

MISSISSIPPI RIVER AND TRIBUTARIES

WATERWAYS ACTION PLAN

ILLINOIS WATERWAY ANNEX
2022



Illinois Waterway in Hardin, IL cresting at 40.2 ft. on June 4, 2019

ILLINOIS WATERWAY ANNEX

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Introduction

This appendix provides general information and target gauges to be used as a guideline for a crisis on the Illinois Waterway (ILWW). Like a crisis on the Upper Mississippi River (UMR), it is the responsibility of the United States Coast Guard (USCG), United States Army Corps of Engineers (USACE), and River Industry representatives to meet and discuss conditions on the ILWW and to *annually* review the actions specified in the plan. In Section 4 of this annex, the entire ILWW is broken into fourteen zones. Each zone is delineated by river mile and is characterized by river stage, with three action phases (e.g., *Watch, Action, and Recovery Phases*) described in the plan. A combination of reference gauges, historical data & known impact areas were used to derive these zones.

Section 1 – Geographic Description

The ILWW follows the channel of the Chicago Sanitary & Ship Canal from Chicago, then extends down the Des Plaines River and finally the Illinois River to its mouth at the Mississippi River near Grafton, Illinois. It also links to the Calumet region via the Calumet Sag Channel. The waterway drops from 579.5' above sea level at Lake Michigan to 419' above sea level at Grafton, Illinois. To accommodate this drop, eight locks and dam sites were constructed along the waterway at Chicago, Lockport, Brandon Road, Dresden Island, Marseilles, Starved Rock, Peoria, and La Grange.

HYDROLOGY AND IMPACT CONCERNS

Flooding on the ILWW is normally caused by high flows on the ILWW, by backwater from the UMR, or a combination of both. The ILWW is said to "flood from the bottom up on most occasions." Potential for damage is usually associated with extreme or prolonged high water conditions which reduce levee freeboard, saturate levees and increase seepage, while restricting access for repair. Along the middle section of the ILWW, damage to homes is of concern when the impact of high water is multiplied by the surge and suction caused by large commercial tows passing within close proximity of flooded homes. All of these issues must be taken into consideration when deciding to implement operating restrictions or cease traffic. Additionally, not all areas of concern are consistent throughout the entire length of the ILWW. In the upper reaches, safe navigating conditions for tows and locks operating restrictions are the predominant considerations. In the mid-reaches, the concerns are safe navigation and wake damage while, in the lower reaches, concern for levee conditions is paramount.

LOW WATER & ICE CONDITIONS

Waterway management concerns also occur during low water and ice conditions on the ILWW. Low water is of particular concern on the ILWW below Starved Rock Lock & Dam. This section of river is pooled by two wicket dams designed to hold the river to pool level or slightly above. These dams do not have the capability of holding more water in the pools. These pools are susceptible to rapid water level changes when a dam is placed into operation or is dropped to allow for open passage. Groundings during low water conditions delay commercial traffic, cause substantial damage to the navigation channel and can necessitate dredging. Ice condition not only reduces water levels but causes ice to build up underneath barges causing them to "ground" without ever touching the river bottom. Ice navigation can be very difficult as the ice removes navigation buoys, causes ice gorges and damages the hulls of towing vessels and barges. USCG may impose waterway closures if the formation of large ice sheets pose a navigational risk.

Commented [MSRL2]: Proposed change after working group from 2021 ice formations.

CONTROLLING FACTORS & WATERWAYS MANAGEMENT PLANNING

Under flood conditions, controlling factors are gauge readings at specific locales and locks. These are general elevations at which water levels may cause impact upon levee conditions, damage homes or create unsafe navigation conditions, as described in the "action" column of each zone. Well before water levels near or reach these levels, the USCG in conjunction with USACE, and industry shall implement the "Watch Phase" of the plan (which vary for each zone) e.g., establish communications to discuss the current and forecasted conditions. These discussions should include an analysis of data, weather history & forecast, impact upon river environment and commercial traffic requirements. Furthermore, general considerations such as levee conditions, wake damage, bridge clearances and lock operating restrictions/closures shall be discussed. **If the conditions and time permit the USACE, USCG, and Illinois River Carrier's Association (IRCA) may observe test tows transiting an area, in order to determine if a river closure is warranted.**

Section 2 – Parties and Roles

U.S. Coast Guard (USCG)

USCG Sector Upper Mississippi River, with its principal office in St Louis, MO and a smaller Marine Safety Detachment (MSD) office in Peoria, IL, is responsible for safety of navigation, security, and law enforcement along the ILWW as far as mile marker (MM) 187.2; from that point, the responsibility belongs to USCG Sector Lake Michigan working through USCG Marine Safety Unit (MSU) Chicago.

U.S. Army Corps of Engineers (USACE)

The USACE maintains two Lock and Dam facilities (TJ O’Brian and Lockport) under the supervision of the Chicago District and an additional four Lock and Dam facilities along the ILWW, under the Supervision of their Rock Island District Office on Arsenal Island in Rock Island, IL, St. Louis District Office in Downtown St. Louis and a Project Office in Peoria, IL. To the extent possible, through management of these facilities, the USACE maintains pool levels that are sufficient to accommodate commercial traffic on the river. The USACE is required to deliver a 9-foot navigation channel.

U.S. Coast Guard District Eight Bridge Branch (dwb)

The Bridge Administration Program has a mandated responsibility to protect the public’s right of navigation. Activities include determining location of navigation channel piers and issuing bridge permits. They establish, revise and monitor drawbridge regulations and prescribe bridge lighting. Also, Truman-Hobbs studies of unreasonable obstructive bridges are conducted on a nationwide basis.

Illinois River Carrier’s Association (IRCA)

IRCA plays a similar role to that of the River Industry Action Committee (RIAC), but keyed to only the ILWW, whereas RIAC may overlap the major inland rivers.

River Industry Action Committee (RIAC)

RIAC is an association of companies and organizations who are stakeholders in the commercial industry on the inland rivers. As the name suggests, they act in an advisory capacity on a wide range of issues affecting the activities of the industry on the rivers. They provide an industry perspective to the USCG and the USACE on matters such as high and low water, ice conditions, shoaling, marine accidents, etc.

Fleeting Facility Managers

Fleeting facility managers have a direct commercial interest in navigation conditions on the ILWW, and any actions taken by the USCG or USACE in response to hazardous conditions that develop on the river. They can play a valuable role in providing feedback to other parties on both river conditions and impact of proposed actions of the USCG and USACE.

Designated Waterfront Facilities

Like the fleeting facility managers, the commercial interests of the designated waterfront facilities are directly impacted by navigation conditions on the ILWW, and any actions taken by the USCG or USACE in response to hazardous conditions that develop on the river. They can play a valuable role in providing feedback to other parties on both river conditions and impact of proposed actions of the USCG and USACE.

State Emergency Managers

Hazardous conditions on the ILWW, particularly high water/flooding conditions, frequently involve state emergency managers, as they become involved in responding to affected communities, and take a direct interest in conditions or activities that can affect the levee systems that protect those communities.

Metropolitan Water Reclamation District (MWRD)

The mission of the MWRD is to protect the health and safety of the public in its service area. Water flow within the District's waterway system and the Lake Michigan discretionary diversion flow are controlled by three inlet structures on Lake Michigan: Wilmette Pumping Station, Chicago River Controlling Works and T.J. O'Brien Lock and Dam. There is normally some level of flow through the powerhouse, and there is some limited flow through the lock as the chamber is filled and emptied. The main outlet from the Chicago Sanitary and Ship Canal during high flows is a control structure on the right descending bank of the CSSC about 2 miles upstream of the Lock.

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USACE and USCG Equivalencies

USACE POSITION St. Louis District MM 0.0-80.0	DUTIES & RESPONSIBILITIES	EQUALS	USCG POSITION	DUTIES & RESPONSIBILITIES
Chief, Water Control Operations (Supports Operations)	River Stage Forecast & Control			Oversees daily waterway management and casualty operations
Operations Dredging Project Manager, St. Louis, MO	Channel Patrol & O&M Dredging Activities ILWW		Chief, Waterways Management Division, Sector Upper Mississippi River	
Operations Manager, Rivers Project Office, Alton, IL	Project Manager of ILWW			
Chief, Emergency Management	Flood Fight Response Activities			
REPORTS TO:				
Chief of Operations, St. Louis District	Supervises Operations Managers		Chief, Prevention Department, Sector Upper Mississippi River	Supervises operational issues
REPORTS TO:				
District Engineer, St. Louis District	Supervises Chief of Operations		Commander, Sector Upper Mississippi River	Senior USCG officer in area
REPORTS TO:				
Division Engineer, Mississippi Valley Division	Supervises District Engineer		Commander, Eighth Coast Guard District	Senior USCG officer in District

USACE POSITION Rock Island District MM 80.0-187.0	DUTIES & RESPONSIBILITIES	EQUALS	USCG POSITION	DUTIES & RESPONSIBILITIES
Chief Maintenance Section and Chief L&D Section	Day to day O&M ILWW		Chief, Waterways Management Division, Sector Upper Mississippi River	Oversees daily waterway management and casualty operations
Operations Manager, Illinois Waterway	Supervises Section Chiefs			
REPORTS TO:				
Chief of Operations, Rock Island District	Supervises Operations Manager		Chief, Prevention Department, Sector Upper Mississippi River	Supervises operational issues
REPORTS TO:				
District Engineer, Rock Island District	Supervises Chief of Operations		Commander, Sector Upper Mississippi River	Senior USCG officer in area
REPORTS TO:				
Division Engineer, Mississippi Valley Division	Supervises District Engineer		Commander, Eighth Coast Guard District	Senior USCG officer in District

USACE POSITION Rock Island District MM 187.1-327.0	DUTIES & RESPONSIBILITIES	EQUALS	USCG POSITION	DUTIES & RESPONSIBILITIES
Chief Maintenance Section and Chief L&D Section	Day to day O&M ILWW		Waterways Division, Marine Safety Unit Chicago	Oversees daily waterway management and casualty operations
Operations Manager, Illinois Waterway	Supervises Section Chiefs			
REPORTS TO:				
Chief of Operations, Rock Island District	Supervises Operations Manager		Commanding Officer, Marine Safety Unit Chicago	Supervises operational issues
Chief of Operations USACE Chicago District	Supervises Operations Manager		Commanding Officer, Marine Safety Unit Chicago	Supervises operational issues
REPORTS TO:				
District Engineer, Rock Island District	Supervises Chief of Operations		Commander, Sector Lake Michigan	Senior USCG officer in area
REPORTS TO:				
Division Engineer, Mississippi Valley Division	Supervises District Engineer		Commander, Ninth Coast Guard District	Senior USCG officer in District

Section 3 – Communications Plan

Initiation of Communications Plan – This section provides guidance on the methods of communicating and receiving information. The USCG and maritime industry all carefully monitor river conditions and levels. When any of the conditions warrant attention (high water, low water, high flow, ice or any other hazardous condition), any ILWW stakeholder can request a conference call by contacting the USCG Sector Upper Mississippi River, Waterways Management Division Chief, USCG MSU Chicago, or the Chair of IRCA. The Chair of IRCA and the USCG will discuss the concerns with the appropriate USACE contacts to decide if a phone conference is necessary. If further discussion is needed, the members listed on the following pages of this section, to include Industry and State personnel, will be contacted via email or phone call. The IRCA chair will contact those members of their respective organizations. A teleconference will be set up to confer with all parties on possible measures to take and joint courses of action using the guidance from this annex as a basis to make a determination. During times when zones have reached the “action” phase, representatives of the Captain of the Port Upper Mississippi River and the Commanding Officer (or Executive Officer) of MSU Chicago shall be present during telephone conference calls. By conferring frequently with all ILWW stakeholders a joint action plan to safely navigate during the condition that warranted initiating the communications plan will be developed. The action plan will then be communicated to all ILWW stakeholders and the public using Broadcast Notice to Mariners, Homeport, press releases if appropriate, and, if time permits, Local Notice to Mariners.

Phone Conference Call Agenda:

- I. Roll Call by Phone Conference Host
- II. Protocol for Conference Call
- III. Open Statement by Chairman or Co-Chairman of IRCA/RIAC on Issues
- IV. Weather Forecast by NWS or USACE
- V. River Stage Forecast by USACE
- VI. Channel Report for Area Of Concern by USACE Dredging Section
- VII. Status of Dredging and Next Scheduled Locations
- VIII. USCG Report on Advisories and Remarks
- IX. USCG Buoy Tender Report on Channel Conditions
- X. River Condition Report and Issues of Conference Call by Industry
- XI. Discussion of Issues on Current Situations
- XII. Assessment, Actions to Be Taken
- XIII. Closing

All Agencies & Organizations: To ensure effective interagency cooperation during periods of coordinated response to high and low water, or other hazardous river conditions, stakeholder organizations are advised to **maintain active and ongoing communications with one another during normal river conditions and while planning together for joint response activities.** This will greatly facilitate speedy and effective communications under the pressure of responding to an event.

Vessel to Vessel and Vessel to Shore Communications: VHF communications on the ILWW are handled by the communications centers at the Western Rivers Command Center and Sector Lake Michigan Integrated Command Center.

Commented [MSRL3]: Changed to reflect Sector Upper Mississippi and Lower Mississippi Rivers Command Center merger.

The Western Rivers Command Center is located in the Robert A. Young Federal Building in St. Louis, MO and is responsible for receiving information on the ILWW MM 0-187.0.

The Sector Lake Michigan Command Center is located in Milwaukee, WI and is responsible for receiving information on the ILWW MM 187.0-333.4.

NOTIFICATIONS:

Refer to pages 9 – 11 for contact list.

Commented [MSRL4]: Review accuracy once all changes are made.

U. S. Coast Guard:

The USCG maintains a 24/7 live watch at its Command Centers in St. Louis, MO and Milwaukee, WI. Hazardous river conditions are monitored by Command Center personnel, as well as Sector Duty Officers in St. Louis, MO and Milwaukee, WI and are reported, as appropriate, to the Sector Commanders. As conditions dictate, the Command Centers will release Broadcast Notices to Mariners (BNM) or Urgent Marine Information Broadcasts (UMIB) with safety advisories, safety zones, or river closures. As noted above, these waterways control measures are determined in consultation with the USACE and representative of the river industry.

USCG MSU Chicago’s Area of Responsibility covers MM 187.2-333.4.

For reports of high water and high flows that require action (BNM) in MSU Chicago’s area, call the Sector Lake Michigan Command Center.

The USCG District Eight Bridge Branch manages all bridges within the Sector Upper Mississippi River zone. Any issues involving a bridge should be reported to the Bridge Branch or Sector Command Centers.

USACE Rock Island District:

During Normal Work Hours

During periods of hazardous river conditions the USACE field offices work closely with river users and the basin communities. The field office staff reports the river conditions and impacts to their respective District Office and Mississippi Valley Division (MVD) Point of Contact. The USACE has three district offices responsible for the ILWW; the Chicago District, Rock Island District and the St. Louis District. The field staff report to district staff persons within Operations Division and Emergency Management Division. Operations Division staff will inform the District Water Control or Water Management Offices, the district leadership and the District Commander. They will also notify Division Water Management. They will then contact appropriate staff person in the Division Office, who will notify, the appropriate Division leadership and the Division Commander. The District Operations staff will coordinate with the Coast Guard throughout the hazardous period. When river conditions become too hazardous for safe navigation or if continuing navigation causes an unsafe condition such as causing levee erosion or interfering with flood fighting, etc., the USACE through the appropriate District Commander will make recommendations to the Coast Guard to issue safety zone restrictions or river closures. Likewise as river conditions improve the USACE through the appropriate District Commander will make recommendations to remove the safety zone restrictions or reopen the river to navigation.

After Normal Work Hours, Weekends and Holidays

Below is the most up-to-date contact list with work and cell phone numbers, which are maintained by USACE staff responsible for emergency response to hazardous river conditions.

- River users may report hazardous conditions to the nearest Lock and Dam. The Lockmaster will report the hazardous conditions and possible impacts to Water Control Personnel and River Project Manager.
- USACE will report hazardous conditions to USCG.
- USACE will coordinate with USCG for issuance of safety zones.

USACE St. Louis District:

During Normal Work Hours

During periods of hazardous river conditions the USACE works closely with river users and the basin communities. River users may report hazardous conditions to the nearest Lock and Dam. The Lockmaster will report the hazardous river conditions and impacts to their District Office Point of Contact. Once the report of the hazardous condition is received in the District Office the following persons will be informed: District Water Control Manager, Emergency Management Manager, Operations Dredging Project Manager, Rivers Project Office Manager, the Chief of Operations, District Deputy Engineer and the District Commander. The District team including Water Control, Emergency Management and Operations staff will coordinate with the Coast Guard throughout the hazardous period. When river conditions become too hazardous for safe navigation or if continuing navigation causes an unsafe condition such as causing levee erosion or interfering with flood fighting, etc., the USACE through the District Commander will make recommendations to the Coast Guard to issue safety zone restrictions or river closures. Likewise as river conditions improve the USACE through the appropriate District Commander will make recommendations to remove the safety zone restrictions or reopen the river to navigation.

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Below is the most up-to-date contact list with work and cell phone numbers, which are maintained by USACE staff responsible for emergency response to hazardous river conditions.

- River users may report hazardous conditions to the nearest Lock and Dam. The Lockmaster will report the hazardous conditions and possible impacts to Water Control Personnel and River Project Manager.
- USACE will report hazardous conditions to USCG.
- USACE will coordinate with USCG for issuance of safety zones.

Illinois Emergency Management Agency (IEMA):

In the event of an incident occurring on the ILWW which could involve the State of Illinois, immediate contact should be made with the IEMA telecommunications center. This will alert the Operations staff which enables the IEMA to monitor and pre-position resources if circumstances dictate. It is at this initial call number that the agencies equipped to provide a response; mitigation and recovery are quickly notified. Periodic status reports to the telecommunications center allows the IEMA staff time to prepare for management procedures.

ILWW Contact List	
IRCA	
Chair – Jeremy Tardy	(270) 933-8056 Tardy@westernriversboat.com
RIAC	
St. Louis District – Bernie Heroff	(314) 803-4644 (cell) (877) 855-7266 bernard.heroff@adm.com
Rock Island District – Casey Herschler	(217) 257-1749 casey.herschler@gmail.com
St. Paul District - Lee Nelson	(651) 292-9293 (651) 260-0185 (cell) lee@ursi.net
USCG Sector Upper Mississippi River; St. Louis, MO	
Command Center (24/7)	(314) 269-2332 westernriverscc@uscg.mil
Sector Commander – CAPT Richard Scott	(314) 269-2600 richard.m.scott@uscg.mil
Prevention Department Chief – LCDR Dan Every	(314) 269-2568 daniel.j.every@uscg.mil
Waterways Management Division Chief – LCDR Steph Moore	(314) 269-2560 stephanie.r.moore@uscg.mil
Waterways Management Division Watch stander (24/7)	(319) 520-8556 SUMRWaterways@uscg.mil
USCG Marine Safety Detachment Peoria	
	(309) 694-7779
USCG Sector Lake Michigan; Milwaukee, WI	
Command Center (24/7)	(414) 747-7182
USCG Marine Safety Unit Chicago	
Commanding Officer – CDR Randy Preston	(630) 986-2155 randy.l.preston@uscg.mil
Waterways Management Division	(630) 986-2131 (630) 341-8320 (cell) D09-SMB-MSUChicago-WWM@uscg.mil
Command Duty Officer (24/7)	(630) 336-0281
USCG Eighth District Bridge Branch; St. Louis, MO	
During normal working hours	(314) 269-2378 (314) 299-4757 STL-DG-ALL-D8-DWB@uscg.mil
After normal working hours, call USCG Western Rivers Command Center	

Commented [MSRL5]: Changed to reflect new email address.

Commented [MSRL6]: Changed to reflect Command Center merger.

ILWW Contact List	
USACE Chicago District	
24 Hour Contact Phone Number	(312) 846-5330
Timothy Kroll Supervisor, Waterway Project Office	312-846-5484 (cell) Tim.kroll@usace.army.mil
Michael Walsh Chief Waterway Project Office	815-510-0361 (cell) Michael.j.walsh@usace.army.mil
William "Paul" Mazzeno Chief Operations & Regulatory Division	312-846-5552 (office) 872-227-4511 (cell) Willam.p.mazzeno@usace.army.mil
Website	https://www.lrc.usace.army.mil/
USACE Rock Island District	
24 Hour Contact Phone Number	(309) 794-4200
Mississippi River Project/Channel Maintenance Office	
Aaron Dunlop	(309) 794-4500 (563) 209-0554 (cell) Aaron.D.Dunlop@USACE.army.mil
Bob Castro	(309) 794-4580 (309) 749-7214 robert.v.castro@usace.army.mil
John Klingman	(309) 794-5240 (309) 738-2257 (cell) jon.a.klingman@usace.army.mil
Chief, Operations Division, Tom Heinold	(309) 794-5401 Thomas.D.Heinold@USACE.army.mil
Deputy, chief Operations Division Brad Houzenga	(309) 794-5501 Brad.C.Houzenga@USACE.army.mil
USACE St. Louis District	
Emergency Management Office: John Osterhage	(314) 331-8605 (314) 331-8569 john.l.osterhage@usace.army.mil
Water Control:	
Joan Stemler	(314) 331-8330 (314) 630-6292 (cell) joan.m.stemler@usace.army.mil
Konrad Faries	(314) 331-8412 (314) 349-8757 (cell) Konrad.W.Faries@usace.army.mil
Russel Errett	(314) 331-8337 (314) 681-7625 (cell) russell.j.errett@usace.army.mil
Liz Norrenberns	(314) 331-8351 (314) 277-5825 (cell) elizabeth.a.norrenberns@usace.army.mil
Leonard Hopkins	(314) 331-8348 (314) 799-3458 (cell)

ILWW Contact List	
	leonard.e.hopkins@usace.army.mil
River Project:	
Andy Schimpf	(636) 899-0044 (314) 630-6280 (cell) andrew.c.schimpf@usace.army.mil
Matthew Chlibec	(636) 899-0072 (636) 288-8615 (cell) Matthew.j.chlibec@usace.army.mil
Dredging Operations – Lance Engle	(314) 952-5197 lance.engle@usace.army.mil
Locks and Dams	
LaGrange	(217) 225-3317
Peoria	(309) 699-6111
Starved Rock	(815) 667-4114
Marseilles	(815) 795-2593
Dresden	(815) 942-0840
Brandon Road	(815) 744-1714
Lockport	(815) 838-0536
T.J. O'Brien	(773) 646-2183
Chicago	(312) 787-4795
Illinois Emergency Management Agency (IEMA)	
IEMA Telecommunications Center	(217) 782-7860
IEMA Region 3	(815) 433-7161 (815) 587-4483
IEMA Region 6	(217) 782-0922 (217) 836-1761
IEMA Region 8	(618) 394-2233
IL Department of Natural Resources Law Enforcement	(217) 782-3637

ILWW Website List	
INTERNET SITE PURPOSE	ADDRESS
USACE Rock Island District	https://www.mvr.usace.army.mil/
USACE St. Louis District	https://www.mvs.usace.army.mil/
USACE Chicago District	https://www.lrc.usace.army.mil/
USCG MSU Chicago	https://www.atlanticarea.uscg.mil/Our-Organization/District-9/Ninth-District-Units/Sector-Lake-Michigan/Units/MSU-Chicago/ https://homeport.uscg.mil/port-directory/lake-michigan
USCG Sector Upper Mississippi River	https://www.atlanticarea.uscg.mil/Our-Organization/District-8/District-Units/Sector-Upper-Mississippi-River/ https://homeport.uscg.mil/port-directory/upper-mississippi-river-(st-louis)

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Section 4 – Action Plan Tables

The actions to be taken during High Water, Low Water, High Current, and Ice conditions are described in the following Action Plan Tables.

This Information is Applicable to all Tables

Issue advisories (consider BNM, LNM, MSIB, and/or AIS-Geographic Notice) or establish safety zones, if deemed necessary, to indicate extreme low water, high water, high flow, or ice conditions.

In the event of an unexpected river closure, the following steps should be considered prior to reopening the river as appropriate:

- Assess need/consider conducting test tows for limited operations during closures and in anticipation of reopening. Conduct test tows if necessary for potential problem areas. USACE, USCG, IRCA, and Levee Districts to be included in discussion of and witnessing test tows.
- Develop and initiate recovery plan to clear the queue.
- USCG and USACE will typically reset buoys in those narrow channel locations within reach and continue an increased level of channel reconnaissance to ensure vessel traffic is able to transit safely. USCG, USACE, and IRCA will coordinate vessel navigation protocols in situations where channel widths are temporarily reduced to below normal operating standards.
- USCG and USACE will coordinate the use of electronic aids to navigation, particularly in areas of emergent shoaling.
- IRCA will create/manage a queue of vessels meeting the maximum possible safe depth for northbound and southbound traffic.
- Consider draft limits, tow sizes, and helper boats.
- Evaluate fleet dimensions.
- Be aware of shifting channels.
- Emergency dredging may be required at some locations.

All the phases and actions listed in the tables below can be modified based on coordination between the USCG, USACE, and industry. Vessels equipped with Azipods (“Z Drive”) may generally be considered to have 20 percent more than their actual horsepower rating for DOWN BOUND tows.

ACTION PLAN TABLE 1 – HIGH WATER

This table contains the actions to be followed as the water rises to specific levels set for each zone. As the phases change from Normal to Watch, Action, and then Recovery, the following procedures apply to ALL zones. Specific phase trigger points, unique concerns, and additional actions for specific zones are listed in Table 1a.

- **Normal Operations (Rising Water)**
 - Monitor river gauges frequently
 - As stage rises toward flood stage, consider the need to initiate communications plan (refer to Section 3)
- **High Water (Watch Phase)**
 - Initiate communications plan (refer to Section 3)
 - Issue advisory that indicates high water and drift potential
 - Advise the use of caution and minimization of wake
 - Consider tow restrictions and HP requirements
 - Consider the use of AIS-Geographic Notices to alert mariners to areas of high water
 - Consider issuance of advisories (BNM, MSIB) for advanced notice of river closure and no wake thresholds
 - Discuss mooring arrangements and dangers of down-streaming
- **Extreme High Water (Action Phase)**
 - Analyze watch phase requirements, high current reports, flood fighting reports, impacted river reaches, towboat positions, and levee conditions
 - Consider establishment of Safety Zone to close river or Regulated Navigation Area to impose vessel operational restrictions. If established, use BNM, MSIB, and/or AIS-Geographic Notices to inform mariners. Consider issuing press releases and distributing MSIBs to State/County EOC and State Boating Law Administrators to ensure awareness of recreational boaters.
 - Develop plan for reopening river and IRCA management of vessel queue, if needed
 - In addition to watch phase requirements,
 - Discourage or prohibit recreational vessel traffic
 - Prohibit laying up on levees and pushing in to river banks along which railroad tracks are charted in close proximity to rivers edge
 - Allow local fleeting to continue
 - Advise caution due to swift current
- **Extreme High Water (Recovery Phase)**
 - Analyze watch phase requirements, high current reports, flood fighting reports, impacted river reaches, towboat positions, and levee conditions
 - Determine which action advisories need to remain in place or can be removed
 - Monitor conditions related to Safety Zone or Regulated Navigation Area necessity, if established
 - Evaluate river conditions for river reopening
 - Initiate IRCA's plan for clearing the queue
 - Consider the use of AIS broadcasted virtual buoys and/or geographic notices in areas of emergent shoaling
- **High Water (Recovery Phase)**
 - Update / issue advisory to indicate high water and use of caution
 - Report hazardous conditions to appropriate Coast Guard office (refer to Sections 2 & 3)

Commented [MSRL7]: Area for consideration of Rail/Barge Collision Avoidance Working Group.

ACTION PLAN TABLE 1 – HIGH WATER

- Monitor river gauges frequently
- Monitor conditions related to Safety Zone or Regulated Navigation Area; determine threshold for cancellation
- If stage rises, consider the need to initiate communications plan (refer to Section 3)
- **Normal Operations (Falling / Stable Water)**
 - Issue final advisory that indicates a return to Normal Operations

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ACTION PLAN TABLE 1a – HIGH WATER					
CRITICAL LOCATION DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
Illinois Waterway Zone 1 Miles 0.0 to 9.9 Reference Gauge: Grafton (GRF12) MM 0.0 Flood Stage: 18' / 421.8' MSL (Mean Sea Level) MSL Zero Gauge: 403.8'	18' and below	Rising	Normal Operations		No additional actions
	18' to 22'	Rising	High Water Damage begins in Grafton, IL at 18'	Watch	No additional actions
	22 and above'	Rising	Extreme High Water Rte. 100 closed @ 24.7'	Action	No additional actions
	Crest to 22'	Stable or Falling	Extreme High Water Stable or falling	Recovery	No additional actions
	22' to 18'	Falling	High Water	Recovery	No additional actions
	18' and below	Falling	Normal Operations		No additional actions

ACTION PLAN TABLE 1a – HIGH WATER

CRITICAL LOCATION DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
Illinois Waterway Zone 2 Miles 10.0 to 49.9 Reference Gauge: Hardin (HARI2) MM 21.5 Flood Stage: 25' / 425.0' MSL MSL Zero Gauge: 400.0'	25' and below	Rising	Normal Operations		No additional actions
	25' to 33'	Rising	High Water Damage begins in Hardin @ 28.6'	Watch	Vessel operators must closely monitor river level forecasts and begin planning for possibility of no wake/closures; planning should include ability to have vessels clear of the zone prior to closure threshold.
	33' and above	Rising	Extreme High Water Flooding in Kampsville & Hardin, Bluffdale levees overtopped @ 37.6' Nutwood levee overtopped @ 33.5'	Action	Consider closure for entire zone when the stage is 35.5 ft. and above on the Hardin gauge. Vessel operators should ensure they are clear of the zone ahead of the closure threshold. Consider allowing vessels to clear the zone, continue fleet monitoring, and use of test tows on a case-by-case basis. Consider no wake advisory for entire zone when the stage is 34.0 to 35.5 ft. on the Hardin gauge
	Crest to 33'	Stable or Falling	Extreme High Water Stable or falling	Recovery	No additional actions
	33' to 25'	Falling	High Water	Recovery	No additional actions
	25' and below	Falling	Normal Operations		No additional actions

ACTION PLAN TABLE 1a – HIGH WATER					
CRITICAL LOCATION DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
Illinois Waterway Zone 3 Miles 50.0 to 80.2 Reference Gauge: Meredosia (MROI2) MM 70.8 Flood Stage: 14' / 432.0' MSL MSL Zero Gauge: 418.0'	14' and below	Rising	Normal Operations		No additional actions
	14' to 23'	Rising	High Water Main Rd in Valley City overtopped	Watch	Vessel operators must closely monitor river level forecasts and begin planning for possibility of no wake/closures; planning should include ability to have vessels clear of the zone prior to closure threshold.
	23' and above	Rising	Extreme High Water Damage to buildings in Montezuma & Florence at 24'	Action	Consider setup of unified command with an ICP at Meredosia including USCG, USACE, IEMA, and Industry. Consider closure for entire zone when the stage is 26.0 ft. and above on the Meredosia gauge and/or 24.0 ft. and above on the Valley City gauge. Vessel operators should ensure they are clear of the zone ahead of the closure threshold. Consider allowing vessels to clear the zone, continue fleet monitoring, and use of test tows on a case-by-case basis. Consider no wake advisory for entire zone when the stage is 25.0 to 26.0 ft. on the Meredosia gauge and/or 23.0 to 24.0 ft. on the Valley City gauge.
	Crest to 23'	Stable or Falling	Extreme High Water Stable or falling	Recovery	No additional actions
	23' to 14'	Falling	High Water	Recovery	No additional actions
	14' and below	Falling	Normal Operations		No additional actions

ACTION PLAN TABLE 1a – HIGH WATER

CRITICAL LOCATION DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p align="center">Illinois Waterway</p> <p align="center">Zone 4</p> <p align="center">Miles 80.3 to 101.9</p> <p>Reference Gauge: Beardstown (BEA12) MM 88.6</p> <p>Flood Stage: 14' / 433.9' MSL</p> <p>MSL Zero Gauge: 419.9'</p>	14' and below	Rising	Normal Operations		No additional actions
	14' to 22'	Rising	High Water Seepage problems initially, damage to buildings in Browning @ 22'	Watch	Vessel operators must closely monitor river level forecasts and begin planning for possibility of no wake/closures; planning should include ability to have vessels clear of the zone prior to closure threshold.
	22' and above	Rising	Extreme High Water Damage in Frederick & Browning @ 27' Crane Creek Levee (83.8-84.9) Design Exceeded @ 27.5', Overtop @ 30.5' Beardstown Levee (79.0-89.0) Design Exceeded @ 30.0', Overtop @ 33.0' Coal Creek Levee (84.9-91.6) Design Exceeded @ 30.1', Overtop @ 33.1'	Action	Consider closure for entire zone when the stage is 27.0 ft. and above on the Beardstown gauge. Vessel operators should ensure they are clear of the zone ahead of the closure threshold. Consider allowing vessels to clear the zone, continue fleet monitoring, and use of test tows on a case-by-case basis. Consider no wake advisory for entire zone when the stage is 26.0 to 27.0 ft. on the Beardstown gauge
	Crest to 22'	Stable or Falling	Extreme High Water Stable or falling	Recovery	No additional actions
	22' to 14'	Falling	High Water	Recovery	<p>Note: At LaGrange Lock: Lower wall elevation- 432.0 If Open Pass is not allowed and the water elevation is at 18.5' (432.0 MSL) lock out of operation until river falls to 431.5 MSL and to safe operating levels.</p>

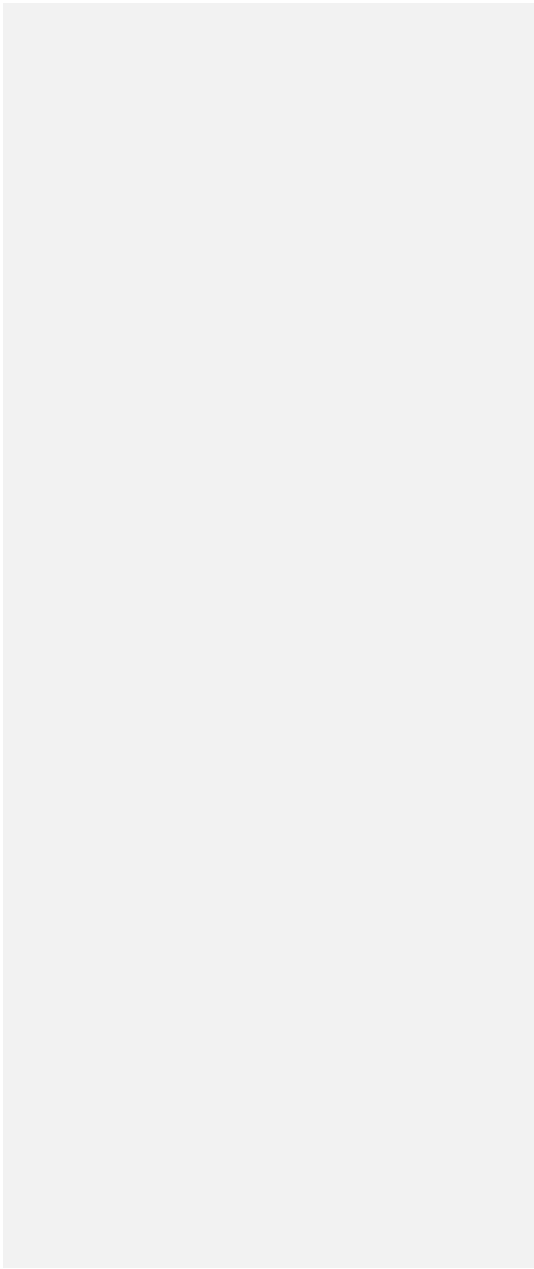
	14' and below	Falling	Normal Operations		No additional actions
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ACTION PLAN TABLE 1a – HIGH WATER

CRITICAL LOCATION DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
Illinois Waterway Zone 5 Miles 102 to 128.9 Reference Gauge: Havana (HAVI2) MM 118.4 Flood Stage: 14' / 438.4' MSL MSL Zero Gauge: 424.4'	14' and below	Rising	Normal Operations		No additional actions
	14' to 20'	Rising	High Water	Watch	Vessel operators must closely monitor river level forecasts and begin planning for possibility of no wake/closures; planning should include ability to have vessels clear of the zone prior to closure threshold.
	20' and above	Rising	Extreme High Water Big Lake Levee (102.6-108.3) Design Exceeded @ 24.2', Overtop @ 27.2' Lacey, Langellier, Kerton Valley, West Mantanzas Levee (111.8-1119.6) Design Exceeded @ 26.3', Overtop @ 29.3' Thompson/Emiquon Levee (120.8-125.9) Design Exceeded @ 23.1', Overtop @ 26.1' Liverpool Levee (126.3-128.2) Design Exceeded @ 23.9', Overtop @ 26.9'	Action	@ 21' minimize wake between MM 127.5-128.5 Consider closure for entire zone when the stage is 26.0 ft. and above on the Havana gauge. Vessel operators should ensure they are clear of the zone ahead of the closure threshold. Consider allowing vessels to clear the zone, continue fleet monitoring, and use of test tows on a case-by-case basis. Consider no wake advisory for entire zone when the stage is 24.5 to 26.0 ft. on the Havana gauge
	Crest to 20'	Stable or Falling	Extreme High Water Stable or falling	Recovery	No additional actions
	20' to 14'	Falling	High Water	Recovery	No additional actions

	14' and below	Falling	Normal Operations		No additional actions
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ACTION PLAN TABLE 1a – HIGH WATER

CRITICAL LOCATION DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>Illinois Waterway</p> <p>Zone 6</p> <p>Miles 129 to 145.5</p> <p>Reference Gauge: Copperas Creek (COPI2) MM 136.8</p> <p>Flood Stage: N/A</p> <p>Normal Pool: 1.5' / 429.5' MSL</p> <p>MSL Zero Gauge: 428.0'</p>	13' and below		Normal Operations		No additional actions
	13'to 16.4'	Rising	High Water @16.4' tow wave action may affect houses at Copperas Creek	Watch	Advise the use of caution and minimize wake between MM 136-138 (Copperas Creek).
	16.4' and above	Rising	Extreme High Water @ 18.2' four houses surrounded by water @ 20' 1" floor of houses impacted by tow wake East Liverpool Levee (128.4-131.7) Design Exceeded @ 23.9', Overtop @ 26.9' Spring Lake Levee (133.9-147.8) Design Exceeded @ 23.1', Overtop @ 26.1' Banner Special Levee (143.9-145.5) Design Exceeded @ 23.9', Overtop @ 26.9'	Action	No additional actions
	Crest to 16.4'	Stable or Falling	Extreme High Water Stable or falling	Recovery	No additional actions
	16.4' to 13'	Falling	High Water	Recovery	No additional actions

	13' and below	Falling	Normal Operations		No additional actions
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ACTION PLAN TABLE 1a – HIGH WATER					
CRITICAL LOCATION DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
Illinois Waterway Zone 7 Miles 145.6 to 187.0 Reference Gauge: Peoria (PIA12) MM 164.6 Flood Stage: 18' / 446.4' MSL MSL Zero Gauge: 428.39'	18' and below		Normal Operations		No additional actions
	18' to 22'	Rising	High Water	Watch	Vessel operators must closely monitor river level forecasts and begin planning for possibility of no wake/closures; planning should include ability to have vessels clear of the zone prior to closure threshold.
	22' and above	Rising	Extreme High Water Damage begins in buildings in Rome @ 23' Spring Lake Levee (133.9-147.8) Design Exceeded @ 27.0', Overtop @ 30.0' Pekin LaMarsh Levee (149.6-155.2) Design Exceeded @ 25.7', Overtop @ 28.7' East Peoria Levee (159.3-161.9) Design Exceeded @ 30.8', Overtop @ 33.8' Greater Peoria Sanitary District Levee (159.8-160.3) Design Exceeded @ 28.3', Overtop @ 31.3'	Action	@ 22' minimize wake between MM 166.5-178 @ 24.1' minimize wake between MM 162-179 Avoid pushing in near MM 167 RDB due to railroad track in close proximity to bank line (see charted caution area for detailed location); risk of collision with train exists at higher river levels
	Crest to 22'	Stable or Falling	High Water	Recovery	Consider closure for entire zone when the stage is 27.0 ft. and above on the Peoria gauge. Vessel operators should ensure they are clear of the zone ahead of the closure threshold. Consider allowing vessels to clear the zone, continue fleet monitoring, and use of test tows on a case-by-case basis.
			Stable or falling		Consider no wake advisory for entire zone when the stage is 25.5 to 27.0 ft. on the Peoria gauge
	22' to 18'	Falling	High Water	Recovery	No additional actions

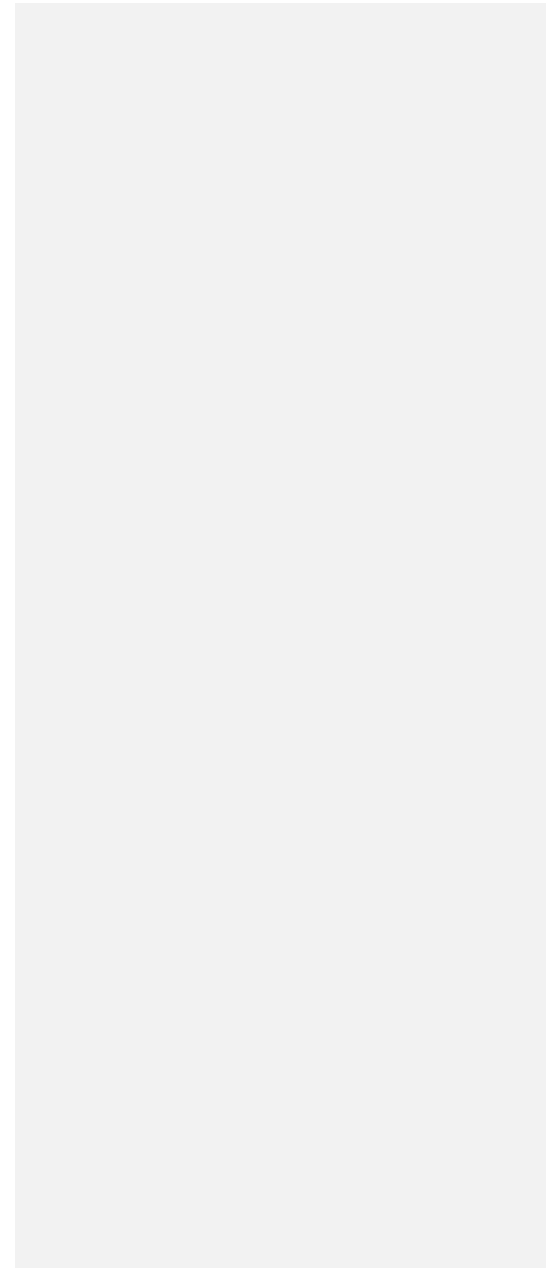
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	18' and below	Falling	Normal Operations		Note: At Peoria Lock: Lower wall elevation- 440.0 Out draft sign opens at 3' of Dam Gate opening When using the pass the lock will be out of operation until wickets are raised at approximately 438.50.
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ACTION PLAN TABLE 1a – HIGH WATER

CRITICAL LOCATION DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
Illinois Waterway Zone 8 Miles 187.1 to 199.9 Reference Gauge: Henry (HNY12) MM 196.1 Flood Stage: 23' / 448.9' MSL MSL Zero Gauge: 425.88'	5' Below Flood Stage	Rising	Normal Operations		No additional actions
	23' to 27.4'	Rising	High Water Damage begins to buildings in Sparland @ 28'	Watch	No additional actions
	27.5' and above	Rising	Extreme High Water Homes in Henry begin to flood at 29.6'	Action	No additional actions
	Crest	Stable or Falling	High Water Stable or falling	Recovery	No additional actions
	23' Flood Stage	Falling	High Water	Recovery	No additional actions
	5' Below Flood Stage	Falling	Normal Operations		No additional actions

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ACTION PLAN TABLE 1a – HIGH WATER					
CRITICAL LOCATION DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
Illinois Waterway Zone 9 Miles 200.0 to 230.9 Reference Gauge: La Salle (LSL12) MM 224.7 Flood Stage: 20' / 450.0' MSL MSL Zero Gauge: 430.0'	5' Below Flood Stage	Rising	Normal Operations		No additional actions
	20' to 22' Flood Stage	Rising	High Water Damage begins due to agricultural flooding @ 20'	Watch	No additional actions
	22.1' and above	Rising	Extreme High Water	Action	<p>Avoid pushing in near MM 222 RDB due to railroad track in close proximity to bank line (see charted caution area for detailed location); risk of collision with train exists at higher river levels</p> <p>At Starved Rock Lock: Ref: Lock Gauges Out draft sign out at 15.5' gate opening Upper wall elevation – 463.5 Lower wall elevation – 458.5 At a tail reading of 457.50 all tows over 70' wide must have loads on land wall side. At a tail reading of 458.50 restrictions on double and down bound set overs. Lower wall is submerged. Lock is out of operation at 461.50 due to water in the machinery pits. Dam out of operation at 240' gate Hydro plant out of operation at 455.0</p>
	Crest	Stable or Falling	High Water Stable or falling	Recovery	No additional actions
	20' Flood Stage	Falling	High Water	Recovery	No additional actions
	5' Below Flood Stage	Falling	Normal Operations		No additional actions

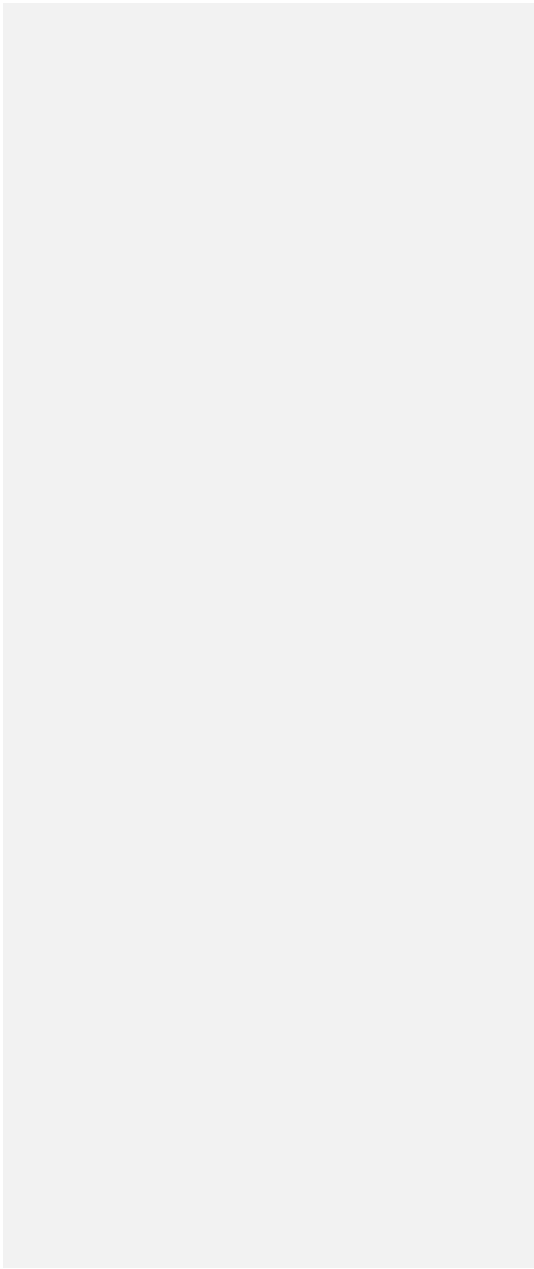
Commented [MSRL9]: Area for consideration of Rail/Barge Collision Avoidance Working Group.

ACTION PLAN TABLE 1a – HIGH WATER					
CRITICAL LOCATION DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>Illinois Waterway</p> <p>Zone 10</p> <p>Miles 231.0 to 244.6</p> <p>Starved Rock Pool</p> <p>Reference Gauge: Marseilles (MRSI2) MM 246.5</p> <p>Flood Stage: 20' / 472.9' MSL</p> <p>MSL Zero Gauge: 452.9'</p>	5' Below Flood Stage	Rising	Normal Operations		No additional actions
	20.0' to 22'	Rising	High Water	Watch	No additional actions
	22.1' and above	Rising	<p>Extreme High Water</p> <p>Ottawa Township HS Levee (239.7-240.5) Design Exceeded @ 471.1', Overtopped @ 474.1' NGVD 1929</p>	Action	<p>At Marseilles Lock: (Ref Lock Gauges)</p> <p>Out draft sign out at 15' of dam gate opening</p> <p>Upper wall elevation – 486.0</p> <p>Lower wall elevation – 466.7</p> <p>At a tail reading of 465.70 all tows over 70' wide must have loads on the land wall side.</p> <p>At a tail reading of 466.7 restrictions on doubles and down bound set overs. Lower wall is submerged.</p> <p>Lock is out of operation at 483.50 due to water in the machinery pits.</p> <p>Dam out of operation at 72'.</p> <p>*NOTE: For the area in the immediate vicinity of Marseilles Dam and the entrance to Marseilles Canal, MM 247.0:</p> <p>When the dam gate opening reaches 20-25 feet, there is a very strong out draft and mariners need to use extreme caution when transiting the area. Some larger tows consider options to approaching this area, such as holding transit until flows reduce or changing pilots.</p> <p>When the dam gate opening reaches higher than 25 feet there is an extremely strong out draft and mariners need to use extreme caution when transiting the area, ensuring adequate expertise and resources are available to safely accomplish transit.</p>
	Crest	Stable or Falling	High Water Stable or falling	Recovery	No additional actions
	20' Flood Stage	Falling	High Water	Recovery	No additional actions
	5' Below Flood Stage	Falling	Normal Operations		No additional actions

ACTION PLAN TABLE 1a – HIGH WATER					
CRITICAL LOCATION DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
Illinois Waterway Zone 11 Miles 244.7 to 271.5 Marseilles Pool Reference Gauge: Morris (MOR12) MM 263.1 Flood Stage: 16' / 494.5' MSL MSL Zero Gauge: 478.5'	5' Below Flood Stage	Rising	Normal Operations		NOTE: See footnote regarding Marseilles Canal under High Flows, Zones 1-12."
	13.0' to 15.9'	Rising	High Water	Watch	No additional actions
	16.0' and above	Rising	Extreme High Water Roads flood @ 16' Damage to homes near MM 263 @ 20'	Action	At Dresden Island Lock: (Ref lock Gauges) Out draft sign out at 15' of dam gate opening Upper wall elevation – 509.44 Lower wall elevation – 496.53 At a tail reading of 494.53 all tows over 70' wide must have loads on the land wall side. At a tail reading of 496.53 restrictions on doubles and down bound set overs. Lower wall is submerged. Lock out of operation at 505.44 due to water in the gate machinery pits. Dam out of operation at 144' *NOTE: For the area in the immediate vicinity of Marseilles Dam and the entrance to Marseilles Canal, MM 247.0: When the dam gate opening reaches 20-25 feet, there is a very strong out draft and mariners need to use extreme caution when transiting the area. Some larger tows consider options to approaching this area, such as holding transit until flows reduce or changing pilots. When the dam gate opening reaches higher than 25 feet there is an extremely strong out draft and mariners need to use extreme caution when transiting the area, ensuring adequate expertise and resources are available to safely accomplish transit
	Crest	Stable or Falling	High Water Stable or falling	Recovery	No additional actions
	16.0'	Falling	High Water	Recovery	No additional actions

	5' Below Flood Stage	Falling	Normal Operations		No additional actions
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ACTION PLAN TABLE 1a – HIGH WATER

CRITICAL LOCATION DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
Illinois Waterway Zone 12 Miles 271.6 to 285.9 Dresden Pool Reference Gauge: Brandon Rd Lower MM 286 Flood Stage: 507' MSL Zero Gauge: 0'	2' Below Flood Stage	Rising	Normal Operations		No additional actions
	1' Below Flood Stage	Rising	High Water	Watch	No additional actions
	Above Flood Stage	Rising	Extreme High Water	Action	Avoid pushing in near MM 282 LDB and MM 283 LDB due to railroad track in close proximity to bank line (see charted caution area for detailed location); risk of collision with train exists at higher river levels At Brandon Road Lock: No out draft sign used at Brandon Road Upper wall elevation – 542.7 Lower wall elevation – 513.5 At a tail reading of 512.00 all tows over 70' wide should have loads on land wall side. At a tail reading of 513.00 restriction on down bound doubles and set overs. Lower wall is submerged. Lock is out of operation at 539.40 due to water in gate machinery pits.
	At or Below Flood Stage	Stable or Falling	High Water stable or falling	Recovery	No additional actions
	Below Flood Stage	Falling	High Water	Recovery	No additional actions
	1.5' Below Flood Stage	Falling	Normal Operations		No additional actions

Commented [MSRL10]: Area for consideration of Rail/Barge Collision Avoidance Working Group.

ACTION PLAN TABLE 1a – HIGH WATER					
CRITICAL LOCATION DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
Illinois Waterway Zone 13 Miles 286.0 to 291.0 Brandon Road Pool Reference Gauge: Lockport Lock Lower MM 291.0 Flood Stage: 541.0' MSL Zero Gauge: 0'	2' Below Flood Stage	Rising	Normal Operations		No additional actions
	1' Below Flood Stage	Rising	High Water	Watch	No additional actions
	Above Flood Stage	Rising	Extreme High Water	Action	Avoid pushing in near MM 289-290 LDB due to railroad track in close proximity to bank line (see charted caution area for detailed location); risk of collision with train exists at higher river levels At Lockport Lock: Out draft sign opens at 7,000 cfs Upper wall elevation – 584.5 Lower wall elevation – 546.6 Helper boats required to pull cuts in either direction at 7,000cfs and above. Hand railings removed from upper gate at 571.00. Lock out of operation at 567.00 due to low water over Upper Gates.
	At or Below Flood Stage	Stable or Falling	High Water stable or falling	Recovery	No additional actions
	Below Flood Stage	Falling	High Water	Recovery	No additional actions
	2' Below Flood Stage	Stable or Falling	Normal Operations		No additional actions

Commented [MSRL11]: Area for consideration of Rail/Barge Collision Avoidance Working Group.

ACTION PLAN TABLE 1a – HIGH WATER

CRITICAL LOCATION DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>Illinois Waterway</p> <p>Zone 14</p> <p>Miles 291.1 to 333.4</p> <p>Lockport Pool & above</p> <p>Reference Gauge: Lockport Lock Upper MM 291.1</p> <p>Flood Stage: None Normal Pool: 577.5'</p> <p>Canal Wall Elevation: 584.5'</p> <p>MSL Zero Gauge: 0'</p>	Rising above normal pool	Rising	Normal Operations		No additional actions
	Rising above normal pool	Rising	High Water Heavy Rainfall in Chicago	Watch	No additional actions
	Rising above normal pool	Rising	Extreme High Water Extremely Heavy Rainfall in Chicago	Action	MWRD regulates dam opening for storm water storage and release. O'Brien Lock (River Mile 326.5) will shut down operations when the canal water level rises to near lake levels (the canal level must be maintained no higher than one-half foot below lake levels in order to eliminate potential of drinking water contamination).
	Falling to normal pool	Stable or Falling	High Water stable or falling	Recovery	No additional actions
	Normal Pool	Stable	Normal Operations		No additional actions

ACTION PLAN TABLE 2 – HIGH FLOW

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>Illinois Waterway</p> <p>Zones 1 to 12</p> <p>Miles 0.0 to 285.9</p>			<p>High Flow conditions are not applicable to zones 1-12 along the Illinois Waterway.</p> <p>High flow conditions are dealt with under normal operating conditions regarding out draft signs at lock approaches and different operating conditions and approach methods at bridges and bend ways.</p> <p>Erosion/scour conditions along flood control levees during high flows are very site specific and are integrated into High Water conditions.</p>		<p>Some locks display out draft warning signs during certain dam gate openings; this is performed as part of normal operations at the navigation locks and dams</p> <p>* NOTE: The out draft warning sign for Marseilles Lock is located at the entrance to Marseilles Canal at MM 247.0. When the dam gate opening reaches 20-25 feet, there is a very strong out draft and mariners need to use extreme caution when transiting the area. Some larger tows typically consider options to approaching this area, such as holding transit until flows reduce or changing pilots. USCG will issue Broadcast Notice to Mariners (BNM) when Marseilles Dam gate opening reaches 20 feet to warn of strong out draft – Marseilles Lock personnel will notify USCG of dam gate conditions.</p> <p>When the dam gate reaches 25 feet or higher, there is an extremely strong out draft and mariners need to use extreme caution when transiting the area, ensuring adequate expertise and resources are available to accomplish transit. USCG will issue BNM when Marseilles Dam gate opening reaches 25 feet to warn mariners of extremely strong out draft conditions – Marseilles Lock personnel will notify USCG of dam gate conditions.</p>

ACTION PLAN TABLE 2 – HIGH FLOW

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	TRIGGER FLOW	DESCRIPTION	PHASE	ACTION
<p align="center">Illinois Waterway Zones 13 & 14 Miles 286.0 to 333.4</p>		Rising	below 1,000 cfs	Normal operations	Watch	Monitor flow and traffic. Continue standard communication practices to keep a good understanding of flow conditions.
		Rising	below 5,000 cfs	High Flows	Watch	Establish or monitor normal communications between USACE, MWRD, Industry and USCG as needed to discuss specific flow problem(s), potential impacts and possible solutions. All tows entering Joliet harbor should call MWRD at 312-751-5133 for the current flow and/or anticipated changes.
		Rising	7200 cfs	Very High Flows - Traffic stops at 10,000 cfs in portions of the canal system	Watch / Action	<p>Continue normal communications (e-mails, conference calls or others) – consider establishing notices, advisories and/or safety zones as needed using standard communication links between USACE, MWRD, Industry (IRCA/RIAC/fleeters), and USCG.</p> <p>Coast Guard will release broadcast at 7,000 cfs and again at 10,000 cfs to alert mariners. When flows reach 7200 cfs a helper boat is recommended for vessels transiting southbound through Joliet bridges.</p>
		Falling	below 5,000 cfs	High Flows	Recovery	Continue normal communications between USACE, MWRD, Industry (IRCA) and USCG.
		Falling	below 1,000 cfs	Normal operations	Watch	Monitor flow and traffic. Continue standard communication practices to keep a good understanding of flow conditions.

ACTION PLAN TABLE 3 – LOW WATER

CRITICAL REACH DESCRIPTION		TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p align="center">ALL ZONES ILLINOIS WATERWAY</p>		Normal pool	Stable	Normal Operations		If stage lowers towards normal pool at a gauge or series of gauge locations consider the need to initiate communications plan with USACE, RIAC, IRCA, and USCG. Monitor river gauges frequently.
		<p><u>Normal Pool</u></p> <p>Zone 1: 15.2' / 419.0' Zone 2: 19.0' / 419.0' Zone 3: 2.0' / 420.0' Zone 4: 9.1' / 429.0* Zone 5: 4.8' / 429.2' Zone 6: 1.5' / 429.5' Zone 7: 11.6' / 440.0* Zone 8: 14.0' / 440.0' Zone 9: 10.2' / 440.2' Zone 10: 458.5' Zone 11: 4.7' / 483.2' Zone 12: 504.5' Zone 13: 538.5' Zone 14: 577.5</p> <p>Footnote: Normal Pool levels based on USGS data and not from USACE River Charts.</p>	<p><u>Minimum Pool</u></p> <p>Zone 1: 14.2' / 418.0' Zone 2: 18.1' / 418.1' Zone 3: 1.0' / 419.0' Zone 4: 7.6' / 427.5* Zone 5: 3.3' / 427.7' Zone 6: 0.0' / 428.0' Zone 7: 10.0' / 438.5* Zone 8: 12.5' / 438.5' Zone 9: 8.7' / 438.7' Zone 10: 456.5' Zone 11: 2.7' / 481.2' Zone 12: 502.5' Zone 13: 536.5' Zone 14: 575.5'</p>	Normal pool	Falling	Low Water Channel narrows in various conditions
		Minimum Pool	Falling	Extreme Low Water Channel problems, both width and depth, increase	Action	Issue advisory that indicates extreme low water. Coast Guard will reset buoys in those narrow channel locations within reach. Corps will continue increased level of channel reconnaissance. Establish draft limits, limit barge widths, req. helper tugs, determine if fleeting can continue, pre-identify areas to lay up in event of closure, Emergency Dredging may be required at some locations. Be aware of shifting channels. Develop recovery plan Continue normal communications (e-mails, conference calls or others) – consider establishing notices, advisories and/or safety zones as needed using standard communication links between USACE, USCG and Industry (IRCA and others as needed).
		Below minimum pool	Rising	Channel returning to normal	Recovery	Continue advisory that indicates extreme water. Coast Guard will monitor buoys in those narrow channel locations within reach. Corps will continue increased level of channel reconnaissance. Emergency dredging may be required at some locations. Continue normal communications conditions as needed. Cancel any notices, advisories and safety zones as channel conditions improve. Conduct casualty assessments, clearing of channel, and assess rail bedding.
<p>* Water levels typically fall 1 ½ feet below these readings at LaGrange Lock and Dam (Zone 4) and Peoria Lock and Dam (Zone 7) during normal operations prior to raising the wicket dams</p>						

ACTION PLAN TABLE 4 – ICE CONDITIONS

CRITICAL REACH DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
ALL ZONES ILLINOIS WATERWAY	No Ice		Normal Operations		Corps distributes informational navigation notice in early winter, prior to ice season.
	Ice Build-Up in Channel and Sheet Ice Formation	Predicted weather forecast indicates extreme temperature. Ice buildup begins in the creeks and tributaries.	Mariners consulting with lock masters for indications of ice buildup. Ice Interferes with Normal Navigation. Sheet ice will at times prevent opening of the upper and lower lock gates and Thomas J. O'Brien, Dresden Island, Marseilles, Starved Rock, Peoria, and LaGrange Locks. When the lock gates cannot be fully opened into recesses, they are highly vulnerable to extensive damage from tows entering or departing the lock chamber. Sheet ice may be expected throughout the length of the waterway downstream from about mile 280.0 and in the Marseilles Canal and that reach of the waterway between mile 321.0 and Thomas J. O'Brien Lock, mile 326.5 on the Calumet River.	Watch	Consider advisories on missing buoys and safety zone restriction for tow width and length. Ice couplings for entering locks. Single-file traffic in ice-narrowed channels. Recommend grouping tow boats prior to transiting. Navigators are cautioned to exercise extreme care when entering or departing the lock chamber to avoid damage to the lock gates. When ice builds up to the extent that full usage of the lock chamber is prohibited, length and/or width restrictions may be imposed on lockages. Coast Guard consider issuing a Marine Safety Information Bulletin (MSIB), with specific information regarding current conditions and recommended safety precautions that should be met when transiting through the ice impacted areas.
	Heavy Ice Gorges	Prolonged extreme temp.	Channel blocked in some locations. River reaches impassable. Gorged ice becomes a particular hazard when attempts are made to drive barges through the formation. Barges forced through or over gorged ice may be damaged. Ice gorges can most frequently be expected to form between miles 86.5 and 95.5 (Grape Island to Sugar Creek), between miles 127.0 and 137.0 (Liverpool to Copperas Creek), between miles 213.8 and 216.9 (Penn Central, Marquette Bar and Clark Island area), at mile 237.2 (Mayo Island), between miles 240.6 and 241.5 (Bulls Island), at mile 242.5 (Milliken Creek Light and Day mark) and at mile 243.7 (Marseilles Lock Light and Day mark).	Action	Consider river closure, restriction of types of traffic, or allow single lane traffic in open areas only. Navigators are advised to exercise due caution to avoid damaging barges and unusual currents and high localized flow or out draft conditions due to water bypassing the temporary dam formed by the gorge. Navigators approaching an ice gorge should make certain that the towboat has sufficient power to properly control the number of barges in tow under such unusual conditions of flow.
Rotting ice, increased flow softening ice	Rising temperatures and rain flushing ice out.	Ice softening, water noticeable on top of the ice flow, channel conditions improving, and ice receding from channel.	Recovery	ATON checks, locks and dams flush ice; lock personnel will notify USCG to release a broadcast prior to prolonged flushing at the locks.	

Commented [MSRL12]: Change as a result of working group with industry after ice formations in 2020.

Section 5 – Risk Assessment

Sector Upper Mississippi River Marine Casualty Risk Assessment Tool Assumptions for Data

1. In the WAP process Marine Casualty Data is the starting point for discussion.
2. The data is not a complete record.
3. Since 1990 there are over 5,000 Coast Guard investigation data records for Sector Upper Mississippi River's area of responsibility. These records were screened and 370 met the following criteria:
 - a. From May 1998 to May 2005
 - b. A risk factor as identified in the WAP process (High water, low water, high flow, and Ice) was a contributing factor to the marine casualty.
4. It is important to note that the WAP guidelines did not provide any definition for the risk factors.
5. Five individuals conducted a review of the data and made decisions concerning each record.
6. As data was reviewed, individuals conducting the reviews noted several important issues:
 - a. Shoaling could occur at any stage. In light of this, grounding occurring during a low river level condition were sought to populate the low water risk assessment.
 - b. Low Water Reference Plane is the position relative point at which the USACE maintained its mandated channel depth. Vessel drafts were not considered, nor are they included in the records.
 - c. High flow could have several different effects on vessels (i.e. Eddy's may push vessels up stream. L&D outfalls may push vessels toward a bank.)
 - d. While Cubic Feet/Second (CFS) is a significant factor in determination of high flow rate, the numerical value should not be the only factor considered. As water flows down river, the differentiating depths and widths of the river are constantly affecting current flow rates. Furthermore, some CFS readings are proportionally based on the river stage at the same gauge and are not a separate reading. Also, CFS readings were limited mainly to gauges located at Lock and Dams.
7. Initial review of records relied on the incident narrative to make a determination risk factor contribution.
8. Where information was incomplete, a review of river stage, current, other casualties at the same time were viewed for clues to determine if one of four risk factors contributed to casualty.
9. Once data was screened, Risk Assessment Tools were populated.
10. For WAP uniformity, High, Medium, Low definitions for each of the five formula elements (obstructions to navigation, channel width, bend radius, congestion, and casualty history count) and their corresponding point value could not be changed. Also, the format of the tool could not be altered.
11. Variables that could be changed in the Risk Assessment Tool are:
 - a. The length of river sections
 - b. The Acceptable Risk Score
12. Although narrowing the casualty data record may have eliminated some pertinent casualty data REMEMBER ITEM NUMBER 1: The casualty data is the starting point. The natural working group is not bound to the tool when determining appropriate operational protocols.
13. Dissection of data may have masked problem areas which could be more visible by looking at geographic points with all casualty data available. If parties are interested in further casualty data analysis or discussions apart from the WAP forum they may contact the USCG Sector Upper Mississippi River's Waterways Management Division.

Footnote: Gauge readings used for risk assessment were from the RCAP and not from USACE River Charts.

How Sector Upper Mississippi River obtained Data for the Risk Assessment

	Action Description	Approximate Incident Count /Personnel Hours
1	USCG HQ provided a download of every investigation from 1990 till present filed by Sector Upper Mississippi River.	5000/9 Hours
2	Data was refined to included only marine casualties for the last seven years ending May 2005.	N/A
3	Review of each record and eliminated all marine casualties that were plainly not the result of ice, high water, low water, or high flow (i.e. fire, mechanical failure, pollution, etc...) and did not occur on one of the three rivers included in the Waterway's Action Plan.	N/A
4	Every narrative was read to determine if the incidents were plainly stated as being the result of ice, high water, low water, or high flow.	N/A
5	<p>River levels and flow rates (when and where available from USACE and NOAA records) were assigned to each remaining record. Then, a common sense approach was made with regard to river characteristics in place at the time of the incident in order to either eliminate or include each record in a particular assessment:</p> <ul style="list-style-type: none"> • If the river level was not relatively low for the locality then the record was eliminated from the low water assessment. Groundings that occurred during high water or out of the channel (i.e. pushed in to allow other vessel to transit) were eliminated from the low water assessment. This included a thoughtful look at groundings due to shoaling (which is capable of occurring regardless of river stage). • Allisions occurring during low water were eliminated from high water or high flow assessments. • Groundings on submerged objects (dikes, timbers, unknown items) were eliminated. <p>A close look at each casualty to ensure that ice, high water, low water, or high flow was a direct contributor to the casualty. (I.e. a bridge allision during high water may have been caused by high winds and had nothing to do with river stage.)</p> <p>* Steps 1-5 completed for zones 1-8, raw data without screening used for zones 9-14</p>	400/200 Hours
6	The risk assessment was completed and validated with extensive participation from all members of industry, Coast Guard Sector Upper Mississippi River, and MSU Chicago. In addition to the data described above, the Midland (April 2001) document for the Illinois Waterway, as well as a review of Coast Guard Cutter Officer in Charge summaries based on buoy placement, and a compilation of pilot data from several industries were extensively used.	NA/22 Hours

Legend					
Need for Precise Control	Risk Factors				Casualty History (7 yr. period)
	Navigational Complexity			Congestion	
	Obstructions to Nav	Channel Width (Full Banks)	Bend Radius		
High	Multiple Obstructions	Narrow (single passage)	sharp bend (>180 deg)	Traffic always present	>10
Medium	Single Obstruction	Medium (dual passage possible/likely)	gradual bend (btn 90 and 180 or	Traffic sometimes present	6>x>10
Low	No Obstructions	Wide (more than 2 vsl passage possible)	no bend (>90 deg) or no river crossing	Traffic rarely present	<6

Risk Assessment								
	Factors to Increase Likelihood of Casualty					Risk Score	High	Score
	Obs to Nav	Channel Width	Bend Radius	Congestion	Casualty History			
MM 291.1 – 333.4 Zone 14 Lockport Pool & above								
MM 286.0 – 327.0 Zone 13 Brandon Road Pool	Low	Low	Low	Low	Low	6		
MM 271.6 – 285.9 Zone 12 Dresden Pool	Low	Low	Low	Low	Low	6		
MM 244.7 – 271.5 Zone 11 Marseilles Pool	Medium	Medium	Medium	Medium	Low	42	Medium	10
MM 231 – 244.6 Zone 10 Starved Rock Pool	Medium	Medium	Medium	Medium	Low	42	Low	1
MM 200 – 230.9 Zone 9 La Salle	Medium	Medium	Medium	Medium	Low	42		
MM 181 – 199.9 Zone 8 Henry	Medium	Medium	Medium	Medium	Low	42		
MM 145.6 – 180.9 Zone 7 Peoria	Medium	Medium	Medium	Medium	Low	42		
MM 129 – 145.5 Zone 6 Copperas Creek	Medium	Medium	Medium	Medium	Low	42		
MM 102 – 128.9 Zone 5 Havana	Medium	Medium	Medium	Medium	Low	42		
MM 80.3 – 101.9 Zone 4 Beardstown	Medium	Medium	Medium	Medium	Low	42		
MM 50 – 80.5 Zone 3 Meredosia	Medium	Medium	Medium	Medium	Low	42		
MM 10 – 49.9 Zone 2 Hardin	Medium	Medium	Medium	Medium	Low	42		
MM 0 – 9.9 Zone 1 Grafton	Medium	Medium	Medium	Medium	Low	42		

Appendix A – ILLINOIS WATERWAY ATON PRIORITIZATION 2022



Commented [MSRL13]: Critical ATON working group led by BOSN Berg and BMCS Smith for changes/updates to this list.

RIVER MILE	AREA NAME	INDUSTRY CONCERN	BUOYS
0.8	GRAFTON	SHOAL BY GRAFTON HARBOR	1 RED
1.5 - 2.3	MASON ISLAND-ISLAND 525	NARROW BEND	3 GREENS
5 - 6	CHEROKEE BEND	NARROW BEND	3 REDS
13.2 - 13.5	HADLEY LANDING	NARROW BEND	3-4 REDS
14.5	OTTERS CREEK	NARROW BEND	3 GREENS
25.5	DIAMOND ISLAND	NARROW AT THE HEAD OF THE ISLAND	1 RED/1 GREEN
28.5	HURRICAIN ISLAND	NARROW AT THE HEAD OF THE ISLAND	2 REDS
31.0 - 31.1	KAMPSVILLE FERRY	SHOALING BELOW KAMPSVILLE FERRY LIGHT	2 GREENS
36 - 37	PANTHER CREEK	SHOALING AND NARROW ON LDB	1 RED/1 GREEN
38.1	TWIN ISLAND	NARROW AT THE HEAD OF THE ISLAND	1 GREEN
38.9 - 39	ABOVE FISHER ISLAND	NARROW AT THE HEAD OF THE ISLAND	2 GREENS
40.1	WING ISLAND	NARROW AT THE HEAD OF THE ISLAND	1 GREEN
39.9 - 41	BELOW PEARL ISLAND LIGHT	MARKING DIKES	1 RED/ 1 GREEN
47.5	BELOW PILOT PEAK BEND	NARROW BEND	1 GREEN
48.1	PILOT PEAK	SHOALING ON RDB	1 GREEN
54	LITTLE BLUE	SHOALING ON RDB AND DIKE	2 GREEN
55.5	FLORENCE HIGHWAY BRIDGE	BEND BELOW FLORENCE HIGHWAY BRIDGE	1 RED
56.2 - 56.6	FLORENCE HIGHWAY BRIDGE	NARROW BEND ABOVE FLORENCE HWY BDG	3 GREENS
62.6 - 63	VALLEY CITY / MAUVAISE TERRACE	NARROW BEND	2 REDS/ 3 GREENS
66.1 - 67	MCGEE CREEK	NARROW BEND	3 REDS/ 3 GREENS
70.2	AMEREN POWER STATION	SHOALING ON LDB	1 RED
71	MEREDOSIA	NARROW BEND	3 GREENS
74.5	CAMP CREEK	NARROW BEND	1 RED
75.7	MOORES ISLAND	NARROW BEND	3 REDS/ 1 GREEN
78.5	INDIAN CREEK	SHOALING ON RDB AND NARROW BEND	2 GREENS
84	BRIGGS LANDING	SHOALING ON LDB AND NARROW BEND	4 REDS
85.5	BAR ISLAND AND COAL CREEK	NARROW CHANNEL	1 RED
87	GRAPE ISLAND	NARROW CHANNEL	2 GREENS
88.3 - 89	BEARDSTOWN R/R BRIDGE	SHOALING ON RDB AND NARROW BEND	1 RED/ 4 GREENS
91 - 91.5	FREDRICK	SHOALING ON LDB AND NARROW BEND	4 REDS
93.4 - 94.1	BELOW SUGAR CREEK	SHOALING ON RDB AND NARROW BEND	5 GREENS
94.4 - 94.8	SUGAR CREEK ISLAND	SHOALING ON LDB AND NARROW BEND	4 REDS
97 - 97.5	BROWNING	SHARP BEND	1 RED/ 1 GREEN
98 - 98.2	SANGAMON CHUTE/ELM ISLAND	NARROW BEND	3 GREENS
100.9	HICKORY ISLAND	NARROW BEND	1 GREEN

RIVER MILE	AREA NAME	INDUSTRY CONCERN	BUOYS
102.6 - 103.5	SHARPS LANDING	NARROW BEND	3 REDS/ 1 GREEN
106.5 - 107	GRAND ISLAND BEND	LONG NARROW BEND SHOALING BOTH SIDES	2 REDS/ 5 GREENS
109.4 - 110.2	GRAND ISLAND BEND	LONG NARROW BEND SHOALING BOTH SIDES	3 REDS/ 5 GREENS
111.3 - 111.4	OTTER CREEK DAYBEACON	NARROW BEND/ 1ST AND 3RD RED PRIORITY	2 REDS
112.3	OTTER CREEK	NARROW BEND/ MIDDLE RED PRIORITY	1 RED
113.4 - 114	HEAD OF GRAND ISLAND	NARROW BEND	2 GREENS
114.4	DEVILS ELBOW LOWER	NARROW BEND	1 RED
116.5 - 116.7	DEVILS ELBOW	NARROW BEND SHOALING ON BOTH SIDES	3 REDS
117	HAVANA DAYBEACON	NARROW BEND SHOALING ON BOTH SIDES	2 GREENS (LOWER)
120.5 - 121.1	SIEBS LAKE	NARROW BEND AROUND QUIVER ISLAND	5 REDS
121.1 - 123	QUIVER BEACH	LONG NARROW BEND SHOALING BOTH SIDES	5 GREENS
128.5 - 129.5	LIVERPOOL	SHOALING ON RDB AND NARROW BEND	3 REDS/ 4 GREENS
133.8 - 134.5	SPRING LAKE	SHOALING ON BOTH SIDES	2 GREENS
135	SENATE ISLAND	NARROW BEND SHOALING ON BOTH SIDES	2 REDS
136-137	COPPERAS CREEK	SHOALING ON RDB AND NARROW BEND	3 REDS/ 4 GREENS
139	CANTONS LANDING	SHOALING LDB	2 REDS
145.5	KINGSTON	SHOALING ON LDB AND NARROW BEND	2 REDS
147.2	MACKINAW RIVER LIGHT	SHOALING ON BOTH SIDES	1 RED/ 1 GREEN
149.5 - 150	UPPER AND LOWER PEKIN WIGGLE	LONG NARROW BEND SHOALING BOTH SIDES	4 REDS/ 4 GREENS
151	PEKIN R/R BRIDGE	SHOALING RDB	1 RED
163 - 166	PEORIA LAKE	LONG STRETCH OPEN WATER	6 REDS/ 4 GREENS
166.1 - 179	UPPER PEORIA LAKE	LONG STRETCH OPEN WATER AND NARROW BENDS	12 REDS/ 10 GREENS
180 - 181.6	CHILlicothe ISLAND	LONG NARROW BEND SHOALING BOTH SIDES	3 REDS/ 2 GREENS
182 - 183.1	BABBS SLOUGH/ BABBS ISLAND	SHOALING ON RDB AND NARROW BEND	2 REDS/ 2 GREENS
189.2 - 190	ABOVE LACON BRIDGE	NARROW BEND SHOALING ON BOTH SIDES	3 REDS/ 3 GREENS
193 - 195	HENRY ISLAND	LONG NARROW BEND SHOALING BOTH SIDES	4 REDS/ 1 GREEN
196.4 - 197.4	SAWMILL LAKE	NARROW BEND SHOALING ON BOTH SIDES	2 REDS/ 5 GREENS

RIVER MILE	AREA NAME	INDUSTRY CONCERN	BUOYS
199 - 201	SWAN LAKE/ HALLS LANDING	LONG NARROW BEND SHOALING BOTH SIDES	2 REDS/ 5 GREENS
209 - 209.5	HENNEPIN	SHOALING ON RDB AND NARROW BEND	4 GREENS
212 - 213.7	HENNEPIN POWER STATION	NARROW BEND SHOALING ON BOTH SIDES	5 REDS/ 5 GREENS
214 - 218	CLARK ISLAND TO SPRING VALLEY	LONG NARROW BEND SHOALING BOTH SIDES	8 REDS/ 6 GREENS
219.8 - 220.2	HUGHES SLOUGH	SHOALING ON RDB AND NARROW BEND	3 GREENS
225.5 - 229	LASALLE TO UTICA	LONG NARROW BEND SHOALING BOTH SIDES	7 REDS/ 7 GREENS
230 - 231	BELOW STARVED ROCK L/D	NARROW CHANNEL	2 REDS/ 3 GREENS
231.1 - 233	ABOVE STARVED ROCK L/D	NARROW CHANNEL SHOALING BOTH SIDES	4 REDS/ 5 GREENS
242 - 244	BELOW MARSEILLES L/D	LONG NARROW BEND SHOALING BOTH SIDES	6 REDS/ 6 GREENS
249 - 250	KICKAPOO	LONG NARROW BEND SHOALING BOTH SIDES	3 REDS/ 5 GREENS
258.5 - 259.5	GRIST ISLAND	NARROW CHANNEL	3 REDS/ 4 GREENS
273.5 - 274.7	CHANNAHON	SHOALING ON RDB AND NARROW BEND	4 REDS/ 5 GREENS
280.9 - 282	JOLIET	SHOALING ON LDB AND NARROW BEND	5 REDS/ 2 GREENS

Appendix B – ILWW Quick Reference Stage Data

ILLINOIS WATERWAY			ILWW WAP 2020						
ZONE	MM - MM		HIGH WATER				GAUGE LOCATION	LOW WATER	
			WATCH	ACTION	NO WAKE	CLOSURE		WATCH	ACTION
1	0	9.9	18'-22'	22' & ↑	NOT SPECIFIED		GRAFTON	15.2'/419.0' & ↓	14.2'/418.0' & ↓
2	10	49.9	25'-33'	33' & ↑	34'-35.5'	35.5' & ↑	HARDIN	19.0'/419.0' & ↓	18.1'/418.1' & ↓
3	50	80.2	14'-23'	23' & ↑	25'-26'	26' & ↑	MEREDOSIA	2.0'/420.0' & ↓	1.0'/419.0' & ↓
4	80.3	101.9	14'-22'	22' & ↑	26'-27'	27' & ↑	BEARDSTOWN	9.1'/429.0'* & ↓	7.6'/427.5'* & ↓
5	102	128.9	14'-20'	20' & ↑	24.5'-26'	26' & ↑	HAVANA	4.8'/429.2' & ↓	3.3'/427.7' & ↓
6	129	145.5	13'-16.4'	16.4' & ↑	NOT SPECIFIED		COPPERAS CREEK	1.5'/429.5' & ↓	0.0'/428.0' & ↓
7	145.6	187	18'-22'	22' & ↑	25.5'-27'	27' & ↑	PEORIA	11.6'/440.0'* & ↓	10.0'/438.5'* & ↓
8	187.1	199.9	23'-27.4'	27.5' & ↑	NOT SPECIFIED		HENERY	14.0'/440.0' & ↓	12.5'/438.5' & ↓
9	200	230	20'-22'	22.1' & ↑	NOT SPECIFIED		LA SALLE	10.2'/440.2' & ↓	8.7'/438.7' & ↓
10	231	244.6	20'-22'	22.1' & ↑	NOT SPECIFIED		MARSEILLES	458.5' & ↓	456.5' & ↓
11	244.7	271.5	13'-15.9'	16' & ↑	NOT SPECIFIED		MORRIS	4.7'/483.2' & ↓	2.7'/481.2' & ↓
12	271.6	285.9	506'-507'	508' & ↑	NOT SPECIFIED		BRANDON RD LOWER	504.5' & ↓	502.5' & ↓
13	286	291	540'-541'	542' & ↑	NOT SPECIFIED		LOCKPORT LOCK LOWER	538.5' & ↓	536.5' & ↓
14	291.1	333.4	577.5' & ↑	577.5' & ↑	NOT SPECIFIED		LOCKPORT LOCK UPPER	577.5' & ↓	575.5' & ↓
* WATER LEVELS TYPICALLY FALL 1.5' BELOW READINGS AT ZONE 4 AND 7 DURING NORMAL OPS PRIOR TO RAISING THE WICKET DAMS									
ICE CONDITIONS - ALL ZONES									
WATCH	ICE BUILD UP IN CHANNEL AND SHEET ICE FORMATION								
ACTION	HEAVY ICE GORGES								
RECOVERY	ROTTING ICE, INCREASED FLOW, SOFTENING ICE								
								 	

Appendix C – Fleet Area Management Guidelines

Environmental compliance, safety, and security are integral parts of the day-to-day operations as a standard in the river industry. Barge breakaways are an all too common event on the Western Rivers, and frequently occur in high water, high winds, or icing conditions. Breakaways pose significant safety and environmental risks, and cause economic disruption for third parties who must avoid or help retrieve adrift barges. There are numerous fleeting areas located along the UMR and ILWW, including approximately 81 in the St. Louis harbor alone.

The purpose of this document is to reduce the frequency of barge breakaways through the incorporation of best marine practices of fleet management during extreme river conditions. It should be clear that all fleets have different dynamics that affect them. It is the responsibility of each company to know how their fleets react to these conditions, and make all reasonable efforts to maintain them accordingly. The USCG and USACE will communicate and coordinate any actions that should be implemented when river conditions change through IRCA.

The following best practices should be considered when operating fleets during extreme river conditions. Examples of extreme river conditions are:

- Rapid rise or fall of the river level
 - Heavy drift or ice flows
 - Violent weather conditions
 - Extreme high or low river levels
1. Be familiar with and adhere to the ILWW Waterways Action Plan (WAP) and advisories. Industry members should make all reasonable efforts to participate in meetings/conference calls when extreme conditions are experienced.
 2. Take action to minimize the effects of drift and ice accumulations on the fleets. Good communication should be made throughout the ports, especially downriver fleets, prior to de-drifting or deicing activities.
 3. Closely monitor tows transiting the area during extreme conditions to avoid excessive wake and/or turbulence issues.
 4. Ensure crews meet at crew change to discuss the river conditions and the condition of each fleet.
 5. Apply extra rigging or if necessary “narrow” the fleets.
 6. Increase fleet surveillance and mooring inspections to identify potential issues and take immediate action to correct.
 7. In the event of an emergency (such as tow break-up or fleet breakaway), take immediate action to secure the breakaway; report each breakaway as soon as possible to the USCG Sector Command Center by telephone, radio, or other means of rapid communication.
 8. In the event of an emergency, consider appointing a local company with 24-hour dispatchers to keep the USCG Sector Command Center apprised of the situation until the vessels involved in the emergency can talk to them directly.

Appendix D – BNM Templates

Sector Upper Mississippi

A. THE FOLLOWING ZONES ARE IN THE HIGH WATER WATCH PHASE IN ACCORDANCE WITH THE Illinois River WATERWAYS ACTION PLAN ANNEX:

- ZONE 4 - BEARDSTOWN (MM 80.3 - 101.9)
- ZONE 5 - HAVANA (MM 102 - 128.9)
- ZONE 6 - COPPERAS CREEK (MM 129 - 145.5)
- ZONE 7 - PEORIA (MM 145.6 - 187)

B. MARINERS SHOULD USE CAUTION AND MINIMIZE WAKE IN ALL HIGH WATER ZONES. LAYING UP ON SATURATED LEVEES IS PROHIBITED. MARINERS SHOULD BE EXPERIENCED IN HIGH WATER CONDITIONS AND AVOID DOWNSTREAMING OPERATIONS. MARINERS SHOULD REMAIN VIGILANT TO AN INCREASE IN DEBRIS AND MANUEVER APPROPRIATELY. BE AWARE THAT A BUILDUP OF DEBRIS IN FLEETING AREAS MAY HAVE OCCURRED AND TAKE APPROPRIATE ACTION TO PREVENT BREAKAWAYS. USE CAUTION IN ALL PASSING AND MEETING SITUATIONS AS SWIFT CURRENTS MAY BE PRESENT. NAVIGATIONAL BUOYS MAY HAVE BEEN DRAGGED OFF STATION SO REMAIN ALERT WHILE TRANSITING. RECREATIONAL TRAFFIC IS DISCOURAGED.

A. THE FOLLOWING ZONES ARE IN HIGH WATER ACTION PHASE IN ACCORDANCE WITH THE Illinois River WATERWAYS ACTION PLAN ANNEX:

- ZONE 7 - PEORIA (MM180.9-145.6)

1. IN THESE ZONES, RECREATIONAL TRAFFIC IS STRONGLY DISCOURAGED DUE TO DEBRIS AND SWIFT CURRENTS. LAYING UP ON SATURATED LEVEES IS PROHIBITED. AVOID PUSHING IN ALONG THE RDB AT MM 167 DUE TO RAILROAD TRACKS IN CLOSE PROXIMITY TO THE BANK LINE.

B. THE FOLLOWING ZONES ARE IN THE HIGH WATER WATCH PHASE IN ACCORDANCE WITH THE ILLINOIS RIVER WAP:

- ZONE 4 – BEARDSTOWN (MM 80.3-109.9)
- ZONE 5 – HAVANA (MM 102-128.9)
- ZONE 6 – COPPERAS CREEK (MM 129-145.5)

C. IN ALL HIGH WATER ZONES MARINERS SHOULD USE CAUTION, MINIMIZE WAKE, AND AVOID LAYING UP ON SATURATED LEVEES. MARINERS SHOULD BE EXPERIENCED IN HIGH WATER CONDITIONS AND AVOID DOWNSTREAMING OPERATIONS. MARINERS SHOULD REMAIN VIGILANT TO AN INCREASE IN DEBRIS AND MANEUVER APPROPRIATELY. BE AWARE THAT DEBRIS MAY HAVE BUILT UP IN FLEETING AREAS AND TAKE APPROPRIATE ACTION TO PREVENT ANY BREAKAWAYS FROM OCCURRING. USE CAUTION IN ALL PASSING AND MEETING SITUATIONS AS SWIFT CURRENTS MAY BE PRESENT. NAVIGATIONAL BUOYS MAY HAVE BEEN DRAGGED OFF STATION SO REMAIN CAUTIOUS WHILE TRANSITING.

IN ACCORDANCE WITH THE ILR WATERWAYS ACTION PLAN ANNEX THE ILR IS IN THE ICE WATCH PHASE. NAVIGATION HAS BEEN RESTRICTED TO ONE WAY TRAFFIC ON PEORIA LAKE FROM MM 167.0-181. TOWS SHOULD BE GROUPED TOGETHER WHEN TRANSITING THE AREA WHEN POSSIBLE. THIS WILL HELP MAINTAIN THE CURRENT ICE TRAIL AND PREVENT SHEET ICE FROM BREAKING OFF THE BANK. MARINERS SHOULD USE ICE COUPLINGS WHEN REQUIRED BY THE USACE PRIOR TO LOCKAGE AND ARE REMINDED TO EXERCISE EXTREME CARE WHEN ENTERING OR DEPARTING LOCK CHAMBERS TO AVOID DAMAGE TO LOCK GATES. MARINERS SHOULD BE AWARE THAT BUOYS MAY BE UNRELIABLE DUE TO ICING CONDITIONS. ICE FLOWS RENDER REFLECTIVE MATERIAL INEFFECTIVE, AND MAY DRAG BUOYS OFF STATION AND SEVER BUOYS FROM THEIR MOORINGS. MARINERS ARE REQUESTED TO TRANSIT THE AREA WITH CAUTION AND CONTACT SECTOR UMR VIA VHF-FM CH 16, TELEPHONE AT 314-269-2332, OR EMAIL AT SUMRWATERWAYS(AT)USCG.MIL TO REPORT SHOALING, HAZARDOUS CONDITIONS OR MISSING ATON.//

Commented [MSRL14]: Updated to reflect changes after ice formations in 2020.

MSU Chicago

U.S.C.G. SECTOR LAKE MICHIGAN NOTICE TO MARINERS MXXX-15

IL - ILLINOIS WATERWAY - ILLINOIS RIVER

1. THERE IS CURRENTLY A 70 FOOT WIDTH RESTRICTION LOCKING RESTRICTION AT THE STARVED ROCK LOCK AND DAM AT MM 231.
2. ZONES 8, 9, 10, 11, 12 (MM 181 TO 285 ILR) ARE CURRENTLY IN THE HIGH WATER WATCH PHASE OF THE ILR WATERWAYS ACTION PLAN ANNEX.
3. ZONES 8 AND 9 (MM 181 TO 230 ILR) ARE IN THE ICE ACTION PHASE OF THE ILR WATERWAYS ACTION PLAN ANNEX. SEVERE ICE CONDITIONS EXIST IN THESE ZONES WITH THE POSSIBILITY THAT THE CHANNEL MAY BE BLOCKED IN SOME LOCATIONS IF CONDITIONS DETERIORATE. MARINERS SHOULD ASSESS ICE CONDITIONS BEFORE TRANSIT TO AVOID HOLING OR DAMAGING VESSEL.
4. ZONE 13 (286 TO 291 ILR) IS CURRENTLY IN THE HIGH FLOW WATCH PHASE OF THE ILR WATERWAYS ACTION PLAN ANNEX.
5. DUE TO HIGH RIVER LEVELS, DRIFT OR DEBRIS MAY BE AN ISSUE WITH NAVIGATION, AND IT MAY DRAG BUOYS OFF STATION AND SEVER BUOYS FROM THEIR MOORINGS.
6. ALL MARINERS SHOULD USE EXTRA CAUTION AND BE ESPECIALLY VIGILANT DURING ALL BRIDGE AND LOCK APPROACHES IN THESE ZONES DUE TO SWIFT CURRENTS.
7. FOR FURTHER INFORMATION CONTACT MSU CHICAGO AT 630-986-2155.

U.S.C.G. SECTOR LAKE MICHIGAN NOTICE TO MARINERS MXXX-19

IL - ILLINOIS WATERWAY

AS A RESULT OF HIGH WATERS FROM THE ILLINOIS RIVER TO THE CHICAGO RIVER AND CALUMET RIVER, THE FOLLOWING RECOMMENDATIONS ARE BASED ON CURRENT GAUGE READINGS IN ACCORDANCE WITH THE WATERWAY ACTION PLAN: BETWEEN RIVER MILES 187 TO 327, RECREATIONAL VESSELS ARE STRONGLY DISCOURAGED FROM TRANSITING DURING CURRENT HIGH WATER CONDITIONS, AND ALL VESSELS ARE DISCOURAGED FROM LAYING UP ON LEVEES. MARINERS ARE ADVISED THAT SWIFT CURRENTS ARE PRESENT AND TO TRANSIT WITH EXTREME CAUTION.

U.S.C.G. SECTOR LAKE MICHIGAN NOTICE TO MARINERS MXXX-15

IL - ILLINOIS WATERWAY - ILLINOIS RIVER

1. DUE TO ELEVATED RIVER LEVELS AND EXTREME RIVER FLOWS CAUSED BY HEAVY RAINFALL BETWEEN MILE MARKER 200 AND MILE MARKER 271.5 ON THE ILLINOIS RIVER, MARINERS ARE ADVISED TO TRANSIT WITH CAUTION. DURING THESE CONDITIONS, RECREATIONAL VESSELS ARE DISCOURAGED FROM TRANSITING ON THIS PORTION OF THE RIVER. ALL MARINERS SHOULD USE EXTREME CAUTION AND BE ESPECIALLY VIGILANT DURING ALL BRIDGE AND LOCK APPROACHES IN THESE ZONES DUE TO SWIFT CURRENTS. DRIFT AND DEBRIS MAY BE A HAZARD TO NAVIGATION, AND IT MAY DRAG BUOYS OFF STATION AND SEVER BUOYS FROM THEIR MOORINGS. FOR FURTHER INFORMATION CONTACT SECTOR LAKE MICHIGAN AT (414)747-7182.