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RE COMMISSION ON WATER RESOURCE MANAGEMENT

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Item A-1

PRESENTERS/PUBLIC TESTIFIERS: PAGE

CHAIRPERSON CASE: Good morning. Welcome, everyone, to the May 19, 2016, meeting of the Commission on Water Resource Management. We're delighted to be back in Kona. It's about 10:03.

We have a series of briefings and updates on our agenda. We have no action items today on today's agenda, but we are back here to continue to learn about -- about Kona. And so appreciate the opportunity to be here and hear the briefings and hear from you. So we will take testimony after each of the briefings as well -- public testimony.

First, I want to just start off by introducing our new groundwater hydrologist, John Dawley. Welcome. On staff with us now, so we're even better equipped to deal with the many resource needs for water in Hawaii.

First on our agenda is approval of the December 10, 2014, minutes. These are -- this is a meeting that was videotaped, but we created minutes on that. And at that meeting was four of our present commissioners -- Jonathan Starr, Michael Buck, Kamana Beamer, and Milton Pavao. So the rest of us will not be voting on this or commenting.

Commissioners, are there any comments from those meetings?

UNIDENTIFIED SPEAKER: Motion.

CHAIRPERSON CASE: Motion --

UNIDENTIFIED SPEAKER: Motion for December 10 minutes.

CHAIRPERSON CASE: Second? All right. Discussion? All in favor?

MULTIPLE SPEAKERS: Aye.

CHAIRPERSON CASE: Close. Thank you very much.

All right. Next on our agenda we're going to move to item B1, which is National Park Service response to the request for specific information on the quantity of water needed to support natural and cultural resources in the Kaloko-Honokohau National Historic Park.

If you want to move out to where we can see it.

Can somebody dim the lights a little bit? Thank you.

MS. PAULA CUTILLO: Good morning. Thank you so much for your time today.

I'm a hydrologist with the National Park Service, Water Resources Division. My specialties include groundwater modeling and water rights. And I've been with the Water Resources Division for about 15 years, and I work with parks throughout the country. And --

CHAIRPERSON CASE: I'm sorry. Can you put

your name in for the record?

MS. CUTILLO: Okay. My name is Paula Cutillo.

So I work with parks throughout the country, and I've been working with Kaloko-Honokohau National Historical Park to protect groundwater-fed natural and cultural resources since about 2005. And today I'm going to talk about specific information that the National Park Service submitted to the commission and about -- we submitted this information last year, and I'm going to talk about groundwater sustainability in general.

So in 2013 the -- in 2013, National Park Service requested that the commission consider designating the Keauhou Aquifer System, a water management area, for groundwater.

And about a little over a year later, the commission issued a preliminary order requesting that the Park Service provide specific information on the quantity of groundwater needed to support natural resources and cultural resources and also information on specific traditional and customary practices that are exercised in the park.

And so I'm going to discuss the information that we submitted under item A, and Dr. Scheuer is going to

discuss the information submitted under item B. Okay.

So last year about this time we responded that the existing quantity of fresh groundwater discharging in the park is the minimum needed to support natural and cultural resources. And in August, we -- we provided a report with some -- more information to support why we believe that additional withdrawals in the area that contributes groundwater to the park, that additional -- these additional withdrawals would injure public trust resources.

So we didn't specify an exact quantity of water discharging in the park because this cannot be directly measured. We can estimate the current quantity of groundwater discharging in the park using numerical models, and this has been done in the past. But estimating or quantifying the amount of discharge in the park and subtracting this from the sustainable yield will not protect public trust resources. And I'll explain why.

We believe that salinity is at the limits of survivability for public trust -- certain public trust resources in the park. And we know that rainfall is declining and saltwater intrusion and nutrient pollution are occurring and that public trust resources that

depends on freshwater are vulnerable to these changes.

And so to maintain existing flows, what we can do is understand the impacts of groundwater withdrawals on groundwater-dependent ecosystems and protected water rights, and then use this information to identify areas where new withdrawals will have minimal impacts.

So this image shows the -- it's a thermal infrared image, and it shows -- well, red is warm saltwater, and blue is cooler fresher water. And it shows Aimakapa Fishpond and the park.

And this study documented that freshwater is discharging all along the Kona coast. And like streams, this freshwater discharge creates estuary-like conditions for native fish and wildlife. But unlike streams, the discharge is diffuse, and it's difficult to measure.

But salinity is directly related to the quantity of freshwater in the park, and we can measure salinity. So the report focused on salinity in and around the park. And we can measure -- so we measured salinity in different ways. One of the ways is to measure the chloride concentration in water.

And the concentration of chloride in seawater is about 19,000 milligrams per liter. And the EPA has identified a maximum level of chloride for drinking

water, and that's 250 milligrams per liter. So that's the red line on this chart. And the blue dots are chloride concentrations in the Kahalu'u Shaft, which is a major source of drinking water for North Kona. And chloride exceeded this maximum level due to saltwater intrusion, and this is a public health concern.

So just like we have a salinity threshold for drinking water, plants and animals also have salinity thresholds. Aquatic plants and animals have optimal salinity levels at which they thrive. The range of tolerance within which they can survive and reproduce and thresholds above which they can't survive.

And Chairperson Case asked us to identify salinity thresholds or thresholds for resources in the parks. So the report identifies some salinity tolerances for culturally important native fish from endangered native waterbirds and a proposed endangered native damselfly.

And these are -- these species are neat to Hawaii, and they all require freshwater at some point during their life cycle. So maintaining salinity within the ranges that we identified in the report, that is part of a strategy of life cycle stewardship, which is the goal of managing resources such that species' full life cycles are sustainable over time.

And there are other plants and animals in the park that rely on freshwater like anchialine pool shrimp and limu, which are more productive in freshwater. But I'm just going to focus on the indicator species that are described in the report.

Okay. This is Kaloko Fishpond, and it's been restored for traditional aquaculture. And people in this photo are removing invasive jellyfish and invasive pickleweed from the pond, and they meet monthly to work the fishpond.

And Kaloko Fishpond has good natural recruitment of the native striped mullet. And mullet -- so mullets spawn in saltwater, and then the larvae return to estuarine conditions along the coast. And freshwater streams, they provide protective nursery habitat for juvenile mullet and other fish. And the optimal conditions for the growth of juvenile mullet are between 5 and 25 parts per thousand. So seawater has a salinity of 35 parts per thousand.

And this chart shows the optimal conditions with data from salinity data from Kaloko Fishpond. And salinity varies with depth and distance, to be able to see in the fishpond, but these data indicate that some areas of Kaloko Fishpond provide these optimal conditions for the growth of juvenile fish. And the

striped mullet is a culturally important species, and its populations, the numbers have been declining due to habitat loss.

And so we would like to maintain optimal conditions in Kaloko Fishpond because these fish will be harvested as part -- in support of the park's mission to preserve and perpetuate native Hawaiian activities and culture. And reducing freshwater flows to the fishpond will reduce nursery habitat for this -- for native fish and harm public trust resources and uses of water.

This is Aimakapa Fishpond. And the National Park Service is removing non-native vegetation from the fishpond in the surrounding wetlands to improve habitat breeding and feeding habitat for endangered waterbirds.

So Aimakapa's wetlands were designated for wetlands for endangered waterbirds by Fish and Wildlife Service. And this means that protecting this habitat is crucial to the recovery of these waterbirds. Waterbird populations were declining due to the loss of wetland habitat.

And in 1967 the Fish and Wildlife Service listed the native Hawaiian coot and native Hawaiian stilt under the -- as endangered under the Endangered Species Act, and they have -- populations have still not recovered. So the coots and stilts require access to freshwater

when their chicks are young and unable to fly.

And freshwater reductions reduce freshwater flows have -- are also believed to contribute to outbreaks of avian botulism, which can decimate waterbird populations. And the estimated threshold for young waterbirds -- the estimated salinity threshold is about 10 parts per thousand.

And this chart shows salinity data collected in Aimakapa Fishpond and the threshold, and it shows that the habitat that the fishpond and wetlands provide for the waterbirds is right around this threshold. So we would like to maintain or improve existing conditions, because any reduction in freshwater flows will reduce the habitat for these endangered waterbirds and harm their recovery.

And this is -- this map shows anchialine pools in the park. So the blue circles are anchialine pools, and the red circles are pools where breeding of the proposed endangered native Orangeblack Hawaiian damselfly has been observed.

So this was once the most abundant damselfly in Hawaii, and now it's limited to just a few populations. And the egg and larval stages of the damselfly are exclusively aquatic. And laboratory experiments -- larvae did not survive salinity greater than 15 parts

per thousand.

And this chart shows salinity in the pools where breeding has been observed, and it indicates that these pools provide the conditions needed for the damselfly to survive and reproduce. And when we submitted the report, this damselfly was a candidate for listing under the Endangered Species Act.

Since then, the U.S. Fish and Wildlife Service has proposed to list this damselfly as endangered due to continued habitat loss. So we would like to maintain these conditions in the park because reducing freshwater flows will reduce habitat for the damselfly and jeopardize their recovery. Okay. So --

MR. BEAMER: Can you go back just to the --

MS. CUTILLO: Yes, sorry.

MR. BEAMER: -- other side? So you're saying the damselfly needs 15 parts per thousand, did you say?

MS. CUTILLO: Yes.

MR. BEAMER: And right now -- sorry. It's a little tricky to see from this corner, but that red line is 15 parts per thousand. And the blue dots, those are your samples that are below 15?

MS. CUTILLO: Yes. Yes. So there's an optimal range that's from the laboratory experiments,

and then the red line is the threshold.

MR. BEAMER: The threshold.

MS. CUTILLO: Yeah.

MR. BEAMER: And what is it showing that's between -- is that 10 and 15? Is that what your graphic is showing?

MS. CUTILLO: Yes.

Okay. So the park provides important and diverse habitat for fish and wildlife that are unique to Hawaii and that rely on freshwater during some part of their life cycle.

And so now I'd like to describe some of the changes and groundwater quality and quantity that indicate that management is needed to maintain the conditions and to protect the public trust resources that I just described. So I'm going to talk about rainfall across the aquifer system and salinity and nutrient data from observation wells within the park and on the boundary -- the northern boundary and the park and also data -- water level and salinity data from pumping wells inland of the park and to the south of the park.

So Kona is currently experiencing severe to extreme drought. And although drought is short term, in Kona it's frequent and severe relative to the rest of

the state. And University of Hawaii researchers had determined that the Kona area has experienced the largest long-term declines in rainfall in the state. And so preserving freshwater flows is a natural defense against these changes.

Within the park we monitor salinity at three observation wells using continuous transducers. And we also recently started monitoring salinity in the piezometer in Aimakapa Fishpond. So these transducers measure specific conductants and the salinity -- or the specific conductants of seawater is about 53 millisiemens per centimeter.

Okay. So the wells with the longest record are KAHO 2 and 3. The red line is KAHO 2, and the blue line is KAHO 3. And there's a long-term climbing trend salinity in these wells. And water quality data indicate that salinity is declining because irrigation water from the golf course is flowing into the park.

So I want to be very clear that we do not consider this to -- this impact to be a benefit to water resources in the park, because the irrigation return flows are high in nutrients such as nitrate.

And nutrients can cause harmful (indiscernible), nitrification, and they can shift reef communities dominated by corals to (indiscernible) systems.

Honokohau Harbor is listed as a (indiscernible) for nutrients under the Clean Water Act. And the nutrients are from treated wastewater effluent.

And this chart shows nutrients or dissolved nitrogen in the anchialine pools and in the wells in the park. And statistically significant increasing trend in nitrogen and phosphorous was observed in anchialine pools in the park, and nutrients are increasing in KAHO 2. And reducing freshwater flows to the park will increase the concentration and residence time of these contaminants in the park's water.

So before I advance the slide, I just want to point out a nutrient spike in 2009, and this was in the anchialine pools in the northern part of the park. And this nutrient spike was also detected by the USGS and MW401, which is a well on the boundary between the park and the golf course. And this nutrient spike -- this chart is from the report. It shows that nitrogen -- dissolved nitrogen was many times higher than background levels in this well in 2009.

And the USGS concluded that these nutrient loading MW401 was due to fertilizer. So MW401 is a relatively deep well. It's about 100 feet below sea level, and it was constructed as part of the permit conditions for the pumping wells that provide irrigation

water to the golf course.

And the golf course collects monthly salinity profiles in the well. And I extracted the minimum and maximum specific conductants from those profiles. And the maximum values suggest that salinity is increasing in this well. The minimum value suggests that salinity is decreasing. If you look at the values that reflected after a new logger was used, it suggests that both the minimum and maximum values are increasing.

And chlorides are also measured monthly in this well. That chloride data has a lot more variance in it because the sampling methodology is not as precise. But these values suggest that there is no trend in salinity.

So the data are difficult to interpret. And after discussions with Waimea Water Services and the USGS, I think that two continuous fixed -- continuous transducers in this will would provide us with more useful information.

And I think what we can learn is that if we are going to use monitoring data to protect public trust resources, the data need to be reliable, actionable, and there need to be management triggers associated with the data.

MR. STARR: Could you -- could you tell us about the transducers? I mean, you know, it seems like

there's a complete different profile after they were changed. And what's the difference between those and what you're calling for?

MS. CUTILLO: These salinity profiles are collected with a transducer, and it's put in a well and lowered from in -- like kept at a certain elevation for maybe five minutes and then lowered to the next interval and left there. And then so you do one profile in one day. And if you -- what I'm suggesting is that instead of doing that, you take two transducers and fix them at a certain depth in the well, and then you would get continuous data over time at those two elevations.

And I think the variance and -- would be much less if you look at the fixed transducers in the wells in the park. They provide pretty -- pretty good data with a lot much less variance.

Does that answer your question? Okay.

MR. BEAMER: Sorry. This isn't a question.

Roy, do you have fixed trans -- transducers? I can't even say the word this morning. I'm sorry. I didn't have any coffee. Excuse me. No? Okay. Got it.

MS. CUTILLO: Okay. So -- and I'm not quite -- the golf source is compliant fully with their permit conditions, so I'm not implying that they're not. Just that we can -- there's something we can learn from

the data that we've collected to this point.

Okay. So that was data from observation wells. And now I'd like to discuss data from pumping wells and why we're seeing adverse impacts at pumping rates, even the pump is just below the sustainable yield.

So the commission staff had determined that water levels in the inland aquifer have been steadily declining since 1991. And the Hualalai deepwell, this is water levels in Hualalai deepwell, which is directly upgrading at the park.

And the pumping rate in the well is less than a million gallons per day. And the pumping rate in the aquifer system is about 15 million gallons per day, and the sustainable yield is 38 million gallons per day. So water levels, this long-term water level decline is occurring even though pumpage within the aquifer system is well below the sustainable yield.

And these are chloride data from the Kahaluu well, which is about 8 miles south of the park, and chlorides are increasing in these wells, even though the pumpage is well below the sustainable yield.

And this is chloride data from the Kahaluu shaft again with pumpage data from that well. And so saltwater intrusion is occurring in this well, and its chlorides are exceeding the recommended level for

drinking water at pumping rates well below the sustainable yield.

And commission staff have determined that this pumping is unsustainable. And so these are adverse impacts, and they're occurring even while pumpage is well below the sustainable yield.

So if limiting pumpage to the sustainable yield cannot prevent saltwater intrusion in a coastal pumping well, then how well will limiting pumpage to the sustainable yield -- how well would that protect coastal public trust resources?

I think that this idea that as long as pumpage is below the sustainable yield, that there are no problems and no adverse impacts, that this has been the biggest obstacle to collaborating around a solution to the issues that we've raised.

So I'm going to talk briefly about why we see adverse effects at pumping levels below the sustainable yield.

MR. BUCK: Excuse me. Quick question. Doesn't that really have to deal with the actual location of the well?

MS. CUTILLO: That --

MR. BUCK: I mean, we know the low elevation wells have high level of salinity, and the plans are

slowly to move up to the higher level. Doesn't that really have a big impact on that?

MS. CUTILLO: Exactly.

MR. BUCK: Okay.

MS. CUTILLO: Okay. So (indiscernible) calculated using this equation. It's the Robust Analytical Model or RAM. And it treats the aquifer system as a reservoir. So that recharge raises water levels the same amount everywhere, and pumpage reduces discharge to the coast by the same amount everywhere. And so this model ensures that pumpage never exceeds the rate of recharge -- or the average rate of recharge, but it does not give us -- it does not tell us what level of development is sustainable for any individual well or public trust resource.

And that's because the model depends on recharge. And there is a common misconception that as long as pumping is less than the rate of recharge, that the development is sustainable.

And -- but the idea that recharge is important at all in determining the levels of sustainable development is a myth, and it's called the "Water-Budget Myth." And the reasons why are clearly explained by C.V. Theis in 1940.

But since then, hydrologists have found that it

needs repeating. And this misconception has great consequences for ecosystems and other water users. Because, in truth, all water with groundwater wells must be balanced by a loss of water somewhere.

So to protect public trust resources, we need to ask not what is recharge but where are the losses, and are they acceptable?

So, for example, let's consider a gaining stream prior to development. The stream could be any kind of recharge boundary like a stream -- or I'm sorry -- like the ocean or a fishpond or an anchialine pool or a tide pool.

If we pump a well next to the stream, initially all the water surrounded by the well is removed from aquifer storage. And reducing or removing water from storage in aquifer, the impacts of that are declining water levels. And if the well is in a freshwater lens system, it's rising saltwater.

And now these impacts can affect nesting habitat for waterbirds in a nearby wetland or water levels in a nearby well or (indiscernible) in the well and stuff. And the well will continue to remove water from storage until the area affected by the well intercepts the stream or the coastal pool or pond. And then the well starts to capture groundwater that would otherwise

discharge to that stream or pool or pond.

And the impacts of capturing freshwater discharge are streamflow depletion and a reduction of freshwater discharge to the coast and saltwater intrusion. And so now the well could impact habitat for stream-dwelling damselflies, anchialine pool shrimp, habitat for culturally important fish, and limu growth along the coast.

And so the amount of water captured by the well is equal to the withdrawal rate of the well. So capture occurs at pumping rates well below the rate of recharge. And this is why everywhere that I work -- South Dakota, Oklahoma, Nevada, Utah, and Hawaii -- we see water disputes at pumping rates well below the rate of recharge, because all of the water has to come from somewhere and -- either aquifer storage or captured discharge.

And so all pumping has consequences and is only sustainable to the degree that we are willing to impact public trust resources and protected water rights. And so the challenge is identifying where the capture of freshwater is going to occur and what level of impact is acceptable.

So to predict whether a well will impact public trust resources, we need to consider the factors that

affect capture.

MR. BEAMER: Can I -- can I stop you for one second?

MS. CUTILLO: Yes.

MR. BEAMER: So you had mentioned working in other states where there's water disputes and instances that pumping is way under the sustainable yield. Could you just give us one example?

MS. CUTILLO: Of impacts to ground or eco -- ground-dependent ecosystems?

Well, the most famous example is probably in Nevada at Devil's Hole where you had pumping. And in the middle of a very arid area next to a pool that was providing habitat for an endangered pupfish, and the pumping lowered water levels in the pool to the point where the -- it jeopardized the -- the fish were endangered instinction.

And the pumping rate of those wells was what you would expect for a ranching operation or irrigation and agriculture, but it was nowhere near the recharge rate of this very large aquifer. Okay. And that set a lot of precedence actually in that case. And -- okay.

So if we want to predict whether a well will impact public trust resources, we need to consider the -- the factors that affect capture. And those

factors include aquifer properties.

So how permeable is the aquifer? How compressible are those materials? And the distance between wells and aquifer boundaries. So how close is the well to the ocean? How close is it to a rift zone? Is it -- does it tap a fresh aquifer? And also consider the pumping rate.

So you'll notice that recharge is not one of the factors that affect capture. So I'm not saying that recharge is not important. Recharge is very important in determining your existing or initial conditions. So how -- for example, how thick the freshwater lens is.

But then the impact of pumping wells are superimposed on top of changes in recharge. And so if -- if resource managers want to affect or change how much freshwater is captured by a well or how much water is removed from storage, they can change the location of a well, the depth of the well, or the pumping rate.

But raising or lowering sustainable yield, that doesn't affect how much a well impacts capture or storage or public trust resource. Okay.

So I want to just suggest that perhaps estimating the sustainable yield is just the first step in determining groundwater sustainability. And then we need to think about these site-specific impacts and how

much water is captured by a well.

So how do we estimate capture? Since RAM was developed, there have been significant advances in simulating groundwater systems. And numerical models provide powerful tools for estimating the rates and timing and location of capture.

And -- and this -- this is -- this image is of capture zones delineated for groundwater sources on Oahu. So the Department of Health uses numerical models to identify areas that contribute to a well over time. And then these models help DOH identify risks from contamination and well interference and to protect public health.

And in another example are many models that have been developed by the USGS for Hawaii. This is just an example of a study that used a model to estimate streamflow depletion to -- due to pumping on Kauai.

Okay. So, in summary, the Keauhou aquifer provides drinking water and diverse habitat, culturally important and rare native species, including endangered species. And it supports traditional customary practices that depend on these ecosystems. And it supports recreational activities that depend on these ecosystems.

And so these are public trust resources. And we

believe that salinity is at the limits of survivability for certain public trust resources in the park. And we know that rainfall is declining and nutrient pollution is occurring and that saltwater intrusion is occurring at pumping rates well below the sustainable yield in the aquifer system.

And so to maintain existing flows in the park, we need to consider how groundwater withdrawals impact groundwater-dependent ecosystems and protected water rights; and identify where a capture will occur; and how this will affect habitat and population; and what level of impacts is acceptable. And then we can use this information to identify areas where new withdrawals will have minimal impacts on public trust resources.

And so I would just like to thank the commissioners for your time today and the commission staff and the researchers whose work was cited in the report. And also I'd like to thank the incredible people who volunteer in the park, so mahalo.

MR. STARR: I think this is on now. Could you talk about what work is being done in terms of modeling in the aquifer area and how the usability of that will equate with the data we have currently from the RAM model and make any recommendations as far as directions to head in terms of modeling or other tools?

MS. CUTILLO: So there was a -- the USGS -- Delwyn Oki, he developed a model. It was published in 1999, and it just looked at how wells captured freshwater in the aquifer system and how this would reduce flows to the coast. And -- but the model didn't -- we've got a lot of new information since then.

And so Delwyn is developing a new model, and it incorporates some of the information that -- that's drilling information that shows that there is a deeper confined aquifer below the basal aquifer in the coastal aquifer in the Keauhou system. So he's incorporating new data. And also this new model is variable density model, can simulate changes in salinity and not just changes in discharge.

And I think that one of -- there's two things that I think this will provide. One is that Delwyn presented the results of this model in December at a conference, and he showed that he was able to match salinity profiles from that Kamakana well to the very deep well in the aquifer system.

And he kind of confirmed the conceptual model that some high level water goes deep below the basal aquifer. And then the way he was able to reproduce that salinity profile is you had that water that has to leak up into the basal aquifer, and that's how he can match

the conditions that were determined in that deep well. So he's verified a conceptual model using the numerical model.

And then the other thing I think this model can provide -- and I'm going to meet with Delwyn tomorrow to get an update on where he is.

But the other thing that we've asked him that we are interested in is identifying the area that contributes groundwater to the park. And then the idea is that if we can identify this area, then we can identify other areas where pumping new withdrawals would not impact or change conditions in the park.

MR. BEAMER: Yeah, I think that would -- it's kind of building off of where my question was. I think that seems to be the -- one of the critical parts of the issue is. You're identifying that chlorides are increasing, even though we're pumping at less than the sustainable yield. But we're not clear as to if it's because of the location of the wells. Is that -- is that correct? Or --

MS. CUTILLO: No, it is -- it is -- that is exactly what it's due to. It's the location of the wells. Just like injection wells, it's the location and the rate at which water is withdrawn or injected, that determines impacts, so.

MR. BEAMER: Okay.

MS. CUTILLO: Yeah.

MR. BEAMER: So -- okay. I got it. Thank you.

MS. CUTILLO: Okay.

CHAIRPERSON CASE: Mike.

MR. BUCK: Yeah, Paula. Thank you very much for the excellent presentation.

I think one of the requests from the commission was trying to quantify the amount of water that was needed. Based on your presentation I'm hearing, right now is the level that you need, and you can't go below that. Is that an observation from what -- because we didn't hear any specific numbers. And, again, I know it's hard, but -- is that -- is that the conclusion that you can draw from your presentation?

MS. CUTILLO: Yes. We'd like to maintain existing conditions. The information that we have available now since, that's the minimum that we need to preserve or support natural and cultural resources.

CHAIRPERSON CASE: Can I just tweak on that? It sounds like the piece that would still be helpful what your modeling may help is -- what would be the impact of additional pumping at various locations on the rate of salinity increase, I guess?

Is that right? Because, I mean, what you're saying is this is the right level, and pumping nearby at a faster rate increases the salinity level. And what your modeling is trying to zero in on is to try to be clear in the estimates of how quickly that salinity level responds to pumping nearby.

MS. CUTILLO: Yeah, it's not so much timing. The models that Delwyn is developing is -- it's a state model, so they're not going to give us an idea of the timing.

But I think another way to look at it is that the existing pumping in the area that contributes water to the park, we're saying that that is acceptable. And if we can identify that area that contributes water to the park, new wells -- new withdrawls should be located outside that area.

MR. BEAMER: And am I correct in -- building again off of Chair Case's question. You know, the species that you identified that are sort of in this kind of critical zone in terms of salinity -- was it damselfly as well as juvenile fish that need, you know, certain levels for spawning. Is there anything else I missed in your presentation?

MS. CUTILLO: The endangered waterbirds.

MR. BEAMER: Okay.

MS. CUTILLO: Well, there's also studies that show that limu growth is more -- more productive in fresher -- in freshwater. But the report just describes -- focuses on the endangered species that you described, yeah.

CHAIRPERSON CASE: Mr. Pavao.

MR. PAVAO: I, too, kind of reiterate what Commissioner Buck said. I was looking forward to something viable, something that you could put your fingers on. This is what we need. But nowhere in your talk did you mention any type of (indiscernible).

Well, the talk was very interesting, but your basic talk was a general -- general hydrology lesson. That's basically what it was.

Oh, two times you made reference to Kahaluu shaft and 250 parts per million (indiscernible) chloride, but you got to realize that Kahaluu shaft is several miles to the south. It's had no effect on the park at all. I mean, I would be amazed if there was an effect. Kahaluu shaft is on Kam III Highway.

MS. CUTILLO: Uh-huh.

MR. PAVAO: That's so far away. How can you relate it to the park?

MS. CUTILLO: Okay.

MR. PAVAO: The other thing too is to say

that existing is the minimum needed, that's a statement with no factual content, no -- no rationale. I mean, you haven't given anything to indicate that existing is minimum. We haven't heard any numbers. We've heard high salinity, low levels, but that can be explained by pumping, by whatever.

But I was looking forward to something more substantial. And I would appreciate if you guys can do some research and come back with those numbers.

MS. CUTILLO: Okay. I'd like to respond too. You made three points. First of all, about quantifying the amount of discharge in the park. The 1999 study did quantify how much discharge was flowing through the park at the time it was created. So on the best available information at that time, that was estimated at about 6.5 million gallons per day discharged in the park.

Now, that number could be higher or lower based on new information, so I don't want to put that number in writing. While we have a -- we might have a better tool right now that's being developed. But it's going to be in that order of magnitude.

The point I wanted to make is that simply quantifying discharge and subtracting it from the sustainable yield, that's not -- that's not going to

protect public trust resources.

I think you brought up another point that the Kahaluu well shaft is far from the park, and it is, so I agree. It's about 8 miles south of the park.

And I did not want to imply that that pumping is impacting resources in the park. What I was using that information to show is that limiting pumping to the sustainable yield does not prevent adverse impacts from pumping, and it's not preventing -- it's not preventing -- this is public trust resources drinking water, so you're harming -- you know, it's unsustainable there. And so sustainable yield is not giving us useful information on the level of sustainable development for any individual well or public trust resource.

CHAIRPERSON CASE: I'd like to just say that the presentation actually did help me with some of the basic information that I was looking for, which is what is the -- what are the salinity levels. It was helpful to hear the basic levels and the range of tolerance with some impact on reproductivity and then the level at which it won't survive.

And to see that those, you know -- you're -- you're at those levels now, which is why you're saying you don't want those levels to be further declining. I mean, maybe they were higher and it was healthier, but

you're saying that that's -- that's with lab tests showing the impact on those indicator species at different levels of salinity. You're at the -- you're at the survival range now, and any negative impact would harm that.

And so -- and then the other thing I heard was that your explanation of the sustainable yield for the whole aquifer not taking into account the localized impacts on salinity from pumping locally and at higher rates. So that was helpful to me.

I think the piece that would be nice to have is -- so then, you know, can we -- can we estimate how -- I shouldn't have said quickly. I guess responsive. How responsive the salinity levels are to rates and locations of -- of in depth, I guess, of pumping wells.

But, you know, the more information, the better. But that helps the piece that I think, you know, would be ideal to have still; but those other ones were very helpful for me.

MS. CUTILLO: Okay. Thank you. I do want to add that the report itself does contain citations to all the information that I provided today. So I didn't put them in each slide, but I think that we tried to use peer-reviewed published literature whenever possible and then opinions from experts in their field when it's not

available.

CHAIRPERSON CASE: Mr. --

MR. PAVAO: You mentioned that one pond -- well, you mentioned that ocean water is 35 gallon parts per thousand. And one of the ponds near the shoreline, you mentioned 10,000 parts per thousand. So if ocean water is 35,000 parts, and you mentioned 10,000 parts in the pond, doesn't it indicate that there's a tremendous amount of freshwater flowing through?

MS. CUTILLO: Yes.

MR. PAVAO: So what is the problem?

MS. CUTILLO: The problem is --

MR. PAVAO: If it's 35,000, it's being diluted down to 10,000 --

MS. CUTILLO: Right.

MR. PAVAO: -- by the flow to the ocean. That's a tremendous amount of water flowing through the ocean.

MS. CUTILLO: Yes. And 10 parts per thousand is the estimated number of threshold for the survival of young waterbirds.

MR. PAVAO: I'm sorry. I'm not even thinking threshold. I'm just thinking dilution and how much water is needed to dilute that. That's a tremendous amount of freshwater going to the ocean.

MR. BEAMER: I think I would like to add, you know, what Chair Case was echoing. You know, those future models that would enable us to determine, you know, the exact rates and depths of wells and how that, you know, is affecting the park would be ideal. But I do want to say I feel like this presentation has really showed how far we've come in this process and this analysis, because we didn't have these numbers around thresholds and critical habitats for species that the commission is really responsible for ensuring that they're protected under the public trust.

So that was really helpful for me. And I look forward to those future models that, you know, might be able to give us a better -- you know, better estimates and more information; but this was really helpful for me as well.

CHAIRPERSON CASE: Mike.

MR. BUCK: Just a marker. I just want to put a marker down. Maybe it's more my professional background.

But in protection of public trust resources, which we're looking at, and notwithstanding importance of freshwater, there's many resource management activities, invasive species removal, predator control, nesting enhancement, you know, vegetative restoration,

use of (indiscernible) basis that also impact the public trust resources. And I know we're just talking about water, but it isn't just about water.

And I heard the last management panel was 2014 for the park?

MS. CUTILLO: The last --

MR. BUCK: The last management plan and that outlines the resource management and the type of management activities that can enhance public trust resources.

You can have all the best water in the world, but if you don't have good nesting structures and habitat for waterbirds, you're not going to get successful reproduction.

So I just -- I hadn't seen that at all really talked about within your talk. And I know that wasn't, but that definitely the level of resource management can have a major impact on many indicator species that you mentioned that you do have thresholders for salinity, but then other thresholds as well for resource management, so.

MS. CUTILLO: Yes, I -- you know, I agree. And the park is very actively removing invasive species and our native vegetation. They just completed an EA for vegetation removal at Aimakapa Fishpond.

MR. BUCK: Yeah.

MS. CUTILLO: And so if you would like more information about the level of funding and removal of invasive species, we have the superintendent describe that to you today, or we could give you -- we can send you that information.

MR. BUCK: Yeah, not today. But just, again -- I just realized that commissioners never talk to each other, only in public forum, so you get a chance to see. But I know that issue in looking at impacts and enhancement of public trust resources, in this issue I think it is important to consider. So that's something that's on my mind. Thank you.

MS. CUTILLO: Yeah. Okay. And, yeah, so the park is very serious about removing kiawe and other invasive species. And Deputy Director Pearson was in the park yesterday, and he got briefed on the level that that's occurring in the park, and so he could also share that information with you.

MR. PAVAO: I have a question. You showed a slide of the Hualalai water level decline. Is that a decline -- is that static water decline or pumping level decline, and what is the magnitude of the decline?

MS. CUTILLO: So that chart came from the draft findings of fact, and it was compiled by

commission staff. And I think that on the slide it actually had the rate of decline. And so however -- that data is coming from the Department of Water Supply. And so --

MR. PAVAO: Would anybody from staff know what the magnitude of the decline is? Roy?

MS. CUTILLO: I think it was on the slide.

MR. HARDY: Yeah, on the slides. It's from over a course of approximately a decade. It's declined from about 290 to 275. So 15 feet for ten year -- one-and-a-half feet a year.

MR. PAVAO: And that's static water level?

MR. HARDY: That's what we asked for when they report, that when the pumps are off. When the pumps are on, it's different.

MR. PAVAO: A big difference, yeah.

MR. HARDY: A big difference.

MR. PAVAO: Yeah. There's no way to tell definitely the pumps are on or off. I think even (indiscernible) wouldn't be 15 feet, would it?

MR. HARDY: When it's on?

MR. PAVAO: Yeah.

MR. HARDY: Probably more at high level, but it's a different type of high level.

MR. PAVAO: So one-and-a-half feet per year.

Okay. Thank you.

CHAIRPERSON CASE: Jonathan.

MR. STARR: Can you characterize your perception of the effect on the water resources in the park vis-à-vis both basal pumping and high-level pumping?

MS. CUTILLO: It's difficult to do. The wells that we're using to monitor long-term declines just show two of them have -- are influenced by irrigation return flows. And so that -- that makes it difficult to separate that from any chance from pumping or climate change.

CHAIRPERSON CASE: Yeah.

MR. STARR: The largest and most significant draw on impacts in the aquifer are -- seem to be from the Kahaluu wells and shafts, where they're now pumping about twice the EPA-recommended and CL for chlorides into the -- into the Kona domestic system, you know, in large quantity.

I know they are a number of miles away, but do you think that that's a large enough -- a large enough draw on impact to the affecting -- what happens within the park? And would there be any likelihood the reduction in the draw on the Kahaluu sources help this situation in the park?

MS. CUTILLO: So I would just be speculating, but I don't think that pumping there -- I think it's too far away. And you would have much more saltwater intrusion before those impacts could propagate to the park.

CHAIRPERSON CASE: I just want to note that the issue of nutrient inflow from offsite sources, you know, we're seeing -- we're seeing that all over the state. And definitely there are impacts on the marine resources, and it's a -- one of those impacts that you don't -- you don't always see unless you're in the water.

I actually -- I was down in Keauhou Bay two weeks ago and took a little snorkeling, you know, in murky water in something that would otherwise would be pretty clear. So I just want to put a little placeholder for that issue to acknowledge that the nutrient inflow does impact. I got your point about the nutrient inflow creating a net -- a net worse situation even where water quantity is higher because of it, so.

Any other questions? Yeah.

MR. BEAMER: Sorry. Question of transducers. I can say it now. I had a little green tea.

In terms of management actions, is there

anything, I mean, in a non-designated area that we could add on to permits to include that as a permit requirement as a management action?

I wanted to get your thoughts, Roy, if that might help us to assess, you know, these impacts that we're talking about, from mauka to makai, in the short term?

Or if the parks would like to reflect on that, that's fine as well, but...

MS. CUTILLO: Well, I think, just to be safe, when I said that I think in the coastal aquifer that the monitoring -- the monthly monitoring of chlorides, while that may be okay to track saltwater intrusion in a well, I don't think it's sufficient to -- to identify monitoring trends before impacts occur to public trust resources.

So I think one thing that we could do to improve monitoring is instead of monthly chlorides or salinity profiles, is fix transducers. And that's just based on this -- the -- what we've seen in the monitoring record we have for those transducers in the well, and working with the USGS and other folks.

CHAIRPERSON CASE: Other questions?

Can I point a process for my legal counsel here? Can we go on to item B2, which is Jonathan, and then do public testimony on both of them?

MS. CHOW: Yes.

CHAIRPERSON CASE: Thank you. Then we will go on to item B2 now, and then we'll take public testimony on both 1 and 2.

And could we get lights dimmed again, please?

MR. JONATHAN SCHEUER: Aloha and good morning, commissioners and those assembled here. For the record, my name is Jonathan Likeke Scheuer. I am a consultant to National Park Service. I've been working on this issue with them for approximately five years.

I was born and raised on the island of Oahu. For those who don't know the little three letters after my name, my doctoral dissertation was actually specifically on the Waiahole water case and how the Water Commission and the Hawaii Supreme Court treated scientific information and Native Hawaiian claims during that case. So I feel particularly, I think, qualified to talk about these issues of traditional and customary practices before you today.

We turned in a report to you, which I believe is still available on your website, just over -- just around a year ago, and that report had three sections to it.

First, we discussed the historical, legal, and procedural background to your request for information on

traditional and customary practices at Kaloko-Honokohau National Historical Park. We then discussed both documented ancient existing and future-planned traditional and customary practices at the park. And then we addressed current management by the National Park Service of traditional and customary practices of the park.

Now, we did this, and I know Paula had a little bit of this in her slide as well, because the order you guys issued on December 29th, 2014. And I'm just putting it up in case -- I don't believe some of the commissioners were the same commissioners as there are now.

You required the National Park Service is requested to provide specific information to the commission about (a) the quantification question that Paula just responded to; (b) specific traditional and customary practices; and (c) how the NPS manages those.

I'm now going to go into what is in the report, and I'm going to expand a little bit on some of the information that was in the report.

I think it's important to start actually with the historic background. Because in some ways the suggestion of the NPS needing to further document the existence of traditional and customary practices,

whether they are ancient, existing, or planned in the park, was surprising.

Kaloko Fishpond was constructed, at a minimum, 500 years ago and has been an incredibly significant cultural, dietary resource for Native Hawaiians in this area during that time on a nearly continuous basis.

In the period of the 1600s to 1700s, Umi-al-Liloa established residence in Kona, and that really represented a peak of inland agricultural activity as well as management of Kaloko Fishpond.

Now, post-contact, as people well know, there were significant population declines and shifts. Population declines due to disease as well as shifts in population location locally. There was a shift from many makai communities to people moving mauka. There were people who were tending to fish ponds still did stay makai in areas that are now the park.

There were also great urbanization movements among the Native Hawaiian population during this time -- so to Kona to Lahaina to Honolulu on Oahu. So now you have people who are lineal descendants to this area who don't just live in this area but really live not just across the Hawaiian Islands, but across the planet.

From the 1850s at the Mahele until the 1900s, the land passed, the lands that now comprise the park,

passed through various ali'i hands and eventually into the hands of what became private corporations. And that was completed about 1900.

And that private control exist -- continued to exist during the territorial period and then the immediate state -- post-statehood period with the huge population boom that the state experienced in the tourism boom. There was a proposal specifically for Kaloko Fishpond and the areas around.

The Kona Coast company and the Lanihau corporation proposed a large resort development. They wanted to remove two-thirds of the historic Kaloko Fishpond wall to help a beach be created that would front a resort community.

I've thrown this in there because right around the same time, John Dominis Holt published his seminal essay on being Hawaiian, which many people -- it's not certainly the only thing that gave rise to our current flourishing and reconnection with traditional and customary practices; but many people point to it as a really important point. And so it's the time in which many people who had either been dispossessed of lands or barred from being able to access lands and continue practices started to reassert those practices as well as their rights to undertake those practices. And that

occurred in West Hawaii just as it occurred all around the Hawaiian Islands.

Word of the importance of protecting those practices didn't get out all the way, however. So by 1971 there was a response to these private landowners wanting to take down the Kaloko Fishpond. Both the DLNR issuing a provisional permit and the State Department of Transportation granting permits to allow two-thirds of the Kuapa to be removed in this beach project, and the resort to move forward.

The saving grace was that they also had to get a permit from the United States Army Corps of Engineers. And the Army Corps of Engineers turned to the National Historic Preservation Act and the Advisory Council for Historic Preservation said I think this needs some review.

They consulted with Native Hawaiians from West Hawaii, from North Kona. And after that consultation, the ACHP suggested to the Army Corps you should hold that permit in advance. At that point it was game on for Native Hawaiian leaders in West Hawaii if they wanted to protect this area and the traditional and customary practices and to perpetuate them in this area.

They turned to Patsy Mink, a congresswoman at the time, to see whether or not the National Park Service

might be of help. So there was a request from the grassroots level to the National Park Service.

In 1972, Congress, the United States Congress, passed a law creating a Study Commission made up of prominent Native Hawaiians who would decide whether or not issue a report whether or not this area was worthy of protection as a national park.

For two years they worked. They held hearings across the Hawaiian Islands as part of their mandate. In 1974, they issued a Spirit Report, which, if you have not read it, I strongly urge you to. But if you have read it, makes it very clear that this area that is now Kaloko-Honokohau National Historic Park, its main purpose is to be a (indiscernible), a place for the perpetuation of traditional and customary practices, management of fish ponds, religious practices, cultivation of crops, gathering, fishing;

In 1978, the park was authorized by Congress. And it was late in that year, and interestingly within two week of the time that Congress took action to create Kaloko-Honokohau National Historical Park, the voters of the State of Hawaii passed a series of amendments to our state constitution. They created the Office of Hawaiian Affairs. They clarified the state's responsibilities to DHHL and a whole bunch of things and two of the things

very pertinent to what we're discussing today.

They did not create, but they reaffirmed that water is a public trust resource. They called for the creation of a water commission, which you now sit in, to service as the trustees of the public's interest in water. And they reaffirmed as well the traditional and customary rights of Hawaiians and the State's responsibility -- all State agencies' responsibility -- to protect those rights.

Because of the fight at the legislature from one county that was resistant to the State asserting its proper role to manage water resources, it took till 1987 for the code to be passed. And it also took -- because of landowners who insisted on land exchanges for the parcels they privately held, it took until 1990 for the park actually to be owned by the National Park Service.

So this is an important point. You sometimes hear, "Hey, you guys been around since 1978. Why didn't you do more?" As I will expand on later. Because certainly we can always do more. But the boots were not on the ground until 1990 in the park. It was still a privately owned area.

And by 1998, as one of the first greatest priorities for the Park Service, the reconstruction of the Kuapa at Kaloko was begun. It took over a decade,

millions of dollars, thousands of labor hours, but was done specifically as one of the key ways, one of the key first efforts to perpetuate traditional and customary practices by re-enclosing the fish pond wall, which had suffered from both storms and neglect under private ownership, so that it could be again used for traditional and customary fish pond management.

Now, the Spirit Report also goes into great detail, and it describes how water -- freshwater is the thread that ties all of the resources and practices of the park together.

And so soon after assuming on-the-ground management, the Park Service started to commission studies. And Paula has already spoken about the 1999 study, the first of many studies the park has sought to have -- peer-reviewed scientific studies to try and understand the role of groundwater and groundwater withdrawals on the help of the park ecosystem.

So that brings us to the procedural issues. By 1999, we started having indications that the existing management regime -- that undesignated water management areas was not necessarily going to protect park resources.

So nine years ago this month, park staff and the park superintendent at that time, Jerry Bell, met with

Water Commission staff, including Roy Hardy. Jerry Bell was really clear. "Hey, we're really concerned about continuing withdrawals of water and its effects on the park's natural and cultural resources."

Jerry Bell said, "I'm interested in designation. That seems to be the tool." The staff said, "No, no, no, no. You know, that's really kind of crazy. You know, why don't you get together and talk to people about it." Okay. We'll get together and talk about it.

Later that year, the Park Service wrote a letter to Deputy Director Ken Kawahara saying, "Let's create a groundwater working protection group. Let's get all the stakeholders in the room. Let's see if some alternative path of action to designation might exist."

Now, that group met four times over the course of a few months. But while that group was meeting, the Hawaii County Department of Water Supply now decided to create a different group. And so the Kona Water Roundtable was created with different people setting the agenda, with informational presentations being shared with people who attended. But at least in the times I sat with them, no robust discussions of even whether there is a potential threat to public trust resources in this area. Or if there is a threat, what actions might be taken.

But the Park Service participated in every single Kona Water Roundtable. Continued to meet with stakeholders, the county -- almost everybody who would talk to us -- until 2013 when it became clear among other things that certain wells weren't even -- one well in particular didn't even appear in the bulletin until after it had already been permitted by the commission staff. And so on September 13 we filed a petition.

Now, thanks to Senator Ted Cruz, the Federal Government went into shutdown in October of 2014, and there was no ability for Park Service personnel to review the staff submittal. But, nonetheless, the Water Commission took a vote in October of 2014 and extended the 60-day period for review until December of 2015 -- 15 months.

And then December 15, you held a hearing, and later that month issued the order demanding that the Park Service explain what traditional and customary practices exist at the park and how we manage them. We submitted that report to you on May 29th of last year.

That's the historical and the procedural background. And now I'm going to talk about the legal background section that's in the report.

This is actually a picture of the Capitol.

CHAIRPERSON CASE: Are you going to be

talking about the traditional information on traditional and customary practices?

MR. SCHEUER: Yes. I will be getting to that after I finish the discussion of the legal background which informs how we responded to those.

The way that the State agencies such as the Water Commission is supposed to inquire about the impacts of its actions on traditional and customary practices are described both in constitutional law, statutory law, and Hawaii Supreme Court decisions. I'm going to go through those briefly.

I believe you know Hawaii Constitution Article XII, Section 7. "The State reaffirms and shall protect, affirmative, all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupua'a tenants who are descendants of native Hawaiians."

The State Water Code passed in 1987 and includes at least two specific references to your duties to protect traditional and customary practices.

One is in the policy statements saying what it is basically you're supposed to do. You're supposed to provide adequate provision for public interest, including the protection of traditional and customary rights.

And the Code in Section 101 goes on further to describe that nothing in this chapter, no Native Hawaiian traditional and customary rights are supposed to be abridged or denied by the actions taken under the Water Code.

I think you well know there's a whole long series of Supreme Court decisions about decisions made by this commission as well as decisions made by other state bodies that describe duties related to traditional and customary practices. But I'm just going to highlight two.

The first one which took place because of an issue on this island north of here -- Ka Pa'akai O Ka 'Aina -- decided by the Supreme Court in 2000. An agency when it's deciding whether ministerially or in an open hearing to issue a permit has to do with three things. Identify valued traditional, cultural, historical, or natural resources and the extent to which traditional practices are exercised; identify which resources and rights will be affected by the action that you're taking; and, finally, the feasible actions to protect those rights.

Now, it's important -- this was a case having to do with the Land Use Commission. And in that case, the Land Use Commission tried to delegate its authority,

this responsibility, to the developer. Court made it really clear. The body, the agency, can't delegate this to the provided user. This is a responsibility that you alone hold in your decisionmaking.

The second case -- and I'll be done with the legal section -- is a case that was decided on in 2014. Kauai Springs case, which is where the Kauai Planning Commission was struggling with a permit that was related to a private water bottler. And members of the planning commission actually turned to the commission on water resource management staff and said, "Hey, we're trying to figure out these water issues, and we know we're going to have some effect on this public trust resource." And my understanding of the response from the staff was, "Well, it's not a designated area, so we really can't do anything to help you."

It went all the way to the Supreme Court, and they took the time to really spell out point by point what state agencies' responsibilities are when making decisions about water.

First, the agency's duty and authority is to maintain the purity and flow of our waters for future generations and to ensure that water is put to reasonable and beneficial use.

When somebody wants water, when they get a permit

from you, whether it's a Well Construction and Pump Installation Permit, a Stream Channel Alteration Permit or a Water Use Permit, you have to determine whether that proposed use is consistent with the trust purposes, which include the rights of Department of Hawaiian Home Lands, the rights of Native Hawaiians to exercise traditional and customary practices, the domestic drinking water uses of the general public.

The agency is to provide -- apply a presumption in favor of public use. So not, "Oh, is this a good use good?" But the presumption is first -- because public trust uses are already ongoing. We presume those should be protected before we consider this other use.

The agency should evaluate each proposal on a case-by-case basis, recognizing there's no vested rights. Nobody has a vested right to take public trust water. If the requested use is private or commercial, the agency should apply a high level of scrutiny. So not just, oh, five-day pump test, you're good. A high level of scrutiny. And that proposed use is evaluated on a reasonable and beneficial use standard in relation to public trust uses, which don't have that standard applied to them.

Then they go on to say -- and they make this really clear. They don't say people who are trying to

protect public trust uses have the burden of showing their uses. They don't say people who are depending on public trust resources have the burden to quantify how much water they need.

They say applicants, meaning, the people who are diverting water have the burden to justify their proposed use in light of the trust purposes. They have to demonstrate their actual needs and the propriety of taking away public trust water. They have to demonstrate the absence of a practicable alternative, efficiency, reused water.

If there is a reasonable allegation of harm to public trust purposes, it doesn't say scientific proof. If there's a reasonable allegation of harm to public trust purposes, then the applicant must demonstrate there is either no harm. Or, in fact, if there is harm, the use is reasonable and beneficial. But if there is harm and the use is reasonable and beneficial, they have to implement reasonable measures to mitigate the cumulative impacts.

So even though their impact might be this much, there's a whole bunch of other people taking, they have to take a look and make sure their cumulative impacts are addressed if that use is to be approved.

Part of the plan of this legal review and why they

included in it is ultimately we need to work together cooperatively with all the stakeholders, but it's not the Park Services or Native Hawaiian practitioners' duty to come before you and describe in great detail what they do. It's not the Park's responsibility to say, "Well, here's how much water we need, so you can take the rest." That is absolutely not what the law requires on what your duties are.

Nonetheless, we provided a lot of information on ancient, current, and future practices. Some of the valued well-known cultural and natural resources in the park include Kaloko Fishpond, Aimakapa Fishpond, the Aiopio Fishtrap.

Anchialine pools, 25 percent of all the anchialine pools on this island lie within the park's boundaries. The opae'ula that live within those pools in the nearshore environment, wana, lobster, limu, mullet, they're whole gathering for traditional and customary practices.

There's other many cultural activities that have occurred at the park, including burials, which might not intuitively seem to you to require water, but there's cleansing ceremonies that are necessary when you come or you took care of places. Of course, drinking water was an ongoing use of water in this area. Ceremonial

cleansing, as I mentioned, and bathing.

We also reviewed to you -- for you in the report from oral histories that were gathered. A number of people who described their uses of water in the past. Mary Simiona lived at Honokohau Iki Beach from 1927 to 1940 and continued to work in that area. She described at least two drinking water sources that were used in the park area.

Similarly, Peter Keka, who's a lineal descendent of the area through for at least three generations has had a relationship with taking care of the fish ponds in the area. He recalls that his grandfather referred to a pond as (indiscernible), the water you could drink. So not all the anchialine ponds have the same salinity, but there was -- oh, yeah, that one. That's the one you could go to, to drink. And during his youth, he could go and drink there. But it's now actually become too salty to drink.

Now, in the testimony that you received in December of 2014 -- and I don't actually know this gentlemen, but there is a gentlemen named Herbert Kai who took the time on his own to write in. And he made really two very interesting observations.

The first, he noted, he and his ohana have practiced fishing, gathering, drinking, and bathing

practices. And he's talking about the southern portion of the Keauhou aquifer around Kahaluu, where the flowing freshwater, the freshwater springs, the brackish water pools, and opae'ula, not to mention the wana, the lobsters, and octopi. He specifically noted these flowing freshwater -- freshwater springs, brackish water pools, and opae'ula are gone. Or at least not easy to find. They've been slowly diminishing since the Kahaluu well was drilled in 1975.

So I've seen nothing in the intervening months since that testimony was submitted of anybody controverting that there's already been an impact from existing management practices in this area on traditional and customary practices.

He also went on to note that his cousin Connie would actually take him up to the area that's now Kaloko-Honokohau. He'd point out the critters in the tide pools, the plants for drinking, duck us in ice water pool, point out the fish shrines. And for him it was a very reasonable conclusion to say, okay, when I was a kid, I had plenty resources down south. Then they started pumping. They went away. Now they're moving the pumping to the north. I'm concerned that these practices are going to go away too.

I'll talk a little more later about why we don't

have in great detail long lists of practices and practitioners. A few that we mentioned as existing practices, there's annual ceremonial cleansing that occurs within the park. Annually, people take water from Kaloko and Aimakapa, Aiopio to share with other fish pond practitioners around the state.

There's been a number of requests by practitioners for water to ceremonially gather water from the Park Service, which had been granted. We haven't interrogated them about what it is that they're planning to do.

And most significantly -- and Paula started to talk about this, and I've had pictures up. After the years that it took to gain the land for the park and then the many years that it took to rebuild the fish pond wall, the fish pond wall is now in a state that active management of the fish pond to bring it back its production has begun. And there's annual -- or there's monthly work days where people are going in, cleaning the vegetation, getting prepared to put that back into use as a traditional aquacultural food source.

And I'm sure people in the audience here today might testify on that.

This is one of the pictures of the many work days that have been held.

What's the NPS's management of traditional and customary practices, was one of the questions you asked. And the National Park Service is not the national security administration. We don't run around with clipboards, seeing somebody doing something and saying, oh, can you check off: Are you Hawaiian? What is it are you gathering? How many are you gathering? Are you doing this all the time?

They're not there on the ground 24/7 at nighttime when some practices occur. It would actually be antithetical to the idea of Kaloko-Honokohau serving as a (indiscernible) for there to be this rigorous data-collection program on what practices currently exist.

That's not to say -- and no one that I know of in the Park Service would disagree -- could we do more to support traditional and customary practices? Absolutely.

When I talk to Fred Cachola, one of the last living members of the advisory commission -- you know, in 1972 where the development proposal existed that was going to destroy this place, the trust for public land wasn't in Hawaii. The nature conservancy was not looking at these kinds of properties. The State of Hawaii was not looking at trying to protect these

properties. OHA did not exist.

There was no Hawaiian Islands non-trust -- they turned to the one entity that they thought might actually help them, that have the resources to help the management. And they knew it's a little -- it's going to be tough. And, in fact, of the many, many Park Service units that exist around the country, you know, many of these rules and regulations are made in Washington, D.C. And they're not made with the idea thinking about, well, how is this going to affect a traditional gathering at Kaloko-Honokohau. So it's not perfect.

There's improvements that need to be made. There can be tension there. But it's very, very clear that the core purpose of the park is the perpetuation of practices. And there's been a number of very significant efforts continuously since the founding of the park to make sure those occur. And the work days really illustrate that very well how those ongoing and future practices are going to occur.

This is a photo from December.

You seem very focused on quantification. And so I wanted to quantify a few things for you.

Nine years. Nine years has been the number of years that the Park Service has had been having

conversations with the commission, asking you to take some protective action to protect traditional and customary practices and resources.

You approved the Hawaii County's Water Use and Development Plan for the island. It's 492 pages long. The number of times that the phrase "public trust" appears in the 492 pages is zero. And that's the document that's supposed to be guiding water development on this island.

Once, the phrase "traditional and customary Native Hawaiian practices" appears, and that's because you're quoting the State Water Code. They weren't.

When we presented our petition in September 2013, and it was heard in October, there were three commissioners, two who still serve on this commission, who were ready to dismiss the petition without it having even any staff analysis. And zero, as far as I know, is the number of times that the Water Commission has conditioned a Well Construction and Pump Installation Permit on its impacts on traditional and customary practices in this area.

So we have a water update. I'm very glad that this update for this area is going to specifically look at traditional and customary practices, and that's going to be discussed today.

You've received our reports. There's some conditions -- discussion. Perhaps the Water Commission might put conditions on Well Construction and Pump Installation Permits.

But the question remains: Can it be done? It still remains very unclear whether there's any legal powers that the county to manage water whatsoever other than water in their own systems and whether there's any ability outside the designated water management area that you have to put conditions on to fulfill your duties.

So what comes next? These are some of the people who come to exercise in the park to try and carry on traditions. They and we are turning to you. Mahalo.

CHAIRPERSON CASE: So I guess let me just start by saying your -- this -- this was on the agenda, I believe, from last August, was it? Reporting back on your report. I see your report that was filed in August, anyway.

So you don't -- you're not -- you're not actually briefing us on the details. You're basically briefing us on the legal process here. And the -- your position that you shouldn't have to brief us on this because we should be finding this out ourselves.

I guess I was hoping for some detail on

information on traditional and customary practices. So should we just refer to the report that you filed for that information?

MR. SCHEUER: So my presentation covered what is in the report, which included discussion of the historical, legal, and procedural background as well as identify traditional and customary practices in the park and the manner in which the Park Service is managing them.

CHAIRPERSON CASE: Okay. Thank you.

Mr. Starr.

MR. STARR: Yeah. A couple of them. But, first of all, I'd like you to go into a little more detail regarding your suggestion that it may be possible to condition a pump and well permits for public trust and T&C and rights and purposes. I don't know if that's been done before. I certainly can see some merit that you speak to that, especially if you know of any precedent to that.

MR. SCHEUER: Commissioner Starr, I do not know of any precedent. I would be interested in there being precedent. I don't know whether it is legally possible, because you start to get into the issue of correlative rights to groundwater exist in non-designated water management areas.

MR. STARR: Yeah. I -- my interest has been piqued by that. You know, the process is more based on well standards, lining, and so on rather than other factors. But I do agree that's something that should be looked at.

MR. SCHEUER: You know, I -- just to add, I think -- I think there's great value. And I'm very pleased that the Water Commission has asked all of the Water Use and Development Plans to conclude an analysis on traditional and customary practices.

But just as it's illegally unclear what -- whether you can place any conditions on a Well Construction or Pump Installation Permit outside a designated water management area, it's unclear to me what a Water Use and Development Plan is other than a planning document.

I don't think it's an administrative rule-making procedure. So even if the Water Use and Development Plan said we know that wells in area "X" are going to have a negative effect, I don't think that necessarily empowers the commission and certainly not the county to take any action in regards to that.

But those are -- those are legal questions which, you know, I think might be useful for you to answer to figure out how you can fulfill your duties.

MR. STARR: The chicken and the egg conundrum about trying to understand what the public trust and T&C needs for a place are so that that water can be set aside in perpetuity, it creates a technical problem. Because, you know, we are asking how much is needed, how can we base a decisionmaking when we don't have any kind of quantification or box that we can set aside to make sure that those needs are met.

And I also understand the argument of, well, that's not the obligation of the -- those who are trying to protect the public trust and the T&C practices.

But how do we get to a starting point where we can do it in a practical world? It's difficult. Because if we can't quantify it, it makes it very difficult or more impossible to be able to regulate it in a way that 174C tells us that we must.

And, honestly, I doubt that commission staff has the ability to quantify it for us, nor do I think that it is really in the spirit of things to say, well, it requires all of the water resources to be in the same montage form that they were at in, you know, what we term as pre-contact times. You know, that's not really reasonable either.

So how can we get there? And how can we work to find a balance that will allow the resources and through

traditional uses to remain viable within the framework that this is a place that is surrounded by other uses and golf courses and new development and so on that are happening?

MR. SCHEUER: Yeah. So you raised a number of points I may not be able to perfectly recollect and entrust them all.

One thing that sticks out for me, and I want to be very clear from Paula's presentation. We're saying there's a lot of existing pumping mauka of the park and in the area that probably influences the park.

Now, we're not saying go back to pre-human or pre-contact water levels. We're saying water withdrawals at this point appear to be right at the threshold. So, not shutting down any existing wells that are in this area, but not increasing pumping in this area, whatever that area is that's having -- would affect groundwater flow into the park.

So it's not going to the ancient past. I agree with you that would not be a realistic thing to do.

MR. STARR: So can you at least define that in, you know, how many yards, how many miles, and how far up slope? You know, we need to start quantifying if we're going to be able to do anything useful.

MS. CUTILLO: I think, yes, we can -- we

would like to do that with the model that Delwyn is developing -- is identifying the area. And you're saying "quantify," you don't mean quantify discharge. You're talking about quantifying in the area that contributes groundwater to the park. And I think we can do that.

And, you know, I just want to say when I think about scientific uncertainty, you know, we'll never know a hundred percent certainty about the impacts of wells or what these ecosystems need. But a certainty about the level of protection that's needed, you know, I know that it makes your job very hard -- scientific uncertainty. But this uncertainty shouldn't default to no protection.

MR. STARR: Yes. And I also think we should be clear that there are two discussions that we need to take. Like I said, one is whether the tool of designating a management area is the tool that needs to be used. You know, reading 174C one might come to that place, but it's still just a tool kit.

And the other is in protecting the resources, both the T&C and public trust resources inside the park. And also we're obligated to protect the resources in -- in this rest of the aquifer as well. Our purview doesn't just end at the park boundaries. So there are

two things that really are -- need to be on the table.

MS. CUTILLO: If I could just add that you asked Jonathan what can we do to -- as a first step. And just -- Water Use Permits in designated areas, they provide you this management framework, I think, to do this. I know that we're looking for other alternatives, but you have an existing tool.

And what it allows is for an applicant to justify why they need the water and why don't -- they don't believe that they will impact public trusts uses. It also gives the public the opportunity to come to you if they think that their uses or water rights will be impacted by new withdrawal, to come before you and say this is what we use the water for in this area and why -- what impact we think is acceptable to these resources. So I think you have a framework and a tool.

MR. STARR: I have one more question for (indiscernible) for Mr. Scheuer, which is: In your PO, you kind have written the thesis on this. If we agree that it is the commission's responsibility to protect the resource, both as a public trust resource and also as necessary for T&C and also environmental needs, then is that something that the commission could delegate, say, to the county Department of Water Supply or through some other entity?

MR. SCHEUER: I believe the commission -- the statute of the Water Code describes that this body has exclusive jurisdiction and final authority on all waters related -- matters related to the Water Code.

CHAIRPERSON CASE: Go ahead, Milton.

MR. PAVAO: Mr. Scheuer, I found your talk very interesting and enjoyable. And I think one of the key things to me is that I don't think anyone is arguing the fact that it is important to protect traditional and customary practices. I don't think anybody is arguing that.

Also, while I enjoyed your talk, I kind of had the feeling like you were lecturing or scolding us. Were you?

MR. SCHEUER: If that's the tone that I adopted, I apologize. I am passionate about these issues, and I was trying to relate in the context of the request for the Park Service -- the petitioner providing information. What I felt was that legal, procedural background would -- it would inform the kind of information that we provided about specific practices.

MR. PAVAO: I kind of had flashbacks of being in the third grade where the teacher was scolding me, so I just thought I'd just ask that. Thank you.

MR. BEAMER: I just want to thank you for

the presentation, and I think it helps us to, you know, identify a couple things.

One, you know, this issue about Kuapakai and whether or not it's the burden of the applicant to identify impacts on traditional and customary rights. And you kind of reminded us that, you know, you -- our Supreme Court here in Hawaii has said, it's not, you know, the duty of the cultural practitioner to do that but the applicant.

And then, I think, identifying, you know, some of the practices that are occurring even, you know, in spite of, you know, that recommendation on your part. The reminder is, you know, some of the practices that are -- were happening with Mr. Kai as well as Simiona and some of the work groups now that I would consider taking part in traditional and customary practices. I also think that was all kind of helpful in thinking about those thresholds that are were identified earlier, gives us a better -- better baseline as well, so.

CHAIRPERSON CASE: Yeah, I just -- I'm looking back through the minutes that we just approved from the December 2014 meeting and then the order that you referred to.

And it looks to me like what happened in December in 2014 was there was a motion to deny the petition, so

there was some probably -- my understanding is that there was a sense of that because of the sustainable yield number was not -- you know, we weren't near approaching that. There was a feeling that the petition ought to be denied.

And then there was a long discussion about the need for more information. And the motion turned into a request to -- motion to extend the investigation and ask for more information. So I think -- I think the process has been to try to gather as much information as possible in light of the fact that the direction was to -- that it was going in was for us to deny the petition.

So presumably there were some members who felt like there was enough information to deny the petition and that -- but the commission wanted to make sure that opportunity for more input, especially from the county and Park Service and the public to provide information.

So I think that's procedurally what we were trying to do right now is -- is to create an opportunity to gather information on the impacts to the park -- impacts to the natural resources and the traditional and customary practices.

So I guess I would leave it as a request. That's what it says. And so I appreciate all of the

information that has been provided here. It does help us get to a better decision.

Any other questions? If not, why don't we move to -- anybody need a break?

MR. PAVAO: Take a short a break.

CHAIRPERSON CASE: Take a five-minute break and then we'll come back for testimony. Thank you.

MR. SCHEUER: Thank you.

CHAIRPERSON CASE: Okay. We're going to continue, and I'm going to make one change to what I said before. We're going to take the briefing -- the next briefing because it is also relevant to this topic. And then we'll take a lunch break, and then we will take public testimony.

So that means we're going to go to item B3, overview of the Aha Moku Advisory Committee, Water use in the Kona District, Moku O Keawe, Hawaii Island. So we'll do that, and then we'll take a lunch break and then come back and have public testimony on those -- these three briefings we will have just have.

Who has to leave at lunch time that wants to testify? You can't come back in. You want to testify. And you guys can't come back in. You want to testify. So how long are you going to be? You want to go -- okay. Why don't you come ahead -- pardon me? Okay.

Can you guys wait, like, another 20 minutes?

Okay. We'll take Leimana's presentation and then a little bit of testimony, and then we'll break for lunch. Thank you.

MS. LEIMANA DAMATE: Aloha, commissioners and chair.

CHAIRPERSON CASE: Turn your -- you've got to press the button.

UNIDENTIFIED SPEAKER: Press the button.

CHAIRPERSON CASE: The red light over there.

MS. DAMATE: Can you hear? Okay. Now?

CHAIRPERSON CASE: Yeah. Put it close.

MS. DAMATE: No? Now? Okay.

UNIDENTIFIED SPEAKER: I don't think it's on.

UNIDENTIFIED SPEAKER: You got to speak in the mike.

MS. DAMATE: Okay. I got to speak in the mike, okay.

Aloha, commissioners, chair, and our attorney general. I'm very honored to be here, and I'd like to give you a short presentation on the Aha Moku and its background. I'd like to also offer my aloha to the audience and to the members of the ahupua'a and moku families that are here from Kona as well.

So a little background about myself. My name's Leimana DaMate, and I am from the ahupua'a of Kahuku moku of Kau, Moku O Keawe. So I'm from this island. My hometown is Waimea, and I spent 20, 30 years, I think, in Kona. So that's just to let you know that this is an issue that is very close to my family and I. So let me start.

The first question to start with is why an Aha Moku System? And that's because more than 25 years now for the past 30 or 40 years, the general public concerns on ecosystem just degrading included strong fears of the Native Hawaiian population and culture on this island of their resource depletion.

So for the first time since the overthrow of the Hawaiian Kingdom in 1893, kupuna and Native Hawaiian resource experts from the traditional moku on all islands -- but particularly from this island -- gathered to address natural and cultural resource protection.

The pictures that you see that I put up there are just indicative of the areas that are concerned about their natural and cultural resources degrading.

So there are eight islands. Eight Mokupuni, 46 traditional moku districts that have geographic boundaries traditionally, 606 ahupua'a. These ahupua'a districts are comprised of families -- traditional

families that have lived on the land for decades. And they're the ones that know the resources better than anyone else and can now help and work with government on the protection of the ecosystem.

So the general public has shown that they support this process, the Aha Moku System. And since 2006, there have been seven statewide puwalu -- big, huge conventions, gatherings; several island caucuses and meetings; and many public community meetings that were held together to solidify the process. The process actually came from the 9th century. This is a traditional land and ocean tenure system that was translated from oral history and oral chants to bring it forward.

So in 2012, the final version of the Aha Moku System was signed into law by Governor Abercrombie, and it did two things. It established the Aha Moku Advisory Committee within the Department of Land and Natural Resources, and it formally recognized the Aha Moku System.

The Aha Moku System is the vehicle that now Native Hawaiian communities can incorporate their traditional knowledge with modern scientific methods, hopefully to protect and sustain the ecosystem so that future generations will be able to enjoy, that we and

our families have enjoyed for centuries.

So the purpose of the act is to formally recognize the Aha Moku System. We serve in an advisory capacity to the chairman of the Board of Land and Natural Resources on issues that relate to native -- to land and natural resources management. Okay.

The purpose the legislature wanted to focus on when they created the Aha Moku bill is to integrate native Hawaiian cultural and traditional values into the fabric of state policy.

This is a view of Anaeho'omalu -- you know, right down the coast line.

You know, in the previous speaker's presentation, it was mentioned as well as Chairman Case mentioned, the importance of the ocean to water issues. That is a critical statement. So I just wanted to emphasize how important that is.

So the Aha Moku System provides advice on six major issues. One, it's to integrate Native Hawaiian resource management practices with western practices in each moku. Resource management practices are site specific to the ahupua'a of the place.

Ahupua'a boundaries were created by geographic boundaries, so it goes beyond any kind of political or demographic -- modern demographic areas. It's to

identify a comprehensive set of Native Hawaiian practices for the natural resource management. That comes from generational knowledge of families from a place. So the ones who know a place best are the families from that area.

It's to foster understanding and practical use of Native Hawaiian resource expertise. All of this was never brought forward in the past, and it's starting to slowly come together now. You know, it's very difficult for Hawaiians, families to share their family knowledge -- generational knowledge of resources because it's been so exploited in the past. This Aha Moku System is a vehicle to try and address all of that.

The next one. Sustaining the state's marine, land, cultural, agricultural, and natural resources is a mandate in the bill and the act that pretty much puts us in a collaborative relationship with the Department of Land and Natural Resources.

The whole focus was to be part of the state policy to support the state's mandates on environmental practice -- but to bring in a perspective that has been overlooked for too many years. And that is a Native Hawaiian cultural perspective.

To provide community education and to foster cultural awareness on the benefits of the Aha Moku

System. So these two pictures -- in fact, all of the pictures that are on here has a direct impact on water issues in the area -- in every area. Water is life. The Native Hawaiian culture, the water is life.

So the Aha Moku System had its roots in the Ka Pa'akai O Ka Aina lawsuit. In fact, being here in Kona, giving this presentation is very meaningful because this is where it all started. It started with Ka Pa'akai. And so you heard the three main issues of the Ka Pa'akai case. And although it was geared towards the Land Use Commission in 2002 -- or 2000, it actually impacts every single state agency, county agency, and government, because it brings the people forward and brings their voices forward.

So what I'm showing you now is the traditional land use map that Aha Moku uses. Every single island has a traditional map. This one is of Hawaii Island, Moku O Keawe. It is an 1835 map. It's the earliest map that we could find that actually showed the different ahupua'a and the moku designations.

But it was done by David Kalama from the Lahainaluna School at a time when the missionaries in Lahaina were teaching all the students at Lahainaluna School to be surveyors. So they sent all these young boys out -- these kids out to all the islands to survey

the land and to actually draw the maps of the ahupua'a and the moku.

We use these maps, but I have to tell you, in the past two years since Aha Moku has been established within -- attached to DLNR, we have been finding out from the different families and the different areas that the maps are not quite accurate. And that's because the board -- the people who drew these maps came from Maui. So their perception of what an area was does not necessarily match up to what the people of the different islands.

Here Moku O Keawe. I've already been told by families that it has to be corrected. Some of their names need to be corrected, and some of the boundaries have to be corrected. So we're in the process of doing that.

This is the map of the Hawaii County demographics. I wanted to show this because one of these days we're going to do an overlay of the traditional map of the islands; then put the demographics of the counties over it and then the state over it; and, finally, of the water where the water comes from. Because that will show you where the families or the ahupua'a people can start to integrate with the various different county, state, government

agencies on issues that impact their resources. Okay.

So this, again, goes back to Ka Pa'akai. And County of Hawaii is really, really fortunate because -- like District 6. This is Maile David's district -- Councilwoman Maile David. All of these areas she's familiar with, and they're impacted by the different issues, especially water issues.

Maile David was a plaintiff in the Ka Pa'akai case, so she has deep knowledge of all of the cultural areas and impacts.

This is District 7. Portraits -- portions of North and Kona's South -- North and South Kona. And this is Dru Kanuha -- Councilman Dru Kanuha's district. And these are the areas that have a lot of traditional, cultural practitioners, but they're impacted by the lack of water or water issues.

Dru Kanuha's family -- some of you may be familiar with Junior Kanuha. Junior Kanuha was one of the original people who formulated the Aha Moku process in -- on this island. So his family is well connected to this whole -- to actually the whole Kona coast side in many different kinds of cultural practices. And they don't talk about it. I know. But they have the knowledge.

And then this is District 8. Portions of North

and South Kona. This is Karen Eoff's area. Councilwoman Eoff. She was also one of the main plaintiffs in the Ka Pa'akai case. She also has a lot of knowledge and can work with the Department of Water Supply and the Water Commission -- all of them can -- on finding information on what their constituents and their people need.

So this is Mahaiula Mauka. Kaupulehu was a very important step as to where Ka Pa'akai took place. And then you have Kukio and Maniniowale Beaches. These beaches are now part of the county park, state parks, and the fishing and the wana areas are some of the best on the whole entire coast, so they need to be protected. They can only thrive through water use. Freshwater has to be -- has to continue to come down those beaches in those areas.

I just wanted to show you what the ahupua'a moku structure is because this can help the commission and the county on how to connect with the people that have the knowledge of the specific areas. The -- it's like an inverted pyramid, with the people on the top -- ahupua'a families on the top, going all the way down to the Aha Moku Advisory Committee, which is on the bottom of the totem pole, staff is below that. Okay.

So the people of the place have the final

decision on what -- on bringing their voices forward. The answer to the public trust to the Board of Land and Natural Resources and to the legislature.

This is how the Aha Moku works. Each one of these small little circles represent an ahupua'a in an area. This is the highest level -- the highest level in the Aha Moku System. So the families who hold the traditional knowledge -- and you have to understand that that kind of traditional knowledge is based on Hawaiian science.

Hawaiian science is the powers of observation. It's these people who can understand global warming now, ocean erosion, why the water is depleted, and planet changes. These are the people through countless decades and generations of use can actually know and predict when seasons are going to change, when things are going to change, because their survival depended on it.

So each of these little circles, the ahupua'a, selects one person who must fit eligibility criteria to be a representative of that ahupua'a. The eligibility criteria is you need to have generational knowledge of the place.

So, now, you're only talking about the boundaries of an ahupua'a. They're not going to maha'oi into someplace else. They're not going to go say, "Oh, I can

make decisions for this area" when they don't come from here. Because you have to know what the resource is in that area.

Once all these -- all the ahupua'a representatives are selected, they get together in the Hawaiian process. So they just get together, and they select among themselves who the representative of the moku itself is. So now you've narrowed it down. And the moku representative is there so that if there is a resource issue that impacts more than one ahupua'a, that's where the resource -- the moku representative will come in.

He may have to do -- he or she may have to do a mitigation issue. Or, say, a developer comes and they want to build something somewhere, and it overlaps into two ahupua'a, the moku representative will find that out and start the mitigation process.

On this island there are six moku. Those six moku representatives get together again, and they select the representative who sits on the Aha Moku Advisory Committee. That committee, those members are confirmed face confirmation by a senate. They -- their names are submitted by the governor to the legislature for confirmation. The governor gets those names from the people themselves, okay.

So it's a Hawaiian process. With one little twitch is that the eight representatives did not exist in the traditional structure of the Aha Moku process. That was added on by the legislature who did not want to have to work with 606 representatives. They couldn't. So that's why the structure was narrowed down to the eight.

But the eight representatives don't have the kind of powers that a normal board or a commission would have, and that's because the Aha Moku Advisory Committee operates under a Hawaiian structure of the -- the -- the AMAC.

Aha Moku Advisory Committee representative for Hawaii Island is Piilani Kaawaloa, who comes from Puna -- Kalapana, Puna. And so if an issue comes up that impacts Kona, she does not have the authority to make any decisions with about Kona because she's not from Kona. She doesn't know the resources there. She would immediately call the Kona moku representative. Right now it's Kawehi Nguyen from South Kona.

If the issue is in Waikoloa, Kawehi is from Honaunau. She will not be able to make the decision. She has to go back to Waikoloa or to that area, and that's where the ahupua'a representative finds the right people that know the resource that the issue is about.

And they're connected directly with the agency, the government, county/state agency, or whatever the issue is.

At that point, the rest of the Aha Moku steps back, and the issue is dealt with by that specific community. So basically that's what Aha Moku is.

So in the Kona water development plan, wherever -- and in the Keauhou aquifer, wherever the issue is, they would need to connect with the traditional people who know the area and have been accepted by the community of that place to find out what the practices are -- what the practices are.

So in the case of Kaloko-Honokohau and the park and trying to restore the ponds there, when you look at the comparison between that park and, say, Kohanaiki, the parks there, the difference is that the traditional families from Kohanaiki area were the ones that jumped in to restore and to maintain the -- that fish pond over there and the area and the water over there. So they're the one's that would know.

Aha Moku can provide the names of the families where -- who can work with the agencies on what the issues are, no matter what they are. And that is what's happening on every single island.

You actually have an advantage over here because

you have council people that know the backgrounds of all of these areas. And in this audience even you have traditional families that know the areas. These -- this is part of the silent majority. Aha Moku does not jump in and do protests or anything like that. They work with the state to try and protect a place for the whole community. It's not based on blood. You don't have to be Hawaiian to be a representative of Aha Moku. You need to have the generational knowledge of the place.

So where we are right now is that each island is in the process of organizing the ahupua'a communities. We've only been in existence within the state structure for two years, so it's tiny -- it's jelly; but this is just basically how an ahupua'a is organized. So it's based on consensus and knowledge and kupuna guidance. Kupuna are very, very important to the Aha Moku. They're the ones that provide the guidance.

I wanted to just -- I forgot to go -- I wanted to just go back and tell you really quickly that -- about this one slide. This is very important because that picture that you see is actually the foundation and the model of the ahupua'a.

This is kuula reaching up from the depths of the ocean, the sea god, reaching towards land, holding the wana in its hand. The wana, the sea urchin, represents

the truth of the Hawaiian people, that they're sacred to that truth. They stay with that truth. They've learned it through generations of the resources.

The two fish, the opelo and the aku, represents the two seasons of the Hawaiian calendar -- dry and wet season. All of this is dependent upon water now. The opihi represents how practitioners who have the generational knowledge of the resources are pa'a or adhere to the truth of their culture, the truth of their ancestors. It's nighttime, because Hawaiians practice by a lunar calendar.

In the corner -- I don't know if you can see it -- is a cluster of stars. And that is the -- the Makali'i that represents a makahiki, a time of sustainability and the ecosystem -- you know, it's the wealth of the Hawaiian people is the wealth and health of the resources.

The moon is in akua. That is very important because it represents a spirituality of this whole process. It connects the ancestors, the traditional practices with the people of today. It ensures that the ahupua'a representatives will never ever sell out. They'll never ever give up their rights to the protection of their place for gain or for whatever in today's society. They're going to stay true to

protection of that area.

So that was important. Kupuna wanted that to be the standard of how the representatives are chosen and what they do for their communities today.

So where we are right now is that we continue to establish the ahupua'a communities within the island on each moku. Their mandate is to work with and familiarize DLNR and the Water Commission with the moku and its specific ahupua'a.

We are hoping to hold public hearings on the Aha Moku draft rules that are in -- in draft form right now. And that was mandated by the legislature. And continue to strengthen sustainability of all ahupua'a and continue accountability first to the people, to the public trust, then to the government agencies and the legislature.

And that's it. Okay. Thank you. Thank you for the opportunity to share this.

CHAIRPERSON CASE: Thank you, Leimana. And I appreciate that overview. I enjoyed very much working with you.

Has anybody have any questions before we move to public testimony?

Yeah, Jonathan.

MR. STARR: Thank you very much for that --

CHAIRPERSON CASE: Leimana, question.

MR. STARR: Is it -- is it possible that at some future time that the Aha Moku organization could provide resource and T&C usage and rights and help when a body such as this has -- has questions and wants to be able to deal with our responsibilities in a more rational way?

MS. DAMATE: Absolutely. We actually do have a lot of -- you know, when you go back to this slide, this one, many of the ahupua'a communities have already been formed. The moku ones, for sure. And -- and, yes, they would be able to put you in touch with at least the families and communities who know the resources best.

That has not been published, of course, because families are very, very protective of their resources and their practices. But at least we have a place to start and to share.

CHAIRPERSON CASE: Kamana.

MR. BEAMER: Mahalo nui for the presentation.

MS. DAMATE: Yes.

MR. BEAMER: And I really appreciate the intent and all the work, you know, that's gone into the Aha Moku.

Couple things only because my background is in land tenure and stuff.

MS. DAMATE: Right.

MR. BEAMER: Just might -- I'd love to help with and to think about, you know, that number of ahupua'a does vary from time to time. But at least, you know, in the kingdom there's 1,625 in one of the papers that are offered, so her numbers are a little small right now.

And then it will vary, yeah, depending on when the boundaries were set and if it was from the Mahele or if it was, you know, post-Mahele and stuff. But -- and then I think that might help -- that's my only concern is if you -- just like you're talking about being very specific about the families and not wanting to overgeneralize --

MS. DAMATE: Right.

MR. BEAMER: -- from one moku to the next. And so that's why I totally appreciate the work and want to support it and -- yeah. And so mahalo --

MS. DAMATE: Thank you.

MR. BEAMER: -- for the presentation.

MS. DAMATE: And then especially Kohala. There -- it's changing. We got our information about Kohala from Aunty Marie Solomon. Some of it, you know,

but there are other families there. Some of my family is there. And they still have to work together to decide. Some of it's based on where the iwi kupuna is, that's why, you know.

But you're right. I'd be happy to share whatever we have with you. We do have a listing of the paiaina and what we got off of the maps and from the different families and the different islands. And that does -- we do have that documents. I'd be happy to share that with you.

CHAIRPERSON CASE: Other comments? Questions?

Thank you very much.

MS. DAMATE: Thank you, Chair.

CHAIRPERSON CASE: We'll move to public testimony. And the first one up on the sign-up sheet -- we'll do public testimony on B1, 2, or 3. Is Phil Fernandez -- item B1.

MR. PHIL FERNANDEZ: Thank you for allowing me to testify, Chair Case and commissioners.

My name is Phil Fernandez. I am from the ahupua'a of Holualoa uka, which is two ahupua'as to the south of the Kaloko ahupua'a. However, I fish. I'm a fisherman, and I fish that area from Honokohau Harbor up north all the way up to (indiscernible) Point. Used to

fish shoreline, but I've been able to afford a boat, so now I fish from the ocean side but still on the inshore area. So I'm pretty familiar with it from a fisherman's perspective.

I've also walked, hiked from Kona all the way to Pololu Valley up at least once, not in one time -- in segments. And so I'm familiar with the area. And when you hike that area, you find out that there's no water. And you look at it, and you say, "Oh, my god. How did they do it in the old days?" Well, they have to know where all the water was, right?

And, as mentioned earlier, that some of the water's brackish, and some of the water's salty, and some of the water's fresh. But there are methods of even in the brackish pond on how to find where the freshwater spring is and actually get the freshwater. So you can bring to freshwater.

But those are all traditional and customary knowledge of how to get water from these little ponds, and I think that's an important knowledge. And, again, also the fishing knowledge.

When I first saw the petition in 2013, there was a photograph -- an aerial photograph of the freshwater plume right off shore. And -- and that said to me, you know, that's an important asset. Because that

freshwater plume is necessary for a lot of fish on the reef.

And not only that, there's a report that I understand is going to be released in two to four weeks from the department -- or Division of Aquatic Resources. It's going to talk about the coral reef bleaching in this area actually. And there's significant coral reef bleaching due to temperature rise of the ocean.

And one of the things also that was mentioned in one of the slides is that those cold waters -- the freshwater springs are ice cold. And what those freshwater springs have done is stabilized that -- the water temperature around the reef and protected the reef from warming up so much. And now we're seeing, you know, ocean warming occurring -- seawaters getting warmer, and we're seeing coral reef dying.

And so from a fisherman's perspective, that coral reef is a very important resource, and it's where the juvenile fish go. My organization -- I'm also the president of Hawaii Fisherman's Alliance for Conservation and Tradition, and we have a special interest in the Deep 7 bottom fish. Because that's a food fish -- opakapaka, onaga, and so forth.

And one of the things that we have noticed -- because we do try to cooperate and research with Noah,

who's doing stock assessment studies -- is that we catch juvenile opakapaka and onaga in the 10-fathom to 20-fathom range. Now, these in adult time go deeper than 100 fathoms. But somehow they're born some place, and they come all the way up to the reef during the juvenile years, and then they go back to the deep water.

So, clearly, the reef has some special purposes for these fish, these valuable fish. And having reefs die through bleaching, through lack of freshwater is a serious fishery's issue. So I just wanted to bring that up.

The other thing as a person who's been along that coastline and have seen the various ponds and anchialine ponds and so forth, years and years ago, there were the red Opae, the Opae'ula. You don't see them anymore. And it's not because fishermen take them. No fisherman take them for eating. There's just not enough of them. But, you know, they're pretty -- pretty shrimp. They're interesting shrimp and so forth, but they're not there anymore. I don't know what the reasons are, but they're not there. I haven't seen them in easily ten years.

So, you know, those are concerns as a fisherman that I have, that used to use that area. And just wanted to be here because I am that traditional and customary user, you know. It's kind of theoretical when

all these scientists and lawyers talk about it; but you know, I am one. So, you know, it's real. There are people who use that area. Just wanted to pass that on. Thanks.

CHAIRPERSON CASE: Thank you.

Okay. Who else wants to testify before lunch?

Yes, ma'am.

MS. JANICE PALMA-GLENNIE: Thank you.

Thanks so much for allowing me to testify. I have (indiscernible).

Aloha, commissioners. I'm testifying on behalf of the Kona Kai Ea Chapter of Surfrider Foundation, as I have done throughout this very long process. The more facts that come to light --

CHAIRPERSON CASE: Sorry. Could you state your name?

MS. PALMA-GLENNIE: Oh, I'm sorry, yes. Janice Palma-Glennie. I'm from Kailua-Kona, and I'm representing the Kona Kai Ea Chapter of the Surfrider Foundation. Sorry.

The more facts that come to light, the more our members believe that state designation of the Keauhou aquifer is the most common sense way to manage and protect the natural resources upon which our group's members and all the people who live in and visit Hawaii

depend.

The National Park Service petition is simply asking the State to do its job. Meanwhile, despite best intentions, the county seems unable to manage the aquifer as the State is able to do in other parts of the state.

To reiterate important points regarding this petition and designation. Designation will not result in better control of the Kona watershed. National Park Service has, in fact, tried on their own and with entities including Hawaii County to find alternatives to designation. They've offered out-of-the-box solutions, including reducing the size of the area to designate.

A potential win-win compromise could allow the Park Service to fulfill its legal mandate while allaying fears to those who erroneously see state management as a threat to business or sublocal control. Those good faith efforts continue to be met with baseless repudiation while the fate of our region's aquifer as well as irreplaceable cultural treasures and subsistence opportunities within Kaloko-Honokohau National Park remain in limbo.

There's ample evidence that designation will not stop development. One look no further than Oahu and Maui to see that the economic factors, not designation,

have caused ups and downs of growth.

Also, our members remain concerned that the county's projections for future water use do not reliably reflect the region's future water needs. What if they're wrong?

And, finally, the National Park Service petition to protect the aquifer is preemptive rather than premature. Like treating one's own body as a temple, giving it healthy food and exercise to avoid future illness, so does the National Park Service see the future health of the park resources as directly related to how they are best planned for and treated at this moment.

Their action has been taken with scientific awareness, cultural sensitivity, and goodwill. And it's based upon as much rigorous fact-finding as seems possible. Their goal is simple and the public's best interest, and that is to fulfill a federal mandate to protect the significant and fragile -- fragile, natural, cultural resources contained within Kaloko-Honokohau National Park.

There's much to learn and know to protect our park, cultural resources, and waters. But not taking action is not the way to protect our past or future. We ask that you do not delay in your support of designation

of the Keauhou aquifer system groundwater management area for the benefit of our national park as well as our region's overall wellbeing.

Mahalo for your time.

CHAIRPERSON CASE: Thank you.

Okay. Who else needs to testify before lunch and will not be here after lunch?

MS. RUTH ALOUA: Okay. Is this on? Yeah. Okay.

Aloha mai kakou. My name is Ruth Aloua, and I am a resident of Kailua-Kona.

So before I begin, everybody uses titles to kind of describe who we are and the perspectives that we're presenting and how that reflect us. So I'm a kia'i local. What this means is I'm a fishpond guardian. I'm a guardian of Kaloko-Honokohau of not just the ponds but of all the aina. But this is the aina that I can dedicate my time and my services to.

I'm a mahiai. I'm an organic farmer. I grow my own food. I understand the relationship between water and our gardens and our uplands. I have a deeply understanding of wai and its relationship to our ponds and how crucial it is to the success of not only the fish ponds but the fisheries, as that uncle just discussed.

Academically, I'm trained as an anthropologist. That's what I have my bachelor's degree in, and I have my masters of arts degree in archeology. So I kind of have all those things combined.

I am a descendent of Kona. I've lived here basically my whole life, and my family is from this area. We've lived here for generations, and we have ancestral connections to Kaloko-Honokohau as some of the first-documented individuals who had cared for that local i'a.

And I wanted to mahalo that aunty over there for the Aha Moku System. Because Kaloko-Honokohau, like many of our lands throughout Hawaii, have their own type of history. And in regards to Kaloko Loko I'a, in over a hundred years, you know, there have been 10, 20, 30, 40, 50 -- like there's a lot of kia'i local that have knowledge pertaining to these ponds and to the coastal fisheries.

So I don't think I have anything formal ready, but I just want to get up to date on what's happening. Because I love this aina, and I want to be a part of the decisions that are affecting it and the future fisheries for my nephews, my nieces. I don't want them to have to fight for water. I want them to understand water, and I want the measures that are there to be able to serve

them in the better interest of our keiki in Hawaii.

So one of the things that I keep hearing about is traditional, customary practices. I am one of those people. Like, I am a kia'i of Kaloko-Honokohau. And, for me, when you folks are talking about ceremony, and the Park Service are getting information on the Native Hawaiian practitioners, I have to agree with Jonathan Scheuer that it is very intrusive for the federal government or any government in general to ask me about my practices.

I've been arrested in pule, and I can tell you that that is one of the most offensive -- spiritually, physically, and mentally -- things, the traumas that I had to experience, and I'm still experiencing, and I'm still trying to overcome.

So that is a real thing for me as a practitioner is I don't want them to come and ask me. And if they did, they would hear it from me. And I call them. I call them when I find out that things are not going as they should. Because it needs to be corrected. So, yes, they are still learning.

And the reason I'm here is I'm here to malama kuleana. My kuleana is to Kaloko-Honokohau. My kuleana is to Kona. My kuleana is to the aina. My kuleana is to the wai. My kuleana is to all the peoples who live

on this land and trying it get us activated so that we can better pay attention to the elements that give us life and how they're being managed.

When you're looking at the history of Kaloko-Honokohau National Historical Park, many of my ohana were on -- the commissioners actually helped create that national park. So it's a continuing legacy that I have to care for that area and to support the protection.

And some of the names have to be lifted. Uncle George Na'ope, Aunty Iolani Luahine. I mean, Uncle Fred Cachola, Uncle (indiscernible), The Roys, The Bouchards, the Springers. There are many families who really helped to create that place and to protect it. And they did go to the Park Service because that was the people who were there who helped them protect that aina from destruction.

So as they held that kuleana for us, one of their visions was to not only create the park, but to protect the water. Because wai is life. Wai is the law of the land. It guides our actions. We are not above it. So we don't put our uses before it. We have to understand it, and we're still in the process of learning to understand.

So I come before you to malama kuleana and also

coming to you and asking you as commissioners to malama your kuleana. I'm asking you this in a way where it's to find out -- go and ask.

Like, I've looked at the traditional, cultural paper that was written by Bianca and Jonathan. And I think that it's good, but it can be improved. But it's not only the National Park Service's duty to go out and find the fishers and find the farmers and find the recreational users and the people who just appreciate water. It's all of our kuleana.

And they're stepping up, and I'm asking you to step up. Step up and help them. Don't delegate. Delegation is not a characteristic of a leader. Those are actually things that followers are still doing, and I know that you all are leading various -- various movements or various changes in Hawaii, and I appreciate that; but this is one that needs you to step up and to help us. Like, help us get there, and I want to know how I can help with that as well.

And I wanted to address some of the previous comments that were made and one in regards to what the National Park Service is doing in order -- you know, beyond just asking for water management designation.

That, I'm a fan of good people that are working hard for the aina. And there are a lot of really good

people that are in the uniform that are working. They're literally breaking their backs for the aina. And, you know, they might be get getting paid for it, but they're still doing it. The type of pain that their body will feel is something they're going to take with them out of that uniform.

There are people who have died working at that national park. Uncle Peter Keka is one of them who led the masonry work. Like, there are people who are literally the kua, the backbone. And now it's Kendall, and now it's Benson. Like, these are real people that we're talking about.

And just to acknowledge that, there are so many people. (Indiscernible), Mele Barton. I know many of these individuals personally, and I appreciate them, and I cannot allow their names and their service to be disregarded and disrespected. Because work is being done, but it takes many hands. And that is what they are trying to do, and I am trying to help them. And I'm asking you to help us. Help us understand how we can better our efforts.

And another thing is we've actually been doing, like, work days, and it's been about for a year. And our job is to engage. My kuleana is to engage community, get them back as kia'i local, get them

familiar with their water, with their fishes, with spawning cycles. This is their kuleana to maintain.

And I know you folks are busy, but I've actually never seen any one of you there at our work days. And I'm asking you to come. I'm inviting you. We have one this Sunday, and if you are here, please do come. And if you're not here this time, we meet every last Sunday of the month, and we work for three hours. And if you can't work, don't worry because we also have kitchen crew. And we have people who just hang and just keep people nourished and fed.

Another thing I wanted to address is this question of quantification and, like, how much water do you need. Like, I keep hearing this passed around, and I want to thank you for saying that, you know, we acknowledge Native Hawaiian traditional, customary practices as something important. Like, I needed to hear that.

But really what I have to tell you is, in my traditional uses, water is crucial to ceremony and not just to the function of the local i'a. Like, I pray to my water. I thank my water. I pray to Kane. I pray to Kanaloa. These are real things, and it's not a figment of the past or, like, something crazy people do. Like, I do that. And I want you to know that I want you to

consider that. And if you've never been to a ceremony, then you wouldn't understand what I'm talking about.

And I don't know how many of you are actually traditional, cultural practitioners, but if you've been involved in that process during a ceremony with native peoples or any peoples, it's a sacred time of sharing. And if you can't really connect to that, and if you don't practice it in your lifestyle, then it's really hard to -- for me, it's hard to listen to people talk about it when they're not actually practicing. And I don't know if they are. And I'm just wondering if you folks are. Then maybe you are, and I respect that, and I thank you for that.

But when you're asking how much water do we need, you know, how much water do the fish need, how much water -- you're basically asking me, like, how much water do I need as a native Hawaiian to practice my culture. I don't want to quantify that. I don't really know how to quantify that, when my upbringing has taught me that water is the law of the land.

I don't know if you can quantify that law of the land, but I see how as humans we want to do that so that we can help other things happen. But, really, if we destroy this aquifer, we might as well already just be looking for future plans because we're going to have to

tap into other people's water. We're basically talking about the end of our future.

And the Park Service has presented information regarding indicator species and what that's showing us, and I -- and I asked you please don't take that lightly. And be kinder when you speak to them. Because they're doing good work. And so are you folks, and if we can't communicate in a good way, then we're not going to get anywhere. And this issue is above all of us. It's about water, and it's about our future in Kona.

And my final thing is, if anything didn't get to you, what I want you to take away is that I'm still here, and we're still coming, and there are many kia'i local that will be coming to protect water.

So whether you deny their application, you approve their application, or you keep it in its current state when we're trying to build a further understanding, that I will be within -- I will always stand with water. When I stand with water, I stand for the people. I stand for the voice of the land. Deny the application, we'll resubmit. And the next time when we come, we're coming stronger because the community will be a key part in the voice that you'll hear.

So mahalo for the work that you do. I apologize if anything I said came across harsh or rude, but I just

do feel like this is an urgent matter. And I'll be here, and I want you to know that. And just thank you. Thank you for holding this. Thank you for listening. Mahalo.

CHAIRPERSON CASE: Who else wants to testify before lunch?

Yup. Come on up.

MS. WAIALA: Aloha. My name is Waiala. I am actually from Puna. I've come over here to Kona. My ohana -- extended ohana lives here, and I just want to really thank everyone for being here. Either sides, all sides, everyone for listening. Kind of to touch on what Ruth said and everyone saying about listening to practitioners, listening to culture, it's all true.

My father is a fisherman from Kau. He's taken me my whole life around this island to fish and learn and be a keiki o ka aina to live off these lands. And to hear about what's happening here and just continue to happen here in Kona with the water, it concerns me. It concerns everyone on this island. It concerns all of Hawaii. And I think you are all in really amazing position that you can set precedence for the future for all of us, because we'll always be here.

I've driven over this island many times to come to Kona, to be educated, to educate others. And I think

the community is asking you to do the same thing, to be there, to be present with these ohanas to learn, to listen. I can't speak so much from this place because it's not my moku. This whole island is. And to learn from those that live here has changed my life.

I've been on this island my whole life, 30 years. And Kona and the people here are amazing, their dedication. It's a beautiful place. Please help them to keep it that way. I'm sure you guys want to do that as well. And just know that everyone here is here to help you, to educate you as you are educating us and letting us be a part of this process.

I just hope that in our face time in everyday life that we can all see each other and learn together and make the best decision, and that we will be here. I will continue to drive from the other side and to bring my (indiscernible) and ohana with me.

And I know this isn't the end of something. It will be the beginning of something great. And should we just acknowledge the power that you guys have, and that's that you have amazing power that affects all of us, and we are here to help you further your knowledge. Mahalo.

CHAIRPERSON CASE: Thank you.

Anybody else wants to testify that can't do it

after lunch?

MR. RICH LEE: Aloha. My name is Rich Lee (phonetic). I'm a product of Kalawa School. Kalawa School is not in existence anymore. It's (indiscernible) ahupua'a. I'm a project -- product of Honokohau. Honokohau School is not here anymore. And I graduated from Konawaena. Right on.

Why I'm here for is I'm -- my family raised, lived here. And as I look around this room, I don't see that many people that has been here before the Queen K came through. You know, we live here our entire life. Our bones will go back into this aina when we're all done.

What I'm asking is that you please listen to the kupunas from this area, not coming to this area and seeing it from this area, but people that have lived here. The kamaaina that lives on a mountain, the kamaaina that come forth here and -- and testify on behalf of our most important resource, our water. We can live without light, but we can live -- but we cannot live without water. Water is so important.

My experience living here is I've seen how important water is. Water is all along -- all along the Kekaha area. I mean, you go every elevation, there's water caves. And until today on our property, we still

continue to have these water caves. And it's amazing how the Hawaiians were able to walk this land and know where all this water goes, where, you know -- and I want to thank you for allowing us to be part of this -- testifying for our community. Mahalo.

CHAIRPERSON CASE: Thank you.

Anybody else?

MS. SIMMY MCMICHAEL: Aloha. My name is Simmy McMichael. And I was raised and born in Honolulu in the territory of Hawaii and grew up in Waikiki and moved to Kona because Honolulu just grew too fast. And this was the next best place.

So I moved here in the early '70s, and my love was for Kahaluu. And I opened the first surf shop ever in Kona. I love surfing. Kamehameha loved surfing. And what's really bringing light to me is I bought a home in Kahaluu. And, to me, that house that I bought was the most Hawaiiana to me, in my eyes. And I didn't know how special it was. And I knew it was spiritual. And now they're trying to do a development of 306 timeshares right next to me, above me.

So I asked the developer, okay, what are you guys going to do? Where are you building? Because I see a huge rock that no man can move. And I had plumeria tree also, which the kupunas told me that if you're by the

ocean, sometimes the plumeria tree will be a significant of burials.

So when the project was getting going, I asked specifically "where are you going" because I was worried about the big rock behind me. And they sent the archaeologist to me, and the archeologist said that basically this is like Hokulea. And what happened is the Hawaiians built their properties there, and they buried their loved ones near us to where they live. Because they were afraid that the other people would steal their femur bones, which is the largest bone used for fishing.

So lo and behold the archaeologist said, "Do you have an e-mail?" And I couldn't open it. The file was way too big. And I was appalled because it was where Kamehameha I and Kamehameha III recited. And it was the largest archaeologist site ever to be found on the entire Island of Hawaii.

And my ground is so special. It was all agricultural. It's farmland. The Hawaiians all grew their crops and their food. And it's so special, and I'll tell you why it's so special. I don't have a watering automatic system there. And I spend every week trying to cut back everything. Because of the groundwater, everything gets rooted. I have a beautiful

pikake bush. It always has flowers. I have papaya trees just going off. I have banana trees. I have -- I have palm trees. I have -- I just have fruits.

But I'm saying that the -- it's the groundwater that it's so rooted below me that it's -- I feel that for 30 years this pikake tree is getting watered.

Okay. What's really sickening is because I did not know this -- what the cesspool is all about here. When they -- when they aligned Ali'i Drive, they did a sewer. The engineer was from Oahu. He did not know that there was an extra mile at Kahaluu, so the sewer stopped at Queen Kalama. So there is an extra mile here.

It's a cesspool. It runs directly into Kahaluu Bay. And it's sickening, because when I read all the reports of this development, it printed out that there's 2 million gallons per day going into the ocean, and that's sickening.

And when they have it in North Shore, like Oahu or Maui, and they have an overflow of a cesspool, it's a big deal. And we were in Waikiki when they had the sewer spill into Waikiki. And we went there, like, a year and a half later, and we surfed when it was huge, so it's hardly anybody out there. But what happened is it's in the sand, and it turned.

So a friend and I, we were surfing, and we didn't go out anywhere. We weren't in any enclosed area, but we both got sick. And I'm just saying that, you know, you're talking about protection. And county doesn't want to put it in. It's going to cost them $28 million. It's not worth it to them for the one mile, you know. There's over a half a million people on their report that goes to Kahaluu Beach. They're saying that there's 1500 people per day, and it's 50 square feet per person on the shoreline. And then in the water, basically on the shoreline, it's three inches per person.

You know, you're talking 1500 people a day. Tell me they don't pee in the water, you know. And they did only one test, and this salinity is high. The salt is high. And, I mean, everything you can think of, and it's going to affect our ocean. It's going to affect our surf, and it's going to -- you're talking about the coral.

And, I mean, something needs to be done. And this project's going to be making over $500 million. Something needs to be contributed to Kahaluu Beach. It's the number one attraction for the tourist for snorkeling for the fishes. And I just say we need protection. It's for the people's trust. It's, like, all of this is being exposed here. I'm just saying

please help. Once it's gone, the ocean's gone, the reef's gone. It's what's happened to the future generation. That's what I'm just saying. Thank you.

CHAIRPERSON CASE: Thank you. I think we're going to go ahead and break for lunch.

MR. PAVAO: Can I just make one comment?

CHAIRPERSON CASE: Yeah.

MR. PAVAO: I think -- I sympathize with the story you just told us, but I think you're talking to the wrong board. I think you should relate this information to the Department of Public Works and see what they say. I don't think this board can help you with your issues at Kahaluu and the sewer system.

MS. MCMICHAEL: Well, I've written --

MR. PAVAO: It's the Department of Public Works.

MS. MCMICHAEL: Okay.

MR. PAVAO: Thank you.

CHAIRPERSON CASE: Thank you.

Dr. Pressler.

MS. PRESSLER: Chair, if I may, before we break for lunch, I'd like to request that we go to executive session pursuant to 92-5(a)(4), Hawaii revised statute in order to consult with our attorney on questions and issues pertaining to commission's powers,

duties, privileges, immunities, and liabilities. Thank you.

CHAIRPERSON CASE: Thank you. Set a motion? And is there a second to that?

UNIDENTIFIED SPEAKER: Second.

CHAIRPERSON CASE: Second. All in favor? Aye?

MULTIPLE SPEAKERS: Aye.

CHAIRPERSON CASE: Okay. We're going to break for lunch. Try to come back around two o'clock. Everybody does need to leave this room, and we're going to be closing the doors during the lunch break. Thank you.

(There was a break in the audiotaped proceedings.)

CHAIRPERSON CASE: Okay. We're going to reconvene. After lunch. It's 2:14. We are going to be continuing with public testimony on items B1, 2, or 3. I'm just going to go down through the sign-up sheet to start with. So Charles Flaherty. Don't talk with your mouth full.

MR. CHARLES FLAHERTY: I'm working on it. I hope I don't fall asleep.

Good afternoon, Madam Chair and members of the Water Commission. Thank you so much for coming here to Kona. My name is Charles Flaherty. I'm a resident here

in Kona. I've been here about 20 years. And I have been involved with water resource issues here in Kona for about the last 16 years. When I became involved as one of the original plaintiffs in the Hokulea litigation, which originally started off as a water resource issue and which ultimately resulted in a Supreme Court decision in 2006 on -- that the County of Hawaii had an affirmative duty to -- to protect public trust resources, specifically the nearshore water resources that, as you know, the freshwater aquifers are also considered a public resource as well.

As a result of the settlement on that case, we asked for a revision of Chapter 27 of the Hawaii County Code, which was the flooding ordinance, as well as Chapter 10, the grubbing and grading ordinance. And, unfortunately, the flooding ordinance was put through by the State actually. They made revisions to it and pretty much ignored the recommendations that we had made. And the Chapter 10, grubbing and grading ordinance, has yet to be submitted to the county counsel. Honolulu revision was done back in 2006.

I also have -- was involved with the Kona Community Development Plan process and was a community meeting facilitator. (Indiscernible) as part of the environmental resources working group, cultural

resources working group (indiscernible) working group as well. And attended the steering committee meetings as well as following up from time to time -- going to that action committee as well.

And the only reason I say that is because out of that plan, as I'm sure you've been told, there were a number of actions that were requested. Under environmental resources, there were 25 actions that were requested, and only three of those have been gone to the state. The plan was adopted in 2008, eight years ago.

Among that, those were to harness (indiscernible) prepare water quality monitoring guidelines. I worked with Chris Yuen, the former planning director, to get that put in place, and he actually had hired someone; but, unfortunately, when the new administration came in 2008, that program was -- was let go and not been able to give the new administration a planning director to bring that forth again.

In fact, I have a letter stating that it's not the county's -- water quality monitoring is not the county's kuleana despite the Supreme Court ruling.

I guess I should just go ahead and say I support the petition by the National Park Service for the designation of the Keauhou aquifer as a management area.

I realized that given the fact that the National

Park Service is making a petition that we should as a community come in with them, because this is a community-wide issue. As you've heard, we've got issues with salinity in water. Many people don't know about that. Diabetes and high blood pressure are a big, big issue in our community. And a lot of people aren't even aware of the fact that these salinity levels are higher than the EPA recommends in the Kahaluu well.

Also, recently -- well, actually, last year Ke'ei well down south, which is -- I consider part of this aquifer. But I think it's relevant because they had Haleki'i well. Again, salinity levels were (indiscernible).

And I guess what -- the point I'm trying to make with this is that the county Department of Water Supply is supposed to be distributing safe drinking water. That's their kuleana. It seems that the real estate development community and the Department of Water Supply and the current county administration want the kuleana for the public trust resource of the water of the aquifer. And yet there are ongoing issues with their existing kuleana, which is the distribution of safe drinking water. That's one of the reasons why I support this -- this petition.

I also have been involved with an association

called Hawaii Civic Club, which supports this petition in a couple of public informational meetings in which we had speakers come and speak to try to educate people about this particular issue.

In addition, I worked with Kathy Billings and Ruby McDonald of Office of Hawaiian Affairs, who was West Hawaii community coordinator at that time, to put together a resolution specifically to protect the freshwater aquifer for Keauhou. This was prior to the Park Services submitting their petition. That resolution passed unanimously at the national convention in 2012 at Turtle Bay Resort on Oahu.

So I think that's significant, if only, because it represents the fact that most people understand what the issue is, and they -- they are in favor of supporting any attempt to protect this resource.

As you know, when you're driving from the airport, you saw the construction on the highway that's going on. You see this nice highway up here, the mid-level road, which was acquired through TARP funds after the financial collapse from the federal government. It's -- specifically these projects are designed to allow for the creation of the city of Kailua-Kona.

And, as you can see, this particular area has --

it's pretty open. It's actually the U.S. Wildlife Service attempted to have this area designated as critical habitat, but due to political pressure, they've not been able to do so.

There are a number of resort sites on the national registry that have been destroyed as a result of development and will continue to be as well as a result of development.

And the reason I bring this to light is I also was involved with the community in having their ahupua'a agricultural complex of mauka, which actually still functioned after 500 years to be a flood-control structure, even though it was heiau as well.

And when it was bulldozed, all the neighbors down below, coffee farms flooded out, so it scared away trees that were decades old, died. And what we're finding is that the water shed is being degraded because of -- the fact that this is agricultural, the forest that are part of the water shed that enable to capture rainfall.

And now, unfortunately, an emerging issue is the rapid ohia death. As you know, Kona has very thin soil. It's geologically mature. The FEMA flood channels change just about with every flash flood that we have, so any attempt at mapping is frustrated by nature.

And so while -- Paula had mentioned that recharge

is not an issue as far as the initial assessment of the aquifer. I think long term when you look at climate change, the drought, the degradation of the water shed, that recharge of this aquifer is significant.

And I would hope that you would look at how old is this water. We could be looking at a similar situation that we're seeing in California, Belize, India, China, places where they're having to draw down water from ground water that is -- some of them are 10,000, 15,000 years old and has been drawn down at a very alarming rate and causing soil to subside to the point that infrastructural roads and pipe lines are being impacted.

So I guess the bottom line for me is that we've got ponding -- wells being drilled, pumping occurring without really understanding -- and I have gone to a number of the U.S. geological survey meetings and also talked with them and seen their studies. And they're still discovering a lot of cool things.

I mean, they're finding that it's very likely that there are freshwater aquifers well below sea level that have been trapped by just the lava flows and permeable layers being formed, water gathering. They found one of those just over in Hilo side actually, where they drilled into it 190 feet down, and a

freshwater spring on the ground right next to the coast line. They found out that that water was actually -- it'd fallen on Mauna Kea 7,000 years ago.

So it's really quite a remarkable island. It's very unique. It's very unknown. And I think that it requires, given the fact that a build out, according to the Water Use Permit that we have in place, it'll be four to five times the sustainable yield if it were to actually be built out.

And given the environment that we're working in now and the fact that climate change is occurring faster than we even know, as Ruth Aloua said, I think that it's important that we take action together to try to make sure that we're not making irreparable harm mistakes, such as the (indiscernible) in the Kahaluu wells where we've got the saltwater mixing going on that will take decades to resolve.

So give me a chance to look at my notes here real quick to make sure I covered everything that I wanted to cover.

Oh, the injection wells as well. And I don't know what happened in executive session, but I also wondered what is the conditions -- kuleana when it comes to the freshwater outflows that go out to the ocean, because they are a public resource; but it's not

something that we would be checking, although the freshwater outflow on the coast is to the point where there were strains on the coastal areas that the Hawaiians could use for fresh drinking water.

So I found it really remarkable -- Phil Fernandez brought up a point I made I hadn't even considered, which was the fact that the oceans are warming and the freshwater outflows coming in from the coast are much cooler. So if you have an ocean that's warming, freshwater outflow is decreasing, obviously it's going to cause an even more substantial increase.

And this past summer was the first time that people here in this area saw widespread bleaching on the coral off this coast, which is (indiscernible) waters.

I also wanted to point out as far as the Aha Moku effort that -- and this is something that Madam Chair, you probably know already, but the -- the person who was the overseer basically of the ahupua'a is the konohiki.

And if you go into the Hawaii Revised Statutes, which is, you knew, based on Hawaii Kingdom law, you're going to find that the konohiki has remarkable powers still in state law. It's really quite remarkable.

I didn't realize this until I got involved with the -- we wanted to streamline the permitting process. The frustration of the local i'a for traditional life

fish ponds, which actually was, again, actually that was started by Kona Hawaiian Civic Club.

We worked with Gil Kahele and the Hawaii caucus. Former, you know -- unfortunately, Senator Kahele has passed, but he did work with us and work with the governor. And the Department of Land and Natural Resources has actually streamlined those permitting processes, and it has held a number of communities to get involved with the restoration of the local i'a, which, in a sense, are the canaries in a coal mine when it comes to how healthy is the aquifer as far as by the time it gets down to the ocean.

In addition, as far as the upper mauka wells, again, it's uncertain geology. In addition to that, I saw a subdivision that had the -- the subdivision plant map actually had septic tank locations within the footprint of the perched water of this well, which was really quite remarkable.

I'm sure that as it's pointed out, it will be corrected. But at this point it has not. So if it's happening on that particular subdivision application, I don't know if there are people out there who are monitoring this the degree to which it's being regulated on a county level.

So I really do hope that you will -- because, as

another testifier said, this is a community issue. It's not just the National Park Service. It's not -- it's something that will come back. And I hope that you will consider this petition within the context of the community and its relationship to the National Park and its purpose.

Thank you very much.

CHAIRPERSON CASE: Thank you. Okay. We have next Nancy Burns.

MS. NANCY BURNS: Aloha. My name is Nancy Burns, and I'm a civil engineer and with a hydrology background. I work very closely with the National Park Service, the Commission on Water Resources, DLNR, and others to devise a protection plan for the nearshore waters at Kohanaiki, at the park at Kohanaiki.

And I listened to the presentation given by National Park Service, and it's the first time I ever heard them finally admit that our use of brackish irrigation water, which has been purified for reverse osmosis process, it's actually helping to decrease the salinity in their park waters, which actually is a benefit to their endangered species and to their fauna that needs the lower salinity. So that was refreshing to finally hear that.

They're -- the National Park put out a document

that I provided to the commissioners over a year ago, which stated that extraction of water could have positive as well as negative impacts.

And, in this particular instance, it seems to have a positive impact on the salinity in the park. However, the National Park said that that benefit is not really valid because it was one spike in 2009 of nitrogen that was a little bit higher than they had been seeing.

That spike in nitrogen was recognized by our water quality monitoring program. It was during the growing of the golf course, and it has never happened since. The golf course has been opened in operation since 2013. We've had no spikes. And part of that is because the golf course is Audubon silver, which requires very strict use of pesticides, herbicides, fertilizers. And so I predict that you're not going to see that spike again.

So I guess from my perspective in having worked through a lot of water quality monitoring plans, there's a water quality monitoring plan that was required by the SMA, by state land use, by CWRM and bought by the planning department. So -- and by Audubon International to become a silver golf course.

So there's at least four or five different water

quality monitoring programs that have been provided with cooperation with the National Park Service, Fish and Wildlife, Army Corps of Engineers.

We had a little field trip yesterday in Kohanaiki where we saw a nest for Least Tern, which we were told is a very -- extremely rare bird. And it chose Kohanaiki to nest after we cleaned up the ponds. The ponds are very pristine.

And I guess the point is the count -- through this development, through the CWRM allowing us to use this water, we've been able to afford to clean up all of the ponds along the Kohanaiki shore coastline to pristine conditions, many of them.

There is an educational program that takes, you know, kids from schools who educates them about preserving and ecological value of the nearshore waters.

So -- and the county, I think it's the only resort on this side of the island that you don't have to go through a guard shack to get to the beach. There's county park -- beach park restrooms that are maintained by the developer there.

So my point is that development has good and bad. And that I think we all need to work together and help each other. I believe Kohanaiki's use of water is helping the National Park, and they've admitted it. And

I don't think you're going to see another spike. In fact, I think you're going to see lower salinity and a better park because of it. The park does have threats -- sea level rise, increase in salinity due to those factors. I'm not so sure about the rainfall. If anyone was in Kona in August and September of last year, you noticed that we had water mines washed out twice, roadways washed out, roads closed.

When I went to check the ring gages for the state on that -- on those days when we had the most rain, it was probably, I would say, five to six inches of rain. Those rain gages weren't recorded. So the rain gage that we have is sparse at best. And I don't know how trustworthy -- if you're not recording the major rainfall. So there could be a decrease in rain. I agree, but I don't think it's -- it's known yet.

So basically I guess what I'd like to say is that I think that as the community we can work together. For instance, we were told by the National Park Service that CWRM doesn't have the ability to put conditions on well pumping permits. Well, that wasn't the case with Kohanaiki. We had brackish well permits that had water quality monitoring, and it included drilling three wells on the border with National Park. And this was working together with National Park to see what would satisfy

them. We drill them.

And then on top of that, the planning department inserted themselves in that water quality monitoring plan in addition to what CWRM required. Planning department requires us to sample those wells for the complete constituents required by DOH, so there's 77 constituents that we sample.

We sample these six times a year, plus wet and dry. So six to eight times a year we're putting bailers down, different elevations, pulling it up, and testing the water.

I did have a conversation with Paula regarding the permit transducer in the wells. But because of our legal obligations with planning department to have that water tested, which you can't test with a transducer. You have to bail it and test it. It would be difficult to leave a permanent reader in there without being disturbed quite often and unpredictable times. So we'd be constantly pulling it as we have the sample.

So we have a lot of conflicting requirements. And we're willing, you know, to work with people; but, I mean, it seems like everybody seems they have a different idea of what's best.

My experience with permit transducers is when we did the pump testing for Kohanaiki brackish wells, U.S.

Geological Survey put permit transducer down in our monitoring wells that were -- as you enter the property and the ones more makai of the production wells. The ones above mauka worked fine. The ones below, the transducers didn't pick up any information. They were bad.

So when you put a permanent transducers down, you don't know when it goes bad. And so -- I mean, there's good and bad to everything. But we test monthly with handheld transducers. So, I mean, there's arguments you guys could, you know, change the way things are done, but I think we need to carefully look at the pros and cons of what everybody is trying to do.

Anyway, I think that I would like any commissioners that haven't been down to Kohanaiki project to see what can happen in a positive light as far as protecting of nearshore waters with development. I think -- I think we can work together. That's my...

MR. BUCK: I was there. But understand that the commission CWRM put special conditions on your wells to protect -- because you're adjacent to the national park.

MS. BURNS: Well --

MR. BUCK: Looking back at the big picture, did you find those special conditions onerous and

actually to prevent you from operating or the quantity of the water you can pump the wells.

MS. BURNS: Not at all. There was some, you know -- we consulted with Waimea Water Services, and originally we wanted to put three wells that went to approximately the same level below sea level as the protection wells. But we're also -- with the reverse osmosis concentrate, that's going in to a deep injection well. That injection well was drilled to a level of salinity. We kept drilling and testing the water until we got to a salinity that was the like salinity of the concentrate.

So we felt it was so far below. It's 117 feet below sea level. So far below their pond elevations. They don't have -- I don't think the pond elevations -- I don't know. You know, 30 feet below sea level. But no one -- I don't even know, but it's not 117 feet. So we thought the shallow wells would be fine and that it would give them enough data.

They insisted on us drilling to the same elevation as our injection well. And so we did. I mean, there was some talk back and forth on what's reasonable and what's rational to do. And in the end we drilled it. And supposedly it was to see if there was a change in the transition zone due to the injection of

the water. I'm not sure if that -- I mean, Paula would have to address whether or not that data that we're getting from there is giving her that information or not.

But so, I mean, in anything, there's going to be different opinions on how to get the best protection and the best thing done. But I think it's better to work together as a community to -- with different agencies to figure this out rather than have, you know -- again, I have to say this. Peter Fahmy in a meeting said he would protest every single application for a well. So they keep saying they won't, but I have a feeling because they have to -- they consider any use of water -- you heard them -- any use of water to be too much, they will have to protest every single use of water. And I just don't think that's fair to the community.

I live in Kaloko Mauka. This is my community too. And I want to see new schools and new playgrounds and new -- I mean, I want to see the community grow. Palamanui College. We need a community for the people of this area, and we can't do it without water.

So I don't think it's fair to evaluate this without that, without knowing that the National Park Service will protest every single water application.

They keep comparing it to Maui and Oahu, but I don't think the National Park exists over there in a way that they're going to protest. These guys are promising protest, so that's what concerns me as a citizen of this island in this community.

CHAIRPERSON CASE: Can I just double check what you're saying. Are you saying basically there's not nitrogen from the golf course going into the ponds?

MS. BURNS: There was when we had grow-in. So when you grow in, in any landscape, when the grass first starts taking, you have to put on a little bit more fertilizer to get it to get healthy. But then it stops. And then the -- the application of the fertilizer is way, way, way less. And the application of water.

So it's a combination. It's not that they were maybe putting too much fertilizer. Maybe the water was too much, and it was flushing through. So there's a balance.

And one time in 2009 there was a spike. But you look at the records from then, and we have Dr. Brock sampling fish, the shoreline, the anchialine ponds, and he monitors all of the wells. So there's a lot of monitoring. I can show you the map of our monitoring points, but there's eight monitoring wells, plus

anchialine ponds, plus our irrigation lake, plus our injection wells.

So there's a lot of reporting. There's a lot of monitoring. It goes to different agencies. It goes to the National Park Service, and they know that there was a spike in 2009. Because we don't -- I mean, it's all -- it's all available information. But a spike in 2009 and then nothing.

So I think that in Dr. Brock's report, he said you cannot expect a development to have no impact. That's not going to happen -- any development. You know, you living here, me living here, we have impact. But the impact has subsided and gone away, so.

UNIDENTIFIED SPEAKER: I have -- my memory of the site visit to Kohanaiki, that -- the water that's going into that golf course is all coming from a wastewater treatment. It's --

MS. BURNS: No.

UNIDENTIFIED SPEAKER: Isn't that -- isn't that reclaimed water from wastewater?

MS. BURNS: No. We have wells that were permitted through seawater. They're brackish wells. There's production wells. When you first go into Kohanaiki along the mauka boundary, there's a protection -- there's production wells along there that

are pumping to a reverse osmosis plant. That reverse osmosis plant takes out some of the salt.

UNIDENTIFIED SPEAKER: Isn't that water coming from the injection of wastewater from -- from sewage --

MS. BURNS: No.

UNIDENTIFIED SPEAKER: -- and then it's --

MS. BURNS: No, it's not -- right now there's not even enough population on that project to have that much sewage.

We do have R1 wastewater treatment plant. We constructed a -- we were required to build an R2 wastewater treatment plant but decided that we wanted to go R1, which is a little bit higher standard. And that water when it becomes viable -- right now there's probably between 6- and 10,000 gallons per day being produced of wastewater.

We take the county park, and we take a few homes, and, you know, the workers there, but there's not enough water right now to water a golf course, because we don't have the input. It's a private wastewater treatment plant.

So once we have enough input with that wastewater treatment plant, it will be used to irrigate portions of the property but not the golf course. The golf course

is usually the brackish. I don't know. Does that -- does that make sense?

CHAIRPERSON CASE: Milton.

MR. PAVAO: You're adjacent to the National Park Service, but -- and you also have ponds.

MS. BURNS: Oh, yes.

MR. PAVAO: Yeah. How does that help the sustainability of your ponds?

MS. BURNS: Very, very good. It's very good. I mean, we had the same problem what the National Park Service had as far as the mangos, invasive species, pickleweed.

The whole -- we'd -- I mean, we're on the same coastline. We have the same problems. That's why I think we should work together. And as we come up with solutions to work with each other and promote -- in fact, the pond manager yesterday from Kohanaiki said that they are doing that with the National Park staff that does the ponds. They get together for -- I don't know if it's monthly meetings, but they exchange ideas on how to best manage the resource.

So there's a lot of that going on at the staff level, you know, and a lot of cooperation, coordination. And I think it's working out really well for the resource.

CHAIRPERSON CASE: Thank you.

Next we have David Barnes.

MR. DAVID BARNES: Hi. Thank you for letting me have the opportunity to testify. I'm David Barnes. I'm a geologist with Waimea Water Services. And I wasn't really planning on testifying today, but I felt like I should, mainly because most of the data that you guys are seeing is what I'm collecting.

I'm the one that's going out there every month and collecting all the data for your staff. I am pretty sure that you are familiar with the data. I did print out some graphs, but your staff has all of it. And I guess the -- I had a couple things to -- that I wanted to bring up today, and I won't take up too much of your time.

But with regard to the monitor well 401, the deep well, I -- I do the profile data with my level logger probe. I send it all the way down to the bottom, stopping along the way at 18 different depths to get a nice profile of the water column.

Where a permanent transducer would definitely provide a lot of good data, I'm worried about -- what about other people that will want to come and sample? We'd have to pull out that equipment every time. And, also, you're only looking at two points along that

column instead of getting a whole profile.

It's a concern to me. And this -- this profile data is really only by the permit. We're only required to do it quarterly. I am a big fan of taking as much data as possible. And so every time I'm out there every month, I do it anyway because I care. I buy my own equipment. I'm out there doing this.

And I also feel like I'm very much in support of anyone else coming to come and sample from that well any time. I don't control the access at all, and I feel like more data would only benefit everyone. That's just my view.

The other point that I wanted to bring up is the disclaimer. I am no expert in the cultural practices at all, but I'm a little bit confused by the Park's practices as not documenting the cultural practices.

Because I am a former employee of the national park -- Volcanoes National Park, where they did have a lot of documentation on collecting. There's a whole logbook that you have to sign in and say what you came to collect. There's no way you're going to prevent them from collecting, but there was a log.

So I think maybe my point is it might be beneficial to reach out to the other park on the island and see how they handle those issues. Thank you.

CHAIRPERSON CASE: Thank you.

Next is Janice Palma-Glennie. Went already. All right. Next is (indiscernible). Okay. Next is Riley Smith. And there's a written testimony provided as well.

MR. SMITH: Good afternoon, Madam Chair and commission members. I gave you all a copy of my testimony. There's a lot of pages in there. It's really a lot of pictures. There's about a page and a half of testimony. I just want to go through it.

My name is Riley Smith. I'm president of Lanihau Properties. I'm a Native Hawaiian and a graduate of Kamehameha Schools. I'm the beneficiary of an alii trust and know what the word "kuleana" means.

I know what it is to malama our aina, as the CEO for combined family enterprise that includes Palani Ranch. We have been stewards of our mauka watershed lands in North Kona since the 1850s and used to own the entire ahupua'a of Honokohau, which included the portion that was sold to the federal government for the Kaloko-Honokohau National Park.

Our management of these mauka 10,000 acres above the national park helps to control runoff and manage siltation, which helps to protects the nearshore waters but also assists with groundwater recharge of the

Keauhou aquifer.

The 1974 Spirit Report stated that one of the purposes of the acquisition of the national park was to support traditional Hawaiian cultural practices. However, in spite of the efforts by native practitioners to perpetuate these traditions, they have been unsuccessful in putting these practices in place.

When I first saw the agenda, and I saw the item about Jonathan Scheuer's presentation on traditional cultural practices, I thought there'd be a little bit more content than what he provided. I wanted to give you one aspect of one of the things that I think the National Park is not doing.

In respect to the Spirit Report, one of the purposes was to establish the cultural live-in center. It was supposed to have been developed by the National Park Service many years ago. The project was on construction schedule and ahead of the visitor center; however, the National Park Service gave it a lower priority and built the visitor center instead.

After that they built (indiscernible) on the beach of (indiscernible), probably to enhance the visitor experience. The cultural, educational live-in center was disregarded. Makani Hou, some people that are (indiscernible) now, were planning in 2009 -- these

cultural practitioners, one of their purposes was to build the traditional, cultural live-in center structures.

All of the commissioners that offered the Spirit Report advised, except for one or two, I think Henry Bouchard and Fred Cachola, Makani Hou wanted the survivors to see that their vision for the cultural live-in center was not forgotten.

In December 2011 the Makani Hou group approached Palani Ranch and asked if they could harvest ohia logs from our forest so that they could use them in the national park. Since we formally used to own a portion of Honokohau National Park, we thought it was appropriate that the logs for this hale would originate from the same ahupua'a. So we graciously said, "Yes, let's work together on that."

You can see some of the next pictures in the presentation. The primary people I dealt with were Isaac Harp and Nainoa Perry. They've done a lot of different cultural hale structures. They're working on one in Keauhou on Kamehameha School's lands across from the former Keauhou Beach Hotel.

They work with owners of our company to harvest logs. We harvested about a hundred different logs. You can see them in the picture. Some of them are as big as

80-, 90-feet long. I'm sorry. They're more like 40-, 50-feet long. Okay.

In 2012 -- you can see pictures of the hale being framed. It was finished in 2013. Because of some of the frustrations in dealing with the engineers with the National Park Service office, this structure that was built three years ago is still not occupied. Okay. This is very frustrating, you know.

I think the purpose of the Greenwell family was to help with something that we thought was very positive, would be a contribution back to the community. And it frustrates us that the hard work that this group put in to erect it has been frustrating not being able to be used.

In talking to the representatives of Makani Hou, they explained to me is that since they have not been given the permission to utilize the structure, what they've asked is for the National Park Service to dismantle it, provide the materials back to them. And they'll look for an adjacent land owner that will allow the structure to be recreated so that it can be used by the community.

I guess my concern too is that, you know, the National Park Service has shown through their actions and inactions that preserving and supporting traditional

Native Hawaiian cultural practices is not a priority. I question whether some of their other statements regarding the amount of groundwater they gave the Keauhou aquifer are also accurate.

Therefore, I ask you to do the right thing. Listen to the people of Kona. Allow our community to thrive and prosper by them denying the petition when it does come before you. The National Park Service by their actions has demonstrated that they do not support the host culture nor the original intent of the Spirit Report.

Equally important, do the right thing by listening to the science as David Barnes and others have said. There's so much data out there. If you evaluate the data, you can come to a conclusion that designation of the Keauhou aquifer is not wanted.

Thank you very much.

CHAIRPERSON CASE: Thank you.

Kaliko Chun.

MS. KALIKO CHUN: Good afternoon. I'm Kaliko Chun. I'm from Kona. I'm here as a member of Na Hoa Pili Kaloko-Honokohau, which is the name of the federal advisory commission appointed by the Secretary of the Interior for the Kaloko-Honokohau National Historical Park.

It was created when the park -- when Congress passed the bill for the park in 1972, as noted by the information provided by Jonathan Scheuer. It took so long for the park to become a reality in 1990, that when the initial commission had been informed by members of the Honokohau Federal Advisory Study, it took some years to reinstate the commission.

So that has been done about 2012, '13. And I'm a member of that commission. The commission voted when we have our meetings to support the petition as presented by the National Park Service.

I'm also here as a family member of the original members of this commission and the federal study commission. My father, Arthur Chun, was the chair of that study commission, which took two years to go all islands to talk to all Hawaiians and others about their cultural and traditional practices, which was compiled into a thick book, accompanying the build information for the creation of the park.

The report is called the spiritual -- the spirit of Honokohau -- Kaloko-Honokohau -- because the -- there are many practices and customs that go on in the park where they have fishing, gathering, imu. But overriding is a spirituality. And thus the report, commissioners found that they had to call the report the spirit of

Honokohau.

So when you folks asked for a quantification of the customary and traditional practices, it's a bit -- the reaction from Hawaiians would be niele, which is "nosy," to maha'oi, which is an intrusion of a greater magnitude into something quite personal and spiritual of a custom.

So unless you would like me to ask all of you what religion you belong to and itemize that. How often do you follow your practices of going to church or temple? Or are you Buddhist? Are you Muslim? Are you Catholic? Are you congregationlist? Are you Daoist? And how often do you practice that?

If you would like to answer those questions, then perhaps after you answer them, you can let us know how you itemized your -- your practice.

I think that's -- that's all. I -- I can answer anything else, but there's -- oh, I know. The last (indiscernible), whom I know, we were schoolmates at Kamehameha. I do agree we should consult the community, Ruth Aloua is certainly one of those.

Also, regarding that hale that was built in that -- he says now Isaac Harp and Mr. Perry are asking it to be taken down. We spent a lot of our commission meeting time discussing that on why the use of it has

been so delayed.

Apparently someone in Washington, D.C. has decided that it doesn't meet the standards for fire and safety and other -- that they want. And, naturally, if we built a halau or a hale according to our specifications for use, they're going to differ. And this party has prevented our use. Thank you.

CHAIRPERSON CASE: That's all I have of people marked that they wanted to testify. There were other people who signed in on the sign-in sheet. Any -- anybody who's signed in on the sign-in sheet first that intended to testify? Just to check that box. Does anybody else want to testify? Sorry. Mr. Young.

MR. PETER YOUNG: Thank you.

My name is Peter Young. It's interesting that the National Park continues to reference Kahaluu.

Is this okay?

UNIDENTIFIED SPEAKER: Yeah.

MR. YOUNG: Continues to reference Kahaluu, the wells, and the shaft as an indicator of what's happening in the aquifer. And that's simply not the case. Those are basal lens kinds of wells, and they're not the means that present and future wells are going for.

The present and future wells -- after 1990 when

West Hawaii found out there was high level aquifer available, they started to drill the wells about above 1500 feet, above mauka of Mamalahoa Highway. I don't know of anybody who's really thinking seriously of any domestic water use from the basal lens. So I think it's -- it's -- it's not a complete story if you only look at what's happening in Kahaluu.

Those wells were started to be drilled up mauka in 1990. There are several up there now. And there were several -- a couple that were put online last year.

The National Park's presentation to you today said that there's a downward trend of salinity in the ponds in the park. There's a downward trend of salinity in the ponds in the park. I think it's slide 13. It wasn't numbered, and I just quickly -- quickly checked.

The mauka wells above the park -- and two more were added last year. And the data shows through present the salinity in the ponds is going down. That's something they want. That's something they're getting.

It's interesting that the National Park references drought and declining rainfall, yet it suggests that recharge is not as important to sustainable yield. The RAM model that the commission uses, its foundation is recharge in determining sustainable yield.

The USGS in establishing its water budget in 2011 looked at recharge. What this study did for you guys and the rest of us, it started to look at how to better quantify groundwater. In 1990 our sustainable yield numbers that we're talking about right now were established in 1990.

Number one, those were based on rainfall levels that were annual totals. This is done on a daily collection. The 1990 study for the recharge -- I need to pause. Oh, did not include cloud drip or fog drip. This study includes cloud drip and fog drip. And if you look at the impact on recharge in areas where there's freeze and rain and clouds going through them, you may have clouds going through and not having any rainfall, so a rain gage isn't going to register anything; but there is a significant amount of water that's getting into the ground. That's getting into your aquifer. This study had it. 1990, it didn't have it.

In 1990, they use an evapotranspiration potential, which is the maximum amount of evapotranspiration. That takes away from water quantity. This study looks at the soil type and the vegetation. This study said that the recharge in the Keauhou aquifer should be increased by 77 percent. USGS, now they think recharge is important to look at

sustainable yield.

With respect to sustainable yield in quantifying, because I know ultimately sustainable yields are going to be an important discussion in what happens in this area. The commission has a policy to apply certain factors to the recharge to come up with sustainable yield. It's not a complicated final arithmetic, but it's taking your recharge, multiplying by a factor, then you get sustainable yield.

For typical basal aquifers, which has a small lens of freshwater floating on saltwater, you take 44 percent of your recharge, and that's your sustainable yield. If you're in a high level, the policy of the commission is you can take up to 75 percent of the recharge to come up with your sustainable yield. Tom Nance estimates it's 62 percent of the Keauhou aquifer is high level, and the rest is basal.

We know there's some extraction from basal -- Kahaluu that gets beat up all the time. And the high level wells, which is where the -- all the newest wells and the probable, future wells are going to be in the high level aquifer.

What you haven't heard yet is what is the change in -- or what's the status of salinity in the high level wells? And I think you ought to deal with staff on that

because no one has provided you testimony on that. All we do is beat up Kahaluu and say it's the poster child of everything wrong. And at the time it was the -- the best thing we knew in the mid '70s, but now we know that there's -- there's better stuff.

I also -- I don't want to miss this step of saying if you take all of the water that is in the -- in the aquifer, and you pump only the sustainable yield -- if you pumped 100 percent of the sustainable yield in the Keauhou aquifer right now, you'd be pumping only 44 percent of the water. 56 percent of the water will not be touched. More than half of the water will not be touched.

Sustainable yield, if you pump it out -- it's a concern I have about people thinking about what sustainable yield is. If you -- some people might believe if you pump at 100 percent sustainable yield, you're pumping all the water. No, you're only pumping 44 percent.

In 2025, the DWS shows that it's only 22 percent that's coming out, and there's still 22 percent available for future development. But that 56 percent is still and will always be there.

The Spirit Report, 1974. I have a -- unfortunately, I don't have a good copy. I just did it

last night. Spirit Report says the Kaloko and Aimakapa ponds were once the largest and best along the Kona coast on the Island of Hawaii.

The Spirit Report says the restoration and operation of Kaloko and Aimakapa fish ponds as food producers will be a dominant cultural exhibit in the park. That's all good stuff. That's the kind of stuff that I think everyone thinks is going to happen.

November 2015. National Park issues an environmental assessment and management plan. It is not published in the office of Environmental Quality Control publication. Doesn't have to be, but a lot of other federally -- federal agencies publish it there.

The preferred -- well, they call it proposed action. But the preferred alternative in other environmental re-dos for Aimakapa pond is as a waterbird wetland. No restoration of makaha at Aimakapa. No -- the proposed action doesn't even mention fish, unless you consider a reference to U.S. Fish and Wildlife. It doesn't reference that it is going to be producing food and one of the central things of what the Spirit Report says.

In fact, one of the alternatives that was mentioned but not studied, meaning, it didn't have enough interest to consider it to study is that the

Aimakapa -- there was a discussion about the possibility of restoring the makaha there.

Those of you that remember going to the site, remember we walked along the beach and we came to the southern end of the fish pond? And we stood there, and we didn't go beyond that. Makaha is on the north side of the fish pond. So you didn't have to -- you didn't have a chance to see that it wasn't just a sand berm enclosure in a fish pond. It was a fish pond that had access to the ocean, like it needs to have. So it was there. And the Spirit Report wanted it to be restored.

Aimakapa Fish -- this is the environmental assessment.

Aimakapa Fishpond suffers from water quality issues, some of which can be improved by increasing title flushing. Opening the channel to the sea was considered as an alternative action. But it didn't get any -- it wasn't -- it wasn't strong enough in their mind that it would be something to study and make it an actual alternative that was feasible.

Spirit report. Sorry. I -- I didn't decide to do this until flying on the plane. And I didn't get any of the exhibits -- well, I only got Paula Cutillo's last night. The Jonathan Scheuer one, I don't think is still on the website.

Spirit report. A long-term plan will be designed to eradicate the exotic vegetation and animal life that now dominate the area. 1964. They said they were there in 1990. They really got control of it in 1990, so don't blame them for stuff before.

In 1990, 53 percent of the vegetation in the national park was exotic, alien -- a lot of it invasive.

In 1996, it's not 53 percent anymore, but it's planned to be removed. 69 percent of the vegetation is alien.

In 2011, they mapped the national park vegetation and of the 600 acres of vast land, the dry land. 100 acres -- about 100 acres is kiawe forest. Looks like that. That's really dark because the kiawe overstory is shadowing the trail.

This is Aimakapa. You see the green all around that surrounds Aimakapa? That's the kiawe forest.

Kaloko pond. The green around the pond is kiawe forest.

In 2014, the UH did a study of kiawe forest impact on groundwater at Kiholo. Good example. Right up the coast.

UH, May 14th, 2014. The model's application to the Kona coast show that kiawe management show that kiawe management, meaning removal of kiawe, can generate

a large net present value for groundwater uses. You take away the kiawe, you have more groundwater. You already have decreasing salinity over the last eight to nine years. But if you take out the kiawe, you'll have more freshwater that -- that they want.

I'm showing you an 8.5x11, and you guys are, like, forever away from here. You can't see it. But you might remember on the site visit you went to an anchialine pond. And if you can see people standing there, the one with the hat is Sally Beavers, and she was describing it.

And as you can see in this kind of reflected barrier, there's a little bit of water. What you can't see is all this Christmas berry right here -- is overhanging the rest of the pond. If you take out the invasive species, you will have more freshwater. You can't -- again, this is too distant. This one you can see the green. Alien species in anchialine pond in West Hawaii.

This one you can see the reflection -- water in anchialine pond. Kohanaiki removes it and has a good working pond.

National Park has said the salinity in the ponds is decreasing and that's after all the mauka wells have been built up above the national park.

The National Park also says the water resources in the park include the coral reefs, two fish ponds and a fish trap, over 185 anchialine pools and wetlands. These resources are relatively healthy. We have no evidence that existing pumping has adversely affected these resources.

I think it's clear that we don't have a problem.

Thank you.

UNIDENTIFIED SPEAKER: I have a question.

CHAIRPERSON CASE: Yes, go ahead.

UNIDENTIFIED SPEAKER: You're saying there's a direct correlation between increase pumping and the high level water and the decrease salinity in the -- on the ponds in the park?

MR. BARNES: I'm not saying there's a correlation. I am saying that the National Park's presentation to you said that there is a decreasing salinity in the park from 2008 to present.

I'm also saying that since 1990, West Hawaii stopped drilling brackish wells for domestic use and started drilling high level wells. And they're drawing from something other than the Kahaluu shaft that gets beat up.

UNIDENTIFIED SPEAKER: And then -- one follow up. The UH study on the removal of the kiawe

had -- you said had water increase. Was there any -- I hate to use the word quantification today because it's getting a bad rep, but was there any percent or any --

MR. BARNES: It's --

UNIDENTIFIED SPEAKER: -- or is that -- and you can look at the transfer rates of kiawe. But were there any numbers attached to that?

MR. BARNES: No. I did not see. It just had a positive net present value, which means it's better if -- if you want more groundwater, it's better not to have kiawe there. And right now over 100 acres of 600 acres at the national park are in kiawe forest. That doesn't count all of the other coverage by other invasive plants.

CHAIRPERSON CASE: Thank you.

MR. BARNES: Thank you.

CHAIRPERSON CASE: Anyone else want to testify?

Okay. If not, we are going to move to item B-4. Let's take a two-minute break.

(There was a break in the audiotaped proceedings.)

CHAIRPERSON CASE: Okay. We're going to get going again. We're going to go to now item B4, Status Report and Findings -- Hawaii County Water Use and Development Plan Update for the Keauhou Aquifer System

Area.

MR. KEITH OKAMOTO: Good afternoon, Chair Case, members of the commission. My name is Keith Okamoto. I'm the manager chief engineer of the Department of Water Supply, County of Hawaii. To my right I have our department's deputy, Kawika Uyehara.

So, first of all, I wanted to thank you guys for coming out to our community. And I think we need to remind ourselves that, besides Chair Case and Dr. Pressler, that you guys are all volunteers, you know, basically working for the benefit of our communities and our state. So I just wanted to acknowledge that and extend our appreciation. Because I know you folks do have a large responsibility, and, you know, we don't take that lightly.

So when you folks ask us to present information, you know, we do try to provide what we can that responds to your request. Because we're hopeful that that's what's going to help you folks make the best decision that you folks need to make.

So, anyway, thank you, guys. Thank you for coming out here to our community.

Anyway, so we heard a lot of information thus far. A lot of information on history, background, things like that. My presentation today really is going

to hopefully provide you with new information. That's what I thought the intent was today to provide you folks with some updated information, so that's -- that's really the gist of my presentation.

We're going to talk about three things, our water use and development plan update, phase 2, where we stand on that. I want to share with you some conservation initiatives and some energy initiatives as well.

Okay. So phase 2. We're happy to report some progress in two tasks. The source development program and cultural issues. It seems to be the topic of the day, also known as traditional and customary.

So at this time before I forget, though, I just want to acknowledge the efforts of our staff. We have a few of our staff members here. I have Kurt Inaba, our engineering division head; Larry Beck, who is in charge of our water resources and planning branch; and we have our consultant Lance Fukumoto from Fukunaga & Associates. And this, you know, continues to be a work in progress.

But I also wanted to acknowledge your folks' staff. Roy, Lenore, and the folks there, because we're trying not to do this process in a vacuum. You know, we -- we have discussions with the staff. We go back and forth. We try to hear what some of their concerns

are with some of the information that we have compiled thus far, and it's been a real terrific collaborative process. So I want to acknowledge your guys' staff as well.

Okay. So source development program. Basically, I want to share with you our -- our future plans. And I guess our -- our strategies on where we're going to put new wells.

So I thought this might come out better than it shows. But so that's the Keauhou aquifer. And if you guys can't see, and hopefully maybe in the handouts you might be able to see a little better. But can everybody hear me -- can I just stand up without the mike? Can everybody hear? Is that okay?

Okay. So that's the Keauhou aquifer. Up there is the Honokohau Harbor where you see that little inlet. We have Kahaluu Bay here. We have Keauhou down here.

So for our Department of Water Supply, you know, we're committed. We're not going to drill in the basal aquifer. Developers that want to work with us and turn over a well to us for operations and maintenance, we're not going to accept anything in the basal aquifer either.

As far as our source development strategies, we have two wells that we have in our five-year CIP to help

with -- one of them is what we're calling the Waiaha 2, which is south of our current Waiaha well. And we're also working with Kamehameha Schools to help with what's called the Keauhou Kamehameha Well 2, which is (indiscernible).

And our overall strategy is basically to stay in that upper level bend, south of our (indiscernible) well. You know, of course, in good hydraulic practice. You know, not positioning wells close to each other, thinks like that.

We also would really like to partner and be a part of whatever next steps in exploring where that mid-level deep freshwater source is. Because we think that is something really worth pursuing and looking into.

We're also hopeful that, you know, whatever moving forward, if there's opportunities to -- to further research that source and see what the viability or the sustainability of that resource is, we want to be a part of that as well.

Okay. Okay. So cultural issues. Traditional and customary consultation preliminary findings. What I do want to say is this, as you've heard today, this, for us, is a continual work in progress. I got a lot of good, new information today just from, you know, hearing

the presentations, hearing testifiers, practitioners, people who fish up and down the coast, things like that -- all terrific information.

What we've done thus far is part of this effort -- just want to share that we've gone through some couple hundred EAs and EIS's that were conducted since 1990. As you know, that didn't reveal too much for us.

We've done some outreach. We've sent letters out to Hawaiian homes, OHA, Kamehameha Schools, Queen Liliuokalani Trust, Kona Hawaiian Civic Club as well as other individuals that we knew of that -- that, you know, may have interest in the area. That was our initial outreach. We sent letters out asking, you know, if -- "Do you have any comments?" So that's another continual work in progress.

Findings thus far. There's a lot we don't know. As you've heard some of the testifiers say, a lot of the practices are private. So we don't think we're going to create a geospatial database of practices in the area, which is -- which is understandable. But it was real promising to hear Leimana's presentation because that was the first time I heard that presentation and really got educated on what that group has to offer.

So we're hopeful that we can turn to them as a

liaison to put us in contact with the people who are actually representatives of the area that we're doing a project in or are proposing to do a project in. And, hopefully, we can have one-on-one dialogue. If they're not comfortable testifying in an open session, which a lot of people are not, then we can have one-on-one dialogue with them and still get their valid input and incorporate that into our projects.

Let's see. Oh, and also at DWS we want to let you know that we're committed. You know, we understand our responsibility as well that we need to protect the public trust, including traditional and customary practices, acknowledging them, mitigating impacts if need be.

So what we're trying to do is we're trying to establish protocols or guidelines to incorporate these types of assessments into our -- our daily activities.

So couple examples are -- for our environmental assessments -- anytime we drill a new well, we need to do an EA at least, so we'll definitely, if Aha Moku is willing, reach out as part of a consultation group and seek, you know, their input or at least seek their input as to who we should talk to in this proposed project.

We're also working with our corp counsel and our water board. So when a development is large enough such

that we don't have adequate excess capacity in our system, and they would probably need to install a new well, a new source to fulfill the water needs of their development, we're -- we're trying to figure out or -- language in these well development agreements that also take into account public trust assessment, including traditional, customary impacts.

Again, so we educated again that, you know, we know we can't delegate that responsibility to the applicant or the developer, but we can ask them hopefully to at least provide us a study where they've gone and reached out and got some information, and then we'll do the assessment. Anyway, so it's still a work in progress. We haven't figured out the details, but that's -- that's our intentions moving forward.

Other than that, I just want to make a quick mention. I don't know if any of you guys have seen the press releases from the UH and EPSCoR, but we are also proud to be a part of that recently awarded grant that they got from National Science Foundation. So we'll be working with Greg Chun and the folks at UH in that regard as well, so we're really looking forward to that effort.

Is that about it? Okay. So, I mean, that's where we stand, and that's where we're looking forward

to as far as addressing public trust and, in particular, traditional and customary impacts in our operations.

Conservation initiatives. Real quickly, I just want to share with you folks, you know, we hear, you know, not only you folks but the public, and we're just trying to be better.

We know there's -- there's lot of work that needs to be done, but Kawika and I, we're committed to do the right thing for the right reason. And although we're in the business of -- of selling and distributing water, at the same time we realize that our motto is "Water, Our Most Precious Resource," right, so conservation is being stepped up as a priority for our administration.

Couple things we're working on is a software program. We partnered with the energy accelerator program, which is part of (indiscernible), and I was able to secure some funding to assist us in acquiring software that's going to hopefully reach out to our customers to encourage good water use practices. So we're focusing in the Kona area with this effort.

We also are trying to do a pilot smart meter program. And this smart meter program we have 12 units that we deploy. It's one of those that uses cell technology that provides hourly information. So somebody can access their -- their meter data on a

hourly basis, and we're hoping that that'll mitigate some of these leaks that don't go detected. Because our bills are typically billed on a bimonthly basis -- every two months.

We've out -- we've done outreach to high-water users. We sent individual letters out to -- to low and high water users as well as partnered with DOE and our Department of Parks and Recreation that use quite a bit of water for their irrigation needs.

DOE has really stepped up and helped us in the Kona area where they've helped pass out our conservation notices through the school to their students. You know when the kids take these notices home to the parents, hopefully there's a greater impact with that as well.

Let's see. We have -- we're also part of the freshwater initiative. I just recently joined that council, so I know Chair Case and Commissioner Buck are familiar with that. And some of the priorities that they had in place, which is to improve water security in Hawaii and three primary areas of conservation, recharge, and reuse. We partnered with them in several legislative bills this past session in those areas.

We also have an active water loss management program, and we've -- also proud -- I like pictures, so here's some pictures. So we was able to get one of

those big checks that everybody likes to take pictures of. So we have some of our board members, and we lined up according to height and age. But, anyway, so it was -- it was a good PR moment where we was able to get 130,000 from Hawaii Energy. We deployed 400-plus additional leak detection loggers in our system.

Overall, Hawaii Energy has helped us and given us about $325,000 in rebates thus far. So we're continuing to partner with them and see ways where we can not only minimize our losses, but that, in turn, turns into energy savings as well, yeah.

Trying to be good members of the community in reducing our carbon footprint. So that kind of segues into our energy initiatives.

So we, again, with the partnership through Hawaii Energy, we consulted with the professional -- energy professional to do an energy evaluation study for our department. That was completed last summer. Came up with some good recommendations, one of which is energy savings performance contract. So we understand that Honolulu Board of Water is currently in the process of one of the -- one of those ESPCs, and we'd like to do something similar.

What we anticipate the scope of this being is similar to Oahu where we expect an EPSCoR energy-savings

company to evaluate and audit our whole operation and see where we can be better at energy savings.

And our understanding is -- how it works is that, you know, they actually make the money by taking a percentage of the savings without having to burden our customers with -- with CIP expenditures, which, again, ties into our -- another project that is big for us is our Lalamilo Wind Farm. This is a project that we have a power purchase agreement for, so no CIP expenditures on the department's behalf, no extra financial burden on our customers or our community.

But the contractor is putting up the wind farm, and we have a power purchase agreement where we have agreed to purchase power at a reduced rate over the 20-year term of this contract. So we're quite proud of that.

This is some numbers, because I know quantities is such a terrific topic today. 21 megawatt hours a day is the contract energy amount that we hope to take off the electrical utility and transfer to sustainable wind-generated energy. And if we can use more, we're going to use more. If the wind is blowing, and we need to pump our wells, we're going to use whatever we can. So that's where we stand with that.

Here's some more pictures for you. So we

actually have five -- we have -- this project includes five turbines. I know you can only see three of them, but all five are up already. And now it's a matter of the details, getting the poles installed, working out the SCADA, working out the electrical controls, the switch gear, and all that other stuff that I don't really understand.

But the bottom line, we're reducing our carbon footprint. We're trying to do what's right. And it's a terrific project, and we're hopeful that this thing will be providing us commercial operation and reduced power cost by September, October this year.

Okay. With all that said and done -- oh, before I get to that. Sorry.

There's some information that was previously provided that I do need to address. I know some of the public testifiers have addressed certain things on our behalf, but I do want to address a few comments. And, again, I do want to acknowledge the National Park because we respect the National Park, you know, and what their intentions are. It's to maintain these parks and this beautiful resources for us and our future generations, so I got no problem with that.

What I do want to do, though, I do have the need to address some misinformation that might have been

presented, so if I could do that for the next couple minutes. Let's see.

Other people have addressed our chloride issues. That is a challenge that we continue -- we'll continue to be better at.

I was kind of hoping that -- also that we'd find new information in the first two presentations. I know certain practitioners have a challenge with quantifying freshwater flow through the park. But, you know, as government agencies, sometimes it's hard to -- to manage what you cannot measure.

And so sometimes a lot of times we do need a quantity where we can measure and evaluate and that way we can compare, you know, our pumping numbers to see if there's impacts to the downstream community. So I was hopeful that we would see some numbers.

What I do have to offer -- I think Peter Young did mention some of it -- is we do have two wells that are mauka of the park. Hualalai well and Kalani well that we've recently activated August and November of last year. And I believe, you know, staff -- we've given those pumpage numbers.

So since November I think we've added two mil a day in pumping from those sources. So it'd be interesting to see how that might have translated to

information at the monitoring wells downslope.

Anyway, what else? Oh, okay.

There was the information on the Hualalai water level decline, and, you know, we've been consulting with Tom Nance, and we have been monitoring our high-level sources. So we don't have a reason for that Hualalai decline. You know, we think recharge is a part of that equation. Because the reason for that is we've got recent numbers at our QLT well. And that has been going down.

But as you heard from, I think, Nancy Burns, last year Kona experienced some pretty significant rain events. So our QLT well level has actually started to climb back up again, although that well has been steadily pumped continuously at about, what, a million gallons a day. You know, pretty consistently. So another, you know, more information for you folks to consider.

I do want to address -- I believe it was Mr. Flaherty's public testimony on our water quality. And, again, definitely we do need to improve our -- reduce our reliance on the basal sources. So our two high-level wells that we have programmed for the next five years along with transmission improvements, both along the upper level road as well as mauka/makai

corridors.

What we intend to do is utilize those infrastructure improvements to -- to further relieve the Kahaluu shaft and other basal well pumping amounts. And the intent is to take that high-level water and bring it, you know, across on the upper level as well as bring it down to the makai area and utilize the existing infrastructure, the transmission that's along the Queen K/Kuakini Highway corridor to get in towards the Kailua town, airport area, things like that.

But getting back to Mr. Flaherty's testimony on water quality, we're actually quite proud, I think, of our water quality, and we work real close with Dr. Pressler's Safe Drinking Water brand staff. They're terrific partners as well. Joanna and the folks over there are terrific to worth with.

Again, open dialogue. So always a collaborative process. It's not, you know -- not -- try not to keep anything from them. It's just an open, transparent two-way flow of communication.

And, actually, we're quite proud of the fact that we don't have any tier 1, tier 2, tier 3 level violations in these systems, as far as I can remember. Yes, chloride is a secondary standard that we're working continually to be better at. We do acknowledge that 250

is a secondary standard. It's an esthetic standard. It's not a regulatory standard. But we do treat that with priority in this region.

I think he mentioned the Ke'ei well system, which is in South Kona. We proactively -- when the good well goes down, Ke'ei Well D has the best chlorides, double digit chlorides. A, B, and -- D? D. A, B, and C, not so good.

So but when Ke'ei D goes down, we put out a notice notifying our customers saying that, you know what? D is down. You're going to experience increase chlorides. We proactively do that. We try not to hide from our customers that we switched sources. And we're actually providing water from a source that has higher chlorides. We post that on our website.

So, anyway, I just wanted to share that to -- to show you folks that we're trying to be proactive. We're not trying to hide anything. We know we have challenges that we need to deal with, and we are trying to deal with it.

So you got anything else to add? That's about it.

MR. STARR: The Waiaha 2 well that you're planning to drill in the next five years, what's going to be the pump capacity on that?

MR. OKAMOTO: Yeah, typically, our rule of thumb, we don't -- we try not to go larger than 1,000 GPM. Part of the reason for that is the electrical utility and the constraints that we have there; but so 1,000 GPM, so roughly 1.44 MGD.

MR. STARR: So you expect to be able to get a, say, 750,000 gallons a day (indiscernible)?

MR. OKAMOTO: Yeah, about --

MR. STARR: And how about from Kamehameha II?

MR. OKAMOTO: Yeah, so a thousand GPM, realistically, if we're pumping maybe about 16 hours a day, you're looking at about a million gallons a day. Same thing for Kamehameha II, right, you said?

UNIDENTIFIED SPEAKER: Yeah.

MR. STARR: Do you get all -- do you get all the output from Kamehameha, or is that (indiscernible).

MR. OKAMOTO: Okay. So part of, I guess, the agreement with Kamehameha Schools is they will also get a share of the -- the well water from that.

MR. STARR: So you're not getting -- what is that between the two of them? Maybe you'll get, what, a million -- million and a quarter?

MR. OKAMOTO: For the department?

MR. STARR: Yeah.

MR. OKAMOTO: Yeah, sorry. I don't have the exact numbers. But for Waiaha 2, that's all our CIP project. So we'll be getting -- yeah, the 1.44 million gallons a day off of that one. The Kamehameha II well, I would need to get back to you on our...

MR. STARR: So, I mean, out of the 1.44, you'll get -- usually, we always figured plus 45 percent have to be made by a third for operational (indiscernible).

MR. OKAMOTO: Yeah.

MR. STARR: So, you know --

MR. OKAMOTO: No --

MR. STARR: How much are you pumping out of Kahaluu shaft?

MR. OKAMOTO: The shaft right now, I think, we're pumping around 4 mil a day. Currently, about there, I think.

MR. STARR: 4 mil.

MR. OKAMOTO: 4 to 5 mil a day, yeah.

MR. STARR: And then what's the highest chlorides you've seen?

MR. OKAMOTO: The highest chlorides we've seen out of the shaft is above 400.

MR. STARR: So that's double what the EPA says -- recommends and is considered really health safe

for --

MR. OKAMOTO: Yeah.

MR. STARR: -- (indiscernible) and so on.

MR. OKAMOTO: So as we've mentioned before, that's not what we put into distribution. We blend it with the high-level water so that the water going into distribution is not that amount. But, yeah, just out of the source, that 400 or so, that's not the desired amount.

MR. STARR: But let's say you're going to add another million over the next five years -- so, in other words, it will take you at least 20 years if there were no expansion of your customer base --

MR. OKAMOTO: I'm not sure where you're getting the 20 years.

MR. STARR: -- (indiscernible) 20 years to replace the Kahaluu shaft.

MR. OKAMOTO: Yeah, I'm not -- yeah, I mean, we're going to actively continue to work towards replacing that. But, yeah, I don't have a time frame for 100 percent replacement of the shaft.

MR. STARR: I expected to see more.

MR. OKAMOTO: We do have -- yeah, so what I do want to share that we do spend a disproportionate amount in Kona trying to address these concerns. So out

of our budget, we are spending quite a bit of money in Kona. So we're forecasting the next five years about 18 mil out of a $70 million five-year CIP budget in Kona. We do have 23 water systems island-wide that we also do need to address and maintain, so we're doing -- we're doing a lot of balancing, for sure.

MR. STARR: So most people -- most of that money is spending -- that's going toward new -- new subdivisions and new projects?

MR. OKAMOTO: No. No. We don't -- yeah, we don't build for new subdivisions or projects. A lot of it is CIP repair and replacement, bringing things up to current standards, replacing old steel tanks with the appropriate concrete tanks, improving transmission capacities, a lot of things like that.

MR. STARR: But not replacing the (indiscernible) wells?

MR. OKAMOTO: We have that programmed in as well.

MR. BEAMER: Keith, mahalo for the presentation. I can see how at least from my perspective, you know, over the course of this process we're getting more things incorporated into the planning and thinking about traditional and customary rights. And, you know, saying, you know -- you guys aren't going

to accept basal wells anymore, only going to do high level.

And, you know, I do remember there was a -- I was traveling for most of the month, and I came home, and I was home, you know, the whole next month. And I got a call from the department saying, "Hey, Mr. Beamer. You know, your water usage is going up." And I explained, oh, that's because I'm actually home, so. I know you guys are doing, you know, the best to kind of track individual usage.

Couple things. What do you guys -- high level, what do you define it as? Is it an elevation? It is a depth of the well or how --

MR. OKAMOTO: Yeah, typically it's about 1700-foot elevation. Like it was mentioned earlier, in the '90s I think -- I'm not sure who was credited for finding that resource up there, but since that time, we've kind of developed infrastructure to accommodate that elevation. So that's the typical elevation. About 1700 --

MR. BEAMER: Over 15, right around there? Around 17?

MR. OKAMOTO: Yeah, typically above that upper Mamalahoa Highway basically.

MR. BEAMER: Okay, okay. Okay, so over 15,

over 17.

Do you guys have the existing, you know, sort of structures that you have in place and procedures you have in place when a landowner does come to you? Can you control, you know, the separation and distance of wells?

I know we talked -- I heard earlier 2,000 feet was sort of a minimum thing. But how much do you guys do in terms of working with the land owner to determine where the well is located?

MR. OKAMOTO: So if it's a well owner that's going to turn the system over to us to operate and maintain after they complete it, definitely. You know, we want to make sure that it doesn't interact with an existing well as far as when both of them are pumping. It's also got to meet -- fit in with the hydraulics with our system. But, yeah, that's when we have the most say.

And, again, moving forward, what we intend to do is when we go into these agreements with these potential developers, we like this vetting of public trust and traditional and customary impacts be vetted somehow so that we know that there's some work being done in that regard.

So if you do want to turn something over to us,

one, you got to make sure that, one, it can pump water in quantities that you need it, that it has the quality that we would like to see. That's typically not expected to be a challenge if it's in that upper level band. And then now we're expecting them to provide us some information so that we can see if there's going to be some T&C impacts that need to be mitigated as well.

MR. BEAMER: And what about if they're not going to turn it over if it's just a private well for personal use?

MR. OKAMOTO: Yeah, that's a tough one for us, yeah.

MR. BEAMER: No real jurisdiction --

MR. OKAMOTO: No real jurisdiction to step in on that.

MR. BEAMER: Okay.

MR. OKAMOTO: Yeah. The only other thing I can think of -- if it's in the SMA zone that planning may have an opportunity to come. And I think like how Nancy was saying, Kohanaiki had to deal with the SMA Permit and things like that. But that's my understanding.

MR. BEAMER: Okay.

MR. PAVAO: If I might chime in. For wells that are (indiscernible) by private people that will not

be turned over to the department, jurisdiction is with the commission. So the commission would have to say as to how the well is built.

MR. OKAMOTO: That's our understanding.

MR. PAVAO: So there is controls.

MR. OKAMOTO: I also did want to mention before I forget, because you kind of reminded me that -- when the land use applications happen through the county planning process, they forward all these applications to us for comment. So we're trying to beef up our response in those regards as well.

So every application we're trying to put in language that -- it kind of hint at encouraging portable water for the highest applicable use, which is consumption. If you guys plan to do irrigation, you know, hopefully you find a different resource to utilize for that and things like that. So continuing trying to improve in that regard as well.

MR. BEAMER: Sorry. One last question. It just came up as we were having a conversation.

You know, we had heads of Maui and Honolulu Board of Water come at previous meetings and present here and kind of talk about the way they work through designation and what it looks like in these different counties. Has that -- have you guys had dialogue with them since,

or is there communication between the well guys and us, or --

MR. OKAMOTO: Yeah. Actually, we have a dialogue every quarter with the managers. I haven't specifically asked them, you know -- my understanding is, you know, every -- every island situation is different. From what I understood -- I've talked to maybe not the managers, but their staff.

And they've revealed to me that in the case of Oahu and perhaps Maui that their situation might have been different because they might have had an adjacent aquifer that they were able to utilize pumping from. So they didn't have the same situation that we see ourselves in, in Keauhou. Because we don't have that opportunity.

We have -- we do have a small connection crossing that aquifer boundary to the -- Kealakekua. We just have an 8 inch. And currently we do have some ability to take Haleki'i water and move it slightly north. Or if we need to adjust the system, some of the north water slightly south. But not 11, 12 million gallons of water, yeah.

CHAIRPERSON CASE: Just following up on that. Is there a significant disparity between developments that are permitted and in planning versus

the amount of water available?

MR. OKAMOTO: I guess is -- let me see if I can grasp the question correctly. So I guess there's various applications at various stages of planning and permitting. The ones we know of and the ones that have at least reached out to planning with their project information, we've addressed those, whether or not we have adequate capacity in our existing system to accommodate that application request or not.

And, if not, then we typically ask them for a projection, what they intend to use. And then we can make a determination what it looks like for this area. These are the equipments that would be required for you to pursue your development plans, whether it be a new source, some transmission improvement, storage improvement, distribution.

We have, I think, a lot of that information captured in that phase 1 that we submitted to you folks back in -- you know the one that we had the authorized plan use information? That's the one we took whatever planning information we had available and compared it to -- I think we did three projections.

One was based on zoning. One was based on what, you know, authorized plan use of everything we knew about that was in the queue somehow, and then population

growth projection. So I think we have that covered in that report.

CHAIRPERSON CASE: So in the -- if the authorized plan use exceeds by -- who in the county puts controls in place to make sure --

MR. OKAMOTO: And I think that's where the -- this water use and development plan comes in. We are actively engaged with our planning department in this process.

So to remind everybody, I think water use and development plan phase 1 showed those three projections being at about 25 MGD, 27 MGD, 22 MGD. I could have the numbers slightly wrong -- versus the 30 MGD. So we felt we did capture that in the phase -- phase 1 of this water use and development plan update.

CHAIRPERSON CASE: So -- but is there a decisionmaker that says, "You know what? There's not enough water, so we can't approve this"?

MR. OKAMOTO: Yeah. I guess that would be planning. We would inform them that, hey, this is where we're at. The sustainable yield is 38. All the developments thus far we're at, whatever, and here's our concern. Planning department in this county is the ones that deal with the approvals or not of the land use.

CHAIRPERSON CASE: So do you have a close

dialogue with them about that?

MR. OKAMOTO: Uh-huh. But, again, you know, we're not nearly there. Yeah, I think total right now including our pumpage as well as the private ones that we know of, I believe we're about at 15 MGD. So, you know, and if this body were to tell us, you know, hey, at 20, let planning know, there's going to be a problem. That's something we could incorporate as well into the water use development plan. If there's -- you know, people talk about triggers and things like that.

UNIDENTIFIED SPEAKER: Keith, are you still on track to be done by 2015 -- I mean, December of this year?

MR. OKAMOTO: Yeah, for the water use and development plan phase 2? Yes, correct.

UNIDENTIFIED SPEAKER: So when you were looking at the map (indiscernible), location, depth, pumping rates of your wells, how did you figure out the geographical area around the park, or you just put everything -- as long as it was in the high water level table, you were okay?

MR. OKAMOTO: Yeah, well, essentially we -- we knew high-level water. We knew just based on chlorides we have in all our basal sources that we're not going to pursue any new sources of basal.

We've already had infrastructure plans in place for mauka/makai corridors. So one was the Palani transmission, which is, you know, close to Palani Road.

Then we also just recently constructed a Waiaha mauka/makai corridor that's further south. And we also have plans for a Waiaha mauka/makai corridor that's further a little bit north of this south border. Sorry, I don't have a map. And then we're also working with state DOT on the Queen Ka'ahumanu widening project so we have transmission improvements there.

All that infrastructure, it just makes sense for us to position new wells through the south of (indiscernible) so that we can bring that water makai and then transfer it northwards.

And I believe also -- I think Roy, folks, had information, but it appears as you go further south, the static water level in this high-level water aquifer system is more substantial. Higher elevation, yeah.

MR. BUCK: And just to be clear, a private developer who's not sharing the water, you have no control over?

MR. OKAMOTO: Correct.

MR. BUCK: It's my understanding that the water commission has -- has improved conditions for putting in wells but has never denied someone a permit

to put in the well based on the public trust resources. At least that's --

UNIDENTIFIED SPEAKER: Closest thing was Kohanaiki.

MR. BUCK: Yeah. Now, if the area was designated, then the commission would have control over that. I mean, so that's one of the kind of loose things that we are still trying to do with what sort of, you know, is indeed is a geographical area. Is there some control over a well that might be harming public trust resources? Outside of designation, do you have any suggestions for us?

MR. OKAMOTO: I guess that's why I'm here to hopefully provide you information that you guys can use. We're trying to do our part in being better -- better stewards of the resource. You know, we've heard it quite clear that this is a significant interest that we need to address. So we're doing our part wherever we can to be better at addressing this.

MR. BUCK: But you're pretty much, based on the map, have already determined in the water use development update the location that pumping rates of all the wells that you have planned. There's no new information that we're going to get in that regard between now and December?

I mean, this is our fourth meeting on the Big Island. I think we're getting to the point where it's not an issue to cut bait as far as the commission determining what it's going to do or not. So we're just trying to -- the reason why we delayed it for a while was to get the updated information on this course of information through what your future plans are.

But do we have -- you kind of have all that now, do you think, or do we need to wait a little longer?

MR. OKAMOTO: I think we've given you whatever you've asked for.

MR. BUCK: Okay.

MR. OKAMOTO: So we complied with the preliminary order. We provided all the information. So if you folks need more information, we'll be happy to see if we can provide that. Not a problem.

Again, that's why we're hopeful -- I mean, that's why we thought we were here today. We all assembled here because I thought the petitioner requested this meeting because they had the outstanding information to provide. And that's what we were hopefully here, too, is the quantity of water flowing through the park that was needed to sustain the -- protect the resource.

And, again, with respect to the practitioners, we're hopeful that that quantity could help us do our

own evaluation, to see if there is, in fact, something else that we could come up with in monitoring our own wells mauka of the park, to see if there's other things that we could have done, other evaluations on our side that we could have proposed and brought to the table.

MR. BUCK: But --

MR. OKAMOTO: I believe if you look at what was asked of us, we provided whatever we could.

MR. BUCK: But based on their -- at least today's assertions that the current level right now, it's a level they would like to hold. Do you believe any of your new wells that you're putting in identify the plan would impact groundwater levels in the park?

MR. OKAMOTO: So, again, they have three monitoring wells on the park. We provide our pumpage data monthly to this body. I think somebody could take that information and see if the pumping of our wells or other wells, other people provide information to this body as well.

That's the part. We don't have that information, yeah. We know what we're pumping. We don't know what everybody else in wherever other vicinities, what are their pumping rates. But we know we've added 2 million a day since November. We saw the graph where salinity in their monitoring wells either was flat or kind of

slightly downward trend. So there's various interpretations, I think, I could see coming out of that. But that's information that I'm sure could be discussed.

If we are developing new wells to the south, we'll continue to provide those pumpage datas to the commission and see if that has any impact on the Kaloko-Honokohau monitoring well.

UNIDENTIFIED SPEAKER: So let me ask you. Are you done?

UNIDENTIFIED SPEAKER: Yeah.

UNIDENTIFIED SPEAKER: I'm confused at this point. Are you saying that you don't have all the information that you need in order to advise this commission about use going forward with the water?

MR. OKAMOTO: We have --

UNIDENTIFIED SPEAKER: (Indiscernible) plenty of water that we don't have to worry. That's not what I heard earlier today, so I'm just a little confused.

MR. OKAMOTO: Yeah. Well, that's my intent to just confuse you all. Exactly opposite. I'm trying not to -- I'm trying to provide you the information so you folks can make the decision you folks need to make.

So what I guess I was saying is I don't have the

information I was hoping to get from the park as far as quantity of water flowing through. And then if we knew that and we could measure that somehow, and we have the pumping information from our sources, then we can see, okay, we've added 2 mil here. Was there an impact to the water flowing through the park? That's the information I don't have. I would like that to do whatever internal evaluation we could.

From our perspective, phase 1 indicated -- and that's, you know -- that's a judgment call. Is 28 MGD, 25 MGD, is that too close to sustainable yield? In my opinion, no. I think -- I don't think there's a -- I don't think we're going to see that pumping in the next near term. I think we have quite a bit of ways to go before we hit that amount of pumping from the aquifer.

But so, in my opinion, I don't think we're in a place right now. And it's been our position since this petition started that designation is not warranted, in our opinion, at this time.

MR. BUCK: Chair, I have one more quick one.

You know me. I always ask you. How are the contributions to the mauka watershed partnerships going?

MR. OKAMOTO: Continual work in progress. We are partnered with Three Mountain Alliance, Kohala Watershed Alliance. Haven't given the kind of money

that Maui maybe has given to their watershed alliances and things like that, but --

UNIDENTIFIED SPEAKER: Kohala (indiscernible) Kohala too.

MR. OKAMOTO: Yeah. But we'll try to be better at that too.

CHAIRPERSON CASE: Any other questions? Okay. Thank you very much.

MR. OKAMOTO: Thank you.

CHAIRPERSON CASE: Is there any public testimony on this agenda item? No. Thank you.

Okay. We're going to move to B5. Maui Island Water Use and Development Plan Status Briefing.

MS. EVA BLUMENSTEIN: Good afternoon, Chair, commissioners. I'm --

CHAIRPERSON CASE: Your mike's not --

MS. BLUMENSTEIN: Do you hear me? Is it off?

UNIDENTIFIED SPEAKER: Is the light on? Yeah, you've got to hold it down for a little bit.

MS. BLUMENSTEIN: Can you hear me now?

CHAIRPERSON CASE: Yeah. Yes.

MS. BLUMENSTEIN: Good afternoon, commissioners, Chair. I'm Eva Blumenstein. I'm the county program manager for Maui Department of Water

Supply. I'd like to -- oops. I'm on the last slide here for some reason. Okay. There we go.

I know it's late, so I'll try to be quick here. I'd like to give you an overview of where we're at, progress of the Maui Island Water Use Development Plan. Give you some ideas of the key issues and constraints that we identified in this process, where we're at in terms of existing use island-wide, and projected demand over the next 20 years; and also some preliminary strategies that we have identified through the public process.

So, you know, Lanai Water Use and Development Plan was adopted in 2011. The Maui plan that were fairly worked on (indiscernible) about 2004, using consultants. And subsequent to the -- there was a chapter for the municipal system, just a central chapter. It's actually adopted by the county council in 2010. But that plan was not approved by the commission. It was not addressing all private users and uses island-wide.

So, that said, all the work that's been completed and the public input up to that process has been incorporated into this new and improved update -- is based on the revised product description that was adopted in 2012. We provided a briefing. My colleague

provided a briefing last year in June to this body. And most of the work has taken place since 20 -- mid-2015, so, therefore, we have a lot of more data studies, and we're using 2014 as our base year.

This is our timeline where we're at with -- started out late last year with some targeted stakeholder meetings. We held the first round of open general public meetings. Give you a little more detail about this later.

The screen were completed a second round of Saturday workshops, more like townhouse meetings. We are going to brief our board shortly then over the summer, completing our draft plan, and bring that out for public comment again during the fall. And we get -- we would be ready to provide that to our board towards the end of this year. They would have 180 days to review it and submit it to county council. So 2017 we'll get the areas -- mid-2017 that this body will see the plan in its final form. And then we would start the process on Molokai.

So very briefly, based on the revised project scope, and this is probably what you heard. We were going to do (indiscernible), which is to take your brief back in June last year. This plan -- this update is not centered around the department's municipal systems. It

addresses all of our uses and users on Maui, including agriculture. It incorporates and also implements the Maui island plan, which is the general plan that was adopted by county council in 2012. This plan, not by service areas, but by hydraulic units or aquifer sectors.

There's a strong focus on Native Hawaiian issues, and Department of Hawaii Home Lands planning -- we're using 2014 -- that's our base year with a 20-year planning horizon -- or 20 long years I guess it is. We're using two alternative planning projections in our (indiscernible). One is full build out based on land use zoning designations. And the other is population base projection from the updated 2014 socioeconomic forecast.

We incorporated value time adoption scenarios. And just happens we have also started the process right now, conclude that Kapa'akai analysis is consulting with the Aha Moku on Maui throughout the process.

So, again, there's obviously many key issues that came up through this process, and they're all equally important, but I'd like to highlight some of them here today.

One of the primary ones was Native Hawaiian rights. The concerns that we heard from the Hawaiian

community on Maui was a lack of respect for the Hawaiian water rights and the state law. And to actually achieve the ahupua'a management system, we need to better understand and recognize the connection between ground surface water systems. And also how that -- or how water transports impact that connection. Also, water adequacy or purity to the Department of Hawaiian Home Lands, which is a public trust use.

So to what can be accomplished or addressed in this plan, we are collaborating to identify uses and needs for kuleana, (indiscernible) Native Hawaiian tradition and customary uses. We have been meeting with the water representatives of the moku on Maui. And what we're trying to achieve is a meaningful back and forth consultation from their wealth and knowledge and resource use management and kind of building this relationship so we can continue after this plan has been adopted and approved. And the plan, that can be in the form of some protective policies for specific resources.

Also, to consider the alternatives to water transport (indiscernible) specific moku or ahupua'a. Also, integrating the digital plans and reservations in the plan and trying our -- we'll get to this to come to some compromises of how -- how the community -- what the community will support in terms of resource allocations

(indiscernible) already tied up in court on Maui. We'll talk a little more about those contested cases later.

One (indiscernible) issues that come up, the community in general has emphasized resource protection and restoration should have a permanent place in the plan. If not, an equal place to water use development.

So what we have explored is whether resource protection should be expanded mauka to makai. As someone mentioned, Maui county has been at the forefront in supporting and funding water shed protection and water shed restoration efforts on Maui and on Molokai. But because you have a fragmented land ownership, we don't have that connection mauka to makai. So how can we accomplish that?

We also lack some guidance on how to integrate island climate change information. There's a lot of data available for Maui, but how we incorporate that into the plan?

The community has voiced support for legalization of land uses that pose a high risk to contamination around drinking water wells as well as protection. And we continue to consult with the communities in all these efforts.

Reliability is another one of those key issues. The picture on the right is (indiscernible) reservoir on

Maui in a severe drought. As you know, most of our county's system is dependent on surface water, about 80 percent surface water. But we're looking in the plan at other users and focusing on ags. This is definitely a big concern.

We wanted to explore further is there desire for really -- how tolerant is the community and the agriculture uses to whether it's drought or whether it's operational emergencies? But is a full groundwater backup necessary? Should the municipal use focus more on surface water seasonally, meaning on -- not in dry season when the streams and the kalo needs the stream water the most? Or should we increase surface water use where available? There's some major changes with H&S throwing out the sugar business and will definitely require large (indiscernible) storage.

For a combination of diversifying into ground surface and other alternative resources. Usually that is not the cheaper option, but there's a lot of support for doing that.

Another key issue, of course, is conservation. In our outreach we have really tried to gauge the acceptance or the threshold of what is -- what can we do more in terms of conservation? What is an acceptable level when you're talking about regulatory conservation?

Or just what we done so far is more or less voluntary measures. And should those measures be closely tied to the regional or the local resource? For example, more (indiscernible) conservation in dry areas versus wet areas. Should it apply equally to all uses, especially public trust uses and diversified ag.

We looked at a lot of -- how farmers use -- where farmers use water and how they use water on Maui. There's sprinkler irrigation in the dry areas for lettuce, so there's a lot that can be done, not just for the municipal systems but for other uses as well.

Something that's not been explored much is the targeted outdoor use. The chart on the right there shows the department's trend of targeted residential and commercial uses, mostly through public education, tiered water rates. Some retrofit programs have resulted in lower use per service as the numbers have grown over the last ten years. So we know we're doing something right. We're on the right track, but there's still a lot to do in terms of outdoor use.

Administrative issues. This is where it seemed like a good idea to hire a consultant instead of doing this inhouse. Do you see the map there -- it's kind of -- do you maybe want to lower that light a bit so we can turn on the lights in the back?

So we're using hydraulic units, aquifer sectors, and systems as the basis for the plan. But, of course, it has to be consistent and implement our island plan, which is based on community plan designations. Those red boundary lines are the community plan areas. And one aquifer sector may include four or five different community plans but all have different growth rates. Then, of course, I have the moku and other water shed boundaries that do not coincide. We have multiple stakeholders in these areas.

We have the department systems. And that's something we really struggle with where we are in the position of drafting this island-wide plan, making sure we address all private water purveyors and other non-public uses. Or in many cases, those, of course, conflict or compete with the same resources as the county uses.

We have the unresolved court cases in East Maui streams in (indiscernible). We're very uncertain agriculture future with the 37,000 acres of H&S lands.

We have (indiscernible) conflicting, and that's kind of what we've been drilling down to in our work -- Saturday workshops, talking to as many stakeholders in the community as possible.

There's also key issues in terms of policy where

we don't have guidance from our council or from this body. Also, like I mentioned before, how to incorporate island climate change information and other hydraulic studies and data that would be really helpful in the process.

So, of course, we have this element of (indiscernible). You know, the decimated surface water management area. Where in the plan we're incorporating the position on the in-stream flows, waiting for the water use permit process to continue.

For the East Maui contested case, that clearly affected the comprehensive strategy of the plan. What we're doing is evaluating the status quo and various scenarios, sort of like a range of scenarios of what could be the future use of the EMI system, what that water will be available for.

We're really trying to extract that information from H&S properties, and I hope that this summer, they will have a more defined strategy of how they're going forward so we can use that in the plan.

We know that the decision and order as of January, the public -- the hearings officer's decision and order as of January was focused on sugar only. So it's not clear even though we have some guidance in terms of the streams' needs and potentially what other

surface water could be available. We don't really have a good idea of how -- whether that position -- whether that recommendation can be utilized.

On West Maui, which is the only location that's not tied up in court, we don't have in-stream flow standard. We're really trying to work aggressively with the community, especially with the moku out there to identify, not sort of wait for the commission to do that, but trying to identify where are the kuleanas, what streams are being diverted, what is an issue where the conflicting use is.

So future agricultural water use. Some of the issues that need to be resolved with trying to work around in the plan is when H&S is doing this transition, what is the future land use modification going to be? And what is the role of EMI. Of course, EMI is the distributor of the surface water that serves most of the county water system. And also what would be the consequences with assuming less irrigation over the central Maui aquifers? What are the consequences of the probably reduced irrigation return flow?

We've seen some early examples already. There was a gentleman forming ti leaves whose sprain had dried up already because the irrigation of that particular sugar cane field had ceased. So there's this unintended

consequence that we don't really know. We're, of course, concerned with Kahului (indiscernible) aquifer that are short (indiscernible) aquifers that are pumped way above their sustainable yield because of the irrigation return charge from sugar cane irrigation.

So the upper pie chart there shows water use island-wide from Maui only by type. That represented about 450 million gallons a day, and you can see that almost all of it is for agriculture. So this is a huge piece of the puzzle.

In terms of diversified ag, we assume some portion of H&S land will be for the reservoir ag. But the information we have now is the 2004 agricultural water use development plan that forecasted just three to a maximum of 12 million gallons a day of new diversified ag by 2021. We don't know how accurate that is, but it's really a very small fraction compared to the available land and current water use.

The chart on the right is by -- just being the land of a city (indiscernible) West Maui users. Sort of like the best case scenario of the agriculture use development plan for new diversified ag. In terms of other water use current, so we're looking at 2014. That's our base year.

The chart on your left shows the dividing in

terms of surface water, what we know is diverted and gaged. That would not include ungaged, undiverted water where we don't have base flow or information for the term "untapped groundwater," meaning sustainable yield that's not pumped or reported to be pumped.

So that whole pie represents a little over 800 million gallons a day. And you can see the Department of Water Supply's portion. That is also just a fraction. So even though a lot of the discussions and the policies and strategies in the plan is about meeting population growth within our urban growth boundaries, in terms of water, it's really just (indiscernible). So H&S East Maui streams is a giant piece that we're sort of working around this year.

Breaking down water use by type. The picture's about the same. The upper chart shows the agriculture pumpage of total sustainable yield, and the bottom chart is the agriculture use of surface water island-wide.

So how that breaks down in numbers is -- we know sustainable yields are being up -- I wouldn't say upgraded -- downgraded or revised in the current water resource water protection plan. But 2008 numbers is rough -- is about 427 million gallons a day for Maui.

And what we know is being pumped, not including unreported pumpage, is in the middle column there. 92

million gallons a day. So that's quite a small portion, less than 25 percent of island-wide sustainable yield.

And in terms of surface water use, almost all of the -- almost of that diverted is for current H&S uses that were likely changed significantly by the end of this year.

So to project and match 20 years out, we used two different scenarios. The upper graph shows two different methods. The upper line would be full build out using underlying zoning designations. One would include ag zoning. Population growth is soon to occur within the urban growth boundaries in almost all land outside.

Almost all land outside urban growth boundaries are either soon agriculture or conservation. So we treat that agriculture zone land sort of differently, separately in the plan because it's so dependent on the future use of H&S, and it also assume the population growth would not occur in those areas. So still looking -- including agriculture zoning, projected amount in 20 years from now is way high.

If you take agriculture out of the equation, that's your middle line there. It's about 8 million gallons. I think the numbers are off, but it should be about 8 million gallons a day. And then your lower line

is the projected amount based on the population growth rates that were established in the Maui island plan for the socioeconomic forecast.

So the lower chart is the population growth based amount, which is sort of what we utilize in terms of just looking at the urban growth boundaries, not agriculture. And the socioeconomic forecast has a low, high, and a medium growth scenario.

So the lower blue line there shows the Department of Water Supply base case only. Department Of Water Supply purveyor. And then your next orange line there would be all the purveyors in your low growth case. And the dark blue one will be a base case including all purveyors and then the high growth case. So in either case, the 20-year demand in 2035 is somewhere around 65 million gallons a day.

So the assessment of available resources and how those resources are currently utilized. Currently, there's a lot of water transport going on all over the island, from surface water sources from East Maui to (indiscernible) and agriculture (indiscernible) central valley. You have the higher yield aquifers basal water being transported to dry -- dry areas where population centers are. We're still doing this plan based on hydraulic units. So we see in the bottom the red

columns being sustainable yield for each aquifer, and the blue being the demand, 20 year from now, in that specific aquifer system. You can see (indiscernible) aquifer standing out.

I have a little -- oh, this is just a (indiscernible). It doesn't reach that far. Budget version.

So (indiscernible) aquifer, you'll see a lot of growth. That's where all of the (indiscernible) and population centers are. But almost all of the (indiscernible) water to that area is important from other aquifers.

So if the current pattern of consumption use with water transport will continue for 20 years, the bone graph will show you where -- what the demand will be for each aquifer system.

So what we've done through this process now then, identifying the planning of (indiscernible) through this public process. What our options and resource alternatives are, whether those are conventional resources, alternative resources. There can be policies and programs. Like we said, strong emphasis on water resource protection and enhancement. And kind of gauging the viability of those options, not just from the cost-perspective, but there's legal issues. There's

practical constraints.

Looking at (indiscernible) not at a CIP level, this plan is really at the same level as the Maui island plan policy, meaning basal aquifer versus stream resource, not an individual well or an individual treatment plant.

So this is a little more detail of the public process. So far, of course, it includes the decade foundation of the Maui island plan, goes back to the general plan committee and the early public meetings (indiscernible).

Then through this last winter, we had several targeted meetings with the ag community, with the water representatives of each of the 12 moku. We've subsequently been invited to other moku regional meetings to kind of pinpoint more of what the specific issues are in the region.

Then we had the first round of public meetings for up country west side (indiscernible) and east side. And we filled that up with workshops that we did a little more hands-on, testing the planning (indiscernible) of some possible strategies. And then we continued to meet with stakeholders, targeted groups, sort of as needed. And, like I mentioned before, we're going to get the draft plan out over the summer so we

can have a third round of public input in the fall if we're submitting this to the Board of Water Supply.

This community (indiscernible). It's something I recommend doing. I think it was a whole lot of work, but it's still -- it was a way to really get the community involved in understanding the consequences of planning (indiscernible) and what the alternatives were without trying to focus so much on cost only.

We used questionnaires for those who can participate either to really pinpoint, you know, what is an acceptable level of conservation, what's too much, and what's not enough. And through the process came out -- first, I'm not going to read all of this, but it's basically just guiding principles to make this a successful process and actionable and implementable plan.

I just want to point out a few water planning solutions to support ecological, social, and financial sustainability. Recognized the complexity and interconnectedness of the hydraulic cycle ground and surface water systems. And that creates an actionable plan that provides water supplies for our diverse water uses.

So from those key issues, just a few that I highlighted earlier, some of the strategies that came

out of the public process. This is a not a complete list, but I just want to give you some ideas in terms of Native Hawaiian rights to apply an ecosystem ahupua'a base, precautionary approach based on science, local knowledge, coordination, community education, continued consulting with the mayor on community, and the moku representatives on regional resource use and management.

No new stream diversions for upstream uses until in-stream flow standards are adopted. I highlighted things in red here, but those are strategies that the state can assist with. Expand water shed protection mauka to makai and promote resource station, something we do on a limited basis now.

In terms of resource protection, continue support and fund water shed, park shed programs from invasive plant (indiscernible) control. Quantified impact of those efforts on groundwater recharge. Do we know that these make sense just from a scientific perspective?

So scientific studies necessary to support decisionmaking, including involved impacts and especially the interconnection with looking at new conventional base of groundwater, connection between stream and basal high-level water. And using drought condition as a baseline to evaluate water supply and effects of water use.

Strategy for alternative resources. A lot of support to maximize reclaim wastewater and alternative resources even when that's not the cheapest source.

Strategy reliability. We learned that for diversified ag, reliable source definitely trumps cost, if there's one or the other. Seasonably use of surface water for nonpublic trust needs. Diversify from commercial resources, account for climate change (indiscernible). And conservation generally just more -- more aggressive target outdoor use, climate-appropriate landscaping, even considering agriculture to focus more on climate-appropriate crops.

So, just in summary, this is an island-wide document. Again, including all uses/users. It implements and complements the Maui island plan. It's hydraulic-unit based (indiscernible) systems. We are incorporating previous studies and data. And at the same time we have climate models. A lot of new studies that have come available the last few years that we can incorporate. We continue to predict sense of public process, and we are trying to sort of put the difficult questions out there to try to resolve them now, not feeding the bucket, and planning for uncertainty.

CHAIRPERSON CASE: Very good. Thank you very much.

UNIDENTIFIED SPEAKER: Chair?

CHAIRPERSON CASE: Yeah.

UNIDENTIFIED SPEAKER: I just wanted to compliment your work on this.

MS. BLUMENSTEIN: Thank you.

HEARINGS OFFICER: Same here. It's very thorough and covers a lot of different units. I appreciate that very much.

MS. BLUMENSTEIN: Thank you.

CHAIRPERSON CASE: And that was very helpful briefing.

Any questions?

UNIDENTIFIED SPEAKER: Also, just want to thank you for the presentation and commend your work. And (indiscernible) those last couple slides about strategies for moving forward and protection and Native Hawaiian customary rights, incorporating the community in those things, I thought that was really progressive, and so I applaud you for that. I do have one small comment.

Could you go to slide 5? There we go. Oh, shoot. It's not the right slide. Maybe try slide 4. Okay. I forgot the right number. Sorry. It's getting late. My own -- my one comment. I can't -- I thought it was slide 5, but there's a slide. It says Native

Hawaiian issues.

MS. BLUMENSTEIN: Okay, here. Yeah.

UNIDENTIFIED SPEAKER: Oh, it is slide 5. I just -- it's hard to see from here. I'm sorry. If you go back to slide 5.

It, you know, might seem like a small thing, but I think categorizing it as traditional and customary rights probably is better for engaging the community. Because if you say Native Hawaiian issues, it sounds like it's an issue and it's just related to Native Hawaiians.

When we talk about traditional and customary practice, we're talking about something that is a requirement of this commission to adhere to and a requirement of state law. So we want to keep that phrase traditional and customary rights rather than Native Hawaiian issues. But other than that, I thought it was fantastic, so thank you.

CHAIRPERSON CASE: Do you share plans across counties and processes?

MS. BLUMENSTEIN: Not really.

CHAIRPERSON CASE: I think it --

MS. BLUMENSTEIN: To be honest.

CHAIRPERSON CASE: -- might be a helpful thing, you know, because you can sort of share best

practices in this planning process, so.

MS. BLUMENSTEIN: We have shared Oahu's water shed management plans over the years, so we heard it's a gold standard. Yeah, we don't have consultants and that kind of budgets.

CHAIRPERSON CASE: Well, if there's an opportunity, I would recommend it because, you know, it's a good -- all the counties together and sharing thoughts on how to live out this planning process. It could be helpful.

MR. BEAMER: Yeah, I feel the same way. That was my question earlier to our county guys was how often, you know, are we talking to the Oahu and Maui folks. Because I'm certain there's things we can learn all from each other and so -- yeah.

MS. BLUMENSTEIN: Like I mentioned, I know the directors and deputies have their monthly, I think, get-togethers, but we're in the -- another level.

MR. BEAMER: Yeah, I wish the folks in Hawaii county should have stayed a little bit longer to hear your presentation. Oh, they are. Oh, good.

CHAIRPERSON CASE: Are there questions? Comments? Any testimony on this? If not, I think we are pau. Thank you so much.

All right. Is there a motion to adjourn?

UNIDENTIFIED SPEAKER: Second.

CHAIRPERSON CASE: All in favor?

MULTIPLE SPEAKERS: Aye.

CHAIRPERSON CASE: And thank you everyone for having us. It's been a great day. Really appreciate a lot of your attention and information.

(The audiotaped proceedings concluded.)

C E R T I F I C A T E

I, Michelle Kowalsky, C.S.R., in and for the State of Hawaii, do hereby certify:

That the foregoing represents, to the best of my ability, a correct transcript of the audiotaped proceedings had in the foregoing matter;

I further certify that I am not counsel for any of the parties hereto, nor in any way interested in the outcome of the cause named in the caption.

Dated: _____

_____
Michelle Kowalsky, C.S.R.
Registered Professional Reporter