

History and Regulation of Groundwater and Surface Water in Nebraska

For the US Forest Service, July 24, 2019

Upper Niobrara White Natural Resources District:

- Pat O'Brien, Manager



Department of Natural Resources:

- Mike Thompson, Permits and Registrations Division Manager
- Jeremy Gehle, Water Administration Division Manager
- Jennifer J. Schellpeper, Water Planning Division Manager

TOPICS:

- Background of the Department of Natural Resources
- Background of the Natural Resources Districts
- Surface Water Rights and Water Administration
- Groundwater Registrations and Regulations
- Integrated Groundwater and Surface Water Management in Nebraska

Background

Nebraska Department of Natural Resources

Jennifer J. Schellpeper, Water Planning Division Manager

Mike Thompson, Permits and Registrations Division Manager

Jeremy Gehle, Water Administration Division Manager

NEBRASKA

Good Life. Great Water.

DEPT. OF NATURAL RESOURCES

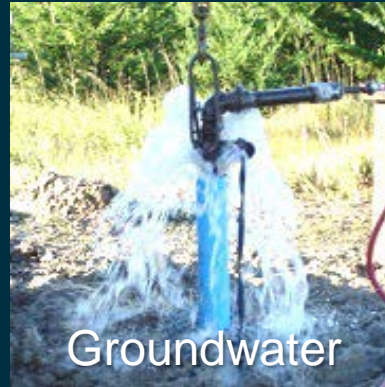
Providing the sound science and support for managing Nebraska's most precious resource



Water Planning and Integrated Management



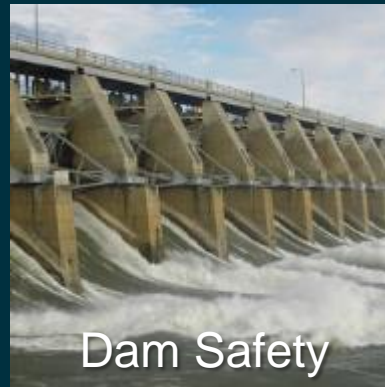
Surface Water



Groundwater



Floodplain Management

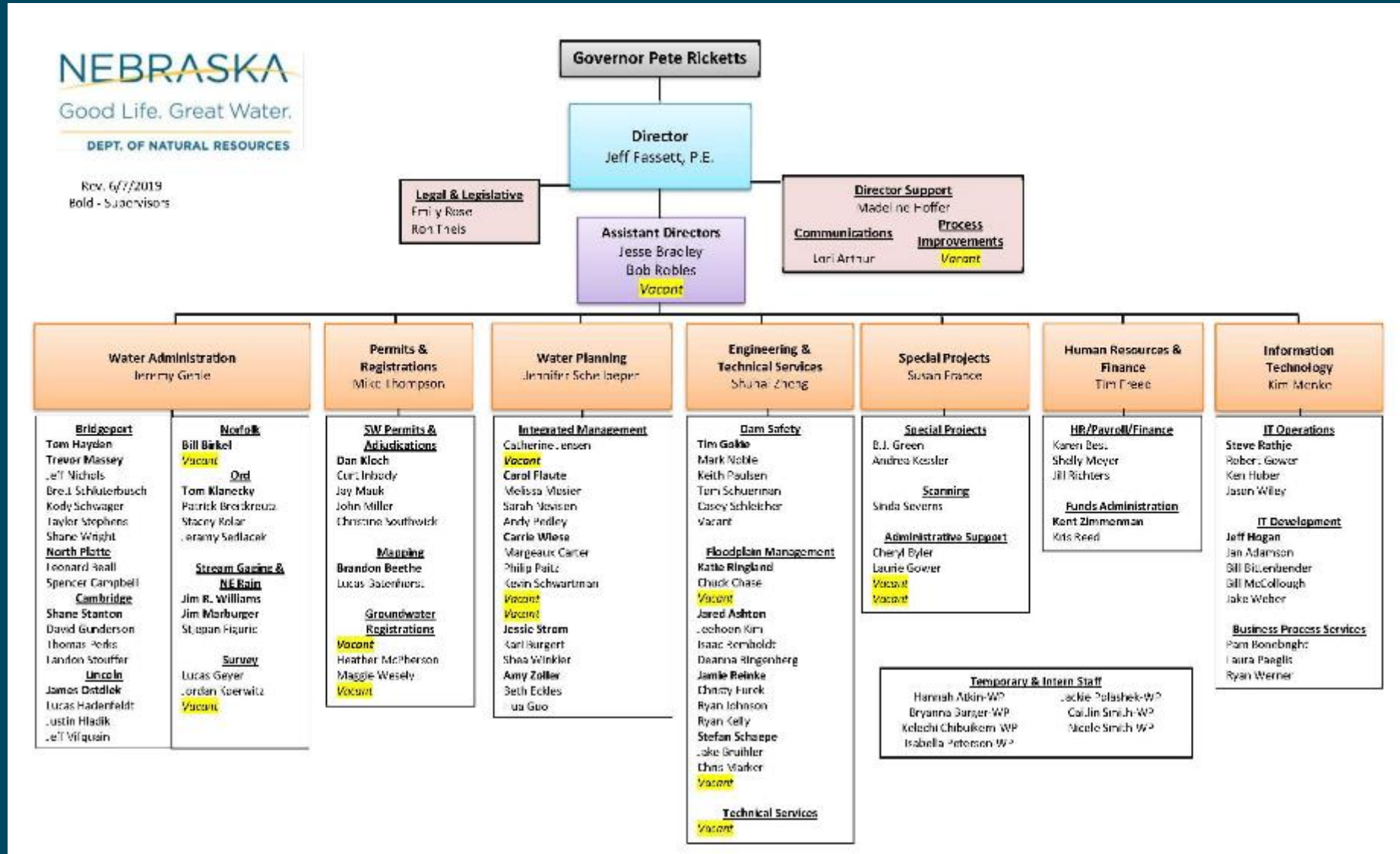


Dam Safety

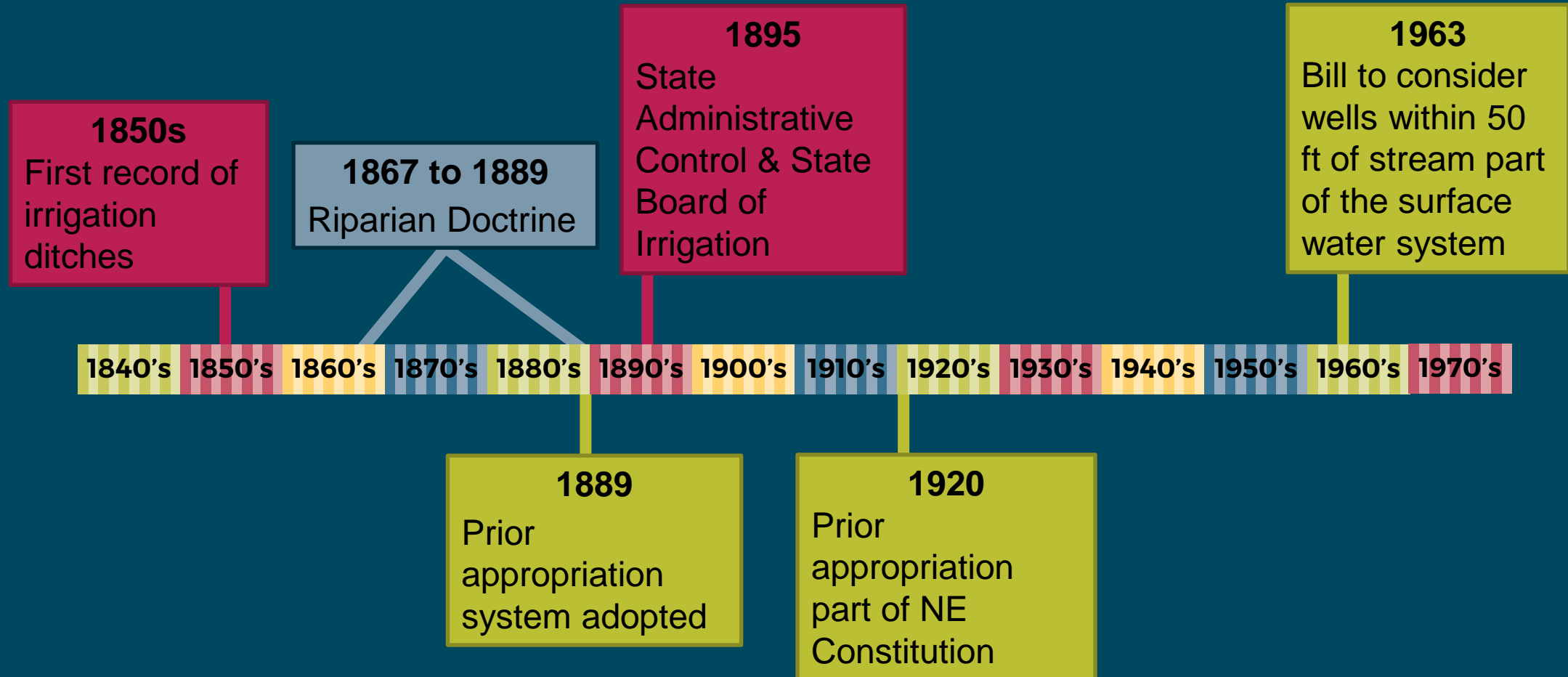


Water Administration

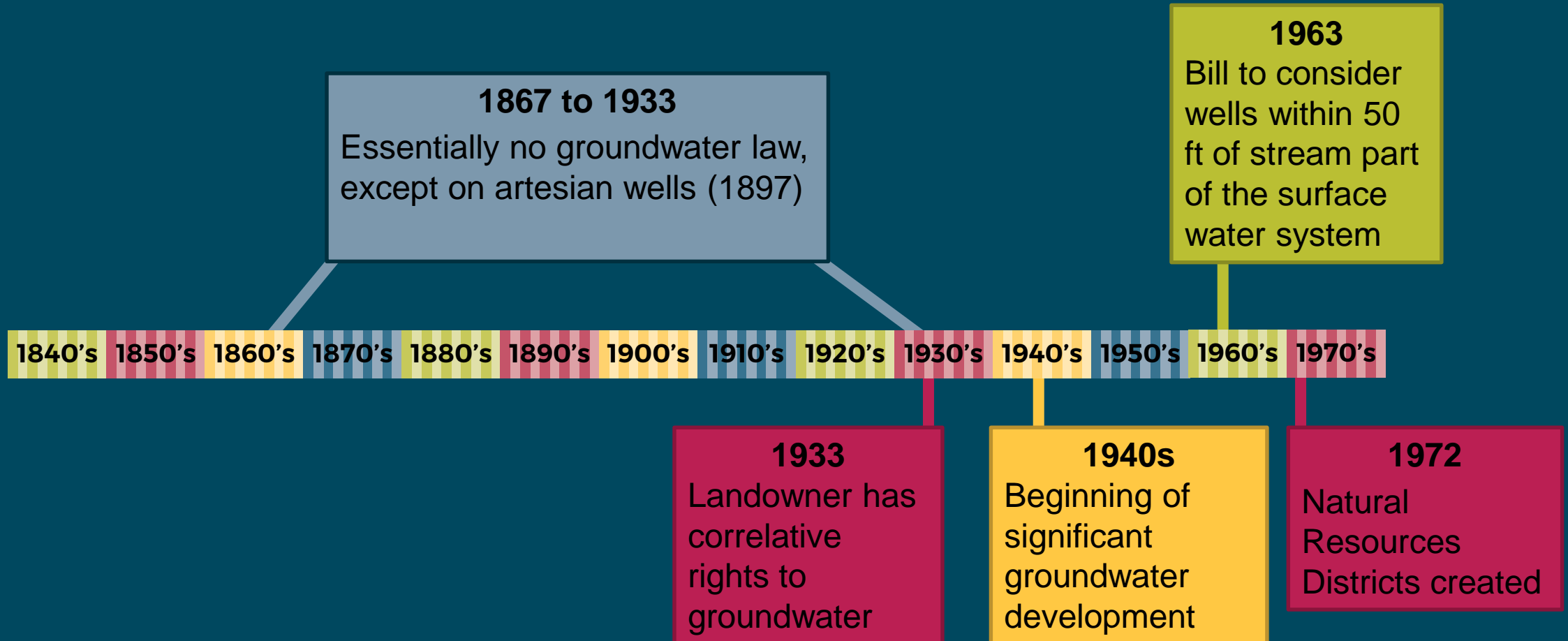
NeDNR Organizational Chart



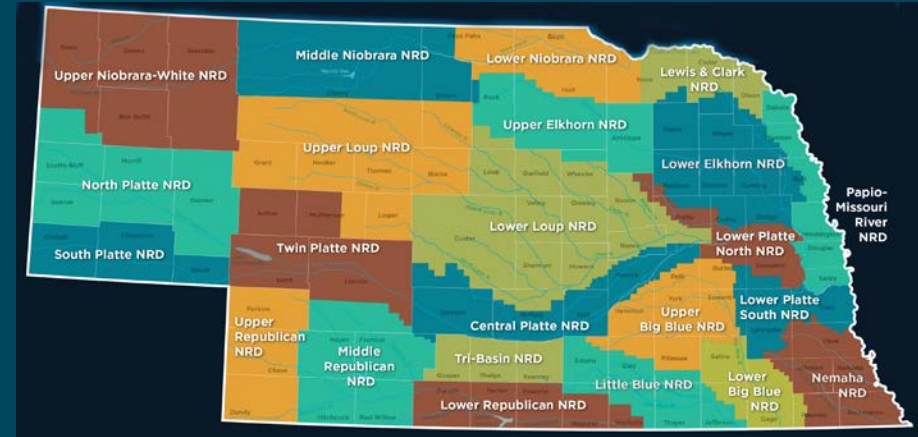
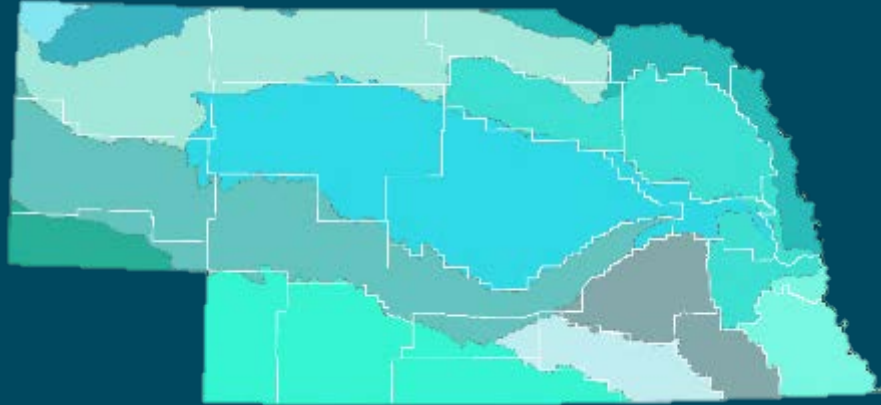
Background, History of Water – Nebraska Legislation Supporting SURFACE WATER



Background, History of Water – Nebraska Legislation Supporting GROUNDWATER



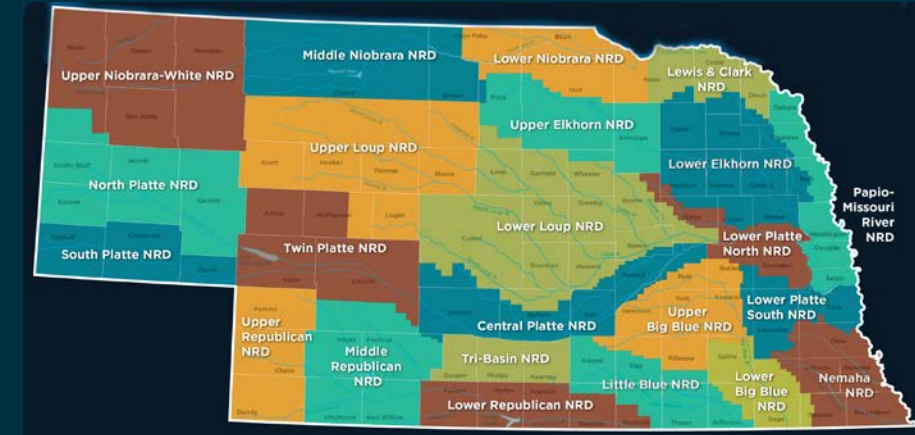
Statewide and local NRD regulatory systems



- Nebraska Department of Natural Resources
- Authority over Surface Water Uses
- Statewide Authority

- 23 Autonomous Natural Resources Districts
- Authority over Groundwater Uses
- Districtwide Authority

Nebraska's Natural Resources Districts



A Unique Approach to Resources Management

Pat O'Brien, Manager

Upper Niobrara White Natural Resources District



Prior to the NRDs

- Multiple special purpose organizations managing the natural resources
 - Drainage Districts
 - County Soil and Water Conservation Districts
 - Watershed Districts
 - Rural Water Districts
 - Mosquito Abatement Boards
- Large water projects – reservoirs
- Overlapping authority
 - Who is best to be in charge?
- Lack of dedicated funding

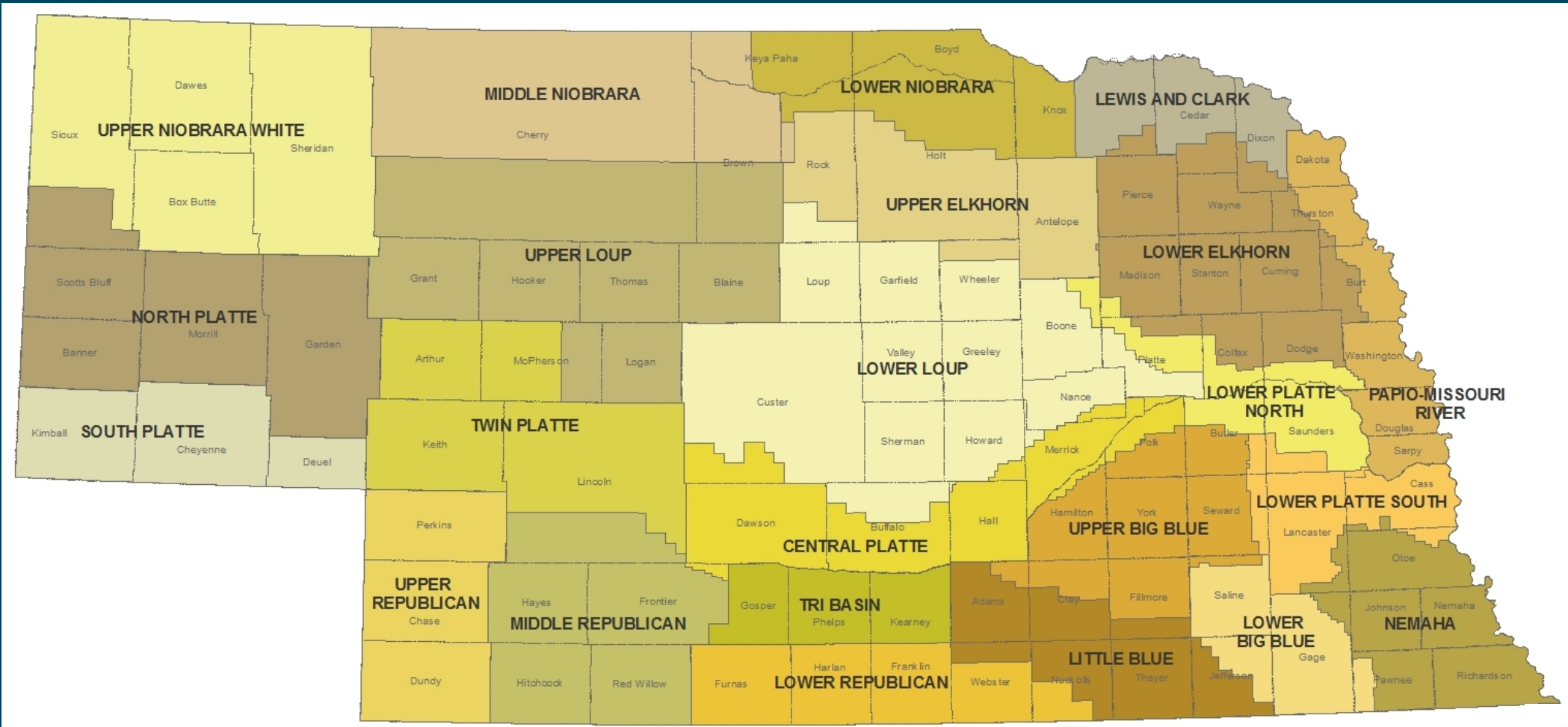


Formation of the NRDs

- Approved by the Nebraska Unicameral in 1969
- NRDs to commence operation on July 1, 1972
- Task force to determine how many
 - Resource agencies
 - Public Meetings
- Based on Hydrologic Boundaries
- 24 Districts Established
- 1989 the Middle Missouri Tributaries and the Papio NRD merged
 - Financial Issue
- NOT a State Agency
 - Locally elected board of directors
 - Regulatory Agency



Current NRD Boundaries



Hurdles in the way

- Nebraskans For Soil and Water, Inc.
- Lawsuit filed on June 6, 1972
- Sought a restraining order to halt the formation of the NRDs
- Injunction was not granted
 - Did halt the transfer and merging of assets
- July 1973 – District Court ruled the NRD Legislation was constitutional
- April 1974 – State Supreme Court upheld district court ruling



NRD Responsibilities

- Erosion prevention and control
- Prevention of damages from flood water and sediment
- Flood prevention and control
- Soil conservation
- Water supply for any beneficial uses
- Development, management, utilization, and conservation of groundwater and surface water
- Pollution control
- Solid waste disposal and drainage
- Drainage improvement and channel rectification
- Development and management of fish and wildlife habitat
- Development and management of recreational and park facilities
- Forestry and range management



NRD Water Authorities

- Groundwater Quality
- Groundwater Quantity
- Chemigation
- Sediment and Erosion Control



Nebraska Surface Water Rights and Water Administration

Mike Thompson, Permits and Registrations Division Manager

Jeremy Gehle, Water Administration Division Manager

NEBRASKA

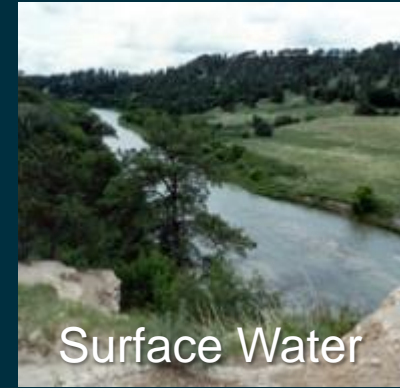
Good Life. Great Water.

DEPT. OF NATURAL RESOURCES

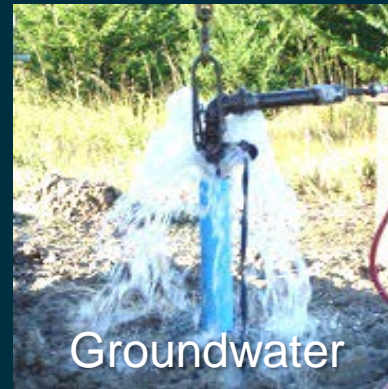
Providing the sound science and support for managing Nebraska's most precious resource



Water Planning and Integrated Management



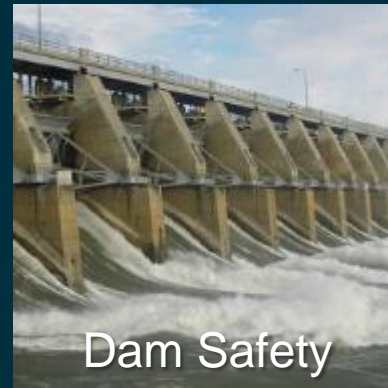
Surface Water



Groundwater



Floodplain Management



Dam Safety



Water Administration

NEBRASKA


Good Life. Great Water.

DEPT. OF NATURAL RESOURCES

Providing the sound science and support for managing Nebraska's most precious resource



Water Planning
and Integrated
Management



Surface Water



Groundwater



Floodplain
Management



Dam Safety



Water
Administration



Nebraska Surface Water Rights and Water Administration Outline

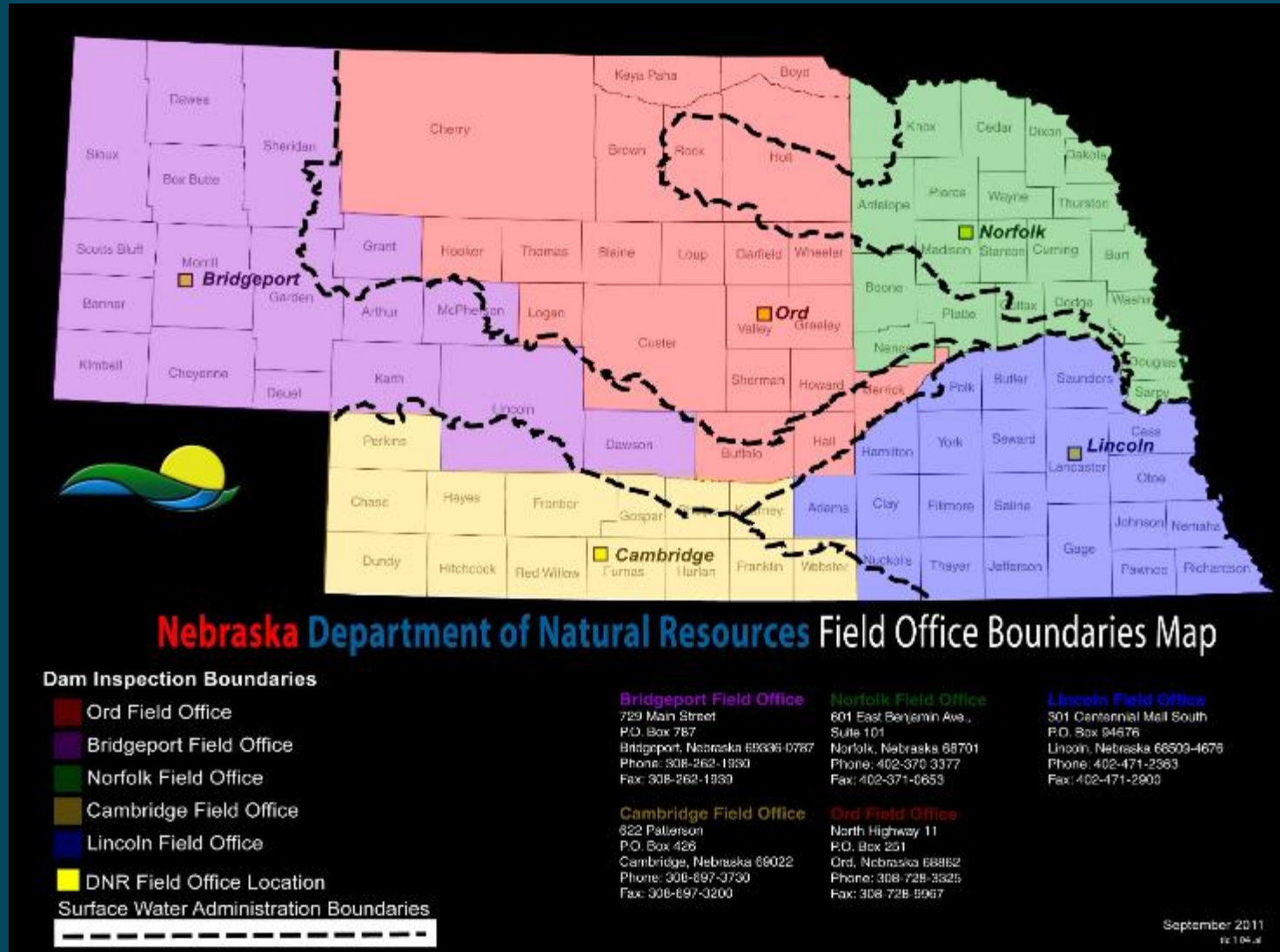
- *Water Administration Division*
- *Surface Water Permits*
- *Water Administration Process*

NeDNR Water Administration Division

The Water Administration Division enforces state statutes to ensure the orderly distribution of surface water in Nebraska, and collects data related to the Department's mission.

- Twenty-eight full time staff members
- Five field offices, located in Bridgeport, Cambridge, Lincoln, Norfolk, and Ord.

NeDNR Water Administration Division



NeDNR Water Administration Division

Responsibilities

➤ Water Administration

- Compacts and Decrees
- Local Shortages
- Enforcement
- Adjudication

➤ Data Collection

- Streamgaging
- Survey
- Dam Safety Inspections
- Water Use Reporting
- Monitoring – Pump Checks



NeDNR Water Administration Division

Data Collection

Survey

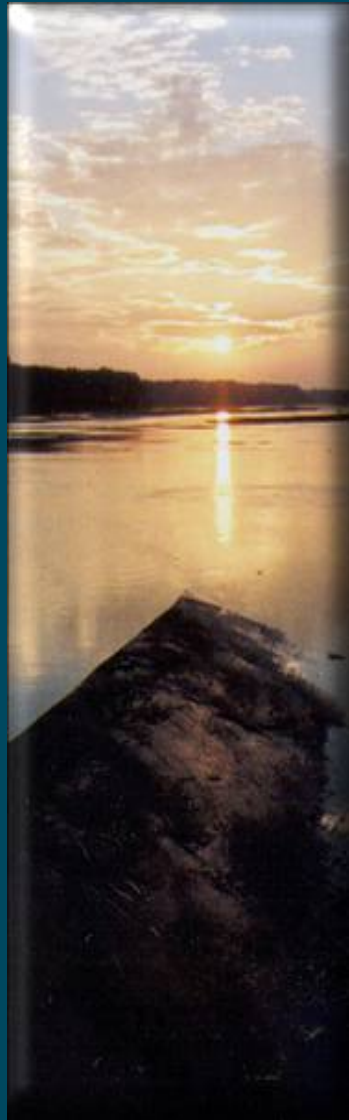
- Collect GPS, Topographic data, and elevations for Floodplain, hydrological, and Dam Safety studies

Dam Safety

- Conducts dam safety inspections on low and significant hazard dams across Nebraska

Water Use Reporting

- Mandatory Water Use Reporting – Republican River Basin
- Voluntary Water Use Reporting – Everywhere else – Little Blue 2015



NeDNR Water Administration Division

Data Collection

Streamgaging

- 250 gaging stations operated by NeDNR across Nebraska
 - 110 Continuously Operating Streamgages
 - 120 Canals
 - 20 Temporary observation sites

Monitoring - Pump Checks

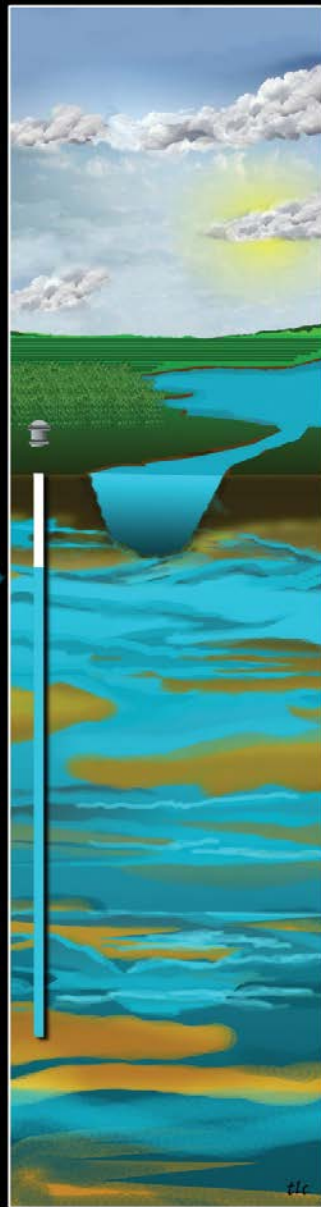
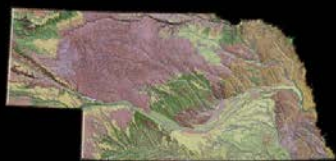
- Visit during irrigation season
- Reviewing active permits for
 - Irrigation activity
 - Crop type
 - Delivery system



Nebraska Surface Water Rights and Water Administration Outline

- *Water Administration Division*
- *Surface Water Permits*
 - *Surface Water Appropriations*
- *Water Administration Process*





Surface Water

- **Prior Appropriations**
- Regulated by Nebraska Department of Natural Resources

First in time
is first in right

Groundwater

- **Correlative Rights**
- Regulated by local Natural Resources Districts

Share and share alike
Beneficial use

NeDNR Permitting

- Applications to Appropriate Surface Water
 - Dedicated to the public, but subject to appropriation for beneficial use
 - ~ 75 % of surface water rights in Nebraska are irrigation related

- Applications to Transfer Ground Water for:
 - Municipal Purposes
 - Industrial/Commercial Purposes

- Industrial Ground Water Transfer Notice (< 150 AF / yr)

Surface Water Applications

- Priority Date: First in Time – First in Right
- Type of Use: Irrigation, Storage, Power, Municipal, Etc.
- Location of Use:
 - Map of Acres Irrigated
 - Point of Diversion – Downstream Order #
- Grant:
 - Rate of Diversion based on 1 CFS (450 GPM) per 70 acres grant.



Natural Flow Irrigation



Storage



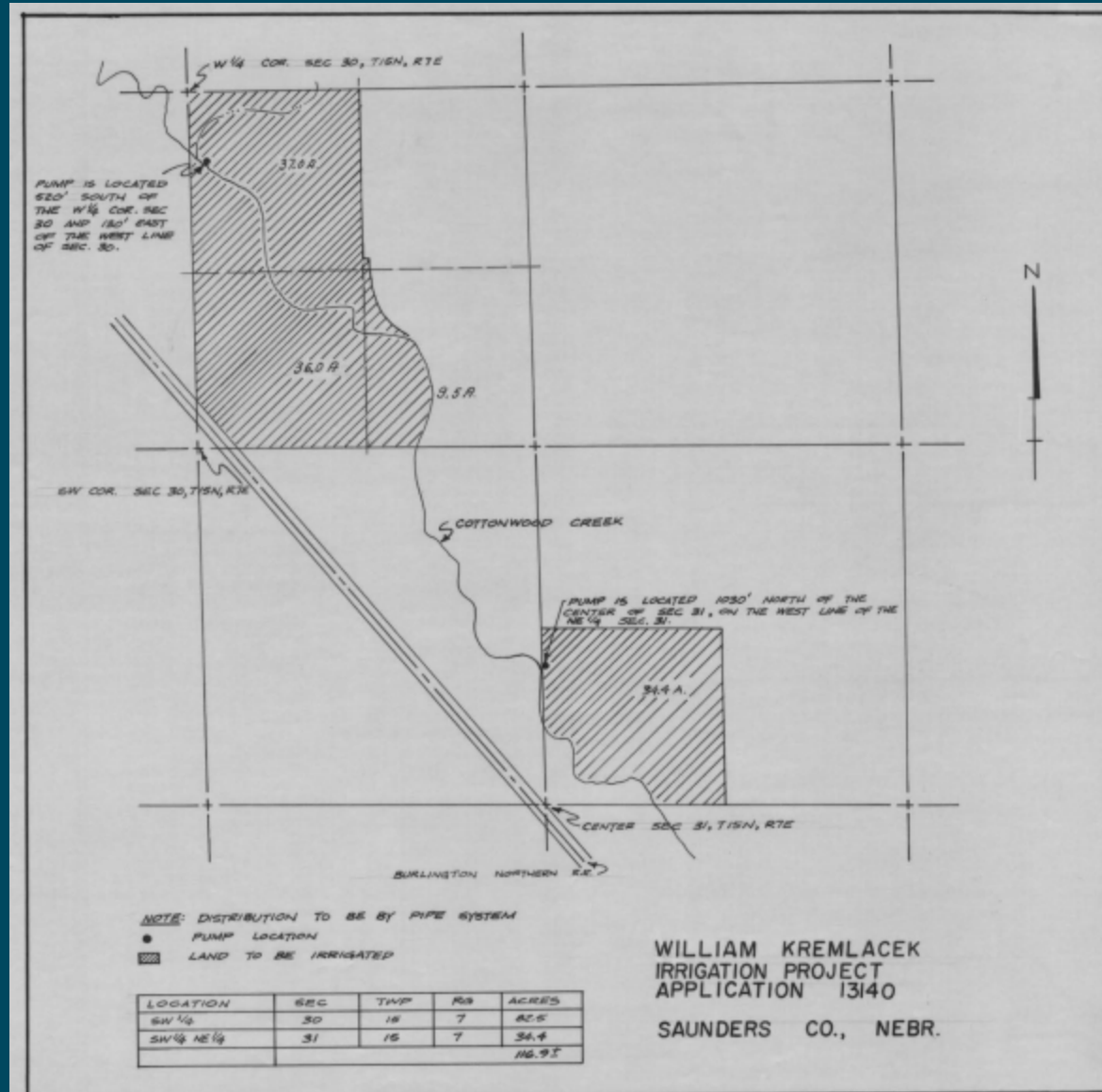
t.l.cartwright

Storage-use



t/c

Surface Water Irrigation Project Map



Application Approval

DEPARTMENT OF NATURAL RESOURCES

Application Approval

Water Division 1-D

This is to certify that application A-17977 for a permit to divert water has been examined.

Following consultation with the Nebraska Game and Parks Commission, the Department finds the project will not jeopardize endangered or threatened species. Application A-17977 is hereby APPROVED subject to the following limitations, conditions and notice:

1. The source of water is Lincoln Creek.
2. The water shall be used for irrigation purposes.
3. The priority date is April 23, 2001.
4. Map No. 15970 shows the lands proposed for irrigation under this permit.
5. Construction of the diversion works must begin by November 24, 2001. The Applicant must proceed diligently with the construction unless interrupted by some unavoidable and natural cause.
6. Construction of the project must be completed by April 24, 2002.
7. The amount of water shall be limited to one-seventieth (1/70) of a cubic foot per second for each acre of land irrigated by September 1, 2003.
8. A measuring device must be installed.
9. Annual reports may be required as provided by §§ 46-261 and 61-206, R.R.S., 1943, as amended.
10. Use of water under A-17977 may be denied in order of priority when water supplies do not meet the demands of downstream appropriators.

- Source
- Use
- Priority Date
- Location – Map
- Construction
- Beneficial use
- Measuring device
- Annual Reports
- Conditions

Surface Water Appropriation

Beneficial Use – Perfecting a Water Right

Field Investigation conducted after three irrigation seasons.

- Determines the extent of use;
 - If less acres were irrigated than were approved, they are cancelled.
 - If more acres were irrigated than were approved, the owner must file another application for the additional acres.
- Once the Beneficial Use process is completed the appropriation is considered to be “Perfectured”

MAY BE A SURPRISE TO LEARN ABOUT CURRENT WATER LAW in NEBRASKA

- Nebraska law does not require any water to remain in a stream or river (applications for instream flows are required for this to protect fish, wildlife and recreational interests)
- Water for cattle is not protected regarding natural flow diversion permits (some provision for passing water through a reservoir)

INSTREAM FLOW RIGHTS IN NEBRASKA

- Law was created in 1984 and tweaked a few times since. *Neb. Rev. Stat. §§46-2,107 – 2,119*
- Only the Nebraska Game & Parks Commission or a Natural Resources District are allowed to hold instream flow appropriations

Five Criteria Must Be Met for ISF Approval

Rev. Stat. §46-2,115

- Amount of water requested is available at least 20% of time
- Appropriation is necessary to maintain Fish, Wildlife or Rec
- Appropriation must not interfere with senior surface water right
- Rate & timing of flow is the minimum necessary to maintain use
- Application must be in the public interest

Further Statutory Guidance on Public Interest

For ISF Applications: Rev. Stat. §46-2,116

- Director must consider the following factors:
 - The economic, social and environmental value of the instream uses including fish, wildlife, induced recharge and water quality maintenance
 - The economic, social and environmental value of reasonably foreseeable alternative out-of-stream uses of water that will be foregone or accorded junior status if the appropriation is granted

ISF Appropriations

- Long Pine Creek (NGPC)
- Platte River from J2 Power Return to Chapman Bridge (CPNRD)
- Platte River from Kearney Canal to confluence with Missouri R. (NGPC)
- Niobrara River from Spencer Dam to confluence with Missouri R. (5 NRDs & NGPC)



Nebraska Surface Water Rights and Water Administration Outline

- *Water Administration Division*
- *Permits & Registrations Division*
- *Water Administration Process*

Water Administration

Local Administration

- “Call” for water
- First in time = First in Right
- Enforcement
- Under Nebraska law, anyone who uses, or allows to be used, surface water for any purpose, without authority from the DNR shall, if convicted, be guilty of Class II misdemeanor.
- This includes, irrigating without an approved permit, violating a closing notice, not adhering to the conditions of the approved application.
- DNR can also “Lock” pumps and in certain circumstances cancel appropriations



Water Administration Process

1. Appropriator “Calls” and requests administration.
2. NeDNR Staff are sent to the site to make a streamflow measurement to verify shortage.
 - If sufficient water was measured at the point of the call, no action is taken. It is the duty of the appropriator to make use of the available supply
 - If there is NOT enough water at the point of the call, Field Office Personnel begin reconnaissance of the basin upstream of the point of call.



Water Administration Process

3. Take Action

- Close all storage appropriations above the point of the CALL
- Begin closing junior appropriators upstream from the CALL in reverse order of priority to ensure the permitted grant is available at the point of the CALL
- Check on the rate of diversion of senior appropriators and set pumping schedules if they are pumping at a rate greater than their grant.



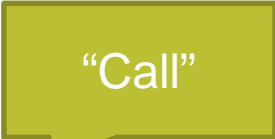
Compiled Map



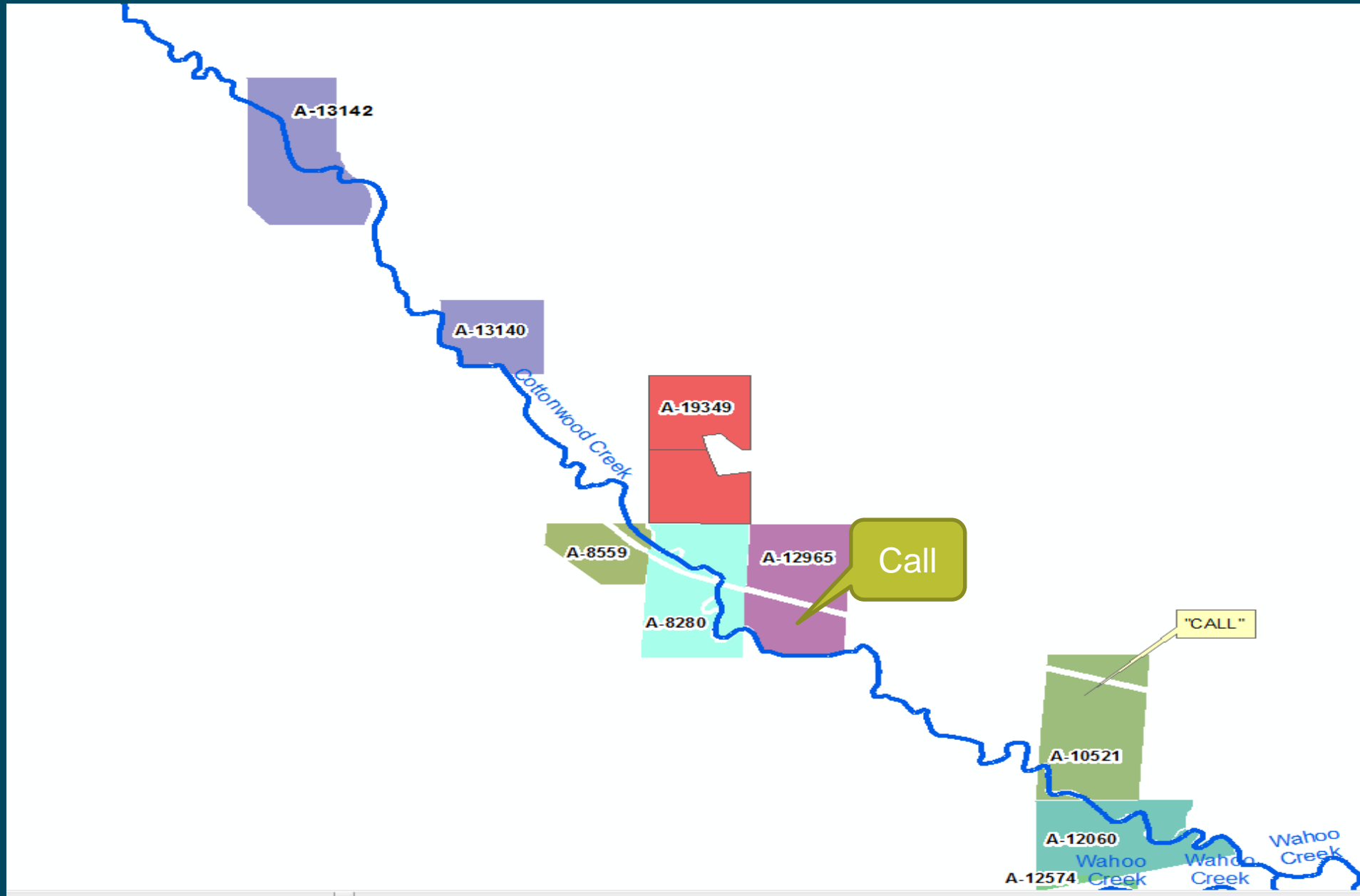
Biennial Report

Surface Water Rights Data
Claims, Applications, and Appropriations in DOWNSTREAM Order
Division No. 2B Elkhorn River and Salt Creek

Source Location Appropriator	Carrier Gage	Use	Grant in CFS/AF	Date of Priority	Docket/ App. Number	Annota.	FT. NT.
<u>Wahoo Creek</u>							
S: 11 T: 14 R: 6E Saunders Kenneth Schoen	Pump	IR	.43	08/06/1956	A 8719		
S: 7 T: 14 R: 7E Saunders John E Trutna	Pump	IR	.88	03/15/1991	A 17057		
Robert J Lanik Trustee	Pump	IR	.64	05/06/1940	A 3150		
S: 9 T: 14 R: 7E Saunders Lawrence E Styskal	Pump	IR	.74	04/03/1972	A 12574		
<u>Cottonwood Creek</u>							
S: 23 T: 15 R: 6E Saunders Donald J & Lisa K Swartz	Pump	IR	.41	08/09/1974	A 13142		
S: 30 T: 15 R: 7E Saunders Paul Kremlacek	Pump	IR	1.67	08/08/1974	A 13140		
S: 6 T: 14 R: 7E Saunders Carl J & John R Bern	Pump	IR	.20	05/10/1956	A 8559		
S: 5 T: 14 R: 7E Saunders Todd J Swanson	Pump	IR	.44	12/07/1955	A 8280		
Todd J Swanson	Pump	IR	.97	12/21/1973	A 12965		
S: 4 T: 14 R: 7E Saunders Ardven Malchow	Pump	IR	1.02	01/26/1965	A 10521		
S: 9 T: 14 R: 7E Saunders John E Trutna	Pump	IR	.89	08/17/1970	A 12060		
<u>Wahoo Creek</u>							
S: 14 T: 14 R: 7E Saunders Bernard & Emily Sladky Trust	Pump	IR	.39	11/09/1976	A 14543A		
Ronald E & Patricia J Morrissey	Pump	IR	.48	11/09/1976	A 14543B		
Larry Lamprecht	Pump	IR	1.77	01/22/1970	A 11854		



Administration for Call



Water Administration Process- Continued

4. Monitor

- Monitor daily the point of the “CALL” to ensure that no more than the permitted grant is allowed to pass.
- Monitor other diversions upstream and downstream from the “CALL”
- Stream gages
- Weather

5. As excess water becomes available, the next oldest appropriations are opened, and allowed to pump.

6. When and If the CALL is satisfied, then all junior appropriators and storage appropriations will be opened

Water Adjudication Process

Use it or Lose it

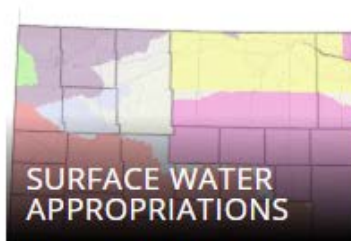
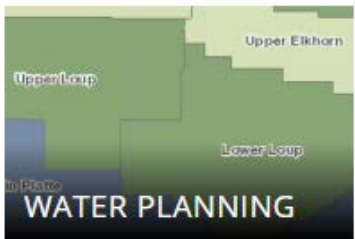
Conduct Field Investigation to determine history of use

- Historic Field Observations
- Interviews with landowners and affected parties
- Surface Water Appropriations must be used within 5 years or it is subject to cancellation, with some allowable exceptions.
- If the owner does not have an acceptable reason for not using the water, the appropriation can be canceled after *due process* so it can be put to beneficial use by someone else.

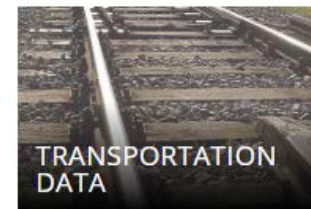
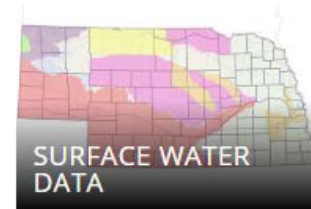
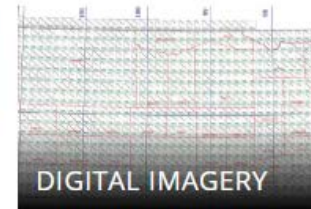
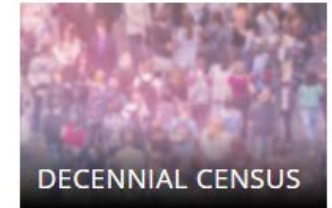


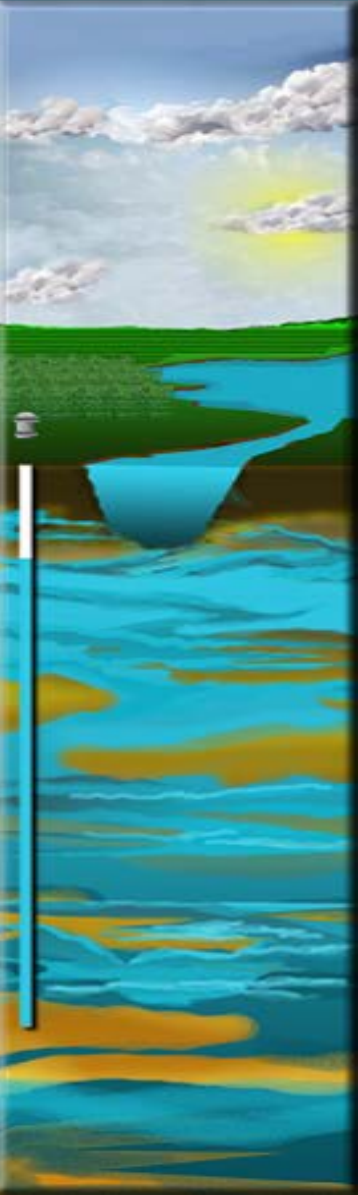
Web resources: <https://dnr.nebraska.gov>

Maps



Data





QUESTIONS

NEBRASKA

Good Life. Great Water.

DEPT. OF NATURAL RESOURCES

THANK YOU

Mike Thompson

Mike.Thompson@Nebraska.gov

Jeremy Gehle

Jeremyh.Gehle@Nebraska.gov

dnr.nebraska.gov



Nebraska Groundwater Registration and Regulation

- Mike Thompson, Division Manager
Nebraska Department of Natural Resources
- Pat O'Brien, Manager
Upper Niobrara White Natural Resources District

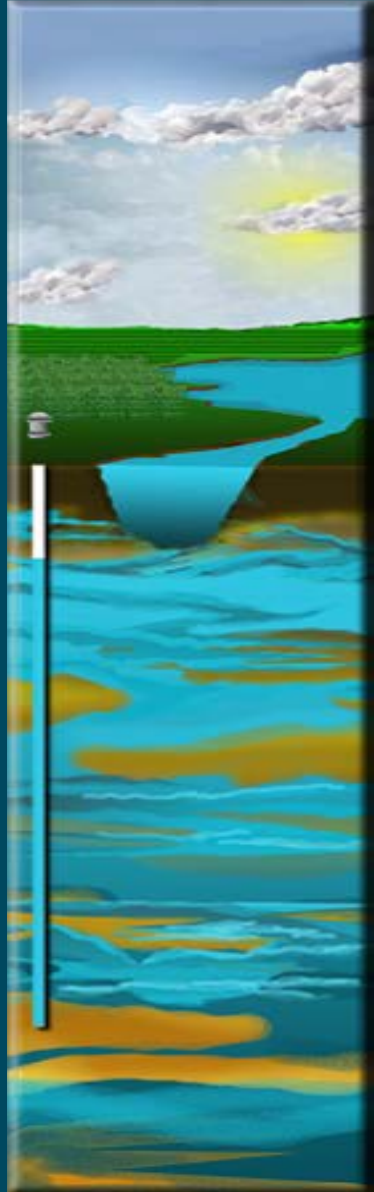


Nebraska Groundwater Registration and Regulation Outline

— *Groundwater Registrations & Permits*

- *Groundwater Well Registrations*
- *Industrial & Municipal Ground Water Transfers*

— *Natural Resources District Groundwater Regulations*

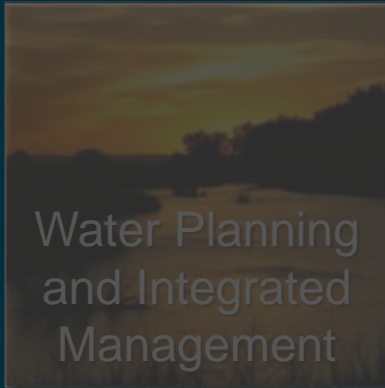


NEBRASKA

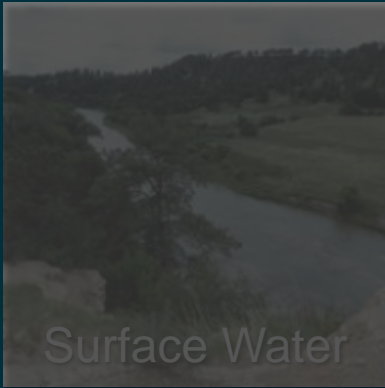
Good Life. Great Water.

DEPT. OF NATURAL RESOURCES

Providing the sound science and support for managing Nebraska's most precious resource



Water Planning
and Integrated
Management



Surface Water



Groundwater



Floodplain
Management



Dam Safety



Field Offices

NEBRASKA
Life. Great Water.

DEPT. OF NATURAL RESOURCES

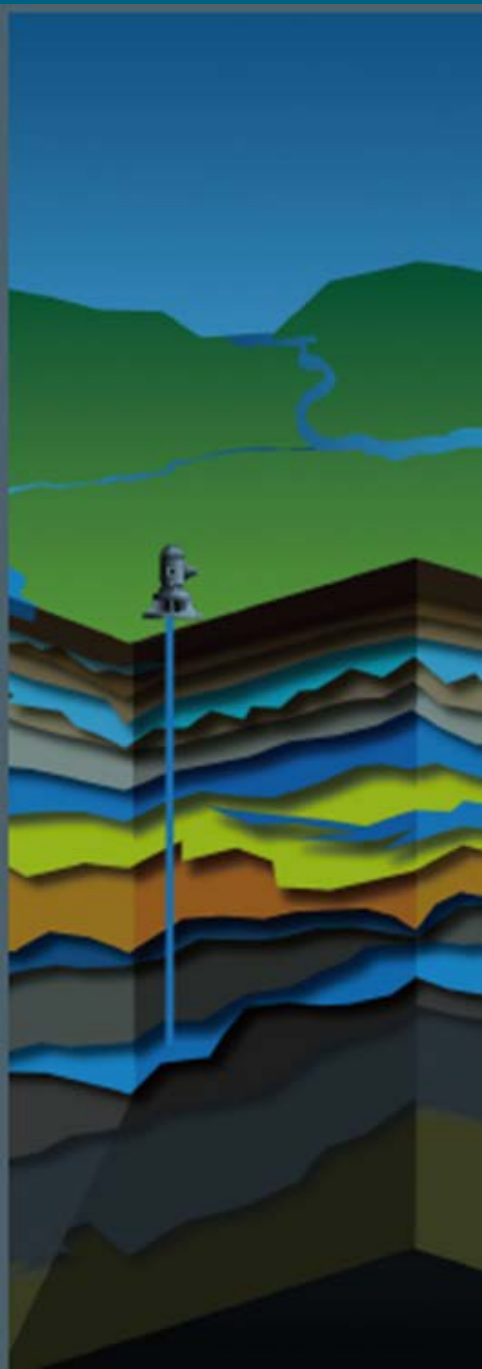
Groundwater Well Registrations Change of Ownership

- Register newly completed wells within 60 days of completion
- Update records when modification forms are filed
 - e.g., changes in location, acres, pump...
- Process well decommissioning forms
- Well ownership information is processed and surface water section is notified if water right is affected



Groundwater Wells

- **181,101** total active registered wells
 - 1,745 Industrial
 - 30,505 Domestic
 - 97,009 Irrigation
- Domestic wells were not required to be registered before 9/3/1993
- Above data was retrieved 4/6/2018 and changes daily



Ground Water Transfers

- Transfer means that water is pumped from a well on property A, crosses property B (which belongs to a different owner), and is used on property C (which has the same owner as property A)

Ground Water Transfers

- Department of Natural Resources may issue municipal and industrial groundwater transfers
- Natural Resources Districts have significant authority over groundwater transfers too
- Department of Natural Resources does not have authority over irrigation groundwater transfers, which is solely in the purview of NRDs

Municipal Ground Water Transfers

- A public water supplier can apply for a municipal transfer permit for existing and/or new water transfers
- Not currently required by state statute (§ 46-638), but NRD rules may require a permit for transfer

Industrial Ground Water Transfers

You do NOT need an industrial transfer permit if you obtain your water from a municipality, or if your water comes from wells located on the same property as your plant.

Industrial Ground Water Transfers

- You DO need an industrial transfer permit if you will be transferring water from wells on another property to supply your plant, or if you are transferring water out of state.
- You must have the permit in hand before well construction begins.
- If you are uncertain whether you need a permit, contact DNR before constructing a well.

Transfers to Adjoining State

- Can be for any beneficial purpose
- Must be obtained prior to beginning transfer of water: no amount of water is too small to require permit!
- Must be obtained even if water comes back into state subsequent to transfer out of state

Well Spacing Permit

- Allows irrigation, public water supply, or industrial well to be constructed less than statutory distance away from protected well under different ownership
 - 600 feet for irrigation wells (§ 46-609)
 - 1,000 feet for public water supply and industrial wells, or for irrigation wells and these types of wells
- Also required for change in use, or addition of use, of existing well to one of these uses
- Must be obtained before well construction begins

Other Filings

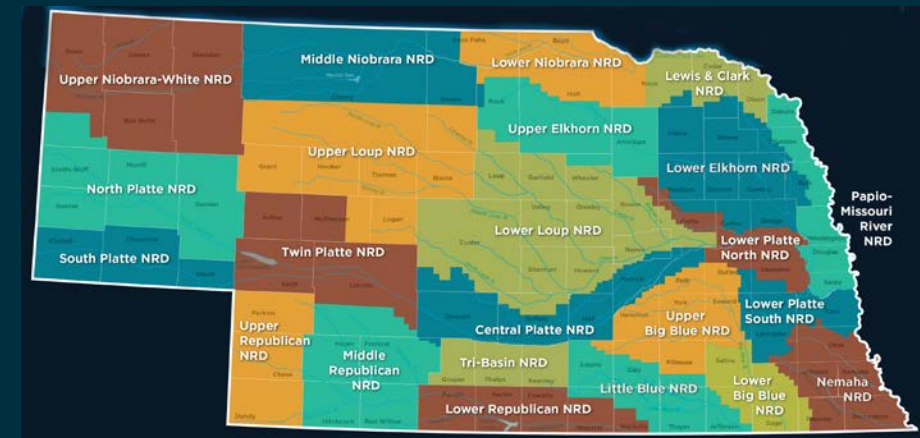
- Municipal notice of intent requests 1,000-foot spacing protection for potential municipal wellfield, to allow for testing
 - Good for one year; may be renewed for one additional year, upon request
- Geothermal resources permit (extremely rare) DOES NOT APPLY to heat pumps
- Industrial transfer notice for certain industrial transfers that meet specific conditions outlined in statute (§ 46-678.01)

Permit Considerations

- Nature of use; whether use and requested transfer amounts are reasonable and beneficial
- Effects on groundwater and surface water supplies, water users, and interstate agreements
- Effects on threatened and endangered species
- Offset or other requirements determined by NRD regulations
- Other factors deemed necessary to protect public health, safety, and welfare

Nebraska Natural Resources District Groundwater Regulation

- Pat O'Brien, Manager
Upper Niobrara White Natural Resources District



Regulating Groundwater

- Federal Government
 - EPA Maximum Contaminant Levels (MCL)
- Nebraska Legislature
 - Groundwater Management and Protection Act
- Interstate Compacts and Agreements
- Groundwater Management Plan
 - Required
- Integrated Management Plan
- Local interests
- Rules and Regulations



Every landowner shall be entitled to a reasonable and beneficial use of the ground water underlying his or her land



Groundwater Management Plan



Groundwater Quality

➤ Agri-chemicals

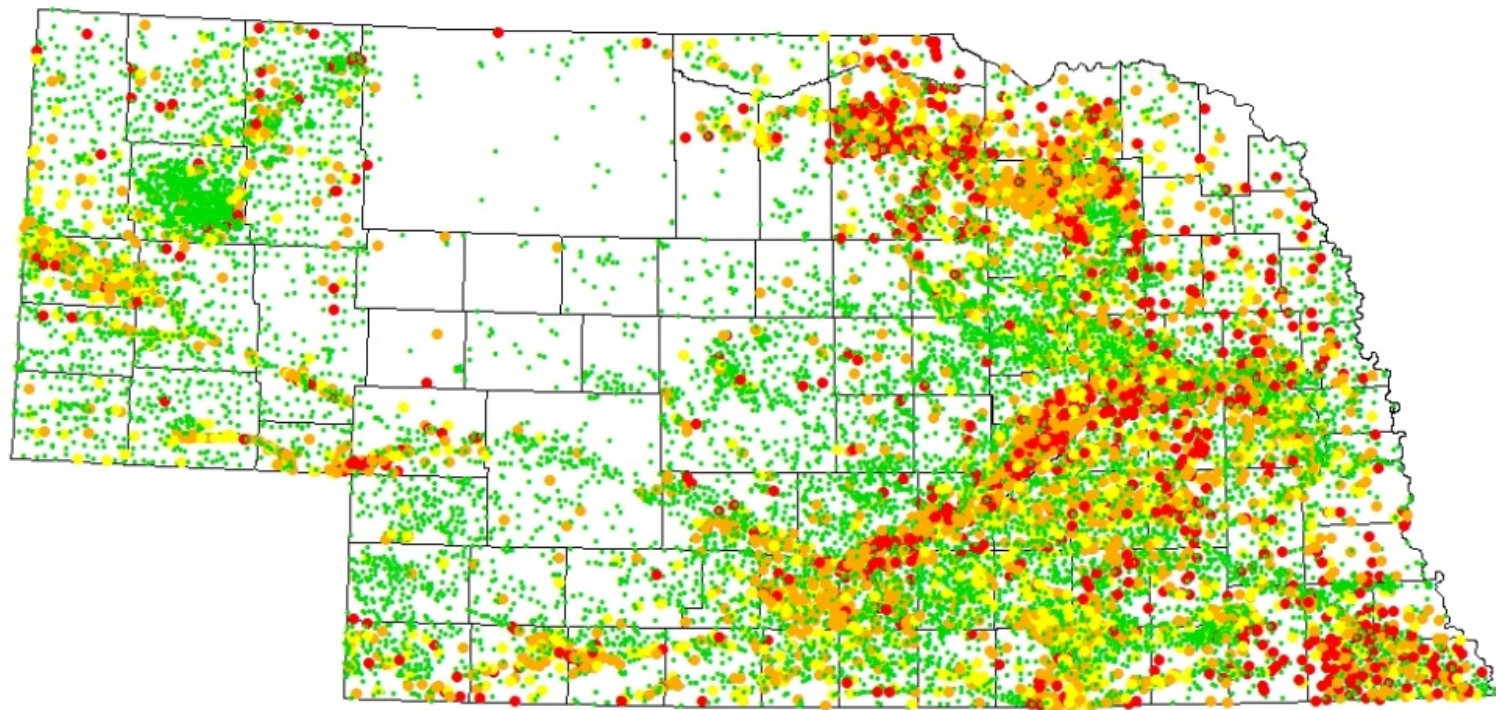
- Nitrates
- Herbicides

➤ Phased Approach

- UNWNRD has three (3) Phases

➤ Based on the average concentration in comparison to the MCL

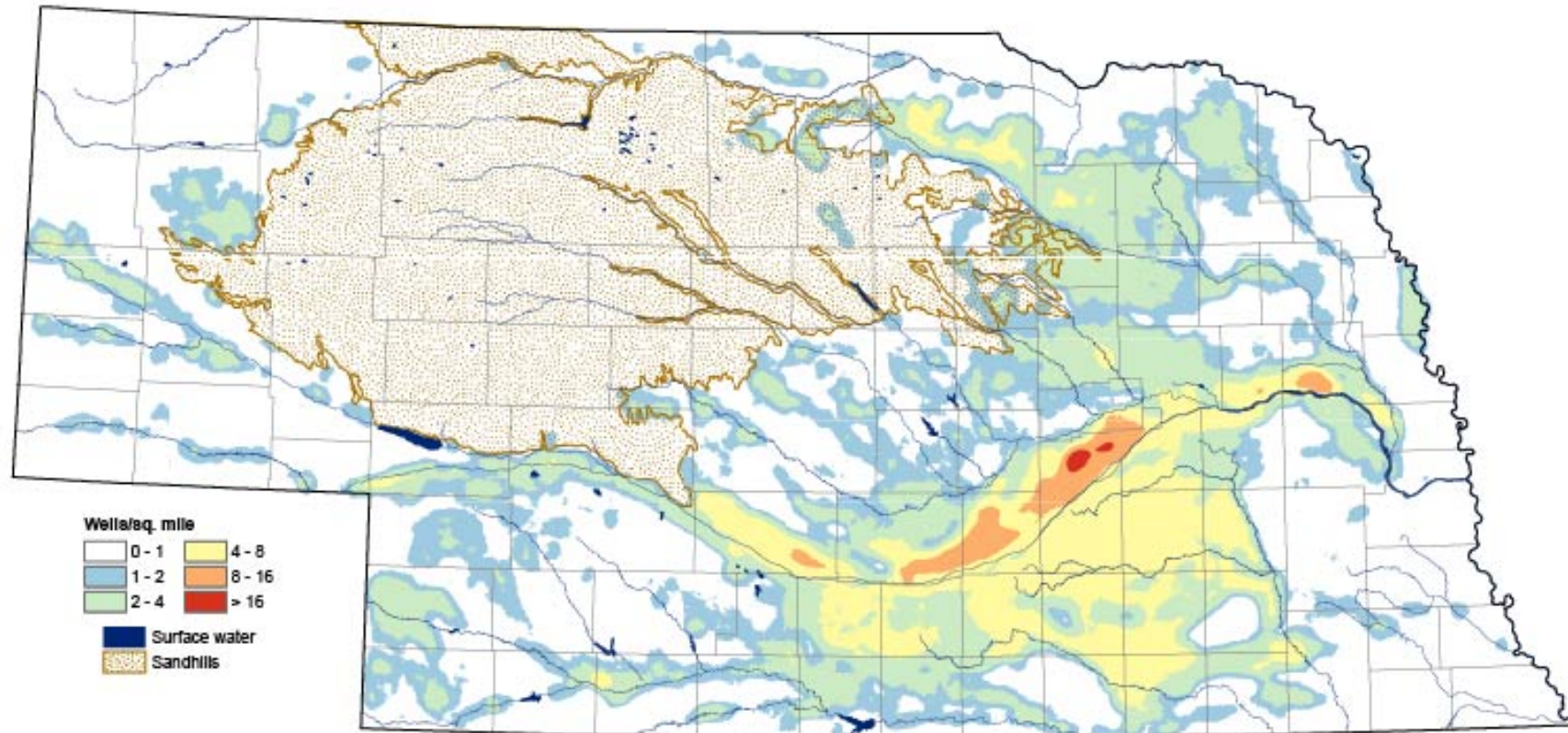





Groundwater Quantity



Density of Active Registered Irrigation Wells - December 2014




School of Natural Resources
Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln

The University of Nebraska-Lincoln does not discriminate based on gender, age, disability, race, color, religion, marital status, veteran's status, national or ethnic origin, or sexual orientation.

CONSERVATION AND SURVEY DIVISION (<http://snr.unl.edu/csd>)
School of Natural Resources (<http://snr.unl.edu>)
Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln

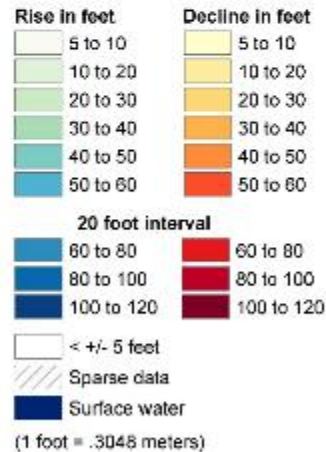
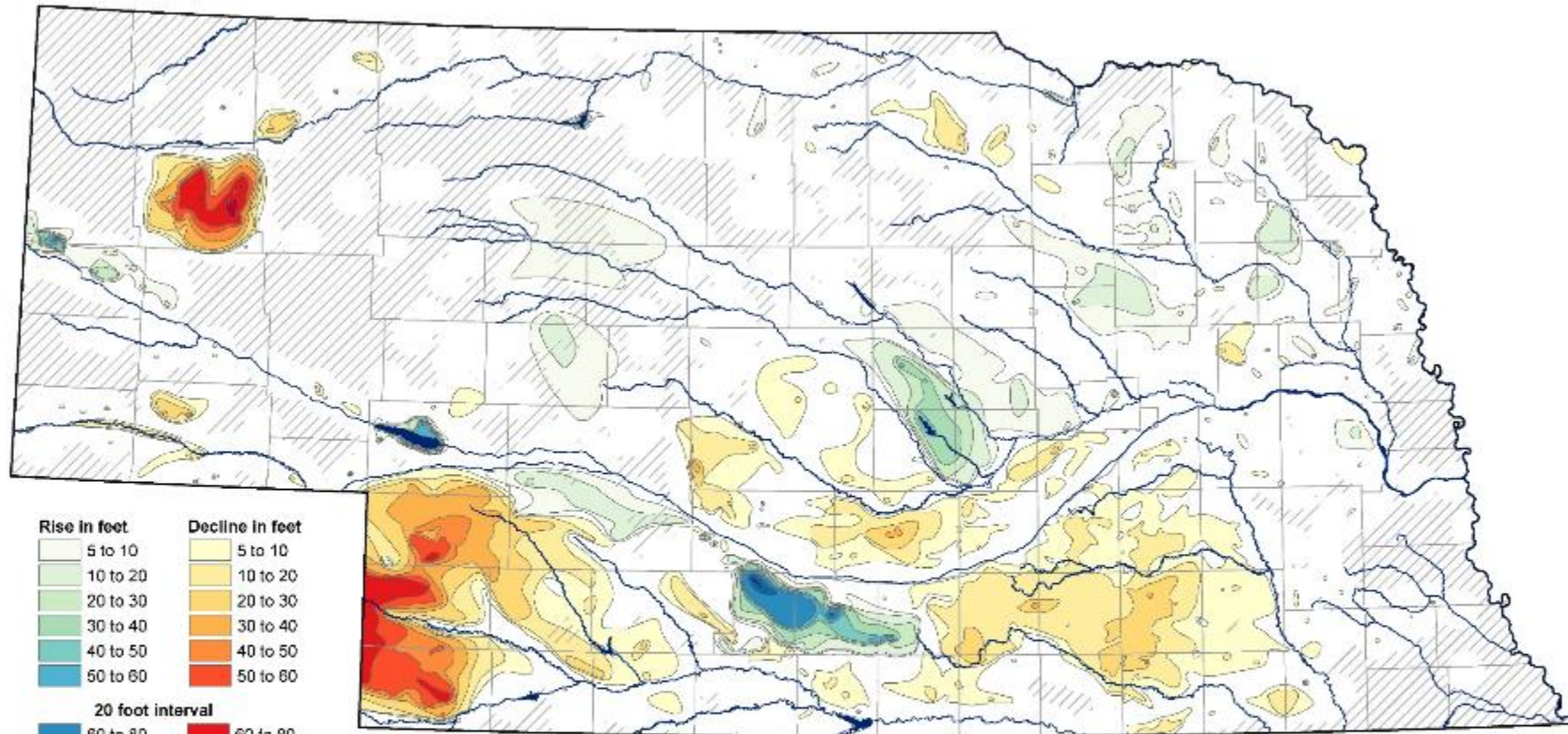
Aaron Young, Survey Geologist, CSD
 Mark Burbach, Water Levels Program Supervisor, CSD
 Les Howard, GIS Manager, CSD

Source:
 Nebraska Department of Natural Resources

December 2014



Groundwater-Level Changes in Nebraska - Predevelopment to Spring 2018



For an explanation of information presented on this map, see the 2018 Nebraska Statewide Groundwater-Level Monitoring Report, available for download at go.unl.edu/groundwater

CONSERVATION AND SURVEY DIVISION (<http://snr.unl.edu/csd>)
 School of Natural Resources (<http://snr.unl.edu>)
 Institute of Agriculture and Natural Resources
 University of Nebraska-Lincoln

Aaron Young, Survey Geologist, CSD
 Mark Burbach, Water Levels Program Supervisor, CSD
 Les Howard, GIS Manager, CSD

Data provided by:
 Nebraska Natural Resources Districts
 Central Nebraska Public Power and Irrigation District
 U.S. Geological Survey
 Nebraska Water Science Center
 U.S. Bureau of Reclamation
 Kansas-Nebraska Area Office
 Conservation and Survey Division
 University of Nebraska - Lincoln

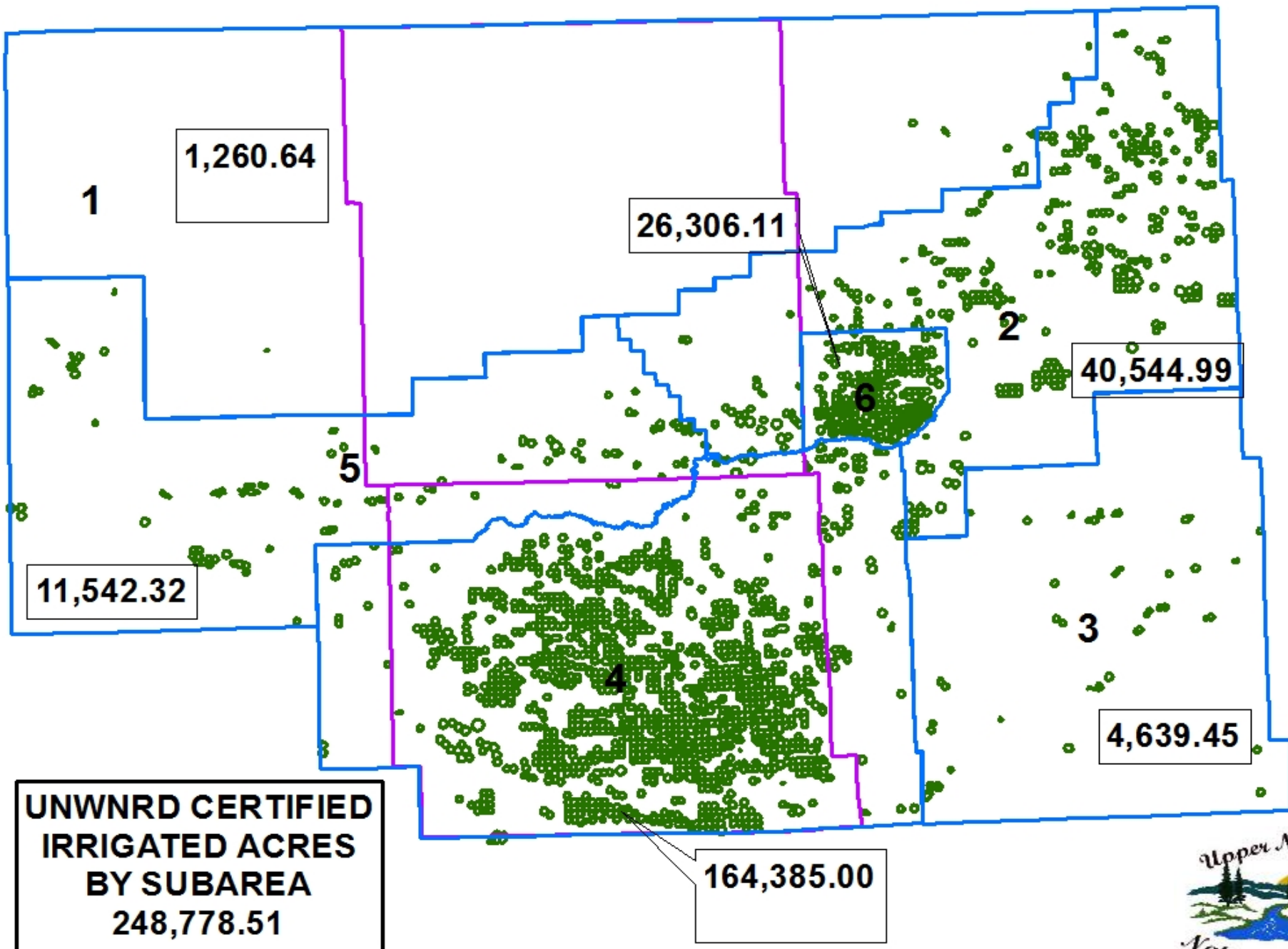


The University of Nebraska-Lincoln does not discriminate based on gender, age, disability, race, color, religion, marital status, veteran's status, national or ethnic origin, or sexual orientation.

December



Disclaimer: groundwater-level changes on this map are depicted as a general overview of regional trends. They are intended to provide only a general overview of regional trends.



Groundwater Quality Rules and Regulations

➤ Correlative Rights

- Share and share alike

➤ Phased Approach

- Based on decline from 1990 Baseline

➤ Phase I

- No new high capacity (>50 gallon/minute) wells***
- Flow meters
- All acres must be certified

➤ Phase II – average static water level 3 foot below 1990 baseline

- No additional irrigated acres

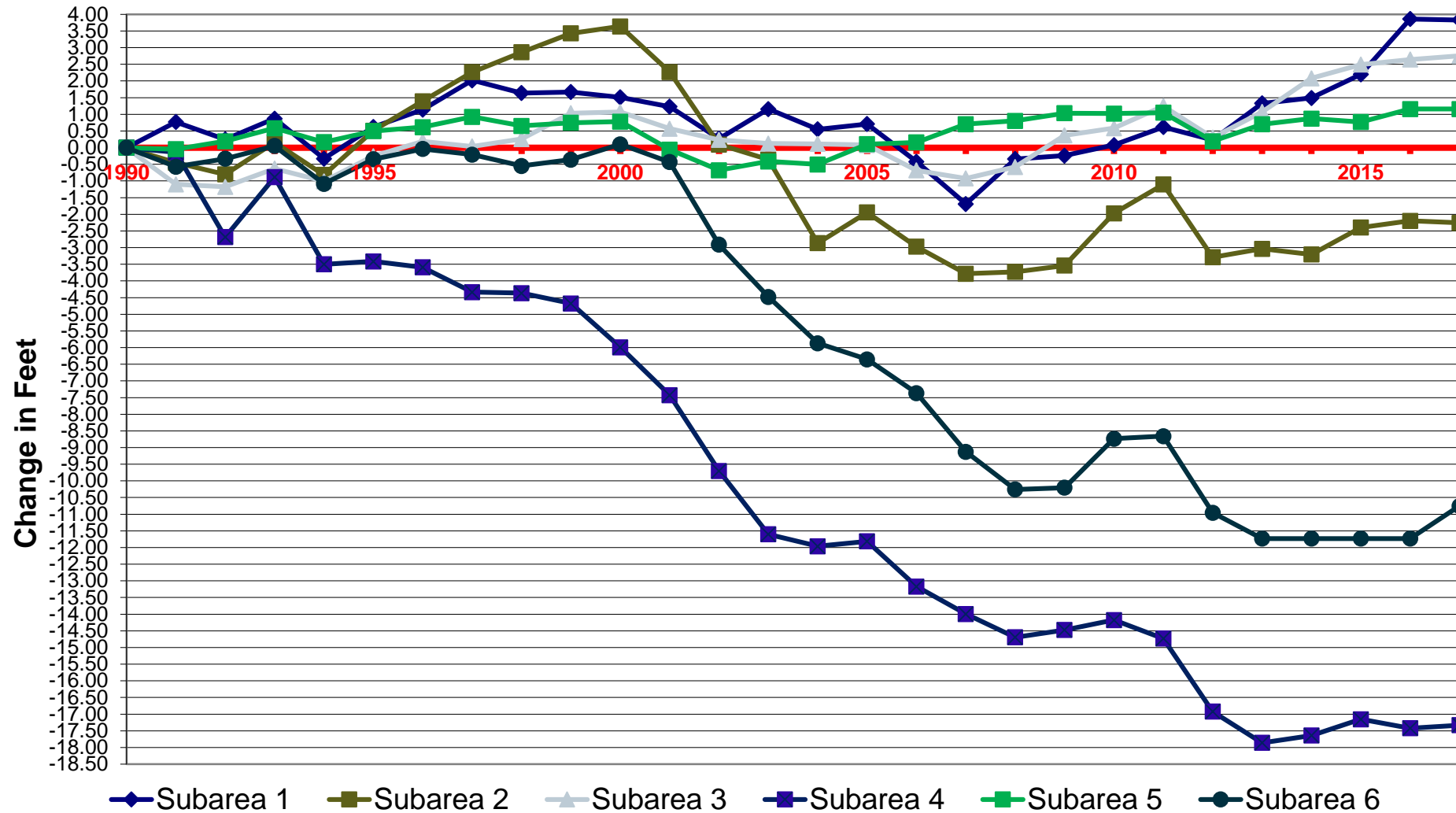
➤ Phase III – average static water level 6 foot below 1990 baseline

- Allocations



UNWNRD Subareas

Change in Static Water Levels from 1990



Questions?



Integrated Groundwater and Surface Water Management

- Pat O'Brien, Manager
Upper Niobrara White Natural Resources District
- Jennifer J. Schellpeper, Water Planning Division Manager
Department of Natural Resources



NEBRASKA

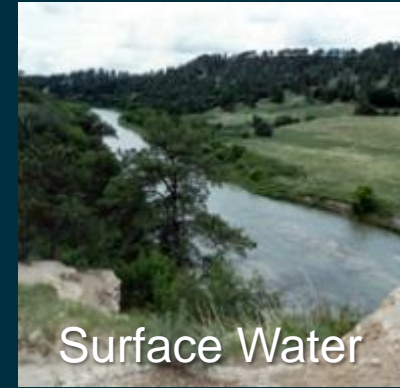
Good Life. Great Water.

DEPT. OF NATURAL RESOURCES

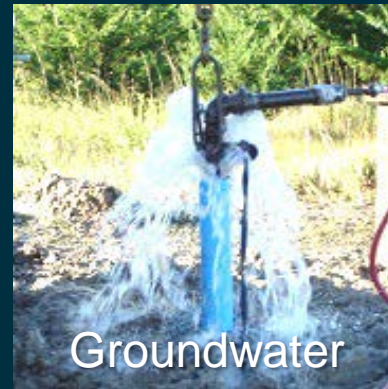
Providing the sound science and support for managing Nebraska's most precious resource



Water Planning and Integrated Management



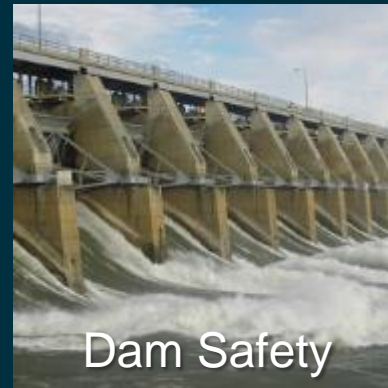
Surface Water



Groundwater



Floodplain Management



Dam Safety

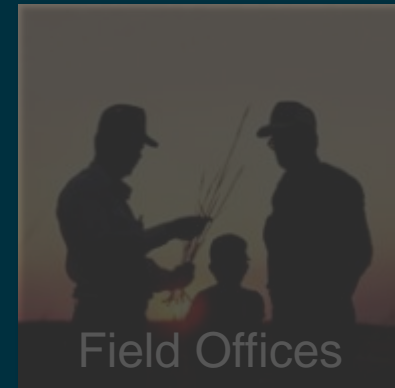
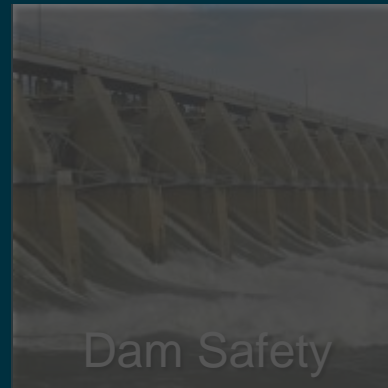
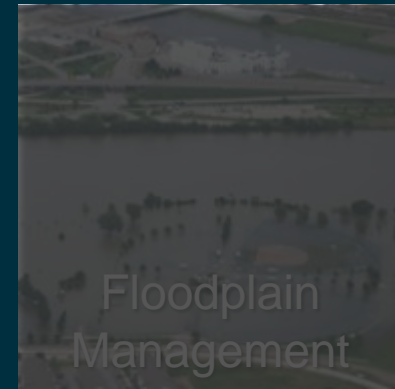
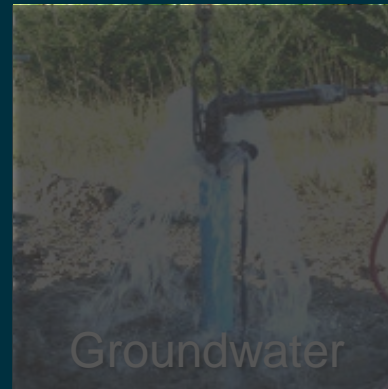
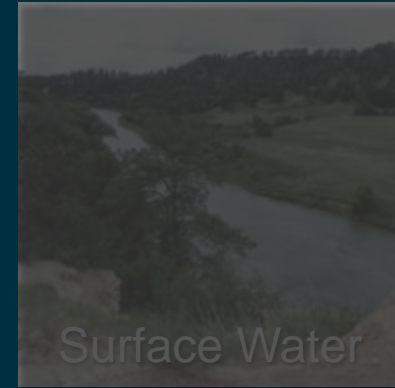
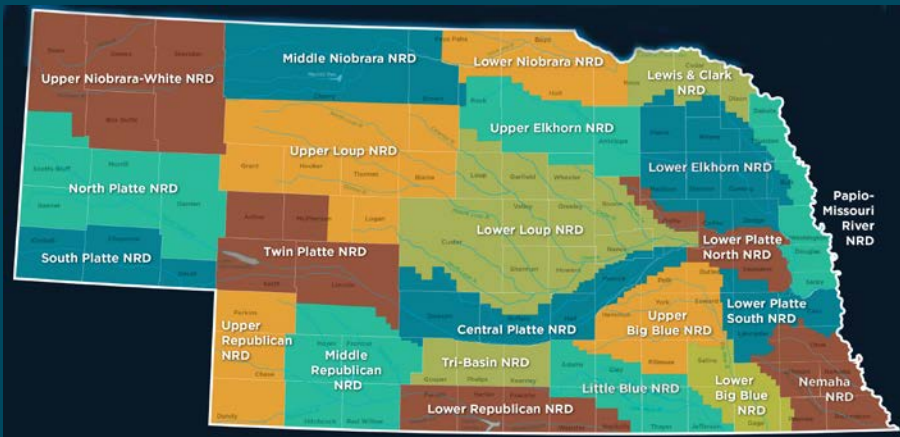


Water Administration

NEBRASKA

Good Life. Great Water.

DEPT. OF NATURAL RESOURCES



Ownership of water is held by the state for the benefits of its citizens



Before Integrated Management

- Surface water regulated by DNR
- Groundwater regulated by NRDs
- No statutory connection
- LB 108 - 1996
 - Recognized that surface water and groundwater are connected
- Platte River and Republican River Issues
 - FERC Relicensing of Kingsley Hydropower Unit – Central Nebraska Public Power District
 - Kansas threatening and filing lawsuits against Nebraska – Republican River Compact
- 2002 – Water Policy Task Force
 - 40 members who reached decision based on consensus
- 2004 – LB 962 – Significant Changes to Groundwater Management and Protection Act



LB 962

➤ Fully Appropriated Basin

- Additional irrigation development could lead to water shortages for current users

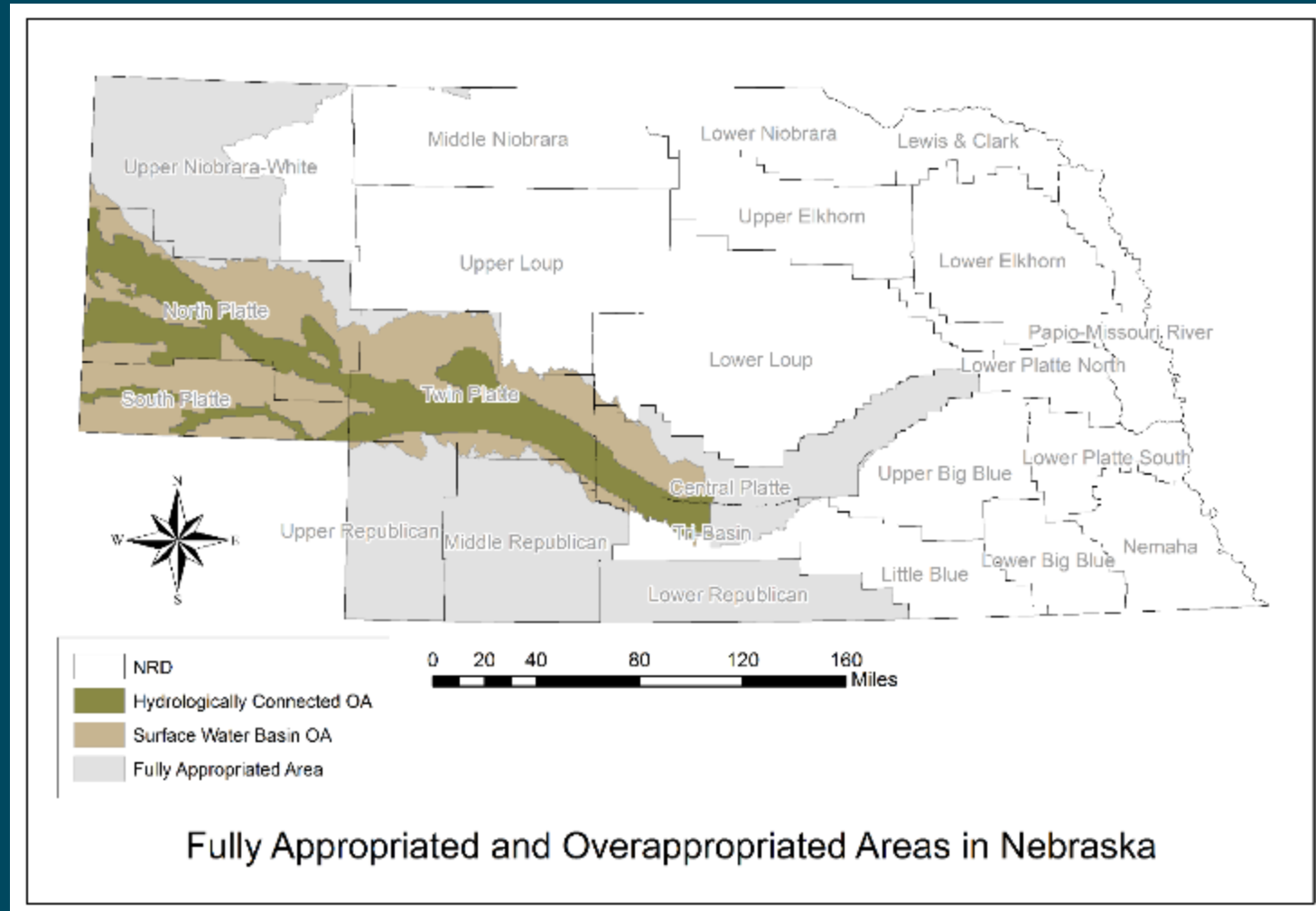
➤ Over Appropriated Basin

- River Basin subject to a three or more state cooperative agreement – Platte River
- Surface water moratorium
- High capacity well moratorium

➤ NDNR to make an annual evaluation

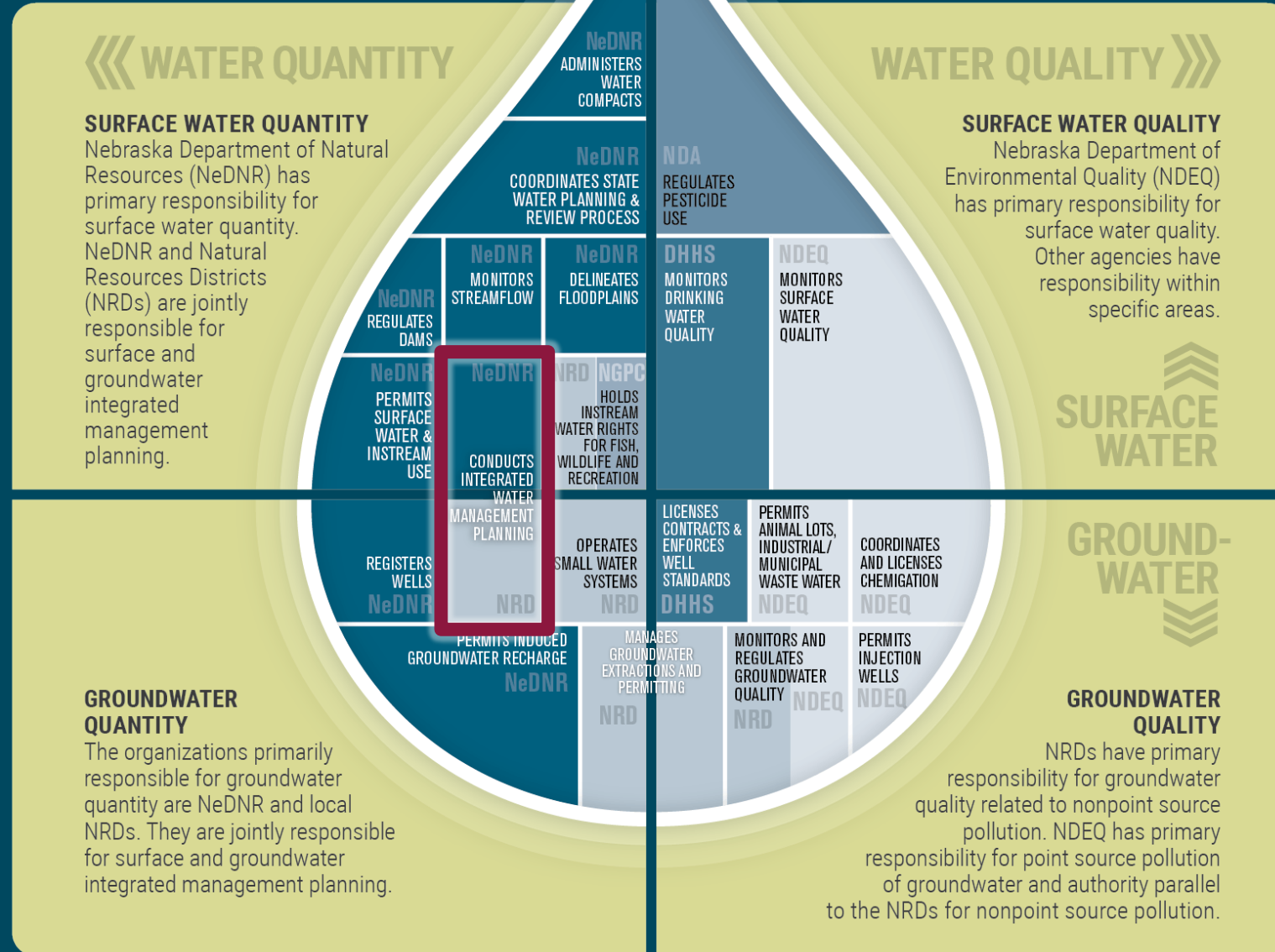


Fully Appropriated and Overappropriated Areas in Nebraska

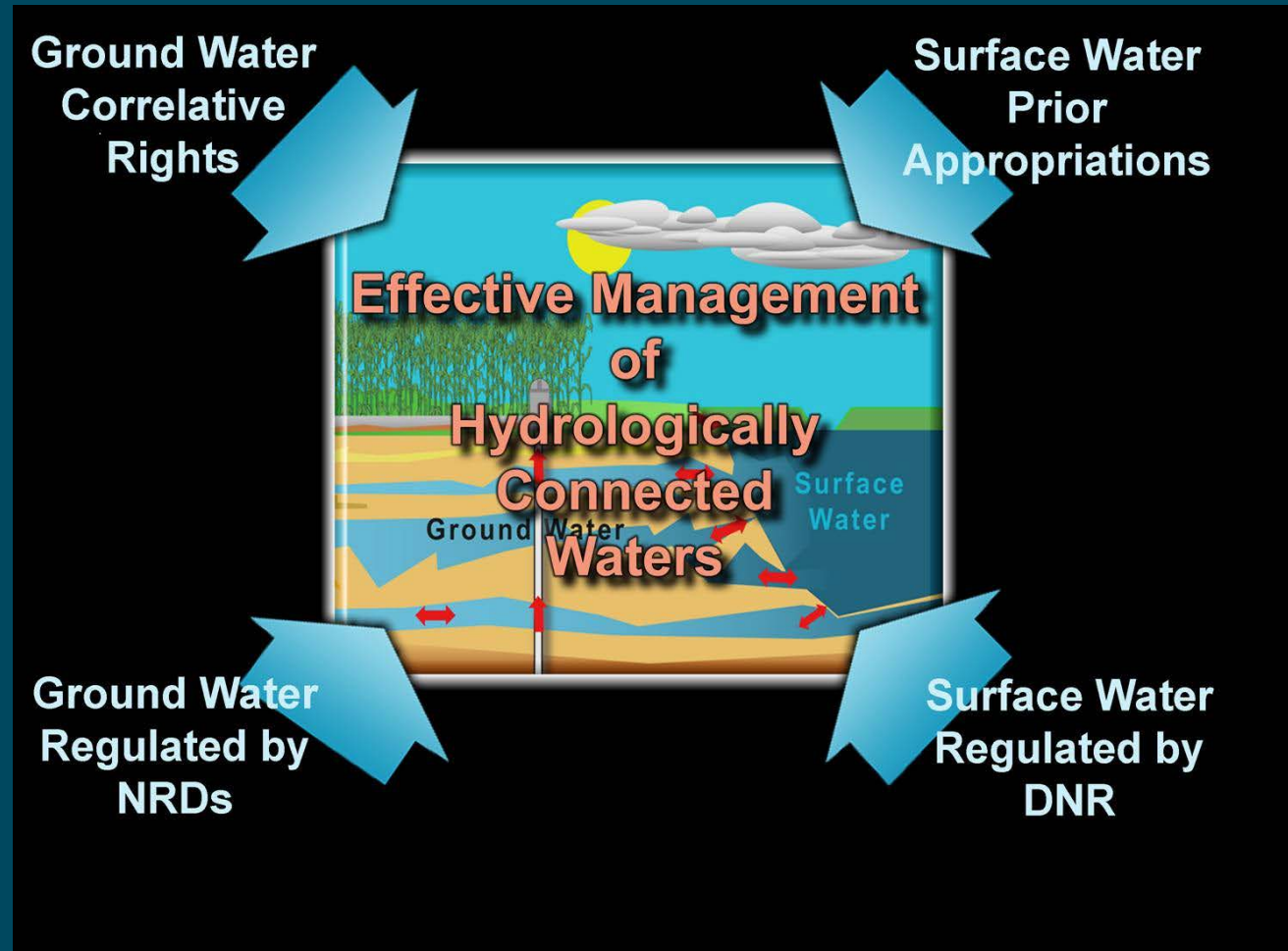


What now?

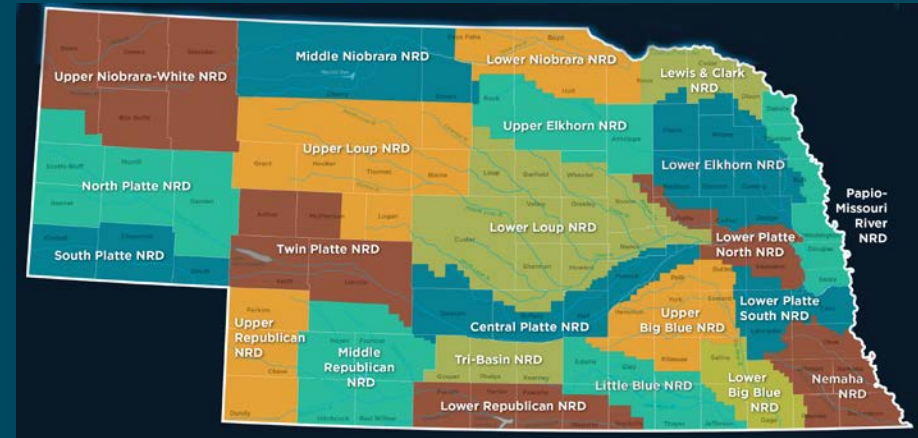
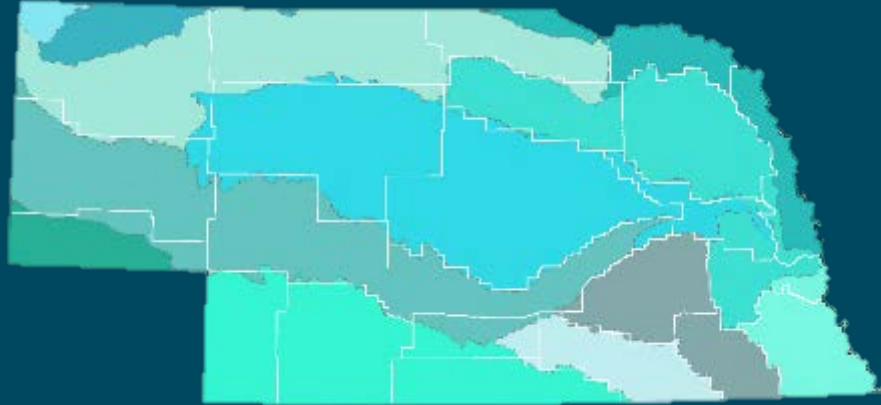
Management of the waters of Nebraska



Why do we need integrated water quantity management planning?



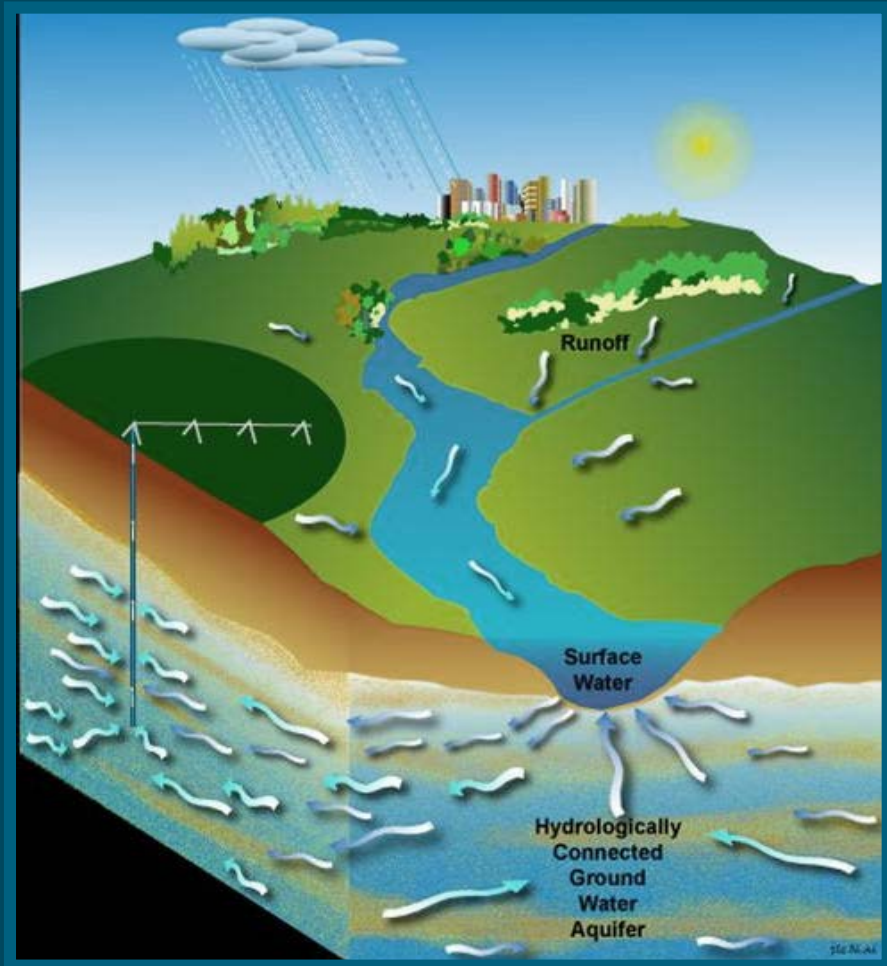
Statewide and local NRD regulatory systems



- Nebraska Department of Natural Resources
- Authority over Surface Water Uses
- Statewide Authority

- 23 Autonomous Natural Resources Districts
- Authority over Groundwater Uses
- Districtwide Authority

Hydrologically connected surface water and groundwater



Surface Water

- Regulated by NeDNR
- Prior appropriations
- First in time is first in right



Groundwater

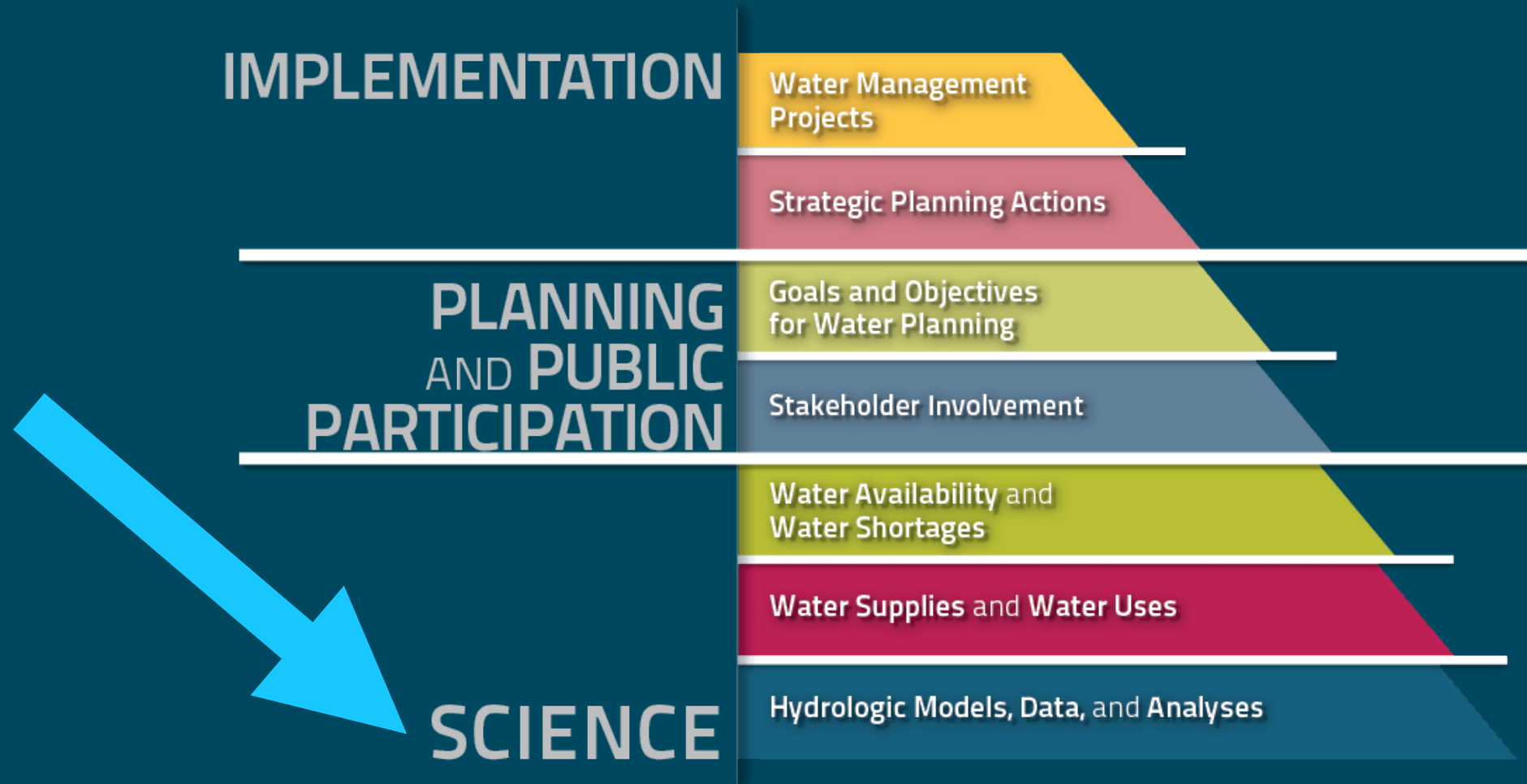
- Regulated by NRDs
- Correlative rights
- Share and share alike

What is integrated management planning?

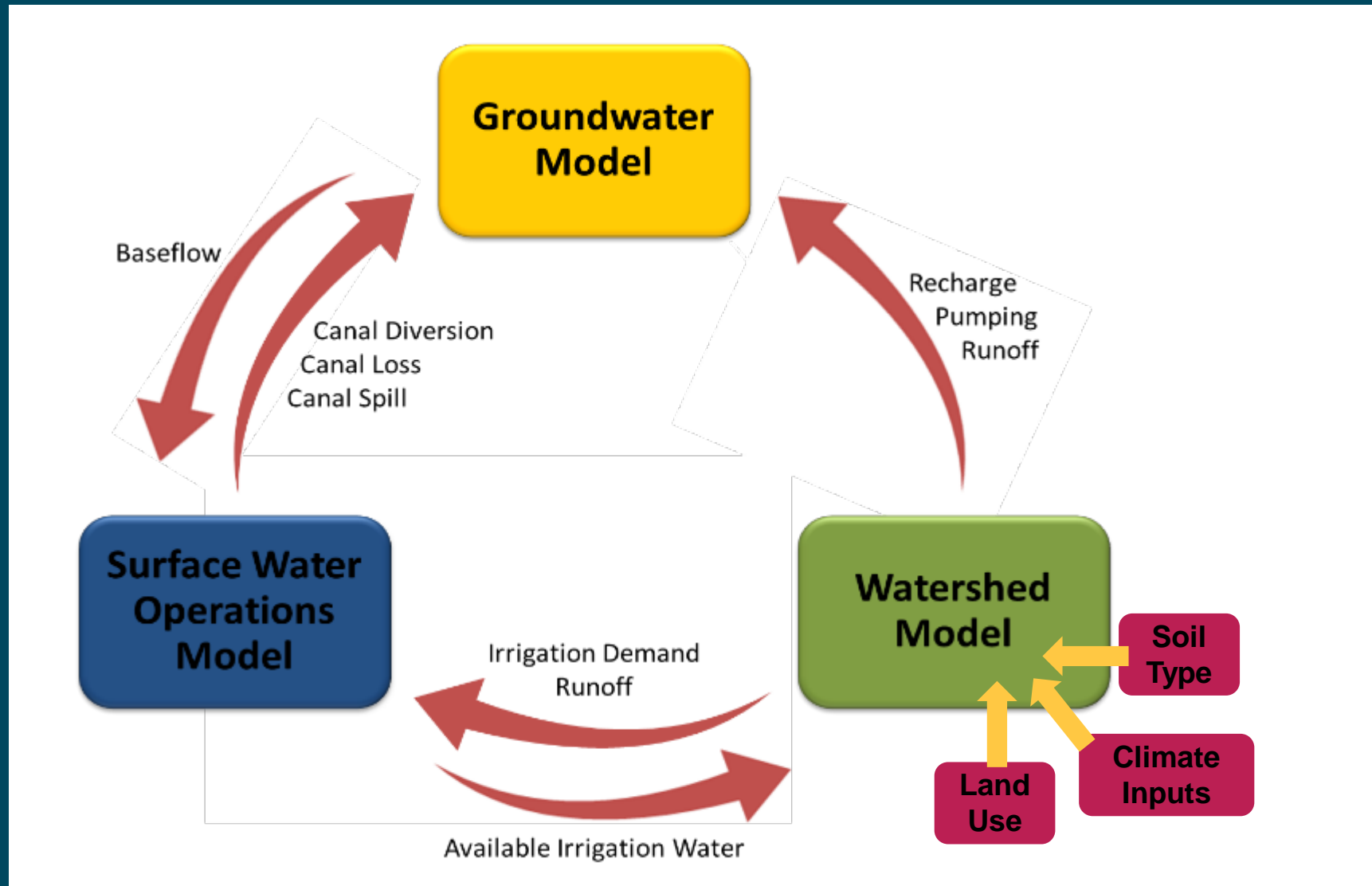
- Surface water and groundwater management
- Proactive
- Protects existing users
- Adaptive management
- Cooperatively developed plans
 - With NRD and Stakeholders
- Suited to local conditions



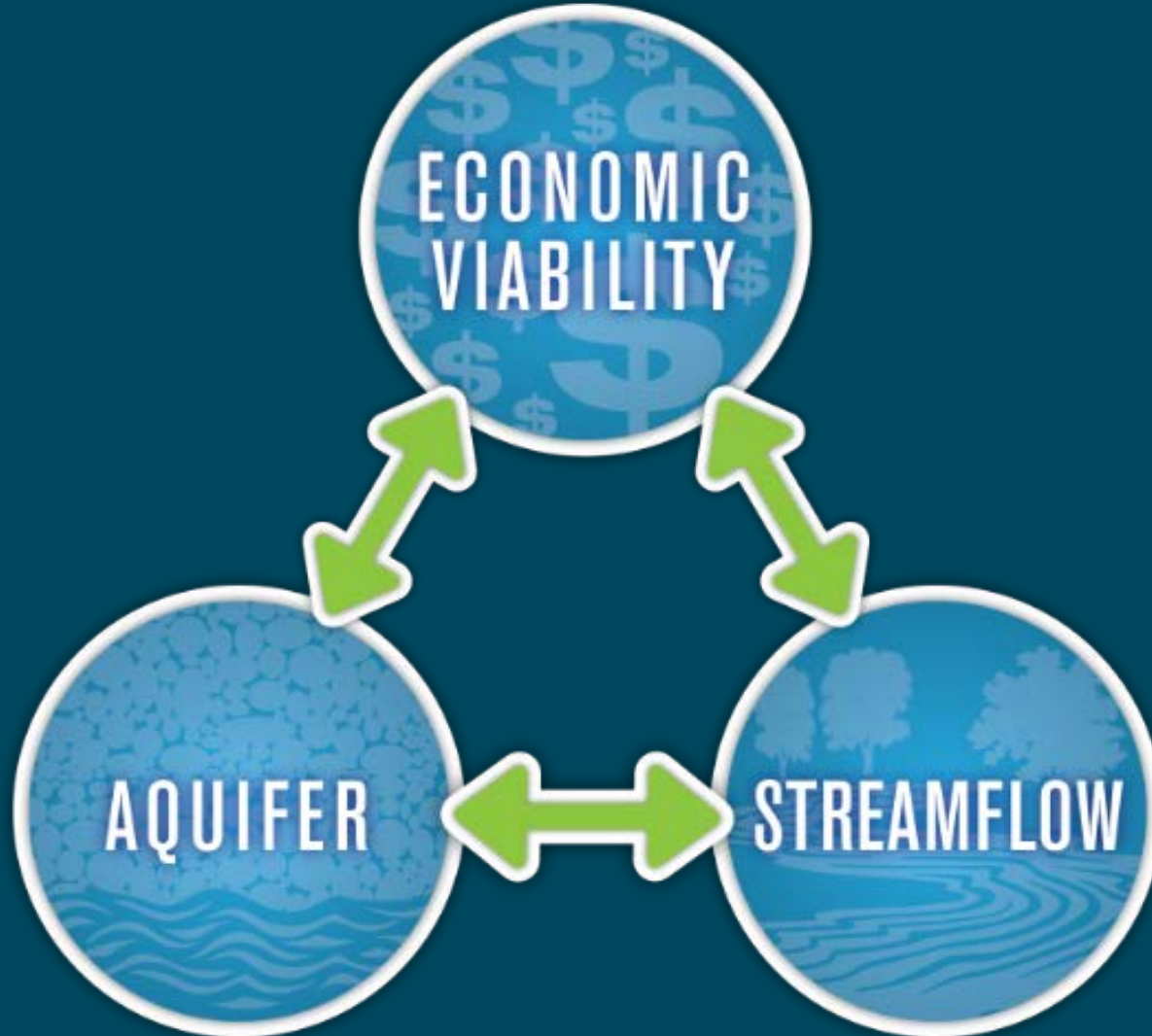
Integrated management planning is based upon science



How is modeling used in integrated management planning?



Core elements in integrated management plans in Nebraska



Nebraska Revised Statute § 46-715(5) states an integrated management plan shall include: Clear goals and objectives with a purpose of sustaining a balance between water uses and water supplies so that the economic viability, social and environmental health, safety, and welfare of the river basin, subbasin, or reach can be achieved and maintained for both the near term and the long term.

Contents of an integrated management plan



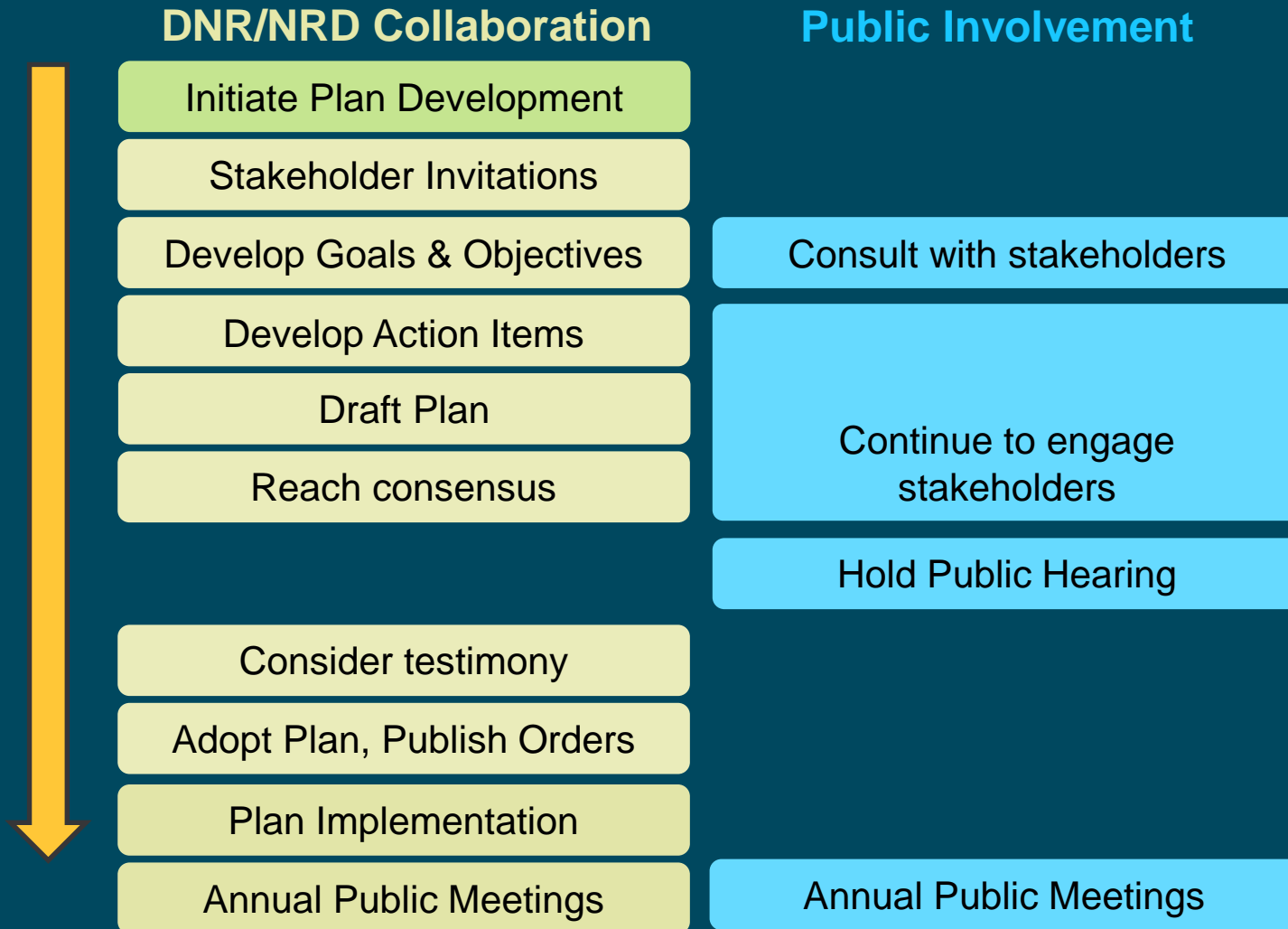
- Goals and Objectives
- Map of Geographic Area
- Action items to achieve
- At least 1 Groundwater control
- At least 1 Surface Water control
- Monitoring Program
- Evaluation & Review
- Education & Outreach

Development of a plan is a collaborative process

- NeDNR
- Natural Resources District (NRD)
- Stakeholders



Plan development process



Stakeholder roles

- Convey local water issues/concerns
- Guide development of goals and objectives
- Disseminate information to local groups about IMP
- Attend meetings



NRD and Department roles

- Acquire/disseminate information/data needed for stakeholder process
- Help formulate goals and objectives with stakeholders



- Coordinate with each other, stakeholders, facilitators throughout process
- Help determine/convey feasible actions for plan implementation
- Write the Integrated Water Management Plan
- Implement the Plan

Public hearing to take testimony on plan

- Additional Public Input
- NRD and NeDNR consider testimony
- Adopt plan with or without modifications

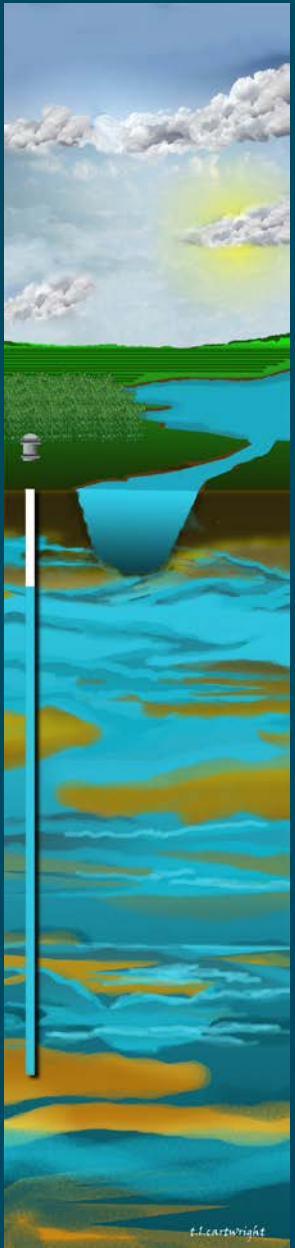


IMP implementation

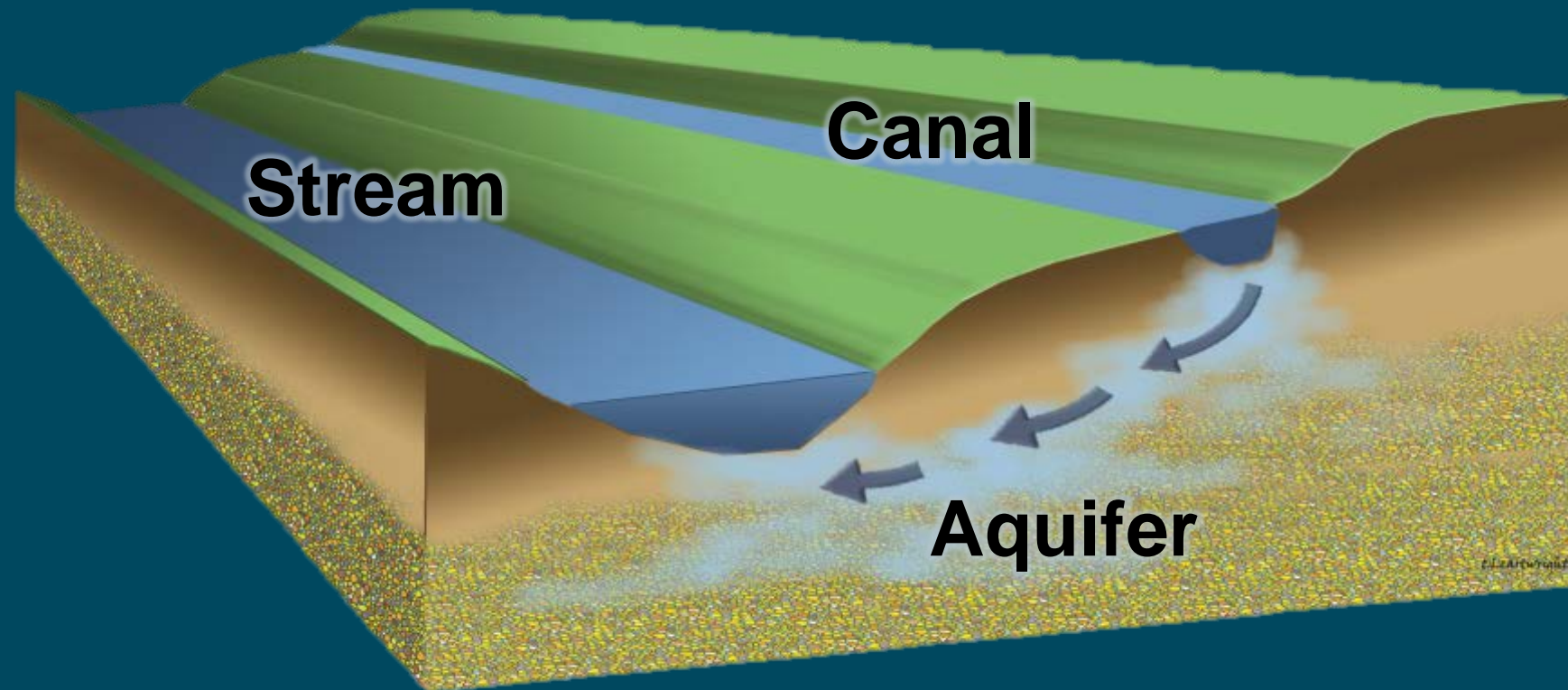
- 
- Action Items to achieve goals & objectives
 - Incentive Programs
 - Controls enforced
 - Monitoring Program
 - Evaluation & Review
 - Education and Information

Action items to achieve accretions to the stream flow

- Conjunctive Management Projects
- Groundwater Retiming Projects
- Regulatory Actions
- Retiring Land from Irrigation

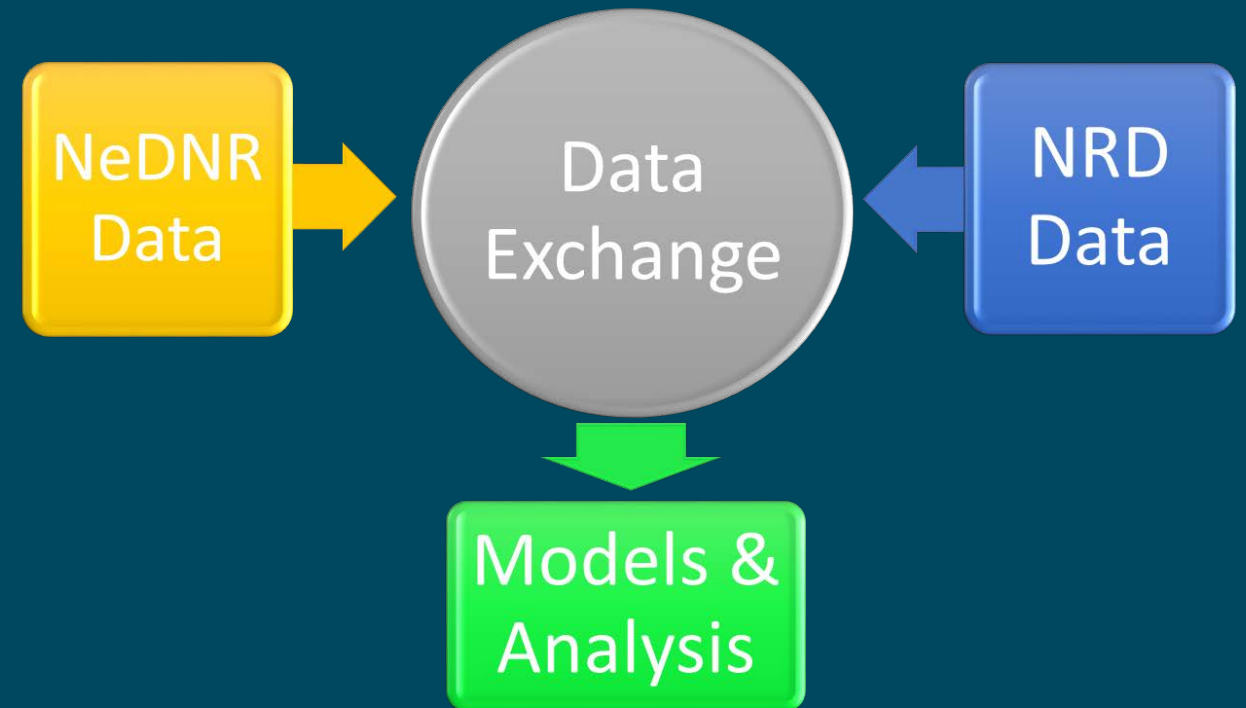


Conjunctive management projects



Annual reporting

- Annual report from NRD
- Annual Report from NeDNR
- Data Exchange
- Models & Analysis
- Evaluation and Review



Data reported by NRD

- Groundwater Permitting Activity
- Changes in Acres, volumes pumped
- Incentive Program Results
- Data Collected
- Offsets Provided



Data reported by NeDNR



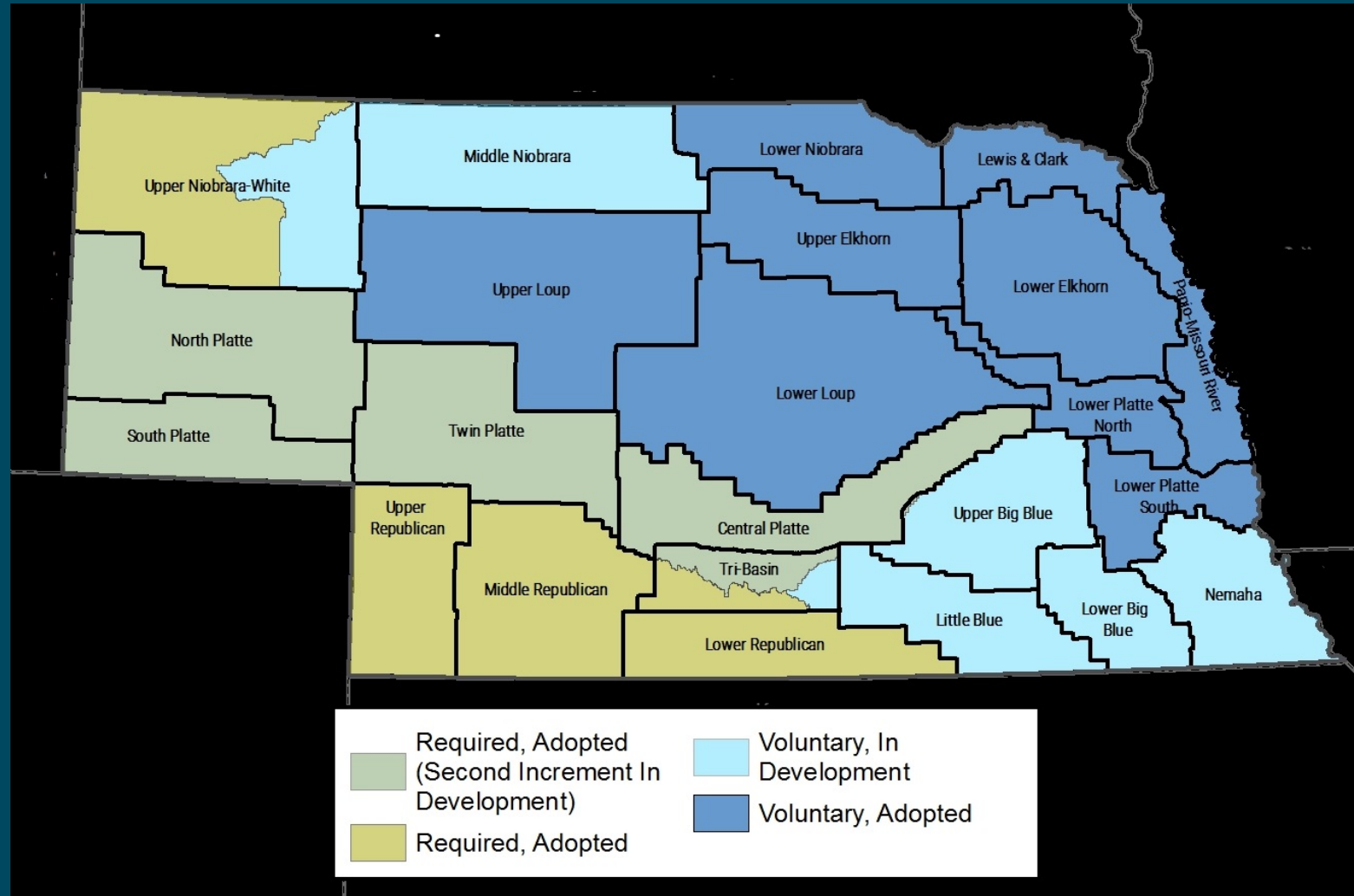
- Surface Water Permitting Activity
- Dam Safety Permitting Activity
- Ground Water Permitting Activity
- Data Collected
- Offsets Provided

Adaptive management as methods and science improve

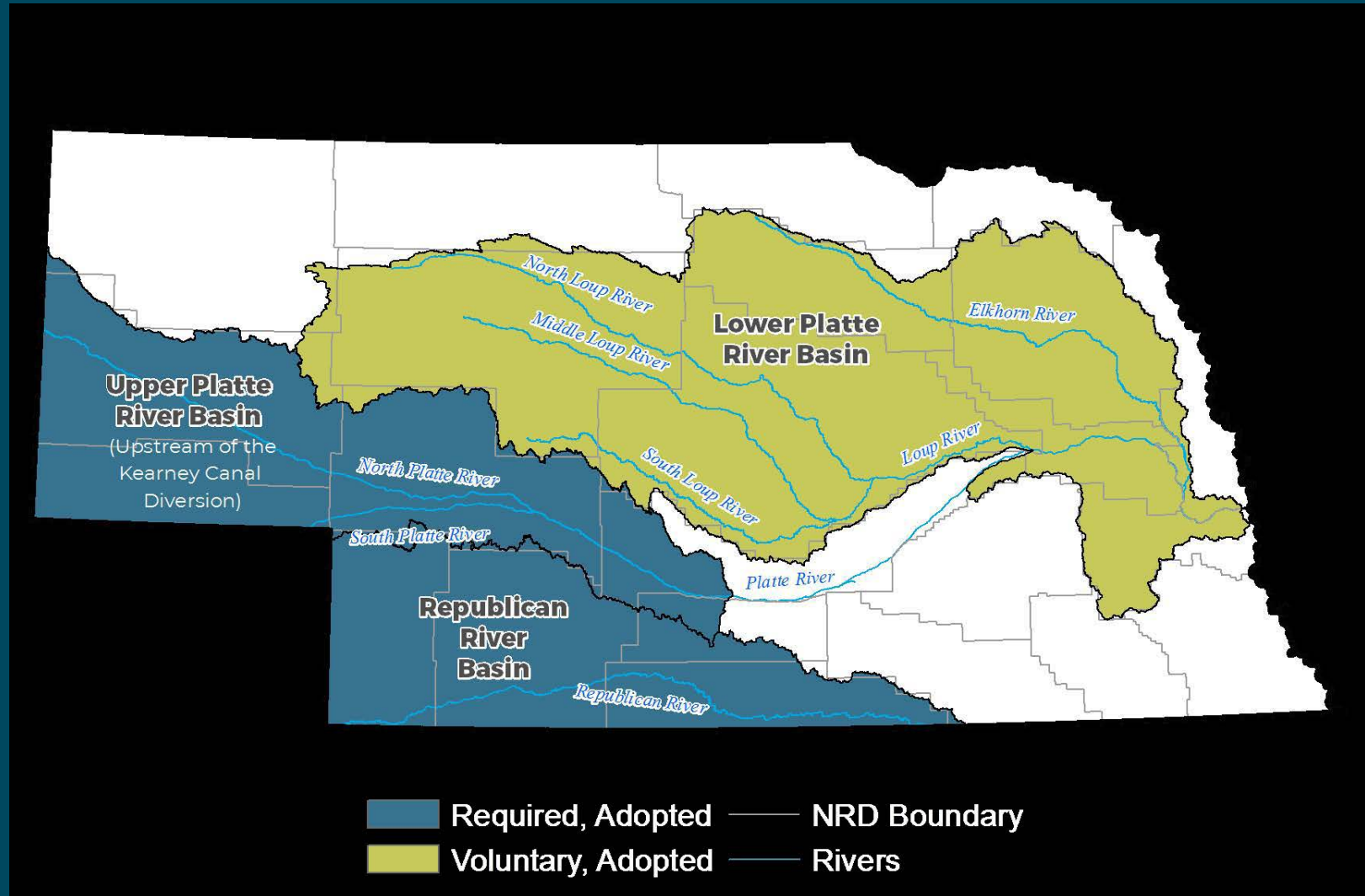


- Action Items
- Monitoring Program
 - Tracking action items in context of achieving goals & objectives
- Evaluation
 - Are action items achieving desired goals?
 - Are water supply and demand changing?
 - Have goals changed?
- Adaptive Management

Integrated Management Plans (IMPs) Developed 2004-2019

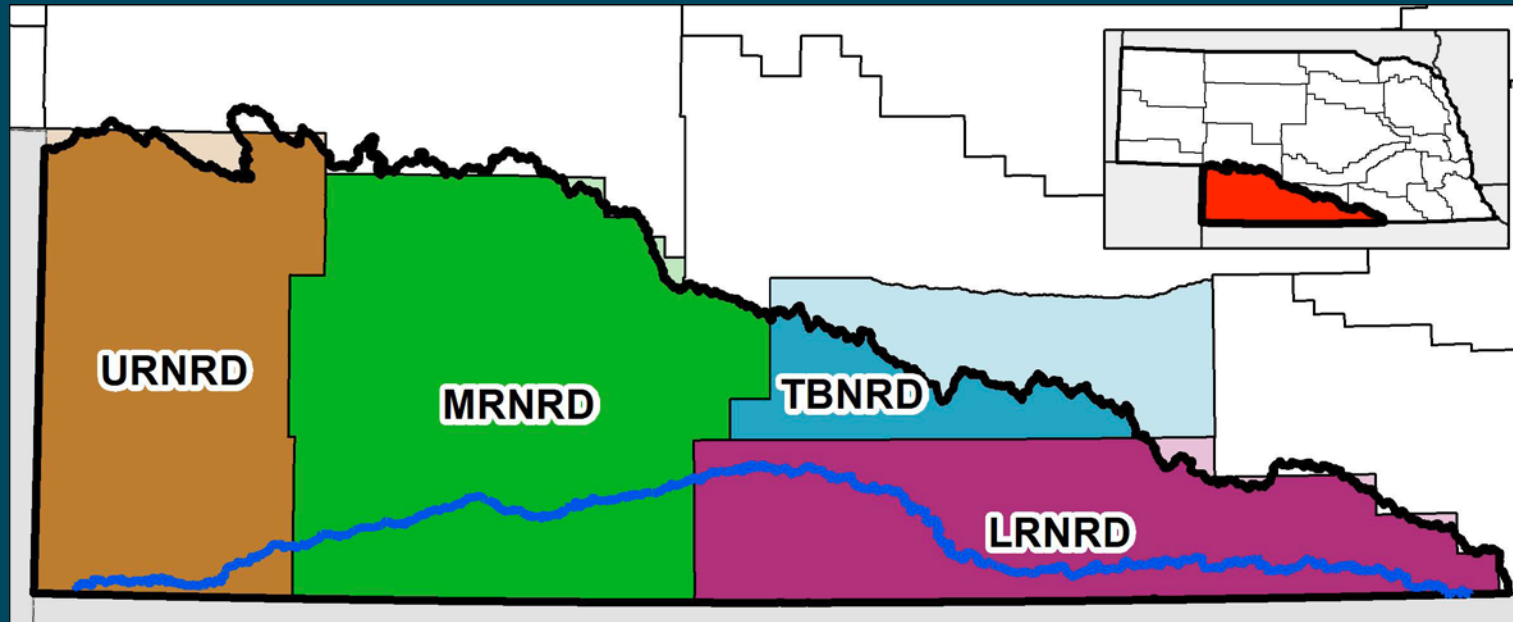


Basin-wide integrated management planning



Integrated water management on a basin-wide scale

- Involves all NRDs within the river basin
- Similar Development Process
- Individual NRD Plans work together with the Basin-Wide Plan



Benefits to basin-wide plans

- Basin-wide planning looks beyond NRD borders
- Provides a framework for consistency among a basin's NRDs
- Coordinated data exchange for a basin-wide evaluation
- Address connectivity between NRDs
- Manage cross-boundary issues and opportunities



Conclusion

How to manage hydrologically connected water with separate regulatory systems for surface and groundwater

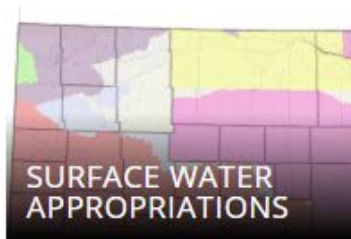
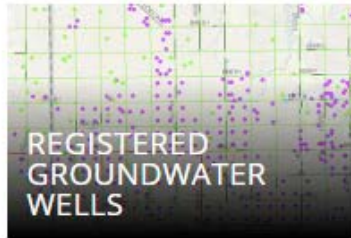
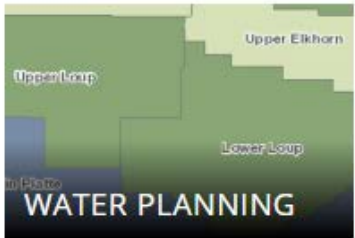
➤ Integrated Management Benefits:

- Individual NRD IMPs
- Basin-Wide Plans
- Stakeholder Input
- Local Needs and Conditions
- Legislative Support
- Dispute Resolution
- Funding
- Monitoring
- Incentive Programs
- Education and Outreach
- Maintain economic viability
- Creating Partnerships for Co-Management

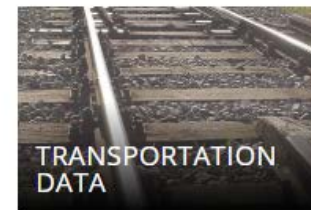
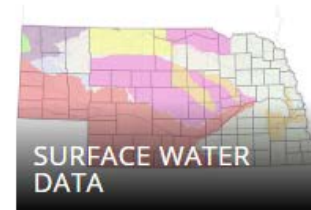
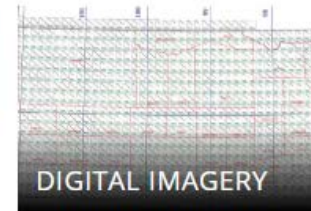
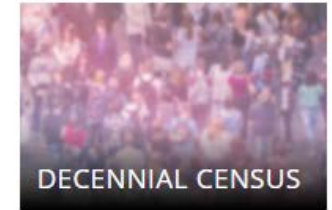
Questions?

Web resources: <https://dnr.nebraska.gov>

Maps



Data



NEBRASKA

Good Life. Great Water.

DEPT. OF NATURAL RESOURCES

THANK YOU

Jennifer J. Schellpeper

- jennifer.schellpeper@nebraska.gov

Pat O'Brien

- obrien@unwnrd.org



dnr.nebraska.gov

