

Lockheed Martin Corp

Moderator: Julie Marcy

January 25, 2011

12:25 am

Julie Marcy: I have right at 1 o'clock, so let's go ahead and get started. This is Julie Marcy, a research biologist at the ERDC Environmental Lab and I'm your Webinar host today. I'm glad you could join us for this presentation on regional supplements to the Corps of Engineers Wetland delineation manual, (Jacob Berkowitz) of the ERDC Environmental Lab will be discussing a development and field testing issues. For those of you maybe joining us for the first time, we continue to share these ecosystem restoration webinars with you, and at any time if you have a good idea for a topic or a program that you would like to see presented, please let either myself or (Jody Staebell) know, and we will see if we can address that for you. Just a few quick notes before we begin. Many of the issues you will see on the ecological restoration slide that should be on your screen if you had dialed in on the internet as well as the telephone. We do record these sessions, so that we have both the recorded audio of the presentation, and also a written transcript of what transpires. It is important to us to be able to know how many folks we have calling in, and where they are calling in from. So, you will see a little note that I have in the chat box. If you are a group calling in, if you could at least identify, say the district or office that you represent and the number of folks that are there. If you are an individual calling in, if you could at least either give me your full name or use the chat to tell me who your district office is, or you can give me your name and district in chat, so we can keep up with who is enjoying the presentations.

As usual, (Jacob), will be speaking for about 45 minutes or so, and then we will have time at the end for questions and answers, but we can also stop him

at any point, and ask a question if you need some clarification along the way. For those of you who might be using a speakerphone, remember to keep it on mute, when you are on listening mode, and obviously remember to unmute if you want to say something to us or ask a question. And those of you calling in, if you are not on mute, be cognizant of potential noisy background, I hear some chairs squeaking and some folks taking in the background right now. So, you might want to go ahead and hit the mute button if that sounds like your location.

((Crosstalk))

I hope that the new notification system, the learning exchange Webinar announcement is appealing to you and working well for you. It seems to be keeping the clutter out of folks' inboxes and allowing people to get notifications in a timely manner, so if you haven't already signed up for the general announcement, you can go to that learning exchange address and do so in addition to signing up for specific announcements as you receive notices on them. So, without further ado, I would like to begin our topic today. It is regional supplements to the Corps of Engineers wetland delineation manual, development and field testing issues by (Jacob Berkowitz). (Jacob) is a research soil scientist in the ERDC Environmental Lab, and he is going to be sharing his information with us

(Jacob Berkowitz): All right, thank you Julie.

Julie Marcy: You are welcome.

(Jacob Berkowitz): I would like to thank everyone for taking the time to be with us today. And if there is any audio problems, if folks can't hear me, please go ahead and speak up, or use the chat feature to let us know, so we can remedy that, we

don't want people to be taken time out of their busy day to listen in, and not be able to hear what we have to say. So, don't hesitate there. And also I would encourage everyone to ask questions as we go along, or again you feel free to use the chat feature, we have plenty of time built in for questions and discussions, because this is designed to be an interactive information session for everybody to get what they need out of this - out our this presentation.

So we will be talking about the regional supplements to the wetland delineation manual today. And I have spoken with some of you in the field from Huntington district and some of the other districts around about what information would be included in this - this presentation, and so there will be some background information for those of you who have had one of our recent trainings or participated in the development of these supplements but there also will be some new and exciting information that's coming out as we evaluate the effect that these supplements are having on wetland delineation across the country. And so if there is any questions I ask folks to stand up now or comments before we get going and if not, we will move forward. All right.

Moving on to slide number two. We began the development of these regional supplement back in 2004 so that this has been kind of a long ongoing process and judging by the folks as they participating, you know, we have not only people from regulatory but also from planning, some of the other groups as well as headquarters involved and the bottom line is that these supplements are designed to be as technically proficient as possible as -legally defensible as possible. But ultimately they are designed to be user friendly and applicable for you folks that are out in the field. We really try to develop tools that people could go out and use and be comfortable with that would get them to a correct and scientifically defensible wetland delineation answer and in my opinion that is what has occurred in most cases. And we can see in the

slide, we have taken this thing all over the country and use it with a number of groups large and small and the response that we have got has been very positive. Looking at slide number three now. One of the questions that we always get when we talk to the public at public meetings, conferences, etcetera is why do we need to update the 1987 Wetland Delineation Manual, why do we need to - to regionalize as we call the process. And the reason that we moved towards regionalization was because we know that the big country out there, we have a lot of diverse wetlands and that there is a certain amount of regional variability that was leading to some persistent problems in our wetland delineation programs. Notably, you know, the differences in climate, geology, landscape, altitude etcetera just have a large diversity of wetland and it was hard to capture all that diversity in one document to be used for the entire country. And as a result of that diversity, we had a persistence of inconsistent and controversial wetland determinations. For example, wetland delineation in the Southeast and Bottomland Hardwood Forest worked pretty well under the 1987 manual but for those of us from - who have worked extensively in the Arid West Region or in remote parts of Alaska or out in Hawaii where the situations are a lot different, then the manual tends to breakdown on a lot more occasion.

So regionalization is a way for us to deal with these inconstant results and improve our repeatability and defensibility. And from my perspective as user of all the supplements, the greatest or the - the best part about the supplement is the addition - additional approaches to problem areas and problem wetland delineation. We will talk about some of those extensively as we move through this material. Looking at slide four, another reason that we move towards regionalization was based on the 1995 report by the national academy of sciences which essentially requested that the corps of engineers update a regionalized manual. The results of that report were two fold, the scientists involved really like the three factor approach where we look individually at

wetland hydrology, hydrophytic vegetation and hydric soil parameters, okay? And they also said that because of this diversity and regional differences in wetlands, corps of engineers need to regionalize the manual. So that's kind of where how we got the ball rolling, additionally it allows us to include technical information into the manual that we have not been able to include since the manual was first written in 1987 and obviously we have learned a lot about wetlands, the processes of wetland delineation, Wetland functionality, etcetera since 1987. So this allowed us to include additional information in the manual and regionalize to achieve our mission.

Slide number five represents the ten regions that we ended up with and so we have Alaska, the western mountains, valleys and coasts, the Arid West, Hawaii and the Islands of the Pacific Basin, the Great Plains, Midwest, NorthCentral northeast, Eastern Mountains and Piedmont, Atlantic & Gulf Coastal Plain, and the Caribbean Island. And we often get questions about well how did you end up with these ten regions, how did you establish these regional boundaries, etcetera. When we started this process in 2004, you know, we didn't have a number of how many regions there are going to be and to be completely honest, you know, here at the research station, we thought that there would be more than ten for sure and it was until we went out, spoke with the folks in the district, work with the local wetland expert that, you know, they kind of guided us towards this map and this - this distribution of - of regions. And the regions are largely based on the USDA Land Resource Regions in major land resource areas and that was selected for a number of reasons.

During the development process, we looked at the EPA ecoregions, some of the Fish and Wildlife Service, their versions; some of the national wetland inventory work has been done via Fish and Wildlife. Some of the other ecosystem characterization things out there once felt like World Wildlife

Fund, etcetera. But we decided on this USDA Land Resource Regions and major land resourced areas approach because it allows you to - to select the land units, not based on geography but based on the ecosystem type. For example, you can see that the Western Mountains and valleys if you look, it largely contains most of the Pacific Northwest coast but then it stints down the center of California along the spine of Sierra mountains. Okay, another example out in the Great Plains, right there on the border of Wyoming and Dakota, the Black Hills Region is in the Western Mountains and Valleys, that ecosystem more - better matches what you find in the mountains and what you typically find in the Great Plains.

Another word about the boundaries of these regions is that, you know, we put together this map based on guidance documents from USDA, the Land Resource Regions document and what we heard from folks in our regional working group. But these boundaries are somewhat fluid and as a delineator, I encourage the folks on the telephone to use their best professional judgment to determine which supplement is most appropriate at the border of these regions. If you have questions about the - the boundaries and determine what supplement to use, I encourage you to look in the Western Mountains and Valleys supplement which is available online from the ERDC Web site and it gives a very good description of the difference between the Arid West Region and Western Mountains and Valleys and it talked about when you should be using each one based on things like what sort of vegetation is around, what kind of ecology you are seeing on that site. So I get a lot of telephone calls from people who want, you know, a GIS layer that tells them hey in this County of Missouri, I should be using one supplement and then the next county, I should be using the other but my personal preference is to make it on the ground decision based on what I'm seeing on the ground at that site of that particular day. I would be happy to answer questions on that.

Julie Marcy: And (Jacob), this Julie. We are giving some background noise, so someone may need to mute their phone. We have heard some door closing or some banging, so if you would go ahead and mute your phone please, thank you.

(Jacob Berkowitz): Thank you. Okay, moving on slide six. It's just an example of some of the supplements that are in interim form or in the version 2.0 which we will talk about momentarily. Everybody is always interested to know when is there going to be completed? Well the good news is that six of the ten regions are completed. Therefore there are 4 still in the work. Fortunately every region has gotten at least to the interim supplement phase. So every region should have and should be using the interim supplement for the next year or so and then after that year, their version 2.0 will come out and we can talk about where each individual supplement is in the process, if people have questions. But let's look at the process of how these things are created. So when we form these documents, I know a lot of you are on the phone participated in the working group for your region and since that we sit down with people from the district academic, people from partner agencies etcetera and we talk about the sorts of Wetlands that occur in each regions. We get information about the type of Wetlands that occur and the indicators that are most useful from a wetland delineation standpoint for identifying and delineating that as well. So we take that input from the regional working group and we draft the regional supplement here at the environmental laboratory. And then that - that draft document is reviewed by the national advisory team for Wetland delineation which is the national group of Wetland experts from all the partner agencies, headquarters, etcetera that provides consistency across all the supplements because if you know - you know, if you are in the Tulsa District, you have four supplements that overlap in your district and so we want to make sure that you can easily go from one to the other and know that the information that's in chapter one of the Great Plains

supplement is going to be found in chapter one of the Eastern Mountains and Piedmont supplement and chapter one of the Midwest supplement.

And so the national advisory team ensures that consistency across all ten documents. The document is then put out for an independent peer review where we have volunteers typically from private industries sometimes academia who review the documents, these are often consultants who do a lot of Wetland delineation in the regions and provide us back feedback on what they think about the document, we respond to their comments and then we ask that folks in the region conduct field testing of the supplement. And the field-testing is very valuable because it allows us to see well, what sort of changes in Wetland Delineation can we expect based on these new documents. And we will be looking at some field-testing data during this presentation for testing folks who find very interesting in the really - really good dataset of information that we have been able to generate - this process. Following the field-testing, we released the draft supplement for public comments. So received comments from people in the agencies, folks from Corps districts, the general public respond to these comments, they are available on the headquarters Web site where regional supplement can be found at the regulatory Web site and then the interim version is finalized and published. So we put out an interim supplement for a one year trial period and so in most districts when the public notice comes out for that interim supplement then that is the - the document that they are using, that is what they are requiring permanent applicants to submit to them is supplement datasheet. So that goes on for a one-year period. Following that one-year trial period, we again to revise the document based on comments from the district, the public, other agencies, etcetera. Any significant changes have to be approved by the national advisory team and in some cases, the regional working group and then we go to the public notification process for the final version to come out, version 2.0. And I do say final version but part of the benefit of these

supplement is that we hope to be able to update them if needed in the future and that's why we went with this approach of having the version 2.0 because suggests that there may sometime in the future be a version 3.1 or 3.0 and, you know, my goal for this is that we are learning so much about these environments and these Wetlands every year that it would be really good to not get caught into another 30 year cycle where we can't include any new technical information into how we delineate and identify these. So that's the process that we use for developing the supplements as you can see, you know, we have a lot of input from the regional working groups from independent peer review team from these national review teams and overall the number is about 288 folks I believe at last count that have participated in these document - in drafting of these documents. So we really did try and have an inclusive effort to get as many people involved to produce the document that everybody was comfortable with and every - everyone have the chance to have the input and the final outcome. Any questions about the development of the supplement and procedure here?

Okay. Moving on to slide nine. One of the most common questions that we get as well, you know, what's short answer? What's getting replaced between the 1987 manual in the new delineation supplement? Well the only parts that are specifically replaced are listed in table one of each supplement and the portion of the 87 manual represented in paragraph 35 all subparts and all references and specific indicators in part four are now replaced in chapter two of the supplement. That's across the board for all ten supplements. So essentially all the hydrophilic vegetation indicators are in chapter two of each supplement. The hydric soil indicators are in chapter three of each supplement and the hydrology indicators are in chapter four. That information supercedes the indicators that are represented in the 1987 manual. Also the definition of growing season has been updated with the implementation of the supplements largely allowing folks to use bud burst or the presence of, you

know, multiple flowering, plant activities on the site to determine the growing season definition. It doesn't exclude the use of other methods like soil temperature, the air temperature or a, you know, long-term climatological approach to determine growing season dates. But it does include that use of bud burst as an approved method for growing. So I encourage folks to look into that. We do get a lot of questions about program reviews.

And then the discussion of the hydrology standard disturbed and problematic Wetland situations, in the 1987 manual has all been moved into chapter five of the regional supplement. So that's I mentioned from my perspective, you know, dealing with a lot of problematic and highly disturbed that the inclusion of that material on chapter five has probably been the most beneficial thing for me as the Wetland delineator to come out of the supplement process. So slide ten, the before description of what is in each supplement as I mentioned, the supplements are going to be the same - excuse me, in terms of formatting so that chapter one always contains the description of the region, a map of the region a discussion of the typical Wetland that are found in the region. Chapter two always - where you will find the hydrophilic vegetation indicators for that region. Chapter three contains all the soil indicator information and all the information about sampling soils, identifying soil indicators, etcetera. Chapter four includes all of the hydrology indicators for each region and as I mentioned, chapter five contains all the steps for difficult Wetland situation in dealing with difficult as well. And the additional information data form, glossary, references, and appendices are included at the back of the manual, one thing that people find very useful is there is a list of appendices with web links which is very hard to keep current so, there is a lot of good information out there on the web and we are working to update this web references as often as possible.

There is just is a example what you had in one of the in chapter one in each supplement, talks about the purpose of the supplement with the design for, where the applicable region is, talks about the boundary of the regions, physical and biological characteristics of the region and the common wetland types found. So, here is an example from the Gulf Coast is a plain supplement, it shows the different portions of Florida divided up, the colors represent this land resource regions and some of the indicators are only applicable to land resources region, for example the hydric soil indicator marl applies to land resource region U and nowhere above that the United States currently. And the supplement data sheet is provided that most of the supplement I believe eight of the 10 are the region working group went with the two page data sheet but two of the supplements the Atlantic Gulf Coast is plain and I believe the Great Plains just had to decide that they needed to have a three page data sheets. So if you are in one of those regions, congratulations you have plenty of room to make remarks and draw pictures just you should be happy that you have the additional space to record information there on your three page data sheets. And the data sheets essentially are not that much difference in what was in the 1987 manual I think there are little bit clear, a little bit more into it but they all have background information about the site and then information about well and hydrology indicators, hydrophytic vegetation and soil indicators.

Moving on our slide 14, we get - significant number of questions- about SWANCC and Rapanos and the short answer is that the supplements have no effect, which is regarding for - for jurisdiction. That is by design as well as by necessity, the purpose of the regionalizing of this manual is to provide current scientific information for helping identify wetlands and delineating there boundaries whether or not your district will take jurisdiction over a given wetland on a given site is completely separate issue. These documents are designed to be technical and whether it's wetland today, you know, it's going

to be a wetland tomorrow, you know, whether the Corps or another entity regulates that well under that resource is a completely separate issue. So, people if have common questions about the relationship of SWANCC I am more than happy to address those but essentially the answer is that we don't deal with that in these technical documents. That is both to protect the integrity of the technical document and to avoid all of the confusion associated with these ongoing and changing decisions.

All right, if there is no other questions concerning the documents themselves, the boundaries, the development of the supplements we will move on and look at some of the data that we receive from the field testing of the supplements which I think folks will find very interesting and the conclusion is that and so, as part of the development process, we requested that folks go out and test this supplement and so, the field testing we gave them a questionnaire to figure it to fill out and we ask that they go out to the site and perform or do wetland delineation two times at the same site, the first time they delineated based on the 87 manual and then the second time they delineated the same site on the information in the regional supplement. So, we got back 232 sites, which is pretty good number and some of the things that we ask the folks was we asked, well, where are you, what type of wetland are you in, what sort of habitat are you looking at, where are you in the landscape, would you consider this to be a - a technical or problematic wetland delineation, where would you put the wetland boundary, where would you mark the line here? we asked them questions about each of the three factors wetland hydrology, hydrophilic vegetation, and soil and that we had some general questions that we asked them about the ease of use of this document and there perceived defensibility of this document. So, we had a pretty good distribution of response from people, we had 37 states represented in the survey and we also had some from Puerto Rico and some of the territory etcetera. And we had 28 districts and field offices of response, so quite a bit of response from - from around the

country, we had nine of the ten regions represented in data sheet would engage anything back from Hawaii but all the other regions we had - we had a good response though.

Now from my perspective, you know, that somebody who helps to draft these documents and, you know, works with wetlands all over the country, I am always interested in the atypical situations in the problematic situations because, you know, as you avert to the lot of the folks out there in the districts and, you know, nobody is going to - is going to pay me to come out to the district and delineate their beautiful undisturbed wetland, you know, I only get to go out and see the ones that are problem for the district, so we are really interested here in not the typical delineation situation but the problematic or a typical situation and what we have found is that 2121% of the sites examined out of our 232 site data set, were identified as atypical or problematic at some point during the delineation. And that is kind of what we seeing over the years regardless of the manual, now, when you say well we had 21% problematic sites that doesn't mean that - that group of folks wasn't able to make a determination or come to a decision on the delineation there that just means that either one factor was disturbed or a dry season when they are there, or if some other issue that they considered atypical problematic. The most of the problematic situation is the majority on my list is up here on slide number 20. We had things like landscape position that they were in a strange landscape position I think that drew while there are wetland delineation was problematic a lot of the problems were related to hydrology especially in the Southwestern United states, you know, you can go out and this time a year and all the wetlands look like wetlands but then if then if you go out there in July or August, they look really dried up and that's problem for people. A lot of the plant communities were managed or dominated by a back up dominated plans. We had a lot of problems with soil and parent materials and as, you know, if we delineate wetlands we feel lot of disturbance out there and that

can cause problems for you. This slide 21 represents definitive problematic situations they need to regions and so, you could see that as you move generally west across the nation it becomes more problematic, okay especially the arid west, 45% something with your regular problematic with those delineations and that's typically what we see in that region. And again that doesn't mean that they weren't able to make a determination just means that everything did not perfectly lined up and so, we do as we take the seed and trying to do we will have to get improve the manual to -to get a better result. 25% of the problems that we saw where having to do with soil and we typically hear a lot from the regulatory community about the use of the soil indicators and especially the use of the new indicators included in these supplements but most of the problems that we saw were in alkaline soils, mollisols or dark soils in the Great Plains. Red parent material is an ongoing thing that we deal with across part apart from the mid Atlantic and other parts of the country. And we are working on that with the national technical committee for hydric soils. The main question that people have about field testing of the manuals they want to know well, what is this going to do to the wetland boundary, is the Corps is going to be taken jurisdiction over more land or less land, and so we - apart that analysis in slide 23, we saw that an 83% of the sites are visited, there was no change in the wetland boundary it was exactly the same. Okay, and 5% of the site, the 87 manual placed the line higher on the landscape, so essentially the wetland was lager based on the guidance of the 87 manual. And then 12% of the site, the boundary was higher based on the guidance on the regional substance. So this resulted in an average change of 19 feet, or a median change of 15 feet. That to get a visual representation of what that looks like, we can look at chart on slide 24, and you could see here that, if you look at the zero line on the X axis, everything to the right of that line or sites where it's regional supplement went high on the land, everything to the left of the line represents sites where, the 1987 manual would have resulted in a larger wetlands. There you can see the distribution is

largely driven by these few sites far on the right side, where you had 120 feet difference, but the majority of sites, you know, you are looking at 10-20 feet difference in wetlands boundary.

Moving on to slide number 25, we wanted to look at, well which of the three factors, or which of the three wetland determinants were leading to these differences, and we saw that, we had a mixture of all of them, but for the most part, the differences in hydrology and soils were leading to majority of changes in that wetland boundary. So, we wanted to investigate each parameter and see well what's going on with each one of these three parameters that's leading to these differences, where we did see the differences, 13% of the site. Well, the Hydric soil we have additional indicators in almost every region compared to what was available under the 1987 manual. The hydrology factor, again every region received additional indicators, and the vegetation factor, we removed the plus and minus modifiers, based on the discussions that we had with the regional working group, and the upcoming release of the new plant list, which is up and available as I understand that, I was able to get on and look at it, and if you haven't I encourage you to do so.

So what we saw was the soils factor specifically is that, under the 1987 manual, essentially people were using the low chroma colors extensively, that was their soil indicators, 63% of the time they looked at low chroma colors. And we also had a lot of people that were using soil survey data, well neither those indicators are available in the regional supplement, and so we wanted to see what of that to the outcome. Well, based on the new indicators available on the supplements, we had a good distribution between, A indicators, F indicators and S indicators. And looking at slide 29, we had pretty good distribution between some of the major indicators that we see, the depleted matrices indicator was used 14% of the time, and that's kind of an equivalent

for low chroma colors as is the depleted below dark surface, which was used 5% of the time, and redox dark surface which showed up 8% of the time, and it's also associated with low chroma colors. So we did see a pretty good distribution of soil indicators covering for that lack of the low chroma color indicator, and we are happy to see that. So, how many indicators are out there now, well depending on what regional supplement you are using, you have somewhere between seven and 33, so if you are in Alaska, they only have seven soil indicators that are currently approved, and of course the coastal plain has 33 soil indicators, but no portion of the coastal plain is approved to use all 33, because of the differences in land resource region. Under the 1987 manual, there are 11 soil indicators, so with the exception of Alaska, every region got additional hydric soil indicators to you. Looking at the hydric vegetation factor, we saw that almost everybody is using the dominance test, successfully, and 94% of the sites below the wetland boundary the dominance test was passed.

Interestingly, above the wetland boundary, the dominance test was still passing at 39% of the sites based on the 1987 manual, and 44% of the site based on the supplements. And what this tells us is that, the hydrophilic vegetation factor is going a little further uphill than the other two factors of soil and hydrology, and the reason, there is a difference between the 39% under the 1987 manual and the 44% on the supplements is because some of the regions decided to change the definition of vegetative strata. And so some of them have different strata, and when you break up the strata differently, then you are going to get different results and dominant tests. We also looked at the removal of the plus, minus modifies for the vegetation classifications, and we found that - that was not a major factor in the final wetland delineation boundary, there were other things that lead to the differences we saw on 13% of the sites, some of them were due the strata, and some of them were due to the plus and minus designations, but very few. We did have a number of

problematic hydrology's or vegetative situations, most notably we had sites that came in – FACU dominated species, we had a lot of sites that were in managed vegetation somehow, whether that be timberland, agriculture, or you know, kind of a mowed area, and there are additional strategies in chapter five of each supplement to deal with problematic vegetation, and specifically addresses, agricultural areas, FACU dominated areas in managed plan communities. So, I think that's one of the best improvements of these new documents. So well on hydrology factor, again there are much - many more hydrology indicators available on all regional than for available under the 1987 manual, the most common indicators were things like high water table, saturation, and we did some investigation of the removal of survey, soil survey data from the indicators. And so, as I mentioned, under the 87 manual, we had six primary indicators of wetland hydrology depending on where you are on the country, that's now up to 13 to 19, and four secondary indicators in 1987 manual, and that's up to six to 11 depending on where you are. So, the comments that we received from, with the independent field test teams and the general public comments is that they typically like the edition of these - excuse me hydrology indicators, and when we look at the problems for hydrology factor, we see that the one that really jumps out is seasonal water table, there is still is not a good way around the fact that, and the lot of seasonal precipitation driven wetlands, if you got out there in the wet time of the year, delineation is very straight forward, but in the dry season it can be extremely problematic. Again we did provide guidance in chapter five to help deal you with that. Some of the comments that we got back from the field evaluation teams, we ask them, was the guidance in the supplements clear and easily applied, and 84% of the sites, they said yes. We asked them in their opinion, is the information and determination you made with the supplement more defensible than the determination that you made with the 87 manual, 79% of the respondent said that yes the supplement was more defensible in their opinion, and then we ask them finally, do you think that there will be a

need in the future for the addition of more indicators in your region and the third of the respondent said that, yes they could see situations, where they would like to have additional wetland indicators in their region, which kind of brings us back to the idea of, you know, updating the supplement, and version 2.1, or version 3.0, which is somewhere that would really like to be able to go in the future to maintain the high level of defensibility and scientific credibility that we want to have with delineations. And with that - that's all the material that I have presented, I intentionally left time for discussion, and to get feedback from folks on the phone about, what they think about their supplement, or if they have questions about where a particular supplement is in the process, I'm prepared to answer to those questions now, supplement boundaries, I'm pretty much open the floor for any questions or comments, and I thanks you again for your time.

Julie Marcy: Are there any questions either verbally or using chat for (Jacob)? (Jacob), while folks are thinking on them, I remember you mentioned that, when you were doing the field testing you didn't receive any responses back from the Hawaii region. I imagine that with some of the severe winter weather we have been having across the country, you probably would get a lot of volunteers to help you with that now.

(Jacob Berkowitz): That's right, yeah, I'm more than ready to return to Hawaii to work on their stuff.

Julie Marcy: And I think we have (Thom), we did have (Tom) on earlier from - from POD tuning in with us today as well.

(Jacob Berkowitz): All right. Well, I'm not hearing any questions, I will stay on the line, if there is anybody does have anything that comes up, and feel free to contact me via outlook etcetera, if you have any follow up questions, and again I

appreciate everyone taking the time to be with us today, and I will stay on the line, if anyone has any comments or questions that come up.

Julie Marcy: (Jacob), as we are finishing up, I just want to remind folks that, while we are very glad you could be with us today, you might want to put a notation on your calendar that our next session is going to be on the 15th of February, when Dr. (Rich Fisher) of the ERDC Environmental Lab will be presenting a Webinar or contemporary bird conservation issues and case studies. So, if you are interested in birding topics, or if you have a project, that is going to be particularly impacted by birds, this might be one that you want to tune in for. Any more questions? Let me see, I have a couple in chat. (Yvonne) there is one question from you, was that a question to be asked? (Yvonne) the item that you have in chat, asking about New Orleans?

(Jacob Berkowitz): I think that might be question if they participated in the...

Julie Marcy: Okay, just a participant. And remember if you have your phone on mute, we can't hear you, if you do have a question please unmute. Last chance for any questions.

Man: Yeah, that slide right there...

(Jacob Berkowitz): Yes, there.

Man: Yeah, Philadelphia spelled differently twice, and there is not Pittsburgh.

(Jacob Berkowitz): That's highly possible.

Julie Marcy: Oh, you sure do, that's a good catch, sharp eyes there. It looks like one Philadelphia with seven, one with nine.

(Jacob Berkowitz): All right, well let's just click on another slide there.

Julie Marcy: Is that one right?

(Jacob Berkowitz): One of that is supposed to be Pittsburgh, thank you Pittsburgh.

Julie Marcy: We don't want you to be anonymous. Any other questions or - or comments for (Jacob)? Okay, well (Jacob), thank you so much for sharing the update with us.