Meeting Summary
State Interagency Missouri River Authority (SIMRA)
Wednesday, November 14, 2012
Iowa School for the Deaf – Lied Multipurpose Complex
3501 Harry Langdon Blvd, Council Bluffs, IA

SIMRA member attendees: Sharon Tahtinen (DNR); Amy Christensen (IUB); Harold Hommes (IDALS); Bill Northey (IDALS via phone) Craig O'Riley (DOT via phone); Sherry Timmins (EDA via phone); Doug Hoelscher (IGOV via phone)

Guest attendees: Tim Hall (DNR via phone); Shawn Shouse (MRRIC Rep); Cara Marker-Morgan (MO River County Officials Coalition/Fremont Co.); Leo Ettleman (Responsible River Management); Stu Maas (MRRIC; NE Wildlife Federation); Mary Maas; Lynn Grobe (Pottawattamie County); David Sieck (Iowa Corn Growers Assoc.); Don Stevens (DOT); Richard Crouch (Mills County); Dave Ulozas (MidAmerican Energy); Scott Belt (Pottawattamie County); Chad Nation (Daily Nopareil);Lyle McIntosh (Vanman Levee); Tiffany Vanosdall (COE); Gwyn Jarrett (COE); Tom Hanafan (City of Council Bluffs – Mayor)

Welcome - Tom Hanafan, Mayor-Council Bluffs

Mayor Hanafan opened the meeting by welcoming SIMRA members and guests to Council Bluffs and specifically to the Lied Multipurpose Complex. He provided a brief history on the Complex.

SIMRA Business – Sharon Tahtinen, Dept. of Natural Resources

- Approve Agenda - Approved Unanimously
- Approve Summary from July 24, 2012 Meeting – Approved Unanimously

Briefing on Council Bluffs Recovery Efforts – Mayor Tom Hanafan
Mayor Hanafan talked about the challenges of the recovery effort. He mentioned that the City has more than 28 miles of levees that need re-certification – important in protecting the citizens; infrastructure and businesses. The City has been working with both FEMA and the COE and progress is being made as 58 projects have already been completed and only two remain. The city is in the process of redoing their relief wells – a project that was started four years ago and is part of the long term recovery efforts.

During the flood, he was pleased with the cooperation of all the agencies. Everyone was helpful in dealing with changing rules and requirements. 39,000 people were evacuated. Rebuilding the levees was a 24 hour; 7 day/week job for 110 days. The city hired outside engineering resources and had additional support from the National Guard.

The recovery has been expensive and work will continue over the next five years.

State Hydrology Work Group Update – Tim Hall, Coordinator (via phone)
(Presentation attached)

Tim Hall, State Hydrology Work Group Coordinator discussed the Work Groups efforts and pointed out that the group is technical in nature by design. The mission of the Hydrology Work Group is to assist agencies of the State of Iowa by providing expertise to help decision-makers better understand existing hydrologic data and information. The group is also working on ways to improve and enhance Iowa's hydrologic data and information.

The State Hydrology Work Group's next meeting is scheduled for mid-December. We will be discussing a) current hydrologic conditions, b) coordination of a data collection network with the National Weather Service, Iowa Groundwater Association, and ISU, and c) COE planning efforts in Missouri River Basin.

1. **Current Statewide Conditions**
   The November 1 Water Summary Update was reviewed, and it shows generally stable or deteriorating conditions across the state.

2. **Current Missouri River Basin Conditions**
   The current situation in the Missouri River Basin was reviewed briefly. That information shows that precipitation is below normal for the entire Missouri River basin – generally in the range of several inches for the year (or about half or normal rainfall for the year), and that the mountain snowpack is already about 50% or normal for this time of the year.

3. **Winter Predictions**

   A brief review of NOAA predictions that cover the next three months was discussed. Those predictions call for much of the Missouri River basin to remain in a drought through January, with potential for some improvement in the northern portions of North Dakota and in central Montana. Precipitation is predicted to be normal for much of the area, while temperature is expected to be above normal for much of the area.

4. **Questions**

   Questions were asked about the COE proposed reductions in Missouri River flow. The HWG has provided input to IGOV for the state response, and that input suggests that the COE proceed with caution in trying to balance the water supply and river flow needs. Others at the meeting indicated that the COE would be meeting with local officials to review the planned changes in flow.

   A question was asked about the webinars conducted by NOAA and the NWS this past summer. Tim Hall was able to participate in most of the scheduled webinars, as well as the presentation made to the Governor by Doug Kluck of NOAA. The

information and data from those organizations is reviewed and utilized by the HWG.

MidAmerican Energy's Perspectives on Operation of the Missouri River - Dave Ulozas, Vice President of Generation, MidAmerican Energy (Presentation attached)

Dave Ulozas from MidAmerican gave presentation on MidAmerican's perspectives on operation of the Missouri River. The focus of his presentation relates to MidAmerican's flood activities, but at the end he discussed low flow issues and the Corps' planned low flows of 12,000 cfs out of Gavins Point Dam. He said that MidAmerican will be able to operate its power plants along the Missouri River if the flows are at 12,000 cfs. However, they will need to carefully monitor the situation. Some of the uncertainty relates to the fact that the flood caused the creation of sandbars and scours that did not previously exist, so the river is different than it was before the flood. He also said that flows at these levels will require MidAmerican to install supplemental pumps at the Neal Energy Center south of Sioux City to ensure they will have access to cooling water. He said it was very helpful that the Corps gave MidAmerican plenty of notice that this would be happening so they could make appropriate plans.

Additionally, he stressed the need for effective communication. He indicated that the State of Iowa worked well with MidAmerican during the flood including work related to road restrictions; environmental issues – including having a direct contact in the DNR field office; and work with IUB in communications.

Army Corps of Engineers Discussion – Gwyn Jarrett, PM/Planner
Tiffany Vanosdall, PM/Planner (Presentation attached)

- MO River Mainstem Reservoirs Draft Surplus Water Reports
- MO River Municipal & Industrial Water Storage Reallocation Study

Briefing on Sediment Management Meeting – Harold Hommes
Harold Hommes provided a brief update of the IDALS concerns regarding one of the ongoing Missouri River recovery projects. More specifically, it is called the Little Sioux Bend Chute and is aimed at creating additional shallow water habitat (SWH) for pallid sturgeon recovery. The Corps of Engineers has proposed to cut through some lands that are above the "ordinary high water mark" and through the use of a hydraulic dredge, mover the earthen material into the river for disposal. The area is expected to be 150 wide by 2.5 – 5 foot deep and about 7,000 feet long. An anticipated 289,000 cubic yards of material will be deposited in the river. There are several issues to be considered with this project including; are there suitable alternatives rather than depositing this soil into the river; what type of nutrient load can we expect to encounter with this project; and is it fair? This last issue is especially important as several area residents have raised concerns that they were prevented or discouraged from putting sand deposited on their lands after the great Missouri River flood of 2011, back into the river to dispose of it. Clarification was made that farmers along the river can put sand back into the river, but just like the Corps, they would need a permit to do so. An action item agreed upon by

meeting participants was to host an informational meeting in December to provide interested stakeholders with guidance on the permitting approval process.

Transportation Update – Don Stevens, DOT District Engineer District 4 – Atlantic
(Presentation attached)

Missouri River County Officials Coalition Comments - Cara Marker-Morgan, Fremont County Supervisor

Cara Marker-Morgan provided the group with an update on the Coalition. She mentioned membership is now 12 counties from Iowa, Nebraska and Missouri. The group is writing their charter and mission statement. The coalition has flood control as a priority issue as well as the accreditation of the levee due to its importance in business development/expansion in the area. The group is exploring ways to expand the tax base for levee districts.

Missouri River Recovery and Implementation Committee (MRRIC) update – Shawn Shouse, Agricultural Engineer - Iowa State University Extension
(Presentation attached)

Public Comment

Next Meeting Date and Agenda Topics

Adjourn

Agenda

State Interagency Missouri River Authority
Wednesday, November 14, 2012, 9:00 a.m – 1:00 p.m.
Iowa School for the Deaf – Lied Multipurpose Complex
3501 Harry Langdon Boulevard Council Bluffs, IA

Call in instructions: Dial (866) 685-1580. When the call is answered follow the prompts by entering the conference code of **4510673319** followed by #.

Welcome - Tom Hanafan, Mayor-Council Bluffs

SIMRA Business – Sharon Tahtinen

- Approve Agenda
- Approve Summary from July 24, 2012 Meeting

Briefing on Council Bluffs Recovery Efforts – Mayor Tom Hanafan

State Hydrology Work Group Update – Tim Hall, Coordinator (**via phone**)

MidAmerican Energy's Perspectives on Operation of the Missouri River - Dave Ulozas, Vice President of Generation, MidAmerican Energy

Army Corps of Engineers Discussion – Gwyn Jarrett, PM/Planner
Tiffany Vanosdall, PM/Planner

- MO River Mainstem Reservoirs Draft Surplus Water Reports
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Briefing on Sediment Management Meeting – Harold Hommes/Sharon Tahtinen

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Missouri River County Officials Coalition Comments - Cara Marker-Morgan, Fremont County Supervisor

Missouri River Recovery and Implementation Committee (MRRIC) update – Shawn Shouse, Agricultural Engineer - Iowa State University Extension

Public Comment

Next Meeting Date and Agenda Topics

Adjourn

SIMRA Meeting
November 14, 2012

Hydrology Coordinator Update

1. Hydrology Work Group

The Hydrology Work Group has been established:

Robert Libra – State Geologist with the Iowa DNR
Greg Nalley – US Geological Survey in Iowa City
Harry Hillaker – Climatologist with IDALS
Dave Claman – Iowa DOT
Dr. Kristie Franz –Iowa State University
Dr. Witek Krajewski – Director of the Iowa Flood Center.

The group has met twice (August 28 and September 16), and discussed overall ideas for the group, developed a Mission/Vision (attached), and discussed the establishment of a data collection network for soil moisture and shallow groundwater levels in Iowa.

Next meeting is scheduled for mid-December. Agenda items include a) assessment and discussion of current hydrologic conditions, b) coordination of data collection network idea with National Weather Service, Iowa Groundwater Association, and ISU climatology planning efforts, and c) discussion of COE planning efforts in Missouri River Basin.

2. Current Statewide Conditions

November 1 Water Summary Update shows generally stable or deteriorating conditions across the state. Highlights include:

Average streamflows across the state are lower now than at this time last year — in the 25th percentile compared 37th percentile.

The lack of flow from lake inlets and tiles will increase the severity of winter kills in shallow natural lakes.

2012 precipitation is more than 8.2 inches below normal for the state as a whole, the lowest January-October total since 1988. Some parts of north central and southeast Iowa are more than 20 inches short of rainfall since the drought began in 2011.

Shallow groundwater conditions have worsened along the Ocheyedan and Upper Little Sioux Rivers.

3. Current Missouri River Basin Conditions

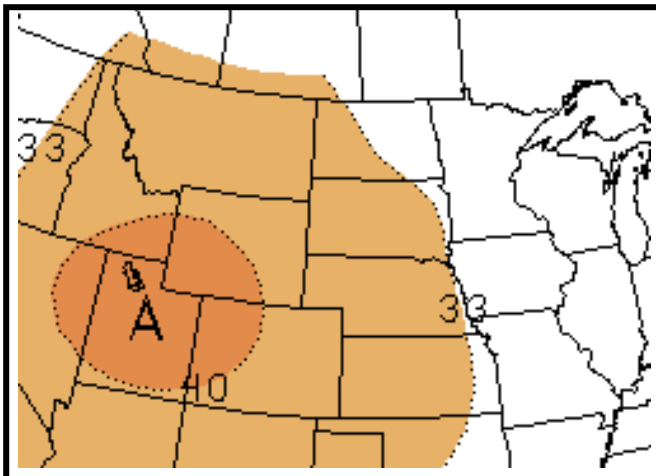
Runoff into the Missouri River reservoir system remains below normal.

Precipitation is below normal over the entire Missouri River basin – generally in the range of several inches for the year (or about half or normal rainfall for the year).

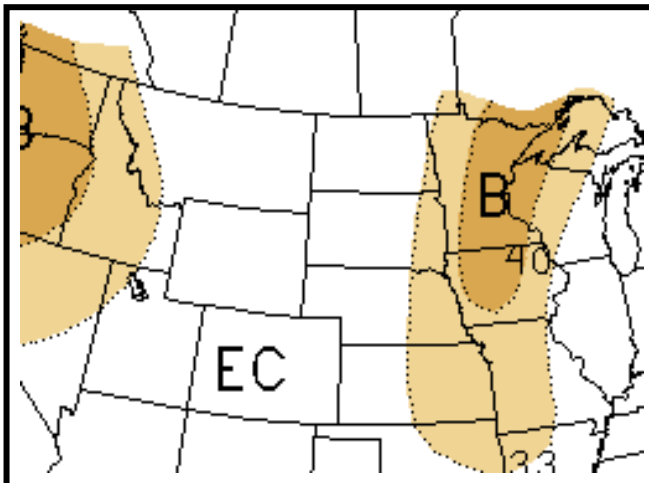
The Missouri River basin mountain snowpack normally peaks around April 15. By November 15, normally 15% of the peak has accumulated. On November 7, 2012 the mountain snowpack was about 50% or normal for this time of the year.

4. Winter Predictions

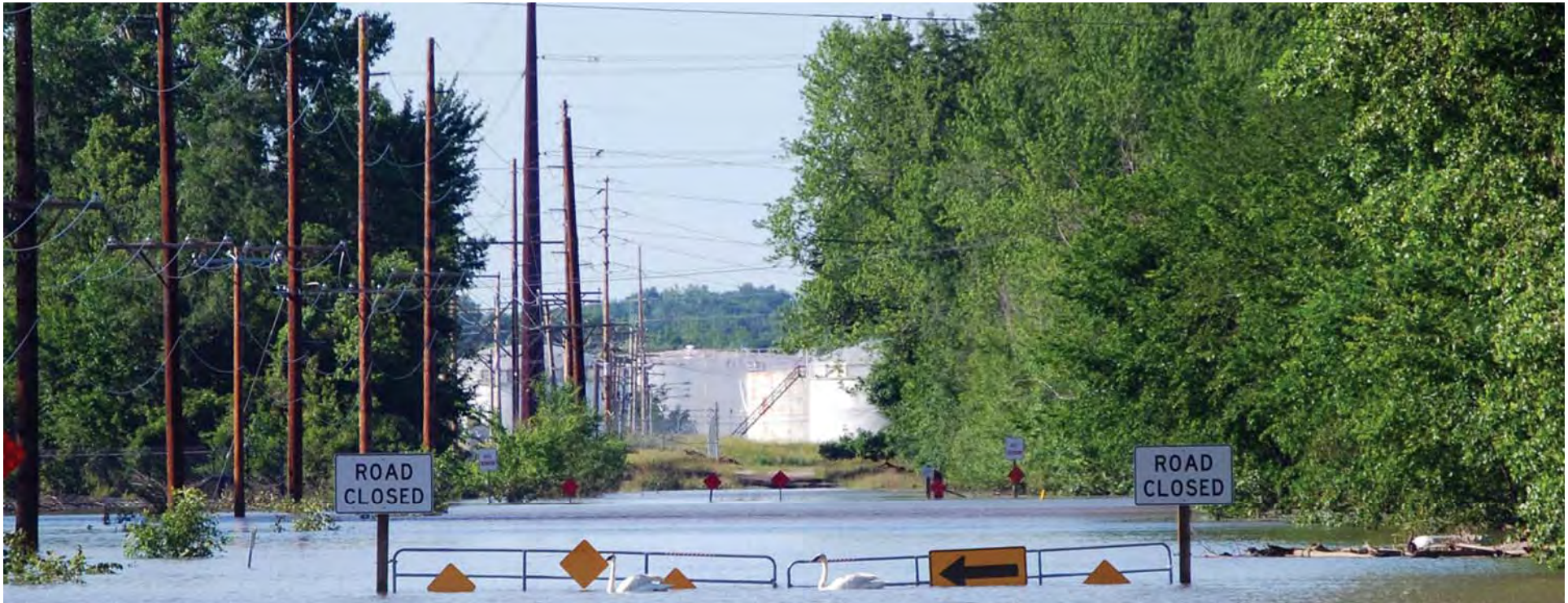
NOAA predictions for much of the Missouri River basin to remain in a drought through January, with potential for some improvement in the northern portions of North Dakota and in central Montana. Precipitation is predicted to be normal for much of the area, while temperature is expected to be above normal for much of the area. The figures below show predicted temperature and precipitation as likely to be above normal (A) or below normal (B) or equal chances of being above or below normal (EC).



Predicted temperature thru Jan 31.



Predicted precipitation thru Jan 31.



2012 Missouri River Discussion

SIMRA Meeting

11/14/2012

MidAmerican
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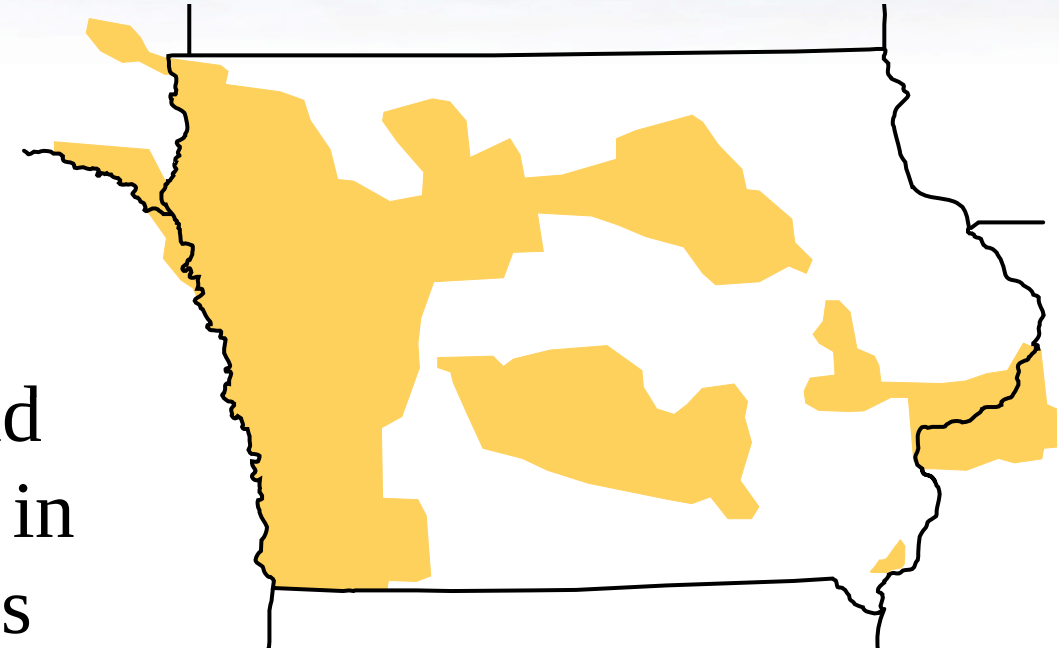
Overview – MidAmerican Energy Company

- Headquartered in Des Moines, Iowa
- 3,500 employees
- 1.4 million electric and natural gas customers in four Midwestern states
  - Iowa, Illinois, South Dakota and Nebraska
- 7,094 MW net generating capacity



Generating capacity by fuel type

- Coal 48%
- Natural Gas 19%
- Wind 26%
- Nuclear/Other 7%

MidAmerican ENERGY®

Missouri River Facilities

- MidAmerican Energy has seven electric generating facilities that use water from the MO river for cooling water. These units are critical infrastructure.
- The facilities are:
  - Neal Energy Center Units 1-4 (Sioux City)
  - Walter Scott Jr. Energy Center Units 1-3 (Council Bluffs)
- The primary use of water is in a steam condenser at the exhaust of a steam turbine generator.
- Less than 5% of the water pumped into the plant is consumed. 95% or more is returned to the river.

Missouri River Facilities

- Recent history
  - Record floods
  - Complete isolation of Gavin's Point
  - Flows of 12kcfs or less this coming winter
  - Shifting of the river bed to include new sand bars and obstructions at the intakes
  - Scouring of the river bed creating uncertain operational challenges in the future

MidAmerican Business Model

Plan → Execute → Measure → Correct

MidAmerican ENERGY®

Missouri River Flooding

- MidAmerican Energy's extensive flood preparations began in May 2011– more than 30 days prior to projected crest
- Missouri River levels in Sioux City and Council Bluffs/Omaha were expected to be 6 to 7 feet above previous records
- Flooding was due to spring rainfall in the upper Missouri River Basin that was nearly equal to the average annual total and snowpack runoff into the upper portion of the river that was 140% of normal

MidAmerican ENERGY®

Missouri River Flooding

- Record release from Gavins Point Dam on the South Dakota-Nebraska border, which feeds into the Missouri River
- Release late June through August was 160,000 cfs; previous record – 70,000 cfs
- Planned for a sustained effort – two to three months; internal activation of National Incident Management System protocol
- Daily planning and coordination calls held – delivery services, generation and NIMS coordination

Proactive Measures

- Developed and executed plans to protect generation facilities, substations, equipment and service centers
- Equipment at all impacted facilities was moved to higher ground, meters were removed, low-lying areas were reinforced
- Temporary access roads were constructed at facilities; boats were secured to gain access to facilities, if needed
- Plans made for orderly generation shutdown, if needed
- Outreach with elected officials, community leaders, law enforcement, emergency management personnel and media

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Proactive Measures

- Walter Scott, Jr. Energy Center staff attended a presentation on levee fatigue made by the U.S. Army Corps of Engineers
- Manufacturer of HESCO barriers toured Neal Energy Center to inspect barriers and provided suggestions for additional reinforcements
- MidAmerican Energy personnel made daily levee inspections
- Provided barriers to customers to maintain load

MidAmerican ENERGY®

Neal Energy Center – Sioux City, Iowa

- Coal-fueled facilities
- 4 units: net generating capacity 1,602 MW
- MidAmerican Energy employees working at the facility: 237
- Years installed: Units 1 and 2, 1964 and 1972; Units 3 and 4, 1975 and 1979

MidAmerican ENERGY®

Neal Energy Center – Sioux City, Iowa

- Primary protection: HESCO barriers, 15 feet long
- Within each barrier, sections that are 3 feet wide, 3 feet long and 4 feet high and weigh 3,600 lbs. when filled with sand
- In total, a 15-foot section weighs 8 to 10 tons

MidAmerican ENERGY®

Neal Energy Center – Sioux City, Iowa

- HESCO barriers around facilities: 10,200 linear feet; earthen berm 5,600 linear feet
- Barriers: 4 feet high and with the bed underneath, total height is 6 feet

MidAmerican ENERGY®

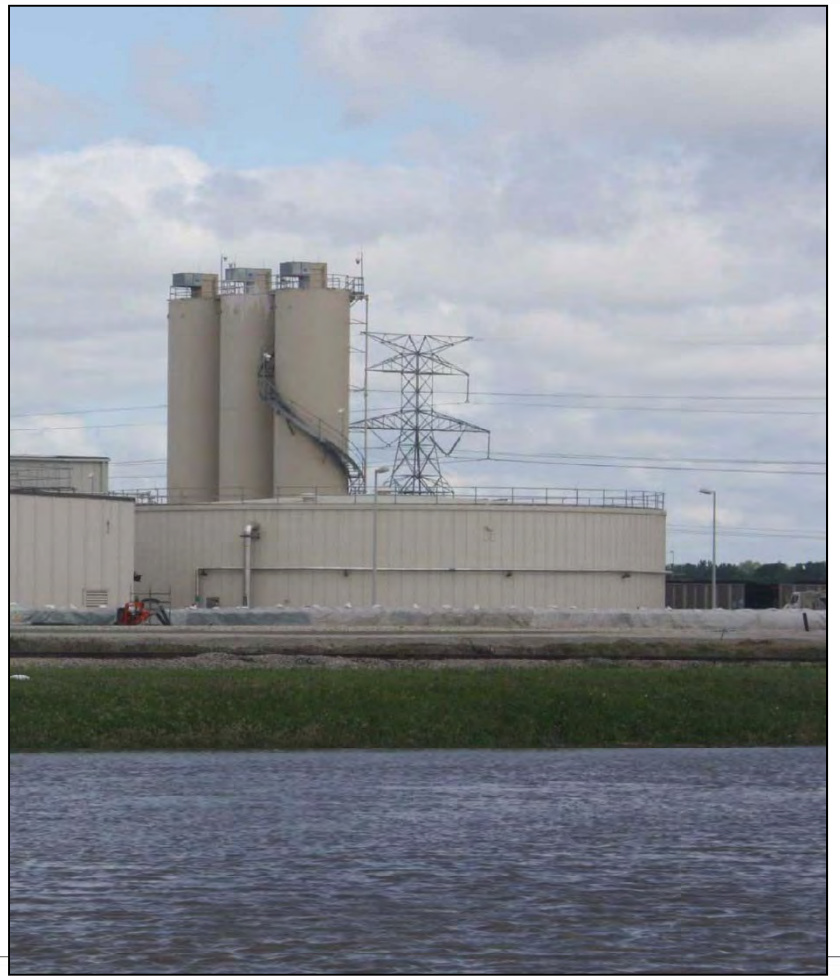
Walter Scott, Jr. Energy Center – Council Bluffs, Iowa

- Coal-fueled facilities
- 4 units: net generating capacity 1,660 MW
- MidAmerican Energy employees working at the facility: 244
- Years installed: Units 1, 2 and 3, 1954, 1958 and 1978; Unit 4, 2007

MidAmerican ENERGY®

Walter Scott, Jr. Energy Center – Council Bluffs, Iowa

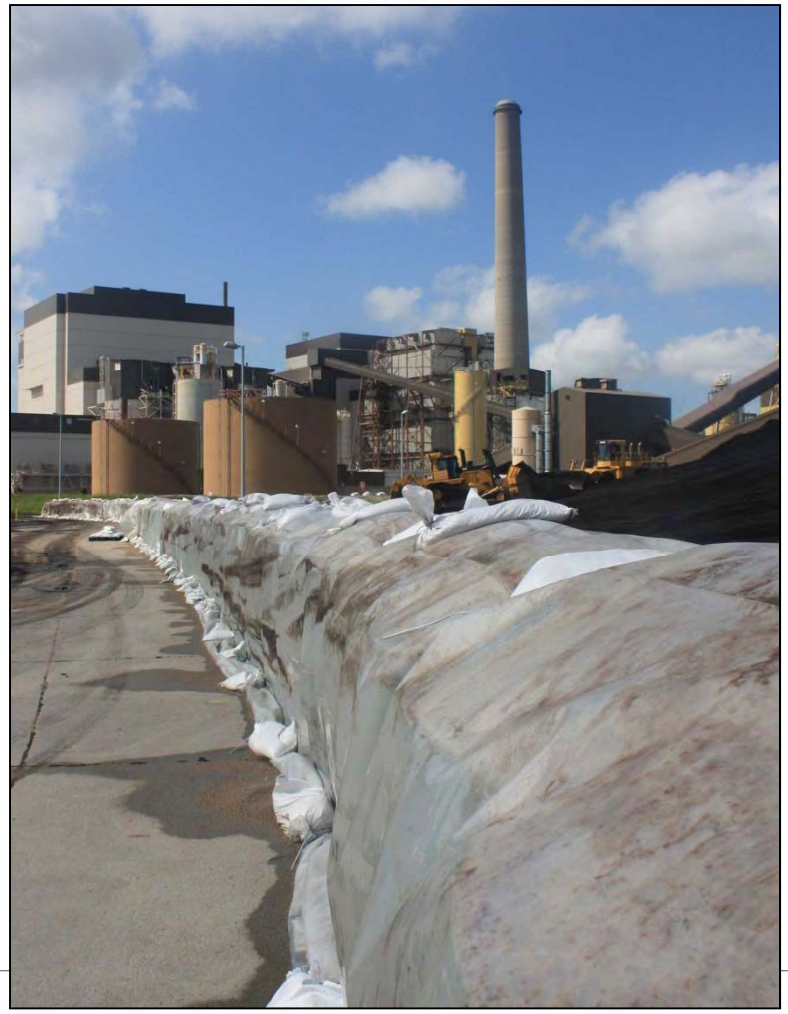
- Majority of Walter Scott, Jr. Energy Center buildings and structures constructed at elevations above the expected Missouri River crest of 976 feet above sea level



MidAmerican ENERGY®

Walter Scott, Jr. Energy Center – Council Bluffs, Iowa

- Nearly 10,000 linear feet of HESCO barriers
- Quarter mile of roadway raised 2 to 3 feet
- Nearby, the company activated its backup generation plan to provide service via a mobile substation to 630 rural customers



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Walter Scott, Jr. Energy Center – Council Bluffs, Iowa

- Roadway that was raised

MidAmerican ENERGY®

Honey Creek Substation

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Council Bluffs Service Center and Customer Office

- 4-foot high HESCO barriers used; sandbags placed on top of the barriers to bring height to 5.5 feet
- June 10-12: Service center and customer office relocated to the Mall of the Bluffs, Iowa Western Community College and Westfair Fairgrounds
- Protection left in place throughout the summer
- 4-inch rain during one evening in mid-August significantly raised water levels

Council Bluffs Service Center and Customer Office

MidAmerican ENERGY®

Council Bluffs Service Center and Customer Office

MidAmerican ENERGY®

Council Bluffs Service Center and Customer Office

MidAmerican ENERGY®

Flood Summary

- Approximately 9.2 miles of protective barriers put in place, including earthen berms and HESCO barriers topped with sandbags.
- Nearly 600 gas meters were shut off and more than 800 electric disconnections took place
- Homes evacuated since early June
- Capital and O&M costs: $11 million

Low Water Events

- During the last year we have shifted from too much water to a concern about low water levels.
- There was a concern of electrical system instability when the Corps announced on May 4, 2012, that they would be closing all flood gates at Gavins Point on May 9 for eight hours. The closing of the flood gates would effectively hold the Missouri River flow, causing rapid downstream drops in the river elevation levels.

Low Water Events

- The gate closure had the potential to disrupt critical infrastructure at three major sites that MEC operates.
- The predicted drop in water levels would have been sufficient to potentially force all of the MidAmerican Energy power plants near Sioux City off-line due to low water levels.
- The first and only public announcement of the May 9 flood gate closure occurred five days prior to the planned date.

Low Water Events

- MidAmerican Energy received no notification of the planned May 9 event before the public announcement. MidAmerican Energy then was forced to prepare emergency plans to maintain sufficient electrical supply in parts of Northwest Iowa and for the Midwestern electrical grid in general over the course of several days.
- Heavy rain and subsequent flooding in South Dakota entering the Missouri River below Gavins Point Dam maintained the river elevation enough to keep the Sioux City and Council Bluffs plants from being forced offline. Two feet of additional river drop, as originally predicted, would have been a critical level for the Sioux City-area power plants.

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Low River Flow

- MEC facilities depend on the MO river for cooling water as previously discussed.
- The ACOE has predicted and discussed well in advance of the need to reduce MO river flows to 12kcfs and has asked for our input. Based on the flood gate closure and past operating history we believe we can continue to operate at the levels the ACOE has published.
- Flow at these reduced levels requires supplemental pumps to be installed at the Neal Energy Center to ensure cooling water availability.
- Ice flows and other items at reduced river flow will have to be monitored.

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Lessons Learned

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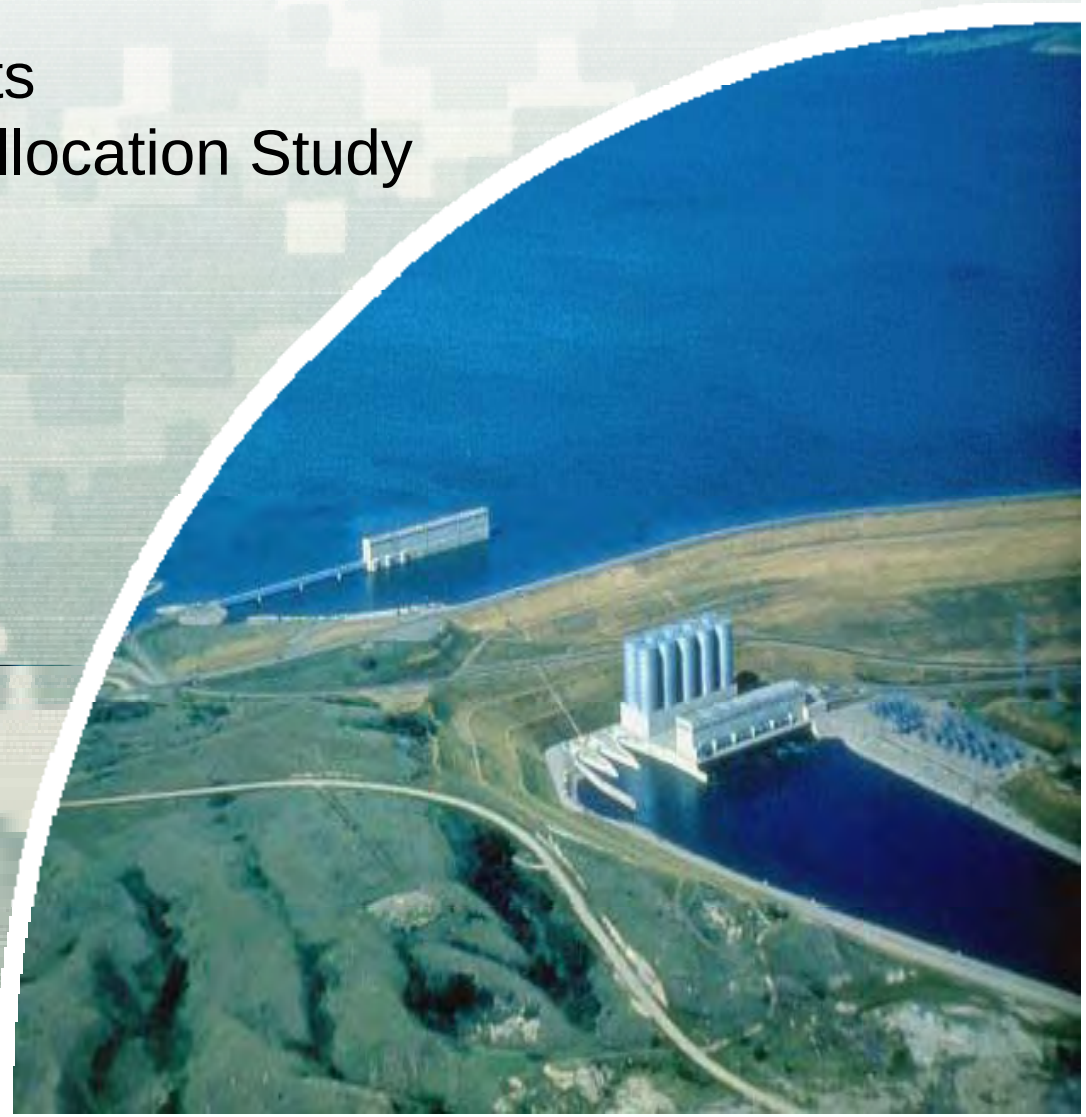
Missouri River Mainstem System Water Supply

- Five Surplus Water Reports
- Municipal & Industrial Reallocation Study

U.S. Army Corps of Engineers
Omaha District
Tiffany Vanosdall, PM
Gwyn Jarrett, PM

SIMRA Meeting –
November 14, 2012



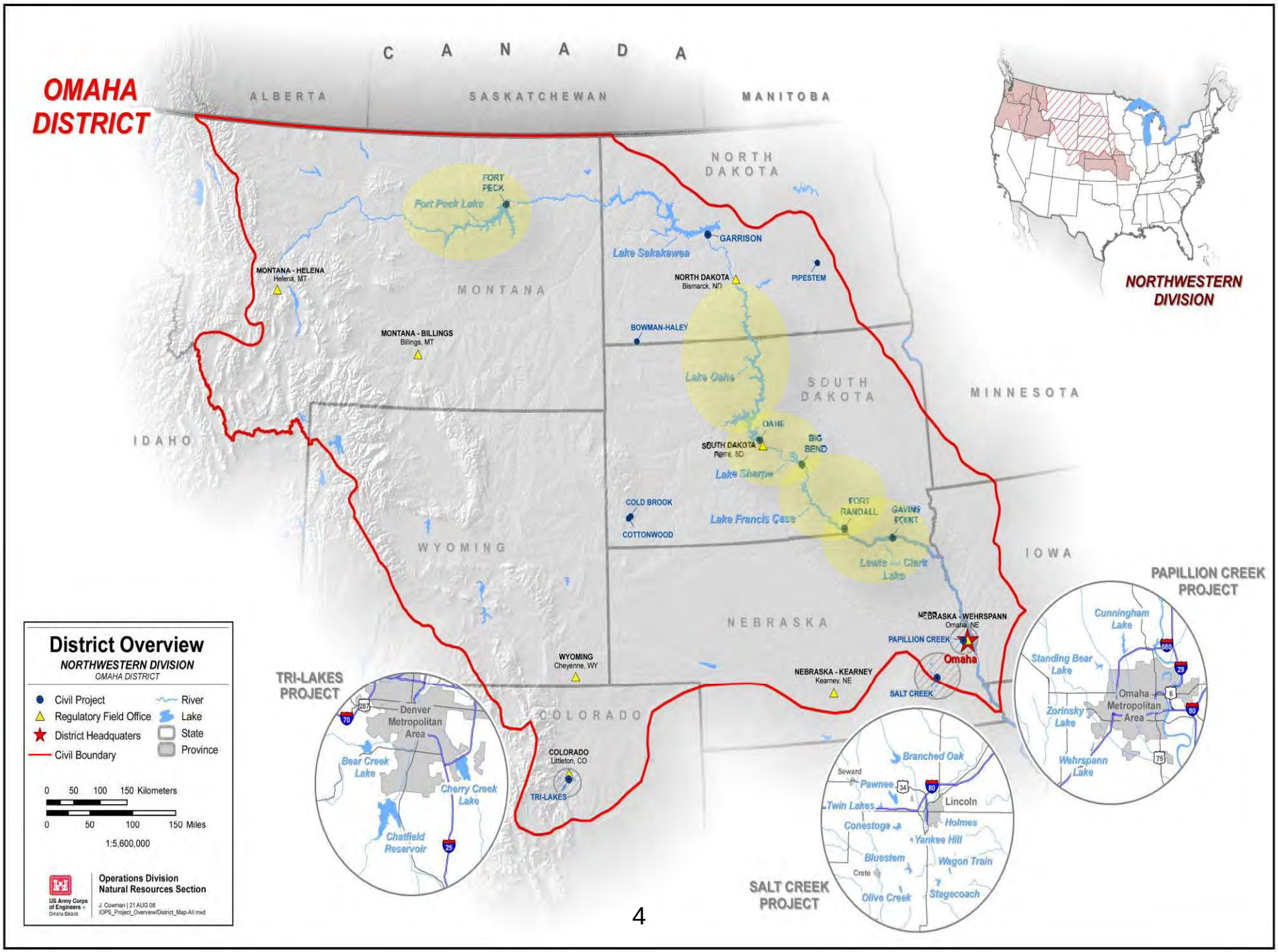
US Army Corps of Engineers
BUILDING STRONG®

Presentation

- Part I
  - ► Water Supply Evolution in the Missouri River Basin
- Part II
  - ► Draft Surplus Water Report Overview
- Part III
  - ► Municipal and Industrial (M&I) Reallocation Study

Presentation

- Part I
  - ► Water Supply Evolution in the Missouri River Basin
    - Authorities
    - Previous Condition
    - Current Condition
    - Future Condition
- Part II
  - ► Draft Surplus Water Report Overview
- Part III
  - ► M&I Reallocation Study


OMAHA DISTRICT
C A N A D A
ALBERTA
SASKATCHEWAN
MANITOBA
NORTH DAKOTA
MONTANA
SOUTH DAKOTA
MINNESOTA
IDAHO
WYOMING
NEBRASKA
IOWA
COLORADO
FORT PECK
Fort Peck Lake
GARRISON
Lake Sakakawea
PIPESTEM
MONTANA - HELENA
Helena, MT
NORTH DAKOTA
Bismarck, ND
MONTANA - BILLINGS
Billings, MT
BOWMAN-HALEY
Lake Oahe
OAHE
SOUTH DAKOTA
Pierre, SD
BIG BEND
Lake Sharpe
COLD BROOK
COTTONWOOD
Lake Francis Case
FORT RANDALL
GAVINS POINT
Lewis and Clark Lake
WYOMING
Cheyenne, WY
NEBRASKA - WEHRSPANN
Omaha, NE
PAPILLION CREEK
Omaha
NEBRASKA - KEARNEY
Kearney, NE
SALT CREEK
COLORADO
Littleton, CO
TRI-LAKES
NORTHWESTERN DIVISION
TRI-LAKES PROJECT
Denver Metropolitan Area
Bear Creek Lake
Cherry Creek Lake
Chatfield Reservoir
PAPILLION CREEK PROJECT
Cunningham Lake
Standing Bear Lake
Omaha Metropolitan Area
Zorinsky Lake
Wehrspann Lake
SALT CREEK PROJECT
Seward
Branched Oak
Pawnee
Lincoln
Twin Lakes
Holmes
Conestoga
Yankee Hill
Bluestem
Wagon Train
Crete
Olive Creek
Stagecoach
District Overview
NORTHWESTERN DIVISION
OMAHA DISTRICT
Civil Project
Regulatory Field Office
District Headquaters
Civil Boundary
River
Lake
State
Province
0 50 100 150 Kilometers
0 50 100 150 Miles
1:5,600,000
US Army Corps of Engineers
Omaha District
Operations Division
Natural Resources Section
J. Cowman | 21 AUG 08
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Water Supply Authorities

Section 6 of the 1944 Flood Control Act

"Sec. 6. That the Secretary of War is authorized to make **contracts** with States, municipalities, private concerns, or individuals, at such prices and on such **terms as he may deem reasonable**, for **domestic and industrial uses for surplus water** that may be available at any reservoir under the control of the War Department: Provided, That no contracts for such water shall **adversely affect** then existing lawful uses of such water. All moneys received from such contracts shall be deposited in the Treasury of the United States as miscellaneous receipts."

Temporary

Title III, 1958 Rivers and Harbors Act, "The 1958 Water Supply Act"

"SEC. 301. (a) It is hereby declared to be the policy of the Congress to recognize the **primary responsibilities** of the States and local interests in developing water supplies for domestic, municipal, industrial, and other purposes and that the Federal government should participate and cooperate with States and Local interests in developing such water supplies in connection with the construction, maintenance, and operation of Federal navigation, flood control, irrigation, or multiple purpose projects.

(b) In carrying out the policy set forth in this section, it is hereby provided that **storage** may be included in any reservoir project surveyed, planned, constructed or to be planned, surveyed and/or constructed by the Corps of Engineers or the Bureau of Reclamation to impound water for present or anticipated future demand or need for **municipal or industrial** water, and the reasonable value thereof may be taken into account in estimating the economic value of the entire project…"

Permanent

Corps Water Supply Guidance and References

Engineer Regulation 1105-2-100 – Planning Guidance Notebook, Paragraph 3-8, Appendix E, Section VIII
(Available online at: http://140.194.76.129/publications/eng-regs/er1105-2-100/toc.htm)
Institute of Water Resources "Water Supply Handbook – A Handbook on Water Supply Planning and Resource Mgmt"
(Available online at: www.iwr.usace.army.mil/docs/iwrreports/96ps4.pdf)
Water Management and Reallocation Studies Planning Center of Expertise
(Available online at: www.swd.usace.army.mil/pcx)

MISSOURI RIVER—FORT PECK TO SIOUX CITY

7. The plan presented in House Document 475, Seventy-eighth Congress, second session, contemplates the construction additional multiple-purpose reservoirs on the main stem Missouri River for flood control, navigation, irrigation domestic and sanitary purposes, wildlife, and recreation, in the following table:

as a multiple-purpose reservoir primarily in the interest of irrigation.

8. The plan presented in Senate Document 191, Seventy-eighth Congress, second session, contemplates the use of Fort Peck Reservoir primarily for irrigation purposes, also for navigation, flood control, silt control, and power, and the construction of main stem reservoirs to be operated for flood control, irrigation, navigation, power, silt control, and other purposes, as follows:

The Flood Control Act of 1944

[PUBLIC LAW 534—78TH CONGRESS]

[CHAPTER 665—2D SESSION]

[H. R. 4485]

AN ACT

Authorizing the construction of certain public works on rivers and harbors for flood control, and for other purposes.

Fish and Wildlife

Recreation

Water Supply

Flood Control

Water Quality

Irrigation

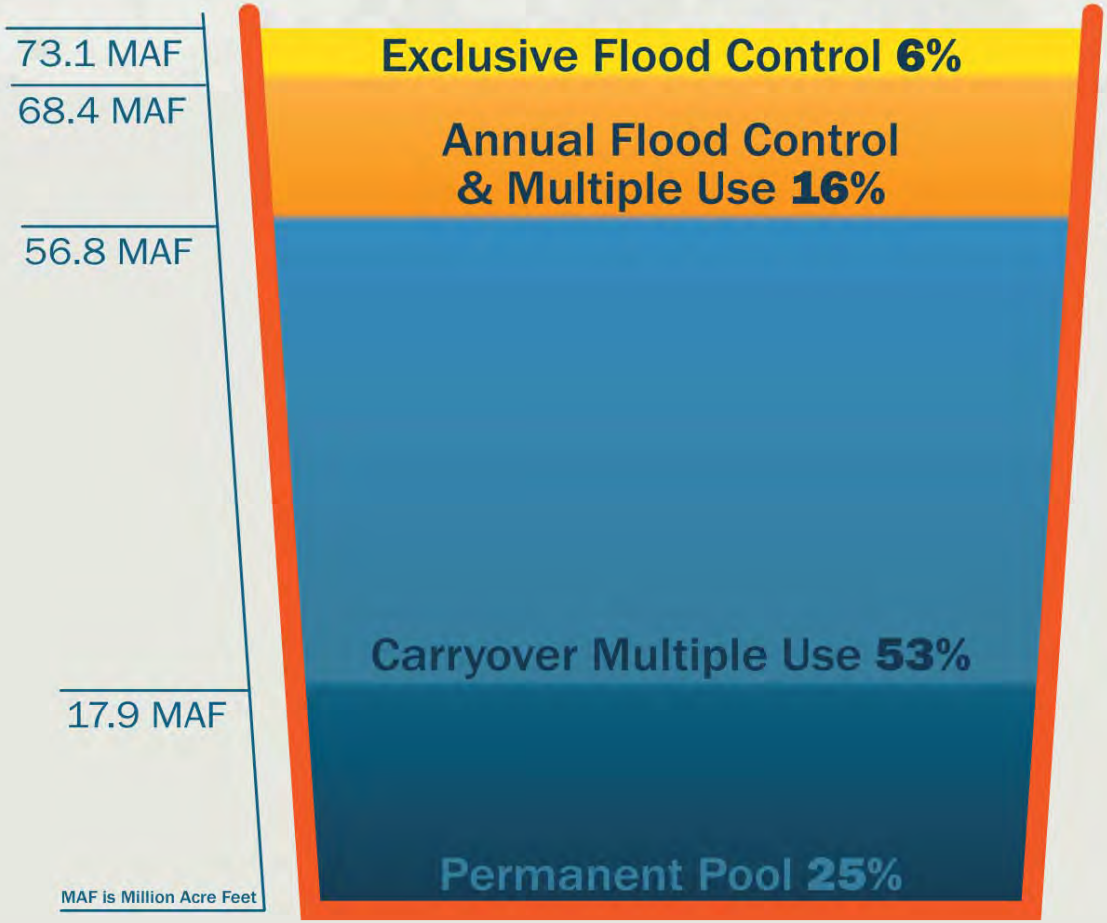
Hydropower

Navigation

US Army Corps of Engineers
BUILDING STRONG

Missouri River
Main Stem Reservoir System

Zones & Allocations of the Total Storage Capacity

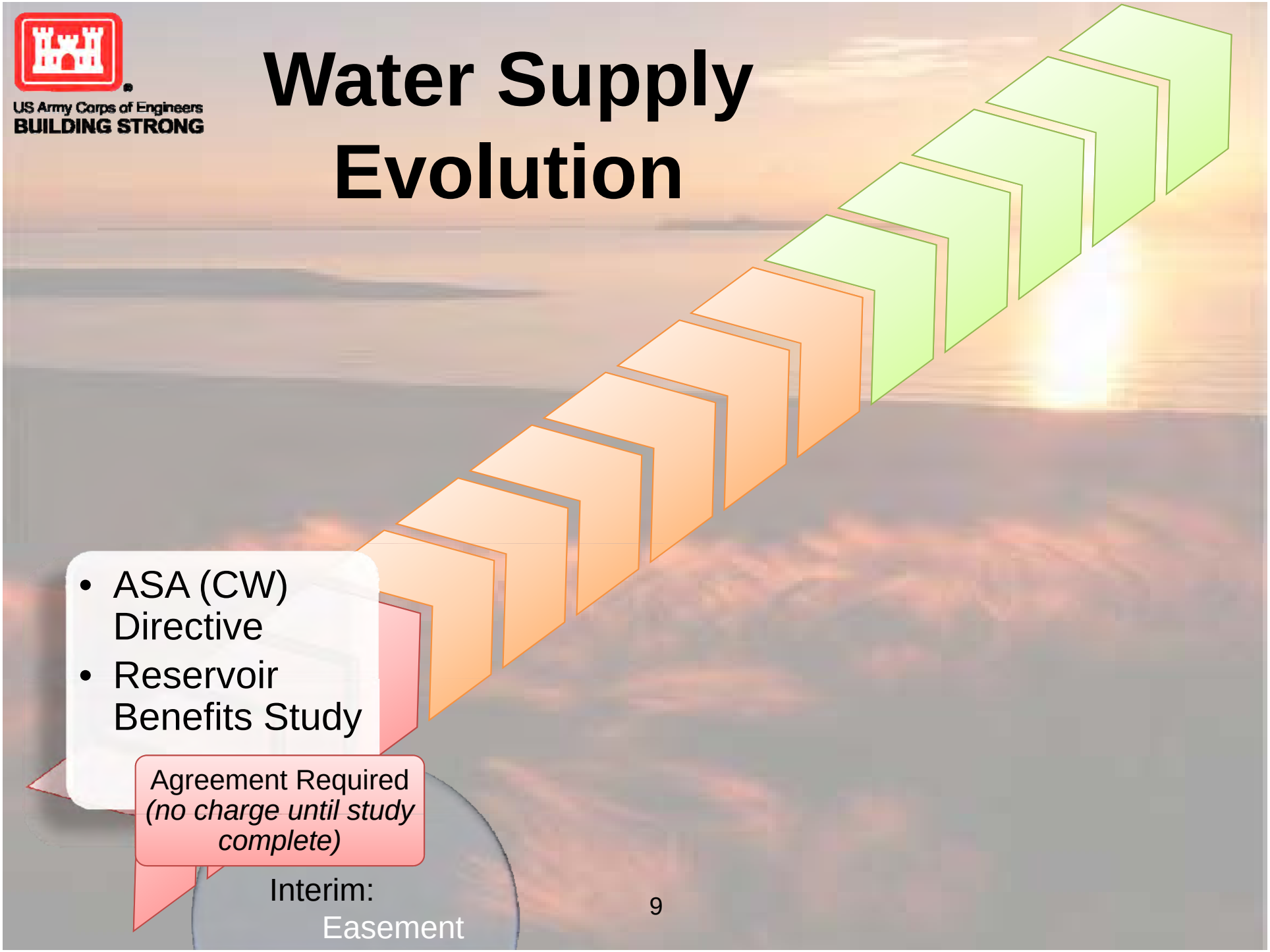


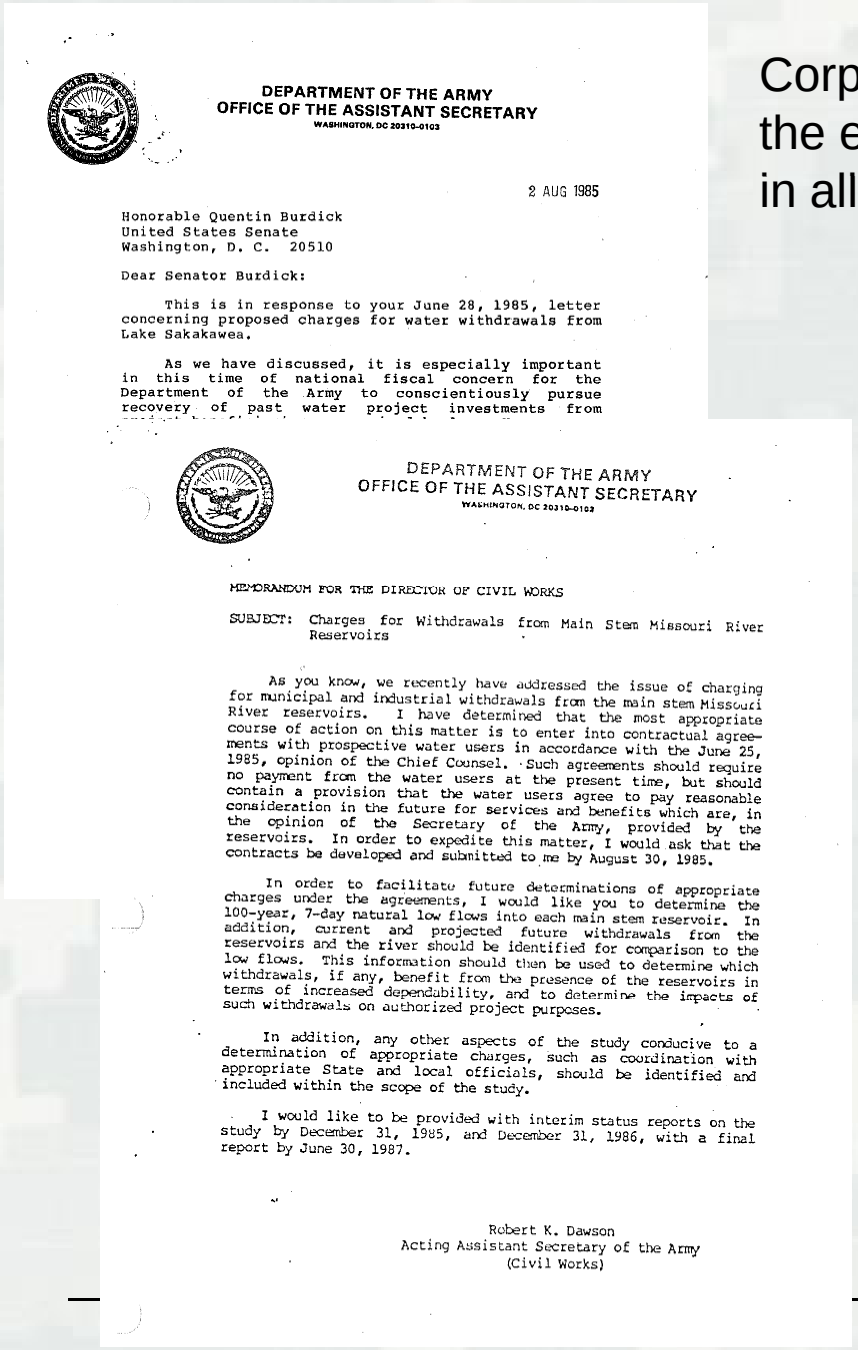
Congressionally Authorized Purposes

Flood Risk Reduction
Water Quality Control
Irrigation
Navigation
Hydropower
Water Supply
Recreation
Fish and Wildlife

US Army Corps of Engineers
BUILDING STRONG

Water Supply Evolution





DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
WASHINGTON, DC 20310-0103

2 AUG 1985

Honorable Quentin Burdick
United States Senate
Washington, D. C. 20510

Dear Senator Burdick:

This is in response to your June 28, 1985, letter concerning proposed charges for water withdrawals from Lake Sakakawea.

As we have discussed, it is especially important in this time of national fiscal concern for the Department of the Army to conscientiously pursue recovery of past water project investments from

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
WASHINGTON, DC 20310-0103

MEMORANDUM FOR THE DIRECTOR OF CIVIL WORKS

SUBJECT: Charges for Withdrawals from Main Stem Missouri River Reservoirs

As you know, we recently have addressed the issue of charging for municipal and industrial withdrawals from the main stem Missouri River reservoirs. I have determined that the most appropriate course of action on this matter is to enter into contractual agreements with prospective water users in accordance with the June 25, 1985, opinion of the Chief Counsel. Such agreements should require no payment from the water users at the present time, but should contain a provision that the water users agree to pay reasonable consideration in the future for services and benefits which are, in the opinion of the Secretary of the Army, provided by the reservoirs. In order to expedite this matter, I would ask that the contracts be developed and submitted to me by August 30, 1985.

In order to facilitate future determinations of appropriate charges under the agreements, I would like you to determine the 100-year, 7-day natural low flows into each main stem reservoir. In addition, current and projected future withdrawals from the reservoirs and the river should be identified for comparison to the low flows. This information should then be used to determine which withdrawals, if any, benefit from the presence of the reservoirs in terms of increased dependability, and to determine the impacts of such withdrawals on authorized project purposes.

In addition, any other aspects of the study conducive to a determination of appropriate charges, such as coordination with appropriate State and local officials, should be identified and included within the scope of the study.

I would like to be provided with interim status reports on the study by December 31, 1985, and December 31, 1986, with a final report by June 30, 1987.

Robert K. Dawson
Acting Assistant Secretary of the Army
(Civil Works)

Corps and the Bureau worked together during the early years, with the Bureau taking the lead in allowing irrigation from Corps reservoirs

Secretary Dawson:
Contract without charge until an incremental benefits study can be completed

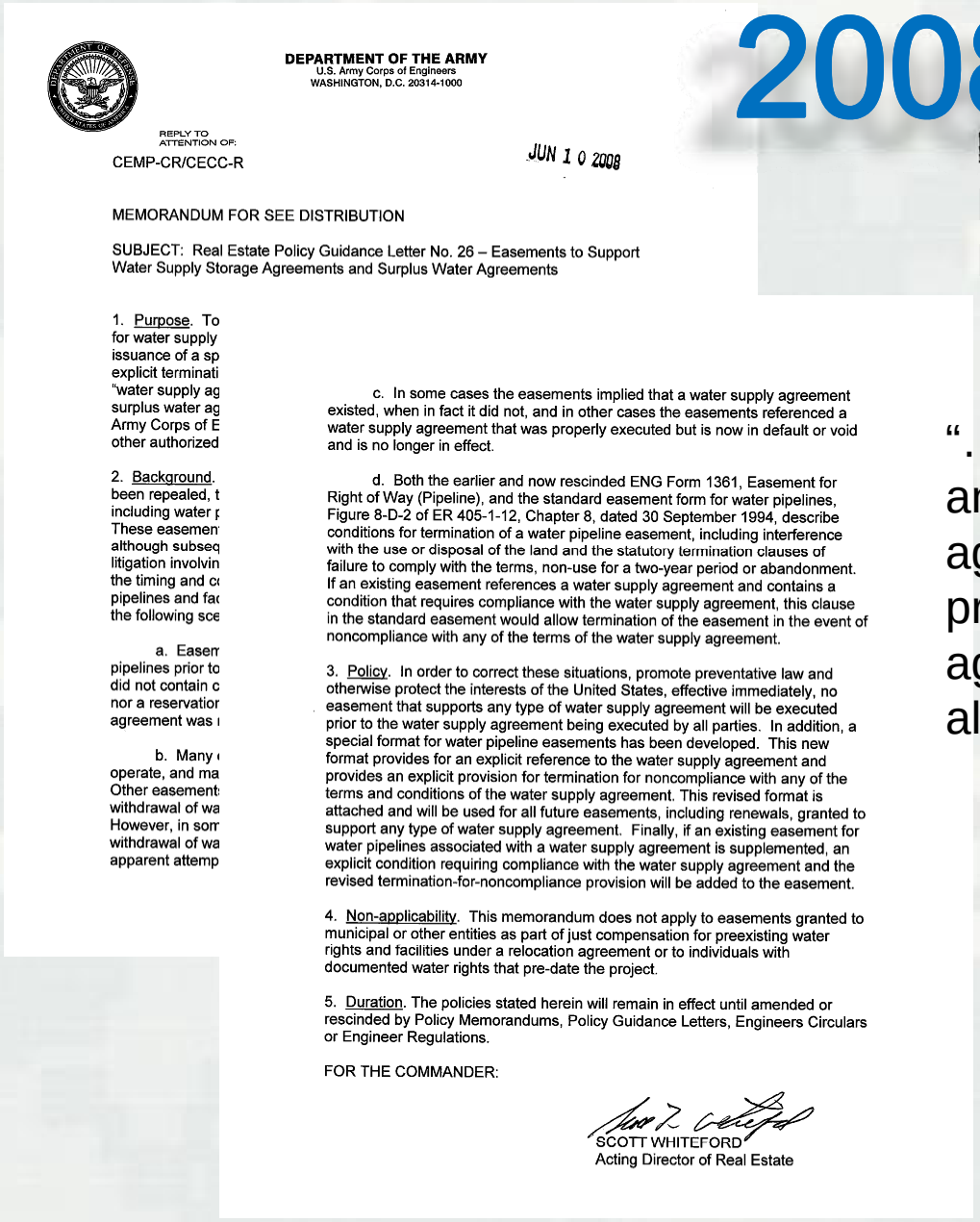
He directs the Corps to complete a 100 year, 7-day natural flow study

Corps completes a draft but it is never finalized

Corps continues to allow easements without contracts and never charges

2008

Nearly 25 years later Real Estate Policy Guidance Letter No. 26 is published



DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
WASHINGTON, D.C. 20314-1000

REPLY TO ATTENTION OF:
CEMP-CR/CECC-R

JUN 10 2008

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Real Estate Policy Guidance Letter No. 26 – Easements to Support Water Supply Storage Agreements and Surplus Water Agreements

1. Purpose. To
for water supply
issuance of a sp
explicit terminati
"water supply ag
surplus water ag
Army Corps of E
other authorized

2. Background.
been repealed, t
including water p
These easemen
although subseq
litigation involvin
the timing and c
pipelines and fa
the following sce

a. Easem
pipelines prior to
did not contain c
nor a reservatior
agreement was

b. Many
operate, and ma
Other easement
withdrawal of wa
However, in som
withdrawal of wa
apparent attemp

c. In some cases the easements implied that a water supply agreement existed, when in fact it did not, and in other cases the easements referenced a water supply agreement that was properly executed but is now in default or void and is no longer in effect.

d. Both the earlier and now rescinded ENG Form 1361, Easement for Right of Way (Pipeline), and the standard easement form for water pipelines, Figure 8-D-2 of ER 405-1-12, Chapter 8, dated 30 September 1994, describe conditions for termination of a water pipeline easement, including interference with the use or disposal of the land and the statutory termination clauses of failure to comply with the terms, non-use for a two-year period or abandonment. If an existing easement references a water supply agreement and contains a condition that requires compliance with the water supply agreement, this clause in the standard easement would allow termination of the easement in the event of noncompliance with any of the terms of the water supply agreement.

3. Policy. In order to correct these situations, promote preventative law and otherwise protect the interests of the United States, effective immediately, no easement that supports any type of water supply agreement will be executed prior to the water supply agreement being executed by all parties. In addition, a special format for water pipeline easements has been developed. This new format provides for an explicit reference to the water supply agreement and provides an explicit provision for termination for noncompliance with any of the terms and conditions of the water supply agreement. This revised format is attached and will be used for all future easements, including renewals, granted to support any type of water supply agreement. Finally, if an existing easement for water pipelines associated with a water supply agreement is supplemented, an explicit condition requiring compliance with the water supply agreement and the revised termination-for-noncompliance provision will be added to the easement.

4. Non-applicability. This memorandum does not apply to easements granted to municipal or other entities as part of just compensation for preexisting water rights and facilities under a relocation agreement or to individuals with documented water rights that pre-date the project.

5. Duration. The policies stated herein will remain in effect until amended or rescinded by Policy Memorandums, Policy Guidance Letters, Engineers Circulars or Engineer Regulations.

FOR THE COMMANDER:

SCOTT WHITEFORD
Acting Director of Real Estate

"…no easement that supports any type of water supply agreement will be executed prior to the water supply agreement being executed by all parties."*

* Real Estate Policy Guidance Letter No. 26, dated 10 June 2008

February 2010

The Corps receives requests for withdrawal of water from Lake Sakakawea to support drilling operations for the Oil and Gas industry

US Army Corps of Engineers
BUILDING STRONG

Water Supply Evolution

- 1944 Flood Control Act
- Surplus Water Study

Agreement Required *(no charge until rulemaking complete)*

Interim:
Easement
(existing users)
Surplus Water Agreement
(new users)

- ASA (CW) Directive
- Reservoir Benefits Study

Agreement Required *(no charge until study complete)*

Interim:
Easement

Presentation

- Part I
  - ► Water Supply Evolution in the Missouri River Basin
- Part II
  - ► Draft Surplus Water Report Overview
    - Introduction
    - Project Background
    - Plan Formulation
    - Plan Implementation
    - Conclusions
    - Recommendations
    - Appendices
- Part III
  - ► M&I Reallocation Study

Draft Surplus Water Report Overview

- Purpose of Study
  - ► Identify and quantify whether surplus water is available in the project as identified in Section 6 of the 1944 Flood Control Act that the Secretary Army may use to execute surplus water agreements
  - ► Determine whether use of surplus water is most efficient method of meeting M&I water needs

Draft Surplus Water Report Overview

Section 6 of the 1944 Flood Control Act

"Sec. 6. That the Secretary of War is authorized to make contracts with States, municipalities, private concerns, or individuals, at such prices and on such terms as he may deer
surp
the c
cont
lawfu
cont
States as miscellaneous receipts."

ER 1105-2-100, paragraph 3-8b(4), entitled, "Surplus Water" states*:*
"Under Section 6 of the Flood Control Act of 1944, the Secretary of the Army is authorized to make agreements with states, municipalities, private concerns, or individuals for surplus water that may be available at any reservoir under the control of the Department. These agreements may be for domestic, municipal, and industrial uses, but not for crop irrigation.

Draft Surplus Water Report Overview

- Definition of Surplus Water

  (1). Water stored in a Department of Army reservoir that is not required because the authorized need for the water never developed or the need was reduced by changes that have occurred since authorization or construction.

  (2). Water that would be more beneficially used as municipal and industrial water than for the authorized purpose that, when withdrawn, would not significantly affect authorized purposes over some specified period.

- Additional Information
  - Prices and terms are as the Secretary deems reasonable, but existing policy for price setting
  - Amounts of water are normally small
  - Contracts for 5-years with option for renewals with updated costs
  - Agreements for Municipal and Industrial (M&I) purposes

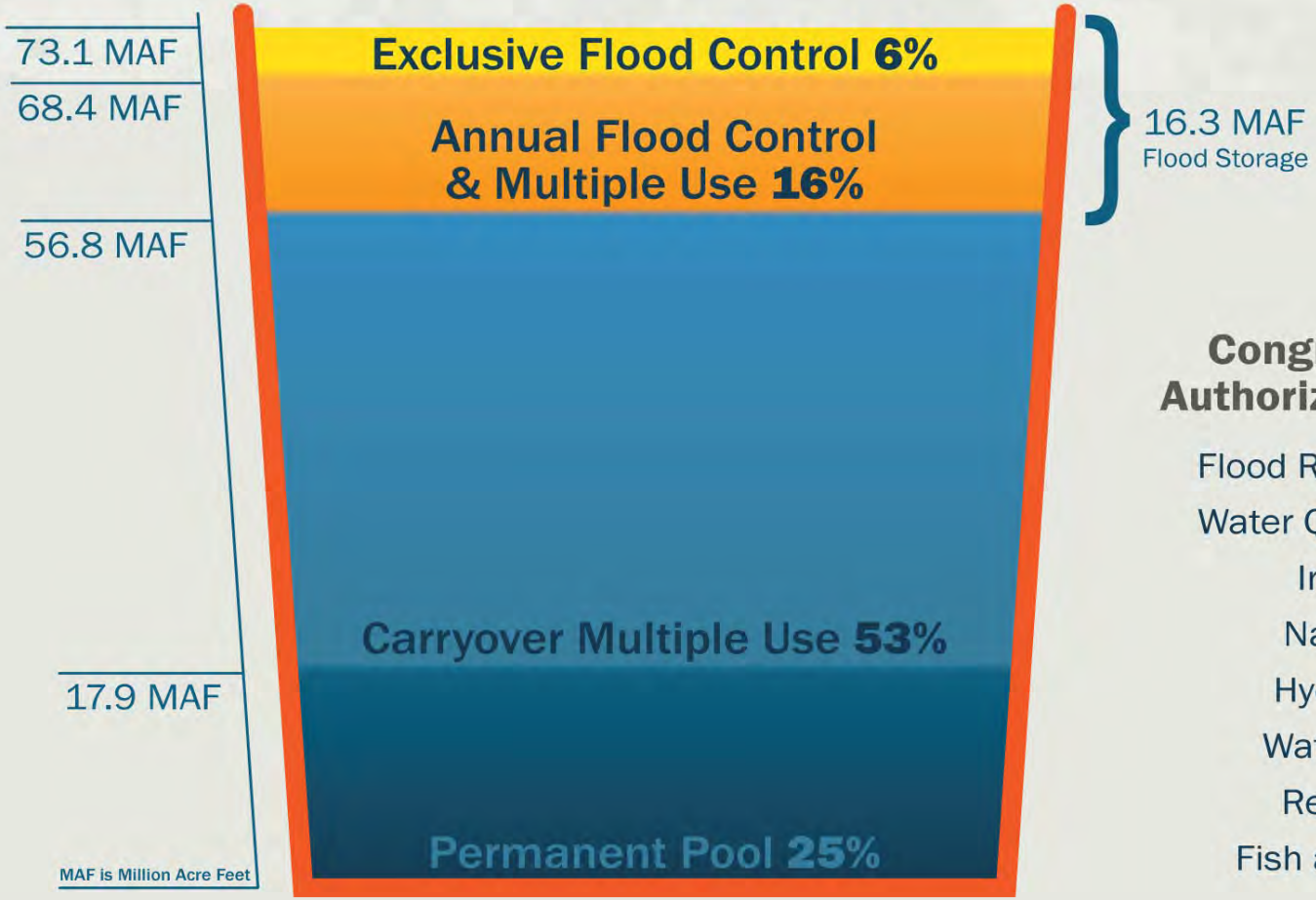
Reallocation Report Evaluations

1. Water supply demand analysis
2. Storage-Yield analysis
3. Analysis of alternatives to meet net demands
4. Cost of modifications/mitigation
5. Cost/Price for storage determination
6. Determination of Compensation to Others
7. NEPA Analysis/documentation
8. Public participation and public interest review documentation

US Army Corps of Engineers
BUILDING STRONG

Missouri River
Main Stem Reservoir System

Zones & Allocations of the Total Storage Capacity



Congressionally Authorized Purposes

Flood Risk Reduction
Water Quality Control
Irrigation
Navigation
Hydropower
Water Supply
Recreation
Fish and Wildlife

Draft Surplus Water Report Overview

Total Estimated Demand for Surplus Water from the Projects

Dam/Reservoir	Existing Demand (AF/Year)	Projected Demand (AF/Year)	Total Demand (AF/Year)	Equivalent Storage (AF)
Fort Peck/ Fort Peck Lake	6,302	630	**6,932**	17,816
Oahe/ Lake Oahe	52,106	5,211	**57,317**	147,305
Big Bend/ Lake Sharpe	56,607	5,661	**62,268**	160,028
Fort Randall/ Lake Francis Case	25,430	2,543	**27,973**	71,890
Gavins Point/ Lewis and Clark Lake	25,843	2,584	**28,427**	73,058
Garrison/Lake Sakakawea	57,837	47,163	**100,000**	257,000

Draft Surplus Water Report Overview

- Economic Analysis
  - Benefits foregone, revenues foregone, replacement cost, updated cost of storage
  - Storage vs. yield
    - Dividing the carryover multiple use storage (39 million acre-feet) by the net yield (15.2 million acre-feet) results in a storage-yield ratio of 2.57
    - Important to understand that 1 acre-feet of yield does not equal 1 acre-feet of storage
  - Updated cost of storage

Draft Surplus Water Report Overview

- Cost/Price Determination

Dam/Reservoir	Cost (per AF of Yield)	Cost (per AF of Storage)
Fort Peck/ Fort Peck Lake	$38.59	$15.02
Oahe/ Lake Oahe	$17.19	$6.69
Big Bend/ Lake Sharpe	$36.65	$14.26
Fort Randall/ Lake Francis Case	$51.86	$20.18
Gavins Point/ Lewis and Clark Lake	$174.66	$67.96
Garrison/Lake Sakakawea	$20.91	$8.13

- Cost/Price Recommendation

Draft Surplus Water Report Overview

- Summary of Report Findings
  - Identify and quantify whether surplus water is available in the project as identified in Section 6 of the 1944 Flood Control Act that the Secretary Army may use to execute surplus water agreements
    - Sufficient surplus water is available to provide
      - 6,932 AF/year (yield) from Fort Peck/ Fort Peck Lake
      - 57,317 AF/year (yield) from Oahe/ Lake Oahe
      - 62,268 AF/year (yield) from Big Bend/ Lake Sharpe
      - 27,973 AF/year (yield) from Fort Randall/ Lake Francis Case
      - 28,427 AF/year (yield) from Gavins Point/ Lewis and Clark Lake
  - Determine whether use of surplus water is most efficient method of meeting M&I water needs
    - It is the most efficient

Draft Surplus Water Report Overview

- National Environmental Policy Act (NEPA) agencies must make informed decisions
  - Agencies must use a specific environmental planning process (NEPA) that is interdisciplinary, considers reasonable alternatives, and includes documentation for public review
  - Environmental Assessment (EA) is a document prepared for an action… where the significance of the social, economic, and environmental impacts are evaluated
  - Agencies must make diligent efforts to inform and involve the public in this NEPA process

Draft Surplus Water Report Overview

- Summary of Environmental Impacts of Proposed Alternative
  - ► Depletion Impacts
    - Due to very small change between Proposed Action and No Action Alternatives, no measurable change is expected to the environment
  - ► Cumulative Effects
    - No discernible change to the authorized purposes of flood control, navigation, hydropower, water supply or recreation

Garrison Decision

- ASA Letter (8 May 2012)
  - Confirm source of water withdrawals
  - Rulemaking
  - Enter into Surplus Water Agreements at Garrison
  - Provide notice to all users
  - Adopt a method to measure and account for existing and future uses
  - Proceed with water reallocation studies
- HQUSACE approved Garrison Final Report and FONSI (13 July 2012)

Draft Surplus Water Report Overview

- Cost/Price Determination

Dam/Reservoir	Cost (per AF of Yield)	Cost (per AF of Storage)
Fort Peck/ Fort Peck Lake	$38.59	$15.02
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Gavins Point/ Lewis and Clark Lake	$174.66	$67.96
Garrison/Lake Sakakawea	$20.91	$8.13

- Cost/Price Recommendation

US Army Corps of Engineers
BUILDING STRONG

Water Supply Evolution

- 1958 Water Supply Act
- Reallocation Study

Agreement Required *(both temporary and permanent available)*

Final:
Surplus Water Agreement
(temporary users)
WSA Agreement
(permanent users)

- 1944 Flood Control Act
- Surplus Water Study

Agreement Required *(no charge until rulemaking complete)*

Interim:
Easement
(existing users)
Surplus Water Agreement
(new users)

- ASA (CW) Directive
- Reservoir Benefits Study

Agreement Required *(no charge until study complete)*

Interim:
Easement

Presentation

- Part I
  - ► Water Supply Evolution in the Missouri River Basin
- Part II
  - ► Draft Surplus Water Report Overview
- Part III
  - ► M&I Reallocation Study
    - Purpose of the Study
    - Authorities
    - Schedule Point 3
    - Point 4

M&I Reallocation Study Purpose

The Missouri River Municipal & Industrial Water Storage Reallocation Study will systemically and comprehensively examine whether some amount of the ***storage*** originally included in the U.S. Army Corps of Engineers' mainstem Missouri River reservoirs for authorized project purposes may be allocated solely to municipal and industrial (M&I) water supply. The study will also examine the effects of such a reallocation on the authorized purposes and operations of the mainstem reservoirs.

M&I Reallocation Study Authority

Section 216 of the 1970 Flood Control Act (Public Law 91-611, as amended) provides the "general authority for the Secretary of the Army for Civil Works [ASA(CW)] to review operations of completed projects when found advisable due to changed **physical**, **economic** or **environmental** conditions."

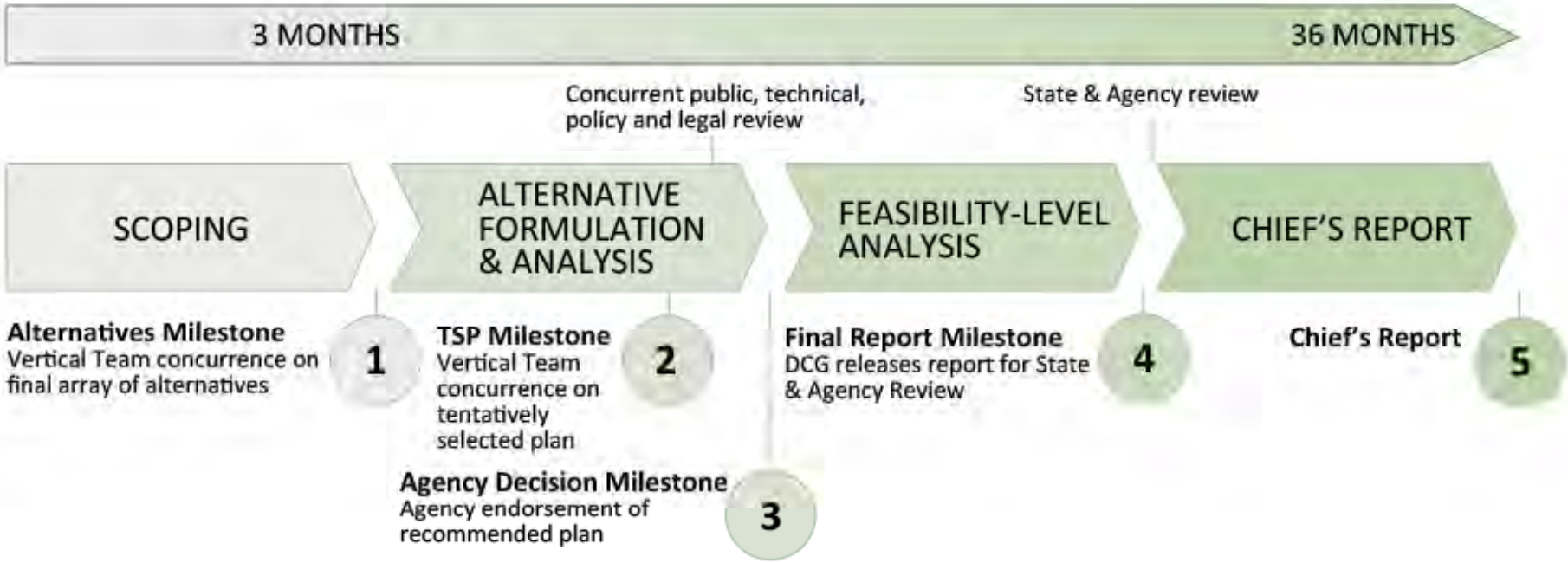
M & I Reallocation Study
Authority for Storage

The Water Supply Act of 1958 (Title III, P.L. 85-500, as amended) authorizes the Corps' Assistant ASA(CW) to include storage for M&I water supply storage space in any Corps of Engineers reservoir provided that the modification does not seriously affect authorized purposes or involve major structural or operational changes.

- ►Water Supply is state/local responsibility
- ►Includes M&I storage in new reservoirs
- ►Allows storage in existing projects to be allocated to M&I
- ►All costs to be repaid by local Sponsor in reallocation
- ►If reallocation to M&I affect other authorized purposes, congressional authorization is required

M&I Reallocation Study Area

M&I Reallocation Study
Proposed Schedule



Proposed Schedule

- Oct – Dec 31, 12 – Scoping comments reviewed and considered
- Jan 13 Scoping Report completed
- May 2014 Draft available for public review
- July, 2014 – Respond to comment
- March 2015 – Final available for public review

M&I Reallocation Study
Public Involvement

- Coordination throughout the Study
  - ►Various communications including: interim product reviews, public meetings, web site, press releases

- Website:

http://www.nwo.usace.army.mil/Missions/CivilWorks/Planning/PlanningProjects/MissouriRiverMIWaterReallocationStudy.aspx

  - ►Meeting material
  - ►General descriptive information and documents available for download
  - ►Progress and status information

Contacts

Tiffany Vanosdall, Project Manager

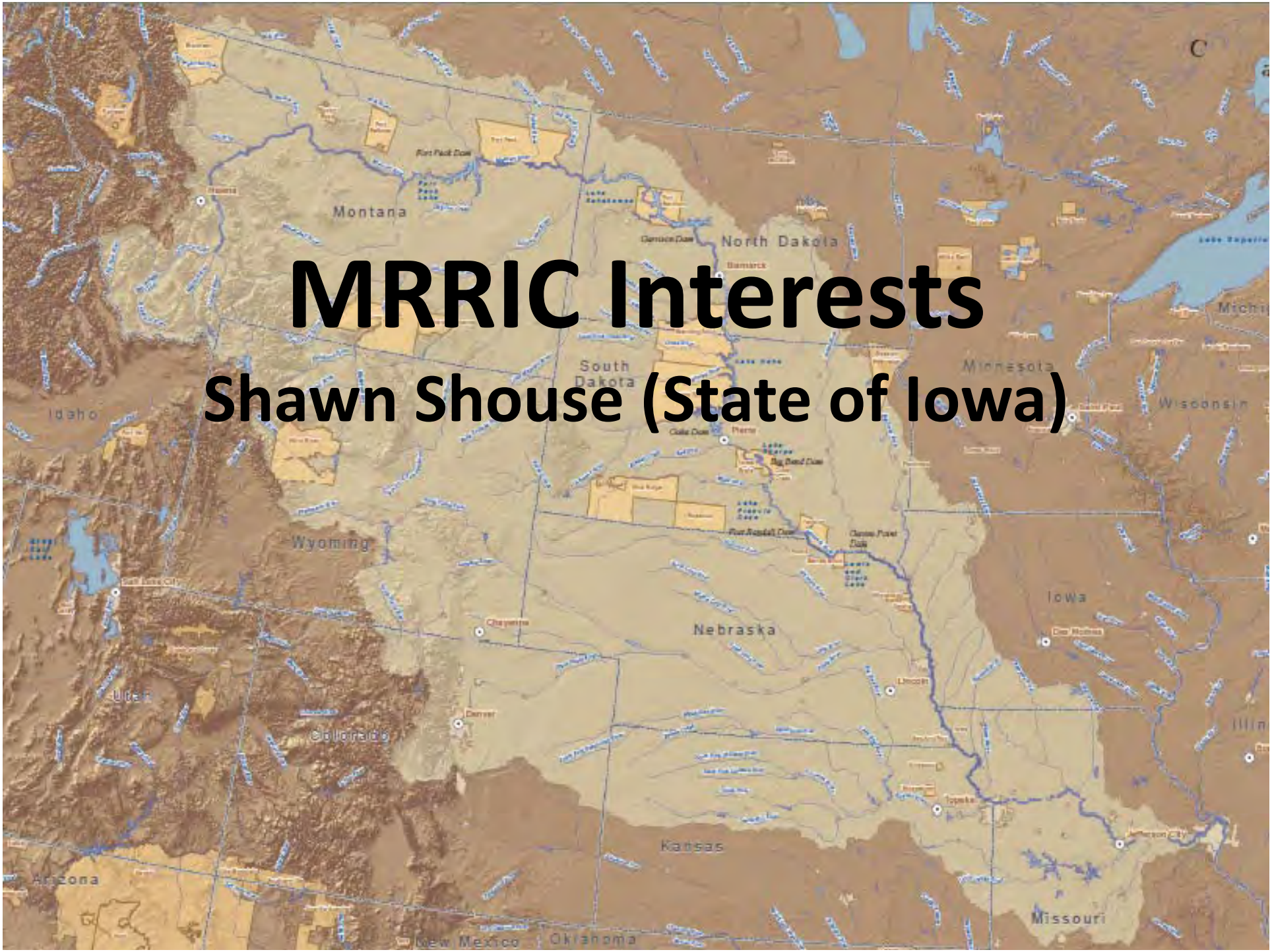
Tiffany.K.Vanosdall@usace.army.mil

(402)995-2695

Gwyn Jarrett, Project Manager

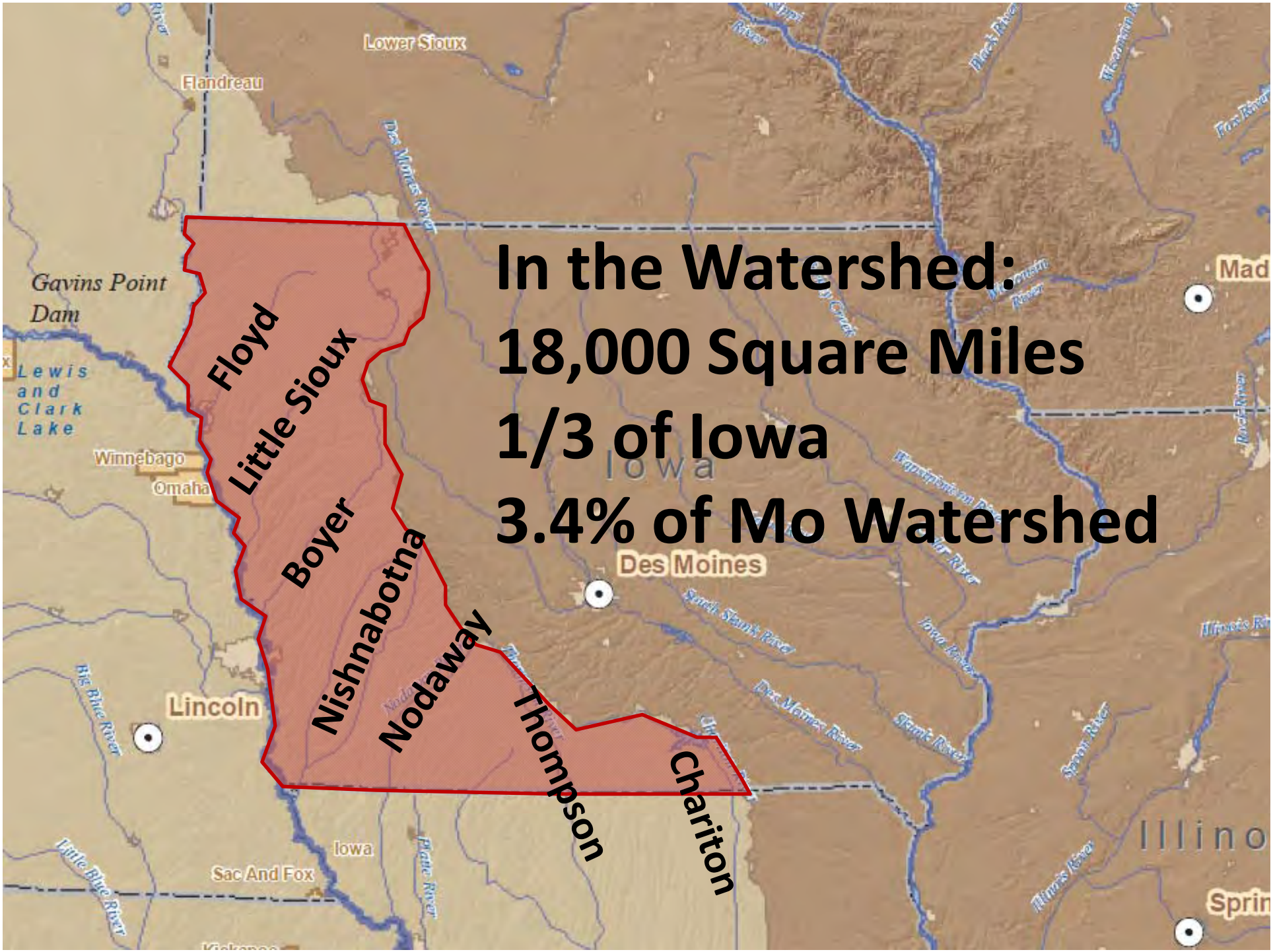
Gwyn.M.Jarret@usace.army.mil

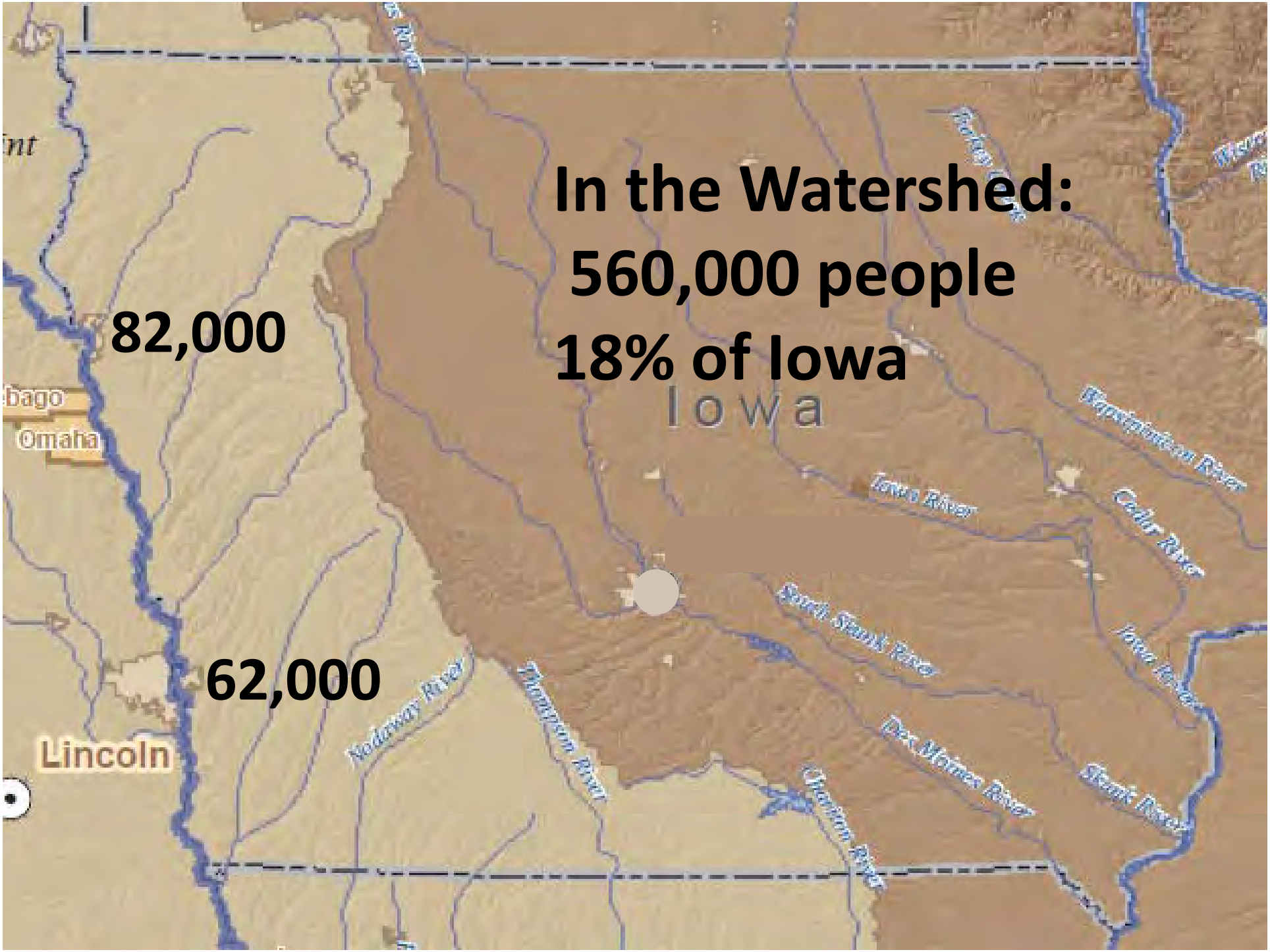
(402)995-2717

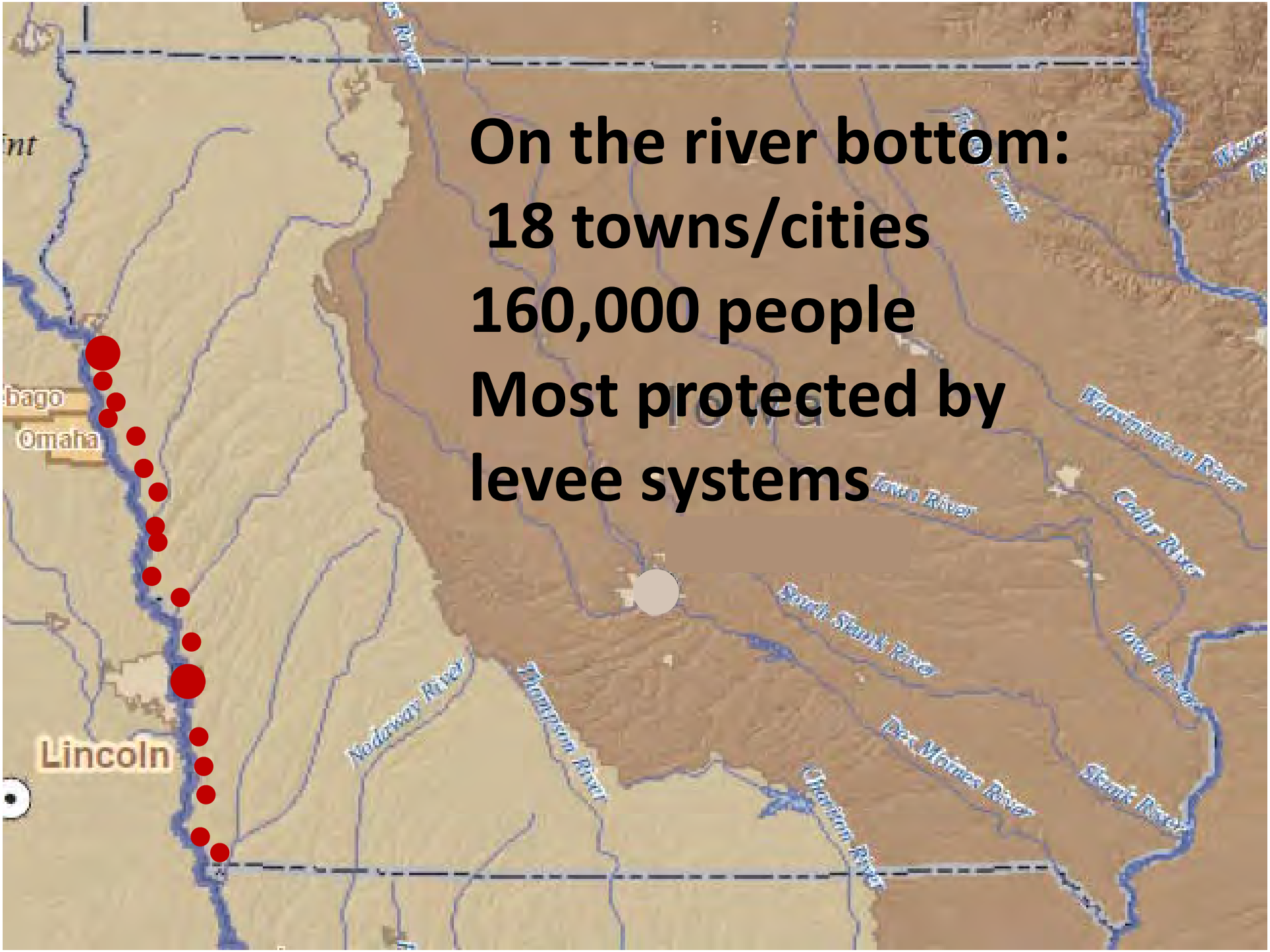


MRRIC Interests

Shawn Shouse (State of Iowa)


In the Watershed:
18,000 Square Miles
1/3 of Iowa
3.4% of Mo Watershed
Floyd
Little Sioux
Boyer
Nishnabotna
Nodaway
Thompson
Chariton
Lower Sioux
Flandreau
Gavins Point Dam
Lewis and Clark Lake
Winnebago
Omaha
Lincoln
Des Moines
Iowa
Sac And Fox
Big Blue River
Little Blue River
Des Moines River
Skunk River
Mad
Illino
Sprin


In the Watershed:
560,000 people
18% of Iowa
82,000
62,000
Omaha
Lincoln
Iowa
Iowa River
Cedar River
North Skunk River
Des Moines River
Skunk River
Nodaway River
Thompson River
Grand River

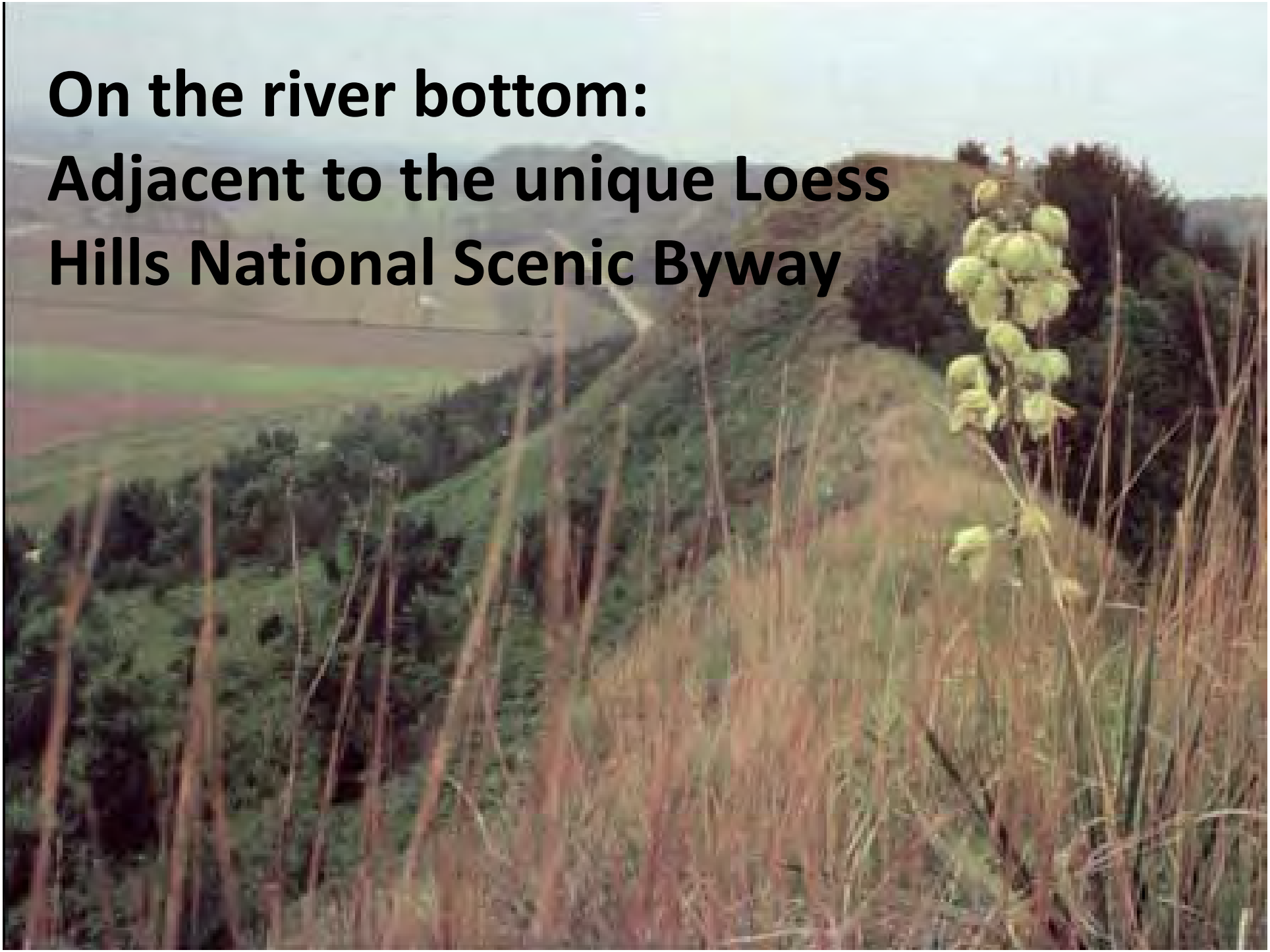

On the river bottom:
18 towns/cities
160,000 people
Most protected by
levee systems
Omaha
Lincoln
Nodaway River
Thompson River
Grand River
Iowa River
Cedar River
Des Moines River
Skunk River

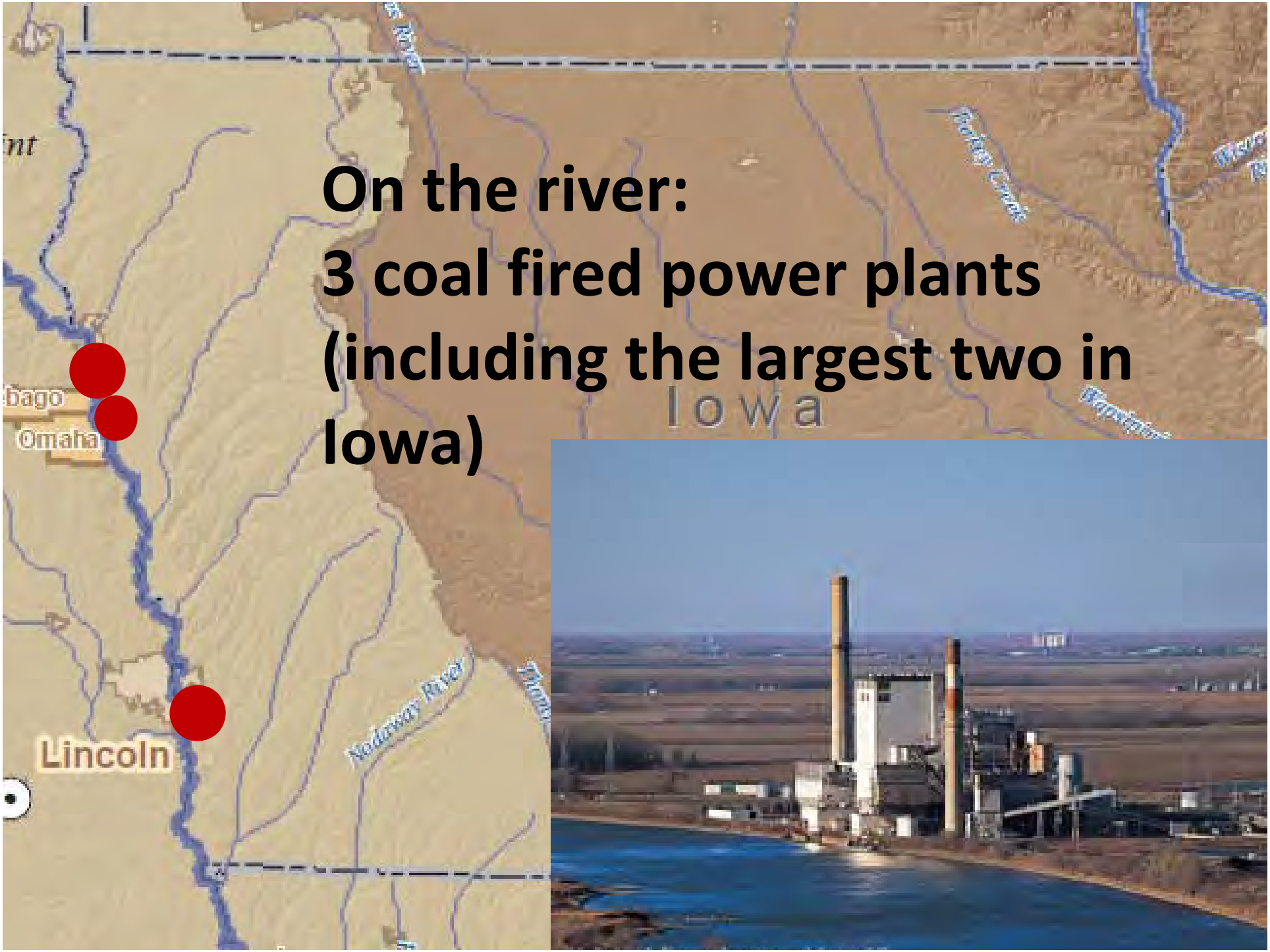

Rocky Creek


Lincoln
Nodaway River


On the river bottom:
1 National Wildlife Refuge
21 Wildlife Management Areas
3 State Parks
4 County Parks
6 City Parks
Omaha
Lincoln
Iowa
Iowa River
Cedar River
Skunk River
Des Moines River
Nodaway River
Thompson River
Grand River

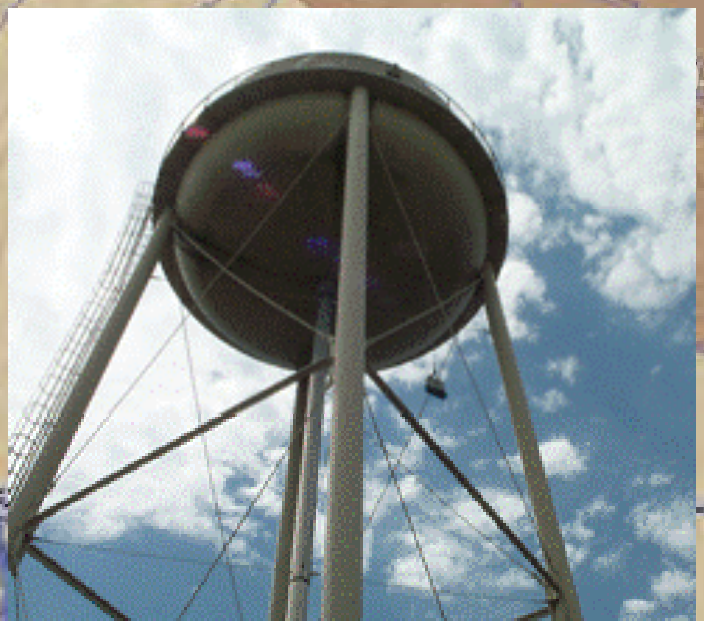

On the river bottom:
Adjacent to the unique Loess Hills National Scenic Byway

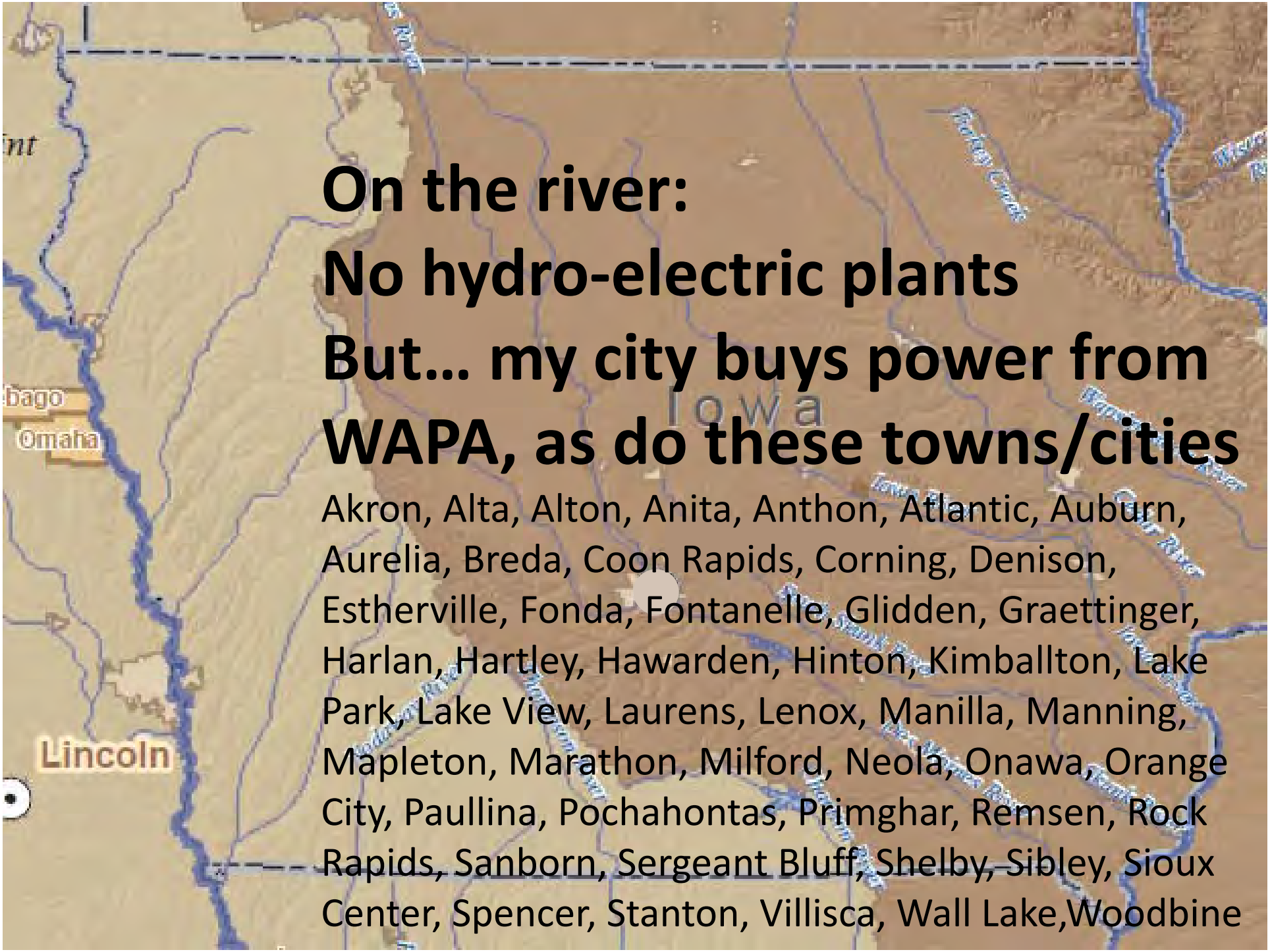

On the river bottom:
Adjacent to the unique Loess
Hills National Scenic Byway


On the river:
3 coal fired power plants
(including the largest two in Iowa)
Omaha
Lincoln
Nodaway River
Iowa

On the river:
5-8 barge terminals (as of 2010) in Council Bluffs, Sergeant Bluff, and Sioux City, that handle mostly grain, sand/gravel, and fertilizer

On the river:
Water withdrawal permits for water supplies and irrigation



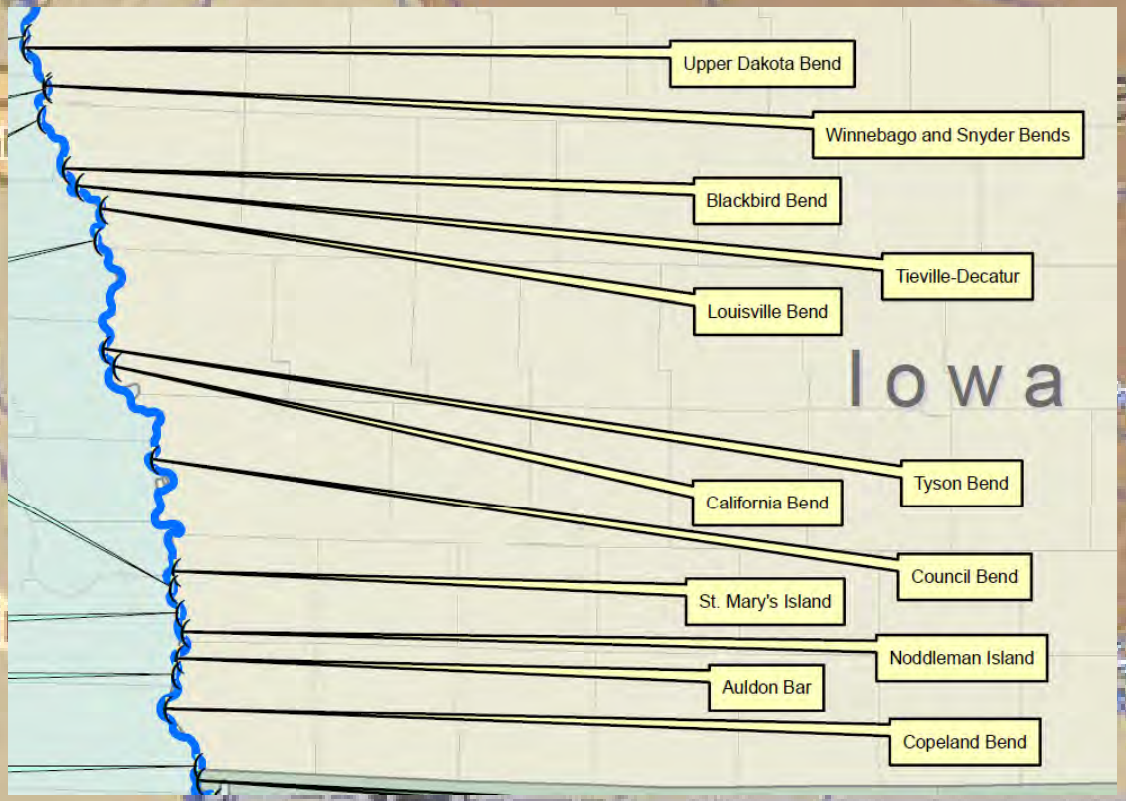


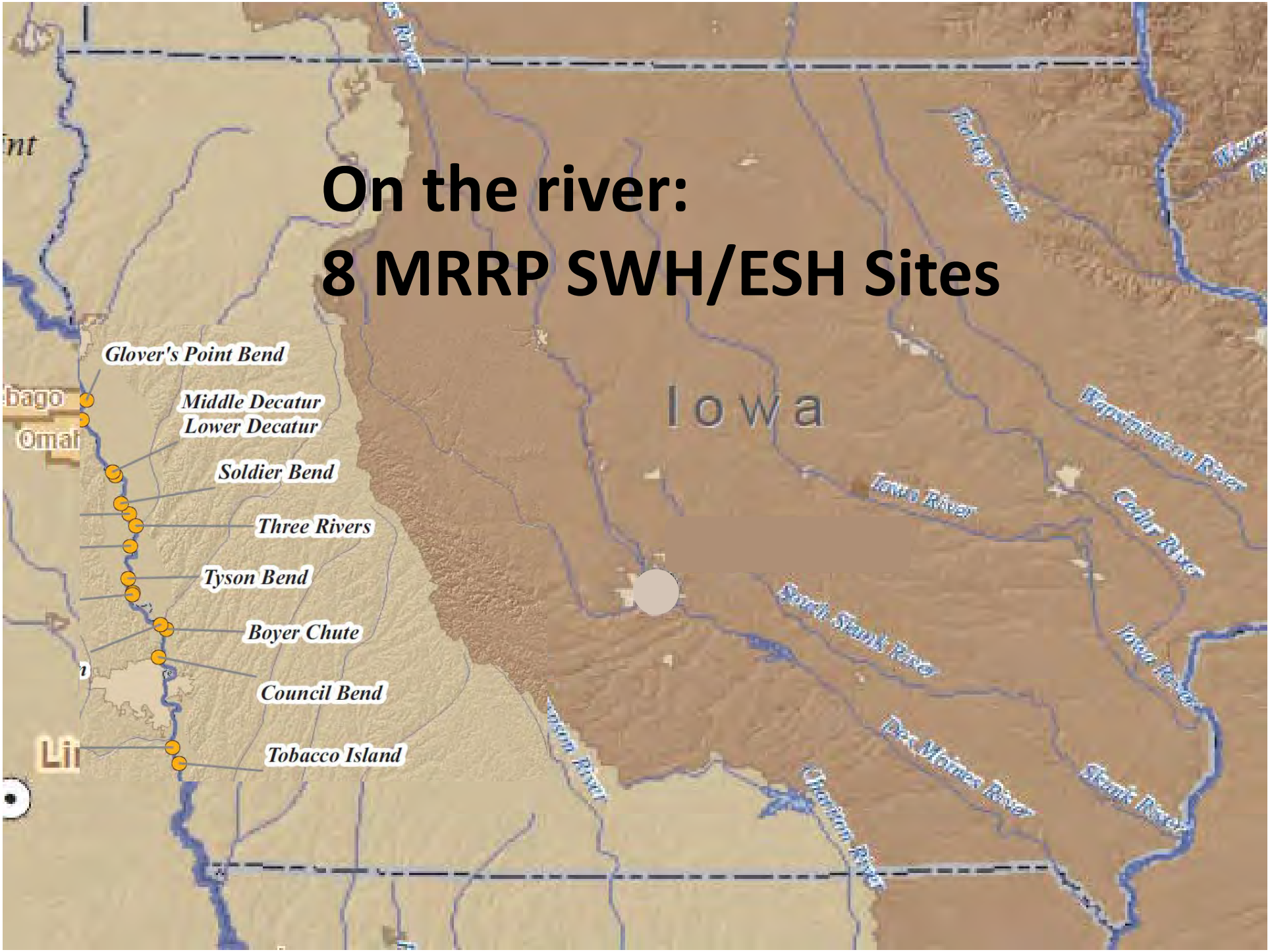
On the river:
No hydro-electric plants
But… my city buys power from WAPA, as do these towns/cities

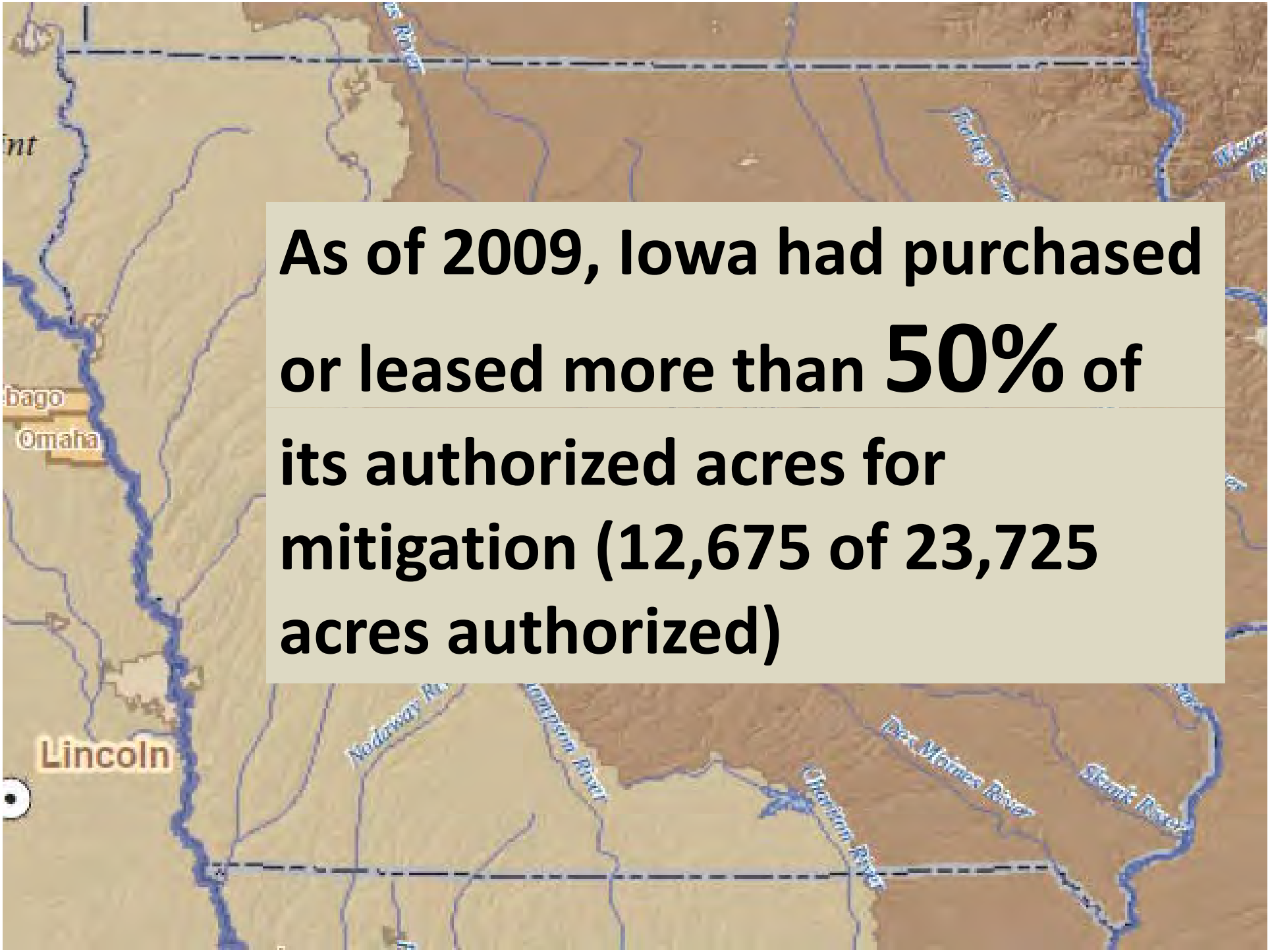
Akron, Alta, Alton, Anita, Anthon, Atlantic, Auburn, Aurelia, Breda, Coon Rapids, Corning, Denison, Estherville, Fonda, Fontanelle, Glidden, Graettinger, Harlan, Hartley, Hawarden, Hinton, Kimballton, Lake Park, Lake View, Laurens, Lenox, Manilla, Manning, Mapleton, Marathon, Milford, Neola, Onawa, Orange City, Paullina, Pochahontas, Primghar, Remsen, Rock Rapids, Sanborn, Sergeant Bluff, Shelby, Sibley, Sioux Center, Spencer, Stanton, Villisca, Wall Lake,Woodbine

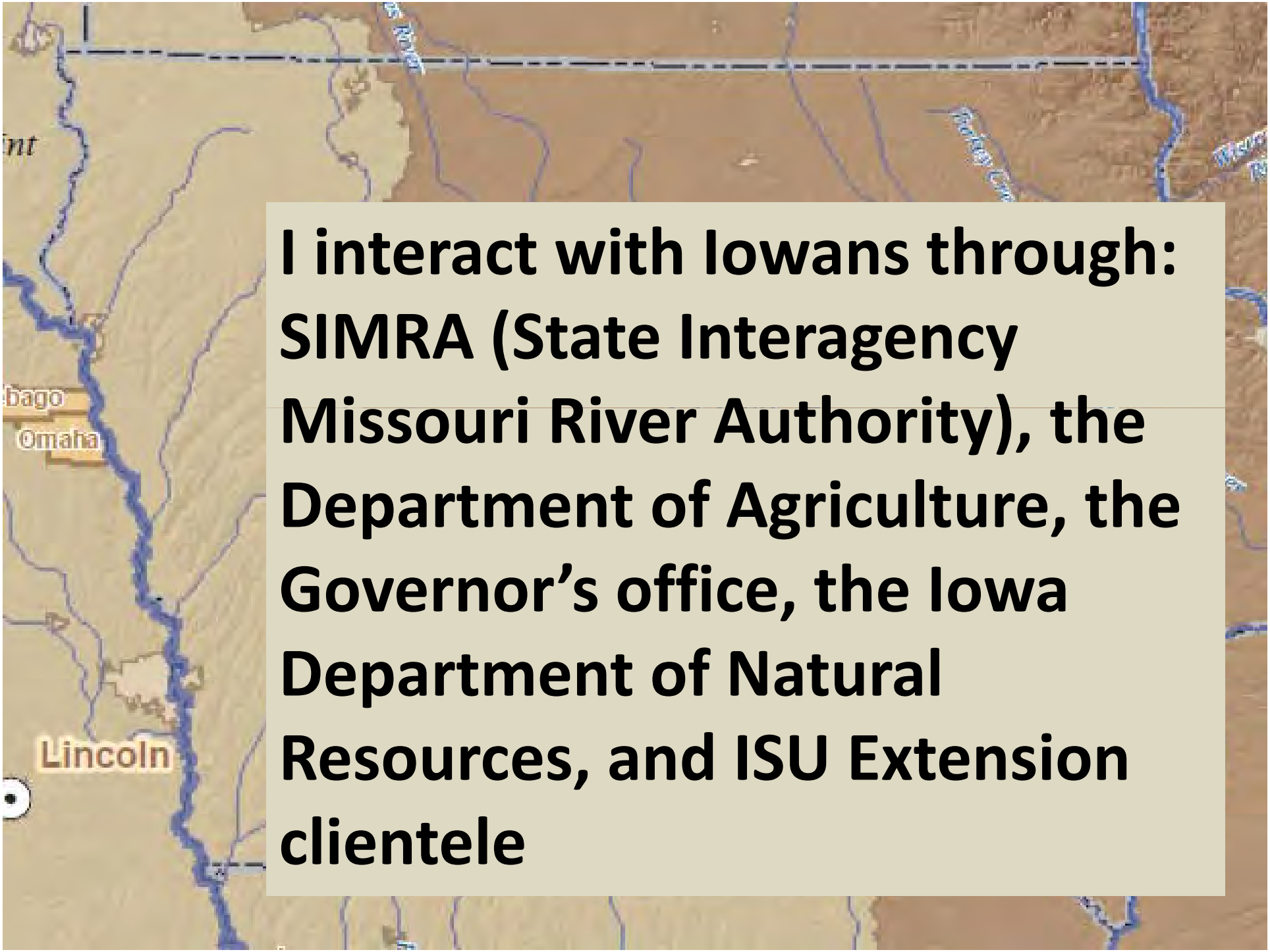
On the river:
No reservoirs
But… plenty of recreation

On the river:
12 MRRP Mitigation Sites

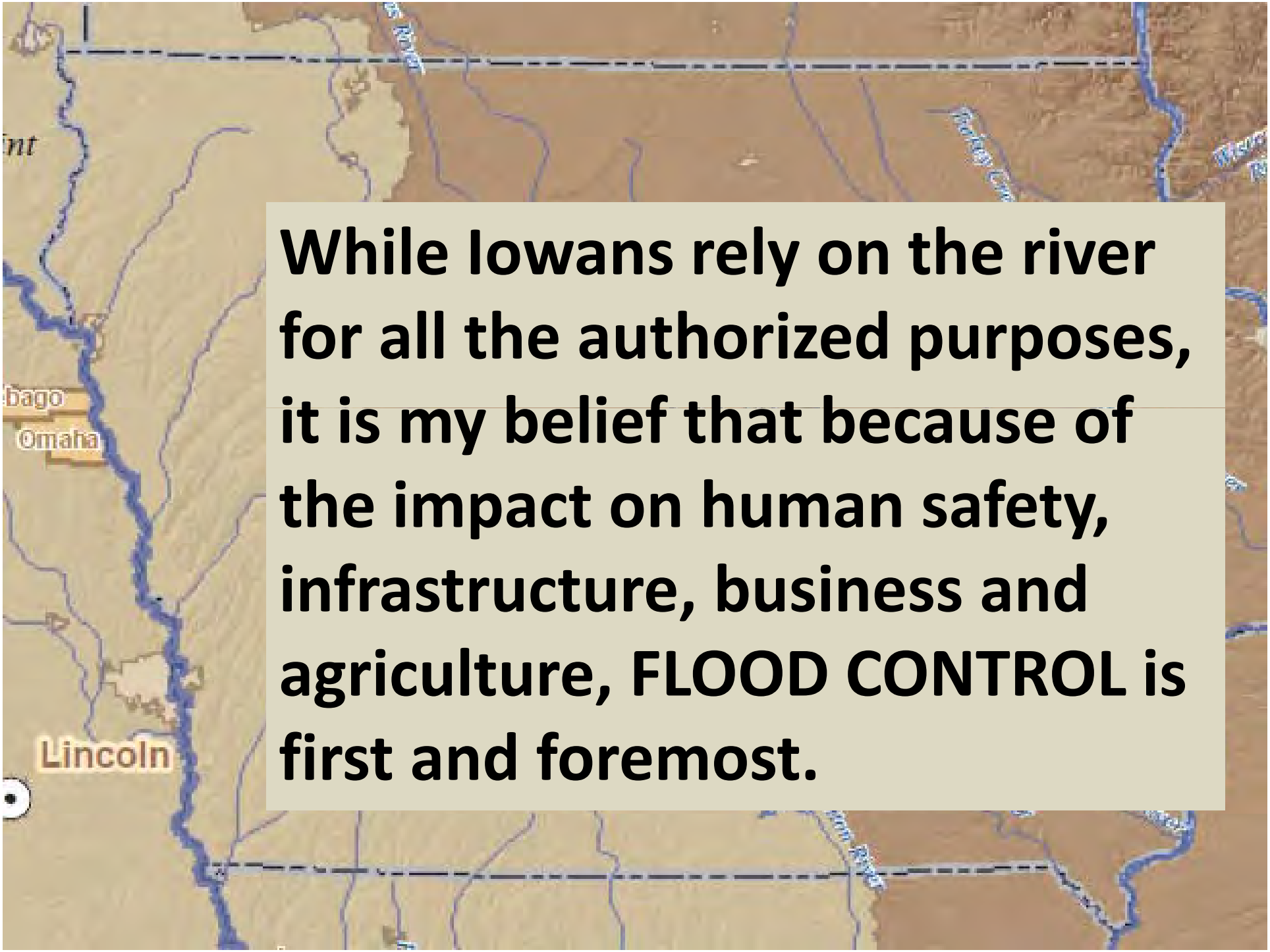


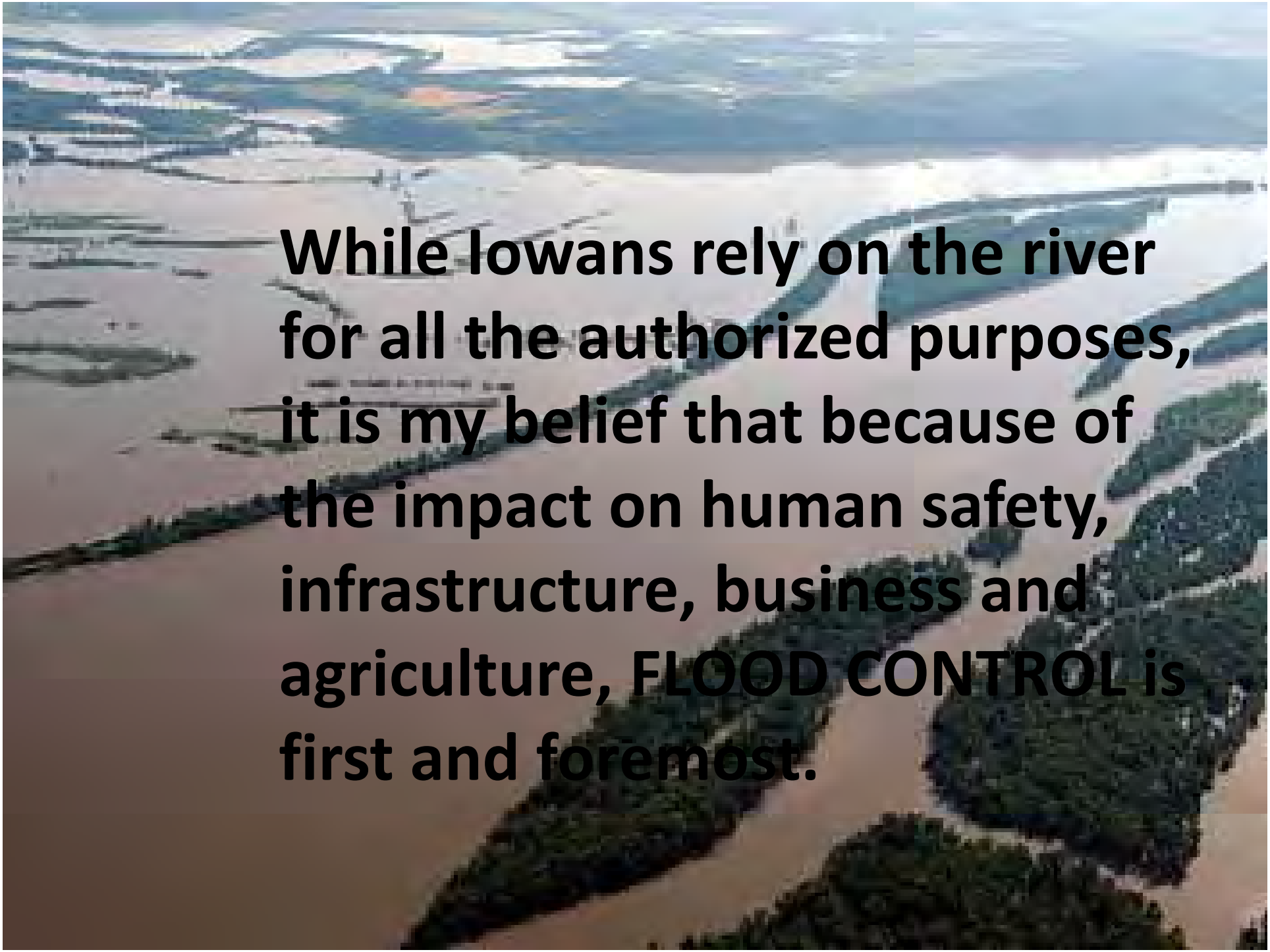

On the river:
8 MRRP SWH/ESH Sites
Glover's Point Bend
Middle Decatur
Lower Decatur
Soldier Bend
Three Rivers
Tyson Bend
Boyer Chute
Council Bend
Tobacco Island
Iowa
Iowa River
Cedar River
Des Moines River
Skunk River
Omaha


As of 2009, Iowa had purchased or leased more than 50% of its authorized acres for mitigation (12,675 of 23,725 acres authorized)
Omaha
Lincoln
Des Moines River



I interact with Iowans through: SIMRA (State Interagency Missouri River Authority), the Department of Agriculture, the Governor's office, the Iowa Department of Natural Resources, and ISU Extension clientele


While Iowans rely on the river for all the authorized purposes, it is my belief that because of the impact on human safety, infrastructure, business and agriculture, FLOOD CONTROL is first and foremost.
Omaha
Lincoln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While Iowans rely on the river for all the authorized purposes, it is my belief that because of the impact on human safety, infrastructure, business and agriculture, FLOOD CONTROL is first and foremost.


While Iowans rely on the river for all the authorized purposes, it is my belief that because of the impact on human safety, infrastructure, business and agriculture, FLOOD CONTROL is first and foremost.
Sorry WE'RE CLOSED
EXIT


While Iowans rely on the river
for all the authorized purposes,
it is my belief that because of
the impact on human safety,
infrastructure, business and
agriculture, FLOOD CONTROL is
first and foremost.


While Iowans rely on the river
for all the authorized purposes,
it is our belief that because of
the impact on human safety,
infrastructure, business and
agriculture, FLOOD CONTROL is
first and foremost.


While Iowans rely on the river for all the authorized purposes, it is my belief that because of the impact on human safety, infrastructure, business and agriculture, FLOOD CONTROL is first and foremost.


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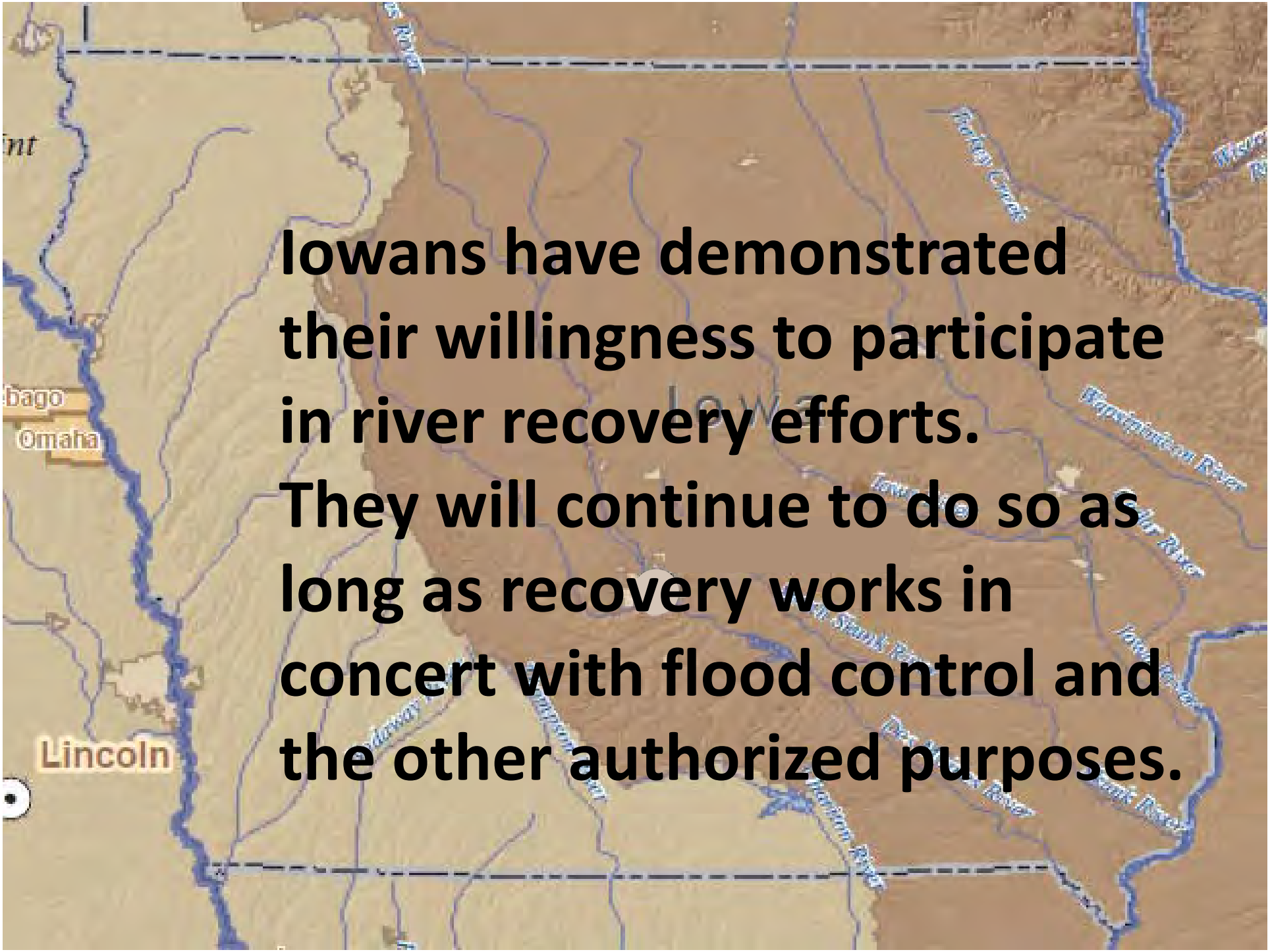
Omaha
Lincoln
Iowa
Cedar River
Des Moines River
Skunk River



Iowans have demonstrated their willingness to participate in river recovery efforts. They will continue to do so as long as recovery works in concert with flood control and the other authorized purposes.


Photo: The Nature Conservancy
Questions?
Photo: National Fish & Wildlife Service

State Interagency Missouri River Authority (SIMRA)

On the display are some pictures taken during flooding of 2011. Most of them are of our largest recovery project. The reconstruction of I-680 - from the Mo. River east to the I-29 Interchange approximately 3 miles of total reconstruction.

This project was constructed in 34 calendar days at a cost of approximately$18 Million dollars including incentives. This project was unique in several ways, it utilized plans that were basically a set of as-builts, the contract was bid as a lump sum, it use a consultant for inspection which was done by HGM and associates. There were three main contractors PCI and Reilly Construction did the grading and sub base and Mannatt's did the paving. The plan was simply to remove the existing pavement and rebuilt it back the way it was. The project is currently up for a national AASHTO award.

As the flood waters started coming down the river in Late May to early June. The IDOT setup up a daily coordination meeting with our Ops Center in Ames and the field operations in the districts. We discussed with our State Hydrologist Dave Claman, which roadways would be impacted and tried to estimate a time frame of possible over topping. Therefore we could plan detours or try to minimize the effects of the flooding. Dave was very impressive in accuracy of his estimates.

Our first area of concern was US 30 in Harrison Co. This is a major Missouri river crossing in our northern part of the district. Pictured is the display is a picture of our maintenance personnel filling the trap bag system. They were filled with shoulder rock material. We placed trap

bags on both shoulders in a low spot that was about 2miles long. We had to close the highway for 48 straight hours and worked around the clock to get the bags filled and the roadway reopened to traffic ASAP.

Also the local levee district placed a temp levee that connected to US 30 on the south side, the purpose was to save a large amount of farm ground and also helped in saving the town of Missouri Valley from flooding.

We also placed trap bags on a short section of I-29, where there was a chance of over topping.

As the flood waters moved south as display in the pictures I-680 was basically destroyed. We had to close I-680 and reroute the traffic. The next area affected was just north Council Bluffs where there were no levees to protect I-29 from the flood water again this section was closed and the traffic rerouted.

Just to give a perspective of the amount of water that was flowing down the river. As you know some of the highest flow was est. at 160,000 cu. Ft/sec. A rough example is this amount of water would fill up a football field 3' deep every second.

As the water continued south we were concerned with another major river crossing in SW Iowa. This was Iowa 2 in Fremont Co. it is the only river crossing for several miles in either direction. We tried to keep this roadway open as long as we possibly could keep the traveling public as safe as possible. We first closed the outside EB lane but when the vehicles had to drive through a small amount of water we had to close this roadway down. It was only a few days before the break in the

Percival levee that completely inundated the roadway and also the I-29 Interchange.

I-29 would be closed from the Mo. Line north to US 34. Multiple Detours local and global had to be put into effect. The global detour was to use I-35 in Kansas City north to Des Moines and west on I-80 to I-680 then north on I-29.

Our recovery efforts started by hiring a consultant HGM to assess the culvert and roadways condition as the flood waters were receding. We started letting emergency projects and used a few change orders to repair the areas of I-29 and Ia. 2 so that we could reopen the roadways to traffic ASAP.

We repaired bridge approaches that were washed out both on I-29 and Ia. 2 repave sections of Ia. 2 mainly in the EB lanes. We had to repair/replace shoulders that were washed out on I-29 in several locations.

We had to remove debris from the roadways along with washing the silt and slime which was left on the roadways.

Once the roadways were opened to traffic, we started working on the areas of the ROW that needed rebuilt such as culvert wash out areas.

Then we worked on re-vegitating the ROW and replacing washed out fences. We still are finding some areas that were missed and finding additional areas that were not originally found.

Any questions?