Darion Mayhorn: Thanks to Tom for allowing us to come and speak and thanks Tony for the introduction. What I'll talk about today is Reclamation's WaterSMART program. I'll focus in on really three different components of the WaterSMART program, which is kind of an umbrella program, in a way. I'll talk about the Drought Response Program, our Cooperative Watershed Management Program, and then finally I'll talk a little about our Basin Study Program.

Many of you guys are familiar with Reclamation but I always start off with this slide, especially for some folks that may be coming from out east, on what Reclamation's mission is. Reclamation is a Federal water resources agency established in 1902 under the Department of the Interior to reclaim the arid west by bringing water and power resources. And so our mission statement, simply put, is that we manage, develop, and protect water in the interests of the American public.

So how do we do that? Reclamation, we're pretty much in the 17 western United States. The way we're organized, just 'cause many people are interested I always like to bring this up. Our commissioner is based out of D.C. But then the commissioner's office, which is the support for the Commissioner is mostly based out of Denver, Colorado, so we

serve as a centralized headquarters role. And then we have five different regions. And with those regions we have regional offices and area offices.

A little context for who I am, speaking with you guys today. I work in the Commissioner's office as part of Reclamation's Office of Policy and Administration. Within Policy and Administration there's a variety of different divisions but I work in the division that's focused primarily on WaterSMART. That's a group of about eight to ten of us. Some lawyers, some engineers, some biologists, economists, a pretty good variety of folks. I serve as Reclamation's Drought Coordinator and I have five regional drought coordinators as well.

On my background, I'm an engineer. So as we go through the slides and I start talking about some of these different species that I might mispronounce, just bear with me, 'cause I'm not a biologist. I'm an engineer.

The WaterSMART program. The WaterSMART program was established in February 2010 by Secretarial Order. And really it had a couple different objectives. One of them was to establish a framework to provide Federal leadership and assistance on the efficient use of water. To integrate water and energy policies to support the sustainable use of all natural resources. And then to coordinate the water conservation activities of the various Interior offices. And primarily under WaterSMART it's Reclamation and USGS. And Melinda will talk with you guys next.

I should talk a little bit about this diagram. So again WaterSMART, at least for Reclamation, it's kind of this umbrella program. Under this program, there's the Basin Study Program which people are mostly familiar with, like the Colorado River Basin Study where we have these larger basin scale plans where we're looking at supply and demand and the gaps between those and coming up with adaptation strategies. People are pretty familiar with the Basin Study Program. People are fairly familiar with WaterSMART grants. Particularly the Water and Energy Efficiency Grants where we do projects like canal lining. Different projects like that that get to the objectives that Patrick was talking about. What I'll talk about is the Drought Response Program and the Cooperative Watershed Management Program. The last two there on that diagram.

We'll just get right into the Drought Program. Reclamation, we've had the specific authority to be involved with drought related activities since the early 90s. The Reclamation States Emergency Drought Relief Act of 1991 gives us that authority and it has really two main components. One is emergency response actions. And so it says "Reclamation, when a state or a tribe is faces emergency drought conditions and typically declares a drought, they can come to you. They can request assistance. And you can help with this set of tools." And within that set of tools they say "You can do construction management and conservation activities. You can be involved with water marketing. You can be involved with water banks. You can actually purchase water and work with willing buyers and sellers. And then you can also store water in your reservoirs that otherwise you wouldn't be able to or put water in conveyance structures that we have that otherwise we wouldn't do that."

Then Title II of the Act says "Reclamation, you can go and be involved in drought planning overall. So not only can you provide financial assistance for drought planning but you can also provide drought planning assistance across the entire United States." Which is pretty rare. Most of our authorities limit us to the western United States. This is one of the few authorities where we can work on the eastern part of the country.

So pretty much up until 2015, we'd always pretty much relied on the emergency response actions, which was reactive. When there was an issue, and Jeff with Washington State talked about this earlier, where there's an issue and you react to it as opposed to being proactive and mitigating drought impacts. So in 2015 we reformulated our program to have more of a proactive approach so that our non-Federal partners could have a better avenue in which they could prepare for and respond to drought.

So the objective of the Drought Program is just overall drought preparedness, to identify vulnerabilities and mitigation actions to reduce risk, to improve coordination and cooperation among key entities, and the development of procedures for monitoring, assessing, and responding to drought. And then finally to reduce impacts of drought and conflicts between water users.

So here's a lovely diagram for the Drought Response Program. It has three different components. It has Drought Contingency Planning, Drought Resiliency Projects, and then Emergency Response Actions. I won't talk much about the emergency response actions. We still have that in our toolkit, if you will, but we like to guide our non-Federal partners to the first two proactive measures.

The map there shows the different plans and projects that are either underway or have been completed under our Drought Program. And I'll talk more about that map towards the end of the presentation.

So the Drought Contingency Plans ... I won't spend much time on this. I want to get more to the Drought Resiliency Projects but I will just mention it. Reclamation, we have funding available for entities to go and develop a Drought Contingency Plan.

Within that Drought Contingency Plan we ask that entities include six different elements. We ask them first to establish a diverse task force. Throughout their plan development we want to make sure that everyone is at the table, that everyone's voice is being heard. Then we ask them to develop a monitoring plan, which is where they come up with what does drought look like and what does it really mean for them? Are we going to use a forecasting approach? Are we going to use more of a “we're already in drought so now this is what we need to do” approach. What type of approach are we going to use to determine what drought means for us?

And then we ask them to develop a vulnerability assessment where they look at really, all of their different sectors and get an idea of what vulnerabilities just generally exist and then what are those that are exacerbated in a drought. And then we ask them to identify mitigation actions and response actions. So those mitigation actions again being projects or strategies that may be a little bit more long term. They can't be done in a very finite amount of time. And they have a long term impact ideally. And then also identifying those response actions where they're tying to those triggers that they came up with earlier and they're saying "Okay, when we get in a stage one drought these are the different things we're going to do."

Next we ask them to develop an administrative framework. Many times there are a ton of entities that are working together and so having an understanding of who's going to actually say "Yes, we're in a drought." Who's actually monitoring before we get to that drought? Who's then going to say that we're going to implement this mitigation action, this response action? It's something that everybody sees as kind of a waste until you get into that time where you really need it and there's no clear communication of who is saying what happens and the process to follow.

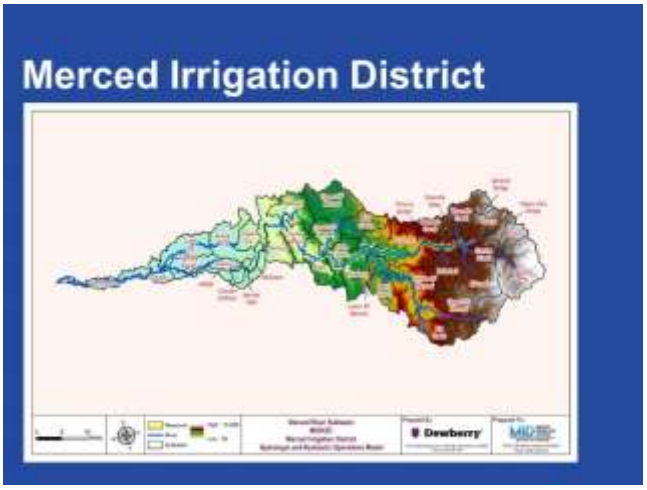
And then finally to identify their plan update process. So that the document's a living document and that it's not just sitting on a shelf as I like to say.

So here on the side I've just got a couple of different examples. Earlier you guys heard from Jeff, with Washington State's Department of Ecology and their working on updating their state drought plan. So there's been a large scale of different plans I that we've seen come through the program. We've seen some as large as Washington State. And then we've seen some smaller little cities, like the city of Gallup, New Mexico. Little smaller water districts, etc.

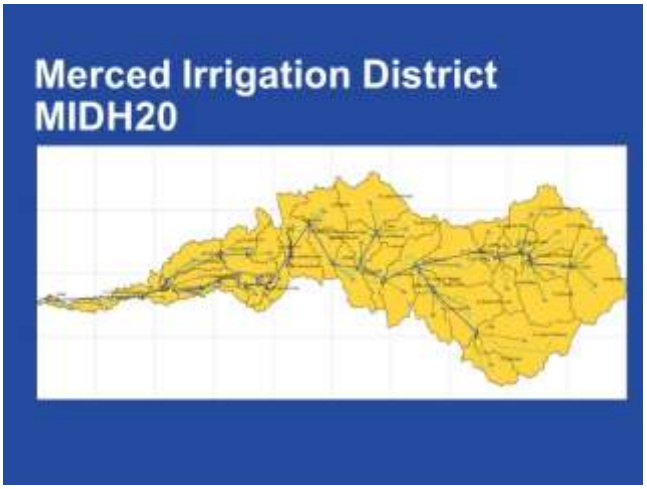
So the Drought Resiliency Projects. Ideally after an entity has developed their Drought Contingency Plan, they've come up with these drought mitigation actions that they can take, right, for long term resiliency to drought. Then we want to be able to provide a mechanism to actually implement those different projects. The project types vary but the objective of pretty much all of them is to increase the reliability of water supplies during times of drought. And to just overall improve water management. And so those may be projects that are focused more on infrastructure improvements, they may be projects that are more decision support tools, modeling type of projects, or they may be projects that are specifically focused on environmental protection.

What my goal is now is to walk through some of those different examples. Some of the projects have either recently been selected or are in the process of being completed. So we'll just get right into it.

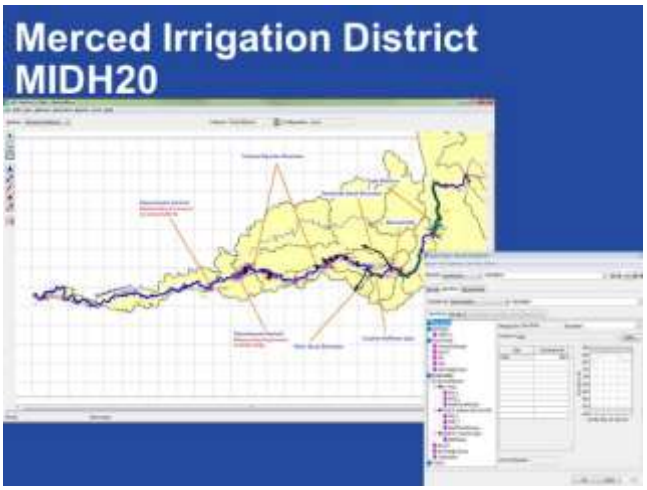
The very first one, Merced Irrigation District. Merced Irrigation District is out in California's Central Valley. They developed a real-time simulation water model that would help the district to analyze, predict, and respond to drought conditions. They also installed two weather stations and two river gauge stations to collect water supply data on precipitation flows and temperature system losses. The improved information and forecasting is intended to help the district increase their measurement accuracy, monitor river temperature for fishery benefits, track water uses, minimize system losses, and adjust operations to respond to local conditions in times of drought. The district estimates that the project will assist them in better managing up to 25,000 acre feet per year.



This is a screenshot of the model. They call it MIDH2O, which just stands for Merced Irrigation District Hydrologic and Hydraulic Optimization. They built off the Corps of Engineers HEC-RTS model to just develop this real-time water resources model. The data's being coordinated with California Department of Water Resources and the California-Nevada River Forecast Center. It is published on a real-time basis on the California Data Exchange Center site to serve as an online decision support tool.



Again, this is another screenshot that shows a schematic, in a way, of the rules for the different real-time operations.

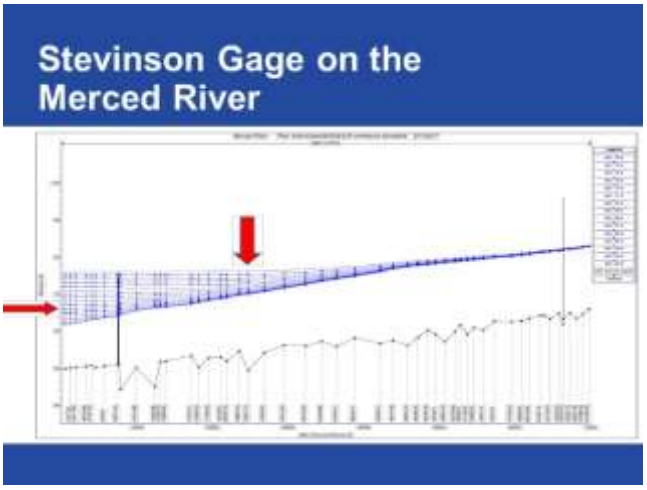


One of the benefits that came from the project that wasn't originally anticipated is that one of the gauges on the Merced River is impacted not only by flows in the Merced River but also by backwater from stages in the San Joaquin River. And so if timing and quantities are not managed properly then it can flood in that area. And then there's a reservoir right upstream also, that if there's for some reason risk associated with that reservoir, then the release of flows could potentially damage fish habitat that is downstream of the reservoir.

So this model, and again they didn't even go into this realizing that it'd be a benefit for them until they were in a storm. But this model helps them to optimize their flows while being able to protect that fish habitat area and also maintain the storage capacity in the reservoir at safe levels. So on this diagram we have the vertical red arrow that shows ...

You guys probably can't see all that well. That's always the issue with these right? You think it's awesome to put in these different graphs, until you look at it like this. You're like "That's useless!" Right? So anyway.

What it's supposed to be showing you is that the vertical red arrow there shows the location of the Stevinson gauge on the Merced River, on the channel itself. And then on the left, shows the different water surface elevation profiles during the time of the storm. And those blue traces again are just those elevation profiles. And really what it's showing is they found that at 55 hundred CFS, this perfect equilibrium that without the model they couldn't really figure out of where to keep the elevation at for it's requirement at that gauge and being able to meet all these different purposes and competing needs along the river.

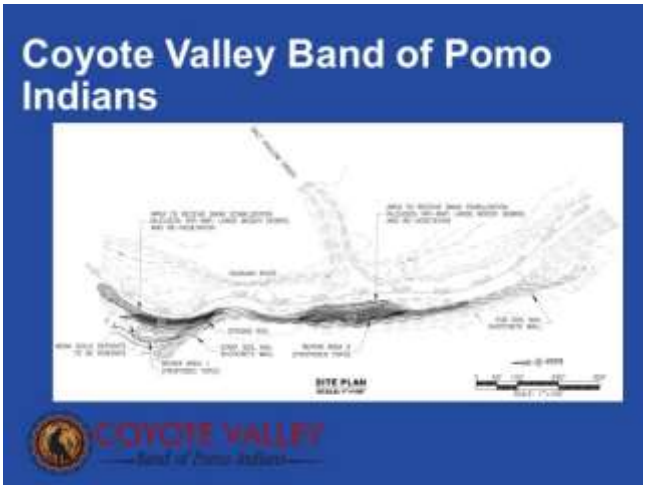


So I kind of talked about that, being able to maintain the salmonoid's spawning habitat area. And then they also got selected last year for another project again, the Merced Irrigation District, to do some rehabilitation and enhancement of the channel in the floodplain ecosystem in critical habitats along Merced River, and to also do some work to reduce the habitat for invasive predators that target the native fish in the area. The project will help reestablish floodplain and main channel connectivity, reduce non-channel features that attract non-native predators and improve channel temperatures and increase native riparian vegetation.

Alameda County Water District. This project actually on Monday just had their groundbreaking. This is a $7.1 million dollar project. Reclamation is ponying up 750 thousand. And the project is for a fish ladder on the Alameda Creek which will allow the district to avoid lowering this rubber dam that they have during fish migration period. So what they found during the drought is that whenever there was a storm they had this rubber dam that would allow them to capture some of the storm water flows that they really needed. But then when it was time for fish migration they had to deflate that dam, let all that water go. And so what they are going to do is construct this fish ladder that will allow them to basically maintain a thousand to two thousand acre-feet per year of water that'll be available for recharge while providing sufficient bypass flows for the migrating rainbow trout.

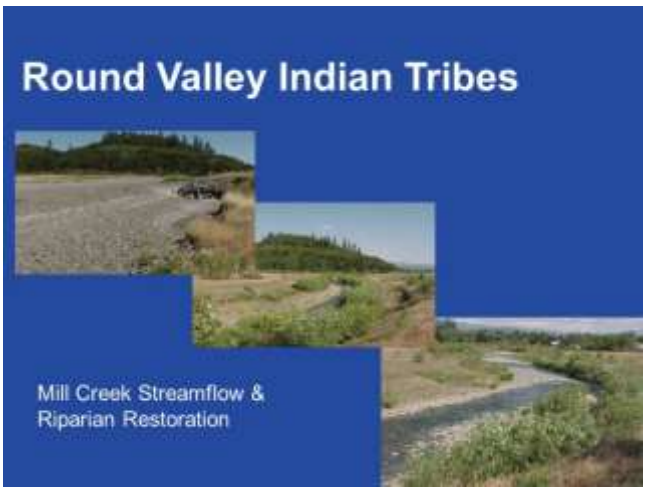
The Coyote Valley Band of Pomo Indians. Think we've heard a couple different discussions earlier about the social and even cultural impacts related to drought. So we've had a couple different projects that are focused on even within reservation boundaries, restoring lands to their more original conditions if you will. And so with this project out of northern California, the tribe will stabilize the most critically drought impacted portions of the embankment, manage and enhance native vegetation and install stream flow deflectors to enhance pools and riffles.

The project will significantly reduce siltation of the river, which is an important source for the tribe and the surrounding area. And the quality of the riparian corridor had been greatly stressed by the most recent drought, so this project will improve that riparian environment and ideally make it more resilient for future droughts.

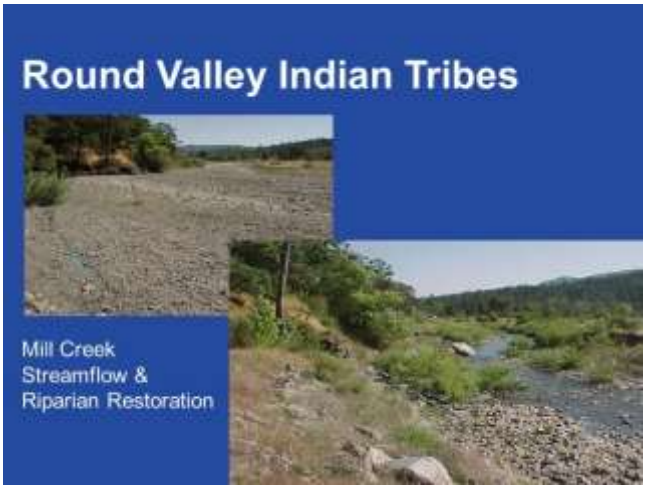


Round Valley Indian Tribe again in northern California. They're doing a pretty similar project. Restoring riparian vegetation to it's original state prior to the introduction of large-scale irrigation and natural resources development and again trying to make the corridor more resilient during times of drought. And the final corridor will ultimately reduce water temperatures, evaporation, and stabilize water table levels. And it also provides ecological benefits for a variety of fish and wildlife species. Some different salmonoid species, steelhead and some other federally listed threatened or endangered species. So you can just see in the pictures here what it looked like originally.

I should say for this Round Valley Indian Tribe project, this is something that they've been doing incrementally. So they've already done some portions of the creek. So they've come and ask Reclamation for some corridor and some further stretches of that creek. So you can see of the previous work that they did, that very first photo of what it looked like originally and then the second, the middle, and the bottom one there of what the final product looked like.



And then similarly with these two photos. First one what it originally looked like and after they've restored that corridor.

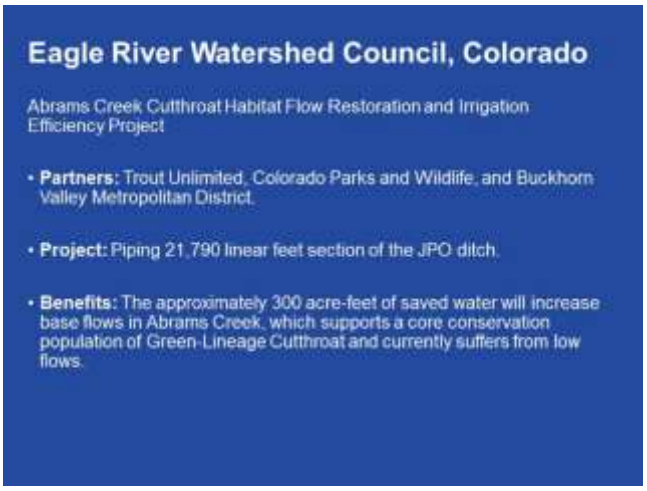


So the Cooperative Watershed Management Program is really Reclamation's program to be able to support local watershed groups. We've got two different phases of the program as we call them. Phase one which is intended for entities that just want to get together and actually establish a watershed group. And then some of them may go on and actually develop a watershed restoration plan after they've gotten together.

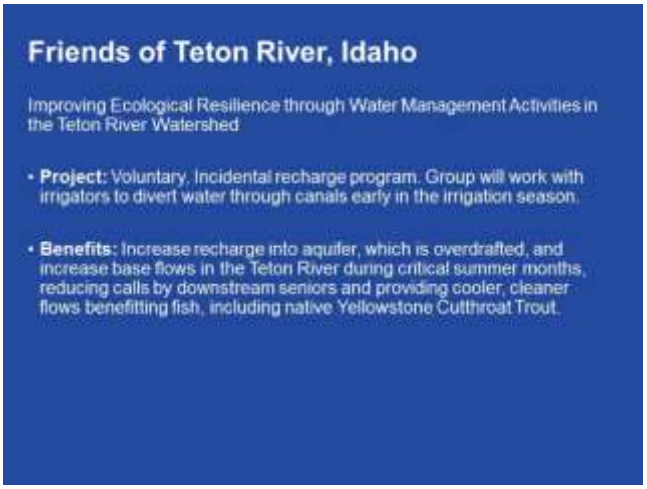
Then the second phase is to implement some different Watershed Management Projects as we call them. So this slide I've just got an example of what those look like. Some of them are similar to the projects that can be done under the Drought Response Program. One big difference is the eligibility because of the two different authorities that we use. Where Phase II of the Cooperative Watershed Management Program primarily works with those watershed groups that have already been established. Where the Drought Response Program is more for cities and states and tribes and other eligible entities that are defined in the Secure Water Act.

So through Phase II of the Cooperative Watershed Management Program watershed group can implement projects that restore and enhance riparian vegetation, invasive species control, increasing instream flows, mitigate and restoring areas impacted by wildfires and restoring instream habitat.

I have two different example projects from that program. One here in Colorado, the Eagle River Watershed Council. Not sure if I'm going to pronounce this creek right. Abrams Creek, is that right? Abrams, okay. Abrams Creek. Thank you. So this is a partnership with Trout Unlimited, with Colorado Parks and Wildlife, and the Buckhorn Valley Metropolitan District where they are piping a 22 thousand linear feet section of a ditch, and being able to use that 300 acre feet of conserved water for instream uses. The intent of that 300 acre feet will be to increase the base flows in the creek to benefit the trout, the green lineage cutthroat trout, as well as other aquatic resources.

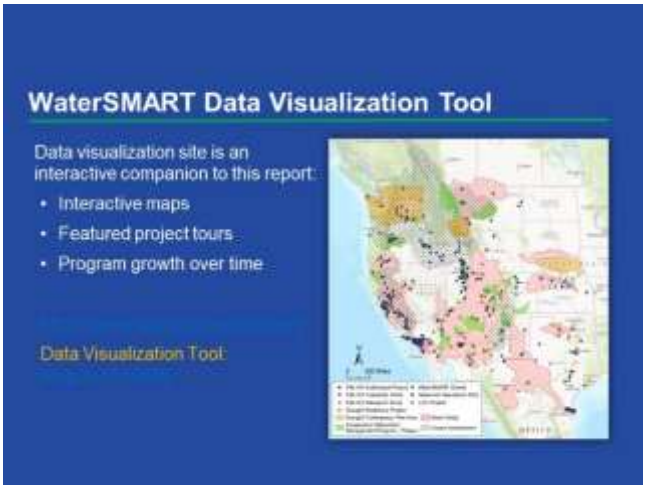


Another project, the Friends of Teton River in Idaho. This is a project where it's an incidental recharge program where all these entities got together to work with the farmers to say "Hey can you irrigate sooner so that we can use some of that incidental recharge that ends up in the river so that come summertime we're not in a bad place?"



Reservoir Operations Pilot Initiative. Through our Basin Study Program we have an activity that's focused on incorporating the best available science into planning, activities, and operation. So in 2015 we selected five pilot studies to evaluate how weather, hydrology, and climate change information could better inform our reservoir operations. And so these regional pilots were initiated and they began in January of 2016. Unfortunately, there's only two that were done, 'cause I wanted to talk a little bit more about those. But there's only two that were done and we're still working with the regions to fine tune the information that's come out from that report. But hopefully all of them will wrap up this year and there'll be Reclamation guidance that comes out of it on considering improved scientific information within our reservoir operations.

Very quickly here, our WaterSMART data visualization tool. I just like to bring this up with folks. I'm going to test the limits of my technical skills real quick. And I might need help, we'll see. Well, let me try first! You can't just come up.



First I'm just starting off at our website. I was at a meeting with a Colorado Water Conservation Board colleague and she used to work for the Federal Government. She made a comment that basically all Federal Government websites are awful. So now every time I give a presentation, I'm like "They're not awful." And I bring up Reclamation's.

To get to that data visualization tool, you go to usbr.gov/watersmart. If you slide down here under featured resources you see WaterSMART program. Here under the WaterSMART program we click the data visualization link. So every five years we have to submit a report to Congress on our progress, as we call it, under WaterSMART. What activities have been completed? What things have we learned? What have been the lessons learned? And so this past progress report we had to submit to Congress we thought it'd be nice to have an electronic supplement, that showed what exactly were those selected projects. And it helps us, too, to have an idea of where are all the projects were that have been selected when we get Congressional inquiries, it makes it a lot easier.

The way this site works, you just scroll until you get to whatever program it is that you want to learn about, or you want to get information on. I've got here the Drought Program. You can toggle layers on and off. So you can just see the Drought Contingency Plans, you can just see the Drought Resiliency Projects if you like. So if we click here, the Drought Contingency Plans. So we can see the plan that Jeff Marti is working on. You can go on and learn all the cool information about that project. How much funding Washington State is receiving, information like that.

Anyway the point is that you can go and select the project and get more information on that project. Many times there are links included as well to check out final deliverables, etc.

Thank you guys for your time, I appreciate it.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RECLAMATION