a rod and you'd shoot in a bunch of sites and watch the sand disappear.

EB: Yes. It was determined that the flows out of the dam definitely had an effect on the deterioration of the beaches. But yeah, I was often... There were four segments of the canyon. I was always on the...dang…I was always in Marble Canyon. I remember I'd ask, “Can’t I go into the lower canyon?” But they'd say, “Oh no, we have the team set up. You have to stay with...” Which really I grew to love Marble Canyon. I think I was the very upper part from Glen Canyon down to 40-mile or something.

TM: So you guys would show up at Lees Ferry and then go upstream in the motor snout boats. Start your surveys up there and then go right past Lees Ferry and continue surveying downstream to 40-mile.

EB: Yeah. 40 or something. I haven't thought about it in a long time. Then we'd go out at Phantom and then we'd hike out. But I was in a lower part where I think we'd hiked in and we went down the river very fast so that we could get to the fourth section that ended at Diamond Creek.

TM: Were you running a total station? Were you running the rod? What were you doing?

EB: A couple of times I did the total station just cause I wanted to learn how to do it. But the geologists, the people getting master's degrees or maybe people who already had one, would generally run the total station.

TM: That wasn't you though?

EB: No.

TM: I'm confused in the timeline. So you hadn't started your master's yet?

EB: I did my masters in... Yeah, I had started it. I did my master's like in '90 to '92. It wasn't really structured like a normal master's thesis master's was cause I was taking classes and just preparing this presentation. So I ran the rod. There's a whole bunch of other stuff you could have done besides run the total stations. Those trips were pretty cush because we had Steve Bledsoe and Cindy Bledsoe. She's probably changed her last name. They were all OARS boatmen and we had the OARS menu. We would have shrimp, we would have filet mignon, we would have… Cause they were just following their usual procedure for their commercials. It wasn't until a couple years in where OARS figured out, hey, we could make a lot more money or conserve money if we just served them regular tacos. But for the first part of that research we were eating fabulous food. It was cooked for us. You know, we just had to…

TM: Who was the cook?

EB: There was always a cook. Always a cook. Always a boatman. And then we'd just... I mean, we'd help in the kitchen, but pretty much we were just doing our work and then when food was ready we'd go eat. I remember 5,000 CFS was tricky to run. I remember once we were at Hance and it was like horrible. Steve Bledsoe was scouting on the left bank. I was just learning how to row a boat then, and I remember I went up… Should never talk to a boatman scouting. I went up to him and I just said something like, "Wow, that looks really bad. I can't see a way through." Anybody else would have said, "Get outta here." But he was just such a gentleman. He always was. We ripped a big hole in the boat and he's all calm and he pulls over below Hance and he fixes the rip. We just hung out there for a couple hours, like that was just how Steve operated.

TM: Mhm. That's good. You pick up the pieces, you carry on.

EB: Right.

TM: Yeah.

EB: I remember one time there was a Lees Ferry ranger, Vic...can't think of his last name. Vic... Once when we went in to start, he was there. Was very cold morning, probably in the early winter, and he showed up with these coffee thermos's and a whole bunch of pastries. I forget his wife's name at the time. They're not married now. She was fun. He goes, "Oh, whatever her name was, she made this for you." It was just like fabulous pastries and these cakes.

TM: Oh my gosh.

EB: And the coffee was like French Roast. It was good stuff. Natasha was his wife's name. Later after we talked to Natasha, we're like, "Oh, thank you for making those treats for us." She said, "I didn't make them. Vic is the baker. He made them. He was just too embarrassed to tell you that he made them." We're like, "That was so sweet."

TM: Nice. What else do you remember about those trips?

EB: Oh, that they were fun. We did our work. People got along. It was pretty nice.

TM: Did you appreciate right then and there that it was a losing game with the sand?

EB: No I didn't. No, not at all. I didn't get any of that. I didn't get it until I started my PhD and I started working for Dean Blinn's lab. They were doing the aquatic food base, the algae and the bugs. Then, Dean, you know, another fabulous, fabulous professor and mentor.

TM: A timeline... So you finish your masters in '92.

EB: Mhm.

TM: And then did you go right into your PhD then?

EB: No. So, let's see. I was still teaching up until then. I took a year off.

TM: In Phoenix?

EB: Yeah. I had taken a year off. And actually during that year, '90, Larry Stevens was doing a research trip and he asked me if I'd want to go. He asked a few people. A month long research trip from mid-January to mid-February. I thought, oh yeah, that sounds great. So I took a year's leave of absence from teaching.

TM: What did you do on that trip?

EB: Oh my god. We did surveying. We dug holes. We got tree cores. Larry had so many projects, you know, but... yeah. We dug into the beach to see the layers probably from flows. We surveyed with total stations. We checked out packrat midden. We cored so many hackberry trees to determine if they were water stressed during the dam years compared to before. Larry told us everything to get. It was a two boat trip. Jeffe Aronson was the other boatman. He told us what we needed. He told us to wear those silly river neoprene booties in January. I was ready to hike out up a cliff and leave the trip. There was this really nice...I think he was a geologist who had like size 10 men's irrigation boots and he left. He goes, you can have my boots. I was just clomping around in those things, but they saved me. I mean, Larry was warm rowing with his neoprene booties on, but I was dying. So that saved me. I learned a lot about having your feet in water all day.

TM: Yes.

EB: And Larry worked us. He worked us all day and into the dark to the point where I used to set my alarm on my watch and it would just go off. We'd still be on the river and he'd be like, “Oh, oh, okay. I'm sorry. I guess we better pull over pretty soon and camp.”

TM: There was an audio clip of Larry Stevens going through volunteers and the question was, “Larry, you seem to go through a lot of volunteers.” [EB laughs] The answer was, “Yes, I do.” “Is it like this? [Aaah, sound effect] Next volunteer.” “No, it wasn't like that. It was like this [ah, ah, ah, ah, ah sound effect] until they were like, I quit,” and the next volunteer would show up. It was hard work.

EB: Yeah. Cause he's a... Yeah.

TM: But you got a lot done.

EB: Yeah, I think we did.

TM: And you learned a lot.

EB: I learned a lot. It was fun cause he had work to do and I think Jeffe Aronson had meetings. So when we got to Phantom Ranch, he had to go out for a week. We didn't want to leave or didn't want to go back to Phoenix, so we camped at...dang. What's the name of that beach that has three camps that everybody camps at the night before…?

TM: Cremation?

EB: Cremation. We camped there, just us, Joe and I, for the whole week and we called it our vacation within our vacation.

TM: Nice.

EB: And then in the middle…

TM: So did you have a little boat you could row across and go down to Phantom…

EB: Yes.

TM: …and come back?

EB: And you know, neither of us knew how to row really. Larry showed him how to row across so we could get... Cause we would go to Phantom and we would hang out in the ranger station. But then in the very middle of that, we got reservations on the south rim and we stayed up there for two or three days. We called it our vacation within our vacation within our vacation, if you get that.

TM: Wonderful. Yeah. Yeah. Yeah.

EB: [laughs] So that was fun.

TM: Nice. Did you see any other river runners down there then, January?

EB: I don't think so.

TM: 1990?

EB: 1990. Mid-January to mid-February. Maybe there was a motor trip of someone, but I don't recall.

TM: Some other science trip going by and…

EB: Yeah, but I just don't recall.

TM: Okay. Very fun. So then, a week goes by and new crew of people come in with Larry?

EB: Yeah.

TM: Or same crew?

EB: Larry and Jeffe came back and I think they had one other or two other people at the most. We were a very small group. Probably cause everybody knew it was Larry's trip and they're not going to do it. [laughs]

TM: What can you tell me about Jeffe Aronson. What else do you remember about Jeffe?

EB: He was a nice person. Seemed like he had a lot of world experience. I think at that time he said he was recovering from having cancer or something. He was on the mend and getting back in shape and getting physical again. He did fine, fine everything, you know.

TM: Nice. And then for the lower half of that trip, again, more studies, more research, more heading up probably tributaries that have flowing water to look at ecology, possibly. I'm not sure.

EB: Yeah. Just still coring of hackberry trees, of course they petered out. Surveying, looking at packrat middens. Dang, I can't remember, but we were busy every day, of course.

TM: Okay. At this time in 1990… So this is your year off. You haven't started your master's yet or had you?

EB: I probably started. I probably started it and was applying classes. My geology and ecology of Grand Canyon classes and other classes I took at ASU. I was amassing my classes then.

TM: Okay. So taking requirements. Starting to pull those together.

EB: Yeah.

TM: What can you tell me about Dean Blinn?

EB: The way I met Dean was he was Joe's advisor because Joe has tremendous water background. When it became apparent that there was going to be huge studies and lots of funding coming to NAU, Larry probably told Joe to talk to Dean Blinn, that he could get a master's with him. So we met Dean Blinn. Joe started his master's with Dean in probably '90. He had a lab. Dean actually, he wrote grants. Dean got over a million dollars in grants which back in the early 90s that's a lot of money for research. He was a quiet man. Extremely knowledgeable. A great teacher. Fun to be with. Soft spoken. He was a great teacher, a great researcher, a great mentor, which is extremely rare in academia I can tell you from direct experience, and he was all three of those things.

So I started working in his lab and I couldn't find a teaching job in Flagstaff. I was like, ahh, you know, and I didn't know what to do because I quit my job. It was actually a pretty stressful time for me. So he let me work in the lab. I was weighing algae and sorting bugs and that kind of thing. He said, "Well, why don't you get a PhD with me." I mean, he just took me on and so I did. I said, "Okay, well that would be a job." So I started a PhD with Dean. Actually, I was still terrestrial. I had this fascination with sky islands in the park. Dean said, "Well, let's put together a study where we study the potholes and see what's in there." So I wrote a couple grants because we needed a helicopter to get to them. I wrote a couple of grants and I remember I'd always go to what we called the CPSU, the Colorado Plateau Research. I don't know what the U stood for, but it was on campus. It was in this decrepit, like industrial building.

TM: Union?

EB: Yeah. Even though we called it Station, CPSU. So we'd go there and there was park people there. I remember talking to Linda Jalbert, who was the wilderness manager. I would say, "Here's my grant proposal…you know…potholes..." And Dean was all in. He was just always like, "Whatever it is, I'll be with you for the study." So I kept rewriting it and looking up stuff and gave it to Linda Jalbert and I forget the other plant woman… Warren, Kathy Warren was it?

TM: Yes. Kathy Warren.

EB: And Linda, finally she sits back in her chair and kind of sighs and goes, "Huh, this is never going to get approved." It's like she finally had to break it to me. Like you need to stop this because this is never going to get approved. Helicopters flying onto sky islands is never going to get approved. She just made me realize, oh. Thankfully she said that. So I stopped and then I joined what Dean was doing with the algae and the food base and the effects of the flows on that.

TM: Did it not occur to you that you could reach potholes without helicopters?

EB: Well, but it would have been...yeah, climbing or something. But Dean, Dean wanted to be there.

TM: Oh, and when I think about potholes, I think about, again, for the people listening, what's a pothole?

EB: Pothole is a little depression in the rock where it fills with either rainwater or snow water and living things are in it.

TM: Are they everywhere? Where do you find them?

EB: They're little crustaceans or small invertebrate animals that can go into cyst form and they come out. They can go into cyst form and survive for months until water comes again.

TM: So these potholes, they would dry out?

EB: Yeah.

TM: And the little creatures in the water would be able to survive the drying. And then it would rain or it would snow and the pothole would fill up and the little creatures would come back to the life.

EB: Yeah.

TM: Okay. Where would I go to find one if I wanted to go find a pothole?

EB: The slickrock.

TM: What's a slickrock?

EB: Slickrock is a rock layer like sandstone or limestone that's hard rock that... So you'd go where a rock is exposed, not where vegetation is.

TM: Okay. So it's basically where rainwater would collect on a rock surface in a little pool or a pond.

EB: Yeah.

TM: Alright.

EB: I haven't thought of this in almost 30 years. I think what Dean was curious about was are they different from each other? Are the species different from each other? So that's why it had to be sky islands that were not really accessible and were the easiest and quickest way. And definitely for Dean, because he was not a…

TM: How old was he at the time?

EB: He was probably 50, late 50s. Somewhere in the 50s and he wasn't going to climb.

TM: Okay. When I think of potholes, I think of the…

EB: Oh, you think of deep ones?

TM: …the Esplanade, which is a rock formation name where there's acres and acres of very few plants and mostly smooth rock. They form lots of potholes. And you gotta hike. It takes a day or two to get down into these areas where they are. But there's lots of them. [laughs]

EB: Yeah. I know we were specifically interested in sky islands that were sequestered from each other.

TM: So like Wotans Throne and...

EB: Yeah.

TM: …Fishtail Mesa. Just trying to throw out a couple of sky islands, Powell Plateau.

EB: I can't even think of any names. Anywhere that's not really accessible by animals or it's very difficult. In that case, there might not be as many as one would think because they cannot...they have to be almost standing alone.

TM: If you want to sheer off the animal population you're talking about places like Horace Temple which has a couple acres surrounded by sheer cliffs.

EB: Yeah. That's what the aim was for.

TM: Got it. Alright. So Linda Jalbert, Kathy Warren. These women were working in the science center. Did you interface with them here in Flagstaff or up at the South Rim?

EB: In Flagstaff at that Colorado Plateau Research Station.

TM: Okay. So that didn't sound like it was going to work.

EB: Yeah. Thank goodness Linda just blurted out, look, you need to stop this. So I stopped cause I was looking up stuff and trying to write proposals. She helped me to stop that cause it was going to go nowhere.

TM: Yeah. Yeah. The superintendent at the time, I want to say was Rob Arnberger?

EB: Yeah. Him or... Who followed Dick Marks? Did he follow Dick Marks?

TM: He did, but there were a series of superintendents before he showed up between Marks and Arnberger…

EB: Okay. I can't remember.

TM: …in a short time.

EB: Cause I wasn't even thinking. I didn't really... I was just clueless [laughs] about getting approved for this intrusion into the wilderness and the superintendent approving it, you know. I didn't know.

TM: So went back to Dean and Dean said, okay, we'll regroup and we'll study what?

EB: I studied the effects of the river/the dam operations on the downstream food base. It was bugs, algae…filamentous algae, green algae, and diatoms.

TM: Okay. Was Joe doing a similar type…?

EB: Joe, he was studying the invertebrates, the insects. So his was very bug-centric. Mine was very... I didn't want to do bugs. He was looking at bugs. I forgot the name of his dissertation.

TM: So he was looking at bugs in the air. You were looking at bugs in the water. Well no because diatoms are not…

EB: No, no. I wasn't really looking at bugs at all. Bugs were just a part of it. I maybe named some in biomass, but Joe was looking at species throughout the corridor.

TM: So you were looking at the food base for the bugs.

EB: Yeah. Yeah.

TM: Got it. Algae and the diatoms and the things that bugs eat.

EB: Yeah. And then he was looking at stuff that the fish ate. I mean, the insects, the invertebrates.

TM: Alright.

EB: And how they were different in the corridor versus the tributaries. You know how the tributaries were still a natural environment and the corridor was completely an alien environment.

TM: Alien environment because of…?

EB: Because of the change in the dam operations. The dam changed the Grand Canyon forever in terms of sediment, temperature, flows.

TM: Flotsam, jetsam, the whole driftwood concept, the food base. The entire…

EB: Yeah. You know, there's a loss of sediment; the flows were now completely unnatural; the temperature was steady instead of changing from basically freezing to 80 degrees. All the life reproduction needs for the natural invertebrates/the native invertebrates was gone so then the non-natives came in. The lack of sediment allowed algae to grow, which normally... The river corridor used to be like this depauperate sand canal. No vegetation. Nothing really. Well, there was the humpback chub and there were invertebrates accustomed to muddy water, but they... And there was actually a ton of life there that a lot of the Bureau of Rec people would be like, “Oh, there's nothing in the river. There's nothing there. There's no bugs or anything.” Then we'd say, “Well, what do you think the fish are eating?” And they'd say, “Oh, they're eating other fish.” We’d just tear our hair out like, well, “What do you think the other fish are eating?” You know, duh, kind of stuff.

TM: And the mayfly blooms and just these incredible populations of bugs that would work on the water/in the water.

EB: Yeah. So I got involved with that study.

TM: Okay. And then that would become your master's?

EB: My PhD.

TM: Your PhD. I'm sorry.

EB: Mhm.

TM: Thank you. Okay. And so that would have gotten you on the river, I would assume, quite a bit for sample collecting.

EB: Yeah.

TM: Were those trips run out of the GCES, Glen Canyon Environmental Studies shop…

EB: Yes. Mhm.

TM: …or did you guys have your own boats?

EB: No, no.

TM: NAU have their own navy?

EB: No. We did everything through OARS, which was through GCES. I went on a lot of river trips. Most of them were Joe's river trips cause my studies concentrated in Glen Canyon and Joe's studies concentrated throughout the whole river corridor. I went along because they needed a lot of people to help collect and sort. We would sort bugs and algae for hours and hours and hours. Actually it was funny because...so this is my experience in the Blinn lab. There's a lot of people working in there and our whole team would go on the river trips. I feel like we were the hardest working or one of the... We were all business. There weren't drunken brawls on our trips cause we had to sort until midnight and we had to get up early and follow a certain schedule cause we had to follow the flows. So we basically collected all day and sorted all night, every day.

TM: It's interesting you should mention this because the Larry Stevens river trips, the Ted Melis river trips, the Robert Webb river trips out of USGS, the Dean Blinn river trips. I don't ever remember a hint of sexual predation as it would eventually become into the news and just blow up on the Park Service.

EB: Yeah. Well that, let's see.

TM: Cause all that's in front of us here. This is 1990 but things were morphing. Things were changing not quite yet in the Park Service's own river unit. Did you ever get a sense during that time when you were working on your PhD, that that was an issue on the river?

EB: No. I mean, people would get silly depending… That started... So there are all those research river trips with independent scientists or university scientists like Bob Webb, Dean Blinn, Joe Shannon, Jack Schmidt. But then things changed, in my opinion, drastically when GCES stopped once the EIS decision was made. I forget what year that was...'90. If you care to read the Grand Canyon monograph, it's all in there.

TM: Good.

EB: Somewhere like '93 or -4, or -6. '96 it changed because '96 I think was the EIS decision for the moderated flows, I think. With that decision was the dissolution of GCES and that's when Dave Wegner... Dave Wegner was a sleeper. They thought, oh, this guy, soft spoken and he's going to be such a pushover at the Bureau of Rec. These studies aren't gonna go anywhere, they're going to just collect a little bit of this and that and then we're going to push through our agenda for the dam operations. Well, Dave turned out to be a huge supporter of science, and the right thing, and conservation, and all of that stuff. I interviewed Dave Wegner and at the end of the GCES studies, they pretty much were like, you're going to quit or we're going to send you to some other federal place far away from Grand Canyon. Like, you're not going to continue with Grand Canyon cause you're too outspoken and you're too much pro Grand Canyon, river, etc, conservation. Because what they offered him was some horrible job in D.C. or something, he quit and he started his own situation. Then GCMRC came into play, Grand Canyon Monitoring and Research Center. I have the mission statement of that. I saved it when I worked for the park. I could have thrown it away out of disgust with the whole GCMRC and everything, but that is like a four page document that lays out what GCMRC is supposed to be. It is a part of the USGS and its mission is to be a small office that receives the...I forget what it was, $20 million from the Bureau of Rec, and to put out RFPs, requests for proposals, for research from the outside objective scientific world for studies...you know, we need this for the sand, for the ecology, blah, blah, blah…and then take those proposals and evaluate them and award the money. Alright. So they're just an office that filters money through and onward to the qualified scientists. Well, GCMRC decided early on that they were going to keep that money and hire their own agency scientists who would be holden to the Bureau of Rec and the science would be pseudoscience.

TM: So Emma, tell me more about this because when I think of science, I think of peer reviewed studies.

EB: Mhm.

TM: And yet it seemed as though a lot of the science that was done...the example I think of is the sediment collecting at National Canyon day and night, 24 hours a day with the dam doing certain flows regimes and all the sediment collections. Cooler after cooler full of bottle after bottle full of water samples and none of that was ever published.

EB: Exactly. In fact, I remember a USGS camp there for months. They stopped at four o'clock and started drinking. I mean, what a joke.

TM: So this is the difference between peer reviewed science and internal science. Cause I've often wondered about the science center at national parks or the United States Geological Survey. Sort of internal studies that don't go out for peer review or the Bureau of Reclamation that never see the light of day...

EB: Right.

TM: …if the conclusion of the study goes counter to the agency's mission or mandate or direction.

EB: Right. In fact, the reason Glen can't... Cause Glen Canyon Environmental Studies was supposed to study the whole canyon. However, it was strictly written in the directions of the mission for the... I think that the mission of GCES was you are not to study anything that will lead to changing dam operations, much less taking the dam down. Those are prohibited and that's why they even called it Glen Canyon Environmental Studies because they didn't want them going into Grand Canyon to look at the downstream effects.

TM: Interesting.

EB: Yeah. So they restricted them. Dave Wegner did as much as he could to widen the studies and to be objective and to look at the real effects. That's why they wanted to get rid of him. They wanted to get rid of Dave in the worst way. Once Dave was out, like a one man operation show, and they brought in all of these other people from USGS all they saw were dollar signs. Look at all the money we could keep in USGS, hire our own scientists, be in control, do what the Bureau wants. If you spoke out...

That's another thing, Dean Blinn's lab lost grant funding because we would produce papers that stated this is what's wrong. If you want to preserve this in the canyon, or these resources, or improve this for the native fish, you have to do this. And it was change the dam operations. They didn't like that, so they quit giving us grants and they gave them to people who would be “yes” people to them. So anyway, that is when the craziness started on the river where cases and cases and cases of beer would be a main stock item for the river trips. Drunkenness, craziness prevailed. Cause I was on those trips. And sand was so emphasized. We know there's no sand. We know 80% of it is gone. When I worked for the park and was permitting the trips, they used this to try all kinds of measurement devices. They had this rolling eyeball thing. I mean, they were just pulling in all kinds of different technology just for the purpose of studying. They learned a lot in terms of sand and how to study it by using this. The answer was the same each and every time, but they were using it as a vehicle for funding to try experiments. I'm sure there were some good scientists at GCMRC. I'm sure there were. I'm sure there are, but in general, all ending results would never point to that the dam has to be taken down or the flows need to be drastically changed. It just grew and grew and grew and things were crazy. It was just like go on the river and get high and get drunk and stuff.

TM: Maybe this is a good place to stop this second part interview as it's a quarter to three. [EB laughs] I'm just thinking I have a lot of questions that are starting to come up here at this timeframe, sort of as it goes from the Dave Wegner Glen Canyon Environmental Studies days with Dean Blinn and the other cooperators, transitioning into the USGS controlling this funding that the Park Service couldn't get either, as much as they tried. I didn't realize that Reclamation was divvying out the dollars to be used for a different purpose. So maybe this was a good time to stop this interview and we'll pick it up again at this point.

EB: Okay.

TM: Before I push the off button though, I always want to ask people, is there anything else you gotta/wanna put in right now because it's important to where we're at, or is this a…

EB: This is a good spot. I had a thought, but I can't think of it, that I wanted to mention about research on the river and GCMRC. But I'll have to see if I can think about it and bring it up.

TM: Alright. Well, in that case, this will conclude part two oral history interview with Emma Benenati. Today is July 17th, 2019. My name is Tom Martin. Thank you so much Emma.

EB: Thank you.