UAA Factor Application to the Lower Des Plaines River and CAWS

UAA Factor Applications to CAWS and Lower Des Plaines River

Waterway			Recreational Use		Aquatic Life Use	
Reach	Beginning	Ending	UAA Factors	Attainable Use	UAA Factors	Attainable Use
Upper NSC	**Willmete PS**	**N. Side WRP**	**3**	Incidental Contact Recreation	**3, 4, and 5**	CAWS Aquatic Life Use A
Lower NSC	**N. Side WRP**	**NBr**	**3**	Incidental Contact Recreation	**3, 4 and 5**	CAWS Aquatic Life Use A
Upper NBr	**NSC**	**NBr Turning Bsn S**	**3**	Incidental Contact Recreation	**3, 4 and 5**	CAWS Aquatic Life Use A
Lower NBr	**NBr Turning Bsn S**	**ChgoR**	**3**	Incidental Contact Recreation	**3, 4 and 5**	CAWS & Brandon Pool Aquatic Life Use B
ChgoR	**Chgo Lock**	**NBr**	**3**	Incidental Contact Recreation	**3, 4 and 5**	CAWS & Brandon Pool Aquatic Life Use B
SBr	**ChgoR**	**CSSC**	**3**	Incidental Contact Recreation	**3, 4 and 5**	CAWS & Brandon Pool Aquatic Life Use B
SFk SBr	**Racine Ave. PS**	**SBr**	**3**	Incidental Contact Recreation	**3, 4 and 5**	CAWS & Brandon Pool Aquatic Life Use B
Upper CSSC	**SBr**	**CSC**	**3**	Incidental Contact Recreation	**3, 4 and,5**	CAWS & Brandon Pool Aquatic Life Use B
Lower CSSC	**CSC**	**LDPRBrand**	**3**	Non-Recreational	**3, 4 and 5**	CAWS & Brandon Pool Aquatic Life Use B

UAA Factor Applications to CAWS and Lower Des Plaines River

Waterway			Recreational Use		Aquatic Life Use	
Reach	Beginning	Ending	UAA Factors	Attainable Use	UAA Factors	Attainable Use
Upper CalR	**CalHbr**	**Torrence Ave.**	**3 and 4**	Non-Contact Recreation	**3, 4 and 5**	CAWS & Brandon Pool Aquatic Life Use B
Middle CalR	**Torrence Ave.**	**O'Brien L&D**	**3**	Incidental Contact Recreation	**3, 4 and 5**	CAWS Aquatic Life Use A
Lower CalR	**O'Brien L&D**	**Grand CalR**	**3**	Incidental Contact Recreation	**3, 4 and 5**	CAWS Aquatic Life Use A
LakeCal	**HbrVw GC**	**126th St.**	**3**	Incidental Contact Recreation	**4 and 5**	CAWS Aquatic Life Use A
LakeCal CC	**126th**	**CalR**	**3**	Incidental Contact Recreation	**3, 4 and 5**	CAWS & Brandon Pool Aquatic Life Use B
Little CalR	**Grand CalR**	**CSC**	**3**	Incidental Contact Recreation	**3, 4 and 5**	CAWS Aquatic Life Use A
Grand CalR	**Indiana Line**	**Little CalR**	**3**	Incidental Contact Recreation	**3, 4 and 5**	CAWS Aquatic Life Use A
CSC	**Little CalR**	**CSSC**	**3**	Incidental Contact Recreation	**3, 4 and5**	CAWS Aquatic Life Use A
LDPRBrand	**CSSC**	**Brandon L&D**	**3 and 4**	Non-Recreational	**3, 4 and 5**	CAWS & Brandon Pool Aquatic Life Use B

UAA Factor Applications to CAWS and Lower Des Plaines River

Waterway			Recreational Use		Aquatic Life Use	
Reach	Beginning	Ending	UAA Factors	Attainable Use	UAA Factors	Attainable Use
LDPRUpDres	**Brandon L&D**	**I-55**	**3**	Incidental Contact Recreation	**None**	Upper Dresden Is. Pool Aquatic Life Use
Factor 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						
Factor 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 modifications in a way that would result in the attainment of the use						
Factor 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**						

Edits to the Lower Des Plaines UAA
(Attachment A to the Illinois EPA's Statement of Reasons)

Water Quality

Historically, the Lower Des Plaines River has received flows from the man-made Chicago Sanitary and Ship Canal which receives effluents from several Metropolitan Water Reclamation District of Greater Chicago wastewater reclamation plants and overflows from the combined sewers. Consequently, historically, the environmental potential of the river was deemed to be very limited to a point of hopelessness. The pollution population equivalent of effluent discharge carried by the canal to the Des Plaines River is about 9.5 million. The TARP project today has significantly reduced the number (frequency) of CSOs overflows per year. With the full implementation of the reservoir portion of TARP, the frequency of overflows will be further reduced. Combined sewer overflows reaching the river via the Chicago Sanitary and Ship Canal are a source of a mixture of untreated sewage and urban runoff from Chicago and Cook County.

Table 1.1 includes a list of large and medium size (more than 1 cfs) public wastewater treatment plants located on the Des Plaines River and the Chicago Waterways upstream of the I-55 bridge. It can be seen that the effluent discharges constitute the major part of the flow in the Lower Des Plaines River. The total effluent flow from the WWTPs is about 1900 cfs (1230 mgd) (Table 1.1). This effluent flow constitutes more than 90% of low flow in the Lower Des Plaines River and during winter, almost the entire low flow is made of effluent discharges. Consequently, the Lower Des Plaines is characterized as *an effluent dominated stream.*

Several large power plants use water from the CSSC and the Lower Des Plaines River for cooling. The thermal power plants operated by Midwest Generation are listed in Table 1.2 along with the power capacities and parameters. ~~Two sites, Will County and Joliet #9 and #29 use most of the flow in the CSSC and the Lower Des Plaines River for cooling.~~ During the summer of 1999, 24 supplemental cooling towers were installed at the Joliet Station #29 that are used on an as-needed basis to keep the temperature of the river at the I-55 bridge at or below the adjusted standard requested by Commonwealth Edison and approved by the State of Illinois Pollution Control Board.

Table 1.2 presents the heat release parameters of the power plants that may affect the temperature of the Lower Des Plaines River. By comparing the condenser cooling water flow and the river (canal) flow it becomes immediately apparent that two power production systems--Will County and Joliet power plants-- may use all of the flow of the Chicago Sanitary and Ship Canal (Will County) or the Lower Des Plaines River (Joliet) during low flow conditions.

The Illinois EPA 1998 303(d) list has identified the following parameters of concern for the sections between the confluence with the CSSC and the Kankakee River:

priority organics
nutrients
metals
habitat alterations
low dissolved oxygen/organic enrichment
ammonia
pathogens
siltation
flow alteration

upstream of I-55 (Secondary Contact and Indigenous Life standard) than those downstream of I-55(General Use). In 1972, there was no correlation between the magnitude of flow and the minimum DO concentrations. The minimum DO concentrations for high flow sampling days were in the same range as those for low flow conditions. It was explained that during high flows, the oxygen consuming loads from CSOs and urban runoff increase in proportion to the increase flow. Further improvements in Dresden Island Pool by stream aeration (both natural or human induced such as dam aeration or side stream aeration) may be difficult due to the high temperature in the Upper Dresden pool caused by the heated discharges from the Midwest Generation plants. This is because the maximum aeration rate is proportional to the oxygen deficit expressed as

$$r_{O2} = k(C_s - C)$$

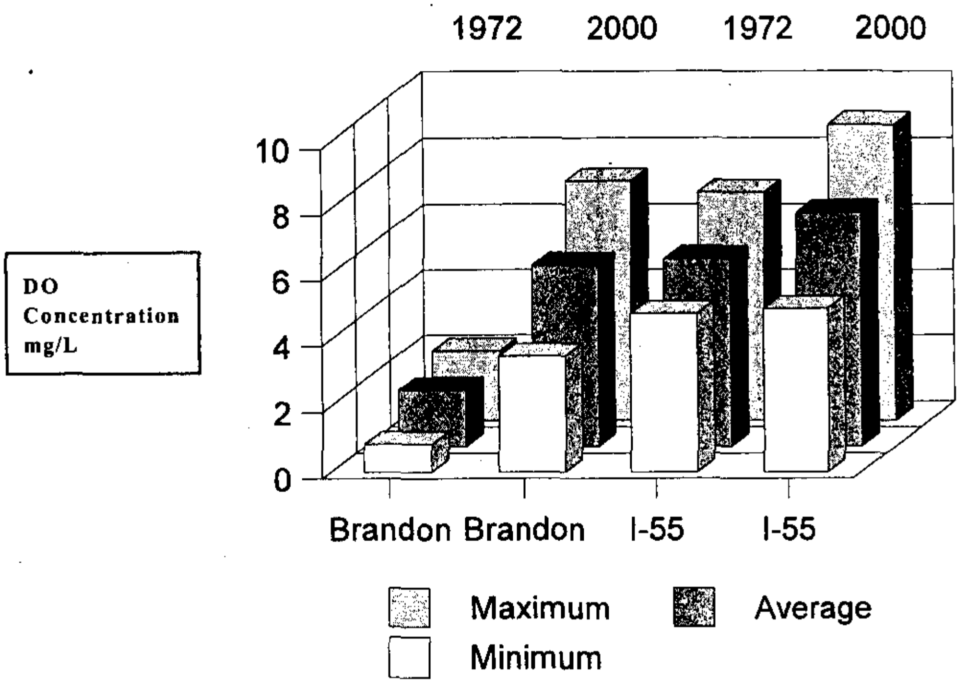

Figure 2.34 Changes in Dissolved Oxygen Concentrations from 1972 to 2000

where C_s is the saturation concentration related to temperature and C is the DO concentration of water. ~~The maximum temperatures in the upper part of the Dresden Island pool during summer reach 35 to 37°C (100°F) (Wozniak, 2002) during which the oxygen saturation concentration is smaller.~~ At 37°C the oxygen saturation is

$$C_s = 14.652 - 0.41022x38 + 0.007991x38^2 - 0.000077774x38^3 = 6.3\, mg\,/\,L$$

For polluted water the DO saturation would be less, possibly less than 6 mg/L. Theoretically, DO concentrations, in absence of photosynthesis, cannot reach or exceed the saturation values. There are many literature sources that explain the phenomenon of reaeration of the receiving water bodies. One of the latest ones is Chapra (1997). Also Butts et al. (1975) includes a very good discussion on the weir and in-stream aeration.

For comparison, the summer high temperatures upstream of the Midwest Generation outfalls are about 6°C (10°F) less or about 32°C (which is the General Use standard for I-55). At this temperature, the oxygen saturation is C_s = 7.15 mg/L, or 7 mg/L for polluted water.

~~This calculation of the oxygen saturation indicates that, due to the high temperatures, attainment of the 6 mg/L DO concentrations in the Upper Dresden pool under present thermal loads from the Midwest Generation plants is impossible solely by aeration of the flow. Actually, oxygen in excess of 6 mg/L delivered by photosynthesis and aeration of the Brandon Pool dam during lower temperatures upstream of the power plants is being lost from the river due to the higher temperature~~.

DO Modeling

Classical DO modeling may assist in understanding the processes. The dissolved oxygen in a stream is affected by a number of processes that were summarized by Thomann and Mueller (1987 and also by Novotny (2002) as:

□ Sinks of oxygen, that is the biochemical and biological processes that use oxygen, include:

1. Deoxygenation of biodegradable organics whereby bacteria and fungi (decomposers) utilize oxygen in the biooxidation-decomposition process.
2. Sediment oxygen demand (SOD), where oxygen is utilized by the upper layers of the bottom sediment deposits.
3. Nitrification, in which oxygen is utilized during oxidation of ammonia and organic nitrogen to nitrates.
4. Respiration by algae and aquatic vascular plants which use oxygen during night hours or during heavy cloud overcast to sustain their living processes.
5. DO from an oversaturated stream and during high temperatures can also be lost by deaeration which is a reverse process of reaeration.

□ Oxygen sources are:

1. Atmospheric reaeration, where oxygen is transported from the air into the water turbulence at the water interface or can be supplied by flow turbulence at dams, in-stream or side stream aeration, or turbine aeration.
2. Photosynthesis, where chlorophyll-containing organisms (producers such as algae and aquatic plants) convert CO_2 (or alkalinity of water) to organic matter with a consequent production of oxygen on days with minimal cloud cover. Photosynthesis is driven by the nutrients and light energy.

Figure 2.42 shows river flows upstream of the Joliet plants for the year 2001. The figure documents that in late June-beginning of July 2001 period, flows were at the level approaching or even less than the magnitude of the capacity condenser flow from the two Joliet units.

The reference water temperatures on Figure 2.41 are well below the 32°C (90°F) standard. However, it should be pointed out that the MWRDGC Station 94 and 95, located in the Dresden Island Pool contain data for the years 2000- 2001 only. As it will be subsequently shown, measured temperatures during 1999 at the I-55 bridge and in the discharge channels by the Midwest Generation were higher than in the 2000-2001.

Type of Cooling at the Joliet Plants

The type of condenser cooling installed at the Joliet power plants is once-through cooling. In this type of cooling, water is withdrawn from the river, passes the condenser in the cooling system, and is then--with added heat--returned back to the river without recycling. The added heat results in an increase of water temperature in the receiving water body and the heat is then dissipated by the receiving water body or carried downstream. ~~If the flow of the river is about the same as the cooling-water flow, as it would be in the case during low flow on the Lower Des Plaines River, the temperate increase before and after the power plant is about the same as the temperature difference in the cooling water intake and discharge channels. Information provided by the Midwest Generation and presented in Table 1.2 specified the ΔT through the condensers as being 9.4°F (5.2 °C) at design flow.~~

~~The temperature difference in the river before and after the thermal discharge obviously depends on the magnitude of flow. If the flow was at the 7Q10 level (1950 cfs), it would be significantly less than the cooling water requirement of the plants reported as 2620 cfs. Then a part of the heated discharge may be forced by created back currents back into the intake, thus increasing the temperature downstream from the plant even further. Flow in the river greatly fluctuates due to the operation of the CSSC and upstream Lockport and Brandon Road Dam locks (Figure 2.42).~~

An alternative to the once through cooling used at the Joliet plants is a closed recycle cooling with natural draft or mechanical cooling towers (for example, the WE power plants near Portage and Kenosha, Wisconsin) or lakes (Dresden plant) that result in less discharge flow, typically 2 - 4% of a comparable once through cooling system, with a commensurate smaller heat load on the receiving water body. As stated previously the utility has installed (prior to purchase by the Midwest Generation) 24 mechanical draft cooling towers capable of cooling approximately one-third of Joliet #29 total discharge flow. These towers are located on the discharge channel of the Unit #29 and do not allow recycle. The cooling towers are used on an as-needed basis.

As stated in the Midwest Generation presentation to the biological subcommittee, the use of the existing cooling towers alone is often not sufficient to control the magnitude of the thermal discharge to meet current near and far-field limits and the utility has to use plant production derating (i.e., forced production cutbacks) to meet the existing standard.

in depositional areas were more toxic. Critical fish spawning and larval areas located in the Brandon Road tailwaters and at the mouth of Jackson Creek contained acutely toxic sediments. *The main channel of the river and power plant discharge canals had sediments composited from sand, gravel and bedrock (due to higher velocities); these areas did not contain toxic sediments.*

In Tier Three, several more detailed investigations were conducted. Additional sites were sampled between the Brandon Road Lock and Dam and I-55 Bridge. The temperature profile of the Brandon Road tailwater was evaluated during hot weather conditions. The effects of specific stressors were evaluated in a series of experiments, including thermal effects, suspended solids, ammonia, metals, and polycyclic aromatic hydrocarbons (PAHs).

Thermal effects were tested by exposing test organisms *in situ. Ceriodaphnia dubia, P. Promelas, H. azteca* , and *C. tentans* were placed in chambers in the thermal plume of the Joliet Power Plant no. 29 and exposed for 48 hours. The first test was conducted in November 1994. In the first test the temperature in the plume ranged from 17 to 23°C and in the river it ranged from 15 to 17°C, respectively. This experiment partially failed because some test organisms died due to a shock caused by a sudden release of raw sewage and petroleum products from an unknown upstream source. The second experiment, conducted in August 1995, reflected more warm summer temperature conditions. Temperature in the reference station (Des Plaines River upstream) ranged from 28 to 31.5°C, the plume temperature ranged from 29.5 to 35.2 °C, and the temperature in the discharge channel ranged from 31 to 34°C. Cladocera had the highest mortality at all test stations, *Daphnia* mortality was greater in top (warmer) water (13 and 15% survival) with higher survival in the bottom (colder) water (43 and 53 % survival). *P. promelas* had the highest survival rate of 75% at the reference station and 40 to 80 % survival at test stations.

Subsequent laboratory evaluations of thermal effects was conducted with 7 day exposure of *P. promelas* and *H. azteca* at 15, 20, 25, 30, and 35 °C. The organisms were exposed in water only systems and systems containing sediments taken from above the Brandon Road Lock and Dam, containing high levels of ammonium (although not specifically stated, at the pH of water common to the Des Plains River, the ammoniacal form was less toxic ionic form NH_4^+- ammonium; the term ammonia commonly describes the unionized and far more toxic form, NH_3 that dominates at high pH). Burton (1995) concluded that for *P. promelas, site water and sediments were toxic as no survival was observed at 35°C.* However, this statement and conclusion may be incorrect since the survival of the fish was also significantly diminished in 35°C control samples (Figure 3.1). The survival of *Hyatela azteca* was also greatly reduced at 35°C at all samples and dropped to almost zero survival in water control samples that did not contain contaminants (Figure 3.2). It appears, the only reason for almost 100 % mortality was temperature[2]. Burton also observed that ammonia production

[2]Burton also made a statement that the effects observed at 35°C do not occur in the UIW because organisms are not exposed to 35°C water for 7 days or a longer period. ~~This may not be correct today, see Figure 2.46 that indicates that temperature of 37.8°C (100 °F) might have been maintained or exceeded in 1999 in the Upper Dresden Island pool for a period of two months.~~

It should be noted that the literature values in Table 8.5 represent a laboratory sampling conducted between temperatures of 13 and 25°C. ~~Summer temperature values in the Lower Des Plaines River, specifically in the Dresden Island Pool typically exceed these values by as much as 12°C~~[5] . Under higher temperatures, respiration of fish increases, resulting in higher DO requirements. Therefore, to prevent lethal conditions and provide a margin of safety, it is recommended that 24-hour average dissolved oxygen levels do not drop below 4 mg/L.

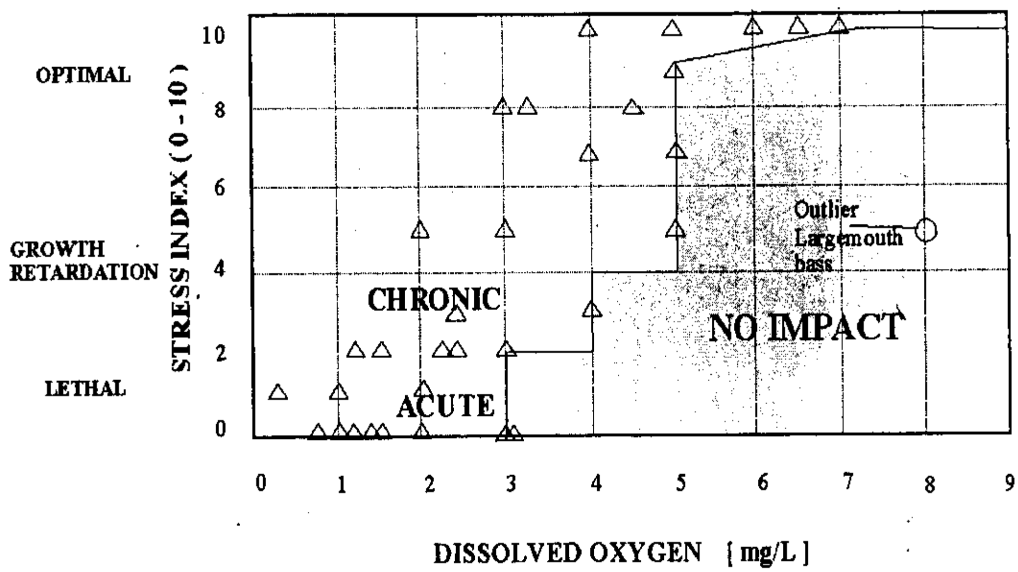

Figure 8.14 Impact of low DO concentrations on fish.
The points represent impacts on the fish indigenous to the Des Plaines River and Upper Illinois River

[5] See Chapter 2 Water Body Assessment - Temperature

After improvements in the Hickory Creek, water quality and control of CSOs the prime habitat area should be remediated and, if necessary, toxic sediments in contaminated zones should be capped or the contaminated sediments should be removed.

Microbiological pollution - primary contact recreation. While the current general use standard for bacteria using fecal coliforms was not met, a low risk primary contact standard based on the new USEPA (2002) criteria is attainable. The Dresden Island Pool should not be considered as a prime zone for primary contact recreation, such recreational activities should be infrequent or accidental because of the effluent dominated nature of the river and the risks associated with navigation.

Remedial Action
To accomplish the goal of providing limited contact recreation in the Dresden Island pool, wastewater effluents discharging directly into the Dresden Island pool and Hickory Creek containing pathogenic microorganisms should be disinfected. The disinfection methods must be environmentally sensitive, such as chlorination followed by dechlorination or non-chlorine disinfection. Disinfection of effluents in the Chicago Area Waterways would not bring about a significant improvement in the Dresden Island pool due to die-off of bacteria during the time of travel. This issue as it pertains to the recreational use of the Chicago Area Waterways will be addressed in the subsequent UAA.

This action will bring the river into compliance with primary contact medium risk recreation standards that would allow and protect infrequent primary contact and also protect swimmers in the sections downstream of the I-55 bridge.

Temperature
Due to the heated discharges from the Joliet Power plant units, the temperature in the Dresden Island pool between the discharge of heated water and the I - 55 Bridge reaches levels that are lethal to fish. This was documented in the Burton's (1995) study that showed high mortality of fish (fathead minnow, *Pimethales promelas*) and benthic invertebrate (Scud-*Hyalella azteca*) at 35°C, which is less than the temperature measured in the stretch of the river between the thermal outfalls and the I-55 Bridge. ~~Evidence provided by the Midwest Generations in the presentation to the biological expert subcommittee indicated that temperature in 1999 had exceeded the Secondary Contact and Indigenous Aquatic Life Standard.~~ Also a compilation of temperatures lethal to fish (see Chapter 2) has shown that the lowest lethal temperatures for most common fish species are less than 37.8°C (100°F). Therefore, the Secondary Contact and Indigenous Aquatic Life Illinois standard does not protect the aquatic life in the stretch. Figures 2.44 and 2.45 also show that the General Use standard is protective of most adult fish population. Thus, implementing the General Use standard for temperature is a necessary step to improve the biotic integrity of the Upper Dresden Island pool to a level commensurate with the impounded water bodies with balanced biological communities.

It is also necessary to address the temperature differential between the intake of the river water to the power plants and the effluent during low flows.

Remedial Action
We believe that reduction of thermal loadings from the Joliet plants should be implemented that would bring the temperature in the Upper Dresden Island pool (between the heated discharges of the Joliet plants and the I - 55 Bridge) in compliance with the General Use standard. Whether this compliance with the General Use temperature standards will bring about a wide spread adverse socio economic impact on the utility and on the local area should be assessed in consultation with Midwest Generation and other stakeholders. While the General Use thermal standard is necessary and appropriate to protect the aquatic community otherwise attainable within the Upper Dresden Island pool, economic and operational considerations may be significant and should be given due consideration in the development of any alternate standards and the compliance period to attain that

Information on Impaired Segments of the Lower Des Plaines River and the CAWS

Appendix B-1. Specific Assessment Information for Streams, 2006.

Legend

Use ID	Use Description
582	Aquatic Life
583	Fish Consumption
584	Public and Food Processing Water Supplies
585	Primary Contact
586	Secondary Contact
587	Indigenous Aquatic Life
590	Aesthetic Quality

Support Code	Use Support Level
F	Fully Supporting
N	Not Supporting
I	Insufficient Information
X	Not Assessed

Cause ID	Description
N/A	No Cause Identified
1	alpha.-BHC
79	Aldrin
84	Alteration in stream-side or littoral vegetative covers
91	Ammonia (Un-ionized)
96	Arsenic
99	Atrazine
104	Barium
123	Boron
127	Cadmium
137	Chlordane
138	Chloride
139	Chlorine
154	Chromium (total)
163	Copper
177	DDT
198	Dieldrin
203	Dioxin (including 2,3,7,8-TCDD)
213	Endrin
228	Fish-Passage Barrier
229	Fish Kills
234	Fluoride
244	Heptachlor
246	Hexachlorobenzene
260	Iron
267	Lead

Cause ID	Description
268	Lindane
273	Manganese
274	Mercury
277	Methoxychlor
301	Nickel
308	Ammonia (Total)
313	Nonnative Fish, Shellfish, or Zooplankton
317	Oil and Grease
319	Other flow regime alterations
322	Oxygen, Dissolved
348	Polychlorinated biphenyls
371	Sedimentation/Siltation
375	Silver
385	Sulfates
399	Total Dissolved Solids
400	Fecal Coliform
403	Total Suspended Solids (TSS)
423	Zinc
441	pH
452	Nitrogen, Nitrate
458	Nitrogen (Total)
462	Phosphorus (Total)
463	Impairment Unknown
478	Aquatic Plants (Macrophytes)
479	Aquatic Algae

Source ID	Description
N/A	No Source Identified
2	Acid Mine Drainage
4	Animal Feeding Operations (NPS)
20	Channelization
23	Combined Sewer Overflows
28	Contaminated Sediments
32	Dam Construction (Other than Upstream Flood Control Projects)
36	Drainage/Filling/Loss of Wetlands
38	Dredging (E.g., for Navigation Channels)
45	Golf Courses
49	Highway/Road/Bridge Runoff (Non-construction Related)
50	Highways, Roads, Bridges, Infrasturcture (New Construction)
56	Impacts from Abandoned Mine Lands (Inactive)
58	Impacts from Hydrostructure Flow Regulation/modification
61	Industrial Land Treatment
62	Industrial Point Source Discharge
66	Irrigated Crop Production
72	Loss of Riparian Habitat
82	Mine Tailings
85	Municipal Point Source Discharges
87	Non-irrigated Crop Production
92	On-site Treatment Systems (Septic Systems and Similar Decencentralized Systems)

Source ID	Description
95	Other Recreational Pollution Sources
97	Other Spill Related Impacts
102	Petroleum/natural Gas Activities
115	Sanitary Sewer Overflows (Collection System Failures)
122	Site Clearance (Land Development or Redevelopment)
125	Streambank Modifications/destablization
127	Surface Mining
130	Unpermitted Discharge (Domestic Wastes)
132	Upstream Impoundments (e.g., Pl-566 NRCS Structures)
135	Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)
140	Source Unknown
142	Dam or Impoundment
143	Livestock (Grazing or Feeding Operations)
144	Crop Production (Crop Land or Dry Land)
155	Natural Sources
156	Agriculture
157	Habitat Modification - other than Hydromodification
177	Urban Runoff/Storm Sewers
178	Coal Mining (Subsurface)
179	Lake Fertilization
181	Runoff from Forest/Grassland/Parkland

Name	10-Digit HUC	IEPA Basin	Assessment Unit ID	Size (miles)	Cat.	Designated Uses/Attainment	Causes	Sources
Cache R.	0714010804	33	IL_IX-05	7.56	5	N582, F583, X585, X586, X590	84, 319, 322, 371, 441	36, 58, 140, 144
Cache R.	0714010804	33	IL_IX-06	12.84	5	N582, F583, X585, X586, X590	84, 371, 403	20, 125, 144
Cache R. Old Channel	0714010804	33	IL_AA-01	7.42	5	N582, X583, X585, X586, X590	322, 371, 441	20, 144, 140
Caesar Cr.	0714020202	24	IL_OOB	9.87	3	X582, X583, X585, X586, X590	N/A	N/A
Cahokia Canal	0714010105	27	IL_JN-02	11.87	5	N582, F583, X586, X590	84, 273, 322, 371, 458, 462	20, 140, 177, 122, 144
Cahokia Canal No.1	0714010106	27	IL_JMA-01	4.12	5	N582, F583, X585, X586, X590	84, 371	20, 72, 144
Cahokia Chute	0714010106	27	IL_JM	2.41	3	X582, X583, X585, X586, X590	N/A	N/A
Cahokia Cr.	0714010101	27	IL_JQ-04	14.81	2	X582, F583, X585, X586, X590	N/A	N/A
Cahokia Cr.	0714010103	27	IL_JQ-03	17.77	2	F582, F583, X585, X586, X590	N/A	N/A
Cahokia Cr.	0714010103	27	IL_JQ-05	9.89	5	F582, F583, N585, X586, X590	400	140
Cahokia Div. Channel	0714010103	27	IL_JQ-07	5.14	5	N582, F583, X585, X586, X590	163, 84, 322, 371	140, 20, 125, 144
Calfkiller Cr.	0512011212	30	IL_BEE-01	7.60	3	X582, X583, X585, X586, X590	N/A	N/A
Calumet R.	0712000305	1	IL_HAA-01	7.56	5	N582, N583, N585, X586, X590	375, 441, 462, 348, 400	23, 62, 177, 140
Calumet Union Drain N.	0712000305	1	IL_HBB	8.76	3	X582, X583, X585, X586, X590	N/A	N/A
Calumet-Sag Channel	0712000305	1	IL_H-02	10.35	5	N583, X586, F587	348	140
Calumet-Sag Channel	0712000407	2	IL_H-01	5.79	5	N583, X586, N587	348, 260, 322, 403, 458, 462	140, 23, 62, 85, 177, 58
Camel Cr.	0512011407	31	IL_CDFA	6.46	3	X582, X583, X585, X586, X590	N/A	N/A
Camfield Branch	0714020107	23	IL_OZZZC	2.69	3	X582, X583, X585, X586, X590	N/A	N/A
Camp Branch	0512011406	31	IL_CHI	3.18	3	X582, X583, X585, X586, X590	N/A	N/A
Camp Cr.	0706000510	9	IL_MJA-02	17.31	3	X582, X583, X585, X586, X590	N/A	N/A
Camp Cr.	0713000502	15	IL_DJMB	7.63	3	X582, X583, X585, X586, X590	N/A	N/A
Camp Cr.	0708010417	16	IL_LB-01	15.82	3	X582, X583, X585, X586, X590	N/A	N/A
Camp Cr.	0713001006	17	IL_DGI-01	29.28	2	F582, X583, X585, X586, X590	N/A	N/A
Camp Cr.	0713001103	18	IL_DZ3L	13.24	3	X582, X583, X585, X586, X590	N/A	N/A
Camp Cr.	0713000604	21	IL_EW-01	16.12	2	F582, X583, X585, X586, X590	N/A	N/A
Camp Cr.	0714020409	25	IL_OZB	8.51	3	X582, X583, X585, X586, X590	N/A	N/A
Camp Cr.	0714010610	26	IL_NCAA	5.52	3	X582, X583, X585, X586, X590	N/A	N/A
Camp Cr.	0512011409	31	IL_CZZF	3.60	3	X582, X583, X585, X586, X590	N/A	N/A
Camp Cr. East	0708010402	16	IL_LFD-01	20.34	3	X582, X583, X585, X586, X590	N/A	N/A
Camp Cr. North	0714020203	24	IL_ONEC-01	11.74	3	X582, X583, X585, X586, X590	N/A	N/A

Name	10-Digit HUC	IEPA Basin	Assessment Unit ID	Size (miles)	Cat.	Designated Uses/Attainment	Causes	Sources
Cedar Cr.	0714010612	26	IL_NA-02	8.74	5	N582, X583, X585, X586, X590	322, 371	140, 155, 20
Cedar Cr.	0714010612	26	IL_NA-04	3.49	2	F582, X583, X585, X586, X590	N/A	N/A
Cedar Cr.	0514020317	32	IL_AJF-16	11.92	5	N582, X583, X585, X586, X590	273, 322	140
Cedar Cr. North	0713001007	17	IL_DGN-01	12.46	3	X582, X583, X585, X586, X590	N/A	N/A
Cedar Creek	0714020201	24	IL_OPCDB	5.22	2	X582, F583, X585, X586, X590	N/A	N/A
Cedar Fork	0713000509	15	IL_DJFD-01	15.60	2	F582, X583, X585, X586, X590	N/A	N/A
Cedar Glen Cr.	0708010419	16	IL_LZU	4.94	3	X582, X583, X585, X586, X590	N/A	N/A
Chain o Rocks Canal	0714010105	27	IL_JO	8.87	5	F582, N583, N584, X585, X586, X590	348, 273	140
Chaney Cr.	0708010419	16	IL_LZS-01	11.37	3	X582, X583, X585, X586, X590	N/A	N/A
Chic. San. & Ship Canal	0712000407	1	IL_GI-03	5.92	5	N583, X586, N587	348, 91, 322, 462	140, 23, 85, 20, 58, 177
Chic. San. & Ship Canal	0712000407	2	IL_GI-02	12.28	5	N583, X586, N587	348, 260, 317, 322, 458, 462	140, 23, 177, 58, 85
Chic. San. & Ship Canal	0712000407	2	IL_GI-06	12.34	5	N583, X586, N587	348, 322, 458, 462	140, 23, 58, 177, 85
Chicago R.	0712000302	1	IL_HCB-01	2.56	5	N582, N583, N585, X586, X590	375, 462, 274, 348, 400	23, 85, 95, 177, 140
Chicken Cr.	0714020306	24	IL_OIO-09	1.92	5	N582, X583, X585, X586, X590	322, 371, 375, 403, 458, 462	4, 143, 144, 140
Chicken Cr.	0714010610	26	IL_NCF	5.71	3	X582, X583, X585, X586, X590	N/A	N/A
Chivler Cr.	0512011208	30	IL_BEIA	6.60	3	X582, X583, X585, X586, X590	N/A	N/A
Clair Cr.	0714010106	27	IL_JMACBA-C1	2.26	2	F582, X583, X585, X586, X590	N/A	N/A
Clark Branch	0713000302	13	IL_DLFA	6.75	3	X582, X583, X585, X586, X590	N/A	N/A
Clark Branch	0713001012	17	IL_DGEA	7.08	3	X582, X583, X585, X586, X590	N/A	N/A
Clark Run	0713000102	11	IL_DZZT	9.35	3	X582, X583, X585, X586, X590	N/A	N/A
Clary Cr.	0713000806	20	IL_EG-01	18.59	5	N582, X583, X585, X586, X590	441, 458	140, 144, 155
Clear Cr.	0712000706	4	IL_DTZF-01	5.01	2	F582, X583, X585, X586, X590	N/A	N/A
Clear Cr.	0709000506	6	IL_PZU	8.60	3	X582, X583, X585, X586, X590	N/A	N/A
Clear Cr.	0706000505	9	IL_MNIA-11	5.59	2	F582, X583, X585, X586, X590	N/A	N/A
Clear Cr.	0713001101	18	IL_DFD	17.81	3	X582, X583, X585, X586, X590	N/A	N/A
Clear Cr.	0713000705	20	IL_EOD-01	9.78	5	F582, X583, N585, X586, X590	400	140
Clear Cr.	0713000608	21	IL_EP-02	12.92	2	F582, X583, X585, X586, X590	N/A	N/A
Clear Cr.	0713000905	22	IL_EIEB	6.61	3	X582, X583, X585, X586, X590	N/A	N/A
Clear Cr.	0714010506	28	IL_IC-02	7.16	2	F582, F583, X585, X586, X590	N/A	N/A

Name	10-Digit HUC	IEPA Basin	Assessment Unit ID	Size (miles)	Cat.	Designated Uses/Attainment	Causes	Sources
Dead R.	0404000205	1	IL_QD	1.95	3	X582, X583, X585, X586, X590	N/A	N/A
Deadly Run	0712000509	11	IL_DZZB	2.67	3	X582, X583, X585, X586, X590	N/A	N/A
Deep Run	0708010414	16	IL_LCD	5.69	3	X582, X583, X585, X586, X590	N/A	N/A
Deep Run Cr.	0712000407	2	IL_GIX-01	3.67	2	F582, X583, X585, X586, X590	N/A	N/A
Deer Branch	0713001201	18	IL_DAZQA	3.21	3	X582, X583, X585, X586, X590	N/A	N/A
Deer Cr.	0712000304	1	IL_HBDC	6.62	5	N582, X583, X585, X586, X590	84, 319, 458, 462	20, 85, 177
Deer Cr.	0712000304	1	IL_HBDC-02	9.17	5	N582, X583, X585, X586, X590	319, 322, 371, 458, 462	58, 85, 177
Deer Cr.	0709000606	5	IL_PQCE	9.05	5	N582, X583, X585, X586, X590	463	N/A
Deer Cr.	0709000510	6	IL_PZN	8.89	3	X582, X583, X585, X586, X590	N/A	N/A
Deer Cr.	0712000216	10	IL_FLC	5.85	3	X582, X583, X585, X586, X590	N/A	N/A
Deer Cr.	0713000114	11	IL_DMCA	5.74	3	X582, X583, X585, X586, X590	N/A	N/A
Deer Cr.	0713000206	12	IL_DSLB	5.99	3	X582, X583, X585, X586, X590	N/A	N/A
Deer Cr.	0713000407	14	IL_DKGB	7.63	3	X582, X583, X585, X586, X590	N/A	N/A
Deer Cr.	0713000407	14	IL_DKGC	6.01	3	X582, X583, X585, X586, X590	N/A	N/A
Deer Cr.	0713000904	22	IL_EIF-01	18.35	4C	N582, F583, X585, X586, X590	243	125
Deer Cr.	0714020205	24	IL_OKAB	5.36	3	X582, X583, X585, X586, X590	N/A	N/A
Deer Cr.	0512011205	30	IL_BEZY	13.72	3	X582, X583, X585, X586, X590	N/A	N/A
Deer Cr.	0512011407	31	IL_CDB	16.59	3	X582, X583, X585, X586, X590	N/A	N/A
Deer Lick Cr.	0713000302	13	IL_DLJ	3.63	3	X582, X583, X585, X586, X590	N/A	N/A
Deerlick Branch	0708010107	9	IL_MWDC	4.21	3	X582, X583, X585, X586, X590	N/A	N/A
Degonia Cr.	0714010505	28	IL_IH	5.73	3	X582, X583, X585, X586, X590	N/A	N/A
Delta Cr.	0514020402	32	IL_ATGJ-01	2.66	3	X582, X583, X585, X586, X590	N/A	N/A
DeNeal Branch	0514020403	32	IL_ATHZB	3.98	3	X582, X583, X585, X586, X590	N/A	N/A
Denman Cr.	0713000405	14	IL_DKM-01	9.58	2	F582, X583, X585, X586, X590	N/A	N/A
DesPlaines R.	0712000404	2	IL_G-07	10.22	5	N582, N583, N585, X586, X590	441, 458, 462, 274, 348, 400	85, 140
DesPlaines R.	0712000404	2	IL_G-08	0.97	5	N582, N583, N585, X586, X590	322, 371, 403, 441, 479, 274, 400	140, 144
DesPlaines R.	0712000404	2	IL_G-25	6.89	5	N582, N583, X585, X586, X590	322, 371, 274	140, 122, 177
DesPlaines R.	0712000405	2	IL_G-15	3.47	5	N582, N583, N585, X586, X590	138, 322, 371, 399, 403, 441, 458, 462, 274, 348, 400	23, 49, 85, 177, 122, 140
DesPlaines R.	0712000405	2	IL_G-22	4.14	5	N582, N583, N585, X586, X590	277, 319, 399, 458, 462, 274, 348, 400	28, 58, 132, 142, 85, 177, 140

Name	10-Digit HUC	IEPA Basin	Assessment Unit ID	Size (miles)	Cat.	Designated Uses/Attainment	Causes	Sources
DesPlaines R.	0712000405	2	IL_G-26	5.90	5	F582, N583, X585, X586, X590	274, 348	140
DesPlaines R.	0712000405	2	IL_G-28	8.82	5	N582, N583, N585, X586, X590	138, 84, 319, 322, 399, 458, 462, 274, 348, 400	23, 85, 177, 125, 58, 140
DesPlaines R.	0712000405	2	IL_G-30	5.14	5	N582, N583, N585, X586, X590	138, 322, 371, 375, 399, 403, 423, 458, 462, 274, 348, 400	23, 49, 85, 177, 140
DesPlaines R.	0712000405	2	IL_G-32	6.11	5	N582, N583, N585, X586, X590	138, 322, 371, 399, 403, 462, 274, 348, 400	23, 49, 85, 177, 140
DesPlaines R.	0712000405	2	IL_G-35	5.10	5	N582, N583, X585, X586, X590	246, 458, 462, 274, 348	28, 85, 140
DesPlaines R.	0712000405	2	IL_G-36	6.92	5	N582, N583, N585, X586, X590	319, 322, 375, 441, 458, 462, 479, 274, 348, 400	58, 85, 177, 140
DesPlaines R.	0712000407	2	IL_G-03	15.08	5	N582, N583, N585, X586, X590	138, 177, 84, 246, 319, 322, 375, 399, 458, 462, 479, 274, 348, 400	23, 85, 177, 28, 20, 58, 140
DesPlaines R.	0712000407	2	IL_G-11	5.17	5	N582, N583, N585, X586, X590	138, 177, 246, 301, 319, 322, 375, 399, 403, 441, 458, 462, 479, 274, 348, 400	85, 177, 28, 58, 140
DesPlaines R.	0712000407	2	IL_G-23	2.72	5	N583, X586, F587	274, 348	140
DesPlaines R.	0712000407	2	IL_G-39	11.17	5	N582, N583, N585, X586, X590	127, 138, 246, 268, 301, 319, 375, 399, 423, 441, 458, 462, 479, 274, 348, 400	23, 177, 85, 28, 58, 140
DesPlaines R.	0712000411	2	IL_G-01	2.71	5	N582, N583, X585, X586, X590	177, 319, 348, 371, 403, 462, 274	28, 58, 177, 85, 140
DesPlaines R.	0712000411	2	IL_G-12	8.35	5	N583, X586, F587	274, 348	140, 28
DesPlaines R.	0712000411	2	IL_G-24	5.08	5	N582, N583, X585, X586, X590	163, 177, 319, 348, 371, 403, 462, 274	62, 85, 177, 28, 58, 140
Diamond Cr.	0713000207	12	IL_DSFB	13.51	2	F582, X583, X585, X586, X590	N/A	N/A
Dickerson Slough	0713000601	21	IL_EZZH-01	13.46	2	F582, X583, X585, X586, X590	N/A	N/A
Dickison Run	0713000117	11	IL_DZZR	6.42	3	X582, X583, X585, X586, X590	N/A	N/A
Dicks Cr.	0512011207	30	IL_BEJJ	3.67	3	X582, X583, X585, X586, X590	N/A	N/A
Dickson Cr.	0713000306	13	IL_DZ3XAA	4.54	3	X582, X583, X585, X586, X590	N/A	N/A
Dieterich Cr.	0512011403	31	IL_COC-09	0.97	5	N582, X583, X585, X586, X590	371, 403, 462	144
Dieterich Cr.	0512011403	31	IL_COC-10	8.20	5	N582, X583, X585, X586, X590	163, 273, 371, 375, 403, 462	140, 144
Dillon Cr.	0713000408	14	IL_DKC-01	16.57	2	F582, X583, X585, X586, X590	N/A	N/A
Discharge, The	0714010109	27	IL_JA	8.71	3	X582, X583, X585, X586, X590	N/A	N/A
Dismal Cr.	0512011404	31	IL_CM-02	23.83	4C	N582, X583, X585, X586, X590	243	125
Diversion Canal	0711000104	19	IL_KG	15.11	3	X582, X583, X585, X586, X590	N/A	N/A

Name	10-Digit HUC	IEPA Basin	Assessment Unit ID	Size (miles)	Cat.	Designated Uses/Attainment	Causes	Sources
Gooseberry Cr.	0712000504	11	IL_DVEB	25.49	3	X582, X583, X585, X586, X590	N/A	N/A
Gossage Branch	0714020201	24	IL_OPCB	2.30	3	X582, X583, X585, X586, X590	N/A	N/A
Gowdy Cr.	0512011506	31	IL_CAZEA	3.33	3	X582, X583, X585, X586, X590	N/A	N/A
Granary Cr.	0712000503	11	IL_DVFA	10.51	3	X582, X583, X585, X586, X590	N/A	N/A
Grand Calumet R.	0712000305	1	IL_HAB-41	2.60	5	X583, X586, N587	91, 96, 104, 127, 154, 163, 177, 260, 267, 301, 322, 348, 371, 375, 423, 458, 462, 479	85, 28, 23, 177, 20
Grand Point Cr.	0714020208	24	IL_OJC-01	14.46	2	F582, X583, X585, X586, X590	N/A	N/A
Grand Tower Branch	0713001011	17	IL_DGDC	3.20	3	X582, X583, X585, X586, X590	N/A	N/A
Granny Cr.	0714010604	26	IL_NHHC	3.65	3	X582, X583, X585, X586, X590	N/A	N/A
Grannys Branch	0714010607	26	IL_NEAB	3.80	3	X582, X583, X585, X586, X590	N/A	N/A
Grant Cr.	0712000411	2	IL_GA-01	8.92	5	N582, X583, X585, X586, X590	463	N/A
Grape Cr.	0512010910	29	IL_BPE-02	9.56	5	N582, X583, X585, X586, X590	403, 423, 462	82, 177, 62, 85
Grassy Branch	0714020401	25	IL_OHC	7.63	5	N582, X583, X585, X586, X590	322, 371, 399, 458, 462	4, 85, 144
Grassy Cr.	0714010608	26	IL_NDD-03	5.99	2	F582, X583, X585, X586, X590	N/A	N/A
Grassy Cr.	0714010608	26	IL_NDD-04	5.93	2	F582, X583, X585, X586, X590	N/A	N/A
Grassy Cr.	0514020403	32	IL_ATHEA	7.92	3	X582, X583, X585, X586, X590	N/A	N/A
Grassy Cr.	0514020609	33	IL_ADCAA	2.67	3	X582, X583, X585, X586, X590	N/A	N/A
Gravel Cr.	0714010502	28	IL_IICA-01	8.50	2	F582, X583, X585, X586, X590	N/A	N/A
Greasy Cr.	0512011205	30	IL_BEQ-01	10.10	3	X582, X583, X585, X586, X590	N/A	N/A
Greasy Cr.	0514020404	32	IL_ATFFAA	5.60	3	X582, X583, X585, X586, X590	N/A	N/A
Greathouse Cr.	0512011304	31	IL_BZI	3.76	3	X582, X583, X585, X586, X590	N/A	N/A
Green Cr.	0714010506	28	IL_ICDB	4.57	3	X582, X583, X585, X586, X590	N/A	N/A
Green Cr.	0512011401	31	IL_CS-12	12.61	2	F582, X583, X585, X586, X590	N/A	N/A
Green R.	0709000701	8	IL_PB-05	8.49	5	N582, F583, X585, X586, X590	84, 319, 371	20, 58, 144
Green R.	0709000701	8	IL_PB-10	9.10	2	F582, F583, X585, X586, X590	N/A	N/A
Green R.	0709000702	8	IL_PB-02	9.52	5	F582, F583, N585, X586, X590	400	140
Green R.	0709000702	8	IL_PB-06	6.13	2	F582, F583, X585, X586, X590	N/A	N/A
Green R.	0709000702	8	IL_PB-19	10.17	2	F582, F583, X585, X586, X590	N/A	N/A
Green R.	0709000703	8	IL_PB-08	16.02	2	F582, F583, X585, X586, X590	N/A	N/A
Green R.	0709000703	8	IL_TP-03	5.79	5	N582, F583, X585, X586, X590	84, 458	20, 156

Name	10-Digit HUC	IEPA Basin	Assessment Unit ID	Size (miles)	Cat.	Designated Uses/Attainment	Causes	Sources
Little Bear Rough	0713001206	18	IL_DADA	4.08	3	X582, X583, X585, X586, X590	N/A	N/A
Little Beaucoup Cr.	0714010610	26	IL_NCEB	7.62	3	X582, X583, X585, X586, X590	N/A	N/A
Little Beaucoup Cr.	0714010610	26	IL_NCI-01	13.46	4A	N582, X583, X585, X586, X590	84, 273, 322	72, 125, 127, 140
Little Beaver Cr.	0712000215	10	IL_FLDA-01	12.97	2	F582, X583, X585, X586, X590	N/A	N/A
Little Beaver Cr.	0714020305	24	IL_OIBB	7.63	3	X582, X583, X585, X586, X590	N/A	N/A
Little Bessie Cr.	0714010604	26	IL_NHD	4.62	3	X582, X583, X585, X586, X590	N/A	N/A
Little Bishop Cr.	0512011403	31	IL_COB	9.54	3	X582, X583, X585, X586, X590	N/A	N/A
Little Blue Cr.	0713001108	18	IL_DZZX	9.80	3	X582, X583, X585, X586, X590	N/A	N/A
Little Bonpas Cr.	0512011307	31	IL_BCE	15.17	3	X582, X583, X585, X586, X590	N/A	N/A
Little Cache Cr.	0514020608	33	IL_ADDB-01	11.94	2	F582, F583, X585, X586, X590	N/A	N/A
Little Cache Cr.	0514020608	33	IL_ADDB-02	2.09	5	N582, F583, X585, X586, X590	322, 371	177, 20
Little Calumet R. N.	0712000305	1	IL_HA-04	1.74	5	N583, X586, F587	274, 348	140
Little Calumet R. N.	0712000305	1	IL_HA-05	5.17	5	N583, X586, N587	274, 348, 79, 260, 313, 319, 322, 375, 462, 479	140, 28, 23, 85, 177, 58, 20, 132
Little Calumet R. S.	0712000303	1	IL_HB-42	4.06	5	N582, N583, N585, X586, X590	234, 84, 322, 371, 375, 399, 403, 458, 462, 274, 400	23, 177, 20, 140
Little Calumet R. S.	0712000305	1	IL_HB-01	8.60	5	N582, N583, N585, X586, X590	234, 84, 246, 313, 317, 322, 371, 375, 458, 462, 274, 400	23, 85, 20, 28, 58, 177, 140
Little Camp Cr.	0708010403	16	IL_LFBD	3.75	3	X582, X583, X585, X586, X590	N/A	N/A
Little Cane Cr.	0514020401	32	IL_ATHHA	1.89	3	X582, X583, X585, X586, X590	N/A	N/A
Little Canteen Cr.	0714010104	27	IL_JMACA	5.01	3	X582, X583, X585, X586, X590	N/A	N/A
Little Carr Cr.	0714010108	27	IL_JHAA	3.42	3	X582, X583, X585, X586, X590	N/A	N/A
Little Cedar Cr.	0713001009	17	IL_DGGA	5.35	3	X582, X583, X585, X586, X590	N/A	N/A
Little Coal Cr.	0713000510	15	IL_DJEC	6.50	3	X582, X583, X585, X586, X590	N/A	N/A
Little Cr.	0713001001	17	IL_DGPCA	11.05	2	F582, X583, X585, X586, X590	N/A	N/A
Little Cr.	0713001003	17	IL_DGLG	4.55	3	X582, X583, X585, X586, X590	N/A	N/A
Little Cr.	0713001007	17	IL_DGMA	7.85	3	X582, X583, X585, X586, X590	N/A	N/A
Little Cr.	0713001103	18	IL_DZ3Q	10.51	3	X582, X583, X585, X586, X590	N/A	N/A
Little Cr.	0714020111	23	IL_OQB	6.26	3	X582, X583, X585, X586, X590	N/A	N/A
Little Cr.	0714020201	24	IL_OPAA	5.43	3	X582, X583, X585, X586, X590	N/A	N/A
Little Cr.	0512011102	30	IL_BNF	2.94	3	X582, X583, X585, X586, X590	N/A	N/A
Little Cr.	0512011111	30	IL_BHL	4.19	3	X582, X583, X585, X586, X590	N/A	N/A

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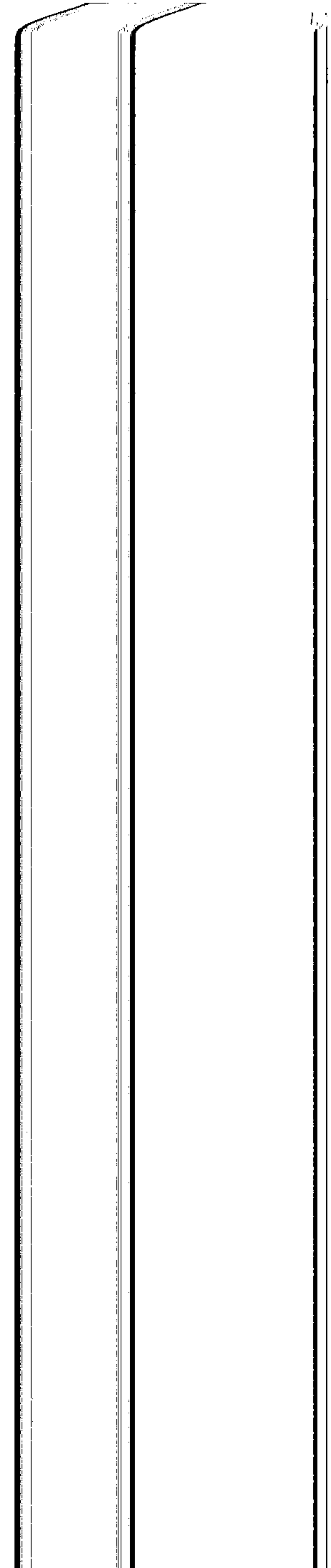
Mud Run	0713000502	15	IL_DJMA	13.92	3	X582, X583, X585, X586, X590	N/A	N/A
Mud Run	0713000504	15	IL_DJKD	8.31	3	X582, X583, X585, X586, X590	N/A	N/A
Muddy Cr.	0709000314	7	IL_PWS	5.49	3	X582, X583, X585, X586, X590	N/A	N/A
Muddy Cr.	0713000514	15	IL_DJZC	4.03	3	X582, X583, X585, X586, X590	N/A	N/A
Muddy Cr.	0512011207	30	IL_BEJ-03	29.25	2	F582, X583, X585, X586, X590	N/A	N/A
Muddy Cr.	0512011210	30	IL_BEFAB	13.57	3	X582, X583, X585, X586, X590	N/A	N/A
Muddy Cr.	0512011213	30	IL_BEA-01	15.53	3	X582, X583, X585, X586, X590	N/A	N/A
Muddy Plum R.	0706000510	9	IL_MJE	8.95	3	X582, X583, X585, X586, X590	N/A	N/A
Mule Cr.	0512011207	30	IL_BEJF-01	7.07	3	X582, X583, X585, X586, X590	N/A	N/A
Mundinger Cr.	0713000117	11	IL_DZJA	5.33	3	X582, X583, X585, X586, X590	N/A	N/A
Murray Ditch	0713000208	12	IL_DST-01	7.22	2	F582, X583, X585, X586, X590	N/A	N/A
Murray Slough	0712000504	11	IL_DVEA	23.84	3	X582, X583, X585, X586, X590	N/A	N/A
N Br S Br Kishwaukee R	0709000606	5	IL_PQCF	6.80	3	X582, X583, X585, X586, X590	N/A	N/A
N. Br. Chicago R.	0712000301	1	IL_HCC-02	2.06	5	N583, X586, F587	348	140
N. Br. Chicago R.	0712000301	1	IL_HCC-07	11.49	5	N582, N583, N585, X586, X590	79, 138, 177, 84, 246, 322, 375, 399, 403, 458, 462, 348, 400	28, 23, 49, 85, 177, 20, 125, 140
N. Br. Chicago R.	0712000301	1	IL_HCC-08	5.48	5	N583, X586, N587	348, 260, 317, 319, 322, 458, 462	140, 23, 177, 58, 85
N. Br. Crow Cr. E.	0713000113	11	IL_DOB	13.84	3	X582, X583, X585, X586, X590	N/A	N/A
N. Br. Kishwaukee R.	0709000602	5	IL_PQJ-01	17.16	2	F582, X583, X585, X586, X590	N/A	N/A
N. Br. Larry Cr.	0708010419	16	IL_LJA	6.36	3	X582, X583, X585, X586, X590	N/A	N/A
N. Br. Nippersink Cr.	0712000609	3	IL_DTKA-04	7.04	2	F582, X583, X585, X586, X590	N/A	N/A
N. Br. Otter Cr.	0709000405	7	IL_PWBB-01	9.78	2	F582, X583, X585, X586, X590	N/A	N/A
N. Br. Otter Cr.	0713000307	13	IL_DIC	5.14	3	X582, X583, X585, X586, X590	N/A	N/A
N. Fk. Clear Cr.	0713000608	21	IL_EPB-01	6.27	3	X582, X583, X585, X586, X590	N/A	N/A
N. Fk. E. Fk. La Moine R	0713001003	17	IL_DGLF	6.11	3	X582, X583, X585, X586, X590	N/A	N/A
N. Fk. East Fork	0709000603	5	IL_PQEE-01	1.46	3	X582, X583, X585, X586, X590	N/A	N/A
N. Fk. Embarras R.	0512011210	30	IL_BEF-02	31.17	2	F582, X583, X585, X586, X590	N/A	N/A
N. Fk. Embarras R.	0512011210	30	IL_BEF-05	28.87	5	F582, X583, N585, X586, X590	400	140
N. Fk. Hadley Cr.	0711000404	19	IL_KCHC	6.53	3	X582, X583, X585, X586, X590	N/A	N/A
N. Fk. Indian Cr.	0512011208	30	IL_BEMB	4.25	3	X582, X583, X585, X586, X590	N/A	N/A

Name	10-Digit HUC	IEPA Basin	Assessment Unit ID	Size (miles)	Cat.	Designated Uses/Attainment	Causes	Sources
N. Fk. Kaskaskia R.	0714020205	24	IL_OKA-01	10.11	5	N582, F583, N584, N585, X586, X590	273, 322, 441, 462, 260, 400	56, 127, 140, 144
N. Fk. Kaskaskia R.	0714020205	24	IL_OKA-02	15.31	5	N582, X583, N584, X585, X586, X590	273, 322, 441, 462, 260	56, 127, 140, 144
N. Fk. Mauvaise Terre C	0713001104	18	IL_DDC	14.03	5	N582, X583, X585, X586, X590	273, 322, 403, 458	140, 20, 144
N. FK. Plum R.	0706000510	9	IL_MJF	4.13	3	X582, X583, X585, X586, X590	N/A	N/A
N. Fk. Raccoon Cr.	0512011112	30	IL_BGA	8.14	3	X582, X583, X585, X586, X590	N/A	N/A
N. Fk. Richland Cr.	0713000803	20	IL_EKB	5.13	3	X582, X583, X585, X586, X590	N/A	N/A
N. Fk. Saline R.	0514020404	32	IL_ATF-05	7.90	4C	N582, F583, X585, X586, X590	243	20, 125
N. Fk. Saline R.	0514020404	32	IL_ATF-07	5.52	5	N582, F583, X585, X586, X590	138, 84, 399	102, 20, 72
N. Fk. Saline R.	0514020406	32	IL_ATF-04	5.15	5	F582, F583, N585, X586, X590	400	140
N. Fk. Saline R.	0514020407	32	IL_ATF-06	14.94	2	F582, F583, X585, X586, X590	N/A	N/A
N. Fk. Salt Cr.	0713000902	22	IL_EIJ-01	19.83	2	F582, X583, X585, X586, X590	N/A	N/A
N. Fk. Shelby Cr.	0713001012	17	IL_DGC	5.44	3	X582, X583, X585, X586, X590	N/A	N/A
N. Fk. Vermilion R.	0713000203	12	IL_DSQ-02	6.35	2	F582, X583, X585, X586, X590	N/A	N/A
N. Fk. Vermilion R.	0713000203	12	IL_DSQ-03	29.95	5	N582, X583, X585, X586, X590	84, 371, 403, 458	20, 144
N. Fk. Vermilion R.	0512010909	29	IL_BPG-05	9.82	5	F582, X583, N584, X585, X586, X590	452	140
N. Fk. Vermilion R.	0512010909	29	IL_BPG-09	5.91	5	F582, X583, N585, X586, X590	400	140
N. Fk. Vermilion R.	0512010909	29	IL_BPG-10	24.11	5	N582, X583, X585, X586, X590	84, 458	20, 85, 144
N. Fk. Vermilion R.	0512010909	29	IL_BPG-11	4.52	2	F582, X583, X585, X586, X590	N/A	N/A
N. Fork Kent Cr.	0709000501	6	IL_PSB-01	11.40	5	F582, X583, N585, X586, X590	400	140
N. Henderson Cr.	0708010408	16	IL_LDE-03	30.82	2	F582, X583, X585, X586, X590	N/A	N/A
N. Kickapoo Cr.	0712000509	11	IL_DZZA	8.07	3	X582, X583, X585, X586, X590	N/A	N/A
N. Kinnikinnick Cr.	0709000501	6	IL_PU	13.37	2	F582, X583, X585, X586, X590	N/A	N/A
N. Lake Fk.	0713000903	22	IL_EIGB-01	26.78	4C	N582, X583, X585, X586, X590	243	20
N. Mill Cr.	0712000403	2	IL_GWA	7.13	3	X582, X583, X585, X586, X590	N/A	N/A
N. Pope Cr.	0708010405	16	IL_LEG-02	13.07	3	X582, X583, X585, X586, X590	N/A	N/A
N. Shore Channel	0712000301	1	IL_HCCA-04	3.38	5	N583, X586, F587	348	140
Nashville Cr.	0714020207	24	IL_OJAF-NV-A1	6.18	2	F582, X583, X585, X586, X590	N/A	N/A
Nashville Cr.	0714020207	24	IL_OJAF-NV-C1	0.90	5	N582, X583, X585, X586, X590	462	85, 144, 177
Nashville Cr.	0714020207	24	IL_OJAF-NV-C3	2.51	2	F582, X583, X585, X586, X590	N/A	N/A

Name	10-Digit HUC	IEPA Basin	Assessment Unit ID	Size (miles)	Cat.	Designated Uses/Attainment	Causes	Sources
Rocky Run	0713000107	11	IL_DQC	4.43	3	X582, X583, X585, X586, X590	N/A	N/A
Roods Cr.	0712000706	4	IL_DTZE-01	11.88	3	X582, X583, X585, X586, X590	N/A	N/A
Rooks Cr.	0713000204	12	IL_DSJ-01	33.91	2	F582, X583, X585, X586, X590	N/A	N/A
Root Lick Branch	0514020317	32	IL_AJC	4.59	3	X582, X583, X585, X586, X590	N/A	N/A
Rose Cr.	0514020314	32	IL_ALF	8.50	3	X582, X583, X585, X586, X590	N/A	N/A
Rose Cr.	0514020407	32	IL_ATEE-08	3.07	5	N582, X583, X585, X586, X590	322, 385, 399	140, 127
Rosetter Cr.	0709000606	5	IL_PQCK-01	6.71	3	X582, X583, X585, X586, X590	N/A	N/A
Rubicon Cr.	0713001204	18	IL_DAFA	9.26	3	X582, X583, X585, X586, X590	N/A	N/A
Ruffner Cr.	0512011208	30	IL_BEIB	2.73	3	X582, X583, X585, X586, X590	N/A	N/A
Running Slough	0514020301	32	IL_AZB	9.43	3	X582, X583, X585, X586, X590	N/A	N/A
Rupp Run	0713000302	13	IL_DLK	1.86	3	X582, X583, X585, X586, X590	N/A	N/A
Rush Cr.	0709000602	5	IL_PQH-01	14.82	2	F582, X583, X585, X586, X590	N/A	N/A
Rush Cr.	0706000507	9	IL_ML	31.03	3	X582, X583, X585, X586, X590	N/A	N/A
Russett Branch	0713001102	18	IL_DES	3.46	3	X582, X583, X585, X586, X590	N/A	N/A
Russian Branch	0714010610	26	IL_NCKC	3.56	3	X582, X583, X585, X586, X590	N/A	N/A
S. Beach Cr.	0709000503	6	IL_PLBA	4.81	5	N582, X583, X585, X586, X590	458	66, 143
S. Br. Chicago R.	0712000302	1	IL_HC-01	3.97	5	N583, X586, F587	348	140
S. Br. Crow Cr. E.	0713000113	11	IL_DOA	22.61	3	X582, X583, X585, X586, X590	N/A	N/A
S. Br. E. Kishwaukee R.	0709000602	5	IL_PQI-10	5.81	5	N582, X583, X585, X586, X590	104, 84, 319, 371, 462, 478, 479	28, 85, 20, 58, 122, 144
S. Br. Fork Cr.	0712000121	10	IL_FBC-02	21.26	3	X582, X583, X585, X586, X590	N/A	N/A
S. Br. Kishwaukee R.	0709000606	5	IL_PQC-02	12.44	5	F582, N583, X585, X586, X590	348	140
S. Br. Kishwaukee R.	0709000606	5	IL_PQC-05	15.60	5	N582, N583, X585, X586, X590	463, 348	140
S. Br. Kishwaukee R.	0709000606	5	IL_PQC-06	5.37	5	F582, N583, N585, X586, X590	348, 400	140
S. Br. Kishwaukee R.	0709000606	5	IL_PQC-09	9.10	5	F582, N583, X585, X586, X590	348	140
S. Br. Kishwaukee R.	0709000606	5	IL_PQC-11	6.92	5	F582, N583, X585, X586, X590	348	140
S. Br. Kishwaukee R.	0709000606	5	IL_PQC-13	14.06	5	N582, N583, X585, X586, X590	84, 371, 458, 479, 348	20, 144, 140
S. Br. Kishwaukee River	0709000602	5	IL_PQI-H-D1	5.72	5	N582, X583, X585, X586, X590	84, 319, 371	20, 58, 122, 144
S. Br. Kishwaukee River (E	0709000602	5	IL_PQI-H-C3	2.65	5	N582, X583, X585, X586, X590	84, 319, 462	20, 122, 58, 85
S. Br. Kishwaukee River (E	0709000602	5	IL_PQI-H-C5	4.03	5	N582, X583, X585, X586, X590	163, 462	85, 177

Name	10-Digit HUC	IEPA Basin	Assessment Unit ID	Size (miles)	Cat.	Designated Uses/Attainment	Causes	Sources
S. Br. La Moine R.	0713001002	17	IL_DGZR	13.99	5	N582, X583, F584, X585, X586, X590	273, 308, 322, 462	140, 85
S. Br. Larry Cr.	0708010419	16	IL_LJB	5.47	3	X582, X583, X585, X586, X590	N/A	N/A
S. Br. Otter Cr.	0709000405	7	IL_PWBC	8.97	5	N582, X583, X585, X586, X590	463	140
S. Br. Otter Cr.	0713000307	13	IL_DIF	1.67	3	X582, X583, X585, X586, X590	N/A	N/A
S. Br. Pettibone Cr.	0404000205	1	IL_QAA-D1	2.45	5	N582, X583, X585, X586, X590	1, 213, 244, 348	28
S. Br. Rock Cr.	0712000119	10	IL_FFB-01	19.46	2	F582, X583, X585, X586, X590	N/A	N/A
S. Br. Waukegan R.	0404000205	1	IL_QCA-01	0.86	5	N582, X583, X585, X586, X590	79, 154, 177, 246, 301, 319, 375, 458	28, 132, 177
S. Edwards R.	0708010401	16	IL_LFG-01	18.53	3	X582, X583, X585, X586, X590	N/A	N/A
S. Fk. Apple R.	0706000505	9	IL_MNI-12	10.25	2	F582, X583, X585, X586, X590	N/A	N/A
S. Fk. Bear Cr.	0711000102	19	IL_KIF-01	6.77	2	F582, X583, X585, X586, X590	N/A	N/A
S. Fk. Bear Cr.	0711000102	19	IL_KIF-02	18.66	2	F582, X583, X585, X586, X590	N/A	N/A
S. Fk. Big Cr.	0714020201	24	IL_OPA-01	6.95	3	X582, X583, X585, X586, X590	N/A	N/A
S. Fk. Brouilletts Cr.	0512011101	30	IL_BND	15.29	3	X582, X583, X585, X586, X590	N/A	N/A
S. Fk. Horse Cr.	0714020408	25	IL_OBC	4.66	3	X582, X583, X585, X586, X590	N/A	N/A
S. Fk. Indian Cr.	0512011208	30	IL_BEMA	5.49	3	X582, X583, X585, X586, X590	N/A	N/A
S. Fk. Kent Cr.	0709000501	6	IL_PSA	8.90	5	X582, X583, N585, X586, X590	400	140
S. Fk. Lake Fk.	0713000903	22	IL_EIGC	14.69	3	X582, X583, X585, X586, X590	N/A	N/A
S. Fk. Lick Cr.	0713000708	20	IL_EOAAA	13.65	3	X582, X583, X585, X586, X590	N/A	N/A
S. Fk. McKee Cr.	0713001102	18	IL_DEA	18.42	2	F582, X583, X585, X586, X590	N/A	N/A
S. Fk. Mud Cr.	0714020403	25	IL_OEB	8.25	3	X582, X583, X585, X586, X590	N/A	N/A
S. Fk. Otter Cr.	0713001109	18	IL_DZAF-01	8.01	3	X582, X583, X585, X586, X590	N/A	N/A
S. Fk. Raccoon Cr.	0512011112	30	IL_BGB	6.24	3	X582, X583, X585, X586, X590	N/A	N/A
S. Fk. S. Br. Chicago R	0712000302	1	IL_HCA-01	3.08	5	X583, X586, N587	322, 441, 462	23
S. Fk. S. Henderson R.	0708010411	16	IL_LDAB	9.68	3	X582, X583, X585, X586, X590	N/A	N/A
S. Fk. Saline R.	0514020401	32	IL_ATH-02	7.98	5	N582, X583, N585, X586, X590	84, 273, 322, 371, 403, 441, 400	20, 127, 140, 144
S. Fk. Saline R.	0514020401	32	IL_ATH-05	7.95	5	N582, X583, F585, F586, X590	127, 84, 260, 273, 322, 371, 385, 399, 403, 441	2, 127, 20, 140
S. Fk. Saline R.	0514020401	32	IL_ATH-11	8.52	2	F582, X583, X585, X586, X590	N/A	N/A
S. Fk. Saline R.	0514020401	32	IL_ATH-14	4.04	5	N582, X583, X585, X586, X590	322	62, 85
S. Fk. Saline R.	0514020403	32	IL_ATH	12.63	3	X582, X583, X585, X586, X590	N/A	N/A

Emails With Respect to Attachment S



USEPA contracted w/ Mr. Rankin for the habitat assessment.

From: <Hammer.Edward@epamail.epa.gov>
To: <Howard.Essig@epa.state.il.us>
Date: 5/10/2007 8:38:11 AM
Subject: Fw: QHEI Report

Howard,

This is the report Ed Rankin did for the CAW UAA it does contain some data for the Lower DesPlaines but the MBI crew collected probably more relavent data last year when they sampled fish- that's what I sent yesterday.

Ed

Edward Hammer
USEPA WQ-16J
77 West Jackson Blvd
Chicago, IL 60604
312-886-3019
Fax: 312-886-0168
hammer.edward@epa.gov

----- Forwarded by Edward Hammer/R5/USEPA/US on 05/10/2007 08:33 AM -----

Chris Yoder <yoder@rrohio.com>

04/02/2007 01:15 PM

To: Edward Hammer/R5/USEPA/US@EPA
cc

Please respond to yoder@rrohio.com

Subject: QHEI Report

Attached.

Chris O. Yoder, Research Director
Center for Applied Bioassessment & Biocriteria
Midwest Biodiversity Institute
P.O. Box 21561

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yoder@rrohio.com
(614) 457-6000
(614) 457-6005 [fax]
(614) 403-9592 [cell]

(See attached file: Chicago QHEI Study Draft 4_22.pdf)

From: <Hammer.Edward@epamail.epa.gov>
To: <Howard.Essig@epa.state.il.us>
Date: 5/9/2007 11:03:02 AM
Subject: Lower DesPlaines and Illinois River IBI and QHEI data from MBI

Howard,

Here are the data sheets for the Lower DesPlaines and Illinois River that MBI collected last year. These still have a few corrections to be made on the location information.

(See attached file: DesPlaines QHEI Metrics 2006.pdf)(See attached file: Des Plaines IBI.pdf)(See attached file: Des Plaines QHEI.pdf)(See attached file: desplaines Fish 2006.pdf)

Ed

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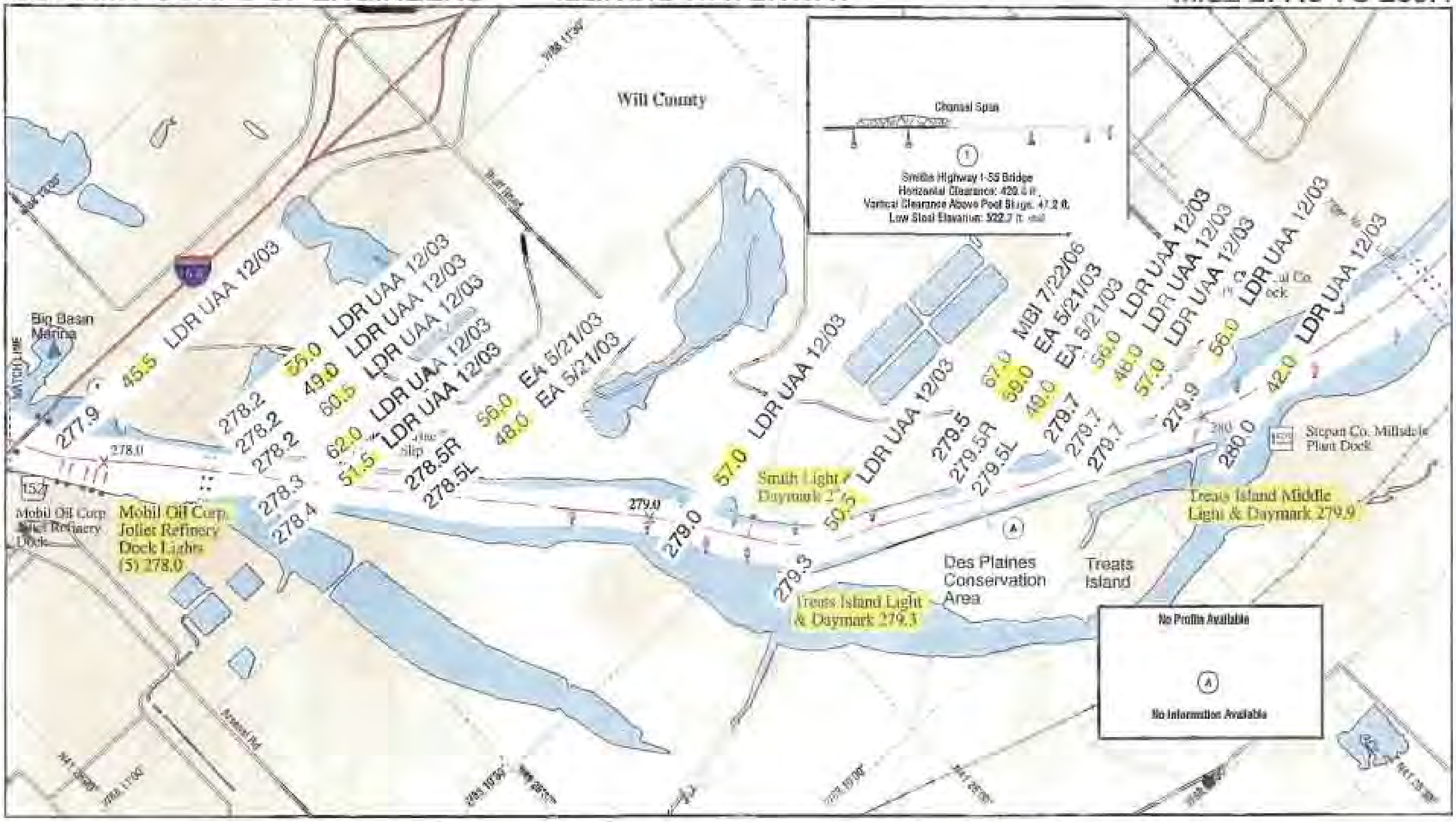

1998

1) The legend is located immediately preceding map No. 1.
2) Barge Facility information and submerged cable and pipeline clearances are located in appendices A and B respectively.

Scale 1:12000 Scale 1" = 1000 Feet
0 1000 2000 ft

US ARMY CORPS OF ENGINEERS ILLINOIS WATERWAY MILE 280.4 TO 283.4

1998

1) The legend is located immediately preceding map No. 1
2) Barge Facility information and submerged cable and pipeline clearances are located in appendices A and B respectively.

Scale 1:12000 Scale 1" = 1000 Feet
0 1150 2300 ft

MAP NO. 110

1998

1) The legend is located immediately preceding map No. 1
2) Barge Facility information and submerged cable and pipeline clearances are located in appendices A and B respectively.

Scale 1:12000 Scale 1" = 1000 feet

Qualitative Habitat Evaluation Index Scores in Upper Dresden Island Pool of Des Plaines River

Sources of QHEI Scores:
Lower Des Plaines R. UAA (Attachment A: 1993-94 sampling)
EA Engineering, Science, & Technology (email to IEPA: 2003 sampling)
CABB 2004 (Attachment R: 2004 sampling)
MBI 2006 (Hearing Exhibits 5 & 6: 2006 sampling)