

Anne Weinberg

Good afternoon and welcome to today's webcast titled: 'How's My Waterway?' and Other Water Quality Apps. This webcast is sponsored by EPA's Watershed Academy and EPA's Office of Wetlands, Oceans and Watersheds, also known as OWOW. I'm Anne Weinberg with EPA's Watershed Academy and I'll be moderating the webcast along with Julie Reichert who is an Oak Ridge Institute for Science and Education or ORISE fellow with the Watershed Branch. Thank you all for joining us today.

We'll start by going over a few housekeeping items. The materials in this webcast have been reviewed by EPA staff for technical accuracy. However, the views of the speakers and the speakers' organizations are their own and do not necessarily reflect those of the EPA. Mention of any commercial enterprise, products, or publication does not mean that EPA endorses them. And first I'd like to, next, go over a few of our features of this webcast today. We encourage you to submit questions to our speakers throughout the webcast. To ask a question you simply type it in the "Questions" box on your control panel and click the send button. If your control panel's not showing, simply click on the small orange box in the right-hand corner with a white arrow to expand it. If you have any technical issues you can let us know by also entering them in the "Questions" box to the right of your screen and then clicking the "Send" button. We'll do our best to respond to your issue by posting an answer in the "Questions" box.

This webcast is recorded and archived so you can access it a few weeks after today's live presentation. The archived webcast will be posted on EPA's Watershed Academy webcast page at www.epa.gov/watershedwebcast. Now we've completed the discussion of housekeeping items, let's kick off today's webcast. Today we will be learning about the new How's My Waterway? and Other Water Quality Apps. These apps have great potential to let users quickly learn about waterways anywhere. EPA recently launched the How's My Waterway? app and website to help people find information on the condition of thousands of lakes, rivers, and streams across the United States from their smartphone or tablet or desktop computer. The How's My Waterway? app and website uses mobile device location or user-entered zip code or city name to provide information about the quality of local water bodies. This app was released on the 40th anniversary of the Clean Water Act which Congress enacted on October 18th, 1972. This act gives citizens a special role in caring for the nation's water resources. 40 years later, EPA is very proud to provide citizens with a technology-based tool to expand that stewardship.

We will also learn about Swim Guide app which helps you find your closest beach and provides beach status information. We will also share information about the Riverview app which lets you share pictures of your favorite river or stream or other water body and share information on its condition. A copy of the slides used during the presentation are posted at www.epa.gov/watershedwebcast, that's the homepage of the Watershed Academy webcast. And we'll also be doing some live demonstrations of the Internet of the apps during the webcast today. So while we encourage you to look at the apps in the future, please don't access the apps during the webcast as we don't want to overload the servers.

Finally, I want to let you know that the webcast participants are eligible to receive a certificate

for their attendance at the end of the webcast and we will have a survey at the end and we appreciate your feedback.

Without further delay, let me introduce our speakers. The first speaker is Douglas Norton. Douglas is important for e-mail, norton.douglas@EPA.gov. We'll just call him Doug. Doug is an environmental scientist with the watershed branch in U.S. EPA's Office of Wetlands, Oceans, and Watersheds, Doug leads the team that created the new How's My Waterway? app. During his 20 years in the Office of Water, Doug has specialized in the development and transfer of technical studies and tools for state and watershed practitioners including the Watershed Academy's online training and certificate program, the TMDL results analysis project, the multiagency stream quarter restoration handbook, and the recovery potential screening methodology and website.

Our second speaker is Krystyn Tully. She is a vice president of the Lake Ontario Waterkeeper in Toronto, Canada. Krystyn is the co-creator of the Waterkeeper Swim Guide and you'll hear about today and you'll also hear a little about the drink guide apps as well. Since founding the Lake Ontario Waterkeeper in 2001, Krystyn has written and/or edited numerous articles about water and environmental policy and appeared before municipal, provincial and federal government committees.

Our third speaker is Jared Criscuolo. He's the founder and Executive Director of a nonprofit organization called Below the Surface. Below the Surface is dedicated to exploration of and education about the issues surrounding water. Jared has, among other things, paddled many rivers to draw attention to the importance of clean water. The Riverview Act is his most recent project to build a photo collection of rivers and lakes.

One final note before we get started with our first speaker, we will try to answer as many questions as possible about -- throughout the website, however, due to the large number of attendees, we may not get to all the questions. In that event your question is not answered please feel free to contact the speakers after the webcast. You can access the speaker contact information in one of our final slides for today's webcast and also the additional resources document posted at the Watershed Academy website. I also want to acknowledge that there are a wide variety of water quality apps available right now, that seems to be exploding right now. However, today we're only able to cover a few water quality apps. We invite participants to write in information about other water quality apps in the "Question" box and after the webcast we will update the additional resources with our Watershed Academy webcast page to include links to water quality apps. So again, we invite you to share information about your app if we're not able to feature it today but many people might be interested in learning about other apps. And with that, I will -- we'll begin our webcast. Our first speaker is Doug Norton with the Watershed Branch in U.S. EPA's Office of Wetlands, Oceans, and Watersheds. Doug, the floor is yours. Take it away.

Douglas J. Norton

Thank you, Anne. Welcome, everyone. Thanks for joining us this afternoon. I'll dive right in here on How's My Waterway?. Just with a few words in advance about that. Anne just described what How's My Waterway? effort is trying to do, but one interesting thing about it is

that EPA's information and the state information that it's based on regarding water quality has been out there for quite a while in various forms. And much to the credit of our office leadership, there's been an effort to make such information less in the format of scientific databases only and more in the format of things that, as the first line of the title here implies, improving people's understanding of their local waters which a lot of us are not scientists and need a little help understanding things in scientific databases. So this is really the backstory behind what we've done in creating a product like How's My Waterway?.

So let's dive in and take a look at it. Oftentimes, well, certainly it's no secret -- it's no less surprise that America's waters are very, very popular with its citizens. And people do tend to have concerns about them. Is our local lake clean and healthy? What about my dog that drinks from the creek every time we go for a walk? What about the kids, is it okay if they play in this local stream? There's a lot of questions like this. And also people tend to wonder how much harm can come from water pollution, what kinds of things that can be that might work against the economy? And is anything doing anything to fix water pollution problems?

Well, in fact, this information has -- a lot of it has been publicly available for a long time, but as I was mentioning, really in the form of scientific databases that weren't particularly user-friendly. Now, in the wonderful information age that we're now in, with more and more people, regardless of how technical they are, having things like smartphones and desktop computers, more than ever before, this is an opportunity to reach people with tools like this and tell them what they really would like to know most about. And that is, although it's interesting to hear about national statistics about pollution and stuff, really what people care about is their local waters in most cases. And, you know, why should I have to burrow through tons of information to get down to just a stream near where I live? So again, this is another need we were recognizing with the information and how to make it more accessible and user-friendly. Complex scientific databases are difficult to use and the questions, like you saw in the previous slide, can often go unanswered. This poor dog in the lower left doesn't know whether to put his snout down in the water or not in that case. So what we decided to put together, there was a whole team of us working on this, it was a really enjoyable project to take this from an idea to actual operation, was that what we really needed and what we had to work with was just something that was just a very easy-to-use web tool. Now the term "app" has been used here and just to digress briefly about that, people recognize two different types of apps, a native app where you really have everything on your smartphone and you draw that in from there, but also mobile web apps which are a website which has been designed to show up on smartphones or tablets in a proper format. So it's not too tiny and almost illegible like a normal website would be. And actually, if you're looking at a local web app on a desktop computer then it appears like a normal website anyway like you'd see on any computer website. So this is one of the things we were looking at was being able to have the tool useable and easy on any kind of platforms that anyone has.

It needed to focus on local waters, because they are of strong interest to everyone, and focus on them quickly. Don't bring people into a database that they have to drill down through starting national, then state-wide, and then major watershed, and eventually maybe they find their way to what they were interested in in the first place which might be one very small water body.

We also saw it would be of interest to have map and list format information because people think in different ways and like to have information presented to them in different ways. We also saw that -- and this was a main need to really make the science and the scientific databases more accessible -- we needed to take some special effort to explain what each of the pollutant categories that have been reported about different waterways that do have problems, explain them in plain English and something brief enough that you don't have to read many pages and something that doesn't take a scientific degree to understand. So above all, then, then on this bottom bullet here, then, what we were trying to do was use the same scientific data that are in EPA's databases but clarify it and make it understandable for the broadest audiences possible.

Let's move on and see how this works. This is the top page of How's My Waterway? when you open it up. Now, as current design of websites goes, this is -- this is very sparse. It's a very lean design. But that's on purpose because if you're going to look at this on a smartphone and reformat this, then that's a lot of information to have on a little tiny screen. So that's an important thing to note, that we really, really tried to just stick with the basics and stick with a very clear and simple design.

You'll notice two buttons up at the top of the screen there that are two alternative ways to start your search. One is "Use My Location" which in this case, if you're using a smartphone or a tablet and you click on that button, you touch that button, then that will start your search for where you are with your mobile device at the time. But if you're sitting anywhere -- well, you can still do this with a smartphone, but if you're also just using a desktop computer you have the option of choosing the button on the right which then allows you to start a search based on not necessarily where you are now, but anywhere in the U.S. So what happens then? If you go ahead and you choose that button, it brings you to the search page where you enter in either zip code or a place name like city, state, and you'd be surprised, even the smallest little towns and intersections on a map will actually work in this. But you enter it into that window and click the caret area over at the right and that sends your search request. Before I move on from this I just want to also mention the three buttons that you see on every one of these pages. The about How's My Waterway? is just basic information about the site and the related links we'll get to later. Basically, for now, the related links acknowledge that there's a lot more things that people are interested in about water than you can necessarily all put together in an app that's going to responsible quickly to users. So we have them as related links, 10 or 12 of them at the end of the site rather than overloading people with information that comes up at the time of their search. And then, of course, the "Help" button has any kind of instruction that we've become aware of that help people go ahead and use the site.

So, okay, well, let's say you've put in your zip code and pulled up a search. What you get is a search from a roughly five-mile radius, either the center of the zip code or place name or if you've used your smartphone of where you are right now with your smartphone. What you get back, as you see on this page, is a list of the waters arranged by how close they are to the center. Each waterway here has the name of the waterway, when it was last assessed, if it has been assessed, and then the second half of that phrase down below the name is whether or not it was polluted or unpolluted at the time of assessment and the date that that occurred. You'll notice that you'll find only essentially even-numbered years on that. That's because the

information that this is all based on is something under the Clean Water Act in which states report to the EPA every two years on the condition of their waters based on these assessments. So one thing you should be aware of, then, too, is that you aren't going to be getting information that is refreshed, you know, every week or every day or anything like that. That level of frequency of updating information does not exist. This is the best you can do if you're going to have a national resource. There is more local, more quickly refreshed information, in some cases, for water bodies that are monitored by other sources but not by the data source that we have under the Clean Water Act where states report to EPA. This is more general.

So what you see, then, you see the list here. This is the list form of the results, and you can look at a glance just from the five-mile radius around you what the general condition of several waters that you may know. You can also click the show map icon that you see down at the bottom of the page there and bring up the same search area that you just turned in but see it as a map instead. An interesting thing about looking at it as a map is that you can see color-coded from that last assessment information, whether these waters are polluted, unpolluted or have not been assessed by the colors that you see there. There's a lot more you can do with the map view, but I'm going to get to that later when we go live so I'll move on for now.

Moving back to if you're interested in one waterway in particular, let's say you're looking at the map or you're looking at the list, and you clicked on, okay, I'm interested in South Fork Beargrass Creek in this case, then you pull up a more detailed page that is just about that one waterway. Now again, it has the assessed date and the fact that it was listed as polluted from that assessment in 2010. Then the second category of information is the pollution categories for which it was reported as having some problems. In this case you see metals and bacteria and nitrogen and phosphorus. And then on the third level of information, down at the bottom of the screen, you see what's being done. Well, that shows progress in the cleanup plans and projects that have been done by states and by EPA, or in this case, in this example, then there is one TMDL where a cleanup plan as we've try to make clearer what a TMDL is for bacteria and other microbes. Now you can see in this case there are two other pollutants that don't have the cleanup plan yet, there's more work to be done but there's some progress being made.

You also note under each of these, even though those are simple and straightforward plain English then there's also a button that says technical report or technical reports. If you go to that that will bring you -- let's say you're an advanced user who is not uncomfortable with a scientific database. So it will bring you right into the scientific database and show you what the information is in more scientific detail for those places that you're looking at.

But now, let's go back to the idea, though, of the plain English for nonscientists and broader audiences. Let's say you're looking at this summary and you're seeing that -- I'm kind of curious, you know, what's the story about bacteria and other microbes as a water pollutant. And if you click on the name that comes up in that list you'll get a nice, brief description that starts with just a one or two-sentence statement of what it is. Then it goes on to say what you can do, because all of us, frankly, contribute to water pollution in varying ways, however small,

and it's always good if you know something you could perhaps avoid doing that you may be able to help alleviate the problem a little bit just as an individual. And then a summary which goes into where the pollutant category comes from, how common it is, what kinds of things it does to people, if there are human health implications, what kind of things it does to fish and wildlife and other parts of the aquatic ecosystem and other links for more information. So all that is a lot to pack in in a brief write-up but I don't think any of these range more than about a half page. So you also -- you not only can pull these up individually as you see them listed as the pollutant types for each water body you're looking at, but you can also get the entire document of the plain English summaries on the website under one of those buttons there with -- I think it's under the "Help" button and it's under the How's My Waterway? button. This is available as a PDF download, runs about 20 pages, and a lot of you who may be educators may find that very handy for all kinds of audiences that don't necessarily have a lot of background in it but are very curious to know in more common language.

So also, now I did mention the technical reports bringing you into the database itself. So, again, I've just included one example of how far you can burrow in on this. Now, in the South Fork of Beargrass Creek, the example that we were using just now, then if you hit the technical report under the TMDL, the what's being done, then in this case you can actually go into the database, you can click on that document at the bottom of that page, and that brings up the actual file of the TMDL document. If you are really into this and really working on that water body or very curious and are an avid reader then you may find yourself there with a 100, 200-page document or something about the cleanup plan and what the problems are, what they do, and what kinds of solutions might help.

Now, I mentioned earlier the related links. And this is the other major feature of the app which actually doesn't pull up with the other information that you get retrieved on a localized basis for your search. But as I did say, there are a lot of things that people like to know about their waterways that they really should have a chance to find out. It's just that we can't provide them all without slowing down the response time of the app. So we've put them in as these related links buttons. There are things such as beach closure information, drinking water quality information, fish habitat improvement projects which are of interest to a lot of folks who are involved in restoration. Fish consumption advisories for those folks concerned whether it's all right to eat fish and whether, you know, if they're looking at an assessment that says there were problems in 2008, well, what about now? Is there a fish consumption advisory in 2012? Well, there's a way to get past the lag time in the two-year reporting and go to this button instead and you may get to a website that gets you more recent information in that case. And then also there's ways to contact other information. So I'll just show you really briefly, here, some of these highlights from the other related links.

For example, this is local drinking water information website. Now, this is not -- you shouldn't really be going after these with your smartphone, by the way, this is probably something you would be better off using a desktop computer because these other links are not formatted for smartphones like our How's My Waterway? is. But if you go there you can go to the local drinking water information, go to your state, go down to your locality and find out some very local information there, too.

On the beaches, same thing, start with a national map, choose a state, drill down to where you're wanting to go and find out some things about beach monitoring and notifications that are much more recent than something that might have said 2008 or 2010. The fish consumption advisories, also, last I checked on this site there were some like 4,000 nationwide. So a lot more information there than you would necessarily find on other sites. This is also another one, for more technical users, this is the discharge monitoring report tool which allows a lot more localized and quick access to the permitted pollutant discharges from the point sources. And that's probably a more technical user opportunity but many of you will probably be very interested in what's going on in your own area with that tool.

And certainly for the many folks who like to know where else to go for more information, then as I said, the source of the information that we use here is -- although it's available through EPA, then it does originally come from the states and the states may have more information than they've reported and we have summarized in this tool. So we also provide under the "What You Can Do" button, not only the opportunity to visit the adopt your watershed site and find out what's going on with other people working on a watershed basis but also there are the links to all the state water quality programs so you have an opportunity to follow up, if you've observed something or if you have a question.

So just wrapping up this canned part before I think I might have a minute or two to go live, is that right? Actually, I do, about five minutes we can pull up the site. But this just closes my slides for the moment. But this is -- we kind of reached a milestone first when we rolled out How's My Waterway? on the 40th anniversary of the Clean Water Act in mid-October. It's barely been a month but after about four weeks, the response to the site which we were really pleased at and surprised at, it's already returning over a million results on a Google site. And many, many of those were everything from blogs to newspaper articles all over the country and our -- our feedback has been very, very good with it, very pleased and I do want to emphasize also that we do consider this a version one. And we already have been gathering great ideas from some of that feedback for some of the enhancements we can make and other things we can tie in on. Everything from other related links to other functionality that we currently don't have on the site.

So I'm going to pop off the slides and just go into the site itself right now very briefly and go through this. I didn't mention one thing: if you do use a browser that supports being able to geolocate based on the IP address of the laptop computer or of the desktop computer, then you can still click that left button as I just did. So here you're getting something of the waters right near the heart of Washington, D.C where we are sitting. You see the Potomac River there, you see a few other things, some unnamed waters, etc. The Anacostia River, another famous local waterway. And I've already showed you what happens when you pull up the list of information but I actually promised you I'd show you a little more about the maps. Let's go to the map. And as you can see, it takes a little bit of time for the streams to load up and then show up. If you give it several seconds they show up. And as you see, they are color-coded. This being a downtown, urban area then it's kind of hard to find waters that haven't got at least one pollution problem so there's a lot of red you're seeing here. Another interesting thing you're seeing is a lot of the light blue which is waters that have not been assessed. Here, as you move to the west a little bit into parts of northern Virginia, here and there you're seeing

some bright green waters. And those are waters that have been assessed and are unpolluted. So that's always a good story when you find those. But let me show you a couple other features you can do with the map. Now, you see, I've moved outside of that search box that was the black square that you saw, the one we started out. And if I wanted to know something about another waterway on the map, I can click on it, like I just did, refine the search based on this location, okay, I'm refining the search. So I happen to have clicked on Difficult Run. So I get a whole new search that's now centered on Difficult Run. I can see that Difficult Run has a few pollutants and it's had some work done on them. But let's also go back to the map here and you see if you go directly from having chosen one water back to the map, the map chosen water is highlighted in bright yellow. But in addition, there's another thing I do want to show you. If you go under here under legends, this is really more than just legends, you can turn on and off a number of the colored layers which a lot of users really like to do. But another thing, too, you can change the base map underneath the water information. And in this case this is not an EPA product, we actually are tying in on something that's publicly available just like going to Google maps and turning on the image rather than the map. But if you zoom in on this, then you can get right down there nice and close and see some real interesting things. I don't think you're to the point of seeing great details. You can barely tell what a car is, for example, but you can zoom in pretty close on this. So that is one of the other opportunities you have going into the legends and going through some of those types of options.

So let's see, if I go back -- nope, that's not the screen I wanted, I guess. Do I want to pass this back to -- control back to you, Anne?

Anne Weinberg

I can do that.

Douglas J. Norton

Actually let me go to the title slide here or the top page of the website and I think we're ready for some questions. We've got five minutes for your questions.

Anne Weinberg

Okay, thanks, Doug, for that excellent presentation. We're now going to have time for a few questions and Julie Reichert is going to pose a few questions to Doug from the audience.

Julie Reichert

Thank you, Anne. We had a lot of questions that came in so we will touch on a few. Doug, we have one question about whether or not you can elaborate on how often the info was updated in How's My Waterway?. An example the audience member gives is that they hear that there's an oil spill or other environmental disaster. How soon would that appear in the app for their local waters?

Douglas J. Norton

Okay, as I was explaining, the limited information that we have here, even though it does have a tremendous amount of information, that it is based on these every other year reports that come in to EPA from states. So there is no way to maintain a complete national

up-to-the-minute kind of data system that would reflect things that may have happened last week or even last month. And that is one of the things you should be clear about, is if -- if you see in the results something about in 2010 this lake was assessed and it was unpolluted and then something, some tragedy has happened this year, you're not going to see that result there. But we do explain that under the information, as I said, in the about How's My Waterway? button, that this is limited by data source and the database that it pulls information from.

Nevertheless, for most of waters and timing of water pollution and duration of water pollution problems, water pollution problems tend to come on and stay and take a long time and usually several years to fix. So on the whole, even though we don't have the agility to be able to include things that may have happened very recently, then most of the information's still very valuable or it certainly is valuable because you can see what the situation has been within the last few years.

Julie Reichert

Thanks, Doug. We have another question about the source of this data, particularly having to do with the maps that in some cases the waters are unnamed in the list but they know there's to be a name in their local waterway. Can you talk more about the source of the waterway's name?

Douglas J. Norton

Yes, that's a great question and we're a little frustrated with that, too, as I'm sure this user is. There are more named waterways than appear here, but what we use is a USGS national hydrography data set in which the naming of waters has been rather limited compared to the total number of names that are out there. This is not an EPA product, it's something that we're utilizing other standard government relied resources. So that is something that we'd love to have them include more names and we actually just recently passed on that suggestion to USGS. So we're hoping that as they too continue to work on the NHG which is a wonderful resource even though it doesn't have all the names, then we're hoping that they will invest more effort into getting more water names there.

Julie Reichert

Thank you, Doug. And we have another question on whether info can be added to the app, that if they know of a watershed that has a TMDL and management but it was not included, is there a way to include it in the app?

Douglas J. Norton

The way that the app operates on drawing up information like that, there is kind of a constant basis by which states are updating their lists of where's TMDLs been completed and turning this information into map form and reporting on new waters that have been monitored and such even though that's compiled and sent in to EPA once every two years. So first of all, the state would be where I would turn to to suggest additional information. The state sending information to EPA is the only way in which we get information to change in this app because we draw off of the EPA database. The app itself actually doesn't have anything directly coming to it. So the whole system by which states formally report and finalize their

information which includes what's polluted, what it's polluted for, and what TMDLs have been done. And, by the way, although I didn't mention them, another thing we're getting information on is the nonpoint source control projects. They will be included with more detail as we move on that, too.

Julie Reichert

Thank you, Doug. So one more question: This question has to do where to get How's My Waterway?. Is there a download for the Android platform?

Douglas J. Norton

I'm glad that was asked. Yeah, even though, I said, this is a website and a mobile website app in particular, then you can still get this icon on to your smartphone, whether you have Android or an iPhone. And if you go on to the website just by the web address, the www.epa.gov/mywaterway, click on the "Help" button and one of the first things you'll scroll down to is how to get the app. And there are instructions on how to take the bookmark and put them on your phone screen so that then you can use it like an app. If you have Google maps, it's the same thing. Google maps, the site resides on their servers, it's not on your phone but yet it acts like an app.

Julie Reichert

Thanks, Doug, that's all the time we have right now. We'll have more time towards the end of the presentation for more questions. Anne?

Anne Weinberg

Okay, thank you, Julie. And Doug, thanks for those great answers and presentation. Our next speaker is Krystyn Tully with the Lake Ontario Waterkeeper. Take it, away, Krystyn.

Krystyn Tully

Hi, thank you. I hope everybody can hear me okay. I'm just looking at the slide that says hello, I am the Vice President of Lake Ontario Waterkeeper, and we're a member of the International Waterkeeper Alliance. As a member of the Ontario Waterkeeper we work for a watershed where every person can safely swim, drink, and fish. So I'm going to the next slide, number 28. When I go through today's presentation, I just want to kind of pick up where Doug left off. The Swim Guide project that we're talking about shows how Waterkeepers chose to focus on one very narrow slice of data. So in our case, beach closures specifically. And to kind of walk through some of the challenges of locating and delivering real-time data to users, recognizing some of the challenges that Doug talked about trying to coordinate at the national level.

In terms of the agenda, slide 29, I just want to stress that I really appreciate everybody's time today. I know that webinars are challenging to fit into everyone's busy schedules and I want to use your 15 minutes wisely. So I'm going to explain why Waterkeeper developed Swim Guide, how it works, and give a little bit of a sense of what I think the future looks like for apps and environmental organizations. And at the very end I will touch briefly on our new drink guide app and something has out although we haven't officially out yet. And throughout the course of the presentation the one overarching message that I have is really just our belief that

it's important to identify and respond to the needs of the general public. As people who care about water quality issues it's our job to develop tools that people can use, especially if they have little to no environmental awareness. That means creating information and then putting it into formats and styles that people are comfortable using. Everything that Waterkeeper has done with Swim Guide to date has been done in response to the needs of users and to user interest. We think it's really important to track people's questions and to build our projects based on data that we have about what questions people are asking and what their specific needs are. And even though Swim Guide is something that we built and launched about a year ago, we are continually improving the project, learning from our users, adapting the tool and trying to make it even more effective.

So on slide 30 there's a couple of facts there that just illustrate for you how much people really do love beaches. There are economic arguments in favor of beach protection; we can talk about how much money a person spends when they visit a local beach community. There are also health arguments in favor of beach protection, just being outside and physical activity and that kind of thing. But really at their heart, beaches are part of the soul of the community. And that's why they're so important to us. They offer a connection to the things that people value most -- family, friends, nature, the environment and peace of mind. So while we're thinking about economic benefits and while we're thinking about health benefits it's really important to just always recognize the cultural importance of that place in a community.

And I guess I should just offer a quick note about the use of the word "beaches." You'll hear me say that throughout the presentation. The app is called the Waterkeepers Swim Guide, not the Waterkeeper beach guide. And not that as many people swim or paddle or come into contact with the water in atypical places. Not every swimming hole is a beach per se and it might be a freshwater river, it might be an old quarry, and the Waterkeeper Swim Guide is intended to celebrate all of the places where people are engaging with the water. So if you come from an inland area where the local swimming hole is a pond and maybe you're thousands of miles from the nearest saltwater beach, Swim Guide can still work for you.

Moving to the next slide. It is true that people love beaches but both beaches and the people who love them do need our help. The Waterkeeper Swim Guide evolved out of the need for swimmable water. When we talk about swimmability we talk about the idea that water is safe to touch. It protects anybody who is using the water for recreational purposes whether they're swimming or kayaking or sailing or wading we want to remind people, too, that the water quality standards for protecting human health are often the same or similar to the standards for protecting environmental health. So while swimmable water generally focuses on human water interactions, there's an underlying assumption that by protecting human health we will, as a consequence, also ensure that water supports life.

Most of the waterways in Canada and the United States are not swimmable all year-round. The scale of the problem differs from place to place. It might be, you know, one river is unsafe only one day a year and then there are other places where beaches actually fail to meet water quality standards virtually year-round. Bacteria pollution is typically the problem. That tends to be what people are monitoring for when they're checking to see whether a beach should be open or closed. Bacteria pollution's often associated with sewage and stormwater

problems and that's something that we'll talk about a little bit more in the presentation.

So on slide 32, how it all got started. This is really the heart of where Swim Guide began. We as a local Waterkeeper organization field calls from the general public and we found the number one question people were asking us had to do with swimming. Is it safe to swim in my lake, where can I swim in my lake, when can I swim in my lake? That's what we were inundated with. And when we first started working on water issues on Lake Ontario 10 years ago we thought, oh, this ought to be an easy question to answer, we'll call somebody up at the government, they'll give us the information we're looking for and then we'll pass it on to our members. It turns out actually that we were wrong. Since most beach monitoring is done locally and since reporting requirements differ from jurisdiction to jurisdiction there actually was no such thing as a list of all the beaches on Lake Ontario. We had health units all over Ontario, we have the province of Ontario, we had the counties in New York state, we had the state of New York, so many different people working on beach issues that there was no one master list that we could share with the public. There are water quality standards that people do have to follow protocols for testing the waters, standards to help you assess whether or not a beach should be open or closed. But local agencies often struggled to communicate this information to the general public effectively. So what we heard a lot about is -- say you had somebody who wants to take their 3-year-old to the beach. It's a Saturday morning, they wake up, they pack their kid up in the van, they get their lunches for the day, they get everything set and arrive at the beach only to find out that actually the water's not safe and they can't go in the water that day. And then they've got to explain this to their kid and pack everybody back in the van and head home again or sit on the shoreline and stare at the water but not be able to go into the water. So the number one thing people wanted was the ability to find out before they get to the beach whether or not they would be able to swim.

And then the second issue was where that information was available, it was hard to find. So if someone wanted to plan a trip to the beach first they had to have knowledge that the water was tested by somebody. And we did some anecdotal surveys in Toronto this summer and found that less than 50% of the people who go to a beach know that that water is being tested and that there's a place where they can get that information. So first they've got to know that water's tested. Second, they've got to figure out who's testing it, go online, or get on the phone and try to figure out where they can get that information. And in a lot of cases they have to actually have to interpret the data for themselves. So okay, I called a hotline, they told me the E. coli on this beach is 300 but I don't know what that means. So once they finally locate the information they're looking for they don't necessarily understand how to apply it to their specific situation. So what was happening was really an overcomplicated and not super effective way to protect public health or to promote awareness of beach protection issues.

And on slide 33 we talk about the need. This is really how we crystallized what it is that people needed from us. We thought that Swim Guide could take the important water quality data that existed, translate the results into a format that the general public would be able to find easily and understand once they saw it. And then as an NGO, one of the strengths that we had was our ability to work across regional, provincial, and state and national borders in order to in order to collect and distribute local data. Our mandate allowed us to work on these issues from a watershed perspective and a lot of the people who were doing the water quality

monitoring, their powers ended at the edges of their political boundaries. So we were able to use our strengths to bolster the work that was already being done locally. And this is especially important on the Great Lakes. Obviously, that's where Swim Guide was born. And here, just because of the geography of the area people often live in one watershed but they will swim or paddle in as many as five different watersheds in a single summer. So they really needed a tool that would follow them and work for them wherever they went.

And slide 34 shows you what Swim Guide looks like. This is how we translated that need into a product that we could deliver to the world. Swim Guide is both an app and a website. It's something that we built entirely in-house at Lake Ontario Waterkeeper. We created native iPhone and Android apps which allow for maximum interactivity. We built our database in 2010. So that's a database that stores the information, the list of beaches, the daily updates as to which ones are open or posted. We started working on the app which is the public interface to that database in early 2011. And we launched the iPhone app first along with the website for beaches starting on the Great Lakes and in British Columbia in June of 2011. We added the Android app and we expanded to Alberta and other parts of Canada later that summer. By May of 2012 we expanded to California, Alabama, and Florida. We've since launched Swim Guide in New York, South Carolina, and a few other places. There are right now about 3,000 beaches in swim Guide. We have about another thousand beaches that are written up and ready to launch. If you're using the product the default mapping service on the iPhone is Apple Maps. On the Android device or on the website you'll see Google Maps. If you do have a specific question about the strengths or weaknesses of those mapping tools and what we like about them or what challenges we may have just shoot a question to the moderator and I'm happy to talk a bit more about that later if that is something that is of interest to people.

The current iPhone version is the gold standard, the gold plate version of Swim Guide. If you know where we're at right now download the iPhone version. The older website and Android versions are being revamped right now and by the beginning of next swim season they will be the new gold plate. The website address in case you are curious is www.theswimguide.org. One note about the website again, just picking up where Doug left off, originally the concept for this project was to build an iPhone app and Android app that people could use but we're increasingly finding that people are excited about using mobile websites, people are visiting Swim Guide online and about half of our user base now seems to prefer web to native app and so that popularity will be driving how we overhaul the website in the new year so we can cater to the specific needs of web and mobile web users. So when you launch Swim Guide you see the nearby beaches, you choose from either a list layout or a map layout. It's the same app wherever you travel. So as you move around, Canada, the United States, the Swim Guide app would just draw the beaches that are closest to you and put them in the list first or focus in on that area on the map. Each beach, as you can tell from the screen shots, is color-coded and the color code is based on the sampling history. So beaches that meet local water standards are green, beaches that fail to meet local water quality standards are red. If there's not enough data or if the sampling practices don't meet whatever the applicable protocols are, then you can see gray, meaning no data or unreliable data.

In the off-season, when there's no current information to rely on, so this is especially important

in the Great Lakes, Swim Guide converts the last 365 days' worth of data into historical average. So in the off-season a green beach is one that passed 95% of its tests, yellow passed 60-95%, and the red beach failed to meet standards at least 40% of the time. And the reason why we do this off-season is because, going back to the concept of Swim Guide, we find that while not a lot of people are swimming in Lake Michigan in the middle of January, there are people that are out there surfing and kayaking so the water quality information is still relevant to them so that by providing a historical summary we can't give them accurate information about the current water quality conditions but we can give them a sense of what that area is typically like. And a green rating would be a pretty high-level of confidence that the water quality in that area is good.

One of the questions that scientists often discuss about Swim Guide is why we don't offer a yellow current standard for beaches. And this is one area where our Swim Guide philosophy of serving the users becomes most apparent. The simple answer is that for the average person going to the beach there is no such thing as maybe. So while for scientists there absolutely is a reason why you would want to say caution. For the actual users there's no difference between yellow and red. If they see exercise caution they interpret that to mean don't go in the water and that's how they respond. So we found the level of ambiguity that a yellow rating was offering was actually more confusing to people than helpful. I'm going to touch again on that concept a little bit at the very end of the presentation.

There's a couple of other tools in the app as well, including there's graphs to illustrate historical results. There are links to local Waterkeeper organizations who are maintaining the data for each beach. There are write-ups that, again, goes to the importance of the cultural connection between people and their beaches. So the write-ups help celebrate the unique characteristics of each location, get people excited about visiting those areas, draw attention to major water quality issues, if they happen to exist. And we also have built in a pollution reporting function. This is a button in the app that people can tap to submit a pollution report. They can write a description of what's happening. They can send us a photograph. They can give us their contact information if they would like some follow-up and that feature is especially important to help us cultivate a sense of stewardship and empowerment amongst beachgoers.

And how are we doing? So slide 35 gives you a little sense of what the public response has been like which is incredibly positive. The app and the website have been used by nearly 100,000 people in the last year. The number of beaches is increasing as I mentioned. We've been able to inform the public about oil spills and fish kills at popular beaches, three pollution reports have been submitted to us. And most importantly we've got media and beachgoers excited about the important water quality monitoring programs that help protect their health and the environment. So by creating a tool that's easy for people to use, we've been able to spark dialogue about what was in the past a relatively theoretical policy issue that we had a hard time getting people to pay attention to.

Slide 36 talks a little bit about user data. So this is something that we hadn't really understood the power of when we first started working on Swim Guide that we have since realized is probably one of the most valuable aspects of the tool. And that's the community feedback

that we get. So Waterkeepers have always known that grassroots participation is essential to the long-term protection of water quality. What we didn't realize is how much the app would become a platform for facilitating public engagement. The pollution reporting tool gives people a chance to take action when they're at a beach and they find a problem, which is extremely empowering to them and provides very valuable intelligence to our organizations. It also converts a broadcast form of communication into a dialogue form of communication. So it's not just Waterkeepers pushing information out to the world. We're actually able to engage in a two-way conversation now. And the philosophy of public engagement also means that we are looking for ways to improve the service constantly. So we do have by examining specific patterns where are people using the app, when are people using the app, what information are they searching for? This helps us find out which communities are especially engaged and where there is a demand for more educational information. So then we can take that information and say, okay, people in this community are particularly concerned about water safety. So we can do an ad campaign or we can work with local media to present more information about water safety to the public in that area and we can see that from the search results or the things that they're looking for. We can work with educators, we can partner with other NGOs and we can also help the government agencies that are doing water quality monitoring, deliver the specific information that users in their area are curious about.

The historical record, so the data that's in Swim Guide is also very valuable to our organizations internally. We use this data to help identify trends, to figure out where there are chronic water quality issues that we should be working on. And then that helps us build programs that we can target areas for beach restoration based on a very rational foundation which in the past was hard to do. We often heard about problems because we just got a lot of phone calls or we got a lot of e-mails. Swim Guide helps to build a rational foundation for choosing which areas to focus our restoration efforts on.

And that leads into slide No. 37 which I think is one of the most important messages that I want to communicate, that an app is a tool. So it helps Waterkeepers protect their waterways effectively. That's the number one goal. So if we made the prettiest app in the entire world but it didn't build strong communities and it didn't lead us to clean water then we wouldn't be able to justify the project. At the end of the day, our goal is to make sure that your waterway is safe for swimming. Waterkeeper Swim Guide helps us internally by building those data-driven baselines that I was talking about. It identifies the areas in need of our attention and then externally it helps because it communicates vital information to the general public in a familiar, comfortable format. Apps, as everybody knows on this call, I'm sure, are a ton of work and when they first became popular, definitely some people thought, you can build an app once, you can publish it and then you're done and I think reality quickly set in for people working on apps. And we know now that they're actually an ongoing program so if you're thinking whether or not an app is right for your organization don't think of it as a new tool, think of it as a new project. We are constantly iterating Swim Guide, we're adding functionality, we're improving the service and then we're leveraging the platform that the app gives us to ensure that our swimming holes are protected.

At its heart that platform is actually the magic of Swim Guide for Waterkeepers. We're committed to swimmable waterways, we want to build programs within our organizations that

promote and protect swimmable waterways and the Swim Guide becomes a platform that makes that possible. In my opinion, every government or NGO app only succeeds if it is in service to a policy objective and if it is designed with the users' interests in mind. And you can see that theme running through today's call. I think everybody that is working on these projects understands that there's a specific public need and they're trying to fulfill that need and create a tool that services the public as effectively as possible.

Slide 38 illustrates what our goals are. With Swim Guide we have short-term, long-term, medium term goals. It shows people in the short-term where it's safe to swim. That's really straightforward. Hey, the water quality is not good here, don't go in the water. Maybe try this location instead. That protects human health immediately. In the medium term, it creates a data trail that helps us figure out where the chronic water quality problems are, gives us a focus so we can go in and figure out what's causing those water quality issues. And then that, in turn, enables us to take appropriate steps to restore beaches and swimming areas on a site-specific basis.

And then in the long-term, because Swim Guide really is a communications vehicle, it ensures that the people who use it feel connected to their waterways and empowered to restore and defend them for years to come and that kind of long-term connection and feeling of stewardship is really what Waterkeepers are trying to do all over the world. It's the only way that the successes of people working on water issues today can be enjoyed forever and ever in the future. Is to make sure that the communities we leave behind have a strong connection to the waterway, feel a sense of responsibility and stewardship and then also have the tools at their disposal to act when there is a problem.

Which I think leads nicely into slide 39, the what's next. What does the future look like for us. On a very practical level we want to make sure that all of the beaches and swimming areas in Canada and the USA. are in Swim Guide. That's our number one goal over the course of this winter. We want to make sure that anytime somebody fires up Swim Guide, the tool is working for them so the user experience is good. We also want to deepen the information so I hinted at this earlier; Swim Guide is designed for a casual user, somebody who doesn't necessarily have a high level of environmental awareness or knowledge. But as the tool becomes more popular and as people become more engaged those users are developing more awareness of beach issues which means it's time for us to deepen the level of information that we're offering. Once somebody is interested in beach issues what can we offer them? We want to give them information about the connections between water quality problems and the causes of those problems. We want to explain more about bacteria issues and sewage systems and that kind of thing. We also would like to cater a little bit to the people who work on these policy issues every day. We've discovered by virtue of the database we're building we have a really unique system that allows you to compare water quality monitoring policies, programs, standards, protocols across jurisdictions. So being able to take that information out of our database and make it accessible to people that are interested in the policy side of this or the academic side of this is something we're looking into. We also want to do much more to highlight the agencies we are doing the water quality monitoring work so that the public can become more familiar with the army of samplers who descend on our waterways every morning to check the water. When you think about how

many people are out there monitoring beaches every single day across Canada and the United States it's pretty amazing. So we want to highlight that a little bit more for the users.

And, of course, we're working on more apps. We really think that this user oriented and image driven, interactive format is incredibly well-suited for communicating environmental information to the general public. It's been the most successful thing we've ever done and we've had the most positive feedback and reaction from the general public so we want to build on that. We want to make sure that we're watching how people are using it so that we can learn from them. They teach us invaluable lessons about what the general public thinks, what questions are they asking, what phrases are they searching, what information prompts engagement, and we want to build more tools that serve that need. This really is the first time in the history of the environmental movement that we had access to data that helps NGOs and government organizations design programs to anticipate and respond directly to public needs. And the first example of this new iteration or new adaptation of the Waterkeeper Swim Guide is the app called the Waterkeeper drink guide. So we haven't officially launched it but you can get it on iTunes, it's a free app as well. It gives you a list and map of current drinking water quality advisories across Canada. The app was developed in partnership with the Water Chronicles which is a Canadian research institution. They have the databases with all the information in it and we built the app to deliver the information to the general public. So you can fire up Drink Guide and you'll be able to see boil water advisories, water shortages, do not consume advisories as well as blue-green algae drinking water related advisories. So you can get the Waterkeeper Drink Guide on the Apple app store and it will run on your iPhone, iPad or iPod Touch and we'll be announcing that before next summer kicks in.

And just on the last slide, just a summary, again, I want to thank everybody for their time and sort of give you the high-level summary which is Waterkeeper Swim Guide is an app, we built it in-house, it's now being distributed across the USA in partnership with Waterkeeper Alliance. We use beach monitoring data from hundreds of different monitoring authorities, mostly government authorities but in some cases local Waterkeepers themselves and other NGOs. The goal is to show people where they can swim and to promote effective beach protection programs. I'm happy to take a couple questions now and then, I believe, there might be a bit more time at the end of the webinar as well, thank you.

Anne Weinberg

Okay, thank you, Krystyn, for your presentation. Again, Julie Reichert will now pose a few questions to her from the audience.

Julie Reichert

Thanks, Anne. Krystyn, we have quite a few questions coming in. The first few I am going to ask are actually related. A lot of people are interested in learning the process that, where they can add additional beach info to the Swim Guide database.

Krystyn Tully

Sure, there's two answers to that question. If you're in an area where Swim Guide has been launched and there are one or two beaches that are missing, then the best way to do that would be to contribute the information to the Waterkeeper organization who manages the

beaches in that area. If you're in an area where there are no beaches yet it may be that we either haven't launched it or we're looking for a partner that could actually help us manage the data in that area because there are some gaps in our own network of organizations. We are happy to take information from anybody and everybody and I think probably the easiest way is just to shoot us an e-mail. My e-mail address is at the beginning of the slide or there's a contact button on the swimguide.org, shoot us an e-mail, tell me where you're from and we'll get back to you and let you know what you can do.

Julie Reichert

Thank, Krystyn, we have another question from an audience member. They're wondering how often the Swim Guide app is updated and how do you get the beach open and closed status on a daily basis?

Krystyn Tully

So the Swim Guide app is updated daily during the sampling season. So if you're on the Great Lakes, the sampling season is usually roughly Memorial Day to Labor Day. If you are in parts of California or Florida, it's year-round. So depending on where you are, it's updated daily -- or it's checked daily, in some cases water isn't actually sampled on a daily basis but we do make sure that there are no changes every single day. And how do we get that information? Before we launch an area we identify who it is that is monitoring the water in that area, if anybody. We figure out where they are posting or sharing or publishing their information. In some cases there are websites that you go to that have the information. In some cases they share the information on e-mails listserve, in some cases it's phone hot lines. We actually phone a surprising number of people every day just to say, hey, how you doing, what is the water like? Because they still actually don't have a mechanism for sharing their water quality results with the world. So in some cases the Swim Guide is the only intermediary between the people doing the monitoring and the general public.

Julie Reichert

Thanks, Krystyn. We have another question from a member. They're wondering does Swim Guide include beaches along the Gulf of Mexico?

Krystyn Tully

Right now we are -- you can kind of see our progress as we're going so we've got the entire state of Florida done and then we're creeping into Alabama with our partners at Mobile Baykeeper. And then one of the areas that we're working on over the course of the winter is to continue that line of beaches westward. If anybody is in that area west of Alabama and interested in talking to us about the app I would love to just strengthen our connections in that area for sure.

Julie Reichert

We have time for one more question. This question has to do with elaborating on the cutoff point for the green, yellow, and red colors for the beaches. If you could add a little bit more information how you determine the green, yellow, and red colors.

Krystyn Tully

Sure, we use the applicable local water quality standards. So when we're setting up the area, when I mention that we would identify who's doing the water quality monitoring we also identify what the water standards that apply in that area. So everywhere in Ontario it's 100 E. coli units freshwater so it's 100 E. coli units, the geometric mean of five samples. Typically standards are set at the state level and then often it's the counties that are doing the monitoring and then what we do is apply the standard that applies in that area. So we look at what the official standards are, if it's 100 and if the water quality results are above 100 then it would be red. And if the water quality results are below 100 then it would be green. And in some places the monitoring authority doesn't actually release sample results, they would just say pass/fail and in that case we follow their direction. In a couple of cases, if we find that the sampling protocols are not consistent with the applicable standards, we will opt instead for a gray so that people understand that the swimming locations are there but we don't actually have a reliable data source so we don't want to make a judgment call on whether it should be green or red, so that's what that gray marker is for.

Julie Reichert

Thanks, Krystyn.

Anne Weinberg

Okay, thanks, Krystyn and Julie. We have quite a few more questions that we -- from the audience and we hope to get to some of those soon. Our next speaker is going to be Jared Criscuolo from Below the Surface. And if you'll bear with me for a moment, we'll make Jared our presenter. Okay, Jared, take it away.

Jared Robinson Criscuolo

Thank you very much, Anne, I appreciate the opportunity. Also, everyone that's on the line, thank you for the opportunity to present this. Very honored to be here today. Below the Surface is a non-profit organization that a good friend of mine and I started in 2008. We've been focused on the exploration of and education about the issues surrounding water. We started doing expeditions around the country gathering photos and video, trying to get kind of a better idea of what was happening on our waterways and having a better photo catalog of it. Through those expeditions we realized that we had a really good opportunity to start gathering more photos. We met a lot of people who are paddlers, explorers, just water enthusiasts in general, people who fish, people who like to backpack, so we realized that there was kind of sort of this undercurrent of people who just flatly love to paddle. Didn't necessarily have a strong scientific bend but wanted to contribute in some way to helping improving water quality on rivers and the coastline. So what we decided to do is make The Riverview Project and that's what we're here to talk about today.

Riverview has two key pieces. The first piece of it or the first phase of it is what we're talking about today. That's our mobile apps. The second phase is if you would imagine Google Street View recreated for rivers, that would be the second phase that we'll be working on coming into 2013-14. But for the purpose of today, essentially what we've wanted to be able to do with our app is create a way for people to explore with a purpose. We're strong advocates of the idea of getting out and recreating just for the sake of getting out and

recreating. We believe through that level of exposure a very sort of visceral hands-on tangible level of exposure to any number of issues. That's when a person starts to shift and become more active and engaged. So for us this is really a grassroots engagement tool to spread the conversation about water quality. For us it's a global undertaking. We really see ourselves as a foundational piece and really in a sense of building a foundation of a house that any number of organizations can use the photos that we've gathered or use this tool and resource as a way to help do outreach to their volunteers and kind of expand the conversation about why water pollution is a bad thing and what we can do as individuals to change it.

In order to pull this off, we've put together a number of partners. There is four kind of core areas that we're going to go over here. We've worked very closely with Cliff Bar, Goal Zero, and Keen Footwear as main sponsors of our work. We're working in an organization in San Diego, the Greenfield Group, they're an advertising agency that's given us a great deal of support for our work. We also work with Immersive Media, they are the company that manufactures the camera that you may have seen on Google Street View cars. We're actually working with Google directly as well through their developer relations team to make sure that as we kind of continue to evolve and grow, that we make the best use of the tools that they have available, both online and as we start to integrate apps into our mobile apps. We've worked very hard on the promotional side to help get this message out. We were selected by outside magazine as readers of the year in 2012 which is a really great honor for us. We're now working with outside television and RSN sports network to help promote the work that we're doing as well as we've developed a close relationship with a writer at the New York Times who has helped us in our promotions.

On the federal end, we've received an incredible amount of support and we're extremely grateful for our partnership with the Environmental Protection Agency. We also work very closely with the U.S. Geological Survey on the more scientific aspects of what we're working on. On the nonprofit side we have a very close relationship with the Surfrider Foundation, we worked with the Waterkeeper networks, specifically Coastkeeper here in San Diego. Surfrider's our fiscal agent and has been a great supporter of our work really making the connection between what happens on rivers and how it affects the coastline and the surf breaks.

I'd like to jump right into our app. Basically the bulk of this presentation is going to be a blow-by-blow of first and foremost, how the app works. As many of you may know mobile technology and websites are an evolution rather than a stagnant piece. So after we go through this slide show, I have two other pieces. There's a couple of quick updates that we've had in the last 24 hours, about five slides that I want to show you. And then I'm going to show you our website which houses all of the photos. So our mobile app is really -- it's more of an on-the-fly type of exploration tool. It essentially allows people as they're paddling to snap a quick picture, type in some comments and georeference their location and then post and promote the picture that they've taken. Using some of the best technologies for mobile apps, this is our login page. So when you first land on our app, on the new evolution that's come out there's a quick bubble that describes what the app is all about, where you can go to see images. And then it gives you the option to log in either using Facebook, which is preferred for us because it helps us reach a broader audience. Every time someone uses the app with Facebook, it will post up on their Facebook wall or their organization's Facebook wall and we

get what's called a viral coefficient from that or essentially for every one post we're able to measure how many people see this post and then hopefully download and use the app and share information. The other option, the green button for Riverview, is very simply an e-mail login if a person doesn't have a Facebook account or if they're just not comfortable using social media.

Once you go past the login page you go to the page where you can start gathering images of rivers. There's two main features on this where you can take pictures and post pictures. So we'll quickly walk through the take pictures piece. When you tap on this blue button on the top it pulls up two options. You can either use your phone's a camera or you can go to the photo library on your phone. The option that we have here in the next slide is a few shots from my photo library. On the middle of the page with the standup paddle board are pictures we took while paddling around Manhattan a few months ago. But basically, you tap on any individual picture here and then what it does is it pulls you into the -- it sets up a photo carousel here. When you come into the photo carousel you tap on the individual photo that you want to use, in this case we'll have chosen the one on the left. And it pulls you to the upload location and comments page. Basically the details. So you see this is one entire screen shot but I've broken it into several pieces so you can see the navigation as we go through it.

So the first spot you see is the actual picture that we've taken. This is a shot coming down the Harlem River when we were paddling around New York City. As you scroll down the page, you see the comments box start and then in the middle slide you can type in some comments. This happened to be particularly a windy day then so that reflects the comment here. The mobile app, if you're in self-service or Wi-Fi service as you can see from the top left there we did have service at the time, it will automatically georeference your location, your longitude and latitude. We've also set this app up so if you are, as often we find ourselves paddling, we're out of cell range, you can tap on a drop a pin feature and that actually pulls up a map that lets you go specifically to where you are and do a rough approximation. The last slide you see here, there's three separate options available. There's "Save", there is "Upload Your Riverview" and "Delete." The save feature is there is to complement drop a pin. Basically if you're out of cell range and can't make an upload if you click "Save" you can come back at a later point in time when you do have self-service and upload the photos that you've taken is, all the comments, and lat and longitude that you dropped the pin on. If you are in cell service like we were in this situation, if you tab the middle button and upload your Riverview you come to this next page. We've made a little bit of an update to the text here but essentially it says "congratulations, your view is now a Riverview." And what that does is it takes this whole data package that we have of the photo, the comments you typed in, and your georeference and it posts it up on our website belowthesurface.org which we'll look at in a little bit and it contributes to this bigger map that we have of photos around the country. Once that goes through, you make a post on Facebook and then we've changed the text on this as well, but essentially this just lets you know if you go to belowthesurface.org you can actually see the image that you've taken. I'm going to pull this down really quick, I'm going to open up a second slide so bear with me one moment. This is going to show you very briefly and I apologize these slides aren't out there but as we mentioned this is kind of a dynamic changing thing so I just wanted to give an update on a couple things.

In the case of no cell service that we talked about before when you tap on the red circle button, "Drop a Pin", what you see here is the map that pops up and it will pull up relative to the location of either where you're at or where your phone was last at prior to losing service. In this case I oriented it to New York City where we were. We were up in the area near where it says Manhattan between there and the Bronx at 278. What you'll do is very simply tap your screen roughly where you were, it will drop a pin on the map and by clicking "Save" that will cache this for a later time when you have the opportunity to upload it.

This just demonstrates the new confirmation button, congratulations your view is now a Riverview, we were able to work out that index html link at the top. When you post to Facebook, this is the box that comes up between this page and actually getting the notification that it's put up so essentially what this allows us to do is any individual that is posting up a photo has an opportunity on their profile page to put their organization's logo. So for example, if you're a member of Riverkeeper or EPA or any number of organizations across the country you actually put your logo up there so that when your picture shows up on the web site there's a little box that we'll show you in a minute that gives credit to your organization for participating in The Riverview Project. Once you click "Share" this automatically posts on your Facebook wall and you get this notification now, it says take me to the river. And it indicates that you should go to belowthesurface.org to view the image that you've taken. One of the final pieces that we're getting set up is when you do go to the site it will show you the picture that you most recently uploaded.

For perspective this is what it looks like when it hits your Facebook wall. This is a shot from my Facebook and shows you here one of the photos we had in place when we were in Boston. If you click on that blue "take me to the river" text that will direct you right to the website and you'll see specifically where that photograph is on Facebook -- or excuse me, on the map. And this is a quick sample of the map and the web interface so you can see we have photos from around the country. The call out box you see here you see it was put up by an organization called Rivers for Change, they've not uploaded their logo yet but going forward where the silhouette of the picture is that will be the Rivers for Change logo and this is a shot of them walking down to put in with their kayaks.

And then the final piece that I wanted to show everyone today is the actual website. So when you go to belowthesurface.org right now the app itself functions as essentially a feeder or a tool to gather images. You come to our Riverview project page and this is what we have thus far. We had a series of groups that have worked with us, three in particular, a group called Holy Men Adventures which paddled the entire Mississippi River this past June and you see throughout the map here the course of photographs that they uploaded and placed on the map. So this is just one particular shot, it was uploaded by Mark Downey, who is the project lead for Holy Man Adventures. These are just various shots that they took along the river.

In the Midwest here we worked with a group called State of the Rockies Program and they uploaded a series of photographs from along the river. I helped them do that, that's why my name pulls up on this. And then on the west coast we worked with a group called Rivers for Change. They recently uploaded 174 photographs of their paddle and you can see again there you have the Rivers for Change logo, in time we'll have their image up there once they

get time to uploading it and then you have some shots from their actual expedition.

As I mentioned, the goal for us with this app is to be able to show -- give an opportunity for people who want to get out and paddle to do that and to do that with a little sense of greater purpose. This isn't necessarily meant to be a scientific tool in a hard science sense but rather more of a social science tool. What we intend to do as we grow the map out is actually to take all the photos and take the data about how many users we have as we launch this week and then going forward over the coming years and be able to share those photos with other organizations that are advocating for better water policy. Essentially put a new tool in people's quiver and that's a user based crowd sourced photo map of people paddling and using rivers around the country. It is a particularly important piece when you look at the Clean Water Act and how some rivers can be exempted and then unexempted from the Clean Water Standards. It's important to show a river's being used and is navigable and this is a very straightforward tool to enable people to do that.

Going forward what we see happening is going to be -- excuse me, one second, let me pull the slide back up. Going forward what we see happening is we will be turning this into more of a social media-based tool so that people can share photos of their trips and we'll actually be hosting the map that I showed you on our website on the phone app itself so people can while on the fly explore different spots, check out locations, and plan paddle routes. The app is currently available on Google Play and it's also available on the app store so it's available for Android and the iPhone. Definitely encourage everyone to reach out to me and my e-mail address is at the bottom of the page there and also we're ready for any questions.

Anne Weinberg

Okay, thanks, Jared, very much for your presentations. It's an exciting new and certainly evolving project where watching it evolve even over the past few weeks and even the past 24 hours. We are going to have more time for questions from the audience. First, I'll make a few announcements. At this time I want to note that we have had quite a few questions, and if you did not have your question answered then you're welcome to contact Doug or Krystyn or Jared. We are going to have time for some more questions soon. Their contact information is right here, it's also on the additional resources information that's posted on the Watershed Academy webcast page at www.epa.gov/watershedwebcast.

And I'm going to -- I'll next talk about our next webcast, we will be having our webcast in January 2013. And registration, again, will be posted on our Watershed Academy website page so please do check on that page regularly, soon. Probably by the beginning of January we will have an announcement of the next webcast for January. You will also find an archive of our past webcasts here and that should tide you over the winter holidays. And I also want to announce that you can download a certificate, if you'd like. The certificate can be downloaded from our server at the URL that's provided here. So please type in this link on your browser to download the PDF copy of the certificate. You can type in your name and personalize the certificate for yourself as well as if you're watching with a number of other people; you're welcome to type in their names as well and personalize the certificate.

Finally, at the end of this webcast there is going to be an evaluation form. Please do take

time to give us some feedback. We do try to -- we do appreciate your feedback and try to make improvements always to the webcast. And so now we do have time for a few questions from the audience and Julie Reichert is going to pose some questions first to Jared and then to our other speakers as time permits.

Julie Reichert

Thanks, Anne. We have a lot of questions coming in for Jared on the Riverview app. A few of them are related. Some of our audience members are wondering if they can upload photos directly to the website instead of using the phone app and whether or not they can upload pictures after the fact, like from a few weeks ago.

Jared Robinson Criscuolo

Yes, when you go to the web site, if you scroll down past the map that I showed everyone there's a batch upload feature so a person can click on that. We do require people to make an upload to -- excuse me, to upload the mobile app though. You have to have an account with us to do that. Currently the site's only set up to receive a person's mobile phone login information out of their Facebook information or if they log in with an e-mail address.

Julie Reichert

Thanks, Jared. We have another question on whether this app is just for paddlers or can boaters also take pictures and upload it to the Riverview site?

Jared Robinson Criscuolo

Thank you. The app is meant for anyone anywhere. We ideally want people to focus on rivers. But any boaters, paddlers, standup paddle boarders on the coastline, surfers, we live in San Diego and surf so we use that sometimes here. People who fish, any type of water activity, we would encourage people that are hiking, if you're in the mountains and near a river to take a picture and upload what they see. The whole idea behind this is really to capture the essence of a watershed from source to sea and the diversity of activity that happens within that watershed. Though we standup paddle board most frequently this is not meant to just be just for paddlers only, it's for anyone who is interested in participating.

Julie Reichert

We have a couple more questions. One is whether or not there's a way to scroll through all the photos in an area or do you have to click on each individual photo?

Jared Robinson Criscuolo

At this point we have to -- we have it set up so you can only click on each individual photo. There's an option, when a person sets up an account, there's an administrative page, when you click on the batch upload feature it takes you directly to that. A person can scroll through all the photos that they've uploaded; they don't have access to everyone's, though. Going forward though what we're going to do is probably middle 2013 -- toward the end of 2013 is we will actually integrate a feature, a series of layers based on individual watersheds so that people can pull up their watershed of the Anacostia River or if it is the Flat River or wherever it may be and pull up photos very specific to the region rather than just the entire map. Right now the best way to do it is there's a zoom in and out feature that Google has integrated into

our map so you can actually zoom into your locality and see photos in that particular spot.

Julie Reichert

Thanks, Jared. We have another question on how do you control the quantity and quality, the appropriateness of the photos? What if there are too many pictures per site? Is there a limit to how many pictures that can be taken per river?

Jared Robinson Criscuolo

No, there's no limit. In terms of photos, we're working on a flag feature right now and it will be -- it will basically be user-based crowd source, so if someone sees an offensive or inappropriate image, they can flag that, that will come back to our team and then we'll remove it from the post. We have an admin page that oversees every single photo. If anybody's looking at the site now, you'll probably see there are a couple of random shots there from testing. We are pulling that off this afternoon. So we have the ability to go in and remove pictures or add pictures although going forward we'll have that feature set up.

Julie Reichert

We have another question. This is actually for How's My Waterway?, this is for Doug Norton. A few audience members are wondering how you constituted the name polluted for the waterways. What criteria was needed to actually call a water polluted?

Douglas J. Norton

Okay. The entire data set that is the national data that states send in to EPA is all under the Clean Water Act statute which involves reporting under Section 303(b) of that law and without getting too much into the legal speak of it all, then, each state has an assessment method by which they go out and they monitor in the field for a number of measures that get at the designated uses and the water quality standards for each of the waterways that they are able to assess. And as you saw by the map, there probably is no state that actually has been able to assess all their waters. And that's one of the important things you realize when you look at the map. But in the process of assessment and measurement, then some waters clearly do not achieve a water quality standard for a particular pollutant's category and those are assessed. That assessment is quality controlled. The state follows their established assessment procedure and every two years compiles a list of those waters that do not meet water quality standards.

The term "impaired" is used in, within the programmatic reporting and the technical database. We've found that that term is really not popular with the general public and often not understood. And polluted is a fair enough synonym on that that that is what we use as the term. But what's behind that is this determination by states under their official assessment methodology that the waterway does not meet a water quality standard or more than one water quality standard and what you say when it didn't meet the water quality standard in is what you see listed as the pollutants reported also on our website.

Julie Reichert

Doug, this is a follow-up question to that: This audience member was wondering how many pollution categories there are and what determines the names of the pollution categories?

Douglas J. Norton

Oh, okay. Well, there's a few ways to answer that question. And one is that if you were to look in great detail, in the full detail that each state reports the pollution categories and the reasons for why something is reported as impaired originally, then you would sum up, I believe it's over 700 different terms that describe different types of pollution. Just to keep things a little easier to track and organize, then EPA takes similar categories such as there are -- there are dozens of different pollutants that may be grouped under the category "metals," and the metals is what you call a group category or a parent category. That is one of 34 overarching collections of these much more detailed reports. But, you know, something under "metals" may be reported for lead or for cadmium or something like that and there are a lot of different metals that might be under there. And they may all be called in the reporting the states send us and in the How's My Waterway? results that you see on the initial readout. Then you'll just see metals and you'll see a description of metals in the plain English paragraph if you'd like to read that.

If you go on to the "Technical Reports" button under that listing, though, you are likely to be able to find which metal it was or what the exact pollutant category was. But by and large, I think you folks probably would appreciate that you're not getting 700 different definitions of things and, rather, getting just the 34 major categories because that's a little easier to get your mind around.

Julie Reichert

One more question for How's My Waterway?. A couple audience members from Florida and Maryland see that the data is from 2002 and they're aware of more current data and they're wondering when will it be updated?

Douglas J. Norton

That's a good question. And you will notice if you actually do visit How's My Waterway? locations around the whole country that there is not one consistent date. Some of them vary from the 2002 that you're mentioning to some of them being in 2010. And the reason why state-to-state differences in assessment dates are visible there is because this information is drawn off the most recent map and listed information that EPA has received from the state. So in these cases, then, having both the map and listed information on a stream segment basis or a lake segment basis has the most recent has been 2002. That's not to say there isn't more recent information available from those states. They have been monitoring, they have been reporting. It is -- it is based on what EPA has received. So one of the things we hope is that some of the states with older assessment information available to us when they know they have more recent stuff than we're hoping we can get, for example, the GIS format map information so they can see their most recent accomplishments and their most recent work on the condition of their waters rather than the old version that is there now.

Julie Reichert

Thanks, Doug. We have a few questions coming in on the Swim Guide map so these questions are for you, Krystyn. We have an audience member wondering whether Swim Guide has a notification feature that if a beach is normally green and then the day it's red

would it send a notification of any sort?

Krystyn Tully

That's a great question, actually. It's not currently in Swim Guide but it is on our wish list so there is a function in the app that allows you to bookmark beaches. So probably it will be connected to that where if it's one of the beaches that you're keeping an eye on and it's in your bookmark list then we would be able to deliver push notifications when there is an important information change.

Julie Reichert

This is another question for you, Krystyn on the Swim Guide app. This audience member states that often in local areas there are multiple data sets for water quality testing done by different organizations for the same beach. They're wondering how you choose what data to use or how you integrate multiple data sets for a single beach.

Krystyn Tully

That's also a good question. In the specific regions that I am familiar with that I'm thinking of where that's happened, we've found that there's either one source that is consistently more reliable. They have a better protocol in terms of how they collect their sample, so maybe it's daily sampling instead of weekly sampling. Or in other cases the sample results are generally consistent with each other so we would -- I'm thinking of one location where the beaches are officially monitored by the city but there's a local NGO that does sampling as well. And those results can actually complement each other so we haven't had a situation where there has been a discrepancy.

Julie Reichert

Thanks, Krystyn. I also have one other question for you for the Swim Guide app. And this audience member was wondering if they find information that on Swim Guide that said there were beach closures but they know that there was no beach closures in that area, is there a way to inform the Swim Guide app to update it?

Krystyn Tully

Yep, there's an e-mail reporting function or sometimes people just use that pollution reporting function tool because the button's really easy to see so people will notify us. That can happen for two reasons. One is oftentimes the way that beach update information is communicated is the person goes out and collects the water quality sample, they take it back, it goes to the lab, the lab submits the results to a contact person at the government organization, those results are then submitted to a manager for the final decision. And then one of two things happens: either the information is then communicated to the communications people or in some cases the information is first communicated to the lifeguards who are at the beaches. So every now and then you get a situation where there's a delay between when the information is relayed to the people at the beach and when it's relayed to the outside world. But also there are situations where we have found places that it's not common but we like to use the "Jaws" analogy where the Chamber of Commerce doesn't want you to shut down the beach. And there are situations where there are beaches that are consistently failing to pass any water quality standards you might want to apply, but there are actually no notification signs posted at

the beach. And so there are situations where we would curate the information in Swim Guide in such a way that we are drawing attention to the fact that even though the beach is not closed officially when you're there, it has not passed water quality tests.

Julie Reichert

Thanks, Krystyn. Now we have a few more questions coming in on the Riverview app. So these are for you, Jared. One question we have is that for taking the Riverview photo does Below the Surface track the date and time when the photo was taken?

Jared Robinson Criscuolo

We do. It shows on the pop-up buttons on the map when the photo was put up.

Julie Reichert

Great, thanks. And then another question on Riverview is it available in Canada as well?

Jared Robinson Criscuolo

We haven't done an official release in Canada yet. We're just launching officially this week. So going forward, yes, it will be, I'm just not sure when. If you check back on our website in like a month or two, we'll put information up once we actually launch it in different countries.

Julie Reichert

Thanks, Jared. And this is more of a humorous question. Do you have any advice on how to avoid dropping your phone in the river while you're trying to upload photos?

Jared Robinson Criscuolo

Yeah, don't drop it. But in all seriousness, there's a couple different companies, one that pops to mind is ICAT. They make a fully water-proof but fully functional case. We use those. We also have a soft case that we use and I can't remember the name of the company off the top of my head, I think it's Aqua Pack, it's a British company. But there's a number of companies that do make water-proof cases, some water resistant, some water-proof, it's important to check with the manufacturer before you trust it. But typically what we do is we'll put our phones in a case like that and then we'll tie them to our life jacket or tie them to our waistline when we're paddling in standup paddle boards. Kayaks, we tend to keep them in a pocket in our life jackets when we pull them out when we need them and then put them back.

Anne Weinberg

Someone said a Ziploc baggie works wonderfully.

Jared Robinson Criscuolo

The amount of money I had to spend on my iPhone I'm not willing to take any chances to know which one works because I haven't been able to get Ziplocs to work in my favor.

Julie Reichert

Thank you, Jared. We have a question that came in, this audience member hasn't been able to find Swim Guide and Riverview apps but not the How's My Waterway?, is this app named something different. Can you help with this, Doug?

Douglas J. Norton

Sure. I've heard this before too. And what I think that question generally implies is someone is checking at one of app stores and hoping to find How's My Waterway? at the app store. How's My Waterway? is actually not at any of the app stores because the app stores deal with native apps not mobile web apps. So we are not able to offer it as available through app stores. Though all you have to do, though, in order to get it on, you know, have the icon for How's My Waterway? up there on your phone with all your other apps is to go to the site and essentially just use your phone and type in www.epa.gov/mywaterway, in one word. Then you'll be at the site. And as I was mentioning earlier then if you scroll down on that top page to the "Help" button and you touch the "Help" button, scroll down a little bit and you'll see how to get the app. And that will give you directions on exactly what to do to save the icon on your phone so that you could use it from then on, go straight to it just by tapping on the icon, okay?

Julie Reichert

Thanks, Doug. We have another Swim Guide question that came in and this is for you, Krystyn. This audience member is wondering how many full-time staff or equivalents does Waterkeepers have and how many devoted to the Swim Guide app development and management and when will you work on New Jersey?

Krystyn Tully

Those are all really good questions. In terms of staff resources, building the app, the actual technical side of things is a pretty small team. I offer advice and suggestions in terms of what the public can use and then we have one developer and one graphic designer. A lot of Saturday morning coffee shop sessions with the three of us doing the technical side. There are more staff at Waterkeeper Alliance who are supporting the rollout of Swim Guide to new areas because of the local grassroots organization we weren't really set up to do that. So there are some people there who that's been added to their responsibilities at Waterkeeper Alliance. And then at the local program level depending how many beaches are in your area updating the data in Swim Guide doesn't take a ton of time. Like I said, we developed our own database and we developed our own data entry system. So if you've got 20, 100 beaches in your watershed even if you're updating them every day it's maybe a five to 10-minute time commitment to check the information, update it in Swim Guide. It's just a matter of mashing a whole bunch of buttons quickly and then you're done. So the time commitment is relatively minimal at the maintenance level. And then the other question about New Jersey, that's an excellent question. I have been in contact with somebody at New Jersey when we first started expanding in the U.S. And we were hoping to collaborate with them at the state level. Whether or not we're able to make that happen by next summer, you will see New Jersey beaches in Swim Guide for the next swimming season.

Julie Reichert

Thanks, Krystyn and we have time for one more question and this is a question on the Riverview app. This is for you, Jared. This person was wondering whether or not you have to be with an organization in order to upload the photos or can anyone in the public upload photos?

Jared Robinson Criscuolo

I appreciate that question. Anyone in the public can upload the photos. So it can be -- we set up our system so that organizations can load up their image and basically, post on behalf of their organizations. The reason behind that was we wanted to make sure that anyone participating gets credit for participating. We didn't expect this to be just a Below the Surface only thing, we see it as a much more collaborative effort. But that said, any individual that wants to log in with their individual Facebook page, create their own account, just put a picture of themselves up in the profile or have no picture. We want this to be available to anyone who wants to use it and it is available to anyone who wants to use it.

Julie Reichert

Great, thanks, Jared. Anne?

Anne Weinberg

Okay, at this time I'd like to conclude today's webcast. Thank you, Doug, Krystyn, and Jared for presenting and Julie for helping to moderate. And, course, thanks to everyone who joined us. That is our webcast today. Thank you again for joining us.