An Interview with Dave Rosgen
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James Wall 00:00
I asked everybody what would be the best interview and everybody said, "Dave Rosgen." Why do you think that is?

Dave Rosgen 00:12
Well, because I am a certified old fart. I have been around since the mid-1960s. I started in the early 1960s with the Forest Service as a smokejumper in 1961, out of McCall, Idaho. I stayed in fire control. When I graduated from Humboldt State University, California, it was mainly forest management. I took all the classes that were available in watershed and hydrology from Dr. Black, Peter Black. I had a minor in hydrology or watershed management. I started right away on the Clearwater National Forest, Idaho as a forester on the Canyon Ranger District, right in the middle of all of the big-time timber harvest, large clear cuts, high road densities, and some pretty big impacts dealing with water resources and river systems. At the early part of my career, I ended up collecting a lot of data because that was a country I grew up in. I was raised on a ranch in Idaho. I went back to the same places after I had graduated and was assigned to that ranger district of where I used to fish as a kid, and I saw all these impacts. I couldn't believe it. How the streams had changed, and had fine sediment deposition and sand, and the pools it filled up, and the fisheries went to pot. It was a westslope cutthroat fisheries. I was appalled. When I went back to the ranger district, about noon that same day, I jumped the fence I was a little excited, and the ranger was mowing his lawn. I said, "What the hell have you done to Quartz Creek?" I was pretty upset because I went and saw the effects of road field failures, tremendous amount of clear cutting, channel scour, bank erosion and things I didn't see before when I was in that country is a kid. He said, "Anything we do is nothing compared to Mother Nature. This is all natural. So, we have no influence on that." And I said, "You gotta be kidding me." He said, "No, it's the floods and stuff." I said, "There was floods before. But the stream didn't do this, it always held up."

Dave Rosgen 02:44
And that's when I realized he actually believed that. And if I was going to be effective as a person to help the resource, I needed to use a four-letter word, and it was called “data.” That's what started me on a career-long direction. To measure above and below an impact area, before or after, or control reach of a reference condition that had not been impacted compared to the same kind of stream that was impacted, so we could have a better idea of departure and a better idea of the consequence of certain types of land use activities on stream systems in terms of stability, bank erosion, fish habitat, the list goes on. So, I spent my whole career basically collecting data, because I knew that it is not my personality that is going to make a change of management. It had to be related to data that could demonstrate the consequence of change and the extent and magnitude of the changes that we had observed. But it couldn't be some subjective, "I feel, I think." It had to be more quantitative, and so, that set my direction. The thing is with the Forest Service hydrologist, when we first started, there was no Forest Service manuals or handbooks that said, "Oh, this is what a hydrologist does." And I started out as a

forester, but I had the background in hydrology. My first day on the job, they assigned me to a timber sale. So, I went up to a timber sale. They've been logging up this area for months with nobody from the Forest Service even showing up. And I showed up and they were skidding logs down a live stream. And I stopped [imitates gesture] the CAT skidder [laughs], on a skid CAT. I said, "Whoa, what the hell you doing?" So, he said, "Stand on the tracks of the skid CAT." And I said, "We're going to have to lay out some skid trails that are away from these streams. We can't be skidding logs down live stream channels." He says, "I don't need any college punks telling me what the hell to do." And he went on and on. [laughs] And I said, "Well, it looks like I need to get ahold of the foreman." Well, at first, I said, "How long have you been logging?" He said, "I've been logging for twenty-five years and I don't need college punks telling me what to do." And I said, "This is the best you can do?" [Laughs] He didn't take that lightly. So, he kicked me in the head off of the dozer, skid CAT knocked me back, but it changed my disposition. I pulled him off the CAT and proceeded to become a massive thumper and end up putting him in the hospital. And the foreman kind of broke it up. So, I was known for several years more as the guy who thumped the logger who skid down the stream [laughs].

Dave Rosgen 06:08
But it was rough times, and they weren't used to having anybody put controls on anything. And it was kind of a runaway. They were pioneering twenty-five miles of road a day on one ranger district, cutting over 200 million board feet on one ranger district, which was the Canyon District up on the North Fork of the Clearwater [National Forest]. So, it was massive timber harvest activities. We would meet as a group of hydrologists in the 1960s, because there was no formal things like "This is what you do. This is inventory you collect." There was nothing. So, we would meet with a few other hydrologists, and believe me there was just very few of us in the Northern Region, Region 1 [Missoula, Montana]. We said, "What are you doing?" and, "What did you see?" and, "What are you measuring?" and, "How could we do some analysis on this?" And sharing ideas, and then we go back to our respective units and work up different methodologies. And that's what actually started a lot of the things I end up developing in concert with my comrades and fellow hydrologists. I was moved to the Beaverhead [National Forest] where I took over a barometer watershed study measuring sediment. And that's when I had read a book on "Fluvial Processes in Geomorphology" by Leopold, Wolman, and Miller.[1] I was having trouble trying to figure out how to statistically set up a sediment sampling to understand where all the sediment's coming from that turned the whole Madison River brown, comes off the national forest land. So, I called up Luna B. Leopold himself. He invited me to come to Berkeley, where he was at the University of California. And I went to Berkeley, which is a big shock going from Ennis, Montana, to Berkeley, California in the 1960s. [Laughs] Believe me, it was a shock. But I sat down with Luna, and he set a direction for me, he said, "Okay, you need to do this. You need to do that." And he was instrumental as a mentor to me in my career. We later published papers together and taught courses together. But his advice was, "The

[1] Leopold, Luna Bergere, Miller, John P., Wolman, M. Gordon, *Fluvial Processes in Geomorphology* (New York: Dover Press, 1964).

answer is in the river. The answer is not in the model. It is not in the books. It is in the river, and it is up to you to read the river correctly and understand, and the river will educate you." And boy, was he right. For years, I went from the Beaverhead [National Forest] to the Lolo [National Forest]. I went to graduate school at University of Montana, in Missoula. Then transferred up into the Kaniksu [National] Forest up in North Idaho, in Sandpoint, and was a hydrologist there. I got converted from a forestry series to a 1315, that they called, for hydrology. And I had enough courses and I had all the requirements to do it. I just started as a forester and then went into the hydrology series, as I was qualified from school as well as experience. And then, from the Kaniksu [National Forest], I moved to Fort Collins [Colorado] and spent the next ten years on the Arapaho-Roosevelt [National] Forest as a hydrologist, continuing to collect sediment data, streamflow, bank erosion. So, that's kind of my Forest Service years of traditional hydrologist whatever that means.

James Wall 09:56
Yeah, there is a continuum. Some people had a good time. That's the rare part: the hydrologist who never had any bad bosses, I guess you would say. And then there's people who showed up to national forests, they had district rangers that hated them, didn't want them to be there, openly aggressive, hostile, just wanted to get the cut out. Where would you say your early career fell in terms of the luck you got with your superiors?

Dave Rosgen 10:27
It was very poor initially, because it's like I mentioned earlier, they did not want to hear someone who was going to limit what the traditional works were for timber harvest and road design. And I found terrible poor designs on stream crossings. But because that was tradition, the engineering department, you couldn't make a change. So, the early years was not harmonious, because tradition was driving the ship, and this is the way we do it. And that's how come I knew I needed the data. So, I went to a period of just collecting a lot of data before I became more vocal [chuckle], because then you can sit tall in the saddle when you got numbers. That's when I started becoming more effective on making a difference. And later in my career, and working with Gray Reynolds as a Forest Supervisor on the Arapaho-Roosevelt National Forest, he supported redoing the whole Forest Plan because of watershed impacts. And we had to redirect the whole timber harvest program and the road systems and redirect management in areas that had been concentrated for road construction, and clearcutting into restoration. To take those out of the standard timber availability area—redirect timber-harvested areas that needed it, which was important—and we increased the mean annual increment. And then there's a case we had total compatibility between the bosses and the people that we worked with, with foresters and engineers, basically, is because we had data. It's the data that developed the models, the high sedimentation model, which I developed, and used on every watershed in the forest for the forest plan. That's how I knew that we had to redo the forest plan, which was supported by the administration and the bosses, if you will. It was actually Gray Reynolds.

James Wall 12:40
So, that was a that was a good moment, but obviously not all forest supervisors are made equal. Tell me about the Two Forks Dam [Colorado], 1985.

Dave Rosgen 12:51
How did you know about that? [laughs] Well, that is how I ended up leaving the Forest Service. I was in charge of the environmental assessment as part of the Two Forks Dam, because there was national forest land involved. So, I was directed over there, even though it was on the Pike-San Isabel [National] Forest. I was detailed from the Arapaho-Roosevelt, and that by that time, they changed Forest Supervisors. Gray Reynolds, who had supported all the stuff we were doing, was transferred, went to a Regional Forester position. But nonetheless, what happened was I discovered that there was not enough water to fill the proposed reservoir on an average year. And so, what happened was I said, "We're going to have to have instream flows. If we don't have the instream flows you are going to have to either change the location and raise Cheesman Dam—we have enough capacity, there's enough flow for that—but not for the new dam." And I said, "There's going to have to institute instream flows." [sighs] Well, guess what? The Regional Forester and the Denver Water Board, all of them came to me the next day and they said, "Dave, we are not going to require any instream flows." I said, "Do you realize you are going to dry up all the streams that are donor streams to the Two Forks Dam? You can't set that kind of a precedent and let people do that." "Well, that's our administrative decision." And I said, "As long as I'm involved in the environmental assessment, there is going to be an instream flow, because I am not going to be part of drying up these streams just to fill a new reservoir." Within ten days, I got a directed reassignment. And they said, "You can either be transferred to the White River National Forest," that was the option, "You can resign, or we can fire you." Those were my three options. So, I resigned. And that is why I left the Forest Service. However, I did call the EPA [Environmental Protection Agency] and I said, "These are the questions you need to ask." That went on to Washington D.C., and of course Two Forks [Dam] was shut down. It went all the way to the Supreme Court, and that was upheld, and it was never built. And a lot of the people still say, "Well, Rosgen singlehandedly stopped the Two Forks Dam," [chuckle] which was controversial on the South Platte River. I told him, "I don't want to be associated with an organization that doesn't have a resource ethic." And that was a whole different Forest Supervisor, we called him "Hydrophobia". The Director of Watershed Management in Denver, in the regional office, we called "Hydro Hitler," [laughs] because a lack of resource ethic. That's where I ran into upper echelon that was not really supportive, and that's why I ended up leaving. I still kept in touch with my buddies in the Forest Service. And I still train a lot of people in classes from the Forest Service. We had seventeen Forest Service employees in one class two years ago. I still keep in touch with them and we share ideas and drink beer and develop a continuing camaraderie that we have had from the early days.

James Wall 16:33
We have got nine minutes left. But I'm curious about the role of water boards in general. You said the Denver Water Board was not exactly doing things right. I've heard a lot of stories about local water boards being basically a bit suspect. Did you find that to be the case in different places you worked or was Denver sort of an outlier?

Dave Rosgen 17:00
Denver, become the water buffalos, was probably the worst, because there is so many people and such a big demand for water. And the Two Forks was a big issue. With water boards, they are more interested in supplying water, not really understanding the impacts to watersheds. And so, when money is running the ship, the emphasis has been more on getting enough water. They can always treat it. They were not worried about sediment or fisheries impacts or environmental effects. It is mainly providing water. And as a result, a lot of diversion problems dealing with taking too much water out of the stream, to where the unregulated tributaries are filling up the main channel of the regulated mainstem. All these things effected a lot of adverse effects on where the water was diverted from on national forest land. I represented the Forest Service in a big water rights claim here in Colorado. And to try to demonstrate the adverse effects of poor diversion projects, structures taking out too much water, I developed in 1982, the channel maintenance flow requirements for how much flow do you need to maintain the function of rivers. And that was for the Big Horn adjudication case in Wyoming and that went well. We were always working on trying to explain to downstream water users and water boards that these are the things that can be done to provide water but still not adding adverse effects to the streams. So, it's always been a battle of a balance between how much is too much and thresholds and impacts to the river systems to prevent total dewatering, instream flow issues, channel maintenance flows. Those are all issues that we worked on hard over the years to try to hit a balance somewhere.

James Wall 19:31
Alright, ready for a few rapid-fire questions? We got six minutes. But there's always a few questions at the end that are revelatory, I think. What's the one thing about the job you miss the most, of the Forest Service, from the time you were in the outfit?

Dave Rosgen 19:46
I probably missed the camaraderie of getting together and working with a lot of the other hydrologists. That's probably the most valuable thing, is really sharing ideas, exchanging ideas, testing different theories, and collecting more data, and then being able to get back together and say, "Hey, here's what I found out." And then being able to collectively put things together that becomes a policy, which eventually happened, which surprised me. That was rewarding, but again, the camaraderie was the number one.

James Wall 20:28
What was your favorite district, favorite time when you were in the outfit?

Dave Rosgen 20:32
Probably on the Beaverhead National Forest on the Madison Ranger District in Ennis, Montana, where I ran the barometer watershed study and I was in the field almost continuously, both winter and summer and collecting data on the West Fork of the Madison [River] and running a main barometer watershed study. That was beautiful country and good work. And that was my first paper I ever published was from the work I developed there on using color infrared photography to determine sediment source areas. So, I determined where all the sediment was coming from on the West Fork of the Madison with aerial photography work from a helicopter with handheld cameras. So, that was rewarding and turned into a good procedure.

James Wall 21:25
What is the biggest change that you have seen in the way hydrology is practiced over your career?

Dave Rosgen 21:31
They have a hard time going to the field. That has been the biggest disappointment. And they tell me the same thing, with the EIS [Environmental Impact Statement] requirements, in fact they've put a big corral around the forest as like, "Let's not touch things." They are not managing stands. We are not doing the kind of things that need to be done to reduce fuel hazard reduction and fire risk reduction. Timber management has got to be just like timber protection, just hands off, and I think that is a terrible mistake. And I think they just got cold feet, because they went too far extreme in the early days. They lost the trust of the public. And then the Clean Water Act come along, and the next thing you know, they felt their hands are tied, they don't want to make a mistake. So, they are basically doing nothing, literally, to be able to manage the stands that need management. To me, that is the disappointment. The second is sitting watching fires burn, and not doing the initial attack. They have done that for the last several years, and that led to disastrous results, because then they are too big to control. And they become massive project fires because they didn't jump on them early. And I just sent a white paper contribution to the [Forest Service] Chief about that very thing, about the watershed impacts from big fires that created fifteen, twenty years of impacts that continue to provide excess sediment and fisheries problems. So, it's not a two, three-year impact and goes away. So, we need to get on top of fire suppression and timber management.

James Wall 23:33
Last question is always what does the Forest Service mean to you? Now that you are looking back on your time there, how do you remember it? What does it mean to you?

Dave Rosgen 23:41
I remember the challenge of trying to figure out what to do. How to reach people? How to communicate? What data I need to collect? But again, the value of that was it gives me an opportunity in those years to be able to collect data and to share data with people and develop methodologies which later became national programs. I liked that freedom and the challenge and the incentive because we were trying to make a difference. And we were sharing ideas because we all had a common objective. We just didn't have common solutions. So, I was excited with the opportunity to help be part of that crew to develop methodologies and come up with some answers to these common problems.