

MISSOURI RIVER

R E C O V E R Y P R O G R A M





The Nation's River

- Nation's longest (2,300 miles)
- From Three Forks, Mont. to St. Louis, Mo.
- "Center of Life" for the Great Plains
- Gateway to the West





The Power of the River

- Historically, violent floods produced erosion, muddy water.
- U.S. Army Corps of Engineers charged by Congress to manage the river for social and economic benefit.
 - Remove snags
 - Protect banks
 - Construct navigation channels
 - Build flood management structures

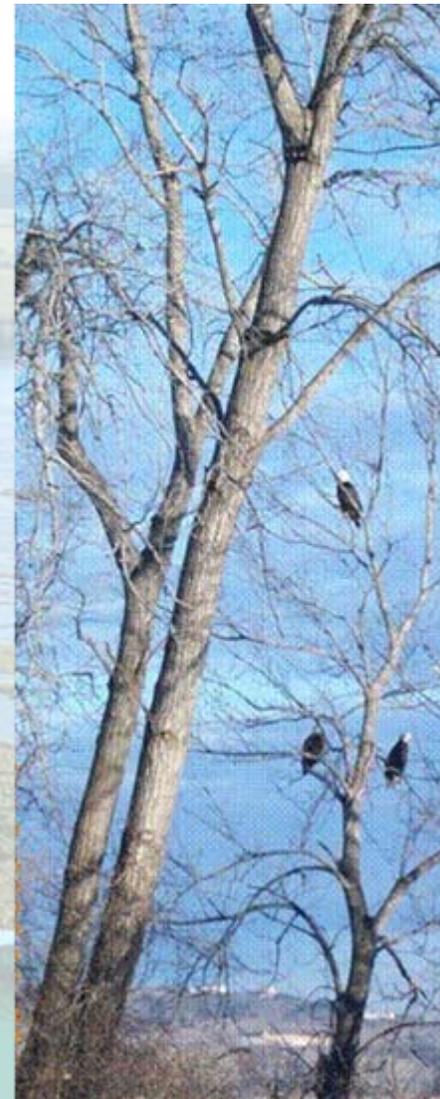


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Environmental Consequences

Impacts of river management on fish and wildlife:

- 3 million acres of natural river habitat altered
- 51 of 67 native species now rated uncommon or decreasing
- Reproduction of **cottonwood**, historically dominant floodplain tree, has ceased
- Aquatic insects, a key link on food chain, reduced by **70 percent**





Threatened and Endangered

- **Least Tern**
(endangered)
- **Piping Plover**
(threatened)
- **Pallid Sturgeon**
(endangered)

The river doesn't naturally build habitats for these shore birds that use sandbars and beaches for nesting.

Loss of habitat and changes to natural flows are contributing to the decline of this ancient species that lives in large rivers.





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Recovery Program Vision

A sustainable ecosystem supporting thriving populations of native species while providing for current social and economic values



The Mission

Implement actions to accomplish Missouri River ecosystem recovery goals in coordination and collaboration with agency partners and stakeholders.

“There are not many rivers, one for each of us, but only this one river, and if we all want to stay here, in some kind of relation to the river, then we have to learn, somehow, to live together.”

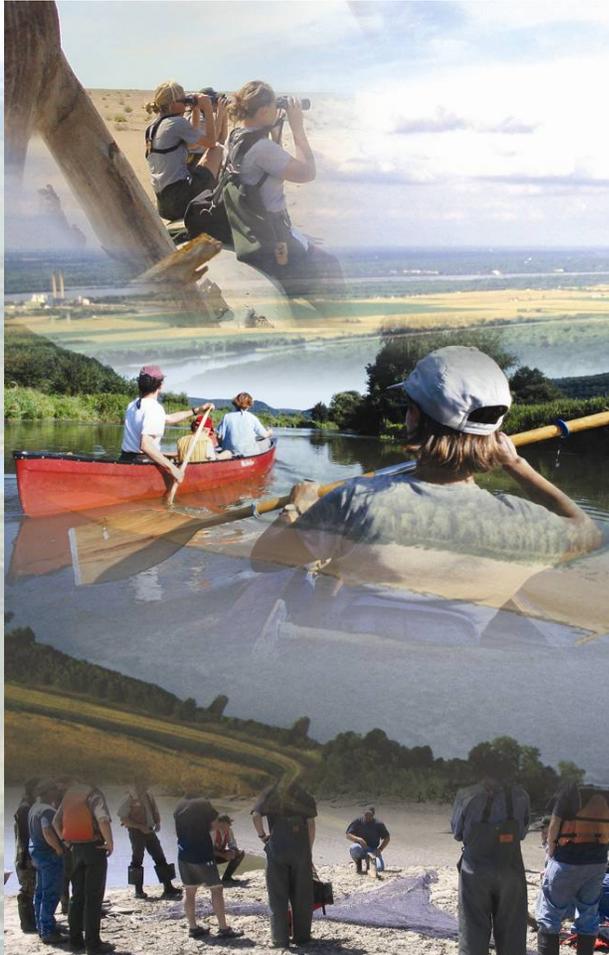
Daniel Kemmis

Community and the Politics of Place, 1990.



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Missouri River Recovery: a decades-long assignment



- River will never be the same, BUT
- Restoration activities are underway and **WILL** make a difference
- Revitalization will benefit all basin inhabitants (including humans)



Partnerships for Progress

- U.S. Army Corps of Engineers with:
 - U.S. Fish and Wildlife Service
 - Other federal, state agencies
 - Basin Tribes
 - Eight states

Program Examples:

USFWS developed a **biological opinion** to protect species that depend on the river.

Corps developed a substantial **Mitigation Project** to acquire land for habitat from Sioux City to St. Louis.



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Benefits for Many Public Interests

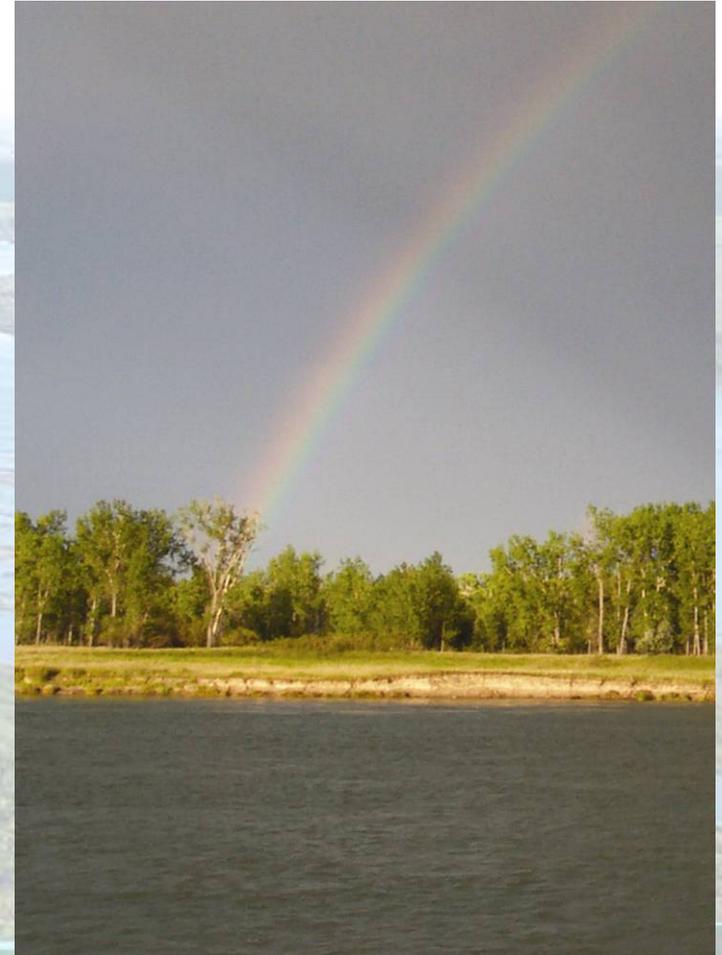
- Agricultural/Commercial
- Navigation
- Environmental
- Governmental
- Recreational
- Urban
- Utilities





Key Recovery Initiatives

- Habitat Creation
 - Shallow Water Habitat
 - Emergent Sandbar Habitat
- Hatchery Support
- Flow Modification
- Science Program
- Public Involvement





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Recovery Through Habitat Creation

ISSUE

Habitat diversity within the Missouri River and its floodplain has declined. Native species that depend on the river's ecosystem are suffering.





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Recovery Through Habitat Creation

GOAL

Provide habitat for native fish and wildlife by restoring natural features and functions. Plan includes establishing shallow water and sandbar habitat and restoring cottonwood habitat.





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Recovery Through Habitat Creation

The **SHALLOW WATER** HABITAT PROGRAM

- Creating 20 - 30 acres per mile of new shallow water habitat by 2020
- Widening river channel
- Restoring chutes and side channels





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Recovery Through Habitat Creation

The **EMERGENT SANDBAR** HABITAT PROGRAM



- Mechanically building and maintaining sandbars
- Clearing existing sandbars of vegetation



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Recovery Through Hatchery Support

Raising pallid sturgeon in hatcheries and stocking them in the river are not the best solutions but help their recovery. Continuing research will refine our recovery activities.





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Recovery Through Flow Modification

ISSUE

Six large dams have altered the river's natural flow, affecting spawning, habitat creation, sediment transport and other important ecosystem functions.





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Recovery Through Flow Modification

GOAL

Implement a more natural flow regimen to benefit native fish and wildlife while seeking balance with social, economic and cultural resources.





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Recovery Through Flow Modification

The **SPRING PULSE** PROGRAM

- Stored water is released during March and May to mimic natural spring river level rise
- Enhance river sediment dynamics
- May reduce flooding on adjacent flood plains
- May boost pallid sturgeon reproduction
- Dependent on water levels



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Recovery Through Science

ISSUE

Incomplete knowledge and understanding of a complex river system.





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Recovery Through Science

GOAL

Ensure that management decisions are based on the best available science.





Recovery Through Science

The **ADAPTIVE MANAGEMENT APPROACH**

- Collaboration, planning and science
- Must consider social and economic concerns in environmental decisions
- Measures performance over time
- Broadens decision-making to account for uncertainties, conflicts, issues not part of the process before



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Recovery Through Public Involvement

ISSUE

The complexity of demands on Missouri River resources can create conflicts. Communicating and collaborating with so many differing interests is difficult.



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Recovery Through Public Involvement

GOAL

Establish collaborative stakeholder processes and educational opportunities to provide insight and recommendations on recovery activities.





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Recovery Through Public Involvement

The MISSOURI RIVER RECOVERY IMPLEMENTATION COMMITTEE

- Collaborative forum
- Will help guide the **prioritization, implementation, monitoring, evaluation, and adaptation** of recovery actions
- Will include broad stakeholder representation to ensure a comprehensive approach



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