

Municipal Vulnerability to Curtailment

Idaho Water Users Association

Boise, Idaho

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Overview

- **Municipal rights *are* considered vulnerable to curtailment**
- **Municipalities**
 - **Understand and accept prior appropriation doctrine**
 - **The need to shoulder a proportionate responsibility to sustain water supplies**



Overview (continued)

- **Municipalities face a different reality than most other water users**
 - They cannot ignore the
 - Obligation to provide water for human needs
 - Need to plan for future growth
 - Municipal curtailment is not as easy as turning off water to an agricultural field
 - Municipal curtailment is not easy to verify



Overview (continued)

- **Need to develop a pragmatic, cost-effective way for municipalities to**
 - Address injury caused by junior-priority pumping
 - Provide water-supply certainty for current and future residents and businesses



Goal

- Help you better understand perspective of municipal water suppliers and users
- Perhaps lay a foundation for resolving questions that extend beyond the recent and current delivery calls

Basis for Curtailment

- Diversions for **consumptive uses** under junior-priority, **non-exempt** water rights may be curtailed during times of shortage to ensure sufficient supply for senior water-right holders
- Governed by conjunctive management rules (IDAPA 37.03.11)



Are Municipal Rights Exempt?

- **Uses exempt from curtailment:***
 - Use of groundwater for homes not served by municipal system, with irrigation of up to ½ acre and maximum diversion of up to 13,000 gpd
 - Any other uses with a maximum diversion of less than 0.04 cfs and diversion volume of 2,500 gpd
- **Municipal rights have *not* been considered exempt**



*(IDAPA 37.03.11.020.11, Idaho Code § 42-111)

Municipal Curtailment

- **Previous curtailment orders exempted “culinary” and/or in-home uses from curtailment (regardless of whether the use was consumptive or non-consumptive)**
 - Surface Water Coalition
 - Blue Lakes
 - Clear Springs
- **Rangen**
 - Final 1/29/2014 Order did not exempt any municipal uses
 - Director’s letters to owners of curtailed rights stated that “non-consumptive uses and culinary in-house uses of water are not subject to curtailment”

Consumptive Uses

- **Consumptive use: water lost from hydrologic system, e.g.,**
 - Municipal irrigation
 - Municipal indoor use where wastewater is sent to evaporation ponds or is land-applied
- **Unless shown otherwise, municipal use is considered to be fully consumptive**
 - Permit applications
 - Wastewater reuse
 - Model simulations

Non-Consumptive Use

- **Treated wastewater that returns to hydrologic system is considered available for downstream users**
- **Non-consumptive uses may include**
 - Indoor domestic (e.g., culinary) use
 - Indoor commercial uses
 - Indoor industrial uses
 - “Unaccounted” water (in some cases)

Water Vulnerable to Curtailment

Use	Individual Wells	Municipal <i>Non-Consumptive</i> Use (water returns to hydrologic system)	Municipal <i>Consumptive</i> Use (water does not return to hydrologic system)
Domestic indoor	Up to 13,000 gallons per day - exempt under IC §42-111	Less vulnerable	Vulnerable to curtailment?
Urban residential irrigation		Vulnerable to curtailment	Vulnerable to curtailment
Small commercial or industrial uses	Up to 0.04 cfs and 2,500 gpd - exempt under IC §42-111	Vulnerable to curtailment	Vulnerable to curtailment
Other irrigation, commercial, industrial, etc. uses	Vulnerable to curtailment	Vulnerable to curtailment	Vulnerable to curtailment

Quantifying Consumptive and Non-Consumptive Municipal Use

1. System by system, connection-by-connection analysis
2. Compare summer and winter use
 - Seasonal irrigation is mostly consumptive use
 - Remainder (non-irrigation use) is a combination of domestic/commercial/industrial use; includes consumptive and non-consumptive components
3. Approximate consumptive use based on per-capita averages



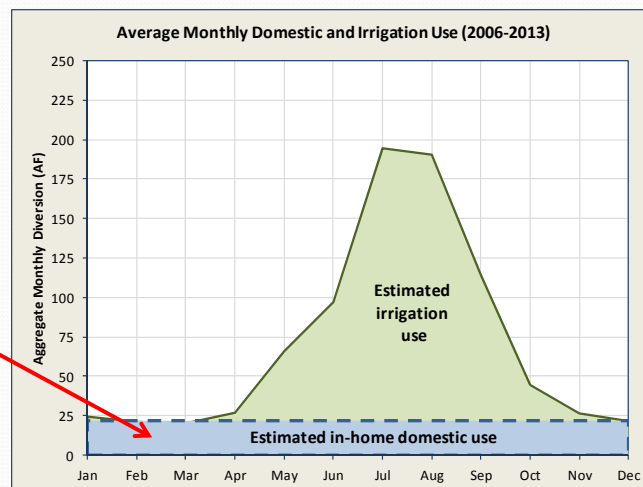
1. System Analysis

- Data for connection-by-connection analysis generally insufficient
- Meters for residential or commercial users represent delivery, not use
- Some systems count multi-family residential use under commercial accounts
- Wastewater from end users typically is not metered
- Aggregate wastewater data not reliable
 - Often measured by flume with periodic readings
 - Includes inflow and infiltration
 - May include evaporation (e.g., prior to land disposal)



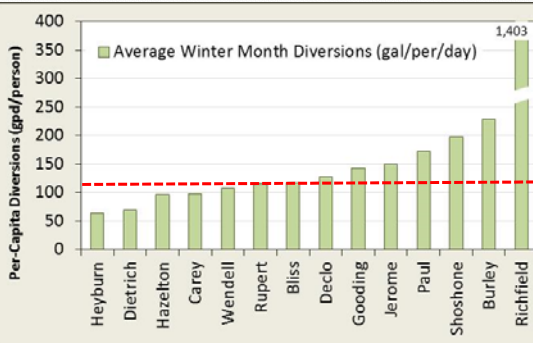
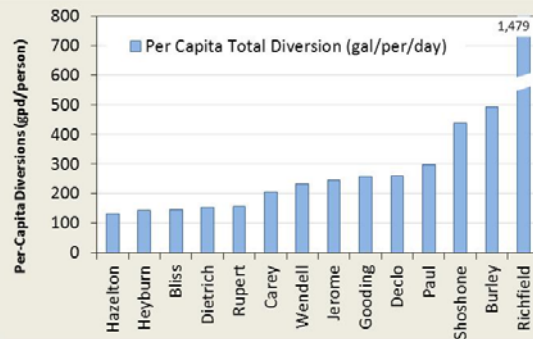
2. Winter-Summer Difference

- Summer irrigation represents a consumptive use
- Portion of “in-home domestic” production may include commercial use



3. Per Capita Diversions

- Substantial variation in
 - Total per capita diversions
 - Average per capita winter-month diversions
- “Average” indoor use: ± 110 gpd/person)



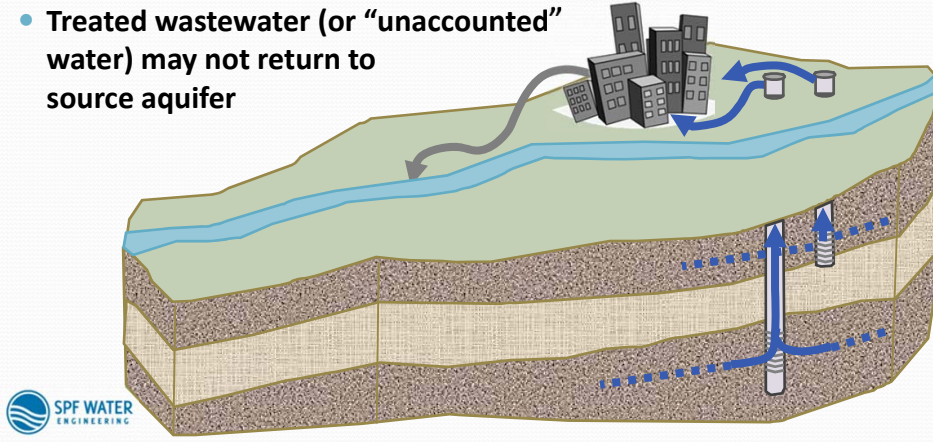
Complicating Factors for Quantifying Consumptive Use

- Water for indoor use (e.g., for domestic, culinary, potable uses) may be fully consumptive if municipal wastewater is discharged to evaporation pond or is land-applied
- 8 of 14 “Coalition” cities evaporate or land-apply wastewater – this water is consumptively used and therefore vulnerable to curtailment



Complicating Factors (continued)

- Different wells may tap different aquifers
- Consumptive use from one aquifer may not impact senior user
- Treated wastewater (or “unaccounted” water) may not return to source aquifer

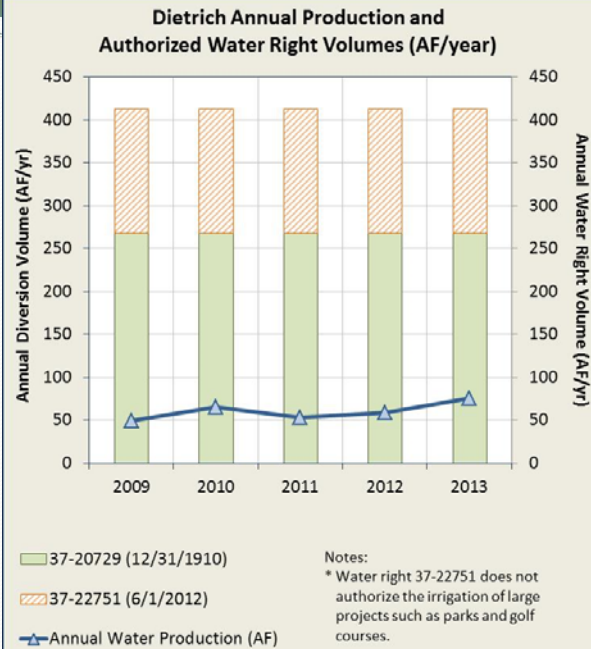


Allocating Use to Senior-Priority Rights

- In a delivery call, only consumptive use under junior-priority rights is vulnerable to curtailment
- Therefore, allocate consumptive use to senior-priority rights
- Right-allocation timeframe: daily, monthly, or annual?
 - Most municipal water rights have implicit annual volume limit
 - Monthly intervals reflect seasonal use
 - ESPA depletions currently are calculated on a monthly basis
 - Analysis timeframe depends on circumstances (impact distance, etc.)?

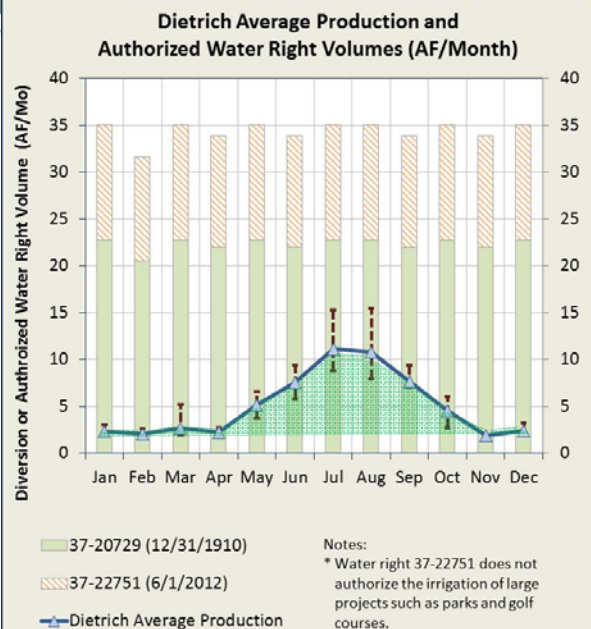
Allocate on Annual Basis

- 2 water rights
- Annual production, 2009-2013



Allocation on Monthly Basis

- Monthly volume; varies based on:
 - Days per month
 - Irrigation pattern (for irrigation rights)
- Monthly average production (2009-2013)
- Production range

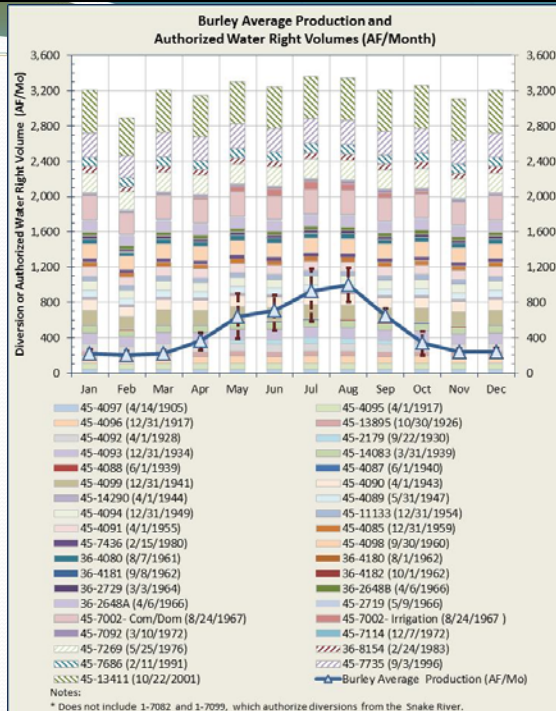


Complicating Factors for Allocating Use

- Typical city has authorized service area (place of use), multiple wells within service area, and multiple rights (with multiple priority dates)
- Some cities have multiple, separate water systems
- Some cities have integrated water rights (listing multiple points of diversion to reflect integrated delivery system);
- Water for consumptive and non-consumptive uses (and under different priority dates) may be pumped from the same wells
- Portions of some cities are irrigated with surface water under non-municipal rights

Burley

Water Right Volume & Production

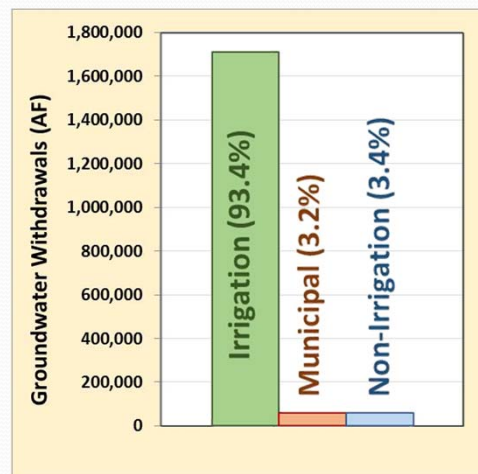


Burdensome Approach?

- Takes substantial resources to
 - Document municipal consumptive use
 - Allocate municipal use to senior-priority rights
 - Prepare plans to mitigate for junior-priority, consumptive use
- Requires substantial administrative effort to
 - Verify consumptive use
 - Evaluate mitigation plans
 - Verify curtailment if necessary

Size of Problem...

- Depends on perspective
- From a resource standpoint, municipal represents ~3.2% of pumping in “Area of Common Groundwater Supply”
- Model curtailment scenarios do not include municipal curtailment



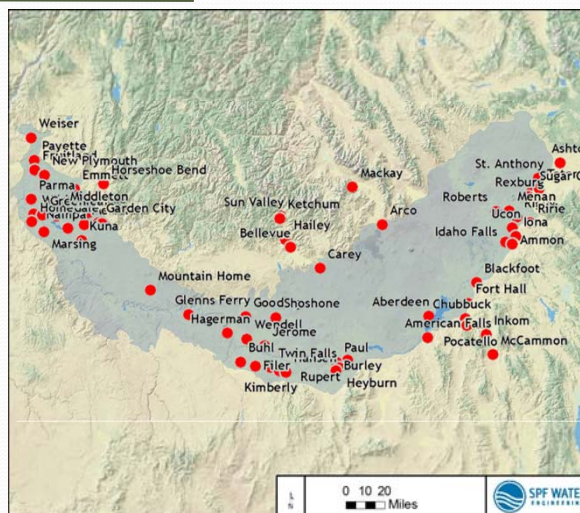
...Big problem for Cities

- 3 cities came very close to curtailment last spring – mitigation was averted by Rangen pipeline
- While threat of curtailment motivates action, cities do not work well in reactive mode



Idaho Cities

- About 70% of Idaho residents live in urban areas
- Relevant to
 - ESPA cities
 - Treasure Valley cities
 - Other Idaho cities



Parity

- Individual domestic rights are exempt from curtailment
- Is there a portion of municipal rights (aggregated domestic uses) exempt from curtailment?
- Constitution (Article XV, Section 3)
 - “Priority of appropriations shall give the better rights as between those using the water, but when the waters of any natural stream are not sufficient for the service of all those desiring the use of the same, *those using the water for domestic purposes ... have the preference over those claiming for any other purpose*, and those using the water for agricultural purposes shall have preference over those using water for manufacturing purposes.”
- Applies primarily to condemnation proceedings?



Parity (continued)

- Will city residents seek to drill wells under exempt rights if municipal rights are curtailed?



Parity (continued)

- Will businesses seek to drill wells under exempt rights (or other transferred rights) if municipal rights are curtailed?
- Some may ask, are all Idaho residents entitled to some minimum volume of water for basic needs?
 - So far, previous curtailment orders indicate “yes”



Pragmatic Solution

- Cities seek pragmatic solution for responding to delivery calls
 - Streamlined approach for approximating consumptive use?
 - Identifying portion of municipal use that is not vulnerable to curtailment (e.g., based on population or number of households)?
 - Other ways in which cities could address injury caused by junior-priority water use while preserving delivery certainty?



Pragmatic Solution (continued)

- Pragmatic solution would provide basis for
 - Effective and efficient municipal water-supply planning
 - Development of prudent mitigation strategies/plans
 - Certainty for residents and businesses
 - Easier verification (i.e., reduced administrative burden)



Verification

- Curtailment of individual irrigation rights is easily verified with aerial photography
- Verification of municipal curtailment is more challenging



Summary

- **Municipal water rights are clearly vulnerable to curtailment**
- **Municipalities understand and accept prior appropriation doctrine and proportionate responsibility to sustain water supplies**
- **Municipal rights have come close, but have not yet been curtailed**



Summary (continued)

- **Policies regarding municipal curtailment are not clear**
 - **Is a portion of indoor municipal use (domestic or commercial) exempt from curtailment?**
 - **Alternative methods for estimating and verifying “non-consumptive” use?**
 - **Issues of parity between municipal and exempt rights?**



Summary (continued)

- Cities seek pragmatic solution for addressing injury caused by junior-priority use
- Provide basis for
 - Municipal water-supply planning
 - Mitigation efforts
 - Contingency planning by domestic and commercial users that rely on municipal water
- Resolving these issues allows cities to thrive
 - Support local and regional economies
 - Attract new commerce and industry



Municipal Vulnerability to Curtailment

To request revised handouts:
Send email to
cpetrich@spfwater.com

