

THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:

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WATER QUALITY STANDARDS AND

) STATE OF ILLINOIS
Pollution Control Board

EFFLUENT LIMITATIONS FOR THE

) R08-09 Subdocket C

CHICAGO AREA WATERWAYS SYSTEM

) (Rulemaking-Water)

AND THE LOWER DES PLAINES RIVER:

PROPOSED AMENDMENTS TO 35 Ill.

Adm. Code Parts 301, 302, 303,

and 304.

TRANSCRIPT FROM THE MORNING PROCEEDINGS

taken before HEARING OFFICER MARIE TIPSORD

by LORI ANN ASAUSKAS, CSR, RPR, a notary public

within and for the County of Cook and State of

Illinois, in Room 2-025 at the James Thompson

Center, Chicago, Illinois, on the 17th day of

May, 2011, A.D., at 9:00 o'clock a.m.

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

2

3 ILLINOIS POLLUTION CONTROL BOARD,

4 100 West Randolph Street

5 Suite 11-500

6 Chicago, Illinois 60601

7 (312) 814-6983

8 BY: MS. MARIE TIPSORD, HEARING OFFICER,

9

10

11 ILLINOIS POLLUTION CONTROL BOARD MEMBERS PRESENT:

12

13 Mr. Thomas E. Johnson, Board Member

14 Mr. G. Tanner Girard, Board Member

15 Ms. Andrea S. Moore, Board Member

16 Mr. Gary L. Blankenship, Board Member

17 Ms. Carrie Zalewski, Board Member

18 Mr. Anad Rao, Technical

19

20 ILLINOIS ENVIRONMENT PROTECTION AGENCY,
21 1021 North Grand Avenue East

P.O. Box 19276

Springfield, Illinois 62794-9276

22 (217) 782-5544

23 BY: MS. DEBORAH J. WILLIAMS,

24

24

1 A P P E A R A N C E S: (Continued)

2 ALSO PRESENT:

3 Ms. Stacy Meyer-Glen

 Mr. Albert Ettinger

4 Mr. Fredric P. Andes

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1 HEARING OFFICER TIPSORD: Good
2 morning. My name is Marie Tipsord and I've been
3 appointed by the Board to serve as the hearing
4 officer in this proceeding entitled Water Quality
5 Standards and Effluent Limitations for the Chicago
6 Area Waterways System and the Lower Des Plaines
7 River, Proposed Amendments to 35 Ill. Adm. Code
8 Parts 301, 302, 303, and 304. This is Docket
9 No. R08-9, Subdocket C.

10 With me today to my immediate
11 left is Acting Chairman G. Tanner Girard. To his
12 left, Board Member Andrea Moore. To her left,
13 Board Member Carrie Zalewski. To Board Member
14 Zalewski's left is Board Member Gary Blankenship.
15 To my far right is Board Member Thomas Johnson.
16 To my immediate right is Anad Rao from our
17 technical unit. Lisa Liu will be joining us this
18 afternoon from our technical unit. Also, today
19 in the audience is Kristin Carl, one of our
20 interns. She was with us this spring and staying
21 through the spring. So please welcome Kristin who
22 is excited to be here at these hearings, Kristin.

23 Today, is the sixth day of
24 hearings of Subdocket C, but the 49th day overall.

1 A prehearing conference was held on March 7th to
2 establish a schedule.

3 We will begin today with
4 Dr. Scudder Mackey's testimony continuing. His
5 testimony was entered as Exhibit 257 yesterday.
6 We will begin his questions this morning Open Lands,
7 Midwest Generations and then finally IEPA.

8 Following Dr. Mackey, we will
9 begin with Jennifer Wasik, who will be questioned
10 by -- at least a good time by IEPA, then Prairie
11 Rivers and concluding with Midwest Generation and
12 depending on participants, we may mix that up as
13 well.

14 We will then proceed to David
15 Zenz. At this point, we received Ms. Nemura is
16 currently in the hospital. She may not be
17 available. She is definitely not available today
18 and she may not be available tomorrow. We won't
19 require a doctor's excuse, by the way.

20 This testimony will be marked as
21 an exhibit and entered as if read. Anyone may ask
22 a follow-up question. You need not wait until your
23 turn to ask questions. I do ask that you raise
24 your hand and wait for me to acknowledge you.

1 After I've acknowledged you, please state your
2 name and whom you represent before you begin your
3 questions. Please speak one at a time. If you
4 are speaking over each other, the court reporter
5 will not be able to get your questions on the
6 record.

7 Please note that any questions
8 asked by a Board member or staff are intended to
9 help build a complete record for the Board and is
10 not intended to express preconceived notion or
11 bias. Do remember to identify yourself before
12 speaking today. Lori, I think this is the first
13 time she's been with us on the CAWS hearings? It's
14 not? Sorry. There's been too many of them,
15 but be sure to identify yourself for the record.
16 Dr. Girard?

17 BOARD MEMBER GIRARD: Good morning.
18 No long speech this morning, but thank you all for
19 coming back for day -- is this Day 49?

20 HEARING OFFICER TIPSORD: Day 49.

21 BOARD MEMBER GIARD: Day 49. And
22 also, please remember to speak up because we have
23 some air handling equipment up here and it does
24 make it very hard for us to hear. So we would

1 like to hear it rather than just reading the
2 transcript. Thanks.

3 HEARING OFFICER TIPSORD: With
4 that, Dr. Mackey, I would remind you that you
5 are still under oath. We will begin discussions
6 openly.

7 MS. MEYERS-GLEN: For the record,
8 my name is Stacy Meyers. I'm with Open Lands.
9 My question should be read --

10 HEARING OFFICER TIPSORD: Stacy,
11 please remember to speak loudly. I already can't
12 hear you.

13 THE COURT REPORTER: I can't hear you
14 either.

15 MS. MEYERS-GLEN: Sorry. I wanted
16 to start with A in our pre-filed questions. In
17 the Habitat Evaluation Report, dated January 4,
18 2010, Table 7-7 labeled CAWS Habitat Index Scores
19 for Major Reaches, a series of habitat scores are
20 given for major reaches of CAWS. The scores range
21 from a high of 75.2 at the North Shore Chanel,
22 north of the -- north of the Water Reclamation Plant
23 to a low of 33.8 at the South Branch Chicago River.
24 The first question is what is the interpretation of

1 the scores ranking?

2 HEARING OFFICER TIPSORD: Dr. Mackey,
3 before you do that, Tom, could you close the door?

4 BOARD MEMBER JOHNSON: Sure.

5 HEARING OFFICER TIPSORD: That might
6 help us hear a little bit better.

7 THE COURT REPORTER: I am barely
8 hearing you. It is a struggle.

9 HEARING OFFICER TIPSORD: Yes. We
10 have stuff roaring over us back here. Go ahead,
11 Dr. Mackey.

12 DR. MACKEY: First of all, I was
13 not directly involved in the calculation of the
14 habitat scores. However, it's my understanding
15 that the habitat scores provide a relative measure
16 of the habitat quality within the CAWS and are not
17 transferrable and comparable to other systems
18 outside of the CAWS. And that has been testified to
19 by Mr. Scott Bell.

20 In general, higher scores
21 indicate somewhat better relative habitat quality
22 and lower scores represent somewhat poorer habitat
23 quality. Again, this was described by Scott Bell
24 in his testimony.

1 MS. MEYERS-GLEN: And I'm sorry if
2 this is redundant, but what score ranking cutoffs
3 would be used for attainment of uses for each
4 reach?

5 DR. MACKEY: To my knowledge, there
6 is a relationship of the attainment of uses. There
7 is no direct relationship.

8 MS. MEYERS-GLEN: Okay. So there
9 are no cutoffs?

10 DR. MACKEY: No. It was -- the
11 habitat scores, I believe, were designed to
12 create, in essence, a gradient of habitat.
13 Jennifer Wasik, I believe, will be speaking as
14 to how that information was used to actually
15 categorize the individual waterway segments.

16 MS. MEYERS-GLEN: Okay. So we
17 will hold the remainder of any questions that
18 we have on that for Ms. Wasik.

19 B, In the habitat evaluation
20 report, a statement was made as to the efficacy
21 of floating islands in the CAWS. Page 34 of the
22 habitat improvement report says, "As a result of
23 inquiries made as part of this study, no aquatic
24 habitat improvement projects were identified on

1 the CAWS that included monitoring data to measure
2 effectiveness; therefore, the identified projects
3 offered little to inform the assessment of habitat
4 improvement potential on the CAWS."

5 Literature suggests floating
6 islands can make a significant contribution to
7 habit improvement for fish in localized settings.

8 Number one, apart from the
9 appendices, did the habitat evaluation and
10 improvement study evaluate the effectiveness
11 of floating islands as a means of fish or
12 macro-invertebrate restoration from data
13 available in other parts of the United States
14 or other freshwater riverine systems in Europe?

15 DR. MACKEY: I wasn't involved
16 with that habitat evaluation study or the habitat
17 improvement report. So I don't know what was
18 done in terms of the analysis of the floating
19 islands. So I would refer to the testimony of
20 Scott Bell.

21 MS. MEYERS-GLEN: Okay. Well,
22 would you agree from your experience that
23 floating islands might have a benefit for
24 habitat restoration deficiencies with some

1 types macro-invertebrates?

2 DR. MACKEY: Yes. I believe it is
3 possible that floating islands can provide some
4 localized benefits to fish and macro-invertebrates.

5 MS. MEYERS-GLEN: In the habitat
6 evaluation report, this is C, a statement was made
7 that floating islands cost \$150 per square foot.
8 If you are able to answer, how did the study arrive
9 at this cost estimate?

10 DR. MACKEY: I'm unable to answer
11 because I wasn't involved in the analysis.

12 MR. ANDES: In general, any
13 questions about the basis for the habitat
14 evaluation improvement reports are really --
15 should have been directed to Scott Bell, not
16 Dr. Mackey. Dr. Mackey was not involved in
17 the preparation of those reports.

18 MS. MEYERS-GLEN: But he is
19 extrapolating from those reports his findings
20 and opinions, correct?

21 MR. ANDES: You can certainly ask
22 about his findings and opinions.

23 MS. MEYERS-GLEN: D, Overhanging
24 and immersed vegetation produced physical habitat

1 as well as locally cooler microhabitats for fish
2 and invertebrates. The habitat evaluation and
3 improvement study showed that macrophyte cover
4 and hanging vegetation were the second and third
5 most important factors that were positively
6 correlated with fish variability.

7 Actually, I have different
8 pages listed in the questions. My question is
9 would planting saplings of native floodplain
10 trees produce an economical and viable amount
11 of overhanging vegetation and shade in localized
12 areas of the CAWS at the time?

13 DR. MACKEY: It is possible, but
14 the systemic benefits may not be able to measure
15 them because the benefits are going to be
16 relatively small. The planting of samplings and
17 native floodplain trees might provide a limited
18 amount of overhanging habitat in shade and localized
19 areas of the CAWS, but I have not done the analysis
20 to know whether it would be economical or viable.

21 MR. ANDES: Could you follow-up?
22 Could you explain some of the factors that would
23 lead you to conclude that benefits might not be
24 significant on this -- in this water system?

1 DR. MACKEY: Yes. First, you know,
2 the CAWS segments are fairly wide, 150 to 200
3 feet wide. If you were to planting trees along
4 the banks, you're only going to shade a very,
5 very narrow portion of the bank edge habitat.
6 It will depend very much on the orientation of
7 the channels.

8 Secondly, there are virtually
9 no floodplain areas associated with the cause.
10 Most of the CAWS is harbored and it's highly
11 urbanized. So trying to find areas where you
12 would be able to do these types of tree plantings
13 would be difficult.

14 Third, in applicable portions
15 of the CAWS, which is probably about two-thirds
16 of the CAWS, overhanging vegetation or wood debris
17 are periodically removed by the District because
18 they are considered to be navigation hazards
19 because of the movement of vessel traffic up and
20 down through the system.

21 And it also -- it potentially
22 serves as an obstruction to conveyance of
23 wastewater, which could potentially increase
24 flooding potential if large accumulations

1 of woody debris were to occur in the channel.

2 MS. MEYERS-GLEN: I just need a
3 moment.

4 In areas where improved
5 overhanging vegetative cover, however, would be
6 possible, that is one of the habitat variables
7 most strongly correlated with fish in the CAWS;
8 is it not?

9 DR. MACKEY: Yes.

10 MS. MEYERS-GLEN: And despite the
11 wideness, it would still offer refuges along the
12 CAWS for fish habitat; is that correct?

13 DR. MACKEY: Yes.

14 MS. MEYERS-GLEN: E, The summary of
15 the habitat assumes that dissolved oxygen levels
16 are relatively unimportant compared to habitat.
17 When fish metrics are compared to dissolved oxygen,
18 the only significant correlation is the number or
19 percent of minnows and sunfish.

20 Number one, how do you reconcile
21 the fact that dissolved oxygen significantly
22 correlates with minnows and sunfish in the study's
23 significance tables and minnows and sunfish comprise
24 of 90 percent of the top ten fish by numbers caught?

1 DR. MACKEY: Well, the first thing,
2 the preface to your question is incorrect. No
3 assumptions were made in the study that dissolved
4 oxygen levels were relatively unimportant compared
5 to habitat. The conclusion that dissolved oxygen
6 levels were relatively unimportant compared to
7 habitat that was reached by undertaking a thorough
8 multi-varied analysis of the data -- fisheries
9 data and the habitat data from existing system-wide
10 data sets collected by the District between 2001
11 and 2007 and the analyses were statistically peer
12 reviewed and the studies conclusions and results
13 were found to be based on sound scientific approach
14 and methodology.

15 So it's not an assumption. This
16 is something that was a result of a fairly robust
17 statistical analysis, which was peer reviewed and
18 found to be scientifically defensible.

19 Secondly, I will probably -- I
20 will disagree with you. I'm not sure where you
21 got the 90 percent figure for the top ten fish
22 caught by -- caught by the District, if you want, or
23 sampled by the District.

24 On Page 6 of my pre-filed

1 testimony, I do list the relative percentages
2 of the major fish groups. And what I come up
3 with is for carp and minnows is 37 percent
4 and sunfish is 19 percent, which means about
5 56 percent of the fish sampled were, indeed,
6 within those classes and not 90 percent. So
7 I'm not sure where that 90 percent number comes
8 from.

9 And with respect to the
10 statistical correlations, I believe Dr. Bell is
11 also in part discussed this in earlier testimony,
12 but I'll reiterate that even those two correlations
13 are statistically significant, the correlation
14 values are relatively low. They're
15 weak correlations and they represent only two
16 out of ten of the total metrics that were
17 incorporated into the fish metric. So they are,
18 in essence, swamped by the other correlations
19 from the other metrics.

20 And then finally, if, indeed,
21 you were to have a situation where the dissolved
22 oxygen correlates significantly with fish species
23 that have been found to be abundant, then, it would
24 seem to me as though that the existing or the

1 current DO levels would be clearly not limiting
2 because those fish are, indeed, abundant in the
3 system. So it really -- I don't have a problem
4 reconciling that fact in this case.

5 MS. MEYERS-GLEN: My last question,
6 I believe, is the most abundant fish in the CAWS is
7 the gizzard shad, which serves as a forage fish for
8 top predators like large mouth bass. Is the gizzard
9 shad limited by habitat in the CAWS, especially for
10 spawning?

11 DR. MACKEY: I have to admit I think
12 gizzard shad is one of the few species that are --
13 they're such generalists that they're probably
14 not habitat limited in the CAWS. Gizzard shad
15 is a ubiquitous, tolerant species that feeds on
16 phytoplankton and zooplankton, which -- of which
17 we do have in the CAWS.

18 They generally spawn in the
19 late spring. Water temperatures range between
20 50 degrees to 70 degrees Fahrenheit. So they
21 spawn over a range of temperatures. They're
22 broadcast spawners. They prefer to spawn in
23 slow moving water with firm to hard substrates,
24 which is certainly what we have in significant

1 portions of the CAWS.

2 Each female can produce up to
3 several hundred thousand eggs and these eggs are
4 very sticky and they're broadcast spawners, which
5 means they just sort of spray them over the bed
6 or the channel. They settle onto various -- either
7 plants or rocks or other firm substrates. The
8 eggs just date and they hatch within a handful of
9 days -- a couple of days.

10 These fish are not very good
11 parents. They are not nest builders and they do
12 not nurture their young. So they basically just
13 come in and I'm just going to say have some fun,
14 reproduce, and then they leave and let their young
15 do what their young are going to do.

16 I would say that with respect
17 to the physical habitat conditions within the CAWS
18 that it's almost ideally suited for gizzard shad
19 and, thus, we have very high numbers of gizzard
20 shad in the system.

21 BOARD MEMBER GIRARD: Can I ask a
22 quick follow-up to that? So in other words, the
23 Chicago & Sanitary Ship Canal is a good breeding
24 ground for gizzard shad?

1 DR. MACKEY: Yes.

2 BOARD MEMBER GIRARD: Okay. Thank
3 you.

4 MR. ANDES: If I may interject one
5 more time, these are a tolerant species?

6 DR. MACKEY: Yes. Gizzard shad are
7 considered, I believe, a tolerant species.

8 MS. MEYERS-GLEN: Thank you.

9 HEARING OFFICER TIPSORD: Okay.
10 Ms. Franzetti of Midwest Generation?

11 MS. FRANZETTI: Good morning,
12 Mr. Mackey. My name is Susan Franzetti. I'm
13 counsel for Midwest Generation in this proceeding.
14 I'm going to be asking you the pre-filed questions.
15 If at any time you don't understand my questions,
16 please let me know and I will try to rephrase it
17 so that you can understand it.

18 Let's begin with Question No. 1
19 on Page 2 of your pre-filed testimony. You state
20 that, "My work has been focused on developing
21 linkages between physical processes, physical
22 habitat and the organisms that use those habitats."

23 Please explain what you mean by
24 physical processes.

1 DR. MACKEY: Okay. Basically, what
2 we're talking about or what I'm talking about
3 are physical characteristics and natural processes
4 that structure, organize and define aquatic habitat
5 and aquatic systems; primarily, the mechanisms by
6 which energy 'is transferred through these systems
7 and that's what physical processes are fundamentally
8 doing.

9 With respect to my work, I'm
10 interested in the natural, physical and geological
11 processes that create and maintain aquatic habitats
12 in riverine, coastal, near shore and open lake
13 settings. Examples include the protection and
14 restoration of natural flow regimes, which we
15 discussed a bit yesterday in Mr. Bell's testimony,
16 maintenance of water level regimes in the Great
17 Lakes, and maintenance and/or restoration of near
18 shore coastal processes and riverine process and
19 tributaries to the Great Lakes.

20 MS. FRANZETTI: Please also explain
21 how your work involves developing linkages among
22 these three categories.

23 DR. MACKEY: Okay. The bulk of my
24 work is focused on characterizing and mapping

1 aquatic habitats in Great Lakes and near shore
2 and riverine systems.

3 MS. FRANZETTI: May I interrupt you
4 for just a moment? For what purpose do you do
5 that work?

6 DR. MACKEY: I do that work primarily
7 to identify the areas of fish habitat primarily
8 based on substrate characteristics, but also
9 habitat structure. The reason I do this work,
10 I work very much with aquatic ecologists and
11 fisheries biologists from the various state and
12 federal agencies and also Canadian federal and
13 preventional agencies.

14 We're looking at areas, number
15 one, for the protection of existing fish habitat
16 and we're also -- the Great Lakes Fishery Commission
17 has several fish community goals and objectives,
18 which are focused on restoring native fish species
19 in the Great Lakes region, not only to tributaries,
20 but also to the Great Lakes and we are trying to
21 assess, number one, whether or not some of these
22 species are habitat limited in some cases.

23 In some cases, we have hatcheries
24 that are actually producing young of these fish

1 and are actually stocking fish at different sites
2 and what I try to do is assist them in
3 identifying the stocking sites so that we
4 increase the probability of success.

5 MS. FRANZETTI: You try and find
6 the spots where reintroduction or adding to the
7 current population of a given fish species --
8 the sites that would be most conducive to that?

9 DR. MACKEY: That's correct.
10 You know, in the past -- well, let's take a step
11 back. Especially in the Great Lakes, but even in
12 many of our rivers, the existing maps that we have
13 for substrates are very general. They are not
14 at a scale that is appropriate to do this type
15 of work.

16 The assumption has always been,
17 well, these agencies have been working on the
18 lakes and in some of these rivers for decades.
19 You would think that you would have great maps
20 and that's not the case. And so the scale at
21 which I'm operating -- the scale at which I'm
22 mapping these materials or these areas is a
23 much finer scale than the regional maps that
24 currently exist for most of these areas.

1 MR. ETTINGER: I'm Albert Ettinger.
2 I represent Prairie Rivers Network and Sierra Club.
3 What are the species you are trying to restore?

4 DR. MACKEY: There are several
5 species that -- lake trout is one species
6 in the Great Lakes that we are particularly
7 interested in restoring. Walleye obviously,
8 we're not doing restoration work, but we are
9 certainly looking at trying to identify critical
10 walleye spawning habitats.

11 One of the results that has come
12 out of some of our recent work has been the impact
13 of invasive species on what had been traditionally
14 historic spawning habitats. We're talking about
15 Dreissenids, zebra mussels and quagga mussels and
16 also the round goby, which are introduced in basic
17 species.

18 What we just recently discovered
19 in the last year or so is that there are historical
20 sites, which lake trout like use to use in Great
21 Lakes that they are no longer using and the reason
22 is is that the Dreissenids not only attach
23 themselves to the core substrates, but the resulting
24 sedimentation -- the pseudofeces that come out

1 of the back end of the Dreissenids and along --

2 MS. FRANZETTI: Whoa.

3 DR. MACKEY: -- with the siltation --
4 sorry -- I could put it in a different way, but
5 I -- you understand what I'm talking about. It's
6 gelatinous and it tends to fill up the interstitial
7 spaces, the spaces between the cobbles and boulders,
8 and in part, using the side scan data, but also
9 underwater video, we can very clearly show a
10 pre-introduction of these invasive species versus
11 post, how severely impacted these substrates are.

12 What we find is that lake trout
13 are now moving to secondary sites that are much
14 less desirable and that they didn't use because
15 that's the only existing available habitat left.

16 So this is the type of work
17 that I do with these resource management.

18 MR. ETTINGER: So to finish that up
19 with regard to walleye, what kind of habitat do
20 walleye need and are they having the same sort of
21 problems?

22 DR. MACKEY: Their habitat -- they
23 require higher energy conditions generally. They
24 spawn -- they are riverine spawners. They move up

1 the Mawmee and Sandusky rivers and Lake Erie in
2 particular. They are looking for core substrates,
3 pool riffle sequences. They hold in the pools,
4 move up to the ripples. They are a broadcast
5 spawner and they release their eggs and they fall
6 into the interstitial spaces.

7 They need relatively well
8 oxygenated waters. They also spawn on reef
9 complexes, piles of gravel or bedrock, which have
10 coarse material associated with them in the open
11 lake areas, in Lake Michigan and also on Lake Erie.

12 Very similar characteristics --
13 the energy there is due to wave action rather than
14 unidirectional flows, which is what you have in a
15 riverine condition.

16 MR. ETTINGER: So now, once they
17 spawn, they don't -- do they hang around that
18 area their whole life or do they travel from?

19 DR. MACKEY: They are a lot like
20 gizzard shad. They basically spawn and they're
21 out of here. They're not very good parents
22 that way.

23 MR. ETTINGER: And how many miles
24 might they be in their lives from when they spawned?

1 DR. MACKEY: Well, there have been
2 numerous tracking studies of -- just referring
3 to walleye, there are numerous tracking studies
4 that have been done that show, let's say, the
5 fish that spawn and were tagged in the Sandusky
6 River, which is in northwest Ohio, some of those
7 fish are found all the way up into Lake Huron.

8 So they move up through the
9 connecting channels, up through the Detroit River,
10 through Lake St. Clair, the St. Clair River, and
11 they're found up around Saginaw Bay or even further
12 north of that. Then we all -- they move back and
13 forth through Lake Erie.

14 In fact, there is usually a
15 seasonal migration from the western basin, which
16 is relatively shallow and as things get hotter
17 in the summer, they move into cooler water in
18 the central and eastern basin. So that's a --
19 that's a fair distance so you're talking literally
20 hundreds of miles, if not more, that they will
21 migrate.

22 MR. ETTINGER: So after spawning,
23 they may travel to areas that would be totally
24 unsuitable for them to spawn in, but that they

1 live their adult lives in?

2 DR. MACKEY: Absolutely. Anyway, I
3 need to keep going.

4 MS. FRANZETTI: Yes. I was going
5 to say, I think I interrupted --

6 DR. MACKEY: You did.

7 MS. FRANZETTI: -- your answer to
8 the question.

9 DR. MACKEY: You've got me on a
10 monologue here. I apologize.

11 MS. FRANZETTI: No, no, no. That's
12 fine. Please explain how your work involves
13 developing linkages.

14 DR. MACKEY: Right. Well, as I
15 said, I do a lot of work -- spent a lot of time
16 working with aquatic ecologists and with fisheries
17 biologists. What I try to do is look at the
18 physical processes that structure and maintain
19 these habitats in these systems.

20 And then I work with the
21 ecologists who are also doing -- looking at the
22 benthic communities and look at associated fish
23 communities to see how the organisms are actually
24 interacting with these various different types of

1 habitat through their life stage, through their
2 development. That's the type of work that I do.

3 I support the work of the
4 biologist because, nothing against biologists,
5 but they're basically trained to think a little
6 differently than geologists do. They are not
7 thinking so much about the physical processes,
8 the flows and the flow regime and the habitat
9 characteristics. That's just a gross
10 generalization.

11 It's probably not entirely
12 accurate, but that has been my general experiences,
13 that they have been supportive and appreciative
14 of the information that I can bring to the table
15 that helps them do their jobs better and actually
16 helps them manage the resource better.

17 MS. FRANZETTI: Thank you. Moving
18 on to Question 2, on Page 4 of your pre-filed
19 testimony, are you saying that even if the habitat
20 improvements recommended in the habitat improvement
21 report were made, it is not going to support
22 sustainable populations of intolerant or moderately
23 intolerant fish species that need fast moving water
24 and also coarse substrates as part of their physical

1 habitat?

2 DR. MACKEY: Yes.

3 MS. FRANZETTI: With regard to
4 these limitations regarding the lack of fast moving
5 water and coarse substrates, do you know whether
6 those same limitations apply to the Upper Dresden
7 Island pool with the limited exception of the
8 Brandon tailwater area?

9 DR. MACKEY: Well, I have no
10 direct experience working on the Dresden Island
11 pool, but based on the available information
12 and description of the Dresden Island pool,
13 looking at the navigation charts and reading
14 various publications on the overall system,
15 I believe that the same limitations would apply
16 to the Upper Dresden Island pool.

17 MS. WILLIAMS: Can you explain
18 what you looked at to make that conclusion?

19 DR. MACKEY: If I look at the U.S.
20 Army Corps. of Engineers navigation charts, I'd
21 look at the geometry of the channels. There are
22 a series of publications that discuss the overall
23 characteristics of the waterway and just based
24 on those descriptions, I would say that there

1 would be similar conditions in the Dresden Island
2 pool.

3 MS. WILLIAMS: And those documents
4 describe the Brandon tailwaters?

5 DR. MACKEY: I believe that the --
6 the Brandon -- in this question, the Brandon
7 tailwater area was excluded in this question.

8 MR. ETTINGER: And do those
9 documents describe the non-navigable creek
10 tributary?

11 DR. MACKEY: No, they did not.
12 They did not.

13 MR. ETTINGER: Thank you.

14 MS. FRANZETTI: Do you agree that
15 any water body that lacks such habitats will not
16 be able to support sustainable populations of
17 intolerant or moderately intolerant fish species?

18 DR. MACKEY: Generally, yes, but
19 the caveat on that would be for those species
20 that require fast moving water and coarse
21 substrates in order to become a sustainable
22 population.

23 MS. FRANZETTI: Does a fish
24 population in a water body that does not have

1 a sustainable population of either moderate,
2 tolerant or intolerant species constitute a
3 balance indigenous fish population?

4 DR. MACKEY: No.

5 MS. FRANZETTI: Why not?

6 DR. MACKEY: I consider a balanced --
7 a balanced sustainable population, at least a
8 desirable one, to be one that would include both
9 moderately tolerant and intolerant species. Given
10 the functional limitations that we see in the CAWS,
11 I see that being very difficult to attain given
12 the physical habitat limitations that currently
13 exist.

14 MS. FRANZETTI: Do you believe that
15 such a water body can attain the Clean Water Act's
16 aquatic life use goals and that is a water body
17 that doesn't have such a sustainable population
18 of moderately intolerant or intolerant?

19 DR. MACKEY: Well, it depends on
20 how the Clean Water Act's aquatic life use goal
21 is defined. If that goal requires a sustainable
22 balance diverse indigenous fish population of
23 tolerant and moderately tolerant and intolerant
24 species that occupy all available trophic levels,

1 then, probably not.

2 MS. FRANZETTI: On Page 4 of your
3 pre-filed testimony, you state that these less
4 tolerant species that require the fast moving
5 water in coarse substrates are always going to
6 be limited in the CAWS because of its functional
7 uses. Please explain what uses you are including
8 in the phrase "functional uses."

9 DR. MACKEY: Well, there are four
10 primarily functional uses; conveyance of wastewater,
11 conveyance stormwater, commercial navigation and
12 commerce, and recreational navigation. The CAWS,
13 you know, it continues to perform these functions
14 and I don't see these functions changing any time
15 in the foreseeable future.

16 MS. FRANZETTI: On Page 4 of your
17 pre-filed testimony you state that the CAWS
18 channelized waters --

19 HEARING OFFICER TIPSORD: I'm sorry.
20 Ms. Franzetti, I apologize. Mr. Harley has had a
21 follow-up to that question.

22 MS. MEYERS-GLEN: Actually, I also
23 have a follow-up to that question.

24 HEARING OFFICER TIPSORD: Actually,

1 Mr. Harley had his hand up. I saw him first and
2 then we'll come to you. Okay.

3 MS. MEYERS-GLEN: Okay.

4 HEARING OFFICER TIPSORD: Sorry.

5 MR. HALEY: Keith Harley, attorney
6 for the Southeast Environmental Task Force. Are
7 there intolerant and moderately intolerant fish
8 that do not require fast moving waters?

9 DR. MACKEY: I believe that there
10 may be moderately tolerant species that don't
11 require fast moving water. I'm not sure about
12 intolerant species.

13 MR. HARLEY: Are there intolerant
14 or moderately intolerant fish that do not need
15 poor substrates?

16 DR. MACKEY: I don't know the answer
17 to that question.

18 MR. HARLEY: Okay. Thank you.

19 HEARING OFFICER TIPSORD: All right.

20 MS. MEYERS-GLEN: You were asked a
21 question regarding the Upper Dresden Island pool
22 as it pertains to the fish restoration and habitat
23 improvement versus the fish populations in that
24 area.

1 Isn't it true that connecting waterways at Jackson
2 Creek do have intolerant species and habitat, which
3 is connected to that area?

4 MR. ANDES: Are we testifying as to
5 what's in Jackson Creek? Are you introducing
6 evidence about Jackson Creek at this point?

7 HEARING OFFICE TIPSORD: She asked a
8 question. He can answer. Do you know the answer
9 to that question?

10 DR. MACKEY: No, I do not.

11 MS. MEYERS-GLEN: Are you familiar
12 with higher quality areas that would enter into
13 the lower Des Plaines application?

14 DR. MACKEY: No, I am not.

15 HEARING OFFICER TIPSORD: Sorry,
16 Ms. Franzetti.

17 MS. FRANZETTI: Do you know whether
18 such quote, unquote, higher quality areas exist?

19 DR. MACKEY: I do not know if they
20 exist.

21 MS. FRANZETTI: Do you know to what
22 extent they are all that much better quality than
23 Upper Dresden Island pool?

24 DR. MACKEY: I have not -- I do not

1 know.

2 MS. FRANZETTI: Okay. I just wanted
3 to make a point that that's not an established fact
4 with that question.

5 Moving on to Page 4 of your
6 pre-filed testimony you state that the CAWS
7 channelized waters are similar to impoundment.
8 Please explain in what way they are similar to
9 impoundment?

10 DR. MACKEY: Well, they have
11 several characteristics that are very similar
12 to impoundments. For example, they are generally
13 somewhat deeper water. They may have trapezoidal
14 or rectangular sort of geometry. They have
15 uniform water depths. They may have steeper
16 walls. They have a small littoral area. Low
17 or sluggish flows. In other words, perhaps
18 regulated flows.

19 There are a lack of instream
20 and bank edge habitat. Very limited floodplain
21 and riparian areas associated with many
22 impoundments. Typically, the substrates are
23 fine grain mineral silts and clays. Not always,
24 but typically and in many cases, there are areas

1 where you have increased siltation and may have
2 somewhat higher tepidity as well.

3 MS. FRANZETTI: On Page 5 -- moving
4 onto Page 5 of your pre-filed testimony, you note
5 that the 15 percent of the variability in the fish
6 data that is not explained by the physical habitat
7 conditions and the variation in fish sampling
8 results is explained by, quote, other factors such
9 as navigation or conveyance of waste water, end
10 quote.

11 For the Chicago Sanitary and
12 Ship Canal, in particular, is it correct that
13 it's not just the fact that wastewaters from
14 POTWs is discharged to the canal, but that it
15 makes up more than half of the flow in the
16 canal that makes it a significant contributing
17 outstanding factor to that remaining 15 percent
18 of the conditions that affect aquatic life uses
19 in the canal?

20 MR. ETTINGER: Wait a minute. Did
21 you establish that somewhere?

22 MS. FRANZETTI: I'm asking him the
23 question.

24 MR. ETTINGER: Okay.

1 DR. MACKEY: First of all, the
2 15 percent of the variability in the fish data
3 is not related to the aquatic life uses. So
4 it's related to the combined fish metric.

5 Okay. So we're talking about
6 the combined fish metric, which is not tied to
7 anything else outside of the CAWS system that's
8 relative to the CAWS system. Also, that 15
9 percent number is basically a system-wide number
10 for the entire CAWS. So that's important.

11 And then secondly what I would
12 say is that it's not so much the discharge of
13 wastewaters which varies as a function of storms
14 and precipitation in the basin, but I think it's
15 more the habitat limitations which are created
16 by the physical characteristics necessary to
17 convey wastewater out of the system.

18 In other words, you are looking
19 at steep -- you know, you're looking at steep
20 walls, deep channels, very few obstructions, no
21 woody -- lack of woody debris, et cetera, et cetera,
22 that contributes perhaps to that 15 percent. It
23 could also be in part a function of other uses such
24 as navigation uses as well that would contribute

1 to the 15 percent.

2 MS. FRANZETTI: Okay. I understand
3 the clarification.

4 DR. MACKEY: Okay.

5 MS. FRANZETTI: But you're telling
6 me that when you referred to conveyance of
7 wastewater, you were referring more to how the
8 canal was built for that purpose not the wastewater
9 being in the canal itself?

10 DR. MACKEY: That is correct.
11 Remember, I am focused on -- I'm a habitat person,
12 really, and I am focused on the physical habitat
13 and that's how my mind sort of -- sort of puts
14 everything into that context.

15 MS. FRANZETTI: Okay. Moving on
16 to Question 4 on Page 5 of your pre-filed testimony.
17 You state, quote, in fact, navigation was deemed to
18 have a potential effect on aquatic life uses in the
19 CAWS, but current data sets were adequate to
20 evaluate those impacts quantitatively, end quote,
21 citing Pages 91 to 93 of the CAWS habitat evaluation
22 report.

23 Are you saying that navigation
24 does adversely affect aquatic life in the CAWS,

1 but there just isn't enough data currently
2 available to identify what percentage of the
3 15 percent is due to navigational use?

4 DR. MACKEY: Yes. I would point
5 out that the navigation impacts are -- could
6 be significant and they will vary throughout
7 the CAWS primarily because the amount of navigation
8 that occurs in the CAWS varies throughout the
9 CAWS.

10 MS. FRANZETTI: So based on the
11 data that does exist, you are certain navigation
12 has had the adverse impact on the aquatic life,
13 correct?

14 DR. MACKEY: It's my opinion that
15 navigation will have an impact on the aquatic
16 life.

17 MS. FRANZETTI: You just can't tell
18 me -- for example, you can't say that that's
19 representative of five percent of that other
20 15 percent.

21 DR. MACKEY: No. Those types of
22 data at this point do not exist. Those types of
23 studies in the CAWS do not exist in order to give
24 a reasonable estimate of that impact.

1 MS. FRANZETTI: Moving on to
2 Question 5 on Page 5 of your pre-filed testimony,
3 you state that the results from the CAWS habitat
4 evaluation study, quote, clearly demonstrate the
5 current DO levels are not a significant limiting
6 factor of aquatic life uses in the CAWS and that
7 further increases in DO would yield only marginal
8 improvement to aquatic life in the CAWS due to
9 severe physical habitat limitations, end quote.

10 Are you saying that given the
11 four habitat conditions in the CAWS, you can only
12 get marginal improvement in the quality of the fish
13 community by increasing the DO levels?

14 DR. MACKEY: Yes.

15 MS. FRANZETTI: Did you also review
16 the results and findings in the CAWS habitat and
17 evaluation study that temperature was not a
18 significantly limiting factor of the aquatic life
19 use in the CAWS?

20 DR. MACKEY: Yes. Based on the data
21 and analyses presented in the habitat evaluation
22 report.

23 MS. FRANZETTI: And that temperature
24 was even less a limiting factor than was DO levels?

1 DR. MACKEY: Yes.

2 MS. FRANZETTI: Do you agree with
3 when the test analysis of the data and these
4 findings regarding temperature?

5 HEARING OFFICER TIPSORD: Mr. Harley
6 first and then Ms. Williams.

7 MR. HARLEY: The impact of temperature
8 is across the CAWS generally without related to any
9 specific reach of the CAWS?

10 DR. MACKEY: I would defer to Scott
11 Bell's testimony on -- with respect to temperature
12 and how they evaluated temperature.

13 MR. HARLEY: What aspect of Scott
14 Bell's testimony would you defer to on this topic?

15 DR. MACKEY: That would be the
16 temperature -- the discussion on the temperature.

17 HEARING OFFICER TIPSORD: Okay.
18 Ms. Williams?

19 MS. WILLIAMS: But Ms. Franzetti
20 just asked you if you agreed with his conclusions
21 and you stated that you did, correct?

22 DR. MACKEY: Yes.

23 MS. WILLIAMS: Can you tell us which
24 fish species in the CAWS are most sensitive to

1 temperature?

2 DR. MACKEY: No, I did not.

3 MS. WILLIAMS: Can you tell us
4 whether -- a conclusion about the cause that would
5 be applicable to the lower Des Plaines River?

6 DR. MACKEY: I cannot tell you that.

7 MR. ETTINGER: Do you know how
8 sensitive walleye are to temperature?

9 DR. MACKEY: I know that they do
10 have a temperature sensitivity. I don't know
11 what the actual degree range is. I do know
12 that they move from the western basin in the
13 summer into cooler water areas in the late spring.

14 HEARING OFFICER TIPSORD: Dr. Mackey,
15 we're losing you. When you talk in that direction,
16 your voice is lowering and we can't hear you up
17 here.

18 DR. MACKEY: Okay. What I said
19 was walleye do have temperature sensitivities
20 and in the spring, they move from the western
21 basin, which is very shallow, into deeper waters,
22 the central basin and the eastern basin of Lake
23 Erie, for example.

24 It depends on what life stage

1 you're talking about. If you are talking about
2 walleye spawning habitat, a lot of spawning
3 activity is triggered by temperature. There is
4 a certain temperature trigger for walleye, which
5 will start them moving up certain rivers to begin
6 their spawning.

7 MS. WILLIAMS: Dr. Mackey, do you
8 know if early life stages for adult fish are more
9 sensitive to temperature?

10 DR. MACKEY: I don't know.

11 BOARD MEMBER GIRARD: Can I just ask
12 a real general question?

13 Dr. Mackey, do you consider the
14 Chicago Sanitary Ship Canal a poor aquatic habitat?

15 DR. MACKEY: In general, yes.

16 BOARD MEMBER GIRARD: But in earlier
17 testimony, you said that it's good for gizzard shad;
18 is that correct?

19 DR. MACKEY: That is correct.

20 Well, you know, it depends on -- for a handful of
21 species -- well, if you look at -- if you look at
22 biology of fish, they occupy multiple -- numerous
23 different types of habitat and habitat conditions.

24 And when I make the statement

1 that in general, the CAWS is poor -- represents
2 poor aquatic habitat, what I'm talking about in
3 a general sense is if you were to think about a --
4 let's say a more natural system with respect to,
5 you know, the fish community, the types of fish
6 that you might expect there, you have to remember
7 that the CAWS is an artificially constructed
8 waterway.

9 It's interesting, the way we
10 are approaching the CAWS and the way a lot of
11 the questions are being asked here assumes that
12 this was a natural pristine river and that
13 anthropogenic activity -- human kind activity
14 has actually degraded this system. So we're
15 approaching it like, oh, this is a system that
16 we trashed and now we're trying to fix it.

17 The point is that I would
18 ask you to think about this in a little bit
19 different way conceptually and say this is an
20 artificial system. There was no river here
21 before. Okay? It was a series of back-based
22 swamps behind accreting sand barriers, maybe a
23 thin channel of very narrow, shallow weed-filled
24 or wetland-filled channel, you know, with aquatic

1 macrophytes, and this is a constructed channel.

2 When this channel was built --
3 when this system was built -- and it wasn't
4 designed to create habitat and it wasn't designed
5 for fish communities. It was designed to convey
6 wastewater and provide, you know, commercial
7 transportation, you know, movement of goods and
8 commodities up and down from the Mississippi
9 River. It was also designed for public health
10 and safety.

11 So what we've seen is a system
12 that has gradually sort of improved through time
13 and that the fish community that exists there, I
14 view them as being the opportunists, those fish
15 that are in the system that have managed to make
16 a living in this system, but they weren't here
17 originally because there was no channel originally.

18 So this is a different ballgame.
19 This is a system that's artificial that didn't
20 exist. There is nothing to restore to.
21 We don't have a template for restoration here
22 because nothing was there before. So this is a
23 situation of where you're trying to basically
24 improve the system to be as functional as it

1 can be given the very significant limitations
2 that still exist in the system, functional
3 limitations, which I don't perceive are going
4 to be changing any time soon; conveyance of
5 wastewater or navigation, movement of commodities up
6 and down the system.

7 So it's just a different way
8 of looking at this. This is not fixing a natural
9 system that we trashed. This is trying to do
10 something in a system that's been artificially
11 constructed.

12 BOARD MEMBER GIRARD: In looking at
13 gizzard shad, for instance, what is their position
14 in the fish community in terms of energetics and
15 trophic levels?

16 DR. MACKEY: I believe the gizzard
17 shad, I think they are -- I think they are up on
18 the third tier if you have a four-tier trophic
19 level. I believe the gizzard shad -- are either
20 in the -- either on the second or third tier of
21 that trophic level.

22 I actually do have a diagram.
23 I don't know if we want to -- yeah, why don't we
24 just...

1 BOARD MEMBER GIRARD: Therefore,
2 they are a food source for other predatory fish?

3 DR. MACKEY: Well, yes. The large
4 mouth bass that everybody seems to be going after
5 here for a sport fishery, gizzard shad are one
6 of the primary prey fish for the bass that are
7 in the CAWS. So yes, indeed, they are not at
8 the top of the food chain, but they are about a
9 second tier in the trophic level.

10 BOARD MEMBER GIRARD: So as a nursery
11 area for bass food in the Chicago Sanitary and Ship
12 Canal, it's a good habitat?

13 DR. MACKEY: That's correct.

14 MR. ANDES: That's for large mouth
15 bass?

16 DR. MACKEY: That's for large mouth
17 bass, yes.

18 MR. ETTINGER: What does small mouth
19 eat?

20 DR. MACKEY: Pardon?

21 MR. ETTINGER: What does small mouth
22 bass eat?

23 DR. MACKEY: They may also eat
24 similar types of smaller fish, but their habitat

1 requirements are a bit different than the large
2 mouth bass. They like higher energy environments,
3 shallower water depths and coarse substrates,
4 which are limited in the CAWS.

5 We do have a handout if we want
6 to show that as just a very simple trophic diagram
7 and it will show exactly where the gizzard shad
8 sit and it's actually in that third tier or a four
9 tier trophic level.

10 HEARING OFFICER TIPSORD: Thank you.

11 DR. MACKEY: And you will see gizzard
12 shad there. This represents primarily the dominant
13 species that we discussed earlier in Mr. Bell's
14 testimony based on the cluster analysis.

15 HEARING OFFICER TIPSORD: I have been
16 handed a pyramid with the title, "Trophic Levels of
17 the CAWS, Dominant Fish Community," at the bottom of
18 the pyramid. If there is no objection, we will mark
19 this and admit this as Exhibit 459. Seeing none,
20 it's Exhibit 459.

21 (Document marked as
22 Hearing Exhibit No. 459
23 for identification,
24 5/17/11.)

1 (Hearing Exhibit No. 459
2 admitted as evidence.)

3 DR. MACKEY: Hopefully, this diagram
4 will help answer your question in terms of -- we're
5 looking at the energetics of this system basically,
6 the food pyramid.

7 MR. ANDES: So, Dr. Mackey, can you
8 explain -- I believe there was testimony earlier
9 that the fish community -- the stable fish community
10 in the CAWS has a variety of trophic levels and
11 which is one reason it's sustainable, but is
12 dominated by tolerant or anteromedially tolerant
13 species. Is this consistent with your diagram
14 here?

15 DR. MACKEY: Yes, it is.

16 MR. ANDES: And if I can go back
17 to follow-up one moment on the functional
18 limitations that you have spoken about, basic
19 functional limitations in the system that limit
20 the fish community, there was -- there were
21 questions yesterday about if there were major
22 changes to the system, how would that affect
23 your valuation and in particular, if there were
24 some type of separation of the two water sheds

1 that we're talking about here to address the
2 Asian carp issue. Can you discuss how that would
3 affect, if at all, your evaluation of the habitat
4 potential in the CAWS?

5 DR. MACKEY: Yes. In essence, for
6 most of the separation scenarios that we discussed
7 and looked at, there would be no fundamental
8 changes to the channel geometries or the habitat --
9 necessarily in the habitat conditions in the CAWS
10 because again, as I mentioned yesterday in our
11 evaluation, we were trying to maintain as much
12 of the system in terms of its functionality, in
13 terms of its being in tact, as possible.

14 And that includes the conveyance
15 of wastewater, which is actually a different -- you
16 know, and storm water, and then also we were trying
17 to observe as much of the navigable portion of the
18 waterway as possible to try to limit those impacts
19 because those are important functions to the system.
20 It's important to the city of Chicago and it's
21 important to the economy. So we're trying to do
22 what we can to prevent the introduction of invasive
23 species, but also maintain the viability of the city
24 of Chicago and the waterway.

1 MS. WILLIAMS: I would like to ask
2 a follow-up too. Do I understand your testimony
3 to be that basin separation would not have an
4 impact on aquatic life use potential of the CAWS?

5 DR. MACKEY: I think it would
6 potentially have an impact on the aquatic life
7 use potential of the CAWS, but I don't see
8 substantial changes in much of the CAWS in terms
9 of its --- in terms of the actual habitat
10 conditions, let's say, in the sanitary and ship
11 canal.

12 I believe that commercial
13 navigation would still be quite active in
14 that reach. Probably about 85 to 90 percent
15 of the commodities that move up and down through
16 the system --

17 MS. WILLIAMS: Wait. I want a --
18 I'm sorry. I just want a simple yes or no. It
19 seems like first you said it wouldn't have impact.
20 Now, you're saying it will. I mean, you can explain
21 if you want, but...

22 DR. MACKEY: Sure. It all depends
23 on what type of separation scenario is actually
24 implemented and where that separation occurs and

1 what provisions are made to manage the waters
2 within the CAWS. Okay.

3 MS. WILLIAMS: You said you looked
4 at all the potential scenarios and you did not
5 see any of them having a significant impact
6 on habitat, correct?

7 DR. MACKEY: I didn't necessarily
8 say that. I said that. I said that the habitat
9 impact -- it depends on where the separations
10 were to occur and how that separation was
11 implemented.

12 So the answer to your question
13 would be if there is a possible -- is it possible
14 that within some reaches of the CAWS that you
15 could have a change in the aquatic life use
16 designation as a result of separation, but in
17 major portions of the CAWS such as the sanitary
18 and ship canal and perhaps a significant portion
19 of the Cal Sag Channel where navigation is dominant
20 and will probably continue to be dominant, I don't
21 see changes in aquatic life use categorization
22 for those segments of the waterway, which represents
23 probably somewhere between 60 to 70 percent of the
24 waterway.

1 HEARING OFFICER TIPSORD: Mr. Harley,
2 did you still have a follow-up?

3 MR. HARLEY: No.

4 MS. FRANZETTI: And I need to ask the
5 question, what exhibit number was the --

6 HEARING OFFICER TIPSORD: Exhibit 459.

7 MS. FRANZETTI: Exhibit 459. Okay.
8 Mr. Mackey, just a point of clarification in terms
9 of how you chose to group, the spottail shiner and
10 the emerald shiner, did you consider that they're
11 members of the Insectivore family?

12 DR. MACKEY: I'm sure that was
13 considered and they could -- they could actually
14 live in both of these trophic levels.

15 MS. FRANZETTI: And by those, you
16 mean --

17 DR. MACKEY: I mean the one just
18 above it, the one above it, yes.

19 MS. FRANZETTI: And they could also
20 be level four?

21 DR. MACKEY: Yes. That is correct.

22 MS. FRANZETTI: Okay. I believe
23 we're on 6A. Do you agree that intolerant or even
24 moderately intolerant species are absent or nearly

1 so from all or most of the CAWS?

2 DR. MACKEY: I would agree with
3 that statement especially with respect to
4 intolerant species.

5 MR. ETTINGER: Excuse me. Can
6 we -- have you read this review and selection
7 of fish metrics document, April 21, 2009, which
8 is part of Limnotech papers?

9 DR. MACKEY: I have reviewed it,
10 but it was a while ago. I don't have a copy with
11 me.

12 MR. ETTINGER: Attachment B, a
13 list of fish species identified in the CAWS, 2001
14 to 2007, and their tolerance assignments, and then
15 there's -- beyond here, a page -- I think, we've
16 seen this before. In this chart, it has a list
17 of species and they are marked as tolerant,
18 intolerant or moderately tolerant.

19 HEARING OFFICER TIPSORD: Could you
20 specify what page you are on?

21 MR. ETTINGER: I'm on page -- do you
22 know, Fred, what page this is?

23 MR. ANDES: Page 1 of two, the back
24 of Attachment B.

1 MR. ETTINGER: And that's of the
2 Limnotech habitat evaluation report.

3 MR. ANDES: It's Public Comment.

4 MR. ETTINGER: Right. Okay. So
5 there is a list here of species and documents
6 supporting whether they are tolerant, intolerant
7 or moderately tolerant. How many more of these --
8 well, I see at least a half dozen here of things
9 that are marked as intolerant.

10 So is it true to say that the --
11 that there are no intolerant species in the
12 system?

13 DR. MACKEY: What I meant by that
14 would be to say that the number of intolerant
15 species -- I mean the individuals are a couple.
16 When you find them, it's only one or two. In
17 other words, if you are talking about presence
18 or absence, then, you could say that there are
19 some intolerant species present in the system,
20 but the numbers of individuals are very few.
21 It might be just one or two individuals that
22 are caught. So it doesn't -- they are not by
23 any means a large number of intolerant species
24 in terms of number.

1 MR. ETTINGER: How many number
2 of individuals do you need before it counts?

3 DR. MACKEY: Well, I can't -- I
4 don't know in that respect.

5 MR. ETTINGER: You don't know?

6 DR. MACKEY: No.

7 MR. ETTINGER: Would hundreds
8 count?

9 DR. MACKEY: Probably not on an
10 individual -- probably -- well, I just don't know
11 how you make that determination.

12 MR. ETTINGER: How many different
13 intolerant species do we have to have present in
14 the system before you think it's a diverse system?

15 DR. MACKEY: Well, I think you need
16 to look at the overall numbers of individuals and
17 the percentages of those species that you have
18 relative to the whole system. Okay?

19 In other words, if you have, you
20 know, one or two intolerant species that show up,
21 the question is did these species, were they
22 introduced -- it depends on where they were, number
23 one, collected. If they were very close to the,
24 you know, to the locks at Lake Michigan, then, it

1 may be reason to assume that those species came
2 through
3 a lock -- in during a lockage, okay, and that
4 they may not be permanent indigenous residents
5 of the CAWS.

6 Okay. As I think you pointed
7 out yesterday, Chinook salmon is not the type of
8 fish that I would expect to see in the CAWS.

9 MR. ETTINGER: Nile Tilapia might
10 have come in with other refugees from Asia?

11 DR. MACKEY: Whatever.

12 MR. ETTINGER: But if we found a
13 number of them that were in the CAWS, that would
14 affect your judgment some?

15 DR. MACKEY: Yes, I believe it
16 probably would.

17 MS. WILLIAMS: Dr. Mackey, you were
18 talking about your testimony was that intolerant
19 species are found in small numbers of individuals,
20 correct?

21 DR. MACKEY: In many sampling
22 locations, yes.

23 MS. WILLIAMS: Would that apply to
24 the spottail shiner as well?

1 DR. MACKEY: I don't know. Again, I
2 would refer specific questions -- I'm a geologist
3 by training and I would refer specific questions
4 in terms of details of the fish sampling either
5 to Scott Bell or to Jennifer Wasik.

6 MS. WILLIAMS: If I told you that
7 the spottail shiner were found in large numbers,
8 would that change any of your testimony from
9 before about how any intolerant species were in
10 the CAWS or the numbers?

11 DR. MACKEY: I don't know if that
12 would change my testimony or not.

13 HEARING OFFICER TIPSORD: Ms. Meyers?

14 MS. MEYERS-GLEN: In your
15 introduction, you talked about the habitat, correct?

16 DR. MACKEY: Yes.

17 MS. MEYERS-GLEN: And you touched
18 upon the Upper Dresden Island pool in this
19 discussion. The Upper Dresden Island pool does
20 not -- basically, it doesn't exist in isolation,
21 correct?

22 DR. MACKEY: That is correct.

23 MS. MEYERS-GLEN: It's connected to
24 other waterways?

1 DR. MACKEY: Yes. That is correct.

2 MS. MEYERS-GLEN: If there are
3 higher quality tributaries that are smaller
4 that undergoes something like a drought in the
5 summertime, could then something like the Upper
6 Dresden Island pool act as a refuge or a reservoir
7 for intolerant species within the habitat in other
8 tributaries or areas that are connected to the
9 Upper Dresden Island pool?

10 DR. MACKEY: Potentially, yes.

11 MR. ANDES: But you don't have any
12 personal knowledge of the Upper Dresden Island pool,
13 correct?

14 DR. MACKEY: That is correct. I
15 have not worked on the Upper Dresden Island pool.

16 MS. FRANZETTI: Do you know whether
17 the Upper Dresden Island pool would have suitable
18 habitat for these alleged fish that are coming
19 from these unnamed tributaries and are likely going
20 to be taking up residence there?

21 DR. MACKEY: It depends on the
22 life stage of the organisms in terms of habitat
23 suitability, but since I have not worked the
24 Upper Dresden Island pool, I don't know.

1 MS. FRANZETTI: Thank you.

2 MS. MEYERS-GLEN: One last question.
3 Could it also be possible that the Upper Dresden
4 Island pool could act kind of like a fish highway
5 if there are two higher quality areas just possibly
6 in between say perhaps lower Du Page and Jackson
7 Creek were higher quality and they were both
8 connected by the Upper Dresden Island pool, it
9 could act as conduit or a way for intolerant species
10 to travel between the two?

11 MR. ANDES: Before you answer this,
12 can I just be clear that this is just complete
13 speculation?

14 HEARING OFFICER TIPSORD: I think we
15 have enough ifs and et cetera in there too.

16 MR. ANDES: Okay.

17 DR. MACKEY: It's possible. Sue.

18 HEARING OFFICER TIPSORD: Go ahead.

19 MS. FRANZETTI: Back to 6B, so are
20 the fish that are healthy and thriving in the CAWS
21 those that can deal with the severe limitations
22 imposed by the habitat constraints of this waterway?

23 DR. MACKEY: Yes.

24 HEARING OFFICER TIPSORD: Mr. Harley?

1 MR. HARLEY: What about the DO
2 constraints?

3 DR. MACKEY: Yes. I believe that
4 the species that are in the CAWS -- currently in
5 the CAWS have -- are -- let's say that they can
6 live within the DO constraints that currently exist
7 within the CAWS.

8 MR. HARLEY: At all life stages?

9 DR. MACKEY: I believe so if these
10 are, indeed, indigenous to the CAWS.

11 MR. HARLEY: At all DO levels?

12 DR. MACKEY: I would not say at all
13 DO levels.

14 MR. HARLEY: What would be a DO level
15 that would pose a threat to the liability of the
16 fish that are found in the CAWS?

17 DR. MACKEY: Well, obviously a DO
18 level of zero would create, I think, considerable
19 trouble for just about any aquatic organism.

20 MR. HARLEY: Is there any other level
21 you can testify to?

22 DR. MACKEY: There probably is. It
23 depends on the specific species.

24 MR. ANDES: Would those low DO loads

1 need to continue for a period of time in order to
2 become a stressor?

3 DR. MACKEY: I believe that that
4 is the case. I think fish are mobile enough --
5 depending on the life stage, fish are mobile
6 enough if you did have a low DO event, a transient
7 low DO event, that fish can move upstream or
8 downstream or into refugia. It was pointed out
9 earlier that some water bodies do serve as refugia
10 where they can -- the DO event will pass and then
11 they would be able to reoccupy or migrate back into
12 other areas of the CAWS.

13 What I would -- another way
14 to think about that would be if, indeed, we -- a
15 low DO excursion -- short-term, low DO excursions.
16 If they significantly impacted fish, one would
17 anticipate that we would have major fish kills
18 time and time and time again, every time we have
19 a low DO event, but that apparently is not the
20 case. We don't see massive fish kills very often
21 in the CAWS and that would suggest that fish that
22 are in the CAWS have a coping mechanism by which
23 they can either avoid the DO or they survive it
24 for short periods of time. So that is the evidence

1 that I would say that these short DO excursions are
2 probably not all that significant
3 for the fishery.

4 MR. HARLEY: You're consistently
5 describing low DO events, but you have not told
6 is for purposes of what a low DO event is for
7 the purposes of the dominant fish community in
8 the CAWS. What is a DO event in the CAWS?

9 DR. MACKEY: In this case, I would
10 defer to Jennifer Wasik as the District biologist
11 to give you an answer based on her experience
12 working with the fish in the CAWS.

13 MR. HARLEY: So you don't know what
14 a low DO event is in the CAW on your own?

15 DR. MACKEY: Well, I would obviously
16 say a DO of 0.0 would certainly be a low DO event
17 and maybe go to a one or two micrograms per liter,
18 but again I don't have intimate knowledge of the
19 DO -- you know, what I would consider the
20 detrimental DO levels for all species of fish in
21 the CAWS.

22 MR. HARLEY: You don't -- okay.

23 And you also talked about the
24 fact that there are not fish kills very often in

1 the CAWS. On what basis do you make that statement?

2 DR. MACKEY: I suspect that if we
3 had major fish kills on a regular basis, it would
4 be reported in the news fairly commonly and in my
5 discussions with the District biologists, it's my
6 understanding that the frequency of these fish
7 kills is a relatively infrequent event.

8 MR. HARLEY: What would constitute
9 relatively infrequent fish kills?

10 DR. MACKEY: I would defer to
11 Jennifer Wasik to describe that in more detail,
12 what that would mean, in essence. In other words,
13 what the frequency of fish kills would be.

14 MR. HARLEY: So in your testimony,
15 you're using the term low DO level without really
16 knowing what the DO level is that would affect the
17 dominant fish community in the CAWS?

18 MR. ANDES: You know, that's a
19 mischaracterization of his testimony. Do you want
20 to just ask him a question or are you asking him
21 if his testimony is not true?

22 HEARING OFFICER TIPSORD: I think
23 he has asked him several times what low DO is and
24 now he is referring to Ms. Wasik. He has used the

1 phrase.

2 MR. ANDES: Okay.

3 HEARING OFFICER TIPSORD: I mean, I
4 think it's legitimate to ask you when you use the
5 phrase low DO, what do you mean besides 0.0?

6 DR. MACKEY: Okay. I would say low
7 DO levels -- let's say 2.0 or less micrograms per
8 liter would be what I consider to be a low DO event
9 which may adversely impact some fish.

10 MR. HARLEY: So there's no DO level
11 above 2.0 that would negatively impact the fish
12 species which are part of the dominant fish
13 community in the CAWS?

14 DR. MACKEY: It's possible. For
15 some species, that's right. That's entirely
16 possible.

17 MR. ANDES: Have you looked at that
18 issue for the fish species in the CAWS specifically?

19 DR. MACKEY: No, I have not.

20 MS. FRANZETTI: Mr. Mackey, to kind
21 of sum up, if I understand correctly what you are
22 saying, there is a DO level at which there is an
23 adverse impact on the fish in the CAWS, correct?

24 DR. MACKEY: Yes.

1 MS. FRANZETTI: All right. With
2 respect to each of the species in the CAWS that
3 may be adversely impacted, is it your understanding
4 that the DO level at which that impact occurs will
5 vary from species to species?

6 DR. MACKEY: Yes.

7 MS. FRANZETTI: So when you are
8 referring to low DO levels given that you didn't
9 study exactly what the numeric DO level is for
10 each species, were you basing it on the narrative
11 definition of depressed DO levels that have an
12 adverse impact on the fish in the CAWS?

13 DR. MACKEY: Yes.

14 MS. WILLIAMS: I have just one
15 follow-up. Were you considering both acute affects
16 and chronic affects when you made that reference or
17 primarily just an acute affect?

18 DR. MACKEY: Primarily acute affects.

19 MS. WILLIAMS: Would you agree there
20 can be chronic affect of low DO levels on aquatic
21 life as well?

22 DR. MACKEY: It is possible.

23 MR. ANDES: And if I can follow-up a
24 little bit, when we're talking about adverse

1 impacts, was it your testimony that the current
2 fish community in the CAWS tolerates the existing
3 DO fluctuations including low DO levels?

4 DR. MACKEY: Yes.

5 MR. ANDES: So does that community
6 appear to be adversely affected by the low DO
7 levels that periodically occur, to your knowledge?

8 DR. MACKEY: To my knowledge, no.

9 MR. ANDES: Thank you.

10 MS. FRANZETTI: Last point on this,
11 with respect to assessing the impact of DO, it
12 isn't just the numeric level that needs to be
13 taken into account, it is also the duration of
14 time of that level exists? That's also what I
15 believe you were trying to say in your answer?

16 DR. MACKEY: That is correct.

17 MS. FRANZETTI: Moving on to
18 Question 7, is it your opinion that because it
19 is not feasible to change the existing physical
20 habitat attributes in the CAWS to ones that have
21 a positive affect on fish nesting, the fish
22 species that are currently present in the CAWS
23 are basically the fish species that the cause
24 can attain regardless of whether you make the

1 water quality standards more stringent?

2 DR. MACKEY: Yes.

3 MS. FRANZETTI: Question 8, two
4 of the proposed CAWS aquatic life use categories,
5 Categories 1 and 2 appear to use the same
6 nomenclature as the Ohio EPA uses in its use
7 classification system; namely, the Ohio EPA
8 classes known as Modified Warm Water Aquatic Life
9 Waters and Limited Warm Water Aquatic Life Waters;
10 is that correct?

11 DR. MACKEY: I was not involved with
12 the naming of the CAWS aquatic life use categories.
13 However, it's my understanding that proposed cause
14 aquatic life use categories as proposed by the
15 District are not related to the Ohio EPA use of
16 classification and I would defer any further
17 comments on that to Jennifer Wasik who, I believe,
18 will be describing this in more detail.

19 MS. FRANZETTI: Am I correct, then,
20 in understanding, just to speed it up, that you
21 would also defer my questions A, B and C of 8 to
22 Ms. Wasik?

23 DR. MACKEY: Yes.

24 MS. FRANZETTI: Okay. Moving on

1 to Question 9, this is one you're going to field,
2 right, Mr. Mackey?

3 DR. MACKEY: Right. Well, let me --
4 ten?

5 MS. FRANZETTI: Nine.

6 DR. MACKEY: No, I'm not sure I'll
7 field this one.

8 MS. FRANZETTI: That's why I'm asking.
9 Can you take a look at it and tell me whether or
10 not --

11 DR. MACKEY: That's why I would
12 probably -- I would happily give this to Jennifer
13 Wasik.

14 MS. FRANZETTI: Okay. So am I
15 correct in understanding you did not get involved
16 in the process the District went through to identify
17 which of the CAWS segments belong in Category 1 and
18 which belong in Category 2; is that right?

19 DR. MACKEY: That is correct.

20 MS. FRANZETTI: Last question,
21 Question 10, can you describe to what extent the
22 CAWS aquatic life used Category 1 falls below
23 the Clean Water Act aquatic life use goals?

24 What's your understanding of

1 where it kind of is on the rungs of the ladder
2 leaning towards attainment of the Clean Water
3 Act aquatic life use goal?

4 DR. MACKEY: Well, from what I
5 understand, there is no direct correspondence
6 between the CAWS, the proposed CAWS aquatic
7 life use categories, as proposed by the District,
8 and the clean water aquatic life use goals.

9 If the aquatic life use
10 goals as has been proposed by the Agency meet a
11 sustainable balance, diverse, indigenous fish
12 population that includes tolerant, moderately
13 tolerant and intolerant fishes that inhabit all
14 of the trophic levels, I would say that given
15 the severe functional limitations in the CAWS
16 and the fact that those functional limitations
17 are not likely to change any time soon throughout
18 most of the CAWS, that the District's Category 1
19 life use would be well below the more normal
20 aquatic life use designation that's typically
21 applied to natural systems.

22 MS. FRANZETTI: Thank you. I have
23 no further questions.

24 HEARING OFFICER TIPSORD: IEPA?

1 MS. WILLIAMS: Can I ask just a
2 follow-up on what was just asked here? Did you
3 read the Agency's proposed definitions?

4 DR. MACKEY: I did a long time ago.
5 I haven't reviewed them recently.

6 MS. WILLIAMS: So do you recall if
7 they provided for a balanced indigenous aquatic
8 life use population?

9 DR. MACKEY: I don't know if they
10 did or not.

11 MS. WILLIAMS: I just have two real
12 quick questions for this witness and then I will
13 be done.

14 The first one is maybe a
15 simplified version of our pre-filed testimony
16 one. You have testified this morning about the
17 robust peer review --

18 DR. MACKEY: Right.

19 MS. WILLIAMS: -- that went into the
20 habitat evaluation report and habitat improvement
21 report?

22 Did you mean both -- I guess
23 the first question is before, were you referring
24 to both the habitat evaluation and habitat

1 improvement when you referred to the robust peer
2 review or just the habitat evaluation?

3 DR. MACKEY: Primarily, the habitat
4 evaluation report.

5 MS. WILLIAMS: Was there a peer
6 review of the habitat improvement?

7 DR. MACKEY: I don't recall if there
8 was.

9 MS. WILLIAMS: Please explain what you
10 mean by a robust peer review.

11 MR. ANDES: I'm sorry. Was it robust
12 or rigorous? I think your question was rigorous.

13 MS. WILLIAMS: No. I'm talking
14 about this morning, I think he called it robust in
15 response to Ms. Franzetti.

16 MR. ANDES: Okay.

17 DR. MACKEY: Okay. Robust, rigorous,
18 either way. Okay. First of all, you know, a
19 peer review, as far as I'm concerned, it's a
20 comprehensive, technical review of the data method
21 analysis. It's conclusions reached by a study.
22 Typically, it's done in order to verify whether or
23 not the work is done to appropriate, professional
24 standards.

1 Specifically, there's a couple
2 of different questions that a peer reviewer will
3 typically consider. Number one, that the methods
4 of analyses used are appropriate and scientifically
5 defensible.

6 Two, is to identify any
7 deficiencies in the overall study approach.

8 Three, to make recommendations
9 to remedy any of those deficiencies and/or
10 strengthen the overall outcome of the study.

11 And four, to ensure that the
12 conclusions are supported by the data and analyses
13 and that they are scientifically defensible.

14 That's what I considered to
15 be a robust or a rigorous peer review and in
16 this case, there were three folks who were deemed
17 to be experts in this field and I believe Scott
18 Bell testified as to who those individuals were.

19 MS. WILLIAMS: Do you remember who
20 they were?

21 DR. MACKEY: Yes. Dr. Charles
22 Hawkins, Dr. Edwin Hareks, and Dr. Charles Rabini,
23 all who have fairly impressive resumes and have a
24 long history of working in these types of systems

1 and also developing these types of indices.

2 MS. WILLIAMS: Who selected them?

3 DR. MACKEY: I believe these were
4 selected by the District.

5 MS. WILLIAMS: And what were their
6 comments?

7 DR. MACKEY: Their comments --
8 well, there was a period -- their comments -- we
9 did an overall -- there was an overall discussion
10 of the evaluation report. I understand by --
11 between the District, Limnotech and the peer
12 reviewers and overall, I believe that they were
13 satisfied with the approach that was taken and
14 the methods that were applied. I do believe that
15 they did recommend some additional work be done. I
16 specifically recollect the recommendation that a
17 CART analysis be applied, that's the Classification
18 and Regression Tree Analysis, in order to supplement
19 the multi-varied analysis that had been done.

20 MS. WILLIAMS: Was that based on a
21 criticism of the multi-linear variance --
22 multi-linear regression analysis that had been
23 done?

24 DR. MACKEY: It was not based on

1 a criticism. It was a way to further augment
2 and validate the results of the multi-varied
3 analysis.

4 MS. WILLIAMS: Were any of their
5 findings documented in writing?

6 DR. MACKEY: I'm not sure exactly
7 how the peer review results were actually
8 transmitted to Limnotech or to the District. I
9 do know that there were oral discussions. I don't
10 know what was provided in terms of written comments.

11 MS. WILLIAMS: Do you know if there
12 were written criticisms that were not taken by
13 Limnotech?

14 DR. MACKEY: I know of none.

15 MS. WILLIAMS: Do you know one way
16 or the other?

17 DR. MACKEY: I don't know.

18 MS. WILLIAMS: The only other thing
19 that I want to ask is for you to maybe explain
20 for us is you were hired by the District, I'm
21 assuming, to participate in this rulemaking; is
22 that correct?

23 DR. MACKEY: That is correct.

24 MS. WILLIAMS: Would you just explain

1 for us exactly what you were hired to perform for
2 them?

3 DR. MACKEY: What I was asked
4 to do was to look at the condition of the CAWS --
5 of the Chicago Area Waterway System, and use my
6 expertise as a person who characterized aquatic
7 habitat, especially from a fishery's perspective,
8 to assess the overall habitat conditions within
9 the CAWS.

10 Part of that assessment included
11 the use of side scan sonar in order to get a better
12 feeling for what was actually the existing habitat
13 structure within the CAWS, within certain reaches
14 of the CAWS, and I was also asked to review the
15 IEPA proposal and the UAA analysis in terms of
16 the habitat assessments that were done there
17 specifically, the use of the QHEI, and to determine
18 whether or not I thought that the QHEI was an
19 appropriate indices to use in an artificial system
20 such as the CAWS.

21 MS. WILLIAMS: Was the size cam sonar
22 work that you conducted taken into consideration in
23 the aquatic life use proposal?

24 DR. MACKEY: I do not believe that

1 it was. It was included in the habitat evaluation.
2 The only -- I would say that the only way that it
3 was incorporated in is through the information
4 that it provided to me in terms of my work and
5 then my comments to the District in terms of
6 the relative habitat conditions from my visual
7 observations and work on individual waterway
8 segments.

9 MS. WILLIAMS: Do you know why --
10 why the District didn't use that in their reports?

11 DR. MACKEY: They certainly saw
12 examples of it, but I'm not sure that it was
13 necessarily pertinent in the sense that it was
14 used, in the sense that I had looked at that data
15 and it allowed me to form opinions based on my
16 experience working with these types of data in my
17 experience working with other riverine systems in
18 interprets of the advice and guidance that I
19 provided to the District on this matter.

20 MS. WILLIAMS: Thank you very much.
21 That's all I have.

22 HEARING OFFICER TIPSORD: Mr. Harley?

23 MR. HARLEY: I have one short
24 follow-up question. As to Exhibit 459, the trophic

1 levels of the CAWS dominant fish community, do you
2 know for how long this has been the dominant fish
3 community in the CAWS?

4 DR. MACKEY: No, I don't.

5 MR. HARLEY: So it's not your
6 testimony, then -- strike that. Thank you.

7 MR. ETTINGER: In the Great Lakes,
8 you have been looking at -- have you looked at
9 rehabilitation projects in the Great Lakes?

10 DR. MACKEY: Yes.

11 MR. ETTINGER: Which ones have you
12 worked on?

13 DR. MACKEY: A couple dif- -- well,
14 rehabilitation projects -- if you consider dam
15 removals to be rehabilitation projects. I've
16 worked on numerous dam removal projects in the
17 Great Lakes. I've removed dams on the Chagrin
18 River, the Sandusky River. When I was with the
19 Great Lakes Protection Fund, we funded about 12
20 different projects that were focused on natural
21 flow regime restoration, which is, in essence,
22 rehabilitating natural flow regimes. There were
23 four or five dam removal projects there, but there
24 were other different types of projects as well as

1 some related to work on wetlands on the Lake
2 Ontario. I've also worked on rehabilitation
3 projects for coastal wetlands trying to restore
4 connectivity, hydraulic connectivity between the
5 lakes and, in essence, water dike wetlands by
6 basically blowing holes in dikes and putting in
7 water control structures.

8 MR. ETTINGER: Did any of those dam
9 removals result in improvements to the fishery?

10 DR. MACKEY: Absolutely. There
11 was -- the problem is -- and actually there was
12 a discussion I had yesterday with a couple of
13 folks, it turns out that in many of these habitat
14 restoration projects, only about 10 percent of
15 them are actually monitored -- have follow-up
16 monitoring associated with them primarily because
17 of funding issues. There is just not a lot of
18 continuity.

19 A couple of projects that I
20 was involved with, especially with the Great Lakes
21 Protection Fund, we provided the dollars for that
22 monitoring work, and I'm thinking on the Muskegon
23 River in particular, there was a large dam that
24 was removed and the USGS went in and we did four

1 or five years of continuous monitoring of the fish
2 community and other habitat characteristics. We
3 saw some very District improvements in the fish
4 community.

5 MR. ETTINGER: Have you looked at
6 any of the dams on the north branch of the Chicago
7 River?

8 DR. MACKEY: I have visually seen
9 them. I ran a boat when I did a side scan survey.
10 I actually ran my boat up passed the lower most dam
11 that separates off that one branch, but I have not
12 worked specifically on that dam.

13 MR. ETTINGER: Okay. Have you --
14 that's good.

15 HEARING OFFICER TIPSORD: Anything
16 else for Dr. Mackey?

17 MS. FRANZETTI: I have just one
18 follow-up question. I think it's the Sandusky
19 where there has been the follow-up monitoring?

20 DR. MACKEY: Yes. Well, that was on
21 the Muskegon River.

22 MS. FRANZETTI: Can you just briefly
23 hit the high points of when you -- when you say
24 it significantly improved the fish community by

1 removing that dam, what were the things that get
2 improved by removing a dam because we have dams
3 here obviously --

4 DR. MACKEY: Sure.

5 MS. FRANZETTI: -- in the CAWS. I'm
6 interested in what the removal of them does that
7 helps the fish community.

8 DR. MACKEY: Well, the -- in this
9 case, this was a fairly substantial dam, so it was
10 a very effective barrier, especially for upstream
11 migration of fish. In that case, there were
12 somewhat different species diversity, if you want,
13 or species distribution above and below the dam
14 because that dam has been there for a long, long
15 period of time.

16 What we saw, there was actually,
17 I believe they did, you know, tracking studies
18 where they could actually see the movement of
19 fish up through the dam where before, they would
20 be isolated populations.

21 Okay. We also saw some
22 significant changes in the substrate conditions
23 particularly downstream because the dams have an
24 affect of trapping a lot of the coarse-grained

1 substrate. It also changed the energy. It changes
2 the flow regime downstream. And what we did is by
3 restoring it to our run of the river situation,
4 you actually are restoring the natural flow regime
5 and the channel forming processes that create --
6 so we saw the creation of new coarse-grained
7 substrates downstream from the dam. So we actually
8 saw an augmentation of habitat.

9 Like I said, I worked on the
10 Sandusky River and different rivers and I work
11 very closely with the Ohio Division of Wildlife
12 on that dam removal project. With the Ohio Division
13 of Wildlife and Ohio State University, they have an
14 ecology lab and they've already set up all of the
15 protocols in place so when that dam comes out -- I
16 was involved in collecting initial pre-dam removal
17 data. And they have collected fisheries data and
18 once that dam comes out, we will be doing continuous
19 monitoring for a period of years afterwards as part
20 of that dam removal in order to document the
21 fisheries benefits that coming from that dam
22 removal.

23 That project was funded by the
24 U.S. Fish and Wildlife Service Fisheries Restoration

1 Act. They actually mandated some documentation for
2 this. So there will be additional monitoring of
3 that site as well.

4 MS. FRANZETTI: Thank you.

5 MR. ETTINGER: Are you aware of
6 any proposals that will modify the dam in the
7 north of the Chicago River and north shore?

8 DR. MACKEY: Not that I'm aware of.

9 HEARING OFFICER TIPSORD: Thank you
10 very much, Dr. Mackey. Let's take a 15-minute break
11 and we'll come back and start with Jennifer Wasik.

12 MS. FRANZETTI: When we come back, I
13 just want to introduce an exhibit. It's a carryover
14 from Ray Henry's testimony.

15 HEARING OFFICER TIPSORD: Okay.

16 (Whereupon, after a short
17 break was had, the
18 following proceedings
19 were held accordingly.)

20 HEARING OFFICER TIPSORD: We're back
21 on the record. Ms. Franzetti?

22 MS. FRANZETTI: Thank you. Midwest
23 Generation would like to introduce another exhibit
24 into the hearing record. The exhibit is the

1 Midwest Generation Water Intake Temperature Data
2 2007 to 2010.

3 During the testimony of
4 Mr. Ray Henry on behalf of Midwest Generation
5 during the last hearing, he provided some testimony
6 based on this Midwest Generation intake temperature
7 data. There was a request at that time by the
8 Illinois EPA and, I believe, also by Mr. Ettinger
9 on behalf of his clients that we produce the intake
10 temperature data for the respective plants, which
11 is Fisk, Crawford and Will County and the two
12 Joliet stations.

13 So that is what is contained in
14 this exhibit that I am moving for admission into
15 the record.

16 HEARING OFFICER TIPSORD: If there
17 is no objection, we will admit the exhibit as
18 Exhibit 460.

19 Seeing none, it is Exhibit 460.

20 (Document marked as
21 Hearing Exhibit No. 460
22 for identification,
23 5/17/11.)

24

1 (Hearing Exhibit No. 460
2 admitted as evidence.)

3 MS. FRANZETTI: And just for the
4 record, I did previously send copies to both
5 Mr. Ettinger and Ms. Williams for the Agency,
6 but I do have some more.

7 MS. WILLIAMS: And just for the
8 record, at the hearing, Ms. Franzetti has said that
9 the IEPA has copies. As it turned out, we did not.
10 So that's why they are being submitted.

11 MS. FRANZETTI: I'm sorry. I missed
12 what you were saying.

13 MS. WILLIAMS: That we did not have
14 copies of it already.

15 MS. FRANZETTI: Okay.

16 HEARING OFFICER TIPSORD: With that
17 said, then, I believe we will be ready to go to
18 Ms. Wasik. Could we have Ms. Wasik sworn in?

19 (Ms. Wasik sworn.)

20 HEARING OFFICER TIPSORD: And do
21 we have a copy of her testimony, please?

22 MR. ANDES: We do.

23 HEARING OFFICER TIPSORD: If there
24 is no objection, we will enter the pre-filed

1 testimony of Jennifer Wasik dated February 2nd of
2 2011 as when it was pre-filed. We will admit that
3 as Exhibit 461.

4 Seeing none, it is Exhibit 461.

5 (Document marked as
6 Hearing Exhibit No. 461
7 for identification,
8 5/17/11.)

9 (Hearing Exhibit No. 461
10 admitted as evidence.)

11 MS. WILLIAMS: Good morning,
12 Ms. Wasik. How are you?

13 MS. WASIK: I'm good. How are you?

14 MS. WILLIAMS: Before I jump into
15 my pre-filed questions, I would like to ask you
16 to clarify a paragraph in your testimony based on
17 something that came up earlier.

18 MS. WASIK: Okay.

19 MS. WILLIAMS: If you could, turn to
20 Page 15 of your pre-filed testimony.

21 MS. WASIK: Okay.

22 MS. WILLIAMS: In about the middle
23 of the page, there is a paragraph that starts,
24 "With the District."

1 MS. WASIK: Uh-huh.

2 MS. WILLIAMS: Would you mind
3 reading that paragraph into the record for us?

4 MS. WASIK: The District would use
5 data from CSO discharges, rainfall gauges and
6 continuous DO monitors to keep track of the number
7 of hours in which the wet weather limited use is
8 applied throughout the CAWS and report this to
9 IEPA on an agreed upon schedule. To ensure that
10 the amount of time below the DO minimum levels
11 is minimized, sources would be subject to
12 appropriate operational requirements set forth
13 in applicable permits for sources such as MS4s
14 or long-term control plans for CSOs. At all
15 other times, the DO criteria set forth in 302.710
16 and 302.715 would apply to the CAWS. The wet
17 weather limited use designation would be reassessed
18 over time as significant changes were made to the
19 CAWS such as progress of TARP reservoir
20 construction.

21 MS. WILLIAMS: Thank you. When
22 you referenced 302.710 and 302.715, are those
23 current Board regulations that you are referring
24 to?

1 MS. WASIK: I believe I'm actually
2 referring to our proposal, what we would propose
3 for Category 1 and 2 waters.

4 MS. WILLIAMS: Is that a language
5 proposal that you have already reviewed?

6 MS. WASIK: A language proposal that
7 I reviewed?

8 MS. WILLIAMS: A proposed rule
9 language for proposed 302.710 and 302.715?

10 MS. WASIK: No. I'm sorry. I
11 suppose this was more of a theoretical reference.

12 MS. WILLIAMS: So you haven't seen
13 any language that would correspond to these
14 citations in your testimony?

15 MS. WASIK: I think I was using the
16 same section numbers as was in the IEPA proposal
17 possibly. Let's see.

18 MS. WILLIAMS: I think my question
19 is really straightforward. Has the District
20 drafted language and have you reviewed drafted
21 language that can be submitted to the Board as
22 a language regulatory proposal?

23 MS. WASIK: I have looked at drafting
24 language myself for the purposes of writing my

1 testimony, but I mostly can say that you should
2 probably just exchange 302.710 or the exact section
3 numbers with Category 1 and Category 2 proposed DO
4 standards as are proposed in my testimony.

5 The exact reference of 710 and
6 715 at the moment, I'm not sure why I used those
7 numbers, but I think --

8 MS. WILLIAMS: So 710 would be changed
9 to proposed use one?

10 MS. WASIK: Category 1 --

11 MS. WILLIAMS: Category 1.

12 MS. WASIK: -- and Category 2.

13 MS. WILLIAMS: And 715 would be
14 proposed Category 2?

15 MS. WASIK: Yes.

16 MS. WILLIAMS: Okay. Turn to
17 pre-filed question number one. One Page 2, you
18 state, "The District is proposing minimum dissolved
19 oxygen criteria that are identical to those proposed
20 by the IEPA. The proposed criteria are four
21 milligrams per liter for CAWS at Category 1 and
22 3.5 milligrams for CAWS at Category 2. Does
23 Illinois EPA's proposal include a minimum
24 5.0 milligrams per liter March through July and

1 3.5 milligrams per liter August through February
2 for CAWS A waters?"

3 MS. WASIK: Yes. I was referring
4 to the minimum baseline criteria.

5 HEARING OFFICER TIPSORD: Ms. Wasik,
6 you're going to have to speak up.

7 MS. WASIK: Okay. I will try.

8 MS. WILLIAMS: On Page 2, you state,
9 "Finally, the District proposes a wet weather
10 provision from the DO water quality standard due
11 to the significant and unavoidable negative impact
12 of precipitation on the CAWS. Do you mean
13 significant precipitation events that cause
14 combined sewer overflows?"

15 MS. WASIK: We are referring to CSOs
16 and other wet weather discharges.

17 MS. WILLIAMS: Question three, on
18 Page 2, you state, "The Limnotech habitat evaluation
19 report indicates that physical habitat explains
20 most of the variation in the CAWS fish community
21 and factoring DO makes very little difference.
22 Is it true that the simple regression of DO, less
23 than five milligrams through June and September
24 with the combined fish metric had an r-squared of

1 0.27?"

2 MS. WASIK: Yes.

3 MS. WILLIAMS: Did the multiple
4 regression with six habitat variables and the
5 combined fish metric result in the single best
6 correlation for a maximum depth with an r-squared
7 equal to 0.25?

8 MS. WASIK: Yes, that's true. But
9 as I believe that Scudder and Scott both testified
10 to you, you don't want to look at habitat factors
11 individually. That wouldn't be common practice to
12 look at one -- pull out one habitat factor as
13 opposed to looking at how they interact.

14 MS. WILLIAMS: Do you think it's
15 important to look at how water quality factors
16 interact as well?

17 MS. WASIK: I think as a general
18 practice, it's more common to run regression
19 with individual water quality parameters whereas
20 that's not the case for individual habitat
21 parameters.

22 MR. ETTINGER: Excuse me. Do you know
23 of some Bible that spells out this general practice
24 or any authority that has an explanation of why

1 this is the general practice?

2 MS. WASIK: Well, if you look at
3 habitat indices on how they are developed,
4 obviously, there is not a habitat index that
5 is just one metric. I don't know if a Bible,
6 per se, but I think -- I think when you look
7 at habitat, it's all about how various factors
8 interact as opposed to just how one habitat
9 factor would have affect on the aquatic community.

10 MR. ETTINGER: Well, we have
11 water quality standards that interact, too,
12 don't we?

13 MS. WASIK: To some degree, yes,
14 but I think habitat in particular is more of an
15 interactive metric. I think there has been
16 testimony from Scott Bell on that.

17 MR. ETTINGER: I was just wondering
18 if you knew anything in addition to what Mr. Bell
19 testified. Thank you.

20 MS. WILLIAMS: You would agree,
21 though, that in particular involved oxygen and
22 temperature interact together in their
23 aquatic life --

24 MS. WASIK: Yes.

1 MS. WILLIAMS: Question 4, on
2 Page 2 and several other places in your testimony,
3 you mentioned tolerance levels of fish to various
4 stressors as part of the basis for justifying
5 recommendations for aquatic life uses and
6 corresponding water quality standards in the CAWS.
7 A, do you think that it is sufficient to define
8 aquatic life uses and to set corresponding water
9 quality standards based primarily on conditions
10 that are just barely tolerated by aquatic life?

11 MS. WASIK: No. I don't really
12 think that's what we are doing. The tolerance
13 levels that I described are below two milligrams
14 per liter, which is well below our minimum DO
15 proposal of 3.5 and 4.0 for Categories 2 and 1
16 waters respectively.

17 MS. WILLIAMS: But you would agree
18 your proposal would allow oxygen to go to zero?

19 MS. WASIK: I agree that our wet
20 weather and limited use provides a way for aquatic
21 life uses to be -- I believe that a wet weather
22 limited use is required in the CAWS.

23 MS. WILLIAMS: What do you mean by
24 "required"?

1 MS. WASIK: In order for the uses
2 to be attainable.

3 MS. WILLIAMS: Can you explain how
4 wet weather use is necessary for the uses to be
5 attainable?

6 MS. WASIK: Basically, because of
7 the wet weather conditions in the CAWS, there has
8 to be a way in which to provide for the uses --
9 that aquatic life uses to be attainable before --
10 there has to be some provision that allows for
11 these conditions that are going to be continuing
12 into the future in the CAWS.

13 MS. WILLIAMS: How far into the
14 future?

15 MS. WASIK: Well, at least until
16 TARP is completed.

17 MS. WILLIAMS: When is that?

18 MS. WASIK: I think the various
19 dates have been 2015 for -- I should look up
20 the exact dates. Completion with the entire
21 reservoir -- both reservoir is 2029 is the latest
22 year.

23 MS. WILLIAMS: Is it your testimony
24 that the wet weather limited use would be able to

1 sunset at the completion of TARP?

2 MS. WASIK: No. I think it would
3 be utilized less frequently. There would be less
4 hours in which there would be a trigger for which
5 the limited use would be applied, but there would
6 still be occasions in which it would be necessary.

7 MS. WILLIAMS: So into the foreseeable
8 future, you feel that the wet weather limited use
9 would be necessary?

10 MS. WASIK: I think so.

11 MS. WILLIAMS: I'm going to skip
12 five.

13 Question 6, on Page 3 of your
14 testimony, you state --

15 MR. HARLEY: I have a question. I'm
16 sorry.

17 HEARING OFFICER TIPSORD: Go ahead,
18 Mr. Harley.

19 MR. HARLEY: On this topic, I wanted
20 to ask you about a statement that is on Page 14 of
21 your pre-filed testimony. You have wet weather
22 provisions and in the second full sentence of
23 your pre-filed testimony, it states, "DO in
24 certain reaches can be significantly reduced,

1 sometimes to zero, for up to a week after some
2 wet weather events."

3 Under the wet weather
4 provisions of the District's proposal, that
5 would be acceptable; is that correct?

6 MS. WASIK: It would have to meet
7 the various criteria that are laid out in Adrienne
8 Nemura's testimony. In terms of the amount of
9 time that you would be allowed to use wet weather
10 use hours, you would have to look at the trigger,
11 there would have to be no antecedent violation
12 previous
13 to the wet weather event and then based on the
14 amount of rainfall -- the rainfall gauges, that
15 would determine how many days following the wet
16 weather event the limited use hours would be able
17 to be applied.

18 MR. HARLEY: Hypothetically, though,
19 there could be an event -- a wet weather event in
20 which DO could be reduced to zero for a week and
21 that would not be a violation of the standard which
22 is being proposed by the District, is that correct?

23 MS. WASIK: I think the one-inch
24 rainfall -- I would have to look at -- I think

1 it's in Adrienne's testimony, but a one-inch or
2 greater rainfall would be the maximum -- would
3 constitute the maximum days in which wet weather
4 hours could be used.

5 I think technically, it's
6 possible. I think that would be really rare in
7 the CAWS in general besides some of the stagnant
8 areas that is Category 3 of our proposal,
9 that would be a very rare event, but I think
10 technically six days may be the maximum.

11 MR. HARLEY: And could you explain
12 how allowing that achieved aquatic use goals in
13 the CAWS?

14 MS. WASIK: So essentially, with the
15 wet weather conditions that we have in the CAWS
16 now and that we will have for the foreseeable
17 future, the -- our proposal is not -- is not going
18 to result in any worsening of the conditions --
19 the DO conditions that are in the CAWS and the
20 community that's present -- the fish community
21 and aquatic life communities that are able to
22 tolerate the habitat conditions in the CAWS and
23 that are currently abundant in the CAWS can
24 clearly -- have demonstrated that they are able

1 to tolerate periods of low DO.

2 MR. HARLEY: As to the triggers that
3 you mentioned --

4 MS. WASIK: Uh-huh.

5 MR. HARLEY: -- who would determine
6 whether or not those triggers were present?

7 MS. WASIK: The triggers would be
8 based on empirical data that the District collects.

9 MR. HARLEY: And would it be the
10 District's unilateral decision that triggers are
11 present?

12 MS. WASIK: I don't think it involves
13 any subjective decisions. They are all exact --
14 that would be exact numbers in terms of the rain
15 gauge data and then for antecedent conditions, we
16 would be using dissolved oxygen monitors that
17 are present in the CAWS.

18 MR. HARLEY: Let me ask directly,
19 who would decide that it's a wet weather event
20 such that ordinarily applicable DO levels don't
21 apply is this?

22 MS. WASIK: The decision about
23 whether to apply a wet weather limited use hour
24 is made specifically based on the data. So there

1 is rain gauge data and the District would be
2 compiling that data for submittal to EPA if that
3 is what you're getting at.

4 MR. HARLEY: In the District's
5 proposal, would the Illinois EPA be able to come
6 to its own different conclusion than the District
7 about whether the wet weather exemption would
8 apply?

9 MS. WASIK: I don't see how their
10 data -- well, I suppose if they collected different
11 data that showed that there was a different
12 rainfall amount or something like that, then,
13 they could contest that, but I don't see why that
14 would happen given that it is very clearly laid
15 out when it would be triggered.

16 MS. WILLIAMS: When are the
17 determinations to be made?

18 MS. WASIK: After all the data
19 is available. Rain gauge data is generally
20 available quickly. The continuous dissolved
21 oxygen monitoring data has somewhat of a
22 lag time due to environmental conditions such
23 as icing over and also we have to go through
24 our quality assurance project plan criteria for

1 all of our dissolved oxygen data, which takes --
2 takes some time as well so there is currently
3 about a three-month lag time with our dissolved
4 oxygen monitoring program.

5 MS. WILLIAMS: Now, doesn't the
6 District's proposal provide that the data won't
7 be submitted until, like, almost a year later,
8 I think? How much -- when will the data come
9 to the Illinois EPA to make that determination?

10 MS. WASIK: Our proposal has --
11 does say on an annual basis, it will be reported
12 to IEPA and that was because our current dissolved
13 oxygen monitoring data is reported on an annual
14 basis. So we just went along with that current
15 procedure.

16 MS. WILLIAMS: Do you understand
17 how that would work?

18 MS. WASIK: How that would work?

19 MS. WILLIAMS: How would the data
20 come in -- when would the data come in the annual
21 report?

22 MS. WASIK: Currently, I believe,
23 in the proposal, we said March the following year,
24 we would have a summary of all of the wet weather

1 limited use hours that had to be applied in the
2 previous year.

3 MS. WILLIAMS: So --

4 MS. WASIK: I don't think the year
5 was a hard fast requirement of our proposal,
6 but that was just something that because of our
7 current procedure of reporting the DO to IEPA on
8 an annual basis, we were going to continue with
9 that.

10 MS. WILLIAMS: What do you mean by
11 hard and fast?

12 MS. WASIK: Hard and fast? I'm just
13 saying that -- I'm not saying it's not negotiable
14 if it's something that --

15 MS. WILLIAM: Would it be in the
16 language that you want to see in the regulation
17 or would it be informal somehow?

18 MS. WASIK: I think it would be in
19 the language.

20 MR. RAO: In the rule --

21 MS. WASIK: In the regulatory
22 language.

23 MR. RAO: Because some of these
24 details simply, won't they be part of the MPDS

1 permit?

2 MS. WASIK: This would not fall
3 under MPDS permit as far as I know.

4 MS. WILLIAMS: I can move on.

5 MR. ANDES: But it would be defined
6 in regulations.

7 MR. RAO: Okay. Does your -- looking
8 at your testimony, some of the details are not, you
9 know, set forth in your testimony.

10 MS. WASIK: That detail is in my
11 testimony, but it would be reported on an annual
12 basis. However, I don't think from the District's
13 perspective, we were trying to imply that we could
14 only provide in on an annual basis. If there is --
15 if IEPA is amenable to a wet weather limited use,
16 but they want the data on a more frequent basis,
17 we certainly would be willing to negotiate something
18 like that, but, yes, it would be part of the
19 regulatory language.

20 MR. ANDES: I will also add that in
21 Ms. Nemura's testimony, there is significant more
22 detail about the reporting and recordkeeping
23 procedures.

24 MR. RAO: Thank you.

1 MS. WILLIAMS: Do you have a sense --
2 Ms. Wasik, I know you have a fair amount of field
3 experience, right.

4 MS. WASIK: Yes.

5 MS. WILLIAMS: Do you have a sense
6 about how the Agency would go about assessing of
7 the wet weather limited use?

8 MS. WASIK: In terms of when the
9 hours are applied or?

10 MS. WILLIAMS: Just what type of
11 assessment protocol you would envision for our
12 field staff?

13 MS. WASIK: So you're saying besides
14 the report that the District would provide regarding
15 the triggers in wet weather limited use hours, how
16 would you --

17 MS. WILLIAMS: I would assume this
18 use would become part of the Agency's 305(b)
19 report, correct, the use designation? Is that
20 what you understand it to be or --

21 MS. WASIK: Yes.

22 MS. WILLIAMS: -- do you understand
23 it would be -- great.

24 All right. You understand it to

1 be a use designation and not a criteria?

2 MS. WASIK: Uh-huh.

3 MS. WILLIAMS: So we would have to
4 go out and assess attainment of the use, correct?

5 MS. WASIK: Of the aquatic life use?

6 MS. WILLIAMS: Of the wet weather use,
7 I guess, as well as aquatic life use for
8 those waters and I'm just trying to get a sense
9 from the District about what procedures they
10 would anticipate the Agency would go about this.

11 MS. WASIK: Well, I'm not exactly
12 familiar with what the IEPA procedure is right
13 now, but I would -- certainly all of our biological
14 and chemical data is made available to IEPA now
15 for the CAWS and that would continue to be the
16 situation in the future. So I would think that
17 the protocol would be very similar to what it is
18 now.

19 MS. WILLIAMS: Do you know if these
20 waters are assessed now for other aquatic life
21 uses?

22 MS. WASIK: Otherwise uses for other
23 water bodies?

24 MS. WILLIAMS: Do you know if the

1 general uses are similar to the existing assessment
2 process for these waters one way or another?

3 MR. ANDES: Are you asking about the
4 IEPA procedure?

5 MS. WILLIAMS: Yes, does she know.
6 I'm just -- I'm wanting to understand her background
7 to figure out if we can get anymore detail about
8 this or not.

9 MS. WASIK: Well, obviously the CAWS
10 currently is our secondary water, but I think they
11 are assessed in a similar way. But I know that the
12 Illinois EPA relies heavily, I know, on the District
13 ambient water quality monitoring data and that we
14 provide that data every other year for assessment
15 of the CAWS now and that would continue to be the
16 case.

17 MS. WILLIAMS: What about biological
18 data?

19 MS. WASIK: How is it assessed by
20 IEPA?

21 MS. WILLIAMS: No. How would you see
22 us using biological data in assessing with wet
23 weather limited use?

24 MS. WASIK: Well, I don't know if --

1 I'm not sure how biological data currently is
2 incorporated in Illinois. I know there's not a
3 tiered aquatic life use currently. So I'm not
4 sure, but we would be continuing to collect
5 biological data and providing it to the IEPA to
6 assess however they feel appropriate.

7 MS. WILLIAMS: Okay. I'm ready
8 to move on to Question 6. On Page 3 of your
9 testimony, you state, "Waterways in our states
10 with similar physical characteristics to the
11 CAWS subject to DO minimum standards one and
12 two milligrams per liter."

13 Do some of these states
14 have different DO standards during different
15 times of the year that are considerably higher?
16 Did I make that one question instead of two?
17 How many states have different DO standards
18 during different times of the year that are
19 considerably higher than one to two milligrams
20 per liter?

21 MS. WASIK: You can see on attachment
22 two to my testimony, which is -- starts with a
23 table that is titled, "Summary of Decreased DO
24 Standards in Other States and Their Applicability

1 to the CAWS," and then it goes on to have
2 additional information about DO water quality
3 standards in similar channels to the CAWS in
4 other states.

5 IT looks like the Cuyahoga
6 does have a February through May standard of
7 5.0 milligrams per liter and that's the Cuyahoga
8 River Ship Canal in Ohio.

9 MS. WILLIAMS: I just want to
10 interrupt for a second. I'm finding the narrative
11 of various states.

12 MS. WASIK: I think it's -- actually,
13 it might be the last -- let's see. I have it as
14 the first page, though. I printed it from my --

15 MR. ANDES: I've got it.

16 MS. WASIK: Okay.

17 MR. ANDES: Well, in fact -- there we
18 go.

19 BOARD MEMBER JOHNSON: Here, you can
20 have this.

21 MS. WASIK: I'm not sure if it got
22 filed in a different order. I have it as my first
23 page of Attachment 2.

24 MR. RAO: If it is entitled, "Summary

1 of DO Standards," it's just before the Limnotech
2 memo.

3 MS. WILLIAMS: All right. There we
4 go.

5 MS. WASIK: I apologize if it ended
6 up in the wrong place when it was filed.

7 MS. WILLIAMS: This was fine. I
8 lost track. You were answering and I'm sorry I
9 lost track.

10 MS. WASIK: I was just going to go
11 through the table. In Ohio, the Cuyahoga River
12 Ship Canal, the standard in February through May
13 is five milligrams per liter minimum.

14 MS. WILLIAMS: Why is that, do you
15 know?

16 MS. WASIK: It is to allow for fish
17 passage during migratory periods, which we felt
18 wouldn't apply to the CAWS since I don't think
19 fish passage is a use that people are encouraging
20 on the CAWS especially now with the barrier at the
21 lower end in the ship canal. I think it could be
22 argued that fish passage is discouraged in the
23 CAWS.

24 MS. WILLIAMS: Throughout the

1 system? Are you saying throughout the system,
2 we don't have fish passage going on?

3 MS. WASIK: No. I think when
4 they say fish passage, I believe they are talking
5 between systems as opposed to resident fish
6 populations.

7 MR. ETTINGER: Where are they going to
8 up the Cuyahoga?

9 HEARING OFFICER TIPSORD: You have
10 to speak up. We can't hear you.

11 MR. ETTINGER: Where -- do you think
12 they are passing between systems like we are in --
13 what are you saying here?

14 MS. WASIK: I think that fish passage
15 speaks that they are actually going from one water
16 body to another, that they are encouraging that
17 movement during that time period -- a migratory time
18 period.

19 MR. ETTINGER: Well, don't -- I'm
20 sorry. Doesn't fish passage normally mean passing
21 from the higher point in the watershed to a lower
22 point in the watershed?

23 MS. WASIK: The word is migratory.
24 It says fish passage during migratory periods

1 because they are migrating from one river to
2 another or from one area to another where I would
3 argue that the CAWS, that is not -- a use that
4 is not encouraged.

5 MR. ETTINGER: Well, I guess I'm
6 asking about that Cuyahoga. Do you think the
7 Cuyahoga connects to some other water? Is there
8 some other Great Lakes diversion we should be
9 looking at here that is not known to Rand McNally
10 yet?

11 MS. WASIK: I guess I'm not -- I'm
12 not sure. I would have to look into the language
13 further.

14 MR. ANDES: And we can provide
15 further information on the Cuyahoga River examples.
16 I believe that Ms. Nemura was also going to talk
17 about this issue in particular and I think it was
18 cited in her testimony as well.

19 MR. ETTINGER: It's starting to sound
20 like Guantanamo here. Every time we talk to one
21 person, it's the next one down the line.

22 MR. ANDES: Perhaps the question --

23 MR. ETTINGER: She's in the hospital.
24 Maybe this is what sent her there.

1 MR. ANDES: Perhaps the question was
2 better directed to Ms. Nemura in the first place.

3 MR. ETTINGER: That's fine. Is
4 there -- I want to just finish the fish passage
5 issue. Is there a passage now from fish between
6 various tributaries of the CAWS of the north branch
7 of the Chicago River or the Calumet River or other
8 rivers into the CAWS?

9 Isn't there some fish passage
10 there that would be analogous as to what is
11 happening in the Cuyahoga?

12 MS. WASIK: My impression of the
13 Cuyahoga, given the season standard for fish
14 passage, was that they were trying to protect
15 for perhaps -- I mean, I will have to follow-up
16 on this, but my guess would be that they are
17 trying to protect for a higher quality of fish
18 during a certain season.

19 So if that was -- there were
20 only two here that I think actually do show a
21 higher standard, as you mentioned, than what we
22 are proposing. So Texas does not have a seasonal
23 standard in the Houston Ship Canal.

24 MS. WILLIAMS: Let's talk about

1 Texas real quick before you move on. Was there
2 any aquatic life use designated to the Texas
3 waters that you were referring to?

4 MS. WASIK: They haven't assigned an
5 aquatic life use tier.

6 MS. WILLIAMS: Go ahead.

7 MS. WASIK: In Oklahoma, there was
8 a higher seasonal standard of 4.0, but again, we
9 are not proposing a minimum as low as one to two
10 milligrams per liter. We're proposing a higher
11 year-round minimum of 3.5 and 4.0. And also the
12 Oklahoma habitat limited aquatic community that's
13 described on the table applies to several creeks
14 and rivers. They are not deep draft man-made
15 channels.

16 MS. WILLIAMS: Do any of these states
17 allow to zero?

18 MS. WASIK: No. Not that I'm aware
19 of.

20 MS. WILLIAMS: Are you aware of any
21 other states that have a wet weather use for aquatic
22 life?

23 MS. WASIK: No.

24 MR. ANDES: Are you aware of any

1 other states that have a wet weather use for other
2 uses such as recreation?

3 MS. WASIK: Yes.

4 MS. WILLIAMS: And recreation in
5 particular, correct?

6 MS. WASIK: Right.

7 MS. WILLIAMS: Question 7, on Page
8 4 of your testimony, you state, "This index was
9 used along with this data to assess the relative
10 importance of physical habitat compared to water
11 quality factors in the CAWS." I'm going to make a
12 correction to the question based on Mr. Bell's
13 testimony.

14 MS. WASIK: Uh-huh.

15 MS. WILLIAMS: It appears only DO
16 and temperature were assessed. Why were other
17 water quality variables not considered in the
18 analysis?

19 MR. ANDES: Let me clarify. Mr. Bell
20 actually has already answered this question I think
21 at least three times explaining how other variables
22 were considered. So I don't think she has anything
23 to add beyond what he would say about what he did
24 in his analysis, which was he included additional

1 information in this hearing about his analysis of
2 other water quality variables.

3 MS. WILLIAMS: Did they do a multiple
4 linear regression with any other water quality
5 variables, Ms. Wasik?

6 MS. WASIK: I believe the abundance of
7 DO and temperature data allowed them to run a
8 multiple linear regression because we have hourly
9 monitoring of those parameters whereas the other
10 parameters were assessed, but they weren't able
11 to use multiple linear regression because they are
12 assessed by the District on a monthly basis, which
13 would not provide the amount of data required to
14 do such a regression analysis.

15 MS. WILLIAMS: Thank you. Question
16 8, on Page 5, you state, "A stable and tolerant fish
17 community." Could you explain what is meant by
18 stable and tolerant?

19 MS. WASIK: Well, I was not referring
20 to a particular tolerance classification system. I
21 was just speaking generally to the fact that most
22 of the fish in the CAWS are tolerant species
23 especially those that are very abundant in the
24 CAWS. By stable, I was referring to the fact

1 that the CAWS fish community contains fish species
2 from the various trophic levels as was shown in
3 the diagram that Dr. Mackey passed out earlier
4 today and as described in an Attachment 3 of my
5 testimony. This represents a sort of balanced
6 community of mostly tolerant fish.

7 MS. WILLIAMS: Does that include
8 some moderately tolerant fish?

9 MS. WASIK: Yes.

10 MS. WILLIAMS: Okay.

11 MS. WASIK: The dominant community
12 does include some moderately tolerant fish as well,
13 but the vast majority of the fish that we collect
14 in terms of abundance are tolerant fish.

15 MS. WILLIAMS: When you were using
16 tolerant in that statement just now --

17 MS. WASIK: Uh-huh.

18 MS. WILLIAMS: -- are you referring to
19 tolerance in particular or more tolerance?

20 MS. WASIK: Well, I think for the
21 very most abundant species collected in the CAWS,
22 I think all of the indices would agree that
23 those are tolerant fish species. The Illinois
24 IBI and the various references in the Limnotech

1 report, I think, common carp and gizzard shad
2 are considered tolerant.

3 MS. WILLIAMS: So you're not
4 referring, though, specifically to tolerant or
5 temperature tolerant or any other particular
6 pollutants, correct?

7 MS. WASIK: That's probably generally
8 tolerant to all of those things.

9 MS. WILLIAMS: Question 9, these
10 questions get at your testimony regarding dissolved
11 oxygen improvements not benefiting the fish in the
12 CAWS, would you agree with that statement, that
13 you don't agree improvements of dissolved oxygen
14 would benefit fish in the CAWS?

15 MS. WASIK: I believe that the
16 habitat report showed that dissolved oxygen
17 is relatively unimportant when considering all
18 of the habitat limitations in the CAWS.

19 MS. WILLIAMS: Do you agree that
20 the habitat report also shows that the highest
21 quality fish communities were present in areas
22 with the highest dissolved oxygen levels?

23 MS. WASIK: I would not agree that
24 those correlations were necessarily significant

1 or that they were strong correlations.

2 MS. WILLIAMS: You don't agree that
3 that's true.

4 MS. WASIK: I don't agree that that's
5 true.

6 MS. WILLIAMS: Okay. Well, let's
7 take a look at Question A here. It refers to the
8 tolerance list in Attachment B of Appendix C of
9 the CAWS evaluation report. Do you have that?

10 MS. WASIK: Yes. Let me just get to
11 it here. Okay.

12 MS. WILLIAMS: So let's take a look
13 first on Page 5, Subpart B of this question asks
14 you to look at the thought in the middle of the
15 left column, "Catch per unit effort" by weight
16 versus percent of June to September where DO is
17 less than five milligrams per liter.

18 Do you agree that the best value
19 for the fish variable called catch per unit effort
20 occur on the left side of the plot, which indicates
21 the better dissolved oxygen?

22 MS. WASIK: It would appear that
23 way, but if you look at the r-squared value,
24 it's about .1 with a very weak correlation.

1 MS. WILLIAMS: Do you believe
2 that the regression analysis captures threshold
3 affect, Ms. Wasik?

4 MS. WASIK: I'm sorry. Could you
5 repeat the question?

6 MS. WILLIAMS: Do you believe
7 that the regression analysis captures threshold
8 affect on aquatic life?

9 MR. ANDES: Can you explain how
10 that question relates to the tables? Does that
11 question relate to the tables?

12 MS. WILLIAMS: Yes. She said -- she
13 quoted the r-squared value, which is a result of
14 the regression, correct?

15 MS. WASIK: Yes.

16 MS. WILLIAMS: Okay. That's how.

17 MS. WASIK: I don't believe there
18 is a threshold that can be identified now.

19 MS. WILLIAMS: Can you go to C?

20 MS. WASIK: I'm sorry. These are
21 just linear regressions.

22 MS. WILLIAMS: So what is the
23 affect -- because it is linear, what is the affect
24 if this was actually threshold, but not linear?

1 MS. WASIK: I think for the purposes
2 of -- I think you would have to ask Limnotech, but
3 for the purposes of what they were doing here, I
4 don't believe their trying to identify the threshold
5 affects. I think they were looking at determining
6 which dissolved oxygen metrics might possibly
7 correlate with the fish variables.

8 MS. WILLIAMS: Thank you. I think
9 that's helpful.

10 BOARD MEMBER GIRARD: Ms. Wasik, just
11 for the record, can you give us the definition of
12 what you consider to be the threshold affects?

13 MS. WASIK: A threshold affect might
14 be if -- let me give you an example here. If there
15 was a certain level of dissolved oxygen in which
16 suddenly fish species dropped off or some other
17 variable that we were measuring were to drop off
18 or suddenly increase, that would be a threshold
19 level.

20 BOARD MEMBER GIRARD: So, for example,
21 you're saying that if dissolved oxygen was 2.0, you
22 find no fish and if it's five, you will find
23 fish? The threshold affect is somewhere in
24 there?

1 MS. WASIK: Yes. I believe that
2 would be an adequate characterization.

3 BOARD MEMBER GIRARD: Okay. Thank
4 you.

5 MS. WILLIAMS: I think that I can
6 skip over these next few questions. You have
7 answered them already.

8 HEARING OFFICER TIPSORD: I'm sorry.
9 We have a follow-up.

10 MR. HARLEY: Now, in answering the
11 previous series of questions, you had reference
12 to Exhibit 459, which is trophic levels of the
13 CAWS dominant fish community. Do you agree that
14 this is the dominant fish community throughout
15 the CAWS?

16 MS. WASIK: The dominant fish
17 community, as defined by Limnotech, is -- and
18 this was included in that terrific diagram that
19 was handed out, represents 92 percent of the
20 individual fish that were collected between 2001
21 and 2007 by the District and it's defined as --
22 and again, they are clusters -- they are
23 statistical cluster analysis. They are defined
24 as that dominant community as fish species that

1 were found at every one of our monitoring stations,
2 so yes.

3 MR. HARLEY: If you have the same
4 dominant fish community throughout the CAWS, why
5 are different DO standards appropriate at different
6 locations within the CAWS?

7 MS. WASIK: They are slightly
8 different habitat throughout the CAWS that allowed
9 us to -- or that suggested that we would have two
10 categories or classifications of aquatic life uses
11 in the CAWS or actually three, but the habitat
12 scores influenced the development of those two
13 categories and the physical habitat attributes
14 basically told us that they are different enough
15 that there should be at least two categories.

16 So in order to protect possibly
17 the fish species that may be more likely to utilize
18 the habitat in a Category 1, we are allowing for a
19 slightly higher minimum standard in those waters.

20 MR. HARLEY: But would your levels
21 be based on what is necessary to support aquatic
22 life?

23 MS. WASIK: Yes.

24 MR. HARLEY: But you sound like you

1 are setting them based on habitat.

2 MS. WASIK: The dissolved oxygen --
3 the standard that we're proposing of 4.0 and 3.5
4 are more than adequate to protect the fish
5 communities in the CAWS.

6 MR. HARLEY: The same dominant fish
7 communities are found throughout the CAWS, correct?

8 MS. WASIK: By that definition of
9 dominant fish community, yes.

10 MR. HARLEY: And appropriate DO
11 levels should be based on the aquatic life that
12 you testified, yes?

13 MS. WASIK: I believe, yes.

14 MR. HARLEY: If it's the same aquatic
15 life throughout the CAWS, why would you propose
16 different DO levels?

17 MS. WASIK: There are some differences
18 in the fish community between one and two. You are
19 strictly speaking of the dominant fish community.

20 MR. HARLEY: What other fish species
21 besides the dominant fish community?

22 MS. WASIK: Well, there were
23 other -- I'll have to look at my testimony here.
24 I'm sorry. I would refer to Page 5 of my pre-filed

1 testimony. I explained some of the biological
2 differences that the District identified differences
3 between Category 1 and Category 2 waters.

4 MR. HARLEY: Biological
5 characteristics of the aquatic life using those
6 waters?

7 MS. WASIK: Of the aquatic life
8 present, for instance, the abundance of large
9 mouth bass and bluegill are significantly higher
10 in Category 1 than Category 2 waters. The abundance
11 and weight of intolerant fish such as small mouth
12 bass are significantly higher in CAWS Category 1
13 waters unless exclusively waters that are to Lake
14 Michigan.

15 I believe the bluegill were
16 another species that are a higher catch premium
17 effort in Category 1 versus Category 2 waters.
18 We attribute those to their being slightly better
19 habitat in Category 1 versus Category 2 waters.

20 MR. HARLEY: But large mouth bass
21 and bluegill are also found in Category 2 waters?

22 MS. WASIK: Yes.

23 MR. HARLEY: Thank you.

24 MS. WILLIAMS: Ms. Wasik, do you

1 think that the large mouth bass is tolerant or
2 moderately tolerant?

3 MS. WASIK: I think it depends on
4 which classification document you look at, but
5 Illinois -- the Illinois IBI tables rate -- they
6 neither rate the large mouth bass as tolerant nor
7 intolerant so one, I suppose, could infer that means
8 it's moderately tolerant.

9 MS. WILLIAMS: Thank you. Question
10 10, on Page 6, you state, "Lake Calumet also
11 exhibits several shallow areas and instream cover.
12 Does Lake Calumet and the Calumet River and other
13 waters in Category 1 have sufficient habitat for
14 reproduction?"

15 MS. WASIK: Spawning of some fish
16 species that don't require fast flow or high energy
17 could be occurring in Lake Calumet. The Calumet
18 River, I'm not sure.

19 MS. WILLIAMS: What about in any of
20 the other Category 1 waters?

21 MS. WASIK: To the extent that
22 they can find available spawning habitat or are
23 able to remove silt from their nests, some of the
24 Centrarchidae, the sunfish species, they may

1 be able to attempt to spawn in the Category 1
2 waters. I think the amount of habitat even in
3 the Category 1 waters for a desirable spawning
4 area is relatively limited, but that is probably
5 what is limiting the amount of spawning that
6 could occur.

7 MS. WILLIAMS: Do you think there
8 are any species spawning in the Category 2 waters?

9 MS. WASIK: I don't think so.

10 MS. WILLIAMS: What about catfish?

11 MS. WASIK: I think to the degree
12 that channel catfish are able to find the cavity
13 that is appropriate for their nesting, they may be
14 able to use side channel areas for spawning.

15 MS. WILLIAMS: I think we can skip
16 Question 11.

17 Question 12, on Page 7, you
18 state, "A majority of sediment samples tested from
19 some of the Category 2 waters were demonstrated
20 to be toxic." First, I want to ask the last part
21 of this question. You say some of the Category 2
22 waters were demonstrated to be toxic. Were there
23 any Category 2 waters that did not exhibit toxicity?

24 MS. WASIK: Yes. The Chicago River

1 did not show growth impairment or toxicity and the
2 Chicago Sanitary and Ship Canal and the south branch
3 Chicago River samples did not sediment toxicity
4 although they did show growth impairment.

5 Then in the ship canal, five out
6 of the 14 samples showed growth impairment and then
7 in the south branch two out of the seven samples
8 exhibited growth impairment, but none were toxic.

9 MR. ETTINGER: When you did those
10 tests, did you break down toxicity by chemical?

11 MS. WASIK: No. The toxicity test,
12 that was generally to show what, as a whole, the
13 sediment was doing to the organism. I would mention
14 that we actually didn't do the sediment toxicity
15 tests. They were Chironomus 10/10 toxicity --
16 ten-day toxicity tests and they were done by a
17 contractor.

18 MR. ETTINGER: So they looked at
19 whole sediment toxicity in order to see the
20 centergistic affect of all of the different
21 pollutants that were in the sediment?

22 MS. WASIK: Yes.

23 MS. WILLIAMS: I will skip 13 for
24 now. I may come back, but 14, on Page 8, you

1 state, "Moreover, sediment toxicity data show
2 that half the sediment samples from the lower
3 North Branch Chicago River are considered to be
4 toxic." How many stations were looked at?

5 MS. WASIK: Two stations had
6 sediment collected. That was Grand and Diversey.
7 We had two samples from each. So that was a total
8 of four samples.

9 MS. WILLIAMS: Four samples from
10 two stations or two samples from each of the two
11 stations?

12 MS. WASIK: Two samples from each,
13 so a total of four. We usually collect one from
14 the side and one from the center to see if there
15 are any affects on the flow versus less flow.

16 MS. WILLIAMS: I think you have
17 answered Question 15 already. The answer is no,
18 correct? There were no sediment samples from
19 the Chicago Sanitary and Ship Canal and South
20 Branch Chicago River that were identified as
21 toxic?

22 MS. WASIK: For this particular
23 test, that's true.

24 MS. WILLIAMS: Okay.

1 MR. ANDES: But there was growth
2 impairment indicated?

3 MS. WASIK: Yes, in certain samples.

4 MS. WILLIAMS: Question 16, on
5 Page 8 of your testimony, you state, "The fisheries
6 management goal in Category 2 waters would also be
7 to maintain current fish populations. Are the
8 aquatic life uses that MWRDGC is proposing for
9 CAWS based primarily on assuring adequate conditions
10 for ensuring that humans can enjoy fishing in the
11 CAWS? Well, strike that.

12 Are the aquatic life uses that
13 MWRDGC is proposing primarily to protect existing
14 aquatic life?

15 MS. WASIK: Is this Question 16 or
16 is this a different question?

17 MR. ANDES: So are you modifying your
18 question here?

19 MS. WILLIAMS: If you want to answer
20 as written, that is fine, too, because I can
21 follow-up.

22 It says, assuring adequate
23 conditions for ensuring that humans can enjoy
24 fishing in the CAWS, but I don't know that I

1 understand what I am asking there so if you can't
2 answer it --

3 MS. WASIK: In terms of fisheries
4 management goal, I didn't mean to imply -- it
5 may have been a slip on my language. I didn't
6 mean to imply that the District was managing the
7 fisheries for recreational purposes. That's not
8 something that the District does. I just meant
9 that aquatic life use -- I mean, DNR would be
10 the fisheries managers. We don't manage the
11 fisheries in the CAWS.

12 I just meant that the aquatic
13 life use is, as you said in your first question --
14 that the aquatic life use goal is for fish to
15 maintain their current population, which I think
16 is the extent of what fish will be able to do in
17 the CAWS given the habitat limitations at this
18 point.

19 MS. WILLIAMS: Do you believe that
20 the Category 2 waters, which is the existing
21 aquatic community, is the highest attainable
22 aquatic community for those waters?

23 MS. WASIK: I believe it is because
24 it is habitat limited.

1 MS. WILLIAMS: What about Category 1,
2 do you believe the existing aquatic community is
3 the highest attainable aquatic life community for
4 those waters?

5 MS. WASIK: For all of the CAWS.

6 MS. WILLIAMS: And you don't believe
7 that it's if DO are improved through TARP, for
8 example, that we will find a higher aquatic life
9 community anywhere in the CAWS?

10 MS. WASIK: Through TARP, when it is
11 completed, I'm not able to speculate how that might
12 change conditions, but...

13 MS. WILLIAMS: That's helpful. So
14 your definition of the highest attainable aquatic
15 life community does not reflect any potential
16 improvement down the road from TARP, correct?

17 MS. WASIK: No.

18 MR. ANDES: Would you assume that in
19 18 years or so when TARP is done that the state
20 would want to re-evaluate the conditions and see
21 what is changed?

22 MS. WASIK: That was my assumption,
23 yes.

24 HEARING OFFICER TIPSORD: Mr. Harley?

1 MR. HARLEY: Instead of looking
2 forward, looking back, your pre-filed testimony
3 indicated that you have worked for the District
4 for over nine years. Have conditions improved
5 over those nine years?

6 MS. WASIK: The conditions -- the
7 biological conditions?

8 MR. HARLEY: Let's start with
9 biological conditions.

10 MS. WASIK: I would say that they
11 have remained quite constant over the last decade
12 since I have been there and a few years before.
13 In terms of the mid '80s when TARP first began
14 to go online, there were increases in the fish
15 community, but it has largely leveled off and I
16 haven't seen an improvement since I have been
17 here.

18 MR. HARLEY: And what were the
19 improvements that occurred when TARP begin to
20 come online?

21 MS. WASIK: Well, in the early
22 '80s, there was increased species diversity and
23 an abundance of intolerant fish -- of tolerant
24 fish.

1 MR. HARLEY: And that's why this
2 dominant community was able to be established?

3 MS. WASIK: I believe so.

4 MR. HARLEY: Thank you.

5 HEARING OFFICER TIPSORD: Okay.

6 Mr. Albarracin?

7 MR. ETTINGER: Well, just to
8 follow-up on that a little bit, do you know if
9 in 1972 there were any documents on how this system
10 has improved since 1972?

11 MS. WASIK: How this system has
12 improved?

13 MR. ETTINGER: I'm sorry. How the
14 aquatic life has improved since 1972.

15 MS. WASIK: Yes. Understanding
16 from my predecessors, the fish community has
17 improved greatly since then, but at that point,
18 I think the conditions were such that --- the
19 water quality conditions at that point were
20 very poor before TARP was online.

21 MR. ETTINGER: The water quality
22 conditions can affect the system?

23 MS. WASIK: Of course to a degree.
24 I mean, when we were looking at the '70s when it

1 was zero all of the time and there was no TARP,
2 obviously, that's a different situation than right
3 now.

4 MR. ETTINGER: So at some point
5 somewhere in the '80s or '90s, we reached the
6 end of what could be done for water quality
7 improvements?

8 MS. WASIK: I wouldn't be able to
9 state an exact date like that, but I think it
10 was later actually than in the '80s. That was
11 actually when we began to see differences. I
12 do think that's leveled out quite a bit now.

13 MR. ETTINGER: And Scott Bell
14 wasn't around in the 1970s.

15 MR. ANDES: He'll put that on his
16 cards now.

17 MS. WILLIAMS: So based on your
18 counsel's testimony or questions, I think you
19 said that the Agency should come back and look
20 at this again in 18 years when TARP is completed,
21 correct? I mean, I think that makes sense.

22 MS. WASIK: Or maybe sooner. I'm
23 not sure exactly when you would make those reviews.

24 MS. WILLIAMS: Well, I mean, that

1 is sort of what I am getting. I think there are
2 reviews and obligations in the UAA to look at the
3 foreseeable future. So I kind of want to understand
4 in your designation -- your use designation proposal
5 what we're talking about as the foreseeable future.

6 I can expect that the final
7 completion of TARP is beyond that District's
8 definition of foreseeable; is that correct?

9 MS. WASIK: Yes. My proposal is
10 considering pre-TARP conditions.

11 MS. WILLIAMS: What about the
12 completion of --

13 MR. ANDES: You mean pre-TARP
14 completion?

15 MS. WASIK: What did I say?

16 MR. ANDES: Pre-TARP.

17 MS. WASIK: Pre-TARP completion.

18 MS. WILLIAMS: What about -- would
19 you say that the completion to the Thornton
20 reservoir are in the foreseeable future for
21 the purpose of your use designations?

22 MS. WASIK: Let's see. I'm not
23 sure if that's a -- if the foreseeable future in
24 terms of use attainability analysis is a legal

1 term or if it's just...

2 MS. WILLIAMS: Common sense, you
3 mean?

4 MS. WASIK: Yes.

5 MS. WILLIAMS: Well, let's try -- I'm
6 going to use this common sense understanding. That
7 would be fine. I mean, I think the Board needs to
8 look into the future, you would agree, right? The
9 Board needs to consider what could be attainable
10 within some period of time.

11 MS. WASIK: I believe 2015 in the
12 timeline for the next completion date that we have
13 for McCook.

14 MS. WILLIAMS: Do you believe that
15 the Board needs to take into account the next
16 completion date of 2015 in setting attainable uses
17 for the CAWS.

18 MS. WASIK: My understanding is --
19 from what I've read in the Limnotech report and
20 my feeling on the habitat in the CAWS is that the
21 habitat is limiting and it will continue to be
22 limiting throughout the CAWS in 2015 and that the
23 fish community -- the current fish community is as
24 deposited as it's going to get in the CAWS because

1 of those habitat limitations. I think that will
2 continue to be the case in 2015.

3 MS. WILLIAMS: I think that answered
4 my question. If no one has any follow-up, we can
5 move on.

6 MR. ETTINGER: I will just ask one
7 thing. Have you looked at what the construction
8 timelines are that the District has proposed for
9 various other things that have been proposed or
10 upgrades to the system?

11 MS. WASIK: For example?

12 MR. ETTINGER: Well, like,
13 disinfection or addressing CSOs or some of the
14 other construction timelines that have been set.

15 MS. WASIK: Well, TARP is for
16 addressing CSOs.

17 MR. ETTINGER: Okay. But for
18 disinfection or anything else?

19 MS. WASIK: Have I looked at how
20 disinfection will affect --

21 MR. ETTINGER: No. I'm just asking
22 about the construction timelines. How long does
23 it take the Water Reclamation District from when
24 they decide to do something until when it gets

1 done?

2 MS. WASIK: I think that really
3 depends on what it is.

4 MR. ETTINGER: Okay. I'll come
5 back to construction deadlines after the break
6 and ask about how long we have to look at it in
7 the foreseeable future.

8 BOARD MEMBER JOHNSON: We have
9 that to look forward to.

10 MR. ETTINGER: Looking forward is
11 just what we are talking about.

12 MS. WILLIAMS: Question 19, if we
13 could move onto that. Who made the decisions
14 regarding placement of water body segments in
15 Categories 1, 2 or 3?

16 MS. WASIK: The District staff.

17 MS. WILLIAMS: Can you be more
18 specific?

19 MS. WASIK: The District staff from
20 the monitoring research department and also that
21 would include scientists, biologists and engineers.

22 MS. WILLIAMS: Were you one of those?

23 MS. WASIK: Yes.

24 MS. WILLIAMS: Were you the head of

1 that team?

2 MS. WASIK: I wouldn't say that. Only
3 by title.

4 MS. WILLIAMS: Work for government.
5 I know how that is.

6 MS. WASIK: By title. I wouldn't say
7 I was the head of that team, no.

8 MS. WILLIAMS: This is Question 20,
9 "Didn't the CAWS habitat evaluation report show
10 Bubbly Creek had higher aquatic life use potential
11 than some of the Category 2 waters?"

12 MS. WASIK: No. I don't think it
13 showed that it had a higher aquatic life use
14 potential, only that it had a higher CAWS index
15 score, which isn't necessarily synonymous. I
16 think the proposal looks at habitat index scores
17 but it also allows for consideration of other
18 factors.

19 As I described on Page 8 of my
20 testimony, there are other unusual conditions in
21 Bubbly Creek discussed in Dennison's 2008 testimony
22 regarding Bubbly Creek. There is the Racine Avenue
23 pumping station during wet weather
24 and it's stagnant basically during dry whether.

1 These are not captured -- issues that are not
2 captured in the habitat score.

3 MS. WILLIAMS: So the District did
4 not rely on the habitat report to place Bubbly
5 Creek in the separate use category, Category 3,
6 correct?

7 MS. WASIK: No. We didn't rely
8 exclusively on habitat index scores from the
9 report for classification of any of the waters.

10 MS. WILLIAMS: What methodology
11 did you use then?

12 MS. WASIK: I think that's described
13 in my testimony in attachments, but basically we
14 did look at habitat index scores especially for
15 placement of waterway segments into Category 1
16 versus Category 2 waters.

17 And then if they were very close
18 in score, we looked to other information to try and
19 come up with a viable way of assessing which
20 category it should be in between one and two,
21 but Category 3 is for stagnant areas and stagnant
22 water bodies as there is a provision in the general
23 use standards for stagnant conditions that would be
24 similar to that.

1 MS. WILLIAMS: Would you agree that
2 the north -- well, the upper north branch Chicago
3 River and the lower north branch Chicago River had
4 very similar habitat?

5 MS. WASIK: Yes, they did. That was
6 one of the examples of a situation where you looked
7 more closely of those reaches in order to decide
8 where it would be classified.

9 MS. WILLIAMS: How did you come
10 to that conclusion to put them in different use
11 categories even though habitat scores were very
12 similar?

13 MS. WASIK: It's specifically
14 explained in my pre-filed testimony. Let me find
15 the reference here.

16 MS. WILLIAMS: It's not clear to me
17 from I remember testimony. That's why I have asked
18 you to explain it.

19 MS. WASIK: On Pages 7 and 8 of
20 my testimony, it explains that there were some
21 borderline segments that -- looking at the
22 habitat index stores, it didn't provide for a
23 very clear way to segment those -- segment between
24 Category 1 and Category 2.

1 We used other available
2 information concerning sediment toxicity and
3 navigation that indicate -- and other physical
4 habitat characteristics that indicate whether
5 or not -- or whether the lower north branch in
6 particular should be in Category 2 rather than
7 Category 1.

8 MS. WILLIAMS: Was it navigation
9 in particular that led to your decision for the
10 lower branch?

11 MS. WASIK: That was one factor,
12 yes, because I believe navigation ends at
13 Addison -- commercial navigation or barge traffic
14 would not be present on the upper north branch.

15 MS. WILLIAMS: When you say
16 borderline habitat scores, can you explain what
17 you mean by that?

18 MS. WASIK: I was looking at --
19 looking at the habitat index scores from the
20 habitat evaluation report, there were some
21 numbers that were clearly high and there were
22 others that were clearly low, but as you got
23 into the middle, we had, for instance, the upper
24 and lower north branch Chicago River.

1 They seem to have some habitat
2 differences -- appreciable habitat differences
3 even though the scores are quite close. So if
4 you look at sediment toxicity and then considering
5 navigation, we decided the lower north branch was
6 more appropriate in Category 2 rather than Category
7 1. It fit in more appropriately with those waters.

8 MS. WILLIAMS: Is there navigation in
9 the Little Calumet River?

10 MS. WASIK: Yes, there is.

11 MS. WILLIAMS: Would you agree that
12 the Little Calumet River also had similar scores
13 to the North Branch Chicago River?

14 MS. WASIK: Let's see the table here.

15 MS. WILLIAMS: I'm referring now to
16 the habitat improvement report.

17 MS. WASIK: The habitat improvement
18 versus the evaluation report have similar scores.

19 MS. WILLIAMS: Well, similar to
20 north branch. North Branch and Little Calumet,
21 do you agree their scores are similar?

22 MS. WASIK: I believe the Little
23 Calumet has higher habitat index scores. That
24 was one that wasn't considered a borderline score.

1 MS. WILLIAMS: So you consider
2 the Little Calumet River score to be high, is
3 what you are saying in a relative sense?

4 MS. WASIK: I'm just looking for
5 the relative table of the relative scores so I
6 can answer that.

7 MS. WILLIAMS: Is it --

8 MS. WASIK: The Little Calumet
9 River --

10 MS. WILLIAMS: Why don't I -- can I
11 refer you to the table we are looking at? Maybe
12 that would help. We are looking at Page 57 of the
13 habitat improvement report.

14 MS. WASIK: Okay. When we were
15 talking about splitting into Category 1 and Category
16 2, I was speaking about our habitat index scores
17 for the reaches and you're talking about habitat
18 evaluation improvement scores so I think we're
19 talking about two different things.

20 MS. WILLIAMS: Well, we're looking
21 at both. This table has the CAWS habitat index
22 score and then it has in the second column potential
23 index score after habitat placement. So are you
24 saying that --

1 MR. ANDES: What page?

2 MS. WILLIAMS: Page 57.

3 MS. WASIK: When I was talking about
4 borderline scores, I'm talking about the habitat
5 improvement index scores.

6 MS. WILLIAMS: Okay.

7 MR. ANDES: Evaluation.

8 MS. WASIK: I'm sorry. The habitat
9 evaluation scores.

10 MS. WILLIAMS: So you did not consider
11 the habitat potential index score or the habit
12 improvements in deciding the category, is that your
13 testimony?

14 MS. WASIK: The improvements -- we
15 also looked at the improvements, but what we first
16 looked at were the index scores, which are on Page
17 139 of the habitat --

18 MS. WILLIAMS: But they are also on
19 this page, right?

20 MS. WASIK: Right. So when I'm
21 talking about on Page 7 of my pre-filed testimony
22 in describing the differences between the upper and
23 lower north branch being similar and I referenced
24 49 and 47, those are habitat evaluation index --

1 MS. WILLIAMS: Right.

2 MS. WASIK: And then I was going on
3 to describe some of the other factors that led us
4 to classify the lower north branch in Category 2.

5 MS. WILLIAMS: And Little Calumet
6 River --

7 MS. WASIK: So we were bringing in
8 another --

9 MS. WILLIAMS: Do you have the table
10 out, Page 37?

11 MS. WASIK: Yes.

12 MS. WILLIAMS: I mean, you're correct.
13 There's 49 to 47. Then if you move to the next
14 column, you see 58 -- I'm looking at both -- both
15 sets of numbers, both what's found existing and
16 what's found to be the potential after habitat
17 improvements were implemented. It would seem to me
18 that in both scenarios, the north branch, upper and
19 lower, remained very similar, correct?

20 MS. WASIK: Yes. They remain similar.

21 MS. WILLIAMS: And then if you look
22 at the last line, Little Calumet River, the actual
23 score for the Little Calumet River is 52. So that
24 is a little bit higher. Is that the reason it was

1 placed in Category 1?

2 MS. WASIK: Yes.

3 MS. WILLIAMS: But yet if you look
4 at the potential improvement score, you get what?

5 MS. WASIK: Fifty-seven.

6 MS. WILLIAMS: Okay. So my question
7 for you is if you look at the potential habitat, the
8 Little Calumet River falls between upper and lower
9 and has navigation as the lower. So why did the
10 District conclude that -- what methodology was used
11 to put Little Calumet River in use one versus use
12 two?

13 MS. WASIK: Well, the index scores --
14 because the Little Calumet River had an appreciably
15 higher index score, that was the main reason that
16 was put in Category 1. In terms of the potential
17 index score improvement, there were a lot of
18 assumptions that went into that -- those potential
19 changes or the percent change in the index scores,
20 a lot of assumptions about what could be done in
21 the channels and how much, you know, property could
22 be obtained to do certain improvements. So we did
23 not rely heavily upon this percent change in index
24 score or potential index scores because it was too

1 speculative.

2 MS. WILLIAMS: So can I interpret,
3 then, from that answer that 48 was basically your
4 cutoff? Would that be accurate?

5 If you had a habitat index
6 score 48 or more, you ended up in Category 1?

7 MS. WASIK: We don't have a particular
8 cutoff for the index. I think 48 --
9 if you were to look at that, 48 is considered
10 sort of a borderline number, but as I mentioned,
11 there are other factors that are not reflected
12 in the habitat index score that are important
13 to assessing aquatic life uses.

14 MS. WILLIAMS: Did you do anything
15 with the habitat improvement report?

16 MS. WASIK: Did we do anything with
17 it?

18 MS. WILLIAMS: Did it enter into
19 your conclusions in any way in your proposal for the
20 aquatic life use designation in any way?

21 MS. WASIK: I would say it was
22 considered, but if you look at -- you're
23 specifically asking about the Little Calumet River
24 versus the lower north branch. I mean, the Little

1 Calumet is still slightly higher than the lower
2 north branch in terms of its potential improvement
3 as well.

4 MS. WILLIAMS: Were any of these
5 potential for improvement identified in the habitat
6 evaluation report -- -- strike that.

7 Were any of the potential index
8 for improvement identified in the habitat
9 improvement report relied on by the District to
10 raise their expectations for any of the water body
11 segments in CAWS of the attainable use?

12 MS. WASIK: I don't think that there
13 is any example where the potential index score goes
14 up substantially enough that it would warrant
15 putting that segment into a different category than
16 we proposed.

17 HEARING OFFICER TIPSORD: Mr. Harley?

18 MR. HARLEY: In light of the fact you
19 had the same dominant fish community throughout the
20 CAWS, why does navigation matter in setting DO
21 standards.

22 MS. WASIK: We used navigation as
23 just one component in helping us to determine
24 classification of aquatic life uses. I don't

1 think that that particular component is something
2 that factored into the dissolved oxygen standard
3 proposal although one could argue that with barge
4 resuspension and a lot of sediment oxygen demand
5 that's generated from the fine particles that are
6 resuspended by barges, it is really ubiquitous in
7 the Cal Sag channel and the ship canal.

8 MR. HARLEY: In terms of setting these
9 goals for appropriate levels of dissolved oxygen for
10 aquatic life throughout the CAWS, why would boat
11 traffic be even a factor that you would consider?

12 MS. WASIK: It would be considered
13 in cutting the aquatic life use potential. I think
14 I've answered it the best I can.

15 MR. HARLEY: Fair enough. Thank you.

16 HEARING OFFICER TIPSORD: Okay.

17 Ms. Williams?

18 MS. WILLIAMS: I think we are done.

19 HEARING OFFICER TIPSORD: In that
20 case, let's go to lunch. See you all in an hour.

21 (Whereupon, after a short
22 lunch break was had, the
23 following proceedings
24 were held accordingly.)

1 STATE OF ILLINOIS)
2) SS.
3 COUNTY OF C O O K)
4
5

6 I, LORI ANN ASAUSKAS, CSR, RPR,
7 do hereby state that I am a court reporter doing
8 business in the City of Chicago, County of Cook,
9 and State of Illinois; that I reported by means
10 of machine shorthand the proceedings held in the
11 foregoing cause, and that the foregoing is a true
12 and correct transcript of my shorthand notes so
13 taken as aforesaid.

14
15
16
17
18
19

Lori Ann Asauskas

Lori Ann Asauskas, CSR, RPR.
Notary Public, Cook County, Illinois

20 SUBSCRIBED AND SWORN TO
21 before me this 27 day
22 of may, A.D., 2011.

23 Nicholas A Perazzo
23 Notary Public

24



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