



Voluntary Integrated Management Plans

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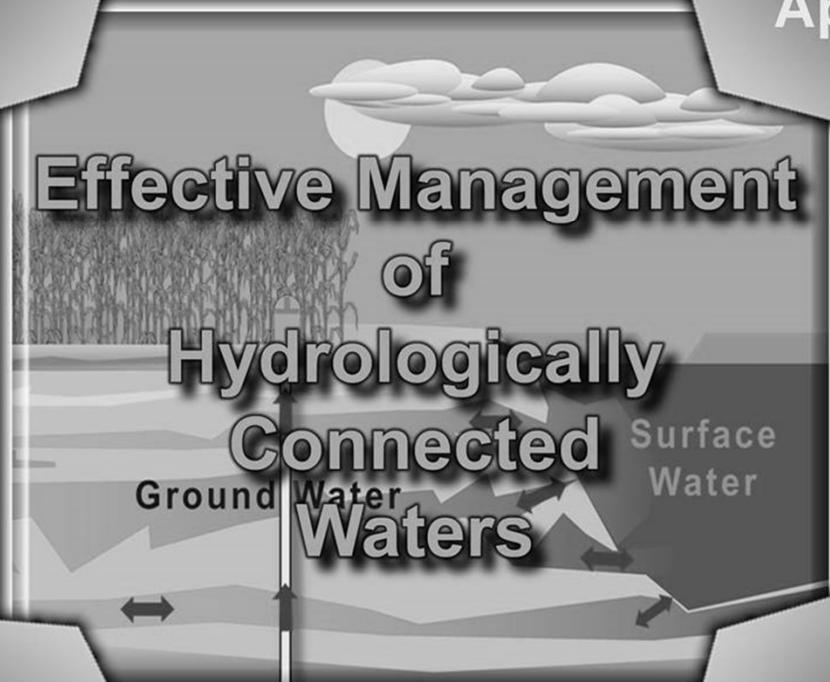
Overview

- Background
- Roles of agencies/stakeholders
- IMP Components
- IMP Process
- INSIGHT Web Tool

**Ground Water
Correlative
Rights**

**Surface Water
Prior
Appropriations**

**Effective Management
of
Hydrologically
Connected
Waters**



Ground Water

Surface Water

**Ground Water
Regulated by
NRDs**

**Surface Water
Regulated by
DNR**

Background

- LB962 (2004)—Legally acknowledged hydrologically connected ground and surface waters
- Process for NRDs and NDR to work together to developing IMPs
 - IMPs initially in fully or over-appropriated basins
 - LB 764 (2010)-inclusion of voluntary IMP process

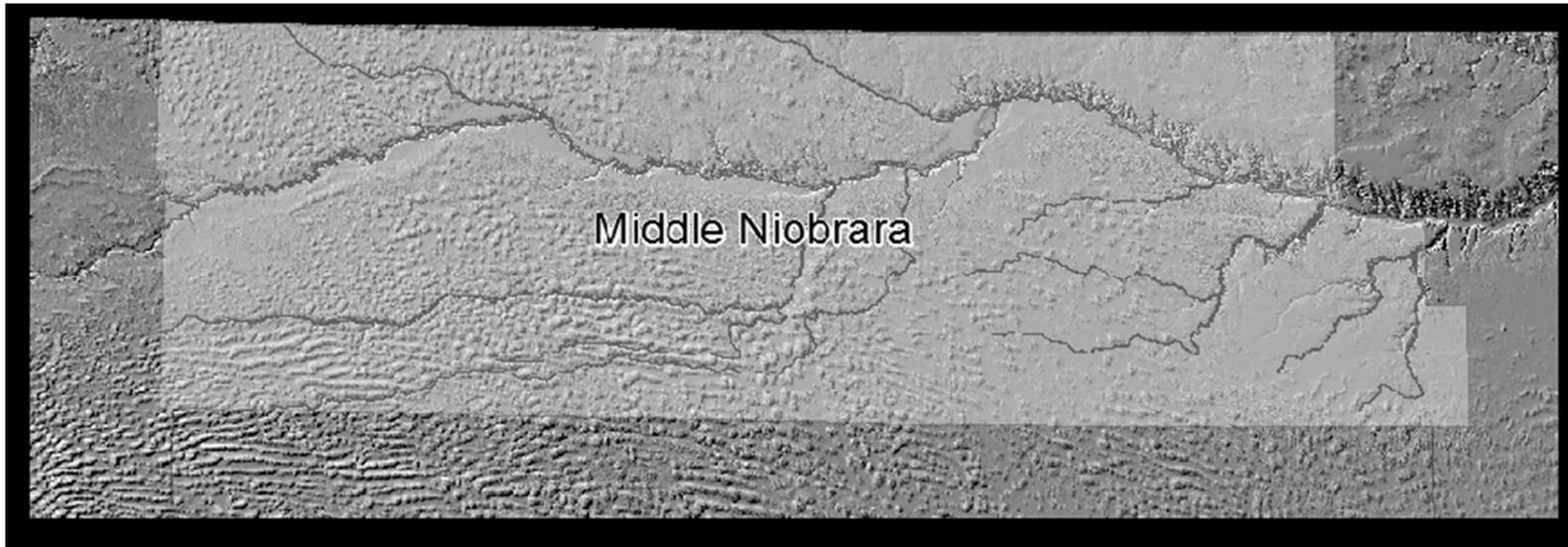
Background

- Voluntary IMP overarching objective
 - Achieve and sustain a balance between water uses and water supplies for the long term
- Protect existing water uses
- Proactive approach to water management
 - Example: If FA designation occurs in future, the Department and NRD may amend the IMP

Roles

NRD Role

- As a partner in writing the IMP
- Groundwater monitoring and controls
- Link for local involvement in the strategic development of the IMP



NDNR Role

- Also a joint partner in writing the plan
- Surface water monitoring and controls
- Provide technical support



NDNR's IMP Goals

- Build a foundation of data and tools to more effectively managed water uses/supplies
- Framework for efficient, transparent, comprehensive data acquisitions and exchanges
- Identify opportunities to better adapt to changing conditions
- Listen to local inputs to increase understanding of future water uses/needs

Stakeholder Roles

- Attend meetings and convey local water issues/concerns
- Provide input to development of IMP goals and objectives
- Inform/educate local groups about IMP process

IMP Development

Components of an IMP

- Required components
 - Goals/Objectives
 - Purpose to achieve a balance between uses and supplies
 - Map of Geographic Area
 - One or more GW controls (§ 46-739)
 - One or more SW controls (§ 46-716)
 - Monitoring Program
- Additional components
 - Action items to achieve goals/objectives
 - Evaluation and review process
 - Education and outreach plan
 - Incentive programs

Slide 12

AZ4

The statutory requirements are: goals/objectives, at least one control, geographic area.

The rest come from where?

Amy Zoller, 5/28/2014

Goals, Objectives and Action Items

- **Goals:** Define what a group wants to accomplish
 - Provide the context from which meaningful objectives and action items are developed
- **Objectives:** Define the measurable outcomes that a group seeks to accomplish in working toward goals
- **Actions items:** Describe the specific tasks that the NRD and NDNR will undertake

Controls

- Statutes require that IMPs have **one or more** GW and one or more SW control
 - Appropriate to achieve goals and objectives

GW controls authorized by § 46-739

- Limit GW expansion
- Transfers
- Municipal/Industrial Tracking
- Well-spacing
- Meters
- Educational requirements
- Certified Acres
- Allocations
- Rotations
- Acres Reduction

SW controls authorized by § 46-716

- Increased Monitoring
- Variance/Transfers
- Conservation Measures
- Moratoriums

Voluntary IMP Process

- NRD contacts NDNR to initiate process
- Determine integrated management area
- Stakeholder Meetings - Consultation
 - Develop **Goals and Objectives**
 - Develop action items to achieve goals and objectives
- NRD/NDNR draft IMP

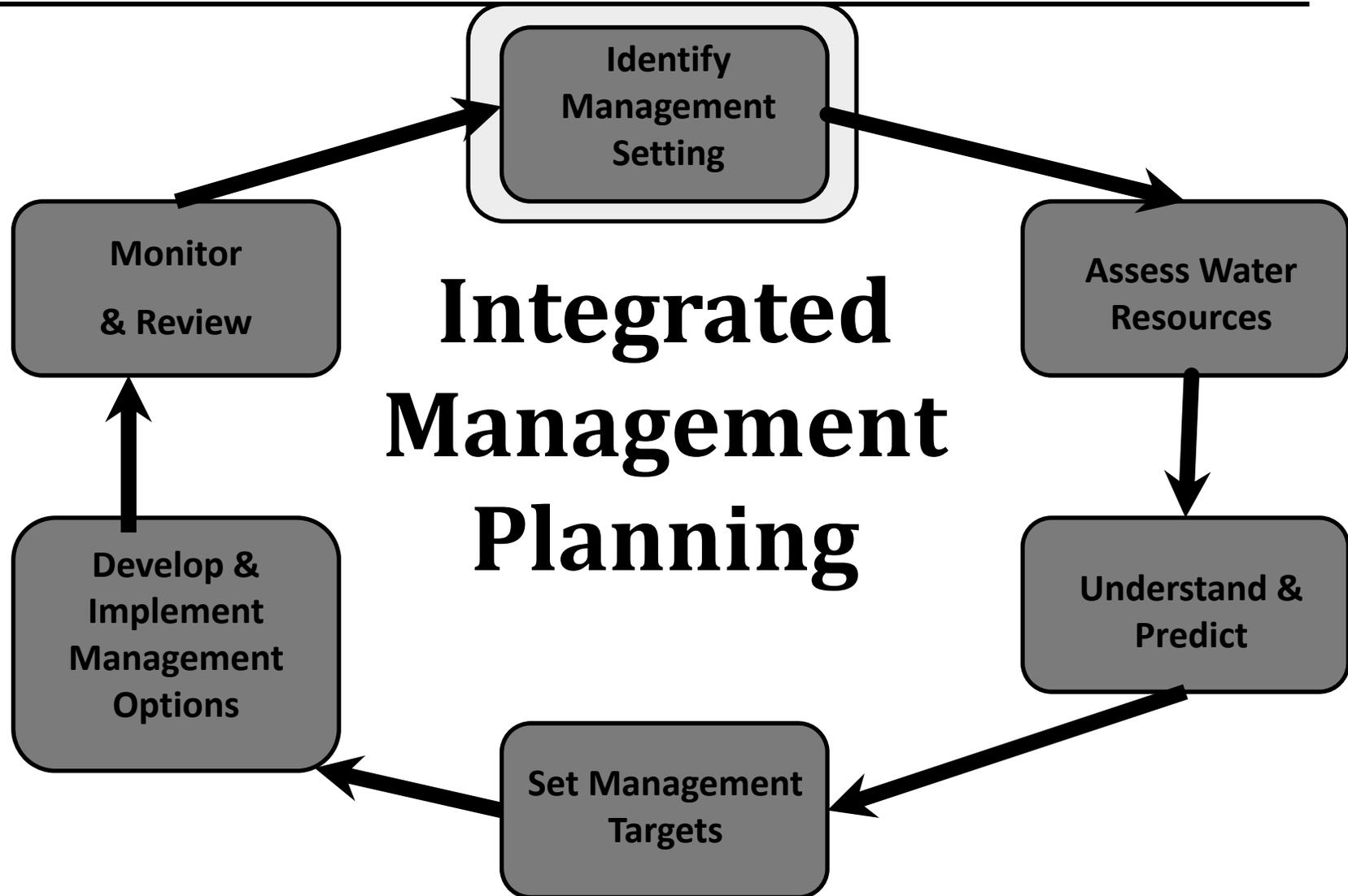
IMP Process

- Letter exchange between NRD and NDNR agreeing to draft plan
- Set and publish hearing date
- Joint public hearing
- NRD/NDNR consider testimony, if no changes to required components of plan...
- Publish orders to make IMP effective

IMPs Generally

- Evolve as the need arises
- No mandatory restrictions on new development
 - Irrigation
 - Municipal
 - Industrial
- Include local input and concerns
- Do not regulate water quality

IMP Long-term process



The INSIGHT Web Tool

The screenshot shows the INSIGHT web tool interface. At the top, the browser address bar displays <http://www.dnr.nebraska.gov/insight/>. The page header includes the "INSIGHT" logo, the text "An Integrated Network of Scientific Information & GeoHydrologic Tools", and navigation links for "HOME", "ABOUT", and "MODELING DATA". The Nebraska Department of Natural Resources logo is also present.

A welcome message reads: "Welcome to INSIGHT. The data and charts represent our first release and we anticipate modifications and updates based on user feedback. Please click this link if you would like to provide a comment or suggestions." To the right of this message is a "SELECT BASIN" dropdown menu.

The main content area features a map of Nebraska divided into hydrologic basins: Big Blue, Elkhorn, Little Blue, Loop, Lower Platte, Missouri Tributaries, and Neosho. A "Getting Started with INSIGHT" sidebar provides instructions on how to use the tool. Below the map is a "Chart: Precipitation Rates and Volumes by Basin" with a "Season: Annual" dropdown menu. The chart displays two data series: "Volume of Precipitation (Acre-Feet)" (represented by bars) and "Rate of Precipitation (Inches/Year)" (represented by triangles). A "Supply" sidebar on the right explains the components of basin water supply.

A callout box labeled "Drop down Menus" points to the "Season: Annual" dropdown menu and the "SELECT BASIN" dropdown menu.

| Basin | Volume of Precipitation (Acre-Feet) | Rate of Precipitation (Inches/Year) |
|----------------------|-------------------------------------|-------------------------------------|
| Big Blue | ~6,000,000 | ~2.8 |
| Elkhorn | ~10,000,000 | ~2.8 |
| Little Blue | ~4,000,000 | ~2.8 |
| Loop | ~18,000,000 | ~2.8 |
| Lower Platte | ~6,000,000 | ~2.8 |
| Missouri Tributaries | ~1,000,000 | ~2.8 |
| Neosho | ~12,000,000 | ~2.8 |

The INSIGHT Web Tool

Explore the Niobrara Basin

Use this page to explore hydrologic data for the Niobrara Basin in the tab area below. If you'd rather learn more about one of the Niobrara's subbasins, use your mouse to hover over the map to the right and click on the subbasin you want to learn more about. Hydrologic data at the basin and subbasin levels are presented below in each tab by big picture, supplies, demands, nature and extent of use, and balance.

Navigate to another basin by selecting one from the drop-down list or use the back button in your browser to reach the statewide map to click on another basin in the map.



Basin Overview **Big Picture** Supply Demand Nature & Extent of Use Balance

At a Glance

| | |
|----------------------------|---------------------------------|
| Basin: | Niobrara |
| Approximate Area: | 11,600 square miles |
| Basin Water Supply: | 1,471,515 acre-feet/year |
| Near Term Water Demand: | 1,395,667 acre-feet/year |
| Long Term Water Demand: | 1,518,762 acre-feet/year |
| Projected Water Demand: | 1,594,700 acre-feet/year |
| Number of Irrigated Acres: | 590,153 acres * |

Average Consumption by Sector (Acre-Feet)

| | Surface Water | | Groundwater | |
|------------|---------------|------|-------------|-----|
| | Acre-Feet | % | Acre-Feet | % |
| Irrigation | 161,049 | 100% | 181,830 | 98% |
| Municipal | 0 | 0% | 4,128 | 2% |
| Industry | 0 | 0% | 15 | 0% |

* Fields suffixed with a * display the most recent year's total. All other data displayed above is computed as an average of available years of record.

The Niobrara Basin is located mostly along the northern boundary of Nebraska and extends westward into Wyoming. The Niobrara Basin has an area of approximately 13,500 square miles, of which about 11,600 square miles are in Nebraska.

At its farthest western extent, the Niobrara River arises near Manville, Niobrara County, Wyoming, about 40 miles west of Harrison, Nebraska. The Niobrara extends to its confluence with the Missouri River, northwest of Niobrara, Knox County, Nebraska.

According to the 2010 U.S. Census, the largest city in the basin is Alliance, with a population of about 8,500. The next largest cities include Valentine (2,700), Ainsworth (1,700), Gordon (1,600), and Atkinson (1,200).

The topography of the western third of the Niobrara Basin consists primarily of plains and dissected plains. The upland plains are land which is flat to gently rolling, and dissected plains are where streams have cut into former plains creating hilly land with steep slopes and sharp ridge crests, along with remnants of the plains on the hilltops. The central third of the basin is mostly sand hills, which are sand dunes stabilized in place by a grass cover. The eastern third of the basin consists of sand hills, plains, and dissected plains. There are narrow valleys in the Niobrara Basin, which are the flat-lying areas along the Niobrara River. Bluffs and escarpments are common along the Niobrara River, and consist of steeply-sloped to vertical hillsides, often with bedrock exposed.

In the Niobrara Basin the aquifers are found in the Arikaree Group and the Ogallala Formation. The Arikaree Group consists generally of massive very fine to fine-grained sandstone; wells in the formation generally provide moderate to low yields. The Ogallala Formation consists of poorly sorted generally

The INSIGHT Web Tool

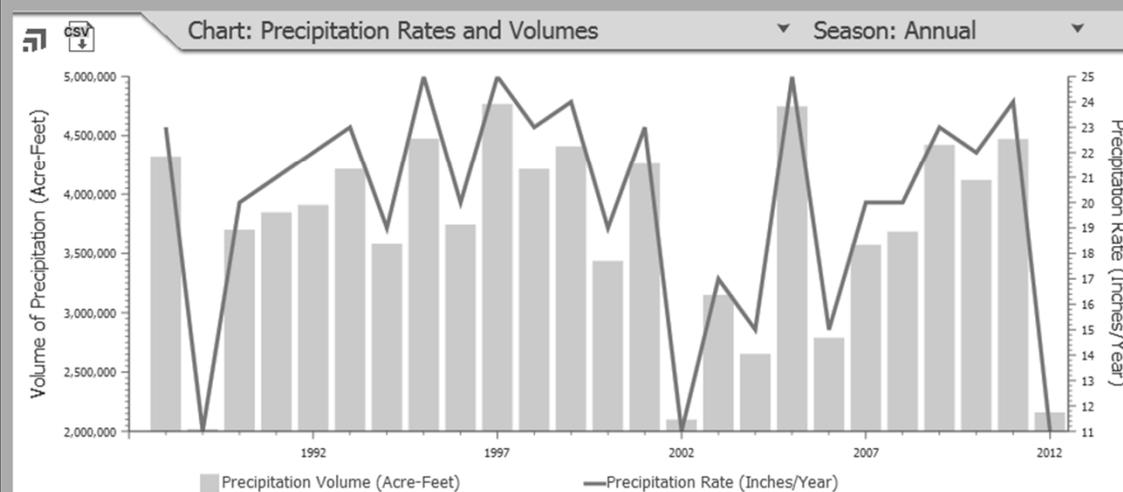
Explore the Niobrara River Gordon to Sparks Subbasin

Use this page to explore hydrologic data for the Niobrara River Gordon to Sparks subbasin in the tab area below. Hydrologic data are presented below in each tab by big picture, supplies, demands, nature and extent of use, and balance.

Navigate to another basin by selecting one from the drop-down list or use the back button in your browser to select a different subbasin.



Big Picture Supply Demand Nature & Extent of Use Balance



Big Picture

The *Big Picture* tab is intended to provide a general overview of the water supplies and uses. This overview allows one to view how much precipitation falls in an area, how much of that precipitation makes its way to a stream via run-off or recharge and how much of that water is consumed on the landscape through evapotranspiration not only cropped lands but all land uses. This tab provides the user with insight into the variability that exists within a given basin for water supply and how that variability translates to more or less water in streams or more or less evapotranspiration on the land.

The charts found in this tab include:

1. precipitation rates and volumes for the basin
2. annual portion of precipitation that goes towards either

Integrated Water Management

- Voluntary IMP
- Balance water uses and supply
- NRDs and NDNR joint effort
- Stakeholder Input
- Continuous Process



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