



Conservation, Environmental, and Recreation Group's  
Response to Flood Recovery Advisory Working Group  

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Interim Report

Conservation, Environmental & Recreation group's FRAWG recommendations

**Sierra Club, Great Rivers Habitat Alliance, Missouri Coalition for the Environment**

- 1 Focus more on resilience, flood risk reduction and innovation rather than primarily on traditional view of flood control.
- 2 Use functioning floodplains as tools for risk reduction and flood water conveyance, with multiple economic, recreational and environmental co-benefits.
- 3. Acknowledge that extreme weather events and climate change have contributed to and will continue to contribute to historic floods.

4. Improve public outreach and participation to build support for smart solutions.

- Significant taxpayer \$ needed to advance both structural and non-structural solutions.
- Solutions such as highway elevation/relocation. Rebuilding levees, including some levee setbacks. Purchasing land from willing sellers. Cost shares to help protect critical facilities.
- Competition for funds as many areas of the country face similar needs.
- Demonstrate that we have taken bold steps and made some sacrifices to make our case.

( see NYTimes March 11 “Trump Administration Presses Cities to Evict Homeowners from Flood Zones”

DEFINITE PROJECT REPORT  
MISSOURI RIVER AGRICULTURAL LEVEES  
SIOUX CITY, IOWA, TO THE MOUTH

PERTINENT DATA

LENGTH OF LEVEES AND AVERAGE HEIGHT

	<u>Length</u> (miles)	<u>Av. height</u> (feet)
Sioux City to Platte River	234	10
Platte River to Rulo	365	10
Rulo to Kansas City	269	13
Kansas City to Jefferson City	378	15
Jefferson City to mouth	<u>288</u>	<u>12</u>
Total length	1534	12

AREA PROTECTED

	<u>Acres</u>
Sioux City to Platte River	653,000
Platte River to Rulo	273,000
Rulo to Kansas City	137,000
Kansas City to Jefferson City	280,000
Jefferson City to mouth	<u>105,000</u>
Total	1,448,000

# Corps 1947 DPR

LEVEE TYPE

Compacted earth fill

LEVEE DESIGN

Crown width	10 feet
Side slope, landward	1 on 4
Side slope, riverward	1 on 3
Freeboard	2 feet

FLOODWAY WIDTHS

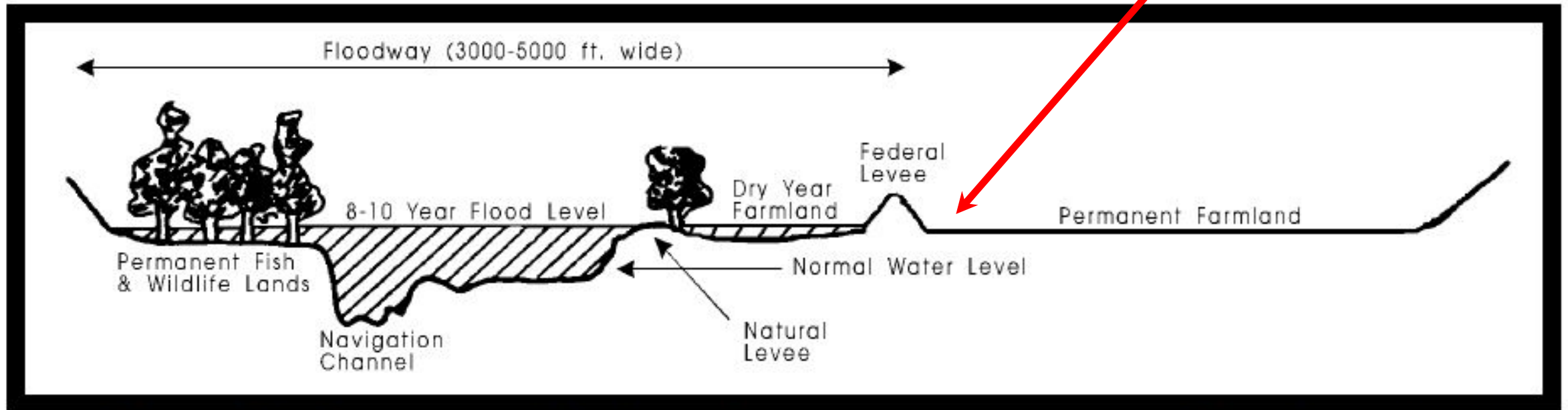
Sioux City to mouth of Kansas River	3,000 feet
Mouth of Kansas River to mouth of Grand River	4,000 feet
Mouth of Grand River to mouth of Osage River	4,500 feet
Mouth of Osage River to mouth of Missouri River	5,000 feet

DESIGN FLOOD DISCHARGES

Sioux City	150,000 sec. ft.
Omaha	250,000 sec. ft.
Nebraska City	295,000 sec. ft.
St. Joseph	325,000 sec. ft.
Kansas City	431,000 sec. ft.
Waverly	437,000 sec. ft.
Boonville	475,000 sec. ft.
Hermann	529,000 sec. ft.

Change from original 3,000 to 5,000-foot concept of 1946

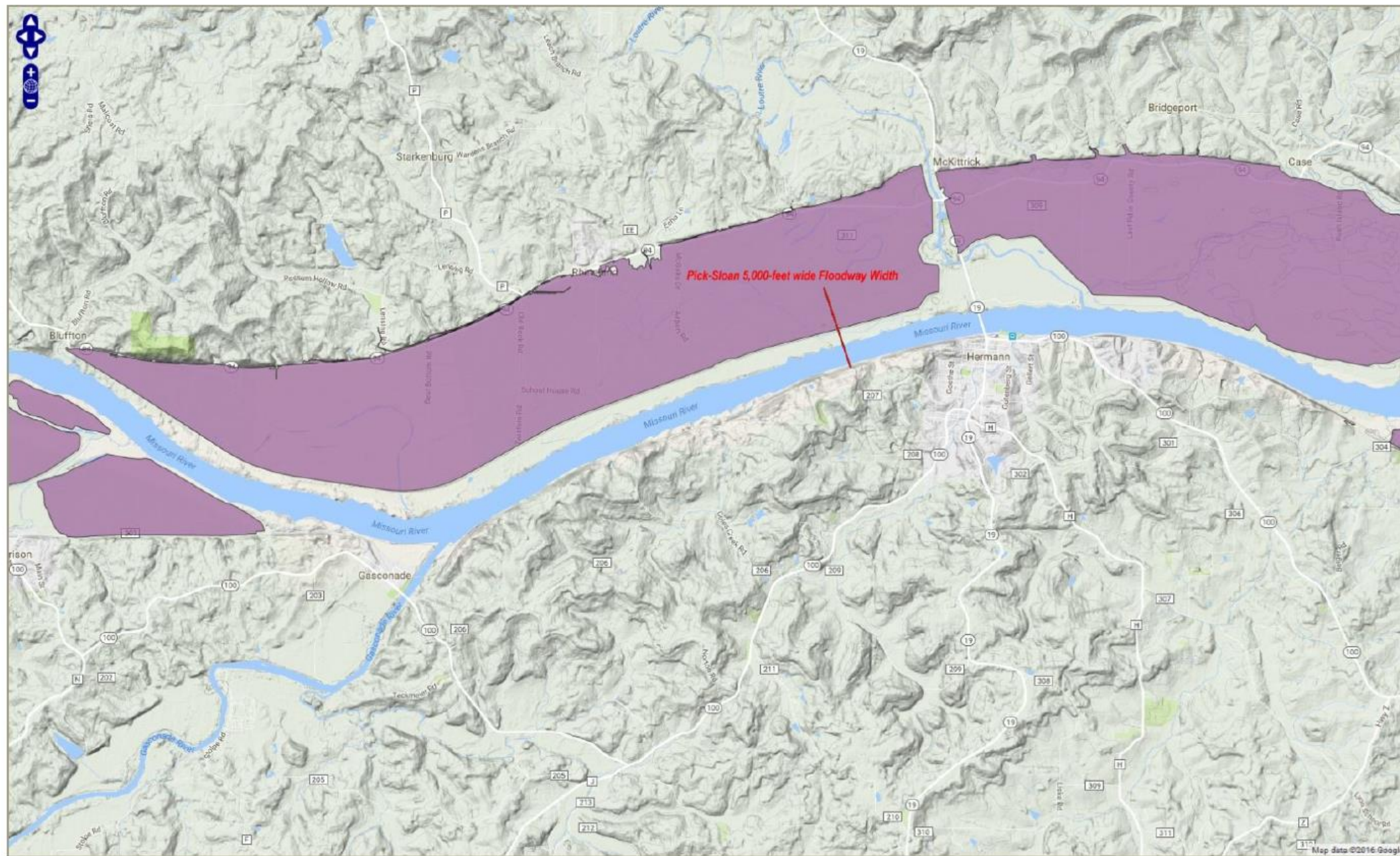
# Pick-Sloan Plan: 1946 Recommended Floodway



*Figure 3-5: Levee Setback Alternative Floodway concept in Pick-Sloan Plan  
(Rasmussen 1993)*



## Near Hermann, Missouri



Source: Corps of Engineers National Levee Database <http://nld.usace.army.mil/egis/f?p=471:1:>

## REPORT ON THE OVERFLOWS OF THE DELTA OF THE MISSISSIPPI.

PREPARED UNDER INSTRUCTIONS FROM THE WAR DEPARTMENT;

BY CHARLES ELLET, JR., CIVIL ENGINEER.

*Introduction.*

In this report, the causes of the more frequent and more extensive overflows of the delta of the Mississippi, in recent than in former times, are considered, and plans suggested for the mitigation of the evil.

The greater frequency and more alarming character of the floods are attributed—

*Primarily*, to the extension of cultivation, throughout the Mississippi valley, by which the evaporation is thought to be, in the aggregate, diminished, the drainage obviously increased, and the floods hurried forward more rapidly into the country below.

*Secondly*, to the extension of the levees along the borders of the Mississippi, and of its tributaries and outlets, by means of which the water that was formerly allowed to spread over many thousand square miles of low lands, is becoming more and more confined to the immediate channel of the river, and is, therefore, compelled to rise higher and flow faster, until, under the increased power of the current, it may have time to excavate a wider and deeper trench to give vent to the increased volume which it conveys.

*Thirdly*, to *cut-offs*, natural and artificial, by which the distance traversed by the stream is shortened, its slope and velocity increased, and the water consequently brought down more rapidly from the country above, and precipitated more rapidly upon the country below.

*Fourthly*, to the gradual progress of the delta into the sea, by which the course of the river, at its embouchure, is lengthened, the slope and velocity there are diminished, and the water consequently thrown back upon the lands above.

It is shown that each of these causes is likely to be progressive, and that the future floods throughout the length and breadth of the delta, and along the great streams tributary to the Mississippi, are destined to rise higher and higher, as society spreads over the upper States, as population adjacent to the river increases, and the inundated low lands appreciate in value.

For the prevention of the increasing dangers growing out of these several co-operative causes, six distinct plans are discussed and advocated:

*First*—Better, higher and stronger levees in Lower Louisiana, and more efficient surveillance—a local measure, but one requiring State legislation, and official execution and discipline.

*Second*—The prevention of additional cut-offs: a restraint which may call for national legislation, or possibly judicial interference, to prohibit the States and individuals above from deluging the country below.

*Third*—The formation of an outlet of the greatest attainable capacity, from the Mississippi to the head of Lake Borgne, with a view, if possible, to convert it ultimately into the main channel of the river.

*Fourthly*—The enlargement of the Bayou Plaquemine, for the purpose







# Floodplain and Wetlands Development

- Why is floodplain development harmful?
  - Floodway vs. Floodplain
    - Development allowances in each, 0' rise vs. 1 ft. rise
      - Floodplain development is essentially unchecked in Missouri.
      - Cumulative effects vs. Individual project modeling.
    - We are still damaging wetlands, even though mitigation is usually required.
    - Jefferson County became first local government in Missouri to tighten rules.
      - City of Eureka annexing in Jefferson County to get around those rules.
  - Floods are getting stronger, more frequent, and more severe
    - Work of Prof. Bob Criss stating that real 100 and 500-year flood plains are higher than thought.
    - River Channelization makes floods move faster, water is higher on average, flooding more frequent.
    - Large rivers acting like creeks and small rivers.
    - Nature Magazine report on study going back 500 years on the Mississippi River.

# Missouri Policy Recommendations

RSMO 49.605 needs to be changed to allow local governments to institute tighter floodplain regulations if they wish to.

RSMo 99.847 should be expanded beyond St. Charles County to prohibit the use of Tax Increment Financing (TIF) within the floodplain throughout Missouri.

RSMO 99.820 should be expanded beyond St. Louis, St. Charles, and Jefferson counties to increase county authority for TIF commissions and limits on subsidies in cases of disagreement.

# Individual Policy Examples

- Individual Policy Examples of Ongoing Floodplain Development
  - Maryland Heights – Suing to overturn a TIF commission rejection of a floodplain development plan
  - Chesterfield
    - Huge shopping center right where flood water was, development
  - Riverpointe Project on Bangert Island in the City of St. Charles
  - New Madrid Levee
    - Proponents want to eliminate the last direct connection of river to its floodplain for hundreds of miles.
  - Port of Lincoln in Lincoln County
  - Lighthouse Project in St. Louis City
  - Continued developments in Hazelwood & Bridgeton along the Missouri River



# Land Acquisition

- Floodplains as tools for risk reduction
- Current Programs
  - Missouri River Recovery Program
  - NRCS Wetland Reserve Easements
  - Riverlands Migratory Bird Sanctuary
  - Big Muddy Fish and Wildlife Refuge

# Missouri River Recovery Program

- US Army Corps of Engineers Program
- Mitigates loss of 522,000 acres of habitat loss
- Authorized to develop 166,750
- 735 miles of the Missouri River
- Fee title only
- Program still active, further land acquisition pending funding

# NRCS Wetland Reserve Easements

- Natural Resource Conservation Service Program
- Permanent and 30 year easements available
- NRCS pays market value and 100 percent of restoration cost
- Landowner retains title, property remains private
- Landowner permitted “quiet enjoyment” of property



# Riverlands Migratory Bird Sanctuary

- Joint project with USACE St. Louis and the Audubon Society
- 3700 acres on Mississippi open to high water
- Not currently acquiring new property

# BIG MUDDY NATIONAL FISH AND WILDLIFE REFUGE



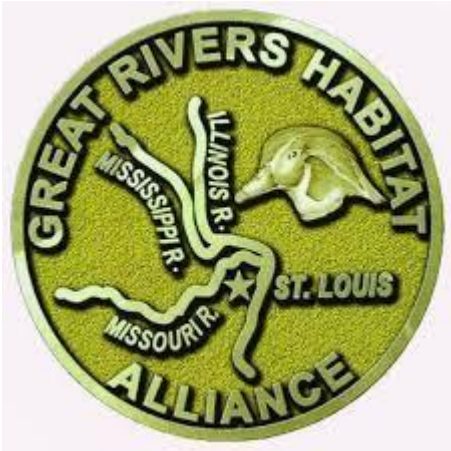
# Big Muddy Fish & Wildlife Refuge

- Currently 21,000 acres
- 12 units, between Kansas City and the Confluence on the Missouri River
- Authorized to acquire 60,000 acres
- Willing sellers only
- Open to fishing and hunting, state regulations apply



# Thank you very much!

April 13, 2020



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