



Russian River Tributaries Emergency Regulation Follow Up Meeting

August 28, 2017

State Water Resources Control Board

and

California Department of Fish and Wildlife

Information Meeting





Logistics

- While Board members may be in attendance, no decisions will be made today
- Sign-in sheets and handouts are at back of room
- Please hold questions and comments until after the presentation
- If you would like to speak during the discussion period please raise your hand and staff will come around with the microphone



Meeting Ground Rules

- Respect all speakers, all points of view are valid
 - You may not agree with a statement, but please allow the speaker the opportunity to be heard
- All who wish to speak must use a microphone
- Speakers may ask one question or make one comment at a time so that everyone has the opportunity to speak
 - First portion of meeting is focused on providing information
 - Second portion of meeting is focused on answering questions, discussion and comments
- Please silence electronic devices



Agenda

- Update on Russian River Tributaries Emergency Regulation Information Order Results
- California Department of Fish and Wildlife Update on Current Condition of Coho Salmon and Steelhead Fisheries
- Overview of the California Water Action Plan
 - Mark West Creek
- Questions and Discussion



Update on Russian River Tributaries Emergency Regulation Information Order Results

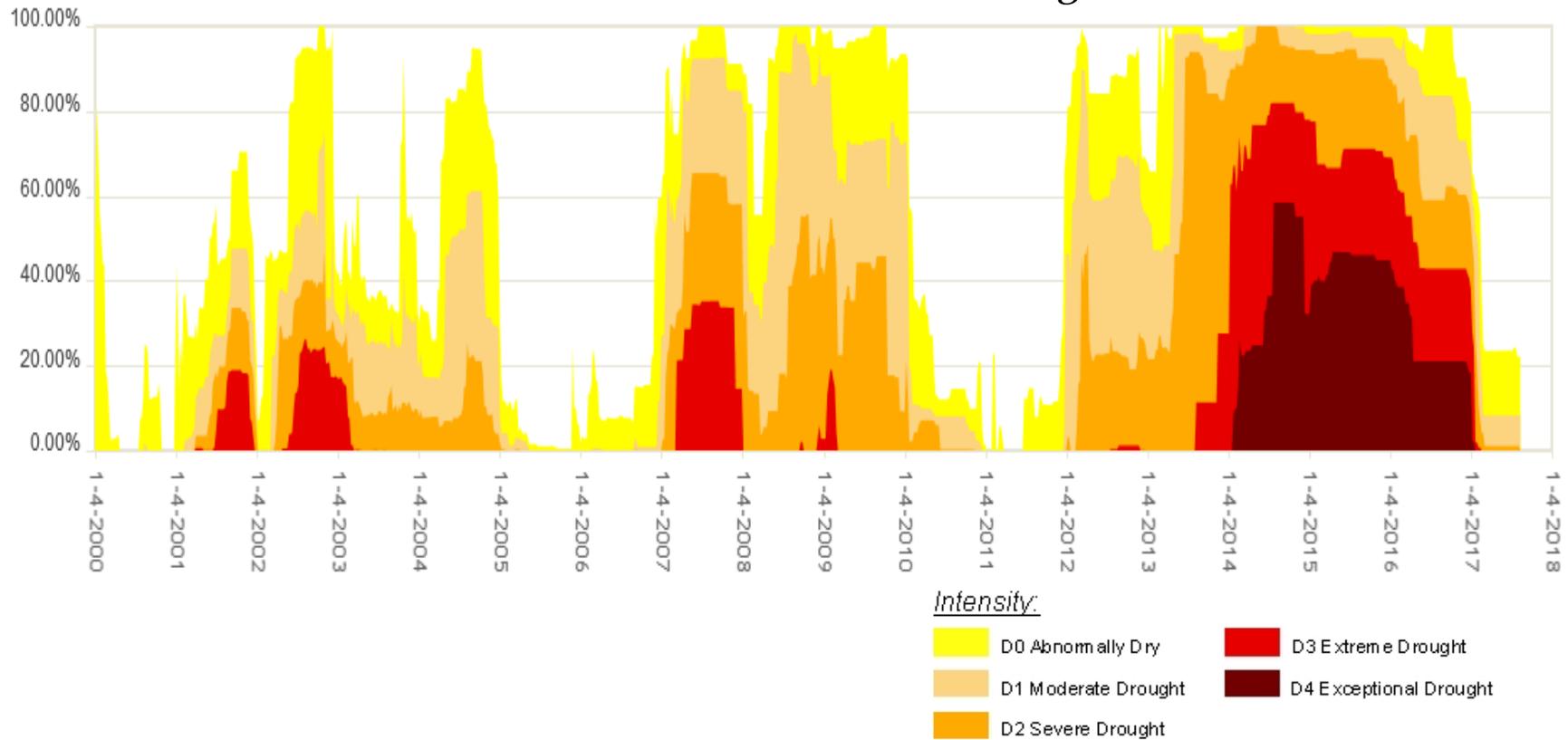
August 28, 2017

State Water Resources Control Board Staff

Daniel Schultz

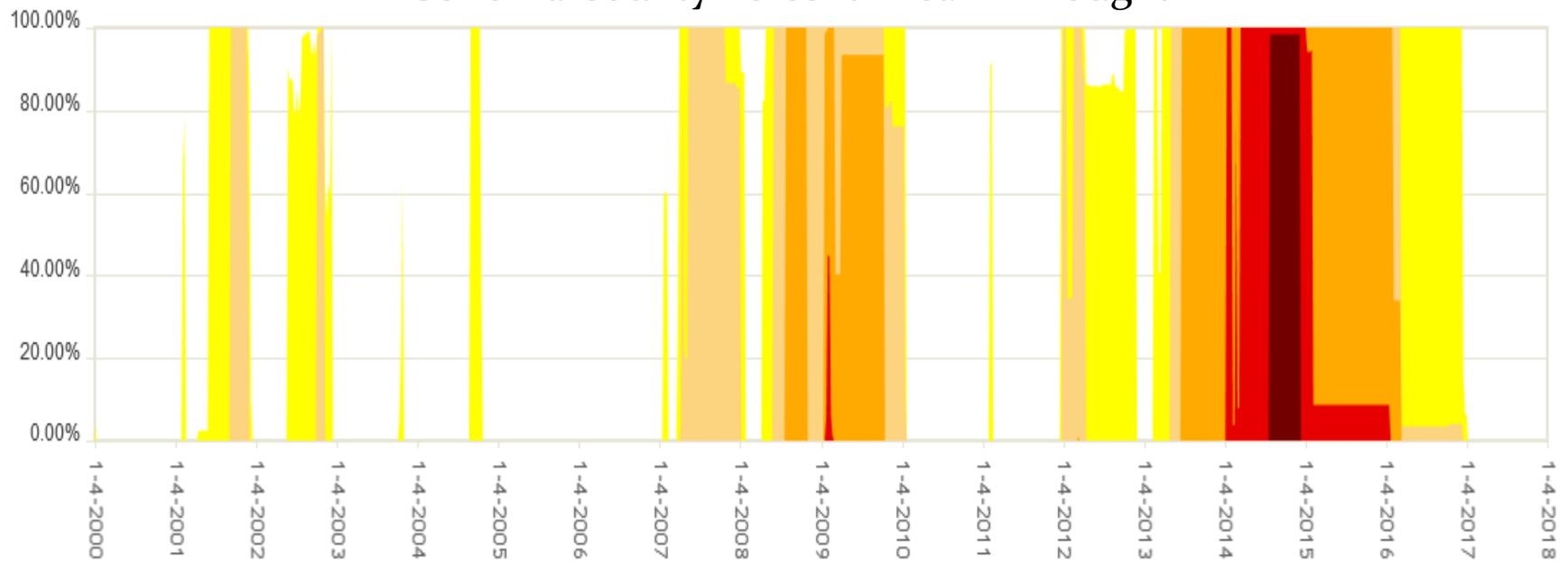
Statewide Drought: 2012 - 2016

California Percent Area in Drought



Local Drought: 2012 - 2016

Sonoma County Percent Area in Drought



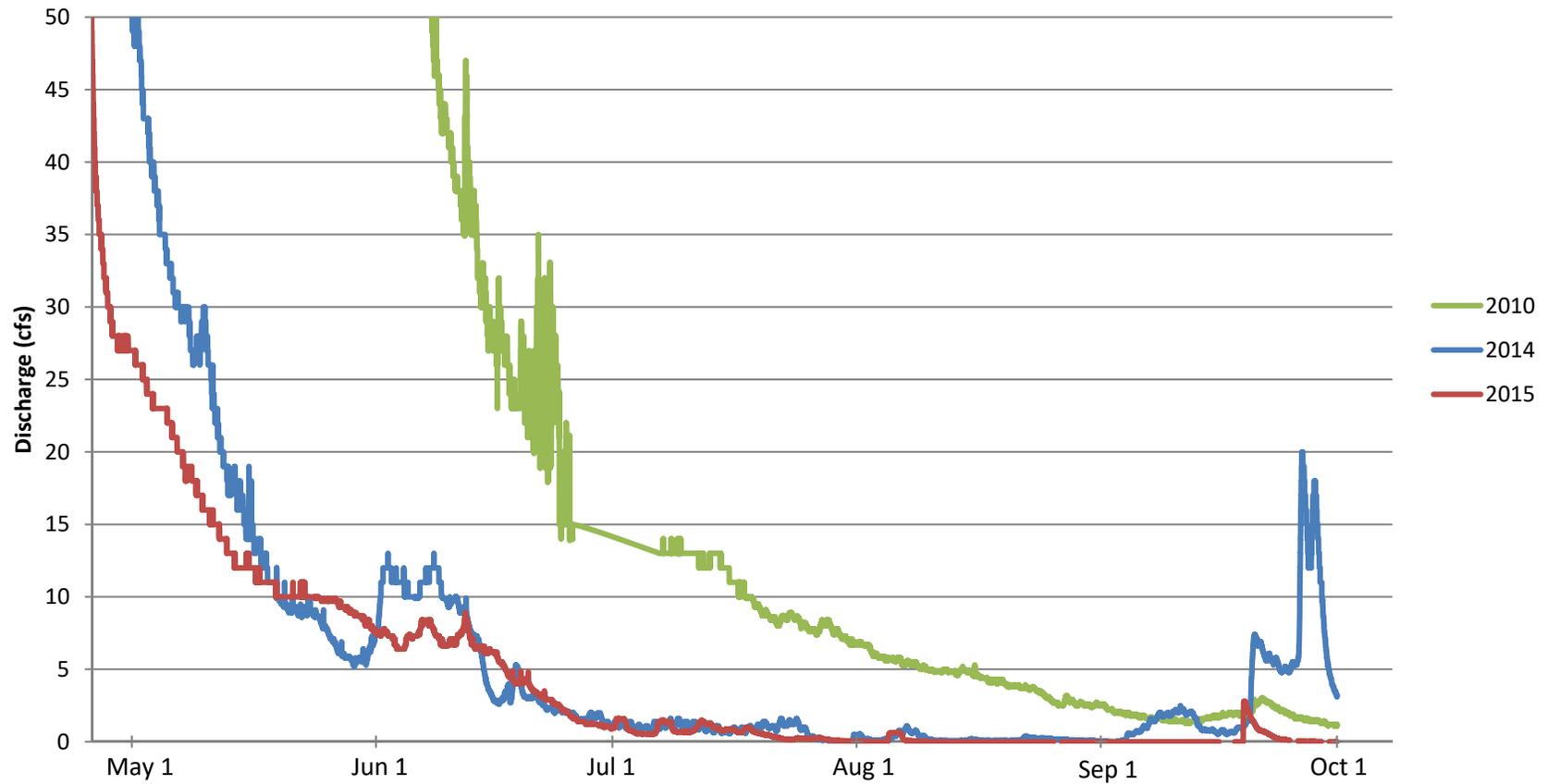
Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought



<http://droughtmonitor.unl.edu/>

Springtime Flow - Mark West Creek near Mirabel Heights



USGS 11466800



Emergency Regulation Timeline

- January 2014: Governor declares drought emergency
- July 2015: Russian River Tributaries Emergency Regulation went into effect
- March 2016: Russian River Tributaries Emergency Regulation updated and readopted
- December 2016: Russian River Tributaries Emergency Regulation expired



Russian River Tributaries Emergency Regulation

- Applied to four Russian River tributary watersheds:
 - Dutch Bill Creek
 - Green Valley Creek
 - Mark West Creek (portions of)
 - Mill Creek
- Two components (similar to other drought emergency regulations adopted by the State Water Board):
 1. Enhanced Water Conservation Measures (applied to critical areas of watersheds only)- 2015
 2. Informational Order (applied to entire area of four watersheds)- 2015 and 2016



Information Order

- August 2015: Information Order (Order WR 2015-0026-DWR) issued
- Asked landowners about their water use in 2014-2015:
 - Water Source
 - Type of source (well, surface diversion, etc.)
 - Location of source (wells only)
 - Beneficial Use(s) to which the water was put
 - Domestic, Agriculture, Stockwatering, etc.
 - How much water was used each month
 - What parcel(s) the water was used on



Informational Order Timeline and Response Rates

- Information Order Issued (12,325 Parcels/ Purveyors):
 - Mailed August 26 thru September 18, 2015
 - Responses Due by October 23, 2015
 - Response Rate= ~50%
- Information Order Reminder (5,938 Parcels/ Purveyors):
 - Mailed October 28-30, 2015
 - Total Response Rate= ~79% (December 13, 2015)
- Administrative Civil Liability Complaint (1,881 Parcels/ Purveyors):
 - Mailed December 15, 2015 via Certified Mail
 - 20 days from receipt to respond
 - Total Response Rate= 94%



ACL Summary

- December 2015: 1,881 Administrative Civil Liability (ACL) Complaints issued to landowners and water suppliers who failed to submit information in response to the Information Order
- 1,282 complete submittals
- 26 incomplete submittals
- 263 were not delivered, returned, or lost in the mail
- 169 ACL Complaints were withdrawn
- 140 Outstanding ACL Complaints



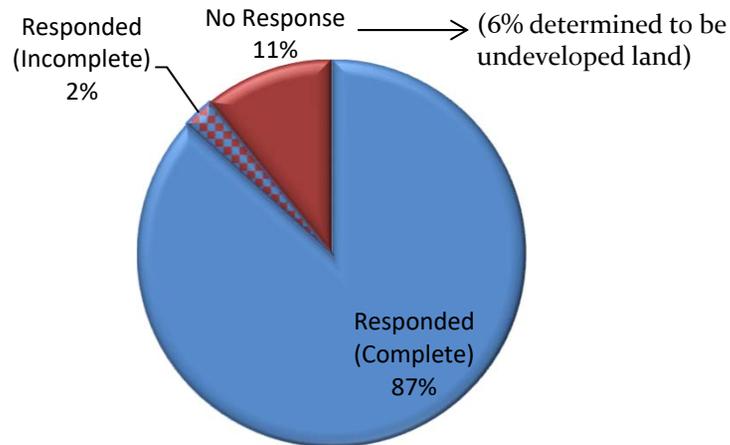
Informational Order Timeline and Response Rate (cont.)

- November 2016 (1,643 parcels): State Water Board staff sent letters to landowners requesting missing or incomplete water source and use information
 - In the latter half of 2016 and early 2017, State Water Board staff has had contact with the owners of approximately 1,250 parcels, primarily related to the November 2016 mailings.

Information Order Response Rate

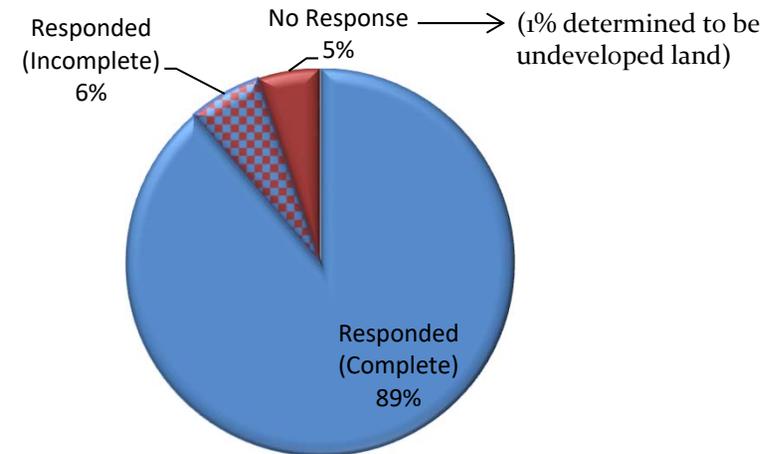
Dutch Bill Creek Watershed

Total Parcels = 1,395



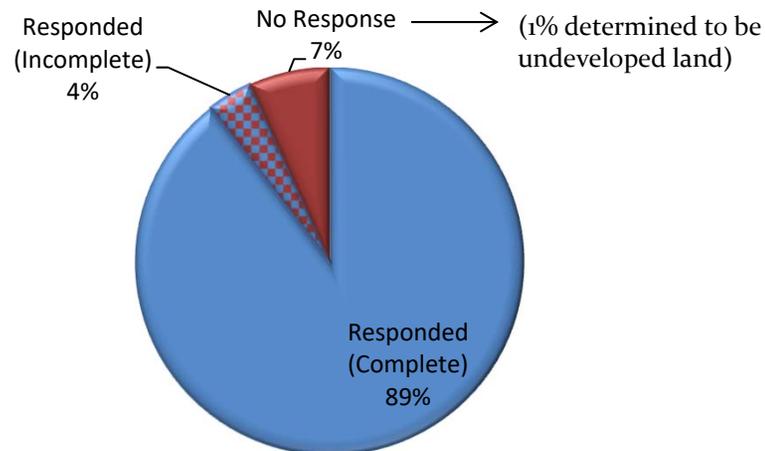
Green Valley Creek Watershed

Total Parcels = 5,675



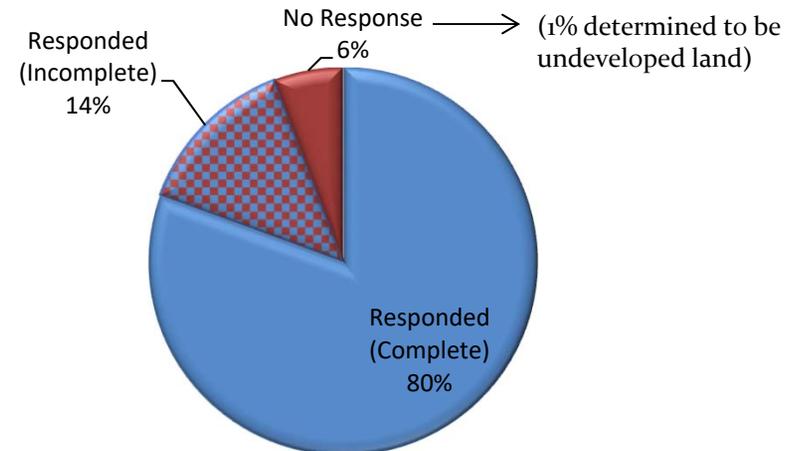
Mark West Creek Watershed

Total Parcels = 4,909

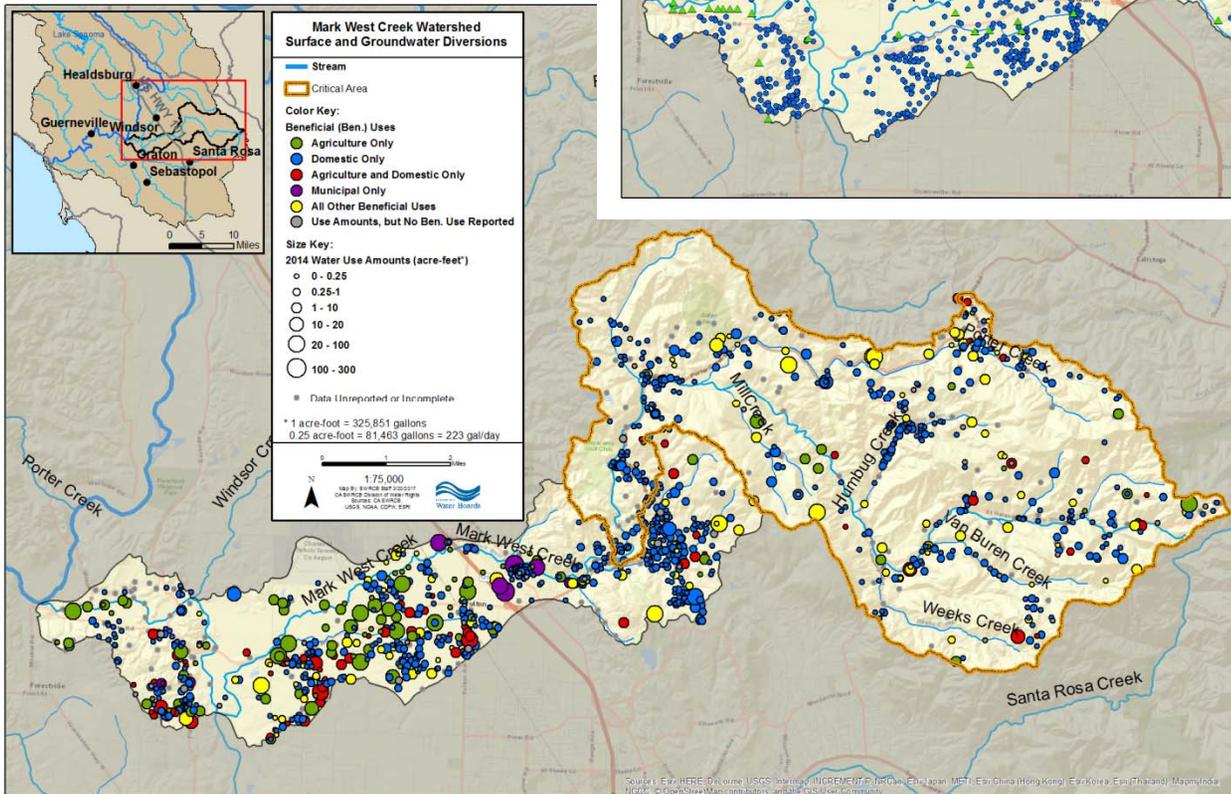
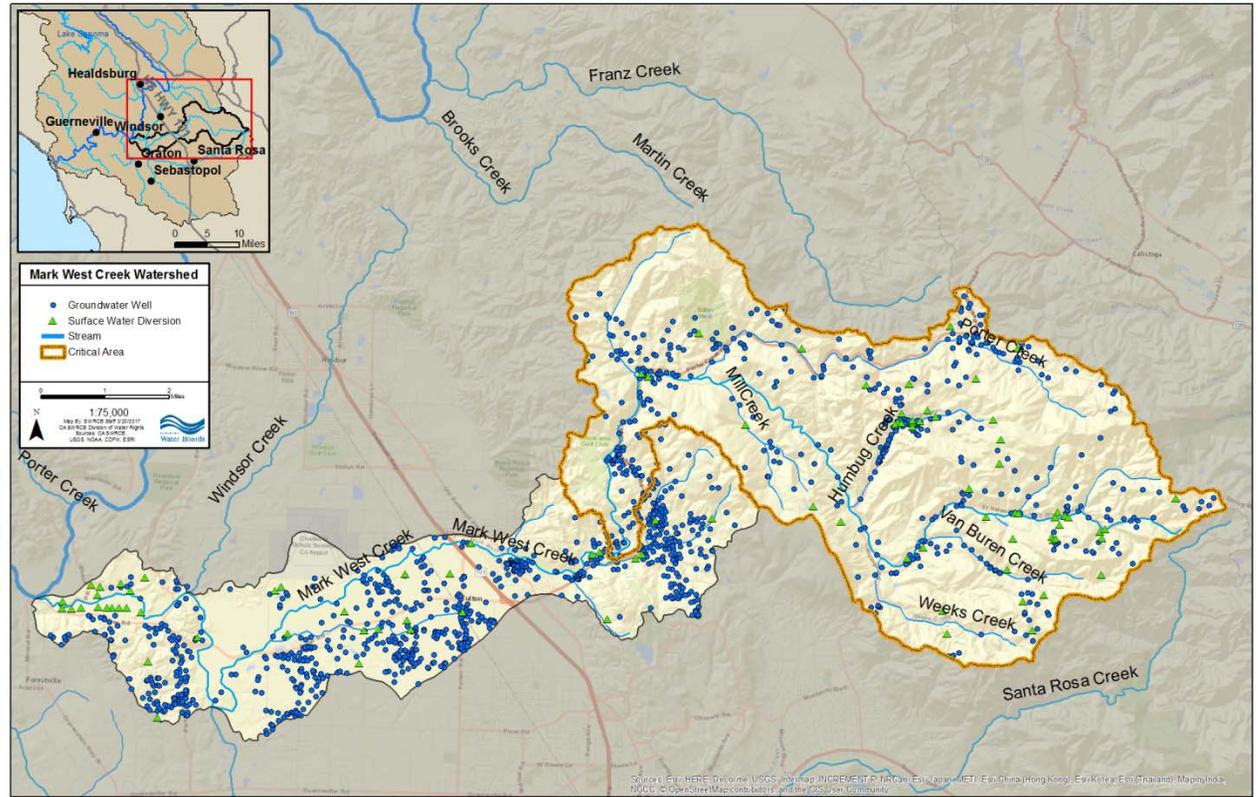


Mill Creek Watershed

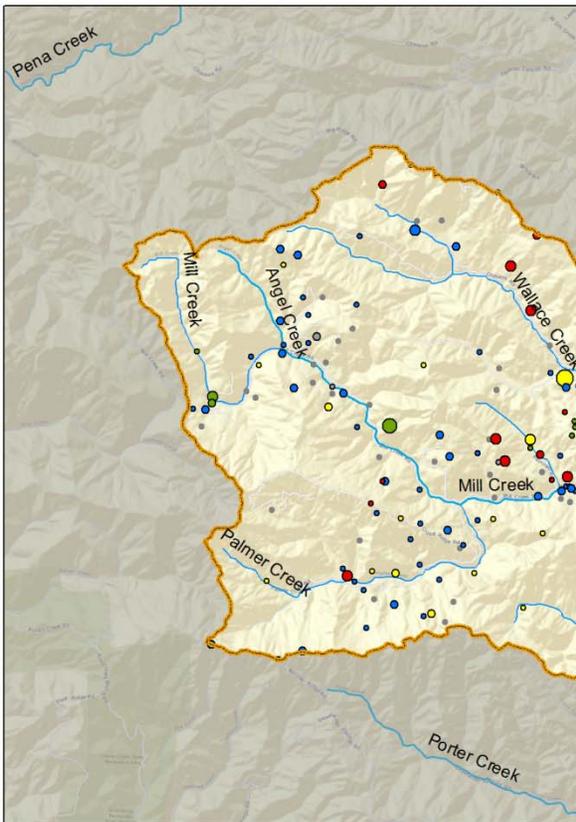
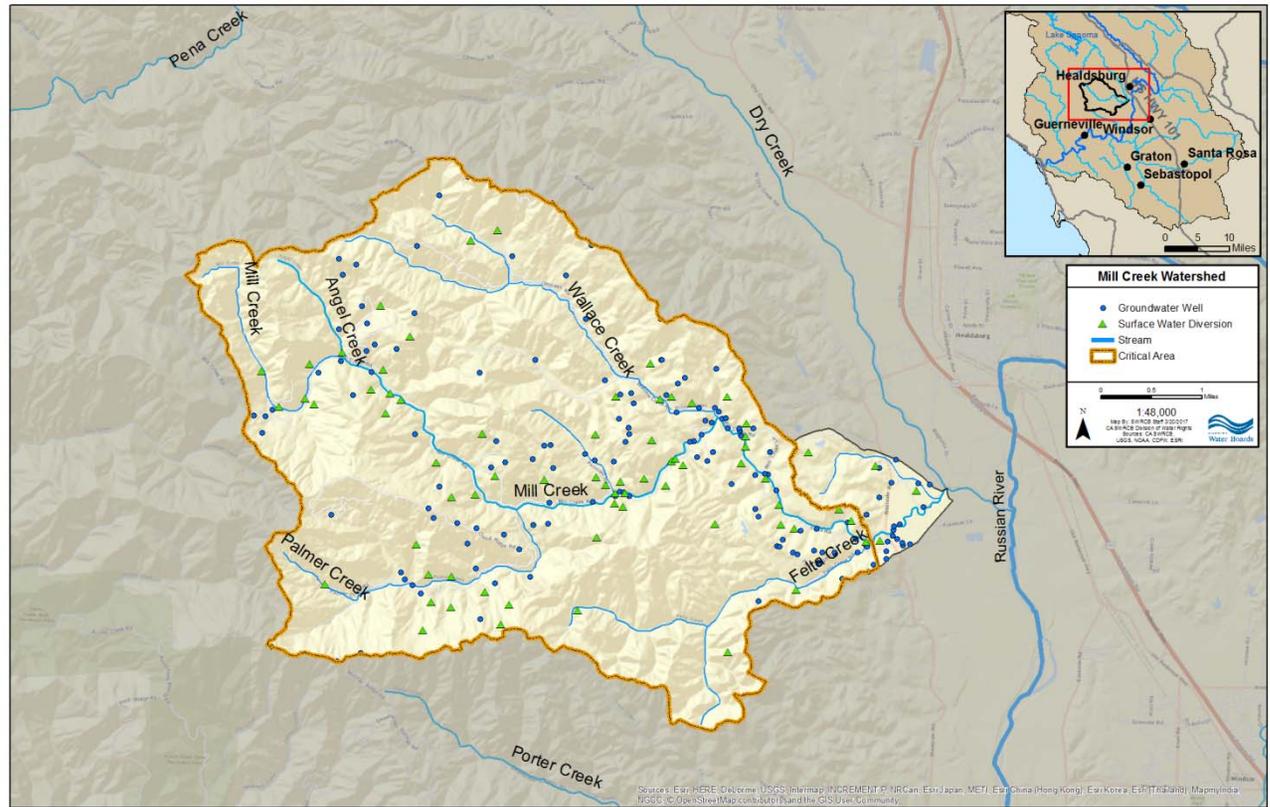
Total Parcels = 345



Mark West Creek Watershed



Mill Creek Watershed

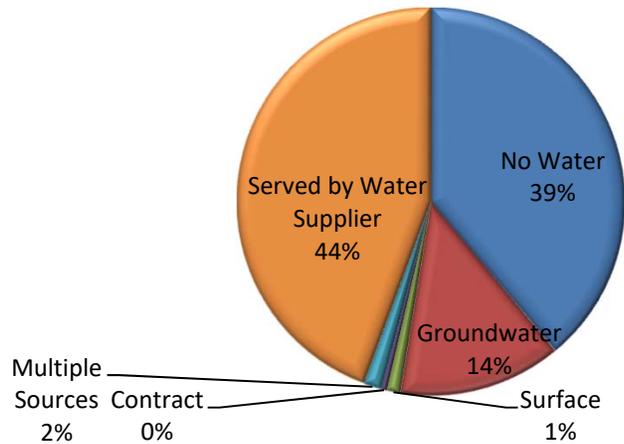


Source: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, JRN, Esri, Japan, METI, Esri, China (Hong Kong), Esri, Korea, Esri (Thailand), Mapbox, Swisstopo, Mapbox, OpenStreetMap contributors, and the GIS User Community.

Water Source Type by Parcel

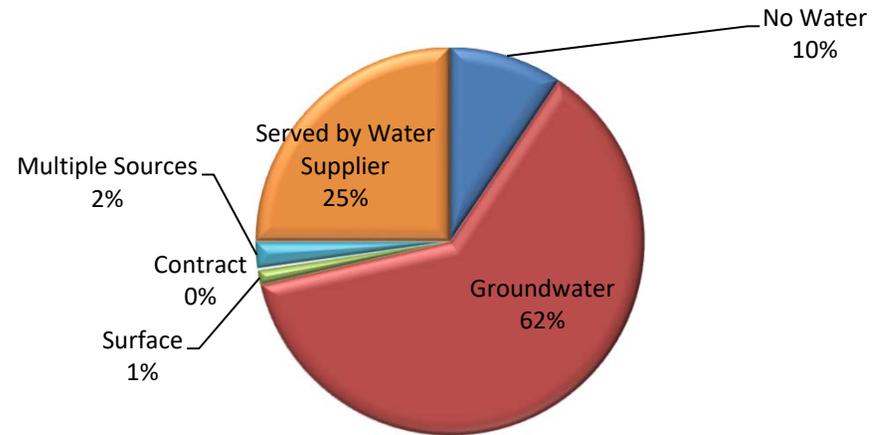
Dutch Bill Creek Watershed

Total Reporting Parcels = 1,325



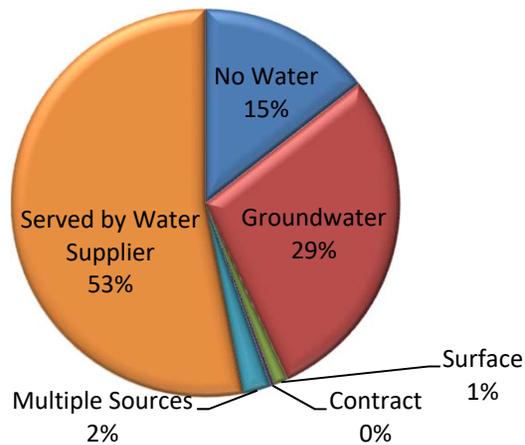
Green Valley Creek Watershed

Total Reporting Parcels = 5,439



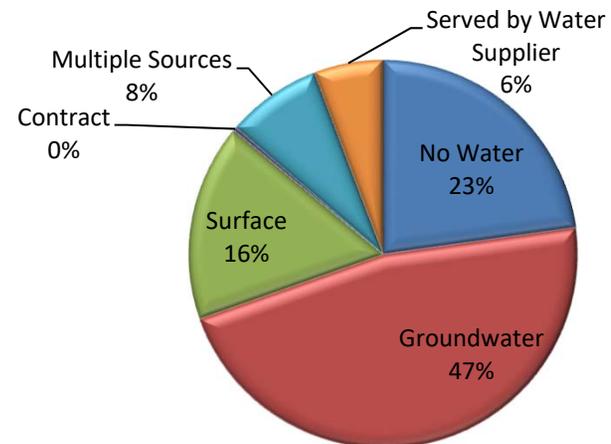
Mark West Creek Watershed

Total Reporting Parcels = 4,644



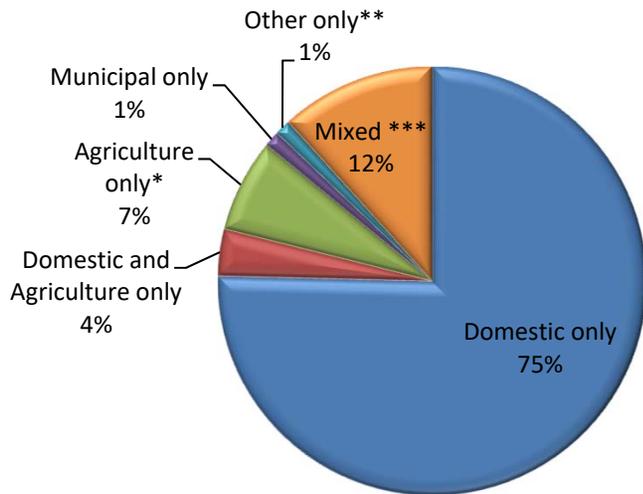
Mill Creek Watershed

Total Reporting Parcels = 329

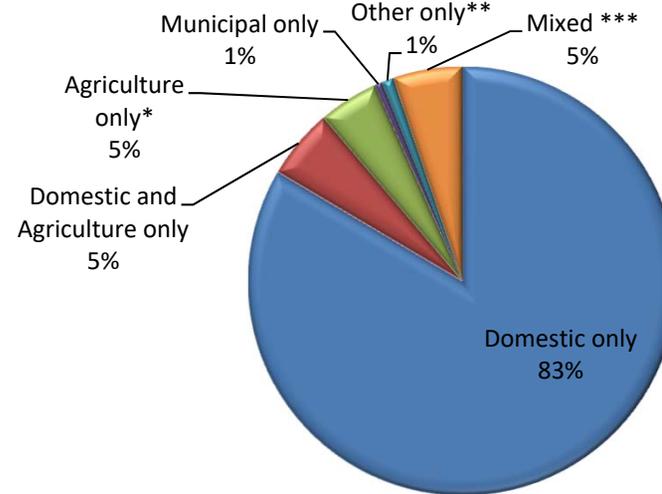


Number of Reports by Beneficial Use

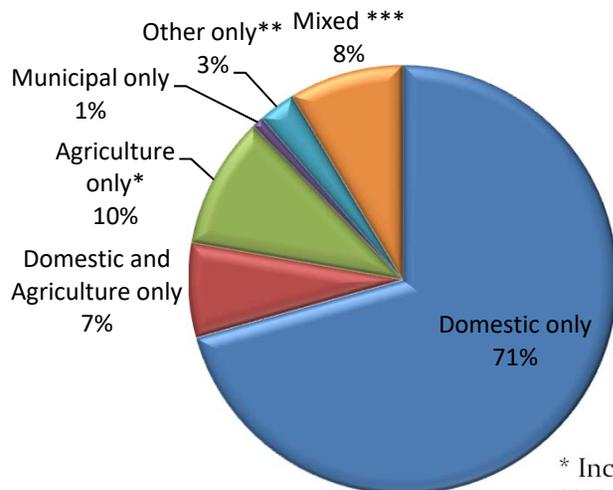
Dutch Bill Creek Watershed



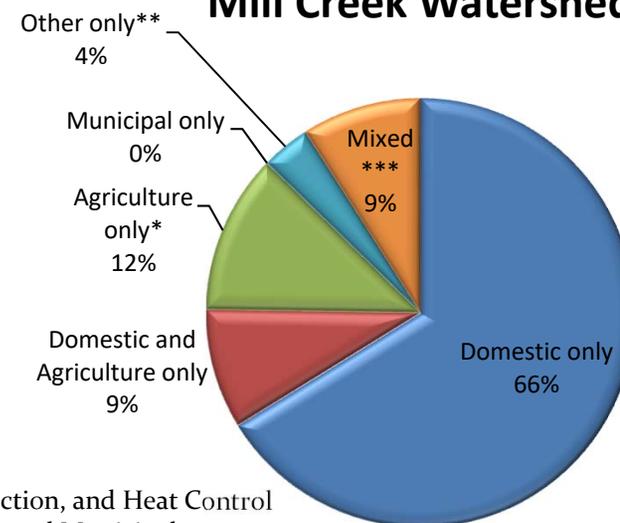
Green Valley Creek Watershed



Mark West Creek Watershed



Mill Creek Watershed

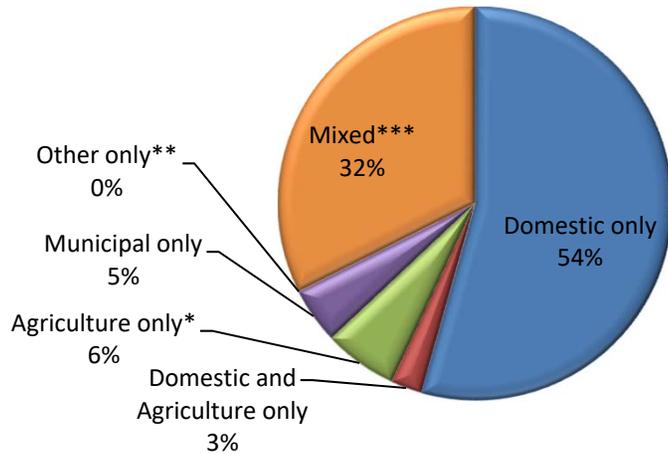


* Includes Agriculture, Frost Protection, and Heat Control
 ** Excludes Domestic, Agriculture, and Municipal
 *** All other combinations

2014 Reported Water Use by Beneficial Use

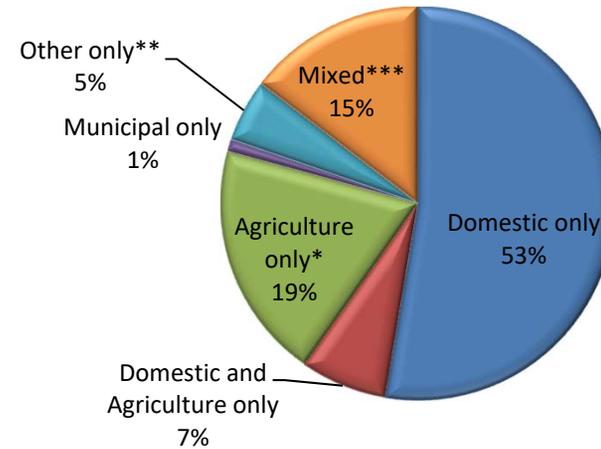
Dutch Bill Creek Watershed

Total Water Use in 2014 = 33,153,487 gallons (102 acre-feet)



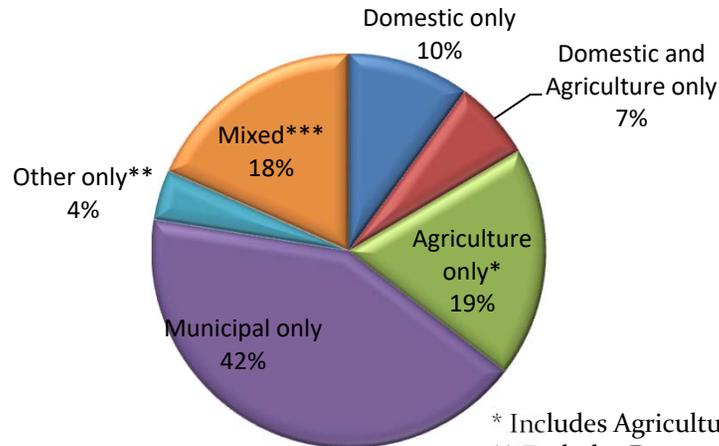
Green Valley Creek Watershed

Total Water Use in 2014 = 583,356,710 gallons (1,790 acre-feet)



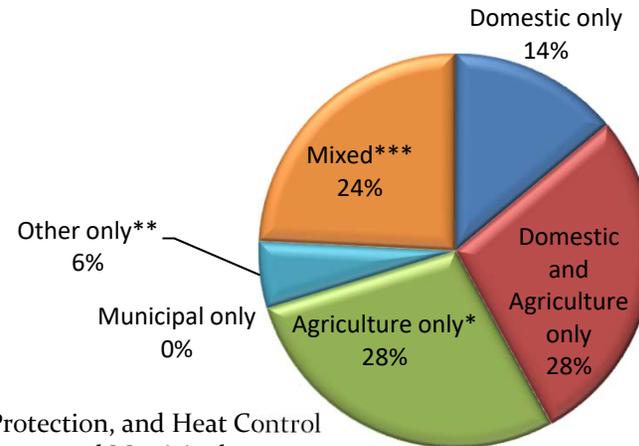
Mark West Creek Watershed

Total Water Use in 2014 = 1,334,532,758 gallons (4,095 acre-feet)



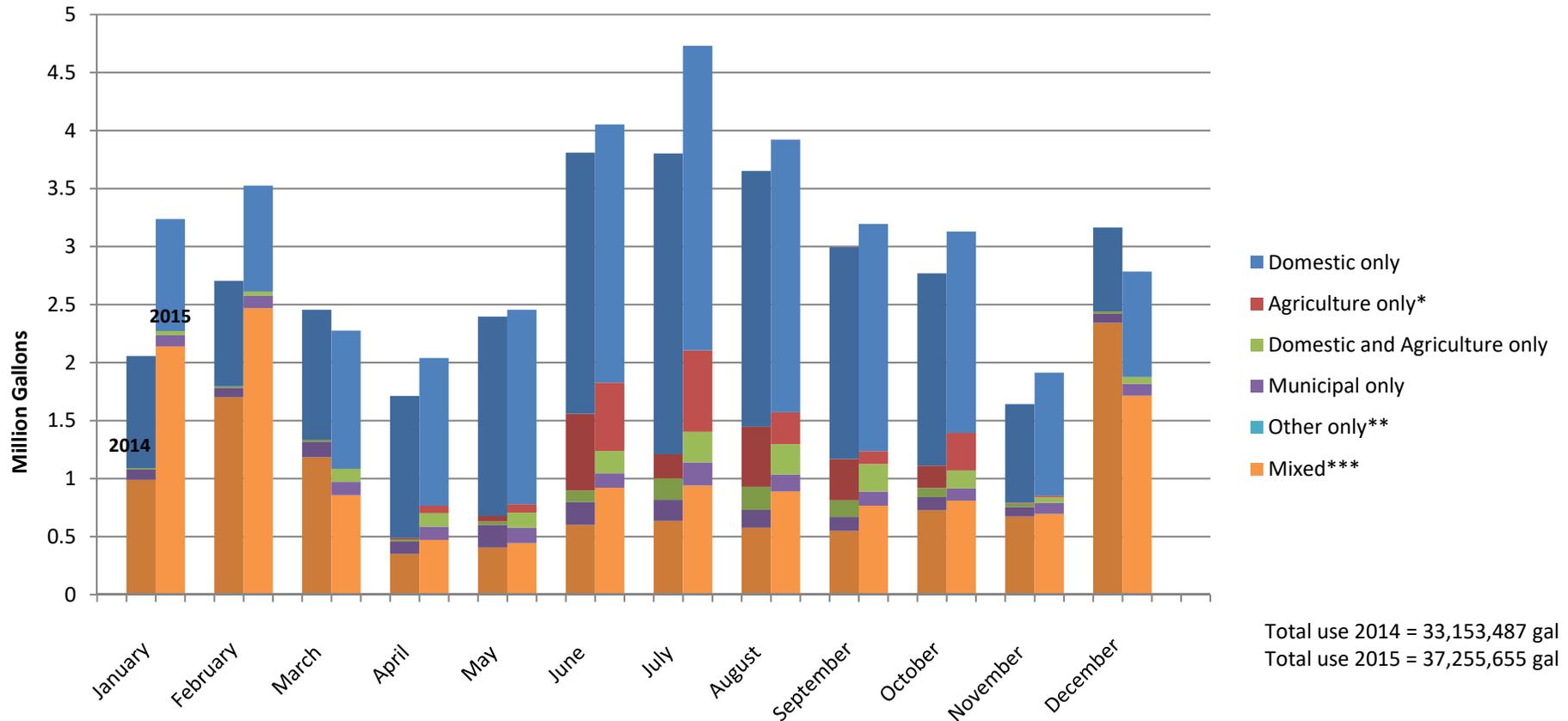
Mill Creek Watershed

Total Water Use in 2014 = 144,628,092 gallons (444 acre-feet)



* Includes Agriculture, Frost Protection, and Heat Control
 ** Excludes Domestic, Agriculture, and Municipal
 *** All other combinations

Reported Water Use by Month: Dutch Bill Creek Watershed



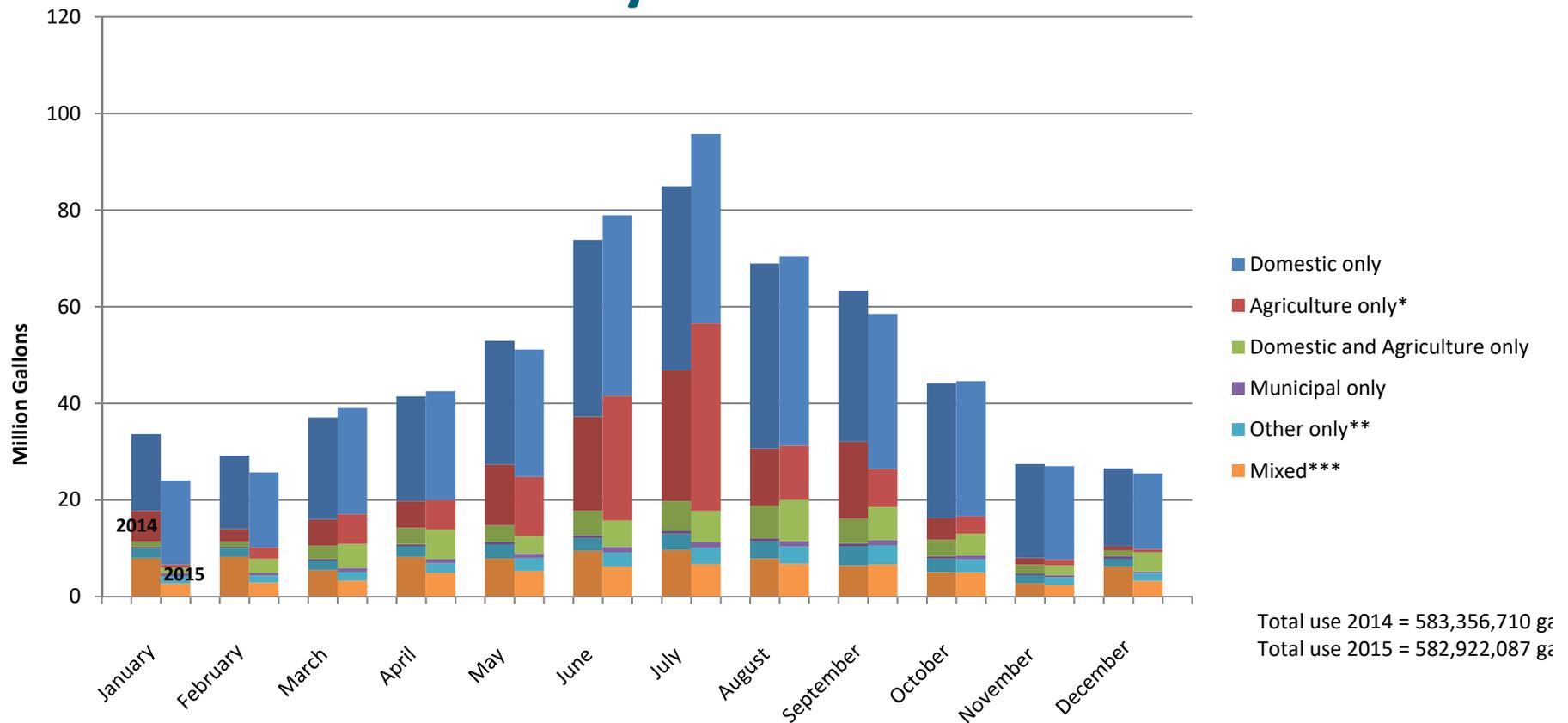
Total use 2014 = 33,153,487 gal
Total use 2015 = 37,255,655 gal

* Includes Agriculture, Frost Protection, and Heat Control

** Excludes Domestic, Agriculture, and Municipal

*** All other combinations

Reported Water Use by Month: Green Valley Creek Watershed



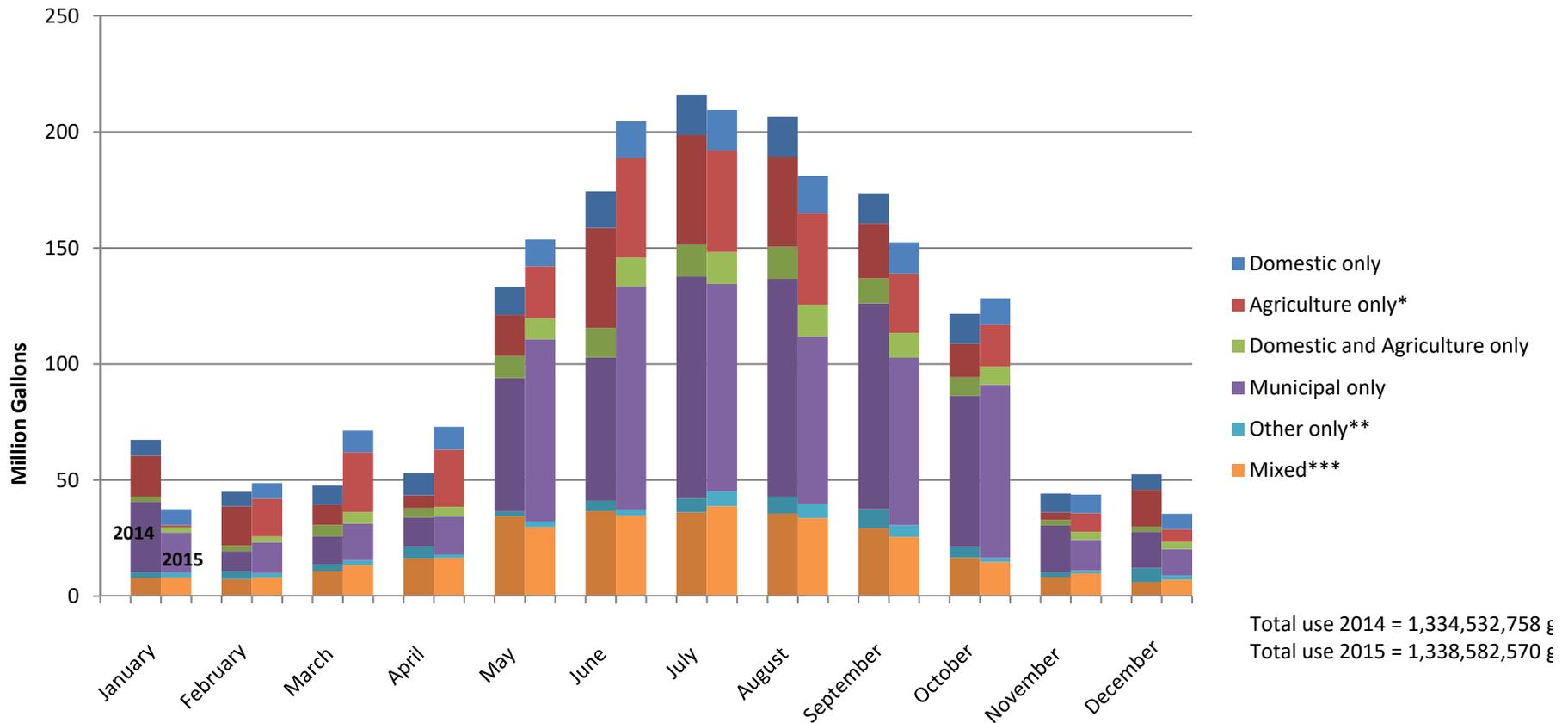
Total use 2014 = 583,356,710 gal
Total use 2015 = 582,922,087 gal

* Includes Agriculture, Frost Protection, and Heat Control

** Excludes Domestic, Agriculture, and Municipal

*** All other combinations

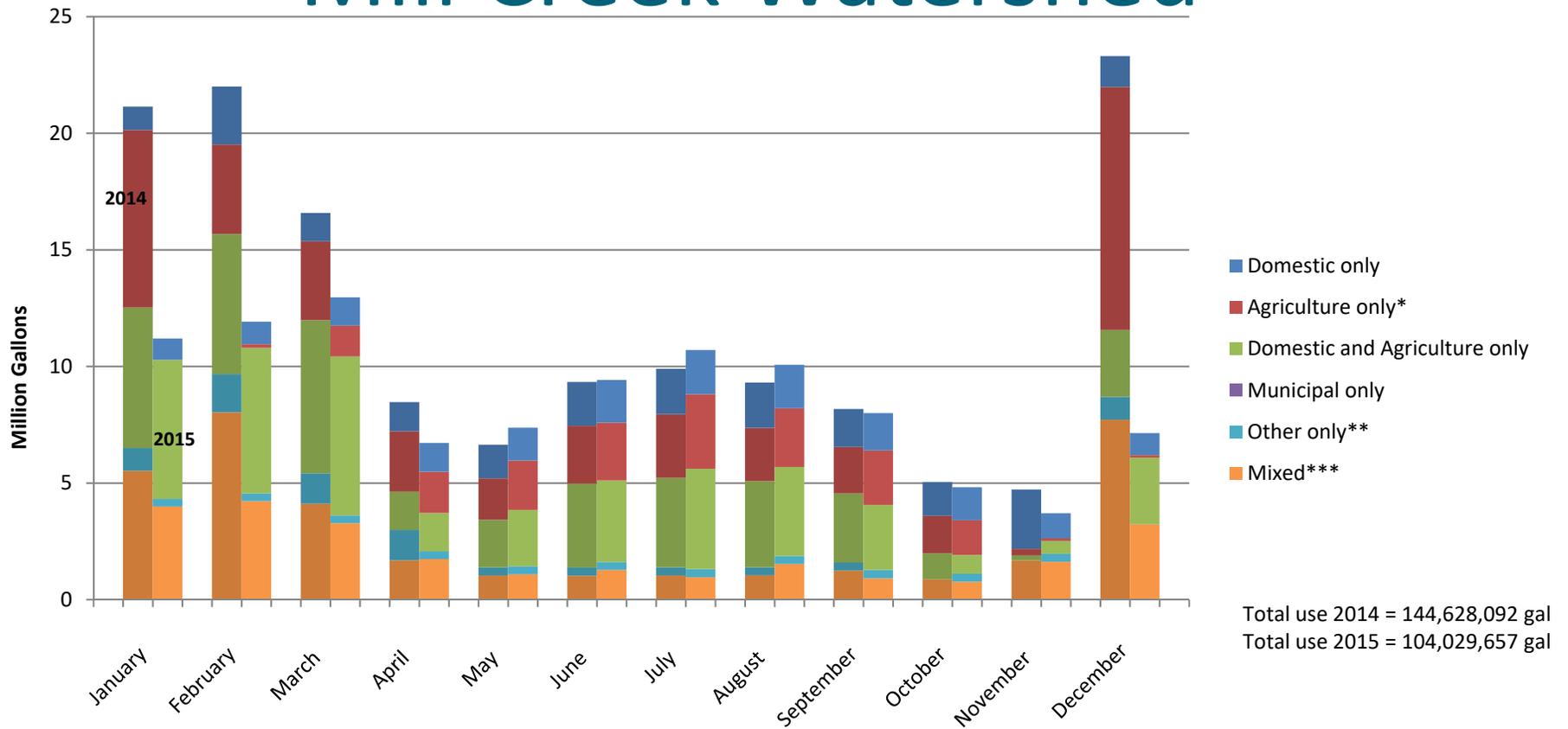
Reported Water Use by Month: Mark West Creek Watershed



Total use 2014 = 1,334,532,758 gal
 Total use 2015 = 1,338,582,570 gal

* Includes Agriculture, Frost Protection, and Heat Control
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Reported Water Use by Month: Mill Creek Watershed

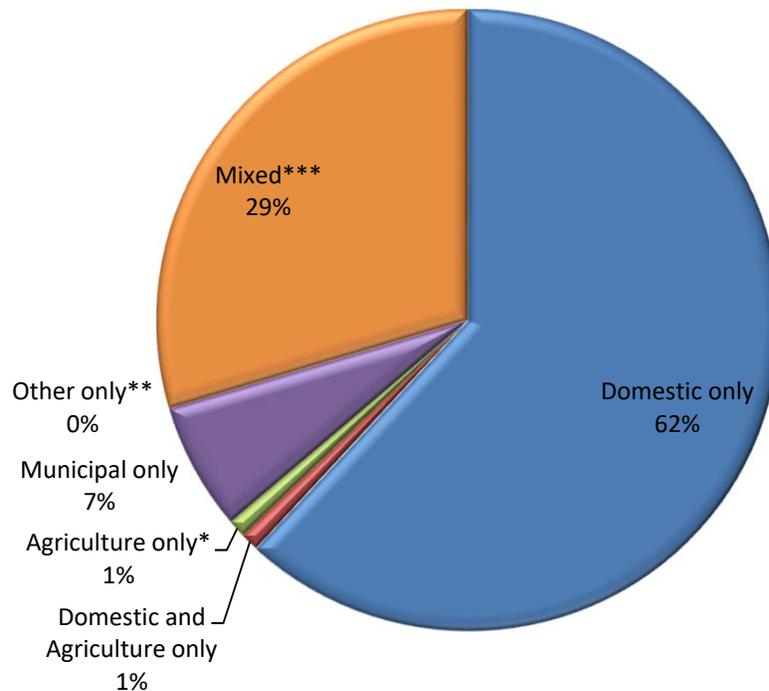


Total use 2014 = 144,628,092 gal
 Total use 2015 = 104,029,657 gal

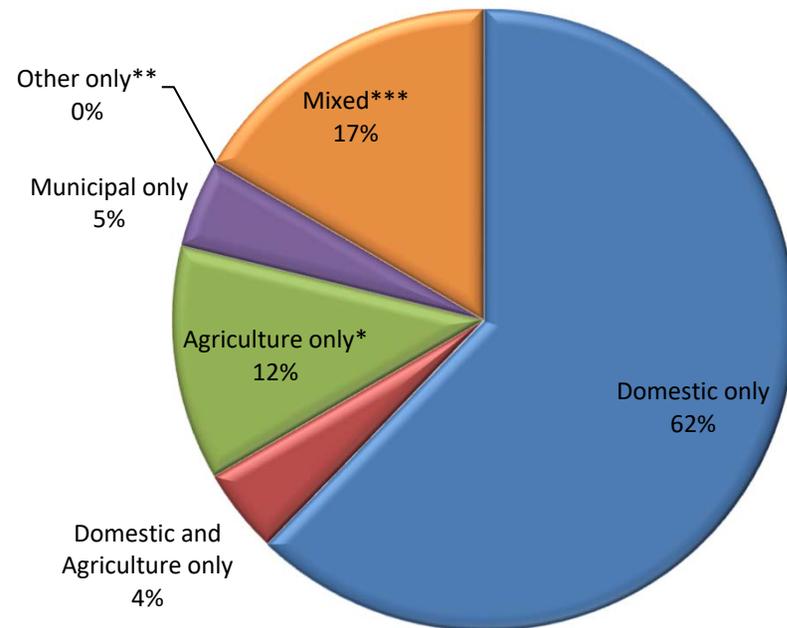
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 *** All other combinations

Seasonal 2014 Reported Water Use by Beneficial Use: Dutch Bill Creek Watershed

March - May



June - September



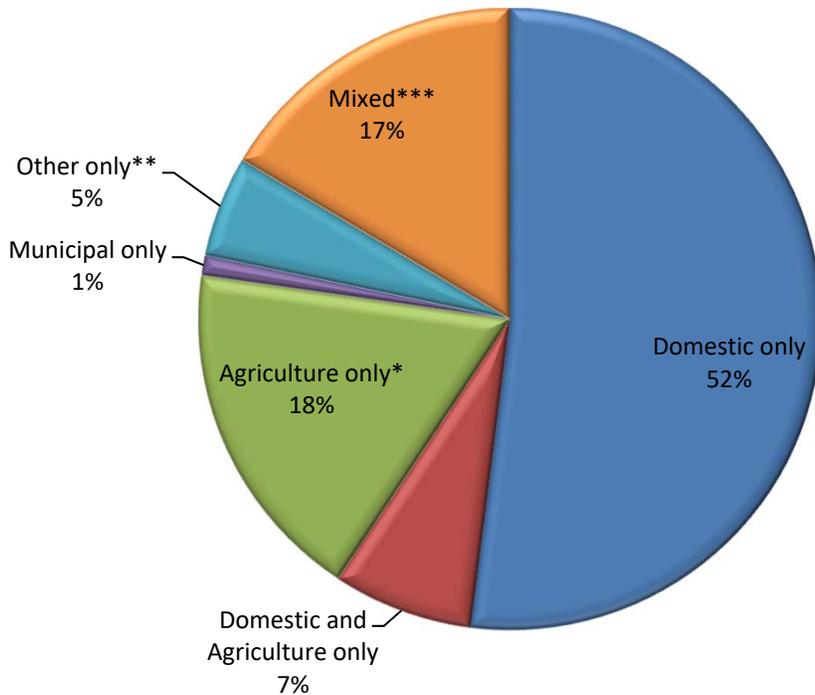
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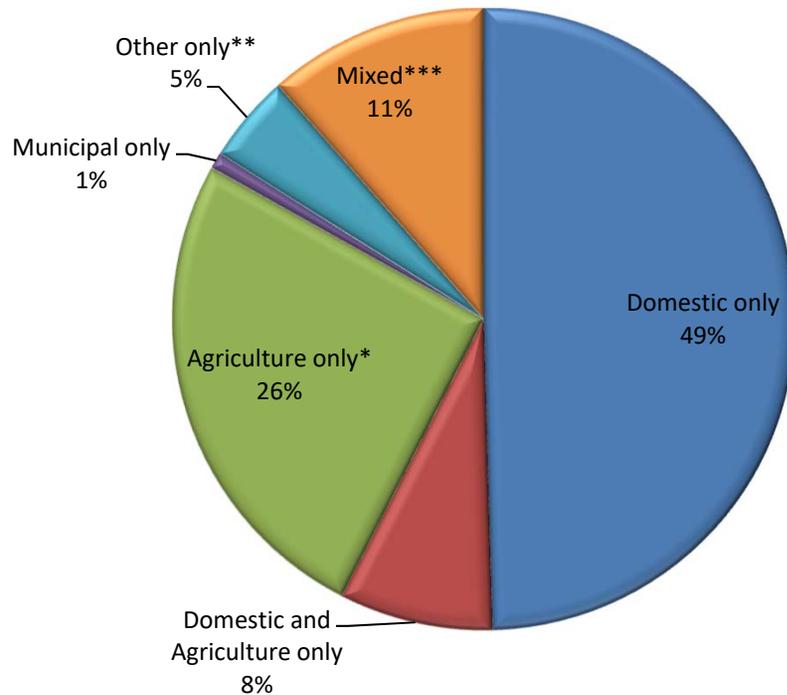
*** All other combinations

Seasonal 2014 Reported Water Use by Beneficial Use: Green Valley Creek Watershed

March - May



June - September



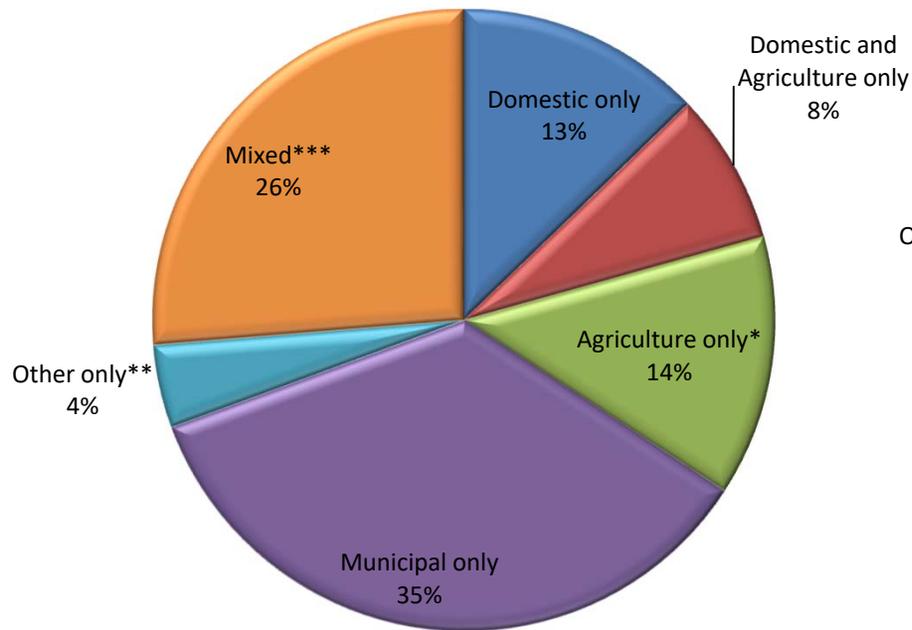
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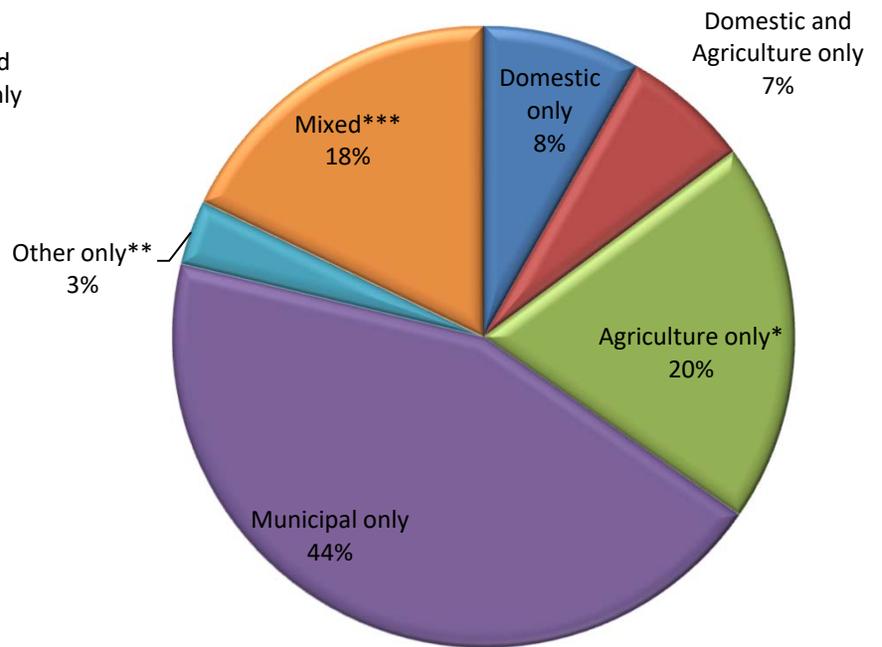
*** All other combinations

Seasonal 2014 Reported Water Use by Beneficial Use: Mark West Creek Watershed

March - May



June - September



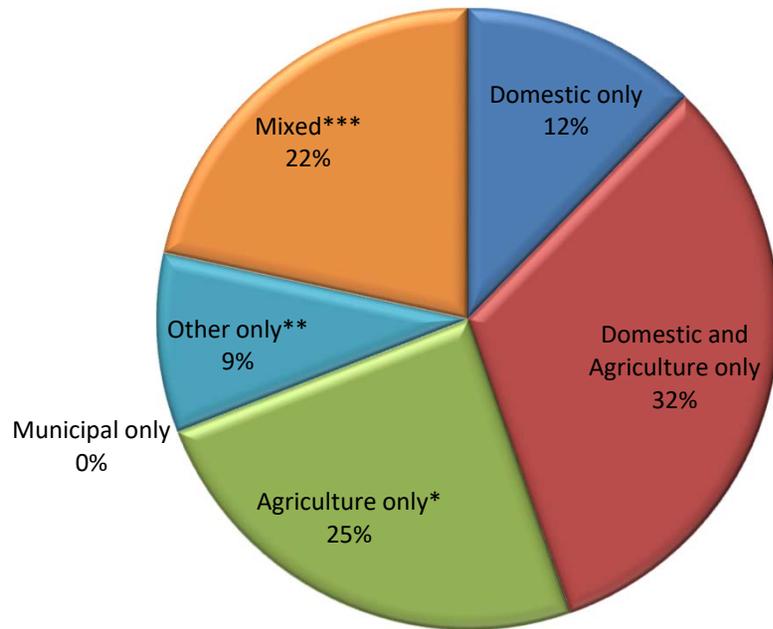
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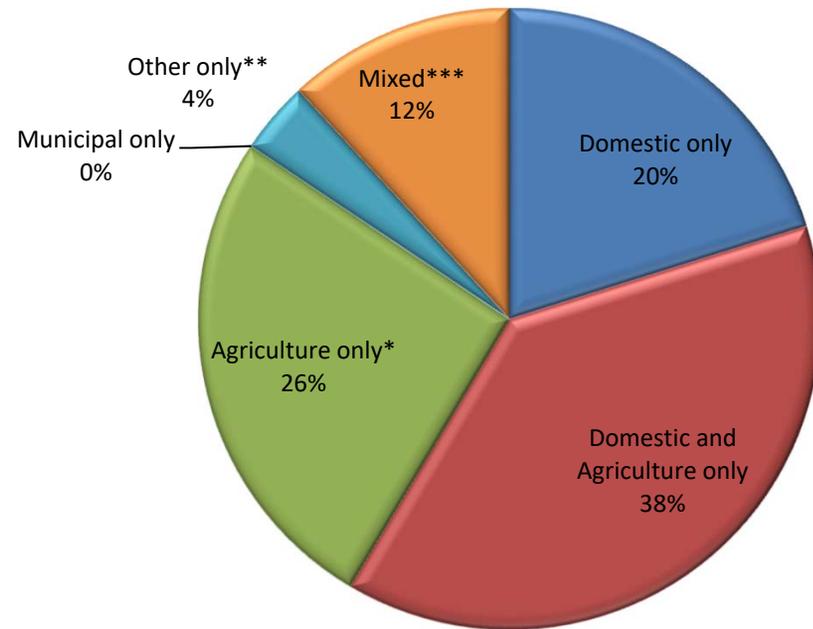
*** All other combinations

Seasonal 2014 Reported Water Use by Beneficial Use: Mill Creek Watershed

March - May



June - September



* Includes Agriculture, Frost Protection, and Heat Control

** Excludes Domestic, Agriculture, and Municipal

*** All other combinations



Next Steps: Long-term Actions to Address Instream Flows

- Ongoing collaboration with CA Dept. Fish and Wildlife (CDFW), and the National Marine Fisheries Service (NMFS) related to instream flow planning
- California Water Action Plan
 - Mark West Creek identified as one of five tributaries for enhanced stream flows statewide
- Sustainable Groundwater Management Act (SGMA)
 - Requires formation of groundwater sustainability agencies (GSAs), and development of groundwater sustainability plans (Santa Rosa Plain)



Post-Drought Update 2017

Status of the Russian River Fisheries and Effects of the Drought

David Hines

Water Rights Coordinator, CDFW
Habitat Conservation, Region 3

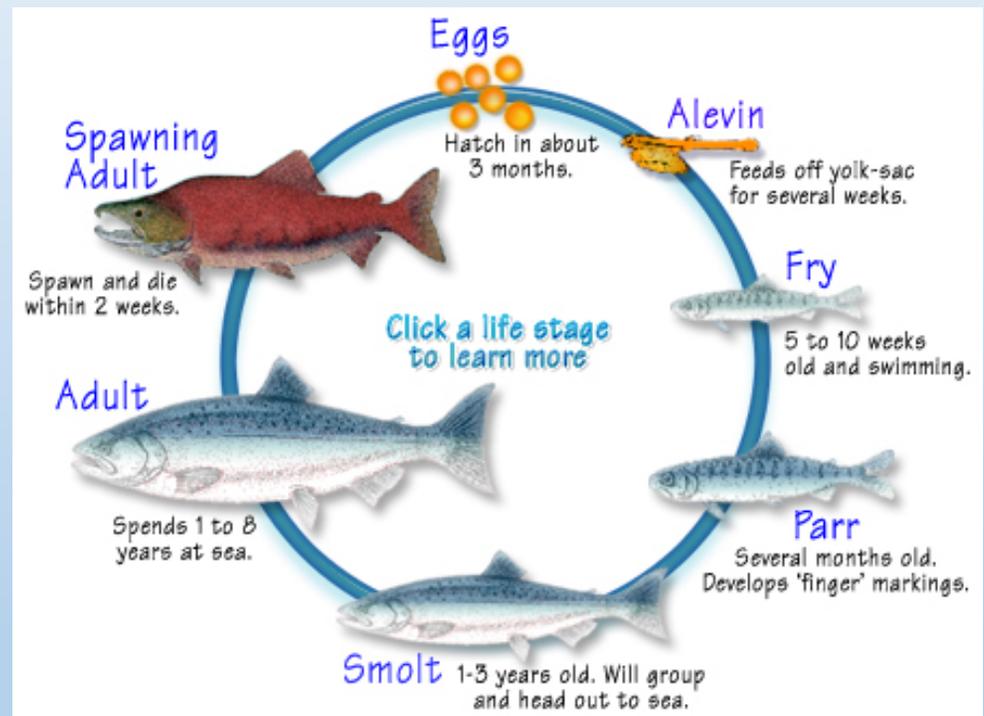
Introduction



- Status of the Fishery
 - Salmon and Steelhead Life-Cycles: the key to understanding their conservation
 - Species Comparison: **coho salmon**, Chinook salmon and steelhead
 - Coho Salmon Distribution in the Russian River
 - Coho Salmon Adult Abundance
 - A measure of population size
 - Juvenile Distribution and Survival
 - Population performance through the critically dry period
- Lake and Streambed Alteration Agreements

Life Cycle

- Anadromous life history strategy
 - Confers survival advantages
- Reliant upon a wide range of aquatic environments
 - Increased exposure to anthropogenic threats
- Differences in strategies affects their risk of extinction



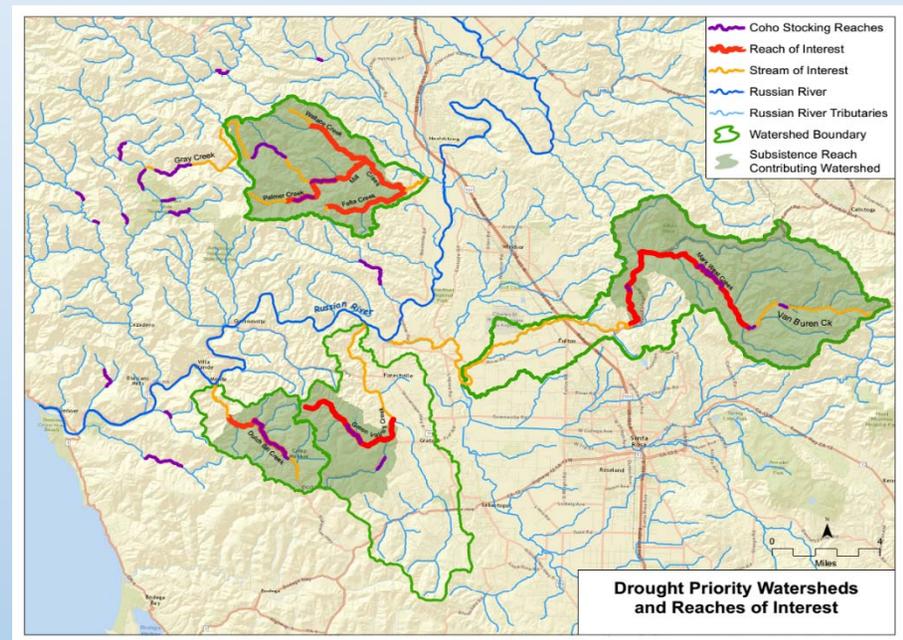
Species Comparison

- Coho salmon
 - State and Federally Endangered
 - Habitat Specialist
 - The spotted owl of the salmon world
 - Adapted to stable, “old growth” conditions
 - Narrow physiological tolerances
 - Relatively rigid life cycle
 - Cold, dark, deep pools
 - Deep body, large fins, big eyes
- Steelhead
 - Federally Threatened
 - Habitat generalist
 - Adapted to wider range of habitat conditions
 - Utilizes riffles and other high-velocity habitats
 - Incredibly diverse life cycle
 - Fusiform body, small rounded fins, etc.
- Chinook salmon
 - Federally Threatened
 - Most invested in ocean habitats
 - Emigrates shortly after emergence
 - Not subject to prolonged stream residence

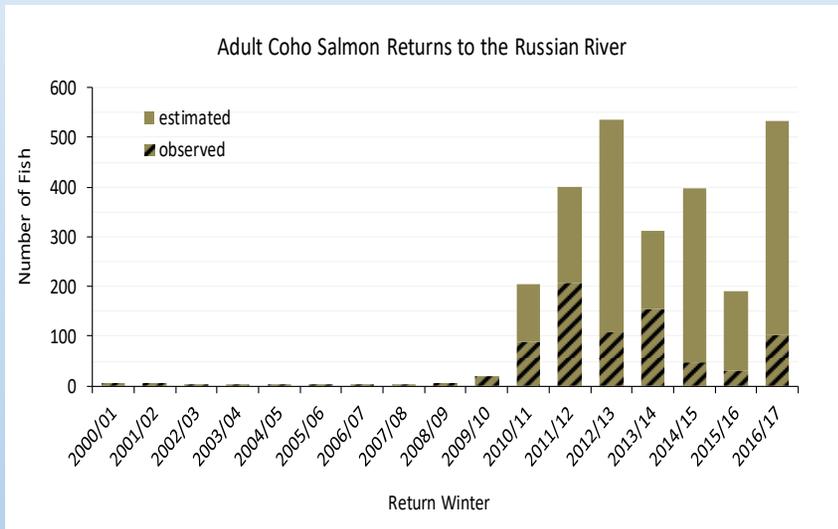
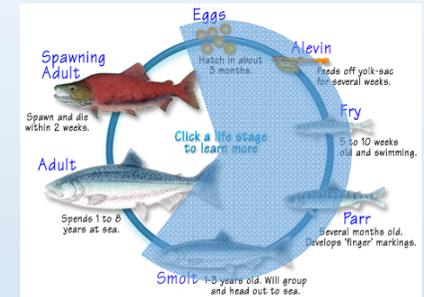


Coho Salmon Distribution

- Select tributaries in the lower basin
 - Low gradient streams
 - Reaches with perennial flow
 - Cool water throughout summer
- Emergency Drought Regulations targeted coho salmon streams
 - Because coho were at greatest risk to effects of the drought

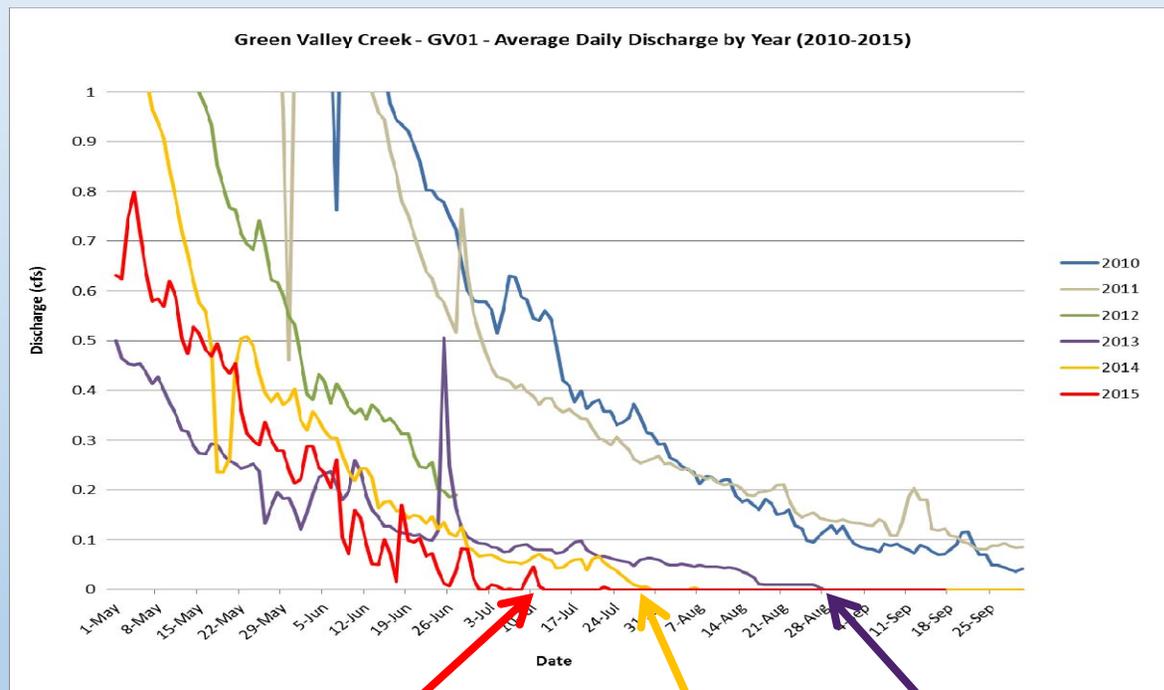


Adult Coho Salmon Returns



- Shows the estimated number of adults returning to Russian River tributaries to spawn over the last 15 years
- Represents overall survival from one generation to the next (3-year life-cycle)
- Reflects success of the hatchery release program
 - Extirpation (temporarily) avoided
- Lower returns in drought years
 - But, the effect of drought uncertain
 - Ocean survival may be unrelated to drought
 - Adults returning during the drought, may have reared prior to drought

Summer Streamflow During the Drought



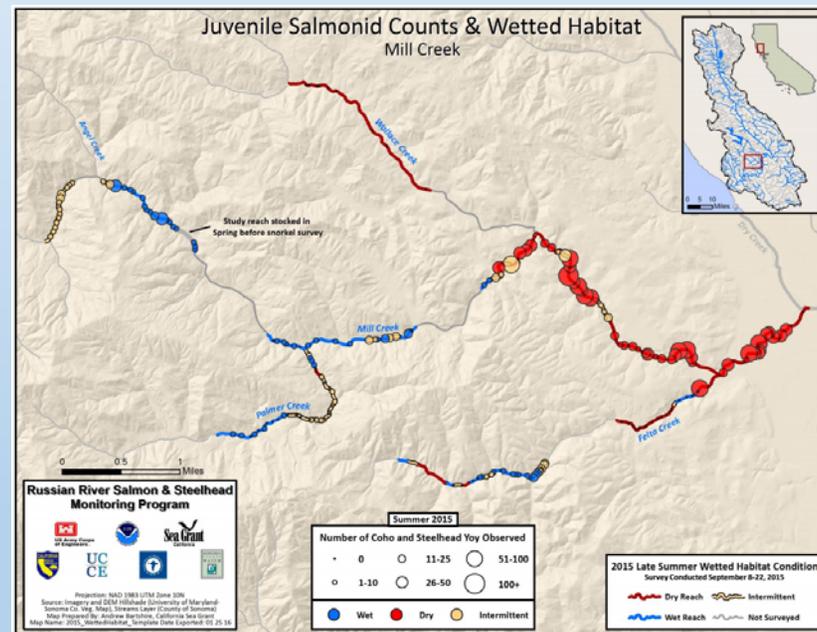
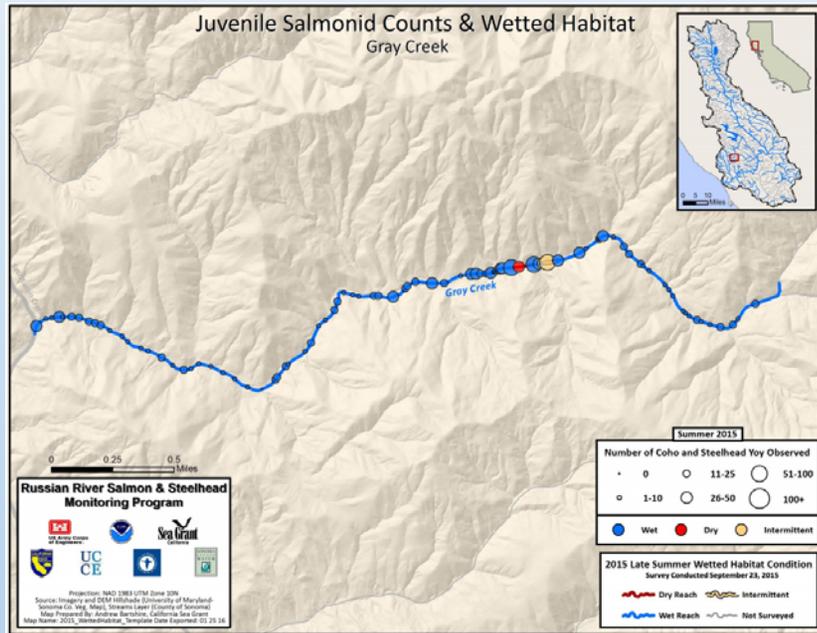
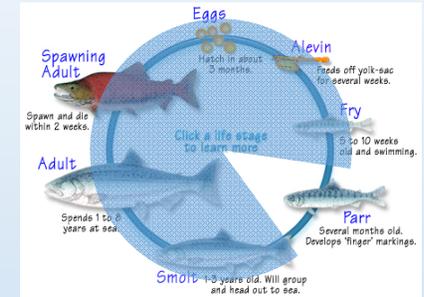
July 2015

August 2014

September 2013



Salmonid Survival through Summer



- Where surface water persisted, most fish survived*
- Where streams dried, fish died

Relative Performance of Key Tributaries

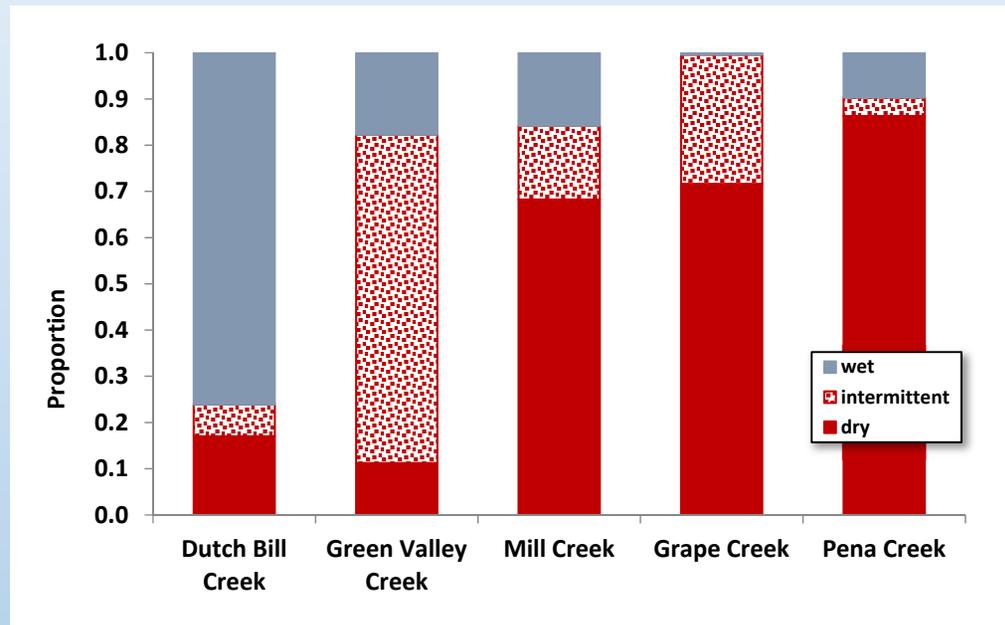
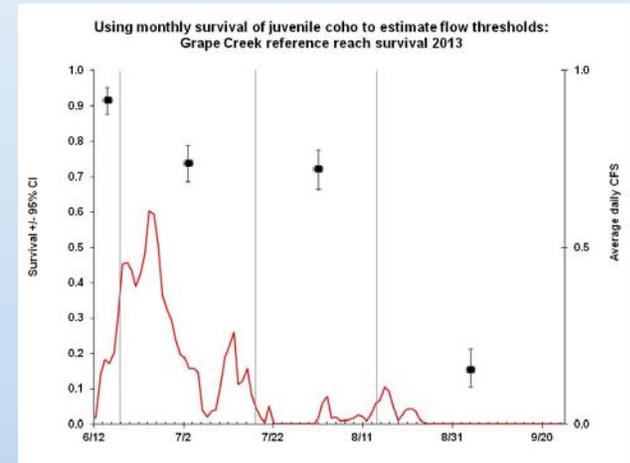
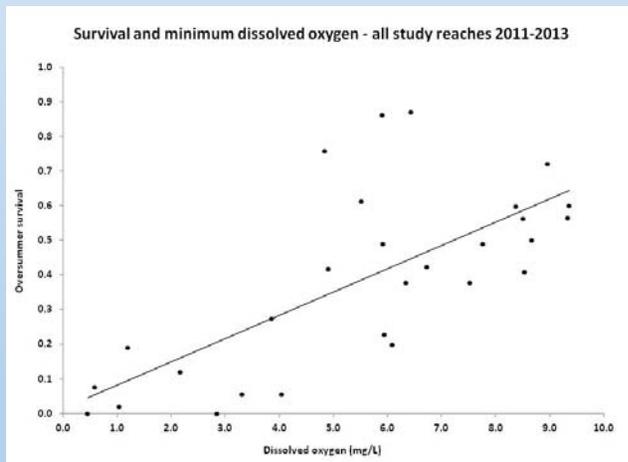


Figure 3. The proportion of juvenile salmonids observed in relation to wet, intermittent and dry stream reaches in five priority streams studied by the Russian River Coho Salmon Captive Broodstock Monitoring Program in the summer of 2015.

Dissolved Oxygen and Survival in Intermittent Streams

- Survival remains high despite cessation of flow
 - After approx. 30 days with little or no flow, survival rates drop precipitously



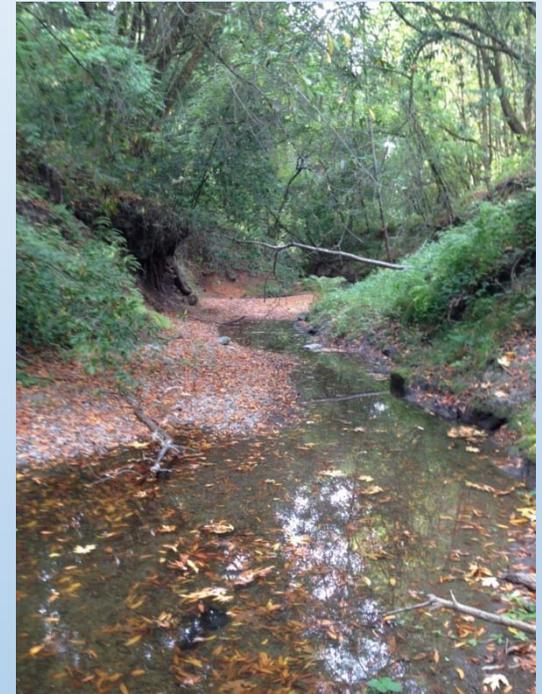
- Low survival is associated with dissolved oxygen levels less than 5 mg/l
- Suggests survival drops when water quality degrades in isolated pools

Obedzinski and Nossaman 2010

Juvenile Survival in Low Flow Conditions



- As long as water quality conditions remain favorable, juveniles can persist in isolated pools
 - But not for long
 - Pool persistence and water quality vary by site
 - Water quality in isolated pools tends to crash after 30 days
- The best way to ensure that water quality is sustained is to **maintain a hydraulic connection** between pools



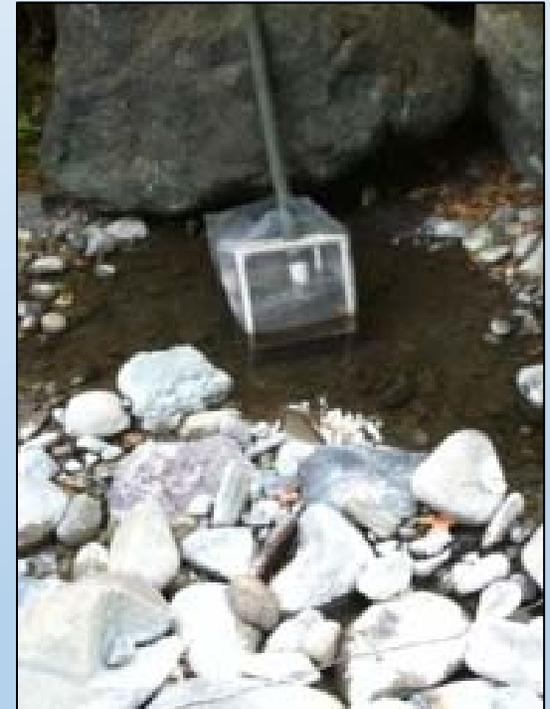
Conclusions



- Natural reproduction in the four streams subject to Drought Regulation have not been sufficient to maintain the coho salmon population
 - This is also true of most tributaries in the Russian River
 - Hatchery efforts have avoided the extirpation of coho salmon in the Russian River
 - As one of the largest watersheds on the coast, the Russian River is a key basin for the survival and recovery of salmonids in the region
- The longer juvenile coho salmon spend in freshwater streams, the lower their survival to the smolt life-stage
 - Although, fall release fish had the highest proportion of returning adults
- Survival through the summer was poor from 2013 through 2016
 - 2014 was exceptionally poor for multiple life stages
- Low streamflow in the summer months is a bottleneck to survival
 - Stream desiccation was associated with significant juvenile mortality

Lake and Streambed Alteration Agreements

- Fish and Game Code Section 1600 et. Seq. requires that people notify CDFW before substantially diverting or obstructing the natural flow of any river, stream or lake
- A diversion is considered “substantial” if:
 - Water is diverted when there is little or no surface water
 - Stream flow is substantially reduced
- Both new and ongoing water diversions are subject to notification
- Once notified, CDFW will develop an agreement with the diverter that will include measures to protect fish and wildlife



Lake and Streambed Alteration Agreements

- Developing LSAA's for diversions is an important way we can protect endangered species from the harmful effects of stream flow depletion
- CDFW will continue to work with other agencies and stakeholders on effective and efficient approaches to protecting fisheries and aquatic resources
- If you have additional questions, please contact:
 - David Hines, Water Rights Coordinator at: David.Hines@Wildlife.ca.gov
 - Eric Larson, Environmental Program Manager at: Eric.Larson@Wildlife.ca.gov

End

State Water Board

California Water Action Plan

Russian River Watershed



August 24, 2017

**Drought Emergency Regulation Informational
Order Follow-up Meeting**

**Presented by: Valerie Zimmer
Santa Rosa, CA**



Outline

- Overview of **California Water Action Plan (CWAP)**
- Current CWAP efforts in the Russian River Watershed
- How Emergency Regulation Informational Order data will aid Russian River CWAP effort

California Water Action Plan (2014)

Action 4 – Protect and Restore Important Ecosystems

Sub-action: Enhance Water Flows in Stream Systems Statewide

- Collaborative effort between **State Water Board** and **CDFW**
- Implement a suite of individual and coordinated administrative efforts to **enhance flows**
- Target at least five stream systems that support critical habitat for anadromous fish
- Consider public trust and maintaining fish in good condition
- Transparent public process



Selection of 5 Priority Watersheds

- Threatened or endangered anadromous fish species
- Highly altered habitat and flow conditions
- High recovery potential
- Represent watersheds throughout California
- Opportunities to reach sustainable solutions for multiple beneficial uses



Why Mark West Creek?

- Critical anadromous fish habitat in Russian River
 - largest run of Central California Coast (CCC) steelhead
 - 17% of CCC Coho habitat (most of any watershed)
 - California Coastal (CC) Chinook are also present
- Mark West creek is one of ten **Priority Action Coho Team (PACT) streams** identified above SF Bay in which flow enhancement are needed.
- **Substantial positive local efforts** to improve fisheries by public agencies, agricultural partners, research institutions, landowners, and environmental organizations

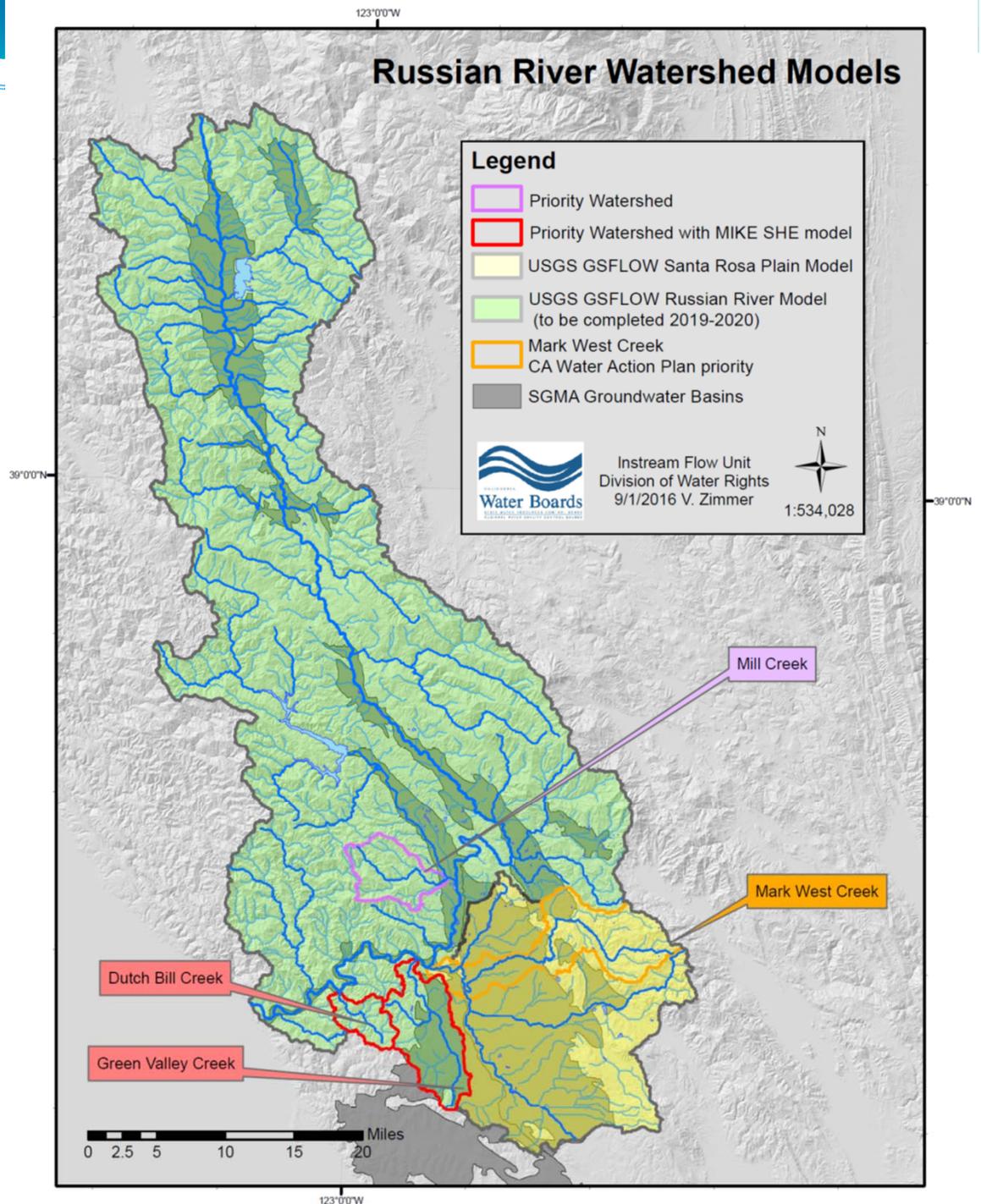


Current CWAP-related activities Russian River Watershed

- **USGS Groundwater-Surface Water Modeling**, co-sponsored by Sonoma County Water Agency (SCWA)
- **Ongoing analysis of Informational Order data** to better understand water use demand and water diversion and pumping patterns in space and time.
- **Analysis of stream gage data** in tributaries to verify modeling results.
- Coordination with state and federal agencies (CDFW, NMFS, USGS)
- Communication with local agencies, landowners, environmental groups, and agricultural producers.

USGS modeling

- Santa Rosa Plain Model
 - 1976-2010
 - Undergoing Updates:
 - Drought years streamflow
 - Info Order Water Use data
- Russian River Model
 - New model
 - Sponsored by State Water Board, SCWA, and partners in Mendocino County



CWAP Estimated Timeline for Mark West Creek

- CDFW study plan [end of 2017/early 2018]
- CDFW field work [2018]
- CDFW technical report [2019]
- USGS Modeling completed [end of 2019/early 2020]
- CDFW Flow Recommendations [end of 2019/early 2020]
- State Water Board policy development and CEQA [2020 -> 2021]

Contact Information

Program web page:

http://www.waterboards.ca.gov/waterrights/water_issues/programs/instream_flows/cwap_enhancing

Email Subscription:

https://www.waterboards.ca.gov/resources/email_subscriptions/swrcb_subscribe.shtml

- **Click Water Rights**
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Instream Flow Unit Supervisor
Daniel Worth
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www.waterboards.ca.gov/resources/email_subscriptions/swrcb_subscribe.shtml

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- California WaterFix
- Cannabis Cultivators
- Delta Watershed Flow Objectives (Phase 4 of Bay-Delta effort)

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