00;00;36;27 - 00;01;03;23

Tracey Peake

Hello and welcome to NC State's Audio Abstract. I'm your host, Tracey Peake. Recent droughts in the Western U.S. have made the already complicated question of water rights even more complicated. We're speaking today with Eric Edwards, assistant professor of agricultural and resource economics at NC State, about water rights in the West, who they belong to, what they mean for rights holders, and who may be getting shortchanged.

00;01;04;05 - 00;01;05;01

Tracey Peake

Welcome, Eric.

00;01;05;22 - 00;01;06;25

Eric Edwards

Thanks so much for having me.

00;01;06;27 - 00;01;20;09

Tracey Peake

Well, I'm glad you're here because I know nothing about water rights, and I'm sure a lot of folks on the East Coast might also be unfamiliar. So let's start with talking about what they are. Who gets water rights? Who decides?

00;01;20;28 - 00;01;46;18

Eric Edwards

Yeah. The reason folks on the East Coast may be less familiar with water rights is that water on the East Coast is fairly abundant. And so therefore, there's not as much need to figure out how to allocate it during times of shortage. In the western U.S., where we're in a semi-arid or arid climate.

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Eric Edwards

There's less water. There's more shortage. And therefore there need to be ways to allocate that water. So water rights are the mechanism that we use to allocate water both in the Western U.S. and around the world. Thinking more broadly about what water rights are, they're just some mechanism for allocating water in times of shortage. So it's likely that they've existed since irrigated agriculture began began thousands of years ago.

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Eric Edwards

But the Western U.S. has a fairly unique water rights system, different than places throughout the world, and that water rights are allocated in a manner known as prior appropriation. And that's first in time, first and right--so irregardless of what you're doing with the water, now, when you started diverting, water determines how senior in time your water right is.

00;02;50;02 - 00;02;59;02

Eric Edwards

So the later in time that you started diverting water, the less priority you have to get that water.

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Tracey Peake

Okay. So, you know, as a person who's unfamiliar with it, I would have thought, oh, when they came together and they decided how to allocate the water, they would have made sure that, you know, they all got together and prioritized, Well, this big town needs more of this. You know, we're feeding people, so we need to divert it here.

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Tracey Peake

But you're just saying that first come, first serve basically.

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Eric Edwards

Essentially. And that that first come first serve or first in time? First and right is maintained legally over time. So if your ancestor showed up on a farm in 1860 in Utah or California and started diverting water to grow something that is one of the most senior water rights in those states, and you will have priority to use that water in times of shortage over anyone else who came later and because of that, that initial allocation of water was typically for agriculture.

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Eric Edwards

That was the the agriculture was by and large the main focus of the economy during that period of settlement. Most water rights in the western U.S. are for agriculture. Up to 80% of water use goes towards agriculture. So cities right, which came later, large cities like Los Angeles and Phoenix have had to go out and find water rights to purchase and to bring to their to their cities rather than having them allocated to them.

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Tracey Peake

Okay. So you can have the allocation of water rights. And then if you're a city or something and you're not getting enough water, you can purchase someone else's water rights or purchase water from the rights holder.

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Eric Edwards

Yeah. So what the appropriate rights doctrine in the Western U.S. creates water that's severable from the land. And so cities or even environmental organizations looking to create stream additional stream flows for, say, fish can go and purchase water rights, very different from the eastern U.S. where we do, we utilize something called the riparian doctrine, where any landowner adjacent to a waterway has the right to benefit from the use of that waterway but can't divert the water away from the source or affect other people downstream in the western U.S..

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Eric Edwards

If you have a senior water right, you can divert it, use it up and everyone downstream or more. Junior just have to live with it.

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Tracey Peake

Wow. Well, my East Coast to show it because that explains a lot. We traveled out west last summer and we were in some of the national parks and they were showing us, you know, this lake is usually full. But because of the water rights on this side of the mountain, it's not because they're using that water for something else.

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Tracey Peake

And I just thought that was bizarre. But now I understand. So great. Thank you for that. But that brings me to my next question, which is you have a recently published paper on indigenous water rights. So if you're talking about the people that sort of first come first served or first in time doctrine, I'm assuming that indigenous people in the United States would be first in line for all the water rights.

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Tracey Peake

But your paper specific talks about having quote unquote paper water versus real water. So what does that mean?

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Eric Edwards

So the it would make sense that the indigenous groups who were there prior to the westward settlement of the U.S. would have the most senior water rights because they were there using the water prior to anyone else. But that's actually not the way it works for a variety of reasons. But primarily the tribes were removed, moved from their traditional homelands in the period of, you know, the late mid to late 1800s and put on to reservation.

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Eric Edwards

So we're all familiar with the reservation system. Those national parks that you went to would be interspersed with some Indian reservations. And that's that's where the indigenous people typically via treaties were were moved to not at the time they were they were moved to these reservations. The tribes received land, but no water rights to go with the land.

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Eric Edwards

And so the the priority system then allocated water rights to white settlers moving into all these states and in many areas completely appropriated or allowed diversion of all the streams without any consideration for tribal, tribal water rights or tribal needs. In 1908, there was a US Supreme Court ruling that said, Yes, we understand that this is what's happened, but the federal government messed up.

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Eric Edwards

And when they made these agreements, these treaties with tribes, to move them onto reservations implicit in those treaties was enough water to irrigate and use the land for agriculture. And now this ruling is a big deal because it gives tribes an implicit but not an explicit right, an implicit right to claim water for agricultural purposes on reservations didn't provide any guidance for how that water should actually end up in the tribe's hands or anything like that.

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Eric Edwards

And so this is in 1908. And many of the tribes, even today, have not settled these water rights, which what we refer to as winters rights. The case was winters versus the United States. And so we refer to these rights as winters rights.

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Tracey Peake

So the Supreme Court had to step in and say, you know, you need to have water rights if you've been moved to these reservations. So that's a great ruling. Yeah. But there's no mechanism by which the tribes can actually act on what the Supreme Court said.

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Eric Edwards

Yes. And the complexity here comes from the federalism, essentially. Okay. Water rights are allocated by state governments. The federal government deals with tribal issues as the reservations are sovereign entities that negotiate with with the federal government. So the federal government owes essentially tribes water for these agreements, but they have to figure out how to get that water, which is being used by other irrigators, cities, divers within the states.

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Eric Edwards

How to get that water to the tribes. And that's that's sort of where our our research comes in. On paper water versus wet water is over time. The federal government has worked with tribes, some sometimes more amicably than others. There's often a lot of lawsuits. Decades of litigation, in many cases to reach settlement agreements within a basin. So you have a basin where you have a bunch of different diverse cities, agriculture, industry.

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Eric Edwards

They're all using water and you have a tribe in that basin that, because of their reservation founding date, has a claim to the most senior water rights. That is the highest priority water rights in that basin for their own use. And there needs to be a negotiation who's going to give up water so that the tribe can get water.

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Eric Edwards

And these negotiations are all on paper. There's agreements on how much the tribe gets, what their priority is. There can even be agreements that the federal government is going to pay for some additional infrastructure so the tribe can divert and use the water for agriculture. Right. Dams, canals, ditches to get the water to to the land. But that's all on paper.

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Eric Edwards

Then what we asked in our research project was, does that agreement when they make that agreement, does that actually lead to additional water use on reservation? If it does, then we consider that wet water. Water is diverted and being used on reservations. And what we find is that while there is an increase in wet water use on reservation after these agreements are made, that use is relatively small in comparison to the amount of water--paper water--that the tribe actually received.

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Tracey Peake

Okay, So they've done the negotiations. All the lawsuits have been worked out. You are now, you know, Tribe X is now allocated Y percent of the water, but in reality, they're not using all of their potential percentage. Why is this? Is that they. Is it just the inability to build the infrastructure necessary to divert the water? Or are there other reasons?

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Eric Edwards

It's this is very complicated. Okay. And it's it's related in part to the way that the reservation system is set up. So while tribes are and or reservations are sovereign entities in many respects, there's also a trustee relationship with the federal government. So the federal government actually owns all tribal land on a reservation and holds that in trust for the tribe.

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Eric Edwards

And so this is one of the complexities. A similar complexity exists with tribal water. So while other water rights holders are allowed to lease their water or eventually sell it if they want. Tribes are not allowed to lease their water unless explicitly authorized by Congress. Finally, while the Bureau of Reclamation, which is our big irrigation works federal government agency, spent a lot of time and energy building dams and diversion infrastructure for non-tribal farmers.

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Eric Edwards

The Bureau of Indian Affairs, which built tribal infrastructure, did a much worse job and a lot of their diversion works. Dams, things like that are in kind of disrepair. And so there's this litany of potential issues that prevent tribes from fully exploiting the value of their water rights.

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Tracey Peake

It is very complicated. So what you know, what effect does this have on tribal economies, if they could be selling or leasing the water rights to other people? That would be a good revenue stream, correct?

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Eric Edwards

Yeah. So both the use of water on reservation for irrigated agriculture or the leasing of water rights to users off reservation, for instance, the city of Phenix or San Diego or something like that, offer large potential revenue streams for the tribe. And this is particularly relevant for reservations in the Western U.S., which are some of the poorest areas in the country.

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Eric Edwards

The reasons for this are are complicated, of course, but water and access to water is in the list of reasons for why tribes have had difficulty developing. It's hard to build an agricultural economy when you have water rights that are either nonexistent or are on paper, but you don't have the infrastructure to divert and use the water.

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Tracey Peake

Right. So I guess I mean, that's all fraught enough, I suppose, without the idea that as the climate continues to change and weather patterns continue to change and we see more drought in the western U.S. and that could continue or worsen how is all of this and not just indigenous rights or tribal rights, but everybody, what are they just in water rights in the face of what could just be a drier Western U.S. generally?

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Eric Edwards

This is a great question and one that we've been working on for years. So as part of a USDA grant with a bunch of universities in the western U.S., we called native waters on arid lands. We looked exactly at this question. Right. What's going to happen to reservations under climate change? Right. These are some of the most vulnerable populations already.

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Eric Edwards

And then it turns out these areas where the reservations are located are particularly susceptible to things like drought. So the question of, well, what are we going to do during drought is particularly relevant to these indigenous groups, But throughout the Western U.S., we have a lot of concerns about what's happening under climate change and even under the current climate with water allocation.

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Eric Edwards

So you see news stories and pictures of Lake Mead being drawn down right there, finding old cars and sometimes bodies deep down in the reservoirs that have been there for, you know, decades. But now the water levels are so low that there's the things are being revealed. Right. And that low water levels are also revealing issues with our allocation system under that under the appropriate rights doctrine and in particular, what happens to really important high value uses like urban water uses when the water gets down.

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Eric Edwards

So the Colorado River is very low. This is an area where a good portion of reservations are located kind of in the southwest U.S. and have paper and wet water rights along the river. That river is significantly over appropriated, meaning that they're going to have to be cut back. And right now, there's negotiations between all the states involved, very intense negotiations, I would say, about how those cutbacks are going to be allocated.

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Eric Edwards

And tribes play a really important role in that and really an, I think, an underappreciated role they control right now and in water rights that they've settled about 20% of Colorado River water. And there's still additional tribes that are just have not settled their water rights, that still have claims. A big one is the Navajo Nation in Arizona, which is the largest reservation in the U.S. and has still not settled their water rights claims.

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Eric Edwards

So how that those negotiations are going to work is going to be complicated. Right. But they're all under the framework of this appropriate rights doctrine where certain users have higher priority than others. And at least on paper, tribes have the highest priority rights of anyone in the basin.

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Tracey Peake

Well, it will be interesting to see how this plays out and I imagine it's going to be a more urgent question in the coming years if weather patterns continue the way that they have.

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Tracey Peake

So I always ask this question of researchers when they come on the podcast, because I'm always fascinated by, you know, what makes a person interested in a particular aspect of research.

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Tracey Peake

So to you, what is the coolest or most interesting aspect of the work that you're doing on, you know, water appropriation, water rights and how this works generally?

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Eric Edwards

Yeah. So I've been doing water rights work for a while now in a variety of settings. Different countries. And I got pulled into the work on, uh, western U.S. indigenous water rights on that that grant with those other Western universities that I was speaking about. One of the most rewarding aspects, I think, and maybe this isn't the coolest, but it's been it's been a really fun experience that was different from other research I've done, is actually getting involved with, uh, working with the groups, the indigenous governments, tribal governments, leaders, water managers to discuss and think about these problems.

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Eric Edwards

So I didn't know anything about, uh, tribal water rights, winters water rights before getting started, and it was actually a, a lawyer for one of the tribes at a, an event I attended talking about what the tribes were doing and what their concerns were. That got me interested in this. So in economics, we have always sort of think, well, you assign property rights that allows markets to function and everything works okay, or maybe it doesn't, but the rights are kind of the building block of the markets.

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Eric Edwards

What does this particular lawyer said and then what? Almost every other person I've talked to is knowledgeable about tribal water rights and said, Was that the assignment of these property rights, these winter rights, wasn't sufficient for the tribe. So even though they had this secure property right that economists think are going to be really effective at gaining access to the resource, it wasn't working.

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Eric Edwards

So tribes were talking about how do we divert our water so we can gain access? How do we get more funding to do these things? And so that is that was what was really rewarding, was taking that information and then putting it into an economic framework and actually being able to test at a much larger scale what happened.

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Eric Edwards

So while different different groups and different tribal governments would bring these issues up and they would talk to a few others, they didn't, you know, tribes in Montana didn't really understand that this exact process was playing out in Arizona, in Utah, everywhere. And and maybe this is the cool thing. I recently gave a talk in Wyoming. They have one reservation in Wyoming, the Wind River Reservation.

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Eric Edwards

It was the water rights were settled in a different way than than I've talked about here, although still under the winters winters doctrine. And I went in there knowing no context about the about the reservation. And as I'm reading up on it to give my presentation, I realized that what we've said in our paper, which this reservation wasn't in our our data because like I said, this, they had a different process.

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Eric Edwards

The exact same issues were going on. 50% of their water allocations were unusable by them. They were being used off reservation by, uh, junior appropriators, and the tribe was trying to figure out how they could exert their rights to that. And so I think what's cool is that this, this work really is explaining something that is an on the ground problem that the tribes are dealing with every day.

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Tracey Peake

Right. Because they can point to, well, you have this thing and there was a rule and there was a law, but it's not it's not that simple to undo like the physical reality of what's going on as well. Yeah, I just.

00;25;15;15 - 00;25;54;03

Eric Edwards

I think that's a really good way to put it. It's not that simple to undo this centuries of kind of bad policy, racist policy, um, towards, towards reservations by simply allocating property rights. There needs to be a series of additional steps taken to allow that water to provide the tribes with the benefits that that they're entitled to by by having a right.

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Tracey Peake

Right. Exactly. Well, this has been really interesting. And again, my East Coast is showing because I was like, what is this? What are these water rights? What is happening? So I'm very glad that you were able to come here and talk a little bit about what's a very complicated subject and break it down into sort of bite sized pieces.

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Eric Edwards

Well, this has been a great experience. Thanks so much for having me.

00;26;16;00 - 00;26;32;14

Tracey Peake

I'm very glad you came. We've been speaking today with Eric Edwards, an assistant professor of agricultural and resource economics at NC State. This has been audio abstract. I'm your host, Tracey Peeke. Thank you so much for listening.