# UPPER MISSISSIPPI RIVER POOL 13 OVERVIEW
## Resource Description and General Response Considerations


***The Pool 13 Geographic Response Plan CD is developed to address the long-standing concerns about spills of oil and hazardous substances onto National Wildlife Refuge System lands along Upper Mississippi River. The Pool 13 Overview document provides information on project background, geographic description of Pool 13, response considerations and planning tools included in the CD.***

## Background

Due to long-standing concerns about spills of oil and hazardous substances affecting National Wildlife Refuge properties and associated sensitive resources on the Upper Mississippi River (UMR), the US Environmental Protection Agency, US Fish and Wildlife Service, Iowa DNR, Illinois DNR, Illinois EPA, US Coast Guard, US Army Corps of Engineers, other agencies, and private sector interests, with the assistance of the Upper Mississippi River Basin Association, have developed a set of planning and response tools for UMR Pool 13. The goal of this effort has been to foster communications, enhance spill contingency planning and preparedness, and to develop site-specific protection strategies that assist responders in prioritizing tactics and recommending strategies and locations to protect the Refuge and the public from releases of oil or other substances.

This overview document provides a description of Pool 13 and its sensitive resources. It also provides general considerations for response. For more information, see the Site Specific Response Strategies Maps (North) (South) (links) and the Pool 13 Incident Action Plan (link) included on the Pool 13 Geographic Response Plan CD.

## Location of Pool 13

Pool 13 of the Upper Mississippi River (UMR) is the area between Lock and Dam 13 at river mile 522.5, near Fulton, Illinois, and Lock and Dam 12 at river mile 557, at Bellevue, Iowa. Pool 13 includes portions of the Upper Mississippi River National Wildlife and Fish Refuge (Refuge), Green Island Wildlife Management Area, state parks and recreation areas, and the Lost Mound Unit, formerly the Savanna Army Depot. The Cities of Bellevue and Sabula, IA, and Savanna, IL, lie along the river. Each has developed shorelines, including homes and businesses on the waterfront. There are no public drinking water intakes in Pool 13. The US Fish and Wildlife Service (FWS) lands occupy most of the river bottomlands along this stretch of the river.

## Resource Description

Pool 13 encompasses much of the natural floodplain. Two levee systems, Green River WMA in Iowa and Spring Lake in Illinois, have been built for management of river habitats. On the Iowa side of the pool, most of the pool is floodplain. The upper 3 miles and a short stretch around river mile 541 are the only areas where the main channel runs along upland slopes in the upper Pool. On the Illinois side, there is a large backwater floodplain along the upper 7 miles of the Pool. The Lost Mound Unit is a large sand prairie remnant. The floodplain narrows in the middle third of the Pool. The lower Pool transitions from backwater channels and islands to an open Pool, with the lower 5 miles an open water habitat.

A number of significant tributaries to the Mississippi River enter within Pool 13. The Maquoketa River enters just above Green Island WMA. The Apple River enters Brickhouse Slough just below the Savanna Army Depot. The Plum River enters at Savanna, IL. The Elk River enters the open lower Pool on the Iowa side.

Rail lines run adjacent to the floodplain or river banks along the entire western shore. Along the Illinois side, rail lines run along the floodplain or river banks between the Apple River and Spring Lake. North of the Apple River, they run through the Lost Mound Unit. South of Spring Lake, the rail lines run a mile or

more inland to Thomson, then again near the shore of Potter's Marsh in the lower Pool. The rail embankments are the only access point along some parts of the river.

The upper reach of Pool 13 has side channels, backwater lakes, and wetlands. The Crooked Slough backwater complex is a very important fish and wildlife habitat area. It is a valuable bottomland forest that hosts waterfowl and nesting eagles. The Pleasant Creek backwater complex is a valuable habitat for fish and the site of a heron rookery. Important mussel beds lie at the outlets of Pleasant Creek and Crooked Slough. Green Island WMA and the Brown's Lakes backwater area are important fish habitats. Both can be closed off from the main channel by water control structures. The Lost Mound Wildlife Unit is the largest sand prairie remnant in Illinois, and is a valuable habitat for dozens of threatened and endangered species, including migratory birds. Side channels in Pool 13 are typically important fish habitats. The Running Slough backwater is one of the most diverse habitats of the Upper Mississippi River. Protecting this backwater is a high priority when considering response actions. A heron rookery is found at the mouth of the Plum River.

Below Sabula, the lower reach of the pool transitions to mostly open water. Spring Lake, separated from the main channel by a levee, is an important fish and waterfowl area. The Elk River backwater area is very important for migratory waterfowl, and is a key habitat for the western sand darter, egrets, and pelicans. Bulger's Hollow, the shallow water west of the main channel at the lowest end of Pool, has significant wild celery beds, providing important migratory waterfowl and fish habitat. Along the Illinois shore, Potter's Marsh is a critical overwintering area for fish. It is also an important waterfowl area.

## Response Considerations

*Primary Response Goals*
The following are primary goals for response in Pool 13:

- In general, any spilled oil product should be excluded from backwaters and kept in the main channel of the Mississippi River. Then, if possible, the oil should be diverted with boom and collected. Most collection sites are near boat landings or at backwater inlets. Few opportunities for collection are found below Sabula, as the river widens considerably and the main channel is inaccessible from either shore.

- Keeping product out of key backwater areas is the top priority in any spill event. Of primary concern are Running Slough, Crooked Slough, and Elk River backwaters.

- A spill at or below Sabula should be collected as near to the source as possible. As noted above, few opportunities to collect are found downstream.

- Navigating the shallow marshes and backwaters of the lower Pool will require the guidance of locals familiar with boating in the area. Shallows, sandbars, and stump fields present safety hazards.

*Likely Spill Sources*
The main potential for spills in this pool is the transportation corridors; railroad, highway, and vessels, tugs and barges on the river. The BNSF Railroad track runs on the Illinois side, just above the bottomlands. CP Rail track runs along the river on the Iowa side. Tracks abut the main channel in several locations, largely around Bellevue and Savanna. US Highway 52 runs along the river at Bellevue,

then turns inland until Sabula. There it crosses to the city and turns north for 3 miles along a levee before crossing the main channel bridge to Savanna. Particularly on the Iowa side, access to the Pool from roads is limited, or potentially restricted by the railroad tracks.

*Limited Availability of Local Response Resources*
Timely response to spills in Pool 13 will require pre-planning and cooperative agreements with local industry and responders, as local response resources and equipment are limited. The closest response organizations are 2-3 hours from the Quad Cities area and the amount of boom and other response equipment is currently adequate for a small or medium spill, but is not adequate for a large spill. The development of and renewed interest in agreements with the county and local emergency responders, and procurement of additional response equipment that may be pre-staged are essential in protecting the natural resources and the public in this area. In addition, consideration of the placement of permanent anchor points for the recommended protection strategies should be evaluated as well as the proximity, access and location, and type of storage container should be determined for pre-staged equipment.

*Use of Locks & Dams/Coordination with USACE*
While limited in its potential impact and duration, modification of hydraulic control at Lock and Dam 12 or 13 to help slow, stop or divert flow of a spilled product to a collection area could be part of a response operation. The Lock and Dams may also be natural collection points for spilled product or these structures may be used to alter the flow of the spilled product and facilitate collection. Additionally, the river access and room to stage equipment and command posts at the Lock and Dams should be considered.

Responders must contact the lockmaster for the appropriate lock for site-specific assistance and information. The Rock Island District must be contacted to request changes to dam gate settings or for river level/flow projections. See the Emergency Contact (link) list for these numbers.

*In-Situ Burning*
The uses of these tactics are discussed in the Upper Mississippi River Spill Response Plan and Resource Manual (link). If in-situ burning is being considered as a response tactic, the in-situ burn checklist found in the UMR Response Plan should be used to evaluate this tactic. In situ burning will require close coordination with the Federal and State Resource Trustees. Some of the response tactics that have been developed in this document do recommend collection and burning of the product if appropriate. This does not constitute a pre-approval for in-situ burning; consulting the checklist and close coordination with Federal and State Responders and Resource Trustees remains necessary.

*Chemical Oil Spill Treating Agents (COSTAs)*
The use of COSTA's requires approval of the Regional Response Team. If the use of a COSTA was considered it must be registered on the National Product Schedule and the Incident Commander, FOSC, SOSC and State and Federal Trustees would have to be in agreement to utilize the registered product. The use of dispersants is not allowed within the boundaries of USEPA Regions 5 and 7 or by the Regional Response Teams. This is primarily because the dispersants solubilize or drive the product into the water column and the river is utilized as a drinking water resource. Driving the spilled product into the water column can have adverse affects on the aquatic life and vegetation. First Responders should also take into account that fire fighting foams or dispersants such as "biosolve" or other products can also

solubilize the spilled product and release with the fire fighting water or storm water and then discharge to the river.

*Air Boats*
In some shallow backwater areas, responders should consider the use of air boats for reconnaissance and boom deployment. The river contains many wing dams, underwater structures, sunken logs, stumps and the like which can impede standard boat response. In addition, cold-weather seasonal response may be limited by ice.

*Use of Barges or Vessels to Divert or Exclude Spilled Product*
The effectiveness of using barges in response has been demonstrated in nearby areas of the UMR. Barges can be utilized to divert, exclude and collect spilled product. Barges and other vessels could be employed by grounding or anchoring at the designated chute, harbor, or inlet to facilitate the required response tactic.

*Communication and Command*
Immediate response by local responders, industry and contractors to collect and contain product prior to its release to the main channel or back waters will be essential in protecting Pool 13. If spilled material does reach the channel, quick notifications and communications and the deployment of a Unified Command and implementation of an Incident Action Plan will be essential to success. An Initial Incident Action Plan (link) for use in the first operational period of response has been prepared to outline the roles of the agencies, local responders and industry and includes some recommended organizational structures and response tactics. Quick response with deployment of local resources will be essential in the first hours and days of the response until additional resources can be mobilized.

*Cold Weather Conditions and Ice Spill Response*
Cold weather response and working on ice can create a number of safety concerns. Safety plans will need to take into account such items as variability of ice thickness, under-ice currents, and water depth. Winter weather can also cause equipment failures. Vortex and drum skimmers can be problematic and inefficient in extreme cold weather conditions as properties such as viscosity changes and equipment doesn't work properly. Recovery hoses can freeze and render vacuum-truck recovery difficult.

For on-Ice recovery some of the following practices have been found to be very useful:
Partial–depth ice slotting in the surface of the ice to create recovery trenches and catchment sumps for oil; contaminated snow and ice harvesting for later melting and recovery; the creation of snow-berms and ice-berms (water-spraying of snow berms) also helps limit the spread of spills.

For in-water recovery during ice and partial ice conditions, cutting recovery holes in the ice is the simplest method. Surface basins can be created in the ice and then opened with ice-auger boreholes for oil collection areas. Ice augers can also be useful for assessment of under-ice oil. Full-cut ice slots can be cut through the ice to allow for oil collection and recovery. This can be especially useful in flowing river conditions to capture oil traveling under the ice. Plywood diversion barriers can also be placed through a slot so that the barrier freezes in place and diverts under-ice oil to a recovery point. Recovery of contaminated ice for later melting and oil separation is also a good method of oil recovery in extreme cold conditions where new-ice is entraining a lot of oil.

Stagnant water may require alternative methods to capture oil under ice such as mop-rope recovery between slots. For small frozen ditches and/or melting runoff, underflow dams and straw-bale dams are often preferred for oil collection and recovery.