Managing Nebraska's Water Resources

Jennifer J. Schellpeper, Integrated Water Management
Beth Eckles, Permits and Registrations
Andrew Christenson, Floodplain Management
Carol Myers Flaute, Integrated Water Management

Department of Natural Resources

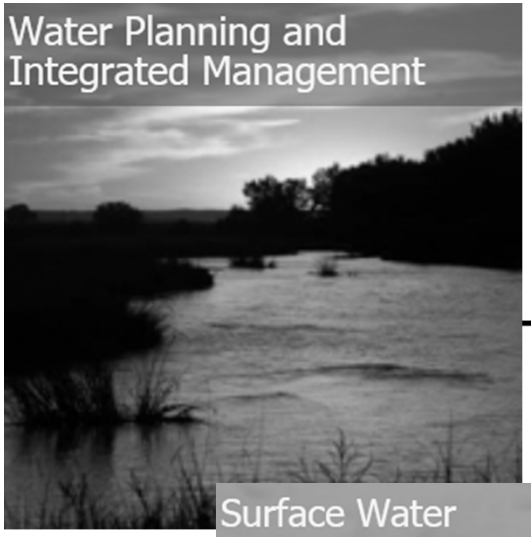
Overview

1. Who is DNR?
2. Surface and Groundwater Permitting in Nebraska
3. Floodplain Management, Mapping, and Mitigation
4. Integrated Water Management

WHO IS DNR?

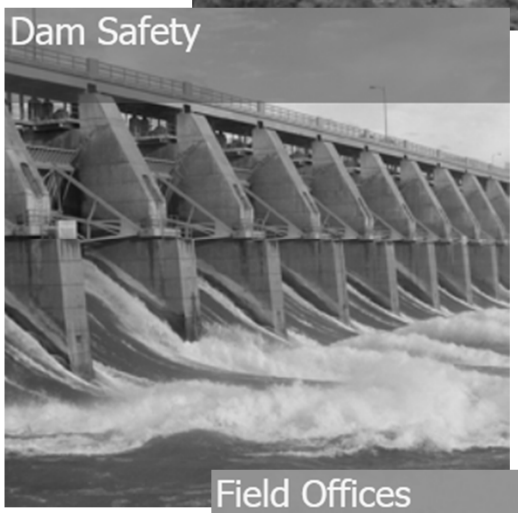
Jennifer J. Schellpeper,
Integrated Water Management Acting Division Head

Who is NDNR?

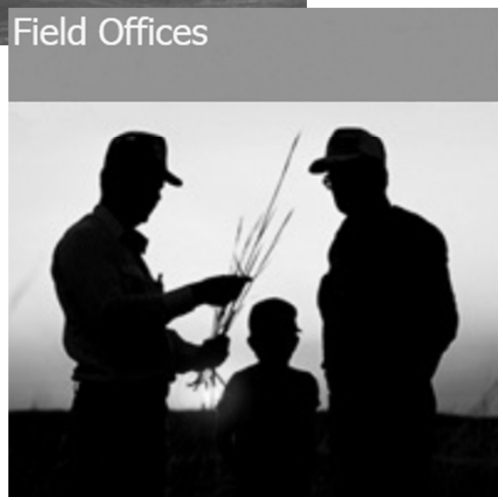

Water Planning and
Integrated Management


Groundwater


Surface Water


Dam Safety


Floodplain Management


Field Offices

Agency Mission

VISION and MISSION

- The DNR is dedicated to working with Nebraska's citizens and leaders to plan, establish, and administer policies and programs for the effective management and conservation of the State's water and land resources.

- Committed to performing statutory responsibility to manage and conserve the State's water and land resources in an effective and efficient manner.

Available Data

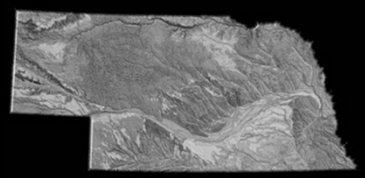
- New Website Design - *http://dnr.ne.gov/*
- Streamgaging - *http://data.dnr.nebraska.gov/RealTime*
- NERain - *http://nerain.dnr.nebraska.gov/nerain/*
- Ice Jam Monitoring - *http://dnr.ne.gov/fpm/ice-jam*
- INSIGHT - *http://dnr.ne.gov/insight/*
- Voluntary Water Use Database - *http://data.dnr.nebraska.gov/wateruse*

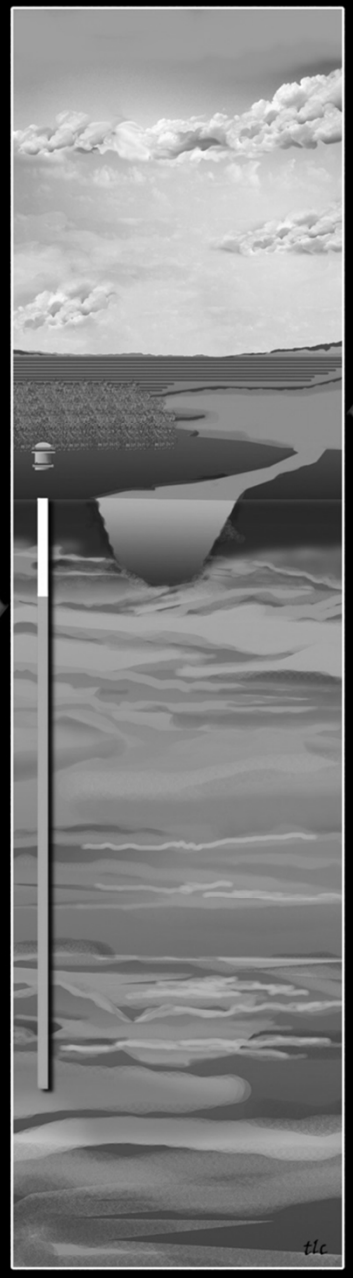
SURFACE AND GROUNDWATER PERMITTING IN NEBRASKA

Beth Eckles, Natural Resources Program Specialist

Surface and Groundwater Permitting in Nebraska

- Surface water or groundwater?
- What is a water right?
- Types of water rights
- Filing an application
- Approval of an application
- DNR field offices
- Little known aspects
- Groundwater permitting





Groundwater

- Correlative Rights
- Regulated by local Natural Resources Districts

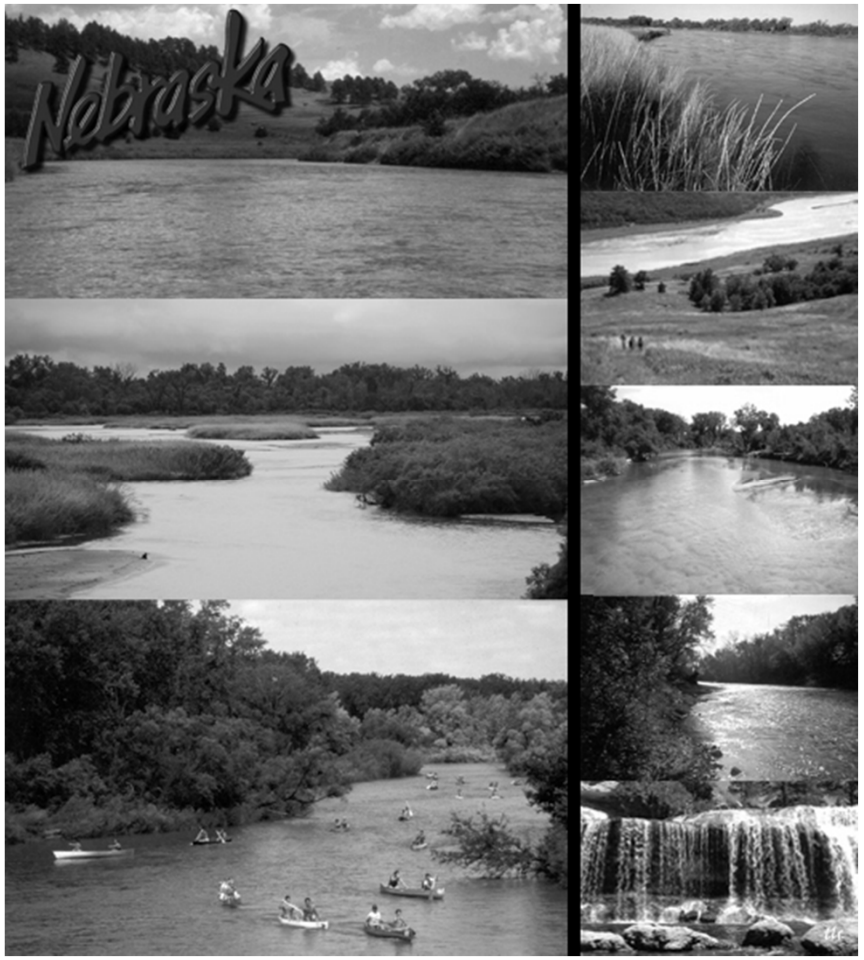
Share and share alike
Beneficial use

Surface Water

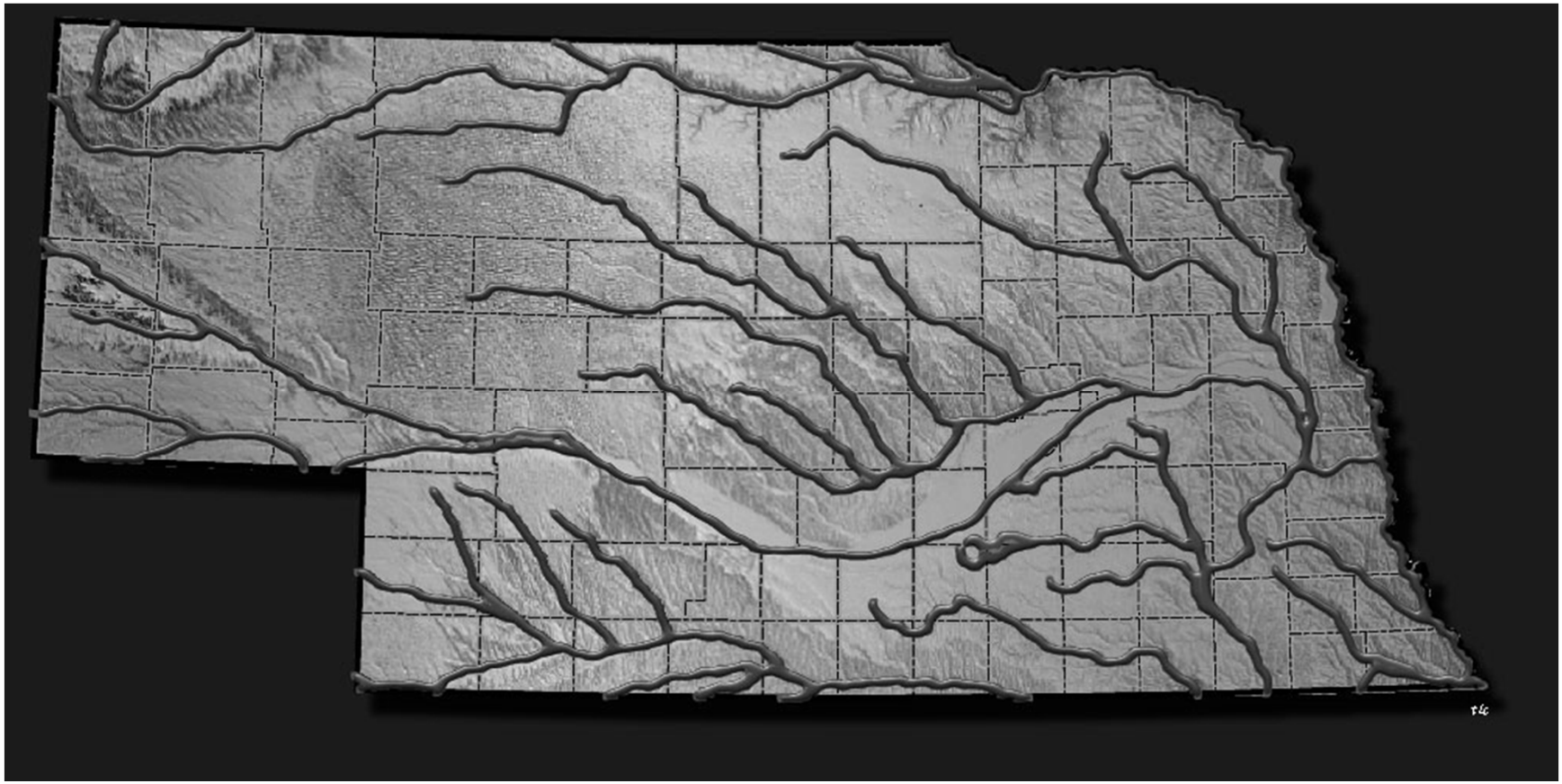
- Prior Appropriations
- Regulated by Nebraska Department of Natural Resources

First in time
is first in right

Surface Water Belongs to the People of Nebraska



Nebraska Has More Miles of River than Any Other State



Water Right, Permit, Appropriation

Three common types of water rights:

1. Irrigation from a naturally flowing source
2. Storage
3. Storage-use

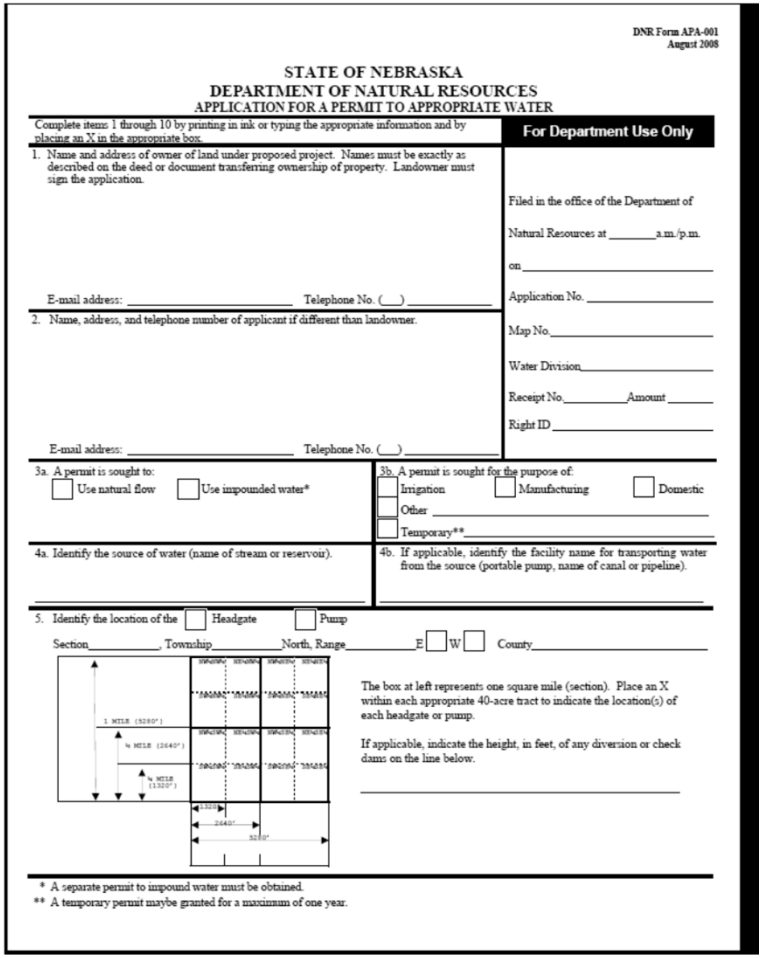
Natural Flow Irrigation

Storage

Storage-use

Irrigation District River Diversion vs. Private Pumper

Application Form



DNR Form APA-001
August 2008

STATE OF NEBRASKA
DEPARTMENT OF NATURAL RESOURCES
APPLICATION FOR A PERMIT TO APPROPRIATE WATER

Complete items 1 through 10 by printing in ink or typing the appropriate information and by placing an X in the appropriate box.

For Department Use Only

1. Name and address of owner of land under proposed project. Names must be exactly as described on the deed or document transferring ownership of property. Landowner must sign the application.

E-mail address: _____ Telephone No. (___) _____

Filed in the office of the Department of Natural Resources at _____ a.m./p.m.
on _____
Application No. _____
Map No. _____
Water Division _____
Receipt No. _____ Amount _____
Right ID _____

2. Name, address, and telephone number of applicant if different than landowner.

E-mail address: _____ Telephone No. (___) _____

3a. A permit is sought to:
☐ Use natural flow ☐ Use impounded water*

3b. A permit is sought for the purpose of:
☐ Irrigation ☐ Manufacturing ☐ Domestic
☐ Other _____
☐ Temporary** _____

4a. Identify the source of water (name of stream or reservoir).

4b. If applicable, identify the facility name for transporting water from the source (portable pump, name of canal or pipeline).

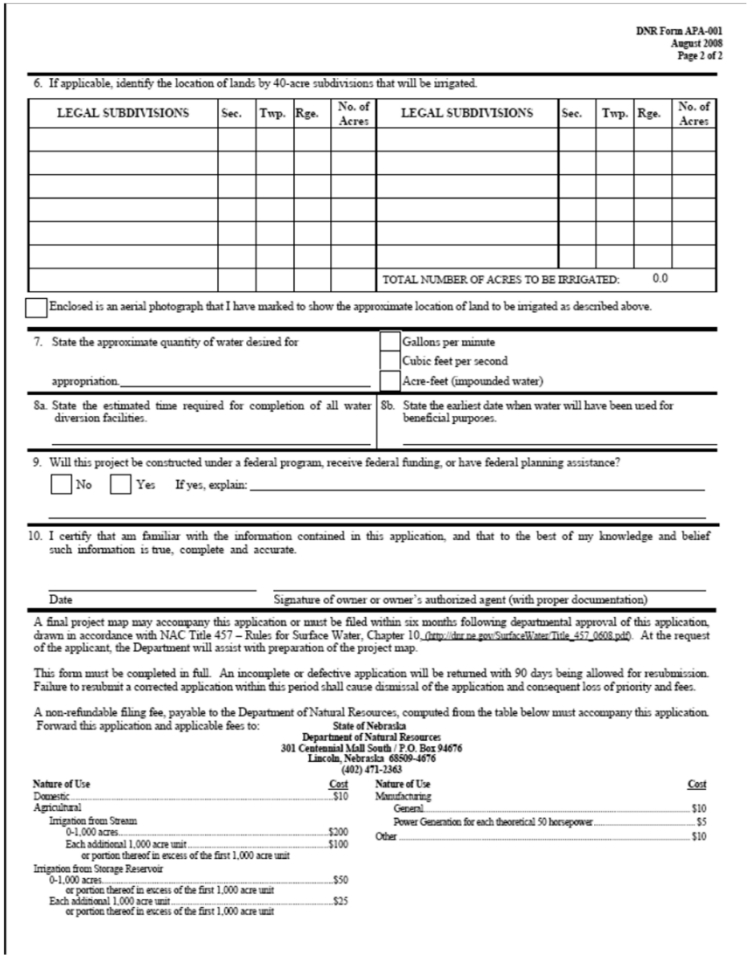
5. Identify the location of the ☐ Headgate ☐ Pump
Section _____, Township _____ North, Range _____ E ☐ W ☐ County _____

The box at left represents one square mile (section). Place an X within each appropriate 40-acre tract to indicate the location(s) of each headgate or pump.

If applicable, indicate the height, in feet, of any diversion or check dams on the line below.

_____

* A separate permit to impound water must be obtained.
** A temporary permit maybe granted for a maximum of one year.



6. If applicable, identify the location of lands by 40-acre subdivisions that will be irrigated.

LEGAL SUBDIVISIONS	Sec.	Twp.	Rge.	No. of Acres	LEGAL SUBDIVISIONS	Sec.	Twp.	Rge.	No. of Acres
					TOTAL NUMBER OF ACRES TO BE IRRIGATED:				0.0

☐ Enclosed is an aerial photograph that I have marked to show the approximate location of land to be irrigated as described above.

7. State the approximate quantity of water desired for appropriation. _____
☐ Gallons per minute
☐ Cubic feet per second
☐ Acre-feet (impounded water)

8a. State the estimated time required for completion of all water diversion facilities.

8b. State the earliest date when water will have been used for beneficial purposes.

9. Will this project be constructed under a federal program, receive federal funding, or have federal planning assistance?
☐ No ☐ Yes If yes, explain: _____

10. I certify that am familiar with the information contained in this application, and that to the best of my knowledge and belief such information is true, complete and accurate.

Date _____ Signature of owner or owner's authorized agent (with proper documentation) _____

A final project map may accompany this application or must be filed within six months following departmental approval of this application, drawn in accordance with NAC Title 457 – Rules for Surface Water, Chapter 10. (http://dnr.ne.gov/SurfaceWater/Title_457_0608.pdf). At the request of the applicant, the Department will assist with preparation of the project map.

This form must be completed in full. An incomplete or defective application will be returned with 90 days being allowed for resubmission. Failure to resubmit a corrected application within this period shall cause dismissal of the application and consequent loss of priority and fees.

A non-refundable filing fee, payable to the Department of Natural Resources, computed from the table below must accompany this application. Forward this application and applicable fees to:

State of Nebraska
Department of Natural Resources
301 Centennial Mall South / P.O. Box 94676
Lincoln, Nebraska 68509-4676
(402) 471-2363

Nature of Use	Cost
Domestic	$10
Agricultural	
Irrigation from Stream	
0-1,000 acres	$200
Each additional 1,000 acre unit or portion thereof in excess of the first 1,000 acre unit	$100
Irrigation from Storage Reservoir	
0-1,000 acres	$50
or portion thereof in excess of the first 1,000 acre unit	
Each additional 1,000 acre unit or portion thereof in excess of the first 1,000 acre unit	$25

Nature of Use	Cost
Manufacturing	
General	$10
Power Generation for each theoretical 50 horsepower	$5
Other	$10

Required Plans
Title 457 & Title 458

Application Approval and a Pending Map

STATE OF NEBRASKA

DEPARTMENT OF NATURAL RESOURCES

APPROVAL OF APPLICATION A-18676

WATER DIVISION 2-F

ORDER

IT IS HEREBY ORDERED that application A-18676 is APPROVED subject to the following limitations and conditions:

The source of water is Bazile Creek.

The water shall be used for the purpose of irrigation.

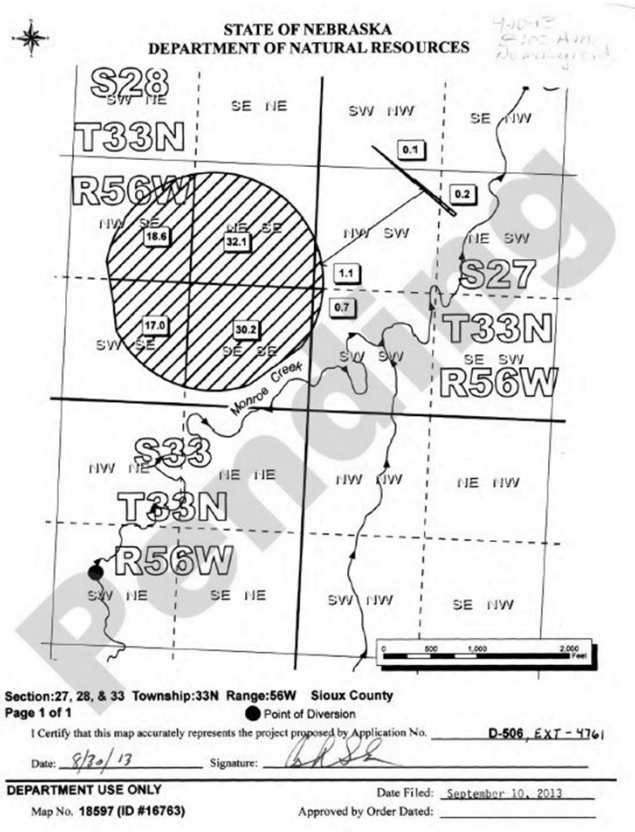
The priority date is September 3, 2009.

Only the land shown on map number 17750 may be irrigated under appropriation A-18676.

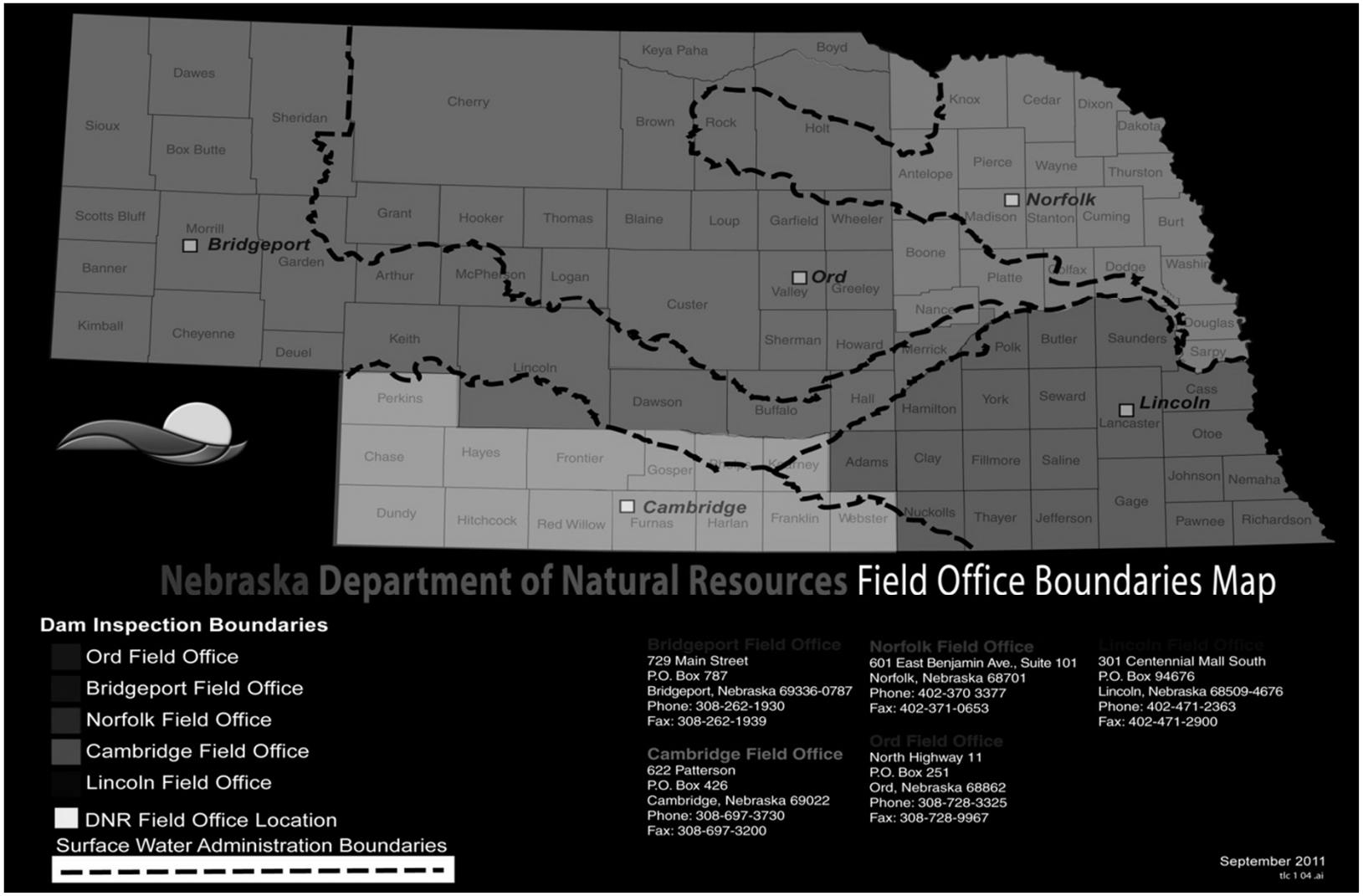
The rate that water may be diverted under appropriation A-18676 shall not exceed one cubic foot per second (cfs) for every 70 acres irrigated. Total annual volume of water diverted may not exceed 3 acre-feet per acre irrigated.

Any diversion or check dam for this appropriation shall not be larger than necessary. The Department or Norfolk field office retains the right to determine if a diversion or check dam is excessive or unlawful.

The appropriator must comply with all relevant statutes. The statutes include, but are not limited to, the following:



DNR Field Offices



MAY BE A SURPRISE TO LEARN ABOUT CURRENT WATER LAW

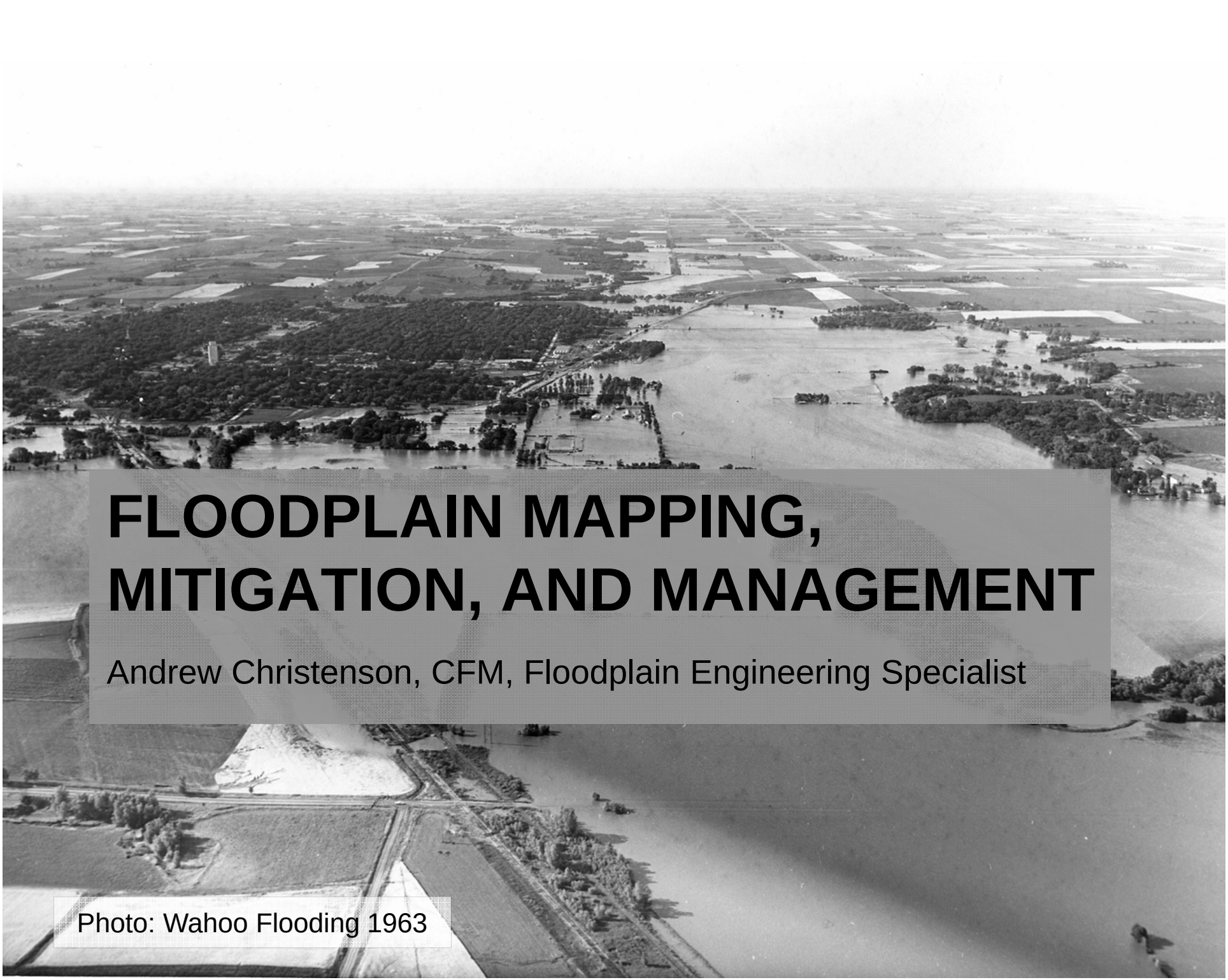
- Nebraska law does not require any water to remain in a stream or river

- Water for cattle is not protected regarding natural flow diversion permits

Groundwater Permits at DNR

1. Municipal transfer permit – need depends on NRD rules
2. Industrial transfer permit
3. Transfers to adjoining state
4. Permits to violate well spacing

<u>DNR does NO</u> domestic and agricultural transfers – these are handled by the NRD



FLOODPLAIN MAPPING, MITIGATION, AND MANAGEMENT

Andrew Christenson, CFM, Floodplain Engineering Specialist

Photo: Wahoo Flooding 1963


36
FOR SALE

National Flood Insurance Program

- Four main aspects:
  - Flood risk mapping
  - Floodplain management
  - Flood insurance
  - Flood mitigation grants

National Flood Insurance Program (NFIP)

The NFIP is a federal program:

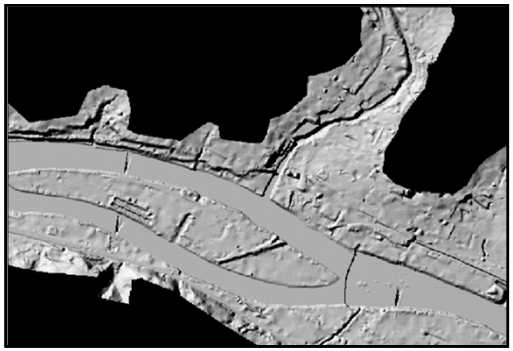
- Established with the passage of the National Flood Insurance Act of 1968
- Enables property owners in participating communities to purchase insurance as protection against flood losses
- Participation is voluntary and based on an AGREEMENT between local communities and the Federal Government

AGREEMENT: The Federal Government makes flood insurance available within communities as a financial protection against flood losses for communities that adopt and enforce a floodplain management regulations to reduce flood risk to new development in floodplains

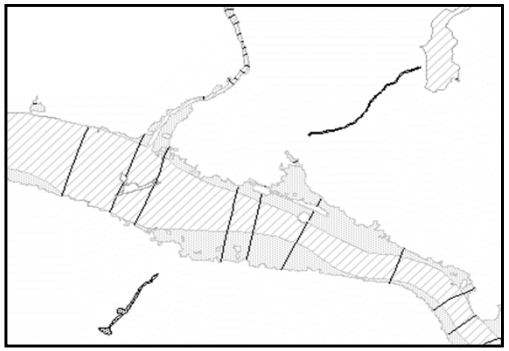
Floodplain Mapping – How Are Floodplain Maps Created?

- **Base + Topography + Flood Data = DFIRM**

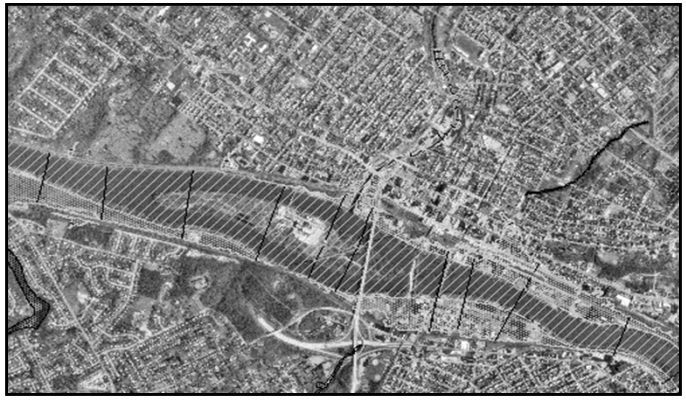
Base



Topography



Flood Data



DFIRM

Floodplain Management

Overall community program of corrective and preventative measures for reducing future flood damage

- Guide future development away from high flood risk areas
- Floodplain Management Regulations
  - Minimum State Standards
  - 44 CFR 60.3
  - Minimum Federal Requirements
  - Local Higher Standards

The Black and White

- If **development** occurs in the floodplain, it requires a **permit**
- Types of **development**:
  - Including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation, or drilling operations or storage of equipment or materials.

Structures

- Definition for floodplain management: walled and roof buildings
- Definition for flood insurance: 2 rigid walls and a roof
- 2 main types of structures:
  - Residential
  - Nonresidential

Elevation with flow-through walls (residential)

Lincoln, NE

Common Risk Mitigation Techniques

- Techniques
  - Elevation
  - Relocation / Buyout / Acquisition *(Floodplain Evacuation)*
  - Localized Berms and Floodwalls
  - Dry Flood Proofing (non-residential only)
  - Wet Flood Proofing

- Grant Funding Sources
  - Flood Mitigation Assistance –NDNR
  - Hazard Mitigation Grant Program – NEMA
  - Pre-Disaster Mitigation - NEMA

Thank You

- Contacts:
  - Andrew Christenson – Presenter
    402-471-1223 *andrew.christenson@nebraska.gov*
  - John Callen – NFIP Coordinator
    402-471-3957 *john.callen@nebraska.gov*
  - Mitch Paine – Mitigation Specialist
    402-471-9252 *mitch.paine@nebraska.gov*

INTEGRATED WATER MANAGEMENT

Carol Myers Flaute, Integrated Water Management Analyst

Integrated Water Management

Integrated Water Management

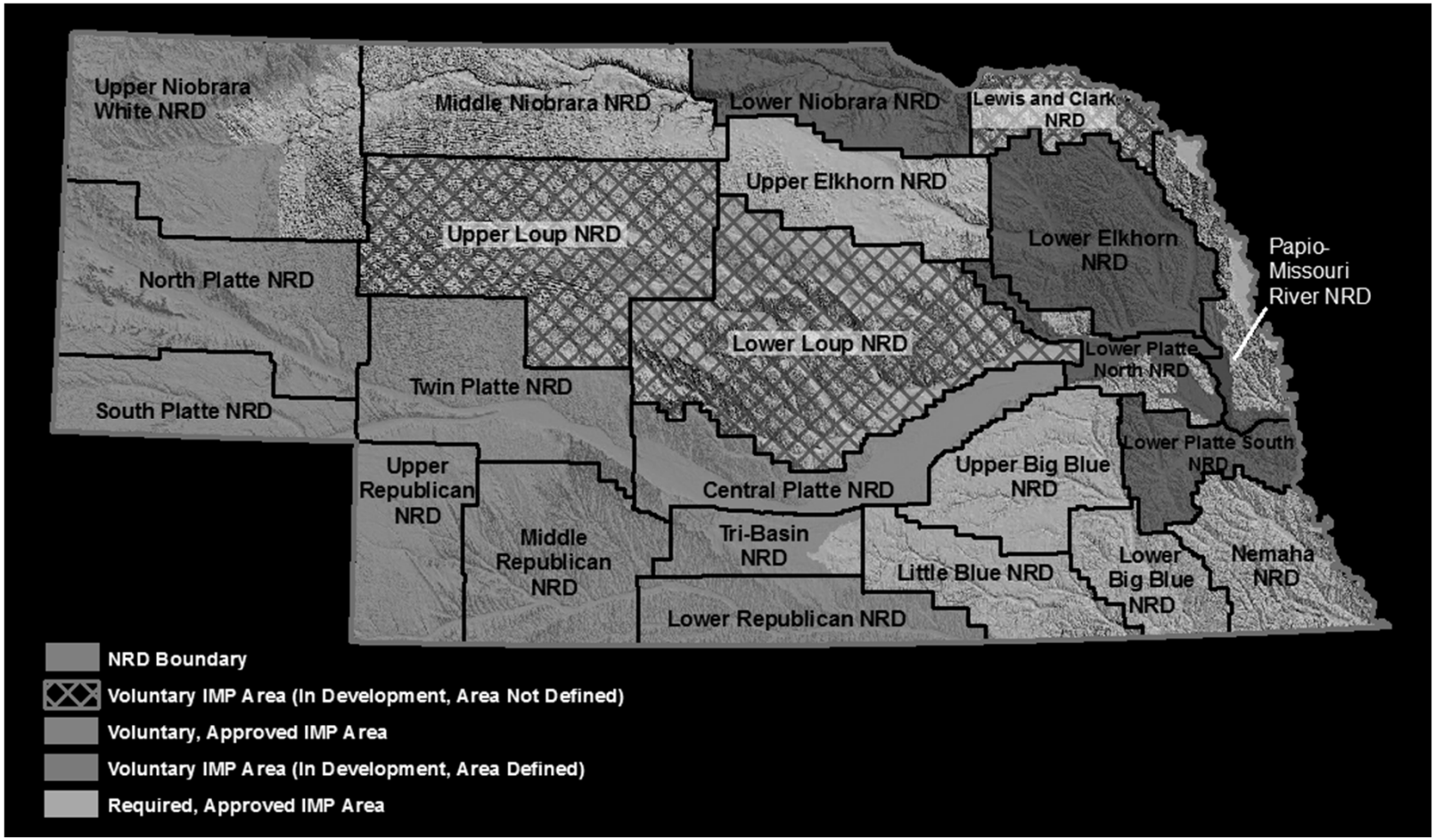
Planning and Public Participation: Integrated Management Plans and Basin-Wide Plans

Integrated Management Planning: What Is It?

- A pro-active approach to address water supply opportunities & issues
- Combines surface water and groundwater management
- Jointly developed with a local NRD
- Flexible—Adaptive Management

Integrated Management Planning in Nebraska

(As of November 2014)



Integrated Management Planning: Stakeholder Involvement

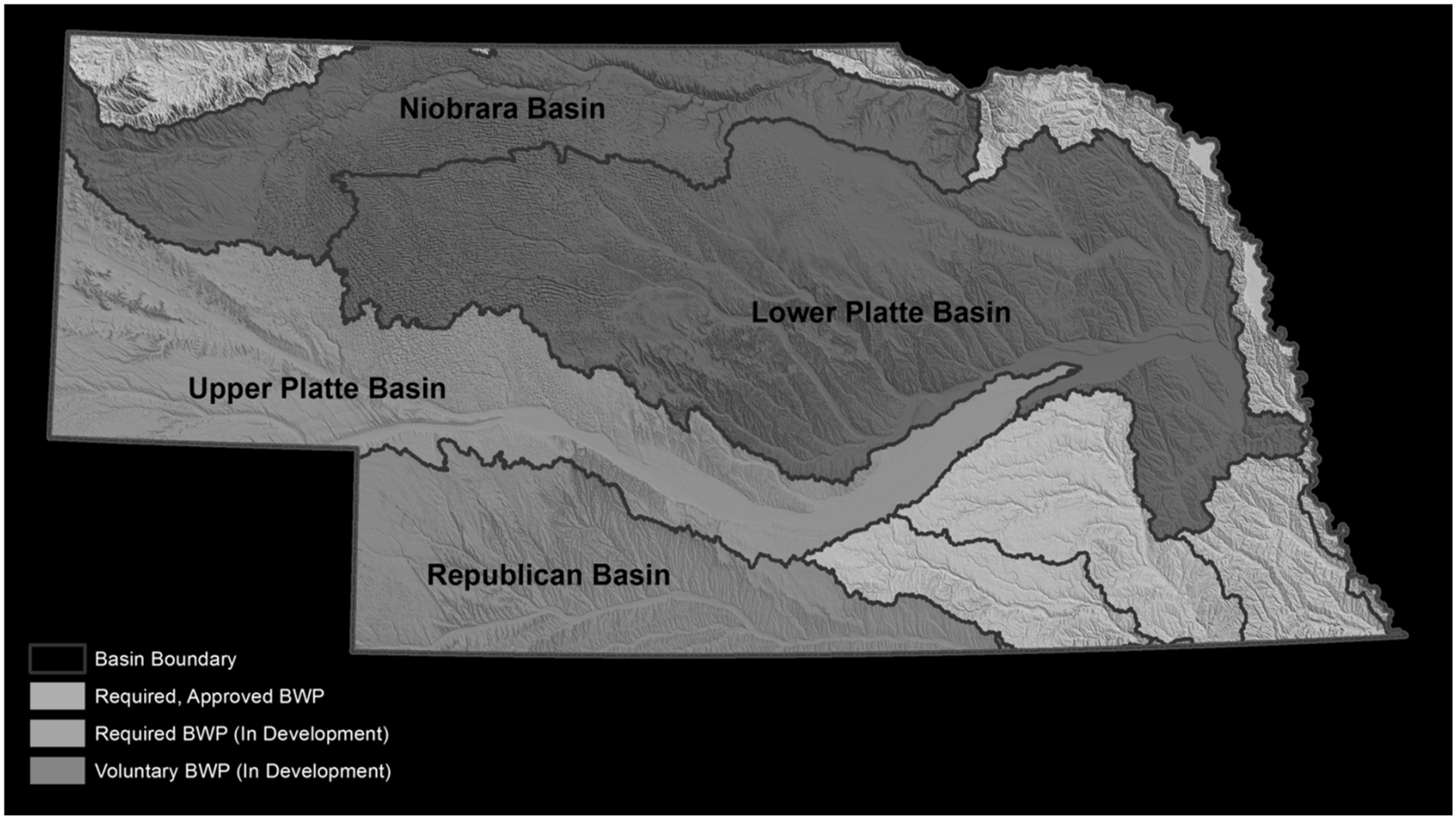
- Each IMP development process includes a stakeholder advisory committee
- DNR and the NRD consult with the stakeholder committee to:
  - Identify local issues and priorities
  - Determine planning goals and objectives
- Each plan's action items and controls are based on these goals and objectives

Basin-Wide Planning

- Involves DNR and all NRDs in a basin
- A framework for consistent basin-wide goals & objectives
- Addresses connectivity between NRDs
  - Facilitates water management projects that cross NRD boundaries
  - Can help establish consistent, agreed-upon basin-wide guidelines for monitoring and distribution of data

Basin-Wide Planning in Nebraska

(As of November 2014)



To Learn More about Basin-Wide Planning

- Lower Platte:
  http://dnr.nebraska.gov/LPRBC
- Upper Platte:
  http://dnr.nebraska.gov/iwm/upper-platte#BasinWide
- Niobrara:
  http://dnr.nebraska.gov/iwm/niobrara#BasinWide
- Republican:
  Page Coming Soon!

Niobrara Basin-Wide Plan
Public Input Survey

- *http://go.unl.edu/39wo*
- Deadline March 11, 2015

Science: Fully Appropriated Basin Analysis and INSIGHT

Annual Fully Appropriated Basin Analysis: New Rules/Methodology

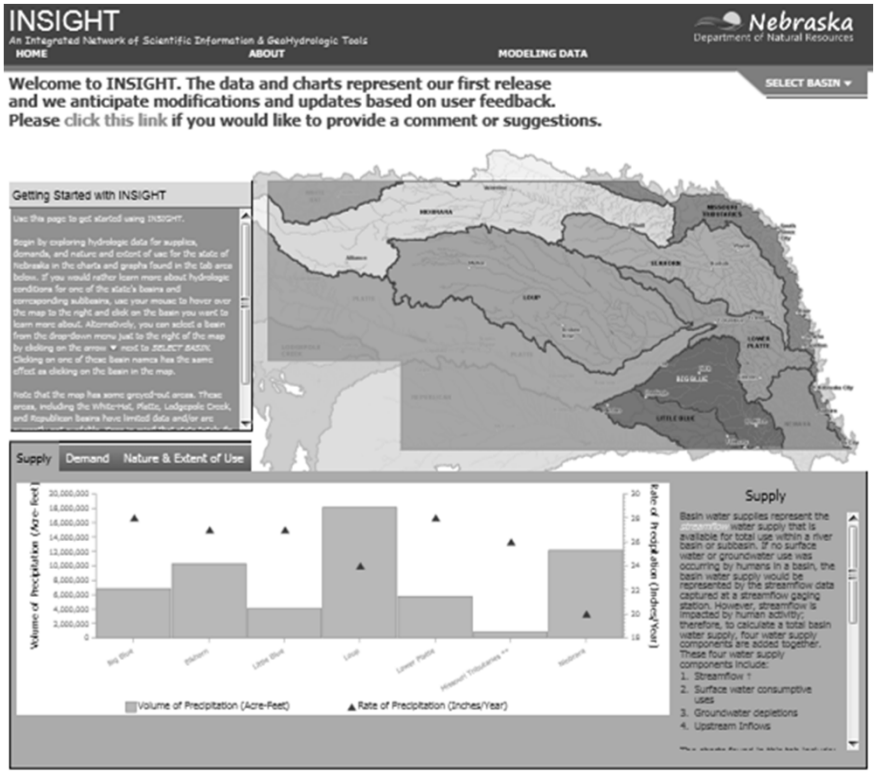
- Current method:
  - Based on the amount of water that the most junior irrigation right in a basin has been able to divert, relative to the amount of water a corn crop needs (“65/85 Rule”)
- Proposed method:
  - Based on a water balance concept – is the water supply in a basin sufficient to meet short and long-term demands?

Annual Fully Appropriated Basin Analysis: New Rules/Methodology

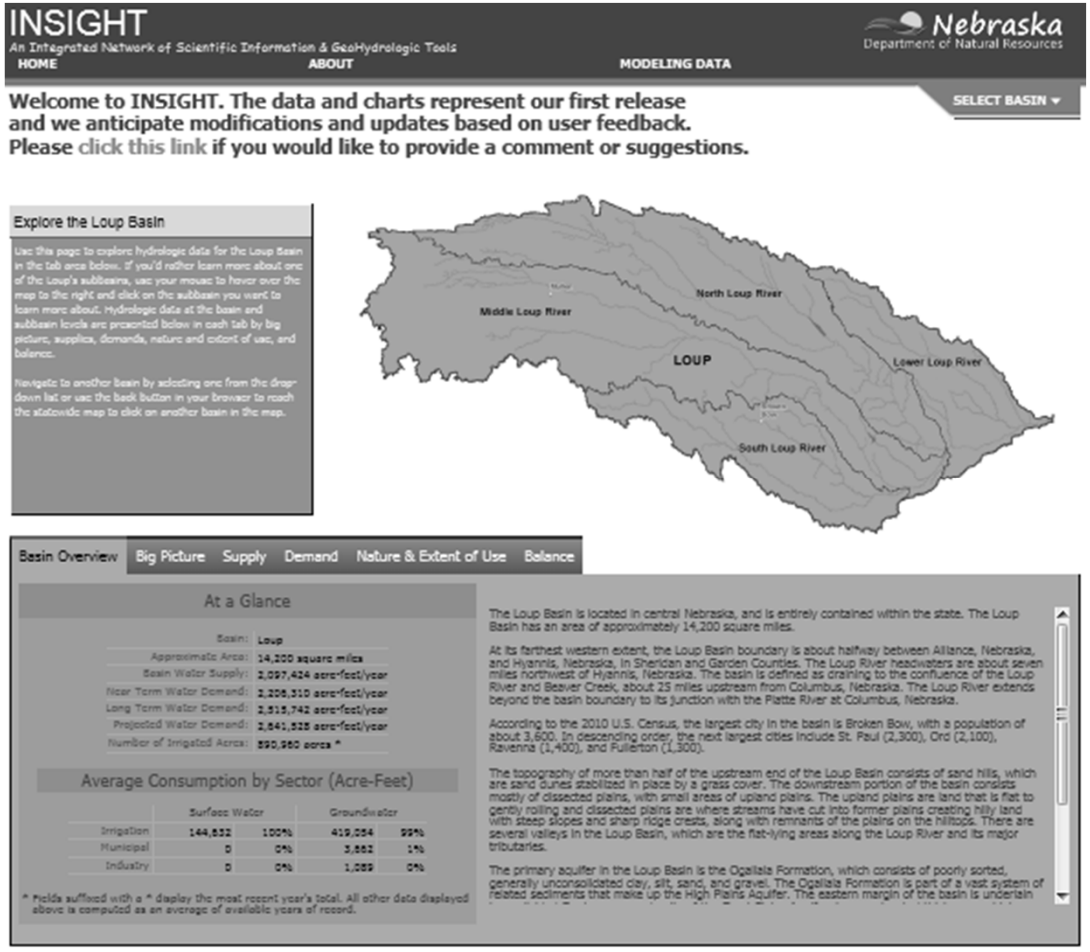
- Current status:
  - Public meetings and public input deadline occurred in December 2014
  - Expect public hearing soon
- For more information:
  - *http://dnr.nebraska.gov/iwm/state-laws-and-rules#newFABrules*

INSIGHT: An Integrated Network of Scientific Information and GeoHydrologic Tools

http://dnr.nebraska.gov/insight/

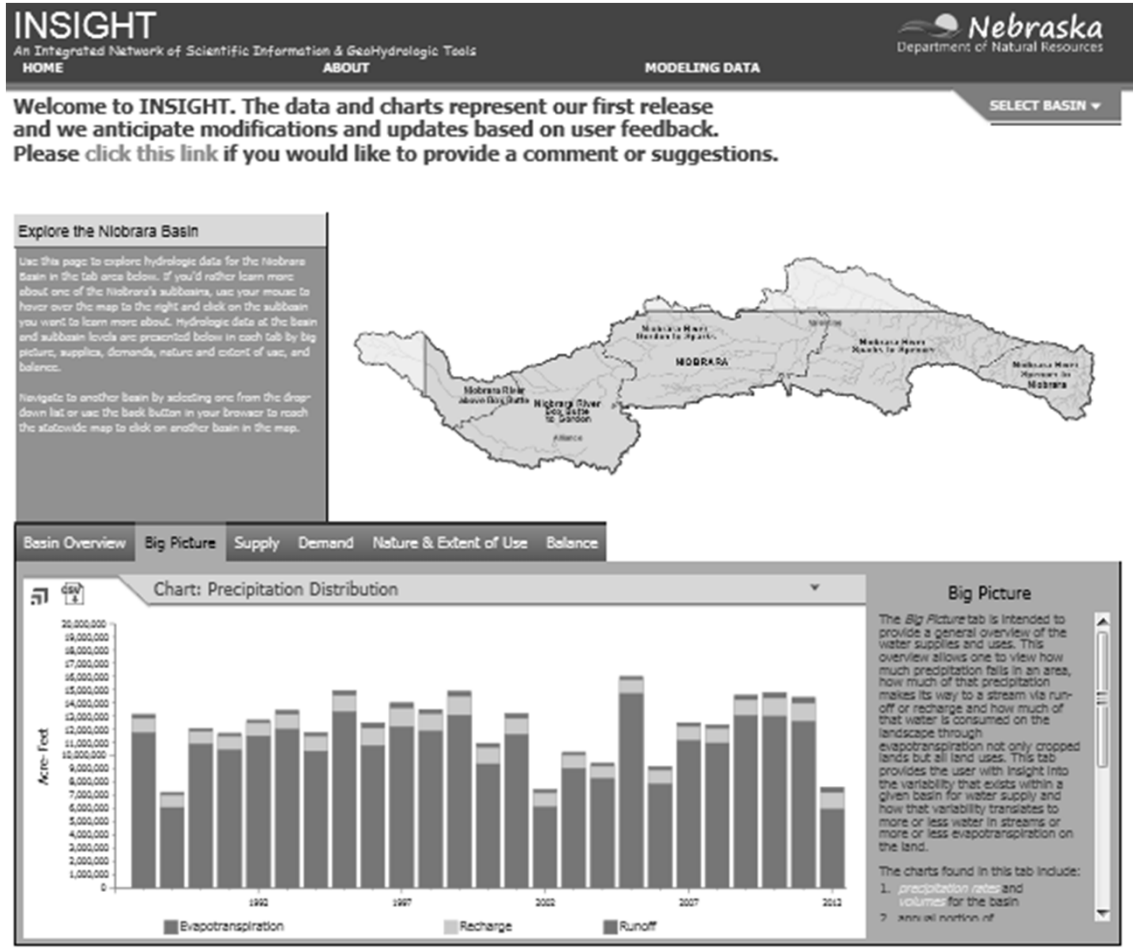


INSIGHT Example:
Loup Basin, Basin Overview



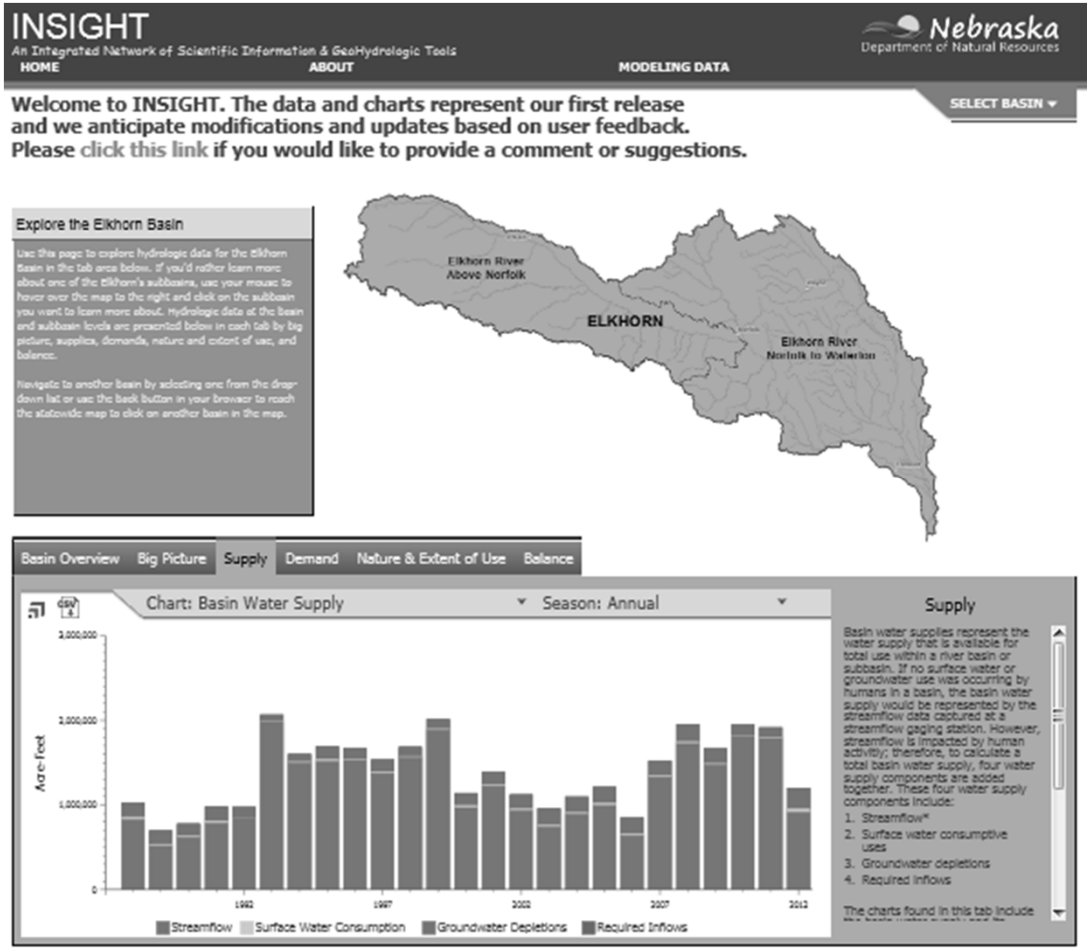
INSIGHT Example:

Niobrara Basin, Precipitation Distribution



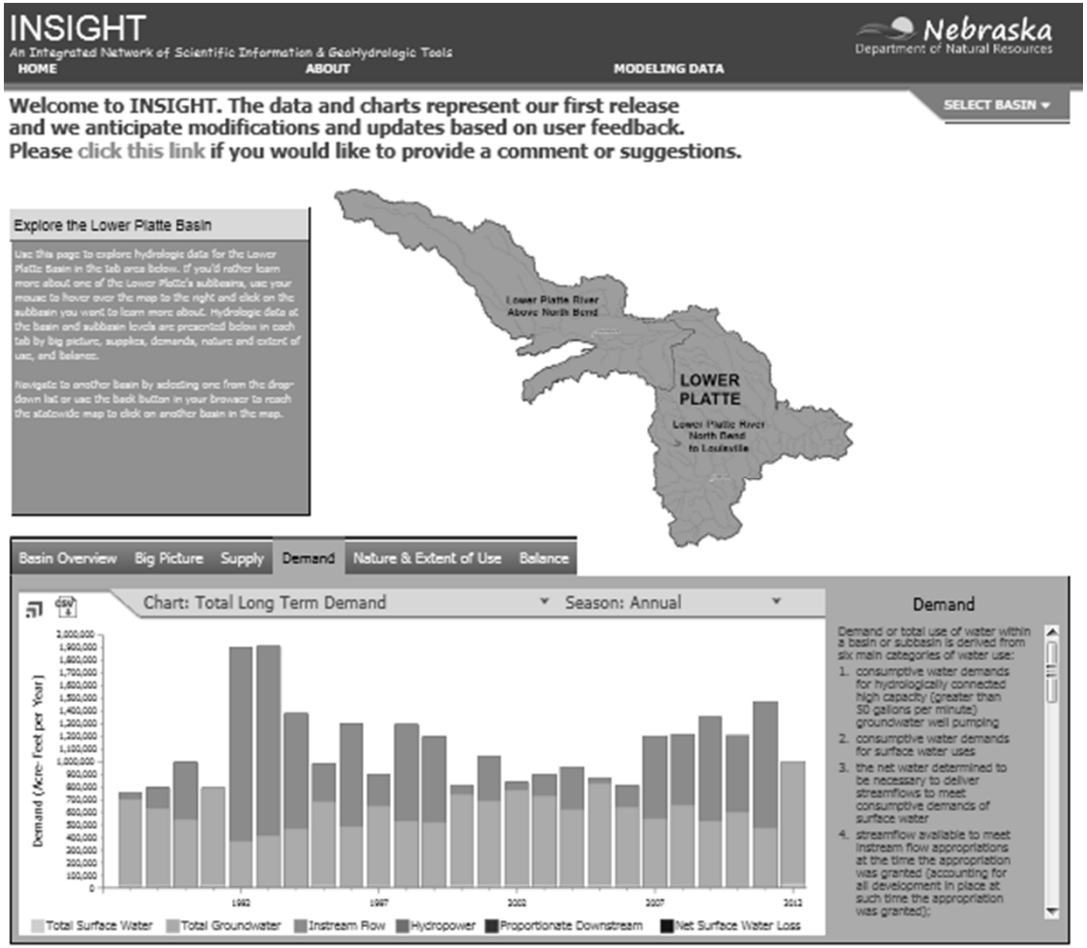
INSIGHT Example:

Elkhorn Basin, Basin Water Supply



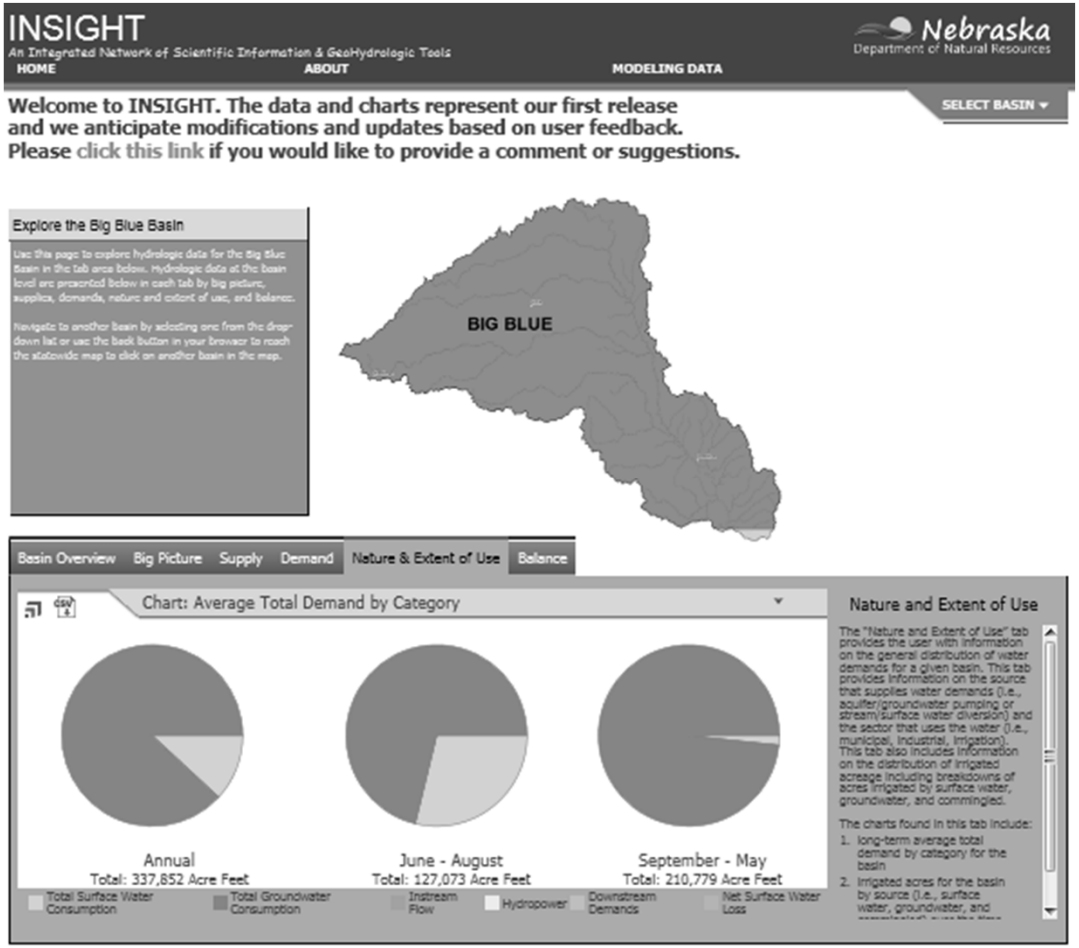
INSIGHT Example:

Lower Platte Basin, Total Long Term Demand



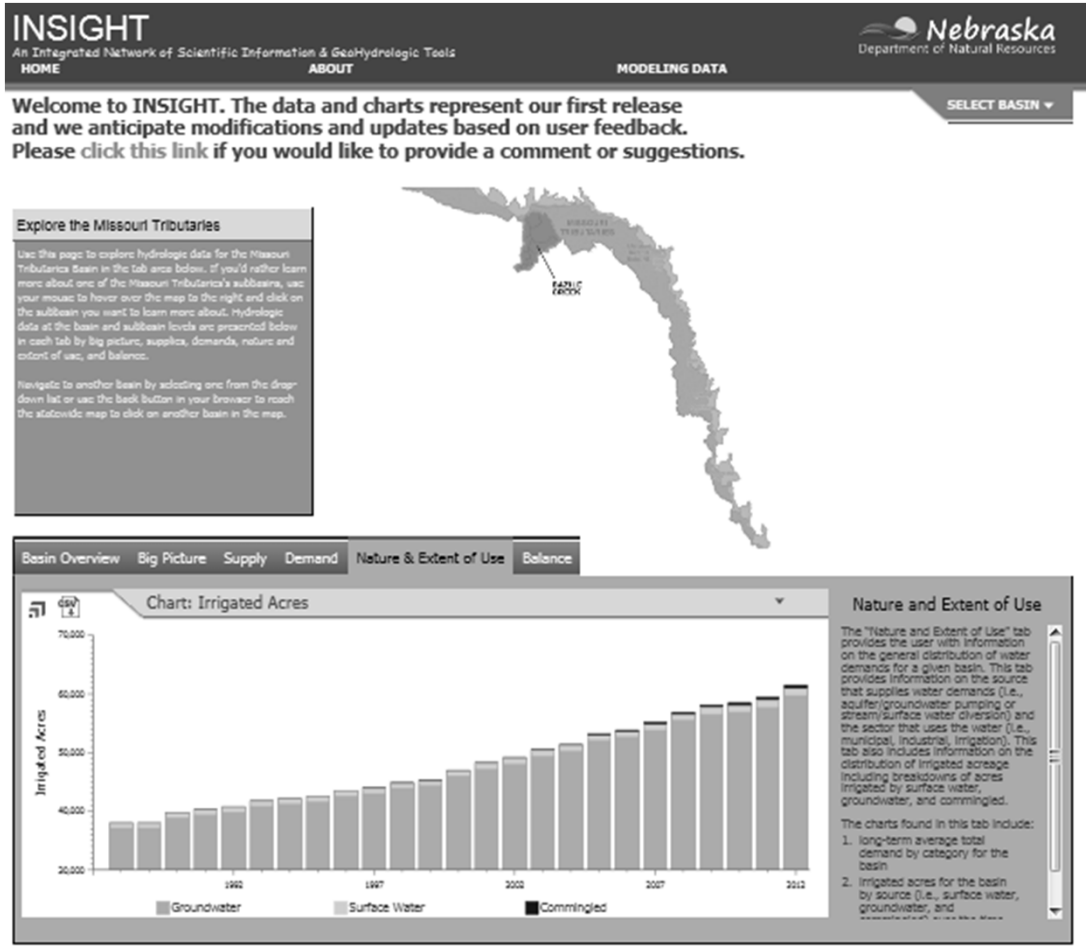
INSIGHT Example:

Big Blue Basin, Average Total Demand



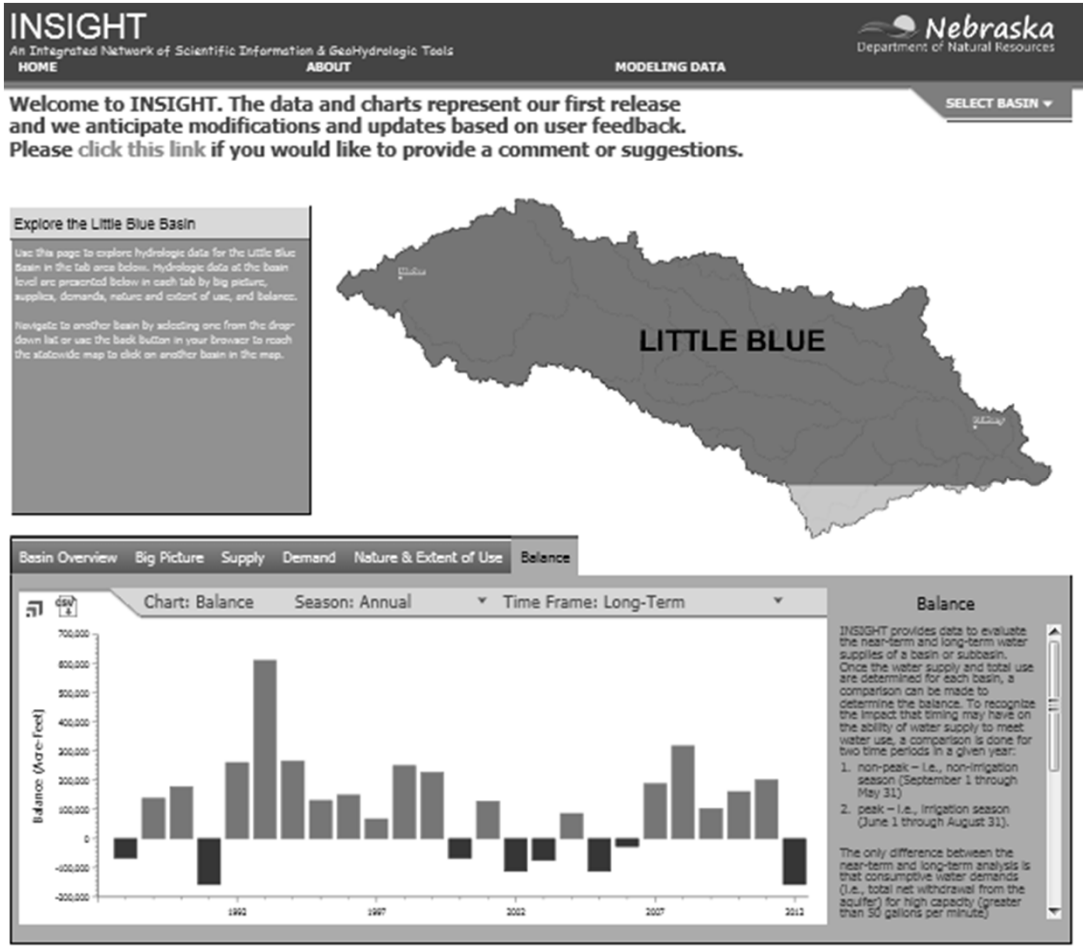
INSIGHT Example:

Missouri Tributaries Basin, Irrigated Acres



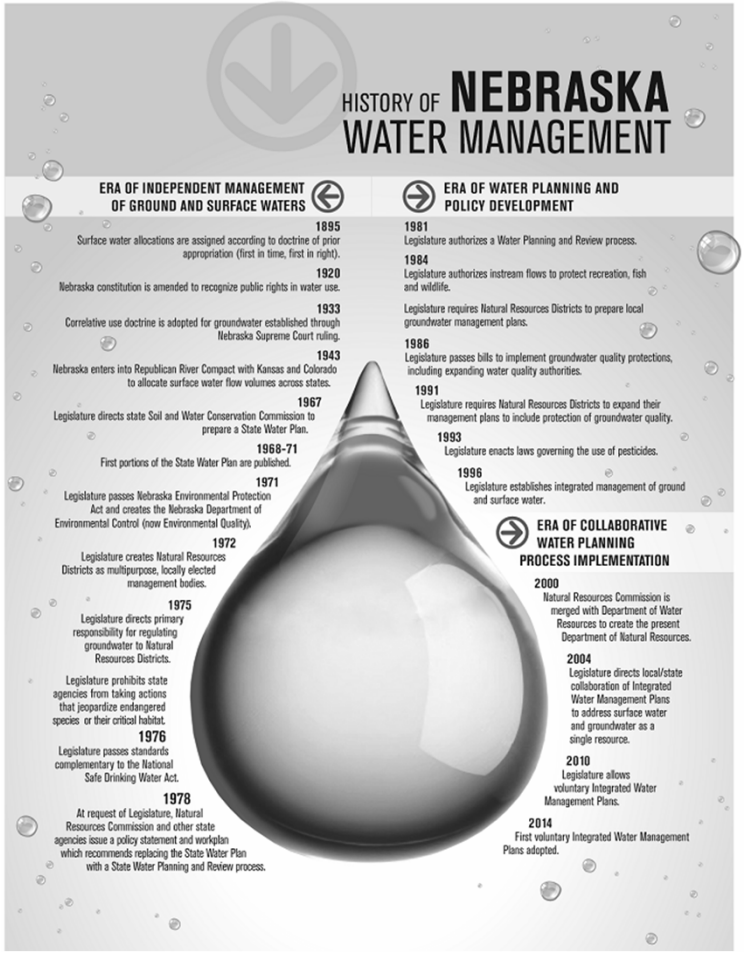
INSIGHT Example:

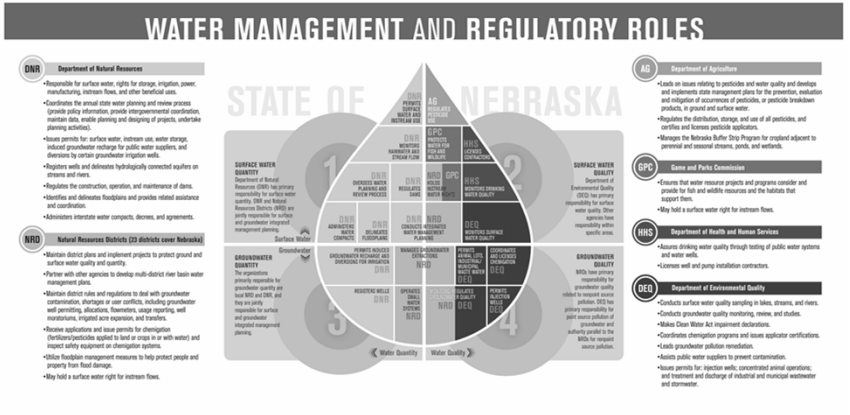
Little Blue Basin, Long Term Balance



INSIGHT: Feedback

Water Management in Nebraska





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