

RECLAMATION

Managing Water in the West

Managed Aquifer Recharge Issues and Perspective



U.S. Department of the Interior
Bureau of Reclamation

Three Questions:

- What is Winter Water Savings?
- Why did Winter Water Savings happen?
- What happened this year?

Followed by some Observations

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What Makes Reclamation Tick?

- **Federal Reclamation Law**
- **Project Authorizations**
- **Repayment Contracts**
- **State Water Law**

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1902 Reclamation Act

- Reclamation gets its water rights from the State
- Reclamation honors senior rights
- Junior rights honor Reclamation's rights

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Palisades Authorization

- **First Authorized by the Secretary in 1941**
- **Reauthorized by the Congress in 1950**
- **Section 4 of 1950 reauthorization:**
 - Irrigation Organizations must agree to curtail winter diversions of water for construction to continue**

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Spaceholder Contracts

- **Certain Spaceholders agreed to make no diversions for 150 consecutive days between November 1 through April 1 of each storage season**
- **Those Spaceholders get preferred Reservoir space – that always fills**

State Water Law (Eagle Decrees):

“The contracts ... constitute a common plan for administering the operation of the Snake River.”

- **Implemented preferred (WWS) Reservoir Space**

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Palisades w/out WWS:

Average Yield would be 125,000 acre-feet

- **Would eliminate shortages from 1918 to 1930**
- **Shortages would occur in 1931, 1932, 1933, 1934, 1935, 1937 (data range = 1918-1939)**

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Palisades with WWS:

Average Yield would be about 500,000 acre-feet

- **Would eliminate all shortages 58 years out of 60**
- **Shortages would only occur in 1934 and 1935 (1949 Report)**

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Winter/Spring Operations

- Reclamation's main objective is to fill the reservoirs
- Reclamation bases reservoir operation decisions on historic hydrology data, reservoir content, system needs, and run off forecasts
- Flood Control and power are authorized project purposes that contribute toward project costs and must be considered in decisions

What do we Know?

Things we Know	Things we Don't know
Snow Pack Past Weather Conditions Historic Hydrologic Conditions Historic Weather Conditions Historic Water Use Practices	Future Weather Conditions How the Run Off will Occur Future Water Use

Decision Making

What We Use	What We Don't Use
Snow Pack Data Historic Hydrologic Data Historic Weather Data Historic Water Use Data	Astrology Witchcraft Anecdotal Information

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When are Decisions Made?

- Before We Know What Will Happen

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Water Year 2007:

- Started with Relatively Good Carryover Storage
- Precipitation through December was OK
- January Precipitation was poor
- February Precipitation was OK
- Posed on March 1 to Fill and Spill
- March through July Precipitation was Poor
- Major Reservoirs failed to fill

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How Big was the Miss?

- Perfect Operation (based on Hindsight) = 135 kaf extra Palisades Storage
- 135 kaf = Less than ½ Inch Precipitation over the Watershed

March-July Critical Time

- Record or Near Record Low Precipitation
- Temperatures Inefficient to Provoke Run Off
- Early and Strong Irrigation Demand

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March-July Precipitation Lewis Lake Divide

- Average = 18 Inches
- Previous Low = 10 Inches
- 2007 = 8.7 Inches

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Annual Runoff & System Storage

Minidoka & Palisades Projects Reservoirs – Water Supply Comparisons Only

	<u>Water Year Category</u> (April-September Heise Unregulated Flow)			
		<u>Low</u> Less than 3.0 MAF	<u>Medium</u> 3.0 – 5.0 MAF	<u>High</u> More than 5.0 MAF
<u>Reservoir Storage</u> (Nov. 1 content of prior year)	<u>Low</u> 1.3 MAF or lower	Red	Red	Yellow
	<u>Medium</u> 1.3 – 2.5 MAF	Red	Green	Green
	<u>High</u> Above 2.5 MAF	Yellow	Green	Green

- **Red** – no water available for recharge
- **Yellow** – caution; water might be available for recharge
- **Green** – Water could be available for recharge, if institutional constraints are addressed

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Annual Runoff & System Storage

Minidoka & Palisades Projects Reservoirs, 1990 – 2007

	<u>Water Year</u> (April – September Heise Unregulated Flow)			
		<u>Low</u> Less than 3.0 MAF	<u>Medium</u> 3.0 – 5.0 MAF	<u>High</u> More than 5.0 MAF
<u>Reservoir Storage</u> (Nov. 1 content of prior year)	<u>Low</u> 1.3 MAF or lower	2002 2003 2004	1991, 1993 1995 2005 2006	
	<u>Medium</u> 1.3 – 2.5 MAF	1990, 1992 2001 1994 2007		
	<u>High</u> Above 2.5 MAF		1998 2000	1996 1997 1999

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