Water into Wine

a brief introduction
April 11, 2014

Winegrapes in Napa County Agriculture

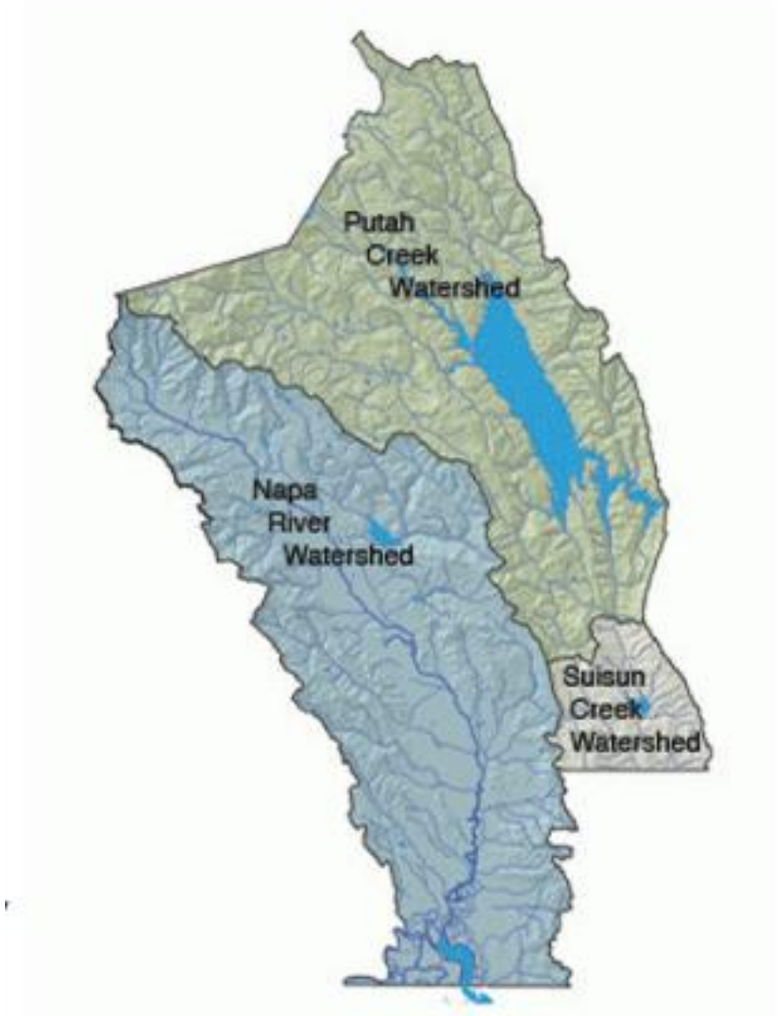
- Winegrapes dominate agriculture in Napa County
- In 2012, wine grape receipts represented $655 million of total crop value of $665 million (Napa County Ag. Commissioner)
- Napa County uses no “imported” water in winegrape production

Water Supply for All Uses in Napa County

- Napa County is the smallest of the 9 counties in ABAG--by a lot (population <160,000)
- Napa County is highly urbanised--the great majority of its popuation live in its 5 cities
- Napa County is a contractor of the SWP-- 29,025 AF/y via NBA

Three Watersheds in Napa County

- Putah Creek--Lake Berryessa--BuRec 1957--water rights owned by Solano Water District
- Suisun Creek--flows into Solano County
- Napa River--except for its estuary, entirely within Napa County


Putah
Creek
Watershed
Napa
River
Watershed
Suisun
Creek
Watershed

Population and Area

748.36 sq. miles

182 residents/sq. mile

- Calistoga--pop. 5,200
- St. Helena--pop. 5,900
- Yountville--pop. 3,000
- Napa--pop. 77,000
- American Canyon--pop. 20,000
- Napa County Total--pop. 140,000 (79.3% in cities)

Surface Water Supplies

- City of Napa--Lake Hennessy + Milliken Reservoir--32,400 AF
- Town of Yountville--Rector Reservoir 4,500 AF
- St. Helena--Bell Canyon Reservoir 2,350 AF
- Calistoga--Kimball Reservoir--275 AF

Groundwater Only for Rural/Agricultural Use

- As a matter of longstanding policy, groundwater is reserved for ag/winery and rural residential use (except for St. Helena)
- The resource is abundant, well-studied and sustainable (we think) in the valley floor
- Elsewhere, occurrence of groundwater is sporadic in the hills and in Carneros

Surface Water for Agriculture--but first...

- Absolute requirements for vineyards depend on:
  - vine density (canopy size)
  - prevailing growing season Et
  - is supplied by rainfall and irrigation
  - frost protection increases water demand

Irrigation management is an important quality tool

- Amounts for applied water range from .25-.33 AF/acre; the amount applied varies by soil, regional rainfall and Et (cool sites use less than warm)
  - regulated deficit irrigation can improve grape (and therefore wine) quality
- for 42,000 acres (not all in the Napa River watershed), that equals ~14,000 AF for irrigation

Constraints on Surface Water

- Fully (or over-)appropriated
- ESA (largely consideration for salmonids)
- Volatility (increasing with climate change?)

Recycled Water for Agriculture in Napa County

- in water-short Carneros, Sonoma Water Agency has supplied secondary water for >20 years
- MST is a well-studied overdrawn aquifer
- NBWRA reflects a transformation of philosophy

Challenges and Opportunities for Water Reuse/Recycling

- Marsh Restoration provides an incentive for infrastructure investment
- Imbalance of production vs. irrigation season--requirement for storage
- Re-purposing of existing surface water storage

Financing Infrastructure and Operations

- Ahhh, details
- Projects will be built near supply, i.e. close to population centers. 100% recycling will become “the new normal”
- By 2020, agencies will look back to discharge as obsolete--sooo 20th century

- regional rainfall
- soil depth