STATE OF LOUISIANA
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF CONSERVATION

WATER RESOURCES COMMISSION
SIXTH REGULAR MEETING
MONDAY, AUGUST 17, 2015,
BATON ROUGE, LOUISIANA
11:00 A.M.

LASALLE BUILDING
LABELLE ROOM
617 NORTH THIRD STREET
BATON ROUGE, LA 70802

REPORTED BY:
KARLA H. MAYERS, CCR
BATON ROUGE COURT REPORTERS

COMMISSION MEMBERS IN ATTENDANCE:

BRAD SPICER
VICE-CHAIRMAN AND DESIGNEE OF THE
COMMISSIONER OF LOUISIANA DEPARTMENT OF
AGRICULTURE & FORESTRY

KYLE BALKUM
LOUISIANA WILDLIFE & FISHERIES

HONORABLE GLENN BRASSEAUX
MAYOR OF CARENCRO
LOUISIANA MUNICIPAL ASSOCIATION

JONATHAN "JAKE" CAUSEY
LOUISIANA DEPARTMENT OF HEALTH & HOSPITALS

HONORABLE GUY CORMIER
ST. MARTIN PARISH PRESIDENT
LOUISIANA POLICE JURY ASSOCIATION

DAVID D. CULPEPPER
ENGINEER WITH EXPERTISE IN GROUNDWATER
RESOURCE MANAGEMENT

MARK S. DAVIS
TULANE INSTITUTE ON WATER RESOURCES LAW AND
POLICY

PAUL D. FREY
LOUISIANA LANDOWNERS ASSOCIATION

KAREN GAUTREAUX
LOUISIANA LEAGUE OF WOMEN VOTERS
LOUISIANA WILDLIFE FEDERATION AND
THE COALITION TO RESTORE COASTAL LOUISIANA

EVE KAHAO GONZALEZ
LOUISIANA PUBLIC SERVICE COMMISSION

JERRY V. GRAVES
PORTS ASSOCIATION OF LOUISIANA

CHRISTOPHER P. KNOTTS, PE, FASCE
LOUISIANA DEPARTMENT OF TRANSPORTATION &
DEVELOPMENT

BENJAMIN MALBROUGH
LOUISIANA RESIDENTIAL CONSUMERS

COMMISSION MEMBERS IN ATTENDANCE (CONTINUED):

CHANCE McNEELY
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

MANDI D. MITCHELL
LOUISIANA DEPARTMENT OF ECONOMIC DEVELOPMENT

DAN MORGAN
SPARTA GROUNDWATER CONSERVATION DISTRICT

JIM PRATT
THE SABINE RIVER AUTHORITY

CHARLES SUTCLIFFE
THE GOVERNOR'S OFFICE OF COASTAL ACTIVITIES

JIM WELSH
COMMISSIONER OF CONSERVATION, OFFICE OF CONSERVATION

FRED ZAUNBRECHER
THE GEOGRAPHICAL AREA OF THE STATE UNDERLAIN BY THE CHICOT AQUIFER

ALSO PRESENT:

GARY SNELLGROVE
EXECUTIVE DIRECTOR
ENVIRONMENTAL DIVISION

MATTHEW REONAS
EDUCATION AND MARKETING REPRESENTATIVE

SCOTT HEMMERLING
WATER INSTITUTE OF THE GULF

RYAN CLARK
WATER INSTITUTE OF THE GULF

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MR. SPICER:

Good morning. I'm Brad Spicer with Louisiana Department of Agriculture & Forestry, Office of Soil & Water Conservation. I'm Vice-Chair of the Commission, and I'm substituting for Scott Angelle, Chairman, this morning. Welcome to the commission meeting.

And Matt, if you would, would you do roll call?

MR. REONAS:

Yes, sir. Mr. Balkum.

MR. BALKUM:

Here.

MR. REONAS:

Mr. Brasseaux.

MR. BRASSEAUX:

Here.

MR. REONAS:

Mr. Causey.

(NO RESPONSE)

MR. REONAS:

Mr. Cormier.

MR. CORMIER:

Here.

MR. REONAS:

Mr. Cramond.
(NO RESPONSE)
MR. REONAS:
Mr. Culpepper.
MR. CULPEPPER:
Here.
MR. REONAS:
Mr. Davis.
MR. DAVIS:
Here.
MR. REONAS:
Mr. Dove.
(NO RESPONSE)
MR. REONAS:
Mr. Frey.
MR. FREY:
Here.
MR. REONAS:
Ms. Gautreaux.
MS. GAUTREAUX:
Here.
MR. REONAS:
Ms. Gonzalez.
MS. GONZALEZ:
Here.

MR. REONAS:
Mr. Graves.
MR. GRAVES:
Here.
MR. REONAS:
Mr. Knotts.
MR. KNOTTS:
Here.
MR. REONAS:
Mr. Leggett.
(NO RESPONSE)
MR. REONAS:
Mr. Long.
(NO RESPONSE)
MR. REONAS:
Mr. Malbrough.
MR. MALBROUGH:
Here.
MR. REONAS:
Mr. McNeely.
MR. McNEELY:
Here.
MR. REONAS:
Ms. Mitchell.
MS. MITCHELL:

Here.
MR. REONAS:
Mr. Morgan.
(NO RESPONSE)
MR. REONAS:
Mr. Owen.
(NO RESPONSE)
MR. REONAS:
Mr. Pratt.
MR. PRATT:
Here.
MR. REONAS:
Mr. Spicer.
MR. SPICER:
Here.
MR. REONAS:
Mr. Sutcliffe.
MR. SUTCLIFFE:
Here.
MR. REONAS:
Mr. Welsh.
MR. WELSH:
Here.
MR. REONAS:
Mr. Zaunbrecher.

MR. ZAUNBRECHER:
Here.
MR. REONAS:
Ms. Zaunbrecher.
(NO RESPONSE)
MR. REONAS:
Yes, sir, we do have quorum, 18 count, and so we're good to proceed.
MR. SPICER:
Okay. Thank you, Matt. Let's see. I'd like to welcome some new members to the commission. Chance McNeely, DEQ; Mandi Mitchell, Economic Development. Where is she at? There you are. Charles Sutcliffe with the Governor's Office; Dan Morgan with the Sparta Groundwater Commission.
MR. REONAS:
He's not here.
MR. SPICER:
He couldn't make it?
MR. REONAS:
No, sir.
MR. SPICER:
And Fred Zaunbrecher with Chicot Aquifer Regions in Southwest Louisiana.

Okay. The next order of business will be to adopt the minutes of the last meeting or a summary of the minutes. Has everyone had an opportunity to review the minutes and, if so, if there's no amendments to the minutes, entertain a motion to accept the minutes?

MR. BRASSEAUX:

I motion.

MS. GONZALEZ:

(Indicating)

MS. GAUTREAUX:

(Indicating)

MR. SPICER:

Karen approved and seconded by --

MS. GONZALEZ:

Eve Gonzalez.

MR. SPICER:

Okay. Thank you. All right. The next item of business is a status review of the water resources assessment for sustainability and energy management project. Scott Hemmerling will make a presentation with the Water Institute of the Gulf. Scott.

MR. HEMMERLING:

Good morning. I'd like to thank you

for having us here today. Again, I'm Scott Hemmerling with the Water Institute of the Gulf. This is my colleague Ryan Clark, also with the Water Institute.

I know a lot of you weren't here at our previous meeting, so we'll give you a little bit of background on the project. The purpose of this project is to develop a water budget for the state of Louisiana. It's a project with CPRA and the Office of Conservation funded by the US Department of Energy.

A part of the goals of the project is to establish a set of measures to evaluate regional water supply. As part of this, we want to set a baseline water budget. And what we mean by "water budget" here is we want to maintain that the change in water stored in an area, such as a watershed, is controlled by the rate at which water flows in and out of an area. So, again, we're looking at the rate of water flow within and out of the water units.

And part of the reason for doing this, we want to identify the areas that are at risk of losing some of the sustainability. We want to establish a process to take a wide array of data

across the state and really get it into a format that we can use and that can be replicated to look at different areas across the state. We want to be able to look at potential impacts in the future. We want to look at the impacts of population growth and what that can do over certain areas.

And part of this -- because this is what -- there is a Department of Energy part of this. We want to look at the cost of withdrawing water, and part of the costs, which could go to the consumers, could be passed on to government, is dependent on water availability and the depth that water has to be pulled from.

Now, again, like I said, we want to take the wide array of data that's available and develop useful framework that can be used to analyze water throughout the state. We want to gauge the sustainability. And again, by "sustainability," we mean we want to establish the balance between use and supply that causes no further impairment to water resources and maintains or improves the current health of these systems.

And we want to develop a system to analyze and communicate these facts and figures to the

public and key water managers around the state. We want to make it easy for the public to understand and something that can be used across the state and by different stakeholders.

Now, the project is moving forward in four activities. First activity which we're talking about today -- we'll cover Activities 1 and 2 today -- is to develop a framework for appraising the health and sustainability of the water resources. So we will talk about the framework itself, and I believe each of you has a printout of the draft framework. Also, the second activity is to review the data sources and available data for the hydrologic units for the details assessment. There will be data gaps, and there will be some assumptions that have to be made to fulfill the data framework.

And the portion where we are now, Activity 3, is conducting the appraisal of the hydrologic units. Activity 2, part of that is selecting a couple of piece study areas that we'll look at over the course of the project. And the last activity will be to prepare a final report of the analysis.

So just to give you an idea of where we are

in the time line, we've completed Activity 1 and Activity 2. That's the framework and the data review, and we're in the midst of the hydrologic unit appraisal.

So part of Activity 1 -- we went over this at an earlier meeting back in the spring -- is we reviewed the existing data frameworks, so other frameworks that states had, other smaller projects that companies did for the certain states. We looked at the key component of these plans, and we gathered together a technical coordination team, which would assist us throughout this whole process. The coordination team includes David Borrok from University of Louisiana at Lafayette, Gary Hanson from LSU Shreveport, and Charlie Demas and John Lovelace, also, both with USGS. And then we have to develop the components of the draft framework, and that's what we're going to talk about today.

So part of what we have to look at is what are the data needs to conduct a water budget. The framework has to enable the calculation within the hydro units. We need to be able to quantify the inflows and outflows and changes of storage within each hydro unit of analysis. The water budget

maintains that the change in volume of water stored within the unit of analysis is balanced by the volumes of water that flows into and out of the area.

Looking at, for example, the groundwater availability model -- which the state of Louisiana does not have. That's outside the scope of this project. Looking at the -- that is one of the data needs, so when we talk about sustainability, we are talking about that balance of the inflows and outflows. So we're looking at groundwater and surface water, the conjunctive management of the two together; so again, input, output, and movement of water within the unit of analysis.

We're looking at the quantity available for various uses, both natural and human. There are ecological needs for water, but there's also industrial needs and rural needs for communities for water. And then current and future uses, we want to establish what might the future needs be for fresh drinking water, where will population growth occur, and really be able to identify areas within the state where sustainability is at risk.

So again, here's a graphical version of the water budget framework, and you have a printed

copy in front of you. Now, when we constructed the framework, the water units were categorized as surface water, as the lakes, the streams, the rivers, et cetera; the surface alluvial and unconfined groundwater; and the confined or deep water storage. The inputs and outputs for each of these units were identified, and linkages between them were made.

So when we talk about surface alluvial or unconfined groundwater aquifers, we can see here we're talking -- there's more inflows of water with the surface alluvial. The unconfined groundwater aquifers that contain the water table are generally recharged via precipitation that percolates through the unsaturated zone to the water table and also from losing streams, lakes, and wetlands. That limits the extent that groundwater drawdowns can occur as a result of pumping.

Now, the confined in the deep water -- groundwater storage, that's recharged almost entirely by precipitation within that aquifer's recharge area; therefore, we have larger drawdowns throughout time in response to pumping.

So again, if we look at some of the other

inputs, we talk about water transfers, so movement of water from one water body to another. We can also talk about transfers being from groundwater, and then it can be taken into the city's water system and then, as wastewater, go from groundwater into a surface water body. And, obviously, with any water budget, we want to look at direct precipitation. We look at runoff. We look at the stream flow in, the stream flow out to establish the amount of water that's flowing in and out of an area.

And, again, if anyone has any questions at any point during the presentation, feel free to interrupt, and we can discuss any of the different portions we see in the budget. Yes.

MR. WELSH:

I'm Jim Welsh, Commissioner of Conservation. Something I think would be good would be to try to define, on a statewide basis, sustainability. That term, over the last few years, has been defined in some -- by some bodies, but some other bodies -- regulatory bodies do not have such a definition, and it's pretty awkward.

It's awkward not having a statewide definition when you explain to the public about

groundwater usage and historic use and restricting. You have to say which types of uses are going to be restricted, what's historically used.

But sustainability has a lot of implications, and I just -- if anybody wants to discuss this, I just think that would be a good idea to try to come up with a uniform definition of "sustain," or "sustainability."

MR. HEMMERLING:

That is a great idea, and the definition that we took for sustainability here is really kind of the nuts and bolts. It's sustainable if your inputs and your outputs are balanced. If we start to -- you know, if the outflows exceed the inflows, then we have an unsustainable process going on, but there's also, with the data limits, no groundwater availability models.

You know, we can still -- if we're pulling more than is being withdrawn, then that's clearly unsustainable, but then we're getting into the degrees of sustainability there. If we -- you know, we can say it's unsustainable if it's a small amount over.

But I think a definition from a legal perspective would probably -- you know, especially if it's -- if we already base policy on it, I mean, I would say a balance of your inputs and outputs, and, you know, the no data mining, which is one of our constraints we had in that input is that the outflow shouldn't exceed the inputs. So that's how we approached it here. Again, it's a --

MR. WELSH:

I'm not saying you don't have a great definition or anything. I'm just saying let's put it in the law so all agencies can use that. See, our attorney is not here today, but we could try to look into that, the feasibility of doing that. I'll volunteer that.

MR. DAVIS:

Mr. Chairman -- or, Mr. Commissioner, without getting ahead of where we are in the program, one of the things that we're doing in conjunction with the development of a water code is looking at how other states and other agencies have determined that, you know, because you're right. The term by itself is not self-defining, but it is a term of art often in resource

management, but it's not always a common term of art.

So we'll certainly have some things we could share with the commission, you know. It needs to be a policy determination first and then probably put into law, but, you know, that is one of the things that we'll be, you know, making sure the commission and the State have available.

MR. HEMMERLING:

And I did go back to one of the previous -- the other side of the water budget here. Just when we talk about sustainability with your inputs and outputs, that's purely the mechanistic view of it. But if we look at some of the constraints, we need minimum ecological flow. What do we need for the sustainability of the wetlands? What do we need for the wildlife in the areas, in addition to what do we need for industry and public use?

So the sustainability has to take those into its -- so it is beyond simply the inputs and outputs when we start talking about the constraints and what we need the water for. So we really -- I think if we look at the constraints, especially where we have surface water storage,

where what's the minimum regulatory flow, what's the minimum ecological flow, what's the coastal demand for water.

So all of that has to be in this final definition of sustainability, besides the balance has to take those needs into account to where, regardless of your inputs and outputs, if we drop below a certain level, it's just -- it's not sustainable for water coastal processes.

MR. WELSH:

Well, we'll -- the Commission, we'll try to put something together. Mark, we can send what you have, and I'm kind of talking for John Adams, our lawyer, you know, but he'll probably put something together maybe for the next meeting.

MR. HEMMERLING:

Yeah.

MR. SPICER:

Matt, the next meeting will be?

MR. REONAS:

Probably in December. It will probably have to be between Thanksgiving and the Christmas holidays, yes, sir.

MR. SPICER:

Thank you.

MR. WELSH:

Okay. Thank you.

MR. HEMMERLING:

You're welcome. Okay. So back on the output side, we kind of have a lot of your standard water budget, you know, water that has lost direct evaporation from the surface water. We have evapotranspiration from the crops and evaporation from the impermeable surfaces within the cities.

We also have transfers out where water is taken from one hydro unit and transferred to another and then simply the outflow of the water, the streams that, you know, the water comes in one side of your hydro unit and comes out other side. It might not be the same amount on both ends.

But we also are talking about there is a change in the quality of the water at some point, especially when you start talking about coastal processes and saltwater intrusion. There's portions of our groundwater that could become unusable through saltwater intrusion. We also have impaired waters that we could take into account and a change in capacity, just the subsidence and the compaction of the water units

themselves. We lose some of our storage area through compaction.

And then the big part really is the withdrawals, and that's for public, industrial -- here we have public, industrial, and agricultural use that we've broken it down into. So you have public, domestic, world public use. We have energy sector. We have oil and gas extraction. There's a lot of industrial uses of water, then the agricultural, livestock crops. Aquaculture is really big, particularly in Southwest Louisiana.

You know, each of those consumptive uses -- we can't see at the bottom, but if you look at the bottom of the screen, the lines that come out, we have some of those -- some of the water is lost through leakage. We have some that's agricultural runoff and wastewater.

So each one of those consumptive uses, there's portions of the water that is returned to the system, and there's portions that are completely consumed, whether that's through, like I said, evaporation or just use.

So part of what we're taking into account with this is the consumptive uses and how much of this water that is withdrawn is actually returned

to the system through, like I said, wastewater or agricultural runoff.

Wastewater, I mentioned earlier, could be when water is pulled out of the groundwater unit. It's used. It goes through the wastewater processing plant, and then it's sent into the river. So we have water that's pulled from one unit and transferred into another, but it's within the same study area.

So the next step, once we laid out the framework, was to determine -- well, what data is out there? Can we quantify each of these variables that's in that framework? And then using that data, we looked at the existing data and then determined a couple of case study areas. We chose three case study areas around the state that we're going to look at and pull all the data for and look at how the water budget works in those areas.

So again, that's part of Activity 2, and the first thing we did was inventory the initial inspection of the data. We also identified data gaps. As I mentioned earlier, without groundwater availability models, we don't know exactly how much water is in our aquifers. With some of the

surface water units, it's easier to quantify the volume of water there, but the volume of water within each of our aquifers, that's never been accurately assessed within the state. So that's definitely a data gap.

And some of them, I mentioned the consumptive use coefficients. We have USGS data from 1987. We assume there's probably not much change in how much water is pulled out for agriculture, how much evaporates away, and how much is actually used, but we are looking at older data.

There's some more recent data that the Argonne National Laboratory has, also, on consumptive use coefficients. So for this, we're going to make use of the data that's there, with the realization that there's been some improved technology, so the leakage factor from some of these facilities might not be the same as it was back in 1987.

And again, we met with our technical coordination team to kind of go over some of the initial data and help us determine what hydro units would really allow us to capture a lot of the issues that face the state.

So again, the initial inventory of data

sources, and here's just an example of some of the things that we've pulled. Obviously, we need to know where our aquifer recharge areas are, but we've looked at the average water capacity or the available water capacity for our soils, elevation data, precipitation data, evapotranspiration, temperature, solar radiation.

Now, part of the difficulty with some of these units is that we really have to standardize some. In some cases, the precipitation measures are in inches, so they need to be converted to another -- to something -- or the evapotranspiration, which is in millimeters, needs to be converted to inches. So there's a lot of data compatibility issues we've got to take care of to really pull the data together and allow it to plug into our framework.

As I mentioned earlier, part of this is the water demand in energy requirements. And again, because this was partially -- this was funded by the Department of Energy, they really -- that's an important component here.

So some of what we have to do is estimate the daily household water demand, and for this, we use the EPA standard of 400 gallons per day for a

family of 4, and we're able to look at where the hot spots of demand are across the state.

Now, in some cases, we might want to look at families per square mile or things like that, but when we're trying to get an overall usage of data by certain areas of the state, we can adapt the census data and look at where the greatest water needs are today. And then, as we'll mention later in the presentation, when we start talking about projections and where growth will occur, then we can see where some of these hot spots will occur.

So another thing we need to look at is the groundwater levels. When we're talking about energy costs and the costs of withdrawing water, the deeper the well the higher the cost, I mean, of withdrawing the water. So we can look at, you know, the water levels for all groundwater wells, but then we can look at depth for domestic, for public supply, industrial, agriculture, livestock wells. And as we can see in the maps here, the domestic and public supply wells tend to be a lot deeper than the agricultural, the livestock, the irrigation wells.

So if we take our population map, which we saw earlier on the left, and then we use the water

depth, then we can make some assumptions on -- if we look at the wells -- the domestic wells, we made some assumptions on B. And the energy -- a well pump uses 1.16 kilowatt hours per day for each 10 foot of water lift. We can go and we can look at how many wells there are. We can look at the population, and we can figure out how much energy it takes to withdraw the water from the domestic wells.

So that's part of what we're looking at is combining that population data with the well depth data to give us the amount of energy. And then when we note the cost of energy, then we can assign a dollar value to the cost of pulling the water.

And one other thing we have to look at, obviously, is the individual water uses. So here, we left this at -- these maps here are a mixture of the parish and the individual water units and the aquifers. But we have this data down to the HUC 8 levels. But for these maps, we just want to show where some of the areas of total withdrawals are highest and what portion of that is groundwater and surface water.

So if we look up in Caddo Parish, for

example, in Northwest Louisiana, we see a real hot spot of withdrawals up there, and a lot of that is due to the surface water withdrawals, whereas in Chicot in the Southwest, we see more groundwater withdrawals. Obviously, in the New Orleans area, there's a lot more surface water withdrawals. Actually, the whole Mississippi River corridor from New Orleans to Baton Rouge shows really high surface water withdrawals.

So part of when we're deciding what study there is we want to look at is we want to see where the water uses are. We want to look at where we have surface water issues and groundwater issues and try to determine study areas where we can capture the most amount that we can.

And again, just if we break it down by the individual aquifers, we can see really the groundwater withdrawals from Chicot are extremely high and Southern Hills, whether it's -- we have the Jasper Equivalent and the Evangeline Equivalent. We see Baton Rouge has a really high amount of groundwater withdrawal. So these are some of the factors that we examined when we were trying to figure out what areas we wanted to look at.

And again, if we look at groundwater density, I think this really -- where are the most amount of wells? And we can see most of the surface really is driven by domestic wells. There's far more domestic wells than any other type, but we also want to look at where are the industrial wells.

We can see, as we mentioned, Caddo Parish up in the Northwest. We see a large amount of domestic wells, but we also see a lot of industrial wells. Obviously, the Haynesville Shale comes into play when we're talking about Northwest Louisiana. So that's the kind of issue that we're looking at -- that we might want to look at for our different study area.

If we look at the eastern portion of Chicot, we can see a large amount of aquaculture wells, irrigation wells, livestock wells, and domestic wells; so we really have a lot of different issues in that area. And again, if we look in the Southern Hills area, Baton Rouge, the Florida Parishes, we really see a large amount of domestic groundwater wells in that area.

So kind of analyzing that data with the technical coordination team, we identified our

three hydro units that we were going to look at. And again, just to reiterate, we wanted to look at areas that had both surface water and groundwater issues. We wanted to look at the conjunctive management of these areas. There's some areas in the state that are almost entirely dependent on groundwater and others that are almost entirely dependent on surface water. We wanted to look at where we could kind of see that interplay between the two.

And we also want to look at what water demand is in those areas. So we want to be sure we have people, where we can see population growths. We want to be able to identify, you know, the world needs in some cases, the urban needs in other cases. And, of course, one constraint on us is the data availability. We want to make sure we pick some areas where we have enough data to fulfill what we have in the framework.

So the pilot study area that we're working on right now is the eastern portion of the Chicot Aquifer. So we're looking at the Chicot Aquifer within the Teche-Vermillion Water Basins. That gives us our coastal aspect.

And part of the CPRA being involved in this,

also, we want to make sure that we are addressing some of the coastal issues, and coastal issues are some of the driving factors behind a lot of development in Louisiana now.

So part of why we chose this area was that coastal aspect to it, but there's also the agriculture, including a lot of rice, which is a water-intensive operation, livestock, industry, and then the urban and rural domestic. So Lafayette is included in this area as we cover the urban, also, and that is an area that is growing.

Now, our Northwest study area focuses largely on the Carrizo-Wilcox Aquifer. Portions of Sparta -- as you can see on the map in the upper left, Sparta also overlaps with this, but part of why we -- and that was -- we went back and forth on Carrizo-Wilcox or Sparta, but the Haynesville Shale in the energy exploration portion of it really adds something to -- a lot more to the Carrizo-Wilcox area. So that's part of why we went with that really new use of water that, you know, in past decades really has not been a big need.

There's been a lot of surface water basins that you can see that are included up here. Also,

we were able to include the Toledo Bend Reservoir, which brings a whole other issue to what we're looking at. And again, as we saw with Chicot, there is a mix of demand uses: agriculture, livestock, industry, urban, and rural domestic.

And the third study area we're looking at is the western portion of the Southern Hills Aquifer, and that includes the Baton Rouge area. Again, there's several surface water basins, but within Baton Rouge, there's a lot of issues with the different sands and the industrial use at some levels of the sands and rural -- or the public use and other levels of the sands.

There's a lot more -- there's a lot of complicating issues in the Baton Rouge area, which we wanted to make sure we covered a really urbanized area, and Baton Rouge gives us that, and it gives us the industrial area, also. We also have issues of saltwater intrusion in this area, especially across the fault line where saltwater is being pulled by both industry and public usage. So this really gives us our urban, industrial, and our water quality issues that we wanted to try to cover within the framework.

So again, our three -- our three study areas

we chose for data availability, mix of uses, existing supply and demand imbalances, and we wanted to make sure we covered different parts of the state and some unique issues that are specific to certain portions of the state.

So the next step is Activity 3, which is to conduct the appraisal, that's where we pull the data. We plug it in for our study areas. We want to apply the framework to our pilot study area -- we're in the process now with the Chicot area -- and then move to our other two study areas.

Also, part of this, we want to incorporate future supply and demand scenarios and see what is population growth. How does that impact what we see in our framework? How does that impact the future growth and sustainability of the water resources?

So again, we've, within the Lafayette area, Vermillion River Basin, gone through -- we've pulled a lot of our data, and we're fairly close to pulling the complete suite of data and now getting down to merging it together and coming out with our concrete inputs and outputs.

The last thing I want to mention is our future projections. Now, as these slides here

show, there's population growth and urbanization, and there's two different processes going on here that affect supply and demand. If we look at the maps in the upper left, and this is projections of urbanization in the future, and in 2020, we can see where the urban areas are. And then if we go out to 2060, the areas we see in red are new predicted -- or projected to be newly urbanized areas.

Now, this is important because an urbanized area adds that impervious surface where your precipitation can't make it down into your groundwater. When you have that impervious surface, you have a lot more evaporation. Some of the water ends up going into storm drains and into the sewage system, and then that ends up in the surface water. So the more impervious surface we have, we're reducing our overall supply of water.

But with that urbanization, we also have projected population growth. Now, the graph on the bottom shows a slow but steady climb in all the zip codes in Lafayette Parish, and this is projected out to about ten years. So we can project it further on different scenarios where we assume -- we can make the assumption that

population will grow at the same rate. We can make an assumption that the population will grow at a higher rate or that population growth stabilizes.

We can operate under a number of different scenarios with this, but with the projected population growth, there's going to be heightened demand on our ground or surface water usage depending on how that water is used today. So we would make the assumption that additional population growth would draw from the same water sources. So if it's a groundwater usage and we increase population by several thousand, then we can show that as additional demand on the water.

And we're going to talk about sustainability. That population growth could shift us from a sustainable situation without taking that into account. We could go into an unsustainable situation just based purely on additional needs for water.

And that is where we are currently on the process. If anyone has any questions, I'd be more than glad to answer them.

MR. SPICER:

Thanks. Any questions?

MR. FREY:

I've got a question. That last slide you showed, the population increase in Evangeline Parish puzzles me. That's around Ville Platte and Mamou, and I don't know of any huge increases in population expected in that area. I wouldn't argue with the Lafayette and New Iberia area, but . . .

MR. HEMMERLING:

A lot of these -- and these urbanization projections are going by --

MR. FREY:

Take a look at that.

MR. HEMMERLING:

Right.

MR. FREY:

That's highly suspect.

MR. HEMMERLING:

And I've looked at a lot of them, and what they are projecting, looking at the results, is it's going to be growth along the transportation corridors. So it's going to be growth on 90. It's going to be growth along the I-10. It's going to be growth along the I-12. So it's, you know, looking at past -- they look at

past project growth, and they're projecting it largely along the transportation corridors.

MR. FREY:

Again, take a look at it.

MR. HEMMERLING:

We have that written down.

MR. SPICER:

Any other questions? Mark.

MR. DAVIS:

Scott, when you're looking at -- when you mentioned gaining and losing streams, that's when, essentially, surface water and groundwater share a hydrologic connection.

MR. HEMMERLING:

Right.

MR. DAVIS:

Are you going to be able to have at least some kind of inventory of, you know, what bodies -- surface bodies of water are gaining and losing bodies of water so we'll know where, if we encourage groundwater use or surface water use, that we're not going to have unintended consequences of essentially negatively impacting the other?

MR. CLARK:

We are using a technique that does coupling, so we should be able to get a lot of those answers.

MR. DAVIS:

Because I know if you look at other states, you know, Georgia had an experience back in the '80s where they encouraged people to get into groundwater to relieve surface water pressure, and they went into it saying these were essentially connected bodies of water where they had to drain the rivers anyway.

MR. HEMMERLING:

Well, that's going to be -- that's part of why we show Carrizo-Wilcox in the Northwest, because there was a -- I mean, there was a specific effort to get people off of using the groundwater and going to using surface water. So that was one that we can look back, you know, 2000 -- prior to 2008 and post-2008 in that area and see what those impacts were based on kind of that push to shift to surface water.

MR. DAVIS:

And my second question is -- because, obviously, you're going to have to work with the data you've got, but many of these waters we're

talking about are interstate waters. You mentioned, you know, Toledo Bend, some of these aquifers. And, you know, what we look at is inputs, you know, and uses are not exclusively, you know, those within Louisiana's jurisdiction or control.

I don't, you know, currently expect you to, you know, figure out what those should be, but I would very much, you know, welcome, you know, kind of a list of, you know, variables or unanswered questions, because the real problem, as we know, with sort of groundwater availability, we don't have data for a lot of things. Some things are beyond our power to generate the data, but it's also incredibly difficult to manage things you do not measure.

MR. HEMMERLING:

Right. That's where a lot of it -- and that is -- that is definitely a data gap, but a lot of it, when we look at the inflows and outflows between -- the different river gauges, you can see that some change has occurred. And, you know, when we do it in the balance, there probably will be some unidentified change in storage that just -- it's not accounted for in

these variables, and that's the kind of -- probably exactly the kind of thing that you're talking about.

MR. SPICER:

Fred.

MR. ZAUNBRECHER:

Is there any data that supports the effects of the phenomenal rainfall that we've had this year on the recharging zones on the aquifers? Because it seems like, with the amount of rain that we had at least for the first six months of the year, that there would be a substantial increase or a gain of water resources in the aquifers themselves.

And it would just be interesting to know what happens there because of the fact that when we do have a drought, that's when you hear all of the naysayers complaining about, you know, drawdown to the aquifers. And I'm just -- I'm just interested in trying to find out what effects a phenomenal rainfall year or an abnormal rainfall year would have on the recharging areas and the position of the water in the aquifer.

MR. HEMMERLING:

Well, I think that's a part of -- a

lot of what we're working on with, you know, how much infiltrates and how much runoff do you have. And, I think, in some of the models that we're looking at, I think -- especially when you have a tremendous amount of water, a lot of it will run off, and it won't actually -- if it rains too much, it can't percolate fully down.

But I will say that we do average -- was it a 30-year average on rainfall?

MR. CLARK:

Yeah.

MR. HEMMERLING:

So we are running it on an average, which would -- I guess it would chop off, you know, that really high end that you're talking about that -- the actual percent of -- well, we could look at rainfall events and determine how much runoff and how much of that is runoff from a large rainfall.

MR. ZAUNBRECHER:

I understand that the effects of a lot of rainfall in a short period of time, --

MR. HEMMERLING:

But if it's extended over a long period of time.

MR. ZAUNBRECHER:

-- that will lead to a lot of runoff, but, I mean, this was basically the first six months of the year. And, I guess, it would also be a function of the size of the recharging area that would make that difference, too. So thank you.

MR. HEMMERLING:

Right. And like we mentioned with the urbanization, how much of that recharge area -- how much of that has impervious surface on it now versus how much of that recharge area is available actually for recharge.

MR. SPICER:

All right. Any other questions? Kyle.

MR. BALKUM:

I have a question on the minimum meteorological flow, and certainly the variable had to be challenged when we did that. It's species-specific, habitat-specific. How are y'all addressing that this time?

MR. HEMMERLING:

Part of that, we are actually talking with The Nature Conservancy for their freshwater

assessment and trying to get their data to plug into this, but they take a lot of that -- especially with the surface water, they take a lot of that into account. And then that's kind of where some of the ecology expertise within the Water Institute is going to come into play to assist us with that portion.

I know there were studies on -- within the Southwest when they talked about taking water into Texas and what impact would that have, so there are some preexisting studies that we will kind of base some of that on, so . . .

MR. BALKUM:

So a lot of it is going to be expert opinion?

MR. HEMMERLING:

Yeah, and depending on some of the -- you know, the data sources that -- because The Nature Conservancy has their freshwater assessment, and what they're using for their model inputs and outputs could really help us plug that gap in our model.

MR. SPICER:

Since there's no more questions, thanks, Scott. I appreciate it. And Matt

mentioned earlier that we're going to have a public comment period at the end of the meeting, so anyone attempting to make any comments, please fill out a card. You can get a card, I think, outside the door there on the registration table. Is that right?

MR. REONAS:

Right.

MR. SPICER:

Thank you. All right. The next presentation is going to be an update on the road to a water code for Louisiana, Mr. Mark Davis.

MR. DAVIS:

Good afternoon. I'm Mark Davis, fellow commissioner, but I'm also the Director of the Tulane Institute on Water Resources Law and Policy. One of the things this commission has been asked to look into is what changes to Louisiana law governing water should be put on the table. Also, there is another body in the state, Louisiana State Law Institute, that has been asked by senate resolution to develop a -- you know, some kind of a water code for Louisiana.

So we have two efforts at the state level that ultimately need to be harmonized. And just

so you'll know, we have been working with both the commission and the Law Institute to make sure that that does happen. I'll give you a little coverage about where those things sit right now.

Let's begin by taking a quick look at, you know, what's going on in the water, because, you know, a water code that is unrelated to water management is not really of much use. It doesn't mean that that's not the way we've traditionally done it. It, in fact, is.

But what we're seeing is that around the United States and around the world that change in water availability, some climate-driven, some weather-driven, and some just too much demand for limited resources. And these headlines I'm putting up are all from within the last couple of weeks.

Just to give you an idea, and this is one where you can actually now buy bottled water for $26 on the pound, which tells you that we're looking at water as an amenity. And the people are stealing water now, including -- at least there was a little story about Tom Selleck's, you know, land manager perhaps using a little water that they weren't entitled to.

But it's getting to the point, and in some ways -- you know, Paul Frey's point, I think, makes this apt that we can't assume that places that people and activities have been is where they're going to be. There are places that are running out of water, at least affordable water, and those folks and the businesses will be looking to relocate. Whether we're on the receiving or losing end of that here in Louisiana depends in large part on how we manage our future.

But this is -- this is something that we're seeing where water management is becoming something that is no longer just for water managers, and people are starting to realize that the costs of not having an available usable water supply is dramatic.

So I think that's the other thing that -- you know, we almost all worked under the assumption that we're working with very limited resources. What we're seeing from our neighbors is that, you know, when it becomes -- gets to this level, not only are they looking at creative ideas, but they're looking at expensive ones. So I just want to point out that that's happening.

And there's one other headline I didn't put

up there but does get to, I think, the point that Mr. Zaunbrecher just made that -- you know, there was a headline in Texas a week ago that there is not a single county in Texas that is currently under drought conditions. Do not think that means they don't have a water problem. Just because they are no longer in drought does not mean their water supply issues have gone away.

And again, I think all the members of the commission have been, you know, told about the pending permit application in Arkansas to take Mississippi River water and deliver it to Texas for sale. Those things are part of the future.

And the real challenge is that we're playing a game, you know, but we're playing a game of risk, and Louisiana is playing with checkers rules. And so I think we're going to have to really understand how whatever kind of legal system we set up is matched -- you know, matches the scale of what we're managing and what we're managing for.

As I mentioned earlier, this commission has been charged to develop recommendations for the legislature and is certainly well underway in doing that. The Louisiana State Law Institute is

in the process of creating a water code committee. That has not progressed to the point where they have begun work and partly because the Law Institute member who is identified to lead that effort has not been able to, you know, step into that role, but they will be doing that, and they have some resources.

The other is really our institute down at Tulane. We don't have the legal mandate from the legislature to do anything, but it is our mission to facilitate this kind of work, and so we are actually working very closely with this commission and the Law Institute, and we're putting, you know, our resources into the reconnaissance work, and that's really what I'm going to focus on today.

Getting back to, I think, you know, Commissioner Welsh's point about sustainability, which by itself is not a defined term, that we're largely taking the view that whatever laws that we're a part of, putting together, you know, the law should follow the function and purpose that you need water for, and they should relate to the real world, not merely tradition, and that it has to be predictable enough that we can build

governance and economic expectations around it but flexible enough to realize that water is dynamic and so are its uses, and that it needs to integrate science, policy, management with law.

In our case, you know, we certainly could have done, you know, what lawyers are very prone to do, which is start writing, looking at what other people have written and put together something that looks extremely coherent on paper but, at the end of the day, is absolutely unrelated to use. And, quite frankly, that's the water system that we have in Louisiana right now.

A lot of the work that we've been doing has been involved with working with The Nature Conservancy and the Water Institute of the Gulf and the Army Corps of Engineers to both better understand what they understand about water, but to see where this water budget idea is going, because we believe that that is fundamental to writing laws that will work for us. And that, again, I want to caution, you know, is not the way we've normally written laws in this field.

I mean, water law in America, around the planet really, and certainly still in Louisiana, is absolutely divorced from hydrology. It is

absolutely divorced from ecology, and it is largely removed from the uses that we now need to put water to. And that's really our challenge is having, you know, to respect those transitions but put ourselves in the role where we can, in fact, manage it.

So we're working right now with The Nature Conservancy, the Water Institute of the Gulf, and others to make sure that we understand where our hydrology is, what we know, what we don't know. But I would once again emphasize that it is extraordinarily difficult. You can write perfect laws, but if you do not have the ability to implement them because you don't have the resources, it's no one's jurisdiction, or you don't have the basic information, they will not serve you.

So we've already done -- we're largely finished, and we're just updating a review of what Louisiana water law is currently, and that, you know, from the narrowest standpoint, talks about who can use groundwater and surface water for what, but it also touches on things such as drainage law, navigation servitudes, levee servitudes, what happens when rivers change

course, as they're still doing. All of those things come with public rights, public duties, private rights, private expectations. So we are updating our work on that.

We've also been looking at, you know, how our sister states are handling water, particularly the same waters that we share. For example, we've already reviewed what water law is in Arkansas, Missouri, Mississippi, Tennessee, Kentucky, and Florida, and we're also looking at the model riparian water code and how it was developed.

Similarly, having law on paper but not knowing how they're administered isn't terribly useful. So we're looking at those same states to see how you would administer it, because some of them have elaborate and very expensive administrative structures. And if we were to copy the laws from one State or use that as our inspiration, we have to understand what kind of administrate set up the case.

And Louisiana isn't currently set up for much administration. We need to understand what data you have and also what drives water use. Most of the states we're looking at share what we would call a riparian tradition, and that is one where,

you know, water use is driven by the needs of those who live next to the water or near it.

There's nothing perfect about that, but that is the system that our civil code is based upon, and the alternative in American, you know, legal traditions is one where you're treating water as more of a property right. There's nothing wrong with that. I can accept when push comes to shove, as, I think, we're now seeing in California, you find out you may have had one set of values, you know, when you created rights 100 years ago that do not match your current demands, economic activities and expectations, and they're extraordinarily difficult and expensive to undo.

We're also looking at how all those states handle surface water and groundwater, because those things are increasingly being managed in a unified fashion elsewhere. And Arkansas is probably the best model that we have that is applicable to us, which is useful since we also share a number of rivers and aquifers.

And even if Louisiana says no to things like interstate transfers of water, as we already see, it doesn't take a terribly creative person to say, well, what if I step across the border and make

my -- you know, propose my idea there? And they start mining. And that's what we're really worried about here is mining. We've seen water beyond the ability to sustain, you know, necessary activities, because one day mines close, and then what happens? So that's really where we are in this process.

We'll also be looking at federal law, because while water law is primarily a state law matter, it's important to realize what we -- where we put federal law into the management equation.

For example, if you ask the Federal Government to build you a reservoir, Federal Law is going to have a big role in determining how that reservoir can be used. This is what we're learning very clearly from California and elsewhere and, you know, Georgia.

And, also, when you're looking at ecologic function, the Endangered Species Act is not designed to be a water budgeting act, but it does set certain minimum management requirements when you're managing flows. We need to know what those are.

So those are the kinds of things we're looking at, so we hope that within a matter of

months, we'll have, you know, essentially this matrix together that will match up with the work that's being done on a science and hydrological side, that we'll be able to make some strong recommendations both to this organization and to the State Law Institute.

Law in this view -- in this context, should reflect policy. Policy is not going to let everyone get exactly what they want all the time, and that's why I think it's going to be very, very important for bodies like this to help chart those -- those courses, indeed.

The definition of sustainability in water for most places is not necessarily matching inflows to outflows, because groundwater, generally, when you start getting to confined aquifers, you may have a very large confined aquifer. There's no reason not to use it, but there's no way that it will ever recharge on a, you know, human society scale. It doesn't mean you shouldn't use it, but you should know that's more akin to a coal mine than a river. And those are the kinds of things that we need to be focusing on.

So we look forward to updating you as this goes along. We look forward to working with you,

and I do think for the next meeting we can certainly give you some information about how others are defining and managing, or wishing they could manage, terms such as sustainability. And I think we're going to find this is going to be quite an adventure. I'd be happy to answer any questions.

MR. SPICER:

Any questions for Mark?

(NO RESPONSE)

MR. SPICER:

Thank you, Mark, for your presentation.

MR. DAVIS:

There's one thing I would like to point out, and that is that this is going to be very resource-intensive. I mean, one of the reasons, I guess, we're able to do some of this is that we're able to write grants and take gifts and do partnering arrangements. We have a minimal understanding with The Nature Conservancy, and that's about $3 million worth of work we wouldn't have access to otherwise. And I'd like to thank the folks at the LSU Sea Grant Program, because they've been a very important partner with us in

all of this.

And finding the resources to do this well on the front end is going to be critical, and so I think, as you heard from Scott, we'll -- I would anticipate at the end of this first level of activity, we may have a number of questions that we have to find the resources to address. And we shouldn't expect it to come in, you know, at a bargain basement price. And that's a tough thing to put forth to the legislature or anyone right now, but I just wanted to prepare you for that. Whoever is going to do this work, this has to be produced at an extremely professional level.

MR. SPICER:

Kyle.

MR. BALKUM:

Mark, you mentioned the Arkansas water plan is a particularly good example?

MR. DAVIS:

It's a good example of how they're doing it. I'm not saying it will work for Louisiana but the things that they've been going through, because they've just gone through a reevaluation of -- and a water plan is not the same as a water code. You need a water code

generally to build a plan upon. I'm just saying that we are looking out there.

We have not found anyone that we can say, ah, they've done our work for us. There are places that have done a better job and that we can learn more from, but I would also throw out one additional caution, and, that is, we are the only civil law jurisdiction in the United States.

Even if we found a state that we thought had done it perfectly, their approach to law is so fundamentally different than we would -- like, we would have to be doubly thoughtful as to whether or not it's something we could just drop into place, because the roles of courts and legislatures are different in every other state than they are here, so . . .

MR. SPICER:

Any other comments?

(NO RESPONSE)

MR. SPICER:

All right. Thank you, Mark.

MR. DAVIS:

My pleasure.

MR. SPICER:

Next, we're going to have an update

on the groundwater management across the state. Matt with Office of Conservation.

MR. REONAS:

Mr. Spicer, if you would give me a minute to get it loaded up.

MR. SPICER:

Okay. (Complying with request) Are you ready, Mr. Reonas?

MR. REONAS:

Yes, sir. Thank you, Mr. Spicer. Recognizing that we do have some new members here today, primarily, I want to use this talk as a refresher or as an introduction to some of the groundwater management issues that we've been dealing with around the state, along with kind of a refresher for the members that have been here awhile.

First off, I'd like to recognize our new Administrative Coordinator for the Office of Conservation and particularly for this Water Resources Commission that will be working with us, Stacey Dykes in the back. Stacey, if you want to give us a little wave.

MS. DYKES:

(Complying with request)

MR. REONAS:

And, of course, the rest of our staff, Teri Tharp, -- Teri was just down here -- Christen Willis and, of course, our Executive Director, Gary Snellgrove, and some of the other staff that are out today but that have certainly helped us in the past.

But, first off, I did want to go through a quick legislative recap. If you recall back in June -- well, throughout the legislative session, we would send out periodic updates on potential bills that were working their way through the legislature, and I did want to kind of go through a quick recap of those.

And you should have in your packets a copy of the last recap we did in June. Since then, all those -- most of these bills have passed on and have been signed by the governor and have passed into becoming acts. There were a number of resolutions as well -- water resource resolutions. I'm not including those particularly in today, but they are in the recap, if you want to go back and look through those.

Act 34 expanded the regulatory power and authority of the Bayou Lafourche Freshwater

District. You do have their Executive Director of that district here, but it was -- we thought it was an important piece of legislation in that the Bayou Lafourche District provides drinking water to, roughly, 300,000 people in that particular area. It's also a key part of the energy highway down to the coast and the infrastructure, and so it moved through the legislature very quickly and efficiently.

Act 401 removed the legislative references and provisions, so basically, the legislative authorization for the Allen Parish and Ouachita Parish Reservoir Districts. It's basically deleting those from the record.

Act 402 defined the definition between state-owned and privately-owned land around False River and Pointe Coupee Parish.

Act 442 reauthorized the work of the Bayou Vermillion District and changed the name of it to Bayou Vermillion District in Lafayette Parish.

And then Act 450, which is particularly relevant for this commission, it provided an exemption or an exception for financial disclosure. So everybody on the commission that had to fill out their financial disclosure, it

exempted that requirement for members of commission boards and commissions, including this one, that do not handle an annual budget of $50,000 or receive per diem compensation for their service.

So going forward, any of the commission members should not have to fill that out, to our understanding, because again, this commission doesn't handle a budget. And then, of course, there's no provisions at this point for per diem reimbursements and such. And we do appreciate y'all's service in that situation.

So those were the -- again, in terms of water resources, a pretty light legislative session and, you know, especially compared to recent years. So those are the main acts that passed through, and again, there were some resolutions, and those are included in the legislative recap.

Moving on -- and this touches on a point that Mark made about the need for resources going forward. This is -- I want to provide an update on the expanded groundwater monitoring network, and as some of our long-standing commission members will remember, this group started out as the Groundwater Resources Commission before

changing to the Surface Water -- or to the Water Resources Commission after the 2012 session. So really its basis was in groundwater and the need for some oversight and understanding of groundwater needs and resources in the state.

So one of the key things that that commission did, an ultimate accomplishment of that commission was, in 2012, a pretty substantial report to the legislature, which Mr. Angelle was very proud of and I know all the commission members that participated in that are very proud of as well. So our new members should have this in their packet.

Stacey, do we have some in the back as well?

MS. DYKES:

(Nodding head)

MR. REONAS:

So for some of the commission members that perhaps have misplaced theirs over time or any members of the audience, we do have some copies in the back and can provide those for you. They're also available online, as are the past three years, 2013, 2014, and 2015. The Office of Conservation has put together short recaps of the major recommendations and some of the key issues

and kind of where things are.

So that's just something we've taken on ourselves to update, the big commission document that was put out in 2012 just to update it with these annual recaps, and we do have copies. The 2013, the 2014, and 2015 are online as well, and we can provide those. You know, just let us know, or you can go to the Groundwater Resources website and access them that way.

Getting back to the main point here, really the number one priority that was highlighted in this report -- in this 2012 report to the legislature was the need for groundwater monitoring, the creation of a substantial and a robust network.

What had happened really since the 1980s -- a peak of monitor wells, observation wells, in the 1980s that the groundwater network had essentially degraded or deteriorated over time, to the point where we only have about 250 or so monitor wells around the state. And in large portions of the state, we didn't really have a good understanding of groundwater levels, saltwater intrusion, water quality in aquifers that provide, roughly, half of the state's population of their daily drinking

water and nourish about two-thirds of the state's agriculture.

And this is the point I've hit on in the past at these commission meetings was that we just were basically blind, that we didn't really have a good sense of what was going on in our state's aquifers. And the commission at that time, again, recognized that, and that was really the number one priority -- the number one priority highlighted in this report. There were a whole list of other recommendations, but that was really at the top of the list, the need for an expanded monitoring network.

The Department of Natural Resources working with the Office of Conservation, we ended up going out and were able to find approximately $3 million, three years of funding, 2013, 2014, 2015, to expand the groundwater monitoring network. And this was through the Federal Petroleum Violation Escrow Account, and so we were able to, some of the key accomplishments of that funding, add about 350 water level, water quality, and chloride monitoring wells across the state. We were able to provide annual water use statistics and an annual water use report instead

of the usual five-year report that had been previously published.

So for 2013, 2014, and coming up into 2015, we will have, like, annual statewide water use statistics, which to me are some of the most user-friendly and readily accessible information that's out there; of course, on the technical side, the water -- the observation wells and monitor wells provide a tremendous amount of data up-front.

And then we were able to put together -- again working through USGS -- US Geological Survey, were able to begin revising some of the potential potentiometric maps of aquifers around the state. And all of that was part of this DNR contract, again, funded through the Petroleum Violation Escrow Account; some funds were also -- we were able to update some of our surface water monitoring through the Louisiana Geological Survey as well.

As noted in previous meetings, there is a need for funds beyond fiscal year 2015. The contract is up this year. We were able to work with USGS to extend the bare bones of the project through the end of the calendar year -- the end of

calendar year 2015 to provide essentially to keep the monitoring of the monitor wells in place and focus on that work, which we consider the core of the program.

We have put in four separate applications for an extension of funding through June 2016 for this project in the hope that if we can get an extension of that funding that -- coming up in the next fiscal year, we can look to the legislature or some other source to continue this network, because at this point, right now, the program will be winding down. This expanded network program we've basically sort of -- that we've beefed up over the past three years will be coming to an end. There are no more funds available.

Like I said, we've put in four separate applications, the PVE. We're waiting to hear back on the last one definitively whether or not they will fund our request for additional monies to carry the bare bones of this network project through June 2016. That's kind of where it sits right now.

But beyond that, there are no funds available, and as Mark noted, this research, this data collection, and Karen you can attest to this,

it does not come cheap. You want it professionally done, and somewhere, somehow, you know, it needs to be funded. Now, of course, where that money is going to come from and whether or not that's a priority at this point in the state, that's beyond my pay grade, but that's essentially where it is right now.

This program will end -- right now as we're speaking, will end at the end of this calendar year. If we can secure some funds through 2016 -- through June 2016 from the feds, then we'll carry it through then, but at that point, even if we do get the funds, it will end at that point if there are no other funding sources available.

We, basically, really wanted to put that on the record for the commission to understand in their capacity as an advisory body to the legislature and the governor and in their capacity as, you know, members of different state agencies, to understand that this network, that the Groundwater Resources Commission, the precursor to this one, made the number one priority back in 2012 in a report to the legislature.

DNR was able to go out and find some money and was able to build this network, but that will

come to an end, and again, we will be back at a point where, in large portions of the state, we don't have sort of eyes on the ground of what's going inside of our aquifers.

And I want to stress this very strongly, I suppose, that in a state that where half the population relies on groundwater for their daily drinking water and two-thirds, roughly, thereabouts, of the state's agricultural districts or agriculture production relies on groundwater, especially Northeast Louisiana and the Chicot Region in Southwest Louisiana are the bread baskets of the state -- it's something that needs to be a high priority. It really falls on this commission, I think, as, you know, the state's body, to provide comment and oversight of water resources in the state, to consider that.

And again, we will keep you posted on the outcome of the PVE requests, and that's essentially where we are right now with it. And, again, like, I guess, if there are any comments, I can take those as we go through.

MR. DAVIS:

How much do you need?

MR. REONAS:

I think our request for -- our current request through PVE is for about -- is for a little over 300 and -- about $370,000 is what we're requesting for the bare bones through June 2016. And, again, we're kind of in a waiting game right now to hear the final disposition of our most recent request to that fund.

But they've been very explicit in saying that no matter what happens, if they grant the request or not, that this is not a source that we can look to in the future for funding. So, I mean, that's a source that -- although their interest is in energy and the energy-water nexus, that this is not the -- I guess they feel like they've given us enough rope here to get us -- or given us enough of a leg up to get started, and at some point, the State needs to pick up the tab in going forward.

MR. DAVIS:

On a state level, what options do we have? Because I realize that, you know, you get to go to, you know, various mysterious parts of the budgeting processes and different agencies that might do this, that, or the other. But, you know, what alternatives have you identified, if any, for not only getting us through this bump but

the next one?

MR. REONAS:

Well --

MR. DAVIS:

I share your concern that -- I mean, if we can't fund $300,000 to do something that's just absolutely vital to the well-being of the future of this state, then I can promise you there are people around this country who are making plans for our water resources that we are not the beneficiaries of.

MR. REONAS:

I'll go back to the resolution that this commission passed in June 2013. I think at that time, there was a lot of interest in a water plan, and that's sort of the genesis of the current project with the Water Institute that Scott and Ryan talked about earlier, again, sort of putting together sort of an understanding of sustainability and water use around the state and how that is managed.

But that resolution in June of 2013, was looking towards -- striving to mesh the coastal master plan with a statewide water resources plan. As you know, Mark, I mean, you can't really get

away from the coast in talking. And, certainly, Louisiana is in a different position than really any other state, maybe some of the other Gulf States, but certainly a very different position than in Mississippi or -- maybe perhaps the most relevant would be Florida, but somehow mesh those two together. And I think at that time, the commission was looking towards some of the BP settlement funds. But again, that's sort of still up in the air and that was a resolution that came through this commission -- from this commission in June of 2013.

I mean, the other source, of course, would be you know, the State, the legislature, but again, that's a level above me in terms of that -- putting that together. But that is where things lie with this groundwater monitoring network and going forward, so . . .

MR. SPICER:

Matt, Gary, do you think we ought to redo that resolution?

MR. REONAS:

You know, I'm not sure. I mean, I guess that's up for the commission for debate.

MR. SPICER:

Karen.

MS. GAUTREAUX:

You know, I'll echo the words that have been said here today. This is an incredibly important investment for so many sectors across our state. And I want to highly recommend we do that resolution, and I would recommend that we add on even to seeking just -- and I understand the purpose at the time. It was a very good idea, through CPR, especially, I think it was, if I recall correctly, linked to Deep Water Horizon funds at that point.

But I'll recommend that we tweak the resolution to reflect the State seeking funds wherever appropriate, and I'm thinking appropriations is one avenue, and I know that there are constraints with state agency staff recommending that, but I highly recommend that we pursue wherever that money can come from, that we -- that the State makes this investment.

MR. SPICER:

Will you make that in the form of a motion?

MS. GAUTREAUX:

I'll make it in the form of a motion

if someone can say it nicely, yes, that the Water Resources Commission makes a motion, and I'm not sure exactly how it should unfold functionally, that the State of Louisiana pursue continued funding for the monitoring program as prescribed today.

And I'm wondering -- and I don't know if this is a separate question, that we look at the other recommendations that are going to be made in terms of that investment. I don't know if you need the break amount or make it one, but we certainly want to encourage funding sufficient to reflect the investment that's needed for sustainable future water resources in Louisiana.

MR. DAVIS:

I second the motion, whatever it was.

MS. GAUTREAUX:

Yes. So I guess I would like sense of the commission. Do you want to have a limited motion relative to the groundwater monitoring network at this point and then work on something for the longer term? I mean, I think we need both levels.

MR. SPICER:

Okay. Yeah, that's fine. Mark, is

it agreeable to you that you are seconding the motion she just made?

MR. DAVIS:

Yes.

MR. SPICER:

All right.

MR. CORMIER:

And I just want to put on the record that I think it would be -- in light of the recent announcement of the BP settlement monies, this would probably be a good place to pull some funding for this particular cost.

MS. GAUTREAUX:

And I don't think I would say don't look there. I would just say if we don't get it there, let's look to other sources as well. Yeah, I agree.

MR. CULPEPPER:

I would also recommend that it be ongoing so we don't have to do this every year or every few years, so if we can look to some kind of dedicated funding source, I think, we can really definitely work with.

MR. REONAS:

Well, for that resolution --

MS. GONZALEZ:

I believe that was in your motion, though, because you said continuous fundings.

MS. GAUTREAUX:

Right. I was thinking maybe dedicated funding. I think we should look at all potential paths of funding to make this investment, whether it's appropriations, if it's Deep Water Horizon, that, basically, the commission acknowledges that our water resources require an appropriate investment and, you know, we need to find that funding.

And I think that my only question was, do we want to open it up to everything we need in the future or specifically with request to this -- I think we do for the future, but specifically with regard to the request for the monitoring. That's all I was asking. Do we need a big one to cover everything, or do you want to go -- and I think we need both.

MR. SPICER:

Okay. Gary, would you like to --

MR. SNELLGROVE:

Yes, sir. Yes. I just would like to offer -- or the commission to maybe clarify.

Certainly, the Office of Conservation can meet the effort on researching and investigating these opportunities. Would it be appropriate for the commission to authorize the commissioner to -- and his staff to investigate this instead of having -- it sounds like it's -- you guys are probably not going to sit around today and come up with a resolution that you could probably vote on, but it would be great if you could, but I'm just imagining that the level of details that would be there are needed to collectively, as a body, look into that.

So maybe, what I'm suggesting, of the commission would be to maybe look at the Office of Conservation to -- you've tasked us to take that lead, and let us go out and get something back to you guys, you know, within a reasonable time frame.

MS. GAUTREAUX:

Well, what I'd like to suggest is, number one, that we make a motion to support pursuing funding for this -- the monitoring network and make it a priority. And I think the second idea is a good one in terms of having a little better wordsmith on the long-term

dedication just so everyone is comfortable with the language.

MR. SPICER:

What would be great, then, also, is that we would have that available to us for the December meeting. That would give us time for the legislature to --

MS. GAUTREAUX:

So do we want to -- on the short-term, do we want to vote on that today, just the short-term funding, that the State prioritize continuing to fund the monitoring network? I think that --

MR. SPICER:

Well, if we do the resolution to ask the commission staff to develop a proposal or a resolution for us to vote on in December, and I don't know if we need any --

MS. GAUTREAUX:

I guess that's my question. Is it helpful for the purposes at hand to have an expression from the commission on that monitoring network at this point, or is there something that can be blended in to make it more nicely worded by our December 18 meeting, which I don't object to.

MR. DAVIS:

Well, if I heard correctly, the current arrangement runs out at the end of this calendar year. That would give us essentially one week in a holiday period, you know, for that resolution to have effect and mean much. I mean, I would very much prefer, you know, to go on record today saying -- at least I, as a commissioner, believe that, you know, it is imperative that we find the resources from whatever source to continue that monitoring program. That would be my first thing.

Then I would be very, you know, interested in directing, you know, the commission staff through the Office of Conservation to develop a more comprehensive resolution for future resource, you know -- resourcing of this work for consideration in December, where we can actually have wordsmithed it, thought it through, and then really be aiming at the next administration and legislature.

But it really -- I would not feel that I was doing my job as a commissioner if I waited, you know, on that first piece. I think that it -- you know, not only is it vital to have that

information, but I think the message that we would send to others -- and if we were to allow this effort to even pause for lack of $300,000 -- 370,000, I don't want to be part of that message.

MR. SNELLGROVE:

I'll clarify for the record. I did get word from our grant folks that the BP funding will be available for our use, this 370, through the end of June of 2016, but again, that is a --

MR. DAVIS:

We are extraordinarily effective, are we not?

MR. SNELLGROVE:

So good news on that front, so -- but not to water down the sense of urgency. I respect that. And, certainly, I want to make sure that you guys understand that we will be out of the PVE, but as Matt had stated earlier, we do not expect to be able to have any opportunity in the future beyond this -- this fiscal year -- to the end of this fiscal year to use that PVE funding for this purpose.

MR. SPICER:

So then I guess it's appropriate to do a short-term resolution? Anybody?

MR. DAVIS:

I like it. I mean, I just think it's important to make sure that we're on the record showing that we think, you know, that effort goes forward. And, quite frankly, you may find out you need more resources. I don't know, but I'm saying I'll yield to the rest of you. I'm glad to hear that information, Gary. That makes me feel a whole lot better but not enough to, you know, trust that future.

MR. SPICER:

Well, it's up to the commission, whatever you want to do. It's nice to know we do have time, and if we do it in December, then that's gives the opportunity to work with the legislature, so -- Ms. Mitchell.

MS. MITCHELL:

Yeah, I was just going to ask if the 370 -- if you believe that it's sufficient to get you through June of '17 -- of '16.

MR. REONAS:

That would cover the core monitoring. We didn't drop them off the water use reporting, which again, DOTD had been compiling that for USGS every five years. Again, a lot can happen in the

span of five years. We can miss a lot. Then you would also -- we had also cut out the potentiometric map revisions. A lot of stuff hasn't been really revised since the 1980s, 1990s, so a lot of it is out-of-date.

But you get the -- you keep the core monitoring program, the groundwater network, and the surface water network improvements that were a part of this whole package, so you keep that intact.

And that's really the key part of it in terms of having that consistent record over time of water levels and trying to understand what's going on inside our aquifers. Is it just sort of a temporary drawdown, is it a recharging, or is it something more serious that we're seeing in terms of a water level decline in specific aquifers?

And that was the real issue is that some areas in the state, in particular -- as I'll talk about here in a minute, some areas of the state have a very detailed and long-scale history -- monitor history, East Baton Rouge Parish and the Capital -- Capital Area Groundwater Conservation District, because there's certain issues here locally. There is a strong, consistent record

going back. Other parts of the state, it's just not the case, and that was really what this was trying to improve, monitoring those areas that really hadn't had a consistent record. But so that will keep the program intact into -- the core program intact into June 2016.

MR. SNELLGROVE:

I would add that that knowledge of you mentioning bare bones, as Matt has put it, it's nowhere near the level of the first three years that we had pursued and were able to fund with USGS and LGS. That was more like a million a year.

MS. MITCHELL:

Sure.

MR. SPICER:

Thank you. Any other questions or comments?

MS. GAUTREAUX:

Well, I'm just wondering now, FY '16 -- I was thinking December. I don't know. I certainly think we have affirmation that there is concern that this should be a priority. We're not running out of money on December, and so I would be -- if people are more comfortable with having

it researched by staff and coming back at our December meeting, understanding that we all agree this is a priority, I withdraw my motion, if that's --

MS. MITCHELL:

And that's where I was going with the question, to follow up on Karen's comment, is that if it's not as urgent and if we can still get through carrying out the core function, that we do come back in the December time frame with a more thought-out and thorough and detailed resolution that we can all look at.

MR. SNELLGROVE:

I'll mention this, too. The December date, the next commission meeting, is very tentative, you know. If needed, we could convene definitely before then. We can come back in October. I would recommend sometime, you know, well in advance of Thanksgiving. And then again, if there is another need thereafter, we can meet again in December to polish things up. But that's very flexible, and we're here to administrate that and whatever the will of the commission is.

MR. WELSH:

Gary, this must be pretty new

information, the availability of the PVE.

MR. SNELLGROVE:

It came in 10:00 a.m., earlier this morning. There was some discussion as to whether or not what was reported was definitive, and we had gotten clarification, and it came in just --

MR. WELSH:

That's great. For you that don't know, this was a very tight thing going on. We weren't getting very favorable responses, but this is very good. I'm glad to hear it. I'd like to thank the Department of Natural Resources staff, the secretary and his staff, for working hard on that to get that PVE money approved. So I thank y'all very much.

MR. SNELLGROVE:

Yes, sir.

MR. WELSH:

Good.

MR. SPICER:

Any other comments?

MR. REONAS:

So just to clarify, is the commission staff, Gary, myself -- y'all would like for us to put together a resolution -- a short resolution

that could be considered at the next meeting? That's the case?

MR. SPICER:

Yes.

MR. REONAS:

Fair enough. Okay. Well, staying in the realm -- staying in the realm of data and its importance, the Agency also wanted to update the commission on its efforts to improve water well registration and ownership data in the state.

As most of you are aware, the State did not have a comprehensive new water well registration requirement until the mid-1980s, 1985. So many private domestic wells at that time that were already in existence were grandfathered in. And as we have noted in some of the previous updates for the commission, there are essentially an unknown number of unregistered, undocumented water, private -- mostly private domestic wells that are out there.

Now, currently in our database, which we took over from DOTD and continue to update and make accessible, we have more than 200,000 water wells around the state in our database right now, but we do know that there are ones that are not

registered, and that's something that we have tried to work through and tried to determine ways to get those registered or provide education to people that own those wells as to why it would be beneficial for them to register their wells.

And going back to this 2012 report to the legislature, the then Groundwater Resources Commission encourages our agency, Office of Conservation -- I'll just do a direct quote here -- quote, to pursue innovative ideas to encourage well owner registration of any water well still in existence but previously not required to be registered with the State under Louisiana Administrative Code Title 56, our water well codes.

The registration program is working efficiently. Again, we're digitizing records all the time, providing that online, updating the records as they come in, and being very proactive; however, one of the issues that we've encountered and that we know is a problem that's out there is the failure of water well owners to properly transfer well ownership when they sell their particular property, whether that's -- whether that's, you know, a residence, a farm. So we

encountered this particularly in the South Caddo groundwater emergency situation where a lot of our contact information for well owners was not up-to-date.

So, basically, a well owner will, you know, provide registration to us with their contact information, name, you know, address, phone numbers, that kind of information. The problem -- we have a well transfer document, the problem being that a lot of private well owners were not -- when they sell their property, were not providing that well transfer -- well ownership transfer documentation to us so that we can update our information on that particular well as to who the contact is. And during the groundwater emergency in South Caddo, that came to our attention, and it's something that we know is out there and know is an issue.

One of the things we highlighted, again going back to the Groundwater Resources Commission recommendation, was potentially an avenue to reach out through the Louisiana Real Estate Commission, which oversees the transfer, buying, and selling of residential properties. And again, we know that one of the areas that probably where most of

these unregistered wells are and probably where a lot of these out-of-date ownership documents are is in the, you know, domestic -- private domestic, residential sector.

Really, what we're talking about is an education and awareness issue. A lot of owners really don't -- once they put in the well, they do some operation and maintenance, and once it's registered with the State, in their mind, it's probably the end of the line. That's the last they'd have to think about it; of course, in the regulations, what we require of them is a transfer of the ownership of that well when they sell the property. And again, like we said, you know, that's an area where we realize there needs to be an improvement.

We reached out to the Real Estate Commission after doing some research on them and as a potential partner in creating an avenue for education and awareness with well owners. They had, on some of their non-mandatory forms -- they have, of course, mandatory forms and then non-mandatory forms.

The non-mandatory forms -- and, Jake, you could probably comment on this if you wanted to,

but they had some non-mandatory disclosure forms on package sewer systems, basically, home sewer systems, as well as water wells come up from a water quality and drinkability point of view, not so much from a registration or sustainability point of view that the Office of Conservation is interested in.

Recognizing that those forms are online and available, we thought it would be probably a smart idea to reach out to the Real Estate Commission to see if we could have our well owner transfer document and some educational information on well owner responsibilities provided as well through that forum, through the Louisiana Real Estate Commission.

So Gary and I went over to their meeting in April. We laid out a presentation, which, I believe, is included in the packet, a PowerPoint presentation, which is included in your packets. If not, I can make it available as well.

One of the questions they raised, and this is probably a good one from their perspective, was whether or not, if we provided them these well owner transfer forms, would realtors be liable for enforcement. And, of course, we wanted to make

clear to them that we weren't interested in making them liable for, you know, Office of Conservation enforcement actions or anything of that nature. We were just really wanting them to see if they could assist us in fulfillment of our mission.

And they were amenable to creation of sort of some non-mandatory forms, the well registration, well owner transfer forms, as well as an education document, and even working with some of the realtor schools to provide some awareness on well owner responsibilities.

They did ask us to investigate two specific options. The first was reviewing conveyance records at the Parish Clerk of Court Offices -- for us to go back and look at conveyance records, property transfer documents as they take place. And that was the first recommendation, and just from a staff and time perspective, that is just unfeasible. I mean, we just don't have the time or staff to go back through every Parish Clerk of Court and look at every property transfer that's out there for one that matches up with our files for having a well.

The second would be reviewing any parish health office water well quality report. So the

parish health offices at the local level, the parish sanitarians will sometimes get calls to go do water quality tests before a property is transferred, you know, between a buyer and a seller. Those are public record documents, but from talking with Office of Public Health, they're not really kept in a standardized database that would be useful in terms of searching and cross-referencing, nor are they complete in terms -- in the sense that it's sort of haphazard.

So a particular buyer or seller would say, "Hey, I want a certification that this well water is of good quality," and so they would contact the parish health office. The parish sanitarian would run, you know, a quality water test, but that's not for every property transfer, by any means; so it's really sort of a haphazard process. Maybe that's the wrong word. I don't mean to cast dispersion on the parish health offices, but it's an incomplete database in that sense.

So really what we ended coming up with was to -- our goal, our next step, is to complete -- you know, provide them with the document -- the well owner transfer and registration documents, an educational piece that can be put online along

with those documents and also distributed to some of the realtor schools to let the realtors at least have an understanding of what they're dealing with when they come across water wells.

It was a real interesting meeting, as Gary can attest to. They had some very sharp questions, and one of the commissioners even noted that she had a couple of unregistered wells out there. And I asked her if we could register them that very day, and she's like, "I don't think my husband would appreciate us doing that."

So in some ways, that was an interesting back-and-forth and, I think, shed some light on some of the issues that we do have in dealing with private well owners, especially domestic well owners, that, once they get the well in, they've done their minimum requirement of notifying the State. That's as much as they want to have to do with the State. They want to leave it at that.

But again, it's very important for us from an emergency communication standpoint to know who owns those wells so that in a situation, as I'll discuss in a minute, with the South Caddo groundwater emergency situation, we know who to contact, and we know who to reach out to and

advise as to specific issues and specific restrictions. So that's kind of where that's at.

They did also mention -- provide us another useful outreach opportunity, and that was to the Home Inspectors Board, again doing some education with them as well on well owner responsibilities. So that's something we're pursuing, also, in trying to meet that recommendation from the Groundwater Resources Commission to pursue innovative means, to reach out to registered and unregistered wells.

Well, I must have the wrong PowerPoint. Let me -- and I apologize for that. The correct PowerPoint is in your packets. My next point I wanted to talk about -- and this is not following the lead here -- the slide here, but I want to talk about the Sparta Aquifer in North Louisiana.

Sparta is one of our key management priorities. We have three groundwater areas of concern in that regional overlay, and that came about in 2005. Those areas of concern were authorized by the commissioner.

MR. SNELLGROVE:

Is this it?

MR. REONAS:

Yeah. Great. Fantastic. We must have gotten the wrong draft loaded up.

So the Sparta Aquifer, again, North Central Louisiana, approximately 200, 250,000 people that utilizes Sparta for their drinking water. The issue that had been highlighted to us and highlight by the Sparta Commission, the Groundwater Conservation Commission in North Louisiana again was declining water levels.

The Commission of Conservation created three areas of concern -- groundwater areas of concern in 2005. In those areas, the consumers are -- the large consumers provide monthly reports on their water usage to make sure that we're trying to meet our sustainability goals in that area. What we've seen since the Sparta Commission got involved and since the creation of those areas of concern has been a -- has been an improvement in water levels pretty much across the board through the monitor wells that USGS has collected.

Since the creation of -- there's been a lot of work in South Arkansas, which is also -- which has also helped the deficit situation. Also, you have the West Monroe Water Reuse Project that came online recently, and they're still using -- that

basically took three to four million gallons of groundwater that they had been using every day, and moved that to surface water use. So that was a very creative and innovative solution to that problem for which they received national recognition, I will add.

So what we've been following again is, across the board in the Sparta, strong -- well, strong increases in water level improvement. Again, in terms of sustainability, you're still running a deficit in terms of your overall use versus recharge. The water levels are still lower than they have been right after historic highs, but they've improved from their lows that they hit in the late 1990s and early 2000s. So the Sparta situation is something, again, we continue to monitor, continue to work with the Sparta Commission in North Louisiana and their projects.

The next slide, which, again, we'll wait for a minute to get to this one, was dealing with the groundwater area of concern in South Caddo Parish. What you saw following the drought situation in 2010, 2011 was pretty severe water level declines. That was an area where we, in fact, didn't have a lot of eyes in the ground, a lot of observation

wells in the ground, to really understand what was going on beforehand. Only in the situation when water wells began to run dry did it become sort of an emergency situation, and the Commissioner of Conservation, under his authority, issued an emergency order that restricted use and restricted the creation or installation of new wells -- water wells in the two areas of concern South of Shreveport, the Keithville area and the Ellerbe Road, South Shreveport area.

What we've seen, and, Fred, this goes back to your note from earlier, all that rain -- our last update that we provided in May of this year, back in the spring. Through the first four months of the year, the cumulative rainfall in that neck of the woods was almost eight inches above the historic average, so a tremendous amount of rain that had come through.

And once you started to see -- and again, we're working very closely with USGS and the Red River Watershed Management Institute out at LSU Shreveport. What you're really seeing there, the shallow wells, you're seeing that recharge very quickly. That rain is having a pretty strong impact. The deeper wells, the recharge obviously

takes much longer.

The Office of Conservation, looking at all of that information, seeing those improvements, will be -- as we updated the commission previously, we ended up relaxing the order, the restrictions and the use, last year. Actually, last summer, last June, we ended up relaxing that order to allow for normal use again.

Although we did keep the order in place, we want people to, again, continue to conserve water and be aware of it. And we did maintain that any installation of new wells had to come through the Office of Conservation. We had to do an evaluation process. So the order is still in place, but in terms of regular use, that has been sort of allowed again under the amendment to the original groundwater emergency order. And so that's essentially where Caddo is right now South Caddo.

And for us, what we ran into, going back to the need for contact information on those wells, again, South Caddo was really sort of a -- sort of a first for us in terms of trying to reach out to local well owners in a specific district and a lot -- in many cases, the well owner information

we had did not match up with the current owner. And that's, again, an issue that we know was an ongoing subject of concern going forward, something that we need to continue to work towards and provide education on and try to provide some outreach to keep that -- to keep well owners understanding what their responsibilities are under state law.

Now, I guess, moving on to the slide we have here, another area of interest with the Office of Conservation, the Baton Rouge area, and all of y'all have heard updates, are from the Capital Area staff, from USGS over the years. I want to just kind of provide an update on the current situation from our perspective. I actually sit as the commissioner's representative on that board -- on the Capital Area Groundwater Conservation Board. And what we're seeing is a lot of action -- positive action in the past couple of years.

In particular, it's an important issue because you're talking about, roughly, 10 percent -- 10, 11 percent of the state's population that is within this five-parish district, Pointe Coupee, East and West Feliciana,

West Baton Rouge and East Baton Rouge. About 10 percent of that population -- 10 percent of the state's population here, right in East Baton Rouge alone, 440-and-some-odd thousand, and across the district -- that five-parish district, it's 500-and-some-odd thousand. So a pretty substantial portion of the state's population -- and, of course, you're talking about economic interests here in the Baton Rouge area, population, all that is -- or the vast majority of that is dependent on groundwater -- utilizes groundwater for public supply, for industrial use in the parishes on the periphery, outside of Baton Rouge, for agriculture use as well, so a huge issue from an economic and public supply concern. The issue, in particular, in Baton Rouge is saltwater encroachment across the Baton Rouge fault, as Scott mentioned earlier.

Again, what you're -- let's see. Let me skip on to the next one. What we're seeing is that the Capital Area Groundwater Commission is moving forward with its plans -- its management plan that was passed just this past year in terms of its new management plan. The Groundwater Commission includes representatives of state government

agencies, local parish -- local parish governments, industry, public supply.

The commission is moving forward in its management plan. Again, what it's authorized in the past several years has been restrictions in use in the 1,500- and 2,000-foot sands, a cap on the amount of water -- groundwater that can be pumped out of those two sands. And those are the two -- essentially, the two problem sands in Baton Rouge. You have one, the 1,500-foot sand.

You have a large cone of depression around the public supply center of Lula Street Station. Roughly, 20 percent of Baton Rouge Water Company's production comes out of that well field. The 2,000-foot sand, the cone of depression is in the Industrial District. And so those are two really crucial sands at this point in time that management action is being pursued.

Probably one of the most important things that this commission has done is to contract with USGS and find the funding to do comprehensive -- a ten-year comprehensive modeling program in each of the aquifers underneath the city -- in each of the aquifers or sands underneath the city to understand groundwater levels and flow, as well as

saltwater intrusion into those sands and, from there, pursue management actions for each of those sands.

So the two crucial ones, the 1,500- and 2,000-foot sands, the management actions have been caps on the production. In the 1,500-foot sand, the commission authorized the installation of a scavenger well system by the Baton Rouge Water Company, which has been in operation for going on a year and a half, going on two years, I guess, now, at this point in time, which is, again, geared towards -- geared towards removing saltwater, remediating at least the saltwater flow towards those crucial -- that crucial well from the Lula Street Station.

In the 2,000-foot sand, the commission is moving forward with its plans to install a scavenger well in that sand as well. Again, at the recommendation of the US Geological Survey, and I'll quote from one of their most recent documents from June of 2015, the modeling results, quote, suggest that installation of scavenger wells are more effective in controlling saltwater intrusion than reductions to industrial and public supply withdrawals.

So, again, utilizing science, as seen in those models from the USGS, the commission is moving forward with the installation, the funding -- the funding process first and then the creation of observation wells to figure out the best place to put that scavenger well and then, ultimately, the installation of a scavenger well in the 2,000-foot sand as well to scavenge that saltwater away from the main well fields. And that's essentially where things are at right now.

I did enclose in the packets the letter that went out in July to the district users, the users in the Capital Area statutory rules -- Capital Area Statute defines user as a well owner producing 50,000 or more gallons a day out of a specific well. So, mostly, that's -- primarily, that's your public supply and industrial users, not small-scale domestic -- domestic well owners. And that was to gauge the users' understanding of the need for a 2,000-foot scavenger well and the funding options that were available to the commission to move forward on those plans.

And so, essentially, that's where the situation is at right now. There will be a September meeting. I'm sure we'll get an update

on that -- on that process at that meeting. And on that note, I'll take any questions or comments.

MR. SPICER:

Any questions or comments? Fred.

MR. ZAUNBRECHER:

Matt on your Sparta Aquifer presentation, your last bullet point stated that the water levels have been improving since 2005. Has there been less usage from there, or why have the levels improved?

MR. REONAS:

Well, on one hand, I think you're seeing a more conscientious effort towards conservation and understanding water use. Certainly, having to fill out the water use reports on a monthly basis, I think, probably draws water managers' attention to that, but then you're seeing a lot of reuse efforts.

Just right across the border in Arkansas, Union County Water Conservation Board has been very active. El Dorado, that neck of the woods, they've been very active, basically, huge increases, and some of that has trickled down into Louisiana as well since that's a major recharge area for the Sparta.

And then, of course, in the Monroe area -- West Monroe area, you're seeing -- when the water use plan with graphics packaging came online, I think the estimate was maybe up to 10 million gallons a day that you're pulling out of that groundwater used that's going to get switched over to surface water. I don't think it's ever hit that number. I think that the average has been more in the three to four million gallons a day. But still that's a substantial amount of reduction in groundwater use, and so that's really what you're seeing.

And, again, you're talking about -- from here you're still talking about a deficit, but you're seeing an improvement in those levels, which is, again, managing the situation from our point of view. You know, not doing any more damage in some ways it's how we gauge sustainability, not doing any more -- we've already had a situation. How do we prevent doing more damage going forward, and how do we start to improve the situation, if possible?

And again, the Sparta Commission has been very active in their neck of the woods, Rick Holt and the commission as a whole. They've been very

active in education, awareness, and working with local industry to, again, be more conscientious about their use.

One of the other -- and I don't really have an update on this. One of the more interesting findings we've been monitoring up that way was the Union-Lincoln Regional Water Supply Initiative, which the goal of that was to pull -- move Farmerville and Ruston -- move them from groundwater to surface water, pull from Lake D'Arbonne.

And that was a project that was kind of getting some traction last year. As I understand it, I think they put in for some funding through Capital Outlay. Like this previous year, I think maybe Senator Landrieu, before she left office, had tried to secure some federal funds, but I don't really know where that's at right now, but that's something we were kind of monitoring in terms of another source that -- for surface water, replacement of groundwater resources.

MR. MORGAN:

I can give you an update on that.

MR. REONAS:

Hey, Dan. A pleasure to have you.

We've got you a seat right over here.

MR. MORGAN:

Well, I know. The one-way streets and can't find a parking spot, I'm late. I'm sorry.

MR. REONAS:

That's okay.

MR. MORGAN:

But anyway, concerning the Union-Lincoln Water District, --

MR. REONAS:

Yes, sir.

MR. MORGAN:

-- right now we're trying to -- I'm not on that commission, but presently, I'm the Secretary-Treasurer of the Union Police Jury. So presently -- so I hear about it all the time. They're still trying to negotiate or finalize the deal to buy a piece of property in the Old State Park --

MR. REONAS:

Right.

MR. MORGAN:

-- is where they want to put that. That's what's holding them up is to get that piece

of property. And then they're trying to get the Capital Outlay, and they go -- they're going to Washington lobbying hard trying to get the money, which is going to be billions of dollars to build that plant, --

MR. REONAS:

Right.

MR. MORGAN:

-- the new pipeline to Ruston.

MR. REONAS:

Right. So that's very good information. That's kind of how we understood it -- as to my information, that's kind of where it stood, that they are taking some Old State Park's property, which, I believe --

MR. MORGAN:

Part of it -- the biggest part of it, they're going to develop, we assume, a subdivision. We really don't know.

MR. REONAS:

Right. Lake Front Property?

MR. MORGAN:

Uh-huh. Right.

MR. REONAS:

Right.

MR. MORGAN:

Right. But we got -- or they got up the hill, and they're going to have to come down with a pipeline and put a pump. They've got a little area right down at the water to put a pump so they can go under the lake and then head toward Ruston.

MR. REONAS:

Well, that's another project we've kind of been keeping our eyes on just, you know, again that would be a pretty substantial reduction in groundwater use out of the Sparta and, again, from a pretty robust source, Lake D'Arbonne, which -- great bass fishing, so . . .

MR. MORGAN:

And I'm not an engineer. I don't understand. I'm an accountant by trade, so engineering kind of goes over my head, but they say that it won't take that much water off that lake a day for Ruston and Lincoln. They lose as much in evaporation as what it's going to do, according to them.

MR. REONAS:

Right.

MR. ZAUNBRECHER:

Thank you.

MR. REONAS:

Yes, sir.

MR. SPICER:

Any more comments or questions?

(NO RESPONSE)

MR. SPICER:

Okay. Thank you, Matt.

MR. REONAS:

Yes, sir. Thank you.

MR. SPICER:

Excellent report. Appreciate it. Next on the agenda is I'm going to give a brief report on the Southeast Arkansas/Northeast Louisiana Boeuf-Tensas Feasibility Study. Thanks to DOTD and Chris Knotts, a member of our commission, we've got the funding for that through their Capital Outlay Program.

That money was moved to the Morehouse Soil & Water Conservation District, which is the responsible local unit of government for -- the local sponsor for Louisiana. The cost of the study is 300 -- $300,000, and Louisiana is putting up half of it, and the Arkansas Natural Resource Commission is putting the other half up.

We've drafted a final draft for the scope of work for the Corps of Engineers, and we'll be reviewing that with the Corps Wednesday afternoon in Greenville, Mississippi. So, hopefully, at that point, maybe by late September, we might have work started on the project.

And for those that are not familiar, the purpose of this study is to see if there's sufficient water and a way to convey it out of the Arkansas River near Pine Bluff, and then go into Corps of Engineer canals and then move on through the system and to furnish water for the Ouachita and Boeuf Rivers and Bayou Macon and bring water in to Northeast Louisiana.

We have, roughly, 800,000 acres that's irrigated up there -- cropland irrigated, and we have another 700,000 acres that's not. So it's pretty important to get the -- if you have an opportunity to move water in the area, it's critical to get it there.

In recent years, they've had issues with saltwater in the alluvial aquifer up there and also right on the edge in Macon Ridge all through the alluvial plain, so it's critical to try to get more water in that area. This is -- that's the

Fifth Congressional District. That has more row crop agriculture than any other district in the US; so it's an important area. And, of course, we'll be looking at water for industry and agriculture in the Southeast and servitude.

But if any of you are familiar with the district and some of the streams up there, there's some beautiful streams that, over the years, have really deteriorated. So we're trying to look at the ecological functions of those streams to make sure we can get those reestablished to something that will be beneficial to the area.

So we've formed a committee. The Morehouse Conservation District, as I said, is the local sponsor, but they didn't want to move out on this on their own, so they formed a committee made up of eight members, one is a farmer. The at-large selected him. Then the State Soil & Water Conservation Commission has a member on the committee, and then each of the seven districts -- or six districts have a member.

So it's well represented throughout the area. There's eleven parishes involved in the area, all of those parishes between the Ouachita River and the Mississippi River. So, hopefully, by December

we'll have some work completed.

So any questions you would like to try to answer? Yeah.

MR. REONAS:

Most of those irrigated acres, would that be out of groundwater out the Mississippi River alluvial, or do they --

MR. SPICER:

Yeah, most of it is groundwater. So that's the other thing. If you have surface water, it's so much cheaper to pump surface water than it is groundwater.

MR. REONAS:

Yeah.

MR. SPICER:

And there's no issue with salt, so a lot of advantages.

MR. SPICER:

Any other questions?

(NO RESPONSE)

MR. SPICER:

If not, did we get any public comments?

MR. VANDERSTEEN:

Mr. Acting Chairman, good afternoon,

members. My name is Buck Vandersteen. I'm with the Louisiana Forestry Association, and I'll fill out a white card in a minute, but this discussion has been very informative.

As we talk about the recharge areas, I think about the millions of acres of forest and farmland that cover the state, and every drop of water that hits the ground runs through the forest and runs through our agricultural lands.

The best management practices that farmers and foresters do are to protect our water resources, to keep the water from running quickly away, to soak into the ground, to recharge our aquifers, or to run slowly into our streams so that it's accessible later on for use.

I hope that Scott and his team that are putting together the sustainability of the resource don't forget to look at what the private landowners are doing, farmers, the forest landowners, through best management practices to safeguard the water resources of Louisiana.

And I hope we find some way to recognize them for their contributions, more than half a million people dealing with farm and forestry in the state, and I think it's worthwhile to recognize

the contribution that they make to Louisiana.

MR. SPICER:

I certainly agree with that. By the way, The Nature Conservancy is using land use in their model -- in the freshwater model, land use, as well as soil. It will make a big difference in the outcome. Did you want to make any comment?

MS. GAUTREAUX:

No. I just think it's a point well taken, and thank you, Brad. That's very true. That's part of the perimeters for our work. Thank you.

MR. DAVIS:

Thank you.

MR. SPICER:

Any other comments?

(NO RESPONSE)

MR. SPICER:

If not, do I have a motion to adjourn? Chris Knotts. Mark Davis. So we are adjourned.

MEETING ADJOURNED AT 1:18 P.M.

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REPORTER'S CERTIFICATE

I, Karla H. Mayers, Certified Court Reporter in and for the State of Louisiana, do hereby certify that the foregoing is a true and correct transcript of Water Resources Commission Meeting held on the 17th day of August, 2015, as set forth in the forgoing 115 pages.

I further certify that said testimony was reported by me in the Stenotype reporting method, was prepared and transcribed by me or under my direction to the best of my ability and understanding.

I further certify that the transcript has been prepared in compliance with transcript format guidelines required by statute or by rules of the board and that I have been informed about the complete arrangement, financial or otherwise, with the person or entity making arrangements for deposition services.

I further certify that I have acted in compliance with the prohibition on contractual relationships, as defined by Louisiana Code of Civil Procedure Article 1434 and in rules and advisory opinions of the board.

I further certify that I am not an attorney or counsel for any of the parties, that I am neither related to nor employed by any attorney or counsel connected with this action, and that I have no financial interest in the outcome of this matter.

This certification is valid only for this transcript accompanied by my original signature and original raised seal on this page.

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