

Transcript of Oral History Interview

Interviewer: Sean Perkins
Interviewee: Elizabeth Scott

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Office of Water Resources
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Transcript of oral history interview with Elizabeth Scott about Mashapaug Pond in Providence, RI. Scott, the Deputy Chief of Surface Water Protection at Rhode Island DEM, discusses her professional role in monitoring and rehabilitating the pond. She outlines the range of roles and responsibilities of herself and DEM and offers her opinion on environmental issues affecting the pond. Her detailed descriptions of environmental concerns are balanced by personal statements regarding her history, motivations, and hopes for the pond.

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Sean Perkins: Here we go.

Elizabeth Scott: Okay.

Perkins: And just to start...

Scott: [laughter]

Perkins: Yeah, this is a little strange.

Scott: I have you on a tether [referring to headphone cord].

Perkins: Yeah. Could I just get you, for the purposes of the recording, to introduce yourself, and...

Scott: Yes. My name is Elizabeth Scott and I'm Deputy Chief in the Office of Water Resources at DEM.

Perkins: Great. Can you tell me a little bit about how you first became involved with Mashapaug Pond?

Scott: Yes. My association with... is... with Mashapaug Pond is a professional one in that, as part of my responsibilities here at DEM, I oversee the work by DEM scientists and engineers to evaluate water quality of the state surface waters and to identify any water quality problems. And, through that work, we... I did identify that Mashapaug Pond has a number of water quality problems and we, following our requirements under the Federal Clean Water Act, undertook to develop what's called a TMDL, or Total Maximum Daily Load, which is a water quality restoration study, for Mashapaug Pond. So beginning somewhere, probably like the early 2000 timeframe, we put together a... we began the work to assess, do a detailed assessment of, the Mashapaug Pond water quality and what were sources of pollution that were contributing to the problem, and then to develop this plan for identifying what... what are the various controls that are needed to restore the water quality.

Perkins: Great. And what sort of primary issues have you identified with the pond?

Scott: Well the main... the main objective of those studies, initially, was to look into the nutrient-related problems. We were aware that there were elevated levels of... of phosphorus and so we really wanted to get a more full characterization of, not only what were the phosphorus concentrations, but also how the water body was responding to those phosphorus levels. So we did... and actually we hired a contractor – actually EPA hired a contractor – that we were Project Manager on as well. But... so as part of that work they looked at the pond's response to nutrients. They looked at chlorophyll-a and... and oxygen levels, as well as clarity, but we also wanted to look to see whether there were other problems, common problems, that

we might see in urban waters, so we also had them do monitoring for bacteria levels and did determine that following rainstorms we do see concentrations of... of fecal coliform, which is an indicator bacteria that we use. We did find that that was exceeding acceptable levels for swimming use in the pond. We also collected... had fish collected and did fish tissue analysis, and through that determined that there were contaminant... you know... contaminated fish tissue, which led to the... the advisory for, you know, no consumption of fish on the pond.

Perkins: And what kind of fish were you finding in the pond?

Scott: I don't know. I'd have to look... I'd have to go back and look. It wasn't like it was a detailed fish survey; it was, rather, a very targeted sampling of fish, to be able to, basically, collect the fish tissue for analysis. So we didn't do the detailed fish survey.

Perkins: Okay. And I saw online that you've been involved, at least in a small capacity, with the Urban Pond Procession.

Scott: Mhmm.

Perkins: Can you tell me a little bit about that?

Scott: [4:32] Yes, they get me to wear – make and wear – silly hats [laughter]. Yes, it's actually kind of an interesting story. So Holly Ewald, who is one of, I guess the founder of the Urban Pond Procession, began work in Mashapaug Pond as a result of a small grant that she received from the Department of Health to better relate the information that we actually had found in our studies... to better relate that kind of technical information to the residents and people who frequent the pond. And so in essence I believe she had a grant to, like, make some signs. And actually I failed to say that one of the other things that we discovered in the work that we did was that there were cyanobacteria blooms that occur on the pond, which have, you know, separate public health concerns because of the potential for their releasing toxins. So, at any rate, so we had produced – actually, that sign [points to sign in room] – which we thought was pretty... pretty nifty, but... [laughter]... it apparently was not universally held to be a good sign. So Holly was hired to basically recreate a diff... a, you know, a new sign that had more appeal and I think universal, kind of would cross language, any language barriers, multi... of the people with multi-languages who frequent the pond. And so... but she didn't just make the signs. So she got... she went into the schools and began working with students to educate them about what was going on on the pond and to – and also both grade school students and high school students – and got them involved with what was the first Urban Pond Procession and did various art workshops with them where they created graphics that then were incorporated into the new signs that she did produce. But, so I... so I became acquainted with Holly in that first year of her contract. She met with me to, you know, get an understanding of what was going on on the pond and then would ask me to come to various classes to talk to the students about the situation with the

pond, so that then they could go and do their projects with some informed knowledge of... of what was going on there. So... so I've kind of been doing that since however long this has been going on, that she's been involved with the Urban Pond Procession, but basically providing technical support to Holly and her various other collaborators. And... so that's how I got involved.

Perkins: Cool. And through that process do you feel like you've developed any personal connections with the pond or the community, or you still feel it's, it's very... a sort of professional relationship? Although, I'm sure you...

Scott: Yes, I mean I have, so I have this professional relationship with the pond [laughter]. But I have a personal connec... relationship with Holly and with, you know, kind of what she and others are... are trying to do, you know, in terms of educating people in the... in the neighborhood and in the watershed about issues with the pond and what they can do to help restore the pond and to build broader public support and political will for... the, really the more expensive things that really need to be done to clean up the pond. So, I... I definitely have a, you know, personal relationship that has developed over time and it's like, you know, one of my favorite... my favorite projects is doing stuff on the Mashapaug Pond.

Perkins: Cool. What are some of those things that the pond would benefit from that are on the expensive side?

Scott: [9:09] Well, of course there's the cleanup at the former Gorham site and, you know, that's pretty much... it will be taken care of by the responsible party, Textron and... and others. So the issues that really have public... where there's public expenditure needed mostly relate to dealing with the discharge of untreated stormwater into the pond. You know the – if you look at an aerial photograph of the watershed contributing to Mashapaug Pond and Spectacle Pond, which is upstream of Mashapaug, it's a very developed watershed and, because of all of the hard surfaces on the landscape, the water, when it rains the water can't infiltrate into the ground. Instead it... it runs across those surfaces and picks up pollutants and discharges it into the ponds. So that we believe is a significant source of phosphorus, which is causing the cyanobacteria blooms and... and other eutrophication problems, excess nutrient problems in the ponds, and just, you know, also contributing to overall poor quality. So what is in essence called for is for the city and DOT, those who own the roads and the drainage structures, to first do studies to evaluate where and what kind of thing... structures can be built to treat runoff. One of the key recommendations that we have is to reduce runoff volume if you can by, you know, reducing the amount of pavement and getting... and also getting as much runoff into the ground. So those are... those are... particularly the... the Best Management Practices, or BMPs as they're referred to, for doing, you know... subsurface infiltration or other kind of treatment of the runoff are expensive and... and is something that would be the responsibility of DOT and... and the city to... to take care of.

Perkins: Okay. And so if you prevent the... the runoff from getting into the pond, will the pond, through its own sort of filtering of water, slowly reduce the levels of phosphorus and those other pollutants? Or preventing the... the runoff from getting in there is more of preventing it from getting worse?

Scott: Well it's, you know I guess when we look at these ponds we look at what we consider to be external sources of the pollutants of concern and then there's sometimes internal sources. So by dealing with this stormwater we, in essence, are dealing with the external sources, but as you pointed out there still may be internal sources of those pollutants of concern. And, in this case, we do expect that there are... that the sediments in Mashapaug Pond are likely rich in... in phosphorus and that they can be resuspended in the water column and then the phosphorus is available for plant, you know, whether it's phytoplankton or other aquatic plant, uptake. So we do expect that there... there may be a need for internal treatment, you know some kind of in-lake treatment of the internal... to reduce that internal cycling of phosphorus.

Perkins: Okay. And, in your experience with the pond, how have you seen it change over the years? And where do you see it going in the future?

Scott: I have to say that I don't know that I've seen it really change... You know there haven't... there's been awesome public outreach and education, but there haven't been any real structural changes or any real physical changes in the landscape or in, you know, in efforts to reduce the phosphorus loading to the pond. So I guess I wouldn't yet expect to see there to be, you know, like a change in the pond *per se*. But I am hopeful that the pond will... the quality of the pond will improve as the continuation of all these great outreach efforts hopefully will build the political will and financial support needed to treat runoff and deal with these sources of... of phosphorus in the ponds.

Perkins: Are there other ponds like Mashapaug around Providence that the DEM works with that have a similar history?

Scott: Oh, yes! So, just even within this drainage system there are ponds that... that we are working on. So Spectacle Pond, which is upstream of Mashapaug Pond, flows into Mashapaug Pond and... [laughter]... and then Mashapaug Pond flows south and... and discharges into the Roger Williams Park pond system. We also have completed a water quality restoration study for Roger Williams Park ponds and Spectacle Ponds... Pond, and there isn't as much work going on with Spectacle Pond at this point in time, but there has been quite a bit of activity via the Providence Parks Department and the Narragansett Bay Estuary Program to develop a Mashapaug – I'm... I'm sorry – Roger Williams Park Pond Restoration Plan and they've begun to implement some of the... the recommended actions within our TMDL and reiterated in their plans. So I think those are the only two ponds in the Providence area. There's other ponds in the urban metropolitan area and other water bodies in Providence, but that's it for the ponds.

Perkins: [15:43] Okay. Cool. And what are your thoughts on the... the state laws that... surrounding bodies of water like this and rehabilitation of it or the prevention of pollutants? Just, in your opinion, do you feel like they are sufficient or... or what changes would you like to see?

Scott: I believe that the laws that we have for protecting the surface waters... I think are... are sufficiently... I guess for the most part I think they are sufficiently protective. I think the... you know, there's kind of two different aspects to that question and one is our ability to control new sources of pollution and our ability to control existing sources of pollution. And I think the law is adequate to deal with both. I think the tools for dealing with new sources of pollution are more easily implemented because when people want to develop or redevelop a site, typically they have to come into either municipal government or state government for some kind of approval. And we have, you know, now a very good set of... of tools that we use to, basically, minimize the impact from the new development. I think the biggest challenge we have is with the existing sources of pollution, as I described with, you know, being a built environment. But I don't think that there's, you know, that there's a problem with our laws. It's really a problem of not having adequate funding to address these existing sources. And I think that's, in part, why there now is this... a big focus on working – for myself – working with municipalities on evaluating sustainable revenue sources to support their stormwater management programs. Currently the most municipalities, and not just Providence, rely upon their property tax generated, general funds to pay for really most town services, city services... And so what happens is that for things like stormwater management, which have both operation and maintenance aspects of their management, but also capital, very intensive capital infrastructure needs, that they just don't... there isn't enough money and, you know, most municipal budgets, I would... yeah most, I guess keep it at that... to be able to really pay for what needs to be done when you also have things like pension and police and fire and schools and everything else that is drawing upon that same general revenue. So there is a movement around the country to create stormwater utilities as a way to separate... to set up separate revenue streams for managing stormwater much in the way that there are fees for other utilities, like wastewater and drinking water. So it just... it makes a lot of sense and... I, you know, that was kind of a long answer to your question. So I think there... you know, for the most part I think the laws are adequate. There is some, you know, there is some issue relative to things that are considered non-point sources of pollution that we don't have regulatory... we don't have direct regulatory authority to make something happen in that case. But that's not the case with stormwater. We have adequate, you know, law and regulatory authority.

Perkins: [20:02] Okay. And the... the funding... the budget that is allocated to projects like this, how... how is it distributed and allocated to... to different projects or different ponds or different elements of the projects?

Scott: You mean the whole stormwater utility idea?

Perkins: Yes.

Scott: Well so that would really be... so the... the concept is that municipalities or groups of municipalities would form together and create a utility that would collect fees for... basically based upon the amount of impervious coverage on a parcel. And then, much in the way that a... a town managing a wastewater treatment facility or a town managing a drinking water supply takes that money in, it would really be decisions at the local level to cover their operation and maintenance expenses and have a, you know, basically a capital infrastructure plan for how they're going to spend that other piece of their budget and, you know, in a prioritized way. So it could be everythin... anything from buying new equipment like StreetVacs and catch basin cleaners to building these kinds of Best Management Practices that I talked about...

Perkins: Yes.

Scott: ...infiltration systems, and so forth. But that's really... would be a decision that would be at the local level. I mean certainly through the studies that we've done, these water quality restoration studies, we identify what we believe to be the most significant sources of pollution and... and we, more or less, require that municipalities look at those on a prioritized basis, or at least to justify why they're not, if they choose not to. But, you know, in the end it... it's a local decision.

Perkins: Okay. And how do you see the... the different roles and responsibilities of the DEM, community members, other activism organizations in cleaning up a pond like Mashapaug Pond?

Scott: Well it... it certainly takes a team. It takes a village [laughter]. It, you know I think that we all... there is a role for all entities to play and, you know as I mentioned, the municipalities and Department of Transportation own roads and own drainage systems that are, you know, have outfalls that discharge contaminated stormwater to these ponds. You know, ultimately they're responsible for that... for that pollution and... and I think the municipalities acknowledge that that's a responsibility. I... the role that DEM has and I think will continue to play is to really provide support to them in... in, in, in doing the... the right thing relative to managing those pollution sources and... and, you know, providing whatever technical, you know, assistance and financial assistance that... that we can... But I... the kind of work that needs to be done is really beyond just a grant here or there. It really is, you know, a need for a more sustainable revenue source that will support an ongoing level of effort. And so, you know, from that perspective I've, you know, been helping Providence and other municipalities to try to move... move that forward. I think that the groups like the Urban Pond Procession and Environmental Justice League play a really important part in all of this in terms of the public outreach and education, not only to kind of the general public as a whole, people who live in the neighborhood and in the watershed for these ponds, but, you know,

also in terms of, again, building kind of political will, making people aware that these are issues that people really care about, that there's resources that are... valued resources that could play a much... you know, really improve quality of life for people in these areas. And so I think that – and I think they also know that, like, 1-on-1 contact that they have with people in the watershed is really valuable to create those personal... personal connections for people and to, hopefully, you know, build the number of people who are supportive of... of cleaning up the ponds and doing what they can to help.

Perkins: [25:05] And what kind of relationship would you say the DEM has with the Environmental Justice League?

Scott: You know from my perspective I, I... there obviously are a whole host of... of issues that the Environmental Justice League and DEM have overlap on from a water quality perspective and the work that they specifically are doing in the Mashapaug Pond watershed. You know, again, I think the role that I have played and I would expect to continue to play is one of providing technical support to them. And so that's, you know, that would be an ongoing... an ongoing role I think.

Perkins: Okay. Because I, I, yes... I, I find that interesting because I've always sort of thought about the... with a government organization like this, what the... how much of... I don't know how to word this. How... how you would characterize you and other colleagues as really being, you know, on the... well there's one end of the spectrum where it's real activism and the other end it's... it's, you know...

Scott: Responding.

Perkins: Exactly. Responding. These are the policies and we want to enforce them. And on a personal level, not necessarily just regarding your relationship through DEM, but just on a personal level, where... where do you fall on that spectrum? Do you see yourself as sort of enforcing these... these laws, which you said you think are... are fairly well constructed? Or... or do you really feel like you're constantly kind of pushing for these things on a... a moral or ethical ground?

Scott: I don't know if I can say it personally. I, I... I don't think I can answer that question personally. I can answer it professionally.

Perkins: Okay.

Scott: And we... DEM has actually notified the City of Providence that they are... have been put on the list for enforcement for their lack of compliance with their permit, their stormwater permit. So I think it has... and... and some of that has to do with their just not be... being able to comply with what's considered kind of the minimum components of their Phase II stormwater permit. But the other piece of the Phase II stormwater permit is the various detailed and specific provisions that have been developed through these water quality restoration studies that we've

completed. So I think I've, I... I actually feel like I kind of covered the spectrum [laughter] from... I'm not in the regulatory program *per se*, but I have produced the information that... and established the information that becomes the basis of regulatory requirements and have, you know, evaluated the city's ability to respond to those new requirements and found them to be short. And... and mine as well as others' review have led to their being in this situation of non-compliance, you know, evaluation of non-compliance. It's their own fault that they're in non-compliance. And... and so that's, you know, that's kind of taking its own course. But in the meantime, the efforts that the... the environmental advocates are playing to, you know, raise awareness and build political and public support for restoration of these ponds, I think is equally important. So I think it's really, you know, kind of approaching the problem from both ends of the spectrum, both from legally enforcing what needs to be done and to building the political will to have the finances to make it happen as well as informing people about their own personal responsibilities and what they can do on their own properties. So, it's kind of a, you know, holistic perspective, that I... that I think is playing out in Mashapaug Pond, frankly.

Perkins: [29:40] And getting back to this idea of there not being enough funds... In terms of raising... raising funds for that, if... if organizations or... or nonprofits were to raise money, would they be able to... like, does DEM collect money like that to be able to use for these projects? Or they would have to do it through an independent, like, they'd have to implement their projects separate from DEM – DEM just works off of the budget?

Scott: Yes, DEM doesn't...

Perkins: Yes.

Scott: ...collect any funds like that. No.

Perkins: Okay. And so you said you've been working with the pond for a few years, but even just in general with... with other ponds and other bodies of water, how have you seen the... the city's approach change over the years, in terms of just being aware of pollution or... or dealing with it or preventing it?

Scott: Yes I think overall the City of Providence as well as other cities and towns in the state are becoming much more aware of... of the quality of their surface waters and things that they are responsible for, you know, and for the most part the, you know, the biggest thing that's happened for municipalities is... is when DEM adapted, you know, a general permit, a stormwater general permit which required that they do, you know, basically set up stormwater management programs to begin to address these problems. And then we, you know beginning back in the late 1990s, began developing these water quality restoration plans and now there are... are these TMDLs completed for I don't know how many water bodies, but all over the state. And, you know, as I said they identify specific... we identify what we believe to

be the pollution sources causing problems in these surface waters and recommend what ought to be done. Those recommendations get actually put into permits. If we have an existing permit, they get put into an existing permit, which is where the... the link between these studies we do and... and the Phase II permits that make municipalities do certain things. So I think through that whole process municipalities' awareness of these issues and their responsibilities has grown significantly and, you know, many are doing a great job in... in kind of picking up, you know, the reins and doing what they need to do. It's definitely a, you know, an evolutionary process.

Perkins: Yes. Cool. And... and how... how do you think we compare with... with other states, in terms of compliance with these things and... overall body-of-water quality?

Scott: Yes. We are... you know, as you know we are a very densely populated state, which is kind of interesting because if you look at a aerial photograph of the state or a, you know, a... like a LandSat image, it's really mostly concentrated along, you know, Providence area and then along our waters' edges. And so parts of the western part of the state are pretty sparsely populated. But, you know, I think because of that, because of our development patterns, we have our share of... of polluted waters. I think that we... you know, I think we fare pretty well compared to at least other New England states in terms of how we're doing and trying to restore our surface waters. We were one of the first states to make that connection between our TMDL studies and these permit requirements. You know, municipalities are still, you know, kind of trying to figure out how to respond to these requirements and develop the funding needed to... to do it. But I... I think that, you know, we've made that connection for people and... unlike some of the other states. Although they now are doing that also.

Perkins: Cool. And does the... does the DEM when they're doing different studies or research... is that through DEM employees or through, sort of, get researchers from other organizations to sort of do a report and write up a summary?

Scott: We... it's a mix. So we have staff who are involved with conducting the studies, doing the water quality monitoring and... and... and modeling in some cases and writing the reports. We've hired consultants to do that. We also, in some places, have relied upon data collected by volunteers who are, you know, part of a organized monitoring program at the University of Rhode Island – it's the Watershed Watch program. So we kind of, you know, look for different opportunities to partner with... with folks where they exist, but, you know, largely we rely upon our own staff and our consulting... consultant services.

Perkins: [35:28] Cool. Is there any kind of volunteer monitoring program going on at Mashapaug?

Scott: Yes.

Perkins: How long has that been going on?

Scott: It... it was going on earl... in the 2000s, and then that's the early 2000s or mid-2000s and then that seemed to... the volunteer stopped doing it. But then it got resurrected again, or I guess not again, you only get resurrected once [laughter]. It got resurrected a couple years ago, I think. We've been doing it for maybe three, four years, something like that.

Perkins: And has... have you found that to be effective?

Scott: Yes! It's... it's valuable to have the data. It... it would be data that we otherwise would not have. We don't have, you know, staff. In fact we mostly rely upon volunteers to collect data on lakes in the state, overall.

Perkins: Okay. Can you comment at all on... on any health effects that you think different polluted waters, particularly at Mashapaug, could have? I know it's very difficult to draw any definitive conclusions, but what are some of your suspicions or the suspicions of... of the DEM?

Scott: Yes. Well, I don't know if I would call it as suspicions, but there certainly are aspects of the pond's water quality that are of concern from a public health perspective. So, you know, I mentioned that after it rains we observe that the concentrations of bacteria rise. So, not that necessarily people are going to be swimming in the pond anyways, but, you know, potentially swimming during periods of, you know, after it's rained, when the bacteria is elevated, could cause gastrointestinal problems. I mentioned that there are cyanobacteria blooms that occur on the pond with some frequency. And those toxins that may be produced are... can cause dermo-reaction and, you know, I... I don't think people are going to be drinking the water. But, you know, these are... are hepatotoxins and... and neurotoxins that, you know, potentially are quite serious and actually are serious from the perspective of... if... of animals are swimming in the pond. They can have very bad effects on... on them. And then there's of course the contaminated sediments that have been discovered as a result of the Gorham site and, you know, there are potential health effects, not so much... I mean I know that there's heavy metals, but there were also... and I'm... I... there are some organics that are associated with that site that raise some public health concern as well. And then of course the contaminated fish tissue is an issue from a public health concern relative to people eating the fish and the bioaccumulation of toxics. So.

Perkins: Do you think there are many people that eat the fish at this point or did so in the past?

Scott: I don't know that. I know that in, you know, people are observed fishing along the urban rivers and waters, you know, fairly frequently and presumably they're sis... you know, susta... sussistence... suss... They're gonna eat the fish [laughter].

Perkins: Okay.

Scott: So I don't know specifically about Mashapaug.

Perkins: Yes, sure. Well why don't we switch gears a little bit and, if you don't mind, could you tell me a little bit about how you got into this field, what... what motivated you to do that?

Scott: [39:57] Mhmm. I think probably the biggest influence in my getting involved with environmental management is that I... I grew up on Lake Champlain and I spent pretty much all my summers splashing around in... in the lake and... and so then from that just developed a intellectual curiosity about... about water and went on to study water resources and... and then management of water resources.

Perkins: Cool. And what... what were some of the early jobs or internships you had that... that were related to this?

Scott: Mhmm. My first job wa... out of college, was working for the State of Vermont and they had a project to evaluate the impacts of ski resorts and related development on upland streams. So myself and another newly graduated person travelled around Vermont sampling, doing upstream and downstream sampling, of these ski resorts and collecting samples, water samples, and then we also did phytoplank... periphyton sampling, which is – periphyton is the algae that grows on rocks – which required that we had this whole setup of, you know, our lawn chairs that we put behind our big pol... former police cruiser car that... and then with trays and the whole setup to be able to scrape the rocks and then suck up the scrapings into a bottle. So that was one of my... that was my first intern job and... and then I had another one another summer with Vermont also, teaching volunteers how to sample water.

Perkins: Cool.

Scott: Lake water. Yes.

Perkins: And do you ever... do... work with volunteers now? Or... or do any sort of... I'm just noticing that you've been involved with the signs and stuff and I don't know what... what level of educating or raising awareness you've participated in.

Scott: Yes. I do quite a bit of that actually. For all the projects that we work on I, you know, I... I... I try to... to relay that information to volunteers who are on the ground working so that, you know, basically try to... to give them as much information so that they can be as informed as they can be in their work. So that's... I, I do a lot of that.

Perkins: Cool. Let's see. What are your favorite and least favorite characteristics of the pond?

Scott: What are my favorite? My favorite characteristic, or... I think I'm going to just turn... interpret that to say place, is the little boat launch.

Perkins: Mhmm.

Scott: The little park area behind Job Lot I think is my favorite spot on the pond. And my least favorite is the whole kind of... there's such an industrial field at one... and I can't think which part of the watershed, I think it's the north... northern end of the watershed that's just very industrial, well plus the industrial park. So those would be my least favorite...

Perkins: And the...

Scott: ...with all the pavement.

Perkins: And part of the pond was... was filled in at one point right, to make room for that industrial park?

Scott: It appears that it was, yes [laughter].

Perkins: And how do you... how do you think that changed the hydrology or the... the terrain or... or affected this issue...? I'm sure it affected this issue of stormwater drainage.

Scott: Yes, I mean the pond has had some major... there, you know, it... it has been abused in a very significant way [laughter], hydrologically and otherwise. But, you know one thing that I guess I... at the... the presentation that was made by – oh gosh, the fellow who was co-presenting with me, whose name I can't think of right now, Ed?

Perkins: Mhmm. Yes.

Scott: [44:49] And he was talking about how when he was a kid and he lived in that neighborhood, which is now the industrial park, that the streets were not paved. That actually, was just... is really interesting to me that that was the case. And then the other thing that there was kind of a convergence of different pieces of information that made me think that one of the... one of the issues that these ponds, Mashapaug... Spectacle, Mashapaug, and Roger Williams park ponds have is that they... there have been significant hydrologic alterations that have occurred over time that would have reduced the amount of water flowing through there and just... which means that the water is kind of sticking around longer. And that tends not to be a good thing. So the other major thing that would have impacted that is that a good part of the watershed that would by topographic... topographically would flow

to the pond is actually serviced by the combined sewage system so that the water, rather than the – runoff, rather than flowing to the pond, flows into the combined sewer system and then that's discharged out of the watershed and actually out into the Providence River. So that, you know, that's pretty significant and, you know the whole thing with the street not being paved... You know, during that time period, when it rained it would just go into the ground, so that would help to recharge the groundwater. And people have talked a lot about, in the past, you know, there... people who have, you know, some history with the pond have talked about the springs. And that certainly would be in part fueled by, you know, that groundwater recharge that would happen. So I, yeah... I mean there's no doubt that between the filling and the various culverting of inflow/outflow to the pond that it's, you know, changed the hydrology of the pond significantly.

Perkins: Okay. And another woman at that panel had mentioned that she thought the springs were contributing to having weaker ice. How does that work?

Scott: Well, this is... I'm just... I don't... I'm not speaking professionally, this is just from thinking about it.

Perkins: Sure.

Scott: So just, where there's water movement then you are going to... one, ice doesn't form as well when it's moving than when it's still. And then if the groundwater were at a higher temperature than the ambient water temperature, then that too would, you know, create, you know, areas where there might be softer ice or less thick ice.

Perkins: Okay. Do you think it's safe for people to be using the pond for boating purposes but not swimming?

Scott: Yes. You know as long as there's not a cyanobacteria bloom going on. When there are... when there are cyanobacteria blooms, the recommendation is to just avoid any recreational contact, including boating.

Perkins: And you mentioned at the panel some of the indicators of a cyanobacterial bloom. Could you reiterate those?

Scott: So cyanobacteria are... they're not algae and they're not bacteria, they're cellular bacteria... They're act... it's pretty cool actually as a, you know, as a thing – I don't know whether they're considered a plant or an animal, but they're basically photosynthesizing bacteria and they have some traits that allow them to outcompete other kinds of algae, like green-algae and diatoms. And so the symptoms of a cyanobacteria bloom are what it looks like... is... quite often. It might look like someone poured green paint into the water column or might just look like there's this, like, really, you know, scum... really awful green-looking, scummy surface. So those are some of the visible effects or, you know, what you might see as

a... as a outward sign of a cyanobacteria bloom. But then when we evaluate ponds that have those kinds of... of conditions we would also look for microcystins, we would test for microcystins, which is one of the toxins that can be released. And we also would be looking at total cyanobacteria cell count as another indicator of conditions that might be contributing to the release of toxins and... and which would then warrant a... a recreational advisory.

Perkins: [50:30] Okay. How how easy is it to get accurate data on those things? I imagine in different areas or different depths you'd get some level of variation in the concentration of these things.

Scott: Yeah, and we tend... we tend to be fairly conservative and... and that's in part a reflection of the limited budget that we have for this. But we tend to collect samples in places where it looks bad, to see what kind of concentrations we're seeing because, you know, we just can't, you know, if it's bad in one place it could be... that could be moving depending upon what the wind direction is and whether the cyanobacteria are being pushed up against a shore. You know, what you observe in one location as being bad, may be in another spot... not be so bad, but then the next day it might have all moved and be back. So...

Perkins: Okay.

Scott: ...it's, you know, as I said it's kind of a conservative approach to monitoring.

Perkins: And is this monitoring of cyanobacteria something that the volunteers are able to help with or it's... it's too technical and really just the DEM deals with that?

Scott: Yes, we have... we have done the sampling on that, or consultants have done sampling for us on that, you know again it's a situation where we're not recommending that people go splashing around in water that has cyanobacteria blooms, so it's probably best not to be sending volunteers out to collect the samples. And we also, when we go, we want to be observing what's going on. So that's another reason for our staff to do it as... or consultants rather than volunteers.

Perkins: And are... is this kind of monitoring something that you go out and do or other people go out and do?

Scott: I don't... I don't do any of it [laughter]. I don't do any monitoring. It'd be nice, I'd like to get out, but I don't.

Perkins: Could you... could you give me just a little overview of all the different things that you do for the DEM?

Scott: I could look at my desk [laughter]. So I oversee the... the TMDL program so we've got studies going on at various places around the state. So I oversee staff who are working on developing those TMDL documents. And then also involved when

municipalities or others begin to implement the... what's included in the TMDL document. So, that's where, you know, whether it's working with the Parks Department in Providence on their Roger Williams Park Pond Management Plan or with the Town of Charlestown on design of a BMP or work with South Kingstown and their design of BMPs or other towns that are revising their stormwater management plan to incorporate the recommendations of the TMDLs. There's that whole level of work that's done and I also oversee the... the program that collects water samples in our shellfish growing waters and making the determination whether the waters are suitable for the harvest of shellfish. So there's another group of people that I work with on that. And then this whole stormwater utility end of things that's just been kind of blossoming of late. So working with the Town of Middletown on providing consultant services to them to initiate a stakeholder process to further evaluate stormwater utility adoption for their town and also working with Providence and, I believe it's 10 municipalities, on launching an effort to explore a regional stormwater utility. So I've been involved in all aspects of that. That's... that might be it. There's various other things related to all of that.

Perkins: [55:16] Yeah. Cool.

Scott: Basically doing water quality work. Management work.

Perkins: Yes.

Scott: Oh I also do the whole, like, listing of waters on the impaired list. I work with another staff person who assesses the waters and then together we figure out whether they should go on this 303(d) list, which then means that we have to do these TMDL studies.

Perkins: Okay. Cool. And then maybe just to try to wrap this up, I just ask you, well, do you have any questions for me? Or do you have any additional thoughts or... or memories surrounding Mashapaug or impressions that... that you'd like to share?

Scott: No, and I just actually read your question. Let me answer that question you had – sorry – about would I characterize myself as an activist or a regulator? I, I think I would characterize myself more as an activist.

Perkins: Okay.

Scott: Just seeing it in a different light.

Perkins: Yes.

Scott: And then any lasting impressions? No, I, I guess my lasting impression to leave with you is that I'm hopeful that the water quality will improve someday and there's lots of great people and good energy, you know, trying to... to restore the pond and so it's all... it's... it's good.

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Perkins: Cool. Well thank you so much for your time.

Scott: You're welcome.

Perkins: I think we can...

Scott: We did it in an hour.

Perkins: Yes.

[End of Interview]