Status of Chicago Area Waterway System Use Attainability Analysis Hearings Before the Illinois Pollution Control Board

Thomas C. Granato
Acting Director of Monitoring & Research
Presentation Overview

- UAA Process
- Timeline
- Studies Conducted to Inform Process
- ALU
  - IEPA Proposal
  - MWRD Proposal
  - Current Status
- Recreational Use
  - IEPA Proposal
  - IPCB Final Order
  - Current Status
Use Attainability Analysis

- **40 CFR 131.3(g):** Use attainability analysis is a structured scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological and economic factors as described in § 131.10(g).

- **40 CFR 131.10(j):** A State must conduct a use attainability analysis as described in 131.3(g) whenever:
  1. The State designates or has designated uses that do not include the uses specified in section 101(a)(2) of the Act, or
  2. The State wishes to remove a designated use that is specified in section 101(a)(2) of the Act or to adopt subcategories of uses specified in 101(a)(2) of the Act which require less stringent criteria.
Use Attainability Analysis (UAA) of the Chicago Area Waterway System (CAWS)

- Required by Clean Water Act if use is other than fishable/swimmable
- Consider physical, chemical, biological, and economic factors
- Commenced in 2002
- CAWS UAA
  - 20 Stakeholder meetings, 12 public meetings
  - District provided almost all of the data for UAA evaluation
  - District undertook several major projects suggested by IEPA
- Draft UAA released to stakeholders in February 2005
- IEPA proposal submitted Oct 2007 to IPCB docket R08-9
- Hearing commence January 2008 (50 days of hearings to date)
- IPCB splits R08-9 into Subdockets A-D in March 2010
“Exception Factors”

“Wherever attainable” waters of the US must be “fishable, swimmable,” unless one of the following 6 factors applies:

1) Naturally occurring pollutant concentrations prevent attainment of use
2) Natural, ephemeral, intermittent, or low flow conditions or water levels prevent the attainment of the use...
3) Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place
4) Dams, diversions or other types of hydrologic modifications preclude the attainment of the use and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use
5) Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses
6) Controls would result in widespread economic and social impact
District Studies that Informed the Process

- **1998**: CDOM Program Commence
- **2000**: Kickoff September 5, 2002, Stakeholder Process Initiated
- **2002**: *FC in CAWS, R&D 05-15
  *Expert Review of Technology & Probable Cost
- **2003**: Duflow Model Development by Marquette University Commences
- **2004**: Ambient Water Quality Monitoring Program
- **2005**: CSO Impact Report 05-1D
District Studies that Informed the Process

*Expert Review of 1986 Criteria
*TM-3WQ, End of Pipe Treatment CSO's
*IEPA Draft, October 2006

2006

• 3-D Modeling Commenced

2007

*TM-4WQ Supplemental Aeration in North & South Branch
*TM-5WQ Flow Augmentation in UNSC
*TM-6WQ Flow Augmentation & Supplemental Aeration Bubbly Creek

2008

*Assessment of Environmental and Economic Impacts of Compliance with R08-9
*Recreational Risk Assessment Final Report

2009

Operating SEPA to Meet Proposed Stds

2010

• Disinfection Costs Updated
* Bubbly Creek SOD Study
* Habitat Reports

*TM-7WQ Develop Framework for Integrated Strategy for CAWS
*Risk Assessment Interim Dry Weather Report
*FC in CAWS, Dry & Wet Weather 04,05,06 R&D 07-79
IEPA Recommendation for Aquatic Life Use Designation & Criteria

- Aquatic Life Use relates to “fishable” goal of Clean Water Act. Water quality standards should identify aquatic life use potential and include criteria to protect it in the water body.

- IEPA’s UAA Finds Limitations to Aquatic Life Use in Chicago River Still Exist
  - IEPA invoked UAA Factors 3, 4, and 5 to explain limited use designations:
    3) Human caused (CSOs, contaminated sediments)
    4) Dams or other hydrologic modifications (flow completely controlled to maintain navigation and prevent flooding);
    5) Physical conditions related to natural water body features (channelized, steep banks, homogeneous substrate, commercial navigation, lack of cover/emergent vegetation)

- Findings
  - The CAWS have “unique habitat conditions.” “Such conditions are not reversible in the foreseeable future,” and prevent “maintaining a biological condition that meets the Clean Water Act’s Aquatic Life goal.”
Proposed Aquatic Life Uses

Chicago Area Waterway System Aquatic Life Use A

March – Nov: 5.0 mg/L
Dec – Feb: 3.5 mg/L
7-day mean of min: 4.0 mg/L

Chicago Area Waterway System Aquatic Life Use B

Minimum: 3.5 mg/L
7-day mean of min: 4.0 mg/L

Upper Dresden Island Pool
Storm water filtered by the flood plain before replenishing the river, resulting in fewer contaminants and less bank erosion.

Differing depths, widths, flow velocities, and bends. This variety supports diverse biotic assemblage. Shallow areas allow light to penetrate for aquatic plant growth, which provides shelter and feeding area for fish.

Variable sediment particles support diverse aquatic invertebrates. Coarse sediments more stable.

Little or no vegetated riparian zone. Combined and storm sewers convey and discharge storm water directly to river through outfalls.

Channelized basins have few shallow areas, relatively constant width and low flow velocity, with few bends. Aquatic plant growth and fish shelter minimal. Lack of riffles and pools limit more sensitive biota.

Homogenous fine sediment deposits dominate. More likely enriched with contaminants.
Realities of the System:
Impervious Surfaces

Counts
HUC 10 Watersheds
2001 % Imperviousness
High : 100
Low : 0
Imperviousness from 2001 National Land Cover Dataset
Habitat Assessment of the CAWS

- Assess physical habitat characteristics
- Develop Habitat index specific to the CAWS
- Habitat Index & fish data used to assess relative importance of physical habitat compared to other WQ factors
- Navigation also found to be limiting aquatic life uses
- Assess if the feasible habitat improvements could lead to improvements in the fish community
Findings of Habitat Improvement Report Relative to Dissolved Oxygen

- Habitat factors explain most variation in fish
- DO less important factor than physical habitat (changing DO levels will not positively impact aquatic life)
- Making feasible changes in CAWS habitat is unlikely to improve fish community significantly
- Goal should be to protect current fish assemblage – more stringent DO standards will not make any difference in aquatic community
- Goal to have sustainable populations of game fish species that can tolerate permanent habitat features in the CAWS, e.g. Largemouth bass and other sunfish
The current fish community consists of a select group of tolerant or moderately tolerant species.

- These fish represent 92% of the total number (25,493) of fish collected in the CAWS from 2001 to 2008.
- Less than 2% of the total fish collected were intolerant.
## Habitat Evaluation and Improvement Study Results

<table>
<thead>
<tr>
<th>Reach</th>
<th>CAWS Habitat Index Score</th>
<th>Potential Index Score After Habitat Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper North Shore Channel</td>
<td>75</td>
<td>80</td>
</tr>
<tr>
<td>Lower North Shore Channel</td>
<td>60</td>
<td>71</td>
</tr>
<tr>
<td>Upper North Branch Chicago River</td>
<td>49</td>
<td>58</td>
</tr>
<tr>
<td>Lower North Branch Chicago River</td>
<td>47</td>
<td>56</td>
</tr>
<tr>
<td>Chicago River</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>South Branch Chicago River</td>
<td>34</td>
<td>47</td>
</tr>
<tr>
<td>Bubbly Creek</td>
<td>37</td>
<td>48</td>
</tr>
<tr>
<td>Chicago Sanitary and Ship Canal</td>
<td>34</td>
<td>43</td>
</tr>
<tr>
<td>Cal-Sag Channel</td>
<td>37</td>
<td>44</td>
</tr>
<tr>
<td>Little Calumet River</td>
<td>52</td>
<td>57</td>
</tr>
</tbody>
</table>
District-Proposed Aquatic Life Use Categories

- Modified Warm Water Aquatic Life Waters (Category 1)
- Limited Warm Water Aquatic Life Waters (Category 2)
- Severely Limited Aquatic Life Waters (Category 3)
## Summary of Factors Affecting Use Designations

<table>
<thead>
<tr>
<th>Factor</th>
<th>Category 1</th>
<th>Category 2</th>
<th>Category 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMARY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Habitat Index Score</td>
<td>49-75</td>
<td>34-47</td>
<td></td>
</tr>
<tr>
<td>SECONDARY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Habitat features</td>
<td>Reaches with earthen banks</td>
<td>Generally lack earthen banks, in-stream cover, and lower depth reaches</td>
<td>Stagnant flow conditions during dry weather</td>
</tr>
<tr>
<td></td>
<td>Some in-stream cover</td>
<td>Most commercial navigation in Category 2 Waters</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reaches with lower depths</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Commercial navigation generally low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sediment quality</td>
<td>Majority were non-toxic</td>
<td>Majority in some Category 2 Waters were toxic</td>
<td>Majority were toxic</td>
</tr>
<tr>
<td>Differences in fish community</td>
<td>*CPUE Largemouth Bass = 11.9</td>
<td>CPUE Largemouth Bass = 3.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CPUE Bluegill = 7.2</td>
<td>CPUE Bluegill = 3.8</td>
<td></td>
</tr>
</tbody>
</table>

*CPUE = Catch Per Unit Effort
## Comparison of Segment Categories for Aquatic Life Uses

<table>
<thead>
<tr>
<th>Segment</th>
<th>IEPA (Oct. 2007)</th>
<th>District (May, 2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Shore Channel (NSC)</td>
<td>A</td>
<td>1</td>
</tr>
<tr>
<td>Upper North Branch Chicago River (UNBCR)</td>
<td>A</td>
<td>1</td>
</tr>
<tr>
<td>Lower North Branch Chicago River (LNBCR)</td>
<td>B</td>
<td>2</td>
</tr>
<tr>
<td><strong>North Branch Canal (NBC)</strong></td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Chicago River (CR)</td>
<td>B</td>
<td>2</td>
</tr>
<tr>
<td>South Branch Chicago River (SBCR)</td>
<td>B</td>
<td>2</td>
</tr>
<tr>
<td><strong>Bubbly Creek (BC)</strong></td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Chicago Sanitary and Ship Canal (CSSC)</td>
<td>B</td>
<td>2</td>
</tr>
<tr>
<td>Calumet River (CalR) from Lake MI to Torrence Av</td>
<td>B</td>
<td>1</td>
</tr>
<tr>
<td>Calumet River (CalR) from Torrence to GCR/LCR</td>
<td>A</td>
<td>1</td>
</tr>
<tr>
<td>Lake Calumet (LC)</td>
<td>A</td>
<td>1</td>
</tr>
<tr>
<td>Lake Calumet Connecting Channel (LCCC)</td>
<td>B</td>
<td>2</td>
</tr>
<tr>
<td><strong>Grand Calumet River (GCR)</strong></td>
<td>A</td>
<td>3</td>
</tr>
<tr>
<td>Little Calumet River North (LCRN)</td>
<td>A</td>
<td>1</td>
</tr>
<tr>
<td><strong>Calumet-Sag Channel (CSC)</strong></td>
<td>A</td>
<td>2</td>
</tr>
<tr>
<td>Side channels &amp; boat slips (unspecified)</td>
<td>-</td>
<td>3</td>
</tr>
</tbody>
</table>

Differences between District and IEPA proposals shown in red.
Basis for Proposed District DO Criteria

- Other highly modified urban waters have DO criteria in the range of 1.5 – 2.0 mg/L
  - Milwaukee River
  - Ohio Cuyahoga River Ship Channel
  - Houston Ship Channel
  - Patapsco River
- USEPA DO Criteria Document
  - Acute DO limit for adult life stages is 3.0 mg/L
- Current Illinois General Use DO Standard
  - Minimum of 3.5 mg/L for acute protection of aquatic life
Selection of DO Criteria Levels

- Proposed criteria are more stringent than what is needed to support the existing biotic communities in these segments.
- District is maintaining Illinois EPA’s minimum DO criterion (during dry weather):
  - Category 1
    - District proposes daily minimum DO standard of 4.0 mg/L
  - Category 2
    - District proposes daily minimum DO standard of 3.5 mg/L
  - Category 3
    - Narrative criteria to protect against odors and to protect limited ecological functions and biotic assemblages.
Comparison of DO Criteria Proposals

<table>
<thead>
<tr>
<th>Category</th>
<th>IEPA</th>
<th>District</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum (mg/L)</td>
<td>7-Day Mean of Minima (mg/L)</td>
</tr>
<tr>
<td>A or 1</td>
<td>5.0 (Mar-Jul) 3.5 (Aug-Feb)</td>
<td>4.0 (Aug-Feb)</td>
</tr>
<tr>
<td>B or 2</td>
<td>3.5</td>
<td>4.0</td>
</tr>
<tr>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

District proposal includes a Wet Weather Limited Aquatic Life Use standard that supersedes the criteria above during some defined wet weather impacted periods.
“Early Life Stage Present” Requirement

- Limited physical and modified hydrologic conditions will not support spawning of sensitive fish species that require higher DO.
- No evidence that these species are spawning or could spawn due to habitat limitations.
- If early life stages of more tolerant fish are present, they do not need higher DO.
  - Example: Juvenile largemouth bass can tolerate DO of 2.0 mg/L or periodic hypoxic exposure.
7-day mean of daily minima standard

- Minimum criterion of 4.0 mg/L will protect Category 1 waters
- EPA’s criterion is intended to protect fish communities from predictable consistent daily low DO concentrations that may occur due to diurnal DO fluctuations
  - Diurnal DO fluctuations rarely occur in deep draft waters in the CAWS
  - Low DO is unpredictable, infrequent (at most stations), and transient based on weather conditions
  - Fish are able to avoid the low DO areas caused by wet weather events as evidenced by rare fish kill events
- Standard is not necessary to support the existing biotic community and would not likely improve the community
Basis for Wet-Weather Limited Use Designation

- DO levels are significantly reduced for up to a week in certain reaches
- Existing biotic community appears to tolerate these conditions (no fish kills except for extremely rare occurrences)
- Criteria cannot be met during and for periods after wet weather events
- District is proposing a trigger be established to determine when wet weather limited use applies
- Limited use would apply when: (1) precipitation is more than 0.25 inch; (2) depression of DO below criteria occur during the wet weather event; and (3) DO was above criteria before the event
# The Wet Weather Limited Use (WWLU) Trigger

<table>
<thead>
<tr>
<th>Rainfall (inches)</th>
<th>Time After Day of “Trigger” to Apply WWLU Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;0.25 to 0.49</td>
<td>2 Days</td>
</tr>
<tr>
<td>0.5 to 1.0</td>
<td>4 Days</td>
</tr>
<tr>
<td>&gt; 1.0</td>
<td>6 Days</td>
</tr>
</tbody>
</table>

- In lieu of criteria sources would be subject to appropriate operational requirements set forth in applicable permits (for sources such as MS4s) or Long-term Control Plans (for CSOs)
- The dissolved oxygen criteria would apply all other times
## Estimated Cost of Technologies to Meet IEPA Versus District Proposed DO Standards for the CAWS

<table>
<thead>
<tr>
<th></th>
<th>IEPA Proposal</th>
<th>District Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number Supplemental Aeration Stations</strong></td>
<td>28</td>
<td>2</td>
</tr>
<tr>
<td><strong>Number Flow Augmentation Stations</strong></td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Capital Cost</strong></td>
<td>$594,300,000</td>
<td>$54,300,000</td>
</tr>
<tr>
<td><strong>Annual O&amp;M Cost</strong></td>
<td>$3,900,000</td>
<td>$530,000</td>
</tr>
<tr>
<td><strong>Total Present Worth Cost</strong></td>
<td>$669,900,000</td>
<td>$64,600,000</td>
</tr>
</tbody>
</table>

Level 5 cost estimate using DUFLOW water quality model for 100% compliance. Provided by AECOM
District Financial Impact

- Current capital program at $2.3B
- Priority for TARP and existing Capital Improvement Plan
- Non-Referendum Bond Authority Limited
- Annual tax levy limited
- Additional energy required
Recent Activities

IPCB hearings on May 16-18, 2011

District testimony on

- LimnoTech Habitat Reports
- District proposal for CAWS uses and standards
- Costs to achieve IEPA versus District proposed DO standards
Current Status and Future Direction for Aquatic Life Use Subdockets

- More Aquatic Life Use Designation (Subdocket C) hearings on June 27 and August 15-17
- District currently formulating draft regulatory language to more clearly convey its proposed aquatic life use standards to IPCB
- Several parties have motion before IPCB to stay hearings in Subdocket D scheduled for October 25-27 until first order of rulemaking is issued in Subdocket C
- IPCB would like to complete hearings for all Subdockets of the CAWS UAA by the end of 2011
Incidental Contact Recreation: Human contact with water is incidental and the probability of ingesting appreciable quantities of water is minimal (fishing and paddling).

Non-Contact Recreation and Non-Recreational: Human contact with the water is unlikely, such as pass through commercial navigation, and where physical or hydrologic configurations make direct human contact unlikely or dangerous.

No water quality criteria for bacteria

Effluent bacteria limit of 400 Fecal coliform/100 mL (WRPs to Disinfect)
Proposed Recreational Uses

Primary Contact
2nd Order June 16, 2011

Incidental Contact
is where the probability of ingestion of water is unlikely

Non-Contact
is where human contact with water is unlikely

Non-Recreational
is where no recreational boating is likely
Research Projects/Public Health Studies

- Engineering study to evaluate disinfection technologies and estimate cost of implementation
- Characterize fecal coliform content of CAWs during dry and wet weather conditions
- Engineering study to evaluate feasibility and estimate cost of capturing and treating CAWs CSOs
- Conduct expert review of USEPA criteria for developing secondary contact recreation bacteria standards for CAWs
- Conduct assessment of microbial risk of recreating on CAWs with and without effluent disinfection
- Conduct epidemiological study to determine the incidence of illness among recreators that are exposed to the CAWS through secondary contact recreational activities.
Studies to Inform Disinfection

• Expert Review USEPA’s Water Quality Criteria for Bacteria (1986): Application to Secondary Contact Recreation
  • EPA 1986 criteria not suitable for effluent dominated waters
  • Recommendation: perform a risk assessment, epi study
• Risk Assessment – 2005, 2006
• Epidemiology Study (CHEERS) 2007 - 2009
Microbial Risk Assessment of the CAWS

- Evaluated the human health impact of disinfecting versus not disinfecting effluents from three large (250 to 800 mgd) plants.

- Determine the risk of gastrointestinal illnesses from exposure to pathogens from incidental contact recreation during dry and wet weather.

- Pathogens (viruses, protozoa, bacteria) and indicator microorganisms (fecal coliform, *E. coli*, Enterococci) were measured upstream, downstream, and at the outfalls of each plant.

- Canoeing, pleasure boating, and fishing were assessed. Exposure parameters and pathogen concentrations were combined in a probabilistic analysis to derive projected health risk distributions.

- Pathogen concentrations very low and incidental contact recreation results in low probability of developing gastrointestinal illness.

- Study concluded that effluent disinfection would have virtually no effect on overall risk
The Chicago waterway microbial risk assessment study shows no elevated health risk to boaters, fishermen and paddlers.

**Results**

**WHAT IS THE CURRENT RISK OF ILLNESS?**

Total Expected Illnesses per 1,000 Exposures Using Estimates of Pathogen Concentrations

<table>
<thead>
<tr>
<th>Exposure Input</th>
<th>Waterway</th>
<th>North Side</th>
<th>Stickney</th>
<th>Calumet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Weather</td>
<td>0.36</td>
<td>1.28</td>
<td>0.10</td>
<td></td>
</tr>
<tr>
<td>Wet Weather</td>
<td>2.78</td>
<td>2.34</td>
<td>0.36</td>
<td></td>
</tr>
<tr>
<td>Combined Weather Samples</td>
<td>1.53</td>
<td>1.74</td>
<td>0.20</td>
<td></td>
</tr>
</tbody>
</table>

**WITH NO DISINFECTION**

**WITH DISINFECTION**

<table>
<thead>
<tr>
<th>Waterway</th>
<th>North Side</th>
<th>Stickney</th>
<th>Calumet</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Disinfection</td>
<td>1.23</td>
<td>1.74</td>
<td>0.20</td>
</tr>
<tr>
<td>UV Irradiation</td>
<td>1.32</td>
<td>1.48</td>
<td>0.17</td>
</tr>
<tr>
<td>Ozone</td>
<td>1.45</td>
<td>1.65</td>
<td>0.19</td>
</tr>
<tr>
<td>Chlorination</td>
<td>1.43</td>
<td>1.63</td>
<td>0.19</td>
</tr>
</tbody>
</table>

*Includes all primary gastrointestinal illnesses from estimated pathogenic E. coli, Salmonella, enteric viruses, adenoviruses, Calicivirus, Giardia, and Cryptosporidium expected from the waterway exposures.*

*CAWS concentration inputs for the simulations were randomly selected (bootstrap sampled) from the sample data sets.*

**Conclusions**

The microbial health risks associated with non-swimming recreational practices on the CAWS are below the risk threshold that EPA applies to criteria for swimming.

*Disinfection has virtually no effect on overall risk reduction.*
The Chicago Health Environmental Exposure and Recreation Study (CHEERS) was conducted by the University of Illinois – Chicago School of Public Health.

CHEERS is the first US Epidemiology study for fishing, paddling and motor boating conducted on the CAWS secondary contact water. Modeled after US EPA’s National Epidemiological and Environmental Assessment of Recreational Water (NEEAR) study and the CHEERS was independently peer reviewed by selected USEPA, Academia, consultants, Center for Disease Control (CDC) personnel.

Study recruited 11,297 participants including recreators on the CAWS and General Use waters (such as Fox and Des Plaines Rivers, forest preserve lakes, Lake Michigan) over three recreation seasons from 2007 through 2009.

### Illness Cases Compared with Non-Water Recreation (UNX) as the Reference Group

<table>
<thead>
<tr>
<th>ILLNESS PER 1,000</th>
<th>Gastrointestinal</th>
<th>Eye Symptoms</th>
<th>Respiratory</th>
<th>Skin</th>
<th>Ear</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAWS</td>
<td>12.5</td>
<td>15.5*</td>
<td>-1.6</td>
<td>-4.7</td>
<td>2.4</td>
</tr>
<tr>
<td>GUW</td>
<td>13.4</td>
<td>5.4</td>
<td>1.7</td>
<td>-11.1</td>
<td>1.6</td>
</tr>
</tbody>
</table>

*CAWS mild eye symptoms - comparable to GUW with hand washing adjusted analysis*

- Study found no difference in the disease risk to recreators between CAWS, where effluents are not disinfected and recreators in GUW where effluents are disinfected or where no effluent is discharged.
- There was no relationship between high level of bacteria and occurrence of disease among people who recreated on the CAWS.
- The disease causing bacteria which are responsible for symptoms like vomiting or diarrhea among people who use the CAWS for recreation were not detected.

**GUW:** Lake Michigan, several small inland lakes (Busse, Crystal, Skokie Lagoons, Tampier, and others), and area rivers (Des Plaines, Fox, DuPage).

**UNX:** outdoor recreational activities that do not involve water (jogging, walking, cycling, playing sports). These individuals are recruited at locations and times that coincide with recruiting CAWS and GUW participants.
Sources of Bacteria

- Bacteria associated with fecal origins are present in the environment and are not unique to CAWS (USGS, 2010)
Status of Subdocket A
Recreational Use Designations

- Docket Closed and First Notice of Rulemaking was issued by IPCB in August 2010 (adopted IEPA’s proposed uses)
- USEPA issues letter to IEPA on May 11, 2011 indicating intent to exercise discretionary authority to impose primary contact use designations on most of the CAWS
- IPCB Second Notice on Subdocket A (Recreational Uses) issued June 2, 2011 incorporated USEPA’s recommendations and allows one week for comments.
- IPCB needs to complete JCAR review and issue final notice of rulemaking by August to comply with state statutes
Status of Subdocket B
Effluent Limitations (Recreational Criteria)

- Docket closed February 2011 IPCB deliberating on first notice of rulemaking
- USEPA May 2011 letter directs IEPA to establish protective water quality criteria for new primary contact use designation (not currently included in the subdocket)
- MWRD Board of Commissioners voted 8-1 to pursue disinfection at North Side, Calumet WRPs on June 7, 2011
  - Capital cost is $240 million, $26 million annual O&M
  - The District will hold public meetings to inform and hear from affected taxpayers and businesses
  - District has requested stay of first notice of rulemaking from IPCB in Subdocket B until meetings with public, IEPA and USEPA are conducted.