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CUEL | CENTER ON URBAN ENVIRONMENTAL LAW

PROCEEDINGS OF 2015 CALIFORNIA WATER LAW SYMPOSIUM (WLS), PREPARED BY CENTER ON URBAN ENVIRONMENTAL LAW (CUEL) AT GOLDEN GATE UNIVERSITY (GGU) SCHOOL OF LAW

WASTED WATER: REASONABLE USE LAW IN 21ST CENTURY CALIFORNIA

January 24, 2015

Golden Gate University School of Law
San Francisco, California

2015 WLS CO-CHAIRS:

TREVOR HOWARD GGU School of Law '15
ERIK FAUSSNER GGU School of Law '15

FACULTY ADVISOR FOR 2015 WLS:

PAUL STANTON KIBEL Professor, GGU School of Law

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Trimble

The production of the 2015 WLS proceedings
was supported by a generous contribution from Trimble.

Tigerfish
Transcribing-Editing

203 Columbus Avenue · San Francisco 94133
toll-free 877-TIGERFISH
www.tigerfish.com

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INTRODUCTORY REMARKS

Dean Rachel Van Cleave
Golden Gate University School of Law

Erik Faussner & Trevor Howard
2015 Water Law Symposium Co-Chairs
Golden Gate University School of Law

ERIK FAUSSNER Good morning and nice to have you all here. We're about to get started so if you could find your seat, we're going to get this underway. First to speak is the Dean of Golden Gate University School of Law, Rachel Van Cleave.

RACHEL VAN CLEAVE Good morning. My name is Rachel Van Cleave, Dean of Golden Gate University School of Law. I'm delighted to welcome you to the 2015 Water Law Symposium. We are very happy to be hosting it this year and we also hosted in 2011.

Let me just say a little bit about the WLS in case you don't know about it. The WLS is a wonderful model of student water law groups, environmental law groups, from the different Bay Area and northern California law schools coming together to plan this event every year and rotating it around to the different law schools.

I want to thank all the students from the different law schools who participated in organizing this event. Thank you very much, and I particularly want to thank the Golden Gate students, who have taken the lead on this, Erik Faussner and Trevor Howard. I would love to see more of this type of collaboration among different student groups at the different law schools.

This topic for this year's WLS was the result of the vision of my colleague, Professor Paul Kibel, who you will hear from more a little bit later. It's great that the topic is so timely, given water conditions in California. I grew up in California, and it seems that water is always an issue in California. Indeed, water has touched every sector of the economy in California for nearly the entire time California has been a state – whether it's mining, whether it's agriculture, whether it's fishing.

So it is particularly timely that we are focused today on *Wasted Water: Reasonable Use Law in 21st Century California.* Our focus on water law for this Symposium is also consistent with our environmental law programs here at Golden Gate, including our Environmental Law and Justice Clinic, the scholarship of my colleague Professor Paul Kibel on water law, and Golden Gate's Center on Urban Environmental Law, which will be publishing the proceedings of today's symposium.

The focus today is on those aspects of California water law related to improved efficiency and conservation. In a time of protracted drought and with our state's water resources and natural environment under such great strain, there is an urgent need to curtail wasteful water use. I hope today's symposium will help us to chart a course for a more sustainable and equitable legal framework for water in California.

Today's symposium features a number of experts who will explore these issues in greater depth. Thank you to all of our presenters, moderators and panelists and our keynote speaker, Felicia Marcus, chair of the State Water Resources Control Board. I wish you all an informative and productive day. Again, I want to thank the student leaders on this. They've just done a terrific job. I would love to take the credit for all of it, but really, they have taken the lead and done a fantastic job.

So I would like to introduce Erik Faussner, a third-year law student here at Golden Gate law school, one of the co-chairs of the 2015 Water Law Symposium, and Erik along with Trevor has planned this conference.

Thank you all very much and have a wonderful day.

ERIK FAUSSNER Welcome, everyone. I think Dean Van Cleave has said it all. We're very excited to have you here. Before we get started, we want to thank everyone who's made this possible. One of the most important people has been Dean Van Cleave and the administration of GGU Law School for making this event possible.

TREVOR HOWARD First off, we'd also like to thank the sponsors. We have Trimble, our symposium sponsor, we have Tigerfish, who's going to be transcribing everything that's happening today. Also, Rossman and Moore; the California Bar Association; the Water and Power Law Group; Somach, Simmons & Dunn; Remy, Moose and Manley; Briscoe, Ivester & Bazel; Ellison, Schneider & Harris; Kronick, Moskovitz, Tiedemann, & Girard, and also Chris at Maven's Notebook. Thank you.

ERIK FAUSSNER Later this evening, once all the panels are done, we're having a reception on the sixth floor sponsored by Briscoe, Ivester & Bazel. And we also have a wonderful sponsor for beer, Calicraft Brewery donated a keg of their Koslch-style ale. It's wonderful beer. I went over and looked at their operations yesterday. So we hope that you will join us this evening.

And we'd like to turn it over to Francisco Martinez, the Golden Gate student who was in charge of organizing our first panel. So let's turn it over to Francisco.

Session 1 The Long View on Reasonable Use Law in California

Moderator: Paul Stanton Kibel

Panelists: Harrison Dunning
John Leshy

Francisco Martinez Good morning, everybody. I'm a second-year at Golden Gate University. I'm originally from New Mexico so I'm no stranger to water issues.

So let's get started. I'm going to introduce our introductory panel who are going to kick off the symposium. First, our moderator, Professor Paul Kibel. He's a tenured professor here at GGU, primarily focusing on water law and environmental law. He also co-directs the Center on Urban Environmental Law (CUEL). Professor Kibel also works with the Water and Power Law Group. He has also published a number of articles on water law over the years, most recently in the McGeorge Law Review.

Our first of two panelists is Professor Harrison "Hap" Dunning, a Harvard law grad who has enjoying a distinguished career as a leading expert in natural resources and water law. He is the author of the public rights portion of the leading national treatise on water law. He is also a member of the Board of Directors of the Water Education Foundation and the Bay Institute of San Francisco.

And last but not least is Professor John Leshy, also a Harvard grad, who has been a Professor for a number of years at Hastings Law School. He served in the Department of the Interior under President Carter and also was the Solicitor General for the Interior Department under President Clinton. In 2013 he received the Defenders of Wildlife Legacy Award for his lifetime contributions to the wildlife conservation.

Please join me in welcoming the first panel.

Paul Kibel Good morning. Thank you, Francisco, Erik, and Trevor for all of your work and the work of all the other students in pulling together this year's symposium. And thank you to Dean Van Cleave for her early and strong support for our hosting this event.

The title for our opening panel is "The Long View on Reasonable Use Law." To introduce the topic of California Reasonable Use Law, the year 1926 can serve as a logical starting point. In 1926, the California Supreme Court issued its decision in the case of *Herminghaus v. Southern California Edison*. The *Herminghaus* litigation involved a dispute

between a downstream riparian water rights user and a proposed upstream hydroelectric project under an appropriative water right.

The downstream riparian user had a ranch, in which they frequently diverted the entirety of the river for pasture, for grassland, to irrigate the grasses on the land. The downstream riparian user claimed that the upstream hydroelectric project was going to interfere with that riparian use.

At trial, little or no information was submitted about the actual livestock use of the grassland. It was summarily alleged this was the use, but they didn't introduce much evidence about the types of livestock and the numbers that they will run on the land.

In its 1926 decision in *Herminghaus*, the California Supreme Court found that the extent to which the grasses were actually used for grazing was legally irrelevant. The California Supreme Court reached this on the basis that in a dispute between a riparian and a non-riparian, the riparian's water use is "not limited by any measure of reasonableness."

There was broad criticism of this 1926 decision, because even in 1926, California was facing strained freshwater resources. To many it seemed untenable for the law to uphold a doctrine in which the unreasonable and wasteful use of water by anyone was found to be legitimate.

even in 1926, California was facing strained freshwater resources. To many it seemed untenable for the law to uphold a doctrine in which the unreasonable and wasteful use of water by anyone was found to be legitimate.

This decision, in turn, led in 1928 to the adoption of provisions of amendments to the California Constitution. In particular, in 1928, the state Constitution was adopted to provide "it is hereby declared that because of the conditions prevailing in the state, the general welfare requires that the waste and unreasonable method of use of water be prevented. The right to water, or to the use of flow of water in any form from any stream or watercourse in this state, does not and shall not extend to the waste or unreasonable method of use or unreasonable method of diversion of water."

This language in the California Constitution was adopted virtually wholesale into Section 100 of the California Water Code. These two provisions of the California Constitution and the California Water Code provide the Constitutional and statutory basis for what we call California Reasonable Use Law.

In setting up the panel this morning, what I wanted to do was to just cite a few choice examples of the ways that California Reasonable Use Law has been relied on, either by

the courts or by the State Water Board. To identify what have been some of the legal challenges to it, and how have they shaken out.

I'm hoping that by discussing the previous reliance on this body of law, it may help set up the discussion that's going to happen later in the symposium about where we are and where we're headed.

Example number one, 1971, the case of *Erickson v. Queen Valley Ranch Company*, California Court of Appeals. This was a case that involved the transmission of water in an earthen canal. At trial, they found that five-sixths of the water conveyed in this earthen canal was lost through a combination of evaporation into the air and saturation into the ground. The trial court held that these transmission losses – five-sixths of the water – were reasonable under the California Constitution and water code. The *Erickson* Court of Appeal reversed, finding "by holding that transmission losses amounting to five-sixths of the flow are reasonable and consistent with local custom…The court effectually placed the seal of judicial approval on what appears to be an inefficient and wasteful means of transmission. By finding a reasonableness for transmission loss amounting to five-sixths of the diverted flow fails to respond to the demands of constitutional policy."

Example number two, 1975, the State Water Board adopts Resolution 7578, which dealt with the use of inland fresh water for cooling power plants. The resolution was titled *Water Quality Control Policy on the Use of Disposal of Inland Waters*. Resolution 7578 set up an order of priority for what sources of water could or should be used for the cooling of power plants. In order of priority, they were 1) wastewater (recycled water and grey water) 2) ocean water, 3) brackish water, and 4) at the end, inland water. The purpose here was to reduce or phase out the use of potable fresh water as a source of power plant cooling.

I note this because in this resolution there was a section called Basis of Policy. I want to read to you some of the language here so you can see how it's grounded in California Reasonable Use Law. This State Water Board resolution found "there is a limited supply of inland water resources in California…the State Water Board has shown that there is not available water for new allocations in some basins. The use of inland waters for power plant cooling needs to be carefully evaluated to assure proper future allocations of inland waters for all other uses. The loss of inland waters through evaporation in power plant cooling facilities may be considered an unreasonable use of inland waters." Then the resolution specifically cites to the provisions of the California Constitution and the California Water Code in support of it.

This resolution is particularly interesting in terms of one of the panels we're going to have in the afternoon on groundwater. The reason is that the definition of inland waters in Resolution 7578 was not limited to surface waters. It included both surface waters and groundwater. 40 years ago we see the State Water Board already looking to its authority under Reasonable Use Law to regulate, to impose limitations on the use of groundwater.

Third example, 1976, the California Court of Appeal case of *State Water Resources Control Board v. Forni*. This case involved a State Water Board regulation relating to the Napa River and restricting the use of direct diversions from the Napa River for frost protection. The regulation that had been adopted by the State Water Board had noted that the simultaneous diversions of the Napa River often resulted in the river being dried up so that there was insufficient in-stream flow for others to exercise their rights.

> *40 years ago we see the State Water Board already looking to its authority under Reasonable Use Law to regulate, to impose limitations on the use of groundwater.*

In *Forni*, the California Court of Appeal concluded "the claim that *Forni's* direct diversion of water constitutes an unreasonable use and an unreasonable method of use is predicated on the premise that the direct diversion results in a great temporary scarcity of water during the crucial frost period. We find no merit in the assertion that the Water Board has exceeded its authority by declaring that the direct diversion of water in the frost protection period constitutes an unreasonable method of use in the meaning of the California Constitution and water code."

We are going to have a panel this afternoon dealing with frost protection and focusing on the Russian River and some more recent litigation that draws heavily on the *Forni* precedent.

Example number four, 1986, in the California Court of Appeal Decision, the *United States v. State Water Resources Control Board*, a decision that became known as the *Racanelli* decision, based on the judge that authored it. There were numerous issues in the *Racanelli* decision, but the part that I want to focus on is the challenge to whether the State Water Board had authority in developing a water quality plan for the Delta to impose restrictions on the State Water Project and the Central Valley Project to maintain water quality standards in connection with salinity, with saltwater intrusion.

In the 1986 *Racanelli* decision, the Court of Appeal held "here the Water Board determined that changed circumstances revealed new information about the adverse effects of the projects on the Delta that necessitated revised water quality standards. Accordingly the Board had the authority to modify the projects' permits, to curtail the use of water on the grounds that the projects' use and diversion of the water had become unreasonable. We perceive no legal obstacles to the Board's determination that particular methods of use had become unreasonable by the deleterious effects on water quality."

Example number five, August 2014, adoption of the 2014 California Sustainable Groundwater Management Act. There are several provisions within this new law that confirm and indicate that the legal basis for some of the provision in this legislation are grounded on the Reasonable Use Law provisions in the California Constitution and the Water Code.

The 2014 Groundwater Law provides: "the people of the state have a primary interest in the protection, management and reasonable beneficial use of the water resources of the state, both surface and ground water." In Section 10720 in the 2014 law, they state that the purpose of the law is to enhance local management of groundwater consistent with Section 2, Article 10 of the California Constitution. That's the reasonable use provision in the California Constitution.

And we find also in Section 10720 of the new law, "Groundwater management pursuant to this part shall be consistent with Section 2, Article 2 of the California Constitution."

So since the adoption in 1928 of these constitutional Reasonable Use Law provisions, we've seen a number of instances in which both the courts and the State Water Board have relied on its reasonable use authority for the regulation of water resources.

Before I turn things over to Hap Dunning and John Leshy, there were two other considerations I wanted to put out there early on for today's conference.

The first is to think about Reasonable Use Law in terms of potentially being both a shield and a sword. By a shield, I mean that we've had a number of cases in which the reasonable use provisions of the California Constitution and the California Water Code were relied upon to uphold the authority of the State Water Board to take action. This is what I mean by using Reasonable Use Law as a shield, to confirm the lawfulness of what an agency is already doing. There's a fairly extensive body of Reasonable Use Law being used as a shield.

There's a more limited body on authority, however, on Reasonable Use Law being used as a sword. By a sword, I mean appealing directly to the courts to impose restrictions on water use or water diversion in the absence of agency action.

For example, the *Erickson* case involved a court ruling that certain transmission losses were unreasonable. The Court in *Erickson* was not upholding anything that the State Water Board did.

My point is simply this. When we think about using Reasonable Use Law going forward, we need to have in our minds that there are separate bodies of law that support its use as a sword and as a shield.

The last thing I'll mention before I sit down is I wanted to talk about this terminology. Sometimes we hear when we're discussing the body of law under the California Reasonable Use provisions of the California Constitution and the California water code referred to as the "reasonable use doctrine."

Now, we have many other areas of law where there are constitutional and statutory provisions involved. Let's think of equal protection. Do we speak of the equal protection doctrine? No. We speak of equal protection law. Fifth Amendment Takings, constitutional

takings. Do we speak of the takings doctrine? No. We speak of takings law. And yet, when we talk about this reasonable use area of law, we often use the word "doctrine." The question I want to put out there, and I'm not going to answer it, is why we do that.

And what I'm going to leave you with is *Black's Law Dictionary*. I'm going to present you with the definition that they provide of the word "doctrine," and the definition that they provide of the word "law" to get us thinking about, in terms of the body of law that exists and where we're going and whether this is helpful in terms of thinking about it.

> *Black's Law Dictionary defines a "doctrine" as a legal principle that is widely adhered to. Black's defines "law" as the body of authoritative grounds for judicial and administrative action. Not quite the same thing.*

Black's Law Dictionary defines a "doctrine" as a legal principle that is widely adhered to. Black's defines "law" as the body of authoritative grounds for judicial and administrative action. Not quite the same thing.

With that question submitted, I'll invite Hap Dunning to come up. The initial thought was that Hap was going to focus a little more on the California perspective, and John was going to focus a bit more on the federal perspective.

HARRISON DUNNING Good morning. It's wonderful to have the momentum that the Water Law Symposium has had. It's now eleven years since the WLS started out at USF School of Law. I remember being there, and the excitement that year, and I thought it was a one-year phenomenon put together by Tom Hicks and some of his fellow students there. But it's turned out to be much more than that. I hope you all know it won a major award from the ABA for student conferences and activities.

I have three things in mind this morning with regard to my topic. One is to discuss the pre-1928 Reasonable Use Law – and I'll use "law," not "doctrine" – in California, which has been referred to as the common law of reasonable use. Reasonable use is not an idea that just sprung up in 1928 in a constitutional amendment. It had been around a long time before that. So I want to talk about that a little bit. Secondly, I want to comment on some of the post-1928 cases, including the gopher drowning case. And thirdly, I want to talk about reasonableness regarding future groundwater extraction, and opportunities I think exist for the State Water Resources Control Board to act in the area.

Common law background, I suppose everybody understands that the oldest water right we have, the one that was central in the common law, is the riparian right, the right of the landowner to use water in the adjacent stream or the stream flowing over the landowner's land.

Reasonable use is not an idea that just sprung up in 1928 in a constitutional amendment. It had been around a long time before that.

Initially, courts first talked about reasonable use in terms of what they referred to as the natural flow theory. That theory held that every riparian is entitled to have the stream's natural flow undiminished except for domestic use. That was the sole exception. You could divert water for your domestic use, but that was it.

Well, that theory wasn't very helpful, particularly in places like New England, where you had a mill economy developing. So the courts moved away from natural flow theory to something else.

Here in California we had a famous case, a water lawsuit, *Lux v. Higgins* in 1886. That case really settled that California would continue to have riparian rights unlike the rest of the western states. *Lux v. Higgins* is 200 pages long, hard to imagine in 1886 all the work it took to put together 200 pages. No computers obviously, no typewriters, nothing like that.

*Lux v. Higgin*s is sort of a treatise on the whole state of California water law at that time. On the riparian question, the reasoning really was very simple. It was simply the time California adopted the common law. And the common law included the riparian water right.

*Lux v. Higgin*s did something else, though, that's relevant to what we are discussing today. It decided riparians can divert for any consumptive use, including irrigation. That was the big one. This was litigation that involved some of the giants in the San Joaquin Valley – Henry Miller, the cattle king, his partnership. There is a wonderful book on Miller and Lux by the historian Catherine Miller, it's a history of Miller and Lux and the role they played in the development of water resources and water law in the San Joaquin Valley.

*Lux v. Higgin*s said that you can divert for any consumptive purpose, including irrigation, if reasonable. And here's the critical point. The Court said what's reasonable "depends on all the circumstances." Depends on all the circumstances. Now what are some of the circumstances that one would look at if you examine the riparian use patterns?

There's an interesting case a bit later, 1916, that mentioned a few of these circumstances that give an idea of the things that courts deemed to be relevant. Seasonal variation in

flow, the amount of land irrigated, the extent of river frontage, the comparative profit of the various uses. These are all things the courts would look at in working out what is reasonable under the circumstances.

Now that's within the riparian system, but California also, of course, recognizes appropriative water rights and restrictive water rights. Appropriative rights go way back to 1855. I was shocked when, a few years ago, I heard the Attorney General of Colorado say that Colorado invented the appropriate rights doctrine. Not true. California was there long before Colorado.

I was shocked when, a few years ago, I heard the Attorney General of Colorado say that Colorado invented the appropriate rights doctrine. Not true. California was there long before Colorado.

As with riparian disputes, courts in disputes among appropriators imposed a reasonableness requirement. Just to give one example, 1922, the case of *Antioch v. Williams Irrigation District*. Antioch sued upstream appropriators, 27 of them who were taking water for rice farming. This was when the rice industry was just developing in the Sacramento Valley. Antioch was afraid they were going to get salty water, because as the amount of freshwater coming down through the Sacramento River system diminished, you've got seawater pushing inward, a danger to Antioch's water supply.

In this case, the upstream rice growers countered that "It's not reasonable to shut down this whole burgeoning rice industry up in the Valley just to deal with Antioch's salt problem, or potential salt problem." So there we have reasonableness in the context of non-riparians.

So all of that had been done by the time you got to *Herminghaus* in 1926, what Paul talked about. In *Herminghaus* the Court addressed remaining situation where you had an appropriator challenging a riparian. The *Herminghaus* ruling, as Paul noted, led rather directly to 1928 amendment.

Let me turn now to some comments on some of the post-1928 reasonable use court opinions that built on the conclusion in *Lux v. Higgin*s that reasonableness depends on the circumstances. Now if you think about it, if you really took that literally – reasonableness depends on the circumstances – it would make for a terribly unstable system. You could have a right to divert for irrigation in July, but not in August, because circumstances have changed. The water situation has changed.

But in the small number of the Article 10 reasonable use cases that we have, the courts have tended not to do it quite that way. They've tended to fashion pretty broad rules.

Now this gopher case that Paul alluded to, *Tulare Irrigation District v. Lindsay-Strathmore Irrigation District* in 1935, that took place in the Kaweah Delta in California. People were using water in the winter to flood their fields to drown gophers, and the court said that's not reasonable. The court, kind of across the board, said no, no, no. Water is for irrigation, power, and municipal supply, not for drowning gophers.

Even more extreme in a way was *Joslin v. Marin Municipal Water District* out in Marin County, 1967. It was an inverse condemnation action, and involved a small sand and gravel company that had been depending on the flow of a creek to bring sand and gravel to its site. Marin Municipal Water District had come in and built a dam upstream that cut off the flow of sand and gravel.

The court in *Joslin* said, across the board, it's not reasonable "as a matter of law" to use water "in the amassing of mere sand and gravel." So across the board, just like drowning gophers. No. Sand and gravel? No. That's not what we're going to use our water for.

Then there's *Erickson*. Paul talked about the leaky ditch case. It's actually kind of interesting, because the ditch in that case is right on the border between California and Nevada. The appropriators were in Nevada. This was in 1971, and the conveyance losses were five-sixths of the water diverted. But it's interesting, there's a paragraph in that Court of Appeal opinion that talks about why the ditch was leaky. Apparently it was leaky because it went across Forest Service land, and the Forest Service refused permission to put in a pipeline, because they wanted the leaky water to support vegetationin the forest.

The most significant reasonable use case since the 1928 Amendment involves the Imperial Irrigation District, right down where the Imperial Valley is, close to Mexico. It all started out in an interesting way. It was a landowner, John Elmore, adjacent to the Salton Sea, whose land was being flooded. Elmore complained about this, said his land is being flooded because the Imperial Irrigation District is allowing excessive wastewater to leave their service area and flow into the Salton Sea, the level is rising, and it's flooding my land.

He made a complaint to the Department of Water Resources. The Department of Water Resources investigated. They concluded indeed water was being wasted. They referred the matter to the State Water Resources Control Board. The Board went through its process and concluded that there was water waste, there was excessive wastewater, and ordered IID, Imperial Irrigation District, to develop a conservation plan.

This was upheld at two different Court of Appeal decisions, in 1986 and 1990. The reason I think it's important is it was one important step in a rather protracted process, which led eventually to IID transferring water to urbanized areas of southern California. IID holds rights on the Colorado River to a vast amount of water. Well over half of the state of California's entitlement to Colorado River water belongs to IID. And people in the urban areas, Los Angeles and San Diego, certainly knew this.

Back in the 1950s, the Chairman of the Metropolitan Water District of Southern California had the idea of transferring water from IID to this service area on the coast. The Environmental Defense Fund, which is quite big on ag to urban water transfer, pushed the idea in a report in 1983.

And now, after lots of litigation and lots of different activity, it's actually happening. That's why I consider those two decisions from the Court of Appeal so important, because they played a part in pushing that process along.

My final comment is about the future use of reasonableness in California groundwater law. Paul mentioned the new 2014 groundwater legislation, and we're going to have a panel on that this afternoon that will go into the detail.

I think that the State Water Resources Control Board would do well to look at some of the overdraft situations that we have around the state. Serious overdraft situations, many of them with very bad consequences – wells drying up, subsidence occurring, water quality being degraded, pumping costs going up and so forth.

There's some interesting groundwater litigation that's been going on with regard to the Paso Robles area in San Luis Obispo County. There, the County Board of Supervisors, about a year and a half ago, enacted a moratorium, which is a little bit complex. The problem there is that, in a water-short area, new vineyards were going in right and left. What the County ordinance says is that there's a two-year moratorium on new or expanding crop production, on conversion of dry farmland into irrigated land. That's a lot of what was happening, grazing land being turned into vineyards.

Well, that conversion moratorium has been litigated, and there's a recent trial court decision from the Superior Court in San Luis Obispo County. The trial court upheld the moratorium, and they actually cited to one of the older reasonable use cases, one in 1933, *Chow v. City of Santa Barbara*.

California has new groundwater legislation, as you'll hear this afternoon, that sets up an extremely protracted process, even in the critically over drafted basins that are of high concern. You don't have to have your groundwater sustainability plans in place for five or seven years. After that, there's 20 years to achieve the sustainability goal. That's not accounting for litigation, which may obviously hold the whole thing up. So we're looking at decades and decades and decades of people working with this process.

Now it may be, of course, under the new law, the local leadership will say, "Hey, we've got a problem. We've got to do something. Here's a solution. Let's get going." So they might act in a very aggressive, affirmative matter. But in some areas they're not going to do that. They're going to hold out. And the way the legislation's written, as you'll hear, is that the state only comes in as a backup. If everything falls apart, the state can come in.

Well, in that context, it would be very appropriate for the State Water Resources Control Board to look at those situations, to think about the authority under the reasonable use provisions of the Constitution and Water Code, and in in appropriate cases to go forward.

Thank you very much.

JOHN LESHY Thank you. Let me add my thanks to the students, they all do a great job on this symposium.

Water is a great topic. Let me start by offering a couple of thoughts about why, using water efficiently and conservatively is important. January is usually San Francisco's wettest month. Since 1850 it averages four and a half inches of rain in San Francisco in January. So far in 2015, zero, none. No rain forecast in the next seven days. That's never happened in 165 years.

The driest January to date was less than a tenth of an inch, set in 2014. The drought that we are in was compounded by record heat. Last year was the hottest year on record overall, 14 of the last hottest 15 years have been since the year 2000. So like all climate deniers out there like to say, I'm no scientist, but I'm worried.

Focusing on conservative and more efficient uses of California's dwindling water supplies, dwindling snow pack, declining ground water, et cetera, will almost certainly continue and grow. And one way to grapple with that problem is the topic of this year's WLS, to take reasonable beneficial use seriously.

Paul and Hap gave you the overview of state law. Paul wanted me to talk a little bit about federal law. You might ask, well, what does state water law and the state constitution have to do with federal law and federal water policy? Well, it turns out it actually has a good deal to do with it in California, because much of the water delivered in California, especially all of that delivered through the Central Valley project, is actually delivered primarily via state water law.

Why? Because when the reclamation program was put together back in 1902 in Congress, they basically made the federal reclamation projects obtain water rights through state law. That's Section 8 in the Reclamation Act. Therefore, state water law governs the water rights of the federal Central Valley Project, another federal reclamation project.

The United States Supreme Court told us back in 1978 that state water law controls the operation of these federal reclamation projects unless it is contrary to clear Congressional directives. Now, you can look around for clear Congressional directives to the contrary, but you won't find too many inclined to the Central Valley Project.

Hap talked about the IID situation in southern California. Very complicated situation. After the State Water Board had told IID to conserve water, there was a very complicated

effort to bring California's use of the Colorado River water down from more than five million acre-feet a year to what it's entitled to, which is 4.4 million acre-feet a year. The pressure on IID to conserve water and to transfer some of that water to coastal use all came wrapped up in a very big package called QSA, the Quantification Settlement Agreement.

In those QSA negotiations, IID got a little cold feet about conserving water. The Interior Department leaned on them pretty hard and actually cut their water allocation, in essence, applying the State Water Board decision and the state conservation requirements to the federal contractor IID.

I think there's a lesson there I'll talk about in a minute. So federal projects are subject to reasonable beneficial use state requirements. Generally speaking. I think that's a fair and accurate statement.

So how does reasonable use benefit the larger picture of managing California water? I want to go back to Paul's mention of reasonable beneficial use as a sword and as a shield.

Legally, reasonable use is not just a nice policy goal. It's not just a good thing to try to achieve. When a court or a legislature or a state water board requires efficiency and conservation and avoiding the waste of water, it is defining the property right to water. Very important distinction, because in defining the property right, you're basically saying if you're wasting water, you don't have a property right to do that.

As a shield, Reasonable Use Law is a defense to a takings action. That's very important to think about. Legally, reasonable use is not just a nice policy goal. It's not just a good thing to try to achieve. When a court or a legislature or a state water board requires efficiency and conservation and avoiding the waste of water, it is defining the property right to water. Very important distinction, because in defining the property right, you're basically saying if you're wasting water, you don't have a property right to do that.

If you don't have a property right to do that, when the court or the water board or the legislature says you can't waste, it is saying you don't have a property right. You cannot then turn around and sue and say they've just taken my property right. One cannot, in California, acquire a property right to waste water. You simply can't.

So it's a perfect defense to any takings plan. Any governmental action that limits water use, in my judgment, in California under the reasonable beneficial use doctrine, is not raising a question of attaining of a property right. And so the government , when it regulates

and limits water use to avoid waste, should always make that absolutely clear, that it is defining what reasonable and beneficial use is.

That's pretty simple and straightforward. But let me go back to Paul's second question, which is does reasonable and beneficial use have use on the offense? Could environmental groups or could Delta water users or upstream water users complain about somebody else's water uses violating reasonable and beneficial use? Can you use that as a tool to force the government, legislature, the state water board in particular, to order water users to conserve? Can courts be persuaded to use this doctrine in an affirmative way?

This is a lot harder frankly, because there's a lot of inertia in the system, because people are worried – I think falsely – that we are going to take water rights. The government has large discretion, courts and agencies are traditionally deferential. Despite that, the good cases out there, although there are relatively few.

And that signals to me at least that the reasonable use doctrine is being used in only very limited ways as a sword. But, on paper, it's powerful. And it raises all kinds of interesting issues. Groundwater, as Hap mentioned, can you challenge the purpose of the use? Can you say growing alfalfa in California is not a reasonable and beneficial use? You can, actually, on paper. There are cases to support it.

It used to be alfalfa was essential. Could it be in 10 or 20 years that growing alfalfa is viewed as a matter of taste and fancy? That the California government could outlaw this use as not reasonable and beneficial? It is possible. What is reasonable and beneficial in one era is not necessarily reasonable and beneficial in another era.

In 1899, the California Supreme Court, because water is so precious, said it should not be used for mere matters of taste and fancy, while those who need water for useful purposes go without. It used to be alfalfa was essential. Could it be in 10 or 20 years that growing alfalfa is viewed as a matter of taste and fancy? That the California government could outlaw this use as not reasonable and beneficial? It is possible. What is reasonable and beneficial in one era is not necessarily reasonable and beneficial in another era.

As Hap pointed out, all these cases say it depends on the facts, and the facts change over time. So to quote the California Supreme Court in the 1935 gopher drowning case, "a beneficial use at one time, because of changed conditions, is a waste of water at a later time." Is reasonable and beneficial use going to change in a drought of biblical proportions that we seem to be in?

Priority is not controlling in that sense, because all water rights, even senior water rights, are subject to reasonable and beneficial use determination.

Now, I don't want to oversimplify this. It's quite complicated, because one person's waste is another person's use. Okay? The *Erickson* case, which Paul and Hap talked about, where five-sixths of the water in the ditch leaked out. Well, the court in that case talked a fair amount about how the leaky ditch supported a lot of vegetation and wildlife.

In the IID situation, part of Imperial's concern is that our waste is feeding the Salton Sea, and the Salton Sea is migratory bird habitat. And so, yes, it's waste to somebody, but to the Audubon Society or bird fanciers, it's not. So it's quite complicated, because water's so interconnected, it's difficult to tease out what reasonable and beneficial use might be.

Now, we could help the marketplace. For a long time economists have been talking about how this is the way you solve the waste inefficiency problem. You let water move to its highest use, and let people with more demand, more money, buy the water from the people who are wasting it and using it inefficiently. Just let the market solve these problems.

And there's some sense to that, and water markets are growing slowly. And my prediction would be that actually we're going to do both. We're going to use markets and we're going to use reasonable and beneficial use determinations to push people into the markets.

That's exactly what happened in the IID situation. In other words, the IID came under regulatory constraints, because it was using enormous quantities of water. The State Water Board started coming down on them, and in the end, there was a big negotiation – incredibly complicated, it took many years. But it was a big negotiation which resulted in IID both conserving water and freeing up water for market transfers to southern California.

That's on a vast scale. I think we're going to see a lot more of that around California, this sort of combination of reasonable and beneficial use regulatory pressure redefining these water rights and negotiations to let market forces sort of help solve the problem. That seems to be the way things are moving.

One other point about reasonable and beneficial use, and this is usually shocking – when I teach water law, I tell the students that we actually don't know in California where much of the water is used. We don't know who has water rights to what amount of water for much of the water in the state. You think about, wow, California water, we fight over every drop. Well, we kind of do fight over every drop, but we often have no idea who has water rights. We have exceptionally few adjudicated basins in southern California. We have no idea about groundwater rights.

Even with surface water rights, we often have a very limited idea about who has surface water rights that claim a priority prior to 1914, because that's when the Water Commission Act was adopted. And, except in a few places, we have no idea about riparian rights, which exist everywhere.

How reasonable and beneficial use fits into this lack of information is pretty remarkable. To close with this, I'd say it's really a challenge. No, it's an opportunity. It's a challenge, because how can you determine reasonable and beneficial use when you don't know what water rights, even claims, are out there?

we're going to do a lot more arguing about reasonable and beneficial use in the next, say, 20 years than we have done in the last 87 or for the last 165 years.

On the other hand, it's an opportunity, because it gives the government the opportunity to almost start with a clean slate. To say, this is how water is going to be used with limited supplies in the future.

In the end, I think we're going to do a lot more arguing about reasonable and beneficial use in the next, say, 20 years than we have done in the last 87 or for the last 165 years.

Session 2 A Tale of Two Counties: Efficiency in a Modern Climate

Moderator: Richard Roos-Collins

Panelists: Tom Infusiono
Chris Shutes
Dave Richardson

Derek Sagehorn Good morning, thanks for coming out for our second panel of the day. My name's Derek Sagehorn from the University of San Francisco School of Law. Our panel today is titled *A Tale of Two Counties: Efficiency in a Modern Climate* and we'll have Professor Richard Roos-Collins of the University of San Francisco School of Law as our moderator. He's a principal of the Water and Power Law Group and he is adjunct professor of water law at USF, so Professor Collins, please.

Richard Roos-Collins Derek, thank you and a special thanks to the other students from USF Law who helped organize this conference, Mila Buckner and also Patrick. Thanks to the students who are here. You are probably half of this audience. You are our future. We are here at a time of disruptive if not transformational change in water. Our topic is one part of that change, specifically recycled water. Today roughly 10 to 15 percent of the water put to urban use is recycled. That's going to change.

I'd like to mention two drivers for introducing the panel. One of them is California's SBX7-7 adopted in 2009. This statute requires that per capita urban use be reduced by 20 percent by 2020, which is only 5 years from now. As a result of that, recycled water is likely to increase. Of course the other driver is the drought, by some measures a once in 1,200 year event.

As a result of the drought, the State Water Board adopted a general order in June of 2014 establishing standards for non-potable use of recycled water. From then afterwards, the board adopted regulations that go to the discharge of recycled water into groundwater for the purpose of recharge and the State Water Board is providing roughly $800 million of funds in order to increase the total recycled quantity from roughly 700,000 acre-feet a day by another 150,000 acre-feet.

I will note with respect to these changes that we're very fortunate to have with us today two members of the State Water Board here to participate in the discussion as well as four members of the Office of Chief Counsel. Our panel will begin with Dave Richardson,

who is a professional engineer leading the sustainability practice for RMC. Next, Tom Infusino who is an attorney representing the Foothills Conservancy as well as other conservation and neighborhood groups in the Sierra Foothills.

Next, Tom Francis, a civil engineer in the Water Supply Division of East Bay MUD. And last, Chris Shutes who defies any ordinary description, among other things is the Vice Chair of the California Hydroreform Coalition, and represents the California Sportsfishing Protection Alliance. That's the order of presentations roughly moving uphill to downhill on the topic of recycled water in Calaveras and Alameda Counties.

I've asked each of the panelists to limit their comments to 10 minutes. That is in keeping with the collaborative spirit of this conference. My hope is that you all will ask hard questions in the time that remains once their presentations are completed. So with that, Dave Richardson.

DAVE RICHARDSON Thank you, Richard. We've talked about California being in the midst of the worst drought in recorded history starting from San Francisco where we've received no rainfall this month. But it's not just San Francisco, not just the Bay Area. The drought is pervasive across California. throughout the Central Valley, especially hard hit south San Joaquin Valley as well as our Southern California neighbors. The Sierras, the snowpack is at record low levels and the drought is really persisting throughout the state.

Richard mentioned two drivers: drought and also SBx7-7, that the 20 percent cutback in per capita water use by 2020 is beginning to have a profound effect in terms of promoting water recycling because agencies get credit for reducing per capita water use through conservation, through pricing mechanisms as well as through recycled water projects.

Just a little bit of perspective on how water use efficiency looks right now from an urban perspective, because the focus on per capita water use is urban. You take out all your industrial, commercial uses and you take out your agricultural uses, you focus on residential water use. In the Bay Area we're doing pretty well relative to the rest of the state. 170 gallons per capita per day. Tom will tell you that East Bay MUD's doing even better. San Francisco is doing better as well, especially because there's so little outdoor irrigation in San Francisco relative to its Bay Area neighbors.

Southern California, despite a reputation of sometimes wasting water, is right behind. We're seeing the high per capita water use in the state is really in the warmer areas, the Central Valley, so there's a lot of room for improvement and you're going to see those by 2015 Urban Water Management Plan production which is this year. Agencies are going to try to document 10 percent per capita reduction this year and show how they're going to get to 20 percent by 2020 which is only 5 years away.

In San Francisco we are using groundwater once and then dumping it in the sewer. San Francisco PUC is starting to study how that can be reused.

There's lots of storage. There's non-potable uses for recycled and recovered water. Groundwater recharge, Richard mentioned that the regulations for groundwater recharge and percolation ponds and injection wells, that the regs took about 10 years. They're now final. We've got saline barriers that can be implemented for using recycled water. One replenishment district of Southern California is doing that right now, and you'll hear about some other efforts in other parts of the state where that's being considered.

Hopefully not too many acronyms here, but IDR/DPR means "indirect potable reuse" and "direct potable reuse." We now have regulations for the indirect use of recycled water through percolation ponds and injection wells. San Diego is now implementing an indirect potable reuse produce project by putting their treated waste water into San Vicente Reservoir and taking it out through the drinking water treatment plant and using it as part of the water system.

Those regulations are being developed right now and then the state has been mandated to develop direct potable reuse regulations. By 2016, they need to have a plan together for developing those regulations. We don't have regs yet, but that's coming.

We took all of these possible uses of recycled water and looked at it in context of Calaveras County, Amador County, our upcountry area and then all the way down through the Central Valley in Stockton, Lodi and that area. Then looked at East Bay MUD just because East Bay MUD is part of our collaboration efforts in the Mokelumne WISE process.

There's not very much water that's really possible to reuse upcountry. There's just not very many urban users, but we've got a plan to use about 3,500 acre-feet of recycled water. In the Valley there's lots of recycled water potential, but the biggest problem is that much of that recycled water that's currently being discharged by Stockton just goes right downstream and they take it out as water right at the Delta Water Supply Project. It's almost like direct potable reuse with the river in between, so there's really not that much of additional recycled water development that isn't already occurring indirectly.

In the East Bay MUD service area, that's where the earlier question came up, what about water that's going out to the ocean used once? There's tremendous potential for recycling in the Bay Area. East Bay MUD is already through its WSMP, Water Supply Management Plan 2040, which identified about 10 MGD, 10 million gallons a day or 10,000 acre-feet a year that they are recycling now. They've got plans to go all the way up to 20,000 acre-feet by 2040 implementing everything from reusing water from refineries to distributing for non-potable irrigation in the Dublin/San Ramon area to golf course irrigation, a variety of projects.

That's 20,000 acre-feet. There's another 140,000 acre-feet theoretically possible and what we are identifying is that it's going to take the development of direct potable reuse regulations to really make that work because the wastewater's all being treated down at the bottom of the system right by the bay and the water demands are all the way up

through the service area, and without creating duplicate infrastructure all over the area, we're going to need to be able to put the water right back into the water supply system.

There are a number of factors that limit how water recycling can occur. You'll hear about that through some of the comments from the other panelists, but I'll just mention that infrastructure is a big one and that's where we want to avoid creating duplicate infrastructure wherever possible with new dual hybrid systems. Then the downstream water effects are always important. As attorneys or future attorneys, you know that one of the big limitations in water recycling is we have to get permission from downstream water rights holders to be able to take your discharge water out of the river and reuse it.

As attorneys or future attorneys, you know that one of the big limitations in water recycling is we have to get permission from downstream water rights holders to be able to take your discharge water out of the river and reuse it.

I'll just say a couple things about what is going on and Tom will talk about this. East Bay MUD's already got some very active water recycling projects. City of Lodi uses their recycled water to cool their power plant.

I'll say just a couple things about MokeWISE and my panelists will also build on that. It's a inter-regional collaboration between the East Bay MUD service area, the Central Valley, the San Joaquin Valley, and upcountry Amador and Calaveras areas. We're working together to try to come up with a portfolio of projects that can be broadly supported. It's the first inter-regional project that DWR has funded and it's two regions working together to come up with through the [state board] process, joint project.

A couple of projects that we're already identified ranging from a project in the Lodi area would be to take the highly treated tertiary water, treat it further and inject it for seawater or saltwater barrier along I-5. Constellation Winery currently takes water through an unscreened intake out in the Mokelumne River, blends it with their wastewater from the winery and irrigates it. We're going to talk about taking water from the screen intake next door and blending it with the wastewater from the refinery and reusing it more effectively in wet years and then backing off in dry years.

Then Amador County has a grandiose $21 million project that they'd like to implement in southern Jackson to recycle wastewater. That's a quick rundown of recycling up in the Mokelumne region where we're looking both upcountry as well as in the Central Valley.

Tom Infusino Good morning, my name is Tom Infusino and I am a simple country lawyer. I'm a sole practitioner with a one-room office above the U-Haul rental store in Red Corral in Amador County. Many of you have probably passed right by my office on Highway 88 while speeding your way to the internationally renowned Kirkwood Ski Resort who's operating lifts await your arrival as we speak. As a simple country lawyer I'm honored to be here this morning, though I suspect that it's merely payback.

Last fall I had the privilege to lead students from the University of the Pacific and UC Davis Law Schools on a water law field trip in the Mokelumne River watershed. I dragged their sorry behinds around for nine hours that Saturday. At that time I had no idea that they would organize an entire water law symposium just to drag me down to the Bay Area for revenge.

Again, as a simple country lawyer, I was reluctant to appear on a panel at this symposium given the distinguished professors and practitioners who regularly participate. However, my mind was put at ease when I learned the names of my fellow panelists. It was then that I realized the organizers of this panel were not shooting for 'distinguished'. No, we're not the learned academics, nor the powerful agency leaders, nor the battle weary warriors of the courtroom.

> *On this panel, we are the surviving victims of decades of collaborative processes. We are the ragtag refugees of alternative dispute resolution.*

On this panel, we are the surviving victims of decades of collaborative processes. We are the ragtag refugees of alternative dispute resolution. To make this panel even more realistic of the tortured life of collaborative participants, the students who invited me to speak encouraged me to be 'provocative', while our esteemed facilitator asked the panelists to discuss water recycling in the spirit of collaboration. So what follows is my humble attempt to mock. Strike that. What follows is a humble attempt to mimic our collaborative proactive process which I call for lack of a better term, provocative collaboration. Let's see if I can get this to work.

Okay, provocative legal references. State law says that urban water suppliers shall plan to "minimize the need to import water from other regions like mine", Water Code Section 10-620, subdivision F. I added the "like mine". In 2002, legislature established the water recycling goal "to reclaim and reuse one million acre-feet annually by 2010" Statues 2002, Chapter 261, SB 1518. State law says that we should be employing and developing water treatment and conservation technology to the maximum extent practicable, Statues 2001, Chapter 320, SB 672.

Given those provisions, the first thing that comes to my mind is that urban water suppliers at East Bay MUD in San Joaquin County should be putting in a lot more effort into water recycling, to employ water purification technology, and to reduce the need of import water from other areas, like mine.

Provocative water recycling statistical comparisons. Since this is supposed to be a comparison of water recycling in Calaveras County and the Easy Bay, let's do some comparisons. If you include only the wastewater that is formally recycled in the upper watershed, the percentage is 46 percent. In Calaveras County, that water goes to irrigate a couple of beautiful golf courses that will be happy to reserve a tee time just for you. In Amador County, effluent is also used for irrigation by Jackson Valley irrigation district.

Now, in Calaveras County, if you include the effluent that is sent to spray fields, that irrigate pastureland to feed cattle that produce beef and leather, the recycling percentage jumps closer to 85 percent. Our water is so nice, we like to use it twice. If you include the amount of effluent that flows out of our septic systems and grows the native landscaping in our backyards, the gross amount of water recycling increases even more.

East Bay MUD's 2040 Water Supply Management Plan indicated in 2009 that East Bay MUD was recycling about 6 percent of its jurisdiction's water and hope to recycle about 9 percent by 2040. Current year's recycling 10 percent of its water. East Bay MUD's region is not replanning, as Dave told you, our 62,000 acre-feet a year.

By comparison, the people in the Mokelumne River watershed in Amador and Calaveras Counties combined are delivered about 30,000 acre-feet of water in an entire year. Thus on the average, East Bay MUD region discharges in 2-and-a-half months more water than water agencies deliver to the upper Mokelumne watershed in an entire year. Given those facts, you would expect East Bay MUD and the water agencies in San Joaquin would be looking for more projects to claim wastewater and in MokeWISE they're looking at a few, as Dave mentioned.

Traditional water project types, yields, and costs. In 2009, East Bay runs 2040 Water Supply Management Plan estimated that raising Pardee Dam would yield about 51,000 acre-feet of water per year for 3 dry years. We would have a capital cost of $400 million and the water would cost about $600 an acre-foot. By ways of comparison, East Bay MUD's main waste treatment plant in the Oakland-Emeryville area expects to discharge 75,000 acre-feet of secondary treated wastewater per year to San Francisco Bay.

In 2014, San Joaquin County estimated that their revised injunctive use project might yield somewhere between 30 and 75,000 acre-feet of water per year. The capital costs for this project is $750 million and the water would cost somewhere between $380 an acre-foot and $1,172 an acre-foot. Now mind you, their customers are willing to pay about $100 an acre-foot, so they'll be depending on a rather large government subsidy for this water project. By comparison, Central San Wastewater Treatment Plant in the Martinez area discharged about 41,000 acre-feet of secondarily treated wastewater into Suisun Bay.

After looking at these numbers, some of the environmental caucus members at MokeWISE want the next generation of feasibility studies to reassess the feasibility of reclaiming and then officially using this wastewater. Can we pipe it back to the Valley, use it for irrigation instead of groundwater? Can we treat it to a level that irrigators will find acceptable? Can we use existing right-of-ways for a pipeline? Can we hook into existing irrigation water distribution systems?

Can we put the water in the ground to stem saltwater intrusion problems in the Delta? Can you water bank it in the ground to save it for an unrainy day? Can we get thirsty folks in San Joaquin County to look to wastewater in the north and wastewater in the south and wastewater in the west for their next source of water instead of the Mokelumne River to the east? Are the project costs still $3 to $7 billion like they were estimated 20 years ago or can we design something less costly today? These are the questions that we can no longer afford not to answer.

Provocative upcountry opportunity costs. Okay, any economic majors in the room? No. Okay, this is going to be tough. Economists have developed a concept called opportunity costs. Opportunity costs are the benefits you pass up when you do not pursue a particular economic opportunity, but instead choose another option that you believe to be more valuable. What do opportunity costs have to do with water projects? Let's find out.

According to East Bay MUD's 2009 EIR on the 2040 Water Supply Management Plan, the annual median household income in Alameda and Contra Costa County area at that time was $69,000. The annual median income by contrast in Amador and Calaveras County at that time was $41,500, so that's over a $25,000 a year difference in median income. For the approximately 40,000 households that live in or in close proximity to the Mokelumne River watershed in Amador and Calaveras Counties, their total opportunity costs associated with not living in Alameda or Contra Costa Counties is $1 billion a year. $1 billion, you got to be kidding me.

Okay, for people that collectively give up $1 billion a year of income, there must be something pretty spectacular in Amador and Calaveras County. Let's consider it. Their upcountry schools are no better than yours in the East Bay. Our music, our theaters, our restaurants are no better, but there is one pretty spectacular thing we have in Amador and Calaveras Counties that you do not have in the East Bay. That's being eligible for wild and scenic river designation, Mokelumne River and its watershed.

Now I have to deal with that collaborative stuff in one minute. Okay, let's see. Balancing collaboration with conflict. Barriers to collaboration, let's do that one first. Barriers to collaboration in the water arena. Too much bad history. East Bay MUD has 80 years of bad history with Amador and Calaveras County, it will take a lot of healing before we get to the collaboration part. Too little urgency. Water agencies are used to spending decades before they get approvals from state agencies. Environmental groups just can't wait around that long in these processes.

Third thing, nobody has it better than the water agencies. Nobody. School districts in our areas, there's no bond initiative to get money from. Transportation districts in our area, 90 percent underfunded. These agencies are going to cooperate with my organizations. Water agencies, not so much.

Balancing collaboration with conflict. What are some of the conditions that lend themselves to collaborative processes? One, collaborations are more likely to be successful when the parties are less far apart. Second, collaborations are more likely to be successful if the change you are seeking is incremental and not dramatic.

collaborations are more likely to be successful if you are pursuing what we call silver buckshot solutions rather than polishing old silver bullets.

Third, collaborations are more likely to be successful if you are pursuing what we call silver buckshot solutions rather than polishing old silver bullets. If what you're looking for is 2 or 3 small projects just to get your water agency a supply for the next 10 or 20 years, you might have a chance with collaboration. If on the other hand, you're trying to polish one of those old bullets, those old New Melones style onstream dams with perennial mud puddle reservoirs that would supply all of your life's water needs for the next 60 years, collaboration's not going to do it.

Last thing I want to say and then I'll close. In the past, California's water landscape was tamed by tons and tons of rocks and concrete. California's water future will depend much more on the skills of lawyers drafting new legislation, writing new regulations, setting new legal precedents, and negotiating new agreements in some of the most unlikely places in some of the most unlikely ways and with some of the most unlikely people. Thank you.

TOM FRANCIS I had a full head of hair before I met Tom Infusio. I'm Tom Francis from East Bay MUD. I'm going to talk about all the good things. Really quickly, Dave mentioned this, Tom referenced it as well, at East Bay MUD we plan as a water agency well ahead, 30 years in the future. Those of you that don't know our service area, we get all of San Leandro all the way up to the Carquinez Straits. Serve all of Oakland, Berkeley, pretty much all the East Bay and then we also go east of the hills up into the Walnut Creek area and down into Dublin/San Ramon.

This slide shows pretty much where the growth is going to happen over the next 30 years. The transportation board plans ahead, so if you look at the purple shading, that's where we expect pretty much all of our increased customer needs to take place.

As an engineer, I love pie charts. All of you new lawyers in the room or soon to be lawyers are going to have to get used to them as well because we like pie charts, we like the numbers, we like MGD and entropy. I'm sure you all will get used to those terms shortly. In terms of where we get our water from, as Tom mentioned we get a lot of our water from the Mokelumne River watershed which is in the central Sierras, but in the future we're going to get our water from other sources as well.

We have a Central Valley project called the Freeport Project which draws water from the Sacramento River. We also get a host of our supplies met by recycled water projects, granted it's a small percentage if I listen to Tom, but there's a lot of projects that I'll show you some slides about. We also do quite a bit of water conservation.

In terms of our recycled water projects, right now it is about 9 million gallons a day that we have in place. Primarily those serve irrigation customers but we also have commercial needs in the sense that we provide water to a lot of industries primarily along the I-80 Corridor, so I'll show you some slides specifically about that.

Our East Bay project. If any of you like Pixar, you'll note that we serve their facilities. We serve their cooling tower needs as well as their irrigation needs. We also serve the Mandela Parkway area. We have water that we supply to Preservation Park as well as in downtown Oakland. Pretty much any new building in downtown Oakland will be supplied with recycled water for toilet flushing.

Some of the other projects, if you crossed the bridge to get here, Caltrans' new buildings that they have are all served with recycled water on the toll way areas as well as we have other facilities that are linking all the way up to IKEA and beyond in terms of recycled water. A lot of irrigation needs along that Albany/Buchanan exit way.

Some of the other things that we're doing down in the San Ramon area, a lot of business parks are newly developed so we provide water to the Blackhawk area. We provide recycled water to basically meet not only their irrigation needs but we're also going to get into their other needs and different types of systems.

One of the big projects, and Dave mentioned this as well, is with Chevron, who maybe they even have a dirtier name than East Bay MUD, probably not to you. Chevron gets all of their oiler feed water from us, about 3.5 million gallons a day. That's been in place for about 10 years, but more recently we're also meeting their cooling water needs. Again, it's a very big water user. They've been extremely good to work with and we've put them on our recycled water system.

Gray water is a big interest to the state and to us as well. Kind of have different, I guess I call them different programs within our water conservation department. Education and outreach efforts. We provide free low flow showerheads, all sorts of different conservation measures for our customers.

Then we also do what we would call research and development into new conservation efforts. We're a big water agency. As Tom said, we're probably the biggest player on the Mokelumne River. Even though we consider the Mokelumne River our back yard, it is their front yard. It's clear that there are lot of people that want us to do a much better job in our backyard.

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Regarding some of those programs during the recent drought, we had a number of rebates. We would go out to customers and help them identify ways to put in drought tolerant landscaping, look at their irrigation systems and help them figure out how to use less water. With the gray water program, we are trying to do this toilet-to-tap type program where we'll end up helping people re-plumb their backyard, so to speak, so that we're able to put them on gray water use.

Coming up with this current year, we're implementing this GIS system where if you live in our service area you can get on the web, type in your address, see basically the outline of your lot, and then you'll be able to pull up your water usage month and see if, for example, you had a particular period when your water use went up, identifying whether there's a problem. If there is, we'll come out and help you figure out if you have a leak or how you could best address that problem.

Again, lots of different programs of water conservation that we as a district are doing. The 20 by 2020 program that Dave mentioned, that's a program that we're tracking very well. We're saving 31 million gallons a day currently. The target that we have to beat is 43 million gallons a day. We're probably going to break that target sooner than 2020. Our goal will be probably to exceed that by at least 45 percent, so we're doing a pretty good job now.

Last I will mention what Tom said about March more. Our cost tests are meant to do what Dave said. To take advantage of all that recycled water that's generated within our service area. If you were a customer, that would mean instead of paying $100 a month, your charge for water would be $1,000 a month, so it's a real issue. It just can't be done overnight.

CHRIS SHUTES Good morning, my name is Chris Shutes. I am a water rights, hydropower and water policy advocate for the California Sportfishing Protection Alliance.

I'm not an attorney although I get involved in legal issues quite a bit. I'm going to talk more today about the context and conditions under which things get done, then the legal background that allows that.

A lot of it starts by talking, but as Tom Infusino suggested, you have to get to a point where talking is productive. If you are at loggerheads to a point where there are generic disagreements and name-calling or positions that are taken that don't really get substantively into what people are doing and how you can make them better, it doesn't create a good condition for a collaboration to proceed.

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Let's talk a little bit about the MokeWISE stakeholder process. It's a voluntary process that had started a couple of years ago. Dave called an inter-regional process, I've called it regional in my presentation, but I think the important thing is that when you get outside of the siloing that often takes place within water agencies or regions, you start to get different perspectives about how things work and about what opportunities there are.

You also tend to prioritize things differently because what may seem like a small thing in, for example, the East Bay could end up being a very large thing in Amador County. Then there are different things that may take place in between that have a different sense of proportion when you're looking at them in a broader geographic perspective.

Someone said earlier that we're all veterans or victims of collaborative processes. But one of the good things about them is you actually learn how everybody's systems and operations and those kind of things work, and to me that's one of the most beneficial aspects of sitting in meetings and spending time, and it creates a more intelligent conversation.

Some of the projects we've looked at in MokeWISE are incremental and they are fairly modest. We're not trying at this point to get DWR or someone like that to pay for the trillions of dollars of infrastructure improvements that East Bay MUD would have to make in order to realize all the opportunities that have been identified. We're looking at projects for recycled urban wastewater in Amador and Calaveras Countries. As someone mentioned, Jackson Valley irrigation district gets some of the benefit of treated water at the present time and there's an opportunity to get more.

Now JVID's demand is only a few thousand acre-feet a year. If you can create a few thousand acr-feet out of treated wastewater, you can go a substantial distance to creating

reliability for that entity and that's important. There's already an existing wastewater recycling project in Lodi and one of the reasons that that it works is because the end use is located nearby. It's still used for irrigation. It doesn't require an added level of treatment. The conveyance is not expensive.

So those opportunities are the low hanging fruit. The MokeWISE processes is looking at some of those things and seeing if there's some more that we would use, not only to develop for their substance but also to figure out how to work together and create new opportunities. As someone mentioned before, the Stockton wastewater is not really available because of their water right and there are other water rights concerns that limit the opportunities for recycled use. When you get to potable or groundwater recharge, they end up having a much higher cost and that becomes limiting at least in the short term.

What's happened that has allowed some of these conversations to take place and become more productive? First, I would say a defining prototype for cooperation among different entities and regions has been the agreement between East Bay MUD and Contra Costa Water District for East Bay MUD to store some water in Los Vaqueros Reservoir. That came about following a lawsuit filed by my organization and a few others and litigated by Mr. Infusino against East Bay MUD in 2009. It had a very beneficial outcome.

one of the things that really made the conditions for MokeWISE possible was a recognition that what is good for the river is also good for the water agencies and for water supply reliability.

We had asked, during the discussions and debates regarding the water supply management plan, that East Bay MUD consider this option. They elected not to. After the dust settled, they moved right on it and it's really changed the situation. Not only has it created a new opportunity for East Bay MUD in itself, but it's also become, in my opinion, a prototype for other forms of cooperation between different water agencies and we now have what they're calling the Bay Area Regional Reliability Project. It's still in it's infancy, but it's eight water agencies that are trying to figure out how they can work together particularly in dry years in order to share their resources.

I have to say that one of the things that really made the conditions for MokeWISE possible was a recognition that what is good for the river is also good for the water agencies and for water supply reliability. We're always fighting about what's going on in the river and conditions are degrading, then we're not going to have good opportunities for everyone to work together.

Again, the groundwater legislation has changed things considerably. Here I say it's changed the legal paradigm from unrestricted property rights to rights limited by condition of the basin. Now what a lot of attorneys and professors have said before, that's exactly right but in the minds of the folks and the farmers of San Joaquin County, they're the ones for whom this paradigm has changed.

I've heard them say over and over, it's a property right, we view it as a property right, and now they're having to look at it from a different perspective. It provides the promise of accountability even though that's a long way out. I would contend that even though the actual enforcement mechanisms are not complete until 2040, it's going to offer the greatest benefits to those who accelerate their implementation.

Of course the drought has changed things. Personnel at some of the different agencies also changed things. The condition of the Mokelumne River has made it possible for some of the NGOs, my organization included, to recognize that we might be able to work with some of these folks. East Bay MUD over the years has developed a very good fisheries program and that is a point of commonality in a place that we work together to try to make improvements.

I think that the recognition of science that supports the need for greater delta inflow and outflow has also changed the situation. We're recognizing that it's not likely that there's going to be a lot of opportunities for greater diversions from the Bay Delta system. There's a structural reason for which that has become extremely difficult. The old solutions that people have looked to, that Tom referred to as the original solution are no longer viable.

What do we have here that offer opportunities for us? Amador and Calaveras Counties as Tom mentioned before, the water agencies may have some things going for them but they don't have very much money so one of the things we can do is work together to leverage some money for projects for those upcountry areas. The recycling in Lodi is simpler because of the local nature of where the end use is located. By blending surface water with recycled water, it increases the reliability for users on the Mokelumne River and in San Joaquin County.

To wrap up, since 2008 East Bay MUD has reduced water use substantially and it substantially lowers demand projections. If you look at what they said in 2009 and their Water Supply Management Plan in terms of what they thought they were going to do and what they've said more recently, those projections have gone down significantly. Drought pushes the limits of what people consider to be reasonable and when you get these changing conditions, what you think is a nuisance becomes something that is more compelling than that.

One would ask the question, are there opportunities for more? For example, domestic irrigation in the East Bay MUD service area, in particularly east of the hills where it's hotter than are being currently contemplated by East Bay MUD? If water is conserved by East Bay MUD, they have a new incentive and that is groundwater banking that

is now possible because of groundwater legislation and cooperation between East Bay MUD and San Joaquin County. That's been implemented in a recent agreement that they signed just before Christmas.

Again to sum up, protecting the river and its fisheries supports reliability for everyone. That's different. Efficiency takes on a different sense when you view it regionally. As someone once pointed out, 10 percent of East Bay MUD's demand is greater than all of Amador County's. For East Bay MUD, 10 percent, that water doesn't seem like much. For Amador, it's a huge amount. Interagency and regional cooperation create new opportunities not only for recycling but for storage and for triage during drought conditions. Groundwater provides new incentives for everyone.

Finally I would say, and I want to reemphasize that structural improvements take a long time to happen. So those entities that are proactive in governments, dialogue, and investments are going to be the ones that benefit soonest. As we generally know, things don't get less expensive as time goes by. Proactive and forward thinking is going to be a reward for everyone in the future.

Session 3 "Just" Pricing: Water Affordability and California's Human Right to Water

Moderator: Nell Green Nylen

Panelists: Colin Bailey
Vern Goehring
Tam Doduc

Alison Johnson Thank you. We have a very talented and accomplished group of panelists for our next talk, but I'll just introduce them briefly so you can hear mostly from them. Nell Green Nylen is our moderator. She's a research fellow at Wheeler Institute for Water Law and Policy at Berkeley Law. Her research engages law, science, and policy to identify interdisciplinary solutions to our water issues.

Colin Bailey is the Executive Director of the Environmental Justice Coalition for Water. He's an accomplished social justice attorney

Tam Doduc serves as a civil engineer for the State Water Board. She also previously served as Deputy Secretary to Cal/EPA and worked with their environmental justice activities as well as scientific peer review.

Vern Goehring is a political consultant for Natural Solutions to Advocacy. He has more than 35 years of experience working in governmental policy and has served in a variety of executive and legislative roles, including the legislative advocate for the California Department of Fish & Game.

Nell Green Nylen During the current drought, we've heard a lot about water pricing and its potential to encourage residential water conservation. While important, conservation potential should not be our only consideration. When considering rate changes and even the status quo, it's crucial to analyze and address the social justice implications of water pricing.

Discouraging wasteful residential water use through pricing mechanisms has the potential to exacerbate the water affordability and access problems many low-income Californians already face. However, it does not have to do so. Our panel will examine the tensions between water pricing and social justice concerns, potential solutions and safeguards, and the broader topic of water affordability and access.

In November, in the midst of a severe drought and calls from every corner to conserve, less than 10 percent of California's population managed to use fewer than 55 gallons per capita per day. Meanwhile, more than one-quarter used 100 or more gallons per capita per day. In comparison, during Australia's prolonged drought, residential water use was eventually limited to 39 gallons per person per day. So there's a lot of room here for improvement.

Residential water providers can structure rates they charge in different ways. Some like charging customers a flat fee no matter how much water they use. In doing so, they provide no incentives to conserve and in fact encourage waste and complacency. Others appropriately set increasing block rates, which makes bill payers think twice about using more water than they need if doing so will bump them into a substantially more expensive rate tier.

Water rate structures are trending towards increasing block rates, but many water providers are still charging a uniform rate per unit of volume. This leaves a lot of room for incentivizing conservation through rate structure changes. As more water providers shift towards more conservation focused pricing, water rates and household water bills are going up at 2 to 3 times the rate of inflation.

This trend does not bode well for low-income Californians. In many counties, more than 20 percent of households already pay water bills that are in excess of 2 percent of their annual income.

The water rates public water systems charge their customers have a variety of influences and inputs, many of which our panelists will talk about today. However, because water rates do not necessarily capture the full range of affordability and access issues that confront low-income communities and individuals, our discussion will range more broadly at times.

Now we're going to get into the questions. We're going to have a bit of a conversation we hope. First, any discussion of just pricing needs to acknowledge California's human right to water, therefore we'll first discuss what it is and what it means for low-income Californians and disadvantaged communities. First, Colin can you tell us a little bit about what water justice is and why there's a need for it?

COLIN BAILEY I'm Colin Bailey again, Executive Director of the Environmental Justice Coalition for Water. Just a quick note about us, we are a statewide non-profit, a coalition of primarily grassroots organizations and California Indian tribes that champions the human right to water and water justice around the state. My personal background is as an anti-poverty, in fact a legal aid attorney, and carved out a niche there doing land use work because of the close nexus between land use and poverty.

As to water justice, which is some work I've been doing for just over two years now, there are many definitions and EJCW has an ever-evolving one. The current statement admits

many different things which I'll read to you. Water justice is all communities throughout California having access to safe, clean, affordable water; rivers, streams, oceans, and bays for personal, cultural, ceremonial, subsistence fishing and recreational uses on an equitable basis and without discrimination.

So the question, "Why is there a need for water justice?" By the state's own estimates, well over 20 million people in California get their water from a primary drinking source that is contaminated above the drinking water standard. Most of us live in places, including here in San Francisco and in the East Bay, that have the wherewithal to treat those to acceptable levels, but upwards of 2 million people living in California do not have access to safe, clean, affordable water and in fact the affordability problem is very little understood. We don't have a lot of data to really understand just how widespread the unaffordability crisis is, but we know it's there.

In further explanation, we actually have a 38 minute video on the human right to water which helps us to better understand just what type of community we're talking about.

NELL GREEN NYLEN All right Vern, thinking about California's human right to water that was fairly recently adopted, what has happened since California adopted the statute in 2012?

VERN GOEHRING I can answer that by saying a lot has happened and also by saying not much has happened. It's been two years and we haven't solved the problem yet or the challenge. On the other hand, the issue, the conversation has shifted significantly we think in Sacramento and around the state with regard to human right to water and water challenges.

I want to talk a little bit first about the statute, the law, that bill that was passed, 685. I think I wasn't looking. I think a slide showed up showing what the text is and maybe many of you have probably read it, but the operative sections in the policy are that it's the policy of the state that every human being has a right to safe, clean, affordable and accessible water adequate for human consumption, cooking, and sanitary purposes, so that's the policy statement.

Then there's one provision that directs all state agencies that deal on relevant programmatic issues to consider the policy when they are carrying out their normal duties, and explicitly it references when they're adopting policies, regulations, and grant criteria to incorporate and consider the human right to water. I wanted to briefly talk a little bit about this and the issues of clean, safe, affordable and accessible.

We have a lot less information and a lot less attention focused on affordability and they don't necessarily go hand-in-hand. There are a lot of places in the state that have clean

and safe water and abundant water potentially, but it's not affordable. The affordable aspect is something that we're really lacking on information and understanding and attention to.

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I want to look at the word "consider," what that means to a state agency to consider the policy when they're implementing and carrying out their duties. And I want to just thank and mention the great help that we've received on this campaign, this work from the International Human Rights Law Clinic at UC Berkeley Law School. They've been a great help in helping us understand ourselves as we work in Sacramento, work with agencies about the territory and the ground that we're working into.

Four key elements of what 'consider' means, and one of them is to give preference to advancing the policy whenever possible, so when agencies are carrying out their duty, to consider the policy and advance it in any capacity and any way that they're able to.

Secondarily is to avoid actions that are contrary to the policy or to frustrate the implementation of the policy, the accomplishment of it. In other words, do no harm.

A third element to consider is to ensure that affected communities and the people that are affected have meaningful opportunities to participate in the decision making. To actually incorporate them, not, as some people say, parachute in and think you're solving the problem for communities and then leaving, but empowering them.

The fourth critical overall aspect to consider we think is to be accountable. Noting the public record, how you considered, how you analyze it, how you reviewed it, what you did and what effect it had on your decision that you made ultimately from considering the policy, so those are four elements.

Looking at what happened in Sacramento and is happening since then is that we see a variety of responses from state agencies. The Water Resources Board folks are here and they will talk later are doing an outstanding job of considering the policy and trying to work it into their ongoing routine decision making policy. They're very sensitive to it. They're thoughtful about it. They don't have the answers yet about what it means and nor do we have what it means. It's just a technical analysis of decisions, but they're incorporating it very well.

For other agencies, less so. Some agencies immediately after it passed said, "We've already done that. We don't have to do anything more after the 2012 bill passes." We know that's just not the case because it's an ongoing thing. You don't just do it once, you do it all the time as you're doing it.

With regard to Prop 1, a little bit about that. That's probably the main first thing that has some tangible outcomes we think directed toward implementing and addressing the human right to water. As I said, it directs state agencies when they're adopting policies and regulations and grant criteria to consider the policy. Prop 1 has within it a mandate that every state agency that implements one of the grant or loan programs in the proposition, and there are several dozen of them, that they all adopt solicitation and scoring criteria and guidelines for administering their grant program.

We think that every one of the agencies should be considering the human right to water policy in their development of grant guidelines for Prop 1 and we are working on that front in Sacramento, meeting with administration agency officials, meeting with legislative members to try to incorporate and insure that gets done. It's going to be an uphill challenge because there's a great rush to implement Prop 1 and to get as many of the bond funded programs out on the street as quickly as possible.

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Agencies essentially have been told by the governor's office to get their criteria, their guidelines adopted within six months so that they're ready to go in July when the budget for the next fiscal year takes effect, which will be the first budget to have Prop 1 funding appropriated in it. So that's one of the big opportunities that we see.

The challenge with regard to Prop 1 is this rush to just get the money out, that there's such a drought problem, there's an urgency and there is a need and we recognize there's an urgency to do it and politically there's an urgent need to get the money flowing. There's this trying to rush and get the money out the door versus, and I refer to it as 'just do it', just go do it. There are provisions in Prop 1 that have money specifically to drinking water and sanitation issues and percentages of different pots of money that have to go to disadvantaged communities, and so it's a rush just to do that, to get the money out.

I look at it and we think, and Colin and I have talked a lot about that, we really need to try to integrate human right to water policy thinking in the institutional processes within state government, otherwise it becomes just key to a particular money source, a particular program and it doesn't become part of institutional thinking for the long haul. So there's that short-term/long-term challenge that we're trying to wrestle with and figure out, that we don't lose sight of either one of them.

Thank you.

COLIN BAILEY Let me just finish a couple of the comments I was going to make earlier. I was going to round out the idea of water justice. It's a long list of water quality, water supply, drought impacts, the water related impacts, climate change, government structures, all of which disproportionately impacts environmental justice in these low-income communities in these developments.

Part of the framing that I'd like to provide for the conversation around affordability in particular is that of the environmental disclosure. The environmental disclosure of water brings an expressly race conscious analysis to this work, and a lot of the inequities that we see are disproportionate borne by communities of color and have very much to do with a legacy of former racial apartheid in this country. The use of racially restricted covenants divide people into communities with high opportunity or into low opportunity, and those differences have been exacerbated not just through those mechanisms but in the subsequent eras through redevelopment, through planning.

Just as one example, the 1972 general plan for Tulare County, which was in effect and updated only in 2014, identified many of the communities that you've seen in the news that are literally having their wells run dry as unviable communities, and that was written into the general plan so that in the many decades in which that was in effect, infrastructure development and infrastructure dollars were in fact circumvented around those communities so they were, in essence, deliberately deprived of many of the investments that would have a made them much more viable. To this day, they've had to struggle for streetlights, have no storm water drains. That's the level of neglect that we're talking about here.

Paul Kibel talked about doctrine this morning. There is a doctrine that's relevant here that I'll mention and that's the intent doctrine. Communities of color can use the intent doctrine established in *Washington v. Davis* (1976) and it's progeny to go to court and seek redress for these dramatic racial harms. Part of what we're doing through other venues, through the human right to water, is trying to hold true to the greatest values that society has to offer, that of equal opportunity and equal treatment under the law.

We need to make true on that promise and the human right to water I think is one vehicle. The good news is that most of the problems that we see from an inequity lens with water are manmade. So that means that we can fix them and there's a lot to be said for how we do that. So with that, I'll turn it over.

NELL GREEN NYLEN Thanks, Colin. So Tam, thinking about the human right to water and implementation, how has the State Board been approaching this? What has the State Water Resources Control Board done to actually implement the human right to water?

Tam Doduc How do I answer that without sounding bureaucratic and boring? Let me try this. I think the best way to explain how we've changed as a result of the human right to water law is that it's greatly raised our level of mindfulness. What do I mean by mindfulness? I think in that context, my definition would be paying attention on purpose with purpose.

Before the law, I would say we that had something called an inherent mindfulness. The water boards have always been charged with protecting the beneficial uses of water with domestic use being the highest priority, and with the integration of the drinking water program, it further emphasizes that importance. Talking to anyone at the water board, I believe you will hear that the concept of human right to water is integral and inherent in all of our activities, but there's a difference between going about doing your business with the comfort of knowing that you're doing a good thing, and the recognition that the human right to water is inherent in your activity.

there's a difference between going about doing your business with the comfort of knowing that you're doing a good thing, and the recognition that the human right to water is inherent in your activity.

The change has occurred in terms of actually doing it with a greater level of mindfulness. I saw this because our chief of public participation, Gita Kapahi, whom some of you know has been studying, surveying, and asking our various program managers at the regional boards as well as the State Water Board on how we've implemented the human right to water. I got a sneak peek preview of some of the results that she's getting, and from that I've distinguished two levels of implementation that's related to mindfulness.

The first level I would call a more apparent mindfulness, where the program managers and staff would as they're going about and developing their permits and policies and projects ask the questions. "Is this consistent with the human right to water? Does it assist in helping that effort?" It's a more conscious, apparent mindfulness that those questions be asked and that it be documented.

Then there's the next level which I term the "enhanced mindfulness" is where the program staff takes additional steps instead of looking at things from the perspective of what they are doing. They are looking at the human right to water law and developing criteria upon which to apply it to their program and processes. For example, they're asking questions such as "What aspect of the human right to water would this item address? Would it address the affordability, the accessibility, the availability, the quality of the water?" They're asking questions as how would this better serve the public's right to clean water?

Are there additional measures that could be taken to improve access to water? Are we collecting data to correctly measure the impact on communities and the successful outcome

in terms of achieving human right to water? Then my favorite question is, explain the reasoning that informed this proposal, acknowledging how competing interests were weighed and what aspect of this decision would need to be carefully monitored and evaluated with respect to implementation of the human right to water?

Yes, I'm reading a list of questions because these are the questions that are being used by our division of financial assistance. In this case, to work on things such as the policy for implementing the drinking water program and things such as the safe drinking water plan, so this enhanced level of mindfulness in implementation I think is where we want to be.

And as we look forward to implementing Prop 1, managing the Prop 1 money, as we look forward to other water board policies such as desalination, as we look forward to reviewing the anti-degradation policy and looking at its applicability to groundwater, I think the challenge is going to be to develop this enhanced mindfulness as we go about doing these new efforts and these projects.

I mentioned earlier that Gita is assembling this information and it's my hope, my expectation that this will be an informational item to the board within the next few months and that we'll have a chance as a board, with input from stakeholders, to discuss this idea of implementation, how do we further integrate and institutionalize this in terms of our processes.

With all due respect to Vern, I would say that for the water boards I am very confident, especially given the steps that the Division of Financial Assistance has already taken to integrate the human right to water into the processes, that we are well poised to do this and not just operate on the basis of getting the money out, but actually do it in a thoughtful manner that incorporates the human right to water law.

In any case, it is a most timely, perhaps maybe a little bit belatedly, but it is important to have that discussion with input from our stakeholders, towards looking ahead and seeing how we can incorporate these enhanced mindfulness into our program.

COLIN BAILEY Thank you, I just wanted to follow up quickly to say that we in the advocacy community are very supportive of and want to compliment the State Water Board for the example that they are setting for others in the state administrative apparatus. We think it really shows great promise for what the true optimization of the human right to water could be.

I wanted to add one thing about data, and that is a methodological point drawing from the work of the Pacific Institute on water rates. There's an important distinction to be made, and they did a case study on Tulare Lake Basin and Sacramento where I live, depending on whether they were using the water system affordability metric which showed in Sacramento no water affordability problems, or the census block group methodology which showed 52 out of 847 block groups were experiencing affordability problems.

Then at the most granular level, at the household level, there were over 100,000 households in the Sacramento region that were experiencing affordability problems, so there's a real important need for data and the right kind of data on affordability.

NELL GREEN NYLEN We've talked a little bit about the human right to water and trying to pull this back towards water rates which certainly you just hinted at, Colin. There's some other things we need to think about. For example, what legal limits affect rates and rate structures that water supply agencies can impose on their customers? Colin, can give us a little background on that?

COLIN BAILEY I'll do my best. Nobody told me when I accepted the job as an executive director just how much administrative work it was going to be. I don't get to play lawyer all that often, but I've been asked to review some of the legal structures largely from the changes through the initiative process. I wanted to jump on 3 changes: Propositions 13, 218, and 26 which collectively have dramatically limited the ability of local water agencies to find funding that would provide for the redistributive justice, the subsidies that can make water affordable throughout their entire service area.

Local governments responded to Prop 13 by increasing the use of other fees including water service fees and general taxes.

Any discussion of Prop 218 has to begin with Prop 13 because 218 was a reaction to the reaction to 13. Here we have Prop 13, 1978, all increases in state taxes and any local taxes have to be passed by two-thirds vote of the local populace. That raises the bar significantly for how quickly and what type of revenue local governments can raise. Local governments responded to Prop 13 by increasing the use of other fees including water service fees and general taxes.

Another gift of the Howard Jarvis Taxpayers Association, Prop 218 comes in in 1996 and makes very clear that special districts like water districts cannot levy general taxes but only special taxes and that those special taxes always require a two-thirds voter approval. In addition, it also introduces a cost-based fee requirement in the nexus so that total revenues collected by the fees must not exceed the costs of providing service, and furthermore can only be used for the purposes for which they are imposed. Lastly, the costs must be proportional to the very services provided to each individual parcel.

The final element of Prop 218 was the voter approval requirements so that property related fee increases are in fact subject to public hearing and if a majority of the land-

owners that are subject to the tax protest, in fact the agency has to abandon its plans. It's simply dead in the water, so to speak.

Lastly was Prop 26 and this is actually newer, 2010. Prop 26 makes clear that charges for programs that provide general public benefits or that exceed the costs of providing the services, they're now categorized as "special taxes" which are yet again subject to the two-thirds vote of the local populace.

One last element that will tie in some of the discussion earlier on the constitutional waste and unreasonable use provision is that the courts have in fact interpreted those to not be in conflict with these proposition, so in other words the State Water Board's allocation-based conservation water pricing authority, which can be invoked to provide for considerable incentives for conservation, still has to comply with Prop 213, Prop 218, and Prop 26. That is the landscape in which we live and again it dramatically reduces the options available outside of general bonding or some other general source of funds to use as a subsidy for low-income ratepayers who would need the assistance.

That is the landscape in which we live and again it dramatically reduces the options available outside of general bonding or some other general source of funds to use as a subsidy for low-income ratepayers who would need the assistance.

NELL GREEN NYLEN Thanks, Colin. Vern, I'm wondering if you could maybe flesh this out a little bit. Colin touched on some of these things already, but can you speak to how these legal limits can cut against the affordability requirements included in the human right to water?

VERN GOEHRING Let me try to address that and start out by saying that one of the challenges and frustrations we have is the constitutional restrictions are really largely restrictions or limitations on just acquiring revenue, period. They're not just focused on individual household costs. Prop 218, it has this direct linkage between the cost and the delivery to a particular household, so that's a link that's challenging.

The biggest thing maybe is that we don't even know what affordable is yet in this state. We have no agreed affordability standard or threshold that we're all focusing on and looking at. That's not been developed. The USEPA has something they call "affordability standards" which is used with regard to storm and sewer water services that are provided and also the Safe Drinking Water Act.

The Safe Drinking Water Act which provides funding to the state and to state water providers has a 2.5 percent of median household income as the affordability standard, but the standard is not set to actually critique rates, the rates that providers set. It's set to possibly be a threshold that would warrant EPA to allow some regulatory variances in different regulatory requirements, so it's not even designed to look at household bills that people are expected to pay for their water delivery.

Just last fall, the US Council of Mayors did a study, a review of affordability and cost of water in California. They looked at all forms of water service to individual households: water delivery, sewer, and storm water that is linked to a property. Looking just at water, and they only looked at 35 cities, surveyed 35 cities around the state, they found that annual water costs to household vary widely from $115 per year in one city to over $2,200 a year in another city, so this is a huge spread.

Looking at the median cost per household for water in California, that study revealed $902 per year was the median. That's $75 a month if you break it out that way. If we used the 2.5 percent standard of water service, the $902 per year figure would equate to a median household income of $36,000 per year.

You can imagine that when you're looking at median household income over a larger territory, over a city, that it masks what really is affordable when applied on an actual household income. For example, a household income of $25,000 a year, a 2.5 percent affordable criteria would be $625 a year rather than $902, and we know we have a lot of households that have less than $25,000 in them. In the Council of Mayors study of California last year, they identified that 11, one-third of the cities they sampled, had 20 percent of the actual population households come underneath even the 2.5 percent median household income that is the standard under EPA. So there's a lot of households within cities that fall below that threshold.

Another survey was done in 2012 under the auspices of the State Water Board. It found that the statewide average monthly cost for water service, for water delivery, is $55.42 a month and that varies depending on what kind of a system is in place: investor, operator, public system or municipal systems. In 2012 when AB 685 was enacted by a legislature, there was a companion bill. It was AB 2334 which tried to set a 2 percent median household income threshold to define affordability in California and that bill failed, so we still have that to look at.

One thing I want to again talk about is the concern I have is that when we talk about affordability, a lot of attention focuses on how do we manipulate the bill that goes to the household to pay their monthly bill, how do we change that? Oftentimes people then look at lifeline rates, cross-subsidy rates to keep that bill down. What we need to really look at is the entire cost stream that ends up with that cost at the end of the day, because when you're just worried about the cost that's in the bill before you put it in the mail it's really too late to do much about it then.

Plus it's much more difficult politically to do something about it at that point in time, as we found in 2012 when we tried to have a bill establishing the 2 percent affordability criteria. So to change the law, change Prop 218 and others, to provide for lifeline rates is really difficult. I think we need to back up, look at the entire cost stream, and really evaluate those and look and see what public agencies can do, what water service providers can do, how the public can engage.

We look at fixed costs, those that don't change much with regard to volume. They're the salaries within the water service provider, their financing, their capital needs and their capital stream and so forth. You look at variable costs and those things that do change with regard to volume, tied to things like energy and treatment needs and vehicle fleet operations and so forth.

Maybe just touching a little bit more on some of those cost stream elements, we have the system maintenance and there's a lot of operators that have deferred maintenance so that's going to be a big cost factor. The main point is that we look at that cost stream and engage the public in a meaningful way in trying to address that full cost stream.

NELL GREEN NYLEN Building on what Vern's been talking about, I will put a question to Tam. Can the State Water Resources Control Board and other agencies play a stronger role than they have so far in insuring that water rates do not price the low-income people out of water?

TAM DODUC In the interest of time, I'll skip all of my talking points about ways that we can indirectly affect water prices and just get straight to the point. The bottom line is, and Colin spoke earlier, having funding available to disadvantaged communities and Prop 1 certainly goes a long way towards that in terms of providing funding for capital improvement. The big challenge, and obstacle, what we must address and I cannot emphasize it strongly enough, is that disadvantaged communities often lack the governance infrastructure, technical expertise, and ability to pay for ongoing operations and maintenance.

That's a bigger challenge than just the water board or just local government. It requires all of us working together and it's something that the governor is very focused on. I expect that there will be a lot of engagement on this issue. I'd love at some point to have a discussion on innovative, outside the box thinking to truly address this huge obstacle.

Keynote Address

Felicia Marcus, Chair State Water Resources Control Board

Trevor Howard Welcome back everyone. Without further ado, I'd like to introduce Felicia Marcus, Chair of the State Water Resources Control Board.

Felicia Marcus Good afternoon. I'm really honored to be asked to join you. I love these conferences and appreciate that the students and Professor Kibel encouraged me to come. I'm really thrilled looking at the agenda, and being able to sit through it this morning.

This morning you laid out ways to use reasonable use in depth as well as recycle. I've never seen so much discussion over recycled water at a conference that actually has water rights lawyers. It was great for my heart to see both sides of my life in one room.

It rarely happens, and I'm usually the person interpreting water quality issues for water rights lawyers or explaining water rights to water quality lawyers. And I won't tell you which one is more difficult or where you get the most amazing expressions, but I'll just let you think about which one that might be. But both of them certainly have their high points, and their challenges.

So I'm not planning to give you a legal talk on that. As Professor Dunning, Professor Frank. You've got a whole room full of professors. Professor Kibel, and Professor Leshy. Or that entire row of Water Board lawyers who will probably throw something at me if I say something wrong.

What I wanted to do was to share a broader picture, and some of you have heard this. A context, if you will, for the work that you're going to be doing if you stay in water law. And I'm focusing my remarks in part for the law students.

So my apologies to others particularly if you were at the recent Yosemite Environmental Law Conference, you will hear some of the same things that I said. And actually if you've been at any of my talks some of the things are the same because I'm kind of on a mission to have a more integrated, logical discussion about California water.

There are incredible opportunities for synergy, but they're going to require mutual respect of people's water rights, of their hopes and fears, of their need for safe water. And

it's a daunting task, but I guess my bottom line, because I'm going to show you some slides that make me a little bit about Debbie Downer, because it's a really horrible time that we're in. And I'm going to talk a little bit about where things fall apart because I'm hoping you'll help us pull this together.

I also have some thoughts on reasonable use. I have more on how to be reasonable while being unreasonable at the same time in terms of the status quo. And I'm using definitely too many slides. I'm going to go fast, and I know it breaks all the rules. I always get notes that I should go to Toastmasters. Not going to do it. Not going to happen.

I'm just trying to share with you some food for thought at lunchtime. No quiz at the end, but just maybe, maybe in some of this you'll get a different perspective than you might because my odd experience from having been in the water world for a long time. North, south, water quality, water rights.

And then leaving for about 10 years because I needed to take a break, and coming back is that there's a lot that's good because people are talking about things they weren't talking about. But it is stunning how many people who have been in the water world for 20, 30 years are saying the same thing I saw them saying in the '90s.

They're wearing the same clothes. A little greyer, but it's kind of incredible. So this is my mission, and forgive me if you don't find it useful. Some people have so here I go. Also, a disclaimer. I can't speak for the State Board. None of us can.

We're a five-member board that only meets in person so we only speak as a board once we've made a decision so all my comments are my own. I'm not speaking on behalf of the Water Board or anybody else. That gives a lot of people comfort, plausible deniability, and the rest. But this is just a conversation we're having at lunchtime, right? Right.

Let me just get a sense. How many of you are law students? Oh, great. How many of you are government folks? Lawyers or non-lawyers? How many of you are practitioners in public interest law or the private sector? Oh, so mostly law students. That's pretty cool. Okay, well let's go.

Okay, so I'm going to talk about the setting just because again, some of you are going to say, "Duh," but there are just a lot of people who don't know some of these basics. And they talk about water law, water rights, water issues as if there's one solution. And the answer is there isn't one solution. It's the silver bullet versus the buckshot point that was made earlier.

I have to give a drought update because we are in the worst drought in modern history, and it certainly eats my every waking day, and moment in this whole past year. And I'm not just trying to give you an update on what I did on my summer vacation or what I did last year, but this is something that really affects the whole state.

But most of the state can't really see it because they're in urban areas that are hundreds of miles from their water source. They've built off-stream storage of some kind or another, and it doesn't touch them anywhere near the way it's touching communities all across rural California, the Central Valley. I'm going to talk about that a little bit.

And then I had some thoughts on where we need to go in terms of reasonable use. These are huge challenges that have come to a head in many instances, but they've been visible, noble, and addressable for a long time. We're the generations who are going to get to take them on. To be a part of the paradigm shift of actually solving these problems.

And many of you are actually going to be the ones to take them over the finish line. As a Boomer who's gotten over Boomers, I really am counting on Millennials to bring the best of their thinking, and their perception that they can multi-task. That's a big difference between Boomers and Millennials, their sensibility to these efforts, so I look forward to working with you in the years and months ahead.

the parable of the blind man and the elephant where they all are touching a different part of the animal, and they're describing something completely different. That's what discussions in California water sound like.

All right. This is virtually my whole first part of my talk. I know this breaks the rules. This is the elephant slide. It's a wallet card. You can print it out. You can keep it in your wallet to remind you of the overall context in California water this year. And the elephant is there because of the parable of the blind man and the elephant where they all are touching a different part of the animal, and they're describing something completely different. That's what discussions in California water sound like. People pushing one solution being the solution, and the answer is it's not. Generally, it's connected to some other solution. If somebody else gets their solution you might get your solution. Happily, we're in a year where people seem to rise to the occasion, and realize that, and you see it in the water bond.

So what's the key in the setting? These are the green things. We do have the most variable hydrology in the country. I was on a webinar with water judges from across the West, and one of them said, "How can that be? The state boundary is just a line on a map." And I said, "Yeah, but the Sierras, and the coast aren't." And so there's just something hydrologically that means that we have a tougher problem with the fact that our rain, our precipitation, if you will, sometimes it's snow when we're lucky, but our precipitation falls in widely varying patterns.

It falls in different locations than the heaviest use are. It falls at a different time of year when the heaviest calls are, and that means we have to think about storage in all its glory. Sometimes people think about storage as if it's one thing, and it's good or bad.

As I'm going to talk to you in a moment we have to look at that differently, and have a more intelligent, sophisticated conversation about the need for storage above-ground, below-ground. Big and small because if you look at the future, at what's coming at us with climate change, if we don't act now we'll be in even a worse world of hurt.

The other thing is that every area has a mix of sources so there can't be one solution. In a locality where you live there may be one big one. Generally, again, when you're hundreds of miles away from your water source you're not having that conversation at the local level because the water just comes out the tap, and people take it for granted. Which is a great achievement, really when you think about it in terms of the evolution of society, and civilization, but it does have its challenges.

Some places are lucky to have a mix of all of these things. They may be lucky enough to actually be along the surface water that they take water from. That is not most of the population of California, by the way. That's only a fraction of the population of California that actually sees where their water comes from. Another fraction may actually see storage that they take it from somewhere else, and put it in, but generally, some people have that.

Other people have imported water either because like L.A. and the Owens Valley aqueduct or San Francisco and Hetch Hetchy, or East Bay MUD and their Mokelumne system, or any number of others. They've got their own that they did or they're a part of the state and federal project which was built in the middle of the last century. All of them were really to add supplemental supplies to get to places that didn't already have it.

But the key is that every locality has a different mix of water sources. Some of them have groundwater. That is as intensely local as you can imagine. From here to the corner groundwater can vary completely differently.

People think it's like a big pool underground. It's this geographic strata. The water doesn't go straight down. It can go all different ways, and you'll have a whole panel on that. Some places are lucky enough to have groundwater basins. Even if depleted because they have a place they can store water.

Other places like San Diego do not really have appreciable groundwater resources which is why it's not surprising that they're spending money to do 7 percent of their portfolio with an expensive desalination project. And that they're the people pushing for direct potable, indirect potable use of recycled water. They're on the cutting edge of that, too.

Why? They don't have a groundwater basin where they can store recycled water, and groundwater so every place has a very different mix of problems. They have a different mix of solutions, and we need to be respectful and compassionate towards that versus simplistically waving the brush about it.

And there's also the mix of water rights that varies widely. The appropriative rights system is a very harsh, seniority-based program. It is what it is. We have certain things we can do that end up influencing it or taking water off the top. I don't know what the right phrase to use is. Influence what that amount is, and that we're talking about waste and unreasonable use today. We can talk about public trust. We can talk about regulatory things.

We had a big fight about that, and I'm not planning to have that today, but you'll probably be billing on it in the course of your careers in one way or another. So you've got everybody with a mix of water rights. You have one guy who's sitting pretty, and his next-door neighbor's in a world of hurt.

And you don't hear from the guy sitting pretty. You're the guy with the world of hurt. And then we have different cultural norms in different communities about what's acceptable, like how people feel about recycled water or groundwater.

Climate change and other drivers are game-changers, and we'll talk about that in a minute, and then there's a mix of solutions. And I won't go through all of them other than to say we have to have a more sophisticated conversation about storage.

our groundwater basins are the only thing that even approximate in size of storage we're going to lose when we lose our snowpack in the decades to come.

So, for example, the need for storage in the face of climate change, as I'll explain in a minute is why the groundwater legislation was so important from a state level. Part of it was neighbor-versus-neighbor problems, which brought the political will to do it, but part of it is that our groundwater basins are the only thing that even approximate in size of storage we're going to lose when we lose our snowpack in the decades to come.

And we don't have a moment to lose figuring out how to make up for that since we are in a system that has to have storage. Similarly, some people think we can conserve, recycle, storm water capture, and desal our way to the future. Nuh-uh. We're going to need all of it. We're going to need all of it.

Belts, suspenders, flying monkeys because if you look 30 years into the future, 40 years, maybe it's 50 years, I don't know. It takes decades to do these things. We are in a world of hurt, and the level of economic and social harm, tensions, et cetera are going to make this drought look like a picnic. And we know it's coming at us.

And then finally, we have this drought. And I'll just show you a bunch of pictures, but this is my summary. It is the worst in impact in modern history. You heard some of the

stats about how bad it can be, and there's a lot that's been made about it being the third worst precipitation in recorded.

We've only been recording 100 or so years. We know there have been much longer droughts from tree rings, and tree stump data. A lot more, but it's the worst in impact because we have millions more people relying on that water for a variety of uses whether it's urban, agriculture or whatever, more straws in the system above ground and below ground.

We've got more irrigated ag dependent on the same drops of water because ag has become far more efficient than it was 10 or 20 years ago, and they put it in to enhanced crop production. Which is a miracle, and a fabulous thing in terms of food and fiber. And it feeds the state, the nation, and the world.

The simplistic Ag versus urban thing, I just say, "Ixnay." I just have no patience for that. But understanding because they've become more efficient there actually is more agriculture production depending on how you utilize the water. Hence more hurt.

And then we have more endangered fish and wildlife out there, and they just don't have the resilience to weather this storm so it's been awful.

And then, of course, to deal with this it's not like we just woke up to it in the middle of the last century. You had this incredible infrastructure built that created an economic and social explosion of good things, but with some consequences that at the time folks weren't thinking of, for fish and wildlife, and other uses.

And we've been trying to, of course, correct on that as best we can knowing that people have been depending on this system, and our system of water rights. And so that adjustment is not an easy thing to be doing.

> *The thing I like to point out, and some people like that I point it out and some people don't, is if you look at Northern California water agencies, at San Francisco PUC and East Bay MUD, they use as much water from the Delta as Southern California. They just take it above the Delta.*

The thing I like to point out, and some people like that I point it out and some people don't, is if you look at Northern California water agencies, at San Francisco PUC and East Bay MUD, they use as much water from the Delta as Southern California. They just take it above the Delta.

Everybody has to use less. They're more vulnerable, but everybody has to use less as that last panel pointed out. So the climate change I've talked about. We're going to have

population growth unless people start eating their young. We want to account for that, and our economy.

And we're going to have to think about food security. I think in our society, and in our state we take food for granted, and agriculture for granted. Trust me, again, if you look at all the issues in the decades to come food, not just healthy food, and organics, and all the cool things that I got to work on at NRDC, but actually people having enough food, and healthy fruits and vegetables is going to be a big deal.

And we're one of only five places that can grow it. So we need to be sensitive to preserving agriculture in California versus just looking at stats and maps. And then there are these personal limits we have. So let's talk about the drought.

This is my Ben Franklin quote about the drought. "When the well is dry we know the worth of water." So, I've already said this. It's really bad, and it is a harbinger of things to come. This is a dry run for what we're going to see more often as more of that precipitation falls as rain, and not as snow where it provides nearly half the state's storage that melts out, refills reservoirs and streams.

So it was really bad last year, and this year is not a picnic. Those rains in December. We got our hopes up, and then they were dashed. It's worse than it was. Reservoir levels in Shasta a little higher, but that's really about it. This is what we were looking at a year ago. It's probably worse now. That's a huge amount of water.

There's some graphs for those of you who like graphs rather than pictures that compare 2010 which was a fairly wet year with this year so you can see the difference in the level of snow and precipitation that we get. And the storage levels, and then just some other depressing picture. You are here. That doesn't look good, either. That's last year to this year. That's worse. And last year was horrendous so I can't even imagine.

Here's some of the impacts. I would just say that there were over 400,000 acres fallowed. Sometimes that's because folks didn't have water. Sometimes that's because they sold their water to folks who didn't have water the way our water rights work, but it would be five to ten times' worse. I think UC Davis came out with a report that it would be 10 times worse if people couldn't rely on groundwater.

So people have been pumping like heck to get through it, and the groundwater legislation, I think had some impetus to pass because of the drought, but it wasn't meant to solve this drought. It was meant to start managing those basins so that they are there for future droughts because if we didn't have it, it would be so much worse.

Other things you can see, each of these is a story in itself, and was just horrible. Some people, as I said live near, and see this daily. Other people, they only if it ends up in the paper. Fortunately now, people do know based on a PPIC survey which is good.

I'm not going to talk about all of these. Just to flag them for those of you in terms of water rights. We really had a tremendous federal/state coordination effort. And having been the social worker in chief in the '90s during the Bay-Delta Accord, and ROD, and this framework is much better than I ever saw.

And we didn't waste time on, "Is so. Is not. You're a jerk. No, I'm not," kind of arguments which can be embedded in water conversations. It's really been good. It doesn't mean we haven't had our moments. I'm not sharing them, but we've had our moments, but we've worked them through.

And so you have a suite of things that have happened with respect to water rights. Our executive director did a series of temporary urgency changes because our water quality standards which include flow are implemented through conditions on the water rights permits.

Those standards or objectives were set based on wet, normal, dry, critically dry, not really insanely dry, and drier than we'd ever seen. And when we do the next ones which we're updating we'll try and figure out how to get that ahead of the curve because this was all done on the fly, and then contract water allocations were managed, but it wasn't enough to give it to a lot of people.

We did curtailments, which is your classic water rights thing, and a lot of sometimes more heat than light on that. That's all I'll say, but we're trying to do it better. We've been doing a big stakeholder process to figure out how to do it better, and I think we're getting some consensus, there's a convergence of opinion on how we can do it better this year which is great.

We added supply. I'm happy folks talked about the recycled water. And we have a ways to go in the next two years. It's very important. And then we do water conservation rights which were the first in the nation, and we did them mostly to goose local effort. Not to, "Mother, may I?" them.

So we're planning for next year. That's all I'm saying. We're meeting a lot. We're keeping Australia in our mind, where they thought they were in a three-year drought cycle for six years, and then it got worse. And they ended up in the millennial drought for 10 to 13 years, and we're really taking their advice to heart.

And then longer term we have the Water Action Plan, and the Water Bond, which hit on all of those cylinders. Some of which you talked about at this, and I'll just come back to for a moment. So Yogi Berra said, " if you don't know where you're going you might wind up someplace else." And that's why you need to aim high and have a sense of, "Where do we need to be in 30 years?"

It's like the Gretzky quote about the reporter asking him how he always got to the puck before everybody else and he said, "I don't skate to the puck. I skate to where the puck is going to be." And that's what we need to be doing, and we don't have any time.

My other favorite Yogi Berra quote is, "In theory there's no difference between theory and practice. In practice there is." So I tend to be a practitioner. That's all you need to know about me. I can do the cocktail dinner party conversation with the best of them, but I don't love it, and it's endemic in the water world of people repeating themselves louder and slower, talking past each other.

I'm a sewer girl if you read my bio. When you're running sewage treatment plants you don't get to just talk about things. You've got a river of human waste coming at you 24 hours a day that you've got to put somewhere. But in any event, that's my bias.

So then thinking about beer, and reality oddly enough. Here's where I was looking for reality, and I ended up with beer. It's strange. Abraham Lincoln said: " I'm a firm believer in the people, if given the truth they can be depended upon to meet any national crisis. The great point is to bring them real facts, and beer."

Now, I did not realize that beer was such an important facet of our nation's leadership in the early day or even later so I Googled John F. Kennedy, Robert F. Kennedy, and Martin Luther King, and beer. I even tried Ronald Reagan and beer, and I got nothing. Like nothing.

Just those links where they're two different things, and I struck out. Nothing. But I did get this from Martin Luther himself. It came up. "Whoever drinks beer he is quick to sleep long. Does not sin. Whoever does not sin enters heaven thus let's drink beer." I don't think he said it that way though, but it's the truth? I don't know. Hard to know.

Then dealing with reality. We've dealt with this one, and we know it's coming at us. It's one of those things. This isn't theoretical, and there's a lot of agreement on it. Whether it's 30 years or 50, I don't know, but it's coming at us, and we know it's coming at us. Reality. Sea level rise.

You know, I've been told by folks that the sea level rise that we're seeing in the Bay may not be as bad up in the Delta and we're not talking about the Delta so excuse me. This makes sense to people who understand the fragility of the plumbing in the Delta. We've got to figure out how to deal with this. We know it's coming.

We're not talking about this today except on the earlier panel, and it's my favorite topic, but we've got contaminated wells that people are drinking from all over this state in 2015, for God's sakes, and we've got to figure out how to deal with it. And our current laws and systems aren't geared around it, and we're trying to find ways to deal with it. The bond money is great.

And most importantly, there's the reality that we can do something about it. There are all kinds of ways that we can use our water. Each of those molecules more efficiently and effectively either in the rural context or in particular in the urban context which is where I focused on it.

So Governor Brown's Administration, we put on deck something I've never seen an administration do, which was put all our water priorities in one place. It's only 20 pages. Not a perfectly written plan. It's just our priorities to people last year. What we were going to prioritize over the next five years.

And that is an, "All of the above" strategy. Why? Because if we pick winners and losers we're all losers. We have to do all of those things. And so we're working on all of those things at the same time, and figuring out how to hold those together, and do them all.

And do it in a way that's more cooperative, and flexible, but keeps our eye on the action ball can get us there. That's my optimistic piece. We can do this, but we have to get off our butts, and get over ourselves, and we have to do it. And happily, a lot of people are. That's my preach.

The Water Bond. Incredible. $7.57 billion. It was retooled because the Governor wasn't supporting anything. They didn't follow a plan that didn't take all of the above. There's money for this stuff in there on safe drinking water, on cleaning up contaminated water. Stuff we've never seen in a Water Bond. It's fantastic if we get it.

We can make a real down payment on progress in a way that's not just about arguing about taking things from other people or getting money from other people. We can just do things. Actually, never coming to government where it went bigger. I've always had to cut back so I'm deliriously happy.

And then there's how we have to deal with water, and this is the reasonable use point I want to end, some thoughts about how to think about that. The Mayor of Los Angeles came out with a pretty bold statement for L.A., cutting their water use by 20 percent by 2017 from where they are now. Not from where the baseline was through the AB 2020 language. That's a lot when they've been doing it for a couple of decades.

When I was at Public Works I was involved in paying for some of it because it also helped our sewage treatment levels. Again, working across those boundaries, and looking at water as a system. They also have a goal of cutting their reliance on imported water from all their sources including their own by 50 percent. Well, they're 80 percent relied on imported water now so that's a pretty big goal. That's by 2030.

But what it's going to require to meet that audacious goal looking at the future is they're going to have to go pedal to the metal on conservation, recycling, storm water capture, and groundwater clean-up, and we're hoping that that's going to become a driving light for many other urban players. That's a big deal, but it's all about changing that relationship with water, which fits in to the culture of the times, and thinking about water that the first panel talked about.

This is a few of the things we're doing in the all of the above. And the key point I wanted to make here, both on the water rights side and the water quality side, is that we're all about action versus stasis, and moving, and getting things done. And that these things aren't totally separated. Water rights and water quality.

A lot of those water quality things work to augment water supply. And so there are win, win, win, win, wins there, but you've got to get people to reach across traditional divides, and have flood control people talk to water supply people. And talk to sanitation agencies. That is not a comfortable space. Trust me, having been in them those are different worlds, but I am seeing things really change.

So reasonable use. Folks talked about this same thing, and what's reasonable is going to change with the times. Obviously, during the mining era extracting water using mining rules seemed like a good idea at the time. Placer mining where they just mowed down whole mountains with sediment rushing down in to San Francisco Bay.

Massive, massive environmental destruction, but that seemed reasonable at the time. They weren't eco criminals deciding that they were going to destroy San Francisco Bay and watercourses, and poison fish with mercury. That was the time.

Currently, you have a series of arguments happening, and it's all inherently subjective. At a gross and crude level, and this is the dialogue I really hope we can get over you have folks talking about ag as if they're bad or fish as if they're bad. Or that farming is per se unreasonable whether it's an almond tree or alfalfa, or dairy cows even as you're drinking milk that came those cows, and who ate that alfalfa.

There's just this odd separation in society or folks in Ag who think it's all the fish's fault, and it's unreasonable to give water to fish. Those arguments are happening today, and what we're trying to work through. And there's an urban Ag piece of it as well. Almond trees? Are they, per se, unreasonable? It's going to depend on where you are. It's going to depend on your water rights. It's going to depend on something. People eat almonds. It's portable protein.

Compare that to an ornamental lawn at a business park. Which is more reasonable? Something people eat? Or something people look at, and never talk about? What was it we talked about this morning, taste and fancy? So I'm not saying that we should go, and rip out all ornamental lawns at a business park, and don't think people haven't asked us to do all kinds of things. I'm going to give you some examples.

Take it to another level. The Florida example that Tam asked about. I get asked all the time, "Would we say it's unreasonable to discharge recycled water?"

What's more reasonable to me is to for us to do the things we're doing to make recycled water safe and more usable so they have a place to put it. Using waste, and unreasonable

use as a lever on something that actually, if you think about the details is reasonable given the circumstances. Not the best place, I think to start.

And recycled water, I think will change the most with the times. As we talk about that yuck factor. Kids think it's cool. Techies think it's cool. They trust technology. They may not trust government, but they trust technology. Remember, we grew up learning that astronauts drink their pee. The difference here is you're drinking somebody else's pee, which might be a little bit different.

Remember, we grew up learning that astronauts drink their pee. The difference here is you're drinking somebody else's pee, which might be a little bit different.

But as one of the speakers said, what do you think the Mississippi River is? Or the Sacramento by the time it gets to you? And what our executive director Tom Howard always says, "The difference is, it has that magic touch of nature, and then it's okay." But we're going to have to build trust in the technology, the governance, and all of that to get it there, but I think the next generations are going to find this a lot more reasonable than the older ones.

And frankly, there's a lot more I can say, but I'm just saying a caution to jump too fast. That this is the tool to deal with what everything annoys you. I think this requires thinking about what's reasonable in the context of what's reasonable for everyone. Not what's reasonable for your side whatever that might be. And I do think that's really important as lawyers in terms of being a good lawyer. I'm late so I'll just give you a couple of other examples.

Folks have asked, "Is that Hetch Hetchy?" We've had folks ask us to say that Hetch Hetchy, that dam is an unreasonable method of diversion. We could. Maybe. Would you start there? Is it completely unreasonable? It's unreasonable from one point of view, sure when there are other options. But is it? I don't know.

The Delta pumps. You could say that the current configuration of the Delta pumps is by far one of the most wasteful and unreasonable diversions of water possible because of the reverse flows it creates a mess for the fish, and drawing the smelt in, and messing with salmon. You could say that. People aren't dying to ask us to do that, but you could. You have to think about all sides of it when you're trying to really be reasonable.

We've used unreasonable use. We have these emergency conservation rights because the Governor gave us authority. In the '70s we used waste and unreasonable use to declare certain uses. Specifically, for example, this isn't Mission Viejo, but in Mission Viejo the use of potable water, and ornamental fountains. People have asked us to deal with water

slides, water parks. It's worth thinking about. We might do some of them if the drought continues. I can't tell you which ones, but we need to think about it.

In the long term we've got to figure out how not to waste water by using it once so profitably. It costs a lot to treat water to potable use. We only drink a fraction of it. In parts of Australia they've evolved. Their sense of what's reasonable evolved massively during the millennial drought. And they now talk about the right water for the right task. They've got grey water plumbing. They've got separate plumbing for recycling water in the home.

In parts of Australia they've evolved. Their sense of what's reasonable evolved massively during the millennial drought. And they now talk about the right water for the right task.

They've got rain buckets, and barrels, and big cisterns underground to capture things. To keep their parks and playgrounds. They separate it all out. And that would be, I think the most reasonable way to go is to move towards what we can do.

We did some things on reasonable use. You'll hear about the frost protection regs in a whole panel, and David can talk to you about the other things we've done using our waste and unreasonable use authority, and public trust authority.

During the curtailments we actually set some flows. Very base-bumping flows on Mill, Deer and Antelope Creeks. That we did get sued over our ability to do that. To set those. And basically, the framing is that it's waste and unreasonable use for everybody collectively to take so much water at the same time that the fish can't get over a bare riffle. That sounds pretty reasonable to me, and unreasonable not to. You haven't heard about it because it hasn't gone through the courts completely, but that will be a case to watch.

So what it will take. I want to challenge you as lawyers to bring your whole self to your role as lawyers, and not just become a lawyer. I am a lawyer, and I have been in the private sector, the government sector, and the public interest sector, and I'll tell you people tend to become a lawyer. This is why people don't like lawyers. You may know that in terms of lawyer jokes.

You don't have to be a lawyer in terms of the Perry Mason argument extreme all the time. And I think that's really important. I think it's important to use your counseling skills of a lawyer to look at options, and find paths forward.

The most successful lawyers in court, and in front of decision-makers, are ones who take in to account where the decision-maker sits as humans to be sure, but also as people who have to navigate a decision-making scheme, statutory or regulatory. That's pretty

complicated. Figure out what they can do, and argue for them to do the most they really can do for them mindful of what other people want.

You have lawyers coming in that think arguing the strongest way possible their side of the story, and diminishing and belittling the others will somehow get us closer. Our job is to balance, and to maximize all beneficial uses. That's why I love my job.

So the best lawyers come in, and acknowledge the legitimate interests of the other side, and just make an argument for where in that sweet spot we should go. It's makes it much easier to say, "Yes." Otherwise, it might be fun for boasting in the bar about what you said about somebody, but it is not being an effective advocate. And anybody who tells you otherwise is wrong, and kind of a jerk, frankly.

Again, I'm not speaking for the Board. I'm just speaking for myself. I marvel at this, and I frequently call this the challenge of ego system management, and I encourage you to get a hold of some self-awareness. I loved that Tam talked about mindfulness. Awareness of who you are in the scheme of things is something that's really tough because having compassion for other people, understanding where they're coming from makes you much more effective.

And one of the challenges I've found with lawyers is they tend to walk in a room thinking they're the smartest person in the room. It's one thing to think you are. It's really stupid to behave so that people know you think you are.

And one of the challenges I've found with lawyers is they tend to walk in a room thinking they're the smartest person in the room. It's one thing to think you are. It's really stupid to behave so that people know you think you are. If you want to be heard by anybody in the room definitely don't be the smartest person in the room or the smartest lawyer in the room.

It's kind of deadly, and this is my last consciousness point. If you think you're the smartest person in the room you definitely aren't. You have to walk in to every room assuming, hoping, that there's somebody in the room who knows something you don't. That they're smarter in a different way. There are different kinds of intelligence.

And be aware of what's happening in the room because it's like mastering level three on a video game, and thinking there are only three levels. You know how those guys look? Well, that's how you can look in front of us when we're at a board or your peers. And so I'm making a plea for humility, consciousness, and open-mindedness because that's what it takes to do the kind of cross-jurisdictional work that we're going to need to get it done.

I thought about this as I was driving here. You know, there's the drivers. You're driving on the freeway. I was driving on the freeways in L.A. Rock and roll really cranked high. I was very happy. I don't get to drive much up here, legitimately. You're looking at the whole road, and safe driving means you're looking in your rear-view mirror. You're seeing the flow, and you're figuring out what's going to happen.

> *If you think you're the smartest person in the room you definitely aren't. You have to walk in to every room assuming, hoping, that there's somebody in the room who knows something you don't. That they're smarter in a different way.*

There's that guy that always wants – there's a space, they have to get in to it. Those guys cause accidents, and everybody hates them. Then there's the person who just sits in their lane, and doesn't care what speed they're going, and drives everybody crazy.

And then there are people who understand traffic, there actually are drivers who help the flow of traffic by being aware of it. It's a principle. So those two others other than the person who's paying attention, all I want to say is don't be that car because it's analogous to what happens in a room all the time whether it's a small room or big room.

As students you all really are our future, and we're counting on you to help make us a little more humble. Help us see things a different way, and really come up with more innovative solutions because many of us who are Boomers have grown up in the siloed world, and it's just hard for us to break out, and be compassionate of that as well.

Session 4 Sustainable Groundwater Management

Moderator: Graham Fogg

Panelists: Peter Prows
Tina Leahy
Gordon Burns

Kaitlyn Kalua Good afternoon. We're going to go ahead and start the first afternoon panel. This is covering the 2014 Sustainable Groundwater Management Act. The new legislation that was passed by two Senate bills, and one Assembly bill this past summer going in to fall.

Joining us today on our panel is Tina Cannon Leahy. She's the principal consultant for the California Assembly Water, Parks & Wildlife Committee. Along with Gordon Burns, Undersecretary for the California EPA.

Also Peter Prows of Briscoe, Ivester & Bazel. And finally, our moderator Graham Fogg, a professor of Hydrology at UC Davis. Thank you very much.

Tina Leahy I'm Tina Cannon Leahy. I am the Principal Consultant for the Assembly Water, Parks & Wildlife Committee. I always have to give the disclaimer that I'm here speaking on my own, not on behalf of the committee or the chair.

Something I tend to do whenever I talk to anybody is just take a minute to tell you what a consultant is because many people have absolutely no idea when they see that what that means. So a consultant at the Legislature is an expert that's hired to staff a committee. So I'm an employee of the Legislature. I staff the Water Parks & Wildlife committee. I am the water expert for the California Assembly, and I and my chair, and the members when they have questions.

I also analyze the legislation. That's really my job. And the analysis that we do for the committee becomes the public analysis on the bill so later if there's litigation it can be secondary authority. So job one is to do the analysis.

We also do oversight and informational hearings where we bring certain subjects for the members, and for the public. We're going to have one on the 10th of February on the implementation of Proposition 1 which is the Water Bond so that's also something that we do. And the third thing that we do, that came in to play with this legislation, is that we will actually staff legislation. So what was interesting was Leslie Spawn, who works for

Roger Dickenson, who is one of the authors of the Groundwater bills came to me, and she said, "Roger wants to do a groundwater bill. Can you tell me about groundwater?"

So 45 minutes later he was looking at me, and he said, "You know, I think we really need you to staff this bill with us." So even though Assembly member Dickenson was not my chair, my chair became a co-author, and I actually had the privilege of helping to staff the legislation, and help draft it.

It was a huge team effort in that ecosystem management that Felicia talked about, it was an incredible team of people. The egos were all managed, and I think it's one of the reasons why we got it done.

The first thing that I want to tell you about the groundwater bills, which was really the fundamental principle that we had going into these bills, and you'll see it reflected throughout, was that there had to be local control.

So it was the legislature working in tandem with the administration, and its agencies which is kind of unusual for a set of bills. So if there are later questions on how we did it I think that has a lot to do with it.

So three bills, 100 years in the making. Fifteen minutes I'm going to do that for you. The first thing that I want to tell you about the groundwater bills, which was really the fundamental principle that we had going into these bills, and you'll see it reflected throughout, was that there had to be local control.

The locals really have the expertise, and what had been missing in the past, and of course, we had had statutes on groundwater management. AB 3030 and SB 1938 were two statues, but it was what we call voluntary. Or, in the very annoying way that the legislature does voluntary, we would force people to do things or they wouldn't get a thin dime of State funding.

So those statutes were different though in that they didn't have any standard that you had to manage to. Really the big difference between what happened with these sustainable groundwater management statutes, and what had been done before in the legislature, was a standard that you had to manage to was created.

And the second big thing that Gordon's going to talk about in a lot more depth is that there was then what we called a state backstop. There was state enforcement. So fundamentally that was really the difference between anything that had ever happened before with groundwater.

And the way that we did this was to say, "What are we managing to?" And it was an interesting conversation because there were lots of terms of art. Some people were saying, "Sustainable yield." Some people were saying, "Safe yield." At one point I think the group had a homework assignment of a six-page paper on what those terms meant.

And what we really decided was that we were trying to avoid certain physical effects. And I know Gordon's going to talk about some of those effects, but we defined it as undesirable effects. Things like salinity intrusion or the catastrophic lowering of groundwater levels. Instead of dancing around with a term of art we just said what it was.

And so in the Act one of the most important sections of that Act really is the definitions because sustainable yield for us is defined in terms of avoiding these undesirable effects. And then the undesirable effects themselves are listed out. And that's really the key when you're looking at the statute as to how it's supposed to work.

So what did we see? Well, we saw that we wanted to have this locally-driven effort. And we wanted them to manage to this sustainable standard, and if they didn't that there would be this state enforcement mechanism. But the other thing that I'll talk about is we realized that they needed tools to do that. There had been certain tools that had been missing for locals in order to get to that place that we needed them to get to.

There are a couple of other things that we looked at, too. Who should this law apply to? And what we realized was there are what we call the "high" and "medium" priority basins in California, which is determined by the Department of Water Resources through certain criteria having to do with mostly how relied-upon those basins are.

And we said, "Where we really need to aim this statute, maybe it's not at everyone," and then there were some folks that said, "We should have a statute, and everybody should have to adhere to that statute." But what we said is, "Where do we really need to aim this statute?" And so we said, "We need to aim it at high and medium priority basins." So that is who the statute applies to.

And then we thought, "Who shouldn't it really apply to?" And what we realized were we had adjudicated basins that were in these high and medium priority areas, and those were under the continuing jurisdiction of the courts.

So in this statute we carved out the adjudicated portions of those basins, and said that our requirements do not apply to them for the most part except some reporting functions. So that's sort of the fundamental structure of the Act. All the high and medium priority basins for the most part not the adjudicated basins, local management, and a state backstop.

What did those folks in the high and medium priority basins have to do? Well, what we told them they had to do was put together a governance structure. A governance structure

that would cover the entire basin or sub-basin. So it was important that we didn't have any areas that would be left out because, of course, everyone is affected.

But again, we left it up to the locals as to how they were going to put together that governance structure. What we called their Groundwater Sustainability Agencies. And the job – and I'm going to touch on each of these just a little bit more since I know I have to go quickly, but the job of the Groundwater Sustainability Agencies was then to develop, and adopt a groundwater sustainability plan that would reach that sustainability goal in 20 years, but have a 50-year planning horizon.

So I wanted to mention to you that there are some very, very helpful documents that the State Water Resources Control Board and the Department of Water Resources have made available at the website www.groundwater.ca.gov. And I want you to know, Gordon, I looked at it yesterday, and you guys updated it so it has lots of – and you'll probably talk about that – lots of new things.

But one of the things that it has that's incredibly helpful, even to us that worked on the Groundwater statutes, is it has an integrated set of statutes. Because there were three different bills that came together to form the Groundwater Act, and the way that it works in the legislature is the order that you chapter bills. You can have bills that modify the bill ahead of them.

So if you're trying to parse that thorough yourselves you don't need to. Andy Sawyer, and other folks at the Water Board already did that for you, and so the integrated set of statutes is on www.groundwater.ca.gov.

The other thing that is incredibly helpful, that's available on that website, is the list of timelines that folks are subject to when they're trying to meet the requirements of the Sustainable Groundwater Management Act. You'd think I could say that because I did help write it.

Very briefly, those undesirable effects. Chronic lowering of groundwater levels that don't recover. That was important. Significant and unreasonable reduction of groundwater storage. Significant and unreasonable sea water intrusion.

And, of course, it was very important to stakeholders that we put these modifiers on there because they didn't want to find themselves challenged or upside down if there were de minimis impacts. So that's why each one of these is qualified.

Significant and unreasonable degraded water quality because you can have pumping in a groundwater basin that will actually draw in plumes of contamination if you're not managing properly. And this was a big one. Significant and unreasonable land subsidence that substantially interferes with surface land uses.

And probably the most controversial was if you had depletions of interconnected surface waters, if those depletions have significant and unreasonable adverse impacts on the beneficial uses of the surface waters. That was new for people, and very controversial. And if there are questions later on we can talk about that some more. So the recap is you had to form an agency. You had to develop a plan, and you have to implement the plan.

So agency formation had a lot of discussion, and what we started out with, and when I say we you had two authors. You had assembly member Dickenson, and you had Senator Pavley. And we were very fortunate that assembly member Dickenson had the Association of California Water Agencies that was working with us on the technical language that had come out with a very brave framework document, actually.

They had a whole raft of lawyers that we had sat down with, me being one, working with the author's office to try to work on actual language in the statute. There's a big gap between a framework, and statutory language, and we had to get there in a relatively short period of time during the session.

So meanwhile the California Water Foundation ,which was another group was working with Senator Pavley on language, and one of things folks said was, "Hey, in terms of the governance we'll see if these existing entities want to assume the governance."

"You know, these AB 3030 plans, the SB 1938 plans let's have a top-down where it's those folks, and if it's not those folks it's other folks," and then finally you would get to the county. Because not everybody might be under a water agency, but everybody was in a county.

Well, what happened is the stakeholders, again, this was locally driven said, "Don't tell us how we should put together our governance. Let us put together our governance. Maybe we want one agency in a basin. Maybe we want multiple agencies in a basin. Maybe we want one plan. Maybe we want multiple plans."

So that is how we drafted the statute. It was intentionally to allow folks to make those kinds of choices. The only thing that we required is that they coordinated with each other. They had to rely on the same data, and same kinds of assumptions in putting together those plans, but how they put together their agencies is up to them. The only consequence is they have 2.5 years to do so or the State Water Board can come in, and take action.

There's a whole lot more detail about agency formation, but very quickly those are the basics. The one other thing that we did is we recognized that there are agencies created in statute currently to manage groundwater basins. Like an Orange County Water District or a Santa Clara Valley Water District. The have groundwater management functions.

And we said for those folks we would recognize in the statute, and like the adjudicated basins by the way they are listed. It's not up to interpretation to see whether or not

somebody was meant to be covered. We actually listed folks for clarity. And so those folks are by default the Groundwater Sustainability Agency for their basin or sub-basin, and they are also listed.

The last thing that we did on the formation is we said the county would be the one that would be the Groundwater Sustainability Agency unless they chose to opt-out. And the important consequence is if the county opts out, and there is nobody else then you are an unmanaged area, and you can be required to report your groundwater extractions directly to the State Water Resources Control Board, and they can charge fees for that. So again, lots of local flexibility, but with a backstop.

On the plan development there's basically three different categories of timelines that folks are required to meet depending upon their circumstances.

You have to plan over a 50-year timeframe. You're going to have 20 years to get to your sustainability goal, but the due date for your plan depends on your circumstances. So under the Act what we're saying is that if you're in a chronically overdrafted groundwater basin you have five years to develop, and implement a plan. So you have until January 31st of 2020.

For all other high and medium priority groundwater basins, with an asterisk which I'm going to explain in a minute, you have seven years. So to January 31st, 2022. But because we understood that the interconnected surface water issue was so complex one of the final amendments that came in to the bill, and this was the third bill for those of you that followed this, SB 1319, the Governor's Office wanted us to allow additional time for people to work through interconnected surface waters issues.

The way that it works is that there cannot be enforcement against those folks for failing to meet the deadline for 10 years. So those folks have until January 31st, 2025. So depending on how you're situated those are the deadlines for adopting your plan.

Knowing that those deadlines are very short, the other thing that we did is we created CEQA exemption in the Sustainable Groundwater Management Act for the development and adoption of the plans. So those are CEQA exempt.

The CEQA exemption, however, doesn't include any of the projects, of course, that you would implement under a plan. It's for the development and adoption of the plan of itself. So that's the important part on that. And as I said before, you can have coordinated plans, but you have to use the same data, the same methodologies in developing those plans.

The last thing is that if you already believe that you are managing sustainably this has to be worked out in regulation, and Gordon's going to touch on it, but we have allowed under the statute that you could submit your plan, and say that it already meets the requirements of the statute.

So we're allowing for folks to actually submit by January 1st, 2017 an alternative plan that they believe already meets the Act's requirements. And for some folks like in Orange County Water District that's probably going to be very easy because they're the gold standard for groundwater management. But that's also a flexibility that we allowed under the Act for folks that already believed that they were sustainably managing.

Tools. The important takeaway on tools under the Act is that we created a lot of things that people could do if they wanted to do. And this is the important part. We said, "Here, you can charge fees if you want to charge fees. You don't have to charge fees. You can require reporting of your groundwater extractions, but you don't have to do that."

So we created a lot of tools that would allow folks to meet their sustainability goal depending on their particular circumstances, but we didn't mandate that people use those tools. What we did require is that they would have to report certain things to the Department of Water Resources.

Their groundwater elevation data, their annual aggregated data identifying groundwater extractions for the preceding year, surface water supply used or available groundwater recharge in lieu of use, total water use, and changes in groundwater storage.

But the way that they chose to do that we left up to the locals. But we allowed them to conduct investigations if they wanted to. To require extraction facilities to be registered. To require metering, as I've already mentioned. To requiring reporting of diversions to underground storage. To require land and water rights. To transfer, deliver, recycle water to achieve the goals of the plan, and importantly, to charge fees, and take enforcement actions.

So again, locally driven plans with a suite of tools that locals can use to meet those, and certain fundamental reporting requirements to the Department of Water Resources. But an important part that we also said is that these plans cannot supersede the local land use authorities of cities and counties, and that was an important aspect of the Act

GORDON BURNS Good afternoon. It's a pleasure to be here at this symposium. I've been asked to speak on the State's rule in implementing the Sustainable Groundwater Management Act. Some of my comments are going to build on Tina's, but some of them also are going to echo Felicia's, and you're even seeing a couple of the same slides. That's because we deal with the same issues, play on the same team, and steal each other's PowerPoint slides.

First I'm going to talk a little bit about the context in which the State sees the groundwater issues, and the Act, and then I'll talk about more specifically how the State's role plays out, financial and technical support, important regulations, the evaluation of local plans, and State intervention. That's the backstop.

But then I also want to touch on adjudications, which are not part of the Act, but have an interplay with the Act, and also are going to be the subject of proposed legislation this year.

So this is one of Felicia's slides, and the important thing to take away from this is that California has some significant hydrologic challenges. It rains mostly in the north in the winter in the mountains, but the demand is in the south in the summer. And also the rainfall or the precipitation varies considerably year to year.

So we have this elaborate system of state, local, and federal water projects to store the water, and to move it where we want it when we want it. However, because our climate droughts are a regular, and fairly predictable thing, and we're in the midst of, of course, a historical one right now. So being able to rely on that precipitation is not always a great plan. And additionally, climate change is going to make all of these challenges much worse.

This is a really interesting hydrograph of the 20th century precipitation year by year in the American River Watershed above Sacramento. Right in the middle you see 1956 Folsom Dam was completed. If you look at the hydrograph to the left, and compare it to the hydrograph on the right, you'll see that there were much larger precipitation years on the right.

These are years in which progressively we've been seeing less snow, more and larger rain events, and more volatility. So we've built much of our system for a hydrology that has changed since it was built, and unfortunately it's built in concrete so it's difficult to change.

groundwater is obviously very critical. It's our savings account for water, and in years when the surface water isn't there groundwater is a buffer against dry periods. It's also going to be an important buffer against the effects of climate change.

In this context groundwater is obviously very critical. It's our savings account for water, and in years when the surface water isn't there groundwater is a buffer against dry periods. It's also going to be an important buffer against the effects of climate change.

Statewide it's about 35 to 65 percent of our average annual supplies. Sixty-five in a very dry year. But additionally, that varies a lot regionally. And so, for example, in the central coast they have very little imported water, and little surface water. They rely on groundwater about 85 percent of their supply.

We also have a number of problems that helped drive us to adopting the Act, but problems with our groundwater that really are unsustainable trends that have been getting worse. And these are very regional as well, but they're locally very important. Sea water intrusion on the coast. Sea water intrusion since the '40s in the Monterey area.

We have areas of overdraft. The orange areas are indicated here. This is an old DWR map that's not been updated. It's being updated now, and if it were to be updated it would show quite a bit of additional areas in overdraft.

Subsidence. This is a map showing subsidence in the Central Valley. A few years ago the U.S. Geological Survey said that subsidence in the Central Valley was the single largest movement of earth caused by people in the history of mankind so that's a big deal.

Subsidence is also very expensive. If you rely on gravity to move water around, and the surface of the earth is changing that can play havoc with your system. That dam you see on the right is sinking six inches per year which is not what you want in a dam.

Also, groundwater overdraft can have significant environmental impacts. This is the Cosumnes River which always or ordinarily goes dry up in the late summer. It's fed mostly by rain. There's not a lot of snow melt in that watershed. But it dries up about a month earlier. It wets up again in the fall about a month later than it used to because it used to be supplied more by groundwater, but groundwater pumping in the area has detached the river entirely from the groundwater.

And so salmon that would normally go up the river in the fall have to go elsewhere here on the Delta. Get eaten, get lost. One of the drivers that's been particularly worse in this change is in demand, and I think Professor Dunning touched on this earlier, but there's been a huge increase in permanent crops going in on the Central Coast, and the Central Valley in particular. Almonds and wine grapes. These are wine grapes in Paso Robles.

There's two issues with this. One is there's a conversion of land that was formerly not irrigated to land that is now irrigated because they have the technology to do it effectively. It also is, generally speaking, cheaper land to buy.

The other problem with permanent crops is you can't fallow them because you'd lose this multimillion dollar investment. Unlike if you had row crops, and you're growing cantaloupe or something, in a dry year you can't just ignore it. You've still got to actually water the plants.

So Felicia touched on the California Water Action Plan with the unfortunate acronym CWAP. And this really is the blueprint that the Administration is using to organize our thinking, and this really is the driver of the way we put together our budgets. It's reflected in Proposition 1, and the way we're implementing Proposition 1. And the important thing to know about it is we're trying to think of these as interrelated problems that require a coherent approach across the board to get to solutions.

You can't simply address groundwater in and of itself. We have a fixed groundwater right passed in the Act. There's a lot of things we need to do with ecosystem restoration, work in the Delta with financing, with flood protection that all affect each other.

So the solutions to those problems only come when they can be thought together, and there are different parts of the government that are responsible for different parts of these. This is our effort to try to set a blueprint that allows us to think about them together, and to help people understand where we're going.

So now I'll turn to the Act, and this is the signing ceremony for the Act. It was signed in September, and as Tina mentioned the focus of it really is sustainable, local groundwater management. And so the big picture role for the State is to support the local agencies, and help them succeed. Sometimes that means friendly help, and sometimes that means giving them a little bit of a push.

This is some of the friendly help. Money. Local agencies always like money. And fortunately the water bond that just passed has $100 million for local groundwater plans. It also tracks the Water Action Plan, and funds a lot of those things that will more indirectly help the groundwater situation by funding improvements to the surface water system, et cetera.

The Act also includes local fee authority, and I would note here that Prop 218 makes it very difficult for local agencies to actually raise fees, and is a really difficult stumbling block.

The Department of Water Resources is going to be providing quite a bit of technical assistance. We provided in our budget this year a lot of money for them to staff up, to be able to do that well. They'll also be publishing technical reports, and best management practices. Things to help the local agencies.

The capacity of these local agencies, obviously can vary quite a bit. Some of them are very sophisticated. Some of them not so much. And some of them, they're small, and they're rural, and they have some catching up to do. And don't have a lot of data, and DWR is going to help them.

Very importantly, for you law students when you get out in the real world, and regulations are where it is at in a lot of areas, and the statutes become less important, and the framework, but it is the regulations that are the heart of it. And that's definitely going to be a huge part of the success of this Act, is what goes in to the regulations.

DWR is writing regulations right now due this time next year for people to make adjustments to those basin boundaries that Tina talked about. We know that those boundaries aren't perfect. They weren't actually made for this purpose, but they're pretty good. We want to allow a little flexibility for people to ask DWR to change them.

The most important set of regulations are going to come in what goes in to the plans, and how the evaluation process is going to take place. Those are key regulations that DWR is going to be issuing in about a year and a half.

Additionally, DWR as part of that effort is going to be writing regulations to talk about how local agencies need to deal with future hydrology, water demand, water supplies. Obviously, you can't have a plan that's going to work if the local agency identifies a big gap on how much water they need to be successful and they say, "But we're going to assume it's going to rain a lot."

So these regulations are going to set up some ground rules for the way that these kinds of assumptions, how reasonable they can be. The plan evaluation process is administered also by DWR. The statute itself sets it out in a skeletal way. Local agencies adopt their plans either in five or seven years.

They submit them to DWR for review. They're posted on the Internet so the public, and other folks can comment on it. DWR has two years to suss the submittal. There are about 100 high and medium groundwater basins that are going to be submitting plans. And the details of this whole process is going to be flushed out in regulations.

State intervention, this is the Four Horsemen of the Apocalypse.

State intervention, this is the Four Horsemen of the Apocalypse. A controversial part of the bill. But it was remarkable how much consensus there was that there had to be a bad guy, and I put the Four Horsemen up here because we used to talk about there needs to be a bad guy. There needs to be a scary guy. ACWA was completely in agreement with this.

We've had a voluntary system for the last 30 years, and it really hasn't done very much. There need to be consequences to local agencies. Not only to motivate them, but also to help them talk to each other.

When these agencies are trying to talk across their jurisdictional boundaries within the basin, and trying to make really difficult decisions about things that are going to affect their citizens economically, that's a very hard conversation to have when they would tend to protect their own.

But if the threat is, "Look, we need to talk to each other, and work cooperatively or the State is going to come in, and do that for us," there's not a lot of happiness about the State Board coming in, and doing that for them. And that changes the conversation. It allows them to work together.

There are four windows of intervention. If there's no local agency after two and a half years it covers the entire basin. No plan after five or seven years. If the plan is deemed inadequate by DWR or if in five-year increments they check in, and DWR deems their implementation of the plan inadequate in each of those areas the State Board more or less can step in.

So the local agencies control their destiny. If they come up with an agency, a plan, the plan's adequate, and if they're adequately implementing it, they have nothing to worry about. But when intervention does kick in the process is basically that the Board designates intervention as probationary. That triggers some reporting requirements. There's a cure period. The Board can appoint a mediator.

So the local agencies control their destiny. If they come up with an agency, a plan, the plan's adequate, and if they're adequately implementing it, they have nothing to worry about.

And then the Board can develop an interim plan, and the local agency can't get out from under the Board's interim plan until it adopts a plan that satisfies the Board as adequate. So in this process the Board controls.

The Sustainable Groundwater Management Act, litigation was really the only way to solve conflicts which is ridiculous. And adjudications are handled in the Act, but we are going to work on trying to make the adjudication process better. This is the dictionary definition of adjudication.

They're notoriously slow, expensive, and cumbersome. We intend to make them less slow, less expensive. The process has to be fair, but it also needs to harmonize with the Act. And one important thing to what Tina said. She said the Act carves out past adjudications, and that's true.

It does not carve out future adjudications. Future adjudications still have to conform to the Act. Those basins still have to have plans that pass DWR's tests, et cetera. So the adjudication process needs to conform.

And let's not kid ourselves. These are big, complex litigation cases with thousands of parties, dozens of attorneys, and a lot of people not economically motivated to get through it quickly. In fact, they're going to take a haircut at the end, and lose a lot of water. It's cheaper for them to pay their attorney to slow it down than it is to speed up.

So nobody should expect that these cases are ever going to be fast and cheap. Evelle Younger, the former attorney general used to say, "An incompetent attorney can delay a case for months or even years. A competent attorney can delay it much longer."

I'll close on one the same themes Felicia said. The reality of groundwater in California is that we've been irresponsible about it for a long time. It's too important a resource for us not to have taken more seriously, and our laissez faire, involuntary approach hasn't worked, and we really face a tragedy of the commons.

But the Sustainable Groundwater Management Act is the State stepping in, and committing to sustainable groundwater management, and setting up really a pretty good framework for doing so. For some local agencies this is going to put the wind at their back, and allow them to do things that they've wanted to do for a long time. For others it's going to be really hard, and they're going to have some difficult choices to make.

However, they're going to be hopefully incentivized to do it, and if they don't the State will come in, and do it for them. But they have been empowered to engineer a soft landing. And that's the key to the Act.

I just want to leave you with this last slide. This is our future with climate change. Our snowpack is shrinking, and groundwater is going to become more important. I think 20 years from now our biggest regret is going to be that we didn't start this sooner. Thank you very much.

PETER PROWS Hi, I'm Peter Prows with the law firm Briscoe, Ivester & Bazel. It's always a challenge to pick the picture in your first slide, and I was tempted to go with something groundwater-related. A pump or some water flowing, but really when you get down to what this Act is largely about it's going to be looking a lot like this.

City council meetings, county board meetings, a lot of meetings. A lot of public participation because the Act really does emphasize local control. That's where the legislation starts, and I think if the State had its way that's where the State would like to see it end as well, and not have to step in, and be the bad guy. So you're going to see a lot of meetings, and a lot of public participation.

We represent a lot of cities and counties, and water agencies. Public agencies up and down the state. I can tell you there is not one public agency view on this legislature, nor on anything. Just to give you a sense ACWA, the Association of California Water Agencies says it has 430 members that supply 90 percent of the water in California.

So there are hundreds of water agencies, and public water providers in the state. As Gordan was saying, some are eager for these new authorities, and some are going to have a really hard time. What I hope to do is just give a sense of some of the issues that, if you were a city attorney or county council, you're going to be thinking about as this legislation begins and gets underway.

As was mentioned, the first thing you have to figure out is, "Are you in one of these basins that is regulated by the Act?" The medium and high priority basins? And if so, you've got to come up with a plan or somebody in your county has to come up with a plan. And as was mentioned, the local agencies are the ones that are looked to first to do this.

But which local agencies? That's the decision that people will be facing first, and it's not an easy decision.

And I just noticed, I think it was on DWR's website, I saw that the Ojai Valley Water District became the first to elect to become the Groundwater Sustainability Agency for its area. So there's one down, at least 429 to go, but I guess we're off.

Ojai Valley Water District became the first to elect to become the Groundwater Sustainability Agency for its area. So there's one down, at least 429 to go, but I guess we're off.

Otherwise, other than those agencies that are specified in the Act any local agency – and this is the statutory language – "Any local agency or combination of local agencies overlying a groundwater basin may elect to be a Groundwater Sustainability Agency for that basin."

So that suggests that in some cases there could be at least the potential for multiple agencies, multiple plans. And that's were things get a little interesting. If nobody steps up the county is presumed to be the agency. If the county declines then the State starts getting involved as was mentioned.

So what if more than one local agency wants to do it? Well, they can cooperate. Form a joint Groundwater Sustainability Agency through a joint powers type of arrangement. They can come up with some other legally binding agreement on how to be the Groundwater Sustainability Agency for that area.

Private corporations. Essentially, private water utility corporations can also participate in these Groundwater Management Agencies with the consent of the other local agencies that are involved. But what if the agencies can't agree? That's where things get tricky.

I just wanted to give, as an example, San Joaquin County. Not that far away, but highlights some of the difficulties and issues that people are going to be facing.

The orange is high priority. This is from DWR. The yellow is medium priority. So all of San Joaquin County is a high or medium priority basin. You see the Stockton area is in a high priority, and then you get closer to Tracy, and it's medium. So San Joaquin County is going to be covered by the Act. That's pretty clear.

And now, this is the fun one. This is San Joaquin County. The colored areas represent the water agencies in San Joaquin County. There are 17 of them, and in some areas here there are no water agencies, but there are a lot. Some of them are big. Stockton East

Water District, South San Joaquin Water District. Those are big, fairly well-off water agencies. Some others are not.

Central San Joaquin Water District has had trouble paying its bills over the years, but you also have a lot of cities, and those cities each pump or at least many of them pump and supply groundwater as well. And they're going to have to decide whether they want to be a Groundwater Sustainability Agency. That's Stockton right in the middle. You've got Tracy down here, and you've got other cities in other places as well.

And you've got 17 agencies plus you've got the county so that's 18. Plus, you've got each of the cities. They're all going to be having to think about and decide, "Do I want to be the Groundwater Sustainability Agency for my area? Do I want to let the county do it? Do I want to work together with these other water agencies?"

And these agencies have sued each other from time to time. And there are some real problems in San Joaquin County related to groundwater.

Down here near Tracy the groundwater quality is terrible. There's high levels of arsenic in the water. Naturally occurring arsenic. In the Stockton area they've had saltwater intrusion related to groundwater pumping in the agricultural areas here. You've had a loss of groundwater storage potential in the agricultural areas caused by historic groundwater pumping.

So these are all problems that are going to have to be managed within the county, but again, you've got maybe 25 different agencies and cities, and governments that have got to figure out a way to either work together or defer to the county. And nobody knows how that's going to work.

In the past there has been some cooperation. For example, Stockton has worked with some of the agricultural water districts to address some of the groundwater problems. The saltwater intrusion, and the loss of groundwater storage capacity by importing more surface water. And there have been these efforts to cooperate, but there's also been lawsuits when that cooperation has broken down.

Do they want to cooperate again or if you are the City of Stockton do you want to say, "Screw those ag users. We want to do this ourselves, and take some control." Recognizing that when the ag users pump water they affect the city. So there are real challenges, and nobody has any idea how this is going to play out, but they have 2.5 years to figure it out.

Now, let me just add one other twist because we've got this process to have Groundwater Sustainability Agencies decide how they're going to set up. They're going to develop groundwater plans. And if you're a public agency, and you've done all those things, and you're managing your groundwater well, there's still something else that you may not have thought about. It's not in the legislation, but it's coming from the courts.

There was a case, this is a trial court decision from Sacramento County, *ELF v. SWRCB* (2014). Jim Wheaton's group, the Environmental Law Foundation brought this suit against the county and the State Board. And the court on cross-motions for judgment on the pleadings at the very start of the case ruled in favor of the Environmental Law Foundation.

And held – these are the two key passages – "[Codifies] the public trust doctrine applies to extractions of groundwater that affect public trust uses in navigable waterways," and, "Required the county as a subdivision of the state to consider public trust uses when issuing groundwater permits." So the trial court has imposed a public trust overlay on top of everything else that may be going on in this legislation.

There has been a petition filed in the California Supreme Court for writ of mandate at the pleading stage. That's kind of unusual, but there was a love-fest at the Supreme Court. Everybody except the State Board supported the petition. ACWA supported the petition. The Farm Bureau supported the petition.

The County, obviously, which brought the petitions for the petition as well as the plaintiff which won in the trial court supported the Supreme Court's review so we may well be seeing the Supreme Court decide whether in fact there is an additional public trust overlay on this legislation or whether the legislation essentially occupies the field, and does not require additional public trust considerations for local governments.

Session 5 The Role of Reasonable Use in the Russian River Frost Protection Litigation

Moderator: Tony Rossmann

Panelists: Nicholas Jacobs
Brian Johnson
David Rose

Vincent Vu Hi, everyone. My name is Vincent Vu and I am a 3L at UC Hastings. And I want to introduce our next panel, which is titled *The Role of Reasonable Use in Russian River Frost Protection Litigation.* The frost protection litigation has been mentioned a lot today, and so we're finally going to get to talk about it.

I want to introduce our moderator, Tony Rossmann, with Rossmann and Moore, also a lecturer at UC Berkeley, who is a leader in water reform.

Tony Rossmann Thank you, Vincent. And of course it's a very hard series of acts to follow. I'd like to know if part of Jerry Brown's, you know, second iteration in life was hiring the best graphic illustrators possible. Those PowerPoints caused me to rethink my general harsh attitude toward PowerPoint. We're not going to match that at all. I think that one of our panelists will have two pieces of PowerPoint.

Well, we are going to go from the general to the very specific, using the case of *Light v. State Water Resources Control Board* (2014), decided last year, which in some respects might seem like a replay, but in many respects not so, of the thorny litigation against the state board where the state board uses power under Article 10, Section 2, a constitutional provision to regulate the use of water for frost protection on the vineyards in the Russian River watershed.

> *Let me assure you that, in your next edition of your Water Law Casebook, whether you're a student or whether you're a coauthor, this case will show up in your casebook because it's clearly a gem of a case.*

Our panelists will describe the setting and then describe the conflict and how it was resolved. Let me assure you that, in your next edition of your Water Law Casebook, whether you're a student or whether you're a coauthor, this case will show up in your casebook because it's clearly a gem of a case that raised the standard, some great trends in California water law.

I will just mention, before introducing the panel, that while the ostensible subject of the panel and indeed of our day is the power of the state board under Article 10, Section 2, which by its terms is self-enforcing, and it enjoins all agencies of the state, including local agencies, in carrying out its provisions.

The case also has another dimension, which is the question of delegation of authority to those who are regulated. You will see in the description of this setting how that comes into play. And while our panelists will focus on the Article 10 section to the recent use question, the issue of delegation to the regulated is one that I think is going to emerge even more in our state. Certainly you could see hints of that in the groundwater sustainability agencies where the law authorizes private water districts to become part of a GSA.

We've got a terrific panel, for which I take no responsibility. Vincent and the Hastings students deserve entire credit for bringing together the principals here. Brian Johnson will be our first speaker. He has for 10 years worked for Trout Unlimited. For the last five years he's been very intensively involved in this issue of the use of water and its impact on the fishery resources in the Russian River. Brian has a very deep background before going to law school; and before working at Shute, Mihaly for a few years he was the avuncular communications director at the Council on Environmental Quality, at a time when CEQ really had some bang. So Brian brings a great background in environmental law.

Next is David Rose, from the State Water Resources Control Board, to whom Felicia has already passed all the hard questions. David has worked on some great cases at the State Water Board. I think most people in this room would cheer the fact that he prosecuted the case for the revocation of the water rights at Auburn Dam. And he also worked on the Mono Lake agreement to accelerate and enhance the restoration of the creeks feeding Mono Lake.

And finally, Nick Jacobs, who is a shareholder at Somach Simmons & Dunn. Nick was the lawyer representing the largest group of vendors in this litigation. And he's a graduate of Davis Law School, and a leader in the private water bar in Sacramento. So without further ado, we're going to keep these folks to the tight schedule. Brian, please begin.

BRIAN JOHNSON I like this better anyway. So I'm here mostly as the context person. And we'll be describing the story about how this rulemaking came together and what issues it was meant to address. And I think that there are a lot of things that fed into the design of the role that played out in the litigation that are more easily understood with some of this background.

So first of all, what is frost protection? It's a period in the late spring where it's warm enough that the vines have come out of dormancy and bud break has happened and they're starting to grow, but it's still cold enough that frost events happen. And that can be very destructive for a crop.

And the most effective and most commonly used way to protect the vines is to spray water on them at a pretty high rate, usually 50-gallon sprinkler heads on top of the vines. And there are some other technologies. The main alternative is fans. But these work only on some landscapes. It depends on the topography, and they don't work for all types of frost events. They work for the most common type of frost event, which is where we'll get a little inversion layer, and the warm air will rise, and the cold air will drop. And if it's a still night, and particularly in vineyards that are enclosed by forest, you get that event. But they don't work everywhere.

This is important because the rate of sprinkling is pretty high, certainly relative to irrigation, where irrigation demands for grapes are not that high. And it works out to about 1.1 CFS for 10 acres of grapes. And unlike irrigation, they're on all at once. So when the temperature drops toward freezing, they all go on. And so you've got a situation where a handful of frost events might equal the entire year's worth of water for other purposes, and they're all on, all at once. And there are about 20,000 acres of vineyards in the Russian River that are frost-protected by this method, at 1 CFS for 10 acres. So you can get a sense of the scale.

And for a context, the Russian River right now, I looked at the gauge data, is running at about 130 CFS up near Hopland. And a lot of the larger tributaries are running at about 10 to 12 CFS. And which means that the smaller ones that are big enough to have coho salmon or steelhead, but farther up in the watershed, are probably running from a half a CFS to maybe 3. And so 10 or 20 or 30 acres of frost-protected vineyards in that watershed would be all of the water. But of course it depends on how the grower gets the water.

So, and the State Water Board record starts in 2008. I first heard about this in about '05, '06, from some grape growers, when we were talking about cooperative projects for irrigation. There are references to it before, and of course the Napa situation in the '70s, which is relevant.

I'm going to talk about the means of water delivery, because it played into the fish kills and the type of regulation, briefly. So starting kind of at the most extreme form of risk for fish, classic direct diversion, where there's a pump right in the river that takes all of the water and applies it directly to the vineyard. And those existed mostly in the main stem river, where there's enough water to be able to do that.

And the fish kill that is mentioned in the brochure was up near Hopland, and it was those kinds of pumps. And there were several days of bad frost, and the river dropped 80 CFS out of about 200. You think about the shape of a river. When it's dropping like that,

the edges recede very quickly, and there were steelhead that were not very mobile yet because they had just emerged from eggs, and they're in the gravel. And so that was an issue.

there were several days of bad frost, and the river dropped 80 CFS out of about 200. You think about the shape of a river. When it's dropping like that, the edges recede very quickly, and there were steelhead that were not very mobile yet because they had just emerged from eggs, and they're in the gravel.

The second kind that was fairly well documented is a situation where folks have what are called fill-and-spill reservoirs – I'm going to go over time, but not very much, I don't think – which tend to be in the tributaries. And the issue was where the pumping out of the reservoir is greater than the inflow into the reservoir, and would then dry up below the reservoir while the frost event was happening. And there were some academic papers that documented this and the gauge data. And that's the type of delivery system there.

And then the one that I was most concerned about, and still most largely concerned about, were flashboard dams, where a stream channel may be the size of the square with abutments on the side, and people put flashboards in, and they take all of the water while the thing is filling, and then again during a frost event, depending on what inflow is like. The fish kills, the large one that was well publicized near Hopland, there was a smaller one that happened two years in a row that led to an ESA enforcement case. There were a bunch of reports and sightings and gauge data of issues. And so they led to a series of things, including the ESA lawsuits and a taskforce organized by wardens and NOAA enforcement folks, and calls for the State Water Board to get in the game.

The industry also did a tremendous job of rallying, and particularly the folks near Hopland pretty quickly built themselves off-stream reservoirs and more or less solved their issue. The tributaries were less well known and had a lot less progress. And there was one example that I know of that had three blue-line miles of stream and two flashboard dams and 20 acres of grapes. And it was never in the news, and it didn't make it into the administrative record. But we knew it was there, and we knew of others. And looking at the maps you could get a sense of what else was out there.

And by the way, both of those got fixed. One of them installed a fan, and one built an off-stream reservoir. But they weren't fixed at the time. And that set up the dynamic, because the Hopland growers in particular and Sonoma County growers at the same time were saying we can fix this. We've shown that we can fix this. We've already fixed it. Maybe there's some places where we haven't fixed it. But leave us alone, we can fix this. And the State Water Board – and the chair at the time, Charlie Hoppin, is a rice grower. Really, I think it's fair to say probably all the state board members really didn't want to

try to design a system where the state board had to identify all possible circumstances in advance and do all this work, but at the same time didn't have really any patience at all for the idea that there is no issue here or it's been solved or leave us alone and we'll solve it, but we don't have to talk to you about it.

And that led directly to something where there was a lot of industry engagement, but a design that had gauging and reporting to try to feed back and be able to document to the public that that would work. And that happened to be fine with me because it was consistent with all of my preexisting biases, too, about the ability of the state to do these things and wanting to work with industry.

TONY ROSSMANN David, why don't you take us into the State Board proceeding.

DAVID ROSE I'm going to talk a little bit more about the board's authority than how the board specifically used it in the proceeding. We've got this divided up so there's two parts. In the second part I'm going to talk about how the board is implementing the reg. But first, for the Water Board's authority, thanks to Paul Kibel for addressing some of this this morning. Now I can spend a little less time on it, a little more time on some other things.

First things first, I think you've already heard this before, but my statements and opinions don't necessarily reflect those of the State Water Board, its members, or the State of California, or really anybody else. I hope they overlap, but they're just mine. So about the State Water Board's authority, I'm going to disabuse Tony of the notion that everybody does really good PowerPoints here. But I did spend a couple minutes yesterday making this, so I'm going to subject you to it.

Starting with the State Water Board's authority, the first thing to talk about is that the State Water Board's permitting authority is not the measure of its other authorities. It's generally well known that the State Water Board's permitting authority doesn't apply to riparians and pre-1914 appropriate rights. That authority is generally found in Water Code Division 2 Part 2, starting with Section 1200. The Water Board's non-permitting authority, often reflecting the public trust, waste, unreasonable use, that's located elsewhere.

Section 275 was a big one for the court in the case that we're talking about here, *Light*. Section275 says, "The department and board shall take all appropriate proceedings or actions before executive, legislative, or judicial agencies to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water in the state." So that's every type of waste or unreasonable use, and it's every type of agency you could possibly have. There's only courts, legislative, and administrative agencies. So it pretty much covers it all.

I put Section 1051 up there because it talks about investigative authority that's similarly not limited to the board's permitting authority. The best or clearest statement that you have on the board's authority exceeding that of its permitting authority is *California Farm Bureau Federation*, 2011, where the Supreme Court said clearly, it couldn't have been much clearer, the board has authority to prevent illegal diversions and to prevent waste or unreasonable use of water, regardless of the basis of right under which the right is held.

I'm going to have kind of a laundry list of cases and decisions here, just talking about the board's authority. The Court of Appeal decision in *Light and Russian River Water Users for the Environment v. SWRCB* (2014) doesn't address half of these things. And what I'm addressing isn't half of what I could because there's plenty of board opinions that – Paul Kibel had mentioned a few resolutions and orders that talk about the same things. But if they didn't go to a court, I'm not going to bore you with them here. I only have 10 minutes.

Meridian was 1939. The board has authority to investigate all diversions, including riparian and pre-1914 appropriative water rights, kind of like Section 1051. *Millview* and *Young*, 2013 was *Young*, 2014 was *Millview*. *National Audubon* is a pretty big one that I think many of you have heard about before. *National Audubon* and *Environmental Defense Fund v. East Bay MUD*. That was 1977 and 1980. *National Audubon* and *EDF*, those two cases basically respectively stand for the proposition that courts and boards have concurrent jurisdiction over public trust and reasonableness.

There's two basic types of authority the board could be addressing or using here. If you've taken administrative law, then you probably know already. But administrative agencies can exercise in general quasi-judicative authority or quasi-legislative authority. Quasi-adjudicative is court-like, and quasi-legislative is legislature-like, as the names imply. The cases and statutes I've already talked about, as well as Section 1052, which is the board's Administrative Civil Liability or penalty authority, are generally reflecting quasi-adjudicative authority. Water Code Sections 1120 and 1126 provide for writ proceedings, review by writ to the courts of the board's actions.

I think it's pretty safe to say that, if a court can review a board's action on a writ proceeding, that the board can take that action in the first place. A couple of cases, *Hallett Creek* and *IID*, so *Hallett Creek* in 1988, *IID*, both sides of that, in 1986 and 1990. The board may address unreasonable use administratively.

So now we're getting into how the board has this authority to adopt this regulation. *CalTrout* was a pretty big decision about the authority of the legislature to enact statutes, which determine the reasonableness of water. So this is setting the stage for the board to exercise that quasi-legislative authority. Water Code Sections 100-102. This is basically a laundry list of statutes that lay out the board's authority over waste and unreasonable use. And that's what those add on top of *CalTrout*, saying the legislature can do this.

I want you to pay specific attention to Water Code Section 174, which says that, "The legislature hereby finds and declares that in order to provide for the orderly and efficient administration of the water resources of the state, it is necessary to establish a control board which will exercise the adjudicatory and regulatory functions of the state in the field of water resources." So Section 174 was heavily relied on by the Court of Appeal in the *Light* decision.

This is a laundry list of additional cases that in general talk about the board's broad authority. If you can't read them all, congratulations, it's not necessary that you do so. But that brings me to the main case that's already been brought up, *People ex rel. State Water Board v. Forni* (1976). And let me just explain that this case seems at first blush very similar to the *Light* frost regulation case in that in *Forni* the board had adopted a regulation, using its waste and unreasonable use authority, regarding frost protection. So that's what happened in the Russian River case. That mostly answered the question for the board. That was our opinion, that we had done it once, we could do it again.

There were a few differences, like that the *Forni* case came as an action for declaratory relief and injunction where the board brought the case after having adopting the regulation to try to get that enforced by a court. What the board didn't do in the *Light* case was, well, we didn't get that far. There was a facial challenge before we even did anything on it. But so there's a different posture between the two cases.

The other difference I want to point out between the two cases is that the *Forni* decision was in 1976. And at that time Water Code Section 275, I already pointed out, and Section 1052 had both recently been changed. And there was no Sections 1120, 1126, or 1825 or 1831. And those two have to do with giving the board adjudicative authority to do enforcement that it didn't have before. Before, if the board wanted to do enforcement, it went to court. So that's one way of looking at a difference between the administration of the regulation that the board did in *Forni* where it didn't have administrative authority to enforce, versus now where the Section 862 that we're talking about, it looked a little bit different, just because we do have the authority now.

I can briefly talk about one other difference between the two regulations. And that relies on this difference that the board now has the administrative authority, but it probably also relies on the difference in board members. And that's the delegation to the governing bodies. The way the regulation is structured, I'll talk about a little bit more in my second portion. The board was considered to have delegated, and the question was whether it was an unlawful delegation, some authority to governing bodies, which are essentially local entities.

The court in the *Light* case did look at that. And I'll get more into how and why the board did that in my next little portion. But it suffices to say that the court addressed that and looked at whether there was an unauthorized delegation. The court said an unconstitutional delegation of authority occurs only when a legislative body leaves the

resolution of fundamental policy issues to others; or, two, fails to provide adequate direction for the implementation of that policy.

The court went on to say the board clearly set out the fundamental purposes of WDMPs. It established detailed standards for the manner in which the government bodies are supposed to work and do the things they're supposed to do. And the board placed itself in between the governing bodies and the regulated growers. So I'm not going to talk too much more about whether it was an inappropriate delegation, but more of why we did it.

So the last point I want to make before I kick it over to Nick is to end with a quote here that sums up why I even subjected you to a PowerPoint. "The function of the State Water Board has steadily evolved from the narrow role of deciding priorities between competing appropriators to the charge of comprehensive planning and allocation of water."

So that's a quote from *National Audubon* in 1983. So my moral of the story, and the point of the PowerPoint, is that the court in this case, *Light*, was asked to look at the board's authority as reflecting only each of those independent dots. But what we asked the court to do was look at it as a whole picture, connect the dots, and – sorry to subject you to a pun in the form of a PowerPoint. But we think that was our view of the authority.

TONY ROSSMANN Thank you. Nick is going to take it from here as the attorney who represented a large group of the growers to describe how they responded to the State Board's initial action and how the Court of Appeal responded to his response.

> *for my clients, and I'm not exaggerating this, for many of them they felt this was bet-the-farm litigation. They were and they are very concerned that this is going to put them out of business*

NICHOLAS JACOBS Thanks, Tony. So I represented a large group of growers, but they weren't large growers. My clients were the small and medium-size growers in the Russian River watershed, family farms, folks that had as small as 30 acres up to a couple of hundred acres, but not the big boys. And the big boys didn't join the lawsuit for a couple of reasons. The first is that I think the bigger operators were able to, with economies of scale, handle the regulation. They felt they could handle the regulation in an economic manner. The bigger operators also are the names that you would recognize on the wine shelf. They're vertically integrated, and there were concerns that there could be boycotts and things of that nature if they were to show up in litigation.

But my clients were smaller. And for my clients, and I'm not exaggerating this, for many of them they felt this was bet-the-farm litigation. They were and they are very

concerned that this is going to put them out of business. So there were five main reasons why my group filed. We filed in Sacramento Superior Court. The Lights, which is a couple that lives up in the Mendocino area, filed in Mendocino Superior Court. And the cases were consolidated in Mendocino Superior Court.

The first issue that my clients had is that there were no other water users implicated by Section 862. The whole focus is on grape growers in the Russian River watershed. The fact is that Sonoma County Water Agency, for instance, operates the two huge reservoirs up in the Russian River watershed. The statute explicitly exempts any diversions above those dams and reservoirs.

Now, those reservoirs have had a huge impact on salmonid species, yet they're not part of the solution to the problem in 862. My clients and other growers and other organizations made extensive efforts to address the two fish stranding situations that happened in 2008. This whole regulation is about two fish strandings in 2008, 31 fish observed in one spot, 10 fish in another. And I'll talk to you about the study that gets cited over and over in every publication. It's cited in our introduction in the materials here that there were in fact 25,000 fish killed. And I'll let you be the judge about whether or not you think that study stands the test of pure science or not.

So these efforts that they made were the formation of the Russian River Frost Program, which was a group of growers in Mendocino and Sonoma County. It was the Russian River Flood Control and Water Conservation District, which holds water rights in Coyote Dam. Excuse me, Lake Mendocino, which is impounded by Coyote Dam. The California Land Stewardship Institute, the UC Extension, local county agriculture commissioners, California Farm Bureau, a lot of folks came together and spent a lot of time figuring out how to address the issue.

So one of the things that came out of that was that the Sonoma County Water Agency was cooperating in some regards with the growers on releasing water, but they didn't have the proper gauging such that they could make timely releases. The nearest gauge to Lake Mendocino was eight hours downstream by typical flows. And so they needed better gauging. And this group got gauges put in place that were much closer to the dam. They got money and they hired a weather consultant, who was able to give more accurate weather forecasts so that there could be planning and communication ahead of time.

The California Land Stewardship Institute and the Russian River Water Flood Control and Conservation District partnered on a grant application and were awarded $5.7 million to be used to do things like put in machines, putting in off-stream storage. Those projects to date have taken more than 90 CFS, cubic feet per second, of direct diversions for frost off rivers and streams in the Russian River watershed. And for context, the fish kill incident that is the subject of the study that is the impetus for this entire regulation, was on a night in which flows in the Russian River depleted it by 83 CFS. So these grants and these projects have taken more water off the river than was lost to the river that

night. The whole thesis of Section 862 is that rapid down ramping in the rivers strands salmonids; So keep that in mind.

So those efforts, the growers made these efforts, and then they felt like the State Water Board turned around and said, "That's not enough." And that didn't seem fair to the growers. There was – so let's talk about the science now. I'll call it junk science. The State Water Board relied on a report that was done by a biologist who spent one hour on one day at one spot in the Russian River watershed. He walked a hundred feet, and he counted 10 dead fish. He then went back to his office, and in his office made some assumptions and wrote a report.

The assumptions are that 25 percent of the Russian River watershed is similar to the hundred feet that he walked. And since he found 10 dead fish, that must mean there's a correlation, that there were dead fish in all the other 25 percent of the watershed. So he did some math on that. And then he took the 14 days in March and April of 2008 in which it was cold enough to frost protect, and he came to 25,000 fish kills. One hour, one day, one spot, and now you have a regulation in place that is going to have a huge economic impact. That is one of the other reasons why we filed suit.

So the State Water Board's own estimates for how much this regulation is going to cost the growers to comply with, for a typical 160-acre vineyard, which is not a huge vineyard, that's a nice small, medium-sized vineyard, $9,600 to $352,000 in initial compliance. And this was in the notice of preparation that the State Board issued. And then there are annual compliance costs beyond that, $3,000 to $36,000 a year every year going forward. There was a study prepared by a Sonoma State professor, an economist, that estimates that, if because of Section 862 there are crop losses, and the estimates here were 10 percent crop losses or 30 percent crop losses. They would happen because a farmer either was forced by the regulation to not divert water and therefore lose crops, or it was too expensive to comply with the regulation, and therefore he or she could not divert because that would be an unreasonable use.

So the study just says, look, if you had 10 percent crop loss because people can't comply, that would be $2 billion in economic losses annually. A 30 percent crop loss would be almost $7 billion. We're talking huge impacts. And these huge impacts are against the backdrop of the junk science. And really, from our perspective, the fact that the State Water Board did nothing and still has done nothing to figure out what conditions are necessary in the Russian River watershed to protect salmonids. There was an EIR prepared for this project. Nothing in the EIR about what do you actually need to do to protect salmonids. That has been put now onto the laps of the hundreds of farmers in the Russian River watershed to try and figure that out.

And that's the exact kind of analysis that could have been done in a programmatic EIR that would have given us a better EIR because we would have known what impacts. You know, if there needed to be lots of water taken off the river, then that means there would

need to be lots of construction activities, lots of windmills put in, lots of storage ponds put in. Conversely, if there doesn't need to be a lot of water taken off the river, if we're okay, then there would be less, and you could have an EIR then that would be more focused.

So those are the reasons why we filed suit. So the trial court decision came out, it was actually two decisions that came out, one in 2012, one in 2013. They were incredibly thorough and fair. The first decision was 41 pages. It's the most thorough decision, trial court decision, I've ever read in my career. And it dealt with these sorts of substantive law issues. There was then a subsequent decision that was 10 pages that dealt with the CEQA stuff. And they were combined into a final judgment.

And I say that the ruling was fair because in the ruling, this was, I believe, a very fair and balanced judge. She wrote, "Ensuring the viability of these species is not only a public trust mandate, but also a significant element in the environmental and economic stability for Sonoma and Mendocino counties." So I think she took a balanced approach to things. This is important. The trial court understood the regulation the same way that we did, which is the State Water Board got jurisdiction over riparian users, pre-1914 users, and even groundwater users in some contexts, but declaring those uses unreasonable.

So they said, that's our jurisdiction, and now we can make you do these Water Demand Management Programs. The Water Demand Management Programs are the heart of this regulation. They require, first of all, they require some paperwork saying who you are, what you are, where you divert from. They require the formation of what are called "governing bodies" that are supposed to oversee these water management plans. You're supposed to prepare a threat assessment for salmonid strandings. And then sort of the teeth of it is there has to be, if necessary, corrections put in place.

The way the regulations work, there can literally be a water demand management program for every single diversion in the Russian River watershed. There can be, like, 800 of these. And they're governed by farmers. And if you were to have, let's say that the farmers got together to try and get some economies of scale and to keep the cost down. They're going to have a board, essentially, governing the farmers, and at some point telling each other who has senior water rights. And I think you can imagine how that might go. "I have senior water rights." "No, I have senior water rights." So you do the corrective action. I'm not going to do that.

Anyway, so the court understood the same way we did. It's unreasonable. Therefore we have jurisdiction. So the key ruling really in the trial court decision was, the State Water Board has broad and extensive authority. But when the State Water Board declares your water use unreasonable, it has to do so on a case by case basis, for instance in a quasi-adjudicatory proceeding before the State Water Board. So you can present your evidence and say, "Actually, you know what, the way we use water for frost protection is not unreasonable. We don't use much water at all," or this and that. And it was based on significant case analysis, which I can't get into today.

I will talk a little bit about the *Forni* decision, which keeps coming up. David mentioned that was in the context of the state board really stepping in to protect grape growers in the Napa River. So the senior folks that were upstream, they weren't senior, they were upstream riparians, were taking all the water for frost protection in the Napa River, and the downstream riparians had nothing. And the State Water Board stepped in to help them. But the ruling at *Forni*, and you've got to read that, I've read that case like maybe 10 times. It is a very complicated and kind of weird case, to be honest. But this is important. To say that the court upheld the Water Board's regulation in *Forni* is not honest. The court chided the Water Board for arguing that it had jurisdiction over riparian users in particular to enact a regulation regarding frost protection, and the court said, "You know you don't have that authority because you came to us."

In the *Forni* decision, the State Water Board was the plaintiff. And they sued all the riparians who wouldn't comply with their regulation. And so the *Forni* court took jurisdiction over the case as if it were the regulation aside. It dealt with claims of unreasonable use because the court now had jurisdiction, and it referred to the regulation as mere policy. So I don't think *Forni* offers any support at all. In fact, as I'll talk about, the appellate court in the *Light* decision had to reverse *Forni* because *Forni* said that they didn't have jurisdiction, the State Water Board didn't, over riparians.

All right. The court also found that there was an improper delegation of authority to these governing bodies, in particular because these kind of decisions about who can divert water and who can't divert water is happening in the middle of the night. In the springtime, and there was nothing in place in the regulation that would ensure that water rights, senior water rights, there was a proper oversight of that. And similarly, the court found that there had been a violation of the rule of priority for senior water rights on the same basis, essentially that there was not going to be any proper oversight. There were also secret rulings in our favor. I'm not going to get into those.

Important for our case was the *El Dorado* case out of the Third District Court of Appeal, which said that there's a State Water Board, and the legislature – the public trust doctrine and reasonable use doctrine, they trump the seniority water rights. But when that happens, every effort has to be made to honor the rule of priority. And so that was something the trial court focused on. The Court of Appeal decision took a fundamentally different approach. And what I mean by that is the Court of Appeal decision said, you know what, Section 862 does not declare any water rights unreasonable, any uses unreasonable. The Water Board simply has that jurisdiction to require these water demand management programs on every kind of water right.

So that was a change from the trial court, which said, well, you tried to get jurisdiction by claiming unreasonableness. The Court of Appeal said they don't have to do that. They have that power. Like I said, the Court of Appeal reversed the *Forni* decision to get to the point that the State Water Board has jurisdiction over riparians. I think the most interesting part about the Court of Appeal decision was an unexpected reliance on

my part, I didn't expect this at all, on Water Code 174, which is the enabling statute for the State Water Board.

And here's is the key sentence in the case. It says, as discussed above, the remaining provisions of the Water Code as construed by decisional authority vests in the board broad adjudicatory and regulatory powers and suggests the board's regulatory authority is coincident with that of the legislature. I think that's a change in the law. And I think that that, if upheld in future cases, gives the State Water Board quite broad jurisdiction.

On the science issues, the Court of Appeal acknowledged there were issues, but it was "coarse but correct." I hope our science is better than "coarse but correct." What else? There were some misrepresentations of our arguments that I won't go into. There was some clarification that the State Water Board is going to resolve disputes about the water demand management programs and disputes within them, which is not in the regulation, but the court clarified that. And it okayed the delegation of authority to these governing bodies to do the water demand management programs, again, interpreting the regulation to allow the State Water Board oversight, therefore proper delegation.

The Court of Appeal really didn't take a hard look at the trial court's take on State Water Board – or any court, anybody taking water rights away, vested water rights away, needs to go on a case-by-case basis when applying the reasonable use doctrine. But the opinion was clear that, while the regulation is facially valid, its application on these case-by-case WDMPs, Water Demand Management Programs, it still has to comport with all applicable laws. And so I think we could see some interesting things come out of that.

One thing that Nick and I would agree about, and we probably wouldn't agree about a lot of it, was that there was a much greater degree of confidence in the process and acceptance of the outcome by the bigger grape growers.

Brian Johnson One thing that Nick and I would agree about, and we probably wouldn't agree about a lot of it, was that there was a much greater degree of confidence in the process and acceptance of the outcome by the bigger grape growers. And I think there were smaller grape growers who were all over the place, too. But the folks who had the scale to have professional staff who could be following it, and I think probably assumed that they would have a lot of say over how the programs got implemented, were definitely more comfortable. I think some of that was because they knew more about it, but also because they knew that they had the capacity. There was also a lot of effort to, for lack of a better word, to spread those costs out through the industry and to have ways for the whole industry to pay for the program.

And in Sonoma County the folks actually went with my organization and some others and got the Board of Supervisors to adopt an ordinance that basically would tax them to pay for the monitoring program. And I'm sure we didn't use the word "tax," but there was a transfer of funds, you know, that would go to the county. And they were going to be collecting the gauge data and also the monitoring data, which was good for the industry because having that go directly to the regulators, you know, was seen as a challenge. And that was in place.

And we were at the point of picking the gauge locations, and we were working through some confidentiality issues, when it became clear that the litigation was going to happen anyway. And so we didn't close those, but I think we could have. But it wasn't going to head off the litigation, so we kind of put it on the shelf. And, but I think that actually would have covered, and may be able to be revived, covered a lot of the transaction costs. And that was part of the reason, one of the reasons why folks felt like the rule had to start out by covering everybody was because of the cumulative nature of it. It's hard to look at one by itself and say they're obviously not a problem. And the other reason was that we all knew of a few diversions that were risky, that people hadn't talked about, but we knew they were out there, like the example that I used.

And so the board and the big growers really wanted to start with a list that included everybody and then sort from there. And so when the litigation started, Sonoma County repealed the part of the ordinance that had the tax and the payment for the gauges, but kept the registration. And so we have that data now. And I think the sort will go pretty directly to – I think there are maybe 30 or 40 direct diversions left. And it's hard to tell how many flashboard and sort of onstream. But it's a fairly confined world. And there probably will be a pretty quick sort to the really deep wells and folks with off-stream storage, that they're not much of an issue. And if we had been able to design it in a way that they believed that they wouldn't have much of an issue, there might have been a lot less opposition to it.

But if you're somebody who's a husband-and-wife kind of grape grower with 10 acres, and they tell you you're not going to be able to divert until you get approval, and it's a little bit unclear what the approval process is going to look like, and you're going to be a part of a program that's run by Gallo and Kendall Jackson, you can see why people would get pretty nervous about that. But I'll go out on a limb and say nobody's going to lose their farm. And the things will probably not be smooth, and people will spend more money than they want. But that's kind of how it went.

Tony Rossmann All right. David, having heard all that, where does the State Board go now? And one question I'll ask in advance I hope you can cover. The issue seems to be not that the State Board couldn't do this directly, but it was a matter of convenience, if that's not too strong a word, to delegate this to the growers themselves. Could the State Board have done this directly? But before getting to that, I think please let us know just what is the current state at the State Board now.

David Rose Sure. I had some things prepared before, but I've been tasked with answering a lot of questions by Felicia and you and other people. So I'm going to try to tie all of those things up. Let me start with a little bit, it's been talked about a little bit, how the reg is actually implemented. So the reg sets up the ability or asks people to either themselves or to create a governing body to create a water demand management program, or WDMP. So that can be either an individual or a governing body. The board structured it that way with the hope that people would come together for economies of scale and work things out because this is a cumulative problem that we're trying to address here, not an individual problem. If it were individual, we would have done it quasi-adjudicatively. But that's not at all what the issue was that we were addressing. But the board allowed individuals to come in with their own WDMP, just so that nobody would be left out in the cold because they couldn't join somebody else.

We hoped, and still hope because it's been three years since we adopted this, and we're only implementing it now that the litigation is done, that we won't be dealing with hundreds and hundreds of individual WDMPs. And I think we have reason to expect that, both because the more savvy people, the farm bureaus and everybody else in Sonoma County who are working on this are going to try to get people together, and people would, I think, in general, rather just join something that exists than do all of their own work; but also because there are five main aspects to a WDMP. And some of those really do involve coordination. So if you're doing your own individual WDMP, you are going to, by necessity, going to have to coordinate with everybody else on the same stream system.

So let me briefly say the five main points of a WDMP are an inventory of all the diverters and their diversion info; a stream stage monitoring program where you actually go in, put in some gauges, and get some data; a risk assessment that you do in coordination with the fisheries agencies to determine whether there's even a risk of salmonid stranding mortality from your diversions. It's entirely possible that in many places everybody turns on the pumps at the same time, and there's no impact. I think Nick alluded to the extrapolation from the fish kill was that in 25 percent of the Russian River there would be the same situation. So that means potentially in 75 percent of the Russian River, everybody could turn on their pumps at the same time and have no impact. But we don't know that yet.

The last two points, corrective actions, were a major bone of contention. But that's the teeth to it. Something has to be done if there's a determination of risk. And annual reporting. Four out of five of those things are about information gathering. And you heard in earlier panels how we need information. Well, we didn't have complete information. We still don't. So we're trying to get it to determine whether there is in fact a risk and what people can do about it. Again, this is a cumulative problem. But to get closer to your question, although maybe not exactly answering it, we had a whole panel this morning on collaboration. And I don't think it came down to the board thought it could do this in one way or the other, but the board wanted locally managed solutions. The board, you may have heard them say this before, is very big on locally managed solutions. And the board rejected voluntary agreements because they didn't have the enforceable backstops.

So what the regulation does is it provides for local solutions. We didn't tell anybody what to do or how to do it. We said, "You've got to figure out if there's a risk and then do something in order of priority." But that's what the board wanted. And so that leads me into a very brief discussion, which is entirely conjecture on my part and will refer you back to my opinions don't necessarily reflect the State Water Board's. This tool, I don't think our perspective is that it's a new one. But now that it's been upheld, the board has adopted a regulation, and that regulation provides for delegation to local entities to come together and address a cumulative problem. And it has a waste and unreasonable use backstop such that it's going to apply to everybody who needs to participate in the solution.

So what the regulation does is it provides for local solutions. We didn't tell anybody what to do or how to do it.

And our perspective was it was a waste and unreasonable use if they didn't coordinate. I mean, your two options are you consider doing everything individually, or you coordinate. It's unreasonable not to. So that was our perspective. But that process, the type of regulation the board adopted, it's not a tremendous sword going to solve all the problems in the future. But I think it's certainly relevant going forward because the board does want local cooperative solutions amongst people who are on the ground and better suited to decide what's going to work from them, but also needs this backstop.

You could look at the groundwater legislation to see a similar model. Certainly it wasn't based on the regulation. I'm not going to even pretend that major, major groundwater legislation was based on our little reg. But the process is one that I think is going to be very important going forward. A couple of examples, Felicia Marcus already mentioned and told me to talk about but I'm not going to specifically, is the board adopted three different emergency regulations this summer that relied on the same basic authority and took a similar approach. The one on Deer Creek and Antelope Creek asked for local cooperative solutions to determine whether something needed to be done or how people would address these belly-bumping or belly-scraping flows for very high-priority threatened species on specific watersheds. This is not a statewide reg, this particular one. This was three very high-priority watersheds where it was determined that something had to be done on an emergency basis. And it used a similar process to the frost reg.

Two last points to make. Let's leave it at one last, well, two last points to make. CEQA's going to be an issue if the board wants to use this again in the future. I didn't work on this for the first three years of from 2008 to 2011. Another attorney did, and then I was lucky enough to get involved when she went on maternity leave and got to respond to all the CEQA comments. And so now I know a whole lot about the reg because, if you respond to CEQA comments, you're going to learn about your project pretty quickly. For the emergency regs we adopted this summer, CEQA was suspended. But for permanent

regulations like the frost reg, well, CEQA's out there, and it's kind of a big deal for how quickly things can move.

The last point I want to make, maybe only a handful of you are curious about this, but like I said, we were hoping we wouldn't get 800 individual WDMPs. Right now we've received one WDMP submittal capable of covering substantially all affected Sonoma County growers. And we've been in discussions on two separate WDMPs, separate in they work together addressing different areas that are together capable of covering substantially all affected Mendocino County growers. So it is possible at the end of the day we could see three WDMPs that together cover everybody covered by the reg.

TONY ROSSMANN That's a great way to conclude our presentation here, to show that this panel and the last panel have a lot in common. And just speaking as an outsider, I think the state is going to be watching how successfully this program works as sort of a harbinger of how well the premise of the groundwater legislation is going to work. So we have time for a few questions here. And I hope that this discussion has engendered some questions.

We have time for one question. Better be a good one.

NICHOLAS JACOBS Tony, I'll say something if there's no question.

TONY ROSSMANN Well, I didn't give Nick a chance to reply, so I don't know if you want to use that one section.

NICHOLAS JACOBS All right. Let me just give the last word here, which is what's up next. So what's up next is there is a three-year phased approach to phasing in these Water Demand Management Programs, information gathering in the first year, and then second and third year getting down to details and corrective actions in place by the third year. So that's what they're working on right now, and you continue to talk about how that's going.

I think, again, the biggest thing that came out of this case is this language that says the board's regulatory authority is coincident with that of the legislature. And so what does that mean? Does that mean that tomorrow the board can adopt a regulation that it requires permits for riparians and pre-1914 appropriative rights? I mean, the legislature could do that; right? So I don't know. This is very strong language. And I don't know where it's going to take us.

SESSION 6 ADVANCEMENTS AND CHALLENGES IN AGRICULTURAL WATER USE EFFICIENCY SINCE 2009

Moderator: Katy Spanos

Panelists: Mark Atlas
Claire O'Connor
Peter Brostrom

ADAM BORCHARD Good afternoon everyone, and welcome to the final panel of the Symposium.

My name is Adam Borchard. I'm a third-year law student at Pacific McGeorge School of Law. At this time I would like to introduce my panel co-chairs from McGeorge, Adam Silva, Jaclyn Shanahan, and Kayla Cox. I would also like to thank Kronick, Moskovitz, Tiedemann & Girard for sponsoring this symposium and Golden Gate Law for organizing a terrific symposium this year.

Our panel is titled *The Advancements and Challenges of Agricultural Water Use Efficiency Since 2009*. On our panel we have three speakers and a moderator, Katy Spanos, who will frame the topic of our presentations.

Katy is a former Assistant Chief Counsel at the California Department of Water Resources, and she continues to serve at DWR. Her past duties included management and supervision of legal work related to the state water project contracts, water banking and statewide-integrated regional water management programs. More recently she has been the lead DWR attorney on climate change and agricultural resources issues including developing an agricultural land stewardship program as part of the Bay Delta Conservation Plan. Katy graduated from the University of Michigan and received her J.D. from UCD's King Hall. Law School.

Our first panelist is Peter Brostrom. Peter is a Chief of DWR's Water use Efficiency Program that is responsible for a number of key state programs, including agricultural water management planning, the model efficient landscape ordinances and water use efficiency grants and loans. Peter just finished his 13th year at DWR. Prior to joining DWR, Peter managed an organic grain farm in Sutter County, conducted cropping systems research at UC Davis and served as a Peace Corps volunteer in Burkina Faso. Peter has a Bachelor's Degree in Plant Science and a Master's in Soil Science from UC Davis.

Our second panelist is Claire O'Connor from the Natural Resources Defense Council. Claire is an attorney and the agricultural water policy analyst in the NRDC Santa Monica office. Claire grew up as the fifth generation of family farmers in rural Nebraska. She is a graduate of the University of Nebraska in Lincoln and of Georgetown University Law Center.

And our final panelist, but not least, is Mark Atlas. Mark is of counsel at Downey Brand. He counsels water and irrigation districts in the San Joaquin Valley. His clients include public and private water rights holders and contractors with the Central Valley Project and parties to proceedings before the State Water Resources Control Board. He has appeared before federal and state legislative committees on matters affecting federal reclamation law, the CVP and state water rights issues. He is a charter member of the advisory committee for the Family Farm Alliance, a non-profit grassroots organization of family farmers committed to preserving the tradition of irrigated agriculture throughout the West. Mark holds undergraduate and law degrees from Santa Clara University.

KATY SPANOS Thank you, Adam. And thank you, panel members and audience. It's been a great day. I think there have been a lot of really good discussions. And we're going to try and round it all up at the end.

Just a few comments and thoughts as we move into this panel. Although agriculture is a relatively small part of California's economy, it has significance way beyond that percentage. It's part of California's heritage, its history.

Agriculture is the largest user of consumptive non-environmental water in California. We'll be talking about that.

Climate change, with its potential for more severe and longer and more intense droughts is going to reduce the amount of water available to agriculture and all other sectors as we move forward.

Agricultural water is often used and reused several times, and is critical to maintaining and sustaining many of our wildlife resources.

Agricultural efficiency is important, but alone it will not solve California's water problems. It is an essential part, however, of the water supply and water use picture.

As you think about the presentations already given today and about the ones you're going to hear, I'd like to bring to your attention a recently released document, the California Water Plan. This is not the Water Action Plan that Felicia and Gordon talked about. This is a larger, more factual document. It comes out every five years. It's produced by the Department of Water Resources, but is a collaborative process including hundreds and hundreds of different people involved in putting it together.

The plan was just released in December. This is sort of what we call the placemat summary, kind of what the plan is, what the actions are. And because of the importance of the Water Action Plan and the California Water Plan, it shows how the California Water Plan, the big document, supports the Water Action Plan, the 25-page plan that was talked about earlier.

There are copies of these out on the table outside, and I encourage you to take a look at them. In the context of this plan, Secretary Laird said, sort of putting us in the context of what's been going on today, "The extreme drought gripping so much of California reminds us of the importance of the plan. Three years of dry weather are enough to force farmers to fallow hundreds of square miles, leave some small communities with dry taps and jeopardize coldwater species. Clearly we cannot take our water resources for granted. To meet the needs of a state as ecologically, economically and geographically diverse as California takes collaboration planning on a huge scale."

And following up with the words of Mark Cowin, the Director of DWR, "To manage our water wisely, Californians need a shared understanding of our challenges and a vision for the future. The California Water Plan update delivers that and creates a path forward."

And what does that have to do with what we've talked about today and about reasonable use? I think that most of the speakers, most of the panels have made the point that reasonable use is viewed in the context of the situation, of what we know, what other users are involved in, what our climate, what our geography, what our cultural communities are. And this report is certainly not the only tool, but is a significant and important tool for bringing all this information together as we try to collaboratively solve our problems in the future.

With that, I'm going to turn to Peter, and we'll talk about agricultural efficiency.

PETER BROSTROM Good afternoon and thank you for staying on with us here at this last panel. I think it will be interesting. There are a lot of misconceptions, I think, in the general public about Ag water use efficiency, and what it can and cannot do, so I hope we can cover some of those issues today.

So I'm going to provide a little context in terms of what is agricultural water use in California. And we go back to 2010, which is probably our most recent normal year when we received 210 million acre-feet of precipitation across the state. Of that, Californians either diverted or pumped 41 million acre-feet for human uses, either agricultural or urban. The other 170 million acre-feet were transpired or evaporated in our forests, native vegetation or flowed out in our rivers to the sea. So that's kind of where human use fits into that overall precipitation in a normal water year.

Of the 41.2 million acre-feet, roughly 32.9, 33 million acre-feet were used by agriculture, and 8.3 million acre-feet were used for municipal or industrial purposes. And there were

8.6 million acres irrigated that year, or estimated to be irrigated that year for agricultural purposes. And that production, that irrigation accounted for roughly $37.5 billion in cash receipts in additional money or revenue in added value in canneries and where products are manufactured or produced based on agriculture.

Looking at the crops that were produced, and this chart is a little misleading. California grows over 450 different crops, which I always find interesting. When I was a freshman at UC Davis years ago, they said there were 250, and now suddenly we're at 450. And so I don't know if we're growing more crops or defining them a little differently, so now suddenly we're talking about five different varieties of kale.

But the first category here, fresh vegetables, is not really even fresh vegetables. That's truck crops and that includes nurseries, a conglomerate of a bunch of these different small crops. Really on the scale, and this is where it's grown. And I think even when we get new data in this year, the nut crops, almonds and pistachios, have now taken over in terms of crop area, over a million acres between the two.

Close behind that is alfalfa. And someone earlier today said maybe in the future that would be sort of a fancy or a taste issue. But as long as we're drinking milk, we need alfalfa grown in the state.

Vine crops, both fresh table grapes and vineyards, have increased dramatically over the past few years.

And one that people don't often thing about is irrigated pasture. A lot of acres in the state on irrigated pasture, primarily for beef cattle.

Corn in 2010, the price was high. I don't think we would have that many acres in 2014. The price has dropped significantly.

And then other tree crops, like walnuts, apples, peaches, have increased significantly. In the past, cotton, these grain crops were a much bigger part of our cropping picture. And now you see that they've dropped lower as we've made this switch towards more permanent crops.

And that makes it harder during drought years to manage our water supply. In the past we could fallow more. Now with permanent crops, we have to find a water source for those trees.

So what is agricultural water use efficiency? There are really two components – on-farm improvements and agricultural water supply improvements. On-farm improvements can include irrigation scheduling – making sure you're applying the water when the crop needs it. Irrigation system improvements, going from surface to drip.

And then land management. I think often overlooked are the big benefits we've seen from laser-leveling that came in in the '70s and '80s and really smoothed out our fields so that you can more accurately furrow or surface-irrigate.

In the past we could fallow more. Now with permanent crops, we have to find a water source for those trees.

And then at the agricultural water supplier system level, canal-lining and canal automation and management have been regulated in reservoirs so there's not as much – you have better control of your water as you're delivering it to farmers.

So you're going to see this slide three times, because I think it shows what the state has achieved. And it's from the California Water Plan as Katy referenced. And it's showing irrigation systems over time. With surface irrigation decreasing from – and then drip and micro sprays increasing. Some of that is due to the change in crop patterns. Field crops tend to be surface-irrigated, and our new orchards that are going in are almost predominantly on drip and micro sprays.

So how do we support agricultural water use efficiency? One of the big projects at DWR is our CIMIS system, which has over 145 weather stations throughout the state, and then a satellite system called Spatial CIMIS, which produces a map like this. And the colors aren't quite as clear on the screen, but it shows the total transpiration across the state on that day. And there's daily maps produced, using the system on a 2-kilometer grid. So it provides accurate information for farmers to schedule their irrigation.

You see cooperative extension. There are farm advisors in every county who provide valuable assistance to farmers, both in irrigation and crop management.

Resource conservation districts, again, at a county level offer assistance for irrigation efficiency improvements.

And then there's financial assistance. The National Conservation Service, which used to be the Soil Conservation Service, has EQIP grants, and has been giving out millions of dollars a year for suppliers to make improvements in their irrigation system.

The state has had a number of grant programs, primarily at the water-supplier level, and those include Prop 13 and Prop 15. And then in Prop 1, there's $100 million for both Ag and urban water use efficiency. And then just this year, there's $19 million available through the AB 32 Cap-and-Trade Auction funds.

So we were asked to talk a little bit about SBX7-7 and the AG Water Use Efficiency Requirements. Really have three components to it. One, it required large agricultural

water suppliers, those that irrigate more than 25,000 acres, to submit agricultural water management plans to the Department every five years. The first set of those were submitted in 2012, on the five-year cycle. The second set will be due at the end of this year. Roughly 56 suppliers across the state are required to submit. In 2012 we received plans from 40 of those. And we anticipate – 2012 was the first year – we anticipate receiving a much higher percentage this year.

The second big component of that was agricultural water measurement, where the same large suppliers are required to measure farm-gate deliveries within their district. This is a big requirement, and there are some big costs to do that. I had a call from District in the San Joaquin Valley wondering about Prop 1 funds. And they have 4,000 turnouts, farm gates. And they're estimating that it'll cost them roughly $40 million to implement that, and their annual budget is $11 million. So they're very interested in grants and loans to make that happen.

The third requirement was for DWR to develop a methodology to quantify agricultural water use efficiency. We completed that in 2013. And that's a report that's out there and available.

Going on quickly, to think about some statewide considerations with agricultural water use efficiency. One of the big things – and kind of the difference between Ag and urban is really at plant physiology itself, that leaves have stomates on them. And out of those stomates, or through the stomates is how the plants breathe. They take in carbon dioxide. But that's how they release water, water vapor, to cool themselves off. It's the same pore. So when plants are stressed, they close those stomata, and carbon can't enter. That stops growth that stops production.

So in general, if you try to stress or cut back transpiration on your crop plants, you're reducing yield. There are some crops where that works, but that's almost specifically where you want a smaller plant, wine grapes being the clear example.

Wine growers do not want a big bushy vine. They want small berries where the sun can get in and not let them get moldy, or the humidity build up in that canopy. There, they're going after the price of those berries. The yield of the berry, the yield of grapes goes down, but they get a higher price for these stressed, restricted vines. And so that's one crop where deficit irrigation really works.

With most of our crops, you see a direct reduction in yield as you reduce the water use.

A couple quick points here. One, water is really only lost from the system through evaporation or flows to salt sinks. Recoverable loss is tail water. It gets picked up by another grower. So on a watershed basis, you may have a farm that's at 50 percent efficiency, but basin-wide, because, as Katy said, that water gets reused all the way through, it can be up into 90 percent when you look at it as an entire watershed.

The same thing. A lot of our groundwater is recharged from agricultural irrigation. That water is moving back down into our aquifers and is available for reuse again.

And finally there's multi benefits with water use efficiency – water quality improvements. In some cases you can have energy reductions, dependent on kind of embedded energy in your water supply. It takes energy to pressurize water for drip systems. If you're pumping water from the Delta to San Diego, you definitely cut down your energy use by going to drip. It's not so clear up near Chico, where a lot of it's gravity-fed.

And finally, huge increases in productivity from going to drip or agricultural water use efficiency. Better management generally yields better yields and labor savings as well.

CLAIRE O'CONNOR I'm Claire O'Connor, I'm an attorney with NRDC, and I work on food and water issues there, including some Ag water use efficiency here in California.

I want to thank Adam and the McGeorge students for putting this panel together and for inviting me to be a part of it. And I want to thank all of you, who gave up your Saturday and are still here talking and discussing these important issues for our state.

So I'm based in NRDC's L.A. office. And I remember about a month ago, it took me nearly an hour to drive just 5 miles home from work. And, yes, that's bad even for L.A. There wasn't an accident, there wasn't road construction. It was raining, which apparently is a huge traffic issue for that crazy city.

Now, I'm originally from Nebraska where, when it snows 6 feet, we just get in our tractors and plow our own way to school – uphill both ways. But that day I was so happy about the rain that I couldn't even be mad about the traffic.

But despite the rain that day, as you've heard multiple times today, and probably are well aware if you're here at this session, we're still in the midst of a very extreme drought. In fact, 94 percent of the state is still in severe drought or worse.

And as tough as the drought has been on all of us, and on farmers especially, it's not like we didn't see it coming. Peter mentioned a little bit about what the legislature did back in 2009 to help us prepare for dry times like this.

So I guess just to recap a little bit, the Water Conservation Act, or SBX7-7, basically asks large irrigation districts to do three things to make themselves and their customers more resilient to dry weather.

The first is they were supposed to adopt a plan to help them come up with strategies to deal with dry periods and describe which efficiency practices they were using. Second, they were supposed to start measuring deliveries to their customers. And finally – I don't

know if Peter mentioned this or not – but districts are also supposed to start charging their customers based on the amount of water that they're using, instead of using a flat rate or a per-acre rate fees.

So after the first round of water management plans were due, NRDC partnered with the Pacific Institute to take a look through the plans and see some of the different strategies that different districts had come up with. We thought we'd kind of look through, kind of compare and contrast what each district was doing.

But this proved to be more difficult than we thought, because at the time, which was six months after the plans were due, there were just a handful of districts that had turned in their plans. So we really didn't have much to compare and contrast. And even now, more than two years after the plans were due, we're still waiting on almost one in five plans.

Similarly, of all the districts that actually did turn in a plan, about 17 percent actually state in their plan that they're not measuring deliveries, and they don't even have a corrective action mentioned in their plan.

And finally, almost one in four stated in their plans that they're not pricing volumetrically, and again, didn't mention a corrective action plan.

So for these districts, the Water Conservation Act really wasn't much help during this drought.

Another challenge to building resilient farms in California is that, although we've made some improvements, we're actually lagging behind some of our peers in terms of irrigation technology. Over half of California's irrigated acres are still irrigated using gravity systems. And that's not to say that gravity systems are always bad or never the right fit, but other relatively dry Ag states are more in the 20 percent range for gravity.

Similarly, 5,300 California farms are irrigated based on a fixed schedule. Peter already mentioned how timing your irrigation to when the crops actually need the water can be a huge benefit for crop productivity and for water efficiency. So this is another challenge that we're facing as a state.

And these two numbers are really related, because modern systems, like drip or the micro sprinklers, work best when water can arrive to a field pressurized and more on-demand. So until the irrigation districts deliver water that way, it's going to be really tough for farmers to convert more away from gravity and toward the lower-flow systems.

But the upshot of lagging behind our peers is that means that we have a huge opportunity to become more efficient in this state. Now this isn't going to solve all of our problems, but NRDC wanted to take a look at what was our potential. And so again we partnered with the Pacific Institute last summer to take a look at several different sectors where we thought we had some untapped potential to become more efficient, including agriculture.

And we found that we actually had a great opportunity. To arrive at our numbers for agricultural efficiency, we looked at what greater adoption of three practices could do to our Ag efficiency in the state.

We looked at improving irrigation scheduling, which is timing the water for when crops most need it. This can both reduce water applications by about a third and improve yield and productivity.

We looked at improving irrigation scheduling, which is timing the water for when crops most need it. This can both reduce water applications by about a third and improve yield and productivity.

Second, we looked at increased adoption of drip technology or the low-flow sprinklers, as opposed to gravity irrigation. Drip irrigation in particular can reduce applications by about a quarter while increasing yield.

And finally we looked at increased regulated deficit irrigation. Peter again mentioned this briefly, but that's when you strategically withhold water during key stages of growth, usually to concentrate flavors in your fruit or in your nuts that you're growing. And so this technique, as Peter mentioned, can improve the quality of the fruits that you're growing and allow farmers to command a higher price.

So we found that increasing the adoption of these three techniques could result in a 17 to 22 percent increase in efficiency, and in 5.6 to 6.6 million acre-feet a year in savings and demand reductions. To put that in context, a million acre-feet a year is roughly enough water to provide two million families with water for a year.

And notably, a number that I care about more, is that 5.6 to 6.6 million acre-feet is also roughly the same amount of water that UC Davis estimated that our farmers were short in surface waters this year, which speaks to the power of increased efficiency as a drought resiliency tool.

Efficiency also tends to be good for farmers' bottom lines. Peter mentioned you're going to see this graph three times today, because I think we all think that it tells a really interesting story. But again, it shows how our mix of irrigation techniques has changed over time in this state. And we have seen a decline in gravity irrigation and an increase in the drip and micro sprinklers, though, as I mentioned we can still do more.

But what I want you to take away from this is that over this same time period, we've seen economic growth in our agricultural sector. Our farmers are producing more crop per drop, which speaks to the power of efficiency as an economic tool for farmers.

Now I'm going to be clear. Some people have criticized our findings, because not all of our savings represent new water. In other words, as has been mentioned, because water is used in the Ag context several times before it's ultimately consumed, improving on-farm efficiency doesn't automatically create more water for downstream users.

Our farmers are producing more crop per drop, which speaks to the power of efficiency as an economic tool for farmers.

However, that wasn't our goal. We weren't simply looking to figure out how much new water we could create when we undertook this analysis. Our goal was to see whether we could find a way to make water more reliable, more timely and more appropriate. And in fact, water efficiency offers significant potential to achieve these goals, and provides a whole host of benefits of farmers, communities and the environment, including improved water quality and reliability and occasionally lower and usually lower energy costs to pump water around, to name a few. Focusing too much on creating new water ignores these additional benefits of efficiency, especially for farmers.

Now one irrigation district that has taken advantage of the multiple benefits of improved water use efficiency is South San Joaquin Irrigation District. A few years back South San Joaquin converted a stretch of unlined canal into a pressurized pipe system that could provide water when farmers requested it. And it worked well with dripping sprinkler systems. This was a big shift for the district, and they weren't sure how their growers would react. They thought they might get 30 to 40 percent of their growers interested in the new system.

But it turned out that growers loved it. Nearly everybody wanted to sign up. So South San Joaquin was better situated to weather the current drought. And it has actually reduced groundwater pumping within its borders, because the farmers in the district need so much less water that they're not supplementing with groundwater.

The new system was so successful that South San Joaquin is now even considering converting parts of its main canal to the new system. This is just one example of the multiple benefits of water efficiency in action.

So to wrap it up, this drought is not over. And it's not the last dry time that we're going to see in this state. And although the Water Conservation Act gets us started on a path towards resiliency, we have a long way to go, both in implementing the current law and in going beyond to modernize our irrigation system.

The good news is that improved efficiency is possible and can play a role in offering a whole host of benefits for the state. Conservation and efficiency is not a panacea, but it can go a long way quickly toward making our food system more reliable.

Mark Atlas Good afternoon. You are the hardcore, because you are here at 5:00 in the afternoon to hear us talk about agricultural water efficiency. I have the distinction of being the last speaker on the last panel before a hosted cocktail reception. And I have to tell you, too, the last time that I was in a lecture hall like this was at Santa Clara. And I was sitting up there, and there was a very nasty professor down here ripping into me, because I couldn't explain the concept of warrantless searches under certain constitutional provisions of automobiles. So I became a water lawyer.

I live in Willows. Anybody know where Willows is? Some do. Thank you. Sacramento Valley, about halfway between Sacramento and Redding on the west side of the Sacramento River. Entirely agricultural, essentially. A little bit of industry, government, that sort of thing. I've lived there for over 30 years. My friends and neighbors are the people that I represent.

My clients are primarily contractors with the Central Valley Project on the Tehama-Colusa and Corning canals, the TC Canal runs 125 miles down the west side of the Sacramento Valley. And I have a few clients who have pre-Central Valley Project water rights, and hold Sacramento River Settlement Contracts, which provide them a combination of a recognition of their non-federal water rights and the others an opportunity to buy federal water when it's available.

We've been farming in the Sacramento Valley since the mid-19th century, irrigated farming for over 100 years now – those with those senior water rights – and the Tehama-Colusa service area since the mid-1970s.

So I'm going to frame agricultural water efficiency this way. And I'm speaking mostly of the Sacramento Valley today, but I see friends who represent water agencies and farmers in the San Joaquin Valley, on the west side in particular, where the same concepts apply.

This is the water supply that water service contractors from the Central Valley Project received this year, in 2014, of their Central Valley Project contracts. So water use efficiency, conservation, careful management of water is a religious tenet for those people, because this happens. And in other years, we've had 25 percent supplies, sometimes 100 percent. This drought that we're suffering right now is not the first one, and it won't be the last one.

So I'll spend just a minute about the law. You heard about it this morning. Reasonable beneficial use of water is a basic foundation of water rights in California. Agriculture is recognized as a beneficial use of water, both in regulations of the State Water Resources Control Board and also by the courts.

Let's talk about some of the practical aspects of what farmers have been doing. You've heard some of this before today, too. Between 1967 and 2010, production's up 88 percent on 20 percent less water. The economic efficiency of agricultural water use has more than doubled in the same period, from over $600 per acre-foot to $1,500 per acre-foot. Let me tell you what that means in the Tehama-Colusa service area. One of my clients is

the Colusa County Water District – about 40 acres around Arbuckle, California. If you know where Arbuckle, California is, you are really a student of the Sacramento Valley. A lot of the land in Arbuckle's been farmed to almonds. One of my friends, Hal Charter's family, has been farming almonds for 90 years in Arbuckle, California.

In 1967, the cost per acre-foot of water from Colusa County Water District was $2 an acre-foot. In 2010, to use the same timeframe, $65 an acre-foot – 3,250 percent increase in the cost of water. In the same period of time, production's gone up, and water use has gone down.

How do we do it in the Sacramento Valley? One of the basic principles is use it, reuse it, reuse it, reuse it.

Rice is a big crop in the Sacramento Valley. It has been since the turn of the century. One of my clients' family's been growing rice east of Willows for 100 years now. A hundred years. Rice farmers are the best-ever example of the use, reuse and reuse that Peter talked about earlier. Water is diverted into one farmer's rice field, a portion of that flows through to the next farmer's rice field and on and on and on. And then it's returned to the river. There's no quality issue with the water when it's taken by the farmers. It doesn't have to be filtered or treated or anything for the next farmer to pick it up.

Some people say, oh, gosh, you know, it takes 6 or 7 feet per acre to farm an acre of rice in California in a desert, for God's sake. If a farmer fallows an acre of land to transfer water, the Department of Water Resources and the Bureau of Reclamation say that frees up 3.3 acre-feet of water. So the real net use, if you will, on average in the Sacramento Valley of water for rice is about 3 acre-feet per acre, not a whole lot different than a lot of other crops that are growing.

Peter also talked a little bit earlier about what water loss there is. In the Sacramento Valley, we do not have saline sinks. The water that's not evaporated by the plants, and it isn't returned to the river as surface flow, percolates into high-quality groundwater aquifers, where it's picked up by others. In those years when there's a big fat zero on the board? Picked up by a lot of farmers in their groundwater wells to keep their crops alive during the year when surface water flows are reduced.

What happens to the water when it gets back to the river? It goes to Sacramento. What do they do with it in Sacramento? They take it out and drink it. Sacramento's water supply is pumped from the Sacramento River after all my friends and neighbors up the river have used it and reused it and reused it.

Sacramento Valley's called a self-conserving basin, and you can see why. We saw a little bit earlier on some other slides, one of the things that water agencies and farmers do in order to maximize the management of their water. The water agencies that I represent, on the Tehama-Colusa Canal, use fully underground pipe, metered deliveries, the pressurized systems that Claire talked about earlier. Not necessarily on-demand deliveries, because

on-demand deliveries, meaning I get it when I want it, like when we turn the tap in our house – very expensive systems to build. Very expensive.

So almost every system, whether canal, surface canals or underground pipeline for agricultural use, has some rotation built into the design, because we just can't afford to build systems that are fully pressurized all the time for every single one of those farmers.

In any event, farmers are doing what they've been asked to do and what they need to do in order to survive. We've lined canals, I've talked about underground pipeline conveyance. There's less and less wastewater, primarily because of the shift of crops – and we'll talk about micro sprinklers and drip irrigation and that in a few minutes. But the amount of water that runs off of fields now in the Sacramento Valley is a small fraction of what it was even when I started practicing.

Flood irrigation , dramatic reduction in the amount of that. We've already heard, too, that not all flood irrigation is by definition bad. And what's really taken off in the last few years is drip and micro sprinklers.

But I don't want you to lose sight of this little purple line right here, and the increase in this little purple line, because I'm going to show you an example of that in a second. It's marked "other" on the chart. It's subsurface irrigation techniques.

So let me talk about the props I brought. We passed them around, some of them around the room. Feel free to take these. This is the greatest swag you'll ever get.

So we've all gone to Home Depot to buy drip irrigation and pipes, a hose, whatever, for your yard. You buy this, and then you buy the little spaghetti lines, you buy a little punch thing to punch a hole in it. And you put the little spaghetti line in, put an emitter on the end of it. And then if you're lucky, it works year after year after year.

But a lot of times what happens, those emitters get plugged, they get stepped on, they get messed up, you've got to go back and fix them. Imagine 160 acres of trees with all those little drip emitters, two or three at every tree. So instead, what farmers do now is they buy drip tube with the emitters on the inside. This actually came from real farmers in the Sacramento Valley. A friend of mine, Blake, cut me a whole bunch of this off of these big, long 1,000-foot rolls that they buy for their orchards.

The emitters are on the inside, they're pressure-regulated. Lay this stuff out for 1,000 feet, from one end to the other, and then you want to make sure that the water that the trees at the top end of the field get the same flow rates as those at the bottom end of the field.

Well, how do they do that? The little emitters that are on the inside here regulate the pressure all by themselves. They know how to do it somehow, so that everything is uniform all the way along that field from top to bottom. Fields are generally flat, but not perfectly flat. So that's drip. Sometimes this is laid on the top of the ground, sometimes it's buried

below at the root zone. Some farmers order this with the emitters at the same spacing as the trees, and then they lay the tree grids out by GPS, so every tree gets its emitters, and there are no emitters in between the trees. It's pretty amazing actually to see it planted.

The flat stuff is buried drip tape. This is kind of the newest and coolest stuff around. For people who grow row crops – corn, tomatoes, processing tomatoes are a big crop in Colusa County. Same kind of thing, emitters on the inside, but it's buried in the ground right below the root zone. One of the costs associated with this is that the fields have to be worked with equipment that has GPS equipment in it – tractors and other implements that run through the field. Because what's the worst thing that can happen? Somebody runs a tractor over this with a big disk right behind it, cuts it right in half. And then you find out the next time you turn the water on.

So that's some of it. This is drip and this subsurface irrigation. And then I brought a couple of examples, some examples of sprinklers. Some of this stuff, we all can buy this stuff in the hardware store for about a dollar apiece, or so. Micro sprinklers, those of you who see different colors have different flow rates and different patterns. These are $12 apiece, solid set on top of a riser like this, one at every tree. And then the heads can be changed over time as the trees develop.

So the last slide then is Jane's ranch. Jane Johnson is a friend of mine. Her family arrived to farm in the Sacramento Valley in 1912, Grandpa George and his wife. His wife looked out her kitchen window one day, not too long after they'd moved from Illinois, to see what? Mount Lassen erupting. And she wanted to know where the hell George had brought her to.

But they stayed, and they farmed. And they farmed all kinds of things over time – turkeys, row crops, clover for seed. And a few years ago, the cousins who now operate this, acquired this ranch when their aunt died, it's about 40 acres. And last year they planted a walnut orchard in it. And so I brought this just to show you. They don't use these kind of sprinklers, but something like it. They had a solid set sprinkler put in, turned the sprinklers on, this about two days before the trees are planted. Every one of those sprinklers will serve a tree. And then as the tree grows, they change the heads to change the patterns, change the flow rate, so that the water is enough to serve the tree, but not anything else.

> *The Sacramento Valley, we've lived with scarcity historically – have in the past, will in the future. Efficiency is a way of life, and the things that you see here and that I've talked about are things that the farmers have implemented without what? Without government intervention.*

So a few closing thoughts. The Sacramento Valley, we've lived with scarcity historically – have in the past, will in the future. Efficiency is a way of life, and the things that you see here and that I've talked about are things that the farmers have implemented without what? Without government intervention. Now sure, government policies have partially contributed to the big zero that we showed earlier. It's a fact of life. But with respect to people like the Charters who do this kind of stuff, the government's not telling them to do it. They're doing it because they need to do it, it's the right thing to do. It's the right thing to do economically, it's the right thing to do because they're stewards of the land.

And the last thing is when you think about agricultural use of water, it's really use of water for people. What do we do with it? We grow stuff for you and me. And in the case of the Sacramento Valley, we're growing it in the backyard of the Bay Area. Hal Charter told me one time, I said, "Well, what happens if we don't grow almonds in California? Where do we get them?" The next nearest place that produces almonds is Turkey. Turkey. So we can talk about carbon footprint, all the rest of that stuff, and food safety and those kinds of considerations. We have to think about that. Farmers that are our friends and neighbors are producing the stuff that we want them to produce right where we want them to produce it.



Center on Urban Environmental Law
Golden Gate University School of Law
536 Mission Street | San Francisco, California 94105-2968

Professor Alan Ramo | CUEL Co-Director
415.442.6654 | aramo@ggu.edu; Bio.

Professor Paul Kibel | CUEL Co-Director
415.442.6685 | pkibel@ggu.edu; Bio.