

The Culvert Connection: Reconnecting Our Streams Conservation and Land Use Webinar

January 12, 2023

1:00 – 2:00 pm

1 "Christine Vanderlan" (268482560)

00:00:07.350 --> 00:00:13.049

Okay, so we are at 1 o'clock, which is our start time for the webinar.

2 "Christine Vanderlan" (268482560)

00:00:13.049 --> 00:00:27.270

And welcome, my name is Christine Vanderlan, and I am a conservation and land use specialist with the Hudson River Estuary program through a partnership with Cornell University.

3 "Christine Vanderlan" (268482560)

00:00:28.500 --> 00:00:40.915

Welcome to our webinar series. We're really glad that you're joining us today. This is our 1st webinar of 2023. Today, the topic is connectivity in the streams of the Hudson Valley and the culverts

4 "Christine Vanderlan" (268482560)

00:00:40.915 --> 00:00:49.405

that often are mismatched to water flows and actually act as barriers for stream organisms.

5 "Christine Vanderlan" (268482560)

00:00:50.035 --> 00:01:03.115

Megan Lung, environmental analyst with the Hudson River Estuary Program and NEIWPC ("new-ee-pick") will be giving an introduction to connectivity and streams, these challenges, and the culvert prioritization project,

6 "Christine Vanderlan" (268482560)

00:01:03.145 --> 00:01:08.455

which assists municipalities to evaluate and then plan for replacing problematic culverts.

7 "Christine Vanderlan" (268482560)

00:01:08.790 --> 00:01:15.270

Before I introduce Megan more fully, I'm going to review a few webinar logistics.

8 "Christine Vanderlan" (268482560)

00:01:17.970 --> 00:01:21.810

1st, there are options for your audio connection.

9 "Christine Vanderlan" (268482560)

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And if you are having difficulty with your audio through your computer, you can choose to switch audio by clicking the 3 dots next to the red exit button at the bottom of your screen.

10 "Christine Vanderlan" (268482560)

00:01:33.445 --> 00:01:38.185

And there you will find options to request a call back or to call in by phone.

11 "Christine Vanderlan" (268482560)

00:01:39.780 --> 00:01:50.220

If you need help during the webinar, please reach out to me using the chat and you can see that icon in the bottom right corner of your screen.

12 "Christine Vanderlan" (268482560)

00:01:50.220 --> 00:01:55.680

If you have questions for Megan, please use the Q and A function.

13 "Christine Vanderlan" (268482560)

00:01:55.680 --> 00:02:05.010

And if that's not open already on your screen, you can access Q. and A by clicking the 3 dots next to chat in the bottom right corner.

14 "Christine Vanderlan" (268482560)

00:02:08.550 --> 00:02:15.360

Your phone lines are muted and the webinar is being recorded. We will notify you

15 "Christine Vanderlan" (268482560)

00:02:15.360 --> 00:02:21.150

following the webinar when that recording is available, likely sometime next week.

16 "Christine Vanderlan" (268482560)

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And then a small thing we ask you to do for us is to fill out a short 4 question survey, which will pop up when you exit the webinar. And that will help us to plan future

17 "Christine Vanderlan" (268482560)

00:02:32.520 --> 00:02:38.220

webinars as well. For those of you seeking municipal training credit

18 "Christine Vanderlan" (268482560)

00:02:38.220 --> 00:02:52.680

for attending the webinar, you will receive an email confirmation of attendance following the conclusion of the webinar. If you don't receive that, please reach out to me. And I can figure out how that got lost in the shuffle.

19 "Christine Vanderlan" (268482560)

00:02:55.020 --> 00:02:55.765

For those of you,

20 "Christine Vanderlan" (268482560)

00:02:55.765 --> 00:03:10.405

who may be new to our program, to our webinar series, the Hudson River Estuary Program is a special program at the New York State Department of Environmental Conservation established to help people enjoy, protect,

21 "Christine Vanderlan" (268482560)

00:03:10.710 --> 00:03:14.310

and revitalize the Hudson River and its Valley.

22 "Christine Vanderlan" (268482560)

00:03:14.310 --> 00:03:24.360

And we work throughout the 10 counties, bordering the tidal Hudson River to achieve many key benefits, including the vital estuary ecosystem,

23 "Christine Vanderlan" (268482560)

00:03:24.360 --> 00:03:27.840

Clean water, healthy tributary streams,

24 "Christine Vanderlan" (268482560)

00:03:27.840 --> 00:03:38.670

climate adaptive communities, conserved, natural areas in the watershed, as well as an informed and engaged public, and access for all to the Hudson River.

25 "Christine Vanderlan" (268482560)

00:03:40.080 --> 00:03:53.065

Within the Estuary Program, the conservation and land use team works with municipalities and regional conservation partners who are working to conserve important habitats and natural areas through local land use

26 "Christine Vanderlan" (268482560)

00:03:53.065 --> 00:04:05.965

planning and decision making and Ingrid Haeckel and I are available to provide technical assistance on a variety of conservation planning and policy projects, so please feel free to reach out to us.

27 "Christine Vanderlan" (268482560)

00:04:06.240 --> 00:04:14.880

And our website is a clearinghouse for guidance and resources on these topics. And that link was just shared in the chat.

28 "Christine Vanderlan" (268482560)

00:04:14.880 --> 00:04:26.159

Our next webinar in February on February 16th will present an introduction to Hudson Valley habitats and biodiversity conservation. And my colleague

29 "Christine Vanderlan" (268482560)

00:04:26.159 --> 00:04:32.669

colleague Ingrid Haackel will be presenting along with Gretchen Stevens of Hudsonia. So we hope you can join us for that as well.

30 "Christine Vanderlan" (268482560)

00:04:33.989 --> 00:04:47.609

And with that, I'm very pleased to introduce our speaker today, Megan Lung, who is an environmental analyst with the Hudson River Estuary Program and NEWPICC.

31 "Christine Vanderlan" (268482560)

00:04:47.634 --> 00:04:55.644

Megan focuses on stream restoration by removing aquatic barriers and returning streams to a free-flowing condition.

32 "Christine Vanderlan" (268482560)

00:04:56.274 --> 00:05:05.064

Megan coordinates the program's culvert prioritization project and assists in dam removal efforts in the Hudson River Estuary watershed.

33 "Christine Vanderlan" (268482560)

00:05:05.369 --> 00:05:12.869

And she is a proud University of Michigan Wolverine with a bachelor of science in Ecology,

34 "Christine Vanderlan" (268482560)

00:05:12.869 --> 00:05:18.299

Evolutionary biology and history, so, with that, Megan, I'm going to

35 "Christine Vanderlan" (268482560)

00:05:18.299 --> 00:05:23.729

Stop sharing and just remind folks as we switch over and Megan

36 "Christine Vanderlan" (268482560)

00:05:23.729 --> 00:05:31.859

Begins, please use Q and A, to submit questions for Megan, and we'll get to those following her presentation.

37 "Megan Lung" (2630356736)

00:05:36.989 --> 00:05:42.509

Thank you Christine. Thanks Ingrid. Can you see this? My title slide. Okay.

38 "Megan Lung" (2630356736)

00:05:44.364 --> 00:05:57.504

All right fantastic. All right, so thanks. Everybody I was just quickly scan the attendee list. I know some people are zooming in, from far and wide, and I was looking for someone in particular who always teases me every time I refer to myself as a "Michigander."

39 "Megan Lung" (2630356736)

00:05:57.714 --> 00:06:10.884

So, I don't see him here, so he'll have to wait to tease me again, but thanks so much for welcoming and thanks for coming to hear about infrastructure, which can be a really dry topic. But I'm hoping by the end of our time together today, I can convince you that it's really exciting.

40 "Megan Lung" (2630356736)

00:06:13.739 --> 00:06:23.879

So I would like to open up my presentations with a joke. As I said, I'm from Michigan. If you are not familiar with the quirks of our of my home state,

41 "Megan Lung" (2630356736)

00:06:23.879 --> 00:06:38.184

If you are from the lower peninsula or south of the mackinaw bridge, like, I am, you're called a troll because you live under a bridge. So that's kind of how I describe my work to my family that I am literally a troll that is under a lot of bridges.

42 "Megan Lung" (2630356736)

00:06:39.414 --> 00:06:53.034

A quick outline of what I'm going to talk about today. I'll briefly talk about our Estuary Program and kind of where my work on our watershed team falls under with the collaborative prioritization project and also how our program has been prioritizing for dam removal.

43 "Megan Lung" (2630356736)

00:06:53.634 --> 00:06:57.894

We're gonna go through a couple case studies specifically on the importance of stakeholders. Um.

44 "Megan Lung" (2630356736)

00:06:58.199 --> 00:07:05.609

And then we're also going to end on talking about streams and principles of diversity, equity, inclusion and justice and where those overlap.

45 "Megan Lung" (2630356736)

00:07:07.409 --> 00:07:20.729

So, for those of you, who have not gotten to see the beauty of the Hudson River, this is the Hudson river from the Bear Mountain bridge taken by a former colleague of ours and everything we do is to benefit this river. It's ecosystem. And the people that are within it.

46 "Megan Lung" (2630356736)

00:07:20.729 --> 00:07:32.699

So our program as Christine mentioned is organized around key benefits and with what I'm going to talk about today, we're focused on the healthy tributaries and the climate adaptive communities benefits is kind of where this work falls under.

47 "Megan Lung" (2630356736)

00:07:34.194 --> 00:07:48.654

So, thinking about what a stream has to do. This is a picture I took in the field one day when I was out assessing just a stream in Colombia County, and I like this picture because it kind of demonstrates everything that a stream has to do in one quick shot.

48 "Megan Lung" (2630356736)

00:07:48.654 --> 00:08:02.994

So you can see that we've got a limb that has fallen across the stream, not a big one, but you can see that little bit of these detritus and the leaves. It's kind of stopping all that flow and you might see a little bit of a build up.

49 "Megan Lung" (2630356736)

00:08:02.994 --> 00:08:03.834

And then it's kind of.

50 "Megan Lung" (2630356736)

00:08:03.989 --> 00:08:15.209

normal as it flows back over. You see, our water is pretty clear, because it's holding all of our little leaf bits right here. So thinking about everything that a stream needs to do a stream not just as moving

51 "Megan Lung" (2630356736)

00:08:15.294 --> 00:08:30.114

Not just moving water, but it's moving nutrients. It's moving sediment. There are critters and fish that make this stream its home underneath. It has a floodplain that it's connected to and it's normal for that stream to rise and fall and also to move around.

52 "Megan Lung" (2630356736)

00:08:30.114 --> 00:08:35.154

We think of streams a lot of times a static, but really streams are trying to move around as well.

53 "Megan Lung" (2630356736)

00:08:36.054 --> 00:08:49.044

And when we have our infrastructure in there, so any kind of what I'm going to call artificial barriers that can be road stream crossings, like culverts and bridges, that could be dams. Those artificial barriers can impact the stream, its functions,

54 "Megan Lung" (2630356736)

00:08:49.044 --> 00:08:53.994

and also the critters, like these river herring and the bottom right corner that are trying to, um.

55 "Megan Lung" (2630356736)

00:08:54.329 --> 00:09:08.334

that essentially depend on that stream for their, like, their life history. So, right away when we have an artificial barrier, there's potential for us to impact the conditions of the flow, to disrupt that flow. Like, that limb is in the picture, we can interrupt the flow and transport of nutrients and sediment.

56 "Megan Lung" (2630356736)

00:09:08.754 --> 00:09:16.404

We can see degradations of water quality as we've stopped that flow, we're seeing that temperatures can rise as that water is not moving and is exposed to the sun.

57 "Megan Lung" (2630356736)

00:09:18.324 --> 00:09:28.944

We can see an increase in temperature that can also drive a decrease in dissolved oxygen. So, a lot of fish and other critters they get their oxygen through the water, not through the air like you and I do. So that's really important for them.

58 "Megan Lung" (2630356736)

00:09:29.454 --> 00:09:42.174

And over time, eventually if we have something that is enough of a disruption, that's where we could start to see that stream habitat degrade. And on the long term, we can see the loss of species genetics and distribution. So, as they're cut off from access to this habitat.

59 "Megan Lung" (2630356736)

00:09:43.739 --> 00:09:47.159

I want to acknowledge that natural stream barriers exists.

60 "Megan Lung" (2630356736)

00:09:47.159 --> 00:09:55.949

And not all infrastructure is a barrier. This is a shameless picture of, um, I have a really cute dog. So, and he is terrified of water. So I was trying to

61 "Megan Lung" (2630356736)

00:09:55.949 --> 00:09:59.369

try to show him cause he's so cute. I just want to share him with the world, but

62 "Megan Lung" (2630356736)

00:09:59.369 --> 00:10:12.089

this is a picture of my dog on Black Creek and that is a wonderful bridge that is completely invisible to the stream. So, those things like natural, natural stream barriers. Those aren't the things that we're talking about. We're talking about the human made infrastructure.

63 "Megan Lung" (2630356736)

00:10:13.409 --> 00:10:19.019

You may ask yourself, like my siblings do every time I tell them about my job, "what the heck is a culvert?"

64 "Megan Lung" (2630356736)

00:10:19.019 --> 00:10:25.949

So, a culvert is any kind of a structure that allows water to flow underneath the road from 1 side to another.

65 "Megan Lung" (2630356736)

00:10:27.089 --> 00:10:32.819

In New York state, they are described as 20 feet and under in width, and once we get over 20 feet,

66 "Megan Lung" (2630356736)

00:10:32.819 --> 00:10:41.969

that's when we get into what's technically called a bridge on DOT's end. So it's totally possible to have a culvert that is shaped like a culvert but it's technically a bridge.

67 "Megan Lung" (2630356736)

00:10:44.279 --> 00:10:56.639

And the biggest thing about them is that these crossings or roads stream crossings or RSX's as we call them in the stream world, they're really prolific. And they are essentially invisible. Many of you probably drove over dozens of culverts on

68 "Megan Lung" (2630356736)

00:10:56.639 --> 00:10:59.699

today, you probably didn't notice most of them.

69 "Megan Lung" (2630356736)

00:11:01.349 --> 00:11:05.009

And these crossings can have different degrees of barriers so.

70 "Megan Lung" (2630356736)

00:11:07.079 --> 00:11:12.089

Oh, sorry. Uh, sorry, Christine. I just ignore questions if they pop up.

71 "Christine Vanderlan" (268482560)

00:11:16.019 --> 00:11:19.739

Oh, I'll I'll keep going. Hi. Um.

72 "Christine Vanderlan" (268482560)

00:11:19.739 --> 00:11:22.829

You mean, questions in the chat I think you can.

73 "Christine Vanderlan" (268482560)

00:11:22.829 --> 00:11:26.309

If you're comfortable answering as you go, that would be fine, but.

74 "Megan Lung" (2630356736)

00:11:26.309 --> 00:11:38.279

If you want to hold them to the end that's totally good too. Sure. I'll hold them for. Now. I just saw 1 come up from and it was a comment from you. I wasn't sure if I was supposed to pause, but I'll hold them to the end. And I'll keep going.

75 "Megan Lung" (2630356736)

00:11:38.279 --> 00:11:47.489

Okay, thanks. No, that's okay. I should have like, asset that's not in the practice session, but anyway.

76 "Megan Lung" (2630356736)

00:11:47.489 --> 00:12:00.839

Um, and these crossings, they have, we get their degrees of barriers, so not all culverts are created the same. You can have something on this bottom side. This is a, this is a bridge essentially we have a natural stream bottom. You can see the footers.

77 "Megan Lung" (2630356736)

00:12:00.839 --> 00:12:13.704

And essentially, the stream passes under, and it's the structure is invisible. You can also have something like this box culvert where you have concrete on all 4 sides the stream is going through and this is pretty visible for the stream. It's being interrupted.

78 "Megan Lung" (2630356736)

00:12:13.704 --> 00:12:18.654

There's a lack of natural stream bottom and if you're a critter going through there, you're going to know something is up.

79 "Megan Lung" (2630356736)

00:12:20.304 --> 00:12:34.404

And it doesn't take a lot to make a barrier. You can have instances where the water as it's being constricted by that structure and there's no substrate to kind of roughen the channel, the water is speeding up and if you're a fish coming through, like oh, man, like,

80 "Megan Lung" (2630356736)

00:12:34.554 --> 00:12:48.714

this is too fast like, you can jump into it, but can you keep up and without being flushed out? You can have instances where it's too shallow like the picture we just saw before. You can also have a perch. So this is I took some of these slides and these images from a

81 "Megan Lung" (2630356736)

00:12:48.929 --> 00:12:56.249

workshop we did with Alex Abbott from NYS DEC Fish and Wildlife, and I think that actually is Alex Abbott standing in a culvert and that's about a 2 and a half

82 "Megan Lung" (2630356736)

00:12:56.249 --> 00:13:06.414

foot jump, so if you're a fish and you're making your way upstream, you're just trying to maybe you're trying to spawn. You're trying to find food or shelter, or you're going to seek a different temperature, regiment.

83 "Megan Lung" (2630356736)

00:13:06.864 --> 00:13:16.974

You not only have to make your normal journey avoiding all those other predators that you normally have to do because you're a fish, you reach this crossing and you not only have to jump into a culvert.

84 "Megan Lung" (2630356736)

00:13:17.279 --> 00:13:31.974

You then have to power through this culvert that contains a stream that is probably shallower and faster and it's going for longer than you're anticipated, too. So, for some fish, like, that's fine for this big powerful guy. But you can see these other little younger fish, like, hey, what about us?

85 "Megan Lung" (2630356736)

00:13:32.364 --> 00:13:37.014

So, that's kind of what happens. Every time we have we put a culvert in place we run the risk of creating a barrier.

86 "Megan Lung" (2630356736)

00:13:38.909 --> 00:13:45.869

And this is a widespread problem, it's not unique to New York, although I'm going to talk about New York and the Hudson Valley in particular.

87 "Megan Lung" (2630356736)

00:13:46.134 --> 00:13:58.014

These are ratings that of a regional protocol that we use called the North Atlantic Aquatic Connectivity Collaborative, or NAACC as some of you may call it. And now that I've defined it. I'm just gonna call it NAACC for the rest of the presentation because that's a mouthful.

88 "Megan Lung" (2630356736)

00:13:58.494 --> 00:14:07.554

But in general across New York, and this holds to other states as well, about 28% of these culverts are absolutely no aquatic passage barriers.

89 "Megan Lung" (2630356736)

00:14:07.769 --> 00:14:14.819

So these are the worst, the worst in terms of crossings. And most of them where we see full aquatic passages, 19 %

90 "Megan Lung" (2630356736)

00:14:14.819 --> 00:14:22.409

of what has been surveyed so far, most of these are bridges, so they're structures that are wider, or they are completely natural stream bottoms.

91 "Megan Lung" (2630356736)

00:14:22.409 --> 00:14:27.329

So, when we look at this and what this means for culverts, in the sense of traditional culverts,

92 "Megan Lung" (2630356736)

00:14:27.329 --> 00:14:35.339

only about 4% of these are providing full stream connectivity. So this is a widespread problem. That's not new unique to any one watershed or state.

93 "Megan Lung" (2630356736)

00:14:37.199 --> 00:14:51.684

And we're thinking about barriers and infrastructure, it's not just the culverts. Here in the Hudson Valley we have about 1500 dams that are state regulated and they're not gigantic. They're not the Hoover dam. They're size about, like, this one. So you can see my boss Scott covered here, Scott's kind of a tall guy.

94 "Megan Lung" (2630356736)

00:14:51.684 --> 00:14:59.214

So this dam isn't too much taller than him, but it's there. And even though it is breached, it's still, it's still having an impact on the stream.

95 "Megan Lung" (2630356736)

00:15:01.409 --> 00:15:06.569

A colleague of ours, Brian Buchanan recently published last year actually

96 "Megan Lung" (2630356736)

00:15:06.569 --> 00:15:20.334

published a study that took a look at using Lidar data and machine learning to try and predict where additional dams are. And what Brian found in his in his analysis is that we're under counting our dam sometimes by 80 to 94%.

97 "Megan Lung" (2630356736)

00:15:20.334 --> 00:15:26.754

So, in these two samples of watersheds that he tested, and then field verified,

98 "Megan Lung" (2630356736)

00:15:27.119 --> 00:15:31.109

each one of these orange triangles is a known state-regulated dam.

99 "Megan Lung" (2630356736)

00:15:31.109 --> 00:15:43.079

And each one of these pale green circles was an unmapped dam or a "ghost" dam as we like to call them. So really quickly you can kind of see how our streams get chopped up by all these additional dams that

100 "Megan Lung" (2630356736)

00:15:43.079 --> 00:15:51.389

are showing up, so we're likely under counting our dams. But that also means we have a huge potential for restoration here in the Hudson.

101 "Megan Lung" (2630356736)

00:15:52.884 --> 00:16:01.584

So this is an example of one of those ghost dams. So, this is about a little bit taller than me. It's about 6 feet tall. You can see that, we have an impact on the stream.

102 "Megan Lung" (2630356736)

00:16:01.584 --> 00:16:16.374

You can see the plants growing out of it, because the dam has trapped a lot of sediment behind it to the point where there's really not a lot of water back there. And if you're a fish that is still a barrier, you have to swim all the way up. It gets shallowed out here. There's no kind of roughness to this.

103 "Megan Lung" (2630356736)

00:16:16.374 --> 00:16:21.294

And then you have to jump up a 5 foot dam and get into this shallow impoundment

104 "Megan Lung" (2630356736)

00:16:21.389 --> 00:16:26.849

that's mostly filled with sediment and plants so that's that's a non starter for a lot of critters.

105 "Megan Lung" (2630356736)

00:16:28.439 --> 00:16:38.879

And just because I am completely cheesy, I always love to include this little joke. I can't do it in live action because, you know, we're on a webinar. But what did the fish say when it ran into a wall?

106 "Megan Lung" (2630356736)

00:16:39.444 --> 00:16:52.614

"Ah, dam,!" So that brings us to normally there's like a great amount of chuckles. So I'll pretend that everybody's laughing, laughing joyously right now, but that brings us to what we're doing about this with the program.

107 "Megan Lung" (2630356736)

00:16:52.884 --> 00:17:06.444

So, I mentioned NAACC and what we're doing at the program with many many partners. Oh, I see. Someone's little laughing emoji. That's perfect. Thank you. So much for that. Um, what we're doing is that we are assessing all of the crossings that we can publicly access using those NAACC protocols.

108 "Megan Lung" (2630356736)

00:17:06.444 --> 00:17:08.874

So we are looking at culverts in the same way that

109 "Megan Lung" (2630356736)

00:17:08.879 --> 00:17:17.159

people in Maine and Virginia are looking at the crossing. So evaluating to what degree is this crossing a barrier for organisms.

110 "Megan Lung" (2630356736)

00:17:17.814 --> 00:17:32.094

We also have a partnership with the water resources Institute at Cornell University, and they have a model that is based in Python scripts and using ArcGIS that is able to calculate roughly in a vacuum

111 "Megan Lung" (2630356736)

00:17:32.094 --> 00:17:35.274

what is the maximum storm size at this crossing could accommodate

112 "Megan Lung" (2630356736)

00:17:35.549 --> 00:17:40.889

before it fails, or water starts to overtop the road, and we would expect to see damage. So we call that capacity.

113 "Megan Lung" (2630356736)

00:17:41.154 --> 00:17:52.314

So we're able to take the NAACC data that we assessed out in the field, give it to Cornell. We get a rough idea of a potential flood capacity, and we then work with communities to develop management plans.

114 "Megan Lung" (2630356736)

00:17:52.554 --> 00:18:02.274

And specifically, the most important part about this is designing replacements for these undersized barriers. So not just an issue for the ecology. But also an issue for the municipality.

115 "Megan Lung" (2630356736)

00:18:02.604 --> 00:18:10.884

And a lot of times with the barriers, what I see in the field, if something is a really, really gnarly barrier for critters, it's probably under-size. There's probably a lot of

116 "Megan Lung" (2630356736)

00:18:10.889 --> 00:18:21.389

erosion and it could be a maintenance concern for the municipality. So we try to find the win win and the win for everybody. And then we implement structures that are fully passible and resilient to things like climate change.

117 "Megan Lung" (2630356736)

00:18:24.719 --> 00:18:31.769

So, I mentioned NAACC earlier and I think we've got some links in the chat to put in, but for those of you who haven't seen it NAACC is a wonderful

118 "Megan Lung" (2630356736)

00:18:31.769 --> 00:18:44.219

resource and community of practitioners all the way from Maine to West Virginia. We are all looking at these crossings and an apples to apples way. So you can compare crossing in New York and see how it stacks up against New Hampshire. Same way.

119 "Megan Lung" (2630356736)

00:18:45.084 --> 00:18:56.754

And primarily, I'm going to be talking about this 1st protocol. So NAACC has 4 protocols that are available that we use and we also can train people at, at the Estuary program, but we're mostly going to be talking about the non-tidal protocol.

120 "Megan Lung" (2630356736)

00:18:57.174 --> 00:19:01.104

Although we also have a tidal assessment protocol for our tidal crossings.

121 "Megan Lung" (2630356736)

00:19:01.349 --> 00:19:08.819

And we also have a terrestrial one, so it's not just why did the fish cross under the culvert? It's why also did the turkey cross under the culvert.

122 "Megan Lung" (2630356736)

00:19:09.084 --> 00:19:17.574

And the answer is because it was good enough. And I believe coming out this year, NAACC is also going to be launching this vulnerability or conditional assessment.

123 "Megan Lung" (2630356736)

00:19:17.574 --> 00:19:25.104

So, looking at things, like, is this culvert rusted? is it buckling? Getting a quick rapid idea of what is the condition of this culvert.

124 "Megan Lung" (2630356736)

00:19:26.939 --> 00:19:39.804

And this is just a brief summary of kind of the workflow of the WRI model. And I should mention that Cornell is actually hiring for a hydrologist to work with this model. So I can find that job posting afterwards and share it.

125 "Megan Lung" (2630356736)

00:19:39.804 --> 00:19:50.634

So, if you're interested in modeling, and think this is really cool and you want to join the team, this is a great opportunity. But what this model does is that it's not it's not a replacement for really detailed engineering surveys,

126 "Megan Lung" (2630356736)

00:19:50.634 --> 00:19:56.424

but what it can do is it can model hundreds or thousands of crossings in a vacuum, and compare them apples to apples.

127 "Megan Lung" (2630356736)

00:19:56.939 --> 00:20:03.839

Models are just 1 additional tool that we have in our in our toolbox and for this 1, we use it to project.

128 "Megan Lung" (2630356736)

00:20:03.839 --> 00:20:15.599

What is the maximum storm a crossing could accommodate under current conditions, but also projecting out into 2050, considering climate change in our region expecting to get more intense and frequent storms.

129 "Megan Lung" (2630356736)

00:20:18.059 --> 00:20:22.379

So this is my obligatory map slide. It's a couple years old, but

130 "Megan Lung" (2630356736)

00:20:22.379 --> 00:20:30.749

on here, we've got kind of, you know, the program boundary where Ingrid, Christina, and I all work each one of these gray boxes is a state regulated dam.

131 "Megan Lung" (2630356736)

00:20:31.284 --> 00:20:43.644

These colorful dots and boxes are road stream crossings where we've got this NAACC data we've got Cornell data, and we've projected it out onto our streams. So you can see really how quickly our streams get chopped up by our barriers.

132 "Megan Lung" (2630356736)

00:20:43.644 --> 00:20:51.534

So, we are really settled place. We have a lot of people, we have a lot of streams, and the Hudson in particular gets very steep.

133 "Megan Lung" (2630356736)

00:20:51.534 --> 00:21:00.594

So, for our migratory species, such as river herring, American eel, and also thinking about vulnerable mussels that require

134 "Megan Lung" (2630356736)

00:21:00.749 --> 00:21:09.714

fish to transport their larvae upstream. It's really easy to see how vulnerable they are and how quickly they can get chopped up by something as simple as a culvert that we drive over each day

135 "Megan Lung" (2630356736)

00:21:09.714 --> 00:21:23.394

and most of us don't notice. And this work is absolutely essential with both other agencies, not just, DEC and Soil and Water, but also counties, in-the-water-sports groups, like Trout Unlimited. We cannot do this work without all of our, all of our partners.

136 "Megan Lung" (2630356736)

00:21:23.394 --> 00:21:27.204

So, if you're interested in joining up, there is absolutely a spot for you at the table.

137 "Megan Lung" (2630356736)

00:21:29.729 --> 00:21:43.979

And those partners are essential, because at the end of the day, these are some slides from some management plans that our partners at Trout Unlimited created. I think this is the town of Copake in Columbia county. What we see is that a lot of our crossings are in rough condition.

138 "Megan Lung" (2630356736)

00:21:44.004 --> 00:21:57.924

Most of them are on town roads, so the municipality has the responsibility of maintaining them and municipalities oftentimes they have the least amount of resources for the most amount of crossings. So looking at what we would consider priority from our end,

139 "Megan Lung" (2630356736)

00:21:57.924 --> 00:22:10.044

we have 19 of our crossings in this municipality are severe aquatic organism passage barriers. 4% are significant, 16% are moderate. So that's over a third of these are in pretty rough shape.

140 "Megan Lung" (2630356736)

00:22:10.319 --> 00:22:15.389

And a municipality may only have it in their budget to replace maybe two.

141 "Megan Lung" (2630356736)

00:22:15.389 --> 00:22:19.019

And what we're suggesting, especially with climate change.

142 "Megan Lung" (2630356736)

00:22:19.374 --> 00:22:29.514

You know, thinking of these storms. So 37% of structures fail the predicted 2-year flow event. 41% fail to 5-year events. And again, this is just modeled data. So you shouldn't take it as gospel.

143 "Megan Lung" (2630356736)

00:22:29.514 --> 00:22:39.354

It's intended to quickly, sort out, you know, where the problem spots might be, but thinking about how quickly these stack up in numbers. So you can have dozens of priority crossings.

144 "Megan Lung" (2630356736)

00:22:39.354 --> 00:22:49.014

But that may not be the municipality's priority. I'm about to show you an example of why it's really important to make sure that as we're doing this

145 "Megan Lung" (2630356736)

00:22:49.019 --> 00:23:01.439

work as we're surveying crossings, as we're modeling them for flow conditions, we're thinking about how the municipality fits in with this. And the answer is that they are one of our, they are kind of our top priority. They're our best partner in this work.

146 "Megan Lung" (2630356736)

00:23:03.089 --> 00:23:16.259

So this is from a couple years ago. This is a younger me smiling into the sun with my first supervisor, Andrew Meyer, who is a really wonderful human being who's now doing great work with birds out in, San Diego.

147 "Megan Lung" (2630356736)

00:23:17.004 --> 00:23:29.274

And this was our very first culvert that was replaced. So, we gave a grant to the town of Ancram in 2015 to design for 3 replacement structures and implement 2 of them. And this was the first to go in

148 "Megan Lung" (2630356736)

00:23:29.274 --> 00:23:40.164

and this is Andrew, and I out like, you know, it's still rough construction ready and we were so thrilled like, wow, there's our first culvert. We've got the stream restored. This used to be a

149 "Megan Lung" (2630356736)

00:23:40.409 --> 00:23:50.274

Collapsing, rusted out, 4 foot metal culvert that was completely dark and now we have this wonderful structure where it's, you know, it's open. We've got light in there for the critters.

150 "Megan Lung" (2630356736)

00:23:50.754 --> 00:24:02.964

Our project partner informed us that she saw a snapping turtle kind of moving up through the stream channel the day they ripped the old culvert out, like, "about time." So we were completely stoked. We're like, this is our first project. This is great.

151 "Megan Lung" (2630356736)

00:24:03.689 --> 00:24:09.659

And then this was kind of another side of that from, you know, some people in the community.

152 "Megan Lung" (2630356736)

00:24:09.659 --> 00:24:22.704

"The monster culver that lurks in Ancram," because at the end of the day, this structure, and this is a construction picture, it does not look like this currently. But this structure was a lot larger than what people in the municipality were used to seeing.

153 "Megan Lung" (2630356736)

00:24:22.764 --> 00:24:37.494

So, in this community, for a lot of places, it's more common to see small, about 4 foot in diameter metal crossings or plastic now is the is what a lot of people are moving to as these, as the galvanized ones rust out. So

154 "Megan Lung" (2630356736)

00:24:37.799 --> 00:24:47.874

this was really different for the community. See, it was jarring. It was, you know, this was a 4 foot structure. It's a tiny stream. Why did you need to do this? And I won't lie,

155 "Megan Lung" (2630356736)

00:24:47.874 --> 00:24:52.824

first, it was really, really angst-y for Andrew and I, and then we kind of sat back later and we're like,

156 "Megan Lung" (2630356736)

00:24:52.919 --> 00:24:57.869

where did we go wrong here? There's some kind of a disconnect we're having with some people.

157 "Megan Lung" (2630356736)

00:24:57.869 --> 00:25:07.829

So, we re-evaluated what we were doing. So, prior to essentially this, the "monster culvert," so you can imagine the monster culvert is right here in the middle of my timeline.

158 "Megan Lung" (2630356736)

00:25:07.829 --> 00:25:13.319

You know, we would assess crossings either ourselves or training our partners to conduct them.

159 "Megan Lung" (2630356736)

00:25:13.319 --> 00:25:23.549

And then we would encourage the municipality to apply to either the Estuary the program, or to other state programs for a grant for implementation.

160 "Megan Lung" (2630356736)

00:25:23.549 --> 00:25:38.369

We were relatively hands off during the lifespan of the project, like, only as involved as the municipality, perhaps wanted us to, or the project partner wanted us to and we didn't really account for flexibility in site selection. Our assumption was that

161 "Megan Lung" (2630356736)

00:25:38.369 --> 00:25:48.629

we've given the information, now folks are going to give us a project with, you know, clearly like, it's going to be addressing an undersized barrier. And that wasn't really the case.

162 "Megan Lung" (2630356736)

00:25:50.069 --> 00:26:03.684

What we did essentially is that we chopped it up and I've color coded so you can kind of see where the assessment phase falls in and where the implementation did. And we added a whole detailed planning step that we've been working with since 2017.

163 "Megan Lung" (2630356736)

00:26:03.684 --> 00:26:11.874

And it say it tends to be an annual opportunity that comes out through my employer through NEWPCC And it's meant to help

164 "Megan Lung" (2630356736)

00:26:12.179 --> 00:26:24.264

municipalities, take all that assessment data, all that NAACC data, and have conversations with the highway supervisor with the town board and figure out where are your biggest maintenance concerns? Where's your flooding concerns?

165 "Megan Lung" (2630356736)

00:26:24.264 --> 00:26:34.194

What crossing do you really want to replace, but perhaps you can't replace it like, if it fails, you need to replace it immediately? So it's a timely issue.

166 "Megan Lung" (2630356736)

00:26:34.979 --> 00:26:42.629

So, we call this, we've been calling these management plans, and as a part of this management plan structure, management plan format,

167 "Megan Lung" (2630356736)

00:26:44.574 --> 00:26:57.144

we've also allowed for funding for them to design for priorities, and the priorities tend to be barriers, depending on if we can be of assistance and save some money on the field assessment, then we are having instances where,

168 "Megan Lung" (2630356736)

00:26:57.144 --> 00:27:02.184

as a part of the design effort if we're designing for 4 replacement crossings and

169 "Megan Lung" (2630356736)

00:27:03.174 --> 00:27:14.604

crossing number 2 is not necessarily an aquatic barrier, but it's really important for the municipality and there's potential that if we don't assist with it, the municipality just may not have the resources to put it in

170 "Megan Lung" (2630356736)

00:27:14.604 --> 00:27:22.044

what we would call a stream friendly one where the, the stream doesn't notice the crossing. That's where we've had, like, really good conversations.

171 "Megan Lung" (2630356736)

00:27:22.044 --> 00:27:32.484

We've built a lot of good relationships about having frank conversations about what can we assist with, you know, in in keeping with the spirit of the grant, which is to reconnect habitat and also to, um

172 "Megan Lung" (2630356736)

00:27:32.819 --> 00:27:38.999

make communities more resilience resilient to flooding. We've also been including the dam

173 "Megan Lung" (2630356736)

00:27:38.999 --> 00:27:49.494

Removal. Dam removal in New York is really interesting. We're still kind of getting our finding our legs out underneath us, but we've been including dams that a municipality may own.

174 "Megan Lung" (2630356736)

00:27:49.524 --> 00:27:55.434

They may be in various states of disrepair, and the municipality may want to consider removal as a potential option with that.

175 "Megan Lung" (2630356736)

00:27:56.159 --> 00:28:10.259

This approach has allowed us to have higher involvement during the project. So I can, if my boss were to ask me, hey, what can you tell me about this, culvert and Copake? I've got a whole story about this because we've had,

176 "Megan Lung" (2630356736)

00:28:11.369 --> 00:28:26.094

we've had conversations with the highway supervisor, or I've gone out during site visits where we've toured all the culverts, and we've had really frank conversations about, hey, really? Where does this fall for you on your priority? And we've had meetings with stakeholders. Not just a municipal board, or the highway guys.

177 "Megan Lung" (2630356736)

00:28:26.124 --> 00:28:37.374

We've also had conversations with neighbors who were like, hey, strange person. What are you doing in that stream and, you know, we get to talking about, like, oh, like, you know, what can you tell me about this stream? Have you ever fished here? Has it ever flooded here?

178 "Megan Lung" (2630356736)

00:28:37.649 --> 00:28:40.649

So, we get to capture a lot of that information in this plan.

179 "Megan Lung" (2630356736)

00:28:40.649 --> 00:28:44.489

And it's a lot, like I said, that flexibility in site selection.

180 "Megan Lung" (2630356736)

00:28:45.989 --> 00:28:59.489

And it's allowed us to reframe the story. So, in 2018, our partners Trout Unlimited and Cornell Cooperative Extension and the Housatonic Valley Association, hosted a workshop for highway supervisors about our approach. And

181 "Megan Lung" (2630356736)

00:28:59.489 --> 00:29:10.679

wouldn't you know, we're over here at the monster culvert and here's what it looks like today. The highway supervisor actually painted it after a landowner expressed some concern.

182 "Megan Lung" (2630356736)

00:29:10.679 --> 00:29:18.479

We, there was some stacking and some additional planting that it went on here to make this more welcoming for, for wildlife and

183 "Megan Lung" (2630356736)

00:29:18.479 --> 00:29:21.749

during the course of this workshop, so here are project partners.

184 "Megan Lung" (2630356736)

00:29:21.749 --> 00:29:26.819

Up here, we have a whole gaggle of highway supervisors. I overheard,

185 "Megan Lung" (2630356736)

00:29:26.819 --> 00:29:30.329

"This culvert isn't so monstrous" so I heard.

186 "Megan Lung" (2630356736)

00:29:30.329 --> 00:29:36.269

So, we went from Monster Culvert to not so monstrous, and it's like, yes, that's a win. That's a win in my book.

187 "Megan Lung" (2630356736)

00:29:39.719 --> 00:29:42.839

Briefly, I wanted to talk about dam removal.

188 "Megan Lung" (2630356736)

00:29:42.839 --> 00:29:56.249

And this dam in particular is going to be coming out in 2024. Thanks to our partners at Westchester County and Riverkeeper. But we have a lot of dams like, I showed in our slide and they're in various states of disrepair. In our region,

189 "Megan Lung" (2630356736)

00:29:56.249 --> 00:30:03.059

dam building was really important economically. It was important socially and a lot of dam still have value, but they're,

190 "Megan Lung" (2630356736)

00:30:03.059 --> 00:30:13.049

a lot of them are aging and they're no longer perfectly safe. So there is a time to consider. Maybe I want to consider removing this dam instead of replacing it or repairing it.

191 "Megan Lung" (2630356736)

00:30:14.274 --> 00:30:28.854

And they serve valuable purposes when designed for them. So not all dams provide flood protection. That's a misconception I hear a lot. Sometimes out in the field and dam owners have a tremendous responsibility to maintain their dam. And that can get very expensive.

192 "Megan Lung" (2630356736)

00:30:29.303 --> 00:30:30.864

We've seen some dams that were

193 "Megan Lung" (2630356736)

00:30:31.169 --> 00:30:43.914

tiny like the 1 that I showed you earlier that was unmapped. Replacing that dam to bring it into modern safety compliances, sometimes that can cost millions of dollars. So for many owners, it's a financial burden in addition to having a hazard on their hands.

194 "Megan Lung" (2630356736)

00:30:43.914 --> 00:30:53.124

Because you don't want people getting hurt, you don't want folks, you know, slipping or drowning and the impoundment. So they really we really have to be think of them as investments and they have to be maintained.

195 "Megan Lung" (2630356736)

00:30:55.079 --> 00:30:58.349

So, in New York state, that means being strategic.

196 "Megan Lung" (2630356736)

00:30:58.349 --> 00:31:12.059

Dam removal can change at the drop of a hat with a new owner. And ultimately, if the dam owner is not interested in removal, we don't have a project and that can be frustrating but that's just how some things are.

197 "Megan Lung" (2630356736)

00:31:15.149 --> 00:31:23.189

What we found though, with our approach is that if you listen to the dam owners concerns, you can reach a lot of common ground. Your biggest priority

198 "Megan Lung" (2630356736)

00:31:23.189 --> 00:31:33.569

may not be their biggest concern, but their biggest concern, you could make that a priority of yours. So, for example, and here is one of our great partners. George Jackman here on a dam and Putnam County.

199 "Megan Lung" (2630356736)

00:31:33.569 --> 00:31:39.539

George goes out and he has like, really awesome conversations with partners and.

200 "Megan Lung" (2630356736)

00:31:39.539 --> 00:31:43.169

His approach is that, you know, maybe

201 "Megan Lung" (2630356736)

00:31:43.169 --> 00:31:54.804

something may not be the best for river herring because say it's 10 miles up in the water shed and there's a natural waterfall down below. So, river herring absolutely aren't going to reach this dam. But it may be that

202 "Megan Lung" (2630356736)

00:31:54.804 --> 00:32:05.514

the owner is concerned, because it's a hazard, or during the last storm event, the water got really higher. They're concerned about catastrophic failure on the dam. That's still a good case study for us to look at and to remove.

203 "Megan Lung" (2630356736)

00:32:05.514 --> 00:32:12.834

Because as we remove a dam, we're restoring that flow and we're having other impacts. I'm restoring the natural stream ecology. We're allowing the stream

204 "Megan Lung" (2630356736)

00:32:13.169 --> 00:32:14.399

to act like a stream.

205 "Megan Lung" (2630356736)

00:32:15.929 --> 00:32:22.919

So one particular example of that through our partners with Dutchess County Soil and Water was the dam formerly

206 "Megan Lung" (2630356736)

00:32:22.919 --> 00:32:33.959

Known as Shapp Pond on the East branch of the Wappinger creek. So this dam, as you can see it was we think it was attached to the foundation of the owner's house. So it was a big concern for her because

207 "Megan Lung" (2630356736)

00:32:33.959 --> 00:32:45.474

you don't want your house to be swept away with a dam. It was in poor condition, and it was breached underneath. So though, although the dam was standing tall underneath it wasn't retaining any water.

208 "Megan Lung" (2630356736)

00:32:45.474 --> 00:32:51.804

But what was left was a ton of silt. When I first visited this, this site before the dam came out.

209 "Megan Lung" (2630356736)

00:32:52.049 --> 00:33:02.004

I was in my waders and was like, the one time I put on waders, because I don't like how they feel and I took, like, two steps off the ladder that we climbed down and I sunk up to my knees

210 "Megan Lung" (2630356736)

00:33:02.004 --> 00:33:08.994

there was so much sediment clogged and stuck behind the dam, because that dam had been there for decades.

211 "Megan Lung" (2630356736)

00:33:09.329 --> 00:33:12.419

So, dam came down in 2016.

212 "Megan Lung" (2630356736)

00:33:13.014 --> 00:33:26.964

And we've done a lot of monitoring with our colleagues at Inland Fisheries, to kind of look into check like, hey, like, How is the fish community responding? So, their big interest is brook trout. Ours are eel and herring, it was a match made in heaven.

213 "Megan Lung" (2630356736)

00:33:26.964 --> 00:33:40.164

So we were able to kind of see as the stream changed. Um, and as we saw the sediment redistribute, the stream re-establish itself. We started to see more eel and brook trout and make their way above where the former impoundment used to be.

214 "Megan Lung" (2630356736)

00:33:40.439 --> 00:33:48.899

This reconnected five miles of habitat for resident species like those trout. And the American eel just on the Wappinger,

215 "Megan Lung" (2630356736)

00:33:48.899 --> 00:33:57.089

we think it was something like 23 miles I would have to double check my exact figures. If you, if you count all the upstream, the smaller stream networks.

216 "Megan Lung" (2630356736)

00:33:57.089 --> 00:34:06.659

And through other colleagues at Cornell, who did some monitoring of the bug community were able to turn this into EPA as a non-point source success story.

217 "Megan Lung" (2630356736)

00:34:06.659 --> 00:34:20.999

And what that means so here's a table from that report. But basically what that means is that when the dam was in place, that upstream segment of the stream was moderately impacted. So, it's kind of like, it's not the worst, but it's not good in terms of stream health.

218 "Megan Lung" (2630356736)

00:34:21.264 --> 00:34:29.454

And over 3 years of monitoring, we saw that go from moderately impacted to slightly so the stream health improved, and mainly through what

219 "Megan Lung" (2630356736)

00:34:29.454 --> 00:34:41.514

that measure for that the biological assessment profile is mostly looking at the macroinvertebrae community. So, we saw it go from a lot of Scuds and worms and, um.

220 "Megan Lung" (2630356736)

00:34:41.789 --> 00:34:55.799

And leeches to actually seeing some caddisflies that weren't there before. So we go from knee deep in silt to I can walk mostly in that former empowerment. It's mostly kind of gone back down to the cobble level that was buried underneath all that.

221 "Megan Lung" (2630356736)

00:34:58.799 --> 00:35:13.314

And it was impactful for the owner as well. So, in the program, we love to tell stories and this is the quote that we really like that we showcase in our previous *State of the Hudson for 2020* from the dam owner. She sees so many different creatures that she didn't see there before. So, here is before.

222 "Megan Lung" (2630356736)

00:35:13.314 --> 00:35:18.894

So again, the dam is up, but it's breached underneath. So it's not withholding any water.

223 "Megan Lung" (2630356736)

00:35:19.734 --> 00:35:34.434

And then here is the after. You see that we've left a part of that abutment that is connected to the house and holding that bank in. And she sees creatures that she didn't notice before, like beavers and possums, turtles, heron. She even saw an otter. I haven't seen an otter yet in the field.

224 "Megan Lung" (2630356736)

00:35:34.464 --> 00:35:49.134

I'm incredibly jealous, but it's something where for her, as an owner, she's removed a hazard, but she's also seeing seeing a new. She calls it beautiful and magical. She's seeing the stream change. So having that inspiration, that connection isn't something that we can exactly quantify that is

225 "Megan Lung" (2630356736)

00:35:49.229 --> 00:35:50.639

incredibly important too.

226 "Megan Lung" (2630356736)

00:35:50.639 --> 00:35:55.199

And it's wonderful to be able to help dam owners to find that.

227 "Megan Lung" (2630356736)

00:35:56.364 --> 00:36:10.494

So, similar to telling the story again, I mentioned our wonderful partners at Riverkeeper. There's George. Here is a absolutely massive eel that we that we collected and then released upstream of this dam. You can see that same eel.

228 "Megan Lung" (2630356736)

00:36:10.584 --> 00:36:18.594

And our, our colleague may be measuring the eel. This dam right here, this came down in 2020 during the pandemic.

229 "Megan Lung" (2630356736)

00:36:18.959 --> 00:36:33.329

Have to double check, I think it was 2020 or 2021. It came down during the pandemic, and what it looks like now. So this is, you know, legacy old dam. This is something that wasn't on anyone's list. Probably something that Brian found with his go stamp strip.

230 "Megan Lung" (2630356736)

00:36:33.329 --> 00:36:45.449

It was removed and Riverkeeper organized, a planting through my colleague, Beth Roessler and her "trees for tribes" program and you can kind of see there's our stream and look how different that looks without a dam

231 "Megan Lung" (2630356736)

00:36:45.449 --> 00:36:53.009

in the way blocking that flow and creating that impoundment and kind of starving the downstream of sediment. This stream is

232 "Megan Lung" (2630356736)

00:36:53.009 --> 00:37:06.299

on its way to recovery, and that big dam that I showed earlier with the large crack, that is the next upstream dam and that is the one that Westchester County is taking down at 2024. So, we're on our way, one dam at a time, making a change for the stream.

233 "Megan Lung" (2630356736)

00:37:09.174 --> 00:37:18.864

Lastly, I wanted to take in my last few minutes with you and talk about diversity, equity, inclusion and streams. So you may have noticed that. I'm a woman of color. Not a lot of, I don't see a lot of women of color in my field.

234 "Megan Lung" (2630356736)

00:37:19.404 --> 00:37:32.394

And it's important to remember that in the environmental and restoration field, we are not immune from this green ceiling, this lack of diversity in upper fields. And even in our, within all levels of our field itself.

235 "Megan Lung" (2630356736)

00:37:35.069 --> 00:37:40.469

And we want to keep in mind as we're restoring streams. Are there other opportunities to be restoring? So.

236 "Megan Lung" (2630356736)

00:37:40.469 --> 00:37:49.409

Storytime. Pre pandemic, I was on a tour with some colleagues looking at dams on the Fishkill and we came across this one and

237 "Megan Lung" (2630356736)

00:37:49.409 --> 00:37:56.069

the owner is potentially considering removal it used to generate Hydro power. It no longer does. And

238 "Megan Lung" (2630356736)

00:37:56.069 --> 00:38:10.044

I remember the site, because as we were escorted to kind of the viewing platform, we can see this railing. It wasn't in the best condition. And in fact, the contractor was very nervous to have us even standing on this railing. So very much hovering like oh, no.

239 "Megan Lung" (2630356736)

00:38:10.224 --> 00:38:13.974

You need to be 5 feet back, so very much like, nope, you stay away from that railing.

240 "Megan Lung" (2630356736)

00:38:14.790 --> 00:38:18.120

And we noticed this guy fishing, and it was a

241 "Megan Lung" (2630356736)

00:38:18.120 --> 00:38:29.665

wonderful, absolutely wonderful, beautiful day. And he just had us fishing rod and he was just taking a cast and we felt like, wow, like, think about what this site could be for people to have access to this site again.

242 "Megan Lung" (2630356736)

00:38:30.625 --> 00:38:35.965

You know, we have a young man, just out here fishing and, like, that's what I want to see as a restoration professional.

243 "Megan Lung" (2630356736)

00:38:36.270 --> 00:38:42.960

The contractor and I will never know all the details. I'm not going to know what he was thinking, but,

244 "Megan Lung" (2630356736)

00:38:42.960 --> 00:38:47.010

he saw this young man fishing and he immediately.

245 "Megan Lung" (2630356736)

00:38:47.010 --> 00:38:55.530

left a group of 15 of us on this platform that he didn't want us on in the first place. He left a group of 15 of us to go call the authorities.

246 "Megan Lung" (2630356736)

00:38:55.530 --> 00:39:06.540

And this was, you know, this was prior to George Floyd, and I should've mentioned that it was myself and one other person of color in our group. This young man just happens to be African American.

247 "Megan Lung" (2630356736)

00:39:06.540 --> 00:39:20.275

And a few of us thought, like, oh, is he really calling the police without even asking, or letting him know like, hey, it's, you know, hey, can't you can't fish here. So we actually moved down and, you know, get after shouting over the fall of the water.

248 "Megan Lung" (2630356736)

00:39:20.275 --> 00:39:29.395

We gave the guy heads up and he actually left and you can't from my perspective, you can't really tell, like, you could totally accidentally trespass, but it really stuck out to me that.

249 "Megan Lung" (2630356736)

00:39:29.640 --> 00:39:34.050

Here we all were privileged as restoration professionals talking about

250 "Megan Lung" (2630356736)

00:39:34.050 --> 00:39:44.100

dam removal at a site, and this young man wasn't even afford the courtesy of, you know, a heads up. Hey, you can't be here. Just an honest mistake that any of us make in our day- to- day field work.

251 "Megan Lung" (2630356736)

00:39:44.100 --> 00:39:55.500

So, you know, one thing that I would encourage you to think about doing as an individual right now is being aware of that bias both in our field. And there is a huge history

252 "Megan Lung" (2630356736)

00:39:56.305 --> 00:40:10.045

of bias, and the environmental and restoration field, I unfortunately don't have enough time to talk about, but working to keep that bias out of classrooms, out of the field out of the hiring process, coming up with a plan to keep field staff safe.

253 "Megan Lung" (2630356736)

00:40:10.375 --> 00:40:25.315

There certainly have been sites where as a woman of color, I have not felt comfortable and I have left and I felt really fortunate that I was supported by my supervisors to have a plan in place of, you know, if something feels wrong or doesn't feel right, just leave. And making sure that we're not creating

254 "Megan Lung" (2630356736)

00:40:25.500 --> 00:40:35.910

artificial barriers to employment or enjoyment of these natural resources that belong to all of us, and we want to amplify the stories and voices that may have been ignored.

255 "Megan Lung" (2630356736)

00:40:35.910 --> 00:40:39.330

Again, thinking about how we share the story as well.

256 "Megan Lung" (2630356736)

00:40:39.330 --> 00:40:48.540

So this is the Quassaick Creek that Riverkeeper helped remove in 2020. This one actually came out in October so a month before the other day, but I showed.

257 "Megan Lung" (2630356736)

00:40:49.045 --> 00:41:03.145

Here it is in the process of being taken down, this was super exciting, and this is within the city of Newburgh and the city of Newburgh over 46% of the households, according to the latest census data that I could get my paws on. They speak a language other than English at home.

258 "Megan Lung" (2630356736)

00:41:03.685 --> 00:41:04.195

259 "Megan Lung" (2630356736)

00:41:04.530 --> 00:41:14.130

And that language mostly is Spanish. So Riverkeeper has a wonderful short documentary on damming the Hudson. There's going to be another one coming out.

260 "Megan Lung" (2630356736)

00:41:14.130 --> 00:41:26.940

And with conversations, and really making sure that we can connect with the people who are going to be enjoying these resources, they're going to make sure that that video is available with Spanish subtitles and I'd have to check with George if there's going to be Spanish audio, but.

261 "Megan Lung" (2630356736)

00:41:26.940 --> 00:41:31.080

Again, telling the story in many ways. So many people can connect.

262 "Megan Lung" (2630356736)

00:41:32.700 --> 00:41:35.760

And I believe that is my last slide.

263 "Megan Lung" (2630356736)

00:41:35.875 --> 00:41:49.795

Thank you all so much for sitting through my corny jokes. Thanks for looking at concrete and infrastructure with me and I just really quickly wanted to end with some pictures of my AmeriCorps members. I absolutely cannot do my job without my SCA members.

264 "Megan Lung" (2630356736)

00:41:49.795 --> 00:41:58.345

So, I'm eternally grateful for them. Their willingness to rough it out as I stick them in various, various dark pipes and

265 "Megan Lung" (2630356736)

00:41:58.770 --> 00:42:03.690

I think actually, we do have a little bit of time. Perfect. Um.

266 "Megan Lung" (2630356736)

00:42:03.690 --> 00:42:14.550

So, I'm, you know, I'm happy to answer questions or brainstorm with everyone. I should mention that I am actually leaving my role. My position at the program. Next Friday is my last day.

267 "Megan Lung" (2630356736)

00:42:14.550 --> 00:42:20.160

But I'm still gonna be working in New York. I'm still gonna be connected to my Hudson Valley colleagues. Um.

268 "Megan Lung" (2630356736)

00:42:20.160 --> 00:42:25.020

We will just have to commute, connect you with whoever will take my place.

269 "Megan Lung" (2630356736)

00:42:25.020 --> 00:42:30.060

Maybe, we'll throw Scott under the bus, who knows? But I'll stop sharing my slide and.

270 "Christine Vanderlan" (268482560)

00:42:30.060 --> 00:42:35.880

I'm happy to hear questions. Thank you, Megan.

271 "Christine Vanderlan" (268482560)

00:42:35.880 --> 00:42:43.260

Uh, so if we do have a few questions, people have been putting in chat and.

272 "Christine Vanderlan" (268482560)

00:42:43.260 --> 00:42:48.210

one is a data question about I think it was the NAACC data.

273 "Christine Vanderlan" (268482560)

00:42:48.210 --> 00:42:51.630

I think there's actually 2 data questions. 1 is

274 "Christine Vanderlan" (268482560)

00:42:51.630 --> 00:43:01.290

Is that data integrated with stormwater data? So that's one, and then also how you could see the map, the obligatory map, more closely.

275 "Megan Lung" (2630356736)

00:43:01.735 --> 00:43:13.585

Yeah, so I'll cover the obligatory map first, because the Hudson is very long and very skinny. You can't really see it that easily, but I can email you a PDF copy of that slide in reality.

276 "Megan Lung" (2630356736)

00:43:13.585 --> 00:43:17.905

When I print that map, that map is about 3 and a half feet wide and 5 feet tall.

277 "Megan Lung" (2630356736)

00:43:18.150 --> 00:43:29.155

That's kind of the detail that, like, you know, when I made that map, I wanted it to be something big and printable so not easily. And I acknowledge that our watershed is very hard to display all that data on that format.

278 "Megan Lung" (2630356736)

00:43:29.725 --> 00:43:42.865

In terms of if NAACC is integrated with stormwater, it's not because the purpose of the NAACC is to look at road stream crossings and that is expanded to include wetland to wetland or streams that may not have a defined upstream channel.

279 "Megan Lung" (2630356736)

00:43:43.075 --> 00:43:47.845

So, we're really looking at just kind of natural waterways so we're not looking at stormwater

280 "Megan Lung" (2630356736)

00:43:48.150 --> 00:43:54.090

or even in places where there's been, um, you know, a ton of piping and ditching.

281 "Megan Lung" (2630356736)

00:43:54.090 --> 00:44:00.510

But that's it's a good idea for future uses. And I think NAACC data could definitely support that.

282 "Christine Vanderlan" (268482560)

00:44:08.880 --> 00:44:14.460

Thanks. I wasn't sure when you were if you were ready to jump in.

283 "Ingrid Haeckel" (1670301440)

00:44:14.755 --> 00:44:28.615

Thank you for your presentation, Megan. You have the best dam talk, culvert talk. Will there be funding under Biden's infrastructure bill for culvert work?

284 "Megan Lung" (2630356736)

00:44:28.615 --> 00:44:29.875

285 "Megan Lung" (2630356736)

00:44:30.570 --> 00:44:43.495

There is absolutely a ton of funding and I wish if I would have talked about the funding, that's another 45 minute presentation. There is a lot of funding available through the bipartisan infrastructure law through various federal and state agencies.

286 "Megan Lung" (2630356736)

00:44:43.495 --> 00:44:50.125

The big ones that I can think of are the National fish passage program is going to be receiving.

287 "Megan Lung" (2630356736)

00:44:51.055 --> 00:45:04.675

I think per region, they're receiving about 8 Million, so for our region, we're in the region that also includes Maine, New Hampshire. So might be a little bit competitive. NOAA, the National Oceanic and Atmospheric Administration

288 "Megan Lung" (2630356736)

00:45:04.945 --> 00:45:12.625

they're receiving a ton of funding on barrier removal. Unfortunately, no, New York or New Jersey projects were funded.

289 "Megan Lung" (2630356736)

00:45:13.675 --> 00:45:20.425

I'm not sure why. I think we're hoping to hear back, but what you can do is you can also, you know, write letters of support.

290 "Megan Lung" (2630356736)

00:45:20.430 --> 00:45:28.045

Or engage with people partners like George Jackman from Riverkeeper or Suzette Lepain from Westchester County to voice your support for projects like these.

291 "Megan Lung" (2630356736)

00:45:28.045 --> 00:45:37.375

So, we're trying to make sure that the, our East Coast species aren't forgotten, even though if we can't, you know, we may not be able to crank out 40 miles with 1 project like, other parts of the country can.

292 "Megan Lung" (2630356736)

00:45:37.680 --> 00:45:48.930

Those are a couple that rise to the top of my head and I think with the bond act, I'm hoping that we'll hear some more details about that in the future, but absolutely culverts, dams, and bridges are on the list.

293 "Ingrid Haeckel" (1670301440)

00:45:48.930 --> 00:46:00.300

And this is a follow up question. I think that applies not just for the federal funding, but for other funding programs, which is how our priorities established for that money?

294 "Megan Lung" (2630356736)

00:46:02.130 --> 00:46:12.390

Yeah. So if you ask 5 different people for priorities, you'll probably get 6 answers. So the way we at the, you know, for the Estuary program, though,

295 "Megan Lung" (2630356736)

00:46:12.390 --> 00:46:23.305

my big driver is habitat for migratory fish so, for me, I need to see, like a clear argument if someone's applying to our tributary restoration and resiliency fund,

296 "Megan Lung" (2630356736)

00:46:23.545 --> 00:46:34.735

there has to be some kind of a link to our shad, our herring, our eel. Some kind of a link for that, because ultimately those are that's first on our list, helping migratory fish open up habitat.

297 "Megan Lung" (2630356736)

00:46:35.605 --> 00:46:50.545

Um, certainly by addressing more barriers in a series. So if you say, okay, I'm going to address this dam and these 3 culverts and I'm going to work, you know, systemically on a watershed level that could like, assist and help with your priorities.

298 "Megan Lung" (2630356736)

00:46:50.545 --> 00:46:50.845

But.

299 "Megan Lung" (2630356736)

00:46:51.150 --> 00:47:01.650

It's really going to depend on the funding source and I caution people to really take a look at what the funder is asking for. Like, what is the spirit of the grant that they want to, um, that they want to support.

300 "Christine Vanderlan" (268482560)

00:47:07.350 --> 00:47:13.110

So we have a question about who is responsible for keeping streams, clear.

301 "Christine Vanderlan" (268482560)

00:47:13.110 --> 00:47:19.500

And might have to interpret that a little bit, but that's how it's worded.

302 "Megan Lung" (2630356736)

00:47:20.790 --> 00:47:32.400

Yeah, so a clear stream can mean a lot of things. So, if we're thinking of, in terms of, um, you know, wood in streams.

303 "Megan Lung" (2630356736)

00:47:32.400 --> 00:47:44.250

That's a natural part of the cycle. So, like, we want to have that carbon input. You know, there are bugs that we're looking at for health depends on depend on that word. So, if a stream is

304 "Megan Lung" (2630356736)

00:47:44.250 --> 00:47:48.210

has wood in it and I wouldn't necessarily say that it's not clear.

305 "Megan Lung" (2630356736)

00:47:48.210 --> 00:48:02.695

So, and also, when you clear things out, sometimes with stream cleanups, we have to discourage folks from taking up, from taking big boulders out of the stream cause, It's like, oh, I want I want the water to be able to run. But that boulder is also providing that roughness,

306 "Megan Lung" (2630356736)

00:48:02.695 --> 00:48:07.615

So it's slowing the flow. It's making it so it's not coming tearing through and eroding at the banks.

307 "Megan Lung" (2630356736)

00:48:07.920 --> 00:48:11.430

So, I

308 "Megan Lung" (2630356736)

00:48:11.430 --> 00:48:16.080

I'd like more follow up for, like, you know, what do we mean by clear? But that's that's a good one.

309 "Ingrid Haeckel" (1670301440)

00:48:19.320 --> 00:48:27.510

So, there's another question, um, comment, I'm just asking about how you address.

310 "Ingrid Haeckel" (1670301440)

00:48:27.510 --> 00:48:38.550

Potential impacts on to property and possibly communities or and maybe marginalized communities.

311 "Ingrid Haeckel" (1670301440)

00:48:38.550 --> 00:48:43.440

as a result of removal of dams, or I'm not sure if this would

312 "Ingrid Haeckel" (1670301440)

00:48:43.440 --> 00:48:51.180

be relevant to the culvert aspect, but, um, you know, the focus is on habitat protection. But can you talk about how

313 "Megan Lung" (2630356736)

00:48:51.180 --> 00:49:03.270

human considerations are also addressed? Megan Lung: Absolutely. So, you know, thinking about, you know, I'll address the dam part first, because we actually do have a project in the Quassaick where they're looking at

314 "Megan Lung" (2630356736)

00:49:03.295 --> 00:49:18.025

removing a dam that, it was not designed to provide flood protection. So that is the that's kind of what I would say first, is that there are dams that absolutely provide flood protection. They may provide flood protection, but they have to be designed like that.

315 "Megan Lung" (2630356736)

00:49:18.355 --> 00:49:33.205

Most of our dams in the Hudson, they are run of river dams, so they're really not providing any storage. At the start of a storm they start full and at the end of the storm, they are still full. If anything, they may be slightly exasperating flooding problems for nearby properties because that impoundment is raising the water elevation.

316 "Megan Lung" (2630356736)

00:49:33.270 --> 00:49:35.070

Raising the water elevation.

317 "Megan Lung" (2630356736)

00:49:35.070 --> 00:49:47.515

So, and over the course of dam removal takes years, you know, 5 years is a pretty quick removal process. So that's a question that, you know, is absolutely going to be modelled, be really detailed.

318 "Megan Lung" (2630356736)

00:49:47.515 --> 00:50:01.705

You know, when you're zeroing in on an area where okay, I think I want to remove this dam, what is the impact going to be to upstream and downstream property owners? And from what the examples I've seen in the Hudson and again, it's on a case by case basis.

319 "Megan Lung" (2630356736)

00:50:01.920 --> 00:50:11.910

We're seeing a relief or a slight drop in flood elevation levels for upstream and no negative impact on downstream. But that's a good point of, you know, thinking about

320 "Megan Lung" (2630356736)

00:50:11.910 --> 00:50:22.045

this question of priority, so I, because of my migratory fish focus for my priorities, I would prefer to start at the mouth so start at the mouth where the tributary meets the Hudson and work my way up.

321 "Megan Lung" (2630356736)

00:50:22.345 --> 00:50:31.315

So, as we're doing that, we're making sure that, you know, there's, we're minimizing the risk of, like, Ooh, like, are we going to overwhelm the next culvert downstream if we properly right size something.

322 "Megan Lung" (2630356736)

00:50:32.220 --> 00:50:43.860

But, you know, and in this case of culverts, I would say that, you know, our roads are not dams, they are not flood retention structures, and a lot of the time, and we shouldn't be complicit in treating them like that.

323 "Megan Lung" (2630356736)

00:50:43.860 --> 00:50:55.110

So, if there is a potential site, where upsizing a culvert, maybe we need to look at. Oh, we should look at the next 2 culverts downstream. Let's address all of them and be thoughtful and intentional about our replacements.

324 "Christine Vanderlan" (268482560)

00:50:59.460 --> 00:51:03.000

So, we also have a question about.

325 "Christine Vanderlan" (268482560)

00:51:03.000 --> 00:51:06.090

This program being about.

326 "Christine Vanderlan" (268482560)

00:51:06.090 --> 00:51:12.450

Removing existing culverts, dealing with historical barriers, but what about

327 "Christine Vanderlan" (268482560)

00:51:12.450 --> 00:51:22.470

culverts that may be newly installed or planned to be installed on new development sites. And the specific question is, how do we get planning boards to eliminate culvert pipe?

328 "Christine Vanderlan" (268482560)

00:51:22.470 --> 00:51:27.000

I'm going to tack on my question about is the right sized culvert

329 "Christine Vanderlan" (268482560)

00:51:27.000 --> 00:51:32.760

you know, cost prohibitive or are they just as easy if you have that in mind when you're.

330 "Christine Vanderlan" (268482560)

00:51:32.760 --> 00:51:36.510

designing and approving new development that you could

331 "Megan Lung" (2630356736)

00:51:36.510 --> 00:51:39.540

Prevent creating a new barrier?

332 "Megan Lung" (2630356736)

00:51:39.540 --> 00:51:49.345

Yeah, so absolutely the active, what we call making a culvert "stream smart" where we're not pinching the stream, we're considering the 100 year event in the design.

333 "Megan Lung" (2630356736)

00:51:49.345 --> 00:52:04.165

We're making sure that we're maintaining some integrity at least on one side of the stream, of the banks, that absolutely can be cost prohibitive. And we recognize that there with the limited funding we currently have and like, with the infrastructure bill, that's why it's such a game changer. Is that there is a lot of funding and opportunity available.

334 "Megan Lung" (2630356736)

00:52:04.165 --> 00:52:09.385

It can be cost prohibitive for municipalities. And that's why we're really grateful for the work that a lot of

335 "Megan Lung" (2630356736)

00:52:09.540 --> 00:52:23.395

non-profit partners, Trout Unlimited, or Ulster county has been doing a lot of work, to these organizations that could assist municipalities in either securing funding or providing additional match to really put in these structures. So I think I'd have to double check with some colleagues.

336 "Megan Lung" (2630356736)

00:52:23.395 --> 00:52:34.375

But I think I've seen about maybe 15 to 25% more if you consider, you know, going up and getting a structure out of the streams way. So the stream can behave like a stream. It is a more

337 "Megan Lung" (2630356736)

00:52:34.650 --> 00:52:47.670

costly upfront investment, but over time you see that pay off because it's less maintenance and in the summer you're not sending somebody there every day to unplug it of sticks and leaves and other stuff that the stream naturally has to transport.

338 "Megan Lung" (2630356736)

00:52:47.670 --> 00:52:50.910

But, yes, upfront it could be cost prohibitive.

339 "Ingrid Haeckel" (1670301440)

00:52:54.570 --> 00:52:58.620

I have a follow up question related to that, which is.

340 "Ingrid Haeckel" (1670301440)

00:52:58.620 --> 00:53:05.610

How are, you know, the calculations that engineers are typically making and determining the

341 "Ingrid Haeckel" (1670301440)

00:53:05.610 --> 00:53:14.280

size of a culvert needed in a new development, how do those compare with the modeling and types of calculations you were making in your assessments?

342 "Megan Lung" (2630356736)

00:53:14.815 --> 00:53:26.155

I would have to decline that question because I am a humble biologist. I am not a modeler. So I'd have to refer you over to the folks at that maintain and steward the model.

343 "Megan Lung" (2630356736)

00:53:26.155 --> 00:53:33.115

They could provide a much better answer than I could about what assumptions the model is making and kind of where those calculations are coming from.

344 "Ingrid Haeckel" (1670301440)

00:53:33.690 --> 00:53:43.410

Fair enough yeah, I, I'm just curious, you know, for planning board members or members who may be reviewing new projects.

345 "Ingrid Haeckel" (1670301440)

00:53:43.410 --> 00:53:54.120

How they might be able to interpret what's being proposed and, you know, understand whether it's appropriate and taking into consideration the potential future

346 "Ingrid Haeckel" (1670301440)

00:53:54.120 --> 00:53:57.570

anticipated increases in

347 "Ingrid Haeckel" (2630356736)

00:53:57.570 --> 00:54:01.110

extreme precipitation events and flooding and so forth.

348 "Megan Lung" (2630356736)

00:54:01.110 --> 00:54:12.265

Yeah, yeah okay. So I might be able to add a little bit to that. I would ask to see the designs and what I would look for in those designs, and what I look for, I'm looking for that stream bank to be maintained.

349 "Megan Lung" (2630356736)

00:54:12.535 --> 00:54:21.235

So I'm looking where, like, okay, I can see roughly, what they have in their measurements about what the channel width is of the stream, and I can compare that to the structure that they're putting in place.

350 "Megan Lung" (2630356736)

00:54:21.565 --> 00:54:30.775

So, if so, if a stream is, you know, 17 feet in with, you know, that's normally what the channel is full during, like the spring and the fall. And I see that the crossing

351 "Megan Lung" (2630356736)

00:54:31.110 --> 00:54:45.505

is only 5 feet in width that's probably a red flag for me, cause to me that says, okay, we're going to pinch the stream we're going to increase the velocity, and we're gonna have downstream scour and we might have sedimentation and eventually that could that scour that sorry,

352 "Megan Lung" (2630356736)

00:54:45.505 --> 00:54:55.885

the velocity can lead to the scour working its way back to the structure. And that's how we get those perched culverts is that the water as it's sped up, it's meant to drop its sediment load.

353 "Megan Lung" (2630356736)

00:54:55.885 --> 00:55:01.015

It's coming out of the pipe essentially hungry and just like me when I'm hungry for the first

354 "Megan Lung" (2630356736)

00:55:01.110 --> 00:55:12.330

available and a lot of times it's that, it's a sediment on the bottom of the stream. So that's where you can sometimes see those really dramatic culverts where there are 5 feet up in the air and the stream is 5 feet below.

355 "Ingrid Haeckel" (1670301440)
00:55:12.330 --> 00:55:16.590
Does that help Ingrid? Yeah. Thanks. Yeah.

356 "Christine Vanderlan" (268482560)
00:55:20.280 --> 00:55:23.730
So this is an observation and a question about, um.

357 "Christine Vanderlan" (268482560)
00:55:23.730 --> 00:55:29.250
Let's see from the Town of olive in town of Shandaken,

358 "Christine Vanderlan" (268482560)
00:55:29.250 --> 00:55:37.020
that they have identified genetically unique populations of brook trout and tribs in the Catskills and

359 "Megan Lung" (2630356736)
00:55:37.020 --> 00:55:43.050
Can that help? How can that be documented? And can that help with dam removal and culvert replacements?

360 "Megan Lung" (2630356736)
00:55:44.160 --> 00:55:52.080
Yeah, specifically I have a colleague, Ben Gannon who works for Ulster County Department of environment, but Ulster county is going to be.

361 "Megan Lung" (2630356736)
00:55:52.080 --> 00:56:06.870
Is doing this exact same work, and they even have another protocol that uses NAACC that is even more detailed. So I can put put some folks from Ulster county and contact with Ben. I bet that would be information that he would be delighted to have and to include in municipalities management plans.

362 "Megan Lung" (2630356736)
00:56:06.870 --> 00:56:10.920
Ulster county has been working their way through the list of how of creating

363 "Megan Lung" (2630356736)
00:56:10.920 --> 00:56:18.120
municipal management plans, and in some cases, some designs for replacement. So that would be information that I'm sure that would be really beneficial for them.

364 "Ingrid Haeckel" (1670301440)
00:56:22.885 --> 00:56:36.055
There's a comment here expressing interest in a future session, focused on funding and related to that. Also wondering how municipality would handle an undersized culvert

365 "Ingrid Haeckel" (1670301440)
00:56:36.360 --> 00:56:40.770

that's problematic, but that's on private property.

366 "Ingrid Haeckel" (2630356736)

00:56:40.770 --> 00:56:44.550

So, do you have experience with that?

367 "Megan Lung" (2630356736)

00:56:44.550 --> 00:56:48.270

Yeah, so ultimately, you know.

368 "Megan Lung" (2630356736)

00:56:49.350 --> 00:57:02.635

What a municipality could do like thinking about, like, on the funding end of things a municipality um, or like a Soil and water district, could apply on behalf of the private land owner to address it. Schapp Pond Dam for example, that was a private dam.

369 "Megan Lung" (2630356736)

00:57:02.635 --> 00:57:09.055

So, what duchess county soil and water did was that they applied for program funding on behalf of the owner.

370 "Megan Lung" (2630356736)

00:57:09.390 --> 00:57:22.680

So, that could a way to address that concern. But also a way to get around that a lot of our private landowners aren't able to apply to state funding, the municipality or a nonprofit might be able to.

371 "Christine Vanderlan" (268482560)

00:57:27.060 --> 00:57:31.320

Thanks so we're getting close to our time.

372 "Christine Vanderlan" (268482560)

00:57:31.320 --> 00:57:38.310

I see another question here asking about different sets of challenges or standards for tidal culverts.

373 "Megan Lung" (2630356736)

00:57:38.310 --> 00:57:51.715

If you want to speak to that. Megan Lung: uh, give me about 6 months when I'm settled at Save the Sound. hopefully, I'll have a better idea with that. NAACC does have a title assessment protocol that's out.

374 "Megan Lung" (2630356736)

00:57:52.015 --> 00:58:02.425

You know, there are quite a few folks who in the state who are trained, who would be more than happy to train others on how to assess and look at these cause it is meant to be a rapid assessment that anyone could pick up.

375 "Megan Lung" (2630356736)

00:58:02.425 --> 00:58:07.915

You don't have to be a fancy biologist or engineer to do these assessments but

376 "Megan Lung" (2630356736)

00:58:08.310 --> 00:58:15.300

tidal crossings have their own unique challenges, so, give me some time for that one. A perhaps I'll be able to come back.

377 "Ingrid Haeckel" (1670301440)

00:58:17.250 --> 00:58:25.020

There's also comment.

378 "Ingrid Haeckel" (1670301440)

00:58:25.020 --> 00:58:31.350

About Ulster county undertaking a county wide natural resources inventory and

379 "Ingrid Haeckel" (1670301440)

00:58:31.615 --> 00:58:44.695

I'm wondering if this could, I guess if there's opportunity to add culvert and dam information to the NRI, and I just want to add that that has been a part of many of the NRIs that we have funded,

380 "Ingrid Haeckel" (1670301440)

00:58:44.695 --> 00:58:47.965

or assisted with over the last several years.

381 "Ingrid Haeckel" (1670301440)

00:58:48.415 --> 00:59:01.045

So, we always make an effort to incorporate this information in particular to highlight the severe barriers or significant barriers that have been identified through the modeling to try to bring attention to those.

382 "Ingrid Haeckel" (1670301440)

00:59:01.350 --> 00:59:02.340

Priorities.

383 "Megan Lung" (2630356736)

00:59:02.340 --> 00:59:05.820

I don't know if you want to add to that Megan.

384 "Megan Lung" (2630356736)

00:59:06.385 --> 00:59:20.965

No, I think you summed that up great. I know with the work that Ulster county is currently doing with their current NEWPCC contract, they're going to be developing management plans for 5 municipalities, and absolutely integrating those management plans. They're meant to be integrated with other planning efforts so

385 "Ingrid Haeckel" (1670301440)

00:59:21.270 --> 00:59:35.400

I think that'd be good track. Yeah. Um, and I'll also throw in a plug for our Hudson Valley Natural Resource Mapper which includes a lot of information about the assessed

386 "Ingrid Haeckel" (1670301440)

00:59:35.400 --> 00:59:47.880

road stream crossings as well as dam inventory. I know that Megan has a more comprehensive up to date map available of their assessments

387 "Ingrid Haeckel" (1670301440)

00:59:47.880 --> 01:00:02.760

through the Water Resources Institute website, and we can share that link with you afterwards, but we are trying to integrate that as the modeling of the assessments gets completed into our natural resource mapper. So you can look at

388 "Ingrid Haeckel" (1670301440)

01:00:02.760 --> 01:00:08.340

those road stream crossings along with other information about watersheds.

389 "Christine Vanderlan" (268482560)

01:00:12.930 --> 01:00:26.545

And Christine, I think we're at time. We will be following up with an email that contains links and the book title, someone asked about the specific book title that Megan mentioned.

390 "Christine Vanderlan" (268482560)

01:00:26.545 --> 01:00:36.655

So, we will include that information in our follow up email and thank you again, Megan, for joining us, this has been a really great session, and for everybody who

391 "Christine Vanderlan" (268482560)

01:00:36.960 --> 01:00:43.110

attended thanks for bringing in your questions and your thoughtful comments. We appreciate that.

392 "Ingrid Haeckel" (1670301440)

01:00:43.110 --> 01:00:47.550

Have a good afternoon. Thank you so much for having me. Everyone giving me your time.

393 "Ingrid Haeckel" (1670301440)

01:00:47.550 --> 01:00:53.820

Thank you, Megan. Everyone.

394 "Megan Lung" (2630356736)

01:00:59.280 --> 01:01:02.400

Okay, I'm going to end the webinar now.

395 "Ingrid Haeckel" (1670301440)

01:01:02.400 --> 01:01:06.120

397 "Ingrid Haeckel" (1670301440)

01:01:10.830 --> 01:01:12.990

Okay, take care. Bye thanks.