TWV Podcast #077
Water Rights as Property Rights with Spencer Williams
Show Notes at http://thewatervalues.com/pod77

Intro: Welcome to The Water Values Podcast. This is the podcast dedicated to water utilities, resources, treatment, reuse, and all things water. Now here's your host, Dave McGimpsey.

Dave: Hello and welcome to another session of The Water Values Podcast! As my son Joey said, I'm Dave McGimpsey. Thanks for joining me.

We have another great podcast for you today, but let's go over a few things first. First, a bug in the plug-in that allows the podcast to be played directly from the website caused that capability to be down for a while. Sorry about that.

Second, I just want to say thank you for listening and for those of you that have rate and reviewed the podcast on iTunes. Really appreciate it and please consider giving me a rating and a review there.

Next, I'm going to change the survey on the website in the next couple weeks, so if you have topics or interviewees you'd like to learn more about, please take less than a minute to complete the survey online, and I'll do my best to get a topic on it.

Now to today's podcast. Another quasi-listener request looking at the different shades of prior appropriation and water rights as they vary from state to state. Spencer Williams of Ponderosa Advisors is our guest today, and he does a great job identifying differences and similarities in water rights systems among several prior appropriation states and a hybrid, prior appropriation-riparian water rights system. It's a fascinating topic, wherein he also talks about the Water Sage mapping tool that Ponderosa Advisors has that contains all sorts of functionality for figuring out water rights issues.

With that said, let's get on with it. Open the valves, fasten your seatbelts and here we go.

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Dave: Well, Spencer, thanks very much for coming on to The Water Values Podcast. Really appreciate your time. To start off, tell us a little about your background and how you got interested in water?

Spencer: Absolutely. I am an attorney by trade, licensed in Colorado. I got into law with an interest in water and knew that's what I wanted to do. But it actually started, if you can believe it, I was a whitewater rafting guide on the Arkansas River, here in Colorado. And I picked up on one detail that clued me into the water rights world and that was that on August 15th of every year, the flow went from 750 cfs consistently, and then August 15th every year, it dropped off to what I know now is native flow. And that's a whole different story, but it gave me a sense that

water management was the thing in Colorado, and then I learned quickly that water rights was the thing. So as a young law student, I looked out into the world and said, "That seems interesting to me, and I want to find out what it's about."

Dave: What are you doing with your law degree?

Spencer: Yeah. I was in private, I actually started working for the State of Colorado with the Water Conservation Board and then I spent a couple years in private practice doing strictly water rights work. In the last year, I have transitioned all of that subject matter expertise into working with Ponderosa Advisors. So from an overview, we are market analytics firm leveraging software tools to better understand, traditionally, the energy markets, but we have a real new focus to understand water markets that exist. And we're doing fun things with water data and through our water data platform that I'm sure we'll talk about later.

Dave: Sure. Tell us a little about where this water data, where you're collecting this water data. Let's just start there. Where are you collecting the water data?

Spencer: Yeah, absolutely. We rely, predominantly, on publicly available sources. The states themselves have taken on a role as being clearing houses for data related to water use. And that's primarily for their purpose and responsibility to administer water rights. You know Colorado, for instance, one of the states we work in, does a great job. And that largely reflects the fact that administration is a critical function here – there's a large administrative body that works to make sure the prior appropriation system is administered in an orderly way.

So we have the benefit of all this collected data. We take that, we take some federal data sources and some state and local data sources, mostly on the county level and integrate that into a non-technical, reusable tool.

Dave: Ok. And is this national? Is it Colorado specific? What's your geographic scope?

Spencer: No, absolutely. We have platforms now for Wyoming, Montana, Colorado and Texas. Our primary focus is the Western United States where there is a water supply pinch of some kind and the prior appropriation states or states that have some form of a prior appropriation water rights regulation system.

Dave: Sure. And I think it is interesting you've talked about prior appropriation in the various states because I think it differs between the states and we can get into that. But a little more on how you are obtaining the information. Could you give us a little more granular look at how you are integrating all of this information? You're gathering it from sometimes county level sites, federal sites, all this stuff and you pluck that information and then you plug it into your software system?

Spencer: Sure. I'll walk you through what we do. Again, Colorado is a good example. Colorado does a great job of accumulating mass amounts of data. And on the water professionals side, there are many that have become really good at using and accessing that data. But, when you start moving into non-technical users that either don't have a GIS coding or data background to reach the same level of insight, it's really challenging. So, we take all of those data points, we retrieve them automatically. Colorado's got a great set up through the Colorado Information Market Place where we can set up automatic retrievals to keep that data constantly up-to-date. So those run on a weekly basis, sometimes even on a daily basis. And there aggregated together in our data bases at Ponderosa.

From there, we have a number of basically rules that we run all of this data through. And the purpose of these rules is to make sure that all of the data can interact with each other. So, if I'm looking at diversion records or irrigated acreage, or certain well permits, I want to know maybe how that well permit relates to an adjudicated water right. And so, by running all these rules on the data, we can make sure we're connecting all the dots. When those dots are connected, we can then, write really easy to use filtering queries, search capabilities, basically, easy user-interface features that let everyone get the same kind of comprehensive level of data without having to get an extra degree.

Dave: So, you're pulling all of this information, sounds to me like you're getting records from diversions, from, I assume rainfall records?

Spencer: We have stream-gage data. So, that is water flows in natural courses but also in man-made. So, that real time flow for ditches, canals, and other infrastructure like that. It's the locations of points of diversion. It's infrastructure, it is diversion records actually. Places of use for those water rights, all the approved uses, the amounts. I always, when we're talking about water rights, and we'll get to this, but we're talking about property rights.

And land is really easy to conceptualize as property right because you have boundaries. In a typical lot, you have four of them and you're either in or you're out and everything inside is in and everything outside is out. Water gets more complex. It's a property right, and it has its own boundaries as well. What's hard is conceptualizing and communicating those boundaries. And so, as we aggregate that data, we try to give a clearer perspective on what are the boundaries of that water right? It's bounded by its approved uses. It's bounded by its approved rate of flow or volume. It's bounded by its place of use. And we want a really quick way for someone to kind of pull the curtain back and see those boundaries and understand them quickly.

Dave: Sure. And now, who's going to use the information that you've got? Who's going to come out and say, "I need to find out about water right X?"

Spencer: Sure. We've been really surprised because our users have really been as diverse as water users are. So, we have federal, state and local government users. On the federal side, it is having the ability to review water rights information for other functions such as, conservation lending programs for upgrading irrigation equipment and confirming water rights. On the state and local government levels, it's a little bit easier. States own massive amounts of real estate and have to manage water rights, oftentimes with a specific mission or purpose, and from an asset management perspective they need a really good tool to do that.

When you come down to the local perspective, those are your water providers. They're relying on massive and very valuable water rights portfolios. In a lot of our states, those users need to follow other water rights activity very carefully. I always joke, especially when I was practicing water law, that fighting about water is like putting a clear ten gallon bucket in front of fifteen people, telling them that they each own a proportional interest in that bucket. And then telling them to all get exactly their portion out and nothing more.

When that's the case, everyone is very careful. Everybody's watching their boundaries very closely and ensuring that no one else's actions will impact theirs. Therefore, having a quick-to-use, easy-to-conceptualize tool to do it really eases that process. But it also brings transparency to it, so that lots of folks from lots of different backgrounds can be a part of that conversation.

Dave: Sure. Now the person who gets that information, how are they going to use that tool to, as you say, "Take exactly their share." Are people using it to figure what their share is or they using it to make sure that the other guys aren't taking too much?

Spencer: They are using it, most of our kind of high level clients that have a large water rights portfolio, they're the experts on their portfolio. But what's always important is monitoring how their portfolio is interacting with other water rights activity. It's not like you can just categorize water into these broad categories. It's more minute. So when you're looking at other activity in the basin, you need to be able to drill down on all that other information because someone's upstream use, obviously, will have an impact on your downstream use.

And the way and the complexity that's happened in water management in Colorado, specifically, we're talking complex augmentation plans and exchanges. It's affecting large regions of river. It's those kinds of things that whether you, they're a part of managing your own portfolio. Once again, we're all staring at the same bucket and saying how do I get my piece out? And so to do that effectively, you've got to understand everyone else's pieces as well.

Dave: You also mentioned that you're in multiple states. Let's talk about how the doctrine of prior appropriation differs amongst the states that, at least, you're collecting data from. So, that would be Montana, Wyoming, Colorado and Texas, I believe. So could you just give us a real quick thumbnail on how those systems of Prior Appropriation are different?

Spencer: Sure. I would say that from Montana, Wyoming and Colorado, the fundamental is the same. The prior appropriation doctrine is "first in time, first in right." You showed up on the stream system first, you put water to beneficial use and your right is better than all junior rights. You divert to the exclusion of all junior rights. And that principle is true in Montana, Wyoming and Colorado. Now, those three states have gone about the way they administer that system in different ways. Someone is going to check my facts on this, but my understanding is that the person who founded the Wyoming system was a former state engineer in Colorado. Somebody can write a comment or something and say that I'm wrong on that but my understanding is, it was a reaction to Colorado, and therefore, they established a system that was entirely controlled by a regulatory agency.

So, unlike Colorado where we have our water courts, it's a judicial process to adjudicate a water right, change a water right, they have a regulatory system that achieves many of the same results perhaps with a little more flexibility. The other thing you have to consider when you compare Colorado, Montana and Wyoming is that there are one half million people in Wyoming, and there are what, about five million people in Colorado with another five million expected in the next fifty years. So we each have different problems. In Montana, although Montana is growing a lot, they haven't felt the same pressure. And that brings to light a big difference between Montana and Colorado.

You know, Colorado is actively administered. The state engineer's office has many, many, many employees down to your water commissioners, your division engineers, tons of technical staff and really the major purpose is to administer prior appropriation. Make sure that people are diverting according to their decrees in priority. Now, they expanded to do a lot of different things. But that's been very important in Colorado to administer just the large amount of water rights with very important uses that exist.

Montana, which traditionally has been very rural, very agricultural, to date has not had that direct administrative arm of the government. Now, they're getting towards that as their population does grow, but for years, if you actually wanted to enforce your water right, you had to file a case in district court. So it's not like in Colorado, where you call the water commissioner and an hour later the river's being administered to deliver the water that you're entitled to. In Montana, you file a lawsuit and you and I both know how long that can take.

Now, like I said, that is changing, but it gives a different perspective on how prior appropriation has been used in different settings. But that holds true. That key element, "First in time, first in right" holds true in all the states. Texas is the outlier. I'll be happy to talk about that, too.

Dave: Yeah. I would just note real quick, it's interesting how you said, kind of, the infrastructure holding up or supporting the system in Colorado is so much more robust. It's directly related to population is kind of what I'm getting.

Spencer: That's my perspective at least, and there might be other opinions out there. But, I think it's a fascinating time to live on the Front Range. We live in a place of great economic growth and development, great population growth that's tied to that in a resource-restricted area. The hopeful side of me says that we will see great innovation in how to grow smart cities, smart communities.

But I think if you look at our history, too, we see that we've had to deal with that as the Front Range has grown through different periods, and the water rights laws have changed to reflect that. The laws haven't changed, but they have developed and they have broadened to reflect really those competing needs. And the South Platte Basin is a great example of a place where you have a really comprehensive picture of competing needs for a limited resource.

Dave: Yeah, so let's talk about Texas. How is Texas different from those other three prior appropriation states you mentioned?

Spencer: Sure. Well, Texas is a hybrid, prior appropriation–riparian state. So, what that means is, in contrast to Colorado, if you buy land in Colorado, and to many a Texan's frustration, they buy land in Colorado, and they realize that, unlike in Texas, you can't, if you have a stream running through your property, you can't just go and use that water. And that's not true in Texas. If you have a body of water, with certain limitations when you reach certain amounts of withdrawal, you have riparian right to use that water.

And when we go further East, the standard has typically been, you can't infringe upon a downstream user's riparian right to use that water. And there's some case law that developed basically with mill owners in highly industrialized areas in the Northeast, that kind of established these principles but frankly it was just never a problem. And in Texas, it's similar. For most of your typical on-property water uses, that works. And if it doesn't, then you have a right of action against the upstream user that's harming you and go to district court and you can solve it there.

Texas is kind of on the border. It straddles kind of this Western U.S. philosophy and this Eastern philosophy. And so for a long time there's been this opportunity to appropriate a prior appropriation-based right in Texas as well. It's interesting though, there's only about, I think, three thousand of those rights in Texas. And that's primarily for diversions of a certain size where you're seeking some protection of that diversion. You can go through the regulatory agencies in Colorado, and establish a water right. It's got a priority date. And it's got those boundaries and components that you think of in prior appropriation.

The interesting thing to consider is that, from my understanding, there's only been one priority call in Texas to date. That's currently being litigated through the Texas court system. Interesting situation, Dow Chemical owns a bunch of senior rights down on the Gulf. There are farmers and municipal industrial uses all upstream. And Dow made a priority call during their last droughts.

And there's a question of well, "Can we curtail domestic or municipal or industrial uses? What about power generation?" In Colorado, technically speaking, the answer is yes. That's why people in those businesses spend a lot of money on a really great water rights portfolio. But they're working through what that means in Texas.

The other piece of Texas is really the groundwater is king. And groundwater has been preserved as a strict private property right, a strict rule of capture in Texas. Very much like Texas to say that if you drill a well on your land, you should pump that thing until you can't pump anymore. There's some local control in the form of groundwater conservation districts that placed greater limitations on it, but legally speaking, it really is the rule of capture. And that has made groundwater a really, an area of great focus in Texas with conflict arising and the creation of regulating districts and things like that.

Dave: Sure. And I know that you, we really haven't talked about California but, is the Texas water law, is that similar to what California has, is Texas heading for a California-like problem because groundwater is not tied to surface water?

Spencer: I think my perspective, and this is my personal perspective, would be that Texas won't see the same kinds of problems, at least in the near future. Because Texas is thinking about it. We've been in-tune with conversations even now that are talking about, "How do we connect groundwater and surface water hydrology to make sure that our systems are operating in conjunction and in a way that makes scientific sense?" But I don't think Texas has potentially seen the stress yet to really make major problems in that area.

California has obviously seen the stress. I mean the drought of the last several years has shown that they live in a world where groundwater and surface water readily interact, but they haven't really been paying attention to that. Or if they've been paying attention, then they haven't been regulating it, which is something we're very used to in Colorado. So I think California will see it go a different way. I see the major difference really as matters of public trust in California. That's a big deal in Colorado. But I see one of the major differences that I don't see happening in Texas, is that through the public trust doctrine, the government in California has the ability and someone argued a responsibility to protect the waters of the state for all of its users.

That's why you see things in California like a 25% mandatory reduction. That's why you see a lot of government activity to protect endangered species flows and things like that. That's because they have that right under their public trust authority. The government doesn't have that same right in Colorado or Texas, and it would be a major undertaking to get there. So you see the development take place in very different ways by watching just those different approaches to who's responsible for water getting to all the right people.

Dave: Sure. Let's talk about the, I want to circle back to Ponderosa and talk about the program you have is called Water Sage, so can you talk about the actual software program that is Water Sage? I think you've alluded to it earlier but let's call it what it is and tell us a little about Water Sage.

Spencer: Sure. So Water Sage is an online map-based information platform, as we call it. A comparison might be Google Maps, although we let you interact with data in a really, I say tangible way. You log into Water Sage and a satellite image pops up. You can scroll in, scroll out. You have a number of informational layers that you can put on and off the map that give you basic geographic boundaries, regulatory enforcement areas, things of that nature. But the real magic happens in our data sets themselves and that's the ability to search for structures that have water rights associated with them. For well permits and for land parcels in a number of different ways based on a number of different attributes. And then to be able to work with that data in a really in-depth way.

So for instance, the first thing you can do is drag the mouse and draw a sixteen square mile box. This is in any of our states. And you can immediately pull back any of the information within in that box that's related to groundwater rights, surface water rights, or land parcels. And that's a really great tool. We have a lot of real estate users, real estate clients. They really want to understand water. They want to be able to visualize water and it's important to their clients, too. And traditionally, just to even get that first step, they've had to spend quite a bit of their resources to build custom projects. And with Water Sage it's just a click away.

You take away from that simple search, and we can do things like search an entire stream basin. And from an entire stream basin search we can start to filter that data to say, "What are the most senior water rights on the South Platte? What are the most junior? Where are the concentrations of very senior irrigation rights? Of very senior municipal rights?" We can do all those things in Water Sage and at the same time, for each of those structures and rights, focus in on very detailed information on those boundaries like I was talking about. So that's what Water Sage is. It's not a very complex concept, but it's an easy non-technical way to get the best available information on water rights and land parcels.

Dave: Ok. So, you mentioned things like senior water rights, junior water rights, concentrations of municipal rights. Why is all of that stuff important? I guess we can understand why senior and junior is but why would the concentration of municipal or ag or some type of use be important?

Sure. It depends on the user. There are certainly entities out there be it municipalities or in real estate that are actively looking for either a new water supply or to own property with viable water rights. And this really goes to understanding the markets that exist for these things. And so in Colorado right now, I believe it's still about 80% of all water rights are held in agriculture. Whereas, all of the demand is growing in municipal use. So, this is somewhat of a controversial

topic. But over the last several years, an easy way to procure water supply is to buy irrigated agriculture and to change those water rights for municipal use.

So, there are these certain types of water rights people become interested in. We work with the conservation community for the exact same reason. And because they're looking to protect those agricultural water rights. They're looking to understand where they are and to highlight their areas of greatest interest for conservation work based on conserving high value irrigation water rights along with land. So it's being able to focus what you're looking for based on your particular use.

Dave: And I would guess that this tool would be pretty powerful for a conservation group to really look at in-stream flows and make sure that one section is not being repeatedly underflows.

Spencer: Absolutely. We've implemented some really great new tools. Right now on Water Sage, you can first, look up the in-stream flow water rights. And you can see those on the map and you can access the detailed information. So how much flow? At what priority date? At what reach? At what time of year? We added all of this USGS and Division of Water Resources stream gage data. So now, in real time, you can be tracking the actual flows in that area and flows of diversions with upstream and downstream. So if you're monitoring for in-stream flow use, you know both what you're allowed and you know it's actually present.

And you can go a step further. We have tools to analyze a water rights priority relative to the other water rights in its area. So if you see an upstream diversion sweeping the river to the detriment to the in-stream flow, in Water Sage, you can immediately compare the priority of the upstream right to the in-stream flow and say, "Well, is that in priority? Are they sweeping the river in priority? Or is that a priority and should the in-stream flow place a call?"

Dave: Very interesting stuff. You said something very interesting and I don't know that we've actually picked up on this, but it can show you real time and it can show you historical. And so you can pick a date and you figure out what the flows are at that time of year?

Spencer: So, we've taken subsets of data. So, you can see the present year's diversion records graphically. So our background is in energy so we took a cue from some of the graphing visualizations from the commodities world and are using them for a stream flow. So, you can see the current year's flow graphically, and then you can pile onto that same graph the previous five water years, a ten year maximum and minimum and a ten year average.

So, for instance, 2012 was from my recollection a pretty dry year. And so in that five year range you can see how did the water right perform in a dry year. But you can also look at 2013, right, and look at the floods in the Front Range and see what does max discharge look like here? And

then we also have fifteen minute weekly data. So for the previous week you'll be able to see fifteen minute time-steps with that very specific flow information.

Dave: Wow, pretty granular. Well, Spencer, you've been absolutely fantastic talking to us about some water rights issues, about the Water Sage program you've got. Really appreciate your time. For those who want to find out more about you and Ponderosa Advisors and Water Sage, where can they go to get that information?

Spencer: Yeah, the best place is watersage.com. That's our website, and there's a lot of great information there to understand what Water Sage does. To understand at a higher level what we do at Ponderosa, you can go to ponderosa-advisors.com. That's a great place to see what we're up to.

Dave: Cool. Well, Spencer, again, thanks very much. Really appreciate your time.

Spencer: Thank you.

Dave: Bye.

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Dave: I hope you enjoyed that interview with Spencer Williams. Terrific guy I got to know through the Colorado Water Congress and its POND Committee, while I was in Denver.

Here's a couple takeaways. First, I'd just note how hard it is to wrap your mind around water rights as property rights. Spencer's example of the clear bucket and people owning a proportional interest in that bucket. Real estate rights, in contrast, are much easier to figure out. This difficulty in defining clear and exact boundaries for water rights I think in a lot of ways gives rise to my second takeaway.

And let me preface this second takeaway by saying that as an undergrad, I took a course in Law and Economics with a fantastic economics professor, Bert Barreto, who has since moved from Wabash College over to our arch-rival DePauw University. The theme of the class was that economics molds how laws are shaped and construed. And I think if you listen closely to Spencer in this podcast, you can see how economics is impacting how prior appropriation regimes have developed. As you heard Spencer say, the hard and soft infrastructure supporting Colorado's prior appropriation doctrine is significant in terms of hard assets and human capital. This observation about Colorado's system also comes through with Justice Hobbs in podcast 70.

Then compare and contrast that with Wyoming and Montana. These latter two states are significantly less populated than Colorado. Accordingly, they don't have the administrative infrastructure supporting its doctrine of prior appropriation.

We can carry this further by looking at the riparian system Spencer mentioned in the Northeast with riverside mills having riparian rights to the water in the river on which they were situated. In each of these examples, the economics of water dictated how the system was set up. In Colorado, because of the greater economic pressures that come with a larger population in a resource-scarce region, there's a more complex system of prior appropriation. The Northeast doesn't necessarily have a resource scarcity problem, but the riparian right existed in those rare circumstances when it might have been a problem. Fascinating stuff and I plan on doing an interview with someone at some point who can speak on the convergence of Eastern and Western U.S. water law that might bring some of these issues into sharper focus.

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In closing, please remember to keep the core message of The Water Values Podcast in mind as you go about your daily business. Water is our most valuable resource. So please join me by going out into the world and acting like it.

Outro: You've been listening to The Water Values Podcast. Thank you for spending some of your day with my dad and me.

Dave: Thank you for tuning in to the disclaimer. I'm a lawyer licensed in Colorado and Indiana. And nothing in this podcast should be taken as providing legal advice or as establishing an attorney-client relationship with you or with anyone else. Additionally, nothing in this podcast should be considered a solicitation for professional employment. I'm just a lawyer that finds water issues interesting and that believes greater public education is needed about water issues. And that includes enhancing my own education about water issues because no one knows everything about water.