Lower Platte South NRD Integrated Management Plan 2022 Annual Report

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Voluntary Integrated Management Plan

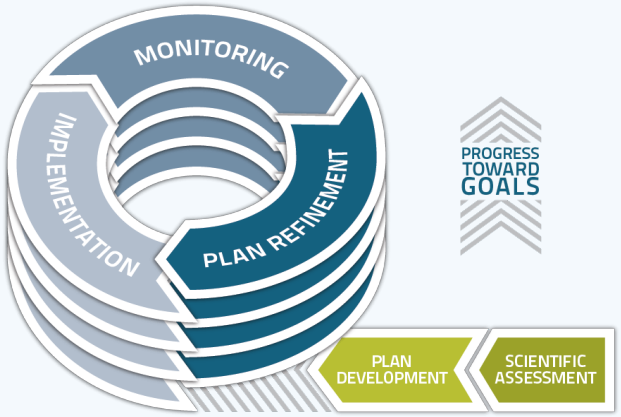
- LPSNRD and the NeDNR jointly adopted a voluntary IMP, effective May 15, 2014.
  - Consists of Goals, Objectives, and Actions.
  - Purpose of jointly managing groundwater and surface waters within LPSNRD is to sustain balance between water use and supplies long-term.

- *The IMP shall be reviewed annually by the District's Board of Directors and the Department to ensure that the plan continues to meet the needs of the District and Department and to identify Action steps for the next two years.*
  - Provide annual report on data collected
  - Report on new groundwater or surface water permits and uses
  - Review progress made toward achieving goals and objectives

Why Conduct Voluntary IMP Reviews?

Joint management of hydrologically connected (HC) groundwater and surface water:

- Identify new opportunities and challenges
- Increase understanding of HC areas (data, studies)
- Evaluate and convey progress towards goals and objectives
- Prioritize joint management actions for upcoming years



IMP Goals

Water Inventory	Water Inventory includes the inflow, precipitation, and water storage available to the District along with the water use and outflows from the District.
Goal: Ensure the District has sufficient data to enable the acheivement of a water supply that is in balance with current and future water demands in the District.	

Water Supply Management	Water Supply Management is the management of water supply, both in and out of the District, through human efforts.
Goal: Ensure a sustainable water supply is available in the amounts and location of the demands through management actions to meet the District's short and long term needs.	

Water Use Management	Water Use Management is the management of how water is used and consumed while meeting current and future demands.
Goal: Encourage all water users to minimize water use while optimizing benefits.	

Report Review

- Covers progress made towards voluntary IMP action items for both LPSNRD and the NeDNR in the calendar year 2022.

- LPSNRD and NeDNR jointly decided that no modifications to the voluntary IMP are needed at the time of the 2022 annual review.

Surface Water and Groundwater Monitoring

NeDNR Data Collection & Monitoring

NeDNR Monitoring

- Surface water permitting activities
- NeDNR streamgage measurements
- Surface water pump site inspections
- Surface water irrigation use

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NeDNR Surface Water Permitting

NeDNR Surface Water Permitting Actions Within the IMP Area
Applications Approved

Surface Water Appropriations Approved in 2022 Within the IMP Area								
Appropriation Number	**Date Approved**	**Source**	**Diversion or Reservoir Location**	**Sub-basin**	**Use**	**Grant (cfs)**	**Grant (af)**	**Acres**
A-19828*	3/23/2022	Trib. to Salt Cr.	S01-T08N-R06E	Missouri River	MF	NA	10	NA
A-19829*	3/28/2022	Salt Creek	S01-T08N-R06E	Missouri River	MF	NA	10	NA
A-19841*	4/21/2022	Branched Oak Lake	S32-T12N-R05E	Missouri River	MF	NA	10	NA
A-19832*	4/24/2022	Oak Creek	S06-T11N-R06E	Missouri River	MF	NA	906	NA
A-19848*	5/13/2022	Oak Creek	S06-T11N-R06E	Missouri River	MF	NA	906	118.4

** Temporary permits that will expire one year from approval date.*

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NeDNR Surface Water Permitting

NeDNR 2022 Surface Water Permitting Actions Within the IMP Area
Appropriations Cancelled or Expired

Surface Water Appropriations Expired, Cancelled-in-Part or Cancelled-in-Full in 2022 Within the IMP Area											
Appropriation Number	Cancel Date	Source	NeDNR Action	Location of Diversion or Reservoir	Use	Begin Acres	Cancelled			Estimated Date of Last Use	Basis for NeDNR Action
							Acres	Grant in cfs	Grant in af		
A-19760	4/28/2022	Butch Cassidy Pond	Expired	S05-T08N-R07E	MF	NA	NA	NA	10	2021	TEMP
A-19765	4/28/2022	Trib. To Salt Cr.	Expired	S05-T08N-R07E	ST	NA	NA	NA	10	2021	TEMP
A-19779	6/14/2022	Salt Creek	Expired	S01-T08N-R06E	MF	NA	NA	4.9	NA	2021	TEMP

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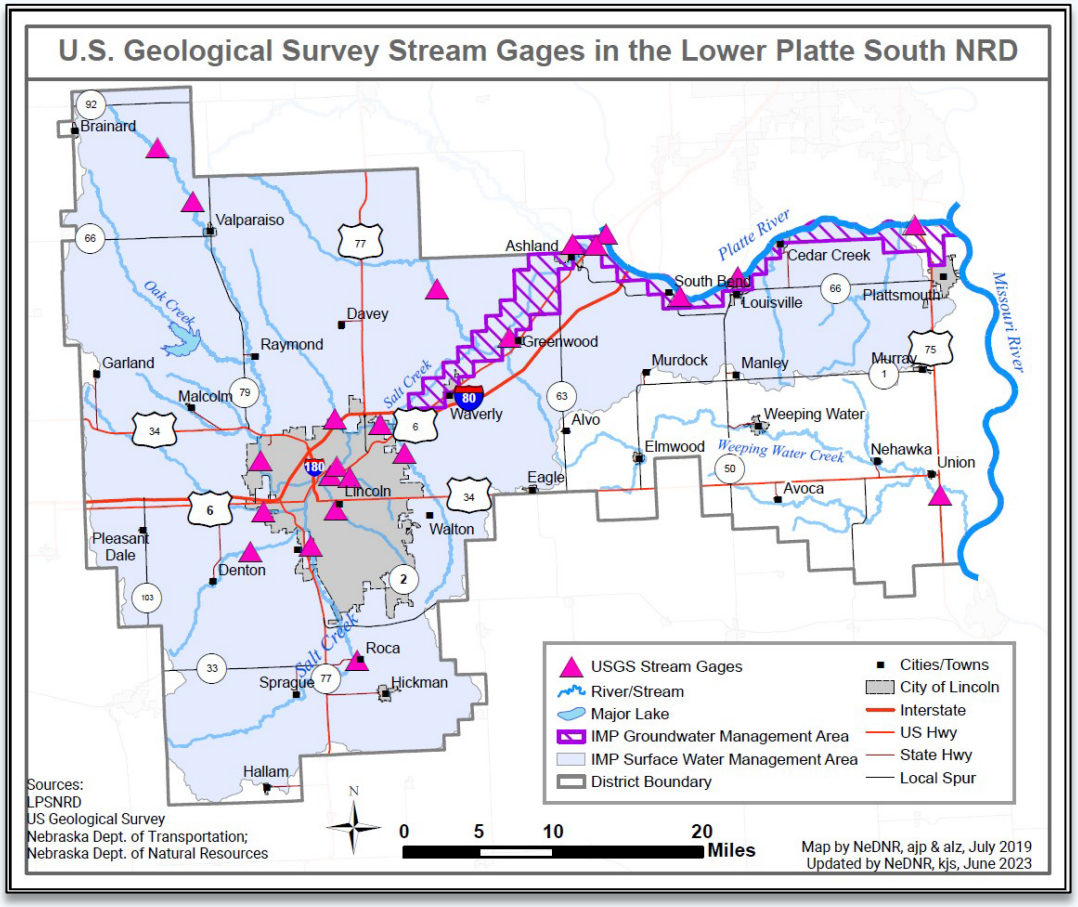
NeDNR Surface Water Monitoring

- 21 USGS streamgages
- 1950s first installations
- 2016 last installation
- 16 receive partial LPSNRD funding



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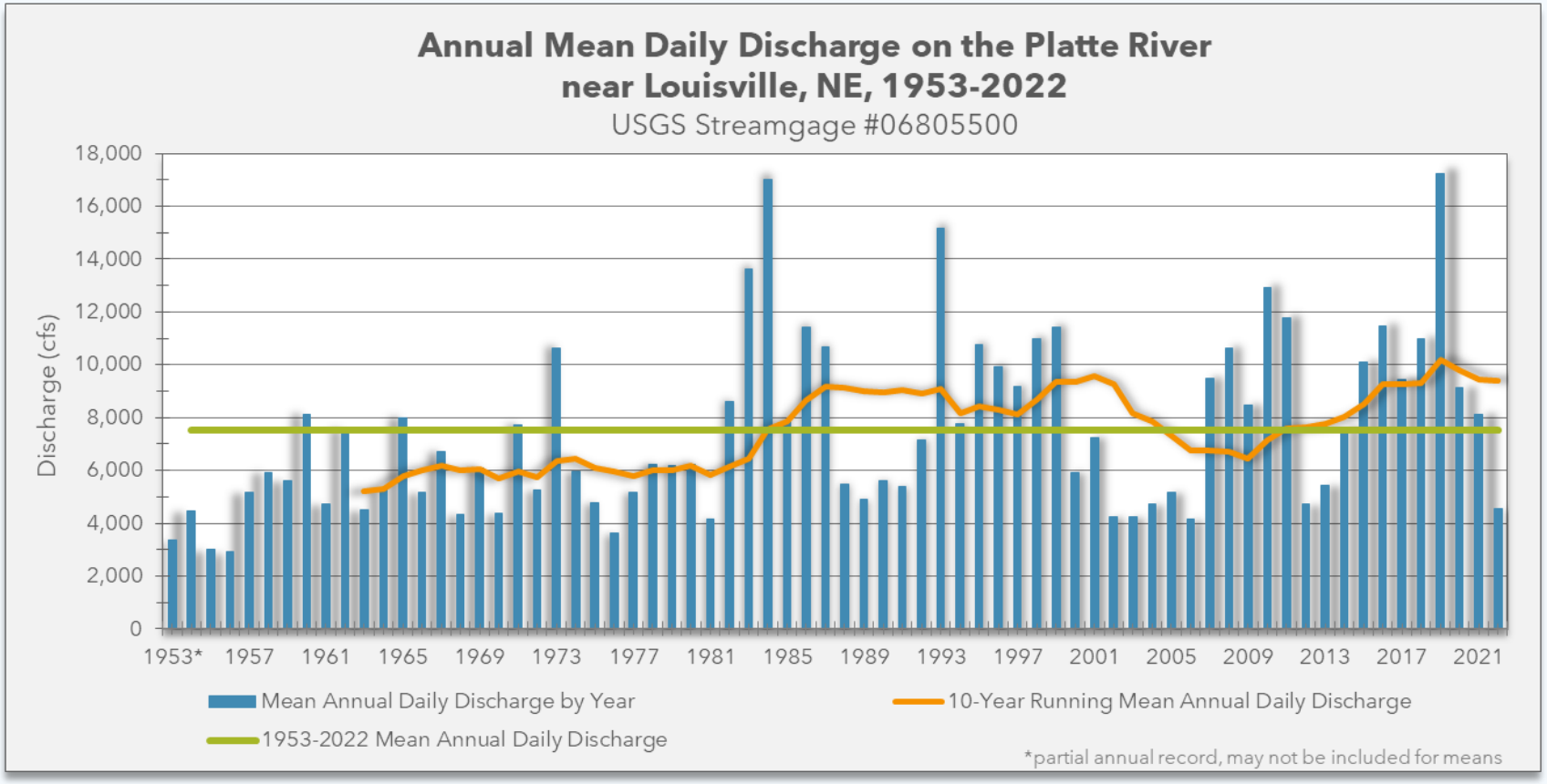
SURFACE WATER MONITORING



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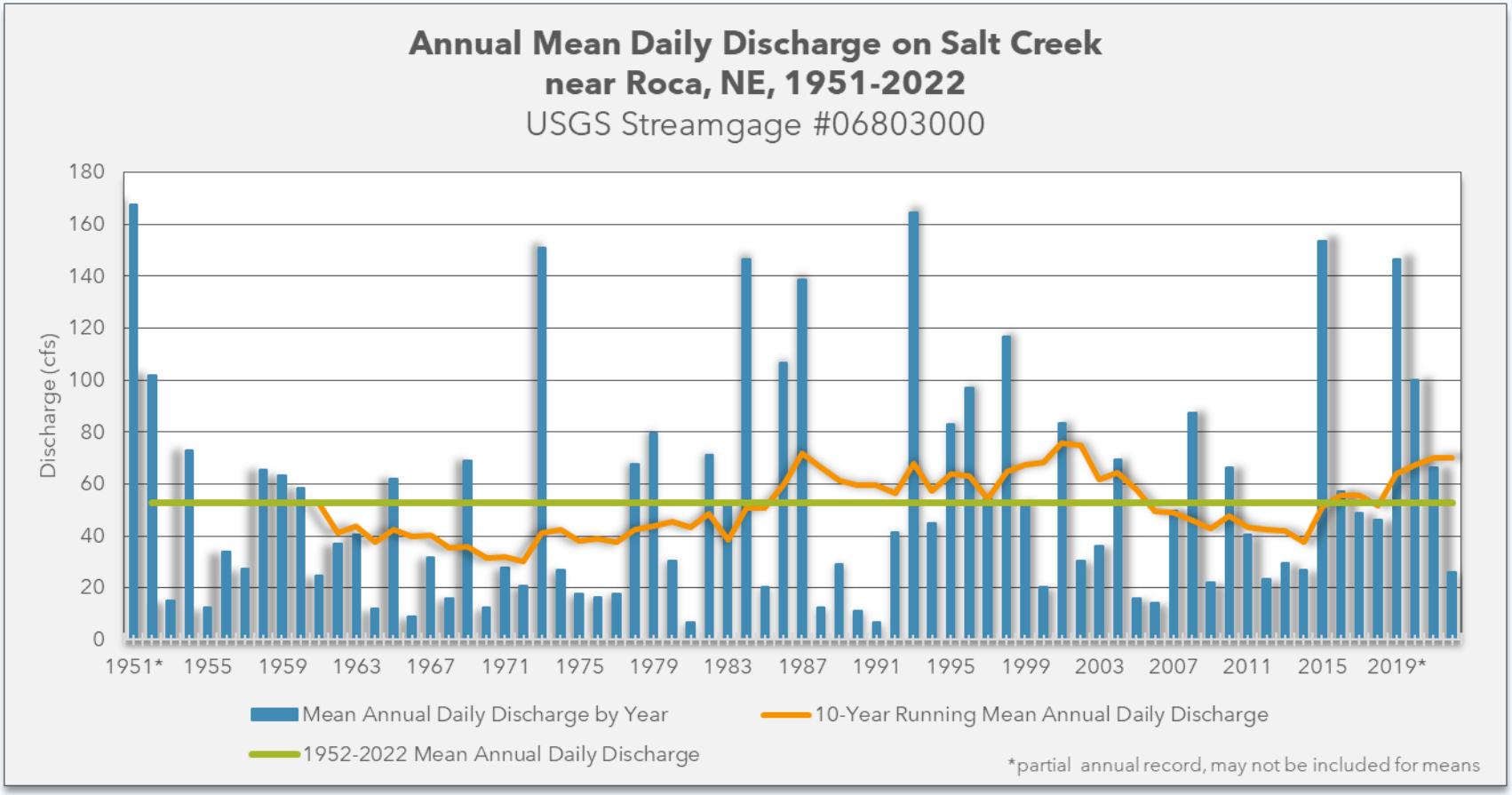

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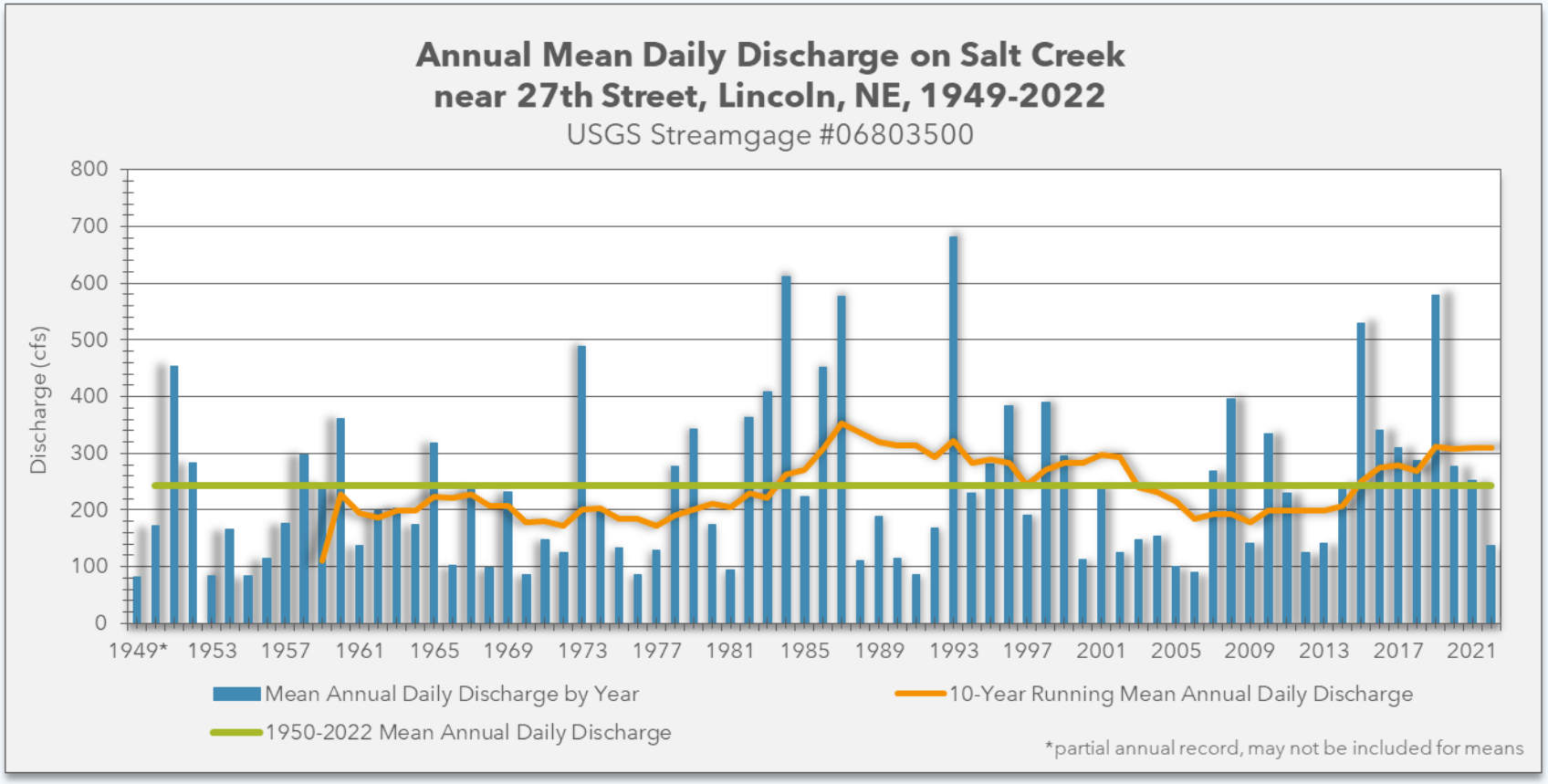
Surface Water Monitoring



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NeDNR Surface Water Monitoring

- Surface Water Pump Site Visits:
  - NeDNR Field Office staff inspected 181 of a possible 210 irrigation permit pump-sites (86%).
  - 32 sites had been set up for surface water irrigation
    - 16 were noted to be groundwater irrigated

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NeDNR Surface Water Monitoring

- Voluntary Surface Water Use Reporting
  - 52 reports out of 209 water rights 2022 (25%)
  - 68 reports out of 208 water rights 2021
  - Reporting includes information about
    - whether permit holder irrigated,
    - reasons for not irrigating (if applicable),
    - types of crops grown,
    - number of irrigated acres, and
    - use of groundwater or surface water.

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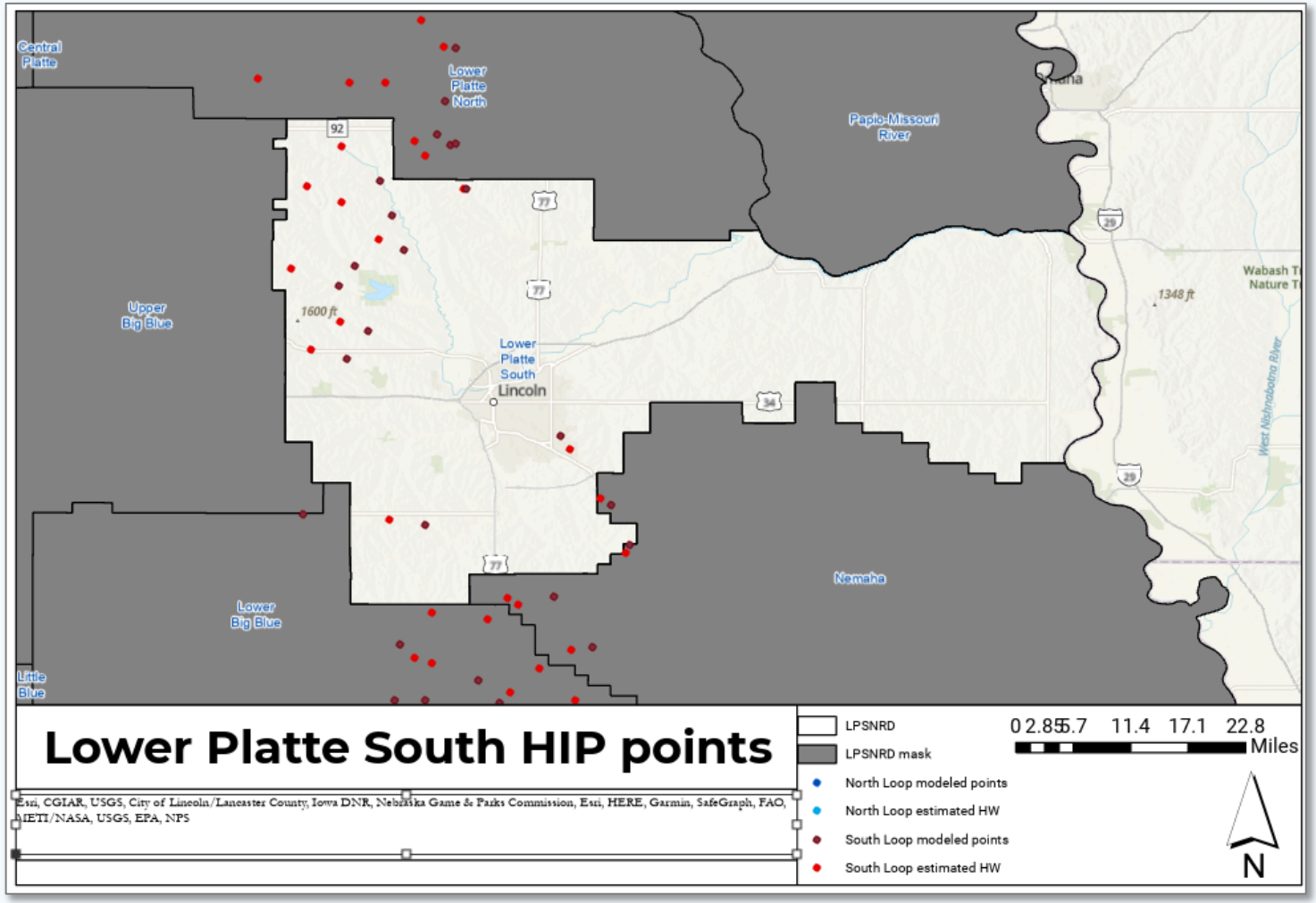
New NeDNR Data Collection Effort: Headwaters Inventory Program (HIP)



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New NeDNR Data Collection Effort: Headwaters Inventory Program (HIP)

- Field monitoring of groundwater/surface water interaction points predicted by model
- Will be used to improve LPMT Model
- Began during 2023, more detail will be reported in next year's IMP report

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LPSNRD Data Collection & Monitoring

NRD Monitoring

- Irrigated acres expansion
- Groundwater level measurements
- Municipal water use

- Other
  - Studies and Planning
  - Education, Outreach, and Collaborations

LPSNRD Groundwater Permitting Activity

- Well Permits and Construction in 2022
  - 5 Well permits issued
  - 1 Well completed (not in HCA)

LPSNRD Groundwater Monitoring & Data Collection

Average Well Level Change by Groundwater Reservoir	
GW Reservoir	**Spring 2021 to Spring 2022 (ft)**
Crete-Princeton-Adams	-1.06
Dwight-Valparaiso	0.57
Lower Salt Creek	-1.99
Missouri River Valley	-3.53
Platte River Valley	-1.09
Remaining Area	-1.80

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LPSNRD Groundwater Monitoring & Data Collection

- Hydrologically Connected Area (HCA) 393 wells
  - 37 wells over 50 gal/min. in 2022
  - 766 million gallons pumped in total
  - 26 irrigation wells account for 40% of total
  - 5 commercial wells account for 55% of total
  - 0 new irrigated acres approved in 2022
- Entire District
  - Flow meters on all wells pumping over 50 gal/min.
  - 348 wells pumping over 50 gal/min. in 2022
  - 5.5 billion gallons pumped total
  - 275 irrigation wells account for 67% of total

LPSNRD Education, Outreach, and Collaboration

- Groundwater Management Planning review
- Best management practices Irrigation Certification Program
- Media, Social Media, Web
- Publications
- ENWRA, LPRBC, LPRC, LPRCA, USGS, NeDNR

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Joint endeavors and Action Plans

Regional and Basin Collaborations
LPSNRD and NeDNR

- **Lower Platte River Basin Consortium**
  - Water supply resiliency, drought planning
  - Ongoing drought monitoring and communication with the public
  - Drought contingency plan adopted in 2019, Plan update in 2024

- **Lower Platte River Basin Coalition**
  - Coordination and consistency across the Basin
  - Basin-wide Plan approved October 2017
  - Second increment adopted in 2022

New Depletions Accounting

Lower Platte River Basin 2016-2022

NRD	PEAK SEASON 5-YR ALLOWABLE DEPLETION (AF)	2022 NRD Reported NET Depletion (AF)	NeDNR Reported Depletion (AF)	NRD Prior Years Peak Season CU Use (AF)	2022 NRD Peak Season CU (AF)	NRD Total Peak Season CU Use (AF)	NeDNR Total Peak Season CU (AF)	Total New Peak Season Depletion	Total New Peak Season CU	Remaining 5-YR Allowable Depletion (AF)	Percent of Remaining 5-YR Allowable Depletion
Upper Loup NRD	5,435	41.5	0.0	723.4	236.2	959.6	0.0	41.5	959.6	5,393.5	99.2%
Lower Loup NRD	11,910	-80.8	62.1	2,192.8	155.1	2,347.9	62.1	-18.7	2,410.0	11,928.7	100.2%
Upper Elkhorn NRD	2,965	37.8	0.0	629.7	56.4	686.1	0.0	37.8	686.1	2,927.3	98.7%
Lower Elkhorn NRD	8,346	0.0	-10.0	2,826.6	0.0	2,826.6	-10.0	-10.0	2,816.6	8,356.0	100.1%
Papio-Missouri River NRD	1,826	14.6	0.0	60.8	26.7	87.5	0.0	14.6	87.5	1,811.4	99.2%
Lower Platte South NRD	2,098	3.3	19.2	23.6	3.3	26.6	19.2	22.5	45.8	2,075.5	98.9%
Lower Platte North NRD	3,736	-54.8	0.0	1,918.4	-70.8	1,847.5	0.0	-54.8	1,847.5	3,790.8	101.5%
TOTALS	**36,316**	**(38)**	**71**	**8,375**	**407**	**8,782**	**71**	**33**	**8853**	**36,283**	**100%**

CU = Consumptive Use AF = Acre Feet

Jointly Identified Actions for the Next Two years

Joint LPSNRD/NeDNR Actions

- Continued participation in regional planning groups (LPRCA, ENWRA, Basin Coalition, and Drought Consortium)
- Seek additional opportunities to participate in joint public outreach and education events and publications.
- Review the need to update the IMP (consistent with Basin Plan)
- Evaluate the need for modifications to the LPSNRD streamgage network
- LPSNRD/NeDNR quarterly coordination meetings moving forward
  - Update to Integrated Management Subcommittee 2x/year

LPSNRD Actions

- Continue to monitor groundwater level changes through its network of groundwater monitoring wells.
- Continue to meter and require annual pumping reports for groundwater wells that have capacity to pump over 50 gpm, as well as public supply wells, and assimilate the data into a comprehensive dataset.
- Continue to collect information on municipal, rural water, and non-municipal industrial water use, land use and population changes, and changes in climate.
- Develop recommendations for the development and management of geographic areas with limited aquifers.
- Conduct discussions with municipalities and rural water districts on coordinating services with regional systems and on water shortage action plans.

NeDNR Actions

- Continue surface water monitoring activities including tracking surface water permit changes, pump site inspections and the voluntary surface water use reporting program.
- Continue technical analyses and development of tools (INSIGHT) for water management, expanding the network to eastern Nebraska as data become available.
- Continue development of the Lower Platte Missouri Tributaries models and convey progress and outcomes to LPSNRD.

Questions?

Thank you.

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