# Meeting Minutes from the Lower Des Plaines River Workgroup and the CAWS Stakeholders Group

**Minutes**
**Lower Des Plaines River Use Attainability Analysis (UAA)**
**Workgroup**
**December 15, 2000**

**ATTENDANCE:**

| ***Name:*** | ***Agency:*** |
|---|---|
| Toby Frevert | Illinois Environmental Protection Agency |
| Irwin Polls | Metropolitan Water Reclamation District of Greater Chicago |
| Bernard Sawyer | Metropolitan Water Reclamation District of Greater Chicago |
| Prakosam Tata | Metropolitan Water Reclamation District of Greater Chicago |
| Dick Laynon | Metropolitan Water Reclamation District of Greater Chicago |
| Lou Kollias | Metropolitan Water Reclamation District of Greater Chicago |
| Bill Constantelos | Midwest Generation EMC, LLC |
| Julia Wozniak | Midwest Generation EMC, LLC |
| Dave Pfeifer | U. S. Environmental Protection Agency |
| Vladimir Novotny | AquaNova International, Ltd. |
| Neal O'Reilly | Hey and Associates, Inc. |

*** A list of all of the Lower Des Plaines River Use Attainability Analysis (UAA) Workgroup members, including names, address, phone numbers, and email addresses, is attached.**

**STATUS OF CURRENT MONITORING**

1. The Illinois Environmental Protection Agency (IEPA) has completed the macroinvertabrate and stream chemistry sampling outlined in the agreed upon monitoring plan. Macroinvertabrate samples still need to be analyzed. Water chemistry data is available from IEPA.

2. U. S. Environmental Protection Agency (USEPA) was unable to complete their sediment sampling work due to problems with their sampling boat. Sampling will be attempted again in the spring of 2001.

3. Illinois Department of Natural Resources (IDNR) completed their spring of 2000 fishery sampling. Status of the August sampling is unknown.

4. Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) has conducted water chemistry sampling at 5 sites. MWRDGC has also sampled 10 sites for macroinvertabrates. The Mmacroinverteabrate samples are currently being processed. In addition to species identification MWRDGC will also be looking for deformities.

5. Midwest Generation EMC, LLC conducted fishery sampling during the months of June through September 2000. Sampling for temperature and dissolved oxygen was collected at Interstate 55. Midwest Generation has been collecting data from 1996 through 2000.

## INTRODUCTION OF PROJECT TEAM AND PROJECT APPROACH

Dr. Vladimir Novotny from AquaNova International, Ltd. introduced the project team and provided an overview of the process that would be used in the Use Attainability Analysis (UAA). Copies of the overheads used, and a narrative outlining the UAA process are attached.

There was discussion on what criteria would be used to assess a change in the current designated use. Dr. Novotny provided an overview of the USEPA criteria. What was unclear to many was what would be the criteria for "widespread adverse social and economic impact". To address this issue, the consulting team will bring Dr. John Braden, from the University of Illinois to the one of the next meetings of the workgroup in early 2001.

A question was asked whether or not IEPA would accept data provided by outside sources such as MWRDGC or Midwest Generation in the UAA process. Toby Frevert (IEPA) assured the workgroup that field data collected by local agencies and private corporations would be used in the UAA process.

It was decided that Neal O'Reilly from Hey and Associates would be the consulting teams contact person for receiving data. Neal requested that where ever possible data be provided in a spreadsheet format to reduce the time for keypunching of the data. Excel was selected as the preferred format for data transfer. Neal address is located on the attached workgroup list. Neal will be contacting those workgroup members that were unable attend the meeting to arrange acquisition of available data.

## NEXT MEETING

The exact date for the next meeting was not set. Toby Frevert suggested end of January for the next meeting. Prior to the meeting the project team will propose an agenda item to be presented at the meeting for a discussion. One of the agenda items to be discussed at the next meeting will be the time schedule of deliverables.

# Minutes
# Lower Des Plainer River Use Attainability Analysis (UAA)
# Workgroup Meeting
# February 20, 2001

**ATTENDANCE:**

| Name: | Agency: |
|---|---|
| Toby Frevert | Illinois Environmental Protection Agency |
| Robert Schacht | Illinois Environmental Protection Agency |
| Deborah Williams | Illinois Environmental Protection Agency |
| Scott Twain | Illinois Environmental Protection Agency |
| Dick Lanyon | Metropolitan Water Reclamation District of Greater Chicago |
| Irvin Polls | Metropolitan Water Reclamation District of Greater Chicago |
| Susan O'Connell | Metropolitan Water Reclamation District of Greater Chicago |
| Ram Kopuri | Metropolitan Water Reclamation District of Greater Chicago |
| Greg Cargill | Metropolitan Water Reclamation District of Greater Chicago |
| Lou Kollias | Metropolitan Water Reclamation District of Greater Chicago |
| Bernard Sawyer | Metropolitan Water Reclamation District of Greater Chicago |
| Clint Beckert | US Army Corps of Engineers |
| Harry Walton | IL Environmental Regulatory Group |
| Richard Monzing | EA Engineering, Inc. |
| Julia Wozniak | Midwest Generation, EMC, LLC |
| Jack Darin | Sierra Club |
| Rob Moore | Prairie Rivers Network |
| Laurene von Klan | Friends of the Chicago River |
| Chris Bianco | Chemical Industry Council |
| Marcia Jimenez | City of Chicago-Environment |
| Dave Pfeifer | U.S. Environmental Protection Agency |
| Ed Hammer | U.S. Environmental Protection Agency |
| Vladimir Novotny | AquaNova International, Ltd. |
| Lynn Novotny | AquaNova International, Ltd. |
| Neal O'Reilly | Hey and Associates, Inc. |

## 1. Review of Available Data Source and Identification of Missing Sources

Neal O'Reilly presented the list of data sources that includes:

U.S. Geological Survey - 5 stations
Metropolitan Water Reclamation District of Greater Chicago - upstream CSSC
Illinois EPA - water chemistry, macroinvertebrates, GIS data on point sources
Illinois DNR - Fishery data (45-years at two station), muscle data
Midwest Generation/Com Ed - DO, temperature, fishery, and macroinvertebtate
U.S. Army Corps of Engineers - bathymetric data, limited sediment quality
U.S. Environmental Protection Agency-sediment chemistry

Source added: Upper Midwest Environmental Science Center - Jim Wiener (data on macrophytes)

## 2. Outline of the Historic Overview Study

Dr. Novotny presented an outline of the historic overview. This will be the first deliverable document produced by the team. The overview will have four sections :

Brief historical development of water quality
Water quality management - Des Plaines River and Chicago Ship and Sanitation Canal
Legislative mandates for use designation and use attainability analysis
History of the use designation of the Des Plaines River

Scott Twain of I EPA will prepare a summary of the legislative records of hearing laying the groundwork for the present designated use.

## 3. Review of Water Body Assessment Methodology for Ascertaining the Chemical Integrity of the Lower des Plaines River

Neal O'Reilly and Dr. Novotny introduced and outlined the document that was mailed or distributed to the members of the committee.

Questions and Comments:

- The team and Illinois EPA will work with existing Illinois and federal standards.
- The evolving nutrient standards will be addressed at the time they are officially issued.
- The length of the record of water quality data for the analysis should be more than 3 years to establish the frequency of once in three years excursions. However, the record should not be too long (max 5 years) so that it would not include past water quality problems that have been remedied.
- The team needs information on "milestones" in water quality abatement that lead to dramatic improvement and/or changes in water quality.
- The water quality analysis is focusing on extremes and averages are of lesser importance.
- The database includes monthly data taken at more-or-less regular intervals throughout the year, with possible exceptions of winter ice conditions.
- Simpler Tier I sediment assessment in lieu of sediment partitioning between total and pore water concentrations was suggested as the most efficient evaluation of impairment.
- The work product will provide a comprehensive scientific UAA study that will have three parts:(1) Water Body Assessment; (2) Modified abbreviated TMDL; and (3) Socio-economic assessment of cost of implementing the proposed higher use. The team will propose and evaluate higher uses than the secondary recreation and indigenous aquatic life, which is the present designated use. Once the use is established the UAA will propose corresponding standards. The workgroup will

be actively involved in this process. The standards regulations list six reasons for a change of the designated use and standards that will be considered in the evaluation. The Illinois EPA will use this document to petition the Illinois Pollution Control Board for potential changes of the designated use and potential adoption of proposed, possibly site-specific standards. Changes adopted by the Illinois Pollution Control Board will be forwarded to USEPA for approval under the Federal Clean Water Act.

Members of the committee expressed a need to further study the methodology and provide comments and feedback. These comments will be submitted to the AquaNova/Hey Associates team prior the next workgroup meeting on March 20. A portion of the meeting will be devoted to building a consensus on the methodology and answering comments.

**4. Review of the Work Schedule**

Neal O'Reilly presented and distributed a spreadsheet chart of the work schedule. The upcoming workgroup meetings are scheduled for March 20, June 19, September 11, and October 30. Two meetings are scheduled for 2002. The entire project is scheduled to last 18 months.

**5. Biological Methodology**

Neal O'Reilly distributed a draft of the methodology for the biological assessment. Members of the committee were requested to review the document and prepare questions and comments for the next meeting.

**NEXT MEETING**

The next meeting will be on March 20, 2001 at the MWRDGC Chicago (100 East Erie Str., Chicago). The meeting will begin at 12:30. The focus of the meeting will be continuation of discussion on the chemical and biological methodologies and a presentation by Dr. John Braden on the fundamentals of the socio-economic component of the UAA.

**Minutes**
**Lower Des Plaines River Use Attainability Analysis (UAA)**
**Workgroup**
**April 11, 2001**

**ATTENDANCE:**

| *Name:* | *Agency:* |
|---|---|
| Toby Frevert | Illinois Environmental Protection Agency |
| Dick Laynon | Metropolitan Water Reclamation District of Greater Chicago |
| Bernard Sawyer | Metropolitan Water Reclamation District of Greater Chicago |
| Prakasam Tata | Metropolitan Water Reclamation District of Greater Chicago |
| Howard Essig | Illinois Environmental Protection Agency |
| Mike Cochran | Illinois Department of Natural Resources |
| Scott Twait | Illinois Environmental Protection Agency |
| Bob Schacht | Illinois Environmental Protection Agency |
| Lou Kollias | Metropolitan Water Reclamation District of Greater Chicago |
| Harry Walton | IL Environmental Regulatory Group |
| Irwin Polls | Metropolitan Water Reclamation District of Greater Chicago |
| Chris Bianco | Chemical Industry Council |
| Paul Pederson | Stephan Company |
| Steven Murawski | Gardner, Carton, & Douglas |
| Gregory Chodil | BP Amoco |
| Susan O'Connell | Metropolitan Water Reclamation District of Greater Chicago |
| Dr. Richard Monzingo | EA Engineering, Science & Technology |
| Julia Wozniak | Midwest Generation EMC, LLC |
| Robert Moore | Prairie Network |
| Vladimir Novotny | AquaNova International, Ltd. |
| Neal O'Reilly | Hey and Associates, Inc. |
| Mike Mischuk | Hey and Associates, Inc. |
| John Braden | University of Illinois |

**CONTINUED REVIEW OF "WATER BODY ASSESSMENT METHODOLOGY FOR ASCERTAINING THE CHEMICAL INTEGRITY OF LOWER DES PLAINES RIVER"**

1. Vladimir Novotny handed out a response to comments provided by e-mail from Irwin Polls. A copy of the Dr. Novotny's memo is attached to this e-mail.

2. Irwin Polls offered to provide sediment chemistry data from three sites from 1995 through 2000. IDNR also stated that they had sediment data that would be provided.

3. The committee brought up nutrient standards. This topic will be agenda item for a future meeting of the workgroup as IEPA reviews the federal EPA proposed criteria.

4. The committee agreed to use the log-normal probability plots method outlined in the proposed methodology for the initial screening of the chemical parameters. For parameters that are close to the 99.8% probability (acute standard) and the 99.4% probability (chronic standard), the consultant team will come back to the workgroup to discuss parameter specific methodologies for further analysis.

5. Sediment methodology was not agreed upon and will be discussed at a future meeting of the workgroup.

## METHODOLOGY FOR ASSESSMENT OF AQUATIC LIFE USE FOR THE LOWER DES PLAINES RIVER

1. Mike Mischuk presented the current IEPA methodology for stream assessment outlined in the state's 305(b) report. The methodology relies on the use of *Index of Biological Integrity* (IBI) and the *Macroinvertabrate Biotic Index* (MBI). Considerable discussion took place as to the appropriateness of the methodology for large streams. Dick Laynon suggested that due to the complexities of the issue, that a biological sub-committee be formed to resolve the issue. The workgroup agreed to establish the committee.
2. As a follow-up, the biological sub-committee met on May 17, 2001. Minutes of the meeting are attached to this e-mail.

## SOCIOECONOMIC IMPACT ANALYSIS IN UAA

1. John Braden made a presentation on how socioeconomic impacts are assessed in the UAA process. A copy of Dr. Braden's PowerPoint is attached to this e-mail.

## NEXT MEETING

The next meeting of the workgroup will be on June 19, 2001 at the Metropolitan Water Reclamation District of Greater Chicago, at 100 E. Erie, Chicago. The agenda for the meeting is attached to this e-mail.

Howard's comments must be added.

# Draft Minutes
# Lower Des Plainer River Use Attainability Analysis (UAA)
# Biological Sub-committee Workgroup Meeting
# April 3, 2002

**ATTENDANCE:**

| Name: | Agency: |
|---|---|
| Toby Frevert | Illinois Environmental Protection Agency |
| Howard Essig | Illinois Environmental Protection Agency |
| Roy Smogor | Illinois Environmental Protection Agency |
| Scott Twait | Illinois Environmental Protection Agency |
| Rob Sulski | Illinois Environmental Protection Agency |
| Mike Cochran | Illinois Dept. of Natural Resources |
| Ed Hammer | U.S. Environmental Protection Agency |
| Chris Yoder | MBI/CABB |
| Irvin Polls | Metropolitan Water Reclamation District of Greater Chicago |
| Harry Walton | IL Environmental Regulatory Group |
| Bill Constantelos | Midwest Generation, EMC, LLC |
| Julia Wozniak | Midwest Generation, EMC, LLC |
| Greg Seegert | EA Engineering, Inc. |
| Lisa Frede | Chemical Industry Council of Illionis |
| Neal O'Reilly | Hey and Associates, Inc. |
| Mike Mischuk | Hey and Associates, Inc. |
| Tim Ehlinger | University of Wisconsin – Milwaukee |
| Vladimir Novotny | AquaNova International, LTD. |

**MEETING SUMMARY:**

I. Review of Summary Memo of Previous Committee Discussions by Greg Seegert

Generally the committee found the memo to be good representation of the discussions that have taken place to date by the Biological Subcommittee. The following changes to the memo were recommended:

- A date should be placed at the top of the memo.
- That the first two bullets on page one be modified to state that the charges of the committee are to evaluate current use and identify potential use based on available habitat, and identify the limiting factors for not meeting potential use.
- Irwin Polls requested that on page 2, that the Brandon Pool be classified as having "poor habitat, not the "poor to fair" as written.
- On page 2 it is stated that "water temperature, ammonia, and water column toxicity were not examined in detail by the committee but none appear. . ." Roy Smogor pointed out that AquaNova had looked at water column toxicity in its evaluation and none was found.

- The last sentence of the memo was changed from "*Recent comprehensive sediment data is needed to aid in the decision making process.*" to "*Recently generated data may aid in the decision making process.*"

A copy of the revised memo is attached to this e-mail. (Need to attach revision) The changes are highlighted in blue.

II. Review of Fishery Biological Matrices and Discussion on their Meaning.

Tim Ehlinger made a presentation of an analysis of the fishery data provided by IDNR and Midwest Generation. The presentation done in Microsoft PowerPoint is attached. (Please attach it!) The following is a summary of discussion on the presentation:

- It was discussed that the Ohio IBI values were adjusted for low-end data and DELT anomalies. A previous version of the presentation did not include these adjustments.
- Tim's presentation showed a comparison of results using both the Illinois and Ohio IBI. Tim felt that the Ohio Boatable River IBI provided the best resolution of the data, was better suited to the impounded conditions in the study area, and should be used for the analysis.
- Mike Cochran noted that IDNR data was only sampled using electroshocking methods, which may not represent the true community structure. The IDNR data may affect IBI results on large rivers. (I believe that Mike Cochran also stated that he did not feel that it was appropriate to apply IBI to large rivers, since this index has not been calibrated in Illinois for anything but wadeable streams). It was concluded that the Midwest Generation data better represented the fishery community in the study reach.
- It was suggested by Roy Smogor, that before we agree to use the Ohio IBI, a comparison between the Ohio IBI and Illinois IBI should be done for a series of impounded reference sites. Sites recommended were the Illinois River at Marseillies, Rock River, and Kaskaskia River. Harry Walton offered to find out if Illinois Power (IP) has conducted a comprehensive fishery survey on the Kaskaskia River. If available he would forward the information to IEPA. Howard Essig stated he would look for data for the other river reference sites.
- Tim presented that several of the metrics (native species, darter species, sucker species, sunfish species, intolerant species, insectivores, and hybrids) did show good correlation by river mile. Tim recommended that the analysis be fleshed out by also using Midwest Generations data for 1999 and 2001. Midwest Generation agreed to provide that data. EA Engineering, Inc., Midwest Generation's consultant, will provide the data.

- Consensus of the committee was reached in stating that the Brandon Pool is habitat limited. The pool is limited by a lack of spawning habitat, lack of diverse aquatic structure, and disturbance by barge traffic. It was felt that even with water quality improvements the Brandon Pool could never meet a General Use biological community.
- Irwin Polls discussed the presence of contaminated sediments in the Brandon Pool. He stated that most of the sediments were located behind the dam and below I-80. In the navigation channel most of the sediments are scoured.

- Chris Yoder mentioned that some improvements might be seen by control of contaminated sediment. Chris mentioned the Black River in Ohio where contaminated sediment removal resulted in the IBI scores improving from 10-20 to 20-30. (Note that these scores are still not representative of a "General Use" type condition).
- It was proposed by the committee that an intermediate classification between Secondary Use and General Use be considered for the Brandon Pool. The Consultant was asked to bring to the next meeting draft language for a proposed intermediate classification.
- The committee requested that the Consultant prepare a narrative statement of the biological integrity of the Brandon Pool.
- Discussion of the Dresden Pool was identified as a agenda item for a future meeting.

III. Review of Macroinvertabrate Biological Matrices and Discussion on their Meaning.

Mike Mischuk made a presentation of the macroinverbrate data collected by IEPA and the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC). Data was presented using both the Illinois MBI and the OHIO ICI for comparison. A copy of the PowerPoint presentation is attached to this e-mail (Please attach!). The following are comments of the discussion:

- It was requested that a date (and page numbers?) be placed on all of the slide presentations for future reference.
- It was noted that the data from river mile 291.0 is for the Des Plaines River upstream of the Sanitary and Ship Cannel and is not in the study area.
- Howard Essig handed out a comparison of other IEPA sampled sites in Northeastern Illinois.
- Irwin felt that some of the individual metrics did show some potential relationships. These included %Chironomidae, % oligochaetes, taxa richness, number of intolerant taxa. Other metrics did not show any strong signals.
- Chris Yoder made the point that Ohio does not do macroinvertbrate sampling in impoundments, and that the use of the ICI index in impounded conditions is not a proper use of the tool.
- Irwin Polls felt that the macroinverbrate data does say something and should be included in the analysis.
- Roy Smogor stated that the MBI and ICI might be telling us different things. The MBI is an index used to measure the impacts of organic pollution. The ICI is a measure of community structure. The data may be saying that organic pollution is not a problem but other factors are affecting the community.
- Chris Yoder warned the committee that the data may be saying nothing and that signals people are seeing are just noise in the data.
- The committee requested that the consultant plot the individual metrics scores for the ICI and present them to the committee.

IV. Agenda Items for Next Meeting(s)

- Continued review of fishery data.

- Continued review of macroinverbrate data.
- Review of proposed intermediate classification for Branon Pool.
- Review of thermal issues in the waterway?
- Preperation of outline of Biological Integrity Report.
- Classification of Dresden Pool.

# MEMORANDUM

Date: 5/29/02
To: Lower Des Plaines River UAA Biological Sub-committee Work Group
From: Howard Essig
Subject: Comments on Draft minutes – Lower Des Plaines River Use Attainability Analysis (UAA), Biological Sub-committee Workgroup Meeting April 3, 2002.

**Review of Fishery Biological metrics and Discussion on their meaning**

**Second bullet:** Tim's presentation showed a comparison of results using both the Illinois and Ohio IBI. Tim felt that the Ohio Boatable River IBI provided the best resolution of the data, was better suited for the impounded conditions in the study area, and should be used for the analysis.

**Comment:** During the meeting I pointed out that the Illinois IBI values for the study area were obviously not correct (e.g. IBI values >50 in the Dresden Pool below I-55 and >40 above I-55). Tim indicated that individual samples might have been pooled together before Illinois IBI values were calculated. Illinois IBI values should be recalculated properly for a true comparison between Illinois and Ohio boatable IBIs. While the Illinois IBI is not used on great rivers (Mississippi, Illinois, Ohio), the Illinois IBI was developed using both wadable and non-wadable (boat) sites up to 7$^{th}$ order streams (e.g. Kankakee and Rock Rivers).

In addition I think the use of the term "impounded" should be used with caution. People not familiar with the study area might interpret it to be essentially an artificial lake/reservoir with little or no velocity. There is sufficient velocity in the study area so that it is not limited to only pooled habitats.

**Sixth Bullet:** Consensus of the committee was reached in stating that the Brandon Pool is habitat limited. The pool is limited by a lack of spawning habitat, lack of diverse aquatic structure, and disturbance by barge traffic. It was felt that even with water quality improvements the Brandon Pool could never meet a General Use biological community.

**Comment:** I don't recall there being a consensus on this point. While I agree that habitat is poor there are other problems such as contaminated sediments that if mitigated may result in some improvement in the biology.

**Review of macroinvertebrate Biological Metrics and Discussion on their Meaning.**

**Third Bullet:** Howard Essig handed out a comparison of other IEPA sampled sites in Northeastern Illinois.

**Comment:** Rivers were from northern Illinois and included the Mississippi, Rock, Fox, upper and lower Des Plaines, Chicago Sanitary and Ship Canal and Cal Sag Channel. Most of the original metrics (except intolerant taxa and % tolerant) that the work group recommended along with a few others (MBI, % Tanytarsini) were compared between these rivers. Total taxa, EPT taxa, MBI, and percent Tanytarsini seemed to perform better in discriminating among sites.

**Fourth Bullet**: Irwin felt that some of the individual metrics did show some potential relationships. These included % Chironomidae, % Oligochaeta, taxa richness, number of intolerant taxa. Other metrics did not show any strong signals.

**Comments**: The number of intolerant taxa and the percent tolerant individuals were based on IEPA MBI tolerance values. However, in the analysis intolerant taxa included organisms with a

tolerance value of ≤6 and tolerant organisms with a tolerance of >6. IEPA considers organisms with a tolerance value of ≤5 as intolerant and ≥9 as tolerant (tolerance values 6 – 8 are considered moderate). Recalculating these two metrics excluding moderate taxa (tolerances 6 - 8) may help to better discriminate among the stations in the study area.

**Fifth Bullet:** Chris Yoder made the point that Ohio does not do macroinvertebrate sampling in impoundments, and that the use of the ICI index in impounded conditions is not a proper use of the tool.

**Comment:** According to Ohio EPA (1987) the current should be no less than 0.3 ft/sec in order to properly use the ICI. For streams with currents <0.3 ft/sec or in streams with only pooled habitats some interpretation of the ICI value may be necessary. I had indicated at the meeting that most of the locations where IEPA deployed artificial substrates had estimated velocities well above 0.3 ft/sec and were probably closer to 1 ft/sec. Habitats included primarily main channel and main channel border areas. Only the sample in the Du Page Delta would have been close to or below 0.3 ft/sec. According to Irwin's description of the study area the Brandon and Dresden Pools have an average velocity of about 0.75 ft/sec and 0.65 ft/sec, respectively. Therefore I feel the use of the ICI in the study area is valid.

**Sixth Bullet:** Irwin Polls felt that the macroinvertebrate data does say something and should be included in the analysis.

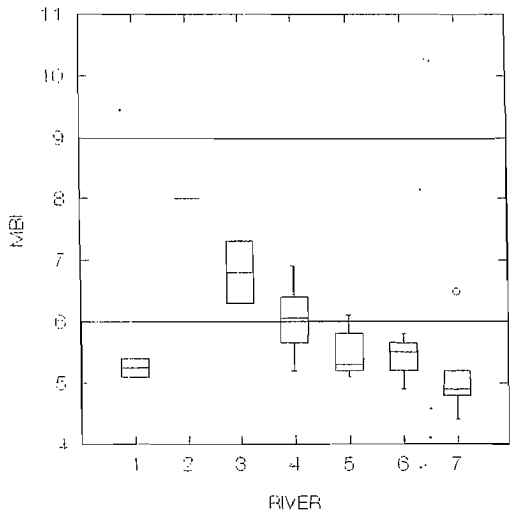
**Comment:** I agree with Irwin. Part of the problem with seeing definite or easily identifiable trends in the macroinvertebrate data may be due to the way the data was presented. Individual samples were graphed by river mile and in several cases there were several stations located within a navigation pool. Macroinvertebrate populations tend to be patchy and artificial substrates are generally monitoring microhabitats. There can be quite a bit of variability depending on where the substrates are located relative to velocity. Fish data were combined by navigation pool and were presented using box and whisker plots. In addition the fish analysis included data from the Marseilles Pool. Macroinvertebrate data from the Illinois River (Dresden and Marseilles pools) were provided but were not included in the analysis. If macroinvertebrate data were presented in a similar manner as fish, trends would be more apparent. Both the MBI and ICI indicate improving trends from the Lockport Pool to the Marseilles Pool (see attached figure). Other individual metrics may also indicate similar trends if analyzed the same way.

**Seventh Bullet:** Roy Smogor stated that the MBI and ICI might be telling us different things. The MBI is an index used to measure the impacts of organic pollution. The ICI is a measure of community structure. The data may be saying that organic pollution is not a problem but other factors are affecting the community.

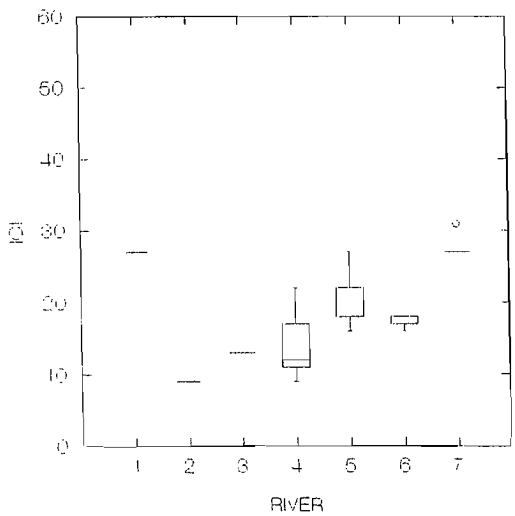
**Comment:** I disagree that MBI values may indicate that organic pollution is not a problem in the study area. MBI values indicate possible problems in the Lockport, Brandon and Dresden (upstream of I-55) pools (see attached figure). Conditions appear to improve in the Dresden Pool downstream of I-55 and into the Marseilles Pool. ICI values also show a similar improving trend from Lockport to the Marseilles pool.

Macroinvertebrate Biotic Index (MBI) and Invertebrate Community Index (ICII) values for the lower Des Plaines and upper Illinois Rivers 1999 and 2000. Samples were collected with artificial substrates by MWRDGC and IEPA.

River
1. Des Plaines River upstream CSSC, Lockport (2 samples).
2. Chicago Sanitary & Ship Canal, Lockport (1 sample).
3. Des Plaines River Brandon Pool, Joliet (2 samples).
4. Des Plaines River Dresden Pool upstream I-55 (8 samples).
5. Des Plaines River Dresden Pool downstream I-55 (5 samples).
6. Illinois River Dresden Pool (3 samples).
7. Illinois River Marseilles Pool (5 samples).




Trends



# Minutes
# Lower Des Plainer River Use Attainability Analysis (UAA)
# Biological Sub-committee Workgroup Meeting
# May 17, 2001

**ATTENDANCE:**

| Name: | Agency: |
|---|---|
| Toby Frevert | Illinois Environmental Protection Agency |
| Howard Essig | Illinois Environmental Protection Agency |
| Roy Smogor | Illinois Environmental Protection Agency |
| Mike Cochran | Illinois Dept. of Natural Resources |
| Ed Hammer | U.S. Environmental Protection Agency |
| Irvin Polls | Metropolitan Water Reclamation District of Greater Chicago |
| Harry Walton | IL Environmental Regulatory Group |
| Julia Wozniak | Midwest Generation, EMC, LLC |
| Greg Seegert | EA Engineering, Inc. |
| Neal O'Reilly | Hey and Associates, Inc. |
| Vince Mosca | Hey and Associates, Inc. |
| Tim Ehlinger | University of Wisconsin – Milwaukee |

**MEETING SUMMARY:**

The meeting was opened with a discussion of the values of using the assessment methodology developed by Illinois Environmental Protection Agency (IEPA) as part of the state's 305(b) report. The methodology relies on the use of *Index of Biological Integrity* (IBI) and the *Macroinvertabrate Biotic Index* (MBI). Issued discussed included the appropriateness of the IBI and MBI for large rivers, needs for state wide consistency, appropriateness of reference sites, and the need to have a methodology that not only documents the current and potential conditions, but also allows the evaluators to identify the causes of any identified impairments.

After considerable discussion, the biological sub-committee reached consensus on the following items:

- The assessment methodology should be based on an evaluation of a series of biological matrixes that allow the evaluators to identify the existing biological conditions, potential biological use, and the causes for any impairment.

- The number of biological matrices should be limited to 6 to 7 for fish, macroinvertabrates, and habitat.

- The matrices may need to be supplemented with other information such as data from Habitat Suitability Indexes (HSI) for selected reference species.

- Reference sites will be selected from the Upper Illinois River to represent a large river

system. The Marseilles reach on the Illinois River was selected to be the reference site.

- The committee selected the following biological matrices for evaluation:

  Fish

  1. Total number of species
  2. Percent anomalies
  3. Percent Lithophiles (gravel spawners)
  4. Number of sucker species (including number of intolerant species)
  5. Number of intolerant and tolerant species
  6. Trophic guilds
     - benthic feeders
     - carnivores
     - omnivores

  Macroinvertabrates

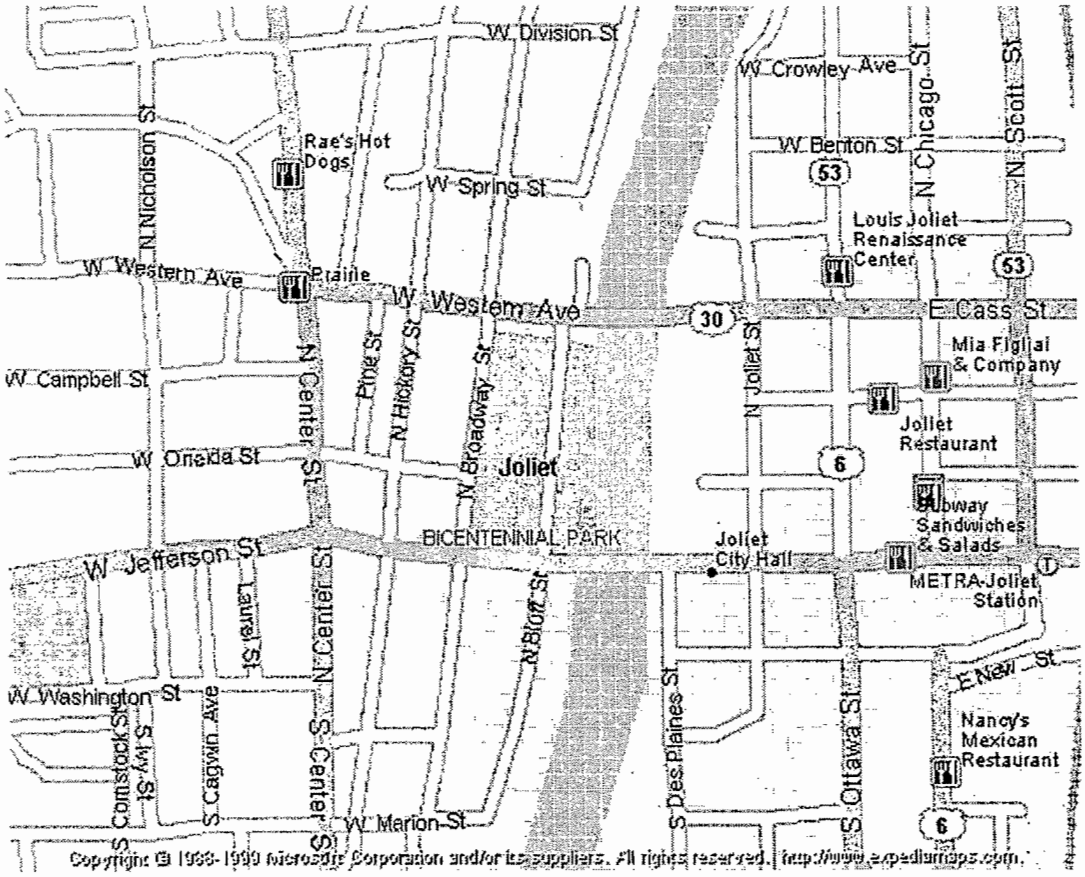
  1. Total number of taxa
  2. Midge head capsule deformities (% of total midges)
  3. Percent composition of major groups (ie. worms, midges, tricops, isopods, etc.)
  4. EPT Taxa
     - percent composition
     - number
  5. Midges (percent by major group)
  6. Percent tolerant individuals

  Habitat

  1. QHEI

The next step in developing the assessment methodology is to identify threshold values for the above matrices. Irvin Polls agreed to contact a series of national experts that he has been working with to get their opinions on appropriate values.

The Biological Sub-committee has scheduled a follow-up meeting for June 26, 2001, to be held in the Green Room at Bicentennial Park in Joliet, IL. Bicentennial Park is located just north of Jefferson Street (STH 52) and east of North Broadway Street on the west bank of the Des Plaines River (see attached map). The meeting will start at 10:00 AM.


W Division St
W Crowley Ave
N Chicago St
N Scott St
W Benton St
53
Rae's Hot Dogs
W Spring St
N Nicholson St
Louis Joliet Renaissance Center
53
W Western Ave
Prairie
W Western Ave
30
E Cass St
N Joliet St
Mia Figlia & Company
W Campbell St
N Center St
Pine St
N Hickory St
N Broadway St
Joliet Restaurant
W Oneida St
Joliet
6
Subway Sandwiches & Salads
BICENTENNIAL PARK
Joliet City Hall
W Jefferson St
METRA-Joliet Station
N Center St
N Bluff St
E New St
W Washington St
S Des Plaines St
S Ottawa St
Nancy's Mexican Restaurant
S Comstock St
S Caswin Ave
S Center St
W Marion St
6
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# Final Minutes
# Lower Des Plainer River Use Attainability Analysis (UAA)
# Biological Sub-committee Workgroup Meeting
# April 3, 2002

**ATTENDANCE:**

| Name: | Agency: |
|---|---|
| Toby Frevert | Illinois Environmental Protection Agency |
| Howard Essig | Illinois Environmental Protection Agency |
| Roy Smogor | Illinois Environmental Protection Agency |
| Scott Twait | Illinois Environmental Protection Agency |
| Rob Sulski | Illinois Environmental Protection Agency |
| Mike Cochran | Illinois Dept. of Natural Resources |
| Ed Hammer | U.S. Environmental Protection Agency |
| Chris Yoder | MBI/CABB |
| Irvin Polls | Metropolitan Water Reclamation District of Greater Chicago |
| Harry Walton | IL Environmental Regulatory Group |
| Bill Constantelos | Midwest Generation, EMC, LLC |
| Julia Wozniak | Midwest Generation, EMC, LLC |
| Greg Seegert | EA Engineering, Inc. |
| Lisa Frede | Chemical Industry Council of Illionis |
| Neal O'Reilly | Hey and Associates, Inc. |
| Mike Mischuk | Hey and Associates, Inc. |
| Tim Ehlinger | University of Wisconsin – Milwaukee |
| Vladimir Novotny | AquaNova International, LTD. |

**MEETING SUMMARY:**

I. Review of Summary Memo of Previous Committee Discussions by Greg Seegert

Generally the committee found the memo to be good representation of the discussions that have taken place to date by the Biological Subcommittee. The following changes to the memo were recommended:

- A date should be placed at the top of the memo.
- That the first two bullets on page one be modified to state that the charges of the committee are to evaluate current use and identify potential use based on available habitat, and identify the limiting factors for not meeting potential use.
- Irwin Polls requested that on page 2, that the Brandon Pool be classified as having "poor habitat, not the "poor to fair" as written.

- On page 2 it is stated that "water temperature, ammonia, and water column toxicity were not examined in detail by the committee but none appear. . ." Roy Smogor pointed out that AquaNova had looked at water column toxicity in its evaluation and none was found.
- The last sentence of the memo was changed from "*Recent comprehensive sediment data is needed to aid in the decision making process.*" to "*Recently generated data may aid in the decision making process.*"

A copy of the revised memo is attached to this e-mail. The changes are highlighted in blue.

II. Review of Fishery Biological Matrices and Discussion on their Meaning.

Tim Ehlinger made a presentation of an analysis of the fishery data provided by IDNR and Midwest Generation. The following is a summary of discussion on the presentation:

- It was discussed that the Ohio IBI values were adjusted for low-end data and DELT anomalies. A previous version of the presentation did not include these adjustments.
- Tim's presentation showed a comparison of results using both the Illinois and Ohio IBI. Tim felt that the Ohio Boatable River IBI provided the best resolution of the data, was better suited to the impounded conditions in the study area, and should be used for the analysis. Howard Essig pointed out that the Illinois IBI values for the study area were obviously not correct (e.g. IBI values >50 in the Dresden Pool below I-55 and >40 above I-55). Tim indicated that individual samples might have been pooled together before Illinois IBI values were calculated. Illinois IBI values should be recalculated properly for a true comparison between Illinois and Ohio boatable IBIs. While the Illinois IBI is not used on great rivers (Mississippi, Illinois, Ohio), the Illinois IBI was developed using both wadable and non-wadable (boat) sites up to 7$^{th}$ order streams (e.g. Kankakee and Rock Rivers).
- Mike Cochran noted that IDNR data was only sampled using electroshocking methods, which may not represent the true community structure. The IDNR data may affect IBI results on large rivers. Mike Cochran also stated that he did not feel that it was appropriate to apply IBI to large rivers, since this index has not been calibrated in Illinois for anything but wadeable streams. It was concluded that the Midwest Generation data better represented the fishery community in the study reach.
- It was suggested by Roy Smogor, that before we agree to use the Ohio IBI, a comparison between the Ohio IBI and Illinois IBI should be done for a series of impounded reference sites. Sites recommended were the Illinois River at Marseillies, Rock River, and Kaskaskia River. Harry Walton offered to find out if Illinois Power (IP) has conducted a comprehensive fishery survey on the Kaskaskia River. If available he would forward the information to IEPA. Howard Essig stated he would look for data for the other river reference sites.

- Tim presented that several of the metrics (native species, darter species, sucker species, sunfish species, intolerant species, insectivores, and hybrids) did show good correlation by river mile. Tim recommended that the analysis be fleshed out by also using Midwest Generations data for 1999 and 2001. Midwest Generation agreed to provide that data. EA Engineering, Inc., Midwest Generation's consultant, will provide the data.
- General consensus by several committee members was reached in stating that the Brandon Pool is habitat limited. The pool is limited by a lack of spawning habitat, lack of diverse aquatic structure, and disturbance by barge traffic. It was felt that even with water quality improvements the Brandon Pool could never meet a General Use biological community. Howard Essig disagreed that consensus was reached, however did agree that the habitat is poor there are other problems such as contaminated sediments that if mitigated may result in some improvement in the biology.
- Irwin Polls discussed the presence of contaminated sediments in the Brandon Pool. He stated that most of the sediments were located behind the dam and below I-80. In the navigation channel most of the sediments are scoured.
- Chris Yoder mentioned that some improvements might be seen by control of contaminated sediment. Chris mentioned the Black River in Ohio where contaminated sediment removal resulted in the IBI scores improving from 10-20 to 20-30. (Note that these scores are still not representative of a "General Use" type condition).
- It was proposed by the committee that an intermediate classification between Secondary Use and General Use be considered for the Brandon Pool. The Consultant was asked to bring to the next meeting draft language for a proposed intermediate classification.
- The committee requested that the Consultant prepare a narrative statement of the biological integrity of the Brandon Pool.
- Discussion of the Dresden Pool was identified as a agenda item for a future meeting.

III. Review of Macroinvertabrate Biological Matrices and Discussion on their Meaning.

Mike Mischuk made a presentation of the macroinverbrate data collected by IEPA and the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC). Data was presented using both the Illinois MBI and the OHIO ICI for comparison. The following are comments of the discussion:

- It was requested that a date and page numbers be placed on all of the slide presentations for future reference.
- It was noted that the data from river mile 291.0 is for the Des Plaines River upstream of the Sanitary and Ship Cannel and is not in the study area.
- Howard Essig handed out a comparison of other IEPA sampled sites in Northeastern Illinois. Rivers were from northern Illinois and included the Mississippi, Rock, Fox, upper and lower Des Plaines, Chicago Sanitary and Ship Canal and Cal Sag Channel. Most of the original metrics (except intolerant taxa and % tolerant) that the work group recommended along with a few others (MBI, % Tanytarsini) were compared between these rivers. Total taxa, EPT taxa, MBI, and percent Tanytarsini seemed to perform

better in discriminating among sites. The number of intolerant taxa and the percent tolerant individuals were based on IEPA MBI tolerance values. Howard Essig pointed out that in the analysis intolerant taxa included organisms with a tolerance value of $\leq 6$ and tolerant organisms with a tolerance of >6. IEPA considers organisms with a tolerance value of $\leq 5$ as intolerant and $\geq 9$ as tolerant (tolerance values 6 – 8 are considered moderate). Recalculating these two metrics excluding moderate taxa (tolerances 6 - 8) may help to better discriminate among the stations in the study area.

- Irwin felt that some of the individual metrics did show some potential relationships. These included %Chironomidae, % oligochaetes, taxa richness, number of intolerant taxa. Other metrics did not show any strong signals.
- Chris Yoder made the point that Ohio does not do macroinvertbrate sampling in impoundments, and that the use of the ICI index in impounded conditions is not a proper use of the tool. According to Ohio EPA (1987) the current should be no less than 0.3 ft/sec in order to properly use the ICI. For streams with currents <0.3 ft/sec or in streams with only pooled habitats some interpretation of the ICI value may be necessary. I had indicated at the meeting that most of the locations where IEPA deployed artificial substrates had estimated velocities well above 0.3 ft/sec and were probably closer to 1 ft/sec. Habitats included primarily main channel and main channel border areas. Only the sample in the Du Page Delta would have been close to or below 0.3 ft/sec. According to Irwin's description of the study area the Brandon and Dresden Pools have an average velocity of about 0.75 ft/sec and 0.65 ft/sec, respectively. Therefore it was felt that the use of the ICI in the study area is valid.
- Irwin Polls felt that the macroinverbrate data does say something and should be included in the analysis. Howard Essig agreed with Irwin. He stated that part of the problem with seeing definite or easily identifiable trends in the macroinvertebrate data may be due to the way the data was presented. Individual samples were graphed by river mile and in several cases there were several stations located within a navigation pool. Macroinvertebrate populations tend to be patchy and artificial substrates are generally monitoring microhabitats. There can be quite a bit of variability depending on where the substrates are located relative to velocity. Fish data were combined by navigation pool and were presented using box and whisker plots. In addition the fish analysis included data from the Marseilles Pool. Macroinvertebrate data from the Illinois River (Dresden and Marseilles pools) were provided but were not included in the analysis. If macroinvertebrate data were presented in a similar manner as fish, trends would be more apparent. Both the MBI and ICI indicate improving trends from the Lockport Pool to the Marseilles Pool (see attached figure). Other individual metrics may also indicate similar trends if analyzed the same way.
- Roy Smogor stated that the MBI and ICI might be telling us different things. The MBI is an index used to measure the impacts of organic pollution. The ICI is a measure of community structure. The data may be saying that organic pollution is not a problem but other factors are affecting the community. Howard Essig disagreed that MBI values may

indicate that organic pollution is not a problem in the study area. MBI values indicate possible problems in the Lockport, Brandon and Dresden (upstream of I-55) pools (see attached figure). Conditions appear to improve in the Dresden Pool downstream of I-55 and into the Marseilles Pool. ICI values also show a similar improving trend from Lockport to the Marseilles pool.

- Chris Yoder warned the committee that the data may be saying nothing and that signals people are seeing are just noise in the data.
- The committee requested that the consultant plot the individual metrics scores for the ICI and present them to the committee.

IV. Agenda Items for Next Meeting(s)

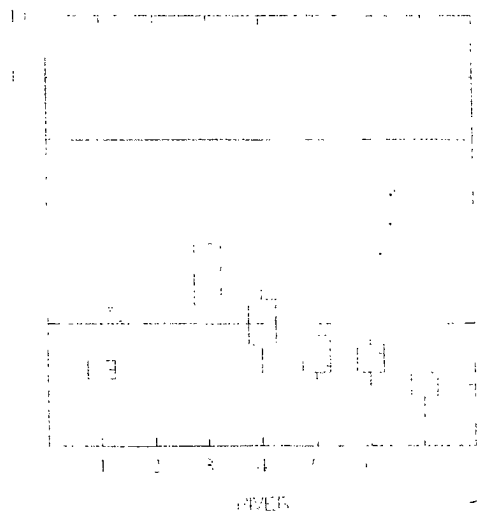
- Continued review of fishery data.
- Continued review of macroinverbrate data.
- Review of proposed intermediate classification for Branon Pool.
- Review of thermal issues in the waterway?
- Preperation of outline of Biological Integrity Report.
- Classification of Dresden Pool.

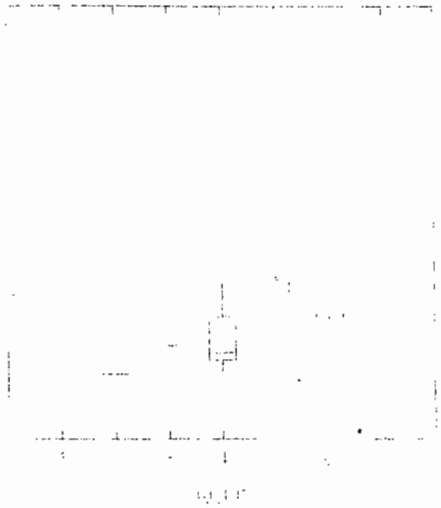
Data Summary from Howard Essign, IEPA:

Macroinvertebrate Biotic Index (MBI) and Invertebrate Community Index (ICII) values for the lower Des Plaines and upper Illinois Rivers 1999 and 2000. Samples were collected with artificial substrates by MWRDGC and IEPA.

# River

1. Des Plaines River upstream CSSC, Lockport (2 samples).
2. Chicago Sanitary & Ship Canal, Lockport (1 sample).
3. Des Plaines River Brandon Pool, Joliet (2 samples).
4. Des Plaines River Dresden Pool upstream I-55 (8 samples).
5. Des Plaines River Dresden Pool downstream I-55 (5 samples).
6. Illinois River Dresden Pool (3 samples).
7. Illinois River Marseilles Pool (5 samples).





**A Summary of the UAA Biological Subcommittee Activities**
**April 4, 2002**

Currently, the UIW within the Brandon Pool is classified as Secondary Use as is the portion of the river between the Brandon Lock and Dam and I55. The lower Des Plaines River downstream of I55 is classified as General Use. The Biological Subcommittee had two principal charges:

- Determine the existing and potential biological uses within the Study Area.
- If the Study Area in not meeting potential use, determine what factor(s) are limiting the use and if these factors are controllable.

If the committee found that the current aquatic life use (ALU) designations for all or a portion of the study area were not appropriate, then it could make recommendations for either upgrading or downgrading the uses (i.e., making them realistic and attainable). To address these issues, the committee has spent more than a year reviewing biological, chemical, and habitat data collected from the Brandon and Dresden Pools. These areas have been studied on a nearly annual basis for more than 20 years so considerable data are available, principally from EA Engineering, MWRD, IDNR, and IEPA.

Based on a review of these data, the committee has concluded that the fish and benthic communities of the Brandon Pool are below what would be expected for an unimpacted, warm water river of similar size. In narrative terms, the aquatic community of Brandon Pool is poor to fair and thus below the goals of the Clean Water Act (CWA). The Committee's characterization is consistent with that of other assessments of the Brandon Pool (EA 2001).

The Committee found that aquatic communities in Dresden Pool, though better than those in Brandon Pool, were nonetheless somewhat below expectations. Dresden Pool can be characterized as fair/good. Again, this characterization is consistent with that of other assessments (EA 2001).

In summary, the Committee concluded that aquatic communities throughout the study area were below expectations with the deviation being greatest in the Brandon Pool. Aquatic communities in Brandon Pool were below the goal established in the CWA (balanced, indigenous community) and therefore not consistent with Illinois General Use classification. Brandon Pool's aquatic life is more consistent with that expected in water bodies classified as Secondary Use, the current classification of Brandon Pool.

After determining that aquatic communities within the study area, but especially within Brandon Pool, were below expectations, the committee turned its attention to the second question...i.e., what are the cause(s) of the poorer than expected biota. If it could be determined that the current conditions were the result of reversible limitations (e.g. poor water quality), then upgrading of all of the study area to General Use would be appropriate. However, if it was determined that the poor condition of the biota was due to irreversible conditions (e.g., channelization) then an upgrade of the use would not be appropriate.

It quickly became apparent that habitat is a significant limiting factor in Brandon Pool, and less so in Dresden Pool. Thus, much effort was focused on evaluating the role habitat plays in determining the quality of the biota in the Study Area. In addition to habitat, the committee has also considered a number of other factors that might limit the aquatic biota. These other factors include dissolved oxygen (DO), sediment contamination, water temperature, ammonia, barge traffic and toxicants in

general. Detailed assessments of these other factors were not performed by the Committee, but the groups consensus was that DO and sediment contamination were the two factors most likely to affect the quality of the biota.

Low DO levels below 4 mg/ are periodically observed in Brandon Pool l and likely play a role in the quality of the community. On the other hand, DO does not appear to be the sole or principal determinant of community quality. Exceedances of the DO criterion in Dresden Pool are rare (EA 2001), and thus the Committee believes DO is not limiting in Dresden Pool.

Sediment quality is also likely a contributing factor. Previous studies of the system have found that pockets of toxic sediments occur in both the Brandon and Dresden Pools (ComEd 1996). With regard to sediment, it is difficult to distinguish physical effects (i.e., poor substrates for spawning, burying of fish eggs and/or macroinvertebrates) from toxic effects. It is the Committees preliminary assessment that both kinds of effects are likely present, however, methods are not available to separate the two kinds of effects or to quantify the effects. Suffice it to say that the Committee believes poor sediment quality is a factor that affects the quality of the biota. Sediment will be discussed at a future meeting of the Biological Subcommittee.

Water temperature, ammonia, and water column toxicity were not examined in detail by the committee but none appear, at least by themselves, to be significant factors affecting the quality of the aquatic biota in the Study Area. Water Temperature will be discussed in further detail at a future meeting of the Biological Subcommittee.

Although water quality and sediment quality affect the quality of the biota in the Study Area, the effect of habitat quality is more significant. Habitat quality has been assessed throughout the Study Area in conjunction with studies sponsored by Exelon and Midwest Generation. Habitat has not changed appreciably since the studies were conducted; thus the earlier conclusions should still apply. These studies demonstrated that habitat quality is poor in Lockport Pool (immediately upstream of the Study Area), poor ~~to fair~~ in Brandon Pool, and fair in Dresden Pool (ComEd 1996). The previous study evaluated habitat quality based on Qualitative Habitat Evaluation Index (QHEI) scores. According to Rankin 1989, sites with QHEI scores greater than or equal to 60 have the capacity to attain CWA goals (i.e., have good aquatic communities). However, sites with scores less than 60 sometimes do not meet these goals and those with scores less than 45 rarely meet these goals. Based on QHEI scores, the Committee concludes that habitat is limiting in Brandon Pool but probably not in Dresden Pool.

As an additional approach to considering what variables are affecting the quality of the biota, the Committee examined the resident fish and benthic communities to see what they might reveal about which factor(s) might be affecting the health of these communities. The Committee found that aquatic communities, especially in Brandon Pool, are dominated by species tolerant to a variety of chemical and habitat stressors. Furthermore, we found that the communities were dominated by habitat generalists rather than habitat specialists. For example, fish species that have pelagic lifestyles (e.g. gizzard shad, emerald shiner) and those that build nests and provide parental care (e.g. sunfish) generally do well in the system. Conversely, those that require clean substrates for spawning (simple lithophiles) or require fast water and hard substrates (many darters) are either absent or rare (EA 2001). Domination of the community by habitat generalists is an indication that habitat is poor (i.e., limiting). Previous studies of the system have shown that the species that do best in the Study Area are generalists particularly those that have modifications or adaptations to keep their eggs/larvae out of contact with bottom sediments (UIW 1996). The predominance of fishes with such

adaptations suggests that sediment quality is poor, that excessive amounts of fine substrates are present, or both. Most of the successful fish species in the Study Area have larvae with adaptations that allow them to do well under low DO conditions suggesting that DO may also be a limiting factor, at least in terms of reproduction.

Given the habitat limitations and the role that contaminated sediments likely play, the Committee concludes that it is not possible for the biota of Brandon Pool to attain General Use. Therefore, the committee recommends that Brandon Pool either stay as Secondary Use or it should be assigned an ALU intermediate between General Use and Secondary. Such intermediate uses are often referred to as "modified" uses, however, the terminology is not important. The important point is that the area will not attain General Use due to pre-existing, irreversible limitations and therefore a lower, less restrictive use should be assigned.

Although biological and physical conditions in Dresden Pool are less than ideal, habitat in this pool is less of a factor. Therefore, an upgrading of the use from Secondary to General for this portion of the lower Des Plaines River between I55 and the Lock and Dam may be appropriate. Recently generated data may aid in the decision making process. The results of recent sampling by USEPA need to be reviewed to see if it helps fill this data gap.

## References


Commonwealth Edison Company. 1996. Aquatic Ecological Study of the Upper Illinois Waterway. Final Report. Volumes I and II. Editor Commonwealth Edison. Chicago, IL.

EA Engineering, Science, and Technology, Inc. 2001. 2000 Upper Illinois Waterway Fisheries Investigation RM 270.4-296.4. Report by EA to Midwest Generation, Chicago, IL.

Rankin E.T. 1989. The qualitative habitat evaluation index (QHEI): rationale, methods, and applications. OEPA, Div. Water Quality Planning and Assess., Ecological Assess. Sect., Columbus, OH.

**Draft**
**Minutes**
**Lower Des Plaines River Use Attainability Analysis (UAA)**
**Workgroup**
**May 16, 2002**

**ATTENDANCE:**

| *Name:* | *Agency:* |
|---|---|
| Toby Frevert | Illinois Environmental Protection Agency |
| Scott Twait | Illinois Environmental Protection Agency |
| Rob ~~Sedski~~Sulski | Illinois Environmental Protection Agency |
| Debra Williams | Illinois Environmental Protection Agency |
| Mike Cochran | Illinois Department of Natural Resources |
| Dave Pfeifer | U.S. Environmental Protection Agency |
| Dick Lanyon | Metropolitan Water Reclamation District of Greater Chicago |
| Bernard Sawyer | Metropolitan Water Reclamation District of Greater Chicago |
| Prakasam Tata | Metropolitan Water Reclamation District of Greater Chicago |
| Susan O'Connell | Metropolitan Water Reclamation District of Greater Chicago |
| Lou Kollias | Metropolitan Water Reclamation District of Greater Chicago |
| Dennis L. Duffield | City of Joliet |
| Harry Walton | IL Environmental Regulatory Group |
| Lisa Frede | Chemical Industry Council |
| Mark Frick | Stephan Company |
| Gregory Chodil | BP Amoco |
| Kevin M. Bennett | Caterpillar, Inc. |
| Bob Elvert | Exxon/Mobil |
| Bill Simon | Exxon/Mobil |
| John Petro | Exelon |
| Bill Constantelos | Midwest Generation EMC, LLC |
| Julia Wozniak | Midwest Generation EMC, LLC |
| Dr. Richard Monzingo | EA Engineering, Science & Technology |
| Susan Franzetti | Sonnschein Nath & Rosenthal |
| Laurene Van Klan | Friends of the Chicago River |
| Robert Moore | Prairie Network |
| Jack Darin | Sierra Club |
| Michele Gurgas | Sierra Club |
| Vladimir Novotny | AquaNova International, Ltd. |
| Neal O'Reilly | Hey and Associates, Inc. |

**(COMMENT: Why are there different fonts/sizes scattered through the document?)**

Underline & strike through by Julia Wozniak

## DISCUSSION OF POTENTIAL RECREATIONAL USE CLASSIFICATION OF THE LOWER DES PLAINES RIVER

Vladimir Novotny presented a slide presentation summarizing the draft material that was sent out prior to the committee meeting. The purpose of the material was to stimulate discussion of the various options available under USEPA guidelines. The following are discussion items during the presentation:

1. MWRDGC staff pointed out that based on their research of comparing fecal coliform densities to Escherichhia coli densities, they have not found the same positive relations that ~~was~~ were seen by Torrio, as presented in Figure 6.1 of the handout.
2. On page 11 of the handout material, a list ~~is~~ was provided of cases where "recreational uses may be removed altogether". Two of the cases, "*water access is prevented . . .*" and "*. . .water body serves as a shipping lane.* " are highlighted. It was questioned why "*. . . primary recreation is not an existing use*" was not highlighted. It was agreed that this would be highlighted in the next draft.
3. On pages 14 and 27, the presentation handouts ~~it references~~ state that the Combined Sewer Overflows (CSO's) in Joliet will be eliminated by November 30, 2003. Dennis Duffield pointed out that this date has recently been revised to November 30, 2006.
4. The draft document makes reference to an approximate number of Combined Sewer Overflows from MWRDGC. It was requested that the actual number by year be included in the report and that the consultant contact MWRDGC for this information.
5. It was noted that Joliet still has CSO's discharging into the Brandon Pool and that the wastewater treatment plants are not the only source of potential fecal bacteria. (I believe what Dennis Duffield said was that there would still continue to be intermittent runoff/overflow issues after the proposed treatment plant improvements are completed).

   ~~On page 16 the question was asked, what is the USEPA definition of "existing use". The consultants were asked to check into this with USEPA.~~

   On page 16, there was discussion as to whether the level of primary contact activities reported by the consultants was sufficient to constitute an existing use. Susan Franzetti commented that there are statements in USEPA guidance documents to support a finding that the limited nature of such activities does not rise to the level of an "existing use". The USEPA representative commented that the question of what is an "existing use" is an issue being discussed internally at USEPA. The consultants were asked
6. to check into this issue further.
7. On page 16 under the section titled "Water Quality Potential – TMDL Issue", it was ~~asked~~ requested that the word "*is*" in the last sentence of the first paragraph be changed to "*may be*" achievable. In the same paragraph, MWRDGC staff would like the discussion to state that, based on a study by Hass, they are not a source of bacteria to the Lower Des Plaines River due to die off of bacteria upstream. Copies of the

study were provided to the consultant.

8. Page 16, Toby Frevert requested the consultant do a comparison of low-flow versus high-flow bacterial counts to see if we can document if CSO's are the issue, or whether ~~or not~~ it is the discharge from the sew~~er~~age treatment plants.
9. Page 17, MWRDGC questions the use of the 95 percentile for setting the standards~~,~~; they feel that the correct interpretation of the USEPA guidelines is to use 5-times the primary standard.
10. Page 21, it was pointed out that there is a private boat access point in Joliet at Ruby Street. It was also pointed out that the City of Joliet has recently applied for a U.S. Army Corps of Engineers 404 permit and state grants to install a public boat launch on the Brandon Pool. (It should be noted that these are for boat access only, and NOT public swimming areas).
11. There was considerable discussion on the potential recreational use of the Brandon Pool. Several people raised the point that barge traffic makes swimming dangerous. It was pointed out that access to the water is limited and once in the river opportunities to get out of the water are also very limited.
12. Page 25, Table 6-1. It was requested that data for the MWRDGC North Side Water Reclamation plant be added to the table.
13. Page 26, MWRGC requested that the data from the Hass study be incorporated in the analysis illustrated in the graph.
14. Toby Frevert requested that the consultant try and distinguish between the upstream and downstream sources of bacteria. He stated that we need to look at the effects of the Des Plaines River and other upstream treatment plants that discharge to the system.
15. On Page 29, it was requested that the consultant contact the barge terminal operators to see if they have additional information on barge traffic on the river. It was also requested that these terminal operators also be questioned about recreational boat use on the river.
16. Page 32, Recommendations, Option 1, it was suggested by Susan Franzetti that this option be ~~remaned~~ renamed "Navigational Use".
17. Page 33, first paragraph under section titled "Dresden Island Pool". Richard Monzingo requested that the second and third sentences that discuss that there is "no sharp boundary" between upstream and downstream of I-55 be removed as this determination has not been made.
18. Page 34, Item 5, Recreational Facilities, the consultant was asked to check the reference of a nature preserve in the area.
19. Page 35, it was asked that the reference to "above I-55" be added to where ever the Dresden Island Pool is mentioned in the three options presented.
20. It was asked that a discussion be added to the report as to how many locations there are in the waterway ~~points~~ where barges unload and tie-up.

21. The consultant was requested to contact the U.S. Army Corps of Engineers to see what restrictions they have in place, or generally endorse ~~or encourage for~~ regarding recreational use in Federal Navigational Channels.

22. The consultant was requested to acquire information from the U. S. Coast Guard on rule governing recreational boat use near barge traffic.

23. Toby Frevert pointed out that the workgroup needs to first answer the question of what should be the appropriate use of the study area before we answer the question of whether we can ~~we~~ achieve that use.

24. It was stated that Rust ~~Infrastructure~~ Engineering did a navigation study of large recreational boats on the Illinois River (where in the Illinois River?--comparisons with downstream reaches may not be appropriate, since the channel is much wider as you move downstream), and may be a source of information.

25. The group reached no consensus as to the recommended recreational use for the Lower Des Plaines River. ~~reached no consensus~~. A follow up meeting will be scheduled to continue discussion of this topic.

**BIOLOGICAL SUB-COMMITTEE**

A brief status report was made of the activities of the Biological Subcommittee. ~~the~~ The committee has reached consensus on the methodology as to how the fishery and ~~macroinvertabrate~~macroinvertebrate date should be analyzed. The subcommittee will be meeting again on June 4, 2002.

**NEXT MEETING**

The next meeting of the workgroup has not been scheduled pending follow-up work by the consultant.

General Comment: Nowhere in the minutes did I see anything regarding whether or not the subcommittee had come to any consensus regarding whether or not the applicable fecal coliform limits could be met for primary contact purposes. There are a lot of statistics in the draft report that would indicate this to be true, and yet there are also conflicting statements/information that would suggest that the UAA area would not be able to attain the proper bacterial standards to allow for primary contact recreation. I do not believe that the group concurred with the position that fecal limits would be met in the waterway if all of the point sources of bacteria are controlled, since there are so many non-point sources of contamination. Perhaps this will be addressed as members begin to comment on the draft chapter regarding pathogens and recreation. Midwest Generation will be submitting specific comments as soon as we have the opportunity to review the follow-up information promised by the consultants.

# Draft Minutes
# Lower Des ~~Plainer~~ Plaines River Use Attainability Analysis (UAA)
# Biological Sub-committee Workgroup Meeting
# June 4, 2002

**ATTENDANCE:**

| Name: | Agency: |
|---|---|
| Toby Frevert | Illinois Environmental Protection Agency--Note that Toby DID NOT attend the June 4th meeting! |
| Howard Essig | Illinois Environmental Protection Agency |
| Roy Smogor | Illinois Environmental Protection Agency |
| Scott Twait | Illinois Environmental Protection Agency |
| Mike Cochran | Illinois Dept. of Natural Resources |
| Ed Hammer | U.S. Environmental Protection Agency |
| Chris Yoder | MBI/CABB |
| Irvin Polls | Metropolitan Water Reclamation District of Greater Chicago |
| Harry Walton | IL Environmental Regulatory Group |
| Bill Constantelos | Midwest Generation, EMC, LLC |
| Julia Wozniak | Midwest Generation, EMC, LLC |
| Greg Seegert | EA Engineering, Inc. |
| Lisa Frede | Chemical Industry Council of Illionis |
| Bob Elvert | Exxon/Mobil |
| Faith Bugel | Environmental Law & Policy Center |
| Cindi Skrukrud | Sierra Club |
| Neal O'Reilly | Hey and Associates, Inc. |
| Mike Mischuk | Hey and Associates, Inc. |
| Tim Ehlinger | University of Wisconsin – Milwaukee |
| Vladimir Novotny | AquaNova International, LTD. |

underline & strikethrough by Julia Wozniak

**MEETING SUMMARY:**

1. **Review of minutes from April 3, 2002 meeting**

   - Written comments from Julia Wozniak of Midwest Generation and Howard Essig from IEPA were sent out prior to the meeting. It was agreed that these comments would be integrated into the final draft of the minutes.
   - Irwin Polls asked if we could revisit the summary memo prepared by Greg Seegert. Irwin asked if on page two on the memo in paragraph two the first sentences be modified to read "*Low DO levels below 4 mg/l are periodically observed in Brandon Pool l and likely play a role in the quality of the community.*"

2. **Continued review of fishery biological metrics and discussion on their meaning**

Tim Ehlinger made a presentation of the revised fishery data analysis sent out prior to the meeting. The purpose of the additional analysis was to:

a. Incorporate the 1999 and ~~2002~~ 2001 data for Lower Des Plaines River from Midwest Generation. (data is not yet available for 2002, nor was it requested).
b. Provide a comparison of Ohio and Illinois IBI's for large river reference streams.
c. Demonstrate the potential use of reference streams for establishment of biological criteria for Lower Des Plaines River.

The following are comments during the presentation:

- The question was asked what each bar on the plot of Ohio Boatable Fish IBI by River Mile represented. It was pointed out that each bar represented eight samples collected in each river mile. All sample zones are about 500 meters in length. Sampling was conducted in July, August and September. Each bar represents a summary of one year's data.
- Tim pointed out that there is a lot of variability in the data at individual sites, indicating possible ecological disturbance of the sites.
- A general trend of increasing IBI scores is observed as you move down stream from the Lockport Pool to the Dresden Pool. This ~~tread~~ trend is observed for 1999, 2000, and 2001.
- It was pointed out that there is variability from year to year from 1999 through 2001, indicating that we have both variation from site to site and year to year within the same site.
- All of the Ohio IBI values are below Ohio's state criteria of 30 for Modified Warmwater Habitat (impounded-boat sites).
- An analysis of the data did show a statistically significant difference between the Brandon, Upper Dresden, and Lower Dresden Pools. There was no statistically significant difference between the Lockport and Brandon Pools. This analysis did take into account differences by year.
- Roy Smogor raised the concern that because of the spatial locations of the sample sites, do the pooled data actually represent the complete waterway pool. Irwin Polls pointed out that one area of the Dresden Pool near Treats Island was not sampled; however, he felt this likely does not affect the database. Greg Seegert agreed that the spatial distribution was the least uniform in the Upper Dresden Pool.
- Irwin Polls pointed out that the Lower Dresden Pool is classified as general use, and according to the IBI values would be considered by Ohio's biological criteria to be impaired.
- Roy Smogor ~~Pointed~~ pointed out that based on the literature, differences of 4-7 IBI points may not be meaningfully different. Chris Yoder stated that State of Ohio concluded that for the Ohio IBI greater than 4 IBI points was considered significant.
- Tim Ehlinger pointed out that the trends from upstream to downstream are

repeated year after year.

- Tim Ehlinger presented data for reference sites on the Fox, Green and Rock Rivers. A graph was presented that illustrated that there is a good correlation between the Illinois and Ohio IBI's for the same stream reaches.
- It was pointed out that BSC on the graphic comparing the Ohio index to Illinois index should read Illinois IBI.
- Mike Cochran restated his concern that all of the IDNR ad USEPA fishery data was collected using electrofishing techniques and does not characterize the full fish community. Chris Yoder stated that Ohio's research showed that electrofishing as a single technique collects most fish species. Tim Ehlinger and Chris felt that if you are using a repeatable methodology you could use the data for comparison purposes. Roy Smogor stated even ~~Carr~~ Karr today feels we do not have to sample every species, but we need to look for signals that represent the community.
- Greg Seegert pointed out that for all of the reference sites we are getting less than 1% round bodied suckers, and this number appears to be too low compared to similar sites on other rivers he has sampled. Tim Ehlinger stated he would check if the graduate student that calculated the data did so correctly.
- With regards to capture rates, Tim Ehlinger pointed out that because of the differences in sampling technique between IDNR and the Ohio methodology, he converted time into distance to determine capture rates.
- It was discussed that the Green River is channelized system, with municipal discharges, has no sediment contamination, no barge traffic, and chemically good water quality.- Additional information as to whether the Green River is subject to frequent flow fluctuations, as is the lower Des Plaines, will need to be factored into the decision-making process to determine whether it can be used as a valid reference site, as well as how it's habitat compares to the UAA study reach.
- Ed Hammer stated that USEPA does have QHEI values for the Fox River sites and will provide them to the consultant to add to the analysis.
- Greg Seegert and Chris Yoder stated that for non-wadable rivers many of the habitat issues tend to be flattened out by the biology. This statement is not accurate or reflective of what was trying to be conveyed. The discussion centered around the fact that large rivers are not constrained by ecoregion boundaries in the same way that small streams are. This means that you could theoretically have a reference site for a large river that is not necessarily in the same ecoregion as the one you are studying, as long as they are similar in characteristics.
- The question was asked what is the definition of a large river. It was pointed out that John Lyons in Wisconsin defines a large river as any system that needs to be sampled by a boat.
- The committee asked that the Kaskaskia River data be included in the reference site analysis. The consultants asked if the data could be provided electronically to facilitate the analysis. Harry Walton stated he would check into the availability of electronic data.
- The committee agreed that for the use classification process, they would use the Ohio IBI for the analysis of the fishery community.

What happens next, as far as the UAA analysis process goes? The minutes should include some summary statement here as to what tasks the subcommittee and/or consultants will be required for the overall fisheries analysis (using the Ohio IBI).

### 3. Continued review of ~~macroinvertabrate~~ macroinvertebrate biological matrices and discussion on their meaning

Mike Mischuk made a presentation of the ICI plots requested at the April 3, 2002 meeting. The plots were forwarded to the committee prior to the meeting via e-mail. The following is a summary of the discussion:

- Mike Mischuk provided an overview of the discussion that took place at the April 3, 2002 meeting. Mike then presented the plots of the individual ICI ~~matrices~~ metrics scores for each of the ~~matrices~~ metrics used in the Ohio ICI.
- Chris Yoder stated that the ICI is used in Ohio to classify canalized rivers but not impounded waters ~~do~~ due to concerns about too low of velocity for colonization.
- It was stated that sediment deposition was an issue on some of the plate samplers that may have effected their colonization.
- Mike Mischuk stated that where there were two samples collected at the same site, the two values were averaged to get a mean for the river mile. The data tables should indicate which data are based on a single sample and which represent means of 2 or more samples.
- The committee requested that the axis on the graphics be changed so that each slide showed the range from 0 to 6 used in the ICI index. Note that the 0 to 6 range applies to scores for individual metrics, NOT the ICI itself.
- On the percent mayfly composition slide, the value at river mile 277.6 should be changed from 1 to 2. There is no 1 value in this index., the value was an average of a 0 and 2 value for the same river mile.
- Roy Smogor stated that with regards to individual ~~matrices~~ metrics we need to look at who the players are and understand their individual tolerances.
- Greg Seegert stated that he feels that the zero scores for the % Tanytarsini indicate that for all of the study area, ~~macroinvertabrates~~ macroinvertebrates indicate poor conditions.
- It was suggested that the consultant look at what percent of the macroinvertebrates are representative of a free flowing river versus a big river or impoundment.

~~-~~Once the above-mentioned tasks/corrections (highlighted in yellow) are complete, t~~T~~he committee has authorized the consultant to proceed with the write up of the existing ~~macroinvertbrate~~macroinvertebrate data into a draft report for their review. It was felt no additional~~more~~ data analysis was ~~needed.~~ warranted.

### 4. Presentation by Midwest Generation, EME, LLC on temperature issues in the Lower Des Plaines River

Midwest Generation and EA Engineering, Science & Technology presented a slide presentation on temperature issues in the Lower Des Plaines River. Midwest Generation sent handout material for the presentation to the committee prior to the meeting. A handout of the slide presentation was also distributed~~handout~~ at the meeting. The following is a summary of the discussion during the presentation.

- Julia Wozniak presented the existing water quality standards for temperature in the Lower Des Plaines River and the history of the alternate thermal limit ~~variance~~ that is in place at the I-55 Bridge ~~in the Upper Dresden Pool.~~ The current secondary contact thermal WQS~~standard~~ is 93° F, which can only be exceeded ~~5 times per year~~5% of the time within any 12-month rolling period, and cannot exceed 100° F at any time at the edge of the allowable mixing zone. General use thermal WQS~~standards~~ apply downstream of the I-55 Bridge.
- Chris Yoder asked how much of the river water the two Joliet power plants use during peak periods. It was stated that at times the entire river flow is used, depending on the river flow rate relative to the station's circulating water flow rate. River flow past the station is controlled by the U.S. Army Corps. of Engineers through the operation of the Brandon Lock and Dam.
- It was ~~stated~~ discussed that because of the nature and volume of the MWRDGC discharge at Stickney, it serves to ~~-~~generally lowers the temperature of the river during summer months, and keep temperatures slightly elevated~~raises it~~ in the winter.
- Greg Seegert made a presentation on the biological impacts of the thermal discharges from Midwest Generation. Much of the material was taken from the UIW Studies performed for Commonwealth Edison Company (1991-1995), as well as currently conducted studies for Midwest Generation (1997 through present).~~their 1996 reports for Commonwealth Edison Company.~~
- It was stated that there was little thermal stratification in the river, especially during the summer period, in part ~~-~~due to the mixing of the barge traffic on the river.
- Tim Ehlinger asked is anyone had looked at the effect of temperature ~~and relative weight~~ on metabolic rates of fish and how it may affect relative weights. Greg Seegert stated no. Greg stated that relative weights of most species in the system were good, but acknowledged that they were below average for a few species (e.g. smallmouth bass).~~may decrease as you move downstream from the Midwest Generation discharge, however they are still within average ranges.~~ *There was no discussion regarding any possible spatial patterns regarding relative weights.*
- Irwin Polls pointed out that he feels habitat is the most important limiting factor for biological life. Water level fluctuations are also an important issue for both the Brandon and Dresden Pools. As you move downstream-in the system (i.e. below Dresden Lock and Dam) ,water level fluctuations are dampened out. I believe that Irwin brought out this point to use caution when

trying to compare data from the Illinois River below Dresden Lock and Dam with lower Des Plaines data, since there are significant differences in the overall effect of frequently manipulated upstream flows on the biological community, depending on where you are in the waterway.

- It was stated that while we may be meeting the water quality standards for the limited parameters for which there are numeric standards~~we have standards~~, we may not be achieving biological use ~~do~~ due to other factors.
- It was suggested that the workgroup rank the identified stressors to better understand the system.

## 5. Agenda items for next meeting

- Review of modified stream use for Brandon Pool.
- Sediment contamination in the Lower Des Plaines River.
- Continued discussion on biological potential of Upper Dresden Pool (I don't think the group has come to consensus on this matter yet).
- Establishment of report outline for biological chapters.
- Continued discussion on thermal issues presented by Midwest Generation

Next meeting is scheduled for ~~July 16, 2002~~???

## PROJECT MEETING NOTES

**PROJECT:** Chicago Area Waterway System UAA

**MEETING DATE:** 30 January 2003

**MEETING PLACE:** Thompson Building, Room 2-025

**MEETING TIME:** 10:00 – 11:10 am

**SUBJECT:** Chicago Area Waterways: Waterborne pathogens, wastewater treatment plant upgrades for disinfection and public recreational exposure

Toby Frevert and Rob Sulski from IEPA started off the meeting with a quick introduction about the meeting's goals and then asked Ron French from CDM to give an introduction of the firm and who was present.

The meeting goals are as follows:

1) **Public notification of health and safety risks associated with waterway usage.** Lack of disinfection at treatment facilities and CSO constitutes a sources of infectious disease organisms that individual citizens may not be aware of or fully appreciate. I would like to discuss the various roles of government agencies in providing appropriate and credible public advisories on the issues and risks associated with recreational endeavors in the Chicago waterway system. The district is obligated to provide public notice of CSO overflow events under its recently reissued NPDES permits, but I believe there is a broader need to educate the public on health (and safety) risks inherent to the waterway and its various competing functions. This is truly a public health issue and I am looking forward to the expertise and assistance of the public health agencies in this area.
2) **Treatment Plant Disinfection**
Although the determination of need for disinfection at MWRD's three main treatment facilities will certainly be a major aspect of the UAA, engineering planning and cost estimates for disinfection will be necessary to complete that assessment. In light of the increased public activity in and along the waterway and therefore increased health exposure to the public, I believe it is appropriate to initiate the engineering work at an early date.

3) **Documentation of current recreational activity within the waterway.**
We will be seeking input from MWRD, the City and other attendees on data sources and approaches to assessing both current and projected future recreational activity along various sectors of the waterway as well as competing or incompatible uses, such as navigation and flood control.

Ron French introduced himself and the CDM Team that was present. Ron French will be the Project Manager for CDM, and he will be working closely with his staff in the Chicago office. Colleen Hughes will be responsible for data management. Other members of the project team include Hydroqual, who will be responsible for the modeling effort and Hill and Knowlton, the Public Relations firm for the project. Chris Varones and Brian Kiefer from Hill and Knowlton were present at this meeting. The

CDM Team will be responsible for the overall preparation of the UAA and will work closely with IEPA, the regulatory agencies and stakeholders

General introductions were made by all attending this meeting (see attached attendance list).

*Public Notification of Health and Safety Risks Associated with Waterway Usage*

Janet Pellegrini gave a PowerPoint presentation of USEPA's trip on July 6, 2002 on the Calumet-Sag Channel and the Little Calumet River. The presentation included pictures of recreational uses occurring on those two waterbodies, including short video takes of interviews with several citizens. She also showed some of MWRD's fecal coliform and *E.coli* data, that was included in her handout, as well as locations of major WWTPs and CSOs. USEPA presented MWRD's 2001 ambient water data for fecal coliform and *E. coli* from sampling points within the Chicago area waterways, as well as bar graphs depicting the impact on pathogen concentration of the three North Side, Calumet & Stickney Water Reclamation Plants (WRPs) that do not disinfect. Other GIS maps presented included: MWRD's WRP locations, MWRD's 37 combined sewer overflow (CSO) locations, the City of Chicago 231 CSO locations, MWRD's sampling locations, and public boat and canoe launch locations.

There is an issue with barge traffic contributing to the resuspension of sediments in the waterways.

Alsip and Worth Public Boat Launch areas were discussed. USEPA presented recreational data from the Villages of Alsip and Worth, as an example of the available information verifying the increased public usage of the waterway. There is a need to educate those who use these launch areas about the water quality conditions of the waterway. This was followed by a short Illinois Department of Public Health discussion on beach closings, and the level of *E.coli* to cause a beach closing (235 CFUs). It was mentioned that there are no advisories on other than licensed swimming beaches. Bathing beaches must be licensed in Illinois and the license require routine testing. Cook County Forest Preserve District has a no swimming rule outside of their public pools, and some no swimming signs, however, a health and safety message needs to be communicated to the public. This could be done by placing signs in appropriate places and/or handing out pamphlets to users of the waterways and boat launch facilities.

MWRD's proposed notification program is restricted to web-site announcements of CSO events. IEPA has not yet approved this program.

Some short term goals are: informing the public of exposure/risk during recreational use; exploring the cost and logistics of disinfecting MWRD effluent; and, verifying recreational activity in the waterways.

There is a need to get recreational use data from the various public agencies in the area. We will need to know who owns the lands along the waterways. MWRD's holdings are available on their web site at www.mwrd.org.

We also discussed public safety concerns in the waterways, i.e. floating logs, concrete/rebar, debris, etc. This type of information should also be included in any public health advisories. It seems that a handout(s) or some sort of mechanism needs to be

prepared using the PR folks to address the immediate concerns about health threats using the waterways. There was a consensus among those attending that this should be a priority. A handout could be put out by the same Inter-agency group (Illinois Depts. of Public Health, Natural Resources and Agriculture and IEPA) that created the fish consumption advisory and it could be distributed to local marinas, boat launch operators, outdoor sporting goods stores and ski and boat shops.

*Treatment Plant Disinfection*

Toby asked the MWRD to start working parallel to the UAA, on the engineering/economic considerations of putting in chlorination/dechlorination facilities in at the three big treatment plants to look at the technologies that are available for their facilities and the cost and schedule to implement these technologies. The MWRD said they could only perform preliminary engineering and cost estimates on this matter. USEPA agreed that actual design and construction was not being looked for at this time, that preliminary planning and engineering was appropriate concurrent with the UAA development.

*Documentation of Current Recreational Activity within the Waterway*

There is a need to know what type of data collection has already been done on the river, particularly water quality and recreational use. Suggestions were made with regard to obtaining data from the Coast Guard, ACOE, USGS, IEPA, IDNR the carrier association and MWRD debris boat crews. Also it was brought to everyone's attention the need to document conflicting and competing uses in the waterways. Were do we get barge traffic data, etc?

Friends of the Chicago River will be contacted for all of their documentation on water quality and recreational usage info.

*Action Items*

It was recommended that a slide show presentation be put together outlining the UAA program. Ron French will work on this with Hill and Knowlton.

IEPA will prepare a draft public advisory pamphlet and send it Illinois Public Health Dept for their review and final preparation.

Ron French and the CDM Team will meet with key regional representatives to discuss recreational activities within the waterways. Various folks at the meeting identified themselves as being contacts for this type of information. Ron French asked them to leave behind their business card, so that he could follow up with the project.

Toby adjourned the meeting at 11:10.

# Memorandum

*To:* *Toby Frevert, Illinois EPA*
*Rob Sulski, Illinois EPA*

*From:* *Ron French, CDM*

*Date:* *April 28, 2003*

*Subject:* *Meeting Minutes for Chicago River UAA Health Advisory Pamphlet*

*Attendees:*

| Name | Organization |
|---|---|
| Toby Frevert | Illinois EPA |
| Rob Sulski | Illinois EPA |
| Scott Twait | Illinois EPA |
| Ron French | CDM |
| Stephanie Brock | CDM |
| Jessica Harker | Primera |
| Ed Hammer | USEPA |
| Janet Pellegrini | USEPA |
| Peter Swenson | USEPA |
| Dick Lanyon | MWRD |
| Bill Masri | CDOW |
| Bob Foster | Chicago Park District |
| Sid Osekada | CDOW |
| Nelson Chueng | Chicago Department of Planning |
| Lane Drager | IDPH |
| Joel McCullough | CDPH |
| Brian Kiefer | Hill & Knowlton |

On Monday, April 21, 2003 CDM held a meeting to discuss a pamphlet and on-shore signage to raise public awareness of the current health risks associated with the Chicago Area Waterway System (CAWS). The agenda of the meeting consisted the following items:

- Purpose for the Health Advisory

- Comments on sign and pamphlet
- Course of Action for Advisory Committee
- Obstacles and Other Considerations
- Action Items

Each agenda item is discussed in detail in the sections to follow. The agenda was established to receive feedback from the Health Advisory Committee on the public notification pamphlet and on-shore signage regarding the potential health risks associated with CAWS.

## Purpose of Health Advisory

Rob Sulski of Illinois EPA explained the purpose of the health advisory is to educate the public on the potential health risks associated with contact with the waters of the CAWS. The Health Advisory Committee was initiated after the UAA meeting held on January 30, 2003 explored the possibility that individual citizens may not be aware of or fully appreciate the physical obstacles and infectious disease organisms within the Chicago Area Waterway System. Participants of the January 30th meeting concluded that the public should be notified of the potential health and safety risks associated with waterway usage. As a result, the Illinois EPA prepared a sign and pamphlet for distribution to users of the CAWS.

## Sign and Pamphlet

### Sign Comments and Suggestions

The Health Advisory Committee provided the following suggestions and comments regarding the sign verbiage:

- Keep jargon/regulatory language off signs,
- Use international symbols to convey message to all users, and
- Use primary language of area in which the sign is posted.

Suggestions and comments resulted in changes and clarifications to the verbiage of the sign. The international symbol for "No Swimming" will be used to represent the general message of the sign. The Chicago Park District has many of the standard international symbols available. Finally, the sign was changed to read:

CAUTION
This waterway is not suitable for:
WADING
SWIMMING

JET SKIING
WATER SKIING/TUBING
OR ANY OTHER BODY CONTACT

## Pamphlet Comments and Suggestions

The purpose of the pamphlet is to provide the public with further details on the potential health and physical risks associated with contact with waters of the CAWS. The intended audiences of the pamphlet are the recreational users of the waterways. The double-sided pamphlet conveys two important messages to the public. The primary message is that health risks exist due to the presence of bacteria (or germs) in the water. The secondary message, communicated on the flip side, is that the CAWS are currently being evaluated to determine how the waterways can best be used in the future.

The Health Advisory Committee provided comments and suggestions regarding the pamphlet. Please note comments reference Page 1 and Page 2. Page 1 refers to the side of the pamphlet with the map of the Chicago Area Waterways and Page 2 refers to the flip side.

- Message should be positive.
- Add "germ" graphic to pamphlet to convey primary message.
- The following sentence should be added to the end of the last paragraph on panel 1 of Page 1: "These waters have discharges from a sewage treatment plant, industry, and other sources and may contain bacteria (germs)."
- Move bullet 2nd bullet ("Wash hands thoroughly...") under "Fishing Safety Precautions" to "Swimming, Skiing, and Wading."
- Change the first 2 bullets under "Swimming, Skiing, and Wading" to read "Avoid all contact with water, including ingestion."
- Change the 2nd bullet under "Boating Safety Precautions" to read, "Survey water for hazardous obstacles (i.e. rocks, driftwood, etc.) before operating boat."
- The headings on panel 2 of Page 1 should be changed from "Swimming, Skiing, and Wading," "Boating Safety Precautions," and "Fish Consumption Precautions" to "General Precautions," "Safety Precautions," "Fish Consumption Precautions," respectively.
- Change "Locks" to "Lock" under "The Calumet River" on panel 3 of Page 1.
- Change text under "Des Plaines River" to read, "From its confluence with the Chicago Sanitary & Ship Canal to the Interstate 55 bridge, southwest of Joliet"

- Change "North Side Sewage Treatment Works" under "North Shore Channel" to "Skokie-Swift Bridge."
- Change the title and legend of the map on panel 3 of Page 1 to read "Restricted Waterways of the Chicagoland Area."
- The Bubbly Creek segment on the map on panel 3 of Page 1 should be marked in red.
- The first paragraph on panel 1 of Page 2 should be split into two sentences.
- Remove "in the coming months" from the 1st sentence of the 4th paragraph on panel 1 of Page 2.
- Change the 4th bullet on panel 2 of Page 2 to read, "Illegal discharges to drains and sewers."
- Add a bullet under "How do harmful germs get in the water?" which reads, "Treated, but nondisinfected wastewater effluent."
- Change text under "What organization(s) is responsible for issuing a fish advisory?" on panel 3 of Page 2 to read, "The state of Illinois routinely monitors and annually updates a fish advisory for commercial and recreational fishermen...."
- Delete Illinois Department of Natural Resources and website under "Additional Resources" on panel 3 of Page 2.
- Add the Center for Disease Control (CDC) as a contact for information on healthy swimming.

Comments will be incorporated and a new version will be distributed to the Health Advisory Committee for final approval.

## Course of Action

### Principle Contact

Illinois EPA will continue as the principle contact for information on the UAA.

### Distribution

The campaign to educate waterway users of the potential health risks associated with contact with the CAWS will be communicated to the public with the sign, pamphlet, Chicago Waterways UAA website (www.ChicagoAreaWaterways.org), radio and newspaper advertisements, and a press release. The sign will be posted in areas with a high probability of recreational users, such as boat launches, park access points, and along certain river

stretches with high activity. The pamphlets will be distributed to user groups at boat launches, Coast Guard meetings, and fishing group meetings such as Perch America.

### Cost

Cost issues, such as responsible agencies, distribution, posting, and maintenance, will be discussed once the final version of the sign and pamphlet has been approved.

## Obstacles and Issues

One potential obstacle of the campaign was eliminated when the sign and pamphlet verbiage was changed from "Health Advisory" to "Caution." All other considerations, such as identification of responsible agencies and distribution of the materials, were addressed during the previous sections of this memorandum.

Finally, MWRD has proposed a program for notifying the public of combined sewer overflow (CSO) events. The Health Advisory Committee discussed the possibility of combining the CSO notification program, which is an event based notification system, with the health risk notifications, which is an ongoing education program. However, each program serves a different purpose; therefore, to keep these separate issues clear for the public the two programs will not be combined.

## Action Items

### Illinois EPA

- Revise sign and pamphlet and distribute to the Advisory Committee for final approval.

cc: Scott Twait, Illinois EPA
Ed Hammer, USEPA
Janet Pellegrini, USEPA
Peter Swenson, USEPA
Brian Kiefer, Hill & Knowlton
Ron French, CDM
Stephanie Brock, CDM
Jessica Harker, Primera
Dick Lanyon, MWRD
Bill Masri, CDOW
Bob Foster, Chicago Park District
Sid Osekada, CDOW
Nelson Chueng, Chicago Department of Planning
Lane Drager, IDPH
Joel McCullough, CDPH
John Mickle, CCDPH

# Memorandum

*To:* *Toby Frevert, Illinois EPA*
*Rob Sulski, Illinois EPA*

*From:* *Ron French, CDM*

*Date:* *November 24, 2003*

*Subject:* *Safety and Navigational Constraints on Designated Uses in the Chicago Area Waterway System*

*Attendees:*

| Name | Organization | Name | Organization |
|---|---|---|---|
| Rob Sulski | Illinois EPA | Nelson Chueng | CDOP |
| Ron French | CDM | Michelle Woods | CDOT |
| John D'Aniello | CDM | Cameron Land | USCG |
| Jeff Wickenkamp | CDM | Bob Balamut | USACE |
| Colleen Hughes | CDM | Sgt. Rick Erbacci | Police Marine Unit |
| Stephanie Brock | CDM | A. Ianello | IIPD |
| Jessica Harker | Primera | Frank Kudrua | IIPD |
| Joe Deal | Chicago's Mayors Office | | |

On Wednesday, November 19, 2003 the Illinois EPA and CDM held a meeting to discuss the safety and navigational issues applicable to the Chicago Area Waterway System (CAWS). The Illinois EPA, CDM and the Stakeholders Advisory Committee (SAC) need to establish current and anticipated uses of the CAWS for the next ten years. Therefore, safety and navigational restrictions/constraints need to be incorporated into the decision making to create appropriate designations. The attendees discussed the following items in detail:

- Navigational vs. Recreational Use
- Water Quality Safety Issues
- Homeland Security
- Water Level and Bank Disturbances
- Recreational Uses

## Navigational vs. Recreational Use

### Navigable Areas

Historically, the navigational and recreational users of the CAWS have peacefully shared the river without regulation. The entire CAWS is labeled as a navigable waterway. However, the North Branch of the Chicago River is not actively maintained for navigation. The United States Army Corp of Engineers (USACE) considers the end of the navigable waterway to occur at Addison Street, and the City of Chicago at Fullerton Street.

### Enforcement

Non-motorized boating in some sections along the CAWS is dangerous because of high barge traffic and lack of access points. The US Coast Guard has the authority to set rules and regulations concerning non-motorized recreation along sections of the waterway. The City of Chicago Police and US Coast Guard are responsible for enforcement of the laws. The Illinois EPA is responsible to protect the water quality standards applicable to the assigned use of the waterway.

Currently, the police can ticket non-motorized boaters along the CSSC for reckless behavior. However, the Coast Guard and the Police Marine Unit is not large enough to prohibit all non-motorized boating along the CSSC. The Illinois EPA encouraged the US Coast Guard to explain to SAC members the dangers of non-motorized boating along particular reaches of the CAWS during discussion at the December 16, 2003 SAC meeting.

## Water Quality Safety Issues

Because of the diversity of wildlife that exists in and along the CAWS, the sediments must not be at toxic levels. The water quality parameters of concern are salt, dissolved oxygen (DO), and bacteria. The Police Marine Unit has regular body contact with the CAWS on rescue missions and would like to know about health precautions that the Police Marine Unit should take to protect themselves from the CAWS. Rob Suski of the Illinois EPA offered to have a separate meeting with the Police Marine Unit to discuss heath issues and precautions associated with body contact with the CAWS and suggested contacting Dick Lanyon of the MWRD for water quality data on the CAWS.

## Homeland Security

The Illinois International Port District is currently identifying all vulnerable spots in the port. The study will be completed during the last week of December 2003.

The US Coast Guard implements homeland security controls during emergency situations. There is no blanket homeland security regulations applied to the CAWS.

## Water Level and Band Disturbances

The main branch of the Chicago River, several bridges, and areas near marinas are designated as no wake zones. However, up to seven foot elevation changes occur in the water during

wet weather events. Therefore, enforcing wake zones or creating more will create only marginal protection.

The City of Chicago encourages the creation of bio-engineered banks. However, due to dynamic flow changed in the CAWS, such banks are frequently washed away. This issue may increase in severity as the MWRD is considering dropping the CAWS three feet, instead of only two feet, in anticipation of a storm event.

Sheet pile walls are desirable by developers because they maximize the square footage of the land. However, such walls along the waterway are discouraged by the Mayor and are allowed only where necessary.

## Recreational Uses

### Zoning

The Chicago Department of Planning wants to control waterway use by zoning the riverbanks and controlling access points. The Chicago Park District is also working with the CDOP on the Chicago River zoning plan. CDOT announced the t the legislation for the building of a river walk passed. Therefore, CDOT needs to know what activities to promote along the river walk.

Swimming in the CAWS is not encouraged in any zone. Lake Michigan beaches and City pools provide adequate sources for swimming in the Chicago area.

Speeding is a possible issue when zoning the waterway. If only motorized boats are allowed in the area, they will be tempted to speed and be more likely to have an accident.

Bubbly Creek is currently labeled as an Urban Waterfront Zone in the City's draft zoning plan. The area plans to have a dock and growth in residential development with in the next five to ten years. To achieve these goals, water quality needs to be improved possibly by moving the pump station to create more flow in the Creek.

### Safety

Non-motorized boating along the Chicago Sanitary and Ship Channel is not appropriate because of heavy barge traffic and because of lack of access points.

The main branch of the Chicago River is not an appropriate place for river bikes, gondolas, or non-motorized boating because of heavy barge traffic and lack of access points. CDOT and the Velope Center are currently studying the traffic on the main branch of the Chicago River.

The O'Brien Lock is a gateway for many barges. The recreational and commercial uses have a good record of coexistence. However, people have died while waiting for the Locks to open because barges cannot move or turn quickly. Commercial uses have many rules and

regulations and are upset that the recreational users are not expected to uphold the same standards.

CC:

| | | | |
|---|---|---|---|
| Ron French | CDM | Michelle Woods | CDOT |
| John D'Aniello | CDM | Cameron Land | USCG |
| Jeff Wickenkamp | CDM | Bob Balamut | USACE |
| Colleen Hughes | CDM | Sgt. Rick Erbacci | Police Marine Unit |
| Stephanie Brock | CDM | A. Ianello | IIPD |
| Nelson Chueng | CDOP | | |

## Diers, Stefanie

**From:** Sulski, Rob
**Sent:** Friday, February 29, 2008 8:51 AM
**To:** Diers, Stefanie
**Cc:** Twait, Scott
**Subject:** CAWS UAA Stakeholder Meeting Minutes
**Attachments:** 030130 HAC MEETING NOTES.doc; 030421 HAC Meeting Notes.doc; 031119 SAFETY MEETING NOTES.doc

Here is a list of all the stakeholder meetings for which we have notes:

Jan. 30, 2003 meeting - Health AC
April 21, 2003 meeting - HAC
April 22, 2003 meeting - Stakeholders AC
June 24, 2003 meeting - SAC
July 22, 2003 meeting - SAC
Aug. 26, 2003 meeting - SAC
Oct. 28, 2003 meeting - SAC
Nov. 19, 2003 meeting - Safety and Navigational Constraints
Dec. 16, 2003 meeting - SAC (2) don't know which is final. One may be incomplete (Final is attached)
Jan. 27, 2004 meeting - SAC
Feb. 24, 2004 meeting - SAC
April 27, 2004 meeting - SAC (These are final, although we forgot to remove "Draft" from the header.)

I just realized that all the SAC meeting notes are posted on www.chicagoareawaterway.org

The attached are notes from two HAC meetings and one Safety meeting, which are not posted on the website.

# Memorandum

*To:* *Toby Frevert, Illinois EPA*
*Rob Sulski, Illinois EPA*

*From:* *Ron French, CDM*

*Date:* *April 30, 2004*

*Subject:* *Minutes for the April 27, 2004 Stakeholder Advisory Committee Meeting*

*Attendees:*

| | | | |
|---|---|---|---|
| Rob Sulski | Illinois EPA | Dick Lanyon | MWRDGC |
| Toby Frevert | Illinois EPA | Albert Ettinger | ELPC/Sierra Club |
| Scott Twait | Illinois EPA | Nick Menninga | Greeley & Hansen |
| Colleen Hughes | CDM | Ed Hammer | USEPA |
| Ron French | CDM | Susan O'Connell | MWRDGC |
| Stephanie Brock | CDM | Linda Holst | USEPA |
| Lisa Frede | CICI | Steve Pescitelli | IDNR |
| Beth Wentzel | Prairie River Network | Howard Essig | IEPA |
| Janet Pellegrini | USEPA | Jeff Covinsky | IRCA/HMC |
| Fred Axley | FOCR | George Braam | Kudrna/IIPD |
| Nelson Chueng | Chicago - Planning | Sergio Serafino | MWRDGC |
| Todd Wildermuth | FOCR | Eleanor Roemen | FOTP |
| Julia Wozniak | Midwest Gen. | Joe Deal | City of Chicago |
| Brenda Carter | IERG | Aaron Rosinski | SETF |
| Mardi Klevs | USEPA | Cathy Mudzik | Chicago Mayor's Office |

On Tuesday, April 27, 2004 the Illinois EPA and CDM held a Stakeholder Advisory Committee (SAC) meeting to discuss the progress of the Chicago Area Waterway System Use Attainability Analysis (CAWS UAA). The meeting covered the following items:

- Update on the QHEI habitat survey and IBI Analysis
- Proposed Use Classifications and Standards

- Letter to Municipalities and other groups soliciting information on projects affecting the CAWS
- Calumet-Sag Channel, Little Calumet River East, Little Calumet River West, Calumet River, Lake Calumet and Grand Calumet Data and Uses Presentation and Discussion of Attainable Uses and Management Options
- Discussions on Lake Calumet, Bubbly Creek, North Branch Canal, various Slips and the Grand Calumet River
- Update on the Health Advisory Pamphlet and Sign Posting
- Update from MWRD on analysis of various management options

Each agenda item is discussed in detail in the sections to follow. Individual presentations and finalized meeting minutes are or will be posted on the project website at www.chicagoareawaterways.org.

## QHEI Habitat Survey and IBI Analysis

### Overview of Habitat Surveys

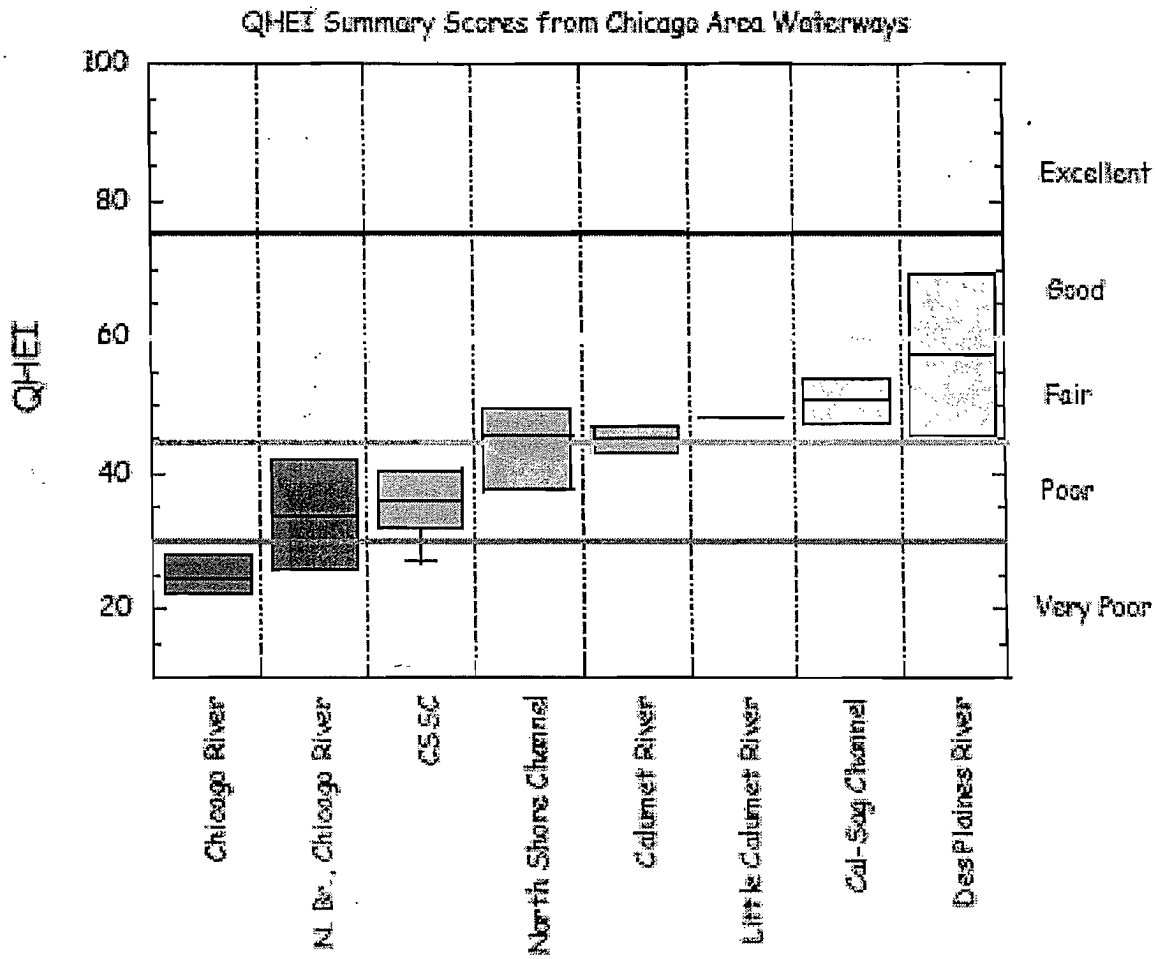
Ed Rankin of the Center for Applied Bioassessment and Biocriteria and representatives of USEPA and Illinois EPA conducted a QHEI habitat survey, which utilizes 25 habitat metrics, at 23 sites along the CAWS between March 29 and April 2, 2004. The surveys were conducted to supplement missing habitat data for the purposes of designated the aquatic life uses of the CAWS. The following table outlines the narrative QHEI ranges and metrics that were used to categorize CAWS reaches. Narrative ranges of the QHEI are helpful in understanding and communicating the condition of the physical habitat of a waterbody and the ability of that habitat to support aquatic life, especially fish assemblages.

**Narrative ranges of the QHEI based on a general ability of that habitat to support aquatic life.**

| *Range of QHEI values* | *Narrative Description* |
|---|---|
| ≥75 | Excellent |
| 60-74 | Good |
| 46-59 | Fair |
| 30-45 | Poor |
| <30 | Very Poor |

The following figure presents a box and whisker plot of QHEI scores by waterway reach along with the narrative ranges for context. Ed Rankin concluded the following regarding the habitat surveys:

"It is clear that the Chicago River and the North Branch of the Chicago River are the most habitat limited of the waters we surveyed followed by the CSSC. In general, the physical habitat quality of these waterways is reduced by lack of consistent flowing water habitats, straight morphology of waterways (reduces habitat heterogeneity) and the large scale of modifications throughout this system. This is above the influence of any additional chemical stressors due to discharges, overflow, or urban runoff events."




The following sections discuss the conclusions drawn from the QHEI habitat surveys for each CAWS segment separately.

*Chicago River and South Branch Chicago River*
- Most limited habitat of all reaches
- QHEI scores at all sites were very poor
- No functional substrates
- Cover or structure for critters nonexistent
- Similar to the Cuyahoga River Ship canal in Ohio
- In Ohio, would be classified as Limited Resource Water (LRW)

*North Branch of the Chicago River*
- Lower section similar to the Chicago River
- Aquatic potential low
- In Ohio, the Lower NBCR would be designated LRW
- Upper NBCR similar to North Shore Channel
- Limited littoral areas, more edge habitat and structure
- In Ohio, the Upper NBCR would be classified as Modified Warmwater Habitat-Channelized (MWH-C)

*North Shore Channel*
- Poor to fair habitat conditions
- Potential to support a tolerant assemblage of organisms adapted to non-flowing habitats
- In Ohio, would be classified as MWH-C aquatic life use

*Cal-Sag Channel*
- QHEI scores in the fair range
- Leftover construction rubble contributed to littoral areas and instream structure
- In Ohio, would be designated as MWH-C aquatic life use

*Chicago Sanitary and Ship Canal*
- Habitat ranged from very poor to poor
- Capable of supporting tolerant species
- Between Harlem and Cicero some shoreline shallows that support an Ohio MWH-C
- Lower reaches are indicative of Ohio LRW

*Calumet River and Little Calumet River*
- Habitat in the lower range of fair
- These waterways had more variation in channel morphology than other CAWS reaches
- Sites had limited substrate types
- In Ohio, would be characterized as MWH-C

Ed Rankin developed the following summary conclusions of the CAWS reaches:

- Waterways are limited by physical habitat, but the biological community is the ultimate deciding factor in aquatic life use designations

- Major commercial uses, such as navigation, can add limiting influences

- Urbanization and the permanent alteration of waterways have contributed to the physical limitations of the CAWS

SAC members had the following comments regarding the QHEI habitat surveys:

- Friends of the Chicago River and the City of Chicago established a wetland area at Lathrop Homes and Diversey Avenue. They are thinking of performing similar habitat enhancements on the North Branch Canal beside Goose Island. Illinois EPA is collecting more information on these plans and the timeframe of implementation in order to assess the potential impacts on the UAA.

- Illinois EPA pointed out that the QHEI habitat survey report does not mean there is no potential for improving the existing habitat in the CAWS. In fact, there is potential for habitat enhancement in the North Shore Channel as well as other reaches in the CAWS.

- There were 23 habitat sample sites. Several SAC members felt this was a limited number of sites for the CAWS area and wondered if the selected sites were representative of the whole system. Illinois EPA and USEPA are confident that the sites are fairly representative of the system. In fact, they feel that the sites may be better quality than the entire reach.

- A map of the QHEI sample sites will be developed and distributed with the final report.

## Update on IBI Analysis

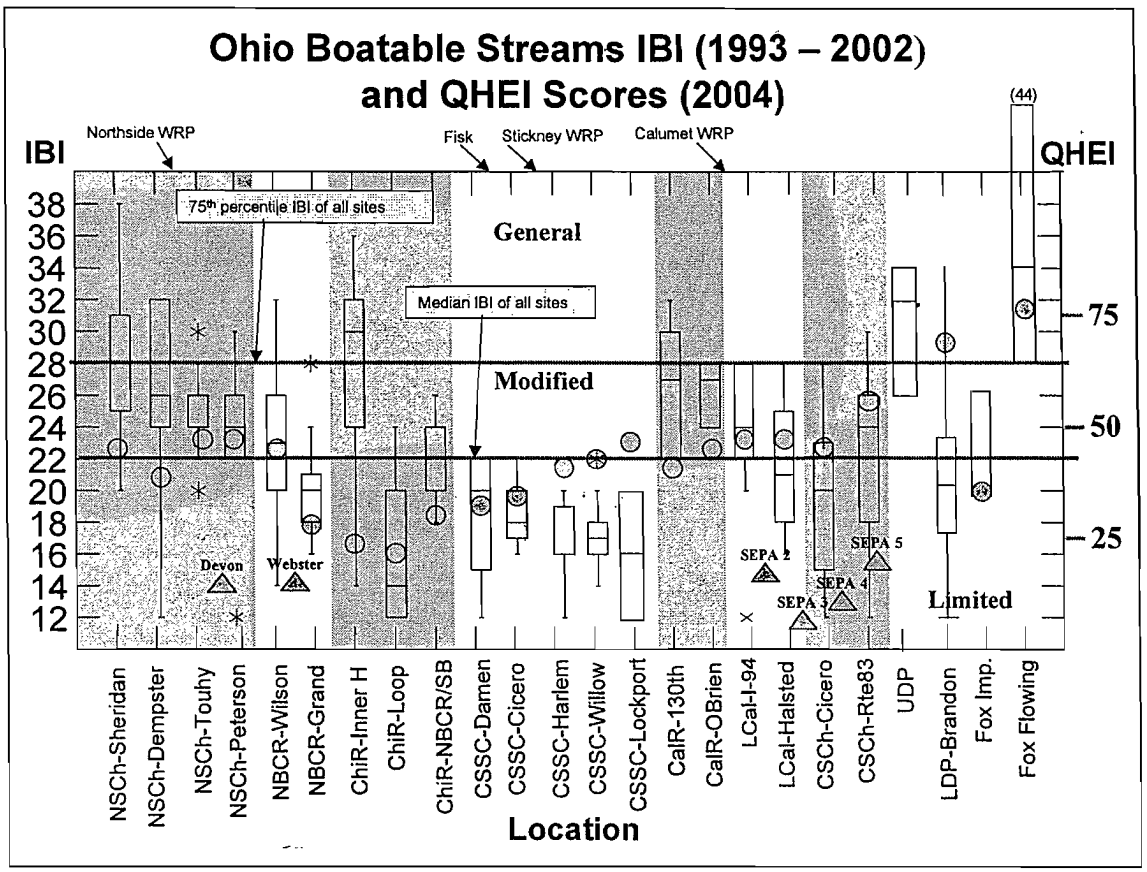
Based on comments received during the February 2004 SAC meeting the IBI scores were recalculated using the Ohio boatable waters methods. Toby reiterated that IBI scores would be used as a screening tool and not for regulatory enforcement. The following figure illustrates the IBI scores and the QHEI habitat scores for CAWS sampling stations. The left axis is the IBI score and the right axis is the QHEI score. There is no mathematical correlation between the IBI scale and the QHEI scale. The figure also illustrates the location of several significant point sources and the aeration stations.

SAC members had the following comments regarding the IBI analysis:

- The Ohio Boatable IBI scores are lower than the Illinois IBI scores. However, interpretation of the Ohio IBIs yields the same conclusions regarding aquatic life use designations.

- The Ohio Boatable IBI methods were used to recalculate the IBI scores for the CAWS reaches because the Illinois IBI methods are not appropriate for deep waterways over 100-feet in width. Where as Ohio Boatable methods were developed specifically to address deep waterways.

- The Ohio IBI is adjusted for low-end scoring. Illinois EPA/CDM will clarify how the delt anomalies are calculated.




The aquatic life use designation definitions were considered and altered slightly based on the results of the habitat survey and recalculation of the IBIs using the Ohio Boatable Methods. Details of the changes are provided in the following section.

## Proposed Use Classifications and Standards

Proposed aquatic life use and recreational use classifications and standards were originally presented during the December SAC meeting. Since that meeting the proposed classifications and standards have undergone a series of 3 revisions based on comments received from members of the SAC (see December, January and February SAC meeting minutes for a full summary of comments).

## Aquatic Life Use Designations

The 3rd Draft of the CAWS Water Quality Classifications and Standards still propose the following three Aquatic Life Use designations:

- General Use Warm-water Aquatic Life
- Modified Warm-water Aquatic Life
- Limited Warm-water Aquatic Life

The classification attributes of species composition, diversity, and functional organization are measured using the Index of Biotic Integrity (IBI). The IBI was used to evaluate the ecological health of a stream. Metrics used to calculate the IBI include species richness, reproduction, and tolerance measures. IBI scores are calculated by ecoregion and stream wetted width. Ohio EPA currently utilizes a system similar to these proposed designations.

Each of the aquatic life use classifications includes narrative biological criteria such as species composition and an IBI score. Biological criteria are based on diversity and abundance of aquatic organisms found to inhabit a particular river sampling location (e.g. dominance of native sunfish and minnow species) and reflect the health of a river when compared to a similar unimpacted river in the same geographical region (e.g. IBI). They are used as a tool by which state regulatory agencies can evaluate the biological health of a river and measure the effectiveness of any management strategy to restore water quality and habitat. Additionally, biological criteria compliment chemical criteria to protect designated uses.

Aquatic Life Use Classification definitions and corresponding IBI scores are provided below:

- General Warm-water Aquatic Life - These waters are capable of supporting a year-round balanced, diverse warm-water fish and macroinvertebrate community. The fish community is characterized by the presence of a significant proportion of native species, including mimic shiner, spotfin shiner, brook stickleback, longnose dace, hornyhead chub, smallmouth buffalo, rock bass and smallmouth bass. The attributes of species composition, diversity and functional organization will be measured using the Index of Biotic Integrity (IBI)[1]. The biological integrity of these waters are typically reflected by IBI scores ranging between 29 and 45. Water quality standards as identified in 35IL Adm Code Part 302, Subpart B: Sections 302.201 – 302.213 or more appropriate standards based upon recent guidance shall be applied to protect the General Warm-water Aquatic Life use designation.

- Modified Warm-water Aquatic Life - These water are presently incapable of supporting and maintaining a balanced, integrated, adaptive community of a warm-water fish and macroinvertebrate community due to significant modifications of the channel morphology, hydrology and physical habitat that may be recoverable. These waters are

capable of supporting and maintaining communities of native fish and macroinvertebrates that are moderately tolerant, and may include desired sport fish species such as channel catfish, largemouth bass, bluegill, and black crappie. The attributes of species composition, diversity and functional organization will be measured using the Index of Biotic Integrity (IBI)[1]. The biological integrity of these waters are typically reflected by IBI scores between 22 and 28. Water quality standards as identified in 35IL Adm Code Part 302, Subpart B: Sections 302.201 - 302.213 or more appropriate standards based upon recent guidance shall be applied to protect the Modified Warm-water Aquatic Life use designation.

- Limited Warm-water Aquatic Life - These surface waters are not presently capable of sustaining a balanced and diverse warm-water fish and macroinvertebrate community due to irreversible modifications that result in poor physical habitat and stream hydrology. Such physical modifications are of long-duration (i.e. twenty years or longer) and may include artificially constructed channels consisting of vertical sheet-pile, concrete and rip-rap walls designed to support commercial navigation and the conveyance of stormwater and wastewater. Hydrological modifications include locks and dams that artificially control water discharges and levels. The fish community is comprised of tolerant species, including common carp, central mudminnow, golden shiner, white sucker, bluntnose minnow, yellow bullhead and green sunfish. These waters shall allow for fish passage. The attributes of species composition, diversity and functional organization can be measured by the Index of Biotic Integrity (IBI)[1]. The biological integrity scores for these waters typically range from 12 to 21. Water quality standards as identified in 35IL Adm Code Part 302, Subpart B: Sections 302.201 - 302.213 or more appropriate standards based upon recent guidance or habitat limitations shall be applied to protect the Limited Warm-water Aquatic Life use designation. On a case-by-case basis, General Use water quality criteria may be modified to protect the existing aquatic life use designation.

1 The Index of Biological Integrity (IBI) shall be calculated using the Ohio IBI boatable water method

SAC members had the following comments during the meeting regarding the proposed aquatic life use designations:

- The Sierra Club is concerned that the aquatic life designated uses define what is currently there and not what should be there. They are concerned that the use designations don't describe the potential. CDM explained that the species listed in the designations are based on the species that should be present in waters with the defined IBI ranges. They are also based on the potential improvements from various proposed management options.

- SAC member would like clarification on the rule making process. Toby Frevert explained that the use designations would be drafted based on the relative quality of the waters.

There will be no IBI ranges in the proposed rule. The rules will simply explain the qualifications a water body required to be listed in a particular category/designated use.

- IBI ranges for the 3 aquatic life use designations are based on history (the 75th percentile and median of all the fish data collected from 1993-2003).

- USEPA noted that waterbodies designated as Modified Warm-water Aquatic Life (MWAL) and Limited Warm-water Aquatic Life (LWAL) must be evaluated every 3-years.

- USEPA pointed out that the proposed rule will need to contain language which provides a description of how and when the LWAL designation is violated because as it is currently written (the low IBI score is 12) waters designated as LWAL would never register impairments.

- Toby Frevert reiterated that the IBI is a screening tool, but will not specifically list IBI scores in the final proposed use designations.

- There is a big debate between using the Ohio Boatable IBI and the Illinois IBI methods. CDM/Illinois EPA will carefully consider the benefits and negatives of each method before settling on a screening method for the designated uses.

### Recreational Use Designations

The proposed recreational use designations did not change since the last draft. SAC members had the following comments on the proposed recreational use designations:

- SAC members wanted to clarify that disinfection would be necessary to meet the 2740 cfu *E. coli* standard. At this point, it is unknown whether disinfection would be required at all times for this standard.

- The biggest issue governing the proposed E. coli standards is the cost of implementation of disinfection. This will be evaluated and discussed in depth in the draft report.

## Existing Recreational and Navigational Uses

Stephanie Brock of CDM presented the observed recreational and navigational uses of the Grand Calumet, Little Calumet East, Little Calumet West, Calumet-Sag Channel, Lake Calumet and the Calumet River.

Field observations; taken by Illinois EPA, CDM, Lake Michigan Federation, USEPA, and MWRD were collected from June to October of 2003. Post card surveys were returned from 3 marinas/boat launches located on the Little Calumet East reach. The following table summarizes the findings of the recreational use surveys.

| Observed | Grand Calumet | Little Cal East | Little Cal West | Cal-Sag | Lake Calumet |
|---|---|---|---|---|---|

| Activitiy | *Count* | *Percent* | *Count* | *Percent* | *Count* | *Percent* | *Count* | *Percent* | *Count* | *Percent* |
|---|---|---|---|---|---|---|---|---|---|---|
| **Swimming** | 0 | 0% | 1 | 2% | 0 | 0% | 1 | 1% | 1 | 4% |
| **Jet Skiing** | 0 | 0% | 5 | 7% | 1 | 1% | 7 | 4% | 0 | 0% |
| **Wading** | 0 | 0% | 3 | 4% | 3 | 2% | 6 | 4% | 0 | 0% |
| **Canoeing** | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| **Fishing** | 2 | 100% | 47 | 67% | 89 | 61% | 57 | 33% | 22 | 96% |
| **Power Boating** | 0 | 0% | 14 | 20% | 54 | 36% | 100 | 58% | 0 | 0% |

The postcard surveys returned for the Little Calumet East reach confirm the uses observed during the field surveys.

There are no formal observations taken on the Calumet River. However, observations in conjunction with the Calumet system indicate that existing activities include fishing, power boating, and commercial navigation.

## Water and Sediment Quality

Colleen Hughes of CDM presented the water and sediment quality data for Grand Calumet, Little Calumet, Calumet-Sag Channel and Lake Calumet. A copy of this presentation is available upon request and will be posted on the project website. Water and sediment quality data were compared to proposed water quality standards for the proposed recreational and aquatic life use classifications (General Use Standards) to identify constituents of concern and resulted in the following use attainment screening summary.

### Water Quality Use Attainment Screening

*E. coli* concentrations usually exceeded the proposed standards for Whole-Body Contact Recreation in the Little Calumet East and exceeded both Whole-Body Contact Recreation and the Limited Contact Recreation for the Cal-Sag Channel and Little Calumet West. There is no bacteria data available for the Grand Calumet or Lake Calumet. Dissolved oxygen, pH, total silver, and dissolved nickel (chronic) are the constituents of concern for the Calumet River. The constituents of concern for Little Calumet East include dissolved oxygen, ammonia (chronic), total silver, and dissolved iron. The constituents of concern for Little Calumet West include dissolved oxygen, pH, total silver, dissolved iron, dissolved nickel (chronic), dissolved zinc (chronic), TDS, WAD cyanide (chronic), phenol, and fluoride. Dissolved oxygen, ammonia (chronic, subchronic, acute), pH, total silver, dissolved iron, TDS, and fluoride are the constituents of concern for the Cal-Sag Channel. High fluoride levels in the Cal-Sag and Little Calumet West are attributed to high background groundwater levels.

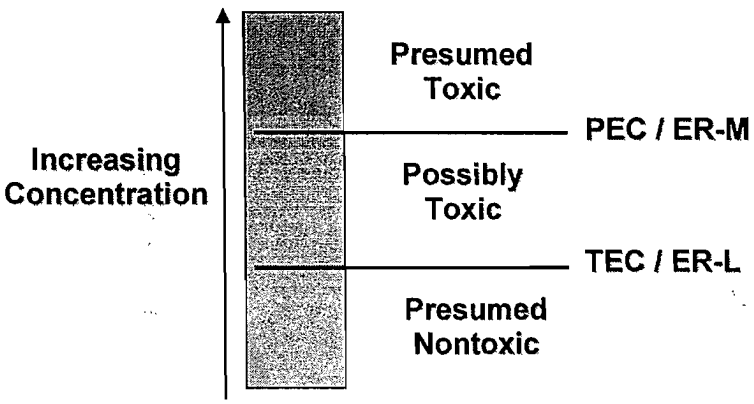
### Sediment Quality Criteria Guidelines

Sediment quality criteria guidelines were used to evaluate sediment quality data in the CAWS as listed below.

MacDonald (2000) Archives of Environmental Contamination and Toxicology was used.

- Threshold effects concentration (TEC) - Toxic to sensitive benthic organisms
- Probable effects concentration (PEC) - Toxic to most benthic organisms

These guidelines are based on two concentrations that provide guidance regarding the potential impact to aquatic organisms. The figure below illustrates the increase of potential impact with increasing concentrations. The guidelines were used to screen sediment chemical parameters. If chemical concentrations frequently exceeded both guidelines further investigation such as bioassays are recommended to better understand the potential toxicity of contaminated sediments to aquatic life.




## Sediment Quality Assessment

The following conclusions were drawn from the sediment chemistry analysis:

- Metal concentrations are generally higher in the Grand Calumet than the Little Calumet and Calumet-Sag Channel
- Metal concentrations are generally lower at the mouth of the Grand Calumet compared to the rest of the Grand Calumet system
- Chromium, Copper, and Nickel concentrations are between the PEC and TEC guidelines at most stations along the Cal-Sag Channel
- Zinc and Lead concentrations exceed TEC and PEC guidelines at most stations along the Cal-Sag
- Cal-Sag metal concentrations are generally lower than Little Calumet

- Lake Calumet sediments exhibit elevated levels of metals and PAHs likely due to historic industrial activities

Several SAC members indicated that there may be more sediment data available for Lake Calumet.

## Biological and Habitat Conditions

Ron French of CDM presented biological data for the Calumet River, Little Calumet River, Cal-Sag Channel, and the Chicago Sanitary and Ship Canal. The following table summarizes macroinvertebrate data for the selected segments from August 2001 and September 2002.

| Reach | Location | Number of Species | Dominant Species |
|---|---|---|---|
| **Calumet River** | 130th Street | 18 | Gammarus and chironomids |
| **Little Calumet River** | Halsted Street | 14 | Chironomids, tubificids, Gammarus |
| **Cal-Sag Channel** | Cicero Avenue | 16 | Tubificids, leeches, chironomids |
| **Chicago Sanitary and Ship Canal** | Damen Avenue | 12 | Tubificids and chironomids |
| | Cicero Avenue | 12 | Tubificids |
| | Harlem Avenue | 7 | Tubificids and leeches |

The following table summarizes fish data for the selected segments.

| Reach | Location | Number of Species | Dominant Species |
|---|---|---|---|
| **Cal-Sag/CSSC Junction** | U/S SEPA 5 | 8 | gizzard shad, largemouth bass |
| | D/S SEPA 5 | 15 | gizzard shad, yellow bass, carp, channel catfish |
| **Cal-Sag at Worth** | U/S SEPA 4 | 11 | Emerald shiner, carp (emerald shiner= 27) |
| | D/S SEPA 4 | 16 | Emerald shiner, gizzard shad, carp and bluegill (emerald shiner 229) |
| **Cal-Sag at Blue Island** | U/S SEPA 3 | 10 | Carp, bluntnose minnow, emerald shiner |
| | D/S SEPA 3 | 15 | emerald shiner, carp, yellow bass, gizzard shad |
| **Little Cal at 127th Street** | U/S SEPA 2 | 15 | Emerald shiner, gizzard shad, pumpkinseed, bluntnose minnow |
| | D/S SEPA 2 | 17 | Emerald shiner, bluegill, gizzard shad, green sunfish, round goby |

There is no fish sample data on the Grand Calumet or Lake Calumet.

A copy of the biological and habitat presentation is available upon request and will be posted on the project website.

## Designated Use Classifications and Management Alternatives for Bubbly Creek and the Chicago Sanitary and Ship Canal

There was a lengthy discussion regarding the purpose of the current analysis of designated uses. Most SAC members believe that as the designated uses are defined at this time the definition describes what is attained, not what is attainable. Ron French of CDM consented that at this time the SAC is designating existing uses. After evaluation of management options, it will be possible to designate proposed uses for the CAWS reaches. The following table outlines the existing aquatic life and recreational use designations for the Chicago System.

| Existing Designated Use | Upper North Shore Channel | Lower North Shore Channel | Upper North Branch Chicago River | Lower North Branch Chicago River | Chicago River | South Branch Chicago River | Bubbly Creek | CSSC |
|---|---|---|---|---|---|---|---|---|
| Whole-Body Contact Recreation | | | | | | | | |
| Limited Contact Recreation | X | X | X | X | X | X | X | |
| Recreational Navigation | | | | | | | | X |
| General Use Warm-Water Aquatic Life | | | | | | | | |
| Modified Warm-Water Aquatic Life | X | X | X | | Inner Harbor X | | | Cicero to Harlem X |
| Limited Warm-Water Aquatic Life | | | | X | X | X | X | X |

**X represents designations which changed after the Ohio Boatable IBI and QHEI data was analyzed**
*** Time Frame: 5- 10 years**

The following table outlines the existing aquatic life and recreational use designations for the Calumet System.

| Existing Designated Use | Grand Calumet | Little Calumet East | Little Calumet West | Cal-Sag Channel | Lake Calumet | Calumet River |
|---|---|---|---|---|---|---|
| Whole-Body Contact Recreation | | | | | | |
| Limited Contact Recreation | X | X | X | X | X | X |
| Recreational Navigation | | | | | | |
| General Use Warm-Water Aquatic Life | | | | | | |
| Modified Warm-Water Aquatic Life | ? | X | X | X | X | X |
| Limited Warm-Water Aquatic Life | | | | | | |

SAC members had the following comments regarding designated uses:

- The Chicago River is unlike other reaches because of its connection to Lake Michigan. Although, the QHEI habitat survey results rank the Chicago River as the reach with the lowest habitat scores, the IBI scores for the sampling site in the Inner Harbor indicate that the Chicago River has a diverse population of fish species. SAC members believe that because the connection to the lake is essentially a permanent subsidy, it should be recognized. At this point CDM/Illinois EPA has classified the Chicago River Reach as LWAL. They suggested designating the reach as MWAL to acknowledge the connection to the lake and the effect on fish species diversity. However, MWAL may not apply to the entire Chicago River reach. CDM/Illinois EPA will evaluate the potential of splitting the reach in two.

- SAC members do not want the final report to characterize the designations as a consensus decision because at this point the designated use classifications are indicative of what is attained, not what is attainable. Illinois EPA/CDM will utilize the data on management alternatives and upcoming projects scheduled for the CAWS to determine the attainable use classifications for each reach.

- Some SAC members suggested defining a 4th aquatic life use designation to classify the reaches connected to Lake Michigan (North Shore Channel at Sheridan, Chicago River Inner Harbor, and the Calumet River). Illinois EPA/CDM will consider this in their analysis; however, it may be more appropriate to split these reaches into smaller segments to recognize the impact of their connection to Lake Michigan.

- Ed Rankin's QHEI report suggested two habitat uses for the CSSC due to overhanging vegetation/cover in the segment between Harlem and Cicero. He suggested that because the IBI scores in this segment are very low and the habitat is adequate that there is some influence besides habitat limiting fish species.

- Lake Calumet consists of a blue-clay bottom with no structure. It is on average 6-inches deep with the exception of a deep channel connecting the north end of the lake with the Calumet River. There is no recent, reliable fish or macroinvertebrate data. However, there is substantial projects planned which would influence the habitat. Based on CDM's experience, it may be appropriate to designate Lake Calumet as MWAL and LCR.

The following management measures are proposed for the Chicago System reaches:

| Management Alternatives | Upper North Shore Channel | Lower North Shore Channel | Upper North Branch Chicago River | Lower North Branch Chicago River | Chicago River | South Branch Chicago River | Bubbly Creek | CSSC |
|---|---|---|---|---|---|---|---|---|
| Flow Augmentation | X | | | | | | X | |
| Aeration | X | | X | X | | X | X | X |
| Instream Habitat Enhancement | | | | | | | | |
| Floatable Control | REQUIRED | | | | | | | |
| Sediment Removal | | | | | | | ? | |
| Disinfection | X | X | X | X | X | X | X | |
| Other | | | | | | | | |

The following management measures are proposed for the Calumet System reaches:

| Management Alternatives | Grand Calumet | Little Calumet East | Little Calumet West | Cal-Sag Channel | Lake Calumet | Calumet River |
|---|---|---|---|---|---|---|
| Flow Augmentation | | | | | | |
| Aeration | | X | X | X | | |
| Instream Habitat Enhancement | | | | | X | |
| Floatable Control | REQUIRED | | | | | |
| Sediment Removal | X | X | | | | X |
| Disinfection | | | X | X | | |
| Other | | | | | | |

The project team will include these management alternatives in the letter to MWRD.

SAC members had the following suggestions regarding management options:

- The North Branch Canal, Collatoral Channel, and various slips will be handled as addendums to other reaches. They will each be addressed in the final report.
- USEPA suggested including sediment removal on various reaches in the final report because this action will make it easier to negotiate funding for such activities.

## Update on the Health Advisory Pamphlet

Janet Pellegrini of USEPA and Rob Sulski of Illinois EPA provided a summary of the current status of the Health Advisory Pamphlet and Signage. Signs will be posted this summer on properties owned/managed by MWRD. Comments from the City of Chicago caused a few minor modifications to the signs. Additionally, MWRD will ask each of the tenants to provide the pamphlet to users. A press release regarding the signage and pamphlets will be published in May.

The distrubution plan for the pamphlets is still being developed. At this time, distribution locations have been identified. MWRD has approximately 30 tenants that have agreed to distribute the pamphlets. The Friends of the Chicago River will be distributing the pamphlet to participants of the River Rescue Day on May 8. Illinois EPA plans to deliver pamphlets to the private marinas located along the CAWS. The City of Chicago also plans to distribute pamphlets through city events such as city meetings. Illinois EPA will also solicit assistance from attendees of the upcoming public meetings.

## Update from MWRD

MWRD received the letter from Illinois EPA on March 12, 2004 outlining the various management options which need to be considered on the CAWS. The management options were outlined for the reaches from the North Shore Channel down to the South Branch of the Chicago River. Illinois EPA is currently drafting a letter regarding the remaining reaches. MWRD will submit a response letter with a schedule of deliverables to Illinois EPA by the end of May.

MWRD plans to perform the following task related to the evaluation of disinfection at the plants:

- Conduct Risk Assessment (for this task they will need all of the use data collected on the CAWS)
- Collect additional fecal coliform data
- Include fecal coliform in the water quality model (Marquette University)
- Evaluation of EPA bacteria guidance
- Investigate alternative technologies for disinfection – determine the residual effects of chemical disinfection and the energy costs

MWRD will develop RFPs for the following tasks:

- Risk assessment,
- EPA guidance evaluation
- Investigation of alternative technologies

MWRD expects these deliverables to be completed in mid-2005.

MWRD will perform the following tasks related to evaluation of aeration and flow augmentation alternatives:

- Construct additional model elements (Marquette University)
- Investigate the impacts between alternative technologies for DO and chemical treatments

MWRD expects these deliverables to be completed by summer 2005.

## Announcements

The next SAC meeting will be held August 24, 2004. This meeting will cover an overview of the draft report. An agenda will be developed and distributed to SAC members prior to the next meeting. Please note the CAWS UAA web site, www.chicagoareawaterways.org, is operational

Public meetings will be held on May 10 in Evanston at the Evanston Ecology Center, on May 11 at 12:00 p.m. at the State of Illinois Building in downtown Chicago, on May 11 at 7:00 p.m. at the Thompson Center in downtown Chicago, and on May 13 at the Southeast Environmental Task Force offices in the Lake Calumet area. The recommended use designations and suggested water quality standards, including incorporation of SAC comments and suggestions, will be presented.

CC:

| | | | |
|---|---|---|---|
| Scott Twait | Illinois EPA | Nick Menninga | Greeley & Hansen |
| Colleen Hughes | CDM | Ed Hammer | USEPA |
| Lisa Frede | CICI | Susan O'Connell | MWRDGC |
| Beth Wentzel | Prairie River Network | Linda Holst | USEPA |
| Janet Pellegrini | USEPA | Steve Pescitelli | IDNR |
| Fred Axley | FOCR | Howard Essig | IEPA |
| Nelson Chueng | Chicago - Planning | Jeff Covinsky | IRCA/HMC |
| Todd Wildermuth | FOCR | George Braam | Kudrna/IIPD |
| Julia Wozniak | Midwest Gen. | Sergio Serafino | MWRDGC |
| Brenda Carter | IERG | Eleanor Roemen | FOTP |
| Mardi Klevs | USEPA | Joe Deal | City of Chicago |
| Dick Lanyon | MWRDGC | Aaron Rosinski | SETF |
| Albert Ettinger | ELPC/Sierra Club | Cathy Mudzik | Chicago Mayor's Office |

April 16, 2004 Draft

# Memorandum

*To:* *Toby Frevert, Illinois EPA*
*Rob Sulski, Illinois EPA*

*From:* *Ron French, CDM*

*Date:* *April 14, 2004*

*Subject:* *Minutes for the February 24, 2004 Stakeholder Advisory Committee Meeting*

*Attendees:*

| | | | |
|---|---|---|---|
| Rob Sulski | Illinois EPA | Paul Zwijack | Corn Products |
| Toby Frevert | Illinois EPA | Julia Wozniak | Midwest Gen. |
| Scott Twait | Illinois EPA | Brenda Carter | IERG |
| Colleen Hughes | CDM | Bill Constantelos | Midwest Gen. |
| Ron French | CDM | Mardi Klevs | USEPA |
| Stephanie Brock | CDM | Dick Lanyon | MWRDGC |
| Lisa Frede | CICI | Albert Ettinger | ELPC/Sierra Club |
| Beth Wentzel | Prairie River Network | Nick Menninga | Greeley & Hansen |
| Janet Pellegrini | USEPA | Ed Hammer | USEPA |
| Fred Axley | FOCR | Dave Pfeifer | USEPA |
| Nelson Chueng | Chicago - Planning | Susan O'Connell | MWRDGC |
| Todd Wildermuth | FOCR | Sid Osakada | Chicago - DWM |

On Tuesday, February 24, 2004, the Illinois EPA and CDM held a Stakeholder Advisory Committee (SAC) meeting to discuss the progress of the Chicago Area Waterway System Use Attainability Analysis (CAWS UAA). The meeting reviewed data presented during the January SAC meeting on three CAWS reaches at the northern end of the project area; presented data on three additional reaches; and covered the following items:

- IBIs and UAAs in Boatable Waters
- Update on Proposed Use Classifications and Standards

- Data, Current Uses Presentation and Discussion of Attainable Uses and Management Options for South Fork of the South Branch and Chicago Sanitary and Ship Canal

Each agenda item is discussed in detail in the sections that follow. Individual presentations and finalized meeting minutes are or will be posted on the project website at www.chicagoareawaterways.org.

## IBIs and UAAs in Boatable Waters

### Overview

Chris Yoder from the Midwest Biodiversity Institute and Center for Applied Bioassessment and Biocriteria presented an overview of UAA considerations for non-wadeable rivers and streams. A copy of the presentation can be downloaded from the CAWS UAA website, and a summary of the presentation's main points follows here.

The goal of the Clean Water Act (CWA) is the restoration of the chemical, physical and biological integrity of degraded waters. Water quality standards are the basis for the water quality management strategies of the CWA, and they provide the basis for implementing controls and management procedures such as UAAs and total maximum daily loads (TMDLs).

Chris Yoder outlined Ohio's Water Quality Standards, which are based on narrative uses and chemical and biological criteria. The uses are established by demonstrating potential attainment of biological criteria through a comparison of habitat assessments and regional reference condition. In this comparison "potential" means potential under restored conditions.

Ohio has four aquatic life use designations:

- Exceptional Warmwater Habitat (EWH): preserve and maintain existing high quality
- Warmwater Habitat (WWH): basic restoration goal for most streams
- Modified Warmwater Habitat (MWH): best attainable conditions for streams under drainage maintenance or other essentially permanent hydromodifications (e.g. impoundments).
- Limited Resource Waters (LRW): essentially irretrievable, human induced (e.g. widespread watershed modifications) or naturally occurring conditions (e.g. ephemeral flow).

The use system was developed in 1978 as a customized and cost effective water quality management tool and addresses 6 UAA non-compliance conditions except human induced conditions and hydromodifications.

Biological criteria consist of narrative ratings or numerical values and are based on the numbers and assemblages of aquatic organisms found to inhabit a particular stream or river sampling location. They are indexed to the reference assemblage of aquatic organisms within a particular geographic region (i.e., ecoregion), taking into consideration stream and river size. Finally, they represent a calibrated assessment tool that fosters an organized goal setting process that can be used to reconcile human impacts and guide restoration efforts. J.R. Karr developed the IBI in 1981.

The Ohio IBI calibration and biocriteria derivation process adheres to the following steps:

I. Select sample and reference sites

II. Calibrate IBI metrics

III. Modify calibrated IBI for Ohio waters

IV. Establish ecoregional patterns and expectations

V. Derive numeric biocriteria (codify in water quality standards)

VI. Use Numeric biocriteria in bioassessments

To assess impounded sites, Ohio utilized local knowledge and regional experience to guage potential. Their calibration references only the least impacted sites.

SAC members made the following comments to Yoder's presentation.:

- There are very few cold water designated uses in Ohio.
- SAC members asked if Ohio has developed recreational use designations. Ohio has three recreational use designations. Bathing applies to sanctioned bathing areas only, primary protects against full body emersion for children, and secondary safeguards areas where wading is possible.
- Concerns were raised about how riparian vegetation is evaluated or accounted for (e.g., scaled or weighted) and to what extent it is a factor in the study. Riparian condition is one of the eight factors evaluated in a QHEI habitat analysis.

## Proposed Use Classifications and Standards

Proposed aquatic life use and recreational use classifications and standards were originally presented during the December SAC meeting. The initial proposed classifications and standards have since been updated to include comments provided during and following the meeting (see December and January SAC meeting minutes for a full summary of comments).

## Aquatic Life Use Designations

At this time, three Aquatic Life Use designations are proposed:

- General Use Warm-water Aquatic Life
- Modified Warm-water Aquatic Life
- Limited Warm-water Aquatic Life

Each of the aquatic life use classifications includes narrative biological criteria such as species composition and an IBI score. Biological criteria are based on diversity and abundance of aquatic organisms found to inhabit a particular river sampling location (e.g. dominance of native sunfish and minnow species) and reflect the health of a river relative to a minimally impacted river in the same geographical region (e.g. IBI). These criteria are used as a tool by which state regulatory agencies can evaluate the biological health of a river and measure the effectiveness of any management strategy to restore water quality and habitat. Additionally, biological criteria compliment chemical criteria to protect designated uses.

Aquatic Life Use Classification definitions and corresponding IBI scores are provided below:

- General Warm-water Aquatic Life - The level of protection necessary to protect surface waters for the year-round maintenance of balanced and diverse warm-water fish and macroinvertebrate communities. A significant proportion of the fish community consists of native species dominated by intolerant and moderately intolerant sunfishes, minnows and suckers. This community may include mimic shiner, spotfin shiner, brook stickleback, longnose dace, hornyhead chub, smallmouth buffalo and smallmouth bass. The attributes of species composition, diversity and functional organization will be measured using the Index of Biotic Integrity (IBI)[1]. Water quality standards (as identified in 35IL Adm. Code Part 302, Subpart B: Sections 302.201 - 302.213), or more appropriate standards based upon recent guidance, shall be applied to protect the General Warm-water Aquatic Life use designation.

- Modified Warm-water Aquatic Life - These waters are incapable of supporting and maintaining a balanced, integrated, adaptive community of a warm-water fish and macroinvertebrate community due to irretrievable modifications of the channel morphology, hydrology and physical habitat. Such structural modifications are long-standing (i.e., twenty years or longer) and may include artificially constructed channels designed to carry storm and wastewater or stream channels consisting of sheet-pile, concrete, or riprap walls. Hydrological modifications include artificially controlled water discharges and levels. The fish community in these waters is dominated by moderately tolerant minnows, sunfishes, catfishes and suckers, which may include spottail shiner, emerald shiner, black bullhead, orange-spotted sunfish, largemouth bass, bluegill, and black crappie. The attributes of species composition, diversity and functional

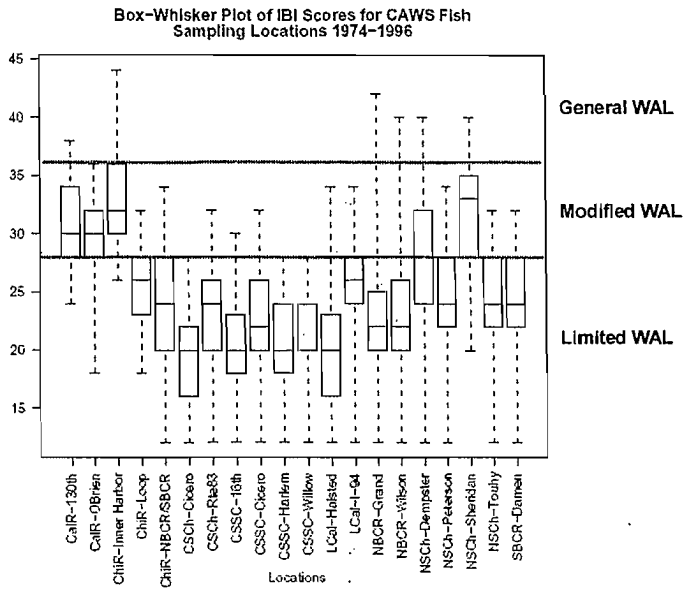
organization will be measured using the Index of Biotic Integrity (IBI)[1]. Water quality standards (as identified in 35IL Adm. Code Part 302, Subpart B: Sections 302.201 - 302.213), or more appropriate standards based upon recent guidance, shall be applied to protect the Modified Warm-water Aquatic Life Use designation.

- Limited Warm-water Aquatic Life - These waters are not capable of sustaining a wide variety of warm-water fish (including recreationally important games species) and macroinvertebrates due to irreversible impacts on water quality, physical habitat, channel morphology and artificial control of water discharges and levels results in substantial impairment of the biological condition of the water body. The fish community in these waters is dominated by primarily tolerant and exotic species including common carp, central mudminnow, golden shiner, white sucker, fathead minnow, bluntnose minnow, yellow bullhead, and green sunfish. Intolerant species are absent. The attributes of species composition, diversity and functional organization will be measured using the Index of Biotic Integrity (IBI)[1]. Water quality standards (as identified in 35IL Adm. Code Part 302, Subpart B: Sections 302.201 - 302.213), or more appropriate standards based upon recent guidance or habitat limitations, shall be applied to protect the Limited Warm-water Aquatic Life Use designation.

1 The Index of Biological Integrity (IBI) shall be calculated using the Ohio IBI boatable water method

The techniques for calculating the IBI were overviewed at the December and January SAC meeting. Using IBI scores to determine biological integrity of CAWS is challenging because the region lacks an appropriate reference reach; CAWS is a man-made system that was not constructed to provide habitat for fish. Therefore, IBI scores will be calculated using the Ohio boatable waters methods and will be used as a screening tool and not for regulatory enforcement. Figure 1 illustrates the first attempt to use IBI scores for screening purposes. However, due to comments received, the IBI scores for the CAWS data collected between 1974 and 1996 will be calculated using Ohio IBI methods. An overview of the analysis will be presented during the April SAC Meeting.

Figure 1




SAC members had the following comments during the meeting regarding the proposed aquatic life use designations:

- SAC members wanted to know if the Ohio IBI adjusts for low-end values. Ron French and Chris Yoder indicated they would follow up on this issue, but Yoder said that these values might need to be adjusted manually.

- Midwest Generation and the Sierra Club representatives asked for clarification on the implications of halting lake diversion and other physical modifications to the system. Illinois EPA indicated that the flow augmentation management measures would address flow diversion issues through approximately the next ten years. If the physical alterations are feasible and applicable during the timeframe of the study, the UAA team will address them during development of management measures. Illinois EPA also reminded SAC members of the importance keeping the UAA team informed of planned or potential projects on CAWS because such projects could support or interfere with the proposed designated use classifications.

- Several SAC members indicated that it is extremely difficult to estimate IBI and biological integrity potential without habitat data. After a long discussion, USEPA agreed to hire Ed Rankin to evaluate the habitat using QHEI methods at each of the MWRD fish sampling sites before the April SAC meeting. IEPA, CDM and MWRD expressed a willingness to lend assistance.

- Midwest Generation is not comfortable with defining specific species associated with each of the designated use classifications. CDM, however, recommends the species definitions remain included because they are built in to the new IEPA and Ohio EPA methods. Midwest Generation further contends that unless there has been a recent change in Ohio policy that has not yet been published, there is no specific listing of species associated with any given aquatic life use in their Ohio regulations. CDM will address this comment.

## Recreational Use Designations

There are three proposed recreational use designations. These were discussed in depth during the December SAC meeting (see December SAC Meeting Minutes). However, based on comments received following the December meeting, the proposed *E. coli* standards were revised as follows:

- Whole-Body Contact Recreation - Protects for routine, prolonged and intimate contact uses including swimming and water-skiing. Protection would require attainment of a geometric mean of 126 cfu and a daily maximum of 576 cfu *E. coli* (selected on the basis of 8 illnesses per thousand contacts). These whole-body contact recreation criteria shall apply only during the defined recreational period of May 1 through October 31.

- Limited Contact Recreation - Protects for incidental or accidental body contact uses, during which the probability of ingesting appreciable quantities of water is minimal, including recreational boating (kayaking, canoeing, jet skiing), and any limited contact incident to shoreline activity, such as wading and fishing. Protection would require attainment of a 30-day geometric mean of 1030 cfu *E. coli* (selected on the basis of 10 illnesses per thousand contacts). These limited-body contact recreation criteria shall apply only during the defined recreational period of May 1 through October 31.

- Recreational Navigation - Protects for non-contact activities including, but not limited to, pleasure boating and commercial boating traffic operations. Protection would require attainment of a 30-day geometric mean of 2740 cfu *E. coli* (selected on the bases of 14 illnesses per thousand contacts). These limited-body contact recreation criteria shall apply only during the defined recreational period of May 1 through October 31.

SAC members had the following comments on the proposed recreational use designations:

- USEPA will accept 14 illnesses per 1000 contacts for calculation of the *E. coli* standard for the Recreation Navigation use designation.

- Several SAC members recommended setting the recreation season from March to November to protect for sculling and other activities that occur on the North Shore Channel and on Bubbly Creek. The UAA team will evaluate the impacts of this and determine the feasibility. The extended recreation season may only be necessary for the

North Shore Channel and Bubbly Creek and may therefore only affect disinfection at the North Side Plant.

## Existing Recreational and Navigational Uses

Stephanie Brock of CDM presented the observed recreational and navigational uses of Bubbly Creek and the Chicago Sanitary and Ship Canal.

Field observations taken by Illinois EPA, CDM, Lake Michigan Federation, USEPA, and MWRD were collected from June to October of 2003. There were no post card surveys returned from marinas and boat launches located in or around Bubbly Creek or the Chicago Sanitary and Ship Canal reach. The following table summarizes the findings of the recreational use surveys. The data for the South Branch Chicago River is included in Table 1 to illustrate the potential for canoeing, skulling and kayaking on Bubbly Creek.

Table 1

| Observed Activity | Chicago Sanitary and Ship Canal | | South Branch Chicago River | | Bubbly Creek | |
|---|---|---|---|---|---|---|
| | *Count* | *Percent* | *Count* | *Percent* | *Count* | *Percent* |
| Swimming | 0 | 0% | 0 | 0% | 0 | 0% |
| Jet Skiing | 0 | 0% | 5 | 3% | 0 | 0% |
| Wading | 0 | 0% | 0 | 0% | 0 | 0% |
| Canoeing | 1 | 2% | 10 | 6% | 0 | 0% |
| Fishing | 16 | 30% | 66 | 39% | 0 | 0% |
| Power Boating | 37 | 69% | 89 | 52% | 5 | 100% |

## Water and Sediment Quality

Colleen Hughes of CDM presented the water and sediment quality data for Bubbly Creek and the Chicago Sanitary and Ship Canal. A copy of this presentation is available upon request and will be posted on the project website. Water and sediment quality data were compared to proposed water quality standards for the proposed recreational and aquatic life use classifications (General Use Standards) to identify constituents of concern. The results of the screening are summarized in the following discussions.

### Background *E. coli* and Fecal Coliform Conditions

Fecal coliform and *E. coli* data from the sampling station located on the Middle Fork of the North Branch of the Chicago River at Lake-Cook Road was analyzed to determine if dry-weather conditions met proposed water quality standards for *E. coli* and fecal coliform. This station was selected because there are no upstream CSO or WRP discharges. Results indicate, however, that even during dry weather the *E. coli* and fecal coliform levels are elevated above

proposed water quality standards. This is likely due to very low dry-weather flows (less than 1 cfs peak flows) and the presence of a large population of waterfowl in the area; the station is therefore not necessarily indicative of background conditions. USEPA expressed that they have data and graphs showing that bacteria levels drop as water travels downstream of WRPs. MWRD has provided a report suggesting the same.

## Water Quality Use Attainment Screening

Fecal coliform and *E. coli* concentrations often exceeded the proposed standards for Whole-Body Contact Recreation, Limited Contact Recreation, and Recreational Navigation. Dissolved oxygen, temperature, ammonia (chronic), pH, total silver, total iron, and dissolved zinc are the concerning factors for Bubbly Creek. The parameters of concern for the Chicago Sanitary and Ship Canal are dissolved oxygen, temperature, ammonia (chronic, sub chronic, acute), pH, total silver, total iron, total manganese, dissolved nickel, dissolved zinc, TDS, and WAD cyanide (chronic).

## Sediment Quality Criteria Guidelines

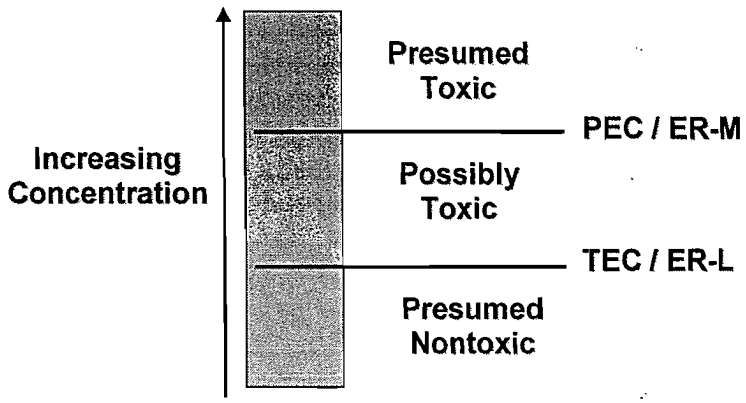
Sediment quality criteria guidelines were used to evaluate sediment quality data in the CAWS as listed below.

MacDonald (2000) Archives of Environmental Contamination and Toxicology was used.

- Threshold Effects Concentration (TEC) - Toxic to sensitive benthic organisms
- Probable Effects Concentration (PEC) - Toxic to most benthic organisms

The guidelines are based on two screening levels for various sediment chemical parameters. Figure 2 illustrates the increase of potential impact with increasing chemical concentrations. If concentrations frequently exceeded both screening levels, further investigation such as bioassays are recommended to better understand the potential toxicity of the contaminated sediments to aquatic life.

Figure 2




## Sediment Quality Assessment

The following conclusions were drawn from the sediment chemistry analysis:

- Metal concentrations, with the exception of lead, generally increase going downstream on the CSSC from Bubbly Creek to Lockport Powerhouse
- Collatoral Channel and CSSC generally have higher metals concentrations than Bubbly Creek
- Cadmium, Copper, Lead, Mercury and Zinc concentrations exceed both the TEC and PEC guidelines at most stations
- Concentrations of Cadmium, Chromium, and Nickel in Bubbly Creek are between the PEC and TEC guidelines and are generally above both guidelines along CSSC

SAC members inquired about sediment removal from Bubbly Creek. Illinois EPA indicated that because sediment removal plans are not within the five to ten year time frame, this issue is not being considered for the current UAA.

## Biological and Habitat Conditions

Ron French of CDM presented biological and habitat data for Bubbly Creek. Table 2 summarizes fish data for the selected segments from August 2002. However, the data was collected over only a 400 meter reach, which represents a small sample size.

Table 2

| Segment | Location | Number of Species | Dominant Species |
|---|---|---|---|
| Bubbly Creek | Archer Avenue | 4 | Carp, gizzard shad, largemouth bass, pumpkin seed |

There is no fish sample data on CSSC and no macroinvertebrate or habitat data available for Bubbly Creek and the Chicago Sanitary and Ship Canal. Again, it was announced that USEPA, IEPA and MWRD will perform QHEI habitat surveys at each of the fish sampling locations prior to the April SAC meeting.

A copy of the biological and habitat presentation is available upon request and will be posted on the project website.

## Designated Use Classifications and Management Alternatives for Bubbly Creek and the Chicago Sanitary and Ship Canal

SAC members proposed the following potential use designations for these reaches (Table 3):

Table 3

| Proposed Designated Use | Bubbly Creek | Chicago Sanitary and Ship Canal |
|---|---|---|
| Whole-Body Contact Recreation | | |
| Limited Contact Recreation | X | |
| Recreational Navigation | X | X |
| General Use Warm-Water Aquatic Life | | |

| | | |
|---|---|---|
| Modified Warm-Water Aquatic Life | ? | |
| Limited Warm-Water Aquatic Life | X | X |

Table 4 lists the management measures proposed for Bubbly Creek and CSSC:

Table 4

| Management Alternatives | Bubbly Creek | Chicago Sanitary and Ship Canal |
|---|---|---|
| Flow Augmentation | X | |
| Aeration | X | X |
| Instream Habitat Enhancement | ? | |
| Sediment Removal | ? | |
| TARP Capture Priorities | NOT ABLE TO EVALUATE AT THIS TIME | |
| Disinfection | X | X |
| Other | | |

The project team will include these management alternatives in the letter to MWRD.

## Announcements

USEPA and Illinois EPA plan to conduct QHEI habitat evaluations at each of the MWRD fish sampling locations before the April SAC meeting. The results of the habitat analysis and calculations of the Ohio IBI scores will be presented then.

The next SAC meeting will be held April 27, 2004. This meeting will cover the remaining reaches including the Calumet River, Lake Calumet, Grand Calumet River, Little Calumet River, and the Calumet-Sag Channel. An agenda will be developed and distributed to SAC members prior to the next meeting. Please note the CAWS UAA web site, www.chicagoareawaterways.org, is operational.

Public meetings will be held on May 10 in Evanston at the Evanston Ecology Center, on May 11 at 12:00 p.m. at the State of Illinois Building in downtown Chicago, on May 11 at 7:00 p.m. at the Thompson Center in downtown Chicago, and on May 13 at the Southeast Environmental Task Force offices in the Lake Calumet area. The recommended use designations and suggested water quality standards, including incorporation of SAC comments and suggestions, will be presented.

| CC: | | | |
|---|---|---|---|
| Scott Twait | Illinois EPA | Brenda Carter | IERG |
| Colleen Hughes | CDM | Bill Constantelos | Midwest Gen. |
| Ron French | CDM | Mardi Klevs | USEPA |
| Stephanie Brock | CDM | Dick Lanyon | MWRDGC |
| Lisa Frede | CICI | Albert Ettinger | ELPC/Sierra Club |
| Beth Wentzel | Prairie River Network | Nick Menninga | Greeley & Hansen |
| Janet Pellegrini | USEPA | Ed Hammer | USEPA |
| Fred Axley | FOCR | Dave Pfeifer | USEPA |
| Nelson Chueng | Chicago - Planning | Susan O'Connell | MWRDGC |
| Todd Wildermuth | FOCR | Sid Osakada | Chicago - DWM |
| Paul Zwijack | Corn Products | Previous SAC Attendees | |
| Julia Wozniak | Midwest Gen. | | |

# Memorandum

*To:* *Toby Frevert, Illinois EPA*
*Rob Sulski, Illinois EPA*

*From:* *Ron French, CDM*

*Date:* *February 18, 2004*

*Subject:* *Minutes for the January 27, 2004 Stakeholder Advisory Committee Meeting*

*Attendees:*

| | | | |
|---|---|---|---|
| Rob Sulski | Illinois EPA | Rebecca Rader | Hill & Knowlton |
| Howard Essig | Illinois EPA | Jeff Covinsky | HMC/IRCA |
| Toby Frevert | Illinois EPA | Roger Dausman | Ill. Port District |
| Colleen Hughes | CDM | Laurel O'Sullivan | LMF |
| Ron French | CDM | Julia Wozniak | Midwest Gen. |
| Stephanie Brock | CDM | Bill Constantelos | Midwest Gen. |
| Todd King | CDM | Susan O'Connell | MWRDGC |
| Nelson Chueng | Chicago - Planning | Dick Lanyon | MWRDGC |
| Lisa Frede | CICI | Beth Wentzel | Prairie River Network |
| Joe Deal | City of Chicago | Michelle Gurgas | Sierra Club |
| Paul Zwijack | Corn Products | Tzachying Su | USACE |
| Bob Foster | CPD | Janet Pellegrini | USEPA |
| Greg Seegert | EA Engineering | Ed Hammer | USEPA |
| Todd Wildermuth | FOCR | Dave Pfeifer | USEPA |
| Fred Axley | FOCR | Peter Howe | USEPA |
| Nick Menninga | Greeley & Hansen | Allen Burton | Wright State University |

On Tuesday, January 27, 2004 the Illinois EPA and CDM held a meeting of the Stakeholder Advisory Committee (SAC) to discuss the progress of the Chicago Area Waterway System Use Attainability Analysis (CAWS UAA). The meeting reviewed data presented during the December SAC meeting on three CAWS reaches at the northern end of the project area, presented data on three additional reaches, and covered the following items:

- Overview of the Rain Blocker Program
- Review and Discussion of Proposed Use Classifications and Standards
- Upper North Shore Channel, Lower North Shore Channel, and Upper North Branch of the Chicago River Data Summary and Discussion of Attainable Uses and Management Options

- Lower North Branch of the Chicago River, the Chicago River, and the South Branch of the Chicago River Data and Uses Presentation and Discussion of Attainable Uses and Management Options

Each agenda item is discussed in detail in the sections to follow. Individual presentations and finalized meeting minutes are or will be posted on the project website at www.chicagoareawaterways.org.

## Rain Blocker Program

### Overview

Joe Deal, City of Chicago, discussed the objectives and successes of the City of Chicago's Rain Blocker Program and overviewed the City's plans for increasing green infrastructure within the city limits. The Rain Blocker Program was designed and implemented to store water in the streets in order to solve problems, such as CSO events, caused by an overburdened CSO system. The program included restricting storm runoff into 180,000 catch basins located within the city limits. In most cases, restrictors were installed within the catch basin to restrict inflow and increase street storage during storm events. The success of the program is illustrated by a reduction of complaints. In fact, a storm in August 2002 generated 10% of the number of complaints generated by a same size storm in past years.

The City of Chicago is also encouraging green infrastructure projects and retrofits throughout the city. Green infrastructure projects include: downspout disconnection, green roofs, median planters, green alleys, cisterns, rain gardens, site design, permeable pavement, landscape ordinance, and the CitySpace Program. The CitySpace Program is designed to manage and reduce inputs to the stormwater system through stormwater BMPs. In the last six years, the City has encouraged the diversion of clean (treated) stormwater to waterways. An example, is the Lake Shore East Development which treats its stormwater prior to releasing it to the waterways.

A SAC member inquired about the City's plans to develop a plan to address water quality in the CAWS or any changes in ordinances. On the record, the Mayor's office supports upgrades to the CAWS, but at this time they have not developed or outlined any specific indicators.

## Proposed Use Classifications and Standards

Proposed aquatic life use and recreational use classifications and standards were originally presented during the December SAC meeting. Since that meeting the proposed classifications and standards have been updated to include comments provided during and following the meeting (see December SAC meeting minutes for a full summary of comments).

### Aquatic Life Use Designations

At this time, three Aquatic Life Use designations are proposed:

- General Use Warm-water Aquatic Life
- Modified Warm-water Aquatic Life
- Limited Warm-water Aquatic Life

The classification attributes of species composition, diversity, and functional organization are measured using the Index of Biotic Integrity (IBI). The IBI was used to evaluate the ecological health of a stream. Metrics used to calculate the IBI include species richness, reproduction, and tolerance measures. IBI scores are calculated by ecoregion and stream wetted width. Ohio EPA currently utilizes a system similar to these proposed designations.

The IBI approach presented at the meeting attempted to calculate the potential IBI (or potential of the waterway reach to support a higher level of species diversity based on all years of fish data collected) for a given CAWS reach. The potential IBI is a composite calculation of all species of fish ever collected in a given reach. The analysis found that the highest potential IBI scores occurred in CAWS reaches connected to Lake Michigan. The IBI potential was proposed as a screening tool for what could occur and strives to assist stakeholders in prescribing attainable aquatic life use classifications for CAWS. CDM and Illinois EPA will be holding a meeting with Illinois DNR and USEPA to present the methods and gain consensus on the approach. Definitions and corresponding IBI scores are provided below:

- General Use Warm-water Aquatic Life - The level of protection necessary to protect surface water for the year around maintenance of a balanced and diverse warm-water fish and macroinvertebrate community. The biological integrity of these waters are reflected by IBI scores between 38 and 50. Water quality standards as identified in 35 IL Adm. Code Part 302, Subpart B: Sections 302.201 - 302.213 or more appropriate standards based upon recent guidance shall be applied to protect this designation.

- Modified Warm-water Aquatic Life - These waters are incapable of supporting and maintaining a balanced, integrated, adaptive community of a warm-water fish and macroinvertebrate community due to irretrievable modifications of the channel morphology, hydrology and physical habitat. Such modifications are of a long-duration (i.e. 20 years or longer) and may include the following examples: stream channels consisting of sheet-pile, concrete and rip-rap walls; and artificially constructed channels to carry stormwater and wastewater. Hydrological modification includes artificially controlled water discharges and levels. Such waters are suitable for stocking of recreationally important game fish. The biological integrity of these waters are reflected by IBI scores between 21 and 37. Water quality standards as identified in 35 IL Adm. Code Part 302, Subpart B: Sections 302.201 - 302.213 or more appropriate standards based upon recent guidance shall be applied to protect this designation.

- Limited Warm-water Aquatic Life – These waters are not capable of sustaining a wide variety of warm-water fish (including recreationally important game species) and macroinvertebrates due to poor habitat or irreversible water quality impacts on water quality, physical habitat, channel morphology and artificial control of water discharge and levels that result in substantial impairment of the biological condition of the water body. The biological integrity of these waters are reflected by IBI scores <21. Water quality standards as identified in 35 IL Adm. Code Part 302, Subpart B: Sections 302.201 – 302.213 or more appropriate standards based upon recent guidance shall be applied to protect this designation. On a case-by-case basis, General Use water quality criteria may be modified to protect existing and potential biological conditions in these waters.

SAC members had the following comments during the meeting regarding the proposed aquatic life use designations:

- Members had reservations about lumping all of the fish data because in more recent years there have been significant improvements in species diversity. This should be addressed by looking at the best IBI score calculated for the reach. However, some SAC members are still concerned that the last 3-4 years are not reflected in the IBI scores.

- The number of lake fish species has declined near the lakefront intake (into CAWS) control structures due to the reduction of diversion from the lake into CAWS. The number of stream species has increased because leakages from the lake have been fixed. SAC would like CDM/IEPA to consider the impacts of these fixes and the impacts of the reductions of lake water diversions.

- Is data from the Skokie Lagoon considered or reflected? Improvements made up in the Skokie Lagoons could potentially impact the North Branch Chicago River.

- SAC members would like a hard copy of the Draft Proposed Designated Uses provided prior to the February SAC meeting for review.

- Will these proposed designated uses affect rule making/designated uses/standards in other parts of Illinois? No, these designated uses are only proposed for the CAWS.

- One SAC member believes the IBI potential is a fine tool for what it is proposed for and that it will accurately describe the potential based on the management regime of the last 30 years. However, how will the tool be used to predict the potential based on a new management regime for the next 30 years?

- Suggested calling IBI potential, IBI max over the last 30 years.

- Believe that the IBI potential is a baseline. How will it be used to determine the potential in the next 10 years.

- Are the water quality standards proposed adequate to support the IBI metrics? Since the uses are based on biological integrity, the water quality is assumed to be capable of supporting the biology. Therefore, General Use standards should be adequate to support the calculated and proposed designations. For Modified and Limited Warm-water Aquatic Life Use designated reaches there will be further evaluations of non-compliant (with General Use Standards) parameters to determine whether different (than General Use Standards) criteria - so long as they are sufficiently protective of potential uses - are appropriate.

- Would like the wording of the proposed designated uses changed to eliminate words such as incapable because negative words don't support "forward-thinking" designated uses and standards.

At this time, the SAC members agreed to evaluate CAWS utilizing the proposed aquatic life designated uses and approach.

### Recreational Use Designations

There are three proposed recreational use designations. These were discussed in depth during the December SAC meeting (see December SAC Meeting Minutes). However, the proposed *E. coli* standards were revised based on comments received following the meeting and are outlined below:

- Whole-body Contact Recreation – Protection would require attainment of a geometric mean of 126 cfu *E. coli* and a daily maximum of 576 cfu *E. coli* standard based on 8 illiness per thousand contact.

- Limited Contact Recreation – Protection would require attainment of a 30-day geometric mean of 1000 cfu *E. coli* standard based on 10 illness per thousand contact.

- Non-Contact Recreation – Protection would require attainment of a 30-day geometric mean of 2750 cfu *E. coli* standard based on 14 illness per thousand contact.

SAC members had the following comments on the proposed recreational use designations:

- Is jet skiing covered under Whole-body Contact Recreation? It is actually covered under Limited Contact Recreation. This is a debatable point because there are questions regarding the amount of contact occurring.

- Is May-October the disinfection period for most other areas? Should the recreational period range from April 1 through October 31? In most other cities disinfection occurs during May through October.

- USEPA is not sure that 14 illness/1000 will be accepted as a threshold value for Non-Contact Recreation. However, at the time of the meeting they had no clarification as to why 14 illness/1000 would not be acceptable.

- Other sources of bacteria besides effluent include stormwater and CSOs. The group wanted to know if there is bacteria data showing that bacteria standards are met during dry weather in waterways not containing domestic wastewater effluents This analysis may be possible on the North Branch of the Chicago River. Colleen will look into the analysis for the February SAC meeting.

With the exception of the 14/1000 based value, SAC members provided consensus on the proposed recreational use designations.

## Designated Use Classifications and Management Alternatives for Upper North Shore Channel, Lower North Shore Channel and Upper North Branch Chicago River

A summary was provided for the previously presented recreational use, water and sediment quality, and biological and habitat data for the Upper and Lower North Shore Channel and Upper North Branch Chicago River. Based on the data, SAC members proposed the following potential use designations for these reaches:

| Proposed Designated Use | Upper North Shore Channel | Lower North Shore Channel | Upper North Branch Chicago River |
|---|---|---|---|
| Whole-Body Contact Recreation | | | |
| Limited Contact Recreation | X | X | X |
| Non-Contact Recreation | X | X | X |
| General Use Warm-Water Aquatic Life | | | |
| Modified Warm-Water Aquatic Life | X | X | X |
| Limited Warm-Water Aquatic Life | | | |

Toby Frevert, Illinois EPA, reinforced the objectives of the UAA, which is to obtain the highest potential use possible in the next 5 to 10 years. He would like SAC members to disclose all legitimate and plausible plans and management options in order to assist in the proper designation of aquatic and recreational uses for these three segments of the CAWS.

- The Sierra Club indicated, without providing details, that there is the potential for major physical changes to CAWS within the next 5-10 years.

- The Park District is working with USACE on 3 projects in the area. One project is currently under construction on the NSC, the other two are still in design phase.

- Dick Lanyon of MWRD described two projects that are evaluating aeration on the North Shore Channel. One project is being conducted by Northwestern Engineering students and is evaluating an aeration plan for using solar powered bottom aerators. The Northwestern project is very preliminary and no results have been formulated. The other project is being performed at the Evanston Ecology Center to evaluate if it is possible to use the excess energy generated from a new wind generator for instream aeration. Again, there are no results from this evaluation at this time.

Toby Frevert urged SAC members and project staff to focus management efforts on methods which center on dissolved oxygen (DO) because these are likely more feasible and cost effective than redesigning the physical structure of the CAWS. Additionally, he clarified that MWRD cannot be expected to evaluate dozens of different management options to determine the impacts on water quality; we need to concentrate on realistic options. Their analysis will also include cost determinations. Finally, he would like the project teams report to document that prohibiting the use of the waterways is not politically feasible or in the best interest of CAWS. Therefore, sealing off the waterways is not an acceptable alternative.

The discussion of management options was quite extensive. The following suggestions were made during the discussion:

- Divert MWRD flow from the North Side WRP to the Wilmette Lock for flow augmentation. This would alleviate the stagnant conditions and would likely improve velocity, turbulence and DO conditions in the Upper North Shore Channel.

- Construct a series of SEPA stations

- Disinfect at the North Side WRP

- Install stormwater BMPs (such as those outlined in NPDES Phase II Permits). Municipalities would implement the BMPs. There may not be an accurate method to determine the impact BMPs would have on bacteria levels.

- Sediment removal and its impact on heavy metal toxicity.
- A hydraulic model of the TARP system is being constructed at the University of Illinois. This study will evaluate optimization of the TARP system; however, results from the evaluation will not be completed for approximately 3 years.

The following management measures are proposed for each segment:

| Management Alternatives | Upper North Shore Channel | Lower North Shore Channel | Upper North Branch Chicago River |
|---|---|---|---|
| Flow Augmentation | X | | |
| Aeration | X | | X |
| Instream Habitat Enhancement | | | |
| Floatable Control | REQUIRED | | |
| Sediment Removal | | | |
| TARP Capture Priorities | NOT ABLE TO EVALUATE UNTIL U of I STUDY COMPLETE | | |
| Disinfection | X | X | X |
| Other | | | |

The project team will draft a letter to MWRD outlining the management measures needing to be evaluated. The evaluation should include an analysis of the impacts on water quality and estimated costs.

*Dissolved Oxygen and Floatable Standards Discussion*
Floatables control was not proposed as a management measure because it is a compliance issue and not a candidate pollutant for a UAA downgrade. However, DO is a candidate for a downgrade of water quality standards. Regarding DO, at this time most NPDES permits do not outline specific DO limits because DO is generally controlled by limits set on BOD and CBOD.

## Existing Recreational and Navigational Uses

Stephanie Brock of CDM presented the observed recreational and navigational uses of the Lower North Branch of the Chicago River, the Chicago River and the South Branch of the Chicago River.

Illinois EPA, CDM, Lake Michigan Federation, USEPA, and MWRD field collected recreation data from June to October of 2003. Additionally, post card surveys from four marinas/boat launches were returned for the South Branch of the Chicago River. The following table summarizes the findings of the recreational use surveys. Data collected from the post card surveys were not used to calculate the percentages below because the surveys were designed to collect only qualitative data for the purpose of verifying and augmenting uses observed during field visits.

| Observed Activity | Lower North Branch Chicago River | | Chicago River | | South Branch of the Chicago River | |
|---|---|---|---|---|---|---|
| | *Count* | *Percent* | *Count* | *Percent* | *Count* | *Percent* |
| **Swimming** | 0 | 0% | 0 | 0% | 0 | 0% |
| **Jet Skiing** | 0 | 0% | 0 | 0% | 5 | 3% |
| **Wading** | 0 | 0% | 0 | 0% | 0 | 0% |
| **Canoeing** | 2 | 5% | 0 | 0% | 10 | 6% |
| **Fishing** | 0 | 0% | 2 | 6% | 66 | 39% |
| **Power Boating** | 41 | 95% | 29 | 94% | 89 | 52% |

## Water and Sediment Quality

Colleen Hughes of CDM presented the water and sediment quality data for the Lower North Branch of the Chicago River, the Chicago River and the South Branch of the Chicago River. A copy of this presentation is available upon request and will be posted on the project website. Water and sediment quality data were compared to proposed water quality standards for the proposed recreational and aquatic life use classifications to identify constituents of concern. The following is a summary of the results of use attainment screening analyses.

### Water Quality Use Attainment Screening

Fecal coliform and *E. coli* concentrations usually exceeded the proposed standards for both Whole-Body Contact Recreation and Limited Contact Recreation. Dissolved oxygen, temperature, ammonia (chronic, subchronic, and acute), pH, total silver, dissolved iron, dissolved zinc, TDS, and offensive conditions (floatables) are other constituents of concern.

### Dissolved Oxygen Wet Weather Response

Analysis of the dissolved oxygen response to wet weather CSO events indicates that there is a DO sag response on the North Branch of the Chicago River. The response is more severe in summer months and can be tracked downstream from the North Branch Pumping Station to a DO station located a Kinzie.

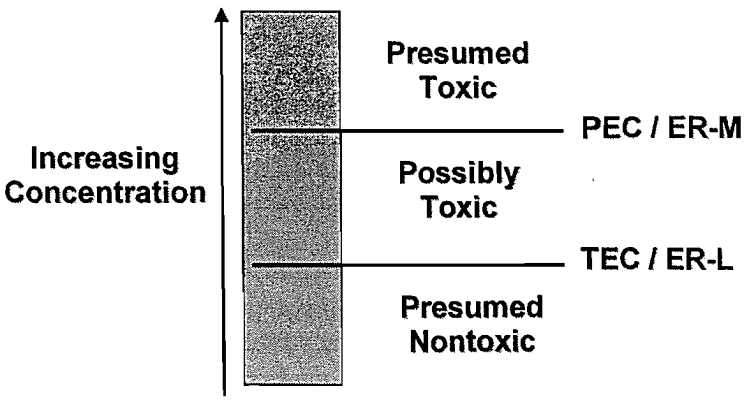
## Sediment Quality Criteria Guidelines

Sediment quality criteria guidelines were used to evaluate sediment data in CAWS as listed below.

MacDonald (2000) Archives of Environmental Contamination and Toxicology was used.

- Threshold effects concentration (TEC) - Toxic to sensitive benthic organisms
- Probable effects concentration (PEC) - Toxic to most benthic organisms

These guidelines are based on two concentrations that provide guidance regarding the potential impact to aquatic organisms. The figure below illustrates the increase of potential impact with increasing concentrations. The guidelines were used to screen sediment chemical parameters. If chemical concentrations frequently exceeded both guidelines, further investigation such as bioassays are recommended to better understand the potential toxicity of contaminated sediments to aquatic life.




## Sediment Quality Assessment

The following conclusions were drawn from the sediment chemistry analysis:

- Chicago River sediments have lower metal concentrations than the North and South Branch except for Mercury
- Lead concentrations exceed the PEC guideline at all stations
- Cadmium, Copper, Chromium, Nickel, and Zinc concentrations exceed the TEC and PEC guidelines at most stations

## Biological and Habitat Conditions

Ron French of CDM presented biological and habitat data for the Lower North Branch of the Chicago River, the Chicago River, and the South Branch of the Chicago River. The following table summarizes fish data for the selected segments from 1993 to present.

| Segment | Location | Number of Species | Dominant Species |
|---|---|---|---|
| Upper and Lower North Branch Chicago River | UNBCR - Wilson Avenue | 23 | Bluegill, carp, bluntnose minnow, gizzard shad, golden shiner, goldfish, green sunfish, largemouth bass |
| | LNBCR – Grand Avenue | 25 | Bluegill, carp, bluntnose minnow, gizzard shad, golden shiner, goldfish, green sunfish, largemouth bass |
| Chicago River | Loop | 24 | Alewife, gizzard shad, carp, goldfish, largemouth bass, yellow perch |
| | Inner Harbor | 35 | Alewife, gizzard shad, carp, goldfish, bluntnose minnow, rock bass, green sunfish, bluegill, smallmouth bass, largemouth bass, yellow perch |
| South Branch Chicago River | | 30 | Alewife, gizzard shad, carp, goldfish, bluegill, largemouth bass, yellow perch |

At the time of the meeting there was no macroinvertebrate or habitat data available for the Lower North Branch of the Chicago River, the Chicago River or the South Branch of the Chicago River.

Currently, the City of Chicago is performing a detailed shoreline habitat assessment of most of CAWS, which will be completed this spring. CDM and the Illinois EPA collected rough habitat data while performing recreational surveys during the summer of 2003.

A copy of the biological and habitat presentation is available upon request and will be posted on the project website.

## Designated Use Classifications and Management Alternatives for Lower North Branch Chicago River, Chicago River and South Branch Chicago River

SAC members proposed the following potential use designations for these reaches:

| Proposed Designated Use | Lower North Branch Chicago River | Chicago River | South Branch Chicago River |
|---|---|---|---|
| Whole-Body Contact Recreation | | | |
| Limited Contact Recreation | X | X | X |
| Non-Contact Recreation | X | X | X |
| General Warm-Water Aquatic Life | | | |
| Modified Warm-Water Aquatic Life | | X | X |
| Limited Warm-Water Aquatic Life | X | | |

The following management measures are proposed for each segment:

| Management Alternatives | Lower North Branch Chicago River | Chicago River | South Branch Chicago River |
|---|---|---|---|
| Flow Augmentation | | | |
| Aeration | X | | X |
| Instream Habitat Enhancement | | | |
| Floatable Control | REQUIRED | | |
| Sediment Removal | | | |
| TARP Capture Priorities | NOT ABLE TO EVALUATE UNTIL U of I STUDY COMPLETE | | |
| Disinfection | X | X | X |
| Other | | | |

The project team will include the management alternative for these three reaches in the draft letter to MWRD.

## Announcements

A Health Advisory Committee meeting to discuss a distribution plan for the pamphlets will be scheduled soon by USEPA and IEPA. At this point, MWRD has approved the use of the pamphlets and endorsed posting of signage at public access sites under MWRD control or ownership.

The next SAC meeting will be held February 24, 2004. This meeting will cover the remaining reaches including the South Fork (Bubbly Creek), the Chicago Sanitary and Ship Canal, the Grand Calumet River, the Little Calumet River North Leg, the Calumet-Sag Channel, Lake Calumet, the Calumet River, the North Branch Canal, Collateral Channel and navigation slips along the South Branch. An agenda will be developed and distributed to SAC members prior to the next meeting. Please note the CAWS UAA web site, www.chicagoareawaterways.org, is operational

Public meetings will be held on May 10 in Evanston at the Evanston Ecology Center, on May 11 in downtown Chicago at the State of Illinois building, and on May 13 in Lake Calumet area. During this next round of meetings, the recommended use designations and suggested

water quality standards, including incorporation of SAC comments and suggestions, will be presented to the public.

CC:

| | | | |
|---|---|---|---|
| Howard Essig | Illinois EPA | Roger Dausman | Ill. Port District |
| Colleen Hughes | CDM | Laurel O'Sullivan | LMF |
| Ron French | CDM | Julia Wozniak | Midwest Gen. |
| Stephanie Brock | CDM | Bill Constantelos | Midwest Gen. |
| Todd King | CDM | Susan O'Connell | MWRDGC |
| Nelson Chueng | Chicago - Planning | Dick Lanyon | MWRDGC |
| Lisa Frede | CICI | Beth Wentzel | Prairie River Network |
| Joe Deal | City of Chicago | Michelle Gurgas | Sierra Club |
| Paul Zwijack | Corn Products | Tzachying Su | USACE |
| Bob Foster | CPD | Janet Pellegrini | USEPA |
| Greg Seegert | EA Engineering | Ed Hammer | USEPA |
| Todd Wildermuth | FOCR | Dave Pfeifer | USEPA |
| Fred Axley | FOCR | Peter Howe | USEPA |
| Nick Menninga | Greeley & Hansen | Allen Burton | Wright State University |
| Rebecca Rader | Hill & Knowlton | Previous SAC Attendees | |
| Jeff Covinsky | HMC/IRCA | | |

# Memorandum

*To:* *Toby Frevert, Illinois EPA*
*Rob Sulski, Illinois EPA*

*From:* *Ron French, CDM*

*Date:* *December 22, 2003*

*Subject:* *Minutes for the December 16, 2003 Stakeholder Advisory Committee Meeting*

*Attendees:*

| | | | |
|---|---|---|---|
| Rob Sulski | Illinois EPA | Bill Masri | Chicago-Water |
| Howard Essig | Illinois EPA | Steve Pescitelli | Illinois DNR |
| Scott Twait | Illinois EPA | Nick Menninga | Greeley & Hansen |
| Nia Haller | Illinois EPA | Lisa Frede | Chem. Ind. Council Ill. |
| Ron French | CDM | Fred Axley | Friends of Chicago R. |
| Colleen Hughes | CDM | Todd Wildermuth | Friends of Chicago R. |
| Stephanie Brock | CDM | Julia Wozniak | Midwest Generation |
| Jessica Harker | Primera | Bill Constantelos | Midwest Generation |
| Dick Lanyon | MWRD | Tzuoh-Ying Su | USACE |
| Sergio Serafino | MWRD | Albert Ettinger | ELPC/ Sierra Club |
| Mardi Klevs | USEPA | Michele Giurgas | Sierra Club |
| Janet Pellegrini | USEPA | Richard Rass | Sierra Club |
| Ed Hammer | USEPA | Jeannette Givodceiliie | Sierra Club |
| Martin Russ | USEPA | Jeff Covinsky | Hannah/Ill. R. Carriers |
| Peter Howe | USEPA | Beth Wentzel | Prairie Rivers Network |
| David Phiefer | USEPA | Laurel O'Sullivan | L. Michigan Federation |
| John R Petro | Exelon | Joel Brammeler | L. Michigan Federation |
| Nelson Chueng | Chicago-Planning | Frank Kudrna | IL Int. Port District |
| Joe Deal | Chicago-Mayor's Office | Harry Walton | Ill. Env. Reg. Group |
| Renante Marante | Chicago-Environment | | |

On Tuesday, December 16, 2003 the Illinois EPA and CDM held a Stakeholder Advisory Committee (SAC) meeting to discuss the progress of the Chicago Area Waterway System Use Attainability Analysis (CAWS UAA). The meeting covered the following items:

- TARP Project Status, Schedule, Benefits and System Operations
- Safety and Navigational Meeting Update
- Waterway Reach Segmentation Analysis Approach
- Existing Navigational and Recreational Uses
- Water and Sediment Quality
- Biological and Habitat Conditions
- Proposed Standards
- Announcements

Each agenda item is discussed in detail in the sections to follow. Individual presentations and finalized meeting minutes are or will be posted on the project website at www.chicagoareawaterways.org. The December SAC meeting focused on 3 CAWS reaches at the northern end of the project area.

## TARP Project Status, Schedule, Benefits and System Operations

### Overview

Dick Lanyon, the Director of Research and Development for the Metropolitan Water Reclamation District (MWRD), and Sergio Serafino, Supervising Civil Engineer of the MWRD, presented the status, schedule, benefits and system operations of MWRD's Tunnel and Reservoir Project (TARP).

The TARP system is designed to intercept, during storm events, excess combined sewer overflow (CSO) before the CSO can reach the CAWS. The CAWS has approximately 380 CSO structures: the MWRD owns approximately 10%; the City of Chicago owns approximately 50%, and the remaining are owned by forty Chicago area suburbs.

Currently, the TARP system consists of 101.5 miles deep tunnels and 0.35 billion gallons of storage capacity (provided by the O'Hare Reservoir). Upon completion TARP will consists of 109.4 miles of deep tunnels and 15.65 billion gallons of storage capacity (provided by two additional reservoirs). The tunnels, which are approximately 320 feet below ground, are constructed of concrete and have walls 1-foot thick. The tunnels and reservoirs are designed

to capture and store the CSOs until the treatment plants have the capacity to treat the captured wastewater.

TARP is composed of four tunnel systems:

- Mainstream (located along the CAWS in the northern, central and southwest city and suburbs)
- Calumet (located on the CAWS in the southern suburbs)
- O'Hare (not on CAWS)
- Des Plaines (not on CAWS, but connected to Mainstream)

And three reservoirs:

- McCook (attached to Mainstream and Des Plaines Tunnel Systems)
- Thornton (attached to Calumet Tunnel System)
- O'Hare (attached to O'Hare Tunnel System)

### TARP Performance

TARP has reduced CSOs discharge to receiving waters. It is estimated that over 700 billion gallons of CSOs have been captured and treated to date (TARP captures the "first flush" which equates to approximately 85% of pollutant load). TARP has resulted in a decreased need for discretionary diversion of Lake Michigan, which in turn increased drinking water allocation. Also since the construction of TARP, the frequency of basement and street flooding has been reduced as well as the number of reversals to Lake Michigan. Fish species, land values and recreational opportunities have increased because of the water quality benefits provided by the TARP system.

Additional TARP benefits include increased capture of oxygen consuming substances, treatment plant expansion savings, and relief sewer saving. It provides a planned bypass for rehabilitation of sewers and emergency conveyance and outlet. Also, the system allows for diversion of chemical spills to avoid treatment plant upset. Downstream benefits outside Metro Chicago include reduced flood peaks and duration of high water.

### O'Hare Reservoir

O'Hare Reservoir was designed and built by the US Army Corp of Engineers (USACE) to store a 50 year storm. The MWRD is in charge of operation and maintenance of the 350 million gallon reservoir. An inlet/outlet structure controls dewatering and the reservoir

includes nine mechanical aerators, a compacted concrete floor, a geo-membrane liner, and gravity fill and drain. The reservoir has been in operation since 1998. The O'Hare reservoir has saved an estimated $61 million in flood damage reduction in its first six years.

### Thornton Reservoir

The Thornton Reservoir is expected to be completed and on-line by 2014. Work competed or under construction on the Thornton Reservoir includes the construction and startup of the transitional reservoir, completion of the Vincennes Avenue relocation, and approximately 40% of the rock mining. Remaining work scheduled for the reservoir includes rock mining and wall stabilization, construction of connecting tunnels and hydraulic structures, groundwater protection work, aeration and wash down facilities, and construction of dams and bulkheads.

### McCook Reservoir

The McCook Reservoir is expected to be completed and on-line by 2023. Work completed on the McCook Reservoir includes an impermeable groundwater cut-off wall, site preparation and commissioning of sludge lagoons. The aquifer in the area will be monitored to ensure that no seepage is occurring. Work under construction for the reservoir includes a test grout curtain, distribution tunnel system, addition of pumps and motors, and overburden removal. Remaining work scheduled includes a rock conveyance tunnel, rock mining, and all stabilization. Also, construction of the main tunnel and inlet, grout curtain, and stage 2 cut-off walls, aeration and wash down facilities.

### Aeration

Aeration equipment was originally placed in the reservoirs to control odor. However, the MWRD has performed various tests that prove the reservoirs have odor under control without the help of aeration. Therefore, the reservoir aeration equipment may not always be necessary.

### Planned TARP Storage Volume

The following table shows the planned TARP CSO storage volume

| Year(s) | CSO Storage Volume in Billion Gallons |
|---|---|
| 1980 | 0.07 |
| 1985-1986 | 1.3 |
| 1989-1993 | 1.6 |

| | |
|---|---|
| 1995 | 1.8 |
| 1998 | 2.55 |
| 2003-2006 | 2.8 |
| 2013 | 6.3 |
| 2014 | 11.1 |
| 2018 | 14.6 |
| 2023 | 18.1 |

## Operations

Attendees of the meeting inquired about the discharge volume of the Chicago area combined sewers. Currently the water reclamation plants are undersized to accommodate the flow generated in the combined sewer system area during some storm events. The TARP system will intercept and store the excess flow until the WRP have sufficient capacity to treat the flows. The frequency and volume of the overflows are difficult to quantify because they vary with the weather. However after TARP is completed, MWRD estimates that no more than four CSO events per year will discharge to the CAWS. MWRD will verify the performance and characterize the system with a study upon completion of construction of TARP.

In the 1800's the sewers discharged directly to the rivers in the Chicago area. Due to the increasing population in the Chicago area, the community faced extreme health and environmental problems caused by the untreated water. As a result, the water reclamation plants were constructed to intercept all dry weather and a portion of wet weather flow from the combined sewers. TARP is designed to capture most of the remaining wet weather flow for later treatment at the reclamation plant, however, when TARP is full, the CSOs discharge into CAWS.

The MWRD uses a weather consultant to predict the size of storm events and open and closes the gates to TARP appropriately. When TARP gates are closed, CSO flows into CAWS. During a moderate rainstorm, the TARP gates are closed when the tunnels are approximately 70% full. During extreme storm events, the gates to TARP are closed when the tunnels are 40% full (this accounts for inflow from ungated structures which inlet to TARP). The gates need to be closed at strategic times to prevent water hammer. Water hammer is an increase in pressure due to rapid changes in velocity of flows through a pipe. When the TARP gates are closed, the magnitude of the pressure produced is frequently much greater than the static pressure on the line. Because of the large size of TARP, it would cause significant damage. Newer drop shafts were designed with such problems in mind.

Dry weather CSOs are very infrequent and have been attributed to human error or accidents during construction projects or debris related clogging of sewers or structures. Inspection and maintenance programs are in place to make sure dry weather CSOs do not occur.

## Navigational Meeting Update

Rob Sulski of the Illinois EPA summarized a meeting held on November 19 between CDM, the Illinois EPA, the City of Chicago Police Department, the Illinois International Port Authority and the Coast Guard concerning homeland security and other safety, navigational and enforcement issues in CAWS, specifically, whether there are any existing or near future regulations or laws that may interfere with potential UAA outcomes.

Although there are presently no blanket plans to prohibit any recreational uses, the United States Coast Guard has the authority to shut down activities on or along CAWS in the event of a terrorist threat or other emergency. All sensitive or vulnerable sites on CAWS are required to have security plans by December 28, 2003. The police may also at their discretion ticket or arrest individuals or prevent certain activities on a case-by-case basis if there is an existing or potential a threat to waterway safety.

The placement or installation of structures that may interfere with navigation, such as sunken cars and other such obstacles that some may consider to be fish habitat, is frowned upon by USACE. However, USACE and IDNR have permit systems for handling such activities.

## Waterway Reach Segmentation Analysis Approach

Because of the diverse conditions and size of the CAWS, the project team has broken the study area into thirteen segments. The following table details the segments and provides a date at which the analysis of each segment will be presented to the SAC.

| Segment | Description | SAC Presentation |
|---|---|---|
| Upper North Shore Channel | Wilmette Lock to North Side WRP | Dec 16 |
| Lower North Shore Channel | North Side WRP to confluence with North Branch of the Chicago River | Dec 16 |
| Upper North Branch of the Chicago River | Confluence with North Shore Channel to North Avenue Turning Basin | Dec 16 |
| Lower North Branch of the Chicago River | North Avenue Turning Basin to Confluence with Chicago River | Jan 27 |
| Chicago River | Chicago Control Works to confluence with North Branch and South Branch of the Chicago River | Jan27 |

| | | |
|---|---|---|
| South Branch of the Chicago River | Confluence with the Chicago River to confluence with Chicago Sanitary and Ship Canal | Jan 27 |
| South Fork | Racine Avenue Pumping Station to Confluence with South Branch of the Chicago River | Feb 24 |
| Chicago Sanitary and Ship Canal | Confluence with the South Branch of the Chicago River to Lockport Powerhouse | Feb 24 |
| Calumet-Sag Channel | Confluence with Little Calumet to confluence with Chicago Sanitary and Ship Channel | Feb 24 |
| Little Calumet River West | Calumet WRP to confluence with Calumet Sag Channel | Feb 24 |
| Little Calumet River East | O'Brien Lock and Dam to Calumet WRP | March 23 |
| Grand Calumet River | Illinois state line to confluence with Little Calumet River | March 23 |
| Lake Calumet | Lake Calumet | March 23 |

## Proposed Use Classifications

The following are the proposed designated use classifications for the CAWS:

*Recreational Use Classifications*

**Whole-Body Recreation**: Protects for routine, prolonged and intimate contact used including swimming and water-skiing. Protection would require attainment of 126 cfu *E. coli* standard

**Limited Contact Recreation**: Protects for incidental or accidental body contact, which the probability of ingesting appreciable quantities of water is minimal, such as recreational boating (kayaking, canoeing, jet skiing), and any limited contact incident to shoreline activity, such as wading and fishing. Protection would require attainment of 1000 cfu *E. coli* standard based on 10 illnesses per thousand contacts.

**Non-Contact Recreation**: Protects for non-contact activities such as power boating and tour boat operations. No *E. coli* standard.

*Aquatic Life Classifications*

**Warm Water Aquatic Life**: Diverse assemblage of warm water fish, macroinvertebrates and habitat features that allow for survival and reproduction. Protection would require attainment of current General Use water quality standards.

**Modified Warm Water Aquatic Life**: Representative aquatic assemblages are generally composed of species tolerant to low dissolved oxygen, silt, nutrient enrichment, and poor

quality habitat due to irreversible habitat modifications. Protection would require attainment of current Secondary Contact and Indigenous Aquatic Life water quality standards, and any more stringent standards that come out of federal guidance developed since Illinois Secondary Contact standards were adopted.

## Existing Recreational and Navigational Uses

Stephanie Brock of CDM presented the observed recreational and navigational uses of the Upper North Shore Channel, Lower North Shore Channel, and the Upper North Branch of the Chicago River.

Field observations; taken by Illinois EPA, CDM, Lake Michigan Federation, USEPA, and MWRD were collected from June to October of 2003. The following table summarizes the findings.

| Observed Activity | Upper North Shore Channel | | Lower North Shore Channel | | Upper North Branch of the Chicago River | |
|---|---|---|---|---|---|---|
| | *Count* | *Percent* | *Count* | *Percent* | *Count* | *Percent* |
| Swimming | 0 | 0% | 0 | 0% | 0 | 0% |
| Jet Skiing | 0 | 0% | 0 | 0% | 2 | 1% |
| Wading | 0 | 0% | 1 | 2% | 7 | 2% |
| Canoeing | 6 | 40% | 10 | 15% | 128 | 46% |
| Fishing | 7 | 47% | 53 | 80% | 80 | 28% |
| Power Boating | 2 | 13% | 2 | 3% | 64 | 23% |

## Water and Sediment Quality

Colleen Hughes of CDM presented the water and sediment quality data for the North Shore Channel and the Upper North Branch of the Chicago River. A copy of this presentation is available upon request and will be posted on the project website. Water and sediment quality data were compared to proposed water quality standards for the proposed recreational and aquatic life use classifications to identify constituents of concern and resulted in the following use attainment screening summary.

### Water Quality Use Attainment Screening

Fecal coliform and *E. coli* concentrations usually exceeded the proposed standards for both Whole-Body Contact Recreation and Limited Contact Recreation. Dissolved oxygen, ammonia (chronic, subchronic, and acute), pH, cyanide (WAD), total mercury, silver, dissolved copper, nickel, zinc, and TDS are the constituents of concern for the proposed Warm Water Aquatic Life classification. Dissolved oxygen, unionized ammonia, pH, total lead and iron, TDS, and fats, oil, and grease are the

constituents of concern for the proposed Modified Warm Water Aquatic Life classification.

### Sediment Quality Criteria Guidelines

Two sediment quality criteria guidelines were used to evaluate sediment quality data in the CAWS as listed below.

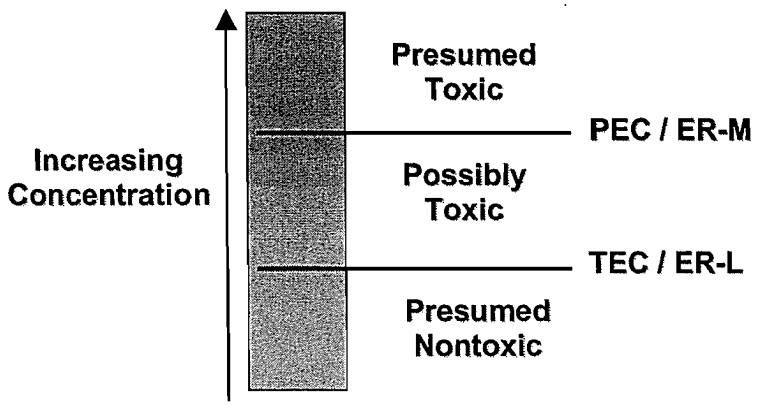
Long and Morgan (1990), National Oceanic and Atmospheric Administration.

- Effect Range – Low (ER-L)
- Effect Range – Median (ER-M)

MacDonald (2000) Archives of Environmental Contamination and Toxicology was used.

- Threshold effects concentration (TEC) - Toxic to sensitive benthic organisms
- Probable effects concentration (PEC) - Toxic to most benthic organisms

Both sets of guidelines are based on two concentrations that provide guidance regarding the potential impact to aquatic organisms. The figure below illustrates the increase of potential impact with increasing concentrations. The guidelines were used to screen sediment chemical parameters. If chemical concentrations frequently exceeded both guidelines further investigation such as bioassays are recommended to better understand the potential toxicity




of contaminated sediments to aquatic life.

### Sediment Quality Assessment

In the North Shore Channel and the Upper North Branch of the Chicago River, the sediment quality generally deteriorates from the north to the south. Cadmium, lead, mercury, and

silver concentrations typically exceeded ER-M and PEC guidelines, particularly towards the downstream end of the Upper North Branch of the Chicago River. Zinc, Copper, Chromium, and Nickel typically exceeded the ER-L and TEC guideline, with all but Chromium exceeding the ER-M and PEC guidelines at downstream locations on the Upper North Branch. High levels of heavy metals in sediment do not alone indicate toxic effects, but serve as a potential indication of where toxicity testing and benthic biosurveys should be conducted to determine if the sediment is toxic to aquatic organisms.

### Point Source Assessment (MWRD North Side WRP)

Effluent water quality data from the MWRD North Side water reclamation plant were also compared to proposed water quality standards for constituents of concern identified by the water and sediment quality use attainment screening process. Effluent fecal coliform concentrations nearly always exceeded the proposed whole contact and limited contact recreation thresholds. There is currently no water quality standard for fecal coliform for the currently classified secondary contact North Shore Channel and Upper North Branch of the Chicago River downstream of the North Side WRP.

Ammonia (chronic), cyanide (WAD, acute and chronic), mercury, silver, pH, and dissolved oxygen effluent concentrations exceeded the proposed warm water aquatic life use classification water quality standards at least once over the past five years. However, only mercury, cyanide (WAD, chronic), and pH exceeded those thresholds more than ten percent of the time.

Cyanide, mercury, and pH were the only constituents to exceed the proposed modified warm water aquatic life use classification, all less than ten percent of the time. It should be noted that the point source assessment comparisons were not made to evaluate effluent discharge compliance, but to assess potential point source loadings that may be contributing to constituents of concern identified in the water and sediment quality use attainment screening process.

## Biological and Habitat Conditions

Ron French of CDM presented biological and habitat data for the North Shore Channel and the Upper North Branch of the Chicago River. The following table summarizes fish data for the selected segments from 1993 to present.

| Segment | Location | Number of Species | Dominant Species |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Upper North Shore Channel (# Species = 33) | Central Street | 12 | Bluegill, bluntnose minnow, green sunfish, largemouth bass, rock bass |
| | Dempster Street | 25 | Bluegill, carp, gizzard shad, goldfish, largemouth bass, rock bass |
| | Oakton Street | 2 | Golden shiner, largemouth bass |
| | Sheridan Road | 31 | Alewife, bluegill, bluntnose minnow, gizzard shad, goldfish, green sunfish, largemouth bass |
| Lower North Shore Channel (# Species = 27) | Touhy Avenue | 24 | Bluegill, carp, green sunfish, gizzard shad, golden shiner, goldfish, largemouth bass |
| | Peterson Avenue | 21 | Bluegill, bluntnose minnow, gizzard shad, goldfish, green sunfish, largemouth bass, spottail shiner |
| | Foster Avenue | 15 | Bluegill, carp, gizzard shad, largemouth bass |
| Upper North Branch Chicago River (# Species = 21) | Diversey Parkway | 7 | Carp, gizzard shad, largemouth bass |
| | Wilson Avenue | 25 | Bluegill, carp, bluntnose minnow, gizzard shad, golden shiner, goldfish, green sunfish, largemouth bass |

The following table summarizes the macroinvertebrate data for the selected segments

| **Segment** | **Location** | **Number of Species** | **Dominant Species** |
|---|---|---|---|
| Upper North Shore Channel (# Species = 6) | Central Street | 12 | Oligochaeta, Caecidotea, Chironomidae |
| | Oakton Street | 2 | Oligochaeta, Chironomidae |

| | | | |
|---|---|---|---|
| Lower North Shore Channel<br><br>(# Species = 8) | Touhy Avenue | 24 | Turbellaria, Oligochaeta, Chironomidae |
| | Foster Avenue | 15 | Turbellaria, Oligochaeta, *Gammarus*, Chironomidae |
| Upper North Branch Chicago River<br><br>(# Species = 9) | Diversey Parkway | 7 | Turbellaria, Oligochaeta, Chironomidae |
| | Wilson Avenue | 25 | Turbellaria, Oligochaeta, Chironomidae |

The following table summarizes the habitat data for the selected segments.

| Location | Albany BL | Albany BC | Albany EC | Albany EL | Toughy | Toughy | Toughy | Toughy |
|---|---|---|---|---|---|---|---|---|
| **Transect Location** | BL | BC | EC | EL | BC | BR | EC | ER |
| **Water Body** | NBCR | NBCR | NBCR | NBCR | NSC | NSC | NSC | NSC |
| **Aquatic Vegetation** | Attached Algae | Vegetation, Attached Algae | Vegetation, Attached Algae | Vegetation, Attached Algae, Rooted Floating | none | attached algea, rooted floating | none | none |
| **Instream Cover for Fish** | Submerged Tree Roods, Submerged Terrestrial Vegetation | | Boulders | Submerged Tree Roods, Submerged Terrestrial Vegetation, aquatic vegetation | none | aquatic veg, boulders, submerged tree roots and terrestrial veg | none | boulders, submerged tree roots and terrestrial veg |
| **Immediate Shore Cover** | | | | | | | | |
| Denuded | 90 | 90 | 80 | 80 | 20 | 20 | 20 | 20 |
| Grasses | | | | | | | 10 | 10 |
| Shrubs | | | | | | | | |
| Trees | 10 | 10 | 20 | 20 | 80 | 80 | 70 | 70 |
| Other (cobble/limestone) | | | | | | | | |
| **Sediment Composition** | | | | | | | | |
| Plant Debris | | | | | | 50 | 5 | |
| Clay | | | | | | | | |
| Inorganic Silt | 10 | | | | 5 | | 10 | |
| Organic Sludge | | | | | | | | |
| Sand | | | | | 10 | | 70 | |
| Gravel | | | | | 85 | | 15 | |
| Cobble | 20 | | 20 | 10 | | | | |
| Boulder | 70 | | 30 | 20 | | 20 | | 100 |
| Mussel Shells | | | 50 | 70 | | 30 | | |
| Bedrock or Concrete | | 100 | | | | | | |
| Coal Fines | | | | | | | | |

Data summaries of macroinvertebrate and fish sampling data were provided to the SAC attendees.

In general the CAWS have a wide diversity of species compared to other effluent dominated waterways.

Some attendees wanted the biological and habitat data to be compared to other waterway to better quantify the biological and habitat stressors of the CAWS. However because of the uniqueness of the CAWS, no waterway provides a good comparison. It was recommended that a careful analysis of the Ohio standards would be helpful in comparing the CAWS to other systems.

Currently, the City of Chicago is performing a detailed shoreline habitat assessment of most of the CAWS, which will be completed this spring. CDM and the Illinois EPA collected rough habitat data while collecting recreational data during the summer of 2003.

A copy of the biological and habitat presentation is available upon request and on the project website.

## Discussion

The SAC accepted the three recreational uses. Also, the members agreed that swimming is not an attainable use in the next 10 years. The group is aware that even if the MWRD disinfects their effluent, bacteria could still be a problem because of urban storm runoff.

Most SAC attendees would like to see a wider variety of aquatic life uses. CAWS has improved over the years and they would like a change in the aquatic life standards to reflect the improvements.

Most of the attendees agreed that wading is a use in the North Shore Channel and the Upper North Branch of the Chicago River. The MWRD, however, did not think that it was an appropriate or legal use. They believe the waterway is physically dangerous for waders because the bottom of the river is soft and the banks are steep. Also, fences are in place to protect the public and those who pass the fences to recreate on the river are trespassing. Some areas, however, are not fenced off, including the Skokie Boat Launch, the North Park and portions of the Ravenswood neighborhood.

An attendee was concerned about the recreational bacteria standard's relationship to the health of children. The bacteria standards were adopted from USEPA's recommended bacteria criteria.

## Announcements

MWRD's NPDES permit meeting concerning the plan to notify the public of CSO events will be publicized shortly. The meeting will likely be held in January 2004.

The next SAC meeting will be held on January 27, 2004. An agenda will be developed and distributed to SAC members prior to the next meeting. Please note the CAWS UAA web site, www.chicagoareawaterways.org, is operational. Contact Chris Varones of Hill & Knowlton with comments and questions regarding the website.

The next series of public meeting will be held in May. During these series of meetings, the recommended use designations and suggested water quality standards, including incorporation of SAC comments and suggestions, will be presented to the public.

| CC: | | | |
|---|---|---|---|
| Howard Essig | Illinois EPA | Bill Masri | CDWM |
| Scott Twait | Illinois EPA | Steve Pescitelli | IDNR |
| Nia Haller | Illinois EPA | Nick Menninga | Greeley & Hansen |
| Ron French | CDM | Lisa Frede | CICI |
| Colleen Hughes | CDM | Fred Axley | FCR |
| Stephanie Brock | CDM | Todd Wildermuth | FCR |
| Jessica Harker | Primera | Julia Wozniak | Midwest Generation |
| Dick Lanyon | MWRD | Bill Constantelos | Midwest Generation |
| Sergio Serafino | MWRD | Tzuoh-Ying Su | USACE |
| Mardi Klevs | USEPA | Albert Ettinger | ELPC/ Sierra Club |
| Janet Pellegrini | USEPA | Michele Giurgas | Sierra Club |
| Ed Hammer | USEPA | Richard Rass | Sierra Club |
| Martin Russ | USEPA | Jeannette Givodceiliie | Sierra Club |
| Peter Howe | USEPA | Jeff Covinsky | Hannah/ IRCA |
| David Phiefer | USEPA | Beth Wentzel | Prairie Rivers Network |
| John R Petro | Exelon | Laurel O'Sullivan | LMF |
| Nelson Chueng | CDOP | Joel Brammeler | LMF |
| Joe Deal | City of Chicago | Frank Kudrna | IL International Port District |
| Renante Marante | CDOE | Harry Walton | IERG |
| | | Previous SAC Meeting Attendees | |

# Memorandum

*To:* *Toby Frevert, Illinois EPA*
*Rob Sulski, Illinois EPA*

*From:* *Ron French, CDM*

*Date:* *November 12, 2003*

*Subject:* *Minutes for the October Stakeholder Advisory Committee Meeting*

*Attendees:*

| Name | Organization | Name | Organization |
|---|---|---|---|
| Toby Frevert | Illinois EPA | Lisa Frede | CICI |
| Rob Sulski | Illinois EPA | Fred Auxley | FCR |
| Scott Twait | Illinois EPA | Todd Wildermuth | FCR |
| Ron French | CDM | Julia Wozniak | Midwest Generation |
| Colleen Hughes | CDM | Bill Constantelos | Midwest Generation |
| Jeff Wickenkamp | CDM | Tzuoh-Ying Su | USACE |
| Nicole Rowan | CDM | Albert Ettinger | ELPC/ Sierra Club |
| Jessica Harker | Primera | Paul Zwijack | Corn Products |
| Susan O'Connell | MWRD | Laurel O'Sullivan | LMF |
| Dick Lanyon | MWRD | Jayne Lillienfeld-Jones | LMF Contractor |
| Mardi Klevs | USEPA | Aaron Rosinski | SE Env. Task Force |
| Janet Pellegrini | USEPA | Harry Walton | IERG |

On Tuesday, October 28, 2003 the Illinois EPA and CDM held a Stakeholder Advisory Committee (SAC) meeting to discuss the progress of the Chicago Area Waterway System Use Attainability Analysis (CAWS UAA). The meeting covered the following items:

- Chemical Industry Council of Illinois – Overview
- Midwest Generation - Overview
- Corn Products - Overview
- Use designations - A summary of uses in different states and potential uses for the CAWS

- Biological and Habitat Analysis of the CAWS - A review of the data
- Update on Data Analysis and Recreational Use Survey
- Announcements

Each agenda item is discussed in detail in the sections to follow. The agenda was established to introduce and educate the SAC on the purpose, goals, proposed methodologies, and progress of the CAWS UAA.

## Chemical Industry Council of Illinois

Lisa Frede, the Director of Regulatory Affairs for the Chemical Industry Council of Illinois (CICI), presented an overview of the CICI mission and reasons her organization is interested in the CAWS UAA.

Illinois is the fourth largest chemical manufacturing state in the US. In 1951, CICI was founded as a statewide trade association whose goal is to ensure the viability and promote the interests of the chemical industry through:

- Legislative Affairs: Ensuring that public policies and programs are mutually beneficial to the citizens of Illinois and the chemical industry through the provision of leadership, information and service
- Regulatory Affairs: Updating members of regulatory information
- Responsible Care: Running an outreach program that promotes excellence in safety
- Education: Inspiring and encouraging students' and educators' interest in chemistry and the sciences by hosting science fairs, recognizing outstanding science teachers, and awarding scholarship.
- Membership: Attracting and uniting a sufficient number of member companies to support CICI, including companies along the CAWS
- State Outreach: Working with mayor, chemical companies, and community members to have open communication

CICI has an interest in the CAWS UAA because the outcome may affect CICI members along the waterway. For instance, UAA might call for voluntary implementation of different management measures.

## Midwest Generation

Julia Wozniak presented an overview of Midwest Generation's purpose, facilities, operations, water quality monitoring studies and reasons the organization is interested in the CAWS UAA.

Midwest Generation is an independent power production company acquired from Com Ed in December 1999. Midwest Generation generates and sells electricity wholesale in the open market. An independent power production company differs from a utility in that costs cannot be passed back to the customer or consumer.

The company owns three electric power generating facilities along the CAWS. The Fisk Plant is located on the South Branch of the Chicago River and has been in operation since 1959. The Crawford Generation Plant is located on the Chicago Sanitary and Ship Channel has been in operation since 1960. The Will County Generation Plant has been in operation on the Chicago Sanitary and Ship Channel since 1955.

Midwest Generation has provided several comprehensive studies of the Upper Illinois Waterway (UIW) inherited from Com Ed. The UIW studies took place during 1991-1995 and include 55 miles of the CAWS study area. The UIW studies have been submitted to the UAA project team. The motivation of the study was to characterize the waterway.

The UIW study was initiated as a result of a lawsuit involving the plants far-field (I-55) thermal requirements. Among the various study results of the UIW montioring effort, it was determined that the plants within the CAW UAA area continue to be in compliance with the thermal Secondary Use Water Quality Standard, which requires that instream temperatures are maintained below a maximum temperature of 100 degrees F at all times. Therefore, no operation changes have been required at the plants to ensure compliance with the existing temperature standards.

The volume of flow extracted from the CSSC for the once-through cooling process at each station is determined by the number of circulating water pumps in operation at any given time. There are no flow monitoring stations located near the plants. If the CSSC is experiencing low flow, it is possible that the cooling operations could take the entire flow of the CSSC. However, such events have never been recorded because of the lack of an upstream flow gaging station. It is known that ambient flow in the system is extremely variable and quickly changes by orders of magnitude, as evidenced by abrupt changes in pool level during storm events.

The plants divert flow from the CAWS for the plants' once-through cooling processes. Midwest Generation has experienced some localized recirculation of flow at the Crawford plant, but it has never caused any operational problems as a result.

The relationship between the plants cooling water operations and coliform levels has not been studied. There have been no documented fish kills in the immediate vicinity of the plants.

Screens around the cooling water system intakes of the plants are of standard design to prevent the entry of fish and debris. The screens are checked several times a week for fish and invasive species, which are reported to IDNR and/or the aquatic nuisance species task force headed by Wisconsin Sea Grant.

The potential for air emissions from Midwest Generation power plants to cause surface water pollution has not been studied. However, the USEPA requires use of the best available technology when building or upgrading plants to minimize the pollution to the air and surface waters.

Midwest Generation is interested in the CAWS UAA because the outcome may affect plant operations. For instance, temperature regulation changes might call for a change in the cooling process operations, or the need for further evaluation.

## Corn Products International, Inc.

Paul Zwijack presented an overview of Corn Products' operations, permit and reasons the organization is interested in the CAWS UAA.

Corn Products is one of the world's largest corn refiners. The Argo refinery located on the CSSC in Bedford Park, IL dates back almost a century. Corn Products is a leading supplier of products from the corn-refining process—sweeteners and starches.

Corn Products has a permit to use the CSSC for non-contact cooling water. The plant takes approximately 30-100cfs from the CSSC for the plants cooling water needs. The exact numbers of flow extraction are available if necessary. The plant has not experienced any difficulties staying in compliance with the temperature.

The MWRD Stickney WRP treats approximately 20 MGD of wastewater from the Argo Corn Product plant. Therefore, Corn Products is mainly interested in the implication of cost increases if MWRD is required to change treatment operations.

## Use Designations

Nicole Rowan of CDM presented highlights from the Designated Use Symposium and examples of recreational use standards and aquatic life use standards

## Designated Use Symposium

The USEPA sponsored a Designated Use Symposium to obtain input on guidance for use designations. The symposium included expert panel presentations and small group discussions. The proceeding of the symposium can be found on the USEPA web site.

The symposium discussions concluded that the UAA should be used to define water conditions by a "social determination" involving the public. Long-term use attainment decisions are not always possible. Therefore, the priority areas should include sensitive areas, open waters (versus urban tributaries), and existing (versus potential) drinking water intakes.

Conditions for cost trade offs were discussed during the Symposium. One alternative suggested construction of splash parks and swimming pools for local recreation versus primary contact in urban waterways. Knee of curve economic analysis for low priority waters were also recommended to optimize results.

## Recreational Uses

The recreational use designations in Orange County, CA have three categories, which include water contact recreation, limited contact recreation, and no-contact recreation. Dilution and diffusion of water quality constituents make it possible for a variety of designated uses on the same watershed.

Water contact recreation includes routine prolonged and intimate contact with the waterway. This use category practices the strictest standard and protects for activities such as swimming, water skiing, skin and scuba diving, surfing, whitewater activities, and uses of hot natural springs.

The second recreational use category is limited contact use in which contact is either incidental or accidental and the probability of ingesting appreciable quantities of water is minimal. Uses in this category include commercial and recreational boating and any limited contact incident to shoreline activity, such as wading, fishing and tidepool and marine life study.

Non-contact recreational use is any recreational or other water use involving proximity of water but in which contact with the water is unlikely to occur and where fishing occurs only infrequently, if at all. Non-contact recreational activities would include, but are not limited to picnicking, sunbathing, hiking, beachcombing, camping, pleasure boating, hunting on land and sightseeing.

In Orange County, existing fencing surrounds the no contact use area. Some SAC attendants were concerned about the enforcement of a no contact recreation use and suggested that fences can easily be climbed or cut for access. Also, the use could provide incentive to put up fencing that would impair improvement of the waterway.

Canoeing, kayaking, and boating that involve exposure to the water is not included in the protected use of pleasure boating. Non contact use has no water quality standard for bacteria.

## Aquatic Life Uses

*Effluent Dependent Type Uses*

Waterway health is determined not just by the physical dynamics resulting from the effluent discharge but by other physical limitations imposed on the ecosystem by multiple stressors. Even at highest levels of wastewater treatment (e.g., nitrification/denitrification and filtration) the aquatic biological community can be limited because of the habitat.

Analyses of aquatic biological communities are used to measure overall waterway health because they are a reflection of the physical and chemical nature resulting from instream flow characteristics (natural and effluent driven).

To evaluate use attainment for aquatic life in a significantly modified ecosystem, a reference condition and attainable expectations must be defined. The reference condition and attainable expectations are described below in the Biological and Habitat Analysis of the CAWS section. Attainable expectations should incorporate limitations and benefits of a significantly modified aquatic community.

Aquatic life goals are often higher than what is actually achievable. When water quality improves, habitat can restrict aquatic life use designations from being achieved. Also, higher water quality may encourage more water diversion, which could further decrease habitat suitability.

A more effective approach for improving aquatic communities may be to focus on habitat rehabilitation and maintenance rather than focusing on end-of-pipe standards. Rehabilitation and maintenance would have the practical benefit of improving instream and riparian habitat. Focus on habitat benefits could rely on a performance-based approach that uses "success criteria" to define measurable management or mitigation objectives for the created ecosystem.

Arizona and Colorado have created a holistic watershed approach. Arizona defines the uses of effluent dominated waters as, "The use of an effluent dependent water by animals, plants, or other organisms for habitation, growth, or propagation. Effluent dependent water means surface water that consists primarily of discharges of treated wastewater which has been classified as effluent dependent water by the Director under R18-11-113." A SAC attendee suggested that a specific waterbody be presented as an example.

Colorado's definition states, "For plains and Colorado Plateau streams that would otherwise have an Aquatic Life - No Fish classification, but which have perennial or intermittent flows adequate to support fish as the result of the discharge of treated wastewater. Expected conditions may differ from those generally found for plains and Colorado Plateau streams

with fish." SAC attendees inquired about Colorado waters that 'differ.' The term 'differ' implies that if the conditions are exceptional, then the waterbody will undergo a process to define specific criteria unique to that waterway.

*Limited Aquatic Life Type Uses*
Streams that support limited aquatic life populations primarily composed of minnows and other non-game fish species. Below are some examples of how other states have defined limited aquatic life regulations.

Ohio has a limited aquatic life use, which is called *Modified Warm Water*. The use defines waters that have been found to be incapable of supporting and maintaining a balanced, integrated, adaptive community of warm water organisms due to irretrievable modifications of the physical habitat. Such modifications are typically long-lasting in duration (i.e., twenty years or longer) and may include the following examples: extensive stream channel modification, extensive sedimentation resulting from abandoned mine runoff, and extensive permanent impoundment of free-flowing water bodies.

The Texas limited aquatic life is applied to water bodies of severely imbalanced trophic structures with uniform habitat characteristics. The species assemblage is absent of most regionally expected species and contains no sensitive species. The diversity and species richness are low.

Oklahoma defines a Habitat Limited Aquatic Life, which is a subcategory of the beneficial use "Fish and Wildlife Propagation," waterbodies where the water chemistry and habitat are not adequate to support a "Warm Water Aquatic Community"

New Mexico's Limited Warm Water Fishery is described as a surface water of the State where intermittent flow may severely limit the ability of the reach to sustain a natural fish population on a continuous annual basis; or a surface water of the State where historical data indicate that water temperature may routinely exceed 32.2°C

Idaho's Modified Aquatic Life characterizes water quality appropriate for an aquatic life community that is limited due to one or more conditions set forth in 40 CFR 131.10(g) which preclude attainment of reference streams or conditions.

## Biological and Habitat Analysis of the CAWS

Ron French of CDM gave a presentation of the available biological (fish), macroinvertebrate, and habitat data on the CAWS. The diversity and abundance of these features of the waterway reflects upon the overall health of the system. The primary contributors of data were the MWRDGC, Midwest Generation, and IDNR.

## Fish

Below is a table summarizes the fish data for each reach of the CAWS. The table includes the number of sample locations, number of species found, the IBI score, and the water quality score for each reach.

| Reach | Sample Locations | Number of Species | IBI Score | Water Quality Score |
|---|---|---|---|---|
| N. Shore Channel | 4 | 44 | Fair | Fair |
| N. Branch Chicago River | 2 | 29 | Fair | Good |
| Chicago River | 3 | 41 | Fair | Good |
| S. Branch Chicago River | 5 | 34 | Fair | Good |
| S. Fork (Bubbly Creek) | None | None | None | None |
| Chicago Sanitary and Ship Canal | 5 | 34 | Fair | good |
| Calumet-Sag Channel | 2 | 33 | Fair | Fair |
| Little Calumet River | 2 | 28 | Fair | Fair |
| Lake Calumet | None | None | None | None |
| Grand Calumet | None | None | None | None |

The CAWS has recently experienced significant improvements in fish species diversity. These improvements are attributed to several factors; however, the primary reasons credited for improving fish species diversity in the CAWS is the discontinuation of chlorination at the MWRD facilities in the mid 80's, the Tunnel and Reservoir Plan (TARP), and the Side Stream Elevated Pool Aeration (SEPA) and supplemental aeration stations.

The chlorination process, stopped during the mid-1980's, did not include dechlorination. The level of chlorination was not measured directly because the amount of chlorination was driven by an end of pipe fecal coliform standard.

Other factors that influence fish population include the following:

- Water temperatures
- Dissolved oxygen levels
- Channelization of the waterways
- Lock and dams
- Contaminated sediments and dredging
- Physical habitat
- Others (e.g. endocrine disruptors, exotic species, predator/prey interactions)

Fish diversity has improved with water quality improvements. However, the biological integrity of the fish communities in the CAWS is poor to fair. The fish communities are dominated by species that can live under harsh conditions that include poor water quality and habitat (e.g. bluntonse minnow, common carp, goldfish, etc).

A SAC attendee asked if a report has distinguished fish that are tolerant to poor water quality and fish that are tolerant to poor habitat. Ron French, the CDM team fisheries biologist, explained that in his experience fish tolerant to poor water quality are also generally tolerant to poor habitat. Therefore, biological life will not greatly improve with major improvements of water quality in the CAWS, because in the waterways habitat is a limiting factor.

An attendee asked why locks and dams are listed as an item that influences fish population. Fish are free to pass the locks and dams like boats. Fish are able to swim through the locks, but not constantly having free access limits the migration.

**Macroinvertebrates**

Macroinvertebrate data was collected at 13 locations along the CAWS. The sampling techniques included Hester-Dendy samplers and a ponar dredge.

The table below summarizes the available macroinvertebrate data for each reach of the CAWS. The table includes the sample locations, number of species collected and the dominant species for each reach.

| Reach | Sample Locations | Number of Species | List of Dominate Species |
|---|---|---|---|
| N. Shore Channel | Central Rd, Touhy Ave, Foster Ave, | 10 | Oligochaeta most dominant followed by |

| | | | |
|---|---|---|---|
| | Oakton St. | | chironomids |
| N. Branch Chicago River | Wilson Ave, Grand Ave and Diversey Ave | 10 | Oligochaeta, flatwoms, isopods and chironomids |
| Chicago River | None | None | None |
| S. Branch Chicago River | None | None | None |
| S. Fork (Bubbly Creek) | None | None | None |
| Chicago Sanitary and Ship Canal | Harlem Ave, Cicero Ave, 16th St. | 12 | Oligochaeta, chironomids |
| Calumet-Sag Channel | Cicero Ave. | 12 | Oligochaeta, chironomids, zebra mussels |
| Little Calumet River | Halsted St. | 12 | Oligochaeta, chironomids, zebra mussels, hyrda |
| Lake Calumet | None | None | None |
| Grand Calumet | None | None | None |

The macroinverterates have very limited diversity in the waterways. The macroinvertebrate community is dominated by organisms that can survive under harsh conditions, including both poor water quality and habitat. The CAWS lacks littoral areas, riffles, and substrate types that provide suitable habitat for macroinvertebrate. The contaminated sediments and low dissolved oxygen levels also prohibit the growth of the macroinvertebrate community.

**Habitat**

The majority of the CAWS has been modified into concrete lined channels. The waterway lacks sloping sides and shallow pools needed for a healthy biological community. The table below provides the percentage of observed sediment and shore cover constituents in each reach. Also, the table includes descriptions of aquatic vegetation and in stream cover for fish.

The table below is a summary of habitat data provide by the MWRD. Habitat data collected by the USEPA, Lake Michigan Federation, the Illinois EPA, and CDM will be analyzed for the December 16th SAC meeting. Also, the habitat analysis will be posted on the project web site.

| | North Branch Chicago River | North Shore Channel | Chicago River | South Branch Chicago River | Bubbly Creek | Chicago Sanitary and Ship Channel | Calumet-Sag Channel |
|---|---|---|---|---|---|---|---|
| **Transect Locations** | Grand Ave & Albany Ave | Touhy | Wells & Lake Shore Dr. | Madison & Loomis | Archer Ave | Cicero Ave, Damen Ave, Harlem Ave, Lockport/16th, Rt 83, & Stephen St | Cicero Ave |
| **Aquatic Vegetation** | ranges form none to attached algae, rooted floating | ranges from none to attached algae, rooted floating | none | none | none | ranges from none to attached algae, rooted submergents duckweed | ranges from none to attached algae, overhanging shrubs |
| **Instream Cover for Fish** | ranges from none to submerged tree roots and terrestrial veg, aquatic veg, boulders | ranges from aquatic veg, boulders, submerged tree roots and veg | ranges from none to logs under cut bank, rock ledge, railroad ties | ranges from none to cement ledge, boulders | ranges from none to submerged tree roots, under cut bank, boulders, logs | ranges from none to brush debris jams, submerged terrestrial veg, rock ledge, boulders, under cut bank, indentions, in rock wall, overhanging veg | ranges from none to rock ledge |
| **Immediate Shore Cover** | | | | | | | |
| Denuded | 90 | 20 | | 100 | | 63 | 20 |
| Grasses | 100 | 10 | 100 | 80 | | 36 | 10 |
| Shrubs | | | 75 | 30 | 20 | 19 | 45 |
| Trees | 15 | 75 | | 30 | 90 | 66 | 70 |
| Other (cobble/limestone) | | | 25 | | | 30 | |
| **Sediment Composition** | | | | | | | |
| Plant Debris | 10 | 28 | | 10 | 5 | 5 | |
| Clay | | | 10 | 8 | 10 | | |
| Inorganic Silt | 50 | 8 | 68 | 46 | | 35 | |
| Organic Sludge | | | | 60 | 92 | 55 | |
| Sand | 20 | 40 | 18 | 21 | 13 | 26 | |
| Gravel | 50 | 50 | 22 | 35 | 33 | 23 | 53 |
| Cobble | 17 | | 10 | 18 | 20 | 43 | |
| Boulder | 40 | 60 | | 10 | | 55 | |
| Mussel Shells | 60 | 30 | 25 | 50 | | 34 | 95 |
| Bedrock or Concrete | 100 | | 100 | 70 | | 100 | 100 |
| Coal Fines | | | | 5 | | | |

Several SAC attendees explained that the CAWS did have habitat. For example, the concrete canalized walls are crumbling in areas. Also, the habitat can be improved in many ways and potential improvements should be incorporated into the UAA. FCR has a study of habitat restorations along the waterways that would not interfere with existing uses.

The UAA project team agreed that in some areas, the concrete walls were crumbling. However, concrete creates a less then optimal surface for macroinvertabrates to attach. Also, in most of the waterway the existing healthy habitat pockets are too few and small to cause any significant improvement in the biological health of the majority of the CAWS. Significant habitat restoration is likely not the optimal alternative for the waterway given time and cost limitations.

SAC attendees asked the UAA project team not to draw conclusions at this time. Also, attendees wanted dates to be referenced throughout the presentation of the data. And, for data analysis to be done solely on a reach by reach basis.

Data from the USFWS and IDNR was not presented because the agencies do not have significant amounts of data on the CAWS.

An attendee inquired whether the low flow areas of the CAWS, which include the North Shore Channel north of the North Side WRP and Bubbly Creek, will be considered as a stream or a lake. These reaches will be considered both. Alternatives for these reaches will be complicated and discussed further in future SAC meetings.

## Update on Data Analysis and Recreational Use Survey

Colleen Hughes of CDM presented an update on the on-going data analysis. The list of issues currently being analyzed is:

- Frequency and duration of dissolved oxygen and bacteria during wet weather events
- Temperature behavior especially along the CSSC where higher temperatures have been observed
- Point Source loadings and dry weather conditions along the waterway
- Reach specific analysis
- Reach based water quality standard compliance matrix
- 303 (d) listed parameters
- Sediment Quality
- Biological & Habitat

The recreational use of the CAWS will be evaluated using:

- Surveys completed by the Illinois EPA, CDM, Lake Michigan Federation, and USEPA
- Data gathered from annual recreational events
- Interviews of leaders of community organizations that use the river
- Post card surveys of marinas located on the CAWS

Jessica Harker of Primera presented the results of the marina postcard survey. The survey accumulated recreational data starting the week of June 9, 2003 and ending the week of October 20, 2003. Post cards in sets of 20 were sent to marinas along the CAWS. Each marina was asked to complete one post card per week and return it to CDM. The following marinas choose to participate in the survey:

- South Branch Marina on the South Branch of the Chicago River
- Crowley's on the South Branch of the Chicago River
- River City Marina on the South Branch of the Chicago River
- Chicago Yacht Yard, Inc. near the South Branch Turning Basin
- Pier 11 Marina on the Little Calumet River
- Lake Calumet Boat on the Little Calumet River
- Skippers' Marina on the Little Calumet River

The cards surveyed what recreational activities, listed below, were observed or not observed. The corresponding percentages were calculated as the number of cards that designated the activity was observed out of the total number of post cards returned. For example, 7 percent of the returned postcards indicated swimming was observed at the marina from which the postcard was returned.

- Power Boating - 97%
- Fishing - 63%
- Water Skiing/ Jet Skiing - 44%
- Kayaking/Canoeing - 30%

- Swimming - 7%
- Wading - 5%
- Playing at Stream Bank - 1%

Swimming was observed at Skippers Marina, River City Marina, and Crowley's Marina.

## Announcements

The MWRD has completed a model calibration report as well as a bacteria study on the Lower Des Plaines River. These reports are available from the MWRD upon request.

Also, the MWRD will give a presentation explaining TARP operations and construction schedule during the December SAC meeting.

The health advisory pamphlets where distributed to the meeting attendees and are available through USEPA. USEPA encouraged the health advisory committee members to arrange another meeting to redress health advisory signage for the CAWS.

The next SAC meeting will be held on December 16, 2003 in the State of Illinois Building

An agenda will be developed and distributed to SAC members prior to the next meeting. Please note the CAWS UAA web site, www.chicagoareawaterways.org, is operational. Contact Chris Varones of Hill & Knowlton with comments and questions regarding the website.

CC:

| | | | |
|---|---|---|---|
| Toby Frevert | Illinois EPA | Fred Auxley | FCR |
| Rob Sulski | Illinois EPA | Todd Wildermuth | FCR |
| Scott Twait | Illinois EPA | Julia Wozniak | Midwest Generation |
| Ron French | CDM | Bill Constantelos | Midwest Generation |
| Colleen Hughes | CDM | Tzuoh-Ying Su | USACE |
| Jeff Wickenkamp | CDM | Albert Ettinger | ELPC/ Sierra Club |
| Nicole Rowan | CDM | Beth Wentzel | Prairie Rivers Network |
| Jessica Harker | Primera | Paul Zwijack | Corn Products |
| Susan O'Connell | MWRD | Laurel O'Sullivan | LMF |
| Dick Lanyon | MWRD | Jayne Lillienfeld-Jones | LMF Contractor |
| Mardi Klevs | USEPA | Aaron Rosinski | SE Env. Task Force |
| Janet Pellegrini | USEPA | Harry Walton | IERG |
| Lisa Frede | CICI | Previous SAC Meeting Attendees | |

# Memorandum

*To:* *Toby Frevert, Illinois EPA*
*Rob Sulski, Illinois EPA*

*From:* *Ron French, CDM*

*Date:* *September 19, 2003*

*Subject:* *Meeting Minutes for the August Stakeholder Advisory Committee*

*Attendees:*

| Name | Organization | Name | Organization |
|---|---|---|---|
| Rob Sulski | Illinois EPA | Lisa Frede | CICI |
| Scott Twait | Illinois EPA | Fred Auxley | FCR |
| Ron French | CDM | Julia Wozniak | Midwest Generation |
| Colleen Hughes | CDM | Bill Constantelos | Midwest Generation |
| Jessica Harker | Primera | Tzaoh-Ying Su | USACE |
| Sri Rangarajan | Hydroqual | Sarah Tupper | Sierra Club |
| Lou Kollias | MWRD | Beth Wentzel | Prairie Rivers Network |
| Joe Cummings | MWRD | Paul Zwijack | Corn Products |
| Sergio Serafino | MWRD | Laurel O'Sullivan | LMF |
| Chris Varones | Hill & Knowlton | Jayne Lillienfeld-Jones | LMF Contractor |
| Joe Deal | City of Chicago | Frank Kudrna | IL Int. Port District |
| Nelson Chueng | City of Chicago | Jeff Covinsky | HMC/IRCA |
| Janet Pellegrini | USEPA | Brenda Carter | IERG |

On Tuesday, August 26, 2003 the Illinois EPA and CDM held a Stakeholder Advisory Committee (SAC) meeting to discuss the progress of the Chicago Area Waterway System Use Attainability Analysis (CAWS UAA). The meeting covered the following items:

- City of Chicago – Overview of Water Agenda
- Summary of Water Quality Standards to Support Designated Uses
- Preliminary Data Review and Analysis
- Update on Recreational Use Surveys

- Outline of Water Quality Modeling Approach
- Objectives for Public Evening Meetings on September 8, 9, 11, and 16
- Goals for October SAC Meeting

Each agenda item is discussed in detail in the sections to follow. The agenda was established to introduce and educate the SAC on the purpose, goals, proposed methodologies, and progress of the CAWS UAA.

## City of Chicago – Overview

### City of Chicago Mayor's Office

Joe Deal of the City of Chicago Mayor's Office (City) delivered a speech describing the Water Agenda for the City. The City is interested in the CAWS UAA because the potential outcomes will affect the City's Water Agenda. The City's Water Agenda focuses on multi-departmental coordination to change citizens' perception of the waterways. The following sections detail the variety of issues addressed in the City's Water Agenda.

*Conservation*

The City is dedicated to increasing water conservation through several programs. By repairing water infrastructure the City has dramatically reduced water use and leakage despite population increases. Other conservation projects include installing custodian caps on fire hydrants, retrofitting drinking fountains, and recirculating the water in pools/splash fountains. Additionally, the City conducts water audits for industrial users as part of the energy efficiency audits program. Finally, the Water Agenda calls for the Department of Water Management to develop a plan for comprehensive metering, and to review the City's Building Codes to ensure that developers are not prohibited from using innovative technology.

*Water Quality*

Water quality concerns include complex issues such as invasive species, air pollution, sediment, and beach closings.

*Stormwater*

The City manages stormwater by supporting TARP construction, minimizing roadway runoff, and taking advantage of green infrastructure opportunities. Green infrastructure includes implementation of rooftop gardens, permeable alleys and parking structures, rain gardens, open spaces and wetlands, and cisterns and rain barrels. The Chicago Center for Green Technology is a model for managing stormwater on site. Chicago has developed guidance on storm water best management practices (BMPs) to assist and encourage citizens to reach the City's stormwater control goals.

*Education*
The City's education campaign goals encourage citizens to think about water resources, understand their role in protecting resources, and ultimately to conserve water. The education campaign, Action $H_2O$, will utilize the following tools to educate and involve the public in the Water Agenda:

- Mass media including public awareness advertisements and an interactive web page with updated information on water issues in the City
- Education program for schools
- Partnerships with local environmental groups

## City of Chicago Planning Department

Nelson Chueng of the City of Chicago Planning Department described the City's plans for the riverfront and their interest in the CAWS UAA. The City's plan for the riverfront is detailed in *The Chicago River Corridor Development Plan* (1999).

The riverfront is owned, operated, and enjoyed by several different entities. The City assembled a team representing the different organizations including government, private sector developers, and nonprofit organizations to create a blueprint for the Chicago Riverfront. The purpose is to enhance the rivers attractiveness as a natural and recreational resource, while respecting the needs of residential and business developments. These goals are achieved through segmenting and zoning the riverfront. The *Chicago River Corridor Development Plan* details a shared vision for the river and outlines specific recommendations.

One attendee inquired about the sediment issues in the South Fork of the Chicago River (Bubbly Creek). The US Army Corp of Engineers (USACE) is currently studying the sediment in that area. The results of USACE study and the CAWS UAA will set a precedent of sediment treatment along the entire CAWS.

Several attendees are concerned with the encroachment issue on the North Branch of the Chicago River (NBCR). Several homeowners along the NBCR have built docks along the waterway, which prevents attainment of continuous public access along the waterway as detailed in the *Chicago River Corridor Development Plan*. MWRD owns the land along the NBCR and requires up to a 30' set back from the waterway. This is an important issue along the CAWS; however, it is a tenant-owner issue and will not be apart of the UAA.

It was announced that TIF funds will not be available for this project. TIF funds are reserved to support disadvantaged areas only.

## Water Quality Standards to Support Designated Uses

Colleen Hughes presented the water quality standards to support designated uses. The following table reports the existing standards as they apply to the unique reaches of the CAWS.

| Illinois EPA Designated Uses (July 2002 305B Report, Table 3-4) | Applicable IL WQ Standards | Parameters Evaluated | Applicable Waterbodies |
|---|---|---|---|
| Aquatic Life | General Use | DO, pH, metals, unionized ammonia, TDS, nutrients | Up-stream of the North Side WRP on the N. Shore Channel, Chicago River |
| Indigenous aquatic life | Secondary Contact and indigenous aquatic life | DO, pH, metals, unionized ammonia, TDS | CSSC, Cal-Sag, Lake Cal, Grand Cal, SBSR, Section of NBCR, N. Shore Channel, Little Cal, Cal River |
| Primary contact (swimming) | General Use | Fecal Coliform | N. Shore Channel above North Side WRP, Chicago River |
| Secondary contact (recreation) (only assessed in lakes) | Secondary Contact and indigenous aquatic life | | Lake Calumet |
| Fish consumption | General Use | | All CAWS water bodies |

### Bacteria Standards

*Fecal Coliform*

The Illinois General Use fecal coliform standard states:

- During the months of May through October, based on a minimum of five samples taken over not more than a 30 day period, fecal coliform shall not exceed a geometric mean of

200 coliform forming units (cfu) per 100 ml, nor shall more than 10% of the samples taken during any 30 day period exceed 400 cfu per 100 ml in protected waters. Protected waters are defined as waters, which due to natural characteristics, aesthetic value or environmental significance are deserving of protection from pathogenic organisms. Protected water will meet one or both of the following conditions:

  - Presently support or have the physical characteristics to support primary contact
  - Flow though or adjacent to parks or residential areas

- Waters unsuited to support primary contact uses because of physical, hydrologic or geographic configurations and located in areas unlikely to be frequented by the public on a routine basis as determined by the Agency at 35 Ill. Adm. Code 309 Subpart A, are exempt from this standard. There is no Secondary Use fecal coliform numeric standard.

***E. coli***

The USEPA Draft Bacteria Standards Guidance for Primary Contact criteria recommends that the geometric mean (GM) for *E. coli* adhere to the following formula:

$$\text{Log (GM)} = (0.1064 \times \text{illness rate}) + 1.249$$

The single sample maxima (SSM) as recommended by the USEPA Draft Guidance should adhere to the following formula:

$$\text{Log (SSM)} = (\log (\text{GM})) + (\text{confidence level factor}) \times (\log \text{standard deviation})$$

The USEPA Draft Bacteria Standards Guidance for Secondary Contact criteria recommends that the geometric mean (GM) for *E. coli* conform to the following formula:

$$\text{GM} = 5 \times \text{primary contact criterion}$$

There is no single sample maxima (SSM) criteria recommendation by the USEPA.

- Below are a list of varying levels of body contact and their corresponding confidence level factors:

## EPA's 1986 Criteria, Primary Contact Recreation:

| Indicator | Illness Rate | Geometric Mean Density | Single Sample Maximum Allowable Density | | | |
|---|---|---|---|---|---|---|
| | | | 75% CL (Designated Beach Area) | 82% CL (Moderate full body recreation) | 90% CL (Light-use full body contact) | 95% CL (Infrequent use) |
| **Freshwater** | | | | | | |
| Enterococci | 8 | 33 | 62 | 78 | 107 | 151 |
| E coli | 8 | 126 | 235 | 298 | 410 | 576 |
| **Marine** | | | | | | |
| Enterococci | 19 | 35 | 104 | 158 | 276 | 501 |

### Dissolved Oxygen (DO) Standards

The General Use standards state that DO shall not be less than 6.0 mg/L during 16 hours of any 24 hour period, nor less than 5.0 mg/l at any time.

The Secondary Use standards state that DO shall not be less than 4.0 mg/L at any time and on the Calumet-Sag Channel the DO shall not be less tan 3.0 mg/L at any time.

## Preliminary Data Review and Analysis

Colleen Hughes of CDM presented preliminary bacteria and DO results. The data has been analyzed and presented on various maps and box-plots for the CAWS:

*Fecal Coiform*

- Geometric mean of monthly fecal coliform data

- Distribution of monthly fecal coliform data
- Seasonal (winter/summer) geometric mean of fecal coliform data
- Seasonal (winter/summer) distribution of fecal coliform data
- Fecal Coliform data during open water and non-open water seasons on the following reaches:
    - North Shore Channel
    - North Branch of the Chicago River
    - Chicago River mainsteam and South Branch
    - Chicago Sanitary & Ship Channel
    - Calumet- Sag Channel
    - North Leg of the Little Calumet River

*E.Coli*

- Geometric Mean of E. Coli monthly sampling throughout the year
- Distribution of E. Coli monthly sampling throughout the year

Hard copies of the maps for the CAWS were distributed to the attendees, and more copies are available to SAC members upon request. The Project Team is comfortable using the fecal coliform data to model the system. The CAWS UAA budget prohibits the collection of 5 bacteria samples taken within a 30 day period. However, the Project Team has a sufficient amount of quality bacteria data to analyze trends.

Concerning CSO frequency, antecedent conditions may contribute to an increased number of documented annual CSO events.

One attendee recommended that the Project Team look at hot summers, wet summers, and other similar combinations to better understand the behavior of bacteria in the CAWS. The Project Team will look at several other conditions that will be defined as the analysis progresses.

## Dissolved Oxygen (DO)

The DO data was illustrated with the following maps:

- Seasonal (winter/ summer) mean DO of continuous sampling stations
- Seasonal (winter/ summer) frequency distribution of DO of continuous sampling stations

The relationship between stream temperature and DO was reiterated during the meeting. One physical process that affects DO concentration is the relationship between water temperature and gas saturation. Cold water can hold more dissolved oxygen gas than warmer water; warmer water becomes "saturated" more easily with oxygen. As water becomes warmer, it can hold less and less DO.

An attendee recalled that the USACE made significant improvements to the locks during 1999. Also during that year, the allowable amount of diversion from Lake Michigan was decreased. The DO levels before and after 1999 should be more carefully analyzed to properly understand the current DO data trends in the waterway.

**Future Water Quality Data Analysis**

The following issues will be examined during future data analysis efforts:

- Point/ Non-point source data
- Wet events analysis
    - Need CSO and storm water bacteria data
- North Branch data
    - Deerfield WRP has disinfection and no CSOs
- Little Calumet South Leg
    - Area has no WRP discharges directly up-stream
    - Obtain Thorn Creek Basin Sanitary District data
- Lake Calumet
- 303d listed parameters
- Water quality modeling results

The committee agreed that several pumping stations were omitted from the maps, and that it is key to realize the locations of major point source pollution. The Project Team will track

down and incorporate pumping stations which have a flow deemed significant enough to impact the waterways.

## Biology and Habitat

Ron French of CDM gave a presentation summarizing the biological and habitat data that has been received. Below is a table describing sources of the biological and habitat data that has been collected for each reach.

| Reach | Benthic Macroinvertebrate Data | Fish Data | Habitat |
|---|---|---|---|
| N. Shore Channel | MWRD | USACE, FWS, MWRD | MWRD |
| N. Branch Chicago River | MWRD | FWS, MWRD | MWRD |
| Chicago River | MWRD | USACE, FWS, USEPA, MWRD | MWRD |
| S. Branch Chicago River | None | FWS, USEPA | Midwest Generation, MWRD |
| S. Fork (Bubbly Creek) | None | None | MWRD |
| Chicago Sanitary and Ship Canal | Midwest Generation, MWRD | USACE, Midwest Generation, FWS, MWRD, USEPA | Midwest Generation, MWRD |
| Calumet-Sag Channel | MWRD | USACE, FWS, MWRD | MWRD |
| Little Calumet River | MWRD | USACE, FWS, MWRD | MWRD |
| Lake Calumet | None | USACE | None |
| Grand Calumet | None | None | None |

One attendee inquired why the MWRD does not have a biological/habitat sampling point on the South Fork of the Chicago River (Bubbly Creek). A representative from the MWRD responded that the MWRD already has a good idea of the present sediment quality in that area due to past sampling on the South Fork.

An attendee recommended that the Project Team contact the USEPA for more biological data on Lake Calumet.

The biological assessment will be a unique analysis because the system is primarily manmade and therefore does not correspond well with established biological assessment strategies. The reaches will be assessed using intercomparison of various existing biological/habitat indices. Additionally, the macroinvertebrate community diversity will be used to characterize the reaches.

## Update on Recreational Use Survey

The recreational use of the CAWS will be evaluated using:

- Surveys completed by the Illinois EPA, CDM, Lake Michigan Federation, and USEPA
- Data gathered from annual recreational events
- Interviews of leaders of community organizations that use the river
- Post card surveys of marinas located on the CAWS

Jessica Harker of Primera presented initial results of the marina postcard survey. Post cards in sets of 20 were sent to marinas along the CAWS. Each marina was asked to complete one post card per week and return it to CDM. The following marinas choose to participate in the survey:

- South Branch Marina on the South Branch of the Chicago River
- Crowley's on the South Branch of the Chicago River
- River City Marina on the South Branch of the Chicago River
- Chicago Yacht Yard, Inc. near the South Branch Turning Basin
- Pier 11 Marina on the Little Calumet River
- Lake Calumet Boat on the Little Calumet River
- Skippers' Marina on the Little Calumet River

The cards survey what recreational activities, listed below, were observed or not observed. The corresponding percentages indicate the number of cards that designated that the activity was observed out of the total number of post cards returned. For example, 7 percent of the returned postcards indicated swimming was observed at the marina from which the postcard was returned.

- Power Boating- 98%
- Fishing- 68%
- Water Skiing/ Jet Skiing- 52%
- Kayaking/Canoeing- 25%
- Swimming- 7%
- Wading- 4%
- Playing at Stream Bank- 2%

Swimming was observed at Skippers Marina, River City Marina, and Crowley's Marina.

## Water Quality Modeling Approach

### Data Acquisition Status Report

Sri Rangarajan of HydroQual gave a summary of the modeling framework to support the UAA process for the CAWS.

*Need for Modeling*

It is difficult, if not monetarily impossible to assess the waterways through direct monitoring alone, because of event related variability, complex diffusion in the system and other factors. Many samples would be needed for proper characterization. A water quality model mathematically describes a water system and predicts the consequences of future actions in terms of water quality. The modeling for the CAWS UAA will reveal contributions from point and non-point source loads, how they will change in the future, and how to manipulate pollutant source loads to achieve designated uses. Once sufficient data has been gathered (including rainfall, temperature, topographic, land use, point source load, and management practice data), the information will be input into the model. The output of the model will yield constituent concentrations, stream flows, and water quality descriptions.

*Selection of Models*

A wide variety of water quality models are available. The best model for a specific project has the ability to produce the desired output, to properly incorporate the projects unique site-specific characteristics, and to produce results according to the project time and resource constraints.

Marquette University is developing the hydrodynamic and DO model for the CAWS UAA. They chose a model called DUFLOW.

No model currently exists for bacteria or suspended solids for the CAWS UAA. HydroQual is considering either Water Quality Analysis Simulation Program (WASP) or DUFLOW to model these parameters.

*Input/Output Review*
The CAWS model inputs include:

- Urban Watershed Model
    - Precipitation (O'Hare, Midway and Valparaiso - hourly and Park Forest - daily)
    - Land use and percent impervious area
    - Losses such as evaporation, infiltration and depressional storage
    - Physical parameters of urban watersheds such as surface roughness, slope and drainage area
- Collection system model
    - Dry weather flow distributions
    - System details such as pipes, pump stations, combined sewer overflow with storm water outfalls and WRP effluent/bypass locations
- Hydrodynamics
    - Storm water runoff
    - CSO discharges
    - WRP discharges
    - Base flow volumes
    - Channel cross-section and other physical properties
    - Flow/ water depth data for calibration
    - Operation rules such as diversion, gate controls or dam operation during dry/wet periods or during winter/summer seasons
- Water Quality - for each water quality parameter

- Storm water runoff concentrations
- CSO concentrations
- WRP discharge concentrations (effluent/bypass)
- Base flow/ background concentrations
- In-stream temperature magnitudes and duration

The base flow of the system is probably negligible. The effluent from the WRP acts as the base flow in the CAWS.

The desired outputs for the CAWS include:

- In-stream concentrations
  - Temporal and spatial distributions
  - Near-field missing characteristics for discharge points
  - Depth-variant concentrations
- Graphics/statistics to show extent of compliance to criteria

***Application in the UAA Process***
Sri ran a model for a waterway system in New York City. The model ran three different scenarios. The model included uncertainty analysis and confidence levels. As a result of the New York water quality model, the citizens of New York paid for the most optimal improvements.

For the CAWS, monthly data from the past five years will be used for input. Hourly data will be used to calibrate the model.

## Plans for Public Evening Meetings

A series of four public meeting are scheduled from 7:00- 9:00pm at the following locations in September to discuss the progress of the UAA project and overview the physical characteristics of the reaches of the CAWS:

- September 8, 2003: The Ecology Center
  2024 McCormick Boulevard
  Evanston, IL 60201

- September 9, 2003: Lake Katherine Nature Preserve
  7402 Lake Katherine Drive
  Palos Heights, IL 60463

- September 11, 2003: Stefani's at Harborside International Golf Course
  11001 South Doty Avenue East
  Chicago, IL 60628

- September 16, 2003: James R. Thompson Center - Assembly Hall Room
  100 W. Randolph
  Chicago, IL 60601

## Goals for Next Meeting

The next SAC meeting will be held on October 28, 2003 at 9:00 am in the State of Illinois Building. The goals for the next meeting includes:

- Discussion on appropriate designated uses
- Identify treatment and mitigation strategies.
- Estimate cost of compliance

An agenda will be developed and distributed to SAC members prior to the next meeting. Please note the CAWS UAA web site, www.chicagoareawaterways.org, is operational. Contact Hill & Knowlton with comments and questions regarding the website.

CC:

| | | | |
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| Rob Sulski | Illinois EPA | Lisa Frede | CICI |
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| Ron French | CDM | Julia Wozniak | Midwest Generation |
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| Jessica Harker | Primera | Tzaoh-Ying Su | USACE |
| Sri Rangarajan | Hydroqual | Sarah Tupper | Sierra Club |
| Lou Kollias | MWRD | Beth Wentzel | Prairie Rivers Network |
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Previous SAC Meeting Attendees

# Memorandum

*To:* *Toby Frevert, Illinois EPA*
*Rob Sulski, Illinois EPA*

*From:* *Ron French, CDM*

*Date:* *September 19, 2003*

*Subject:* *Meeting Minutes for the August Stakeholder Advisory Committee*

*Attendees:*

| Name | Organization | Name | Organization |
|---|---|---|---|
| Rob Sulski | Illinois EPA | Lisa Frede | CICI |
| Scott Twait | Illinois EPA | Fred Auxley | FCR |
| Ron French | CDM | Julia Wozniak | Midwest Generation |
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| Jessica Harker | Primera | Tzaoh-Ying Su | USACE |
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| Sergio Serafino | MWRD | Laurel O'Sullivan | LMF |
| Chris Varones | Hill & Knowlton | Jayne Lillienfeld-Jones | LMF Contractor |
| Joe Deal | City of Chicago | Frank Kudrna | IL Int. Port District |
| Nelson Chueng | City of Chicago | Jeff Covinsky | HMC/IRCA |
| Janet Pellegrini | USEPA | Brenda Carter | IERG |

On Tuesday, August 26, 2003 the Illinois EPA and CDM held a Stakeholder Advisory Committee (SAC) meeting to discuss the progress of the Chicago Area Waterway System Use Attainability Analysis (CAWS UAA). The meeting covered the following items:

- City of Chicago - Overview of Water Agenda
- Summary of Water Quality Standards to Support Designated Uses
- Preliminary Data Review and Analysis
- Update on Recreational Use Surveys

- Outline of Water Quality Modeling Approach
- Objectives for Public Evening Meetings on September 8, 9, 11, and 16
- Goals for October SAC Meeting

Each agenda item is discussed in detail in the sections to follow. The agenda was established to introduce and educate the SAC on the purpose, goals, proposed methodologies, and progress of the CAWS UAA.

## City of Chicago – Overview

### City of Chicago Mayor's Office

Joe Deal of the City of Chicago Mayor's Office (City) delivered a speech describing the Water Agenda for the City. The City is interested in the CAWS UAA because the potential outcomes will affect the City's Water Agenda. The City's Water Agenda focuses on multi-departmental coordination to change citizens' perception of the waterways. The following sections detail the variety of issues addressed in the City's Water Agenda.

*Conservation*

The City is dedicated to increasing water conservation through several programs. By repairing water infrastructure the City has dramatically reduced water use and leakage despite population increases. Other conservation projects include installing custodian caps on fire hydrants, retrofitting drinking fountains, and recirculating the water in pools/splash fountains. Additionally, the City conducts water audits for industrial users as part of the energy efficiency audits program. Finally, the Water Agenda calls for the Department of Water Management to develop a plan for comprehensive metering, and to review the City's Building Codes to ensure that developers are not prohibited from using innovative technology.

*Water Quality*

Water quality concerns include complex issues such as invasive species, air pollution, sediment, and beach closings.

*Stormwater*

The City manages stormwater by supporting TARP construction, minimizing roadway runoff, and taking advantage of green infrastructure opportunities. Green infrastructure includes implementation of rooftop gardens, permeable alleys and parking structures, rain gardens, open spaces and wetlands, and cisterns and rain barrels. The Chicago Center for Green Technology is a model for managing stormwater on site. Chicago has developed guidance on storm water best management practices (BMPs) to assist and encourage citizens to reach the City's stormwater control goals.

*Education*
The City's education campaign goals encourage citizens to think about water resources, understand their role in protecting resources, and ultimately to conserve water. The education campaign, Action $H_2O$, will utilize the following tools to educate and involve the public in the Water Agenda:

- Mass media including public awareness advertisements and an interactive web page with updated information on water issues in the City
- Education program for schools
- Partnerships with local environmental groups

## City of Chicago Planning Department

Nelson Chueng of the City of Chicago Planning Department described the City's plans for the riverfront and their interest in the CAWS UAA. The City's plan for the riverfront is detailed in *The Chicago River Corridor Development Plan* (1999).

The riverfront is owned, operated, and enjoyed by several different entities. The City assembled a team representing the different organizations including government, private sector developers, and nonprofit organizations to create a blueprint for the Chicago Riverfront. The purpose is to enhance the rivers attractiveness as a natural and recreational resource, while respecting the needs of residential and business developments. These goals are achieved through segmenting and zoning the riverfront. The *Chicago River Corridor Development Plan* details a shared vision for the river and outlines specific recommendations.

One attendee inquired about the sediment issues in the South Fork of the Chicago River (Bubbly Creek). The US Army Corp of Engineers (USACE) is currently studying the sediment in that area. The results of USACE study and the CAWS UAA will set a precedent of sediment treatment along the entire CAWS.

Several attendees are concerned with the encroachment issue on the North Branch of the Chicago River (NBCR). Several homeowners along the NBCR have built docks along the waterway, which prevents attainment of continuous public access along the waterway as detailed in the *Chicago River Corridor Development Plan.* MWRD owns the land along the NBCR and requires up to a 30' set back from the waterway. This is an important issue along the CAWS; however, it is a tenant-owner issue and will not be apart of the UAA.

It was announced that TIF funds will not be available for this project. TIF funds are reserved to support disadvantaged areas only.

## Water Quality Standards to Support Designated Uses

Colleen Hughes presented the water quality standards to support designated uses. The following table reports the existing standards as they apply to the unique reaches of the CAWS.

| Illinois EPA Designated Uses (July 2002 305B Report, Table 3-4) | Applicable IL WQ Standards | Parameters Evaluated | Applicable Waterbodies |
|---|---|---|---|
| Aquatic Life | General Use | DO, pH, metals, unionized ammonia, TDS, nutrients | Up-stream of the North Side WRP on the N. Shore Channel, Chicago River |
| Indigenous aquatic life | Secondary Contact and indigenous aquatic life | DO, pH, metals, unionized ammonia, TDS | CSSC, Cal-Sag, Lake Cal, Grand Cal, SBSR, Section of: NBCR, N. Shore Channel, Little Cal, Cal River |
| Primary contact (swimming) | General Use | Fecal Coliform | N. Shore Channel above North Side WRP, Chicago River |
| Secondary contact (recreation) (only assessed in lakes) | Secondary Contact and indigenous aquatic life | | Lake Calumet |
| Fish consumption | General Use | | All CAWS water bodies |

### Bacteria Standards

*Fecal Coliform*

The Illinois General Use fecal coliform standard states:

- During the months of May through October, based on a minimum of five samples taken over not more than a 30 day period, fecal coliform shall not exceed a geometric mean of

200 coliform forming units (cfu) per 100 ml, nor shall more than 10% of the samples taken during any 30 day period exceed 400 cfu per 100 ml in protected waters. Protected waters are defined as waters, which due to natural characteristics, aesthetic value or environmental significance are deserving of protection from pathogenic organisms. Protected water will meet one or both of the following conditions:

  - Presently support or have the physical characteristics to support primary contact
  - Flow though or adjacent to parks or residential areas

- Waters unsuited to support primary contact uses because of physical, hydrologic or geographic configurations and located in areas unlikely to be frequented by the public on a routine basis as determined by the Agency at 35 Ill. Adm. Code 309 Subpart A, are exempt from this standard. There is no Secondary Use fecal coliform numeric standard.

*E. coli*

The USEPA Draft Bacteria Standards Guidance for Primary Contact criteria recommends that the geometric mean (GM) for *E. coli* adhere to the following formula:

$$\text{Log (GM)} = (0.1064 \times \text{illness rate}) + 1.249$$

The single sample maxima (SSM) as recommended by the USEPA Draft Guidance should adhere to the following formula:

$$\text{Log (SSM)} = (\log (\text{GM})) + (\text{confidence level factor}) \times (\log \text{standard deviation})$$

The USEPA Draft Bacteria Standards Guidance for Secondary Contact criteria recommends that the geometric mean (GM) for *E. coli* conform to the following formula:

$$\text{GM} = 5 \times \text{primary contact criterion}$$

There is no single sample maxima (SSM) criteria recommendation by the USEPA.

- Below are a list of varying levels of body contact and their corresponding confidence level factors:

## EPA's 1986 Criteria, Primary Contact Recreation:

| Indicator | Illness Rate | Geometric Mean Density | Single Sample Maximum Allowable Density | | | |
|---|---|---|---|---|---|---|
| | | | 75% CL (Designated Beach Area) | 82% CL (Moderate full body recreation) | 90% CL (Light-use full body contact) | 95% CL (Infrequent use) |
| **Freshwater** | | | | | | |
| Enterococci | 8 | 33 | 62 | 78 | 107 | 151 |
| E coli | 8 | 126 | 235 | 298 | 410 | 576 |
| **Marine** | | | | | | |
| Enterococci | 19 | 35 | 104 | 158 | 276 | 501 |

### Dissolved Oxygen (DO) Standards

The General Use standards state that DO shall not be less than 6.0 mg/L during 16 hours of any 24 hour period, nor less than 5.0 mg/l at any time.

The Secondary Use standards state that DO shall not be less than 4.0 mg/L at any time and on the Calumet-Sag Channel the DO shall not be less tan 3.0 mg/L at any time.

## Preliminary Data Review and Analysis

Colleen Hughes of CDM presented preliminary bacteria and DO results. The data has been analyzed and presented on various maps and box-plots for the CAWS:

*Fecal Coiform*

- Geometric mean of monthly fecal coliform data

- Distribution of monthly fecal coliform data
- Seasonal (winter/summer) geometric mean of fecal coliform data
- Seasonal (winter/summer) distribution of fecal coliform data
- Fecal Coliform data during open water and non-open water seasons on the following reaches:
    - North Shore Channel
    - North Branch of the Chicago River
    - Chicago River mainsteam and South Branch
    - Chicago Sanitary & Ship Channel
    - Calumet- Sag Channel
    - North Leg of the Little Calumet River

***E.Coli***

- Geometric Mean of E. Coli monthly sampling throughout the year
- Distribution of E. Coli monthly sampling throughout the year

Hard copies of the maps for the CAWS were distributed to the attendees, and more copies are available to SAC members upon request. The Project Team is comfortable using the fecal coliform data to model the system. The CAWS UAA budget prohibits the collection of 5 bacteria samples taken within a 30 day period. However, the Project Team has a sufficient amount of quality bacteria data to analyze trends.

Concerning CSO frequency, antecedent conditions may contribute to an increased number of documented annual CSO events.

One attendee recommended that the Project Team look at hot summers, wet summers, and other similar combinations to better understand the behavior of bacteria in the CAWS. The Project Team will look at several other conditions that will be defined as the analysis progresses.

## Dissolved Oxygen (DO)

The DO data was illustrated with the following maps:

- Seasonal (winter/ summer) mean DO of continuous sampling stations
- Seasonal (winter/ summer) frequency distribution of DO of continuous sampling stations

The relationship between stream temperature and DO was reiterated during the meeting. One physical process that affects DO concentration is the relationship between water temperature and gas saturation. Cold water can hold more dissolved oxygen gas than warmer water; warmer water becomes "saturated" more easily with oxygen. As water becomes warmer, it can hold less and less DO.

An attendee recalled that the USACE made significant improvements to the locks during 1999. Also during that year, the allowable amount of diversion from Lake Michigan was decreased. The DO levels before and after 1999 should be more carefully analyzed to properly understand the current DO data trends in the waterway.

**Future Water Quality Data Analysis**

The following issues will be examined during future data analysis efforts:

- Point/ Non-point source data
- Wet events analysis
    - Need CSO and storm water bacteria data
- North Branch data
    - Deerfield WRP has disinfection and no CSOs
- Little Calumet South Leg
    - Area has no WRP discharges directly up-stream
    - Obtain Thorn Creek Basin Sanitary District data
- Lake Calumet
- 303d listed parameters
- Water quality modeling results

The committee agreed that several pumping stations were omitted from the maps, and that it is key to realize the locations of major point source pollution. The Project Team will track

down and incorporate pumping stations which have a flow deemed significant enough to impact the waterways.

## Biology and Habitat

Ron French of CDM gave a presentation summarizing the biological and habitat data that has been received. Below is a table describing sources of the biological and habitat data that has been collected for each reach.

| Reach | Benthic Macroinvertebrate Data | Fish Data | Habitat |
|---|---|---|---|
| N. Shore Channel | MWRD | USACE, FWS, MWRD | MWRD |
| N. Branch Chicago River | MWRD | FWS, MWRD | MWRD |
| Chicago River | MWRD | USACE, FWS, USEPA, MWRD | MWRD |
| S. Branch Chicago River | None | FWS, USEPA | Midwest Generation, MWRD |
| S. Fork (Bubbly Creek) | None | None | MWRD |
| Chicago Sanitary and Ship Canal | Midwest Generation, MWRD | USACE, Midwest Generation, FWS, MWRD, USEPA | Midwest Generation, MWRD |
| Calumet-Sag Channel | MWRD | USACE, FWS, MWRD | MWRD |
| Little Calumet River | MWRD | USACE, FWS, MWRD | MWRD |
| Lake Calumet | None | USACE | None |
| Grand Calumet | None | None | None |

One attendee inquired why the MWRD does not have a biological/habitat sampling point on the South Fork of the Chicago River (Bubbly Creek). A representative from the MWRD responded that the MWRD already has a good idea of the present sediment quality in that area due to past sampling on the South Fork.

An attendee recommended that the Project Team contact the USEPA for more biological data on Lake Calumet.

The biological assessment will be a unique analysis because the system is primarily manmade and therefore does not correspond well with established biological assessment strategies. The reaches will be assessed using intercomparison of various existing biological/habitat indices. Additionally, the macroinvertebrate community diversity will be used to characterize the reaches.

## Update on Recreational Use Survey

The recreational use of the CAWS will be evaluated using:

- Surveys completed by the Illinois EPA, CDM, Lake Michigan Federation, and USEPA
- Data gathered from annual recreational events
- Interviews of leaders of community organizations that use the river
- Post card surveys of marinas located on the CAWS

Jessica Harker of Primera presented initial results of the marina postcard survey. Post cards in sets of 20 were sent to marinas along the CAWS. Each marina was asked to complete one post card per week and return it to CDM. The following marinas choose to participate in the survey:

- South Branch Marina on the South Branch of the Chicago River
- Crowley's on the South Branch of the Chicago River
- River City Marina on the South Branch of the Chicago River
- Chicago Yacht Yard, Inc. near the South Branch Turning Basin
- Pier 11 Marina on the Little Calumet River
- Lake Calumet Boat on the Little Calumet River
- Skippers' Marina on the Little Calumet River

The cards survey what recreational activities, listed below, were observed or not observed. The corresponding percentages indicate the number of cards that designated that the activity was observed out of the total number of post cards returned. For example, 7 percent of the returned postcards indicated swimming was observed at the marina from which the postcard was returned.

- Power Boating- 98%
- Fishing- 68%
- Water Skiing/ Jet Skiing- 52%
- Kayaking/Canoeing- 25%
- Swimming- 7%
- Wading- 4%
- Playing at Stream Bank- 2%

Swimming was observed at Skippers Marina, River City Marina, and Crowley's Marina.

## Water Quality Modeling Approach

### Data Acquisition Status Report

Sri Rangarajan of HydroQual gave a summary of the modeling framework to support the UAA process for the CAWS.

*Need for Modeling*

It is difficult, if not monetarily impossible to assess the waterways through direct monitoring alone, because of event related variability, complex diffusion in the system and other factors. Many samples would be needed for proper characterization. A water quality model mathematically describes a water system and predicts the consequences of future actions in terms of water quality. The modeling for the CAWS UAA will reveal contributions from point and non-point source loads, how they will change in the future, and how to manipulate pollutant source loads to achieve designated uses. Once sufficient data has been gathered (including rainfall, temperature, topographic, land use, point source load, and management practice data), the information will be input into the model. The output of the model will yield constituent concentrations, stream flows, and water quality descriptions.

*Selection of Models*

A wide variety of water quality models are available. The best model for a specific project has the ability to produce the desired output, to properly incorporate the projects unique site-specific characteristics, and to produce results according to the project time and resource constraints.

Marquette University is developing the hydrodynamic and DO model for the CAWS UAA. They chose a model called DUFLOW.

No model currently exists for bacteria or suspended solids for the CAWS UAA. HydroQual is considering either Water Quality Analysis Simulation Program (WASP) or DUFLOW to model these parameters.

*Input/Output Review*
The CAWS model inputs include:

- Urban Watershed Model
    - Precipitation (O'Hare, Midway and Valparaiso - hourly and Park Forest - daily)
    - Land use and percent impervious area
    - Losses such as evaporation, infiltration and depressional storage
    - Physical parameters of urban watersheds such as surface roughness, slope and drainage area
- Collection system model
    - Dry weather flow distributions
    - System details such as pipes, pump stations, combined sewer overflow with storm water outfalls and WRP effluent/bypass locations
- Hydrodynamics
    - Storm water runoff
    - CSO discharges
    - WRP discharges
    - Base flow volumes
    - Channel cross-section and other physical properties
    - Flow/ water depth data for calibration
    - Operation rules such as diversion, gate controls or dam operation during dry/wet periods or during winter/summer seasons
- Water Quality - for each water quality parameter

- Storm water runoff concentrations
- CSO concentrations
- WRP discharge concentrations (effluent/bypass)
- Base flow/ background concentrations
- In-stream temperature magnitudes and duration

The base flow of the system is probably negligible. The effluent from the WRP acts as the base flow in the CAWS.

The desired outputs for the CAWS include:

- In-stream concentrations
  - Temporal and spatial distributions
  - Near-field missing characteristics for discharge points
  - Depth-variant concentrations
- Graphics/statistics to show extent of compliance to criteria

*Application in the UAA Process*
Sri ran a model for a waterway system in New York City. The model ran three different scenarios. The model included uncertainty analysis and confidence levels. As a result of the New York water quality model, the citizens of New York paid for the most optimal improvements.

For the CAWS, monthly data from the past five years will be used for input. Hourly data will be used to calibrate the model.

## Plans for Public Evening Meetings

A series of four public meeting are scheduled from 7:00- 9:00pm at the following locations in September to discuss the progress of the UAA project and overview the physical characteristics of the reaches of the CAWS:

- September 8, 2003: The Ecology Center
  2024 McCormick Boulevard
  Evanston, IL 60201

- September 9, 2003: Lake Katherine Nature Preserve
  7402 Lake Katherine Drive
  Palos Heights, IL 60463
- September 11, 2003: Stefani's at Harborside International Golf Course
  11001 South Doty Avenue East
  Chicago, IL 60628
- September 16, 2003: James R. Thompson Center - Assembly Hall Room
  100 W. Randolph
  Chicago, IL 60601

## Goals for Next Meeting

The next SAC meeting will be held on October 28, 2003 at 9:00 am in the State of Illinois Building. The goals for the next meeting includes:

- Discussion on appropriate designated uses
- Identify treatment and mitigation strategies.
- Estimate cost of compliance

An agenda will be developed and distributed to SAC members prior to the next meeting. Please note the CAWS UAA web site, www.chicagoareawaterways.org, is operational. Contact Hill & Knowlton with comments and questions regarding the website.

CC:

| | | | |
|---|---|---|---|
| Rob Sulski | Illinois EPA | Lisa Frede | CICI |
| Scott Twait | Illinois EPA | Fred Auxley | FCR |
| Ron French | CDM | Julia Wozniak | Midwest Generation |
| Colleen Hughes | CDM | Bill Constantelos | Midwest Generation |
| Jessica Harker | Primera | Tzaoh-Ying Su | USACE |
| Sri Rangarajan | Hydroqual | Sarah Tupper | Sierra Club |
| Lou Kollias | MWRD | Beth Wentzel | Prairie Rivers Network |
| Joe Cummings | MWRD | Paul Zwijack | Corn Products |
| Sergio Serafino | MWRD | Laurel O'Sullivan | LMF |
| Chris Varones | Hill & Knowlton | Jayne Lillienfeld-Jones | LMF Contractor |
| Joe Deal | City of Chicago | Frank Kudrna | Illinois Int. Port District |
| Nelson Chueng | City of Chicago | Jeff Covinsky | HMC/IRCA |
| Janet Pellegrini | USEPA | Brenda Carter | IERG |

Previous SAC Meeting Attendees

# Memorandum

*To:* *Toby Frevert, Illinois EPA*
*Rob Sulski, Illinois EPA*

*From:* *Ron French, CDM*

*Date:* *July 28, 2003*

*Subject:* *Meeting Minutes for the July Stakeholder Advisory Committee*

*Attendees:*

| Name | Organization | Name | Organization |
|---|---|---|---|
| Rob Sulski | Illinois EPA | Lisa Frede | CICI |
| Scott Twait | Illinois EPA | Laurene von Klan | FCR |
| Ron French | CDM | Julia Wozniak | Midwest Generation |
| Chris Yamaya | CDM | Bill Constantelos | Midwest Generation |
| John D'Aniello | CDM | Jessica Harker | Primera |
| Nicole Rowan | CDM | Sarah Tupper | Sierra Club |
| Susan O'Connell | MWRD | Albert Ettinger | ELPC/ Sierra Club |
| Lou Kollias | MWRD | Paul Zwijack | Corn Products |
| Sergio Seregino | MWRD | Laurel O'Sullivan | LMF |
| Rebecca Rader | Hill & Knowlton | Jayne Lillienfeld-Jones | LMF Contractor |
| Joe Deal | Chicago Mayor's Office | Nick Menninga | Greeley & Hansen |
| Bob Foster | Chicago Park District | Brenda Carter | IERG |
| Janet Pellegrini | USEPA | | |

On Tuesday, July 22, 2003 the Illinois EPA and CDM held a Stakeholder Advisory Committee (SAC) meeting to discuss the Chicago Area Waterway System Use Attainability Analysis (CAWS UAA). The meeting covered the following items:

- Friends of the Chicago River - Overview
- Lake Michigan Federation - Overview
- Physical Features of the CAWS
- Overview of Other Urban Streams

- Update on Data Analysis and Recreational Use Survey
- Six Criteria for a UAA
- Water Quality Standards as they apply to the Chicago Area Waterway System
- Goals for Next Meeting

Each agenda item is discussed in detail in the sections to follow. The agenda was established to introduce and educate the SAC on the purpose, goals, proposed methodologies, and progress of the CAWS UAA.

## Friends of the Chicago River - Overview

Laurene von Klan of the Friends of the Chicago River (FCR) delivered a speech describing FCR and its interest in the CAWS UAA.

FCR was formed after several community members were inspired by a Chicago magazine article entitled, "Our Friendless River" described the poor state of the Chicago River and that the Chicago River was friendless. FCR was incorporated in 1988. Now, FCR has grown from a dedicated group of volunteers to a nonprofit organization with a ten person staff and a one million dollar budget.

The mission of FCR is to foster the vitality of the Chicago River for the human, plant and animal communities within its watershed. Or, in simpler terms, to improve the Chicago River. FCR accomplishes their mission through:

- Education programs, such as the *Chicago River Schools Network*
- On-The-Ground Projects, such as *Chicago River Rescue Day*
- Policy and Planning, such as city ordinance projects

Regarding the CAWS UAA, FCR encourages the highest upgrade possible. Members of FCR have hosted, witnessed, and reported a wide variety of uses on the CAWS.

FCR highlighted the fact that the MWRD is proud of providing the most affordable wastewater treatment in comparison to other large cities. Hence, FCR feels that the MWRD has some financial flexibility. Therefore, FCR encourages MWRD to incorporate disinfection as a part of their WRP treatment process.

Finally, FCR invited everyone to participate in the annual Flatwater Classic Canoe and Kayak Race and Bicycle Escapade on August 10, 2003.

## Lake Michigan Federation - Overview

Laurel O'Sullivan presented an overview of the Lake Michigan Federation (LMF). LMF is a citizen-based organization formed in 1970. The goal of LMF is to protect one of America's largest lakes, Lake Michigan. This goal is accomplished by a multidisciplinary staff that has expertise in policymaking, legal analysis, science, education and community organization. The staff works on policy issues at state and national levels and on implementation at the local level. The LMF program areas include:

- Water Quality: the water quality program goal is to reduce water pollution to Lake Michigan and, by extension, the Great Lakes
- Habitat Protection: including habitat restoration for lakefront communities
- Land Use and Water Conservation: protecting sand dunes and addressing the impacts of changing lake levels
- Education: LMF works with communities around the lake to identify and eliminate sources of beach closings
- Outreach: LMF's adopt a beach program provides education and stewardship opportunities

LMF is interested in the CAWS UAA because flow reversals on the CAWS adversely impact Lake Michigan. By protecting the quality of the river system, LMF is protecting the quality of the water delivered to the Lake Michigan during overflow events.

## Physical Features of the Chicago Area Waterway System

### Presentation

Ron French of CDM gave a presentation on the physical features of the CAWS reaches that have been surveyed. Together, Illinois EPA, CDM, and LMF have made five of nine scheduled CAWS habitat and waterway recreational use surveys. The surveyed areas have been divided into ten reaches based on similar existing uses, aquatic habitat, channel morphology, and designated use. The presentation provides facts and pictures of each of the ten reaches. Reaches included:

- North Shore Channel
- North Branch of the Chicago River North Leg Reach
- North Branch of the Chicago River South Leg Reach
- North Branch Canal

- Chicago River
- South Branch of the Chicago River
- South Fork (Bubbly Creek)
- Chicago Sanitary and Ship Canal
- Calumet-Sag Channel
- Little Calumet River North Leg
- Lake Calumet

The following parameters were described for each reach:

- Length, Width, and Depth
- Bank Morphology
- Aquatic Habitat Characteristics
- Riparian Land Use
- Existing Use Classification
- Existing Uses
- Potential Uses

## Terminology

The SAC had some discussion of the terminology used during the presentation. The survey suggested that several reaches have limited aquatic habitat. However, FCR felt that significant man-made aquatic habitat existed.

FCR believes that some areas labeled with limited aquatic habitat have sections of crumbing concrete walls, which provide man-made aquatic habitat. Also, FCR thinks that several Christmas trees and cars in the river acts as manmade aquatic habitat. FCR will provide CDM with a report describing the man-made instream aquatic habitat and related material.

During the presentation, Bubbly Creek was described as having heavy barge traffic. However, some SAC members considered the barge traffic on Bubbly Creek as light.

### Parameters

Waterway use of the CAWS will incorporate the future development along the waterway as listed in the City of Chicago's *Chicago River Corridor Development Plan.*

### Waterway Use

A use not identified in the presentation was a fish cleaning station is in place along the CAWS at Oakton. The fish cleaning station experiences little use.

The SAC would like to see a list of events along the CAWS.

## Overview of Other Urban Streams

Nicole Rowan of CDM presented an overview of water quality standards in waterways similar to the CAWS. Below is a table summarizing six urban waterways and bacteriological standards in large cities around the United States. The table outlines the waterway classification as Primary or Secondary Contact Use, the bacteria water quality standard, and if the waterway is on the 303(d) list.

| Water Body | Primary or Secondary Use | Water Quality Standards | 303(d) List |
|---|---|---|---|
| Boston Inner Harbor | Secondary | Fecal Coliform 200 cfu/mL (may be seasonally applied)<br>4 CSO events/year (UA determined) | Yes |
| New York Waterways | Secondary | Fecal Coliform 200 cfu/mL | Yes |
| Rouge River & Detroit River | Primary and Secondary (seasonal) | E. coli 130 cfu/mL- Primary<br>E. coli 1000 cfu/mL- Secondary | Yes |
| White River | Primary (seasonal) | E. coli 125 cfu/mL | Yes |
| South Platte River | Primary | E. coli 126 cfu/mL | Yes |
| LA River | Primary and Secondary | Fecal coliform 200 cfu/mL<br>Fecal coliform 2000 cfu/mL | Yes |

Referenced from CDM's *Overview of Other Urban Streams and Bacteriological Issues* presentation delivered on July 22, 2003

The CAWS is not listed on the 303(d) List for bacterial water quality violations because the CAWS is one of the few waterways within a large city that has no bacteria standard.

## Update on Data Analysis and Recreational Use Survey

### Data Acquisition Status Report

Nicole Rowan of CDM gave a summary of the status of data collected and distributed a document/report bibliography to the SAC for review. The Project Team has most of the data it needs, but is still requesting recreational data at each public meeting. Also, the Illinois EPA, CDM and Lake Michigan Federation have scheduled four more field surveys to collect recreational data during the summer.

### Recreational Use Survey

Postcard surveys of recreational use have been sent to several marinas along the CAWS. Handouts distributed to the SAC described the participation to date.

### Data Analysis

Tier One of the data analysis plan is to create an initial characterization of waterway reaches. This includes:

- Water quality and sediment chemistry data (Bacteria, DO, 303(d) listed parameters)
- Summary statistics
- Comparison with water quality standards/ criteria
- Probability/frequency exceedance plots
- Review of aquatic life related data reports – habitat, fish species survey

Tier Two of the data analysis plan is to evaluate factors affecting water quality. This includes:

- Wet/dry conditions and summer/winter flow relationships
- Modeling combined sewer overflow (CSO) impacts and point source loadings control options

Preliminary Tier One results will be presented at the August SAC meeting.

## Six Criteria for a Use Attainability Analysis

Rob Sulski of the Illinois EPA described the six criteria that a UAA relies on to determine whether a waterway can fully attain the CWA swimmable and fishable goal. The six criteria include the following:

- Naturally occurring pollutant concentrations
- Natural ephemeral intermittent or low flow conditions or water levels
- Human caused conditions or sources of pollution
- Dams, diversions or other types of hydrologic modifications
- Physical conditions related to the natural features of the water body
- Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact

### Cost

SAC members were interested in the cost impacts of MWRD disinfection. The economic and social cost impact for disinfection is currently not known. However, Illinois EPA has sent a letter to the MWRD requesting a cost estimate for disinfection.

A SAC member suggested that an outside organization estimate MWRD disinfection costs. The members were reminded that once MWRD submits their estimate, IEPA and CDM will have the information needed to perform a separate cost analysis.

One SAC member stated economic discussions are premature. Physical factor limitations need to be evaluated first. The project team will present the economics of the attainable alternatives when they have been determined.

SAC members also questioned the technique of estimating the costs of selected remedies. The typical cost estimate for a UAA does not incorporate property value along the waterway or savings on health expenses. The cost assessment is gauged as a percent burden for the median income.

## Water Quality Standards as They Apply to the Chicago Area Waterway System

Nicole Rowan of CDM presented a map of 2002 303(d) listed segments in the CAWS. A description of impairments for each segment and the cause of the impairments were described for each segment. Water quality violations with in the CAWS included thirty-four parameters. The water quality standards for both General and Secondary Use were summarized for each listed parameter.

## Goals for Next Meeting

The next SAC meeting will be held on August 26, 2003 at 9:00 am in the Thompson Center. The goal for the next meeting includes:

- Evaluate results of recreational use field surveys and water quality sampling

An agenda will be developed and distributed to SAC members prior to the next meeting. Please note the CAWS UAA web site, www.chicagoareawaterways.org, is operational. Contact Hill & Knowlton with comments and questions regarding the website.

cc:

| | | | |
|---|---|---|---|
| Rob Sulski | Illinois EPA | Lisa Frede | CICI |
| Scott Twait | Illinois EPA | Laurene von Klan | FCR |
| Ron French | CDM | Julia Wozniak | Midwest Generation |
| Chris Yamaya | CDM | Bill Constantelos | Midwest Generation |
| John D'Aniello | CDM | Jessica Harker | Primera |
| Nicole Rowan | CDM | Sarah Tupper | Sierra Club |
| Susan O'Connell | MWRD | Albert Ettinger | ELPC/ Sierra Club |
| Lou Kollias | MWRD | Paul Zwijack | Corn Products |
| Sergio Seregino | MWRD | Laurel O'Sullivan | LMF |
| Rebecca Rader | Hill & Knowlton | Jayne Lillienfeld-Jones | LMF Contractor |
| Joe Deal | Chicago Mayor's Office | Nick Menninga | Greeley & Hansen |
| Bob Foster | Chicago Park District | Brenda Carter | IERG |
| Janet Pellegrini | USEPA | Previous other SAC Meeting Attendants | |

# Memorandum

*To:* *Toby Frevert, Illinois EPA*
*Rob Sulski, Illinois EPA*

*From:* *Ron French, CDM*

*Date:* *July 10, 2003*

*Subject:* *Meeting Minutes for the Stakeholder Advisory Committee*

*Attendees:*

| Name | Organization | Name | Organization |
|---|---|---|---|
| Toby Frevert | Illinois EPA | Harry R Walton | IERG |
| Rob Sulski | Illinois EPA | Frank Kudrna | Ill Int. Port District |
| Nia Haller | Illinois EPA | Dale Bryson | LMF |
| Joanne Scher | Illinois EPA | Jayne Lillienfeld-Jones | LMF Contractor |
| Ron French | CDM | Julia Wozniak | Midwest Generation |
| Colleen Hughes | CDM | Gary Kruger | Morton Salt |
| Nicole Rowan | CDM | Dick Lanyon | MWRD |
| Joe Deal | Chicago Mayor's Office | Susan O'Connell | MWRD |
| Bob Foster | Chicago Park District | Beth Wentzel | Prairie Rivers Network |
| Brian Fischer | CICI | Jessica Harker | Primera |
| Paul Zwijack | Corn Products | Aaron Rosinski | SE Env.Task Force |
| John Petro | Exelon | Tzuoh-ying Su | USACE |
| Laurene von Klan | FCR | Ed Hammer | USEPA |
| Sasha Engle | Gardner Carton & Douglas | Janet Pellegrini | USEPA |
| Sheila Deely | Gardner Carton & Douglas | Mardi Klevs | USEPA |
| Jeff Covinsky | Hannah Marine/ IRCA | Dave Pfeifer | USEPA |
| Chris Varones | Hill & Knowlton | | |

On Tuesday, June 24, 2003 the Illinois EPA and CDM held a Stakeholder Advisory Committee (SAC) meeting to discuss the Chicago Area Waterway System Use Attainability Analysis (CAWS UAA). The meeting covered the following items:

- Mission Statement
- CAWS Description and Features

- Work Plan Comments
- Use Definitions and Sub-categorization of Waterways
- EPA's Draft Bacteria Criteria Guidance
- Waterway Health Advisory Status
- Data Collection and Recreational Use Survey Update
- Goals for Next Meeting

Each agenda item is discussed in detail in the sections to follow. The agenda was established to introduce and educate the SAC on the purpose, goals, proposed methodologies, and progress of the CAWS UAA.

## Mission Statement

The proposed mission statement for the CAWS UAA follows:

"The goal of the Chicago Area Waterway System UAA Study is to review and evaluate established beneficial use classifications and water quality criteria, make recommendations for appropriate changes, and gain regulatory and public consensus."

After discussion, the SAC agreed on the following as the final mission statement:

"The goal of the Chicago Area Waterway System UAA Study is to review and evaluate established beneficial use classifications and water quality criteria, make recommendations for appropriate changes, and gain regulatory and public input for the Chicago Area Waterway System."

## Chicago Area Waterway System Description and Features

Richard Lanyon, Director of Research and Development at the Metropolitan Water Reclamation District of Greater Chicago (MWRD), delivered a presentation on the CAWS history, physical characteristics, and water quality conditions. The presentation detailed the following topics:

- A brief history of modifications to the CAWS for accommodating the water and wastewater needs of the Chicago area.
- A summary of the hydrologic conditions on the CAWS
- A description of CAWS hydraulic controls related to lock and dam operations and Lake Michigan

- A description of wastewater management operations on the CAWS including four water reclamation plants, Tunnel and Reservoir Program (TARP), Sidestream Elevated Pool Aeration (SEPA) stations, in stream diffuser aeration stations, and stormwater infrastructure
- A summary of action taken by the MWRD during dry weather, light rainfall, moderate rainfall, heavy rainfall, and severe rainfall on the CAWS
- A description of general use and secondary contact waters, NPDES permits, and compliance with water quality conditions
- Existing human uses of the CAWS

Several issues required clarification during the presentation. The first regarded the percent of CAWS volume that originates from the four water reclamation plants (WRPs). Approximately 70% of the system flow consists of effluent from WRPs. This percentage is calculated based on the flow leaving from the Lockport control at the outlet of the system. Therefore, the entire system is not necessarily 70% WRP effluent. During the winter months approximately 100% of the flow leaving through Lockport is WRP effluent; where as the flow during the summer months is approximately 50% effluent. The percentages of WRP effluent at particular points along the CAWS are available.

One attendee inquired about the cost of the aeration systems. The five SEPA stations cost approximately 40 millions dollars to install. The in-stream aeration systems were built in the 1970's and were more expensive. Costs for the in-stream aeration system were not provided at the meeting.

The life expectancy of TARP was questioned. Although, the lifetime is unknown, it is considered the long-term, permanent solution to the flooding and combined sewer overflow (CSO) issues. Until the TARP reservoirs are completed (expected completion data is 2015), CAWS will continue to experience frequent CSOs and an occasional river reversal. About once per year, a large CSO will require that the river be reversed so that it flows into Lake Michigan.

Finally, the unique issues involving Lake Calumet were addressed. The Illinois Department of Transportation is discharging into the lake, which is a concern of a representative of the Lake Calumet area. The discharge does not require monitoring unless a complaint is filed. Also, Lake Calumet is unique in that the Port District owns the majority of the land beneath and around Lake Calumet, unlike much of the rest of the Secondary Contact portion of CAWS where the MWRD owns much of the land.

Land use around the CAWS is not an issue as long as it is not adversely affecting the water quality. A sub-committee will be developed for Lake Calumet if the data continues to support that the area has unique issues.

Note that Mr. Lanyon's Power Point presentation is available in full upon request.

## Work Plan Comments

The SAC could not agree on whether Bubbly Creek was classified as a Secondary Contact or General Use waterway. The IEPA has determined that Bubbly Creek is Secondary Contact and has so indicated in the NPDES permit reissued to the City of Chicago in May 2002. However, the committee did agree that the time spent on the past conditions should be a minimum. The SAC wants to focus on the potential of the CAWS.

The MWRD are concerned about the implications of the following statements in the UAA Work Plan.

- "MWRDGC is currently evaluating the water quality and economic impact of wastewater disinfection on the CAWS." (p 11)
- "The feasibility estimates of capital, operation and maintenance, and management costs of desired facilities and programs. The CDM team will rely mainly on the cost estimates provided to IEPA from MWRDGC for facility improvements." (p 15)

MWRD has not yet received a formal request to initiate these tasks described in the comments above. The appropriate expert stakeholder will be sent a formal request when it is appropriate during the project.

It was also clarified that although reference is made to modeling of conditions anticipated upon completion of TARP Phase II in Task 6, the intent of the UAA Study is to develop a regulatory proposal that will pertain to conditions expected in the next 10 years and prior to completion of TARP Phase II. (p 13)

## Use Definitions and Sub-Categorization of Waterways

Nicole Rowan, CDM, summarized the terminology of the Illinois use classifications and standards for General Use, Secondary Contact and Indigenous Aquatic Life, and the current water quality criteria to protect recreational uses. She also explained the relationship between existing, potential and designated uses.

The sub-categorization and overall project approach is as follows:

- Review of current beneficial uses of CAWS (geographical area)
- Determine existing uses on CAWS
- Examine existing segmentation of CAWS

- Data analysis
- Potentially new use designation (including sub-categorization)

Other factors that will be included in the analysis are:

- Segmentation of the CAWS
- Seasonal recreation use
- High flow exclusions
- Wildlife impacted recreation

In the next few months the CAWS UAA team will need to answer the following questions:

- What are the existing uses?
- What are the potential uses?
- Where do potential uses apply?
- What are the designated uses?
- What are appropriate criteria to protect the designated uses?

## EPA's Draft Bacteria Criteria Guidance

David Pfeifer, USEPA Region 5, delivered a presentation on the "EPA's Recommended Criteria for the Protection of Recreational Uses." USEPA found that E. coli and enterococcus predicted illness more accurately than fecal coliform and has based their calculations on those indicators. Pfeifer described the E. coli-based criteria, confidence level factors, and deviation. He provided illness rates and geometric mean criteria for secondary contact. Additionally, he summarized the effects of illness rate on geometric mean density for primary and secondary contact. An example of possible results is provided below:

| Recreational Use Designated | Level (illness per 1000 exposed swimmers expressed as a percent) | Criteria | | |
|---|---|---|---|---|
| | | Geometric Mean | Single Sample Maximum Confidence | |
| | | | Confidence Level | Criterion |
| Swimming Beach | 0.8 | 126 | 75% | 236 |

| | | | | |
|---|---|---|---|---|
| Swimming likely | 0.8 | 126 | 82% | 298 |
| Swimming possible | 0.9 | 161 | 90% | 523 |
| Swimming unlikely | 1.0 | 206 | 95% | 940 |
| Boating (no immersion) | 1.0 | 1028 | NA | NA |

Referenced from *EPA's Recommended Criteria for the Protection of Recreational Uses* presentation delivered on June 24, 2003

The results were generated from fieldwork that investigated the number of people who became ill from varying contact in different types of waterways. A control group was established to address the possibility that the ill party was sick already or contracted the illness from a different source.

Note that Dave Pfiefer's Power Point presentation is available in full upon request.

## Waterway Health Advisory Status

The SAC could not agree on the format of the Health Advisory sign. There is concern that the sign message is too broad and could be interpreted as a negative description of the CAWS. Drafts or comments are still accepted. The recreational season has arrived. Although, the Health Advisory sign is not finalized, the Health Advisory Pamphlet was finalized and will be produced and distributed to the public.

## Data Collection and Recreational Use Survey Update

A summary list of data collected and data to be received was handed out to the SAC for review. An updated list will be handed out during the next SAC. The Project Team is still requesting recreational data at the public meetings. Also, the Illinois EPA, CDM and Lake Michigan Federation will be conducting field surveys to collect recreational data throughout the summer.

Surveys of recreational use have been sent to several marinas along the CAWS. Handouts distributed described the survey program and its participation to date.

Friends of the Chicago River has an extensive mailing list for survey use if needed. Also, recreational use can be surveyed during the 2003 Flat Water Classic.

The City of Chicago has a report entitled the *Chicago River Corridor Development Plan* available that describes existing and potential uses of the CAWS.

## Goals for Next Meeting

The goal for the next SAC meeting, scheduled for 9:00 am on July 22, 2003 at the Thomson Center, is:

- Assess suitability for human recreation based on hydrology, public access, relationship to or interference with other uses, public health & safety

The Agenda to address this follows:

- Friends of the Chicago River description
- Lake Michigan Federation description
- Physical Features of the CAWS
- Overview of other urban streams
- Update on data acquisition and recreational use surveys
- The six criteria for a UAA
- Water quality standards
- Other issues

The CAWS UAA web site, www.chicagoareawaterways.org, will be running within a few days and stakeholders will be e-mailed when the site becomes active.

cc:

| | | | |
|---|---|---|---|
| Toby Frevert | Illinois EPA | Harry R Walton | IERG |
| Rob Sulski | Illinois EPA | Frank Kudrna | Ill Int. Port District |
| Nia Haller | Illinois EPA | Dale Bryson | LMF |
| Joanne Scher | Illinois EPA | Jayne Lillienfeld-Jones | LMF Contractor |
| Ron French | CDM | Julia Wozniak | Midwest Generation |
| Colleen Hughes | CDM | Gary Kruger | Morton Salt |
| Nicole Rowan | CDM | Dick Lanyon | MWRD |
| Joe Deal | Chicago Mayor's Office | Susan O'Connell | MWRD |
| Bob Foster | Chicago Park District | Beth Wentzel | Prairie Rivers Network |
| Brian Fischer | CICI | Jessica Harker | Primera |
| Paul Zwijack | Corn Products | Aaron Rosinski | SE Env.Task Force |
| John Petro | Exelon | Tzuoh-ying Su | USACE |

| | | | |
|---|---|---|---|
| Laurene von Klan | FCR | Ed Hammer | USEPA |
| Sasha Engle | Gardner Carton & Douglas | Janet Pellegrini | USEPA |
| Sheila Deely | Gardner Carton & Douglas | Mardi Klevs | USEPA |
| Jeff Covinsky | Hannah Marine/ IRCA | Dave Pfeifer | USEPA |
| Chris Varones | Hill & Knowlton | Previous other SAC Meeting Attendants | |

# Memorandum

*To:* *Toby Frevert, Illinois EPA*
*Rob Sulski, Illinois EPA*

*From:* *Ron French, CDM*

*Date:* *April 30, 2003*

*Subject:* *Meeting Minutes for the Stakeholder Advisory Committee*

*Attendees:*

| Name | Organization | Name | Organization |
|---|---|---|---|
| Toby Frevert | Illinois EPA | Julia Wozniak | Midwest Generation |
| Rob Sulski | Illinois EPA | Bill Constantelos | Midwest Generation |
| Scott Twait | Illinois EPA | Fred Axley | Friends of the Chicago River |
| Deborah Williams | Illinois EPA | Laurel O'Sullivan | Lake Michigan Federation |
| Howard Essig | Illinois EPA | George A Braan | Kudrana & Assoc. Rep I.I.P.D. |
| Ron French | CDM | Aaron Rosinski | SE Environmental Task Force |
| Colleen Hughes | CDM | Lisa Frede | CICI |
| Jessica Harker | Primera | Susanne Davis | USACE-Chicago |
| Sri Rangarajan | HydroQual | Jeff Zuercher | USACE |
| Ed Hammer | USEPA | Jeff Covinsky | HMC |
| Janet Pellegrini | USEPA | Paul Zwijack | Corn Products |
| Dick Lanyon | MWRD | Chris Varones | Hill & Knowlton |

On Tuesday, April 22, 2003 Illinois EPA held a Stakeholder Advisory Committee (SAC) meeting to discuss the Chicago Area Waterway System Use Attainability Analysis (CAWS UAA). The meeting covered the following items:

- Introduction of SAC
- Overview of the CAWS UAA
- Project Update
- Goals and Objectives of SAC
- Goals for Next Meeting

- Action Items

Each agenda item is discussed in detail in the sections to follow. The agenda was established to introduce and educate the SAC on the purpose, goals, proposed methodologies, and progress of the CAWS UAA.

## Introduction of the Stakeholder Advisory Committee

The advisory committee consists of stakeholders, which are technically knowledgeable representatives of community groups concerned with the CAWS UAA and who have an interest in decisions being made for these waterways. These representatives are invited to every SAC meetings; however, any other interested party is welcome to attend. The SAC was formed to provide stakeholder input and guidance throughout the CAWS UAA process. Therefore, representatives are encouraged to attend every SAC meeting in order to provide consistent and valuable input.

## Overview of the Chicago Area Waterway Use Attainability Analysis

The overview of the CAWS UAA consisted of descriptions of the following:

- A brief history of the CAWS
- A summary of key laws, regulations and policies that govern the CAWS UAA
- An outline of the UAA process
- A list of potential outcomes from the CAWS UAA
- A summary of the workplan and schedule

Additionally, Rob Sulski of Illinois EPA and Ron French of CDM presented a collection of pictures taken during the aerial tour of the CAW. Photographs and video of the CAWS were taken during the helicopter tour hosted by MWRD. The following sites were noted during the presentation:

- MWRD wastewater treatment plants at Stickney and Calumet
- MWRD Sidestream Elevated Pool Aeration (SEPA) stations
- Waterway control structures
- Marinas
- Types of channel bank habitat (i.e. sheet piling, structures, vegetation, etc.)
- Vegetated sections along the river the public could potentially come in contact with the water

- Industrial sections along the river that are not easily accessible to animals or the public
- Public recreational boat launches

## Project Update

The UAA project team has accomplished the following since the project start in January 2003:

- CDM contract signed Jan 27th
- Jan 30th meeting to discuss health issues in the waterway
- Feb 11th internal kickoff meeting with Illinois EPA and CDM
- Feb 25th site visit to the Calumet-Sag area
- Met with MWRDGC, Friends of the Chicago River (FOCR), and Port Development & Safety Council to inform them of the UAA study and how they could help us with the study
- Prepared project work plan
- Meeting to discuss health advisory postings/pamphlet
- Prepared public health pamphlet and on-shore sign
- Prepared project mailing list
- Prepared for May public meetings
- Development of project web site (www.ChicagoAreaWaterways.org)
- Met with MWRDGC modeler to discuss water quality model of the CAWS
- Helicopter flyover
- Data acquisition meeting

Four topics of concern surfaced during the project update discussion. First, the SAC addressed identification of the appropriate method to distribute a health advisory to the public. The SAC suggested that the health advisory information could be distributed through the following methods:

- Signs along the river (especially at access points)
- Pamphlets at kiosks along the river
- Press releases
- Stakeholder resourses, such as newsletters

Second, the SAC addressed inclusion of commercial and recreational boating standards in the UAA. The UAA project team will use contacts at the Illinois EPA and the USEPA to ensure that all standards are included in the analysis of the river.

Third, the SAC discussed the possible outcomes of the UAA, which includes disinfection of wastewater effluent. MWRD engineers will estimate the economic feasibility of disinfection because economics is a factor in the decision making process of designated uses of the CAWS.

Finally, the SAC addressed data collection methods and progress. The project team is currently requesting data from MWRD, Illinois EPA, U.S. EPA, Midwest Generation, other government agencies, and CAWS stakeholders. The requests are based on information gathered during the April 10, 2003 Data Acquisition meeting held at CDM. Once the data is cataloged, the project team will ask stakeholders to supply additional data and/or conduct field collections.

## Goals and Objectives of Stakeholder Advisory Committee

The goals and objectives of the SAC are as follows:

- Provide a "reality" check on issues and proposals to the project team
- Provide education, guidance and direction relating to each stakeholder's expertise and knowledge of the waterways
- Review and comment on draft reports
- Assist Illinois EPA in recommending appropriate uses for the CAWS
- Review and accept the Illinois EPA scope of the study (for educational value to the members of the SAC)
- Review and comment on the CDM work tasks and schedule
- Review and comment on the stakeholder regional meeting schedule, agendas, content and progress
- Perform a coordinating and fill-in-the-gaps role when regional groups go off in different directions or fail to provide input necessary to move forward
- Review and comment on public information and materials used in the regional meetings and in the study
- Approve by consensus periodic progress reports on the conduct of the study (to make progress reports available that do no alienate groups represented the SAC)
- Participate in the development of subcommittees

Further, each SAC member is to act as a two-way conduit between SAC and it group members.

This portion of the meeting focused on two important topics. First, the execution of the public meetings was addressed. Public meetings, as outlined in the workplan, are scheduled in May 2003, September 2003, and March 2004.

The May 2003 public meetings will be held in Evanston, Palos Heights, and Chicago. Locations of the meetings were determined based on area interest, availability of affordable facilities, and accessibility. Representatives of the SAC offered several sources for free pubic notification, including the *Evanston Round Table* and the *Evanston Express*.

With the exception of the May, September and March schedule, pubic meetings are intended to be flexible in frequency and location to accommodate special needs of any party interested in being a part of the UAA. The UAA project team is dedicated to maintaining open lines of communication with all interested parties, and will hold additional special meeting upon request.

Second, the SAC discussed the development of sub-committees. Sub-committees will be developed on an "as needed" basis to address unique situations that surface throughout the project.

## Goals for Next Meeting

The goals for the next SAC meeting, scheduled for 9:00 am on June 24, 2003 at the Thompson Center, are the following:

- Introduction of organizations interest and concerns
- Project update
- Education needs for stakeholders, particularly aspects of the study
- Identification of subcommittee goals and objectives

Additionally, the SAC decided that it is important to clarify the variety of concerns and issues which must be balanced throughout the UAA process. Therefore, during the next SAC meeting each stakeholder will present a brief summary (5 to 10 minutes) outlining their group's purpose, objectives, and relation to the CAWS UAA.

The web site, www.chicagoareawaterways.org, will be running before the next SAC meeting. The agenda, pertinent documents and other related information for the next SAC meeting will be available for download from the website.

No SAC meeting will be held in May because of Memorial Day. The next SAC meeting will be June 24, 2003 in the Thomson Center. The meeting is scheduled from 9:00am to 12:00pm.

## Action Items

### Illinois EPA

- Create and distribute list of current Stakeholder Advisory Committee Members
- Approve and announce workplan

### CDM

- Summit data requests from the Data Acquisition meeting and follow up on data gaps
- Update the web page, www.chicagoareawaterways.org, to include materials useful for the next SAC meeting

### MWRD

- Estimate, using rough calculations, the economic feasibility of disinfection

cc:

Scott Twait, Illinois EPA
Deborah Williams, Illinois EPA
Howard Essig, Illinois EPA
Ron French, CDM
Colleen Hughes, CDM
Jessica Harker, Primera
Sri Rangarajan, HydroQual
Ed Hammer, USEPA
Janet Pellegrini, USEPA
Dick Lanyon, MWRD
Julia Wozniak, Midwest Generation
Bill Constantelos, Midwest Generation
Fred Axley, Friends of the Chicago River
Laurel O'Sullivan, Lake MI Federation
George A Braam, Kunrana and Associates Rep I.I.P.D.
Aaron Rosinski, Southeast Environmental Task Force
Lisa Frede, CICI
Susanne Davis, USACE-Chicago
Jeff Zuercher, USACE
Paul Zwijack, Corn Products
Jeff Covinsky, HMC
Chris Varones, Hill & Knowlton
Joe Deal, City of Chicago
Barry Burton, City of Chicago
Bob Foster, Chicago Park District

# Memorandum

*To:* *Toby Frevert, Illinois EPA*
*Rob Sulski, Illinois EPA*

*From:* *Ron French, CDM*

*Date:* *September 25, 2003*

*Subject:* *Meeting Minutes for The Future of the Chicago Area Waterway System Public Meeting*

The Illinois EPA held four public meetings throughout the Chicago area to update and discuss the Chicago Area Waterway System (CAWS) Use Attainability Analysis (UAA). A meeting was held in Evanston on September 8, in Palos Heights on September 9, on Lake Calumet on September 11, and in downtown Chicago September 16. The meeting agendas consisted of the following items:

- CAWS UAA Status Report
- Six Criteria for Changing Designated Use
- Physical Characteristics of the CAWS
- Contacts and Additional Resources
- Discussion

Each agenda item is discussed in detail in the following sections. The agenda was established to educate and receive feedback from the public on the direction and goals of the CAWS UAA. The following sections, excluding the Discussion section, apply to each of the public meetings. The Discussion section, which summarizes participants' comments and concerns, is subdivided by meeting location to communicate the regional concerns regarding the CAWS UAA project.

## UAA Status Report

Rob Sulski of the Illinois EPA summarized the progress of the CAWS UAA Project Team.

## Project Materials

Since the last series of public meetings the Project Team, in conjunction with the Stakeholder Advisory Committee (SAC), has:

- Completed and approved a Work Plan
- Developed Health Advisory Pamphlet to educate the public on potential risks associated with recreating in the CAWS the pamphlet was approved by the MWRD, IDPH, Illinois EPA, and the USEPA
- The Project web page is established, at www.chicagoareawaterways.org
- Completed data acquisition review
- Monthly SAC meetings
- Initial data analysis
- Model selection criteria

## Monthly SAC Meetings

The Project Team has hosted four Stakeholder Advisory Committee (SAC) meetings. The SAC consists of stakeholders who are technically knowledgeable representatives from government, industry and community groups concerned with the CAWS UAA and who have an invested interest in decisions being made on the waterways. These representatives are invited to monthly SAC meetings. However, any interested party who wants to be involved is welcome to attend. The SAC was formed to provide stakeholder input and guidance throughout the CAWS UAA process. The following is a list of topics discussed at the meetings:

- April – Review and approve UAA Work Plan
- June - Outline UAA regulations/ policy and overview of the CAWS by MWRD
- July - Overview of physical characteristics of CAWS and applicable water quality standards
- August - Preliminary data analysis and model development strategy

## Recreational Use Surveys

The recreational use on the CAWS has been evaluated using:

- Six recreational and habitat surveys by the Illinois EPA, CDM, and Lake Michigan Federation
- One survey to be completed by USEPA
- Weekly post card surveys completed by marinas along the CAWS

## Initial Data Analysis

To date, analysis has been limited to dissolved oxygen, fecal coliform and bacteria. These parameters have been analyzed to determine mean or geometric mean and to establish the frequency of exceedance of the applicable water quality standard. List of analysis on the parameters follow:

- Fecal Coliform based on annual, seasonal (winter & summer) and recreation season data
- E. coli during summer and winter conditions
- Dissolved Oxygen (DO) during summer and winter conditions

## Model Selection Criteria

A water quality model mathematically describes a water system and predicts the consequences of future actions in terms of water quality. The modeling for the CAWS UAA will reveal contributions from point and non-point source loads, how they will change in the future, and how to manipulate pollutant source loads to achieve designated uses. However, it is difficult to assess through monitoring alone because of event related variability and complex diffusion in the system. Therefore, many samples are needed to properly characterized sources.

Once sufficient data has been gathered, it will be incorporated into the model. Examples of input data include rainfall, temperature, topographic elevations, point source loads, and management practice data. The output of the model will reveal constituent concentrations, stream flows, and general water quality trends.

A wide variety of water quality models are available. The best model for a specific project has the ability to produce the desired output, to operate properly incorporating the projects unique site-specific characteristics, and to produce results according to the project time and resource constraints.

Marquette University is developing the hydrodynamic and DO model for the CAWS UAA. They chose a model called DUFLOW. No model currently exists for bacteria or suspended solids for the CAWS UAA. HydroQual is considering Water Quality Analysis Simulation Program (WASP) or DUFLOW to model these parameters.

## Six Criteria for Changing Designated Use

Rob Sulski of the Illinois EPA outlined the six criteria for changing a designated use as described in the Clean Water Act (CWA). The CWA stipulates, "It is the nation's goal that wherever attainable, water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water (swimming and fishing) should be achieved." Water quality standards are adopted to protect designated uses. For example, if water quality standards for swimming are attainable, then a standard for bacteria levels in the water must be established to allow for such a use.

The state must conduct a UAA if the state has designated or will designate a use inconsistent with the CWA. Currently, the CAWS classification is inconsistent with the CWA. A UAA is a structured scientific assessment of the factors affecting the attainment of the use, which may include physical, chemical, biological, and economic factors.

Factors that may be used to argue that a designated use is not attainable are:

1) Natural pollution

2) Flow conditions

3) Human caused conditions that would cause more environmental damage to correct than to leave in place

4) Hydrologic modifications not feasible to restore or to alternatively operate

5) Physical conditions related to natural features

6) Substantial and widespread economic and social impact

## Physical Characteristics of the CAWS

### Presentation

CDM gave a presentation on the physical features of the CAWS. Together, Illinois EPA, CDM, and LMF have made six of nine scheduled CAWS habitat and waterway recreational use surveys. The surveys resulted in the delineation of ten reaches based on similar existing uses, aquatic habitat, channel morphology, and designated use. The presentation provided facts and pictures of each of the ten reaches. Reaches included:

- North Shore Channel
- North Branch of the Chicago River North Leg
- North Branch of the Chicago River South Leg

- North Branch Canal
- Chicago River
- South Branch of the Chicago River
- South Fork (Bubbly Creek)
- Chicago Sanitary and Ship Canal
- Calumet-Sag Channel
- Little Calumet River North Leg
- Lake Calumet

The following parameters were described for each reach:

- Length, Width, and Depth
- Bank Morphology
- Aquatic Habitat Characteristics
- Riparian Land Use
- Existing Use Classification
- Observed Uses
- Potential Uses

## Contacts and Other Resources

The following contacts are available for questions and concerns related to the CAWS UAA. Public statements are collected and taken into consideration throughout the duration of the project.

Rob Sulski
Illinois EPA
rob.sulski@epa.state.il.us
(847) 294-4000

Ed Hammer
USEPA

hammer.edward@epamail.epa.gov
(312) 886-3019

Ron French
Camp Dresser & McKee, Inc.
frenchrd@cdm.com
(312) 346-5228

Additionally, further information is available on the project website, located at:

www.chicagoareawaterways.org

The next series of public meetings are scheduled for March 2004. The location of the March public meetings will be determined. Locations for the meetings are determined based on area interest, availability of affordable facilities, and accessibility.

Public meetings are intended to be flexible in both frequency and location to accommodate the special needs of any party interested in the UAA. The UAA Project Team is dedicated to maintaining open lines of communication with all interested parties and will hold additional meetings upon request.

## Discussion

A summary of participant comments and responses is included in the following sections. This portion of the minutes was subdivided by the location of the meeting to communicate the regional concerns and issues. The Evanston meeting, held on September 8, is discussed first, followed by the meeting in Palos Heights on September 9, next the meeting near Lake Calumet on September 11 and the meeting in downtown Chicago on September 16.

### Evanston Public Meeting

The Evanston Public Meeting occurred September 8, 2003 in the Ecology Center at 7:00pm. Twenty-three people attended the meeting. The following is a summary of the discussions at the meeting.

*Modeling*

Water quality parameters applicable to the UAA have been collected for years. Continuous DO data is available as well as an abundance of *E. coli* data. However, not much data is available from CSOs. Overall the water quality of the CAWS has improved.

Once a specific model has been selected and modified for the CAWS, it will run different "what if" scenarios. Some examples of "what if" scenarios are:

- What would bacteria levels be if all WRP chlorinated?

- What would the DO levels be if a SEPA station were added to the North Shore Channel?

*Pollution*
Any owner or individual found polluting along the CAWS is subject to a fine by the Illinois EPA and in some cases the MWRD.

One attendee inquired if chemical treatment to lawns is harmful to CAWS water quality. The water chemistry data reflects chemical pollution exceedences. Currently, no sources have been identified.

*Disinfection*
Disinfection is typically accomplished with a chlorination/ dechlorination process. Though, alternatives such as UV or Ozone treatment processes exist. All processes have positive and negative impacts which must be considered. However, based on the UAA goals , the main concern is if disinfection is necessary and not what type of disinfection process would potentially be utilized..

*Navigation*
On the NBCR, navigable waters end slightly north of the North Avenue Turning Basin at Goose Island. The barges that pass through the CAWS carry a wide variety of goods including:

- Grain
- Coal
- Sand
- Salt
- Scrap Iron
- Gravel

*Submerged Boat*
The submerged boat in the mouth of the Grand Calumet River was placed there several years ago by local residents to stop flow and pollution from an Indiana WRP. The pollution problem from the Indiana WRP has been resolved.

A submerged boat near Goose Island is currently being dismantled.

*Access*
Access to the waterways is increasing. Fences along the North Shore Channel and the NBCR are low and there are many sections where people can pass. Under bridge paths are planned for the bridges at Diversey and Fullerton.

*River Modification*
The Locks have reversed the flow in the Little Calumet River and the Chicago River. The amount of water that can be diverted from Lake Michigan is strictly regulated by a Federal decree. Leaks in the Locks were repaired in 1999. The Locks will likely be replaced when funding becomes

available. Much of the diverted Lake water is used for domestic consumption. A complete history of the modifications to the CAWS can be found in Libby Hill's book, *The Chicago River: A Natural and Unnatural History.*

*Health Concerns*
An informational pamphlet has been approved and is currently being processed. The pamphlet provides health precautions for those recreating on the CAWS.

One attendee asked that a health advisory sign be posted at the Worth and Alsip boat launches. Signage has been discussed among the stakeholders. The concern from some of the stakeholders is that recreation will be decreased because of fear created by signage. However, signage will be posted by the Chicago Park District and the MWRD.

The flow from the CAWS eventually discharges into the Illinois River, which is the water body that Peoria, IL uses as a drinking water source. Because of dilution and dispersion of the pollutions from the CAWS, the water is safe to use as a drinking water source in Peoria.

The fish in the CAWS have been tested and the IDNR has established a fish advisory to address health and safety issues related to fishing in the CAWS.

*DO Levels and Sidestream Elevated Pool Aeration (SEPA)*
SEPA stations pump a portion of the stream water into an elevated pool about the channel. The water ten cascades over a series of weirs to create waterfalls that add oxygen to the waterway.

SEPA stations are approximately 99% efficient. Improving DO levels by building more SEPA stations will be a consideration of the CAWS UAA.

The DO levels in the North Shore Channel are neither less than 6 mg/L during at least 16 hours of any 24 hour period, nor less than 5.0 mg/L at anytime above the Northside WRP and not less then 4mg/L at any time below the Northside WRP.

*Analysis Approach*
The approximate duration of the CAWS UAA is two years. The approach of the CAWS UAA will:

- Document current uses of the CAWS
- Set water quality standards to protect for those uses
- Model the CAWS to optimize the achievement of the water quality standards

Some of the attendees questioned the use designation process. If the waterways were less polluted, then more uses would emerge. However, other attendees argued that many citizens are currently recreating in the waterway despite the pollution problems.

Another attendee questioned the ability to document the use of nature in progress, which is the function of the Ecology Center's canoeing trips. The number of Ecology Center canoeing trips during 2003 was submitted to the Project Team.

*Possible Results*
An attendee inquired if it was possible to achieve a healthy warm water habitat in the North Shore Channel. Physically, it is possible to create a healthy warm water habitat. However, economically it might not be feasible. An economic analysis of different management options will be performed as part of the CAWS UAA.

An attendee asked if it were possible to increase the flow in the North Shore Channel above the WRP. Increased flow is unlikely feasible, but increasing the flow in stagnate areas will be in the analysis.

Another request from an attendee was to optimize the holistic experience of the waterway including aesthetics, water quality, odor and increase flow.

Another participant was worried that General Use designation of the North Shore Channel above the WRP would be downgraded. The results of the analysis will be presented it March. The Standards will probably change according to the unique characteristics of each reach.

## Palos Heights Public Meeting

The Palos Heights Public Meeting occurred September 9, 2003 at 7:00pm in Lake Katherine Nature Preserve. Eight people attended the meeting. The following is a summary of the meeting discussion topics.

*Data*
The data for the CAWS UAA originates from several sources including:

- Illinois Environmental Protection Agency
- US Environmental Protection Agency
- Illinois Department of Natural Resources
- National Weather Service
- Illinois Geological Survey
- Fish and Wildlife Service
- Metropolitan Water Reclamation District of Greater Chicago

- Midwest Generation
- Friends of the Chicago River

*Health Advisory*
An informational pamphlet has been approved and will be distributed to CAWS users. The pamphlet describes the health hazards associated with contacting the waters of the CAWS.

One attendee asked that a health advisory sign be posted at the Worth and Alsip boat launches. The SAC has discussed posting signage. The concern from some of the stakeholders is that recreation will be decreased because of fear created by caution signs. Therefore, the SAC could not unanimously agree on a health advisory sign. However, the Chicago Park District and the MWRD agreed to post health advisory sign on their property for the next recreational season.

*Waterway Recreational Use*
The attendees made the following observations on the CAWS:

- The annual Bass Master event took place the weekend of September 6, 2003 in the Calumet area
- Non-motorized crafts have never observed along the CSSC reach
- Several attendees have observed swimming in the Calumet-Sag Channel and the Little Calumet River
- Much of the primary contact activities are taking place at the Worth and Alsip boat launches

*Combined Sewer Overflow (CSO) Control*
CSO events are managed by diversions at the locks at Lockport, downtown Chicago, Calumet, and Wilmette. The Lockport Locks can decrease the stage of the CAWS by three feet in a few hours in anticipation of a storm event resulting in CSO to the CAWS.

When the capacity of the storage structures on the CAWS are exceeded which include TARP and WRPs, the last escape for excess flow is through the controlling locks in downtown Chicago to Lake Michigan.

One attendee inquired if the drinking water intake will be extended because of CSOs polluting Lake Michigan. The long term control of CSOs is TARP. Drinking water facilities will not need to be adjusted because of the CSOs.

*Ravenswood Neighborhood*
An attendee inquired about the encroachment issue along the North Branch of the Chicago River (NBCR). Several homeowners in the Ravenswood neighborhood along the NBCR have built

docks along the waterway, which prevents attainment of continuous public access along the waterway. MWRD owns the land along the NBCR and requires up to a 30' set back from the waterway. This is an important issue along the CAWS; however, it is a tenant-owner issue and will not be apart of the UAA.

*Habitat*
All meeting members agreed that the boating along the CAWS is a pleasant experience. Woodchucks, deer, and other wildlife have been spotted swimming across the Calumet- Sag Channel by several attendees.

Lake Calumet is very shallow except in an area that has been dredged. It is the last piece of undisturbed water along the CAWS, and is home to many species of wildlife.

*Disinfection*
Disinfection is a process for removing bacteria from effluent discharged from WRPs. However, disinfection of effluent from WRP along the CAWS will not necessarily decrease bacteria to levels acceptable for swimming. Initial data analysis shows that on the NBCR around Deerfield, IL the bacteria levels exceed the General Use water quality standard despite disinfection at the WRP on that waterway. Bacteria could be originating from storm runoff, natural causes, or other nonpoint sources.

*Other Waterways*
An attendee asked why certain nearby reaches are not included in the study. Other reaches in the area are General Use waterways and are subject to a different study call a Total Maximum Daily Load (TMDL).

*Next Meeting*
The next series of public meeting will be held in March 2004. The March public meetings will present the results and recommendations of the UAA.

## Lake Calumet Public Meeting

The Public Meeting on Lake Calumet occurred September 11, 2003 in Stefani's at Harborside International Golf Course at 7:00pm. Ten people attended the meeting. The following is a summary of the discussions at the meeting.

*Meetings*
Approximately 10 to 25 people have been attending the September series of public meetings. The next series of public meeting will be held in March 2004. The March public meetings will present the results and recommendation of the UAA.

*Health Advisory*
A health advisory pamphlet is currently being processed to educate CAWS users about the health precautions associated with recreating on the waterways. The MWRD and the Chicago Park District have also agreed to post signage along the waterways warning of health hazards.

MWRD's permits require them to inform the public when overflow events occur. The plan detailing their public notification program is currently being reviewed.

Fishing has been an activity frequently observed along the waterway. A fish advisory from IDNR is in effect.

*Sidestream Elevated Pool Aeration (SEPA)*
One attendee heard that the SEPA stations will be closed. The SEPA station will no be closed; however, they do not operate during the winter months. Additionally, SEPA 1 is in a location that used to be populated by steel mills. However, the steel mills have closed and the water quality has improved. If the SEPA station is found to be no longer needed, then it will close.

*Pollution*
The Chicago River has a density gradient that causes the water to flow one direction at the top of the water column and another direction on the bottom. Possible causes for the density gradient are temperature changes and an increased salt content from winter street runoff.

*Grand Calumet River*
The submerged boat in the mouth of the Grand Calumet River was placed their by local residents to stop the flow and pollution coming from an Indiana WRP. The pollution problem from the Indiana WRP has been resolved.

The cost to dreg the Grand Calumet River and to remove the submerged boat at the mouth will be considered as part of the CAWS UAA.

*Navigation*
Commercial traffic the Chicago Sanitary and Ship Channel (CSSC) is heavy. Navigation through the Lockport Locks is tracked by the US Army Corp of Engineers.

In recent years, the traffic along the Calumet-Sag Channel has decreased because the steel mills in that area were shut down about ten years ago.

One attendee observed that because of the high levels of power boating and barge traffic in the CSSC, Calumet-Sag Channel, and Little Calumet River non-motorized boating is dangerous. Non-motorized boating is possible in Lake Calumet. However, the lake lacks access points.

The Summit boat launch was closed a few years ago. The launch was not being maintained and was closed due to safety reasons. Only a small number of people used the launch and alternatives are available for those users. Therefore, the launch will not be reopening.

*Metropolitan Water Reclamation District of Greater Chicago (MWRD)*
An attendee inquired about the role of the MWRD in the UAA. The MWRD is a government – neither a part of the City of Chicago nor Cook County government. It is operated under the direction of nine elected commissioners.

The MWRD serves the City of Chicago and several suburban communities. Some of the MWRD's responsibilities include:

- Ownership and operation of the wastewater reclamation plants (WRP) along the CAWS, which make up 80%- 90% of its flow
- Treatment of biosolids from the WRPs
- Implementation and maintenance of the Tunnel and Reservoir Plan (TARP)
- Waterways control along most of the CAWS
- Operation of five sidestream elevated pool aeration (SEPA) stations
- Permit industrial waste program

## Downtown Chicago Public Meeting

The Public Meeting in downtown Chicago occurred September 16, 2003 in the Thompson Center at 7:00pm. Ten people attended the meeting. The following is a summary of the discussions at the meeting.

*Bubbly Creek*
An attendee inquired about the source of the flow pumped by Racine pumping station. The area of concern is composed almost entirely of combined sewers. Combined sewer collection systems consist of one sewer pipe network that collects local domestic wastewater, industrial wastes, and stormwater runoff. If, during storms, the combined wastewater and runoff exceeds the capacity of the treatment plant, the overflow is bypassed to TARP (the Tunnel and Reservoir Plan). When TARP reaches capacity, the Racine pumping stations pumps the combined sewer and stormwater of the area directly into Bubbly without treatment.

Except during storm flows, Bubbly Creek is a stagnate reach with little or no flow. All flow to the reach is provided by the Racine Pumping Station. When the pump station is operating, the flow from Bubbly Creek travels in both directions along the South Branch of the Chicago River.

Along the length of Bubbly Creek, the bubbles originating from the sediments increase as the mouth of the creek is approached. Also, fish jump from the water as boats travel by. These phenomenons are caused by low DO in the creek.

# Memorandum

*To:* *Toby Frevert, Illinois EPA*
*Rob Sulski, Illinois EPA*

*From:* *Ron French, CDM*

*Date:* *July 24, 2003*

*Subject:* *Meeting Minutes for The Future of the Chicago Area Waterway System Public Meeting*

The Illinois EPA held two public meetings in the Chicago area June 24 and 25, 2003 to introduce and discuss the Chicago Area Waterway System (CAWS) Use Attainability Analysis (UAA). A meeting was held in the Thompson Center on June 24, 2003 and in the Windjammer Marina on June 25, 2003. The meeting agendas consisted of the following items:

- Brief History of CAWS
- Explanation of UAA
- Course of Action
- Potential Outcomes
- Project Duration and Status
- Contacts and Additional Resources
- Discussion

Each agenda item is discussed in detail in the following sections. The agenda was established to educate the public and receive feedback on the direction and goals of the CAWS UAA. The following sections, excluding the *Discussion* section, apply to both public meetings. The *Discussion* section, which summarizes participants' comments and concerns, is subdivided by meeting location to communicate the regional concerns regarding the CAWS UAA project.

## Brief History of Chicago Area Waterway System

After explorers first discovered the area, it took 150 years to incorporate the area into the city of Chicago. Four years after the city of Chicago was incorporated the population exploded from 400 to 4,000. During the following 25 years, the population quickly and severely polluted the surface waters if the area and water born diseases took the lives of many Chicago residents. It has taken 100 years and billions of dollars to get the CAWS back into reasonable shape. The CAWS has shown dramatic improvements over the last 30 years.

Rob Sulski of Illinois EPA described key historical events of the CAWS, which are listed below.

- 1673: Marquette made the Great Lake to Illinois River portage.
- 1833: Chicago incorporated as a village with 400 residents.
- 1837: Chicago incorporated as a city with over 4,000 residents.
- 1856: Sewer construction begins.
- 1860: Beginning of 30 years of typhoid cholera and other waterborne diseases outbreaks, which kills many of Chicago area's population.
- 1900- 1922: The main channel of Chicago Sanitary & Ship Canal completed and Calumet-Sag Channel completed.
- Late 1930's: The Calumet, Stickney and North Side Wastewater treatment plants were completed.
- 1972: Congress passed the Clean Water Act amendment.
- 1980's: Millions of dollars awarded in grants and revolving loans to upgrade sewers and treatment plants.
- 1982: Fecal coliform water quality standard repealed for Secondary Contact Waterways.
- 1985: One billion gallon TARP mainstream tunnel began operating.
- 1988: First upgrades of a portion of the Secondary Contact Use waterways - Calumet River upstream of O'Brien Lock and North Shore Channel above North Side effluent.
- 1992: First River Rescue Day held.
- 1994: Last of five existing SEPA station put into operation.

- 1999: City of Chicago publishes their Chicago River Corridor Development Plan.
- 2000: Lower Des Plaines UAA begins.
- 2001: Southeast side environmental and community groups endure a *Vision for Lake Calumet.*
- 2002: MWRD "Big Three" and Chicago NPDES Permits reissued with significant CSO language.
- 2003: Chicago Area Waterway System UAA begins.

## Explanation of Use Attainability Analysis

### Clean Water Act

The Clean Water Act (CWA) states, "It is the nation's goal that wherever attainable, water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water (swimming and fishing) should be achieved." Water quality standards are adopted to protect designated uses. For example, if water quality standards for swimming are attainable, then a standard for bacteria levels in the water must be established to allow for such a use.

Improvements in the CAWS have enhanced the water quality and caused more usage of the waterways. When the water quality improves and waterway uses change, the CWA requires that designated uses be upgraded if achievable. New or revised water quality standards shall be established considering the designated use and value of the following:

- Public water supply
- Propagation of fish and wildlife
- Recreational purposes
- Agricultural, industrial and other purposes
- Navigation

Other federal regulations that will influence the study include the following:

- Downstream water quality standards shall not be affected.
- Sub-categories of uses may be allowed.
- Uses are attainable if they can be achieved through best available technology or effluent limits.

- Opportunity for public hearing is required to add or remove any use or establish sub-categories of uses.
- Seasonal uses with less stringent seasonal standards may be used in lieu of reclassification.
- Uses existing on or after November 28, 1975 may not be removed.

## Use Attainability Analysis

The state must conduct a UAA if the state has designated or will designate a use inconsistent with the CWA. Currently, the CAWS classification does not meet the goal of the CWA. A UAA is a structured scientific assessment of the factors affecting the attainment of the use, which may include physical, chemical, biological, and economic factors.

There are many competing uses in the CAWS. For example, some citizens want to canoe while other citizens have businesses that depend upon commericial traffic. Users need to communicate and compromise to insure protection of all waterway uses.

Factors that may prevent the attainment of designated uses are the following:

1) Natural pollution

2) Flow conditions

3) Human caused conditions that would cause more environmental damage to correct than to leave in place

4) Hydrologic modifications not feasible to restore or to alternatively operate

5) Physical conditions related to natural features

6) Substantial and widespread economic and social impact

## Illinois Water Quality Standards

Use designations on the CAWS are either General Use or Secondary Contact Use. General Use standards protect the State's water for aquatic life, wildlife, agricultural use, Secondary Contact Use and most industrial uses and ensure the aesthetic quality of the aquatic environment. Primary Contact is protected for all General Use classified waters.

Primary Contact Use refers to any recreational or other water use in which there is prolonged intimate contact with the water involving considerable risk of water ingestion in quantities sufficient to pose a significant health hazard.

The Secondary Contact Use is intended for those waters not suited for General Use activities but is capable of supporting indigenous aquatic life. Secondary Contact Use protects any recreational or other water uses in which contact with the water is either incidental or accidental and in which the probability of ingestion of appreciable quantities of water is minimal. Most of the CAWS is currently classified as Secondary Contact Use.

## Course of Action

The CAWS UAA is a comprehensive project, which will depend on the efforts of many stakeholders for success. Illinois EPA outlined the following tasks to be completed as part of the UAA:

- Hire Camp, Dresser & McKee to be the contractor
- Assemble a technical advisory or the Steering Advisory Committee (SAC) to monitor technical aspects and issues throughout the project
- Have public relations elements in the process to insure involvement of stakeholders
- Solicit and assemble data from government, industry and public sources
- Analyze the data
- Make a determination of attainable uses in the CAWS
- Devise master plan to achieve the most desired attainable scenario
- Perform economic evaluation of selected remedies and adjust master plan accordingly
- Implement the Plan after approval by stakeholders and the Illinois Pollution Control Board

## Potential Outcomes

The UAA analysis could result in a wide variety of outcomes. Some possibilities are listed below.

- No change-incidental and accidental contact, fish passage and navigation
- Swimmable and fishable in all respects
- Seasonally swimmable
- Dry weather swimmable
- No swimming, but protected for such

- Aquatic life reproduction
- Aquatic life passage and survival without reproduction
- Fish consumption advisories

## Project Duration and Status

The CAWS UAA contract was signed in February 2003. The project is expected to be complete in May 2004. The following tasks have been completed.

- CDM contract signed Jan 27th
- January 30th meeting to discuss health issues in the waterways
- February 11th internal kickoff meeting
- February 25th site visit to the Calumet-Sag area
- Meeting with MWRD, FCR, Port Development & Safety Council
- Prepared project work plan
- Prepared public health pamphlet and advisory sign
- Prepared project mailing list
- Prepared for first series of public meetings
- Development of project web site
- Met with MWRD modeler
- Helicopter flyover
- Data acquisition meeting
- Meeting to discuss health advisory posting/pamphlet
- Held first Stakeholder Advisory Committee meeting
- June 25th waterway use survey

## Contacts and Other Resources

The following contacts are available for questions and concerns related to the CAWS UAA. Public statements are collected and are taken into consideration throughout the duration of the project.

Rob Sulski
Illinois EPA
rob.sulski@epa.state.il.us
1-(847)-294-4000

Ed Hammer
USEPA
hammer.edward@epamail.epa.gov
1-(312)-886-3019

Ron French
Camp Dresser & McKee, Inc.
frenchrd@cdm.com
1-(312)-346-5228

Additionally, further information is available on the project website:

www.chicagoareawaterways.org

Future public meetings are scheduled for September 2003 and March 2004. The September 2003 public meetings will be held in Evanston, Palos Heights, and Chicago. The location of the March public meeting will be determined. Locations for the meetings were determined based on area interest, availability of affordable facilities, and accessibility.

Public meetings are intended to be flexible in both frequency and location to accommodate the special needs of any party interested in the UAA. The UAA project team is dedicated to maintaining open lines of communication with all interested parties and will hold additional meetings upon request.

## Discussion

A summary of participant comments and responses is included in the following sections. This portion of the minutes is subdivided by the location of the meeting to communicate the regional concerns and issues. The Thompson Center meeting, held on June 24, 2003 is discussed first, followed by the meeting at Windjammer Marina on June 25, 2003.

## Thompson Center Public Meeting

Chicago's Thompson Center Public Meeting occurred June 24, 2003 at 7:00pm. Twenty-three people attended the meeting. The following is a summary of the discussions at the meeting.

*Clean Water Act*

The CWA states that uses occurring on or after 1975 will be protected. The CAWS water quality has improved since 1975, and the CAWS UAA study is considering a potential upgrade. Therefore, the protection of the uses before 1975 will not be an issue. Often, the 1975 clause is critical during UAA studies that explore potential downgrades for waterway systems.

The CWA encourages waterway uses to be that which the pubic desires. For that reason, the public is encouraged to provide feedback throughout the CAWS UAA process.

*Ownership and Navigation*

The MWRD owns the majority of the land along the CAWS. However, many private docks have been built along the waterway. Increasing public access to the CAWS and solving navigational competition will not be addressed in the CAWS UAA. The focus of the study is to protect the CAWS water quality for existing and potential uses.

*Fish*

The fishermen are aware of fish advisories. Advisories are given to all who receive fishing licenses.

*Study Area*

The Skokie Lagoons are not apart of the CAWS UAA. The Skokie Lagoons are designated as General Use waterway and are subject if necessary to a different type of approach called a Total Maxim Daily Load (TMDL).

Bubbly Creek is a Secondary Contact Use waterway and will be addressed in this study.

*Sediment*

Dredging the CAWS is one possible way to remove the sediment and will be considered. However, dredging is costly and it would be difficult to find a location for the enormous volume of removed sediment.

One attendee recommended that the sediment could be placed with the MWRD's sediment. However, the MWRD does not have a location for sediments. It has a location for sludge.

*Public Use*

One attendee expressed concern over the use categories. Canoeing is an existing use, which is protected by the Secondary Contact Use classification. However, canoeists often have direct

contact with the water. The attendee suggested that a new category be formed that describes contact experienced by canoeists.

Attendees observed many people canoeing, kayaking, and playing along the CAWS. Also, some community organizations get into the waterway while cleaning it.

One commercial boating representative stated that three people where pulled out of the CAWS the day of the meeting, July 24, 2003. It is a common occurrence to see people fully submerged in the waterway system. The number of people swimming in the CAWS has increased in recent years.

One attendee suggested that emergency shower stations be placed along the CAWS, so when people do contact the water they can immediately rinse.

*Combined Sewer Overflows (CSO)*
During storm events, the WRP cannot handle the sudden increase of flow and the excess combined sewer flow is bypassed into the waterway system untreated. During these heavy rain events, condoms are often seen floating in the CAWS.

For decades only a fraction of an inch of rain would cause CSOs and flooding of rivers and basements. The long-term plan to elevate the CSOs and flooding problems is the Tunnel and Reservoir Plan (TARP). Some of the TARP system is already on line and CSO events have been reduced. When TARP in completed in about 2015, the CSOs should be controlled.

*Data*
CDM has a large amount of data on the CAWS. About 90% of the data requested from community and government agencies have been collected. Data is only accepted if it has gone though a rigorous quality assurance and quality control process.

Much of the data originated from MWRD, US Army Corp of Engineers, Friends of the Chicago River, Midwest Generation, US Geological Survey, Illinois State Water Survey, Illinois Department of Natural Resources, Illinois EPA, and USEPA.

Flow and rain data will be incorporated into the model to simulate the CAWS water quality parameters during wet weather events, dry weather events, and seasonal conditions.

*Water Quality*
The majority of the CAWS has a Secondary Contact Use designation. High bacteria counts in the CAWS is one of the reasons that the waterway is labeled as Secondary Contact Use. The high bacteria counts in the CAWS originate from several sources including the MWRD's water reclamation plants (WRP) and Chicago area storm water runoff. However, it is possible that disinfection of the MWRD WRP effluent will not solve the bacteria problem in the CAWS. The CAWS has unique flow patterns, velocities, and runoff that could prohibit the possibility of acceptable bacteria counts for General Use.

Several possibilities will be evaluated in the model. Some of the results of the model will be presented during the September public meetings.

## Windjammer Marina Public Meeting

The Windjammer Marina Meeting occurred June 25, 2003 at 7:00pm. Fourteen people attended the meeting. The following is a summary of the meeting's discussion topics.

*Grand Calumet River*

One attendee was concerned about the pollution originating from the state of Indiana. Indiana Harbor has been a contributor to the pollution of the Grand Calumet River. The attendee suggested that a dam should be constructed at the Illinois/Indiana border on the Grand Calumet River to prevent future pollution to the Illinois section of the river.

The Illinois EPA conceded that about ten years ago, millions of gallons of raw sewage was discharged into the Grand Calumet River from Hammond, IN. However, a Federal lawsuit has taken care of much of that pollution source.

An attendee recommended dredging the Grand Calumet River. The Illinois EPA will consider that as an option. However, dredging is costly and it would be difficult to find a location for the enormous volume of sediment.

*Course of Action*

The attendees were concerned with the budget, time span, and expected results of the project. In the past, clean up of the waterways in the area were disregarded because of the high cost.

Funding will continue to be made available because the water quality standards are protected under the CWA. A significant remedy, TARP, continues to be constructed. However, because the costs are enormous, the full remedy will not be applied over night.

The CAWS UAA has an aggressive schedule with an expected completion date of Spring 2004. Funding for the CAWS UAA has already been set aside.

The CAWS has improved drastically during the last thirty years. The improvements have been a result of government agencies and community organizations working on CAWS improvement projects. Because of these improvements, the CAWS UAA will produce an action plan based on the evaluation of the established beneficial uses and water quality criteria.

*Smell*

Some attendees described an unpleasant smell in the area. The Illinois EPA explained that the smell is likely coming from the area landfills. Odor should not be a problem from the landfill. However, if it is, witnesses should file a complaint with the Illinois EPA and the agency will investigate the situation.

*Future Meetings*
The next series of public meetings will be held in September 2003.

# Memorandum

*To:* *Toby Frevert, Illinois EPA*
*Rob Sulski, Illinois EPA*

*From:* *Ron French, CDM*

*Date:* *June 16, 2003*

*Subject:* *Meeting Minutes for The Future of the Chicago Area Waterway System Public Meeting*

The Illinois EPA held three public meetings throughout the Chicago area during May 5 through May 9, 2003 to introduce and discuss the Chicago Area Waterway System (CAWS) Use Attainability Analysis (UAA). A meeting was held in Evanston on May 5, in Palos Heights on May 6, and on Lake Calumet on May 8, 2003. The meeting agendas consisted of the following items:

- Brief History of CAWS
- Explanation of UAA
- Course of Action
- Potential Outcomes
- Project Duration and Status
- Contacts and Additional Resources
- Discussion

Each agenda item is discussed in detail in the following sections. The agenda was established to educate the public and receive feedback from the public on the direction and goals concerning the CAWS UAA. The following sections, excluding the Discussion section, apply to each of the public meetings. The Discussion section, which summarizes participants' comments and concerns, is subdivided by meeting location to communicate the regional concerns regarding the CAWS UAA project.

## Brief History of Chicago Area Waterway System

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- 1837: Chicago incorporated as a city with over 4,000 residents.
- 1856: Sewer construction begins.
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- 1900- 1922: The main channel of Chicago Sanitary & Ship Canal completed and Cal-Sag Cannel completed.
- Late 1930's: The Calumet, Stickney and North Side Wastewater treatment plants were completed.
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- 1980's: Millions of dollars awarded in grant and revolving loans to upgrade sewers and treatment plant.
- 1982: Fecal coliform water quality standard repealed for Secondary Contact Waterways.
- 1985: One billion gallon TARP mainstream tunnel began operating.
- 1988: First upgrades of some Secondary Contact waters - Calumet River upstream of O'Brien Lock and North Sore Channel above North Side effluent.
- 1992: First River Rescue Day held.
- 1994: Last of five existing SEPA station put into operation.

- 1999: City of Chicago publishes their Chicago River Development Corridor Plan.
- 2000: Lower Des Plaines UAA begins.
- 2001: Southeast side environmental and community groups endure a *Vision for Lake Calumet.*
- 2002: MWRD "Big Three" and Chicago NPDES Permits reissued with significant CSO language.
- 2003: Chicago Area Waterway UAA begins.

## Explanation of Use Attainability Analysis

### Clean Water Act

The Clean Water Act (CWA) says, "It is the nation's goal that wherever attainable, water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water (swimming and fishing) should be achieved." Water quality standards are adopted to protect designated uses. For example, if water quality standards for swimming are attainable, then a standard for bacteria levels in the water must be established to allow for such a use.

Improvements in the CAWS have enhanced the water quality and caused more usage of the waterways. When the water quality improves and waterway uses change, the CWA requires that designated uses be upgraded if achievable. New or revised water quality standards shall be established considering the designated use and value of the following:

- Public water supply
- Propagation of fish and wildlife
- Recreational purposes
- Agricultural, industrial and other purposes
- Navigation

Other federal regulations that will influence the study include the following:

- Downstream water quality standards shall not be affected.
- Sub-categories of uses may be allowed.
- Uses are attainable if they can be achieved through best available technology or effluent limits.

- Opportunity for public hearing is required to add or remove any use or establish sub-categories of uses.
- Seasonal uses with less stringent seasonal standards may be used in lieu of reclassification.
- Uses existing on or after November 28, 1975 may not be removed.

### Use Attainability Analysis

The state must conduct a UAA if the state has designated or will designate a use inconsistent with the CWA. Currently, the CAWS classification is inconsistent with the CWA. A UAA is a structured scientific assessment of the factors affecting the attainment of the use, which may include physical, chemical, biological, and economic factors.

There are many competing uses in the CAWS. For example, some citizens want to canoe while other citizens have businesses that depend upon commericial traffic. Users need to communicate and compromise to insure protection of all waterway uses.

Factors that may used to argue that a designated use is not attainable are:

1) Natural pollution

2) Flow conditions

3) Human caused conditions that would cause more environmental damage to correct than to leave in place

4) Hydrologic modifications not feasible to restore or to alternatively operate

5) Physical conditions related to natural features

6) Substantial and widespread economic and social impact

### Illinois Water Quality Standards

Use designations in Chicago Area inland waterways are either General Use or Secondary Contact Use. General Use standards protect the State's water for aquatic life, wildlife, agricultural use, Secondary Contact Use and most industrial uses and ensure the aesthetic quality of the aquatic environment. Primary Contact is also a protected General Use.

Primary Contact Use refers to any recreational or other water use in which there is prolonged intimate contact with the water involving considerable risk of water ingestion in quantities sufficient to pose a significant health hazard.

The Secondary Contact Use is intended for those waters not suited for General Use activities but are capable of supporting an indigenous aquatic life. Secondary Contact Use protects any recreational or other water uses in which contact with the water is either incidental or accidental and in which the probability of ingestion of appreciable quantities of water is minimal. Most of the CAWS is currently classified as Secondary Contact Use.

## Course of Action

The CAWS UAA is a comprehensive project, which will depend on the efforts of many stakeholders for success. Illinois EPA outlined the following tasks to be completed as part of the UAA:

- Hire Camp, Dresser & McKee to be the contractor
- Assemble a technical advisory or the Steering Advisory Committee (SAC) to monitor the technical working thought out the project
- Include public relations expertise to insure constant involvement of stakeholders
- Solicit and assemble data from government, industry and public sources
- Analyze the data
- Make a determination on what uses are existing and attainable in CAWS
- Devise master plan to achieve the attainable uses
- Perform economical evaluation of selected remedies and adjust master plan accordingly
- Implement the Plan after approval by stakeholders and Illinois Pollution Control Board

## Potential Outcomes

The UAA analysis could result in a wide variety of outcomes. Some possibilities are listed below.

- No change-incidental and accidental contact, fish passage and navigation
- Swimable and fishable in all respects
- Seasonally swimable
- Dry weather swimable
- No swimming, but protected for such

- Aquatic life reproduction
- Aquatic life passage and survival without reproduction
- Fish consumption advisories

## Project Duration and Status

The CAWS UAA contract was signed in February 2003. The project is expected to be complete in May 2004. The following tasks have been completed.

- CDM contract signed Jan 27th
- January 30th meeting to discuss health issues in the waterways
- February 11th internal kickoff meeting
- February 25th site visit to the Calumet-Sag area
- Met with MWRD, FCR, Port Development & Safety Council
- Prepared project work plan
- Prepared public health pamphlet and advisory sign
- Prepared project mailing list
- Prepared for public meetings
- Development of project web site
- Met with MWRD modeler
- Helicopter flyover
- Data acquisition meeting
- Meeting to discuss health advisory posting/pamphlet
- Held first Stakeholder Advisory Committee meeting

## Contacts and Other Resources

The following contacts are available for questions and concerns related to the CAWS UAA. Public statements are collected and are taken into consideration through out the duration of the project.

Rob Sulski
Illinois EPA
rob.sulski@epa.state.il.us
1-(847)-294-4000

Ed Hammer
USEPA
hammer.edward@epamail.epa.gov
1-(312)-886-3019

Ron French
Camp Dresser & McKee, Inc.
frenchrd@cdm.com
1-(312)-346-5228

Additionally, further information is available on the project website:

www.chicagoareawaterways.org

Future public meetings are scheduled for June 2003, September 2003, and March 2004. The June 2003 public meetings will be held in downtown Chicago at the Thompson Center and in the South Side of Chicago at the M&M Windjammer Marina. The September 2003 public meetings will be held in Evanston, Palos Heights, and Chicago. The location of the March public meeting will be determined. Locations for the meetings were determined based on area interest, availability of affordable facilities, and accessibility.

Public meetings are intended to be flexible in both frequency and location to accommodate the special needs of any party interested in the UAA. The UAA project team is dedicated to maintaining open lines of communication with all interested parties and will hold additional meetings upon request.

## Discussion

A summary of participant comments and responses is included in the following sections. This portion of the minutes was subdivided by the location of the meeting to communicate the regional concerns and issues. The Evanston meeting, held on May 5, is discussed first, followed by the meeting in Palos Heights on May 6 and then the meeting near Lake Calumet on May 8.

### Evanston Public Meeting

The Evanston Public Meeting occurred May 5, 2003 in the Evanston City Council Chambers of Civic Center at 7:00pm. Thirty-two people attended the meeting. The following is a summary of the discussions at the meeting.

*Stakeholder Definition*
A stakeholder is any one with an interest in the outcome of the project. All are encouraged to be involved.

The Stakeholder Advisory Committee (SAC) consists of stakeholders that are technically knowledgeable representatives of government, industry and community groups concerned with the CAWS UAA and who have an interest in decisions being made for these waterways. These representatives are invited to monthly SAC meetings. However, any interested party who wants to be involved is welcome to attend. The SAC was formed to provide stakeholder input and guidance throughout the CAWS UAA process.

*Health Concerns*
Rob Sulski of Illinois EPA explained that the purpose of the recent health advisory for Secondary Contact waterways is to educate the public on the potential health risks associated with contact of such waters. The January 30th, 2003 UAA meeting explored the possibility that individual citizens may not be aware of or fully appreciate the potential physical obstacles or bacterial organisms which could cause harm or illness within the Secondary Contact waterways. Participants of the January 30th meeting concluded that the public should be notified of the potential health and safety risks associated with waterway usage and formed a Health Advisory Committee to address the issue. As a result, the Health Advisory Committee and the Illinois EPA are preparing a health advisory that consists of a sign and a pamphlet for public posting and distribution.

One public concern was that a health advisory would create fear of the CAWS and decrease sales for boat rental companies and other organizations that encourage water recreation. The Health Advisory Committee has discussed that issue and will be sensitive to that concern. An attendee recommended researching similar advisories that have successfully used positive statements when educating the public about potentially hazardous waterways.

One attendee suggested that the health advisory be educational. The health advisory could be misinterpreted as a caution for drowning instead of a caution of water quality risks. The health advisory will be worded so that the purpose for the warning is clear.

The public expressed concern about the risk involved in contacting Secondary Contact Use waterways. One attendee contracted Giardia from paddling. Another attendee reported an event in which a mother and a child swam in the river, and as a result suffered from dysentery and vomiting. Many people paddle the CAWS and inevitably get wet. Also attendees have witnessed several children and adults playing, fishing, canoeing, kayaking, and sculling in the water. The Riverside Neighbors are regularly in contact with the water when working on erosion control and beautification projects. Additionally, people have been observed eating ducks from the river. Schools have access and perform experiments on the river. An attendee concluded that contact with the CAWS is apart of the communities' everyday life.

Currently, no study details an accurate health assessment of the waterways, but a wide variety of illnesses can possibly be contracted from water contact. The current Secondary Contact Use classification of CAWS does not protect for close contact with the water. If someone becomes sick after being in contact with the CAWS, the person should notify his/her physician of the water contact. The Health Advisory is being created to educate the public on this issue.

*Data Collection*
The Project team is currently collecting recreational data. Additional comments may be sent to the contacts.

A note taker is recording the discussion during the meetings. Meeting minutes will be distributed to all interested attendees and posted on the project website.

*How Changes are Executed*
The UAA process will make a determination on a use for a particular CAWS reach or group of reaches. A reach is a waterway segment in which the water characteristics are similar. After a use is determined, the project team will assertain whether the use is protected. Finally, the project team will lay out a plan for revising use designations and protecting such revised.

*Cost*
If the UAA results in a change in the use classification of the CAWS, the implementation measures necessary to affect the change, including funding options, will be researched as part of the UAA project. Implementation measures, such as disinfection or retrofit, may be funded through taxes, fines, or both. Generally, the taxes appear as an additional fee on a sewer or water bill. An example of an imposed fine includes, those given to people who do not curb their dogs in a dog curbing area. The economic impacts will be presented and discussed with the stakeholders as part of the UAA process.

*Disinfection*
The water quality and economic impacts of disinfection will be explored during the UAA. However, the type of disinfection will not be addressed. If disinfection is apart of the UAA's conclusion it is the responsibility of the wastewater discharger in conjunction with the IEPA to determine appropriate disinfection strategies.

In the past, wastewater treatment processes used chlorination to disinfect; therefore, chlorine was present in the waterways, which caused harm to some life forms. Today, chlorination is always coupled with a dechlorination process that removes the chlorine from the reclamation plant's effluent before it is released into the waterway.

One attendee articulated that the MWRD offers wastewater treatment at a lower cost then other large cities. Therefore, the MWRD has room to increase costs, which could pay for disinfection or other process improvements.

*Flow and TARP*
The Chicago area sewer system is composed almost entirely of combined sewers. Combined sewer collection systems consist of one sewer pipe network that collects domestic wastewater, industrial wastes, and stormwater runoff. If, during storms, the combined wastewater and runoff exceeds the capacity of the treatment plant, the overflow is bypassed directly to the CAWS without treatment. This excess results in significant pollution, and creates potential health hazards for downstream users. To alleviate this problem, the Chicago area is implementing the Tunnel and Reservoir Plan (TARP). Under this plan, huge underground tunnels and surface reservoirs intercept combined sewer overflow and hold it for later full treatment prior to release to the waterway. The tunnel components of TARP are nearly completed. The reservoirs are scheduled for completion in 2017.

MWRD's permits require informing the public when overflow events occur. The plan for fulfilling this requirement is currently under review.

The flow in the North Shore Channel below Howard Street is dominated by effluent from the MWRD North Side wastewater treatment plant. Upstream of the plant, flow is dominated in the warmer months by Lake Michigan water diverted into the channel at Wilmette, or, during rain events, by CSOs. In the colder months, when there is no "discretionary diversion", upstream flow is low or non-existent and water quality is poor. The amount of allowable "discretionary diversion" will continue to decrease in the future.

*Alternatives*
One attendee expressed concern over the impacts of keeping invasive species out of Lake Michigan, such as turning the river anaerobic or boiling the river. Invasive species control is not a task of the CAWS UAA. Invasive species control is presently being discussed by an inter-agency task force being coordinated by the University of Wisconsin Sea Grant institute. Boiling the river of making it anaerobic are, we understand, not alternatives currently being considered by the Task Force.

*Bacteria Data*
An attendee inquired about daily bacteria counts. Daily bacteria counts are not available for the CAWS, however, there is some monthly sampling data.

*Possible Outcomes*
CAWS is a complicated system, but the project team will try to find a feasible solution that will achieve the CWA goal. At these early stages of the study, the outcome cannot be predicted.

Some attendees were unclear on what would be served by setting standards for primary contact, but not designating a swimming use. It is possible that a waterway has the ability to attain the General Use water quality standards. However, the waterway may not be swimmable due to

physical hazards such as commercial traffic, sheet pile walls, or other physical obstacles that create a hazardous environment for swimmers.

*Lower Des Plaines UAA*
The Des Plaines River joins the CAWS at the south end of the system. The lower Des Plaines River is being evaluated in a separate UAA, developed by Illinois EPA, and is not a part of the CAWS UAA project. The use classifications on the lower Des Plaines will not necessarily affect the results of the CAWS UAA. However, the methodologies utilized will be similar and improved upon from experience.

*Waterway Use*
Finally, the attendees discussed waterway use. Rivers do not have designations for 'right of way' with regards to commercial and recreational traffic. Commercial and recreational units seem to cohabitate successfully on the CAWS. However, the rights of the commercial users are protected under federal law while the rights of recreation users are not.

The owner of *River Bikes* was able to get his company started because of good communication with commercial and government agencies associated with the river. Good communication will be emphasized throughout the CAWS UAA.

The *Coke* plants have been all shut down and are therefore not as strongly involved in the CAWS UAA in a stakeholder advisory capacity.

## Palos Heights Public Meeting

The Palos Heights Public Meeting occurred May 6, 2003 at 7:00pm in a Park District Building. Thirteen people attended the meeting. The following is a summary of the meeting discussion topics.

*Public Involvement*
Interested parties can gather information and contribute comments on the CAWS UAA by attending public meetings, e-mailing or calling the contacts listed above, and visiting the project website.

The Illinois EPA held three public meetings during May 5 through May 9, 2003 to introduce and discuss the CAWS. Future public meetings are scheduled for June 2003, September 2003, and March 2004. The June 2003 public meetings will be held in downtown Chicago at the Thompson Center and in the South Side of Chicago at the M&M Windjammer Marina. The September 2003 public meetings will be held in Evanston, Palos Heights, and Chicago. The location of the March public meeting will be determined. Locations for the meetings were determined based on area interest, availability of affordable facilities, and accessibility.

Public meetings are intended to be flexible in both frequency and location to accommodate the special needs of any party interested in the UAA. The UAA project team is dedicated to maintaining open lines of communication with all interested parties and will hold additional meetings upon request.

The June 2003 public meetings were scheduled based on a recommendation of an attendee at this meeting.

*Paddling Community*
A representative of the paddling community described the following conditions and concerns.

Paddlers heavily use the CAWS. The CAWS hosts several events each season with thousands of paddlers, and these events are just a fraction of the users. Approximately 43,000 small boats are registered within the area.

During the Chicago River Flatwater Classic, which is an annual event, 540 people are in contact with the water. The organizer of the event feels responsible for health risks of the participants. To address this issue, the Illinois EPA is in the process of creating a health advisory to educate the public on the potential health risks associated with contact with the waters of the CAWS. The advisory includes caution signs and informational pamphlets.

The paddling community applauds Illinois EPA's efforts on CAWS UAA project and recommends that the CAWS be up graded to General Use. Paddling is an existing condition and is not a Secondary Contact Use activity. Hands and feet are almost always exposed to the water when paddling. Paddlers believe that the waterways can and should be returned to the state in which explorers Joliet and Marquette discovered it.

*CAWS Pollution*
Waterway users notice that the CAWS often has a foul smell, and has floating debris including used tampons and condoms. An attendee inquired about a possibility of a regulation on the size of objects passed into the waterways.

The floating sanitary debris is a result of combined sewer system overflows (CSOs). These CSOs result in significant pollution and create potential health hazards for downstream users. To alleviate this problem, Chicago has implemented the TARP, which is scheduled for completion in 2017.

MWRD's permits required them to inform the public when overflow events occur. The plan for public notification is currently under review.

*Disinfection*
A question surfaced concerning seasonal disinfection. Seasonal disinfection applies to discharges into General Use waterways only. Secondary Contact Use contact waters do not have a bacteria

requirement, therefore, dischargers into such waterways are not required to disinfect. If disinfection becomes a recommendation of the UAA it will be the responsibility of the dischargers to fulfill the disinfection requirement in conjunction with the IEPA permit process with whichever technology they choose.

*Pollution Source*
An attendee tried to get information from the MWRD to determine when the water is safe for paddling. The MWRD could not provide an answer. No one source can confidently state when the CAWS is safe because health risks come from several sources. In addition to CSOs and the MWRD effluent, the CAWS collects urban stormwater runoff, animal waste, and other pollutants.

## Chicago Public Meeting

The Chicago Public Meeting occurred May 8, 2003 in Stefani's at Harborside International Golf Course at 7:00pm. Forty-five people attended the meeting. The following is a summary of the discussions at the meeting.

*Public Outreach*
The first topic of discussion concerned the definition of SAC. The SAC consists of stakeholders, which are technically knowledgeable representatives of government, industry and community groups concerned with the CAWS UAA and who have an interest in decisions being made for these waterways. These representatives are invited to every SAC meetings. However, any other interested party who wants to be involved is also welcome to attend. The SAC was formed to provide stakeholder input and guidance throughout the CAWS UAA process.

Also, additonal public meetings have been added in the downtown Chicago area during late June as recommended by an attendee for the Palos Heights public meeting.

*TARP*
The Chicago area sewer system is composed almost entirely of combined sewers. Combined sewer collection systems consist of one sewer pipe network that collects domestic wastewater, industrial wastes, and stormwater runoff. If, during storms, the combined wastewater and runoff exceeds the capacity of the treatment plant, the overflow is bypassed directly to the CAWS without treatment. This excess results in significant pollution including floating condoms in the river or the "white fish" that some attendees voiced concern. The untreated overflows create potential health hazards for downstream users. To alleviate this problem, the Chicago Area is has implementing the Tunnel and Reservoir Plan (TARP). Under this plan, huge underground tunnels and surface reservoirs intercept combined sewer overflow and hold it for later full treatment prior to release to the waterway. The tunnel components of TARP are nearly completed. The reservoirs are scheduled for completion in 2017.

The MWRD's permits require them to inform the public when overflow events occur. The plan detailing their public notification program is currently being reviewed.

The flow in the North Shore Channel below Howard Street is dominated by effluent from the MWRD North Side wastewater treatment plant. Upstream of the plant, flow is dominated in the warmer months by Lake Michigan water diverted into the channel at Wilmette, or, during rain events, by CSOs. In the colder months, when there is no "discretionary diversion", upstream flow is low or non-existent and water quality is poor. The amount of allowable "discretionary diversion" will continue to decrease in the future.

*Importance of Waterway Use Data*
Currently much of the CAWS is classified as a Secondary Contact Use waterway, which means that no one should intentionally contact the water. The waterway use data will contribute to the designation of the waterway. For example, if only a few people in a limited area are using the entire waterway for contact recreation, it may be more economical to build pools in the neighborhood of those few people. Also, physical barriers like boat and barge traffic might make the CAWS unsafe for swimming. As the data unfolds, the Illinois EPA with the guidance of the stakeholders will have to make critical decisions based on the available water use data.

*Downstream Effects*
The downstream effects of the CAWS are minor. The communities downstream of Joliet have a General Use designation for their waterways, and are using it as the source of their drinking water.

Metals and toxins are not the major problem. Rather, bacteria, dissolved oxygen, sedimentation exceedances and structural and functional habitat limitation appear to be the significant stressors. The bacteria and dissolved oxygen problems dissipate as the water flows downstream. The dissipation of these pollutants is similar to the dissipation of the green dye on the Chicago River. Every St. Patrick's day, the Chicago River is dyed green. However, the river is only green for about a day because the dye dissipates.

*Chicago Area Waterway System (CAWS) Components and Protection*
The CAWS does not include Wolf Lake or Indian Creek because they low flow General Use tributaries of a larger General Use waterway. Lake Calumet is included in the CAWS because it is a Secondary Contact Use waterway. General Use waterways are subject to a different type of corrective approach Total Maximum Daily Loads (TMDL). TMDLs are a federally mandated process under the Clean Water Act. A TMDL consists of a quantitative analysis to determine the greatest amount of a given pollutant that a water body can receive without violating water quality standards and designated uses. More information regarding Illinois' TMDL process is available on the Illinois EPA's website (http://www.epa.state.il.us/water/tmdl/index.html).

The uses of the CAWS will be evaluated during the UAA and the standards will be revised and reset accordingly by the Illinois Pollution Control Board. Once a waterway is designated for a particular use, the Illinois EPA is responsible for the protecting that use.

*Data Sources*
The MWRD, national and state government agencies, Midwest Generation, and others will supply the data to support the UAA analysis. Data includes water quality, sediment, habitat, hydrological, hydrologic, weather and GIS data from the period of 1998 and earlier in some cases, through 2003.

*Pollutants*
All pollutants of concern are listed on the Illinois EPA web site. The MWRD consistently achieves the discharge standards set forth by National Pollutant Discharge Elimination System (NPDES) permits. The MWRD also attempts to alleviate the dissolved oxygen water quality problems by means of In-stream and Side-stream Elevated Pool Aerations (SEPA) stations.

Sediment contamination is mostly a legacy pollution problem. They often resurface because of barge traffic or during storm related scouring action. If necessary and economically feasible, the pollutants will be removed from the river bottoms.

*Interests*
Attendees' agreed that the interests of the waterway should be cooperative and not recreational vs. commercial. Strong meeting representation and communication will be emphasized throughout the UAA to achieve a positive compromise incorporating all interests.

*Health Advisory*
Concerned surfaced about the stigma associated with advisories. The Health Advisory is for educating and reminding the public of commonsense hygiene. The health advisory will be sensitive in language and in presentation.

*Vision of Calumet*
The *Vision of Calumet*, a non-profit organization dedicated to the protection of Lake Calumet's wildlife and other natural resources, would like the entire waterway up graded to General Use. Also, the group has completed their own land use plan for the entire Lake Calumet shoreline. A survey of 250 young people and adults concluded that the community does not use the waterway but would like too.

*Cost*
Funding and staffing for the CAWS UAA is available and will not be a barrier for this project.

*Fishing*
The health effects of eating the fish that live in the CAWS is unknown. Attendees have witnessed people eating fish. The fish seem more healthy and abundant then they have in the past. The consumption of fish is a visible use.

One fisherman reported seeing a lot of beautiful healthy fish. The carp can be as large as 50 lbs, and can eat it's own body weight in three days. The fisherman would like to see an upgrade to the CAWS use classification and the beautification of the entire system.

**Submitted Public Comments**

Two public meeting attendees submitted written comments.

Submitted by Ryan Chew of *Chicago River Canoe and Kayak* during the Evanston Public Meeting: I want to thank IEPA for undertaking this project. I run a boat rental business that has put roughly 7,000 people on the water in our first two years. Our customers enjoy the natural setting of the Ravenswood Manor stretch of the North Branch, its herons, kingfishers and turtles, as well as the chance to see the urban visions of Chicago from the river. While fewer than one in one hundred of our paddlers fall in, it does happen. We also see many other paddlers put in at our launch or pass by us. For the sake of all of these people in the paddling community, we support efforts to improve water quality in the Chicago Waterway System.

Victor Crivello of *Vision for Lake Calumet* submitted a report entitled *A 21st Century Vision for Lake Calumet: A Sustainable Future for Industry, Wildlife, and the Public* during the Chicago Public meeting. The report will be available upon request and will be posted on the project website.