Stormwater that discharges directly to the river negatively affects its biology.

** BENEFITS OF WETLANDS **

- Improves water quality prior to discharge into the river.
- Slows the water discharge, causing sediments to drop out and infiltration of water-recharging hydric soils and shallow aquifers.
- Plants respire water into the atmosphere, absorb chemicals, and provide important wildlife habitat.

Clearing invasive buckthorn decreases evapotranspiration and improves the water flow and quality from fens and wetlands.

A plunge pool and vegetative basin provide a last-stage cleaning, filtering, and reduced discharge rate of stormwater.

Minor grading helps retain stormwater for longer periods, allowing sediment deposition.

Removing invasive reed canary grass and restoring a diversity of wetland plants improve water filtration and provide quality wildlife habitat.

...in a Healthy River Valley
The water quality of spring and fall peak flows into the river will be improved as they pass through the deep pool concept.

Creation of this unique deep pool habitat within a larger wetland restoration project will serve multiple benefits along the river valley.

The deep pool area will be stripped for hydric soil used in floodplain reconstruction. The excavation of the pool will recover boulders, cobble, and gravel needed for river bank and bed habitat creations, such as riffles.

A connection to the river will allow fish passage and sustained water elevation within the pool.

Varied water elevations within deep pool are designed to create vegetative and structural habitats that will maximize the diversity of aquatic species, including game and non-game fish species:

1/3 area at 0-6” depth with dense emergent vegetation and shore structures
1/3 area at 6-60” (5 feet) with deep emergent vegetation and submerged structures
1/3 area at 60-180” (15 feet) with deep structures

The River Has a Rhythm…

…in a Healthy River Valley
Vernal pools are seasonally wet depressions that are fishless and support diverse species composition. They prevent run-off and erosion, recharge groundwater, and increase water quality in adjoining river systems. Vernal pools are a critical life cycle requirement for amphibians and aquatic insects. Those that retain water into the summer months provide important habitat for certain conservative species.

Vernal pools adjacent to or in woodlands have ample sources of dead and rotten woody material for winter hibernaculums, which help insulate hibernating species. Complex ecosystems with high biological diversity. Important foraging grounds for many wildlife species.

EDUCATION
As the diversity and health of the landscape improves, wildlife viewing opportunities will expand.

The River Has a Rhythm...

...in a Healthy River Valley
High-quality water seepage from adjacent fens drive side channel flow, offering cool temperatures and ground-filtered chemistries much different from the river.

Stream invertebrates break down organic matter from twigs and leaves in debris dams into finer particles, beginning the food web for a variety of aquatic organisms.

Stream in a Healthy River Valley
GOALS

• Provide public easier access to recreational activities along the river
• Improve water quality upstream: reduce temperature, increase dissolved oxygen
• Improve water quality overall: improve sediment transport
• Increase flood storage in channel
• Improve overwintering habitat
• Improve fish spawning habitat
• Restore native vegetation
• Improve navigation of river
• Preserve historical integrity of the area
• Protect existing northern banded water snake habitat

DAM IMPACTS

• creates an extensive upstream pool
• negatively influences upstream habitat, stream functions, oxygen and temperature conditions
• restricts fish passage upstream and canoeing downstream
• prevents sediment transport and causes sediment accumulation

After Partial/Complete Removal

Dam removal will allow the upstream river channel, floodplain, and tributaries to be restored to functional health. The new floodplain rapidly vegetates, forming wildlife habitat. The restored channel has improved oxygen levels, sediment transport, and can support a diversity of fish and mussel species.

Kerr-McGee will be removing all sediment upstream of the dam, the most challenging and costly issue to dam removal project. Taking advantage of this opportunity by partially or completely removing the dam is prudent.

One alternative would allow fish passage upstream and canoeing/kayaking downstream by filling the downstream plunge pool. However, no ecological improvements would occur upstream.

...in a Healthy River Valley
The River Has a Rhythm…

Riverarium and Educational Kiosks Concept

RIVERARIUM CONCEPT…

A unique public exhibit where visitors walk through a side channel, viewing the stream from an “under-water” perspective. The exhibit will allow visitors to see the bottom of the stream channel, view plant and animal life, and witness stream dynamics first hand.

EDUCATIONAL KIOSKS CONCEPT…

Educational displays will communicate to the public key concepts in watershed restoration. Panels depicting energy flow in a stream system, plant and animal life, the physical processes of a stream, and human interaction (both positive and negative) will be highlighted.

…in a Healthy River Valley
The Urban Stream Research Center focuses on the re-introduction of non-game fish and mussels. It allows knowledge gained through research to be directly applied to the restoration projects on the river, thus accelerating the restoration process. There is no known research center in Illinois with this focus.

The Research Center has the following goals:

• Increase species diversity and abundance of common, endangered and threatened species of non-game fish and mussels within the river and streams
• Improve public awareness and interpretation of these species and their need for critical habitat
• Increase data and research opportunities through university collaboration

Fish and mussels are placed in selected habitat within cages to monitor survival of the species in the natural environment.

Mussels can be reared in various conditions to determine survival thresholds and used as a source for propagation by collecting the larvae (glochidia).

Beneficial diets and conditions can accelerate growth and development, improving survival post-release.

The gills of the host fish are inspected to insure substantial numbers of glochidia are attached.

Modular aquaria maximize use of space and are flexible to specific research needs.

The Research Center will hold open houses for the general public and scheduled educational tours to experience the research programs in operation.

Large populations of smaller fish species can be propagated, acclimated, and raised for re-introduction into restored habitats.

Brine Shrimp

The River Has a Rhythm...

...in a Healthy River Valley