

Groundwater Problems and Prospects_2_2_2015

cjbowman@ucdavis.edu

scribie

Audio Transcription, Perfected

<https://scribie.com/files/13418517f3d04b8a9406966109b042b7f21e541e>

[background conversation]

0:00:07 Speaker 1: Good afternoon everybody. Thank you for being here yet another week on our wonderful Groundwater Policy Series this year. My name is Thomas Harder, I'm in the Department of Land, Air and Water Resources, and I have the honor today to introduce to you Tim O'Halloran with the Yolo county Flood Control and Water Conservation District. Tim is going to continue our series at sort of the background on groundwater, we've heard how we got to have a new groundwater legislation. And we've heard a little bit about groundwater law and how is it all going to look like in theory. With Tim we're going to start talking about how this may look like and has looked in practice. Tim has a lot of experience. He has a degree from Cal Poly in San Luis Obispo. He worked his way through the State. He initially worked in the Imperial Irrigation District. He then was Water Master in the King's River Water Association, and he's been with Yolo county for 11 years and done a lot of work on water management, and has done a lot of pioneering work with groundwater management in Yolo county. Tim, the floor is yours.

0:01:21 Speaker 2: Thank you, Thomas. Thank you everybody for coming, and before I start, just a little show of hands just so I can get a sense of the room. How many are students? Peter, you gonna raise your hand?

0:01:34 Speaker 3: I'm always a student.

0:01:36 S2: Yeah, you're always learning. How many are from this area, Yolo county? Not so many. How many are from California? A lot. Okay, good. How many are law students? How many are engineering students? Who else is here?

0:01:58 S?: Hydrology.

0:01:58 S?: Yeah, hydrology.

0:01:59 S2: Geology?

0:02:00 S?: Hydrology.

0:02:01 S2: Hydrology. Okay, great. Okay, thank you. I just wanted to get a sense of who I'm talking to and adjust from there. And thank you for Thomas, he just left the law school, for putting on the series and all that. I'm a manager of a water district, Yolo County Flood Control Water Conservation District, YCFCWCD, if you have a hard time saying the longer deal, then use that. But I'm pretty informal. Is there any wrong rule about taking questions as we go through it? And we got about 50 minutes here? Okay. So I'm just going to

launch off. First off I'm gonna say, I didn't come up with this thing, the Agra-Urban Basin, but I am going to talk about water, and Yolo county in particular. I'm gonna focus, I'm gonna bring it home.

0:02:49 S2: Thomas mentioned, and your previous speakers have talked about the Groundwater Sustainability Management Act, and really what I'm here to do is say how a local agency group is going to implement, or trying to implement it, and how we go through it. But it's a bigger story than just how we take the legislation and implement it. It's the background. And I'm going to try to provide you with the background for Yolo county Water in general and try to synthesize it down into something that's taken me 30 years, we're going to capture in 50 minutes. But you can't implement legislation, you can't implement regulations without understanding the political background, the hydrologic background, the geographic background and so on and so forth. So I'm going to try to provide you with a little of that. Again, I'd encourage you to ask any questions as we go along the way, so with that I'll just take off. First off, we're in a drought, fourth year of the drought. We're gonna get rain, Biblical rains, this weekend I hear. So that's great. But talk about the system, the Yolo county Flood Control System, which includes the reservoir.

0:03:54 S2: It's called the Indian Valley Reservoir. This is a picture of Indian Valley Reservoir. And this is actually December, 2013, a little over a year ago. I got a call from Cal Fire saying, "Your reservoir is on fire." I said, "What do you mean, my reservoir is on fire?" It's in a basin, under hills and bushes and trees above it. And I said, "You mean the bushes are on fire? The hills are on fire?" And he said, "No, your reservoir is on fire." And they were just laughing and I knew they were yanking my chain. So I finally figured it out. When the reservoir was built, the Indian Valley Reservoir was built in 1976, one of the requirements we had with Fish and Game was to leave the trees in there for fish habitat refuge, for the fishery. And so at this point the reservoir is down to 6% full. I don't throw numbers out, I don't expect you to remember numbers, but hopefully it will give you a sense of order and magnitude. A 300,000 acre foot, it was down to about 15,000 acre feet.

0:04:58 S2: And all the trees were exposed and there was the local yahoos were out there burning down the trees. So my reservoir's on fire. So I took that as a new definition of a drought for a water manager, is when they tell you, when you get a call that your reservoir's on fire, you know that you're in a drought. But the other thing about that is, and I'll hit this thing a few times at least in the first part of the presentation, of the connection between surface water and groundwater. It's kind of funny when they make groundwater legislation and the whole State is talking about, you can't talk about groundwater without... You need to connect surface water with groundwater. And then they go and make legislation that separates the groundwater from the surface water in terms of most of it. And so it's kind of an irony for me, but anyway I'm going to talk about surface water in Yolo county as well because I believe, personally, as a water professional, you can't talk about groundwater

without understanding the interaction, or the surface water component in it.

0:05:58 S2: So I'm gonna talk about the surface water in Yolo county and the agencies that manage it, integrated retail water management planning, how we plan... We didn't just wake up... There's a lot of professionals working on this thing day and night. And we didn't just wake up to a drought. It's funny. I like reading history... Water history in California and you can pull out documents from the 1800s, and it's the same story. You just change the names, the numbers, a little bit and all that, but the same discussion's taking place. They're not gonna end up with new groundwater legislations and what we call, what we've branded in Yolo county the year of groundwater last year. And some of the questions that... I'm just gonna seed you guys here with some questions. Hopefully, we'll get to some Q&A. Hopefully, you'll ask questions as we go along but...

0:06:43 S2: One of the biggest questions that I'm facing and the local people are facing as we implement this legislation, is how sustainable is Yolo County's groundwater? And to answer that question, you have to answer the questions what does sustainable mean? And then again, on a practical level... I deal with a lot of private well owners and they say, "Can't I just dig, drill a deeper well than my neighbor? Isn't that the solution?" And the analogy in the flood world... I don't know if you've ever been exposed to flooding, but in the flood world you build your levy higher than your neighbor's levy so that the water will all go to him or her. But in groundwater, the analogy, the inverse of that is you did well deeper so that his well dries up and you've got the water at the bottom. And that's one of the questions we're gonna have to answer on the local basis as we implement this legislation.

0:07:31 S2: And then what I run into a lot and you hear the term in Yolo county, fifth generation farmer. I'm a fifth generation farmer. As if it's some sort of monarchy around here and that gives you some right over the pension fund that comes in and they just bought property, and he's drilling a well that's 600 feet and your well is only 400 feet. So there's a lot of tough political, social questions that come along with the... It's not just the... Certainly it's not just executive bulletin.

0:07:59 S2: But we did background on Yolo county and the water sources. You can't understand this system without understanding where you are. In Yolo county, the boundary... There's four cities in Yolo county, West Sacramento, Woodland, Davis and Winters. Right now, these three, Woodland, Davis, and Winters... I didn't... If I'd been on top of it today, I would have put UC Davis on the map. But these three are on groundwater. West Sacramento is on surface water from the Sacramento River, and Woodland and Davis, if you read the local paper at all, you'd know that they're involved in a big project to switch from groundwater to surface water. So, I won't get into that but just so you know. The Cache Creek Watershed.

0:08:45 S2: This is the watershed that my organization manages. It's up in... Mostly it's in Lake County so again, there's multi-jurisdictional uses wherever you go in California water. Clear Lakes, the national body of water. How many... Show of hands real quick, how many heard of Fair Lake or even know where it's at? What about Indian Valley reservoir? A man-made lake built in '76, a dam by the minor organization. It's just a little bit north and east of Clear Lake. Those are the two main sources of water. It captures about 60% of the watershed.

[pause]

0:09:28 S2: Yeah, about 60% of the watershed is here. Why... Here's a question for you and you may not have the background to answer this but Lake Berryessa. There's the Sacramento River and Lake Berryessa. Here's all the... Most of the surface in Yolo County, the Sac River running here. It feeds this eastern side of Yolo County. The Cache Creek Watershed feeds the heart of Yolo County and Lake Berryessa feeds Solano County, actually even though it comes to Putah Creek comes right through the campus here and all that. It really serves the Solano with interest. But they... If you don't know, last year, they had water and they've got water this year. They're in a wonderful position water wise. Why is that? The watersheds are about the same size, the watershed, the drainage. But this east lake, Clear Lake and Indian Valley reservoir are up at the top of the watershed.

0:10:28 S2: They capture about 60% of the run-off. Of this blue area here. Whereas, Berryessa is down at the bottom of the watershed. I don't have the watersheds shown here but it captures... Peter, correct me if I'm wrong but about 100% of the watershed, including the Creek Watershed. So, that's why they've got more water, even though we get about the same amount of rain. What that means, though, also is that there's... It's a more natural system in a way, the Cache Creek system whereas, this is... When you capture 100% of the water, it's all completely managed. When we get a storm... December early... Late December, a month ago, a month and a half ago we had a big storm. We had big floods down here and the water got all the way to the Sacramento River. I doubt if any water was released from Lake Berryessa for flood control drain, I just wanna...

0:11:15 S2: So, those are the surface supplies. Who manages the water? This is the footprint. The red area is 200,000 acres. That's the Yolo County Flood Control Water Conversation District, that is the organization I work for. We deliver water from the west, the coast range, out to the east, to the Yolo bypass. You might have heard of Conroy Ranch. It's a significant ranch there. It's about 18,000 acres of a reclamation... This was called a reclamation district. It's actually in a unique position in Yolo County that it receives some water from the west. It's the only organization that receives some water from the west, from coast range as well as water... Most of its water comes from the Sacramento River. And then there's all these.

0:11:58 S2: There's a whole bunch of water districts, reclamation districts that are around the Sacramento River that take water and divert water out of the river. In fact, I think the next slide has the picture of all the 33 water agencies in California and Yolo County that touch all are part of Yolo County, and the significance of this and the reason I bring it up, is because the legislation calls for working together. We gotta work together and working within the organization, it's tough. Everybody's got their own, their own priority, their own turf, their own authorities and all that. The legislation essentially calls for all of us in here, including public, to work together and develop something that'll sustain the groundwater in the region.

0:12:49 S2: By the way, how many of you are aware of the term 'special district' as a form of government? Quite a few... A third of the hands go up. There's the federal government, Obama, and the state government, Brown, county government is the Board of Supervisors, city government is the city council... There's a whole layer of government in California called "special districts". Flood control, water conservation districts, irrigation districts, cemetery districts, mosquito vector districts and whatnot, and it's a really fascinating area of government. It's where... And I've worked in special districts my whole career.

0:13:21 S2: And I like it a lot and I encourage any of you when you get out and you look for jobs to think about special district activities, because it's where the rubber meets the road. What makes it, and it's not that we're so special, it's just that we have duties that are specific to one area. Mine is water, cemetery district is running the cemetery, mosquito vector districts... We don't have broad police powers like the county or state or federal government. A little bit about the district. We have three sources of water supply, and I do give this background so that you that you can make a connection when we get into groundwater. I know this is a seminar on groundwater legislation, but you have to understand how the service water works. Clear Lake, Indian Valley and Cache Creek... We're repairing rights on Cache Creek.

0:14:10 S2: We have a facility, a dam that goes back to 1914. It was built over 101 years ago. That's the outlet of Cache... Of Clear Lake and Cache Creek, everybody's heard of Cache Creek? It's the outlet of Clear Lake. It comes out, it gets filled when the rain hits here and the water level comes up, it starts spilling through this... If you can see it there's a line there. That's Cache Creek. Well, the dam is here. The dam is not on the lake. The creek is the outlet of the lake and there's a funny story, and the lawyers in the room will appreciate this story is California water is all about hypocrisy, and this is a story that illustrates the point.

0:14:51 S2: There's a gorge here called the "Grigsby Ripple", a volcanic formation, a rock formation that's a hard point. And it's like the bath tub. You

have an outlet. You fill it up and it starts going through the drain and all that. That's kind of the Grigsby Ripple it's... We could open all the gates on the dam and it won't pull anymore than... We can open it up and it will pull 20,000 CFS or at least 20,000 CFS of water through there, but it will really, in practicality and function of the ripple, this area right here in this gorge will only allow about 3,000 CFS coming out. So when the rains come and you have... Rain... If the rainfall they're predicting through this Friday and Saturday, they'll have three tenths of what's likely. It will come down probably about 20,000 CFS at one time. So, what happens when 20,000 CFS... CFS, by the way, stop me if you don't understand the acronyms. Cubic foot per second, the measure of flow. When it hits the valve and it's only 3,000 CFS wide, it starts backing up and so anyway, the story. It's a fun story that I like to tell is in 1918, we're in World War I and we're getting...

0:16:01 S2: There's a big drought in the 19... Right around that period and we're in the war effort. We're over in Europe fighting World War I, and so the Yolo county farmers who are benefiting from the water at Clear Lake went to Lake County and said, "We need to blow up this ripple here, this volcanic formation to allow that this lake drops it where it wasn't coming out anymore over the ripple". It had dropped too low. So, they wanted to take their sticks of dynamite and blow it up and get water out of the lake for the war effort, and of course, the Lake County folks realized that would create havoc for their economy and their water supply, so they took them to court and stopped them from blowing up the ripple. Nine years later... About nine or 10 years later, it was... The opposite was happening.

0:16:45 S2: There was huge rainstorms, a big flood. 60,000 CFS was coming into the lake and only 3,000 was coming out. So the lake county folks said, "Geez, we gotta do something about this. We gotta go blow up that ripple." And the Yolo County people said, "No, if you do that we're gonna get all flooded down in Woodland and all that." So they took them to court. So, within a 10-year period, each side took each other to court arguing exactly the opposite case and for obviously for self-interested reasons. And the upshot of it is, the judge said, "Screw both of you guys. We're gonna... Nobody's gonna touch the ripple." So, that's the history of the ripple.

0:17:25 S2: Winter flooding, I talked about that. Summer recreation, most people have heard of the water pipes contained in southern California and northern California. We have our own little water board, both up stream and down stream. Every watershed has it... Ours is a little bit more [0:17:38] than most. But our interests are exactly the opposite from Lake County. During the summer, they like to keep the lake level high for recreation purposes. During the winter they like to lower it so that they don't get flooded along the rim of the lake. There's all housing developments along the rim of the lake, but Yolo County's interests are exactly the opposite. During summer, we like pulling the water out to irrigate crops and produce food, and during the winter we love to store so that during the summer there's a lot. So, over

the last 100 years there's been a series of decrees culminating with what's called Solano decree. We couldn't, obviously, we didn't go to Lake County to get the judge to decide, and Lake County didn't wanna come to Yolo County so we went over to Solano County and the judge decided this decree and it bound... What it did was it spelled out how we operate the storage and the flood releases at Clear Lake, and it's meant to balance the competing interests of the other [0:18:35] downstream users.

0:18:37 S2: So, Indian Valley Reservoir, a little hydroelectric plant there, recreation. 60 miles downstream from the lakes of Lake County is what's called the "diversion dam," 500 foot across Cache Creek, North of Capay, Capay Valley has Capay town. A cute little town in Capay. It's right outside of Capay. It's 500 feet long and we have an inflatable bladder, like a big long linear inner tube that we inflate during the irrigation season and it pushes water out through the south... There's the canal here, the Winters Canal and on the south and on the northwest Adam's canal. And 160 miles of down, so you drive through rural Yolo County, you see a series of open ditches. So you haven't seen water in them for 50 years because you haven't had water, but generally speaking you see water in these ditches. That's a 160 miles of down system, which is integral to the groundwater story.

0:19:38 S2: But anyway, this is a key piece of infrastructure for Yolo County, western Yolo county anyway, and without out we would have a very different landscape in Yolo County, if this dam wasn't providing a diversion for surface water that prevents that amount of people to use surface water instead of groundwater. And during the winter the dam is down. We have flood flows. This is about 9,000 CFS right here. I took this picture a number of years ago. On December 12th, a month and a half ago, there was 21,000 CFS, about triple this amount and just jumping ahead to the groundwater story, the punchline here is that we wanna take the storm water and move through the 160 miles of online ditches and recharge this groundwater, and do it in a environmentally sustainable way and all that. But it's called "conjunctive use", where you use groundwater and service water as one economic unit.

0:20:38 S2: And here's another shot of the... Looking to the west. This is a 160 miles of down system, Capay and Capay dams there and when we inflated during the summer and moved the water to this fairly natural, modified natural slew system and we ran the water through it, it comes up Davis here and then through Woodland. Actually Woodland grew around the system. The system's been in place since 1800s more or less, this system and Woodland's grown into it. And again, really important. I'd like to emphasize this. This is a picture of the Winter's Canal, our main canal coming from right here. You're 16 miles to the town of Winters. That stretch... The next picture I just was showing right about there and we... I started my career... Thomas mentioned the Imperial Irrigation District, which is a really large 500,000 acre irrigation district on the Mexican border using Colorado River water, and we got into a settlement with the MWD and then urban... 15 million urban people on the

coast that said, "We need more water" and we said, "We need money to do conversation. If you give us the money to do conservation, we'll give you the water" and so it was a deal. A pretty famous deal in water line in 1989.

0:22:02 S2: And so one of the big projects and one of the things they gave us the 200 million dollars of money to do was line canals, concrete line canals. And so every once in a while, I get asked, "Why don't you line canals here? It'd save all the water." We lose 25% of our water... Every 100 acre pool we release from the reservoirs, we only sell 75. What happens to the other 25? Well, some of it goes to evaporation. Some of it to plant life, but most of it goes back into the ground, and that's our main storage unit in Yolo County. It's not Lake County reservoirs, but the groundwater underneath the Yolo County and by district policy, we don't line canals.

0:22:40 S2: It would be a tragedy actually, from a water supply perspective to lose that natural recharge, but also we were involved in probably a slew building habitat. Essentially, when California went to irrigation in the 1900s, they lost a lot of repairing habitat that existed in the natural system. So, we're in a sense, duplicating or a surrogate, if you will, for that natural system planting and non-native grasses, native grasses and plants along the canal system.

0:23:13 S2: So, anyway, that's the first part of my presentation, is the surface water system. [0:23:18] [REDACTED] out to planning, integrated... How many have heard the term "IRWMP", integrated regional water management planning? It's a state initiative... Quite a few, that's good. It's a state initiative. DWR, Department of Water Resources is in charge of it and what... It's a fancy term, a fancy acronym but it really means something pretty simple, which is being "Work together, consider all the resources that are water-related as you do a project, and consider what your neighbors are doing and how it affects your neighbors". We're really lucky in Yolo County to have an organization called the "Water Resources Association".

0:24:00 S2: Which is all this. There's 10 members of it. And the City of Davis, the Dungan Water District, the county of Yolo, the Yolo County Flood Control, UC Davis participates in it. The city of Leonard, West Sacramento, Reclamation District 108, and the city of Woodland. We get together on a regular basis and plan our resources, and one of the cornerstone projects that we have is an IWRMP or Integrated Regional Water Resource Management Plan. Again, it's fairly simple in concept. We consider five resource categories, water supply and drought clearance... Can you see the board or is that too light? Can you read the words in the back. Okay. Thank you for nodding your head, so that's good. Water supply and drought preparedness. Number two is water quality. Three is flood control, storm drainage flood control. Four is [0:24:46] [REDACTED] system enhancement. Five is recreation.

0:24:49 S2: So, in 2007... Actually starting in 2005 we... Staff from the Water

Resource Association membership got together and said, "Let's throw all of our projects on this table, all of our thinking and all that and develop an IRWMP." And so we did. We created it and it's our guiding document. It's our road, if you will, for integrated water management in Yolo County. And every region in the state has one of these going on. We're not unique. We're a little bit unique, in that, we have a Water Resource Association for 20 years that brings us all together, not just for this project, but for all the water management in Yolo County.

0:25:26 S2: Well, I'm not gonna go though it. It's a long document, but there's one thing in particular that I'm really protective of and highlight when I talk about it. And that's... I've said, when we got together and I've said, "Let's throw in your actions... Your thinking on the table." So, we listed... The county threw 20 projects on the table and we threw 10 projects on the table. The city of Davis, the University had a project and we call those 'actions'. An action is a program, project, or plan. But there's a special sort of action that we created which is called a "foundational action" which you might... Another word that we could have used instead of foundational is baseline action. We totally scramble when anything comes up with your project and says, "Let's do something." There's always a scramble over data and we said, "This is crazy. Every project costs twice as much and takes us three times longer to do because we have to recreate databases and information management every time somebody wants to do a project. So, let's develop a sustainable information management program."

0:26:26 S2: And so, the highlight of it and where we put most of our energy is on groundwater monitoring, but we also have... These are all what we call "foundational actions, surface water monitoring, subsidence monitoring, groundwater modeling, time change models, environmental and probably habitat monitoring and topographic mapping". And it all goes into the Water Resource Information Database and so this... Even in tough budget times which we've all experienced here in the last few years, we've protected the funding for this action, because once you have a hole in your data it becomes a lot less valuable. So, anyway, just some examples. Yolo County Groundwater Monitoring program. Again, I'm not sure with the lighting here if you can't see that well, but there's dots all over the map here. One of the things that killed me about the legislative effort last year, groundwater legislation and I did a lot of testifying over at the capital on this talking to legislators. Was that also, "We need to know... Nobody knows what's going on out there. We need data." And the irony of that is that there's data all over the place. Google groundwater database, California Groundwater Database and you'll get about seven efforts, major database efforts are taking place.

0:27:38 S2: Everybody likes to create a database, but nobody likes to maintain it or even worse, nobody likes to look at it and use it except for guys like Thomas who do a great job of putting together reports in a Watershed Center. But all these dots represent spots that we've got groundwater

monitoring going on. It all goes into a database that's... I'll show in a second here. But it's accessible to the public. You can log on to it and if you wanted to know what the groundwater contours for the last 30 years are and it's in the Davis area... Here's the city of Davis, all these blue triangles here is the City of Davis. You can do that.

0:28:15 S2: That's easy, having the data is easy, actually understanding it... I've got a rule. It used to be in water districts that you'd say, "Don't give up our data because they'll sue you over it." But I'm in the district to take a different approach of being very transparent and open with the data. My rule is, it's not who has the data that wins the day, it's who understands the data and can argue what it says. And so we were very open and we tried to organize it so that the public can use it. We have the groundwater model... I think, Grant Fog talked to one of our sessions here. Grant Fog, he's done a lot work in groundwater modeling. He might have talked about this, but the question is when we do a project, do we wanna move some of that storm water that you saw that picture of the flood flow on Cache Creek? If we take water... If we take the water out here. What happens over here? How does it move? So again, just the technical, highly technical stuff on the groundwater modeling.

0:29:12 S2: Onto our maps of subsidence... We track where groundwater is being used versus surface water and how it affects the subsidence of the area. Every three years, we finance... The Water Resource Association finances a network for subsidence monitoring. Everybody know what subsidence means, right? Ground stream, the ground collapses because you're taking water out like a sponge, you take the water out of the pores and the weight of ground collapses on it. So very critical deal. All that information goes into this database that's maintained by the Water Resource Association and again, it's accessible to the public.

0:29:50 S2: Okay, I'm gonna transition here to groundwater legislation itself. And I'm gonna... I know you've heard about it, Tina, the lady was here, I think, a couple weeks ago to talk about it. So, I'm going to really keep it brief in terms of the legislation itself and focus more on what it means to us. Again, locally, and I'd say this is true of all the local managers statewide. We didn't wake up last January 1st or even when the governor signed it in August, the bill, or September, and say "Wow, where did that come from?"

0:30:24 S2: We've been working on it for years, and for the last January, not last month but the January before, I gathered a bunch more resource people including the Farm Bureau of Yolo county. The Farm Bureau represents private landowners who manage most of the groundwater in California, in Yolo county. I said we've got to active. We've got to be engaged. We've got to influence the legislation. We've got to make sure that they don't do anything unreasonable and that it achieves what everybody wants, everyone's groundwater to be sustainable. How you get there and how you accomplish that is the battle.

0:31:01 S2: We came up with a monitor, the banner. We needed branding, so The Year of Groundwater. I have to go into a room and say what we're talking about. Just to make it simple, I started calling it The Year of Groundwater. The smartest thing I did was I didn't say when the year started or when it ended, and so, this has been going on for about 16 months now, the Groundwater Legislation, The Sustainable Groundwater Management Act.

0:31:24 S2: Again, Tina, I'm sure covered all this in the past on August 29th, and in fact, January 1st. It's pretty simple, there's a long piece of legislation, I think it's 98 pages, but it boils down to in laypersons terms, are you sustainable or are you not, and if you're not sustainable, you have to do some things to become sustainable with groundwater, and if you are, you're exempt.

0:31:46 S2: Generally, and sustainability means bringing the basin into balance by eliminating overdraft. It gets complicated than that. There's water quality components to that and what not, but on a laypersons term, when I go and talk to the Farm Bureau people that are visiting with other jobs, and they rely on people like me that kind of set aside things down, I say that what we have to do in Yolo county is organize ourselves so that we either prove or improve the sustainability of the groundwater.

0:32:17 S2: The Groundwater Legislation requirements high and medium priority basins, I'm sure you've covered this already. I just had a meeting in Willows this last Monday in Willows, a big Sacramento Valley meeting talking about groundwater when somebody pops up and says, "How do we move from a high priority basin to a low priority basin to? Is there gonna be a low priority basin?" There's a common misunderstanding about what priority means within the legislation. When you see that high or medium, doesn't that evoke your feeling of "Geez, we're in trouble. We're a high priority. We must be doing something wrong here." It actually means nothing like that. GWR came up with the criteria where they're developing what's called "The CASGEM Program" or "The Groundwater Level Program" up here in 2009. Thank you. The criteria that they used for priority was, where is water being used? Is there urban use there, and is there agricultural use? If you check the box "yes" and "yes" for that, you became high priority. We actually are in pretty good shape in Yolo county, but we're a high priority. We actually are in pretty good shape from a sustainability standpoint.

0:33:30 S2: But that gets lost because people interpret priority to mean that there is a problem. So anyway, groundwater basin areas and priorities are defined by the GWR, a process to mend basin boundaries are being developed by the GWR on Thursday of last week. Last week was a big groundwater week for me. By examining Department Water resources and we were talking to them, and the boundaries here are that the legislation refers to are in bulletins called "Bulletin 118" to make a report put out by the department of the groundwater resources and defines all these sub-basins in the state of

California that said, "Each of those sub-basins has to be managed". We argued with them or we tried to convince them that we've got a... It's really a political question of governance rather than an engineering question of sub-basins, because the sub-basins were somewhat arbitrary in how they were created. We presented a case for using political boundaries, county boundaries, and leases in the areas where it's appropriate, and they're going to consider that as they develop the event basin boundaries.

0:34:43 S2: Here's third bullet is the real one that everybody is working on right now, the Groundwater Sustainability Agencies are performed by local agencies or combination of local agencies. That's where legislation is right now. It's the first step for the locals putting together the governance, who is going to be in the GSA and what authorities are they going to have? Or how are they going to implement the authorities at the groundwater basin? But the main thing that GSA, the groundwater sustainability is yet to do this development of a groundwater sustainability plan, which says, "Are we sustainable? And if not, how are we going to get sustainable?" So, anyway a lot of effort being put there is the timeline, and I won't go through that today. I'm sure you had access to that from Tina or previous speakers.

0:35:26 S2: Where is Yolo county? This goes back to this Groundwater Sustainability Agency concept. There are four sub-basins in Yolo county. One is a high priority. Two are medium priority. One is low priority, but also, what it doesn't say in here is that of those four basins, two of them are completely in Yolo county, and two of them are partially in Yolo county. One is north of Cache Creek that goes from the midline at the Yolo county up through Sutter through Colusa County and up to the north boundary of Glenn County. So a huge sub-basin. I have no interest or desire, and I don't think it makes the process any better for me, go up to Louis, California up to Glen County and tell them and participate with them in all these scenarios that are groundwater, there's nothing they do that directly impacts us, so again our pitch to the state was, "Let us organize our boundary, we'll make it simple, we'll be accountable of how the checklist of the things that you need us to do, and you can, move our feet to the fire to make sure it was the sample, but don't make us have an unreasonable boundary.

0:36:31 S2: We've got an extensive groundwater monitoring program in place, already showed and talked about that and the Water Resource Association has already established in the CASGEM a different state groundwater program monitoring entity. And the groundwater is in generally sustainable shape, "Hold back to this year of groundwater." I'm gonna end up with the two slides here on what we're doing and the decision process. But first off, it's a collaborative effort, nobody can solve this problem on their own, no single agency, Yolo County couldn't do it and the county of Yolo the government agencies couldn't do it, the water district can't do it, there's land use authorities. My organization doesn't have any land use authorities, the cities and the county have land use authorities, so they need to be part of the

game, and we need to work together, but what's mostly forgotten is the last people there at the Yolo County Farm Bureau, they represent the private land owners in the county and the legislation helps but the GSA informed by public agencies, which is sub-pro rates since we're accountable to the public.

0:37:34 S2: But what's kind of missing from that is the integration of the in-private land owners and the private lumbars, so we went to the field early on and said, "You join us, let's work together and make this agreeable piece of legislation, let's make sure that it accomplishes what it's intended to accomplish." And again previous work that put us in this strong position, Yolo County, I've gone through this and parts the... The main thing though is we got our regional multi-agency groundwater level monitoring network, and we have a real time monitoring sensors, level sensors, we have the database and groundwater model carried on through that. But it boils down to a fork in the road. We're at a fork in the road right now as we approach the formation of GSA, and already people have tried to come in and include, "Who's gonna tell me I'm gonna shut off my groundwater? They're gonna tell me in the middle of my cropping season, are they gonna tell me ahead of time?" All these practical functional questions about important and really to summarize, I've summarized to hear one question, is Yolo County groundwater sustainable? And it has two parts, has it been sustainable? And will it continue to be sustainable?

0:38:41 S2: Here's a graph going from 1975, 40 years of graph. This is 150 wells to our service area so ground levels going down, there was a big drought the biggest drought in California's history was 1976-1977, they've gone through extreme two years of drought, that water tables plummeted, they came back up, they recharged through the rain and just through the Indian Valley Reservoir providing extra surface water. Through their early 1990's there was an extended drought, it wasn't as sharp, it wasn't as sharp as the 1976-1977 water drought, one but it kinda extended out. 2009 then the drought water recovered, it dropped during the drought and in this 2014, it dropped in a year. And the real take away message from this graph, is hydro graph, is during the Yolo county, at least area that this represents, there's a history, a 40 year history of sustainability. I call this sustainable, the water goes up, goes down, but that's, people put wells lower than that, and so there's been a history of recharge and recovery.

0:39:53 S2: And a single well, and this is more real time. I mentioned we've got it in real time network of data sensors, and this is just one well that is representative, but this is the last, it's 2009 it's been counted up, it represents, it mimics these 150 wells, but if you don't believe 150 wells, you can look at any individual well and see that it's coming up and going down during irrigation seasons, during winter recharges, comes out during irrigation season.

0:40:24 S2: Guess we're here to 2014, it was all rain during the winter last

year, didn't recover quite as high, came down and we were all kind of holding our breaths here this irrigation season continued to exist, and we know historically, autumn's out in September of each year, early September so we were watching, learning about it, and the big question is how high is it gonna recover? As of last night, I pulled this off of our SCADA system, our remote monitoring last night, "So where to start the season now." We give out about 15 to 20 feet below where we were last year at this peak. And last year we during that and planned at large, we came down to here, we lost quite a few wells, what are called "private domestic wells", people, there's ag wells which pull water up to irrigate crops and there's, if you got a little house in the country, you have what's called the "domestic well". Typically those aren't as deep, so they're the ones that get lost first.

0:41:17 S2: So the big question here, that well, of course, how high is this gonna recover this year? But so that kind of and from a historical perspective, I can make a pretty strong case of DWR that we've been sustainable before the year. The next question is are we gonna continue to be sustainable? And this is the Yolo County Health Department gets permits for wells, groundwater wells in Yolo County gave me this chart of a number of months ago and it needs to be updated, but these are how many permits starting on the right hand side in 2004-2005, 2005-2006 going to 2013-2014 year-to-date.

0:42:00 S2: This is about five months out of days. So, I'm sure there's over 120 permits. This is all new demands. I'm not sure how much you get out of driving through the landscape of the Yolo County, but there's a huge conversion, a land use conversion going on and taking place now, where range land used to just be non-irrigated. Now you see permanent crops. You see trees, new orchards going in everywhere, and that has an affect, in the old days like three years ago. If there was a drought, people would plant weeds or some low use crop, but once you put in an almond orchard or a walnut orchard, or pistachios or olives or something that needs water every year, that's what's called "hardening demand". Every year now, that demand is not gonna go away. Anything usable would let us to get into survival mode and what not that. That's hardening demand. So the question, there are a lot of new wells have come in, in the last year, and a lot of new trees, or a lot of use, man used conversion leading to the answer, I don't know what the potential is, I know there are long periods and take care of it.

0:43:04 S2: But from a policy perspective, it leads down path. "Okay, you asked those two questions. How do we do sustainable? Well, we clean to be sustainable," but when you think of it in terms of forming a government agency, a PSA, if it leads you down a fork in the road, if it's sustainable then it probably doesn't matter who the GSA is. I'm not gonna have to worry about somebody telling me to turn my pump off for not planting my crops or to do anything like that. But if it's not sustainable, and I think it's very questionable whether the word sustainable in the Yolo county right now at the groundwater, it matters a lot. And why does it matter? Because this GSA has been at it for

the two legislative acts, very similar, very serious authorities, including closing and updating fees on the tree there. Monitoring compliance and enforcement. And enforcement means you're gonna have to register your well, you're gonna have to report how much water you are using on an annual basis, and you're gonna have to turn it off if you're counted unsustainable.

0:43:58 S2: So, this is where local people get really nervous, and that's where they start coming to me and saying, "Who's gonna be in charge here? And who's gonna vote when we create this GSA groundwater sustainabilities? Are the cities gonna have all the rights? Are they gonna roll over the rural areas? How's that gonna work?" So, what we've been hearing... Well, very collaborative in the process. I've been, for the last three months, been talked to, probably given about 30 talks to the city councils, land owners' groups, the county plant, the county government. But we said, "Let's get together on our own. Create a planning forum, and then can we..." Right now, we've set out another draft resolution, so up to about 20 organizations in the Yolo county, saying, asking them to pass the resolutions, to supporting WRA. In coordination, a collaborative effort with Farm Hero and other interested parties. Acting as the planning forum. And it seems like such a baby step. Some people are giving me a little bit of grief saying, "Oh. You gotta be more aggressive than that. The WRA should be the GSA." But I kind of want to be drug keeping and screaming. I want people to say... I don't want to presume anything. I don't want to presume that we're the best organization to do it.

0:45:18 S2: But I believe once we get it moving, and start deciding whether the main questions need answered. If it's not the WRA or our research association, we'll need something that looks like it, that would be collaborative in nature. It won't be one where agency is withholding everything. So, I'm gonna lead with just the last couple of slides. There's a mentality, we'll get into a mentality of dividing the pie up. How much groundwater do we have? And how are we gonna adjudicate it? How are we gonna decide who gets how much? Yolo County's in a wonderful position. We get quite a bit around. In 2006, the [0:45:54] [redacted] station was taken and had over a million acre feet go out in the storm water leaving the county going out to the ocean. And some of that's good, some of it's headed for environmental benefits, but we've pulled a portion of that off. 50,000 acre feet out of a million. That's a year's supply of the cities of Davis and Winters. So, we have opportunities in Yolo county when you go to the seven tower next week, I think you're gonna have big work here through the manager of the water conservation history down in Fresno. And they don't have the options we have, to lend a hand to each other [0:46:31] [redacted].

0:46:33 S2: But we're in better shape than... I guess is the main thing what we're looking for locally is to increase the size of the pie around them and just divide the pie up as it exists today. And the last bit I'm gonna talk about here is we're in a key point in time in California water, people who push for groundwater legislations since the 1800s, and it finally happened last year.

And we either embrace and work with it, or let it fail, or have it fail. But when I got here 11 years ago, I asked, "What are the past water decisions?" And then eventually, I've got a top four real quick examples here, that this is, if you don't recognize it that's lake in Monticello dam and Lake Berryessa, I included three?" Yolo County was asked to participate in the Solano Project. What was called the "Solano Project" in the 1950s, and for reasons that made sense in the 1950s, the Yolo county elected not to participate in the Solano Project. But now, new water quality regulations came to place that force the cities of Davis and Woodland to water quality discharge issues that they participated in the Solano Project, they would've avoided about 200 million dollar treatment project.

0:47:45 S2: So, sometimes the decision you don't make are as important as the decisions that you make. Flood control. Cache creek in 1958. Cache Creek, for those who don't know, when there's a big storm that moves, it's very much at risk for flooding. And you got 10 year levies right here in Woodland. And when I came up here. I'm really more of a supply guy than a flip control guy. But I've never heard of a 10-year levy. I thought they were kidding me. And I said, "10 year levy, what's that about?" Turns out, at that time, they were planning on building a big reservoir up in Cache Creek Canyon and Wilson Valley Dam. And the way the federal money came was you get more money if it solves more problems. And they didn't wanna contribute.

0:48:23 S2: They didn't wanna solve a political flood problem. Because if you take away the funding part, the federal budget responsibility for the Wilson Valley Dam. As it turns out, it was an inappropriate sign anyway. Economically, geologically, environmentally, it just didn't work. So, Woodland's left holding the bag 50 years later with a 10-year levy protection. On a more positive note, the purchase of the Clear Lake water company. This was the company that [0:48:51] the Yolo County flood control organization, definitely an organization. This was a private entity like PG & E and government-regulated by the PUC, meaning that call it "Louisiana purchase" in the Yolo county.

0:49:05 S2: We bought it for two million dollars all the waters rights to Clear Lake, the storage rights and also the infrastructure. And it was even better than than, they financed it with paid revenue bonds so the company that sold it to us, paid for the revenue bonds and paid it all again back over time. They essentially loaned us the money to do it. The only bad news is it's a 100-year old system that hadn't had much maintenance done on it for a 100 years. So, we're going to try to play catch up with that. And the Indian Valley Reservoir, this is the last slide and I will close here.

0:49:35 S2: This was built in '76, and who financed it? All the water's we find Department of Yolo County. But who paid for it was the whole county itself, which it was the city of Davis and Woodland. Why would the cities of Davis and Woodland pay for the farmers fee to get more water? Well, we went on a political campaign and we used groundwater data that we have in reflecting

groundwater data, we showed the connection between the urban area, the rural area and the water use in the urban area. Again, going back to one of my first slides, cities of Davis and Woodland are both using groundwater, and have been using groundwater. 80,000 acre feet average annual supply comes from the Indian Valley Reservoir. As 80,000 acres flip and it stays on the ground and maintains the system that Davis and Woodland and Winters, to a lesser extent uses.

0:50:21 S2: So, it was a very collaborative effort. It really changed the dynamics of the water and water politics in Yolo county. And it's a great example of a very proactive engagement via, if this is just as the Yolo County. And I hope that it would enact, the groundwater legislation would be as wise as they were back 40 years ago and doing this. So, anyway, I threw a lot of information in you. I wasn't real quick, but thanks for the opportunity to have us in the law school. And if there's any questions, if there's time for questions, we'll take them.

0:50:51 S1: Yup, do we have time for questions, Rick?

0:50:58 S?: So, how do you think is the best way for the State to deal with increasing of the planting of perfect crops. I mean do you think it could be something what cities do with zoning? Is there gonna be an agricultural zoning throughout the State of California? How do you think will the State's gonna deal with that?

0:51:15 S2: First off, one thing that I didn't say about the groundwater legislation that is really critical, is that the State, the premise is that local people can control the groundwater better than the State. The State is one size fit all organization. So, I don't see any State-wide, it's great question, and we're really struggling with that question. And I don't have a clean answer for you but it won't be a State-wide solution. Certain areas of the State, if Yolo county can develop groundwater, we don't have to create more wells. We can just maintain the groundwater even though there's this tremendous problem. Other areas down in San Joaquin Valley, they're gonna have to adjudicate, I believe in this opinion, and in this whole figure of questions are gonna play out in the next five, 10 years here. I believe they won't say what, they probably can't have this crop or that crop. They'll say, "Here's the water supply that you can have, you decide how many acres and what crops you're going to use". So, if you wanna 50 acres of local high water use crop or a 100 acres of local water use crop, that's your decision. I believe it will play out in that manner.

0:52:23 S?: You mentioned in the beginning this example of some fifth generation farmers planning to keep their wells against new farmers or not wanting to drill a well that's deeper than your neighbor. And I wondered if you could maybe, talk a little bit more about that, the examples of how you'll resolve that conflict? Or how you think you will, moving forward?

0:52:45 S2: First off, I don't think I'll resolve it. But the group totally will resolve it. I don't know, I feel pretty strongly about this. But I know I deal with a lot of people, some of my bosses that feel a little differently than I do. I don't think heritage would do any more right in America than a newcomer on the block. So, on other hand, there's land use planning, if you have a house, they build a freeway next to it, you get a compensation. You get litigation. So, I think, I don't see, I'm not sure and I turn to the legal profession to say what the legal rights do, does the city or the GSA, or the groundwater sustainability agency, what rights will it have to say, you can get a preference or you don't get a preference. You can drill deeper or not.

0:53:43 S2: I don't really know how that will play out, but I can imagine that just because you're existing, or that you've been here longer than the next person, there might be something in California Water Law. Anybody heard of the term, pre-1914 water? Yeah, it's a real strong water right is the Clear Lake water right is pre-1914, Indian Valley post-1914. What they decided was there was a point in time where those existing rights were honored and any new rights came in under certain, a new set of laws. And with the reporting was more rigorous post 1914. We've kicked around with the group... The group gets together and talks about this situation like that where we have... Create a point in time. Not so much as the next fifth generation, fourth generation, not points in time, but 2015 will be the year that if you have the well in, you don't have to be part of the adjudication and you go under new rule, you have to comply with certain requirements. I don't know if that's the legality of that in all that, but that's, I think, one way that it could play out.

0:54:53 S?: Do you think that's why you've seen this increase in the well permits and, perhaps, even this conversion to the higher water crops that people are trying lock up rights now, thinking that things are gonna change in the future or is that just pure coincidence why people are converting to this more water-insensitive agriculture?

0:55:14 S2: I think, in fact I'm pretty sure that the second part of the question on the crops is a market group deal. I don't think it's coincidental. I think it's just the market is striving to hold bank. On the permits, that's a little bit more... People are nervous. You know, "Geez, are they going to cut it off?" I talked to guy last week that he just sank two wells, two brand new wells. He capped them off and then he didn't put on a... You know, a well is just a hole in the ground. I mean, you gotta put a pump on the well to make the water come out. And so he buried, he capped them, legally. This was all legal. I'm not telling any illegal stories here. But he's doing that just to, in case they do... The county comes out with an ordinance or a decree saying, "No more permits or moratorium on permits in the next two years." He's got his wells in place to do it.

0:56:04 S2: So the first part of your question, I think it's because of the

nervousness of the legislation, in part. And the second part are the crops, I think its markets are in a natural process.

0:56:22 S?: I just had a quick question, similar to Odessa's, but from the urban side of things and whether you think they'll be interfacing with the general planning process as far as zoning or potentially moving development in the area, depending on whether or not it's a question of whether you're gonna be sustaining for the future. It's not you can build only part of the solution.

0:56:46 S2: They're envisioning the law as being part of the solution. I don't know that we'll get into that in Yolo County again 'cause we're pretty water-rich. But the zoning potentials... There's a law in California right now where if you have a subdivision over 500 houses, you have to show where the water's coming from. So there might be something.

0:57:09 S2: It's a little trickier when you're talking about individual wells and it's a commons... The groundwater is basically treated as commons right now. But the law explicitly calls for the counties to be involved in particular to take into... And the cities, taking the land use authorities and zoning authorities. The county would have much more of a say in that than the city. The cities are kind of concentrating, but the county is where the groundwaters being used. So they're very much work with them on regular basis and they'll be a big part of it. Where they go, what they do is think of question's still for us, the technical people, the technical staff members to answer the question, "Are we sustainable, or are we not sustainable or can we get sustainable?" If the answer to all those is no, then we'll have to turn to more draconian sort of steps, like zoning.

0:58:08 S?: If I can just supplement. The 24 legislation requires actually that the groundwater sustainability agencies, once they're formed, submit on a regular basis their groundwater sustainability plans and updates to the county planners for... So that it forms the general planning process, and reversely the legislation is required to build a general plan information to be made available to the groundwater sustainability agency. So there's a mandate that they exchange information and mutually inform one another, but I don't think this legislation goes beyond that in terms of particular mandates on how groundwater management will or will not subsequently affect the general planning process.

0:58:53 S2: That's right. The legislation, essentially, is a toolbox given to the local authorities to use. The toolbox included zoning things. It also included metering, they developed too. You don't have to put meters on every well, but if we... The GSA would allow the [0:59:10] metering, water reporting requirements. What else did the legislation have in the toolbox? Fees. Some other critical things I'm forgetting right now off the top of my head...

0:59:25 S?: And it's open ended, it doesn't limit him by language what the elements of the groundwater sustainability planning agency have, but it just says it can include all off these things. Can I ask one question about the law? The legislation provides a couple of years for local areas to self-organize into some groundwater sustainability agencies. Some critics have said that's too leisurely a pace given the nature of groundwater overdraft. But the person who's on the ground is that two years a reasonable timeframe, is that going to be required? Could it be done, or likely to be done in different parts of the state going to be done more quickly? Or is two years not enough for this self organization process?

1:00:16 S2: Yeah, good question. I think in certain... In Yolo county, it's about the time and the reason it's enough time in Yolo county is because we've got a structure in place with the Water Resource Association, we have a relationship. Life's about relationships and relationships are about trust and you trust the people. We live in the City of Woodland and I know I can get a straight answer from them and county can come to me and get a straight answer from me. We've got a 20 year history of working together and why we don't compete. I think we're in great shape. There will be a lot of dirty work to be done, a lot of hiccups along the way, but I think we can get there. I would not like to be somewhere in the San Joaquin Valley or even in the Sacramento Valley without an existing Sutter County is like this, there's no organization in Sutter County that's an obvious candidate to step up and do this. They have to start building these relationships among the hires, all the interested parties, and effective parties from go.

1:01:12 S2: And I think what we'll see for them is that most of the rest of Sacramento Valley is ready to go. We have institutions in place so it will be a remaining hole [1:01:21] that you can just do it. But, as you move further South into the San Joaquin Valley it's a lot... Again, your speaker next week can certainly address it better than I can, but it's a great question to ask up here in Sacramento Valley, I think it's enough time or I wouldn't be saying the same thing I think if I was down in San Joaquin Valley. And it all comes down to existing, governance is a tough deal whether it's... Whatever sort of governance you are. It's politics, so obviously it's a tough deal, it's a dirty business, and that's essentially what you're setting up with some other government organization that has authorities to tell private institutions what to do and what not. That brings out some of the best in people and some of the worst in people. It becomes a challenge.

1:02:12 S?: My question was about the structure and the negotiations for the groundwater sustainability association is going to be put together. We talked a lot about water as a public resource, but as I saw from your slides and from your discussion, bringing in the Farm Bureau as part of the negotiations, they're a private organization, how do you expect to balance those two interests?

1:02:43 S2: It will be tricky, but basically by being collaborative, we're bringing them in early, and we collaborated with them in early, and also they have to realize that kind of the leverage that not us, but the state has put on the table is by making the legislation just saying that the GSA, the Ground State Developing Agency has to be, members of that have to be public agencies, you're essentially saying to everybody else, either you figure out a way to work with them or we'll take over. One thing I didn't get on here, and I'm afraid I kind of breezed over it in one of my bullets on the thing, is that state... If we don't achieve sustainability within a certain timeframe, the state takes over, so it's pretty easy for me to ask the Farm Bureau, do you want me or the state to be here? You pick your poison.

1:03:34 S2: And private individuals, whether it's you own a house in the city and you think you have the right to change your light bulb without getting a permit, or groundwater well, that you need a permit for. People don't like generally being told what to do, but it's the law and they don't... The law doesn't envision private individuals being part of the groundwater state, it forces them to make the decision of who they want to work with. Again, it goes back to the question about timing and all that. Trust, we've got a great working relationship with the Orange County Farm Bureau. But trust will be verified, they'll be watching over you very closely and making sure... Their main fear is that the city's, the urban interest will have the voting majority on the agency. It just becomes real easy for the voting majority to say, "Well you guys turn your wells on". We're going to continue our happy go-lucky life here in the city and you start turning your wells off. That's kind of a proven statement, but that's the biggest fear I hear.

1:04:48 S?: I was wondering do you think your biggest challenge is going to be technical or more political and managerial in working through the whole process?

1:04:55 S2: Very much political, the technical stuff is relatively easy, it usually comes down to money. But, the governance is all about politics, it's about who's in charge and who gets what authoritative... Who gets to tell who what to do. In my opinion at least in up here Yolo county, and I think this is true statewide that the real nut to crack is the politics. Which is why everyone is working so hard on the GSA going back, they realize the clock is ticking on the two-year timeframe, you got two and a half timeframe on the GSA. Nobody wants to be caught at the last minute scrambling, trying to throw something together.

1:05:42 S?: You have more questions?

1:05:43 S?: Yeah. Another criticism of the legislation is that it doesn't mandate the groundwater sustainability agencies include a requirement for individual wealth reporting of extraction levels. We had a prominent Waterlock terrain last week explaining law, and he remarked on that, that that was kind

of nod and a wink in the legislature, and that most people believe that that information was required and that local groundwater sustainability agencies will incorporate that as part of their plans, but that for political reasons, they didn't want that as a mandate in the legislation. Does that again, does that track your experience in terms of the likely result in Yolo County? And more broadly do you think that groundwater well reporting will be required as part of the most groundwater sustainability plans around the state?

1:06:44 S2: I think, and it's just an opinion and it'll play out, but I think most will go to some sort of reporting. I've got mixed feelings of it and I look at it from an engineering perspective rather than a legal perspective. If I'm buying a pound of coffee beans and it says that in each bean, there's a 1,000 beans in there, I don't care if it's a 1,000 beans, I weigh it and if it weights one pound, it's good enough for me. I don't care if there's 999 or 1,001. So I look at the groundwater map, I showed you all the dots on there, is that enough dots? Is it too many dots? How much information, how much data do you need to know to make a decision?

1:07:27 S2: NASA just sent up, and you probably saw it in the news week, NASA sent up a satellite that's gonna measure water moisture content, and so should we have every field report recording soil moisture content or should we rely on a satellite that can do the same thing at one fraction of the cost? So from an engineering perspective, and I guess my mixed feelings on it is from an engineering perspective, you can argue pretty strongly that you don't need individual reporting. But from a governance issue, from a politics issue, if you want to know how much my neighbor did, and I want data, you can't make decisions and you can't manage without data. So generally speaking, so I'm kinda torn on the issue. But I think if you're sustainable and you've got enough wells, not every drilled well, not every well in a kilometer, then why do that expense? It's just an overhead burden. But if I could ask a question, from a legal perspective, do you have an opinion on it?

1:08:33 S?: Well again, we're all prisoners of our experience and we're above the glaring omission based on some of the hydrologists and other technical experts, which I have talked to and if you can't figure out where you're going unless you know where you are, and the information at the baseline and what the status quo is. But your response is very interesting, which I hadn't thought of since I'm not an engineer by trade.

1:09:03 S2: Right. And I would say if you adjudicated a basin, and I think everything south of the Delta is going to get a adjudicated. Personally, I think that if you look at the groundwater graphs in the San Joaquin Valley and you're going straight downhill, if you look at mine, it goes up and down, and ends up for 20 years in the same spot. That's a very different story and you can actually speak next week about what slope that line is at. I think they're going to adjudication in those parts down there. I think if you're adjudicating,

you're saying how much each person gets, there's no question that you're gonna have to have individual groundwater meters on the well.

1:09:41 S?: I've got a whole slew of questions, how much time do we have?

1:09:44 S?: I think we need to break by 5:30, so we've got about seven minutes.

1:09:48 S?: So I'll ask one and then I'll look around. People need to "shh". Raise their hands. First one I have is, so we have in Yolo County, I don't know, five, six, ten groundwater management plans that were done under the AB3030 or the SP1938 legislation that covered parts of the county, including one for Yolo County Flood Control District? How will those groundwater management plans inform the groundwater sustainability plan if at all? And what are we gonna do about those areas that are currently outside of any groundwater management plan area?

1:10:27 S2: Everybody understand the question? It says, there's actually seven, I think, AB3030 plans which are the precursor to this legislative act where you put together a groundwater management plan. They certainly will be looked at, they're not in isolation, they're the biggest and formed groundwater sustainability plan. A question, kind of a knee-jerking question, Thomas, that you can ask is, will the Venice water sustainability plan which the groundwater sustainment... I love it, they created three new acronyms, three letters of the letters are G, and S and A. So it's hard to keep them straight, but the groundwater sustainability agency has to create a plan. Will the plan be one complete plan or will it be seven groundwater plans? And the way I see it playing out is they'll be one overriding plan, but it'll have chapters in it. And those chapters will look somewhat like the AB3030 plans or a newer version, an updated version with more environments and thoughtfulness put into them.

1:11:33 S2: The second part of your question about the blank areas, there's parts of the county that don't have AB3030 plans, what's gonna happen there? And I think it'll be handled individually. I think there's an area called Yolo-Zamora, it's in the north, kind of north east section of the county. They were gonna get water through the county of Colusa canal and then water never showed up, so they've been sinking groundwater, and they have subsidence, it's the area of the county that has subsidence. I think we will create either a sub-agency up there or they will join Reclamation District 108 as a part. Weston's Water District down in San Joaquin Valley has an A area and a B area, and they have slightly different rules for the different areas, so I could see part of the Yolo-Zamora area coming into the local county flood control district as the B portion for groundwater monitoring purposes or flood management things like that, resource issues.

1:12:33 S2: Where they wouldn't have a right to the surface water we have

because we can't get it to them anyway. So, I think we've covered this, the other areas in Clarksburg in Southern Yolo county that the groundwaters down about three foot, and they'll just decide to... If anybody's sustainable, they're sustainable from a groundwater perspective. And they'll just create their own and hold it into the umbrella of groundwater sustainability plan, or they'll contract that out to my organization or something like that. So, I envision everybody being covered. There won't be anyone left out. It will become obvious to anybody that's not covered that they better find shelter somehow. They better get their act together otherwise, again, the state will take over.

1:13:24 S?: You talked about the tension between using the Bulletin 118's basin boundaries versus political boundaries. Can you maybe go into some more depth about that and what you think would be a more effective thing, or does it depend by region which one's better?

1:13:46 S2: It depends by region. If you're down in the Mojave desert, and you have a sub-basin. It's pretty discreet, but if you're up in Yolo county, next to Colusa County, next to Glenn County the lines are pretty arbitrary. In fact, the boundary line is between on Cash Creek-the middle line of Cash Creek for the southern end of what's called the Colusa sub-basin, and the northern end of what's called the "Yolo" sub-basin. I was asking one of the guys who was instrumental in putting Bulletin 118 together. I said, "How did we put that spot?" Cause it's all kind of an alluvial basin, when you look down to Solano County. He said, "Well, we just thought it was getting too big." So the line on the map-the, Cache Creek line I said, "What do you mean?"

1:14:32 S2: So, what he was saying was that he just kind of arbitrarily chose sides as a component instead of making them run down to the bottom end of Solano County. The problem with that is, especially with dividing Cache Creek, which you see is part of the solution. So, are we going to have one group organizing to the north of the creek? I said, "Well, wouldn't it make more sense to move the boundary to the Colusa-Yolo Political line there where there's not a water source, so it's just simpler from an Engineering perspective. The groundwater models are simpler in that area, and if we can agree to talk to their neighbors..."

1:15:14 S2: There's always gonna be a boundary, and you're gonna have to talk the boundary from a hydrologic perspective. You're gonna have to talk to all your boundary neighbors. So, it led me to believe that the easiest boundary is one that exists on political boundaries. Going back to the questions, "Is it really more of an engineering problem or a political problem?" I believe it's a political problem, so if you make the boundaries on a political basis, it helps you organize.

1:15:44 S?: So half of the groundwater legislation is quantity, but the other half is also water quality. Since Davis is a water level driven more toward

surface water, so it's not a big of an issues, but places like Winters and some other of the smaller towns rely on groundwater, how sustainable is Yolo county from a quality perspective?

1:16:02 S2: There's an interesting thing, and, of course, Thomas is a state expert on groundwater quality, and he made a major report in the last few years. And I was surprised. I thought when they started down the road of legislation that quality would have a significant part of the legislation, but it's barely mentioned. It's mentioned almost as an aside. So, I don't know if you want to comment on that, but it's certainly in there. Best be taken. But the second part of your question is more practical. How do the cities, like Winters-Davis and Woodlawn are moving off because of water quality waste discharge requirements? Winters is dealing right now as many cities are with new requirement for Chrome 6 There's new standards for that. With or without the legislation there's lots of other rules that you have to comply with, besides this legislation to be a groundwater basin. There's the irrigator lands program that's run by the regional board. Chrome 6 Program.

1:17:04 S2: Arsenic is a big deal. Nitrates is what Thomas focused on in his report. To me that's the most obvious big picture quality problem in Yolo county. Although the Chrome 6, the cities are struggling to treat it. It's very expensive-the town of Winters-5,000-6,000 people, they got to... They're not sure how they're gonna... The technology... If they had a big enough check book, they could just go buy their way out of the problem right now, but it's not so simple. So, does that address your question?

1:17:33 S?: It was just curious. It was mostly nitrates that I was concerned with 'cause it's such a large ag area. If you think that, even if we're sustainable as far as water quality goes in the future, if nitrates are going to be a larger problem coming up in the next 20-30 years.

1:17:51 S2: Once I believe, and I'm being a little farcical about this, but once we get over the hump on the GSA's, the Groundwater Sustainability Agencies. There's always the problem of the day, and nitrate's gonna come around. It's a little bit quiet right now. I think maybe something, maybe it's not quiet in your world, Thomas, but in my world, there is focus on this conversation, but since we catch our breath on this, we'll be back at nitrates and land programs.

1:18:22 S?: And I think salts are going to come back as well. Maybe more so than nitrates in the long run. So, I had one last question and then we'll close. From a personal observation and sort of anecdotal stories, I catch there's, in addition to the hardening of the element, because we're switching from no crops to permanent crops based on, primarily driven by the demand for almonds and walnuts. There is something else happening and that is that as people are going to tree crops and start using micro-sprinklers and irrigation, did it seem to tend to go to groundwater as a source of irrigation water and rather than their...

Thank You for choosing Scribie.com

Cross-check this transcript against the audio quickly and efficiently using our online Integrated Editor. Please visit the following link and click the Check & Download button to start.

<https://scribie.com/files/13418517f3d04b8a9406966109b042b7f21e541e>