



Integrated Water Management and Basin-wide Planning

February 11, 2015

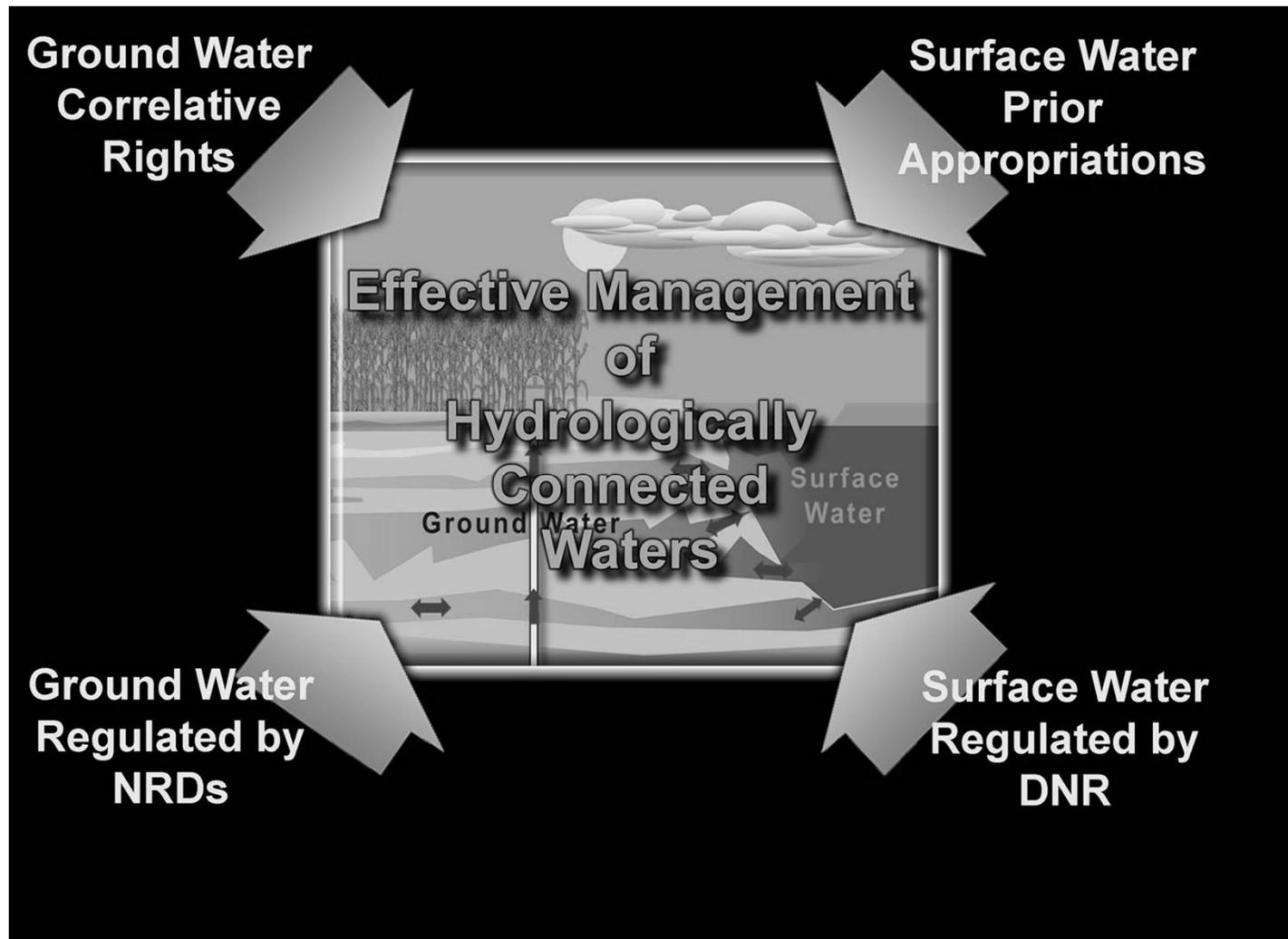
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Overview

- Background
- Integrated Management Plans (IMPs)
- Basin-wide Plans (BWPs)
- Data and Charts (INSIGHT Web Tool)

Background



Background

- Prior to 2004, integrated management processes underway for some NRDs
- Difficult issues for groundwater and surface water required complex management then and in the future
- 2002 - LB1003 was passed creating the Water Policy Task Force

Background

- Water Policy Task Force - Balancing water uses and supplies - sought to ensure
 - economic viability
 - social and environmental health
 - safety and welfare of the state
- LB962 (2004) - Legally acknowledged hydrologically connected ground and surface waters
- IMPs (FA/OA) and Basin-wide Plans (OA)

Integrated Management Plans

- For the required IMPs
 - Allowed a process for both the NRD and NDNR to work together in developing IMPs
 - Objective being the balance of supply and uses in the fully or over-appropriated areas

Integrated Management Plans

- LB 764 (2010)-inclusion of voluntary IMP process
- 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
 - If FA designation occurs in future, the Department and NRD may amend the IMP

Basin-wide Plan Planning

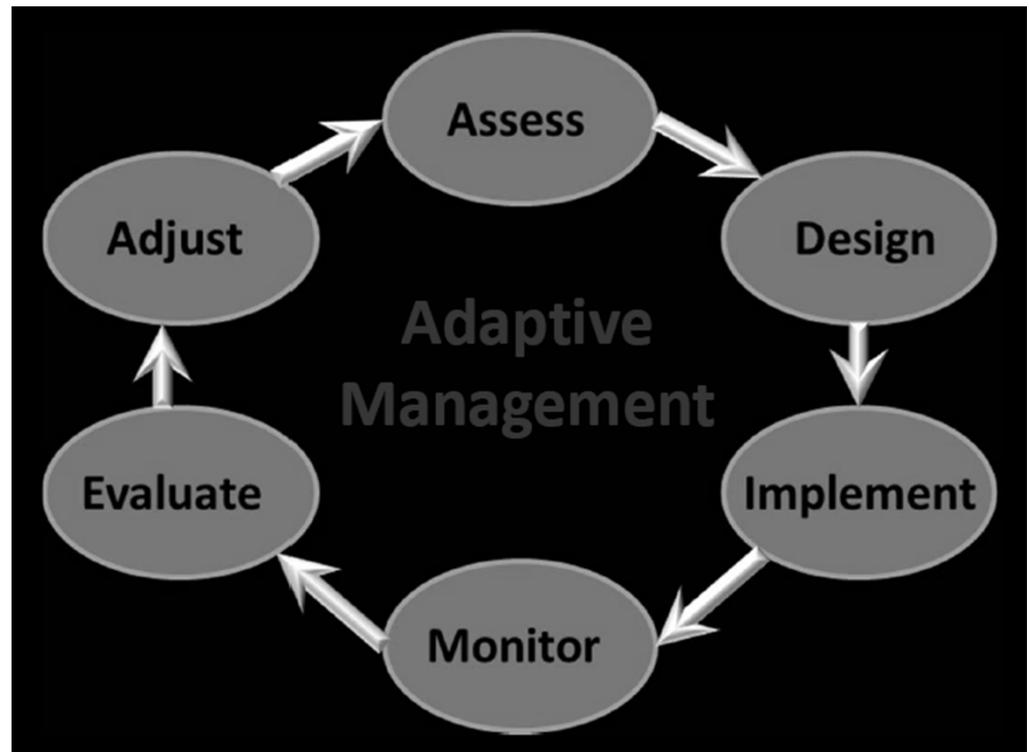
- LB962 also required a BWP if two or more NRDs are within an overappropriated area within the same basin
- This does not apply to the Niobrara Basin - Voluntary BWP
- Same Goal
 - **achieve and sustain long-term balance between water uses and supplies.**



The Niobrara River Basin and sub-basins

What is a Basin-wide Plan?

- Pro-active approach to address opportunities & issues
- Combines surface and groundwater management
- Jointly developed between local NRDs and DNR
- Basin-wide, systematic approach
- Flexible—Adaptive Management



Advantages to Basin Wide Planning

- Framework for consistent Basin goals & objectives
- Addresses connectivity between NRDs
- Projects—do not have to stop at NRD boundaries
- Monitoring—Agreed upon tools and Dissemination of data
- Would not require NRD to have IMP to participate

Differences: IMP and Basin-Wide Plans

IMP

- 1 NRD & DNR
- Specific goals/objectives tailored to each NRD
- Specific controls—may differ between NRDs

Basin-Wide

- Basin NRDs & DNR
- General framework
- Consistent goals/objectives
- Ability to establish more certainty for future water management

Individual IMPs & Basin-Wide Plans

- Consistent goals & Objectives
- Communication
- Actions affect other NRDs
- Facilitate water transfers/ water banking
- Consistent reporting
- Data information exchange

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 title "INSIGHT" and the subtitle "An Integrated Network of Scientific Information & GeoHydrologic Tools". Navigation links for "HOME", "ABOUT", and "MODELING DATA" are visible. A "SELECT BASIN" dropdown menu is located on the right side of the header.

The main content area features a welcome message: "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." Below this is a "Getting Started with INSIGHT" section with instructions on how to use the tool.

The central part of the interface displays a map of Nebraska divided into hydrologic basins: Big Blue, Elkhorn, Little Blue, Loop, Lower Platte, Missouri Tributaries, and Neosho. A "Supply" tab is selected, showing a chart titled "Chart: Precipitation Rates and Volumes by Basin" for the "Season: Annual".

The chart displays two data series: "Volume of Precipitation (Acre-Feet)" represented by bars and "Rate of Precipitation (Inches/Year)" represented by triangles. The Y-axis for Volume ranges from 0 to 20,000,000, and the Y-axis for Rate ranges from 18 to 30. The X-axis lists the basins: Big Blue, Elkhorn, Little Blue, Loop, Lower Platte, Missouri Tributaries, and Neosho.

Approximate data from the chart:

Basin	Volume of Precipitation (Acre-Feet)	Rate of Precipitation (Inches/Year)
Big Blue	~6,000,000	~26
Elkhorn	~10,000,000	~26
Little Blue	~4,000,000	~26
Loop	~18,000,000	~24
Lower Platte	~6,000,000	~26
Missouri Tributaries	~1,000,000	~26
Neosho	~12,000,000	~20

To the right of the chart, a "Supply" section provides a definition: "Basin water supplies represent the streamflow water supply that is available for total use within a river basin or subbasin. If no surface water or groundwater use was occurring by humans in a basin, the basin water supply would be represented by the streamflow data captured at a streamflow gaging station. However, streamflow is impacted by human activity; therefore, to calculate a total basin water supply, four water supply components are added together. These four water supply components include: 1. Streamflow, 2. Surface water consumptive uses, 3. Groundwater depletions, 4. Upstream Inflows."

Basin Charts and Data

INSIGHT

An Integrated Network of Scientific Information & GeoHydrologic Tools
HOME ABOUT MODELING DATA

Nebraska
Department of Natural Resources

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.

SELECT BASIN ▾

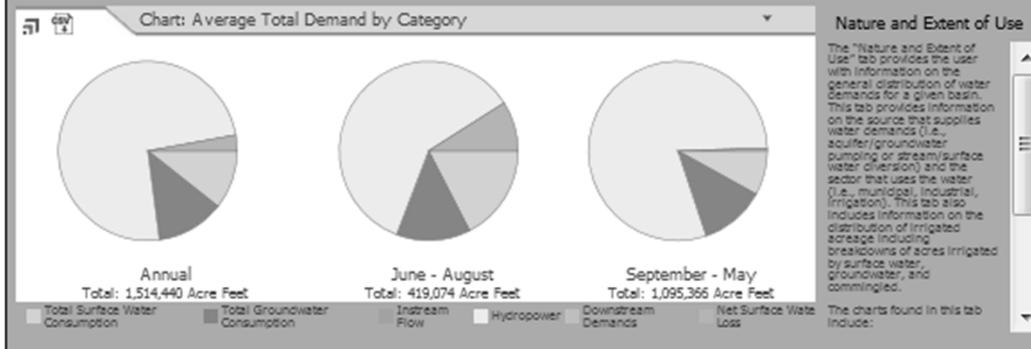
Explore the Niobrara Basin

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 dropdown 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

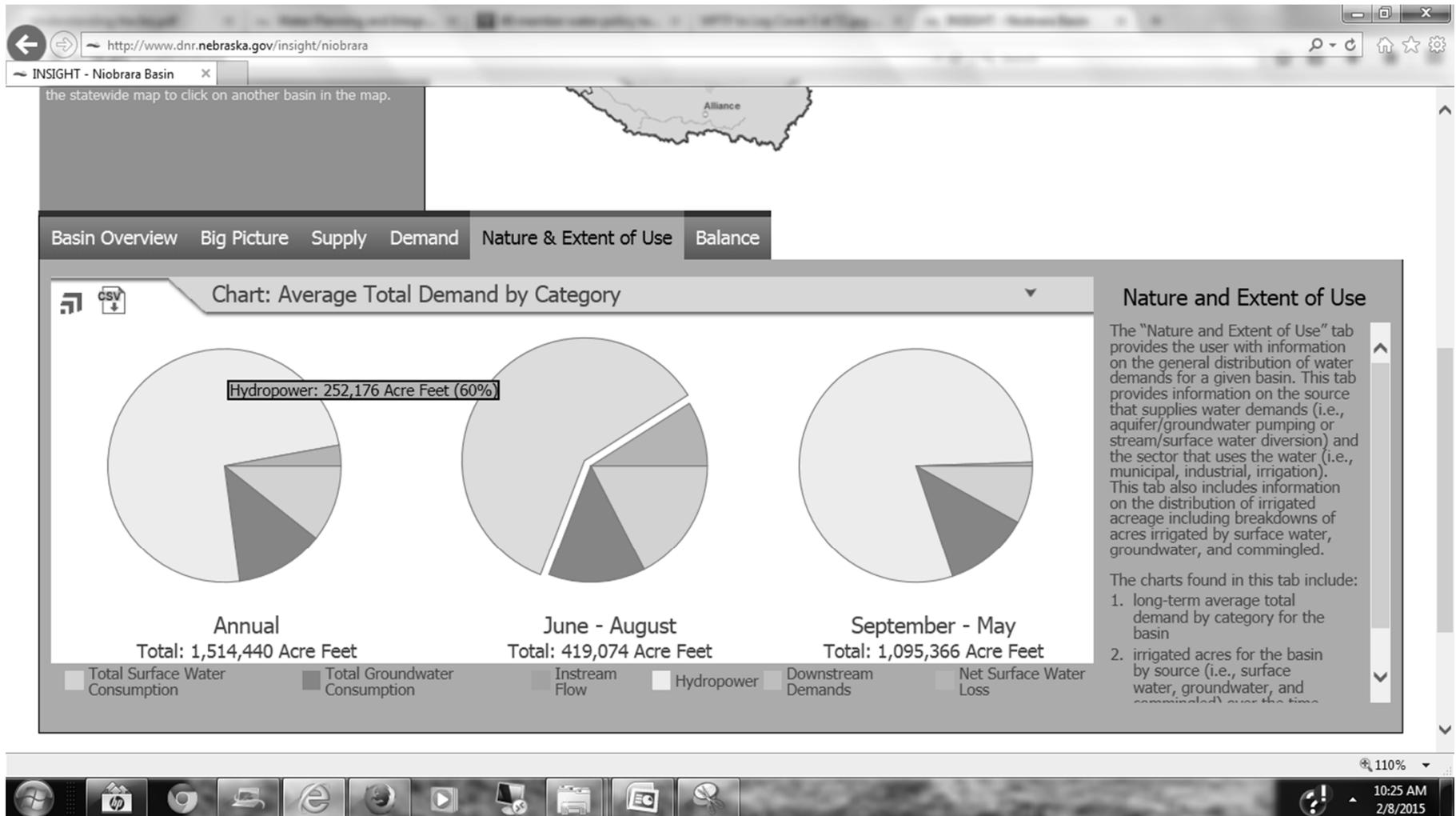


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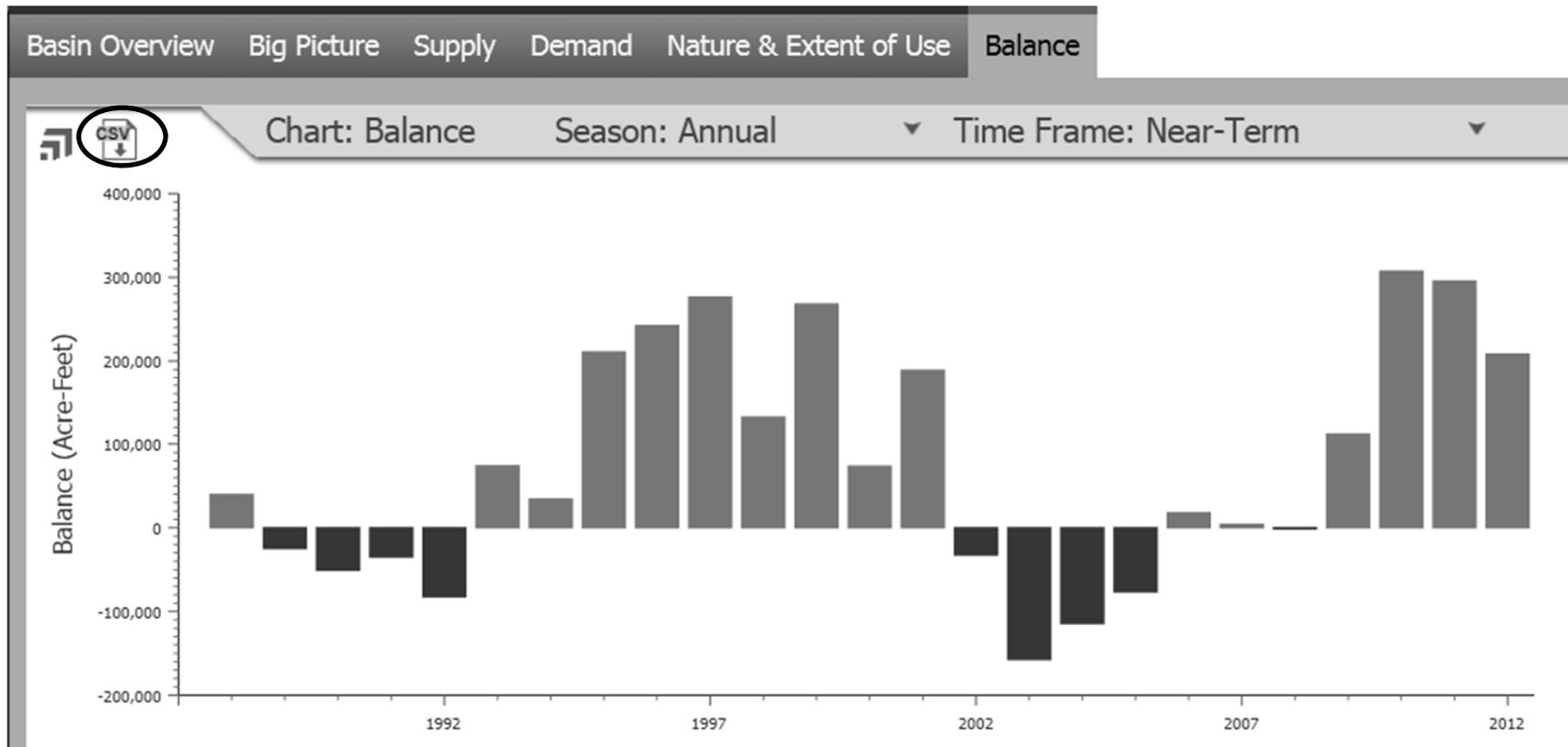
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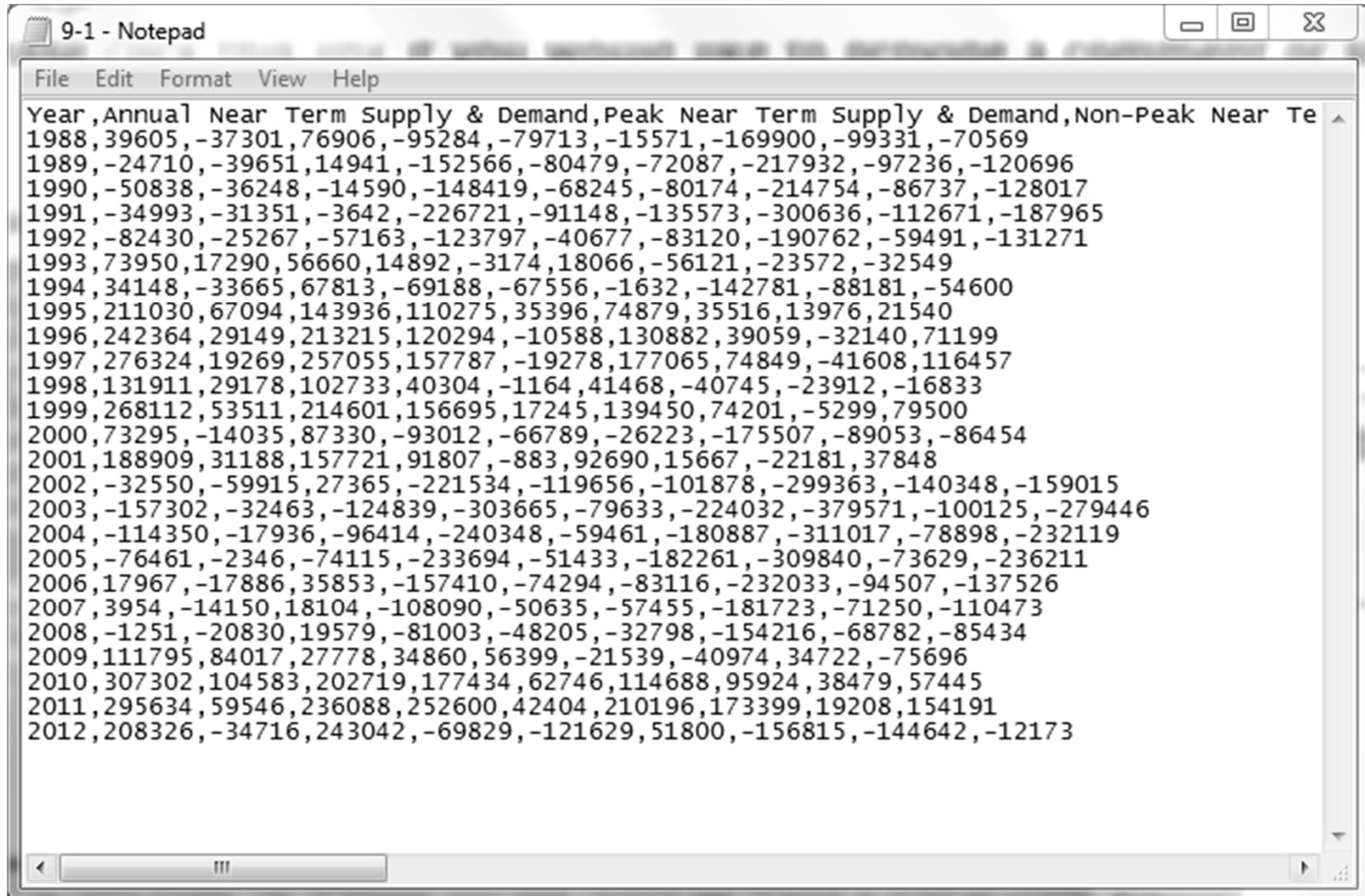
Water Uses



Water Balance - Near Term



Downloaded Data



9-1 - Notepad

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Year	Annual	Near Term Supply & Demand	Peak	Near Term Supply & Demand	Non-Peak	Near Term Supply & Demand	Te		
1988	39605	-37301	76906	-95284	-79713	-15571	-169900	-99331	-70569
1989	-24710	-39651	14941	-152566	-80479	-72087	-217932	-97236	-120696
1990	-50838	-36248	-14590	-148419	-68245	-80174	-214754	-86737	-128017
1991	-34993	-31351	-3642	-226721	-91148	-135573	-300636	-112671	-187965
1992	-82430	-25267	-57163	-123797	-40677	-83120	-190762	-59491	-131271
1993	73950	17290	56660	14892	-3174	18066	-56121	-23572	-32549
1994	34148	-33665	67813	-69188	-67556	-1632	-142781	-88181	-54600
1995	211030	67094	143936	110275	35396	74879	35516	13976	21540
1996	242364	29149	213215	120294	-10588	130882	39059	-32140	71199
1997	276324	19269	257055	157787	-19278	177065	74849	-41608	116457
1998	131911	29178	102733	40304	-1164	41468	-40745	-23912	-16833
1999	268112	53511	214601	156695	17245	139450	74201	-5299	79500
2000	73295	-14035	87330	-93012	-66789	-26223	-175507	-89053	-86454
2001	188909	31188	157721	91807	-883	92690	15667	-22181	37848
2002	-32550	-59915	27365	-221534	-119656	-101878	-299363	-140348	-159015
2003	-157302	-32463	-124839	-303665	-79633	-224032	-379571	-100125	-279446
2004	-114350	-17936	-96414	-240348	-59461	-180887	-311017	-78898	-232119
2005	-76461	-2346	-74115	-233694	-51433	-182261	-309840	-73629	-236211
2006	17967	-17886	35853	-157410	-74294	-83116	-232033	-94507	-137526
2007	3954	-14150	18104	-108090	-50635	-57455	-181723	-71250	-110473
2008	-1251	-20830	19579	-81003	-48205	-32798	-154216	-68782	-85434
2009	111795	84017	27778	34860	56399	-21539	-40974	34722	-75696
2010	307302	104583	202719	177434	62746	114688	95924	38479	57445
2011	295634	59546	236088	252600	42404	210196	173399	19208	154191
2012	208326	-34716	243042	-69829	-121629	51800	-156815	-144642	-12173

Basin-Wide Planning

- General framework
- Consistent goals/objectives
- Balance of water supplies and uses
- Ability to establish more certainty for future water management



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