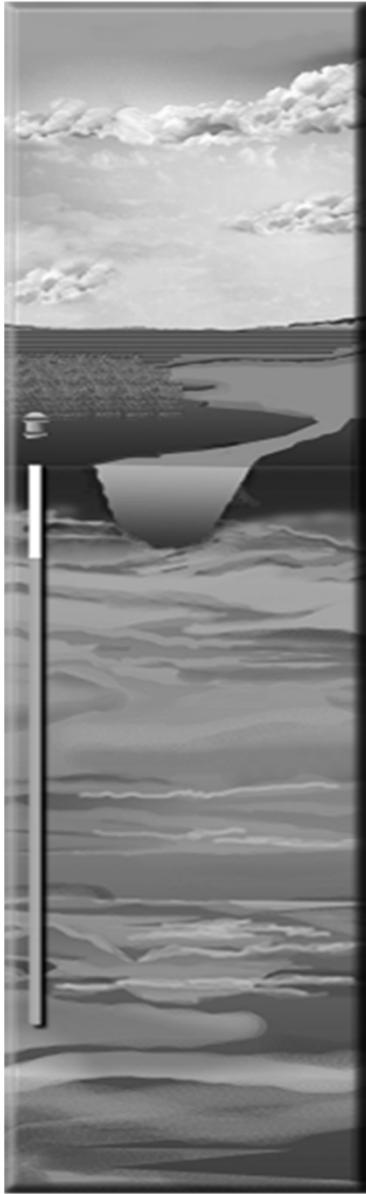


Surface Water Administration in the State of Nebraska

Little Blue NRD Voluntary IMP Stakeholder Meeting
November 16, 2017

Jeremy Gehle
Water Administration Division Manager
Nebraska Department of Natural Resources





Outline

- *Water Administration Division*
- *Permitting*
- *Water Administration Process*
- *Differences Between Groundwater And Surface Water*

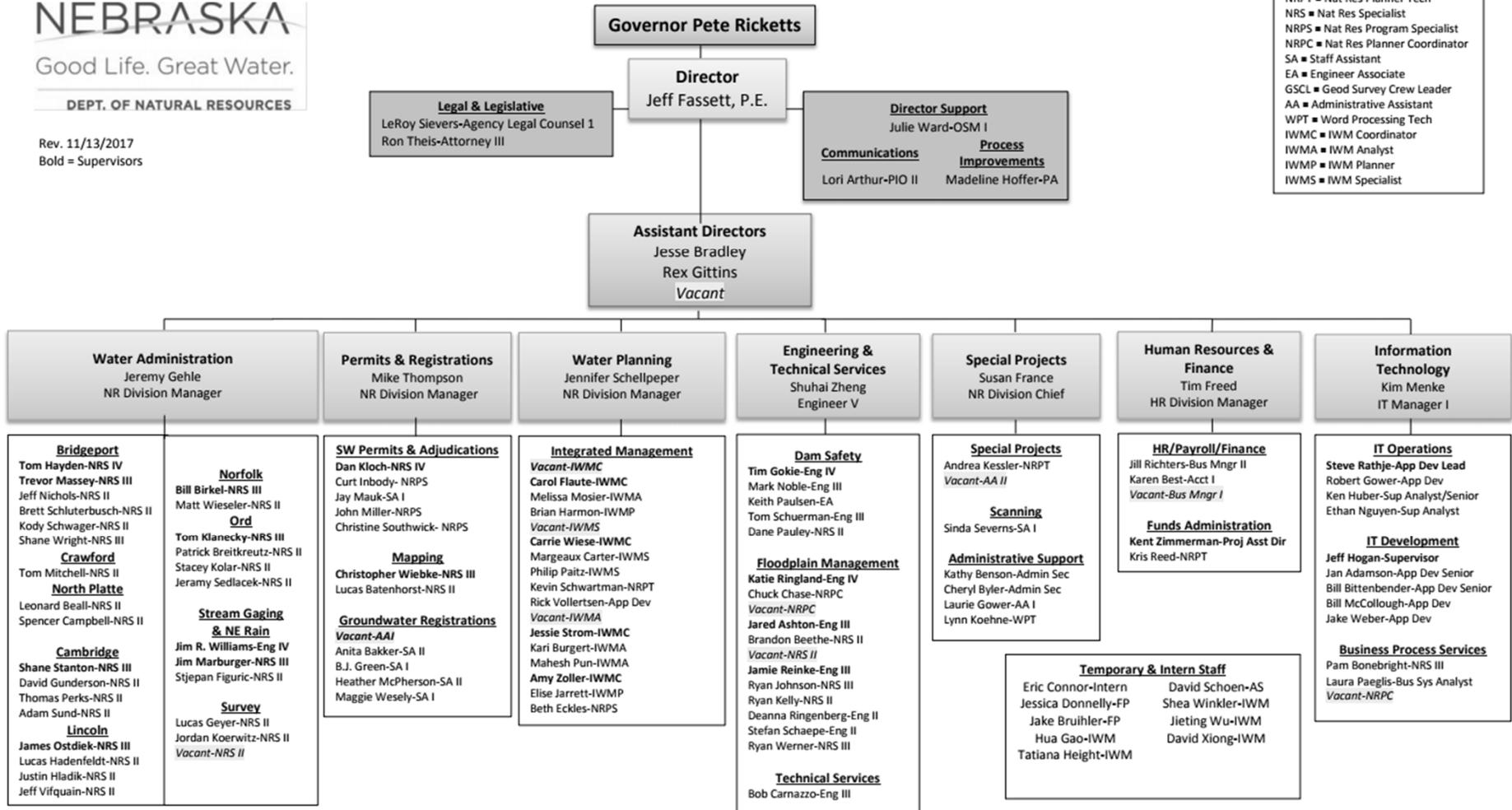
NeDNR Organizational Chart



Rev. 11/13/2017
 Bold = Supervisors

Key

- NRPT ■ Nat Res Planner Tech
- NRS ■ Nat Res Specialist
- NRPS ■ Nat Res Program Specialist
- NRPC ■ Nat Res Planner Coordinator
- SA ■ Staff Assistant
- EA ■ Engineer Associate
- GSCL ■ Geod Survey Crew Leader
- AA ■ Administrative Assistant
- WPT ■ Word Processing Tech
- IWMC ■ IWM Coordinator
- IWMA ■ IWM Analyst
- IWMP ■ IWM Planner
- IWMS ■ IWM Specialist

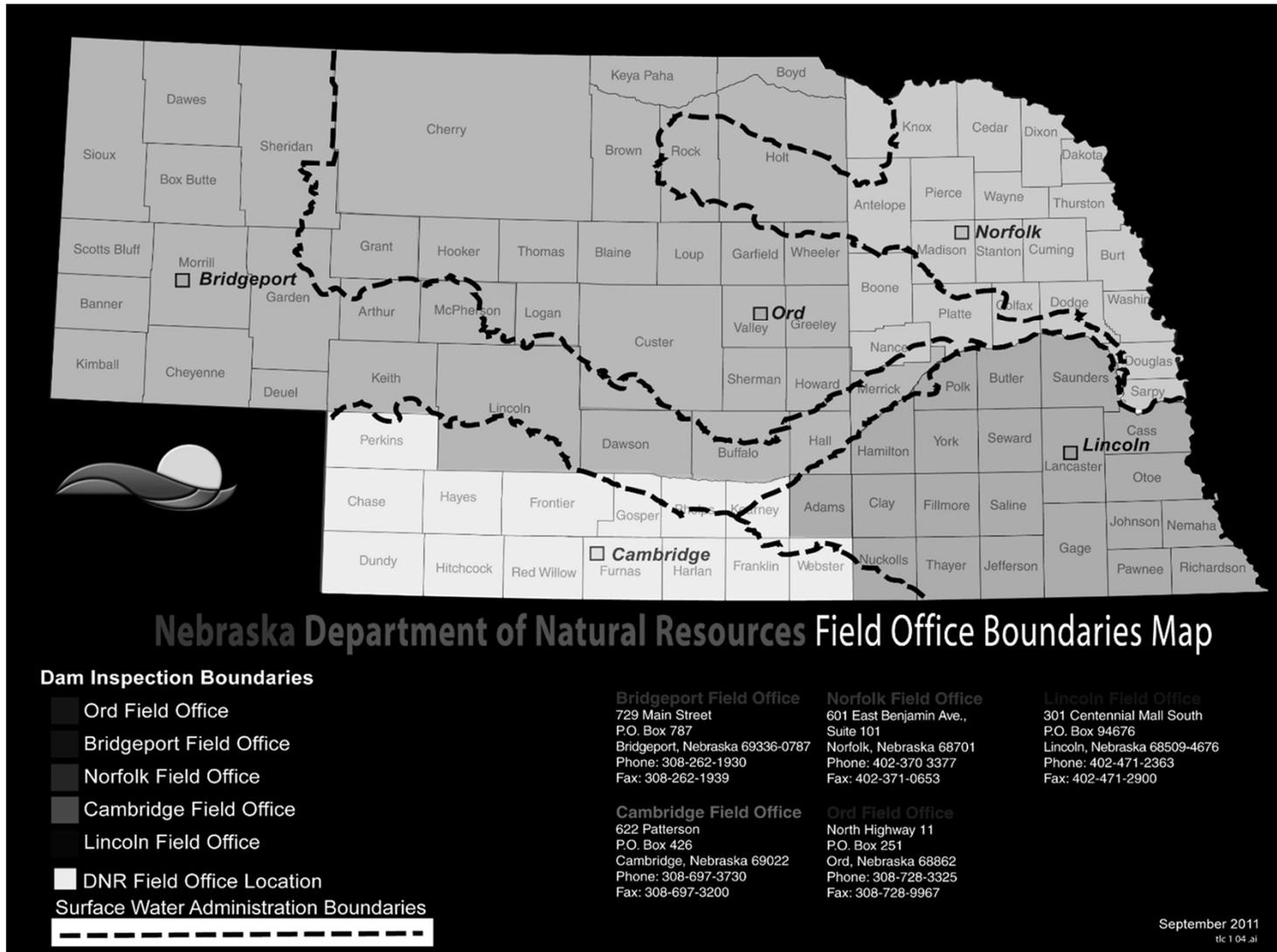


NeDNR Water Administration Division

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

- Blue River Compact
- 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
- Three gaging stations operated by NeDNR in Little Blue River Basin
- Four gaging stations operated by USGS in Little Blue River Basin

Monitoring - Pump Checks

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

Telemetered Meter Pilot Program



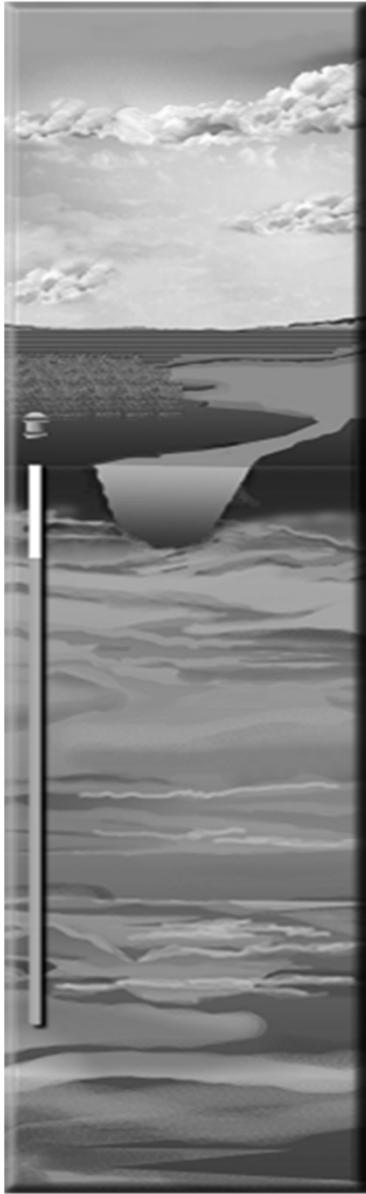
Telemetered Meter 2016-2017 Data

Site Data and Annual Sums of Water Pumped and Rainfall 2016 DNR

Site No.	Irr Type	Acres Irr	Volume Pumped <i>gallons</i>	Irr Application <i>inches</i>	Rainfall <i>inches</i>	Total <i>inches</i>
1 dnr-15x	Pivot	140	24,752,330	6.51	13.56	20.07
2 dnr-15x	East Pivot	200.4	39,689,368	7.29	14.62	21.91
3 dnr-15x	West Pivot	139.7	15,925,460	4.20	13.09	17.29
9 dnr-16x	River Pivot	35.5	6,497,300	6.74	13.591	20.33
10 dnr-16x	North Pivot	101	14,471,800	5.28	1.717	6.99
			<i>Averages</i>	6.00	11.32	17.32

Site Data and Annual Sums of Water Pumped and Rainfall 2017 DNR

Site No.	Irr Type	Acres Irr	Volume Pumped <i>gallons</i>	Irr Application <i>inches</i>	Rainfall <i>inches</i>	Total <i>inches</i>
1 dnr-15x	Pivot	140	21,493,000	5.65	17.58	23.23
2 dnr-15x	East Pivot	200.4	49,624,144	9.12	21.34	30.46
3 dnr-15x	West Pivot	139.7	37,308,608	9.84	23.01	32.85
9 dnr-16x	River Pivot	35.5	1,960,180	2.03	20.27	22.30
10 dnr-16x	North Pivot	101	30,235,080	11.03	15.21	26.24
			<i>Averages</i>	4.74	21.40	26.15



Outline

- *Water Administration Division*
- *Permitting*
- *Water Administration Process*
- *Differences Between Groundwater And Surface Water*

Permitting

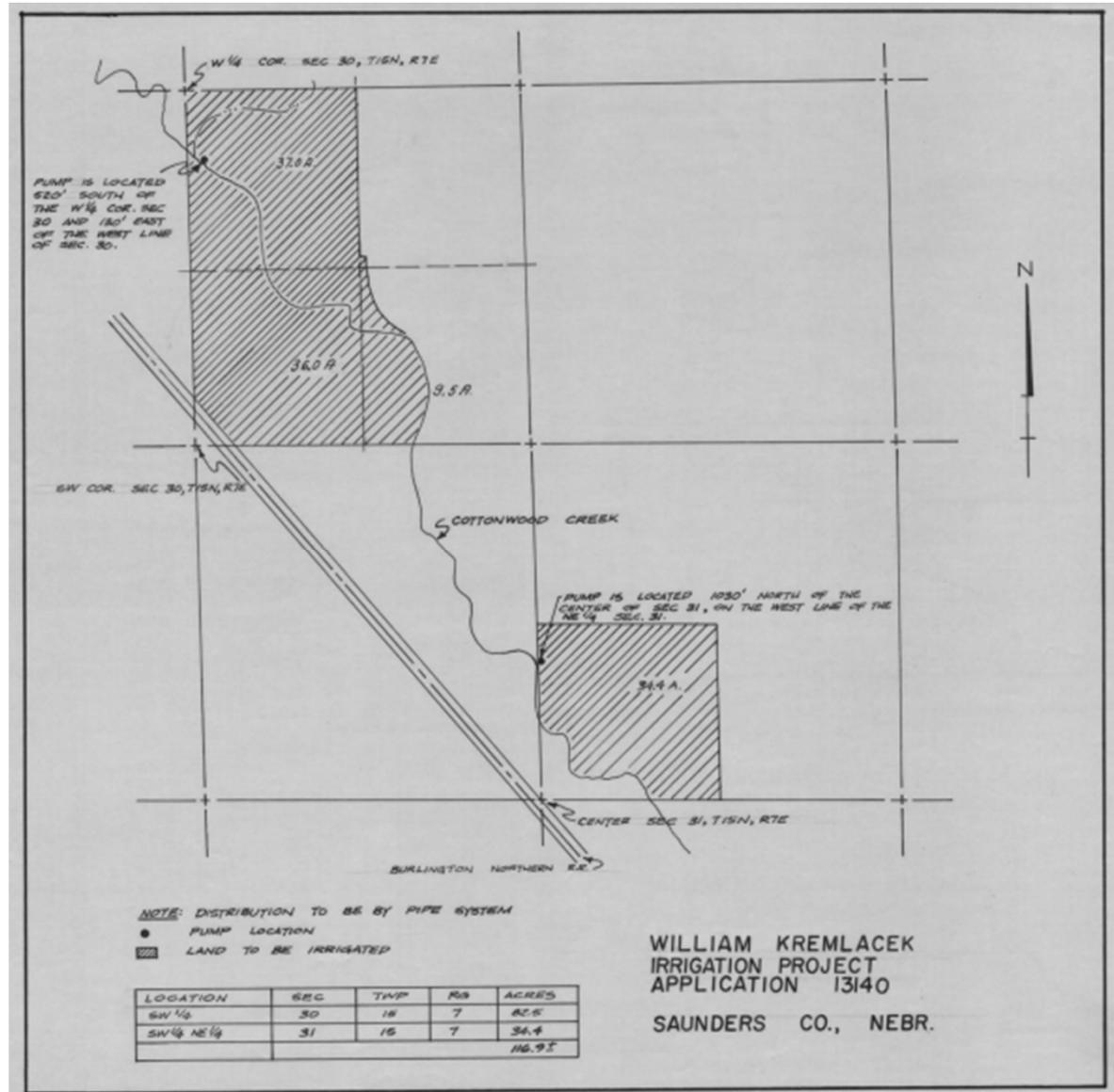
- Application to DNR Includes:

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



Permitting

Project Map



Permitting

DEPARTMENT OF NATURAL RESOURCES

Application Approval

Water Division 1-D

Application Approval

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:

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

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.

Permitting

Beneficial Use

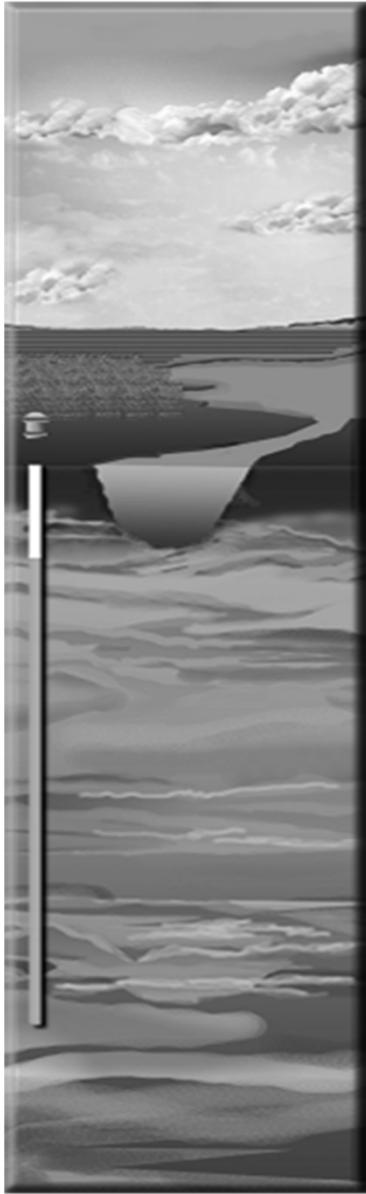
Field Investigation conducted after three irrigation seasons.

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 “Perfected”



Outline

- *Water Administration Division*
- *Permitting*
- *Water Administration Process*
- *Differences Between Groundwater And Surface Water*

Water Administration Process

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 a 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

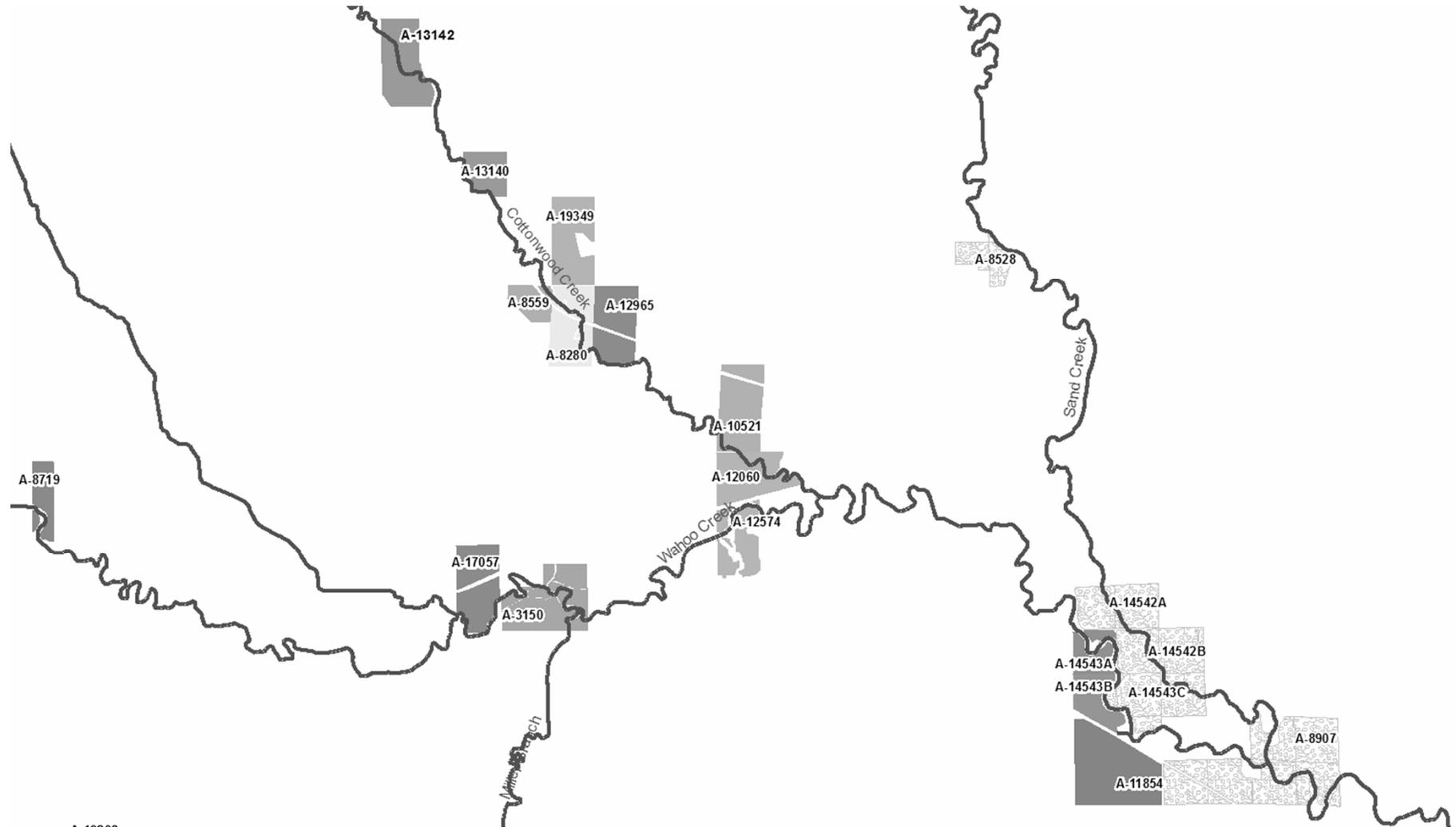


Water Administration Process

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.



Compiled Map



Water Administration Process... Continued

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.
-
-

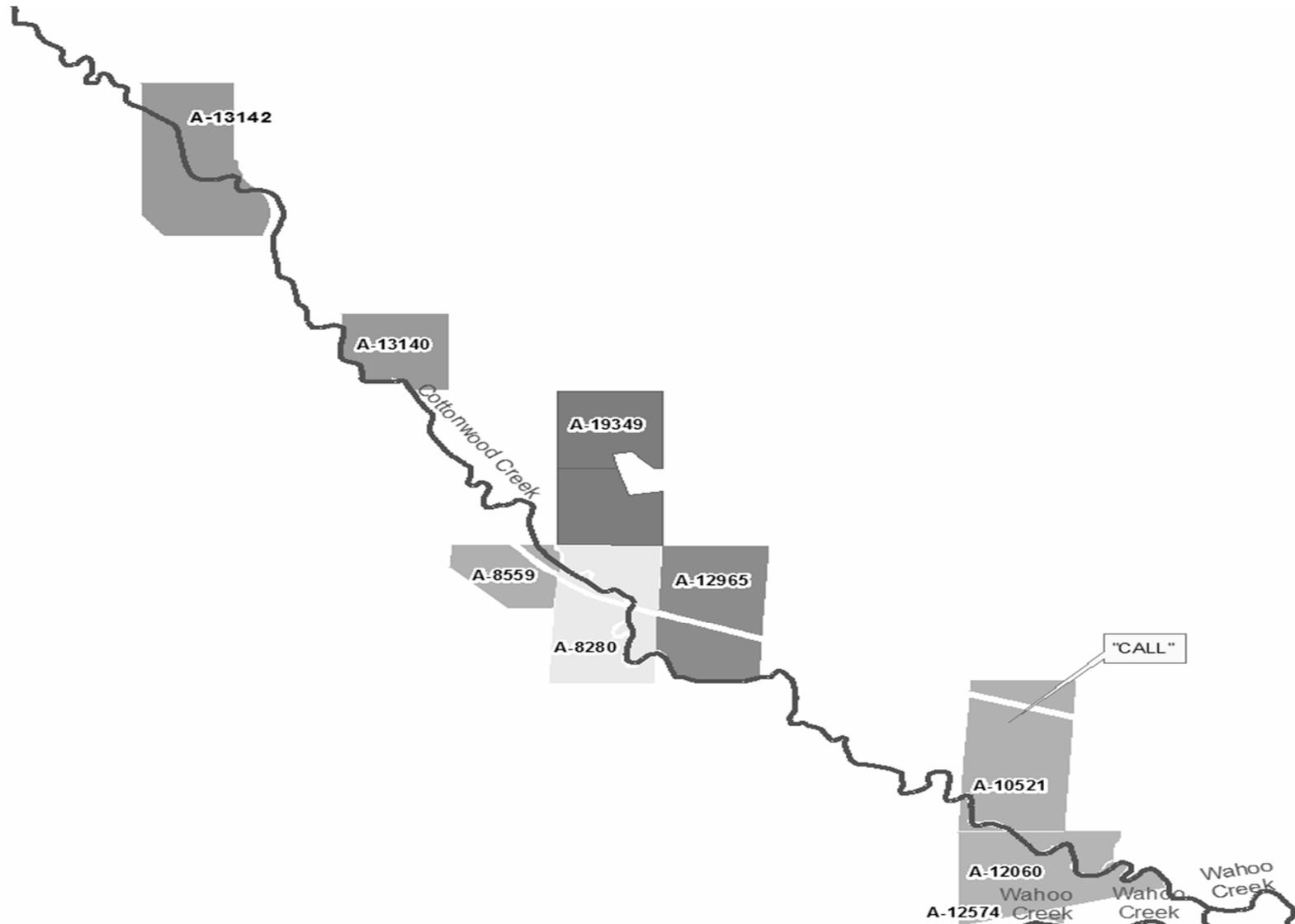
Biennial Report

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		

“Call”

Administration for Call



Water Administration Process.... Continued

4. Monitor

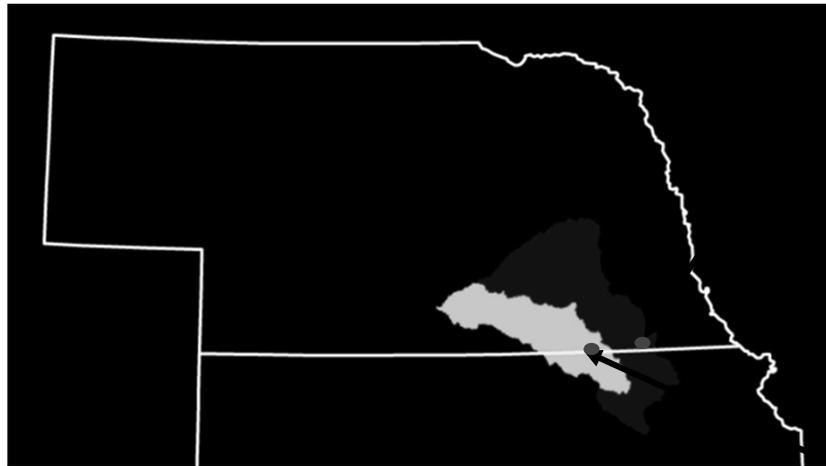
- Monitor daily the point of the “CALL” to ensure that no more than the permitted grant is allowed to pass.
- Monitor other diversions upstream and downstream from the “CALL”
- Stream gages
- Weather



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

Blue River Compact Water Administration

Blue River Compact – 11/01/1968



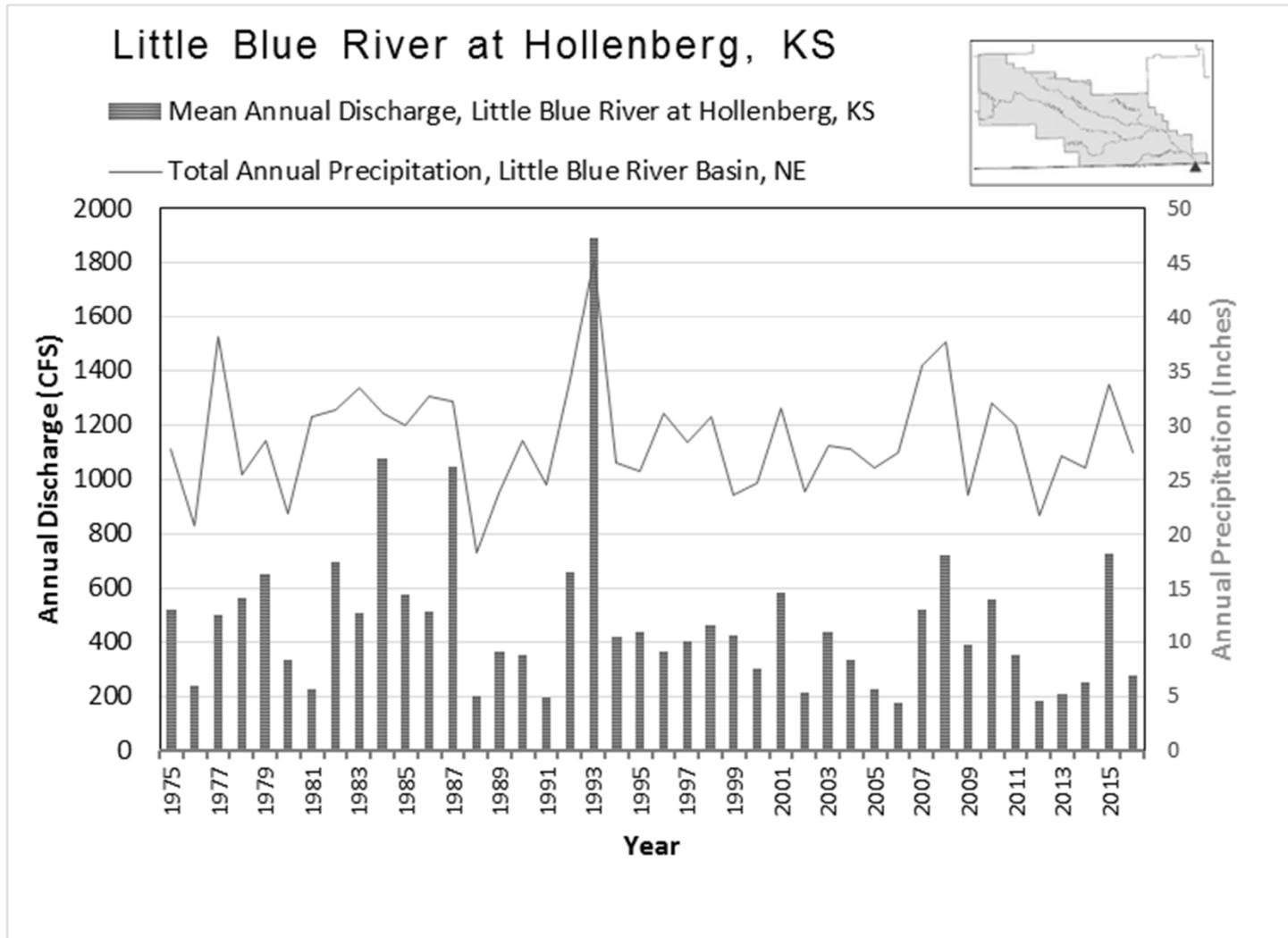
Big Blue River

May	45 cfs
June	45 cfs
July	80 cfs
August	90 cfs
September	65 cfs

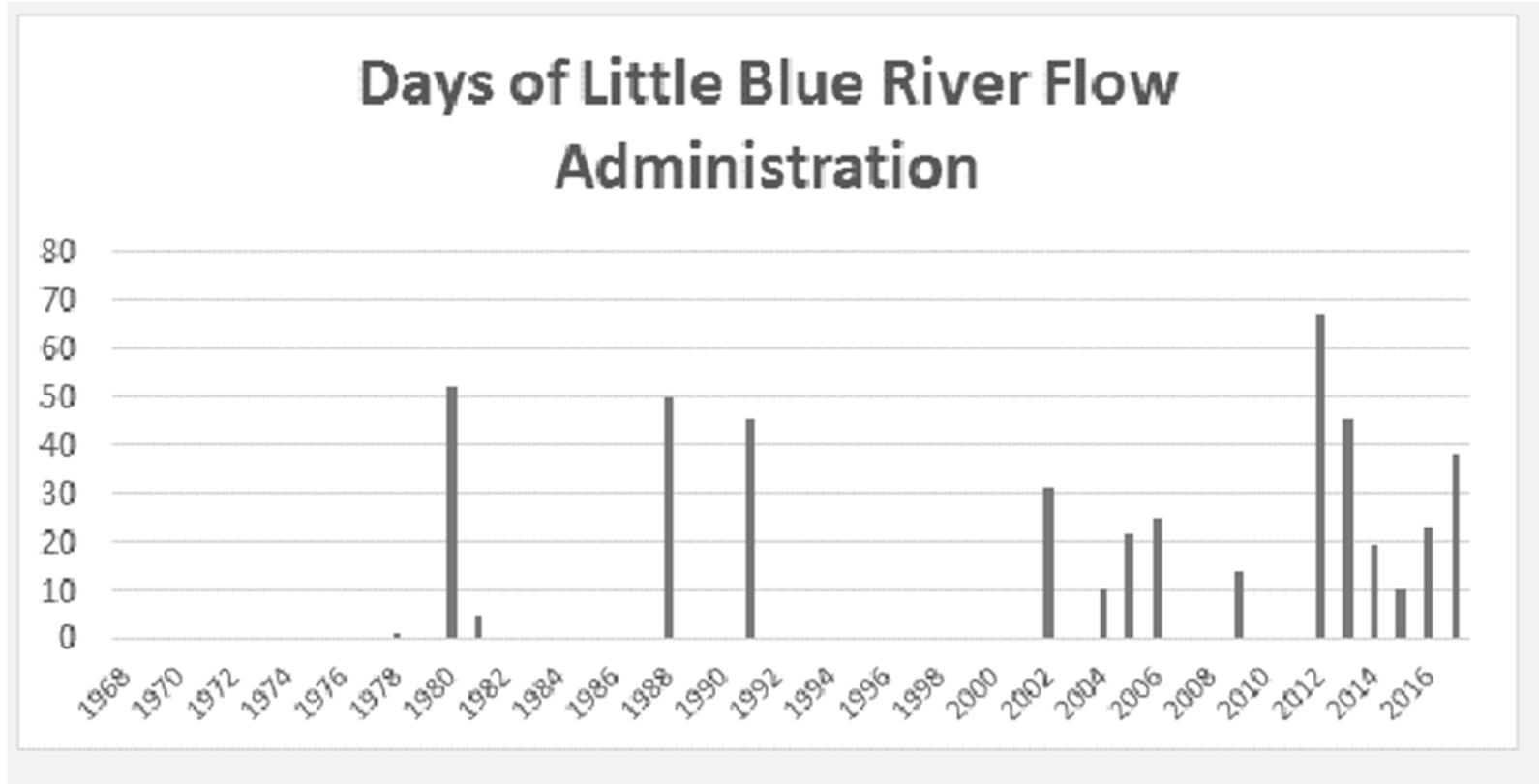
Little Blue River

May	45 cfs
June	45 cfs
July	75 cfs
August	80 cfs
September	60 cfs

Blue River Compact



Blue River Compact Water Administration



Blue River Compact Water Administration

YEAR	Days Closed for Blue River Compact since 1996 From May 1st to September 30th
2002	30
2005	22
2006	25
2009	14
2012	67
2013	44
2014	19
2015	9
2016	18*
2017	38

*2016 - Only year since 1996 with additional local shortages

Blue River Compact

1.8 The term "natural flow" means that portion of the flow in a natural stream that consists of direct runoff from precipitation on the land surface, ground-water infiltration to the stream, return flows to the natural stream from municipal, agricultural, or other uses, and releases from storage for no designated beneficial use;

5.2 (4) Regulate, in the same manner that diversion of natural flows is regulated, withdrawals of water from irrigation wells installed after November 1, 1968, except equivalent wells drilled to replace wells installed before that date, in the alluvium and valley side terrace deposits within one mile from the thread of the river and between the mouth of Walnut creek and the Kansas-Nebraska state line on the Little Blue river.

Water Administration 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.



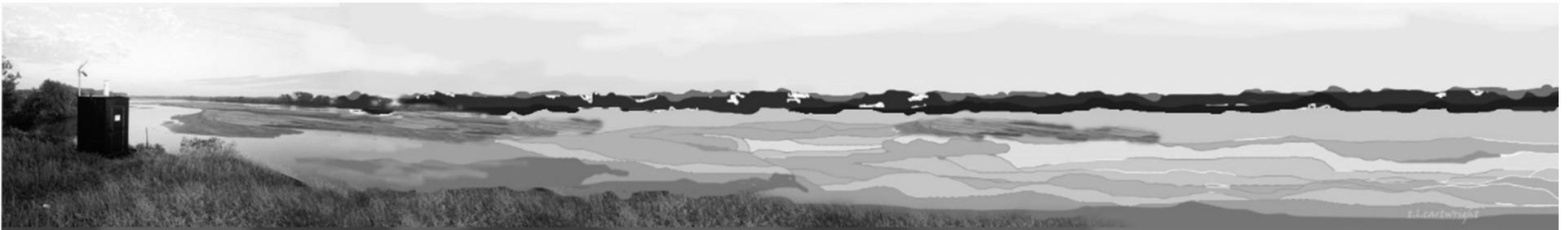
Required Flow Meters

NeDNR issued three orders requiring meters:

1981 - Big Blue River above the confluence of the West Fork to provide for “the proper distribution of water supplies during times of shortage”.

1993 – Platte River below Lake McConaughy, the South Platte River and tributaries to the mouth of the Loup River to provide for the proper distribution of water supplies during times of shortage.

2000 – Republican River – for the Republican River Compact Compliance, reporting required



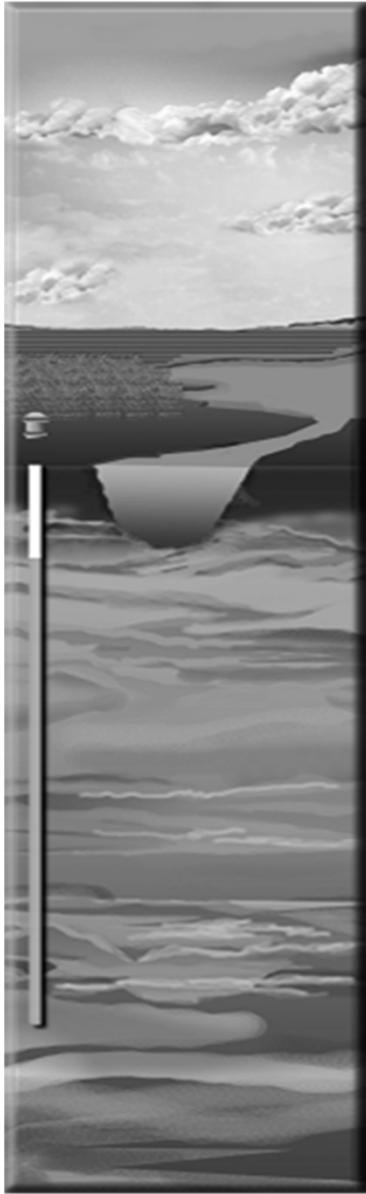
Differences between Groundwater and Surface Water

Groundwater - NRD

- Correlative Rights Doctrine - “Rule of Reasonable Use”
- Supply dependent on aquifer storage capacity
- If supply is insufficient, all users can be put on an allocation
- Certified Acres – LBNRD on or before 4/1/2015
- No provisions for cancellation

Surface Water - NeDNR

- Prior Appropriation Doctrine - “First-in-time, First-in-Right”
- Supply dependent upon precipitation and Groundwater base flow
- If the supply is insufficient, junior appropriators are denied water.
- “Approved Map” – Sets limit on Acres, Location, and the “Grant”
- Adjudication procedures for cancelation – “Use it or Lose it”



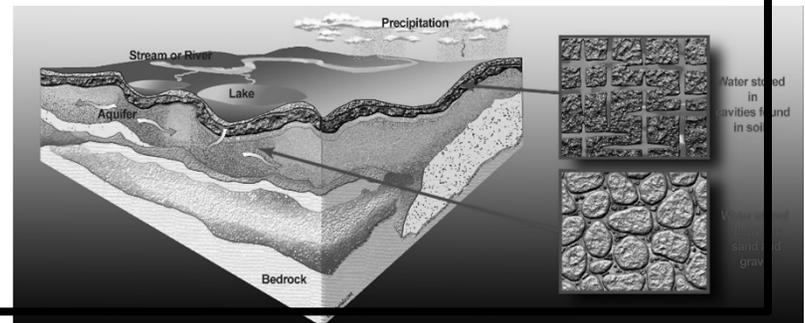
Outline

- *Water Administration Division*
- *Permitting*
- *Water Administration Process*
- *Differences Between Groundwater And Surface Water*

Differences between Groundwater and Surface Water

Groundwater

- From an Aquifer, an underground layer of water-bearing rock
- Replenished by infiltration of water from above
- So long as withdrawals don't exceed the recharge rate the aquifer will not decline
- The overall supply is typically very reliable
- Water not withdrawn stays in the "Bank"



GROUNDWATER

Differences between Groundwater and Surface Water

▪ Surface Water

- *Water for the purposes of irrigation in the State of Nebraska is hereby declared a natural want*
Nebraska Revised Statutes Chapter 46-201
- *The right to divert unappropriated waters of every natural stream for beneficial use shall never be denied except when such denial is demanded by the public interest.*
Nebraska State Constitution Article XV-6

Differences between Groundwater and Surface Water

Surface Water

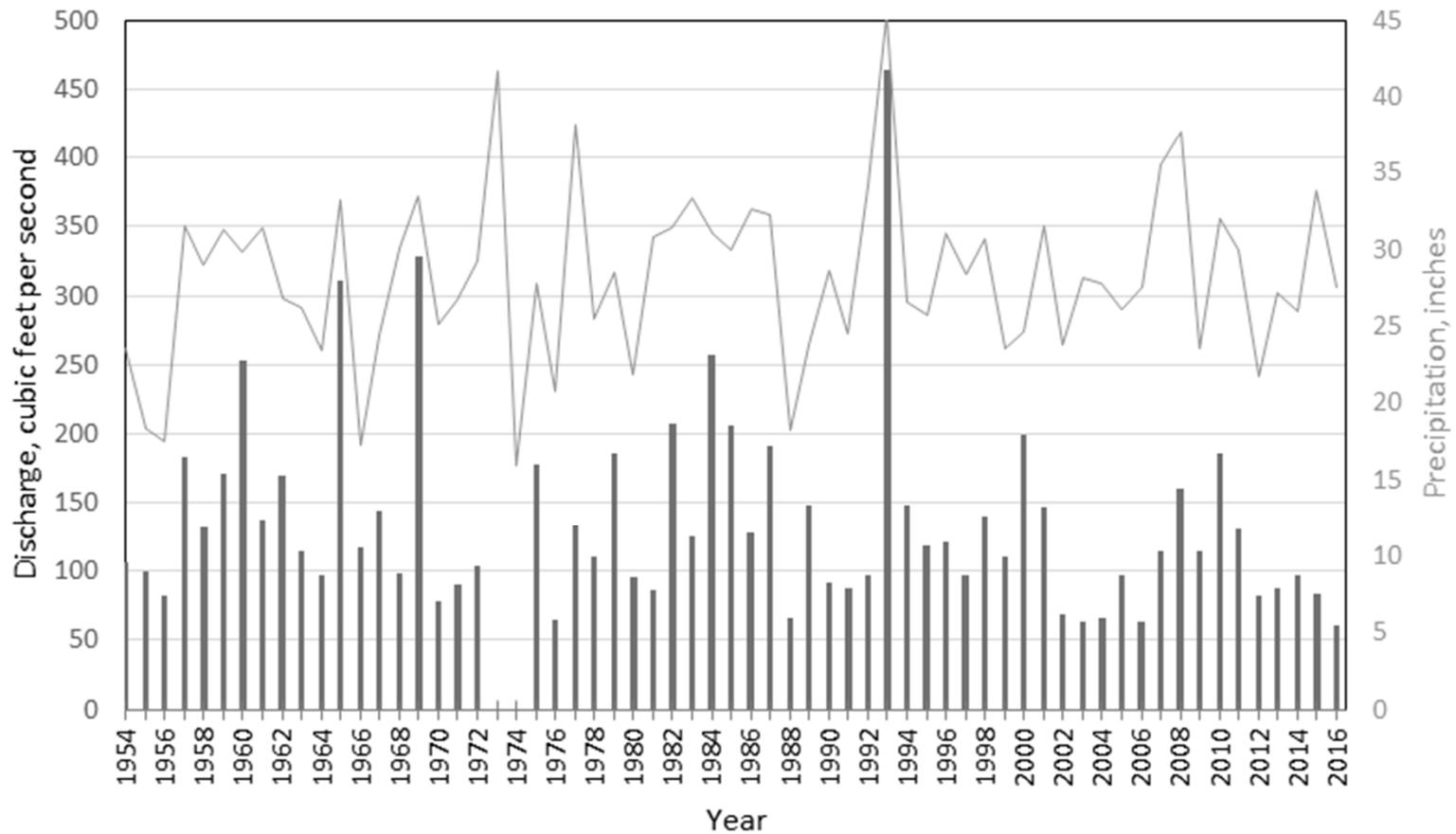
- From a River, Stream or Creek
- Supplied by rain runoff , snow melt, and groundwater base flow.
- Most rivers in Nebraska rely on consistent precipitation to maintain their flow.



- The supply is as reliable as the weather.
- Water not withdrawn, flows downstream.
“Here today gone tomorrow”

Little Blue River near Deweese

■ Mean Annual Discharge, Little Blue River near Deweese
— Total Annual Precipitation, Little Blue River Basin, NE



Differences between Groundwater and Surface Water

▪ Surface Water

- Managed by Nebraska Department of Natural Resources
- Prior Appropriation Doctrine - “First-in-time, First-in-Right”
- If the supply is insufficient, the junior appropriators are denied water.



- Vested Property Right
- Adjudication procedures for cancellation

Differences between Groundwater and Surface Water

Number of Surface Water Appropriations vs Registered Groundwater Irrigation Wells

	SW Irrigation Appropriations (Priority Date) (Active)	GW Irrigation Wells (Completion Date)(Active)
Through 12/31/1949	23	67
1/1/1950 - 12/31/1959	58	965
1/1/1960 - 12/31/1969	52	973
1/1/1970 - 12/31/1979	56	1534
1/1/1980 - 12/31/1989	14	662
1/1/1990 - 12/31/1999	7	676
1/1/2000 - 12/31/2009	14	980
1/1/2010 - Present	25	867
Totals	249	6724

Differences between Groundwater and Surface Water

Groundwater - NRD

- Correlative Rights Doctrine - “Rule of Reasonable Use”
- Supply dependent on aquifer storage capacity
- If supply is insufficient, all users can be put on an allocation
- Certified Acres – LBNRD on or before 4/1/2015
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Surface Water - NeDNR

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- Supply dependent upon precipitation and Groundwater base flow
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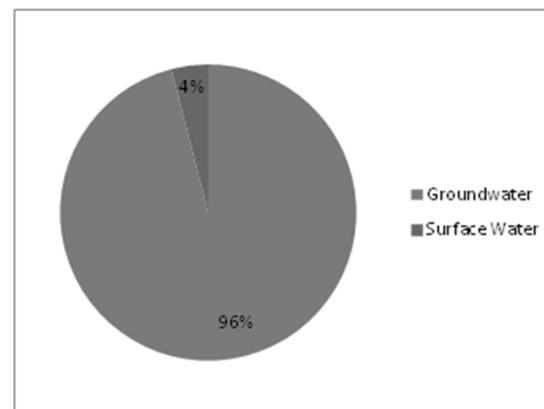
Comparison of Groundwater and Surface Water Management

Compare	Groundwater	Surface Water
Management Doctrine	Correlative Rights (Rule of reasonable use)	Prior Appropriation (First in time, first in right)
Supply is dependent on	Aquifer storage capacity	Precipitation & base flow
What if there is low supply?	Allocations	Junior appropriators denied water
Irrigation area approval	Little Blue NRD certified acres	Approved map and "Grant"
Cancellation of irrigation use	None	Adjudication procedures for 5 years of non-use: "Use it or lose it"

Differences between Groundwater and Surface Water

Why are these differences Important

- Nebraska State Statutes define allowable management actions
 - Surface Water
 - Permitting – Acres, Location, Grant
 - “Priority” Administration
 - Adjudication/Cancellation
 - Groundwater
 - Spacing
 - “Stays”
 - Allocations
- LB962 recognized that groundwater and surface water are connected and provided the opportunity to manage them together through Integrated Management Plans



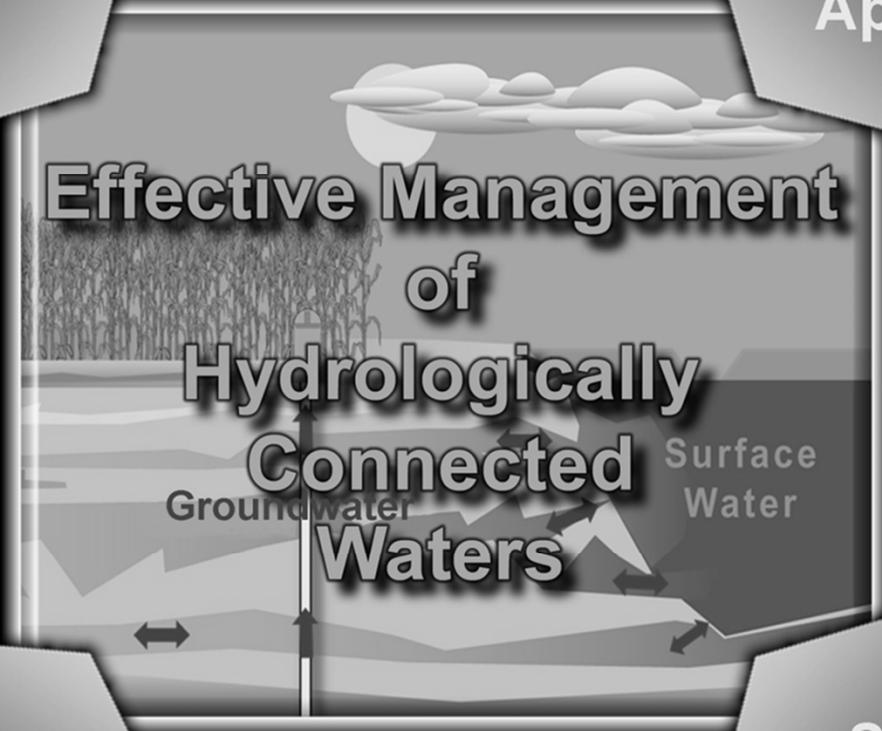
**Groundwater
Correlative
Rights**

**Surface Water
Prior
Appropriations**

**Effective Management
of
Hydrologically
Connected
Waters**

**Groundwater
Regulated by
NRDs**

**Surface Water
Regulated by
DNR**





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