NEPA Public Scoping Meeting

Please note this document is a compilation of two transcripts, the afternoon session followed by the evening session of the NEPA Public Scoping meeting. Please use the Acrobat "Find" tool to perform key word searches within this document.

1

GLMRIS

Great Lakes and

Mississippi River Interbasin Study

PUBLIC MEETING

ON

FEBRUARY 10, 2011

Public meeting held at the Vicksburg Convention Center,

1600 Mulberry Street, Vicksburg, Mississippi 39180.

1   A P P E A R A N C E S

2

3   Jim Breedin, Deputy Asian Carp Director, White

4   House Council on Environmental

5   Quality

6

7   Colonel Vincent Quarles, Commander Chicago

8   District US Army Corps of Engineers

9

10 Dave Wethington, GLMRIS Project Manager

11

12 Mike Saffran, Other Pathways Project Manager

13

14 Kendall Zaborowski, Moderator

15

16

17 Reported by:

18   Angela "Dawn" Dillard, CSR 1763

19

20   LIST OF SPEAKERS

22

23

24

25

1   P R O C E E D I N G S

2   MR. ZABOROWSKI: Good afternoon, ladies and

3 gentleman. I would like to welcome everyone to today's

4 Great Lakes Mississippi River Interbasin Study or GLMRIS

5 NEPA's Scoping Meeting. My name is Kendall Zaborowski.

6 I'm from the Chicago District of the US Army Corps of

7 Engineers. I will be this meeting's moderator.

8   Before beginning the meeting I would like to

9 let everyone know that if you go back out to the welcome

10 table and follow it all the way to your left you will

11 find the bathrooms, so if you need to do that that's

12 where they are.

13   Before going further I'd like to take a moment

14 to introduce our panel. Immediately to my right is

15 Mr. Jim Bredin the Deputy Asian Carp Director for the

16 White House Council on Environmental Quality.

17   Next to him is Colonel Vincent Quarles, the

18 Commander of the Chicago District for the US Army Corps

19 of Engineers.

20   Then Dave Wethington, the GLMRIS Project

21 Manager.

22   And then Mike Saffran, the Other Pathways

23 Project Manager.

24   When you arrived today the following materials

25 were available at the welcome and registration tables.

4

1   We have the green meeting agenda that shows the

2   break down of how this meeting will be conducted.

3   Then we have the GLMRIS business card, which

4   has contact information and online information if you

5   wish to learn more about the study.

6   Then there is the GLMRIS tri-fold brochure,

7   which is basic information about the study.

8   And we have white comments cards, which has

9   instructions on submitting written comments either at

10 this meeting or through mail.

11   We have a purple paper that is frequently asked

12 questions about GLMRIS.

13   A peach colored paper which is frequently asked

14 questions about other aquatic nuisance species efforts

15 undertaken by the Corps of the Engineers and other

16 agencies.

17   You have a copy of today's presentations that

18 will be given here shortly.

19   And then lastly the study blue books were

20 available, and that is detailed information about the

21 Great Lakes and Mississippi River Interbasin Study.

22   If you would like to make an oral comment today

23 and have not yet registered at our register to speak

24 table, please take a chance to do so. You'll be asked

25 to fill out one of these yellow comment forms and we

1 will need your last name, first name and ZIP code for

2 your comments to be considered in our NEPA scoping

3 process.

4   Similarly, if you would like to make a comment

5 or leave a statement with us we have these blue document

6 submittal forms that you can leave at the registration

7 table or you can give to myself or any member of the

8 panel.

9   Our GLMRIS team has organized this public

10 meeting to accomplish two goals. The first goal is to

11 present information about the study. The second is to

12 solicit your comments on what you feel are the

13 significant issues or issues that are insignificant that

14 should be elminated for further studying.

15   The Corps of Engineers is hosting 12 public

16 meetings throughout the study area in an effort to

17 provide opportunities for those within the study area an

18 opportunity to learn more about the study itself, and

19 again to give us your comments and tell us what you

20 think.

21   Please note that the NEPA public scoping period

22 ends on March 31 of this year. As indicated on the

23 green agenda this meeting is organized into two

24 sessions. Identitical presentation will be given at the

25 beginning of both sessions. Following the presentations

6

1   the public comment period will open. This will be the

2   first presentation and then we are scheduled to end at 5

3   o'clock today. And then we will start our second

4   presentation at 5:30. We'll have that 30 minute break

5   between sessions for us to kind of stretch our legs, but

6   we will be available for informal questions and

7   answers.

8   Please note that any questions or comments made

9   during this -- not made during the oral comment period

10 will not be considered for our NEPA scoping process.

11   If you have any questions or concerns during

12 the meeting please find somebody with a red name tag,

13 we'll be glad to help you out and answer any questions

14 that you may have.

15   Now I'd like to turn it over to Mr. Bredin and

16 he will begin the presentation portion of this meeting.

17   MR. BREDIN: Thanks, Kendall, I appreciate

18 that. And as he mentioned I'm Jim Bredin. I'm the

19 Deputy Director of Asian Carp for the Council and

20 Environmental Quality out of the White House, and I'd

21 like to thank the Corps, specifically Colonel Quarles

22 for giving us this opportunity, for specifically

23 undertaking this massive effort to collect comments on

24 the GLMRIS study; but also for allowing us to have a few

25 minutes at the beginning of these sessions to just talk

1 about our Asian carp efforts that are going on.

2   What I'd like to point out real quickly is that

3 the Obama Administration is taking an aggressive and

4 pro-active approach to invasive species, specifically

5 Asian carp. This is one of the times in which we are

6 trying to get out in front of an invasive species. And

7 we're doing it in a very significant effort. We're

8 trying to do everything we can to make sure we keep

9 Asian carp out of the Great Lakes.

10   In 2011 we released the Asian carp Control

11 Strategy Framework, and I don't know if I'm on the right

12 one or not; but anyways, what this is doing is trying to

13 -- we've identified 45 specific actions that we will be

14 taking to control Asian carp and other invasive species

15 throughout the Great Lakes.

16   And I'd also like to point out that this

17 invasion of Asian carp to the Great Lakes is considered

18 to be one of the most serious potential impacts that we

19 may see in the Great Lakes in a long time. We had a lot

20 of invasive species show up in the Great Lakes, we are

21 very worried about Asian carp because of the potential

22 impact on the commercial and sport fishing throughout

23 Michigan and the other Great Lakes states. And

24 specfically the impact that they may have on

25 recreational and commercial boaters and other aspects of

1 the Great Lakes economy.

2   Okay, in February 2010, the Obama

3 Administration came out with a first framework. We

4 basically invested over 78 million dollars to combat the

5 spread of Asian carp throughout the Great Lakes. And

6 this was a very significant effort for controlling

7 invasive species; unifying state, federal and local

8 actions.

9   And this is the actual committee framework

10 itself. As you can see on here we have an Executive

11 Committee, and recently we've added all of the Great

12 Lake states to this framework effort.

13   You can also see here, this is part of the

14 actual framework itself, we have a Non-Federal Technical

15 and Policy Workgroup that we're asking for all of the

16 interest that you see around that, to provide us with

17 direct advice on how we may be moving forward with the

18 whole Asian carp control efforts. This is more of the

19 Non-Federal, and we're going to be having educational

20 institutions, interest groups, all getting together. In

21 fact, the next meeting I think is next Tuesday, is that

22 when -- next Tuesday is the first meeting of this

23 group. And we'll be, from that point on, trying to

24 decide how we move forward with this effort to provide

25 advice to the federal agencies.

1   I'd also like to point out here, this is the

2   Chicago River before and after. I don't know how many

3   of you have actually been up to the Chicago area, but

4   the picture to the left, the diagram is what it looked

5   like before they combined the two watersheds. The one

6   on the left is basically the way it looks right now, and

7   as you can see there are multiple connections from the

8   Mississippi River watershed to the Great Lakes through

9   this whole Chicago Area Waterway System.

10   And this is the Chicago Sanitary and Ship Canal

11 at the barriers. There are basically three barriers in

12 place right now. We have the demonstration barrier,

13 which is the furthers upstream. If you can picture it

14 going from left to right, the right part is heading

15 towards Lake Michigan. The left part is heading down in

16 Mississippi. We also then have barrier 2A that is in

17 place, and barrier 2B, which will be online very soon is

18 my understanding. It's online, but still doing some

19 testing. And so I think March is the date that we're

20 looking at.

21   COLONEL QUARLES: Right now the team has worked

22 hard to construct it and we'll get through all the

23 safety tests and we'll at how we operate the various

24 system.

25   MR. BREDIN: Thank you. What we'd also like to

1 try to point out here, we talk about the complexities of

2 this whole system, and I'd like to provide you with a

3 bit of information about this whole area. The

4 Metropolitan Water Reclamation District of Greater

5 Chicago on a daily basis discharges 1.4 billion gallons

6 of wastewater into this entire system.

7   And then I have to read this, this is a bit of

8 information we just found out. In 2008 during a major

9 storm event, in addition to the 1.4 billion gallons that

10 was discharged there were 50 -- downstream of there they

11 also discharged -- well, in the general Chicago area,

12 they had an additional 11.2 billion gallons of

13 stormwater. And then down in the -- at the far end to

14 southern end of the system there was also 50 billion

15 gallons of stormwater that was discharged during this

16 one storm event.

17   So you get a picture of what this area looks

18 like with the majority of it being -- majority of the

19 river being made up of wastewater discharges from the

20 Chicago area wastewater treatment plants. And also

21 during storm events, it's a huge amount of water that

22 either has to go down the system itself or released to

23 Lake Michigan.

24   In 2010 we had a number of accomplishments.

25 The 2010 framework included 32 federally funded

1 projects, but some of the key accomplishments that we

2 had is the enhanced fish barrier system that we talked

3 about, and also this is a -- this is the fence at Eagle

4 Marsh near Fort Wayne, Indiana. And actually at one

5 point in time I happened to lived right next to this.

6 And this is an area that floods regularly. And what we

7 did was we were very concerned about adult Asian carp

8 being able to go between the two systems so Indiana

9 basically stepped up to the plate, the Indiana DNR, and

10 this barrier was constructed as an interim measure to

11 deal with this on a short term basis and then we'll be

12 looking at potential long term solutions in the future.

13   This effort is -- well, what we see here is the

14 effort that we're going to be talking about. It was

15 actually started in 2010, but this is a part of the

16 GLMRIS process where we've identified a number of

17 potential connections between the Great Lakes and the

18 Mississippi River Basin. Mike Saffran will be talking

19 about that in just a couple of minutes. I did want to

20 point out that the yellow star, that's where Fort Wayne

21 is, that's where the temporary barrier is currently in

22 place.

23   And also some of the additional accomplishments

24 for 2010 were we have the Asian carp Prevention and

25 Control Act that was signed by the President prohibiting

1 live bighead carp from being shipped or imported into

2 the United States. We are also increasing our eDNA

3 testing capabilities to 220 samples per week. And we're

4 increasing our collaboration across all of the agencies

5 that are involved. That's one of the efforts that I've

6 been asked to undertake, and we're trying to make sure

7 that we keep all interested people, in fact on our -- we

8 have an Asian carp Regional Coordinating Committee and

9 we've asked the Governners and they have basically

10 identified additional state contacts, so we now have a

11 very strong Asian carp Regional Coordinating Committee

12 consisting of federal, state interests.

13   And also we have an AsianCarp.org if you ever

14 want additional information on any of the activities

15 that are going on, if you go to AsianCarp.org that's our

16 website where we're providing the additional

17 information.

18   Then this is the 2011 Asian carp Control

19 Strategy Framework, and this is also on the website but

20 we've added 13 new activities that will be going on.

21   We're going to be looking at additional

22 projects such as validation of eDNA as an effective tool

23 for identifying and monitoring Asian carp. We'll be

24 looking at development of the eDNA genetic markers. And

25 also looking at the expansion of the US Fish and

1 Wildlife Service Lab in Lacrosse, Wisconsin to be

2 assisting us with those efforts.

3   Just to get into a little bit more information

4 on what was accomplished last year, and we basically --

5 well, last year we had nearly 1,100 person days of

6 effort were expended in the Chicago Area Waterways, and

7 we examined over 125,000 fish. In addition, we had our

8 sampling teams that treated 2.6 river miles with

9 rotenone, completed 344 hours of electro-fishing and

10 fished 45 miles of trammel and gill net in the entire

11 system.

12   The application of the rotenone in the spring

13 resulted in an opportunity to identify over 100,000

14 pounds of fish, not one of which was either a bighead or

15 a silver carp.

16   We're also going to be looking at some

17 additional projects as part of the 13 for 2011. We're

18 going to be looking at alternative trap and net designs

19 for capturing Asian carp. We're going to be looking at

20 rapid genetic based methods to identify -- to effect

21 Asian carp. And we're going to be talking -- we're

22 going to be trying to figure out how we impact the

23 assessment of some of the barges that are specifically

24 in the system and what impact they may have on

25 transferring Asian carp from the Mississippi to the

1 Great Lakes and vice versa.

2   Also some of the 2011 projects are -- we're

3 going to be evaluating the permanent separation between

4 the Wabash and the Maumee watersheds, as I mentioned

5 earlier, through this whole GLMRIS process.

6   And I'd also like to point out that this is

7 the -- if you take a look at it, the dark green is the

8 portion of the study that we'll be looking at from the

9 Mississippi River watershed, and the blue is the Great

10 Lakes watershed. And we'll be looking at those

11 interactions and just kind of characterizing some of the

12 things that will be going on in 2010.

13   We'll also be taking a look at -- well, at

14 using the markets for assisting us in dealing with Asian

15 carp. We're going to be looking at actually harvesting

16 some of these carp and using them for specific products

17 throughout the Great Lakes, and we're really focusing in

18 on the area downstream of the barriers trying to take

19 some of the pressure off of the barriers from fish

20 moving upstream. So we're really looking at using our

21 commercial fishermen to deal with this effort and assist

22 us with this.

23   And also we're working with the Coast Guard to

24 assist us in making sure that the area that we're

25 dealing with this issue, and specifically in the area of

 1 the barriers is safe and is a secure zone. And they'll

 2 be assisting us in dealing with the maritime industry

 3 and making sure that we keep transportation moving back

 4 and forth between these areas.

 5   I'd also like to point out that if you go to

 6 our website, this provides some of the information.

 7 It's directly on -- you can get to it from

 8 AsianCarp.org, but it's also on the Corps' website. And

 9 this provides all the information regarding the

10 monitoring that's going on, specifically, eDNA and also

11 additional information that you may be interested in as

12 far as seeing what we're finding as far as monitoring

13 that's been going on. Monitoring has halted for the

14 year just simply because of the weather, and we'll be

15 picking that up some time this spring.

16   And with that I'd just like to thank you for

17 being here today. I hope that what you're seeing today

18 is a demonstration of what we believe to be a very

19 strong effort in dealing with Asian carp and other

20 invasive species, and we look forward to working with

21 all of you in the future to make sure that Asian carp do

22 not get into the Great Lakes.

23   So with that I will turn it over to Colonel

24 Quarles.

25   COLONEL QUARLES: Ladies and gentleman, how are

1 y'all doing today? See you got it. So I'm Colonel

2 Vincent Quarles and as you can tell by my accent I'm not

3 originally from Chicago, so I'm finding a place -- if I

4 start talking kind of fast you can still understand me,

5 but here's what I want you to know, I'm not going to

6 talk much today. The intent of these meetings are to

7 come out and hear from you.

8   And first I just want to thank our team

9 regardless of where we go, it's always a dynamic set

10 up. We want to reach out. We want to make sure that

11 you know what the Corps has done this far to -- and I'm

12 going to give you some military terms because I love it

13 so much. I mean, as I think about the military, ever

14 since I joined the first thing has been being a part of

15 a good team. You never want to go to war on a bad

16 team. And regardless of what we do, as long as we are

17 confident with the team, the plan we're on, then we can

18 move forward. So Jim, I want to thank you for

19 representing the CEQ.

20   Looking at the hand outs you have today, this

21 pink sheet talks about what we're currently doing, newer

22 term to address Asian carp. And it's just not the Corps

23 of Engineers. It's the US Fish and Wildlife, it's

24 DNR's, it's other organizations working within our Corps

25 competencies to address Asian carp.

 1   I'm proud to say that as part of the Corps

 2 family, Mr. Rich Hancock is here representing our

 3 Commanding General. John Peabody from our Great Lakes

 4 and Ohio River Division. Sir, good to have you here

 5 with us today.

 6   I want to acknowledge all the voices I've heard

 7 into Chicago from the Mississippi Valley Division, and

 8 thank the division as well as Vicksburg District for

 9 being here. Gentleman, ladies, we can not do these

10 without the local support. We can not get done all of

11 the activities that are captured here without working

12 together as a team.

13   And most importantly, Rick, I won't forget, of

14 course, if you're here, is our engineering experts and

15 doctors extraordinaire. But it's all about our

16 stakeholders and our public. So that's -- you're why

17 we're here today.

18   So without further ado, if you look at the map

19 you can see the complexity of the area that the Great

20 Lakes and Mississippi River Interbasin Study covers.

21   I wanted to talk a little bit about the team,

22 how we're organized to conduct the study. I want to

23 talk briefly about the scope and the authorities for

24 which we're studying, so everything I talk about now is

25 just not focused on Asian carp. I want to focus on the

1 authorities we have that will prevent all the aquatic

2 nuisance species from getting between the basins, so

3 with that let's move on.

4   If you have a plan you want to know what you've

5 been tasked, what's your mission. And for us,

6 everything we do within the Corps requires congressional

7 authority to do; and, of course, the appropriations to

8 get it done.

9   I won't read it to you, but you can highlight

10 -- correction, in blue, we've highlighted some essential

11 things to understand about the authority for GLMRIS, as

12 well as the implementation or special considerations

13 that we're getting in and what we're studying. And

14 we're going to break this down even more on the next

15 line.

16   Before we do that though if you kind of look

17 and can see the little dotted black -- it goes along

18 the divide between the Great Lakes and the Mississippi

19 River basins, many miles traveled if you go along that

20 path. The complexity itself and the dark gray and

21 brown, 17 different states that we will do a detail

22 focus on.

23   Of course, we're not forgetting about you down

24 in the southern part. You are highlighted in the

25 lighter colored gray because overall it's about 33

1   states when you consider the span that we must consider

2   when looking at how aquatic invasive species might go

3   between the basins.

4   I want you to take note of the little red

5   square because that, of course, is the most direct path

6   we feel that aquatic invasive species could go between

7   the basins.

8   And this is what I want to bring your attention

9   to because it breaks down what we interpret our study to

10 allow us to cover and do, what the study will not

11 include.

12   So again, the pathways, we're looking at all

13 those things that are aquatic in nature, not just Asian

14 carp. It's even particular plants, other things, all

15 aquatic invasive species will be covered within the

16 scope of our study. We will not look at the other type

17 of pathways such as human release as you see.

18   As far as locations, we're focused on, again,

19 the two basins. And we will not address the

20 St. Lawrence Seaway even though -- and we've been

21 working with, for instance, the International Joint

22 Commission informing them of our efforts as they are

23 informing us of their efforts as well.

24   And then take a quick look at the elements

25 because these are common things that -- and questions

1 that we can -- and that's the other thing that I want to

2 do is the team has taken time to put together a lot --

3 correction, has put together answers to trends of

4 questions that we continue to get asked. So just take a

5 look at this, and it'll help you really in responding to

6 a lot of the questions we normally get at events like

7 these.

8   Strategy. Instead of just doing everything at

9 one time, step by step, we've divided the study efforts

10 into two phases or progs.

11   We have Mr. Dave Wethington, I'll give you a

12 chance to speak in a moment, sir. He's focused on the

13 Chicago Area Waterway System as Jim said. Mr. Mike

14 Saffran is focused on those other pathways outside of

15 the CAWS.

16   In order to execute the study, I mean, we

17 acknowledge that we have competencies within other

18 organizations at local, state and federal levels, so how

19 can we reach out to make sure that we do get all

20 existing reports. Anything that we can learn that would

21 form study efforts before we actually get into the heart

22 blood work of new data analysis. So we've already

23 reached out to state, federal, local agencies as you

24 see. We've formed a group within the Corps to work

25 between the different divisions and districts, and we're

1 working as well within agencies that can best inform and

2 help resource GLMRIS. And you can see they're listed as

3 the executive steering committee. And we're reaching

4 out to, of course, you the public and stakeholders.

5   The other thing that you will see on the

6 timeline is not doing what engineers normally do. We're

7 very precise. We like to have (unintelligible) diligent

8 thought put into a product. And normally we announce

9 the final product at the end. Given though we will

10 learn things along the way, those things that are

11 prudent to cycle out and release to the public and other

12 agencies, we will do so along the way.

13   This slide only shows that, again, it's not

14 just Asian carp that we're looking at, and it is just

15 not focused on a cause or other pathways, it's doing

16 things as efficiently as we can.

17   I want to now give Mr. Wethington a chance to

18 talk about our team numbers within the CAWS. Dave.

19   MR. WETHINGTON: Thank you, sir.

20   Good afternoon, everyone. Again, my name is

21 Dave Wethington, I'm the project manager of the Chicago

22 District for what we'll call Focus Area 1, Chicago Area

23 Waterway System. And although Jim kind of highlighted

24 some of it briefly I want to go into the map, just a

25 couple of little points to kind of characterize some of

1 the challenges and complexities that we have within the

2 Chicago Area Waterway System.

3   So on the map above on our right you'll see

4 numbers one through five along the Lake Michigan

5 shoreline. Those are the five points at which the

6 waters of the Great Lakes Basin and the waters of

7 Mississippi River Basin have the opportunity to

8 interact.

9   Each five of those pathways, what's kind of

10 unique about the system is each five of those pathways

11 will flow into a single channel, which is the Chicago

12 Shipping and Sanitary Canal. So you can imagine kind of

13 like five prongs on a fork flowing down into one handle,

14 that's why we constructed our electronic barrier, the

15 fish barrier at point number seven there on the map.

16 That provides the perfect choke point for which to

17 control the transfer of that specific aquatic nuisance

18 species.

19   Another feature that I'd like to point out

20 about Chicago Area Waterway Systems are the control

21 structures on that system. Points one, two and three

22 are controlled. And by that we mean that there is a

23 physical structure that has the opportunity, has the

24 ability to control water flow between the two basins.

25 One and two. One is the Wilmette Pumping Station. Two,

1 Chicago Lock. Three is actually controlled by point

2 number six I believe, which T.J. O'Brien Lock and Dam.

3   You'll also note that numbers four and five are

4 what we call uncontrolled, so basically there are no

5 physical barriers to stop the water flow into that safe

6 system.

7   On the left-hand side is basically the process

8 that the Corps of Engineers uses for addressing a study

9 of this magnitude, a feasibility study. And we're right

10 now in steps number one and two, Specifying Problems &

11 Opportunities. We put together a team of folks both at

12 the Corps of Engineers and as well as I mentioned

13 performing outside the immediate Corps of Engineers, are

14 members of our federal family, state, resources, global

15 agencies, who have specific knowledge of areas to

16 basically identify what are the problems, what are the

17 opportunities here in the study. And that's part of

18 what we're doing here today is getting the public's

19 input on how we scope the study and how we address our

20 path forward.

21   We're also inventorying and forecasting

22 conditions. And what do I mean by that? We're

23 collecting a large amount of data to help identify what

24 those waterway uses are within Chicago Area Waterway

25 System as well as the other paths which Mike will

1 describe a little bit later.

2   Waterway uses you might have heard of include

3 commercial navigation, recreation, water supply, water

4 discharge. It was mentioned earlier that a significant

5 amount of water in the Chicago Area Waterway System is

6 treated municipal wastewater. It's about 70 to 80

7 percent of the entire volumetric flow of Chicago River

8 is treated municipal wastewater.

9   Another path that's maybe not so commonly known

10 or another waterway use that's not as commonly known is

11 flood risk management. The Chicago Area Waterway System

12 serves as kind of a spill way, a flood gate in times

13 when we have very high intensity rain storms in the

14 Chicago Land area. It doesn't happen very often, maybe

15 every couple of five years. But during those instances

16 that point number two, Chicago Lock, must be opened to

17 avert severe flooding over bank in the downtown area as

18 well as basin flooding that can be sent throughout the

19 entire Chicago Land area potentially effecting millions

20 of residents.

21   Once we identify what those uses are of the

22 waterway we have to look at what's going to happen when

23 we implement those five nuisance species controls such

24 as the electric barrier system, or full hydrologic

25 separation; and what are the potential impacts or

1 adverse impacts to those water was uses. Our authority

2 and our guidance from our headquarters tells us that we

3 must look at ways to also mitigate for adverse impacts

4 to those uses, those economic, environmental or social

5 uses of those waterways.

6   And as we mentioned earlier, we are in full

7 collaboration with state, federal and regional agencies,

8 Native American tribes as well as other non-governmental

9 organizations and private industries.

10   With that, I'd like to thank you for your time

11 and I will turn it back to Colonel Quarles.

12   COLONEL QUARLES: Thank you very much, Dave.

13 Now, we ask Mr. Mike Saffran if he would comment just

14 for a bit on the pathways outside of the CAWS.

15   MR. SAFFRAN: Thank you, sir. Pleasure to be

16 here in Vicksburg. I was really looking forward to this

17 warm weather venue, and I think we brought the snow with

18 us.

19   COLONEL QUARLES: We've been accused of that.

20 Don't.

21   MR. SAFFRAN: When we started into the GLMRIS

22 there was quite a bit known about Chicago Sanitary and

23 Shipping Canal and the risk that it poses relative to

24 aquatic nuisance species, the interbasin transfer of

25 aquatic nuisance species. On the other hand, the other

1 pathways, there was very little known. And last summer,

2 early in the summer, General Peabody challenged the

3 regional team to develop a very quick study to identify

4 and develop an inventory of all the potential aquatic

5 pathways that exist along that nearly 1500 mile

6 dividing line between the two basins.

7   Anybody that's been up in that area I think is

8 familiar with the fact that that's very very flat

9 topography over a lot of that, so it's -- there's a lot

10 of uncertainty, I guess, as to exactly where the basin

11 divide is and then determining where locations are that

12 there's an aquatic pathway that exists across that basin

13 divide or may form from a large storm event was a pretty

14 tall task to take on and basically gave us about 60 days

15 to get the product out, get a draft product out. So

16 what we did was we reached out to the best experts that

17 we could find and we looked to the Official Wildlife

18 Service and the USGS to really help us with the universe

19 of nuisance species that were out there.

20   And then we looked at the state DNR's to really

21 help us to identify the locations where aquatic pathways

22 already exist or may form. And so what we try to do is

23 get the best experts and the people who had the best

24 local knowledge of the conditions along the basin divide

25 to help is do this study.

1   Long story short, it really worked out well

2   with great collaboration with all the agencies because

3   everybody had a strong interest in trying to prevent the

4   transfer of the nuisance species.

5   A total of 36 locations were identified. Of

6   those 36 locations we determined that there was a

7   significant risk at 18 of those locations. We were a

8   little bit conservative in that in that a number of

9   those 18 locations, there's a lot of uncertainty as to

10 really how much water may flow across the basin divide

11 there, and rather than conclude that there wasn't a

12 significant risk there we kept them in the study before

13 we let them go.

14   There was one location out of those 18 though

15 that really jumped out as a significant location where

16 there was a clear and present potential present danger

17 of aquatic nuisance species transfer and that was at a

18 location called Eagle Marsh in Fort Wayne, Indiana.

19   At that location you have two rivers that come

20 together, the St. Mary's and the St. Joe's and they form

21 the Maumee River in Fort Wayne. When you have a heavy

22 rainfall in that basin, those waters rush together in

23 the town of Fort Wayne and actually can cause backflow

24 across the basin divide into the Wabash River basin.

25   In the Wabash River basin you've got

1 establishing populations of Asian carp, and the Wabash

2 River is the longest stretch of undammed river east of

3 the Mississippi River, so it's a location that has

4 become infested with Asian carp.

5   We had a 2009 flood insurance study that

6 indicated that from the largest storm that you'd expect

7 to occur in any given year, a one year sort of storm

8 event, the water begins to flow across the basin divide

9 into the Wabash.

10   From a ten year level event, the depth of that

11 water across the basin divide is up to four and a half

12 feet, which the combination of the Asian carp being

13 present and the potential for significant rainfall event

14 to connect the waterways led to the project that Jim

15 showed just a few pictures of to a very quick interim

16 solution to prevent Asian carp transfer at that

17 location.

18   That project was put together in very very

19 short order. From a meeting at the end of July where we

20 had all of the agencies, the National Resource

21 Conservation Service, USGS, Indiana DNR, Little River

22 Wetlands Project, which is a non-governmental

23 organization. We had the local county surveyors, we had

24 all the right people in the room and we started

25 discussing what can we do. Everybody thought that we

1 needed some sort of permanent solution, but that the

2 time that it would take to implement a permanent

3 solution we didn't have.

4   So that's why we went to the construction of

5 the temporary barrier. The Indiana DNR took the lead on

6 the design and construction of that. Before the end of

7 September that was in place, so a little over 60 days we

8 went from discussing what we might be able to do to

9 actually having a physical structure in place, which I

10 think, again, points out the collaboration that's going

11 on among all the agencies here.

12   Right now the Corps of Engineers is developing

13 a feasibility study for a long term solution there.

14 That report is scheduled to be completed before the end

15 of this year.

16   And last but not least, on the other pathways

17 is we have a draft study plan that's out and being

18 reviewed by the team members, and we will finish that

19 and complete the risk characterization at those other

20 locations this calendar year as well.

21   COLONEL QUARLES: Thank you very much.

22   Now we can consider what authority have we been

23 given for the study? What is the magnitude of the

24 study? Take a quick look at what has been accomplished

25 in terms of the study effort thus far, getting the team

1 together, producing the Project Management Plan so that

2 we're -- we know the path, we want to get the study

3 done, it's all in there working with all agencies we can

4 so that we get all the information before we leave the

5 start point or the SP.

6   And then you see to the right --

7 (unintelligible) working one simple action but trying to

8 do things as prudent that can be done together.

9   Now, I've got a simple poll. If you're in the

10 Corps of Engineers raise your hand. Oh, okay, keep that

11 point.

12   For them we're going to talk about this time

13 line for Corps study processors. Some of you have been

14 doing this much longer than me, I won't call any names,

15 but it's very important with the process because a

16 Feasibility Study that will fully consider not only the

17 engineer's solution of how do you do this, what do we

18 need.

19   Well, first we need to know where we started

20 from. So as Dave said, we've already conducted a

21 literary review, all the information we had on hand. So

22 our folks like Dave looked at it and said, these are the

23 things that we think we know, we may learn more. We

24 need new data sets to make sure that the baseline data

25 we have, because we're going to form alternatives. How

1 -- what solution can we offer that will prevent all

2 aquatic nuisance species.

3   As part of the alternative formulation we will

4 look at one alternative being separation of the basins,

5 for instance. So we have to form a baseline condition

6 that says, before we do a project, how is the system.

7 And then we must fully evaluate if we do X, what are the

8 impacts of that interim solution, not just for

9 separation but for any alternative that we recommend.

10   And so if you look at the time line at the top,

11 it takes a off and we have done that planning up front.

12 We're in the mix now of seeing and knowing that the data

13 will support what. How do we evaluate the alternatives.

14 We're going to have to build models so that we can see

15 what happens if you implement a solution.

16   And so as we consider other studies that we

17 know about already or that are yet to come, they may

18 inform us to a point and we can use that information as

19 we go forward and do the plans formulation.

20   And at the end of that when we're talking

21 about a solution that can have impacts that may be

22 significant, we know we must get in NEPA terms to this

23 environmental impact statement level where you were

24 fully considering those impacts. We need to have

25 technical review done of our engineer solution. And

1   then we do -- we want to do those policy compliant

2   things that are proved to do. For instance, sharing

3   information with the public for a given point of time,

4   so that we can get comments back like we're here today.

5   So when you look at forming the team, the

6   finding the problem, getting the baseline of where to

7   start from, and then building and modeling the

8   engineering solutions, we think -- if funding comes in a

9   steady stream, it will take us, Dave, until about 2015

10 to get the draft plan and then, of course, it must go up

11 to our higher headquarters and then to the Assistant

12 Secretary for Civil Works.

13   While we were work on the full report, those

14 things that we can share with other agencies and the

15 public we plan to do so, and you see a few listed.

16   As well as those things that other agencies are

17 doing that may help inform GLMRIS, we want to gather

18 those things and help inform our efforts.

19   We're almost there, hang in, because now we're

20 getting to the part how you can best help us. And that,

21 first of all, is taking the time like you did today,

22 researching where we are in the study process and then

23 being a part of the information flow that we can do

24 justice to implementing a steady authority.

25   We -- Dave -- I said we, I use that kind of --

1 because you've been to every one of these, I admittedly

2 haven't been to all, again, we want to thank you and

3 team for reaching out throughout, you know, the basins

4 to make sure that we're spreading the word of what we're

5 doing and giving a chance to input.

6   I believe this would be nine targets done,

7 three more to go, and the next one on the 15 of

8 February. With the one correction to the handouts we

9 have, with weather delays in Ann Arbor, that has now

10 been rescheduled for the 8th of March.

11   Not only are we here, it's a lot of information

12 that's published. If you go to the Chicago District

13 you'll a see a link that looks like this, little GLMRIS,

14 as we continue to hear from you and get information that

15 we feel is useful for you to know we'll post some things

16 there. As well as we plan to even after we finish these

17 NEPA meetings, have public updates over time to make

18 sure you stay informed.

19   Ladies and gentleman, it's been my pleasure to

20 speak with you. We will be here all day and all night,

21 well just about, to make sure that you get a chance to

22 do what you came here for and that is comment. Thank

23 you very much.

24   MR. ZABOROWSKI: Thank you, Colonel.

25   Before proceeding to the oral comment period I

34

1 would like to note that the GLMRIS project website is a

2 good source of study information. All the handouts that

3 are here today are available for download as well as

4 additional information and additional documents that you

5 can download, like the Project Management Plan that the

6 Colonel is so proud of.

7   Interested persons can also visit the project

8 website and sign up for the study e-mail list there.

9 The Corps of Engineers will use the e-mail list to

10 distribute updates on such things as new documents or

11 products that have been added to the website, or new

12 information, or opportunities for publice involvement.

13   And again, you can find our project website on

14 the business cards and various other things that we

15 handed out today. Feel free to follow us on Twitter and

16 go to Facebook and friend our study as well.

17   I have now been informed that we have nobody

18 registered to make a comment at the meeting at this

19 time, so we're going to kind of make this a little more

20 informal. Normally we would limit things to three

21 minutes and let people come up and make sure everybody

22 has the opportunity to speak.

23   So at this point and time after hearing the

24 presentation on the study, is there anybody that would

25 like to come up to the microphone and make a comment or

35

1 ask a question of any member of our panel? Anyone at

2 all? This might be a first. Just going to hang on for

3 a second in case anybody changes their mind.

4   Going once, going twice, going three times.

5 Well, if nobody would like to make a comment it is now

6 2:48 in the afternoon and I guess we will formally close

7 our oral comment period. So the team and the panel will

8 be around to answer informal questions and comments, but

9 please remember that they will not be considered in our

10 scoping process.

11   If you still would like to make a comment

12 please do so through our project website or through any

13 of the written submission forms that we have indicated.

14 Or if you feel like coming back for a second session and

15 have something to say then, please do so.

16   So thank you again everybody for your time

17 today. We appreciate it and thank you for coming out.

18   (First Session Concluded at 2:48 p.m.)

19   (AFTERNOON SESSION)

20   MR. ZABOROWSKI: Good afternoon, ladies and

21 gentleman. I'd like to welcome you to tonight's Great

22 Lakes and Mississippi River Interbasin Study or GLMRIS

23 NEPA Public Scoping Meeting. My name is Kendall

24 Zaborowski. I'm with the Chicago District of the US

25 Army Corps of Engineers, and I will be moderating the

1 meeting tonight.

2   The turn out is not so big, so hopefully we can

3 be a little more comfortable and a little more informal

4 and present the information for the study for you guys

5 in a very effective way.

6   Just in case you were wondering or need to use

7 the restroom at any point in time, if you go back out to

8 the welcome table, then walk down the hallway on your

9 left, it will be about half way down.

10   Before we go any further I would like to

11 introduce the panel tonight. Immediately to my right is

12 Mr. Jim Bredin, the Deputy Asian Carp Director for the

13 White House Council on Environmental Quality.

14   Next to him his Colonel Vincent Quarles, and he

15 is the Commander of the Chicago District of the US Army

16 Corps of Engineers.

17   Then there is Dave Wethington, the GLMRIS

18 Project Manager.

19   And then finally at the table we have Mike

20 Saffran, who is the Other Pathway's Project Manager.

21   When you came tonight at the welcome and

22 registration tables the follow materials were available

23 for you. The green meeting agenda that's going to

24 outline what we're going to be doing here this evening.

25 Short presentation followed by oral comments and then

1 questions if you have any.

2   Then there is the GLMRIS business card and that

3 has ways to stay involved with us. You'll find our

4 mailing address and our project website on there.

5   Then there's the tri-fold brochure, which is

6 basic information about the study.

7   Then we have our comment forms, which have

8 space for you to write written comments and submit them

9 to us. There's also mailing instructions on there as

10 well.

11   Then we have the purple sheet, which is

12 frequently asked questions about GLMRIS, the study

13 itself.

14   Then this putrid pink sheet is frequently asked

15 questions about other aquatic nuisance species efforts

16 undertaken by the Corps of Engineers or other related

17 agencies. Then also you'll have a copy of the

18 presentation that we'll be giving here in a few short

19 moments.

20   Then lastly you would have received the blue

21 booklet, which is detailed information about GLMRIS.

22   I would like to remind you that if you would

23 like to make an oral comment and did not register

24 already then we would -- before the night is over we'd

25 like you to fill out one of our yellow comment

1 registration forms so that we can make sure your

2 comments are included in the NEPA scoping process.

3   And I would like to remind you as well that if

4 you choose not to speak tonight or you have any comments

5 that you can think of later, the NEPA scoping process is

6 opened until March 31 of this year. And any comments

7 that are said in any of our public meetings, or

8 submitted through our website, or mailed into us, will

9 be given equal weight.

10   Our GLMRIS team has organized this public

11 meeting to accomplish two goals. First, to present

12 information about GLMRIS. And second, to solicit

13 comments on what you feel are significant issues that

14 should be included in GLMRIS or insignificant issues

15 that can be eliminated from further study.

16   The Corps of Engineers is hosting 12 public

17 meetings throughout the study area, this is the ninth of

18 those. And through these meetings we hope to provide

19 opportunities for those within a study area to learn

20 more about the study itself and to provide us with their

21 comments.

22   As indicated on the agenda this meeting has

23 been broken into two sessions. This is the second of

24 those sessions, so when I'm done talking here

25 momentarily we will begin the presentation and then

1 proceeding the presentation we'll have our oral comment

2 period.

3   If you have any questions or concerns during

4 the meeting please find somebody with a red lanyard,

5 myself, or anyone that's in the lobby and we'll try our

6 best to help you out.

7   At this point in time I'd like to turn it over

8 to Mr. Jim Bredin, and he will begin the presentation

9 portion of this meeting.

10   MR. BREDIN: Thank you, Kendall.

11   And also thank you to the Corps for allowing us

12 to have a couple of minutes. The main purpose of being

13 here is to discuss the GLMRIS project, but we'd like to

14 take a couple of minutes to talk about the Asian carp

15 activities that are going on in the Great Lakes and

16 Mississippi River.

17   I'm Jim Bredin. I'm Deputy Asian Carp Director

18 for the CEQ, Council on Environmental Quality, and what

19 I'd like to do is just kind of go over some of the

20 things that are ongoing right now regarding dealing with

21 Asian carp within the Great Lakes.

22   Just a bit of background, the Obama

23 Administration has taken a very pro-active approach to

24 dealing with Asian carp. Normally, we're put in a

25 position when we deal with invasive species of reacting,

1 and when we see something coming in we have to try to

2 figure what we're going to do about it once it's

3 established a population. In this case, at least for

4 the Great Lakes, we don't have that situation. We have

5 an opportunity to really take a pro-active approach and

6 try to figure out what we're going to do, how we're

7 going to keep these Asian carp out of the Great Lakes.

8   As I said, you know, the whole GLMRIS process

9 is looking at more than just Asian carp, but one of the

10 things that we're doing is through our strategy is to

11 basically focusing on Asian carp, but we're also taking

12 a look at other invasive species also.

13   The reason why we're taking such an aggressive

14 approach on this is because these Asian carp as we've

15 see them are very aggressive. We've very very concerned

16 about what may happen in the Great Lakes if they ever

17 established a sustainable population.

18   If you take a look at what they've done in this

19 area and also in areas of the Illinois River, you really

20 don't want to see those types of activities within the

21 Great Lakes if we can help it at all, and so we're

22 taking like I said a very pro-active approach to try to

23 keep these fish out of the Great Lakes.

24   This is our 2010 Asian carp Control Strategy.

25 This was started in February of last year, and it

41

 1 included 35 actions and had a total of investment of

 2 over 78 million dollars to try to keep the Asian carp

 3 from getting into the Great Lakes. And it also was a

 4 first effort to really bring together federal, state and

 5 local actions together in one package to really try to

 6 be pro-active on this whole issue.

 7   In May of 2010 we established the Asian carp

 8 Regional Coordinating Committee, and as you can see here

 9 this is basically the way the committee was

10 established. In September of last year we also then

11 invited the Governors of the Great Lakes states to

12 appoint representatives, so what you see on there are

13 all the federal agencies and the Great Lakes states all

14 working together to try to keep Asian carp out of the

15 Great Lakes.

16   This right here is also part of the framework.

17 It is the Non-Federal Technical and Policy Group. This

18 is an effort, it is not part of the federal process, but

19 it is a process to bring other interests that are

20 involved in Asian carp controlled activities into the

21 process. And as you can see there we have federal

22 partners, we have academia, industry, tribes, state

23 partners and what we're trying to do through this

24 process is bring any type of information that's

25 available, any type of knowledge that we may use to

1 pursue the process; and we have a co-chair, Phil Moy,

2 and we're in the process of identifying the second

3 co-chair, but this is a process that's outside of the

4 framework itself, but just trying to make sure that we

5 bring all of the available information, reports,

6 projects, whatever it may be into the process of

7 controlling Asian carp.

8   As you can see here, I don't know how familiar

9 you are with the Chicago area, but the picture on the

10 left is Chicago before the two watersheds were combined,

11 were connected actually. And then the one in the right

12 is what is in place currently. And as you can see there

13 was no interaction between the Mississippi River -- no

14 direct connection between the Mississippi River basin

15 and the Great Lakes before we connected the two

16 systems.

17   Now you can see there are many points of

18 interaction and those are what we're concerned about

19 from the Chicago Area Waterways. And just the -- the

20 fish have the ability, or at least there's water going

21 back and forth throughout that system and that's one of

22 the key focus areas for our efforts under our

23 framework.

24   This right here, and you'll be hearing more

25 about this later, this is what the barriers look like as

1 of right now, the electric barriers. And as you can, if

2 you follow -- if you were to follow the river to the

3 right that's leading to Lake Michigan and the

4 Mississippi River would be farther down on the left,

5 it's the Chicago Sanitary and Shipping Canal. And as of

6 right now there are three barriers that are there, and

7 those are our electrical barriers that are used to keep

8 the Asian carp on the Mississippi side of the basin and

9 looks as though as of right now they're doing very

10 well. We are finding some traces of Carp DNA north of

11 the area, but so far only one Asian carp has been found

12 north of the barrier, one live Asian carp.

13   This is a description of the Chicago Area

14 Waterways itself and what I'd like to do is just give

15 you a bit of information regarding this. In this area,

16 and as you can picture, that's downtown Chicago, and if

17 you've ever been there it's very highly developed; but

18 just wastewater alone there's over 1.4 billion gallons

19 per day that's discharged through that system making

20 it's way down through the system to the Mississippi

21 River.

22   And just as an example, in 2008 during one

23 major storm this -- the Metropolitan Water Reclamation

24 District released approximately 11.2 billion gallons of

25 stormwater into Lake Michigan through the gates. And so

1 you can see that there's a lot of interaction there.

2   In addition, downstream at -- downstream from

3 Wilmette, which is about 50 miles south, I believe,

4 there was an additional 50 billion gallons of stormwater

5 released. And that's just us trying to give you a

6 perspective of one of the challenges, one of the major

7 challenges we're going to have in trying to deal with

8 the system, is the stormwater itself because the city of

9 Chicago relies on both Lake Michigan and Illinois River

10 to basically run all the stormwater through the process.

11   In 2010, the framework that we developed

12 identified 32 -- I think I mentioned 35, it's actually

13 32 federally funded initiatives to deal with Asian

14 carp. As I mentioned I we showed you the picture of the

15 fish barrier system, but this is one -- this is another

16 barrier that was developed near Fort Wayne, Indiana in

17 marsh area, and we'll talk about this area a little bit

18 more in the future. But this is an interim fish barrier

19 to keep Asian carp from entering the Great Lakes basin

20 at Fort Wayne, Indiana. This area floods regularly. In

21 fact, I lived down right next to this area for a couple

22 of years and on an annual basis this area would flood.

23 And there's that opportunity for fish to go back and

24 forth. And the main concern in this area is adult

25 fish. And so this is an interim measure that was

1   constructed and is doing very well as of right now.

2   We'll be tracking that and looking at opportunities for

3   improving the effectiveness of this type of facility.

4   Also as part of this process, and once again,

5   we'll be getting into this in a little bit more detail,

6   but the GLMRIS effort identified a number of sites

7   across the Great Lakes, and if you take a look at it,

8   the brown area is the Great Lakes watershed. The darker

9   area is the Mississippi watershed. And these sites that

10 are on here identify potential pathways for invasive

11 species to move back and forth. And the yellow star

12 there is what I just mentioned earlier, that is the

13 Eagle Marsh at Fort Wayne, Indiana; but all of these

14 sites are going to be evaluated. These are the highest

15 priority sites for potential interaction between the two

16 basins, but the other panels will be getting into that

17 in a little bit more detail.

18   Other accomplishments that we've seen during

19 2010 were the Asian carp Prevention and Control Act was

20 signed by the President on December 14. That is

21 prohibiting the live transport of bighead carp from

22 being shipped within the United States.

23   We also are increasing our eDNA capacity to 220

24 samples per week. We're increasing all the interaction

25 between the different levels of government that are

1 involved and the stakeholders that are involved through

2 this whole process. And also, if you have any questions

3 about any of the activities going on through the

4 framework you can go to AsianCarp.org. We try to keep

5 that website updated with any information that's

6 available. We try to keep it out there with any press

7 releases, any type of additional information that may be

8 available, so it's a good source of future information

9 if you're interested.

10   This is the 2011 framework. This was just

11 released back in December of 2010. It adds 13 new

12 projects to the whole process. And so we have -- now

13 have a total of 45 projects that are either completed or

14 under way through this framework.

15   Some of the additional projects that are going

16 on include validation of eDNA as an effective tool, one

17 of our tools for monitoring Asian carp. And also

18 development of eDNA and genetic markers and also

19 expansion of our capacity through the US Fish and

20 Wildlife Service lab in Lacrosse, Wisconsin.

21   Just to give you a perspective of what also

22 went on during last year, we spent nearly 1100 person

23 day efforts -- person days of effort and we sampled over

24 125,000 fish. The sampling teams treated 2.6 miles with

25 rotenone and completed 344 hours of electro-fishing and

1 fished 45 miles of trammel and gill net. This intensive

2 monitoring -- and what I'm trying to do here is show we

3 have a very intensive program to monitor this entire

4 area and it's all part of this framework that we've

5 identified. As part of the rotenone effort we actually

6 identified -- we had the opportunity to identify over

7 100,000 pounds of fish that were captured and not one of

8 the fish that were captured in this area was a

9 bighead -- was either a big or a silver carp, so we're

10 fairly well certain that our monitoring is really doing

11 the job. Our barriers are doing a very effective job

12 of keeping the fish out of the area, but we're still

13 monitoring making sure that we do not see any type of

14 sustainable population in the Great Lakes.

15   Also, we have additional projects including

16 alternate trap and net designs for Asian carp, rapid

17 genetic base methods for detection of Asian carp, are

18 fast results than eDNA. And we're also taking a look at

19 what impact barges may have on helping to transport the

20 fish.

21   This right here is an -- it's an area that --

22 well, as you can see, the Great Lakes is in purple, the

23 Great Lakes watershed. The Mississippi watershed is in

24 the green color. And this is just identifying the focus

25 areas, the first focus area being the Great Lakes and

1 the second focus area being the area outside of the

2 Great Lakes basin.

3   We're also doing -- we're doing an evaluation

4 of the electrical barrier effectiveness as an ongoing

5 process, and we'll also be increasing our efforts

6 towards enforcement of carp inspections at bait shops,

7 fish processors and fish markets. In addition, we're

8 working with commercial fisherman to develop a market

9 for Asian carp south of the barriers. We're really

10 hoping that we can identify a market for these fish,

11 that we can help to control the populations of the fish

12 south of the barrier thereby putting less pressure on

13 the barriers themselves. And really trying to make an

14 effort to keep the fish below the barriers

15   Also, the US Coast Guard is involved and plays

16 a very important role in helping us with this effort.

17 They are working with us for whenever we need to

18 restrict the waterways and also making sure that we

19 have -- whenever we need to, that we take safety first

20 and going to consider safety first and they are

21 definitely helping us out in that area, identifying and

22 establishing enforcement and safety security zones.

23   And this right here, if you go to AsianCarp.org

24 you can get to this site that we have a button on there

25 that talks about eDNA if any of you are interested in

1 what's being found. This is actually on the Corps of

2 Engineers' website and we appreciate the efforts of the

3 Corps to post this whenever we have any new information

4 from our monitoring efforts. So you can go to

5 AsianCarp.org, click on it and it will take you here.

6 And this tries to explain where we are finding positive

7 hits from eDNA for Asian carp. And so we update that

8 whenever we have additional information.

9   And with that I would just like to say that we

10 think we have a very strong program in place to keep

11 Asian carp out of the Great Lakes. We're seeing a very

12 effective barrier system. We're working with all the

13 different federal agencies; USGS, Fish and Wildlife

14 Service, Corps of Engineers, to bring everybody together

15 to deal with this from a team perspective. And that's

16 part of the process that I'm involved in through the

17 Council on Environmental Quality and we're very thankful

18 that we're having this opportunity to provide you with

19 this type of information and get the word out that we

20 are taking this very seriously and we'll be working on

21 this in the coming years to make sure that we do not see

22 Asian carp in the Great Lakes.

23   So with that I'll turn it over to Colonel

24 Quarles.

25   COLONEL QUARLES: It's going to be -- and

 1 normally I talk to about 2 or 3 hundred people.

 2   MS. SHROPSHIRE: Well, here have a seat.

 3   COLONEL QUARLES: I really do. No, I won't do

 4 that, but what I will do is, see, we came today to be

 5 able to explain things, so you took the time to come and

 6 talk to us so the main reason we're here is for you, so

 7 you got a chance to meet Jim. I want to thank Jim and

 8 all the agencies that are working on a common goal. And

 9 the Regional Coordinating Committee is looking at this

10 Asian carp, and I'm not sure how much you know about

11 that, but that in itself is the basis of these meetings.

12   MS. SHROPSHIRE: I've had one in my lap so --

13   COLONEL QUARLES: I've eaten one but I've never

14 had one in my lap.

15   MS. SHROPSHIRE: Well, you need to ride down

16 the Mississippi River.

17   COLONEL QUARLES: Well, you've seen some things

18 that I'm sure I haven't, but the thing I want to bring

19 up now is it's going to take -- she can't hear me.

20   All right, we want to make sure that we do

21 justice in coming out to make sure that the public is

22 informed of our efforts, and this is not one district.

23 I command the Chicago Corps of Engineers District, you

24 have a district right here Vicksburg. You see some of

25 the folks from Vicksburg district out here helping us as

1 well as we have Mr. Rich Hancock. He's from divisional

2 office in Cincinatti, Great Lakes and Ohio River

3 Division, as well as the division here, the Mississippi

4 River Division.

5   The other thing I want to note is all of our

6 team from Chicago, from Cincinatti, our staff for being

7 here, that put this together. So whether it's 2 people

8 or 200, the mission we have here is the same.

9   And so we want to talk a little bit about the

10 interbasin study that's looking at all aquatic nuisance

11 species. But before that I want to refer you to the

12 pink sheet here, and this is a lot of what Jim talked

13 about, so if we're thinking about what things is the

14 Corps currently doing to assist with Asian carp only.

15 That sheet is a good reference because we feel we have

16 the authority to operate the electrical barriers. We're

17 doing that. Looking at the efficacy of those barriers.

18 So what will keep Asian carp from getting through the

19 barriers and around the barriers, as well as what else

20 needs to be done near term for Asian carp.

21   The GLMRIS study, and that's what I want to

22 focus on, is just not about Asian carp. It's about all

23 aquatic invasive species. And when you think of what

24 Jim said, this area from the Great Lakes all the way

25 down to where you're seeing Asian carp jump in your lap,

1 that's the intent of the study. So let's see how much

2 you really know about GLMRIS. Next slide.

3   MS. SHROPSHIRE: Oh, I don't want --

4   COLONEL QUARLES: I don't want to put you on

5 the spot, I'm going to help you out.

6   MS. SHROPSHIRE: Okay.

7   COLONEL QUARLES: Look we'll learn a lot of

8 things about what GLMRIS does and doesn't do. Well,

9 being a soldier, you know, I got a mission, so what

10 authority do we have as the Corps of Engineers to

11 conduct the study. So we pulled this directly from the

12 congressional authority. We're going to look at a range

13 or range of options, just not one solution. We will

14 look at the potential solutions that prevent all

15 aquatic invasive species, before -- between going from

16 the river basin, Mississippi River Basin into the Great

17 Lakes or from the Great Lakes into the river basin.

18   We wanted to make sure as well you have some

19 special considerations, as you see three goals set that

20 are very important. And not all studies are 100 percent

21 federal, but this one is. So the study itself we will

22 get from the President's budget. Next slide.

23   I already mentioned and Jim hit this as well,

24 it's 33 states that if we look just between the basins,

25 as Jim mentioned for the brown and the dark gray, that's

1 17 states where David will talk about this one little

2 red square. That is what we'll refer to as the CAWS,

3 Chicago Area Waterway System.

4   Mike Saffran will speak to other potential

5 pathways outside of the main and most direct path for

6 invasive species to get into the Great Lakes, which is

7 the CAWS. When you see this black and white dotted line

8 you're probably looking at 1500 miles that we have to

9 sort through and say, what potential -- during rain

10 events, without rain events, what pathways may be there

11 so we can engage. Next slide.

12   This slide is very useful in stating what

13 GLMRIS will include and what it will not include, so I'm

14 not going to read the slide to you, but again, we're

15 focused on aquatic invasive species. We're only talking

16 about the transfer between the Great Lakes and

17 Mississippi River Basin, and not such things as the

18 St. Lawrence Seaway. And then you can see the elements

19 that we will be looking at. Next slide.

20   We understand the urgency of doing what we

21 can. Mother nature has a role in what we do, but we

22 want to do our study as efficiently as possible. So for

23 that reason we have two PM's. One is focused on the

24 CAWS, which is one problem of the study. And then we

25 have a separate team that's focused on those other

54

1 pathways, and we'll talk more about that in a little

2 bit.

3   The other intent is to make sure that we're

4 organized for success within USACE because we're working

5 between districts, between divisions. Make sure we're

6 efficient in sharing information. Making sure people

7 are on task and working with other agencies at the

8 state, local that has resources that can perform the

9 studies. And then reaching out to stakeholders and the

10 public to make sure they're informed and they get a

11 chance to comment on the study.

12   And then as we move to the official report that

13 must be formed, reviewed, out for public comment and

14 eventually go to the Secretary for Civil Works that we

15 cycle our products that are prudent, and we'll talk

16 about that. Next slide.

17   I taught this as far as focusing areas. Again,

18 it's wanting to -- it's all those things, invasive

19 species at the top of our order. Next slide.

20   Now, what I'll do is give Dave a chance to talk

21 about the Chicago Area Waterway System.

22   MR. WETHINGTON: Great, thank you, sir. Good

23 evening, everyone, my name is Dave Wethington and I'm a

24 project manager in the Chicago District with the Corps

25 of Engineers.

1   I'll spend just a couple of minutes just kind

2 of outlining the slide and talking to you about some of

3 the challenges and complexities within the Chicago Area

4 Waterway System. So the map you see to your right is

5 basically an outline and there are a couple of things I

6 want to point out to you specifically.

7   First of all, there are five points between the

8 Chicago, I'm sorry, between the Great Lakes Basin and

9 the Mississippi River Basin that allow the two

10 watersheds the ability to interact, to mix basically.

11 And those are outlined in points one through five along

12 the Lake Michigan Shoreline.

13   The unique character about all of these

14 connections is that kind of like the prongs to a fork,

15 if you can imagine it that way, they all flow into one

16 single stream which would be like the handle of the

17 fork. And that stream is the Chicago Ship and Sanitary

18 Canal, and that is where we put -- we have constructed

19 the both demonstration barrier and the full time

20 electronic barriers that prevent the transfer of Asian

21 carp specifically from the Mississippi River Basin into

22 the Great Lakes Basin. And that point is point number

23 seven up on the map.

24   So we have a system that has at least 5 mixing

25 points and they all flow to one channel. There's also

1 something else unique about it, and you'll notice points

2 one, two and there are what we would call controlled

3 waterways. So points one and two, one is the Wilmette

4 Pumping Station. Two is the Chicago Lock. And point

5 number three is actually controlled by point number six

6 up there, which is the O'Brien. And when we say it's

7 controlled stream that means there's some sort of

8 physical structure that can be used to control the flow

9 of water. Just as importantly, streams four and five,

10 the Grand Calumet River and the Little Calumet River are

11 uncontrolled waterways, so there are no physical

12 structures or physical barriers that are used to control

13 the flows of those two waterways.

14   On the left is basically an outline of the

15 Corps planning process, how we attack a problem like

16 this and kind of break it down into the different step

17 that are necessary to come up with a final product.

18   What we're doing now are basically steps one

19 and two. We're specifying problems and opportunities

20 and put together teams both with the Corps of Engineers,

21 with other department federal agencies, non-governmental

22 organizations, and part of the reason why we're here

23 today speaking with you is we want to specify how we

24 shaped the study and how do we move forward. What's

25 important, what's significant, and just importantly what

 1 is not significant. And so the comments that we're

 2 getting at this meeting and the rest of the meetings

 3 that we're doing will help with the scope the, you know,

 4 problems and opportunities for the study.

 5   Inventory and forecast conditions, what does

 6 that mean? Well, what we need to do is we need to

 7 identify what are the existing uses of this waterway.

 8 You might have heard about commercial navigation, be a

 9 big thing. There's also recreation, recreational

10 boating, water supply, water discharge and it's also

11 very important to Chicago Area Waterway System. About

12 78 percent of the total flow of the Chicago River is

13 made up of municipal treated wastewater discharge, so

14 very important flow for navigation water discharge.

15   It's also a critical link in the cities,

16 actually in the entire Chicago Land areas, a flood risk

17 management strategies. It doesn't happen very often,

18 maybe every couple of years or every five years, but

19 we'll get a significant enough rain storm that we have

20 to open up the box at point number two up there and

21 allow the river to flow both directions essentially,

22 toward the city and out into Lake Michigan to alleviate

23 the flood pressure not only in Chicago where there's a

24 chance for severe over bank flooding, but also into the

25 suburbs because of all the sources that are

1 interconnected. And so there's no place for the water

2 to drain. You get back ups that has a potential to

3 involve and influence, adversely impact millions of

4 residents.

5   So we have to identify what are all the

6 different uses for the system, and we use that to inform

7 how we plan or implement these aquatic nuisance species

8 controls, so one example of control would be the

9 electronic barrier, that is specifically directed

10 towards a specific ANS, Asian carp. But this will also

11 help us evaluate some areas for implanting something

12 like hydrologic separation or a physical barrier in the

13 system. How are the users, the people who rely on

14 wastewater, the stormwater management, recreation and

15 navigation, how are all those waterway users impacted

16 when we implement whatever aquatic nuisance species

17 control we may implement.

18   So that kind of walks you through how we have

19 to formulate the plans, evaluate the effects of plans

20 and all the data is kind of necessary in that. Our

21 authorization and our guidance also tell us, the Corps

22 of Engineers, that we need to provide alternative

23 mitigation for adverse impact. So if there's someone,

24 you know, we cause increased flooding, you know, how do

25 we appropriately mitigate for that alternative.

1   As the folks mentioned before we are

2 collaborating across not just the Corps of Engineers,

3 but with other federal agencies, states, tribes,

4 non-governmental organizations, and so really we have a

5 lot of great players working on this kind of complex

6 problem.

7   I appreciate your time and attention. I'm

8 going to turn back to you, Colonel Quarles.

9   COLONEL QUARLES: Thank you very much.

10   Now, I feel a little disadvantaged right now.

11 I've introduced you to Jim, representing the CEQ. You

12 met Dave. Again, I'm Colonel Vincent Quarles, and

13 you've been paying my paycheck for 24 years, so I'm

14 really glad to meet you. So what's your name, Ma'am?

15   MS. SHROPSHIRE: Cathy Shropshire, I'm with the

16 Mississippi Wildlife Federation.

17   COLONEL QUARLES: Okay, sir.

18   MR. SHROPSHIRE: Tommy Shropshire, I'm with

19 her.

20   COLONEL QUARLES: So you're with her.

21   MS. SHROPSHIRE: He's my driver.

22   MR. SHROPSHIRE: I'm retired, but I've been to

23 these meetings all over the US before I retired.

24   COLONEL QUARLES: Well, thank you. Thank you

25 again for coming.

 1   MR. SHROPSHIRE: I'm looking particularly at

 2   your process.

 3   COLONEL QUARLES: Okay. Well, we want to make

 4   sure we get this right since you've been and you've seen

 5   others, so any tips you can give us let us know.

 6   The next thing I want to do is turn it over to

 7   another member with the Corps. Mike Saffran is going to

 8   talk a little bit about the other pathways outside of

 9   the CAWS.

10   MIKE SAFFRAN: Thank you, sir. Very nice to be

11   in Vicksburg. If you followed our earlier meetings most

12   of them have been up north and then I apologize we

13   brought snow with us. This is still much warmer than

14   what we've been in.

15   The other pathways, the -- when we started into

16   the GLMRIS there was a lot already known about the

17   Chicago Sanitary and Shipping Canal and the risks -- and

18   the actual impacts that have occurred through the

19   interbasin transfer of species through that particular

20   canal. The GLMRIS authority bill said Chicago Sanitary

21   and Shipping Canal and other aquatic pathways. We have

22   very little background on the other aquatic pathways.

23   Last summer at the start of the summer, General

24   Peabody became very concerned because obviously we have

25   a huge investment in the Chicago Sanitary and Shipping

1 Canal. It's been described here with the electrical

2 barrier system, the ACRCC and all the work that's been

3 going on there that there was a potential that maybe the

4 fish could outflank us in one direction or the other.

5   So he tasked the division team to come up with

6 a plan that we could go out and identify all of the

7 other potential aquatic pathways that may form anywhere

8 along that nearly 1,500 mile long basin divide. And we

9 scratch our head and say, well, that's a tall order; but

10 what we did was we went to the best experts within the

11 Corps. We have eight different Corps of Engineers

12 Districts that are along that boundary. We went to the

13 best experts we could find from the USGS, the Fish and

14 Wildlife Services, the National Oceanic Atmospheric

15 Administration, we went to try to find the best experts

16 we could find on a national level and we also went to

17 the state DNR's because we really needed to have good

18 information about local conditions to be able to do

19 anything very quickly.

20   So long story short, we did the best we could

21 to identify the premier experts and the people that had

22 local information and use their judgement helping us

23 identify where the locations are, and then also to

24 identify what the potential risk of those locations

25 would be for this interbasin transfer of species.

1   So long story short, we identified 36 locations

2   along the basin divide that appear to be viable,

3   potentially viable aquatic pathways. These were a

4   combination of things from agricultural ditches across

5   the basin divide, remanent of former canal systems,

6   numerous locations we found wetlands that -- natural

7   wetlands that exist along the basin divide. So, again,

8   the team worked together. We -- 18 of those locations

9   we identified there is a potentially significant risk

10 for interbasin transfer of species.

11   One of those locations really jumped out as

12 something that needed quick attention, and that was the

13 Eagle Marsh location in Fort Wayne. As Mr. Bredin has

14 already there, that's a location where there's kind of a

15 natural -- a remanent from the glaciers that has been a

16 back flow location where when you have a large storm in

17 that area the St. Joseph's River comes from Southeast

18 Michigan and flows into Fort Wayne. The St. Mary's

19 River flows in from south central -- west central Ohio

20 into Fort Wayne, and then they form the Maumee River,

21 which flows off directly in the opposite direction

22 toward the northeast to Lake Erie. When you have an

23 annual storm event, or a large storm you'd expect to

24 occur in any given year, water back flows from the

25 Maumee Basin into the Wabash River Basin.

1   We had two -- this is one of the locations we

2   had a pretty current study also, and at that location

3   the 2009 flood insurance study indicated that from a 10

4   percent annual return frequency storm or the largest

5   storm you'd expect to occur in any given 10 year period,

6   the depth of water across the basin divide was up to

7   four and a half feet deep. We put that in context with

8   the fact that established populations of Asian carp were

9   known in the Wabash River less than 25 miles away from

10   that location, that really jumped off as there's

11   something that needs to be done here.

12   We had an on-site meeting at the end of July

13   that included all of the agencies, and the best experts,

14   including the local county surveyor, and US EPA. We had

15   all the folks there discussing what can we do about this

16   circumstance. And everybody agreed that there needs to

17   be some sort of a permanent remedy there, but that we

18   might not have enough time to do that if we have a

19   really big storm, so we borrowed from one of the things

20   that had been done in the Chicago Area Waterways, which

21   was to develop an interim barrier that could be used to

22   separate and prevent Carp from being able to cross that

23   location. The state of Indiana and the Indiana

24   Department of Natural Resources stepped up and in less

25   than 60 days they completed a design and built the

1 fence. And so we have an interim solution there that's

2 preventing adult Asian carp from being able to make the

3 trip up that additional 20, 25 miles it would take to

4 get across the basin divide.

5   The other -- well, let me see. That's

6 basically what's going on there. There's also right

7 now, the Corps of Engineers is completing a feasibility

8 study looking at the permanent solution at that

9 location. That report is scheduled to be completed

10 before the end of this calendar year.

11   And then last but not least, for the other

12 pathways, we're going to complete the risk

13 characterization at the other -- well, at all 18

14 locations we're going to complete the risk

15 characterization. And that report, again, is scheduled

16 to be completed before the end of this year. Thank you

17 for your attention.

18   COLONEL QUARLES: Thank you, Mike.

19   And Kendall, we can go to the next slide.

20   Okay, so David and Mike talked about some of

21 the accomplishments this far. You can see them listed

22 to the left as well as other things that we're doing

23 while we are executing the feasibility study. Next

24 slide.

25   We talked about what we're doing, a little bit

1 about how or the context of what we're doing, now let's

2 talk about the timeline of getting it done. Need the

3 right team of experts formed and we're glad to say that

4 we have that, not just Dave Wethington and Mike, we have

5 a whole team of engineers that's looking at the

6 different components that we need to study from the

7 hydrology to the navigation. And all of that is inside

8 of what we call our Project Management Plan, and you can

9 find that, as Kendall said, on the web if you wanted to

10 look in detail at the plan. But that work has been

11 done, and so we find ourselves now able to because of

12 all of the support we've gotten, and the appropriations

13 part, to begin awarding contracts for the data

14 requirements that we don't have. So a technical review

15 has been done to know what data is on hand and now we're

16 able to now award contracts to get the additional data

17 we need to form a baseline. The baseline is this is

18 what -- if you put in the model things look like before

19 we introduce any solutions, the plan's formulation will

20 model what the situation or condition would be if we

21 were to, for instance, separate the basins at different

22 locations. What models, what impacts would be imposed

23 in terms of safety, flooding, navigation. Our process

24 requires that we not only offer interim solutions, we

25 must consider fully the impacts of our solution. And

1 you probably know about the NEPA requirements in this

2 case. We expect permanent a solution, a permanent

3 solution to have significant impacts, and so we would

4 have to do a full Environmental Impact Statement.

5   And so we must meet not just the interim

6 solution, we must deliver a full analysis of impacts and

7 it's going to take some effort, so I'm not going to be

8 the only engineer coming up with a solution and not

9 having it reviewed. So within our process, say a period

10 where we would have external reviews of our solutions or

11 alternatives as well as meeting all the policy and

12 technical -- technical and policy requirements. And

13 that is why we're saying we expect -- if we continue to

14 get sufficient funding we can have a draft recommended

15 plan out for public review at the time you see here.

16 Next slide.

17   While we're on that final draft product,

18 again --

19   (Microphone went out.)

20   COLONEL QUARLES: Can you hear me now?

21   Any products that we have that don't lead to

22 the recommendation that are data points that we can get

23 approved through our headquarters to release we plan to

24 do so. And some of the products that we think we may be

25 able to release are listed here. Next slide.

1   We're doing our best not to conduct the study

2   in a back room. We're reaching out to other agencies,

3   state, local. Again, if they can inform the study we

4   want to get as much information as we can, as many

5   comments as we can, so that we can form a sound

6   engineering solution. And that's why we're here today.

7   Next slide.

8   Which is why the Corps is here in Vicksburg,

9   (unintelligible) city, this is the 9th location we've

10   been to out of a total of 12 sites that span throughout

11   the basins that the study will be involved with. Next

12   slide.

13   And with all the technology nowadays, we just

14   like kind of talking about it. We've gotten all kinds

15   of tools that Kendall is going to tell you about to make

16   sure that you can find out and stay current with our

17   study efforts, so we're going to be quiet. Kendall is

18   going to tell you about some administrative things and

19   then we'll give you a chance to comment.

20   MR. ZABOROWSKI: Thank you, Colonel.

21   Before proceeding to the oral comment period of

22   this meeting I would like to note that the GLMRIS

23   project website is a very good source of study

24   information. You'll find all of the handouts that we've

25   given you today available for download as well as other

1 documents that we produced or interim products as we get

2 them will also be posted on the website. The PMP, for

3 example, is also available for download and you can find

4 out how we plan to manage ourselves during the study.

5   Also on the project website you can sign up for

6 the GLMRIS e-mail list, and the e-mail list will be used

7 to send out updates, opportunities for public

8 involvement and any other products or significant events

9 associated with the study.

10   So the website can be found on many of the

11 products that you were given today, on our business

12 card, on the comment forms. And then also, if you are

13 so inclined, we're using social media to also get out

14 our message and updates so you can follow us on Twitter

15 or friend us on Facebook.

16   At this point in time we are going to open the

17 oral comment period of the meeting, and I'm not sure if

18 you registered or not, but if you're willing to make any

19 comments or if you have any questions that you'd like to

20 ask of the panel.

21   MS. SHROPSHIRE: I do have a question.

22   MR. ZABOROWSKI: Yes, let's see if we can get

23 this microphone to work first.

24   MS. SHROPSHIRE: I can talk loud.

25   MR. ZABOROWSKI: Before you begin, could I just

1 ask you to state your full name and spell your last

2 name, and give your zip code.

3   MS. SHROPSHIRE: I'm Cathy Shropshire.

4 Shropshire is spelled S-h-r-o-p-s-h-i-r-e. And 39170.

5   MR. ZABOROWSKI: Thank you.

6   MS. SHROPSHIRE: Yes, I just -- after sitting

7 here, I know a little bit about the project, but

8 certainly not -- that's why I was here tonight to find

9 out some more about it.

10   These barriers, I guess they keep everything

11 out, right? All the other species, they wouldn't -- is

12 that what happens?

13   COLONEL QUARLES: The current -- the current --

14 the electrical barriers are designed for fish, and so

15 behavior science -- I grew up in Virginia, we had little

16 thin wires for pigs to keep them in the pen. They

17 touched it, they got zapped. Over time they learned not

18 to touch it, so fish are very sensitive to the

19 electricity. When they first feel it it's like a little

20 tingle. If they try to continue through then they may

21 be even stunned and float back down.

22   Now, the original barriers were designed for

23 the round goby, but the parameters that we operate them

24 at, you know, they best defend against the migration of

25 fish. And that's why with GLMRIS, we'll be looking at a

1 solution that will work for all aquatic nuisance

2 species. Big difference. So different authorities.

3 Congress gave us one authority to build the barriers to

4 focus on Asian carp. Second authority was the efficacy

5 studies to, again, look at what will prevent Asian carp

6 from going through the barrier or around it. And then

7 with this additional more over arch authority, GLMRIS,

8 we can look at all aquatic nuisance species.

9   MS. SHROPSHIRE: But what about non-nuisance

10 species, I mean, are they also --

11   COLONEL VINCENT QUARLES: Yes. If they're

12 fish, yes.

13   MS. SHROPSHIRE: Right, okay. And then the

14 other thing was, I'm terrible with names, but he --

15   COLONEL QUARLES: Mike?

16   MS. SHROPSHIRE: He said something about it

17 stopped adult species, but it won't stop -- is it just

18 the adults that it -- how does that work?

19   MR. WETHINGTON: Sure. Yes, within 20 miles of

20 the Eagle Marsh there is no evidence of Asian carp at

21 all yet, and so the real threat appears to be from adult

22 fish, which can swim very long periods within -- or long

23 distances within a day. And like I said, the fish

24 biologist looked at it very closely and said that the

25 primary threat is the adult carp. (Unintelligible)

1 there was a balance, frankly for picking the mesh size

2 of preventing flooding at the same time as being able to

3 minimize the risk of Carp transfer.

4   MS. SHROPSHIRE: Thank you.

5   COLONEL QUARLES: And again, inside of the

6 canal, this actual Chicago Ship Canal, (unintelligible),

7 we have actual steel cables making an electrical field.

8 That's the electric barrier. And then, of course, what

9 Mike is talking about, a different location is not your

10 normal backyard fence. It's an actual fence that's put

11 to prevent fish from passing. Fort Wayne, I'm sorry.

12   MS. SHROPSHIRE: So who maintains that?

13   MR. WETHINGTON: The Indiana DNR.

14   MS. SHROPSHIRE: The other species that you are

15 looking at, the lamprey and the whatever the other ones,

16 how do they get -- are they in the river system now and

17 how -- can you explain that to me?

18   MR. WETHINGTON: Sure, absolutely, that's a

19 good question.

20   So what we've done is we have worked with the

21 Corps of Engineer experts as well as experts from Fish

22 and Wildlife Service to look at both basins. So the

23 purpose of the study is to prevent the transfer of all

24 aquatic nuisance species between basins. So whether

25 it's nuisance from Mississippi River to the Great Lakes

1 or Great Lakes to the Mississippi River. So what we've

2 done is we've compiled a list of all potential species

3 and then kind of refined that list by looking at what

4 could survive, you know, how is the habitat looking.

5 And we're looking not just at, you know, what's

6 currently in the system, but what could potentially

7 could come into the system within a certain, you know,

8 in a certain realm.

9   And so what we've done is put together a white

10 paper that's being reviewed currently, and Mike's team

11 has also done some work to look at potential aquatic

12 nuisance species at those other pathways. What we're

13 going to do is we're going to merge all that information

14 together into like a single list of what is the whole

15 world of aquatic nuisance species that could potentially

16 transfer between the Great Lakes and Mississippi River

17 Basins. And that will be our target list, which we

18 design and basically study the potential control

19 technologies that would stop those species.

20   MS. SHROPSHIRE: And those species would be

21 going from the river system into the Great Lakes.

22   MR. WETHINGTON: Either way.

23   MS. SHROPSHIRE: Either way.

24   MR. WETHINGTON: Either way, yes.

25   MS. SHROPSHIRE: But they already are out

1 there, these species are already --

2   MR. WETHINGTON: Some are and some -- some are

3 existing currently, let's say some live in the Great

4 Lakes Basin but have not made it to the Mississippi

5 River but could be invasive to the Mississippi River, so

6 this is preventative.

7   MS. SHROPSHIRE: And how did they get to where

8 they are today? We know how we got Carp.

9   MR. WETHINGTON: Sure. There may be species

10 such as -- that live in the river system that would not

11 ordinarily come to the Great Lakes.

12   MS. SHROPSHIRE: Right, how did they get there?

13 I mean, what was --

14   COLONEL QUARLES: It depends on what species is

15 there. I mean, and again, this -- let's say --

16   MS. SHROPSHIRE: I guess what my point is, is

17 we know how we got Carp and we don't need another

18 situation like Carp.

19   COLONEL QUARLES: Right.

20   MS. SHROPSHIRE: We need to stop it before it

21 happens, which we tried to do and weren't able to. We

22 got outvoted on just how helpful those Carp were going

23 to be. How do we go about addressing --

24   COLONEL QUARLES: Well, the best way to do that

25 is look at what we're going to have to do in GLMRIS.

1 For instance, the Sea lamprey, they suck onto a fish, so

2 a fish swims through. That's, you know, how they may

3 transfer.

4   If we are able to address the connection

5 between the two basins and you find a way to cut that

6 off then there's no transfer possible. And that's what

7 this study --

8   MS. SHROPSHIRE: Well, I'm looking at even

9 before that, how do we --

10   COLONEL QUARLES: Yeah, I got you.

11   MS. SHROPSHIRE: And another question I have is

12 --

13   MR. WETHINGTON: I want to talk to that very

14 briefly. Although a lot of the introduction has

15 historically to the Great Lakes, has been through

16 ballast water and although the interbasin study is not

17 specifically addressing that type of introduction, the

18 US Coast Guard is a lead agency on looking at ballast

19 water. And so we're taking information they may come up

20 with as part of their work on setting new rules,

21 regulations for ballast water and incorporating that

22 into, you know, the kind of scope -- the results of that

23 into our study. So there are other agencies that we are

24 definitely partnering with that we know are

25 complimentary activities that are ongoing such as this.

1   So, you know, introduction through ballast

2   water, through transfer of bilge water, things like that

3   and the Coast Guard has a lead on that. And other

4   agencies like the USGS, they all have their own specific

5   expertise, which they were kind of folding into the

6   study.

7   MS. SHROPSHIRE: And another, which probably

8   does not fall within your realm, but what if tomorrow

9   you find Carp in the Great Lakes? Who's charged with

10 trying to deal with that?

11   COLONEL QUARLES: I'll let Jim speak because

12 he's looking at and has the position like this to look

13 at multiple agencies, but I just left a meeting with a

14 bunch of scientists that have studied the Mississippi

15 rivers that you're familiar with. Others flew in from

16 Chicago and other locations, and these are scientists

17 that have been studying the river system for decades.

18   And the one thing I think they can all agree

19 upon is it will take a number, you know, maybe don't

20 know how many, but a number of Asian carp finding the

21 right habitat to create a self sustaining population.

22 And so one fish out in the open itself may not be a

23 threat, so US Fish and Wildlife and other agencies,

24 they're looking to say what habitat is this that if

25 Asian carp got to these barriers, maybe the problem

1 might be worse. Is that right, Jim?

2   MR. BREDIN: Right, that's correct. And we're

3 taking a look at it from all the agency perspectives

4 looking at if they were to get out into the Great Lakes,

5 where they would likely go. And so we're doing all

6 types of risk assessments to determine which areas would

7 be most at risk from a sustainable population in the

8 Great Lakes.

9   And then also the Great Lakes states are very

10 active in this. Michigan has an Asian carp control plan

11 as of right now. So if they do find, which I believe

12 there will be a press release out fairly soon indicating

13 that we have a new round of tests that show that there

14 are not any -- that they are not finding any eDNA --

15 Carp eDNA in any Michigan rivers. But if they do, they

16 have an active plan and they will be enforcing that.

17   In many cases the states are the ones that will

18 -- that if anything were to happen -- well, even in this

19 case, Illinois is very active in this. They are the

20 responders to this, and we're working with all the

21 states to make sure that if anything happens they are

22 prepared. And they are also preparing themselves to

23 make sure that they are in a position to where if we

24 find any type of sustainable population in the Great

25 Lakes area that they can react and react quickly.

77

1   MS. SHROPSHIRE: I guess just one other

2 question. You made the -- you said, if we keep funding,

3 does the funding look like it will continue?

4   COLONEL QUARLES: No, ma'am, it's normal for

5 our Corps projects. We get authorized a certain amount

6 of money each President's budget. And so when I said --

7 showed you the timeline, we looked at what it takes to

8 get the baseline data and then we build a work schedule

9 on funding. But each year when the President's budget

10 comes out and we don't have much money, we actually had

11 in that budget cycle.

12   MS. SHROPSHIRE: But you don't see any reason

13 to think you won't get it? It's tough times up there.

14   COLONEL QUARLES: Again, we express the

15 capability and then we'll rely upon what we get in the

16 President's budget.

17   MS. SHROPSHIRE: I think that's all. I think

18 that's all.

19   COLONEL QUARLES: Thank you very much.

20   MR. ZABOROWSKI: Thank you.

21   Well, if you feel that you have asked all the

22 questions that you'd like or made all the statements

23 that you want, at this point and time is there anyone

24 else that would like to say anything before we close

25 this oral comment period? Yes, please.

1   COLONEL QUARLES: Again, on behalf of our

2 Divisional Commander, the regional teams that are

3 working together and my district, we want to thank you

4 again for coming tonight and taking the time to ask the

5 questions and find out more about our efforts.

6   MR. ZABOROWSKI: That being said, the time is

7 now 6:31 and we will close the second oral comment

8 period of our meeting today. And since we will close

9 the meeting as well, the panel and myself will be around

10 for questions if you have any further you think of

11 before you leave.

12   I would like to remind you that the NEPA

13 scoping period ends on March 31. We will be accepting

14 web comments or written comments all throughout that

15 time period.

16   And just a last little note that any comments

17 received in any of our meetings, through our website or

18 submitted in written form, will all be given equal

19 weight. So if you have anything else that you think of

20 that you'd like to add, please don't hesitate and we'll

21 consider them the same.

22   Thank you again for coming out tonight. Get

23 home safe.

24   (Second session concluded at 6:32.)

25

79

```
 1                    REPORTER'S CERTIFICATE

 2


 3           I, Dawn Dillard, CSR Number 1763, Certified

 4  Reporter, certify:

 5           That the foregoing proceedings were taken

 6  before me at the time and place therein set forth;

 7           That the proceedings were recorded

 8  stenographically by me and were thereafter transcribed;

 9           That the foregoing is a true and correct

10  transcript of my shorthand notes so taken.

11           I further certify that I am not a relative or

12  employee of any of the parties, nor financially

13  interested in the action.

14           I declare under penalty of perjury under the

15  laws of Mississippi that the foregoing is true and

16  correct.

17           Dated this the _____day of _____,

18  2011.

19       _____

20  DAWN DILLARD, CSR 1763

21

22

23

24

25
```

1	**2015** 32:9	**80** 24:6	**actually** 9:3 11:4,15 14:15 20:21 23:1 27:23 29:9 42:11 44:12 47:5 49:1 56:5 57:16 77:10
1 21:22	**220** 12:3 45:23	**8th** 33:10	
1,100 13:5	**24** 59:13		
1,500 61:8	**25** 63:9 64:3	**9**	**add** 78:20
1.4 10:5,9 43:18	**2A** 9:16	**9th** 67:9	**added** 8:11 12:20 34:11
10 1:9 63:3,5	**2B** 9:17		
100 52:20		**A**	**addition** 10:9 13:7 44:2 48:7
100,000 13:13 47:7	**3**	**ability** 22:24 42:20 55:10	
11.2 10:12 43:24	**3** 50:1		**additional** 10:12 11:23 12:10,14,16,21 13:17 15:11 34:4 44:4 46:7,15 47:15 49:8 64:3 65:16 70:7
1100 46:22	**30** 6:4	**able** 11:8 29:8 50:5 61:18 63:22 64:2 65:11,16 66:25 71:2 73:21 74:4	
12 5:15 38:16 67:10	**31** 5:22 38:6 78:13		
125,000 13:7 46:24	**32** 10:25 44:12,13		
13 12:20 13:17 46:11	**33** 18:25 52:24	**absolutely** 71:18	
14 45:20	**344** 13:9 46:25	**academia** 41:22	**address** 16:22,25 19:19 23:19 37:4 74:4
15 33:7	**35** 41:1 44:12	**accent** 16:2	
1500 26:5 53:8	**36** 27:5,6 62:1	**accepting** 78:13	**addressing** 23:8 73:23 74:17
1600 1:13	**39170** 69:4	**accomplish** 5:10 38:11	
17 18:21 53:1	**39180** 1:13	**accomplished** 13:4 29:24	**adds** 46:11
1763 2:18 79:3,20			**Administration** 7:3 8:3 39:23 61:15
18 27:7,9,14 62:8 64:13	**4**	**accomplishments** 10:24 11:1,23 45:18 64:21	
	45 7:13 13:10 46:13 47:1		**administrative** 67:18
2		**accused** 25:19	**admittedly** 33:1
2 50:1 51:7	**5**	**acknowledge** 17:6 20:17	**ado** 17:18
2.6 13:8 46:24	**5** 6:2 55:24		**adult** 11:7 44:24 64:2 70:17,21,25
2:48 35:6,18	**5:30** 6:4	**ACRCC** 61:2	
20 64:3 70:19	**50** 10:10,14 44:3,4	**across** 12:4 26:12 27:10,24 28:8,11 45:7 59:2 62:4 63:6 64:4	**adults** 70:18
200 51:8			**adverse** 25:1,3 58:23
2008 10:8 43:22	**6**		**adversely** 58:3
2009 28:5 63:3	**6:31** 78:7	**Act** 11:25 45:19	**advice** 8:17,25
2010 8:2 10:24,25 11:15,24 14:12 40:24 41:7 44:11 45:19 46:11	**6:32** 78:24	**action** 30:7 79:13	**afternoon** 3:2 21:20 35:6,19,20
	60 26:14 29:7 63:25	**actions** 7:13 8:8 41:1,5	
	69 2:21	**active** 76:10,16,19	**against** 69:24
		activities 12:14,20 17:11 39:15 40:20 41:20 46:3 74:25	**agencies** 4:16 8:25 12:4 20:23 21:1,12 23:15 25:7 27:2 28:20 29:11 30:3 32:14,16 37:17
2011 1:9 7:10 12:18 13:17 14:2 46:10 79:18	**7**		
	70 24:6		
	78 8:4 41:2 57:12	**actual** 8:9,14 60:18 71:6,7,10	
	8		

41:13 49:13 50:8
54:7 56:21 59:3
63:13 67:2 74:23
75:4,13,23

agency 74:18 76:3

agenda 4:1 5:23 36:23
38:22

aggressive 7:3
40:13,15

agreed 63:16

agricultural 62:4

alleviate 57:22

allow 19:10 55:9
57:21

allowing 6:24 39:11

alone 43:18

already 20:22 26:22
30:20 31:17 37:24
52:23 60:16 62:14
72:25 73:1

alternate 47:16

alternative 13:18
31:3,4,9 58:22,25

alternatives 30:25
31:13 66:11

am 79:11

American 25:8

among 29:11

amount 10:21 23:23
24:5 77:5

analysis 20:22 66:6

Angela 2:18

Ann 33:9

announce 21:8

annual 44:22 62:23
63:4

ANS 58:10

answer 6:13 35:8

answers 6:7 20:3

anybody 26:7 34:24
35:3

anyone 35:1 39:5
77:23

anything 20:20 61:19
76:18,21 77:24
78:19

anyways 7:12

anywhere 61:7

apologize 60:12

appear 62:2

appears 70:21

application 13:12

appoint 41:12

appreciate 6:17 35:17
49:2 59:7

approach 7:4 39:23
40:5,14,22

appropriately 58:25

appropriations 18:7
65:12

approved 66:23

approximately 43:24

aquatic 4:14 18:1
19:2,6,13,15 22:17
25:24,25 26:4,12,21
27:17 31:2 37:15
51:10,23 52:15
53:15 58:7,16
60:21,22 61:7 62:3
70:1,8 71:24
72:11,15

Arbor 33:9

arch 70:7

area 5:16,17 9:3,9
10:3,11,17,20 11:6
13:6 14:18,24,25
17:19 20:13 21:22
22:2,20 23:24

24:5,11,14,17,19
26:7 38:17,19 40:19
42:9,19 43:11,13,15
44:17,20,21,22,24
45:8,9
47:4,8,12,21,25
48:1,21 51:24 53:3
54:21 55:3 57:11
62:17 63:20 76:25

areas 15:4 23:15 40:19
42:22 47:25 54:17
57:16 58:11 76:6

Army 2:8 3:6,18 35:25
36:15

arrived 3:24

Asian 2:3 3:15 6:19
7:1,5,9,10,14,17,21
8:5,18 11:7,24
12:8,11,18,23
13:19,21,25 14:14
15:19,21 16:22,25
17:25 19:13 21:14
28:1,4,12,16 36:12
39:14,17,21,24
40:7,9,11,14,24
41:2,7,14,20 42:7
43:8,11,12 44:13,19
45:19 46:17
47:16,17 48:9
49:7,11,22 50:10
51:14,18,20,22,25
55:20 58:10 63:8
64:2 70:4,5,20
75:20,25 76:10

AsianCarp.org
12:13,15 15:8 46:4
48:23 49:5

aspects 7:25

assessment 13:23

assessments 76:6

assist 14:21,24 51:14

Assistant 32:11

assisting 13:2 14:14

15:2

associated 68:9

Atmospheric 61:14

attack 56:15

attention 19:8 59:7
62:12 64:17

authorities 17:23 18:1
70:2

authority 18:7,11 25:1
29:22 32:24 51:16
52:10,12 60:20
70:3,4,7

authorization 58:21

authorized 77:5

available 3:25 4:20
6:6 34:3 36:22 41:25
42:5 46:6,8 67:25
68:3

avert 24:17

award 65:16

awarding 65:13

away 63:9

_____
B
_____

backflow 27:23

background 39:22
60:22

backyard 71:10

bad 16:15

bait 48:6

balance 71:1

ballast 74:16,18,21
75:1

bank 24:17 57:24

barges 13:23 47:19

barrier 9:12,16,17
11:2,10,21 22:14,15
24:24 29:5 43:12
44:15,16,18 48:4,12

49:12 55:19 58:9,12
61:2 63:21 70:6 71:8

barriers 9:11 14:18,19
15:1 23:5 42:25
43:1,6,7 47:11
48:9,13,14
51:16,17,19 55:20
56:12 69:10,14,22
70:3 75:25

base 47:17

based 13:20

baseline 30:24 31:5
32:6 65:17 77:8

basic 4:7 37:6

basically 8:4 9:6,11
11:9 12:9 13:4
23:4,7,16 26:14
40:11 41:9 44:10
55:5,10 56:14,18
64:6 72:18

basin 11:18 22:6,7
24:18 26:10,12,24
27:10,22,24,25
28:8,11 42:14 43:8
44:19 48:2 52:16,17
53:17 55:8,9,21,22
61:8 62:2,5,7,25
63:6 64:4 73:4

basins 18:2,19
19:3,7,19 22:24 26:6
31:4 33:3 45:16
52:24 65:21 67:11
71:22,24 72:17 74:5

basis 10:5 11:11 44:22
50:11

bathrooms 3:11

became 60:24

become 28:4

begin 6:16 38:25 39:8
65:13 68:25

beginning 3:8 5:25
6:25

begins 28:8

behalf 78:1

behavior 69:15

believe 15:18 23:2
33:6 44:3 76:11

best 21:1 26:16,23
32:20 39:6
61:10,13,15,20
63:13 67:1 69:24
73:24

bighead 12:1 13:14
45:21 47:9

bilge 75:2

bill 60:20

billion 10:5,9,12,14
43:18,24 44:4

biologist 70:24

bit 10:3,7 13:3 17:21
24:1 25:14,22 27:8
39:22 43:15 44:17
45:5,17 51:9 54:2
60:8 64:25 69:7

black 18:17 53:7

blood 20:22

blue 4:19 5:5 14:9
18:10 37:20

boaters 7:25

boating 57:10

booklet 37:21

books 4:19

borrowed 63:19

boundary 61:12

box 57:20

break 4:2 6:4 18:14
56:16

breaks 19:9

Bredin 3:15
6:15,17,18 9:25
36:12 39:8,10,17

62:13 76:2

Breedin 2:3

briefly 17:23 21:24
74:14

bring 19:8 41:4,19,24
42:5 49:14 50:18

brochure 4:6 37:5

broken 38:23

brought 25:17 60:13

brown 18:21 45:8
52:25

budget 52:22
77:6,9,11,16

build 31:14 70:3 77:8

building 32:7

built 63:25

bunch 75:14

business 4:3 34:14
37:2 68:11

button 48:24

C

cables 71:7

calendar 29:20 64:10

Calumet 56:10

canal 9:10 22:12
25:23 43:5 55:18
60:17,20,21 61:1
62:5 71:6

capabilities 12:3

capability 77:15

capacity 45:23 46:19

captured 17:11 47:7,8

capturing 13:19

card 4:3 37:2 68:12

cards 4:8 34:14

carp 2:3 3:15 6:19
7:1,5,9,10,14,17,21

8:5,18 11:7,24
12:1,8,11,18,23
13:15,19,21,25
14:15,16 15:19,21
16:22,25 17:25
19:14 21:14
28:1,4,12,16 36:12
39:14,17,21,24
40:7,9,11,14,24
41:2,7,14,20 42:7
43:8,10,11,12
44:14,19 45:19,21
46:17 47:9,16,17
48:6,9 49:7,11,22
50:10
51:14,18,20,22,25
55:21 58:10 63:8,22
64:2 70:4,5,20,25
71:3 73:8,17,18,22
75:9,20,25 76:10,15

case 35:3 36:6 40:3
66:2 76:19

cases 76:17

Cathy 2:21 59:15 69:3

cause 21:15 27:23
58:24

CAWS 20:15 21:18
25:14 53:2,7,24 60:9

Center 1:12

central 62:19

CEQ 16:19 39:18
59:11

certain 47:10 72:7,8
77:5

certainly 69:8

CERTIFICATE 79:1

Certified 79:3

certify 79:4,11

challenged 26:2

challenges 22:1 44:6,7
55:3

chance 4:24 20:12

21:17 33:5,21 50:7 54:11,20 57:24 67:19

changes 35:3

channel 22:11 55:25

character 55:13

characterization 29:19 64:13,15

characterize 21:25

characterizing 14:11

charged 75:9

Chicago 2:7 3:6,18 9:2,3,9,10 10:5,11,20 13:6 16:3 17:7 20:13 21:21,22 22:2,11,20 23:1,24 24:5,7,11,14,16,19 25:22 33:12 35:24 36:15 42:9,10,19 43:5,13,16 44:9 50:23 51:6 53:3 54:21,24 55:3,8,17 56:4 57:11,12,16,23 60:17,20,25 63:20 71:6 75:16

choke 22:16

choose 38:4

Cincinatti 51:2,6

circumstance 63:16

cities 57:15

city 44:8 57:22 67:9

Civil 32:12 54:14

clear 27:16

click 49:5

close 35:6 77:24 78:7,8

closely 70:24

Coast 14:23 48:15 74:18 75:3

co-chair 42:1,3

code 5:1 69:2

collaborating 59:2

collaboration 12:4 25:7 27:2 29:10

collect 6:23

collecting 23:23

Colonel 2:7 3:17 6:21 9:21 15:23,25 16:1 25:11,12,19 29:21 33:24 34:6 36:14 49:23,25 50:3,13,17 52:4,7 59:8,9,12,17,20,24 60:3 64:18 66:20 67:20 69:13 70:11,15 71:5 73:14,19,24 74:10 75:11 77:4,14,19 78:1

color 47:24

colored 4:13 18:25

combat 8:4

combination 28:12 62:4

combined 9:5 42:10

comes 32:8 62:17 77:10

comfortable 36:3

coming 35:14,17 40:1 49:21 50:21 59:25 66:8 78:4,22

command 50:23

Commander 2:7 3:18 36:15 78:2

Commanding 17:3

comment 4:22,25 5:4 6:1,9 25:13 33:22,25 34:18,25 35:5,7,11 37:7,23,25 39:1 54:11,13 67:19,21 68:12,17 77:25 78:7

comments 4:8,9 5:2,12,19 6:8,23 32:4 35:8 36:25 37:8 38:2,4,6,13,21 57:1 67:5 68:19 78:14,16

commercial 7:22,25 14:21 24:3 48:8 57:8

Commission 19:22

committee 8:9,11 12:8,11 21:3 41:8,9 50:9

common 19:25 50:8

commonly 24:9,10

competencies 16:25 20:17

compiled 72:2

complete 29:19 64:12,14

completed 13:9 29:14 46:13,25 63:25 64:9,16

completing 64:7

complex 59:5

complexities 10:1 22:1 55:3

complexity 17:19 18:20

compliant 32:1

complimentary 74:25

components 65:6

concern 44:24

concerned 11:7 40:15 42:18 60:24

concerns 6:11 39:3

conclude 27:11

concluded 35:18 78:24

condition 31:5 65:20

conditions 23:22

26:24 57:5 61:18

conduct 17:22 52:11 67:1

conducted 4:2 30:20

confident 16:17

Congress 70:3

congressional 18:6 52:12

connect 28:14

connected 42:11,15

connection 42:14 74:4

connections 9:7 11:17 55:14

Conservation 28:21

conservative 27:8

consider 19:1 29:22 30:16 31:16 48:20 65:25 78:21

considerations 18:12 52:19

considered 5:2 6:10 7:17 35:9

considering 31:24

consisting 12:12

construct 9:22

constructed 11:10 22:14 45:1 55:18

construction 29:4,6

contact 4:4

contacts 12:10

context 63:7 65:1

continue 20:4 33:14 66:13 69:20 77:3

contracts 65:13,16

control 7:10,14 8:18 11:25 12:18 22:17,20,24 40:24 45:19 48:11 56:8,12

58:8,17 72:18 76:10

controlled 22:22 23:1 41:20 56:2,5,7

controlling 8:6 42:7

controls 24:23 58:8

Convention 1:12

Coordinating 12:8,11 41:8 50:9

copy 4:17 37:17

Corps 2:8 3:6,18 4:15 5:15 6:21 15:8 16:11,22,24 17:1 18:6 20:24 23:8,12,13 29:12 30:10,13 34:9 35:25 36:16 37:16 38:16 39:11 49:1,3,14 50:23 51:14 52:10 54:24 56:15,20 58:21 59:2 60:7 61:11 64:7 67:8 71:21 77:5

correct 76:2 79:9,16

correction 18:10 20:3 33:8

Council 2:4 3:16 6:19 36:13 39:18 49:17

county 28:23 63:14

couple 11:19 21:25 24:15 39:12,14 44:21 55:1,5 57:18

course 17:14 18:7,23 19:5 21:4 32:10 71:8

cover 19:10

covered 19:15

covers 17:20

create 75:21

critical 57:15

cross 63:22

CSR 2:18 79:3,20

current 63:2 67:16 69:13

currently 11:21 16:21 42:12 51:14 72:6,10 73:3

cut 74:5

cycle 21:11 54:15 77:11

D

daily 10:5

Dam 23:2

danger 27:16

dark 14:7 18:20 52:25

darker 45:8

data 20:22 23:23 30:24 31:12 58:20 65:13,15,16 66:22 77:8

date 9:19

Dated 79:17

Dave 2:10 3:20 20:11 21:18,21 25:12 30:20,22 32:9,25 36:17 54:20,23 59:12 65:4

David 53:1 64:20

Dawn 2:18 79:3,20

day 33:20 43:19 46:23 70:23 79:17

days 13:5 26:14 29:7 46:23 63:25

deal 11:11 14:21 39:25 44:7,13 49:15 75:10

dealing 14:14,25 15:2,19 39:20,24

decades 75:17

December 45:20 46:11

decide 8:24

declare 79:14

deep 63:7

defend 69:24

definitely 48:21 74:24

delays 33:9

deliver 66:6

demonstration 9:12 15:18 55:19

department 56:21 63:24

depends 73:14

depth 28:10 63:6

Deputy 2:3 3:15 6:19 36:12 39:17

describe 24:1

described 61:1

description 43:13

design 29:6 63:25 72:18

designed 69:14,22

designs 13:18 47:16

detail 18:21 45:5,17 65:10

detailed 4:20 37:21

detection 47:17

determine 76:6

determined 27:6

determining 26:11

develop 26:3,4 48:8 63:21

developed 43:17 44:11,16

developing 29:12

development 12:24 46:18

diagram 9:4

difference 70:2

different 18:21 20:25 45:25 49:13 56:16 58:6 61:11 65:6,21 70:2 71:9

diligent 21:7

Dillard 2:18 79:3,20

direct 8:17 19:5 42:14 53:5

directed 58:9

direction 61:4 62:21

directions 57:21

directly 15:7 52:11 62:21

Director 2:3 3:15 6:19 36:12 39:17

disadvantaged 59:10

discharge 24:4 57:10,13,14

discharged 10:10,11,15 43:19

discharges 10:5,19

discuss 39:13

discussing 28:25 29:8 63:15

distances 70:23

distribute 34:10

district 2:8 3:6,18 10:4 17:8 21:22 33:12 35:24 36:15 43:24 50:22,23,24,25 54:24 78:3

districts 20:25 54:5 61:12

ditches 62:4

divide 18:18 26:11,13,24 27:10,24 28:8,11 61:8 62:2,5,7 63:6 64:4

divided 20:9

dividing 26:6

division 17:4,7,8 51:3,4 61:5

divisional 51:1 78:2

divisions 20:25 54:5

DNA 43:10

DNR 11:9 28:21 29:5 71:13

DNR's 16:24 26:20 61:17

doctors 17:15

document 5:5

documents 34:4,10 68:1

dollars 8:4 41:2

done 16:11 17:10 18:8 30:3,8 31:11,25 33:6 38:24 40:18 51:20 63:11,20 65:2,11,15 71:20 72:2,9,11

dotted 18:17 53:7

download 34:3,5 67:25 68:3

downstream 10:10 14:18 44:2

downtown 24:17 43:16

draft 26:15 29:17 32:10 66:14,17

drain 58:2

driver 59:21

during 6:9,11 10:8,15,21 24:15 39:3 43:22 45:18 46:22 53:9 68:4

dynamic 16:9

E

Eagle 11:3 27:18

45:13 62:13 70:20

earlier 14:5 24:4 25:6 45:12 60:11

early 26:2

east 28:2

eaten 50:13

economic 25:4

economy 8:1

eDNA 12:2,22,24 15:10 45:23 46:16,18 47:18 48:25 49:7 76:14,15

educational 8:19

effect 13:20

effecting 24:19

effective 12:22 36:5 46:16 47:11 49:12

effectiveness 45:3 48:4

effects 58:19

efficacy 51:17 70:4

efficient 54:6

efficiently 21:16 53:22

effort 5:16 6:23 7:7 8:6,12,24 11:13,14 13:6 14:21 15:19 29:25 41:4,18 45:6 46:23 47:5 48:14,16 66:7

efforts 4:14 7:1 8:18 12:5 13:2 19:22,23 20:9,21 32:18 37:15 42:22 46:23 48:5 49:2,4 50:22 67:17 78:5

eight 61:11

either 4:9 10:22 13:14 46:13 47:9 72:22,23,24

electric 24:24 43:1

71:8

electrical 43:7 48:4 51:16 61:1 69:14 71:7

electricity 69:19

electro-fishing 13:9 46:25

electronic 22:14 55:20 58:9

elements 19:24 53:18

eliminated 38:15

elminated 5:14

else 51:19 56:1 77:24 78:19

e-mail 34:8,9 68:6

employee 79:12

enforcement 48:6,22

enforcing 76:16

engage 53:11

engineer 31:25 66:8 71:21

engineering 17:14 32:8 67:6

engineers 21:6 65:5

engineer's 30:17

Engineers 2:8 3:7,19 4:15 5:15 16:23 23:8,12,13 29:12 30:10 34:9 35:25 36:16 37:16 38:16 49:2,14 50:23 52:10 54:25 56:20 58:22 59:2 61:11 64:7

enhanced 11:2

entering 44:19

entire 10:6 13:10 24:7,19 47:3 57:16

environmental 2:4 3:16 6:20 25:4 31:23 36:13 39:18 49:17

66:4

EPA 63:14

equal 38:9 78:18

Erie 62:22

essential 18:10

essentially 57:21

established 40:3,17 41:7,10 63:8

establishing 28:1 48:22

evaluate 31:7,13 58:11,19

evaluated 45:14

evaluating 14:3

evaluation 48:3

evening 36:24 54:23

event 10:9,16 26:13 28:8,10,13 62:23

events 10:21 20:6 53:10 68:8

eventually 54:14

everybody 27:3 28:25 34:21 35:16 49:14 63:16

everyone 3:3,9 21:20 54:23

everything 7:8 17:24 18:6 20:8 69:10

evidence 70:20

exactly 26:10

examined 13:7

example 43:22 58:8 68:3

execute 20:16

executing 64:23

executive 8:10 21:3

exist 26:5,22 62:7

existing 20:20 57:7

73:3

exists 26:12

expansion 12:25 46:19

expect 28:6 62:23 63:5
   66:2,13

expended 13:6

expertise 75:5

experts 17:14
   26:16,23
   61:10,13,15,21
   63:13 65:3 71:21

explain 49:6 50:5
   71:17

express 77:14

external 66:10

extraordinaire 17:15

————————
F
————————

Facebook 34:16 68:15

facility 45:3

fact 8:21 12:7 26:8
   44:21 63:8

fairly 47:10 76:12

fall 75:8

familiar 26:8 42:8
   75:15

family 17:2 23:14

farther 43:4

fast 16:4 47:18

feasibility 23:9 29:13
   30:16 64:7,23

feature 22:19

February 1:9 8:2 33:8
   40:25

federal 8:7,25 12:12
   20:18,23 23:14 25:7
   41:4,13,18,21 49:13
   52:21 56:21 59:3

federally 10:25 44:13

Federation 59:16

feel 5:12 19:6 33:15
   34:15 35:14 38:13
   51:15 59:10 69:19
   77:21

feet 28:12 63:7

fence 11:3 64:1 71:10

field 71:7

figure 13:22 40:2,6

fill 4:25 37:25

final 21:9 56:17 66:17

finally 36:19

financially 79:12

finding 15:12 16:3
   32:6 43:10 49:6
   75:20 76:14

finish 29:18 33:16

first 5:1,10 6:2 8:3,22
   16:8,14 30:19 32:21
   35:2,18 38:11 41:4
   47:25 48:19,20 55:7
   68:23 69:19

fish 11:2 12:25
   13:7,14 14:19 16:23
   22:15 40:23 42:20
   44:15,18,23,25
   46:19,24
   47:7,8,12,20
   48:7,10,11,14 49:13
   61:4,13 69:14,18,25
   70:12,22,23
   71:11,21 74:1,2
   75:22,23

fished 13:10 47:1

fisherman 48:8

fishermen 14:21

fishing 7:22

five 22:4,5,9,10,13
   23:3 24:15,23
   55:7,11 56:9 57:18

flat 26:8

flew 75:15

float 69:21

flood 24:11,12 28:5
   44:22 57:16,23 63:3

flooding 24:17,18
   57:24 58:24 65:23
   71:2

floods 11:6 44:20

flow 22:11,24 23:5
   24:7 27:10 28:8
   32:23 55:15,25 56:8
   57:12,14,21 62:16

flowing 22:13

flows 56:13
   62:18,19,21,24

focus 17:25 18:22
   21:22 42:22
   47:24,25 48:1 51:22
   70:4

focused 17:25 19:18
   20:12,14 21:15
   53:15,23,25

focusing 14:17 40:11
   54:17

folding 75:5

folks 23:11 30:22
   50:25 59:1 63:15

forecast 57:5

forecasting 23:21

foregoing 79:5,9,15

forget 17:13

forgetting 18:23

fork 22:13 55:14,17

form 20:21 26:13,22
   27:20 30:25 31:5
   61:7 62:20 65:17
   67:5 78:18

formally 35:6

formed 20:24 54:13

65:3

former 62:5

forming 32:5

forms 4:25 5:6 35:13
   37:7 38:1 68:12

formulate 58:19

formulation 31:3,19
   65:19

Fort 11:4,20
   27:18,21,23
   44:16,20 45:13
   62:13,18,20 71:11

forth 15:4 42:21 44:24
   45:11 79:6

forward 8:17,24 15:20
   16:18 23:20 25:16
   31:19 56:24

framework 7:11
   8:3,9,12,14 10:25
   12:19 41:16 42:4,23
   44:11 46:4,10,14
   47:4

frankly 71:1

free 34:15

frequency 63:4

frequently 4:11,13
   37:12,14

friend 34:16 68:15

front 7:6 31:11

full 24:24 25:6 32:13
   55:19 66:4,6 69:1

fully 30:16 31:7,24
   65:25

funded 10:25 44:13

funding 32:8 66:14
   77:2,3,9

furthers 9:13

future 11:12 15:21
   44:18 46:8

G

gallons 10:5,9,12,15 43:18,24 44:4

gate 24:12

gates 43:25

gather 32:17

general 10:11 17:3 26:2 60:23

genetic 12:24 13:20 46:18 47:17

gentleman 3:3 15:25 17:9 33:19 35:21

getting 8:20 18:2,13 23:18 29:25 32:6,20 41:3 45:5,16 51:18 57:2 65:2

gill 13:10 47:1

given 4:18 5:24 21:9 28:7 29:23 32:3 38:9 62:24 63:5 67:25 68:11 78:18

giving 6:22 33:5 37:18

glaciers 62:15

glad 6:13 59:14 65:3

GLMRIS 1:1 2:10 3:4,20 4:3,6,12 5:9 6:24 11:16 14:5 18:11 21:2 25:21 32:17 33:13 34:1 35:22 36:17 37:2,12,21 38:10,12,14 39:13 40:8 45:6 51:21 52:2,8 53:13 60:16,20 67:22 68:6 69:25 70:7 73:25

global 23:14

goal 5:10 50:8

goals 5:10 38:11 52:19

goby 69:23

gotten 65:12 67:14

government 45:25

Governners 12:9

Governors 41:11

Grand 56:10

gray 18:20,25 52:25

great 1:2 3:4 4:21 7:9,15,17,19,20,23 8:1,5,11 9:8 11:17 14:1,9,17 15:22 17:3,19 18:18 22:6 27:2 35:21 39:15,21 40:4,7,16,21,23 41:3,11,13,15 42:15 44:19 45:7,8 47:14,22,23,25 48:2 49:11,22 51:2,24 52:16,17 53:6,16 54:22 55:8,22 59:5 71:25 72:1,16,21 73:3,11 74:15 75:9 76:4,8,9,24

Greater 10:4

green 4:1 5:23 14:7 36:23 47:24

grew 69:15

group 8:23 20:24 41:17

groups 8:20

Guard 14:23 48:15 74:18 75:3

guess 26:10 35:6 69:10 73:16 77:1

guidance 25:2 58:21

guys 36:4

H

habitat 72:4 75:21,24

half 28:11 36:9 63:7

hallway 36:8

halted 15:13

Hancock 17:2 51:1

hand 16:20 25:25 30:10,21 65:15

handed 34:15

handle 22:13 55:16

handouts 33:8 34:2 67:24

hang 32:19 35:2

happen 24:14,22 40:16 57:17 76:18

happened 11:5

happens 31:15 69:12 73:21 76:21

hard 9:22

harvesting 14:15

haven't 33:2 50:18

having 8:19 29:9 49:18 66:9

head 61:9

heading 9:14,15

headquarters 25:2 32:11 66:23

hear 16:7 33:14 50:19 66:20

heard 17:6 24:2 57:8

hearing 34:23 42:24

heart 20:21

heavy 27:21

held 1:12

help 6:13 20:5 21:2 23:23 26:18,21,25 32:17,18,20 39:6 40:21 48:11 52:5 57:3 58:11

helpful 73:22

helping 47:19 48:16,21 50:25 61:22

here's 16:5

he's 20:12 51:1 59:21 75:12

hesitate 78:20

high 24:13

higher 32:11

highest 45:14

highlight 18:9

highlighted 18:10,24 21:23

highly 43:17

historically 74:15

hit 52:23

hits 49:7

home 78:23

hope 15:17 38:18

hopefully 36:2

hoping 48:10

hosting 5:15 38:16

hours 13:9 46:25

House 2:4 3:16 6:20 36:13

huge 10:21 60:25

human 19:17

hundred 50:1

hydrologic 24:24 58:12

hydrology 65:7

I

I'd 3:13 6:15,20 7:2,16 9:1 10:2 14:6 15:5,16 22:19 25:10 35:21 39:7,19 43:14

identified 7:13 11:16 12:10 27:5 44:12 45:6 47:5,6 62:1,9

identify 13:13,20

23:16,23 24:21
26:3,21 45:10 47:6
48:10 57:7 58:5
61:6,21,23,24

identifying 12:23 42:2
47:24 48:21

Identitical 5:24

I'll 20:11 49:23 54:20
55:1 75:11

Illinois 40:19 44:9
76:19

I'm 3:6 6:18 7:11
16:1,2,3,5,11 17:1
21:21 35:24 38:24
39:17 47:2 49:16
50:10,18 52:5 53:13
54:23 55:8
59:7,12,13,15,18,22
60:1 66:7 68:17 69:3
70:14 71:11 74:8

imagine 22:12 55:15

immediate 23:13

Immediately 3:14
36:11

impact 7:22,24
13:22,24 31:23
47:19 58:3,23 66:4

impacted 58:15

impacts 7:18 24:25
25:1,3 31:8,21,24
60:18 65:22,25
66:3,6

implanting 58:11

implement 24:23 29:2
31:15 58:7,16,17

implementation 18:12

implementing 32:24

important 30:15
48:16 52:20 56:25
57:11,14

importantly 17:13

56:9,25

imported 12:1

imposed 65:22

improving 45:3

inclined 68:13

include 19:11 24:2
46:16 53:13

included 10:25
38:2,14 41:1 63:13

including 47:15 63:14

incorporating 74:21

increased 58:24

increasing 12:2,4
45:23,24 48:5

Indiana 11:4,8,9
27:18 28:21 29:5
44:16,20 45:13
63:23 71:13

indicated 5:22 28:6
35:13 38:22 63:3

indicating 76:12

industries 25:9

industry 15:2 41:22

infested 28:4

influence 58:3

inform 21:1 31:18
32:17,18 58:6 67:3

informal 6:6 34:20
35:8 36:3

information 4:4,7,20
5:11 10:3,8 12:14,17
13:3 15:6,9,11
30:4,21 31:18
32:3,23 33:11,14
34:2,4,12 36:4
37:6,21 38:12 41:24
42:5 43:15 46:5,7,8
49:3,8,19 54:6
61:18,22 67:4,24
72:13 74:19

informed 33:18 34:17
50:22 54:10

informing 19:22,23

initiatives 44:13

input 23:19 33:5

inside 65:7 71:5

insignificant 5:13
38:14

inspections 48:6

instance 19:21 31:5
32:2 65:21 74:1

instances 24:15

Instead 20:8

institutions 8:20

instructions 4:9 37:9

insurance 28:5 63:3

intensity 24:13

intensive 47:1,3

intent 16:6 52:1 54:3

interact 22:8 55:10

interaction 42:13,18
44:1 45:15,24

interactions 14:11

interbasin 1:3 3:4
4:21 17:20 25:24
35:22 51:10 60:19
61:25 62:10 74:16

interconnected 58:1

interest 8:16,20 27:3

interested 12:7 15:11
34:7 46:9 48:25
79:13

interests 12:12 41:19

interim 11:10 28:15
31:8 44:18,25 63:21
64:1 65:24 66:5 68:1

International 19:21

interpret 19:9

introduce 3:14 36:11
65:19

introduced 59:11

introduction 74:14,17
75:1

invasion 7:17

invasive 7:4,6,14,20
8:7 15:20 19:2,6,15
39:25 40:12 45:10
51:23 52:15 53:6,15
54:18 73:5

inventory 26:4 57:5

inventorying 23:21

invested 8:4

investment 41:1 60:25

invited 41:11

involve 58:3

involved 12:5 37:3
41:20 46:1 48:15
49:16 67:11

involvement 34:12
68:8

issue 14:25 41:6

issues 5:13 38:13,14

it'll 20:5

it's 9:18 10:21 15:7,8
16:9,22,23,24 17:15
18:25 19:14
21:13,15 24:6 26:9
28:3 30:3,15
33:11,19 40:2
43:5,17,20 44:12
46:8 47:4,21 49:25
50:19 51:7,22 52:24
54:18 56:6 57:10,15
61:1 66:7 69:19
71:10,25 77:4,13

I've 12:5 17:6 30:9
50:12,13 59:11,22

J

Jim 2:3 3:15 6:18
  16:18 20:13 21:23
  28:14 36:12 39:8,17
  50:7 51:12,24
  52:23,25 59:11
  75:11 76:1

job 47:11

Joe's 27:20

John 17:3

joined 16:14

Joint 19:21

Joseph's 62:17

judgement 61:22

July 28:19 63:12

jump 51:25

jumped 27:15 62:11
  63:10

justice 32:24 50:21

——————————
K
——————————

Kendall 2:14 3:5 6:17
  35:23 39:10 64:19
  65:9 67:15,17

key 11:1 42:22

kinds 67:14

knowledge 23:15
  26:24 41:25

known 24:9,10 25:22
  26:1 60:16 63:9

——————————
L
——————————

lab 13:1 46:20

Lacrosse 13:1 46:20

ladies 3:2 15:25 17:9
  33:19 35:20

Lake 8:12 9:15 10:23
  22:4 43:3,25 44:9
  55:12 57:22 62:22

Lakes 1:2 3:4 4:21
  7:9,15,17,19,20,23

8:1,5 9:8 11:17
  14:1,10,17 15:22
  17:3,20 18:18 22:6
  35:22 39:15,21
  40:4,7,16,21,23
  41:3,11,13,15 42:15
  44:19 45:7,8
  47:14,22,23,25 48:2
  49:11,22 51:2,24
  52:17 53:6,16
  55:8,22 71:25
  72:1,16,21 73:4,11
  74:15 75:9
  76:4,8,9,25

lamprey 71:15 74:1

Land 24:14,19 57:16

lanyard 39:4

lap 50:12,14 51:25

large 23:23 26:13
  62:16,23

largest 28:6 63:4

last 5:1 13:4,5 26:1
  29:16 40:25 41:10
  46:22 60:23 64:11
  69:1 78:16

lastly 4:19 37:20

later 24:1 38:5 42:25

Lawrence 19:20 53:18

laws 79:15

lead 29:5 66:21 74:18
  75:3

leading 43:3

learn 4:5 5:18 20:20
  21:10 30:23 38:19
  52:7

learned 69:17

least 29:16 40:3 42:20
  55:24 64:11

leave 5:5,6 30:4 78:11

led 28:14

left-hand 23:7

legs 6:5

less 48:12 63:9,24

let's 18:3 52:1 65:1
  68:22 73:3,15

level 28:10 31:23
  61:16

levels 20:18 45:25

lighter 18:25

likely 76:5

limit 34:20

line 18:15 26:6 30:13
  31:10 53:7

link 33:13 57:15

list 2:20 34:8,9 68:6
  72:2,3,14,17

listed 21:2 32:15
  64:21 66:25

literary 30:21

little 13:3 17:21 18:17
  19:4 21:25 24:1 26:1
  27:8 28:21 29:7
  33:13 34:19 36:3
  44:17 45:5,17 51:9
  53:1 54:1 56:10
  59:10 60:8,22 64:25
  69:7,15,19 78:16

live 12:1 43:12 45:21
  73:3,10

lived 11:5 44:21

lobby 39:5

local 8:7 17:10
  20:18,23 26:24
  28:23 41:5 54:8
  61:18,22 63:14 67:3

location
  27:14,15,18,19
  28:3,17 62:13,14,16
  63:2,10,23 64:9 67:9
  71:9

locations 19:18
  26:11,21 27:5,6,7,9

29:20 61:23,24
  62:1,6,8,11 63:1
  64:14 65:22 75:16

Lock 23:1,2 24:16
  56:4

long 7:19 11:12 16:16
  27:1 29:13 61:8,20
  62:1 70:22

longer 30:14

longest 28:2

lot 7:19 20:2,6 26:9
  27:9 33:11 44:1
  51:12 52:7 59:5
  60:16 74:14

loud 68:24

love 16:12

——————————
M
——————————

ma'am 59:14 77:4

magnitude 23:9 29:23

mail 4:10

mailed 38:8

mailing 37:4,9

main 39:12 44:24 50:6
  53:5

maintains 71:12

major 10:8 43:23 44:6

majority 10:18

manage 68:4

management 24:11
  30:1 34:5 57:17
  58:14 65:8

manager 2:10,12
  3:21,23 21:21
  36:18,20 54:24

map 17:18 21:24
  22:3,15 55:4,23

March 5:22 9:19
  33:10 38:6 78:13

maritime 15:2

markers 12:24 46:18

market 48:8,10

markets 14:14 48:7

marsh 11:4 27:18
    44:17 45:13 62:13
    70:20

Mary's 27:20 62:18

massive 6:23

materials 3:24 36:22

Maumee 14:4 27:21
    62:20,25

may 6:14 7:19,24 8:17
    13:24 15:11
    26:13,22 27:10
    30:23 31:17,21
    32:17 40:16 41:7,25
    42:6 46:7 47:19
    53:10 58:17 61:7
    66:24 69:20 73:9
    74:2,19 75:22

maybe 24:9,14 57:18
    61:3 75:19,25

mean 16:13 20:16
    22:22 23:22 57:6
    70:10 73:13,15

means 56:7

measure 11:10 44:25

media 68:13

meet 50:7 59:14 66:5

meeting 1:7,12 3:5,8
    4:1,2,10 5:10,23
    6:12,16 8:21,22
    28:19 34:18 35:23
    36:1,23 38:11,22
    39:4,9 57:2 63:12
    66:11 67:22 68:17
    75:13 78:8,9

meetings 5:16 16:6
    33:17 38:7,17,18
    50:11 57:2 59:23

60:11 78:17

meeting's 3:7

member 5:7 35:1 60:7

members 23:14 29:18

mentioned 6:18 14:4
    23:12 24:4 25:6
    44:12,14 45:12
    52:23,25 59:1

merge 72:13

mesh 71:1

message 68:14

met 59:12

methods 13:20 47:17

Metropolitan 10:4
    43:23

Michigan 7:23 9:15
    10:23 22:4 43:3,25
    44:9 55:12 57:22
    62:18 76:10,15

microphone 34:25
    66:19 68:23

migration 69:24

Mike 2:12 3:22 11:18
    20:13 23:25 25:13
    36:19 53:4 60:7,10
    64:18,20 65:4 70:15
    71:9

Mike's 72:10

mile 26:5 61:8

miles 13:8,10 18:19
    44:3 46:24 47:1 53:8
    63:9 64:3 70:19

military 16:12,13

million 8:4 41:2

millions 24:19 58:3

mind 35:3

minimize 71:3

minute 6:4

minutes 6:25 11:19

34:21 39:12,14 55:1

mission 18:5 51:8 52:9

Mississippi 1:3,13 3:4
    4:21 9:8,16 11:18
    13:25 14:9 17:7,20
    18:18 22:7 28:3
    35:22 39:16
    42:13,14 43:4,8,20
    45:9 47:23 50:16
    51:3 52:16 53:17
    55:9,21 59:16 71:25
    72:1,16 73:4,5 75:14
    79:15

mitigate 25:3 58:25

mitigation 58:23

mix 31:12 55:10

mixing 55:24

model 65:18,20

modeling 32:7

models 31:14 65:22

moderating 35:25

moderator 2:14 3:7

moment 3:13 20:12

momentarily 38:25

moments 37:19

money 77:6,10

monitor 47:3

monitoring 12:23
    15:10,12,13 46:17
    47:2,10,13 49:4

Mother 53:21

move 8:24 16:18 18:3
    45:11 54:12 56:24

moving 8:17 14:20
    15:3

Moy 42:1

Mulberry 1:13

multiple 9:7 75:13

municipal 24:6,8

57:13

myself 5:7 39:5 78:9

_____
N
_____

national 28:20
    61:14,16

Native 25:8

natural 62:6,15 63:24

nature 19:13 53:21

navigation 24:3
    57:8,14 58:15
    65:7,23

nearly 13:5 26:5 46:22
    61:8

necessary 56:17 58:20

NEPA 5:2,21 6:10
    31:22 33:17 35:23
    38:2,5 66:1 78:12

NEPA's 3:5

net 13:10,18 47:1,16

newer 16:21

nice 60:10

night 33:20 37:24

nine 33:6

ninth 38:17

nobody 34:17 35:5

Non-Federal 8:14,19
    41:17

non-governmental
    25:8 28:22 56:21
    59:4

non-nuisance 70:9

nor 79:12

normal 71:10 77:4

normally 20:6 21:6,8
    34:20 39:24 50:1

north 43:10,12 60:12

northeast 62:22

note 5:21 6:8 19:4 23:3 34:1 51:5 67:22 78:16

notes 79:10

notice 56:1

nowadays 67:13

nuisance 4:14 18:2 22:17 24:23 25:24,25 26:19 27:4,17 31:2 37:15 51:10 58:7,16 70:1,8 71:24,25 72:12,15

numerous 62:6

—————————
O
—————————

Obama 7:3 8:2 39:22

O'Brien 23:2 56:6

obviously 60:24

occur 28:7 62:24 63:5

occurred 60:18

Oceanic 61:14

o'clock 6:3

offer 31:1 65:24

office 51:2

official 26:17 54:12

Oh 30:10 52:3

Ohio 17:4 51:2 62:19

okay 8:2 30:10 52:6 59:17 60:3 64:20 70:13

ones 71:15 76:17

ongoing 39:20 48:4 74:25

online 4:4 9:17,18

on-site 63:12

onto 74:1

open 6:1 57:20 68:16 75:22

opened 24:16 38:6

operate 9:23 51:16 69:23

opportunities 5:17 23:11,17 34:12 38:19 45:2 56:19 57:4 68:7

opportunity 5:18 6:22 13:13 22:7,23 34:22 40:5 44:23 47:6 49:18

opposite 62:21

options 52:13

oral 4:22 6:9 33:25 35:7 36:25 37:23 39:1 67:21 68:17 77:25 78:7

order 20:16 28:19 54:19 61:9

ordinarily 73:11

organization 28:23

organizations 16:24 20:18 25:9 56:22 59:4

organized 5:9,23 17:22 38:10 54:4

original 69:22

originally 16:3

others 60:5 75:15

ourselves 65:11 68:4

outflank 61:4

outline 36:24 55:5 56:14

outlined 55:11

outlining 55:2

outs 16:20

outside 20:14 23:13 25:14 42:3 48:1 53:5 60:8

outvoted 73:22

overall 18:25

—————————
P
—————————

p.m 35:18

package 41:5

panel 3:14 5:8 35:1,7 36:11 68:20 78:9

panels 45:16

paper 4:11,13 72:10

parameters 69:23

particular 19:14 60:19

particularly 60:1

parties 79:12

partnering 74:24

partners 41:22,23

passing 71:11

path 18:20 19:5 23:20 24:9 30:2 53:5

paths 23:25

pathway 26:12

pathways 2:12 3:22 19:12,17 20:14 21:15 22:9,10 25:14 26:1,5,21 29:16 45:10 53:5,10 54:1 60:8,15,21,22 61:7 62:3 64:12 72:12

Pathway's 36:20

paycheck 59:13

paying 59:13

Peabody 17:3 26:2 60:24

peach 4:13

pen 69:16

penalty 79:14

people 12:7 26:23 28:24 34:21 50:1

51:7 54:6 58:13 61:21

per 12:3 43:19 45:24

percent 24:7 52:20 57:12 63:4

perfect 22:16

perform 54:8

performing 23:13

period 5:21 6:1,9 33:25 35:7 39:2 63:5 66:9 67:21 68:17 77:25 78:8,13,15

periods 70:22

perjury 79:14

permanent 14:3 29:1,2 63:17 64:8 66:2

person 13:5 46:22,23

persons 34:7

perspective 44:6 46:21 49:15

perspectives 76:3

phases 20:10

Phil 42:1

physical 22:23 23:5 29:9 56:8,11,12 58:12

picking 15:15 71:1

picture 9:4,13 10:17 42:9 43:16 44:14

pictures 28:15

pigs 69:16

pink 16:21 37:14 51:12

plan 16:17 18:4 29:17 30:1 32:10,15 33:16 34:5 58:7 61:6 65:8,10 66:15,23 68:4 76:10,16

planning 31:11 56:15

plans 31:19 58:19

plan's 65:19

plants 10:20 19:14

plate 11:9

players 59:5

plays 48:15

please 4:24 5:21
6:8,12 35:9,12,15
39:4 77:25 78:20

pleasure 25:15 33:19

PMP 68:2

PM's 53:23

point 7:2,16 8:23 9:1
10:1 11:5,20 14:6
15:5 22:15,16,19
23:1 24:16 30:5,11
31:18 32:3 34:23
36:7 39:7 55:6,22
56:4,5 57:20 68:16
73:16 77:23

points 21:25 22:5,21
29:10 42:17
55:7,11,25 56:1,3
66:22

policy 8:15 32:1 41:17
66:11,12

poll 30:9

population 40:3,17
47:14 75:21 76:7,24

populations 28:1
48:11 63:8

portion 6:16 14:8 39:9

poses 25:23

position 39:25 75:12
76:23

positive 49:6

possible 53:22 74:6

post 33:15 49:3

posted 68:2

potential 7:18,21
11:12,17 24:25 26:4
27:16 28:13
45:10,15 52:14
53:4,9 58:2
61:3,7,24 72:2,11,18

potentially 24:19
62:3,9 72:6,15

pounds 13:14 47:7

precise 21:7

premier 61:21

prepared 76:22

preparing 76:22

present 5:11 27:16
28:13 36:4 38:11

presentation 5:24
6:2,4,16 34:24 36:25
37:18 38:25 39:1,8

presentations 4:17
5:25

President 11:25 45:20

President's 52:22
77:6,9,16

press 46:6 76:12

pressure 14:19 48:12
57:23

pretty 26:13 63:2

prevent 18:1 27:3
28:16 31:1 52:14
55:20 63:22 70:5
71:11,23

preventative 73:6

preventing 64:2 71:2

Prevention 11:24
45:19

primary 70:25

priority 45:15

private 25:9

pro-active 7:4 39:23
40:5,22 41:6

probably 53:8 66:1
75:7

problem 32:6 53:24
56:15 59:6 75:25

problems 23:10,16
56:19 57:4

proceeding 33:25 39:1
67:21

proceedings 79:5,7

process 5:3 6:10 11:16
14:5 23:7 30:15
32:22 35:10 38:2,5
40:8 41:18,19,21,24
42:1,2,3,6 44:10
45:4 46:2,12 48:5
49:16 56:15 60:2
65:23 66:9

processors 30:13 48:7

produced 68:1

producing 30:1

product 21:8,9 26:15
56:17 66:17

products 14:16 34:11
54:15 66:21,24
68:1,8,11

program 47:3 49:10

progs 20:10

prohibiting 11:25
45:21

project 2:10,12
3:20,23 21:21
28:14,18,22 30:1
31:6 34:1,5,7,13
35:12 36:18,20 37:4
39:13 54:24 65:8
67:23 68:5 69:7

projects 11:1 12:22
13:17 14:2 42:6
46:12,13,15 47:15
77:5

prongs 22:13 55:14

proud 17:1 34:6

proved 32:2

provide 5:17 8:16,24
10:2 38:18,20 49:18
58:22

provides 15:6,9 22:16

providing 12:16

prudent 21:11 30:8
54:15

public 1:7,12
5:9,15,21 6:1 17:16
21:4,11 32:3,15
33:17 35:23
38:7,10,16 50:21
54:10,13 66:15 68:7

publice 34:12

public's 23:18

published 33:12

pulled 52:11

Pumping 22:25 56:4

purple 4:11 37:11
47:22

purpose 39:12 71:23

pursue 42:1

putrid 37:14

putting 48:12

Q

Quality 2:5 3:16 6:20
36:13 39:18 49:17

Quarles 2:7 3:17 6:21
9:21 15:24,25 16:2
25:11,12,19 29:21
36:14 49:24,25
50:3,13,17 52:4,7
59:8,9,12,17,20,24
60:3 64:18 66:20
69:13 70:11,15 71:5
73:14,19,24 74:10
75:11 77:4,14,19

78:1

question 35:1 68:21 71:19 74:11 77:2

questions 4:12,14 6:6,8,11,13 19:25 20:4,6 35:8 37:1,12,15 39:3 46:2 68:19 77:22 78:5,10

quick 19:24 26:3 28:15 29:24 62:12

quickly 7:2 61:19 76:25

quiet 67:17

quite 25:22

―――――――――
R
―――――――――

rain 24:13 53:9,10 57:19

rainfall 27:22 28:13

raise 30:10

range 52:12,13

rapid 13:20 47:16

rather 27:11

reach 16:10 20:19

reached 20:23 26:16

reaching 21:3 33:3 54:9 67:2

react 76:25

reacting 39:25

real 7:2 70:21

really 14:17,20 20:5 25:16 26:18,20 27:1,10,15 40:5,19 41:4,5 47:10 48:9,13 50:3 52:2 59:4,14 61:17 62:11 63:10,19

realm 72:8 75:8

reason 40:13 50:6 53:23 56:22 77:12

received 37:20 78:17

recently 8:11

Reclamation 10:4 43:23

recommend 31:9

recommendation 66:22

recommended 66:14

recorded 79:7

recreation 24:3 57:9 58:14

recreational 7:25 57:9

red 6:12 19:4 39:4 53:2

refer 51:11 53:2

reference 51:15

refined 72:3

regarding 15:9 39:20 43:15

regardless 16:9,16

regional 12:8,11 25:7 26:3 41:8 50:9 78:2

register 4:23 37:23

registered 4:23 34:18 68:18

registration 3:25 5:6 36:22 38:1

regularly 11:6 44:20

regulations 74:21

related 37:16

relative 25:23 79:11

release 19:17 21:11 66:23,25 76:12

released 7:10 10:22 43:24 44:5 46:11

releases 46:7

relies 44:9

rely 58:13 77:15

remanent 62:5,15

remedy 63:17

remember 35:9

remind 37:22 38:3 78:12

report 29:14 32:13 54:12 64:9,15

Reported 2:17

Reporter 79:4

REPORTER'S 79:1

reports 20:20 42:5

representatives 41:12

representing 16:19 17:2 59:11

requirements 65:14 66:1,12

requires 18:6 65:24

rescheduled 33:10

researching 32:22

residents 24:20 58:4

resource 21:2 28:20

resources 23:14 54:8 63:24

responders 76:20

responding 20:5

rest 57:2

restrict 48:18

restroom 36:7

resulted 13:13

results 47:18 74:22

retired 59:22,23

return 63:4

review 30:21 31:25 65:14 66:15

reviewed 29:18 54:13 66:9 72:10

reviews 66:10

Rich 17:2 51:1

Rick 17:13

ride 50:15

risk 24:11 25:23 27:7,12 29:19 57:16 61:24 62:9 64:12,14 71:3 76:6,7

risks 60:17

river 1:3 3:4 4:21 9:2,8 10:19 11:18 13:8 14:9 17:4,20 18:19 22:7 24:7 27:21,24,25 28:2,3,21 35:22 39:16 40:19 42:13,14 43:2,4,21 44:9 50:16 51:2,4 52:16,17 53:17 55:9,21 56:10 57:12,21 62:17,19,20,25 63:9 71:16,25 72:1,16,21 73:5,10 75:17

rivers 27:19 75:15 76:15

role 48:16 53:21

room 28:24 67:2

rotenone 13:9,12 46:25 47:5

round 69:23 76:13

rules 74:20

run 44:10

rush 27:22

―――――――――
S
―――――――――

safe 15:1 23:5 78:23

safety 9:23 48:19,20,22 65:23

Saffran 2:12 3:22 11:18 20:14 25:13,15,21 36:20 53:4 60:7,10

sampled 46:23

samples 12:3 45:24

sampling 13:8 46:24

Sanitary 9:10 22:12
25:22 43:5 55:17
60:17,20,25

schedule 77:8

scheduled 6:2 29:14
64:9,15

science 69:15

scientists 75:14,16

scope 17:23 19:16
23:19 57:3 74:22

scoping 3:5 5:2,21
6:10 35:10,23 38:2,5
78:13

scratch 61:9

Sea 74:1

seat 50:2

Seaway 19:20 53:18

second 5:11 6:3
35:3,14 38:12,23
42:2 48:1 70:4
78:7,24

Secretary 32:12 54:14

secure 15:1

security 48:22

seeing 15:12,17 31:12
49:11 51:25

seen 45:18 50:17 60:4

self 75:21

send 68:7

sensitive 69:18

sent 24:18

separate 53:25 63:22
65:21

separation 14:3 24:25
31:4,9 58:12

September 29:7 41:10

serious 7:18

seriously 49:20

serves 24:12

Service 13:1 26:18
28:21 46:20 49:14
71:22

Services 61:14

session 35:14,18,19
78:24

sessions 5:24,25
6:5,25 38:23,24

sets 30:24

setting 74:20

seven 22:15 55:23

severe 24:17 57:24

shaped 56:24

share 32:14

sharing 32:2 54:6

sheet 16:21 37:11,14
51:12,15

Ship 9:10 55:17 71:6

shipped 12:1 45:22

Shipping 22:12 25:23
43:5 60:17,21,25

shops 48:6

shoreline 22:5 55:12

short 11:11 27:1 28:19
36:25 37:18 61:20
62:1

shorthand 79:10

shortly 4:18

showed 28:15 44:14
77:7

shows 4:1 21:13

Shropshire 2:21
59:15,18 69:3,4

S-h-r-o-p-s-h-i-r-e

69:4

SHROPSHIRE
50:2,12,15 52:3,6
59:15,18,21,22 60:1
68:21,24 69:3,6
70:9,13,16
71:4,12,14
72:20,23,25
73:7,12,16,20
74:8,11 75:7
77:1,12,17

sign 34:8 68:5

signed 11:25 45:20

significant 5:13 7:7
8:6 24:4 27:7,12,15
28:13 31:22 38:13
56:25 57:1,19 62:9
66:3 68:8

silver 13:15 47:9

Similarly 5:4

simple 30:7,9

simply 15:14

single 22:11 55:16
72:14

sir 17:4 20:12 21:19
25:15 54:22 59:17
60:10

site 48:24

sites 45:6,9,14,15
67:10

sitting 69:6

situation 40:4 65:20
73:18

six 23:2 56:5

size 71:1

slide 21:13 52:2,22
53:11,12,14,19
54:16,19 55:2
64:19,24 66:16,25
67:7,12

snow 25:17 60:13

social 25:4 68:13

soldier 52:9

solicit 5:12 38:12

solution 28:16
29:1,3,13 30:17
31:1,8,15,21,25
52:13 64:1,8 65:25
66:2,3,6,8 67:6 70:1

solutions 11:12 32:8
52:14 65:19,24
66:10

somebody 6:12 39:4

someone 58:23

sorry 55:8 71:11

sort 28:7 29:1 53:9
56:7 63:17

sound 67:5

source 34:2 46:8 67:23

sources 57:25

south 44:3 48:9,12
62:19

Southeast 62:17

southern 10:14 18:24

SP 30:5

space 37:8

span 19:1 67:10

speak 4:23 20:12
33:20 34:22 38:4
53:4 75:11

SPEAKERS 2:20

speaking 56:23

specfically 7:24

special 18:12 52:19

species 4:14
7:4,6,14,20 8:7
15:20 18:2 19:2,6,15
22:18 24:23
25:24,25 26:19
27:4,17 31:2 37:15

39:25 40:12 45:11
51:11,23 52:15
53:6,15 54:19
58:7,16 60:19 61:25
62:10 69:11
70:2,8,10,17
71:14,24
72:2,12,15,19,20
73:1,9,14

specific 7:13 14:16
22:17 23:15 58:10
75:4

specifically 6:21,22
7:4 13:23 14:25
15:10 55:6,21 58:9
74:17

specify 56:23

specifying 23:10 56:19

spell 69:1

spelled 69:4

spend 55:1

spent 46:22

spill 24:12

sport 7:22

spot 52:5

spread 8:5

spreading 33:4

spring 13:12 15:15

square 19:5 53:2

St 19:20 27:20 53:18
62:17,18

staff 51:6

stakeholders 17:16
21:4 46:1 54:9

star 11:20 45:11

start 6:3 16:4 30:5
32:7 60:23

started 11:15 25:21
28:24 30:19 40:25
60:15

state 8:7 12:10,12
20:18,23 23:14 25:7
26:20 41:4,22 54:8
61:17 63:23 67:3
69:1

statement 5:5 31:23
66:4

statements 77:22

states 7:23 8:12 12:2
18:21 19:1 41:11,13
45:22 52:24 53:1
59:3 76:9,17,21

stating 53:12

Station 22:25 56:4

stay 33:18 37:3 67:16

steady 32:9,24

steel 71:7

steering 21:3

stenographically 79:8

step 20:9 56:16

stepped 11:9 63:24

steps 23:10 56:18

stop 23:5 70:17 72:19
73:20

stopped 70:17

storm 10:9,16,21
26:13 28:6,7 43:23
57:19 62:16,23
63:4,5,19

storms 24:13

stormwater 10:13,15
43:25 44:4,8,10
58:14

story 27:1 61:20 62:1

strategies 57:17

strategy 7:11 12:19
20:8 40:10,24

stream 32:9 55:16,17
56:7

streams 56:9

Street 1:13

stretch 6:5 28:2

strong 12:11 15:19
27:3 49:10

structure 22:23 29:9
56:8

structures 22:21
56:12

studied 75:14

studies 31:16 52:20
54:9 70:5

studying 5:14 17:24
18:13 75:17

stunned 69:21

submission 35:13

submit 37:8

submittal 5:6

submitted 38:8 78:18

submitting 4:9

suburbs 57:25

success 54:4

suck 74:1

sufficient 66:14

summer 26:1,2 60:23

supply 24:3 57:10

support 17:10 31:13
65:12

sure 7:8 12:6 14:24
15:3,21 16:10 20:19
30:24 33:4,18,21
34:21 38:1 42:4
47:13 48:18 49:21
50:10,18,20,21
52:18 54:3,5,6,10
60:4 67:16 68:17
70:19 71:18 73:9
76:21,23

surveyor 63:14

surveyors 28:23

survive 72:4

sustainable 40:17
47:14 76:7,24

sustaining 75:21

swim 70:22

swims 74:2

system 9:9,24
10:2,6,14,22 11:2
13:11,24 20:13
21:23 22:2,10,21
23:6,25 24:5,11,24
31:6 42:21 43:19,20
44:8,15 49:12 53:3
54:21 55:4,24 57:11
58:6,13 61:2 71:16
72:6,7,21 73:10
75:17

systems 11:8 22:20
42:16 62:5

T

T.J 23:2

table 3:10 4:24 5:7
36:8,19

tables 3:25 36:22

tag 6:12

taking 7:3,14 14:13
32:21 40:11,13,22
47:18 49:20 74:19
76:3 78:4

talk 6:25 10:1 16:6
17:21,23,24 21:18
30:12 39:14 44:17
50:1,6 51:9 53:1
54:1,15,20 60:8 65:2
68:24 74:13

talked 11:2 51:12
64:20,25

talking 11:14,18 13:21
16:4 31:20 38:24
53:15 55:2 67:14

71:9

talks 16:21 48:25

tall 26:14 61:9

target 72:17

targets 33:6

task 26:14 54:7

tasked 18:5 61:5

taught 54:17

team 5:9 9:21
16:8,15,16,17
17:12,21 20:2 21:18
23:11 26:3 29:18,25
32:5 33:3 35:7 38:10
49:15 51:6 53:25
61:5 62:8 65:3,5
72:10

teams 13:8 46:24
56:20 78:2

technical 8:14 31:25
41:17 65:14 66:12

technologies 72:19

technology 67:13

temporary 11:21 29:5

ten 28:10

term 11:11,12 16:22
29:13 51:20

terms 16:12 29:25
31:22 65:23

terrible 70:14

testing 9:19 12:3

tests 9:23 76:13

thank 6:21 9:25 15:16
16:8,18 17:8 21:19
25:10,12,15 29:21
33:2,22,24 35:16,17
39:10,11 50:7 54:22
59:9,24 60:10
64:16,18 67:20 69:5
71:4 77:19,20
78:3,22

thankful 49:17

Thanks 6:17

that's 3:11 11:20,21
12:5,15 15:10,13
17:16 20:1 22:14
23:17 24:9,10 26:7,8
29:4,10,17 33:12
36:23 39:5 41:24
42:3,21 43:3,16,19
44:5 46:5 49:15
51:10,21 52:1,25
53:25 61:2,9 62:14
64:1,5 65:5 67:6
69:8,25 71:8,10,18
72:10 74:2,6 76:2
77:17,18

themselves 48:13
76:22

thereafter 79:8

thereby 48:12

therein 79:6

there's 26:9,12 27:9
37:5,9 42:20 43:18
44:1,23 55:25 56:7
57:9,23 58:1,23
62:14 63:10 64:6
74:6

they'll 15:1

they're 21:2 43:9
54:10 70:11 75:24

they've 40:18

thin 69:16

threat 70:21,25 75:23

throughout 5:16
7:15,22 8:5 14:17
24:18 33:3 38:17
42:21 67:10 78:14

thus 29:25

timeline 21:6 65:2
77:7

tingle 69:20

tips 60:5

today 3:24 4:22 6:3
15:17 16:1,6,20
17:5,17 23:18
32:4,21 34:3,15
35:17 50:4 56:23
67:6,25 68:11 73:8
78:8

today's 3:3 4:17

Tommy 59:18

tomorrow 75:8

tonight 36:1,11,21
38:4 69:8 78:4,22

tonight's 35:21

tool 12:22 46:16

tools 46:17 67:15

top 31:10 54:19

topography 26:9

total 27:5 41:1 46:13
57:12 67:10

touch 69:18

touched 69:17

tough 77:13

toward 57:22 62:22

towards 9:15 48:6
58:10

town 27:23

traces 43:10

tracking 45:2

trammel 13:10 47:1

transcribed 79:8

transcript 79:10

transfer 22:17 25:24
27:4,17 28:16 53:16
55:20 60:19 61:25
62:10 71:3,23 72:16
74:3,6 75:2

transferring 13:25

transport 45:21 47:19

transportation 15:3

trap 13:18 47:16

traveled 18:19

treated 13:8 24:6,8
46:24 57:13

treatment 10:20

trends 20:3

tribes 25:8 41:22 59:3

tried 73:21

tries 49:6

tri-fold 4:6 37:5

trip 64:3

true 79:9,15

try 10:1 26:22 39:5
40:1,6,22 41:2,5,14
46:4,6 61:15 69:20

trying 7:6,8,12 8:23
12:6 13:22 14:18
27:3 30:7 41:23 42:4
44:5,7 47:2 48:13
75:10

Tuesday 8:21,22

turn 6:15 15:23 25:11
36:2 39:7 49:23 59:8
60:6

twice 35:4

Twitter 34:15 68:14

type 19:16 41:24,25
45:3 46:7 47:13
49:19 74:17 76:24

types 40:20 76:6

U

uncertainty 26:10
27:9

uncontrolled 23:4
56:11

undammed 28:2

understand 16:4 18:11 53:20

understanding 9:18

undertake 12:6

undertaken 4:15 37:16

undertaking 6:23

unifying 8:7

unintelligible 21:7 30:7 67:9 70:25 71:6

unique 22:10 55:13 56:1

United 12:2 45:22

universe 26:18

update 49:7

updated 46:5

updates 33:17 34:10 68:7,14

upon 75:19 77:15

ups 58:2

upstream 9:13 14:20

urgency 53:20

USACE 54:4

useful 33:15 53:12

users 58:13,15

USGS 26:18 28:21 49:13 61:13 75:4

—————
V
—————

validation 12:22 46:16

Valley 17:7

various 9:23 34:14

venue 25:17

versa 14:1

viable 62:2,3

vice 14:1

Vicksburg 1:12,13 17:8 25:16 50:24,25

60:11 67:8

Vincent 2:7 3:17 16:2 36:14 59:12 70:11

Virginia 69:15

visit 34:7

voices 17:6

volumetric 24:7

—————
W
—————

Wabash 14:4 27:24,25 28:1,9 62:25 63:9

walk 36:8

walks 58:18

war 16:15

warm 25:17

warmer 60:13

wasn't 27:11

wastewater 10:6,19,20 24:6,8 43:18 57:13 58:14

water 10:4,21 22:24 23:5 24:3,5 25:1 27:10 28:8,11 42:20 43:23 56:9 57:10,14 58:1 62:24 63:6 74:16,19,21 75:2

waters 22:6 27:22

watershed 9:8 14:9,10 45:8,9 47:23

watersheds 9:5 14:4 42:10 55:10

waterway 9:9 20:13 21:23 22:2,20 23:24 24:2,5,10,11,22 53:3 54:21 55:4 57:7,11 58:15

waterways 13:6 25:5 28:14 42:19 43:14 48:18 56:3,11,13 63:20

Wayne 11:4,20

27:18,21,23 44:16,20 45:13 62:13,18,20 71:11

ways 25:3 37:3

weather 15:14 25:17 33:9

web 65:9 78:14

website 12:16,19 15:6,8 34:1,8,11,13 35:12 37:4 38:8 46:5 49:2 67:23 68:2,5,10 78:17

we'd 9:25 37:24 39:13

week 12:3 45:24

weight 38:9 78:19

welcome 3:3,9,25 35:21 36:8,21

we'll 6:4,13 8:23 9:22,23 11:11 12:23 14:8,10,13 15:14 21:22 33:15 37:18 39:1,5 44:17 45:2,5 48:5 49:20 52:7 53:2 54:1,15 57:19 67:19 69:25 77:15 78:20

we're 7:7 8:15,19 9:19 11:14 12:3,6,16,21 13:16,17,19,21 14:2,15,17,20,23,24 15:12 16:17,21 17:17,22,24 18:13,14,23 19:12,18 20:25 21:3,6,14 23:9,18,21,22 30:2,12,25 31:12,14,20 32:4,19 33:4 34:19 36:24 39:24 40:2,6,10,11,13,21 41:23 42:2,18 44:7 45:24 47:9,12,18 48:3,7,9 49:11,12,17,18 50:6

51:13,16 52:12 53:14,15 54:3,4,5 56:18,19,22 57:1,3 64:12,14,22,25 65:1,3,15 66:13,17 67:1,2,6,17 68:13 72:5,12,13 73:25 74:19 76:2,5,20

west 62:19

Wethington 2:10 3:20 20:11 21:17,19,21 36:17 54:22,23 65:4 70:19 71:13,18 72:22,24 73:2,9 74:13

wetlands 28:22 62:6,7

we've 7:13 8:11 11:16 12:9,20 18:10 19:20 20:9,22,24 25:19 30:20 40:14,15 45:18 47:4 60:14 65:12 67:9,14,24 71:20 72:1,2,9

whatever 42:6 58:16 71:15

whenever 48:17,19 49:3,8

whether 51:7 71:24

white 2:3 3:16 4:8 6:20 36:13 53:7 72:9

whole 8:18 9:9 10:2,3 14:5 40:8 41:6 46:2,12 65:5 72:14

Who's 75:9

Wildlife 13:1 16:23 26:17 46:20 49:13 59:16 61:14 71:22 75:23

willing 68:18

Wilmette 22:25 44:3 56:3

wires 69:16

Wisconsin 13:1 46:20

wish 4:5

wondering 36:6

work 20:22,24 32:13
   61:2 65:10 68:23
   70:1,18 72:11 74:20
   77:8

worked 9:21 27:1 62:8
   71:20

Workgroup 8:15

working 14:23 15:20
   16:24 17:11 19:21
   21:1 30:3,7 41:14
   48:8,17 49:12,20
   50:8 54:4,7 59:5
   76:20 78:3

Works 32:12 54:14

world 72:15

worried 7:21

worse 76:1

write 37:8

written 4:9 35:13 37:8
   78:14,18

--- Y ---

y'all 16:1

yellow 4:25 11:20
   37:25 45:11

yet 4:23 31:17 70:21

you'll 4:24 22:3 23:3
   33:13 37:3,17 42:24
   56:1 67:24

you've 18:4 27:25
   33:1 43:17 50:17
   59:13 60:4

--- Z ---

Zaborowski 2:14
   3:2,5 33:24 35:20,24
   67:20 68:22,25 69:5
   77:20 78:6

zapped 69:17

zip 5:1 69:2

zone 15:1

zones 48:22