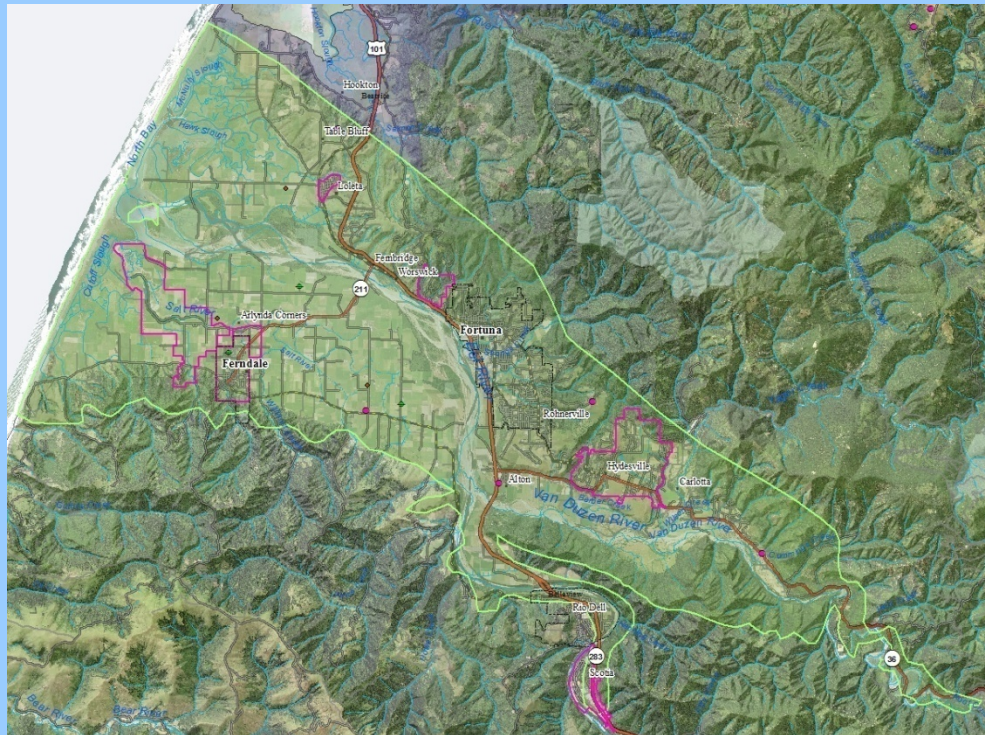


# Eel River Valley Groundwater Working Group

## Meeting No. 9

June 21, 2018 // 10:00 am – 11:15 am  
*Humboldt County Agricultural Center*



# Today's agenda

1. Introductions
2. Groundwater Sustainability Plan Alternative (December 2016) - Status *HCPW (10 min)*
3. Annual Report for 2017 Water Year (April 2018) *SHN (20 min)*
4. DWR's draft 2018 basin prioritization results (May 2018) *HCPW (45 min)*



June 21, 2018

# Eel River Valley Groundwater Working Group

**Purpose:** Guide the local response to the Sustainable Groundwater Management Act

1. Provide information and viewpoints regarding groundwater issues in the Eel River Valley.
2. Support the collection and analysis of technical data and information to understand conditions and trends.
3. Discuss selection and formation of a Groundwater Sustainability Agency (GSA), if applicable.
4. Discuss the framework and sustainable management criteria for an Alternative Submittal or future Groundwater Sustainability Plan (GSP).

**Scope:** The scope of the Working Group is limited to the Eel River Valley.

**Ground rules:**

- Use people's time wisely; make comments concise
- Stay on topic, follow the agenda
- Be respectful of other speakers, refrain from talking over others
- Continuity of members and regular attendance at meetings is important
- Set goals or desired outcomes for meeting
- Meeting dates should be scheduled in advance

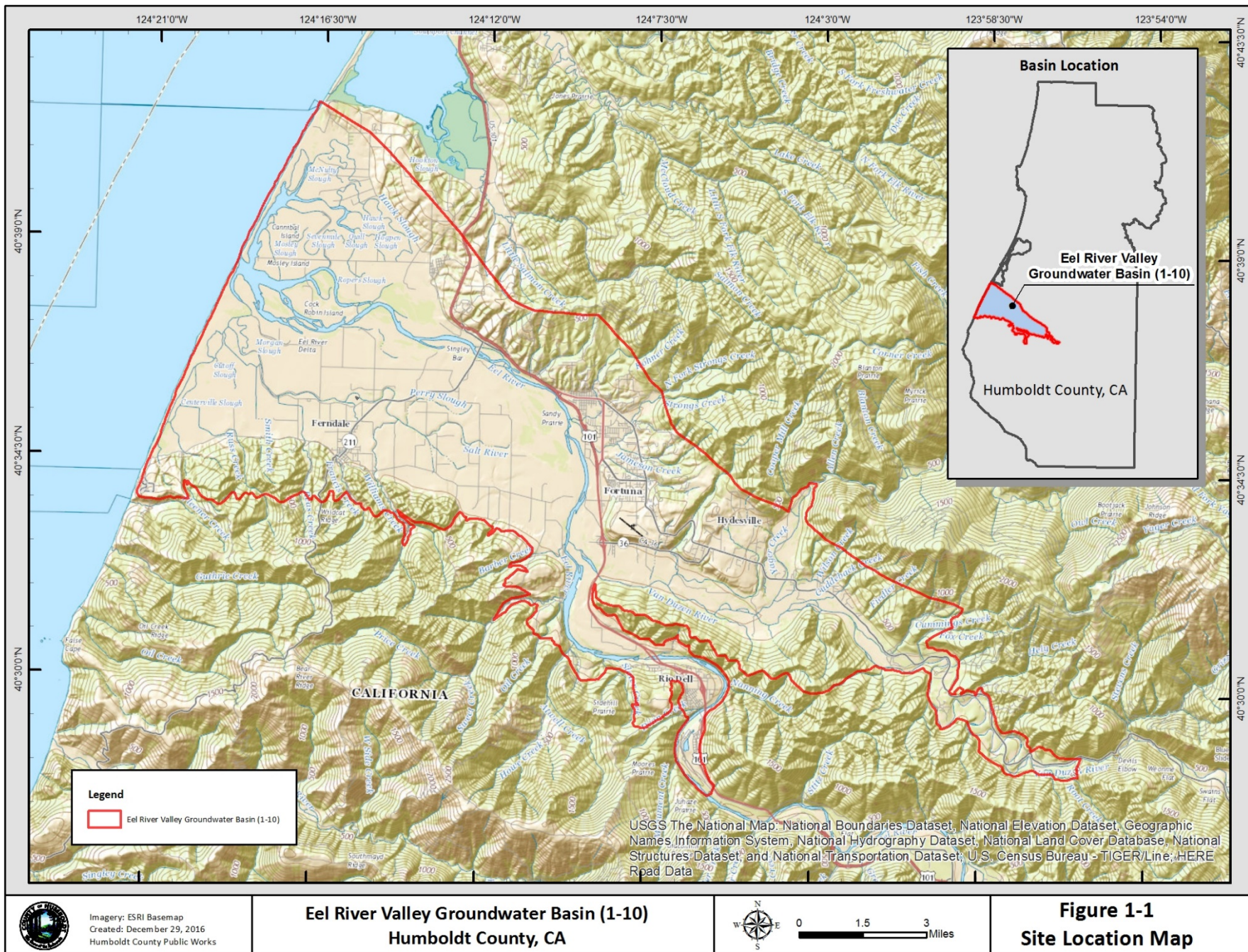


June 21, 2018

# Groundwater Sustainability Plan Alternative (December 2016) - Status



June 21, 2018



Imagery: ESRI Basemap  
Created: December 29, 2016  
Humboldt County Public Works

**Eel River Valley Groundwater Basin (1-10)**  
**Humboldt County, CA**



0 1.5 3 Miles

**Figure 1-1**  
**Site Location Map**

RESOLUTION NO. 16-142

**RESOLUTION AUTHORIZING THE PUBLIC WORKS DEPARTMENT TO SUBMIT A GROUNDWATER SUSTAINABILITY PLAN ALTERNATIVE FOR THE EEL RIVER VALLEY GROUNDWATER BASIN TO THE CALIFORNIA DEPARTMENT OF WATER RESOURCES**

**WHEREAS**, the Department of Water Resources ("DWR") designated the Eel River Valley groundwater basin ("Basin") as a medium-priority basin for the initial prioritization under the Sustainable Groundwater Management Act which went into effect on January 1, 2015; and

**WHEREAS**, the Sustainable Groundwater Management Act authorizes local agencies to submit an Alternative to a Groundwater Sustainability Plan ("Alternative") that provides analysis of basin conditions demonstrating that the basin has operated within its sustainable yield over a period of at least 10 years (California Water Code §10733.6); and

**WHEREAS**, the content of an Alternative must contain the functional equivalent of Articles 5 and 7 of the Groundwater Sustainability Plan regulations (California Code of Regulations, Title 23, §358.2(d)); and

**WHEREAS**, an Alternative must be submitted to DWR for review by January 1, 2017, and every five years thereafter; and

**WHEREAS**, the County of Humboldt is a local public agency with land use responsibilities within the unincorporated areas of the Basin; and

**WHEREAS**, the County of Humboldt serves as the monitoring entity for the California Statewide Groundwater Elevation Monitoring program within the Basin in collaboration with DWR; and

**WHEREAS**, on October 6, 2015, the Board of Supervisors approved the formation of an Eel River Valley Groundwater Working Group to consist of stakeholders representing agricultural, municipal, and environmental interests and provide input on organizing the local response to the Sustainable Groundwater Management Act for the Eel River Valley; and

**WHEREAS**, the Eel River Valley Groundwater Working Group has convened seven meetings between October 21, 2015, and December 2, 2016; and

**WHEREAS**, in July 2016, DWR awarded the County of Humboldt a Proposition 1 Sustainable Groundwater Planning Grant to conduct a geologic and hydrogeologic investigation to determine whether groundwater levels within the Eel River Valley groundwater basin are declining or fluctuating to the point of causing impacts such as reduced groundwater storage, seawater intrusion, threatening or degrading water quality, land subsidence, and/or surface water depletion; and

**WHEREAS**, the results of the aforementioned technical studies indicate that there is sufficient evidence to prepare an Alternative for the Basin.

**NOW, THEREFORE, BE IT RESOLVED BY THE HUMBOLDT COUNTY BOARD OF SUPERVISORS THAT:**

1. In accordance with California Water Code §354.6(d) and §358.2(c)(3), the County of Humboldt has the legal authority to submit and implement an Alternative to a Groundwater Sustainability Plan for the Eel River Valley Groundwater Basin; and
2. The Public Works Department is hereby authorized to prepare and submit an Alternative to a Groundwater Sustainability Plan for the Eel River Valley Groundwater Basin by January 1, 2017.

Dated: December 13, 2016

  
MARK LOVELACE, Chair  
Humboldt County Board of Supervisors


# Eel River Valley Groundwater Basin

Humboldt County, California

## Groundwater Sustainability Plan Alternative

Prepared in Collaboration with:

County of Humboldt

 **SN Consulting Engineers & Geologists, Inc.**

812 W. Wabash Avenue  
Eureka, CA 95501-2138  
707-441-8855

December 2016  
016219

# Basin Prioritization Criteria and Sustainability Indicators

## Basin Prioritization Criteria

1. Population density
2. Population growth
3. Public supply wells
4. Total wells
5. Irrigated acreage
6. Groundwater reliance
7. Documented impacts
8. Other information

## Sustainability Indicators

1	Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply
2	Significant and unreasonable reduction of groundwater storage
3	Significant and unreasonable seawater intrusion
4	Significant and unreasonable degraded water quality
5	Significant unreasonable land subsidence
6	Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water

Key point: basin prioritization criteria and sustainability indicators have different purposes and definitions



# Summary

1. The Eel River Valley groundwater basin had a medium priority rating in DWR's initial basin prioritization (2014)
2. Basin prioritization criteria and sustainability indicators have different purposes and definitions
3. From 2015 through 2016, Humboldt County convened the Eel River Valley Groundwater Working Group and received a Prop. 1 grant for technical studies and planning
4. Humboldt County submitted the GSP Alternative for the Eel River Valley groundwater basin on 12/30/2016
5. On 5/2/2018, DWR indicated they expect to complete their review of GSP Alternatives by the end of summer 2018



June 21, 2018

# Annual Report

2017 Water Year

Eel River Valley Groundwater Basin



# Introduction

Introduction

Conceptual  
Hydrogeologic  
Setting

- Review of the Conceptual Hydrogeologic Setting

Annual Report

- Annual Report Contents

Recent Studies

- Results of Studies Completed Since Last Meeting



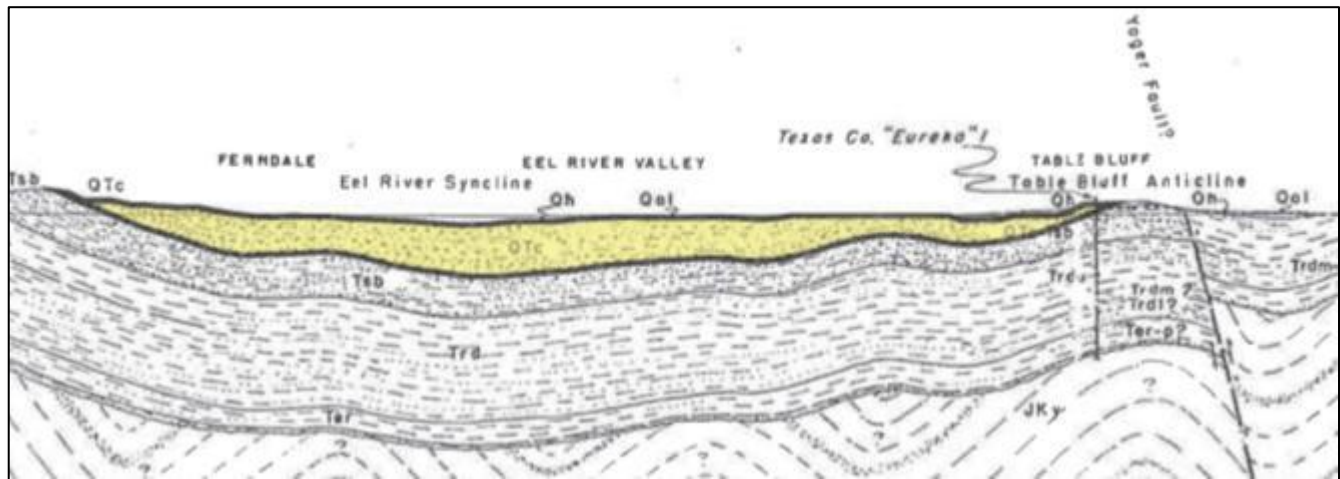
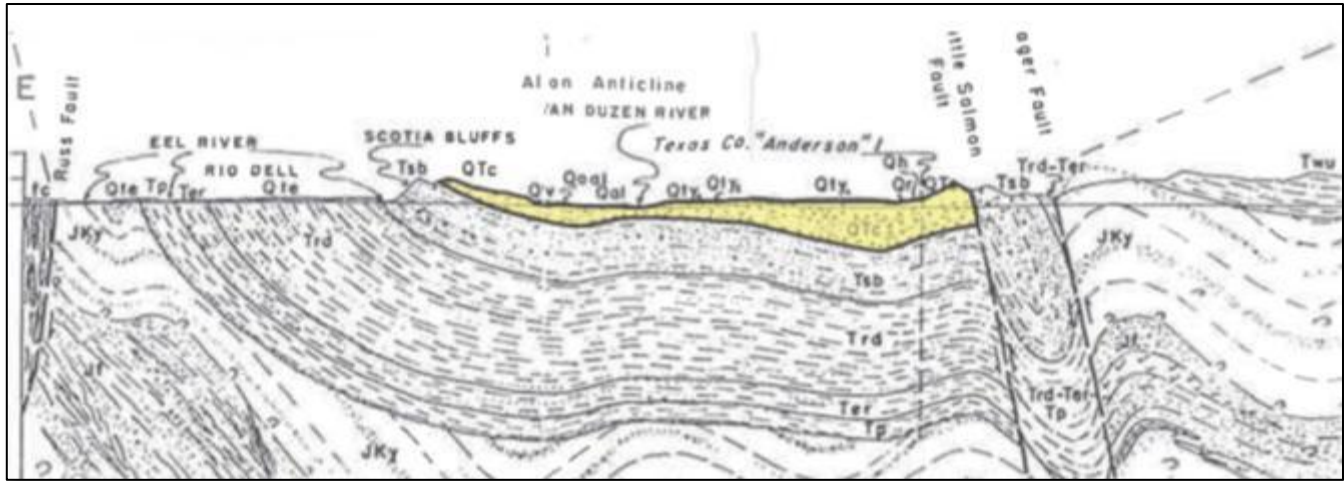
# Geologic Cross Sections – Carlotta Formation

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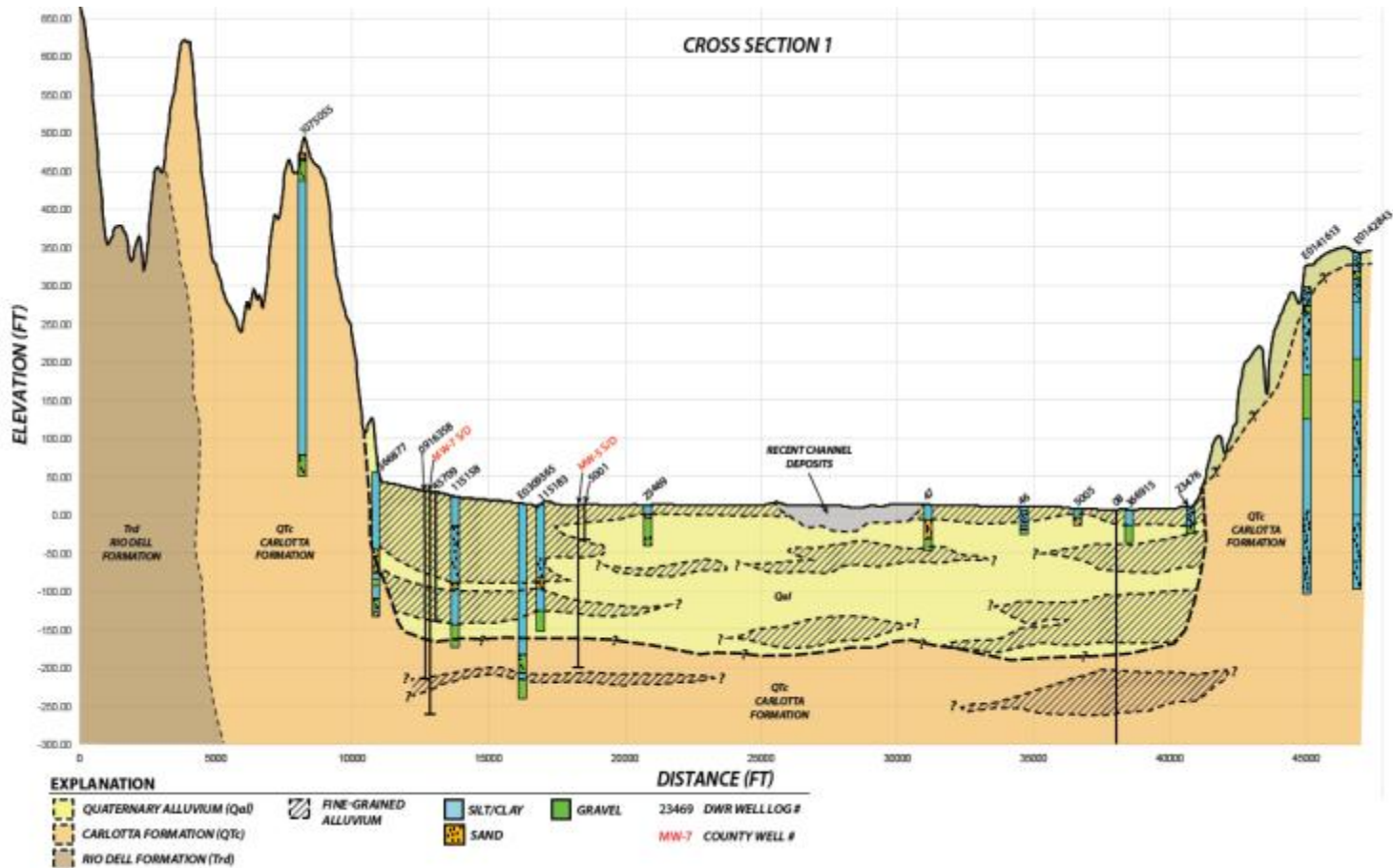
# Geologic Cross Section – Alluvial Aquifer

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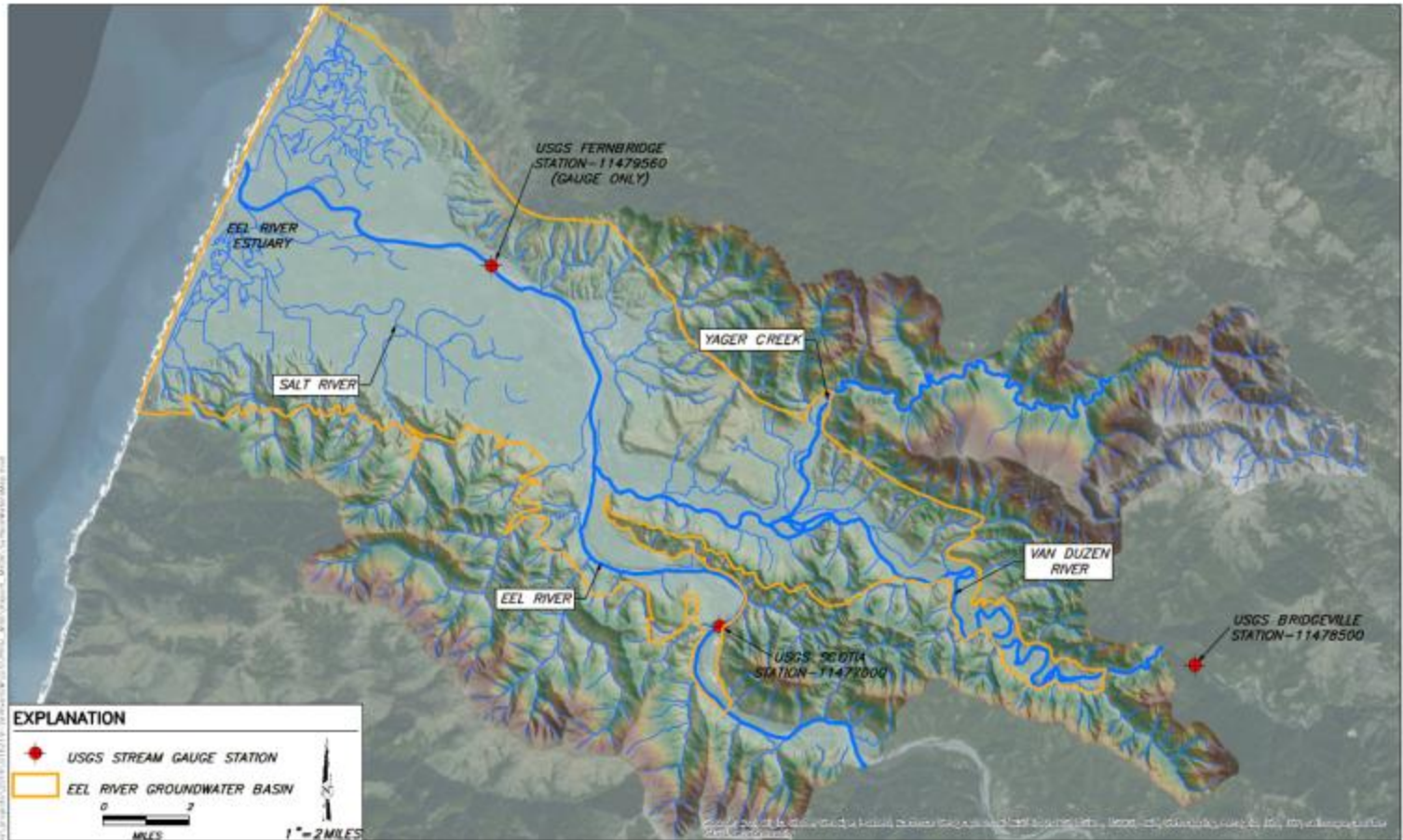
# Basin Hydrology

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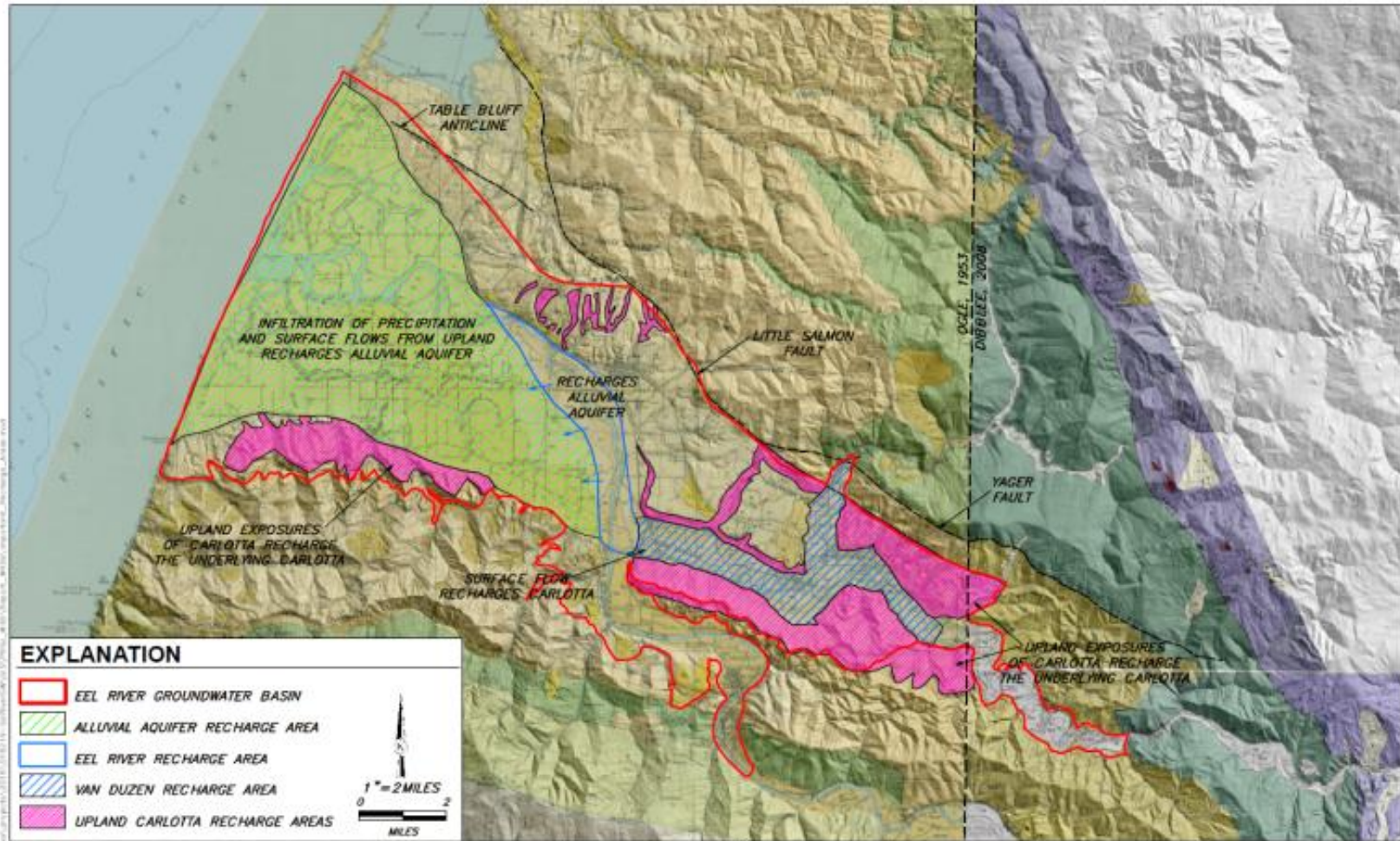
# Surface Recharge Areas

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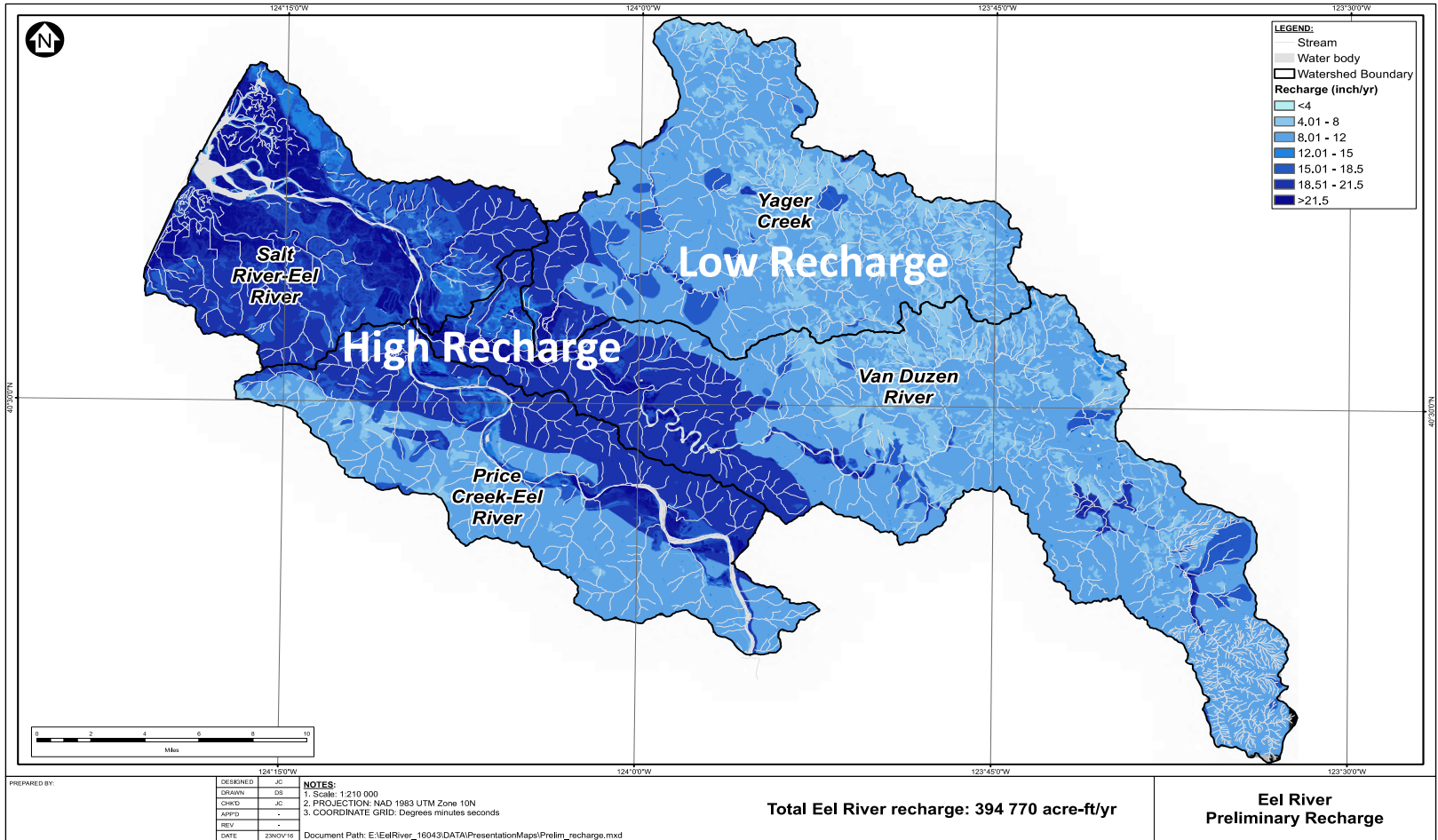
# GIS Based Water Balance Model - Recharge

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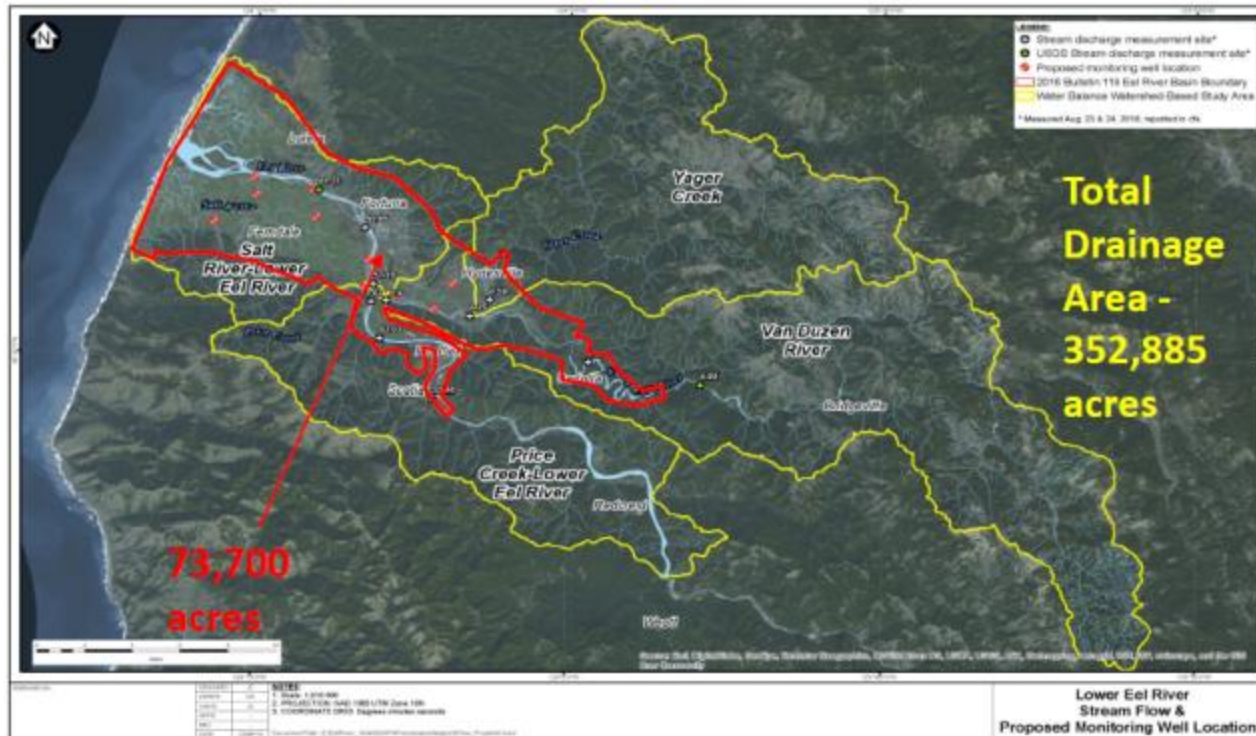
Recent Studies



# Comparison of Water Demand to Average Annual Recharge

## Watershed Study Area (352,885 acres)

- Preliminary Recharge Estimate – 394,770 acre-feet per year
  - Total Water Use – 20,000 acre-feet per year
  - Preliminary Water Stress – Approx. 5% of annual recharge is utilized
- Low Stress



# Annual Report for 2017 Water Year

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- Covers Oct 1, 2016 to Sept 30, 2017
- Required Reporting Includes:
  - Groundwater Elevation Data
  - Groundwater Extraction Data
  - Total Water Use
  - Changes in Storage
- Results of Current Monitoring Program
- Prop 1 Grant Deliverables

# Current Monitoring Program

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Proposed Monitoring Network and Sampling Program Eel River Valley Groundwater Assessment			
Location	Analysis	Frequency	Responsible Agency
CASGEM <sup>1</sup> Wells	Depth-to-Water (feet)	Bi-annually	DWR <sup>2</sup>
River Stations	River Stage (feet)	Continuous	USGS <sup>3</sup>
County Monitoring Wells (All)	Depth-to-Water (feet)	Bi-annually	County
	Chlorides (mg/L) <sup>4</sup>	1X/5 Years	County
MW-2	Depth-to-Water (feet)	Continuous	County
MW-5/MW-7	Chlorides (mg/L)	Bi-annually	County
<ol style="list-style-type: none"> <li>1. CASGEM: California Statewide Groundwater Elevation Monitoring</li> <li>2. DWR: State of California Department of Water Resources</li> <li>3. USGS: U.S. Geological Survey</li> <li>4. mg/L: milligrams per liter</li> </ol>			

# Current Monitoring Program

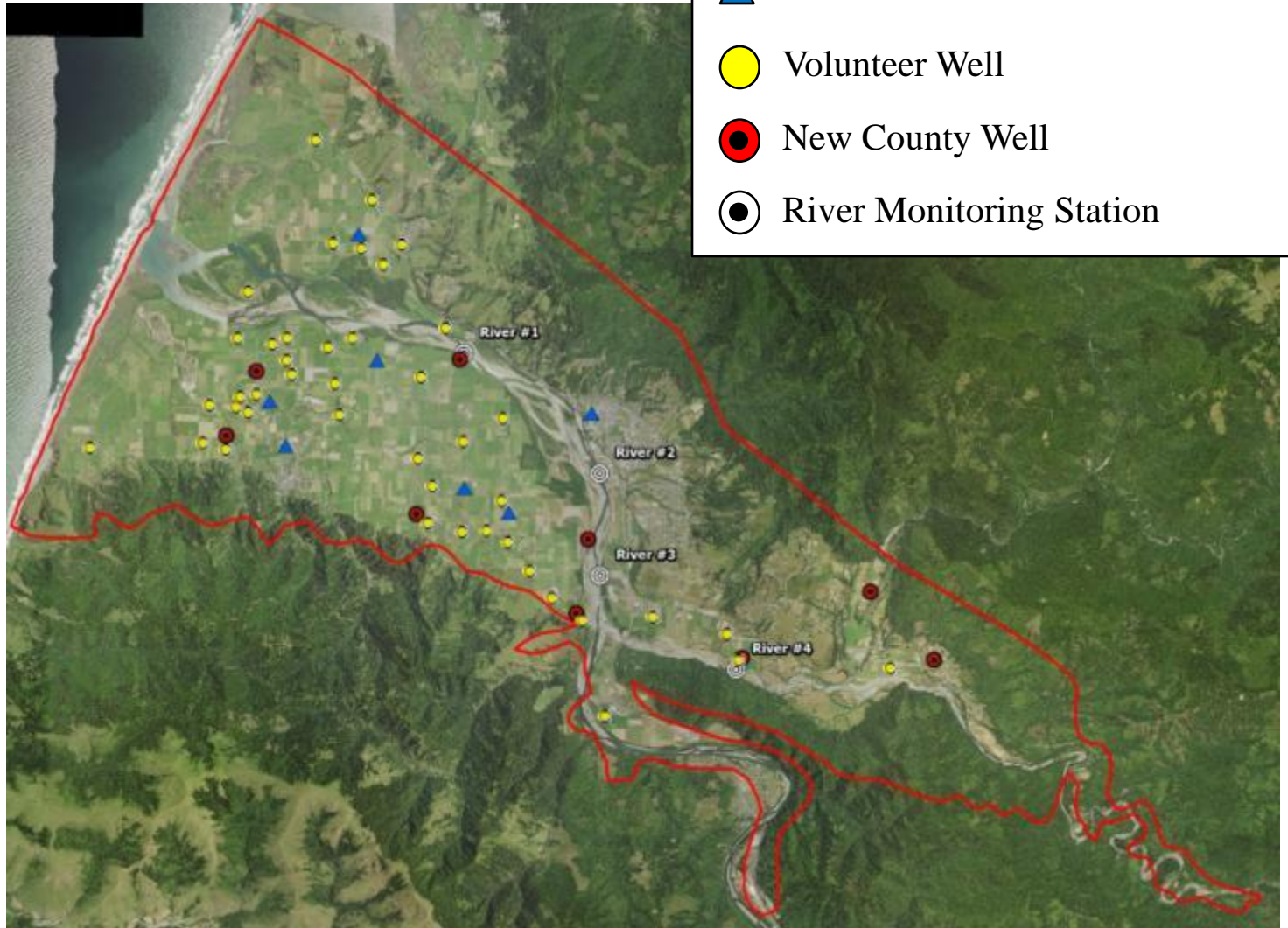
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- ▲ CASGEM Well
- Volunteer Well
- New County Well
- River Monitoring Station





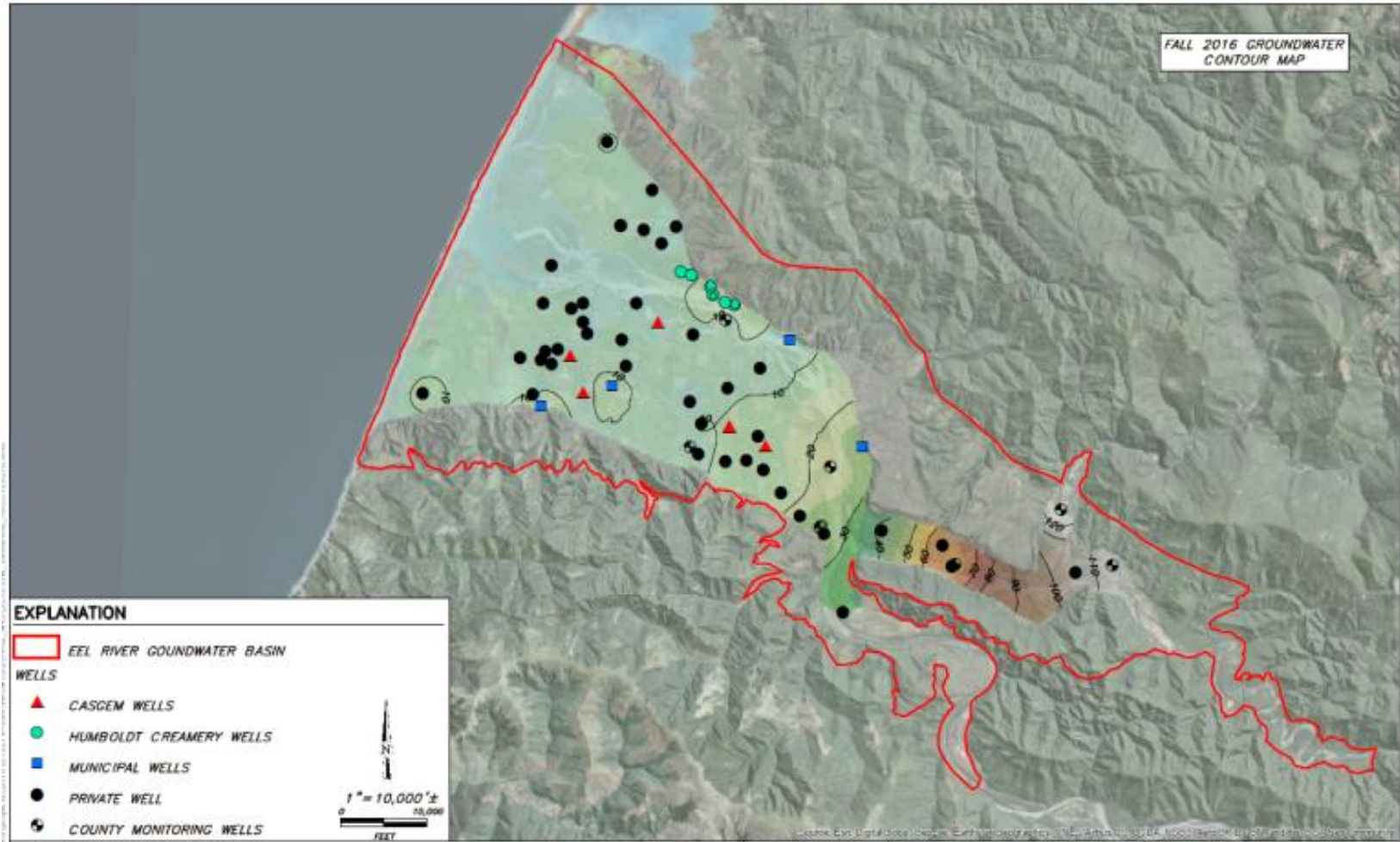
# Fall 2016 Groundwater Levels

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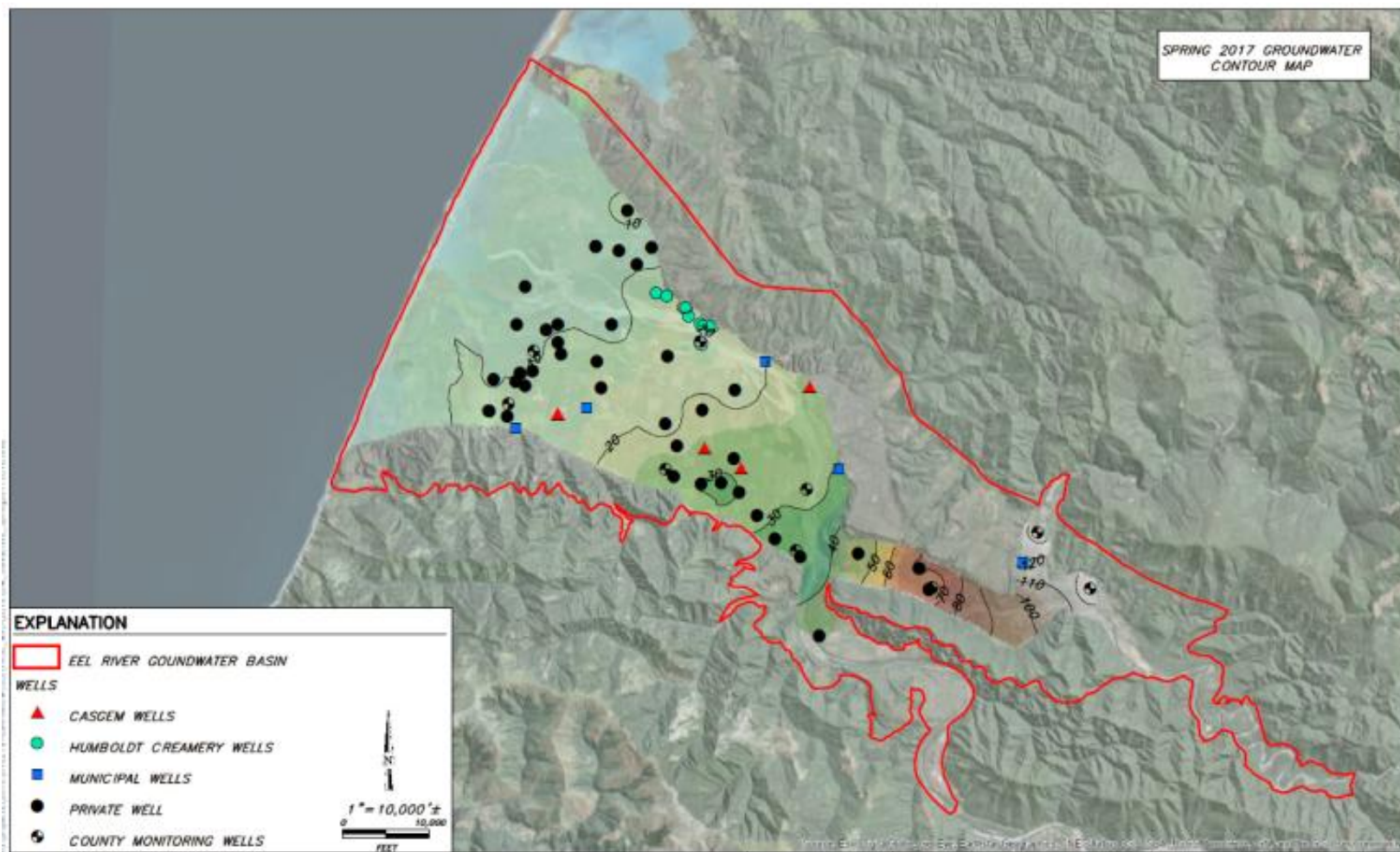
# Spring 2017 Groundwater Elevations

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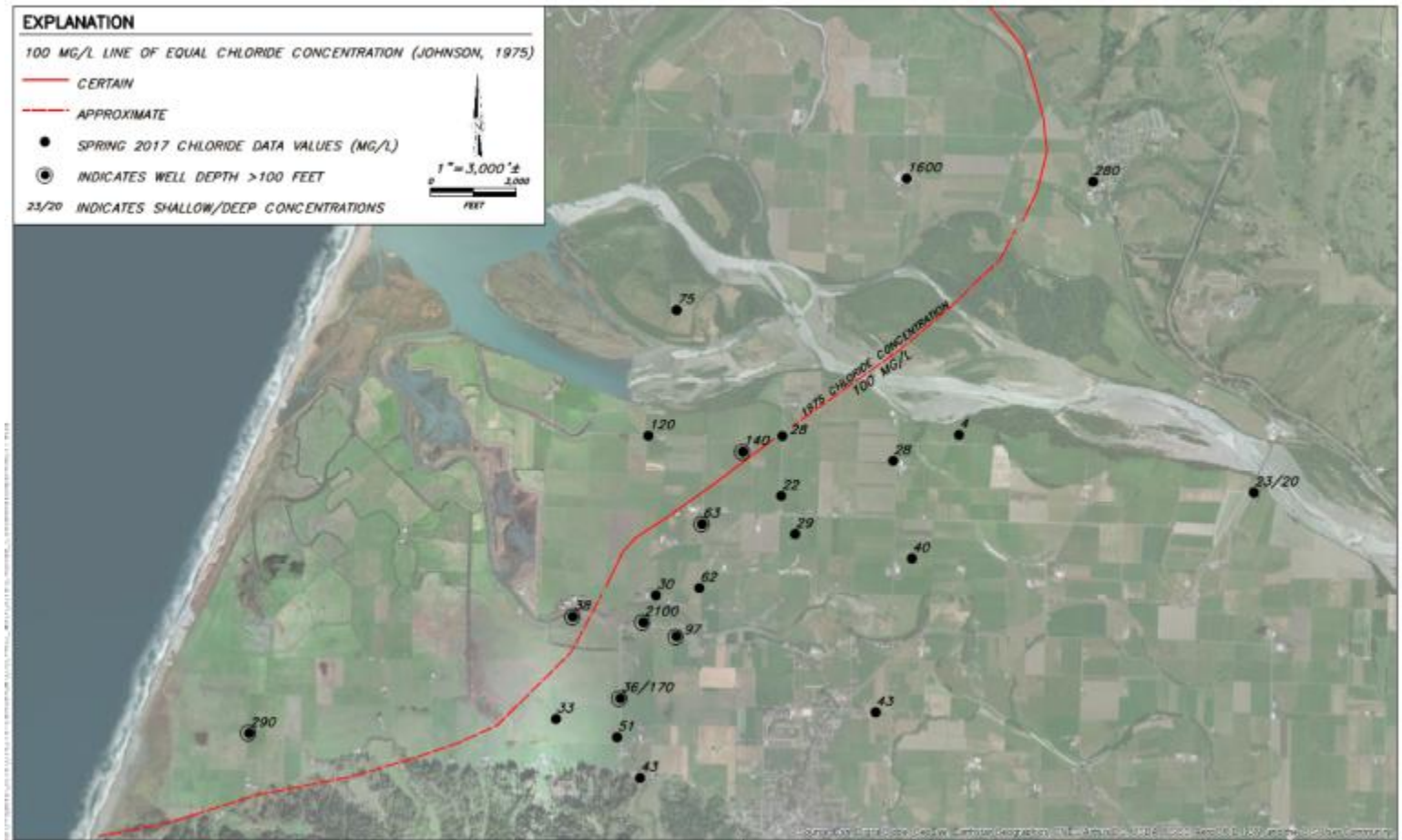
# Spring 2017 Chloride Sampling

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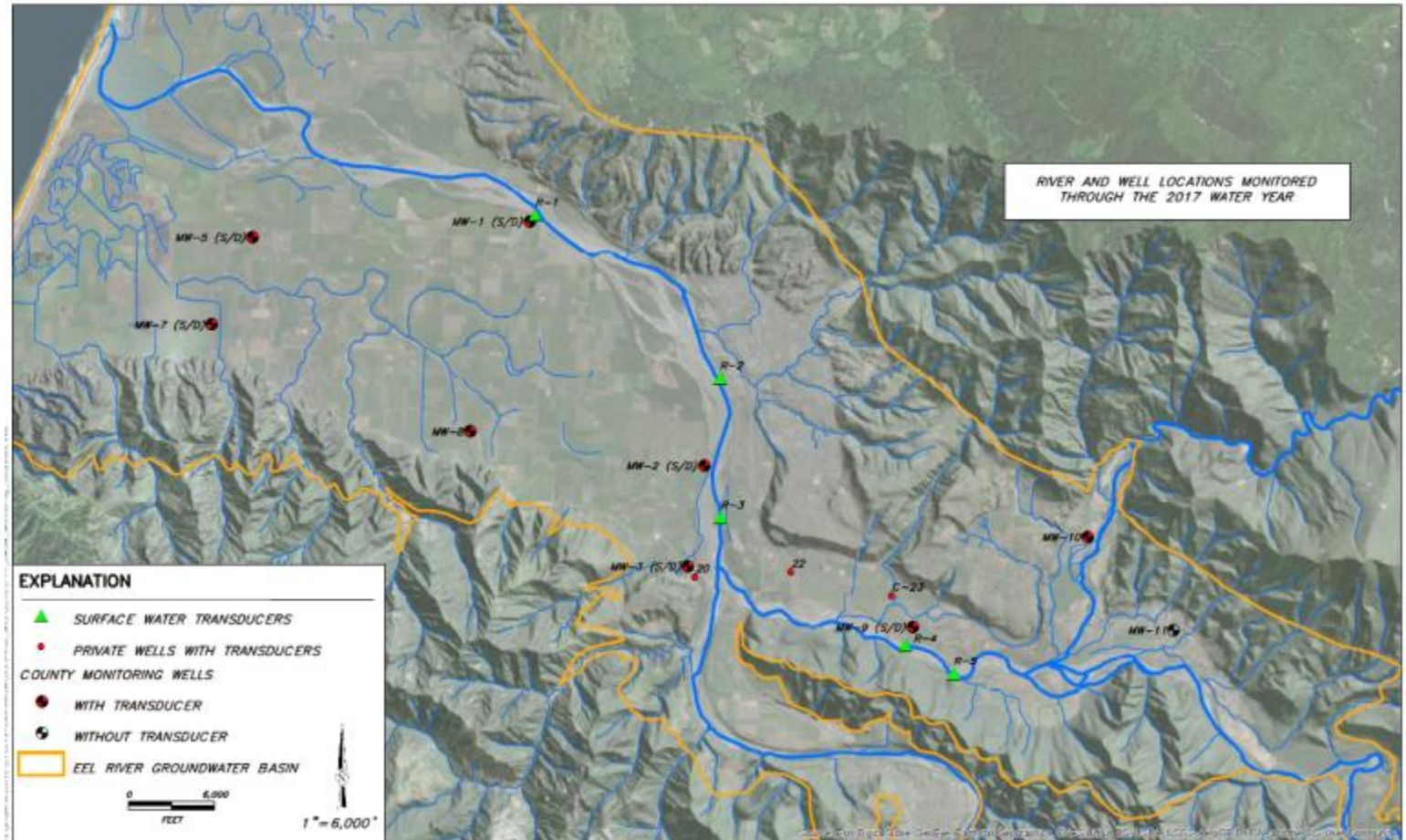
# 2017 WY Continuous Monitoring with Transducers

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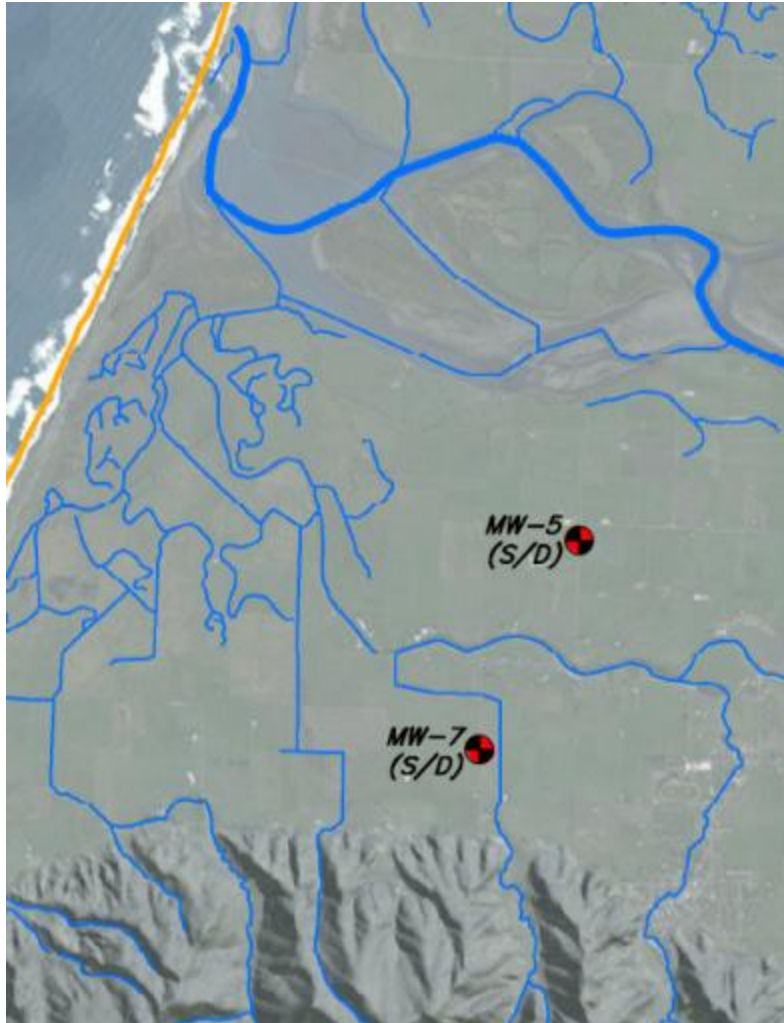
# 2017 WY Continuous Monitoring with Transducers

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MW-5:  
Dillon Road & Goble Lane

MW-7:  
Meridian Road & Damon Lane

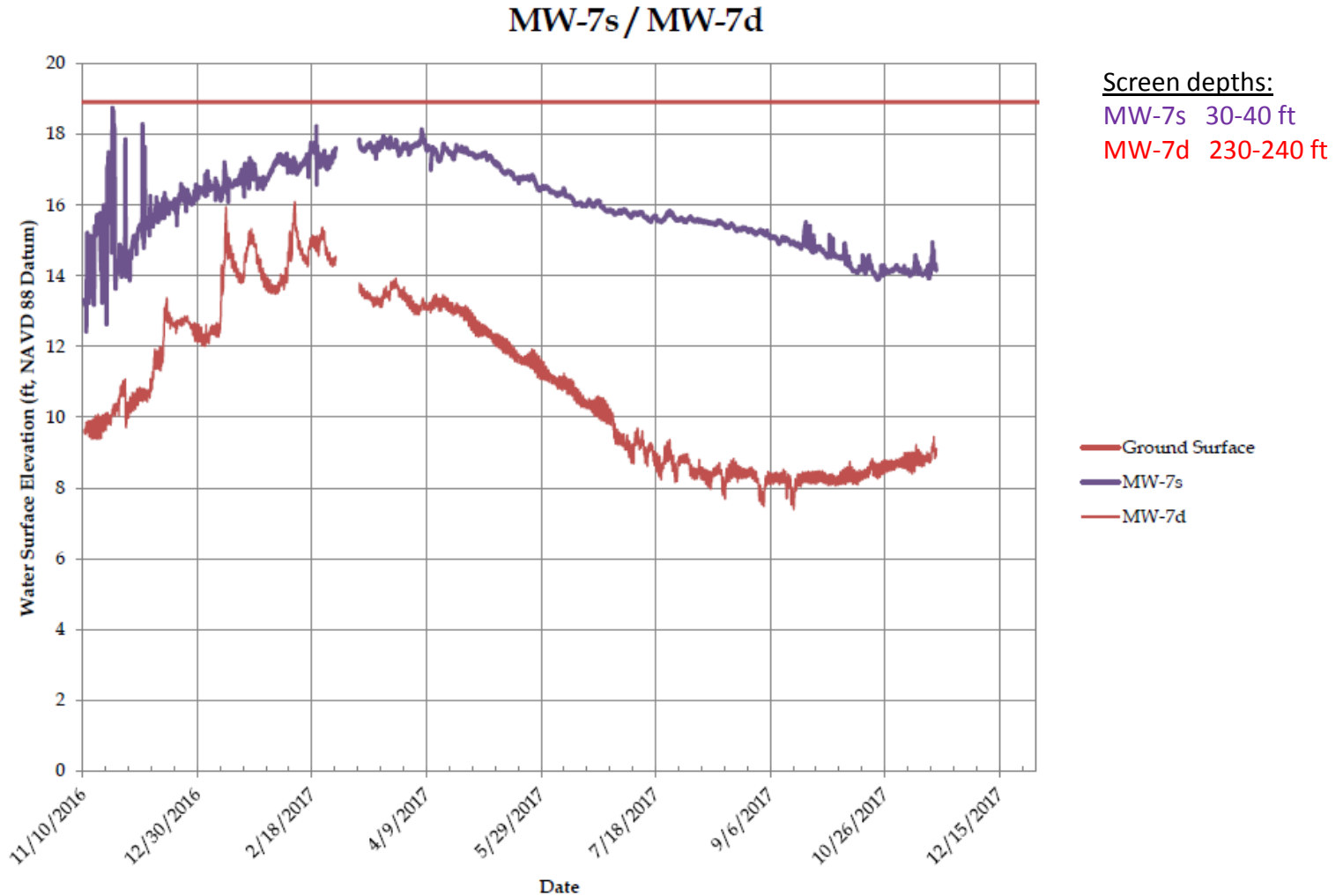
# 2017 WY Continuous Monitoring with Transducers

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# 2017 WY Continuous Monitoring with Transducers

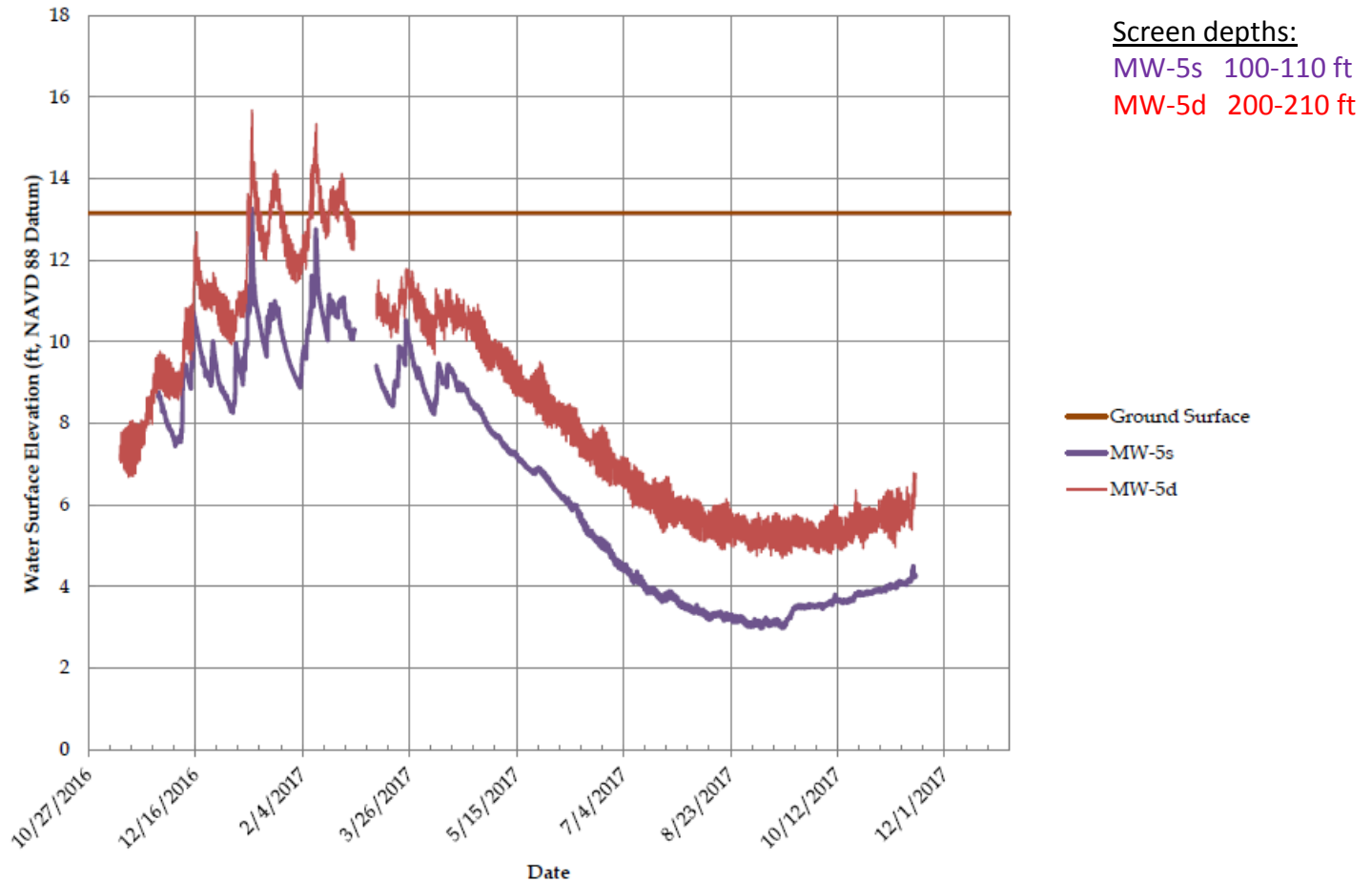
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## MW-5s / MW-5d



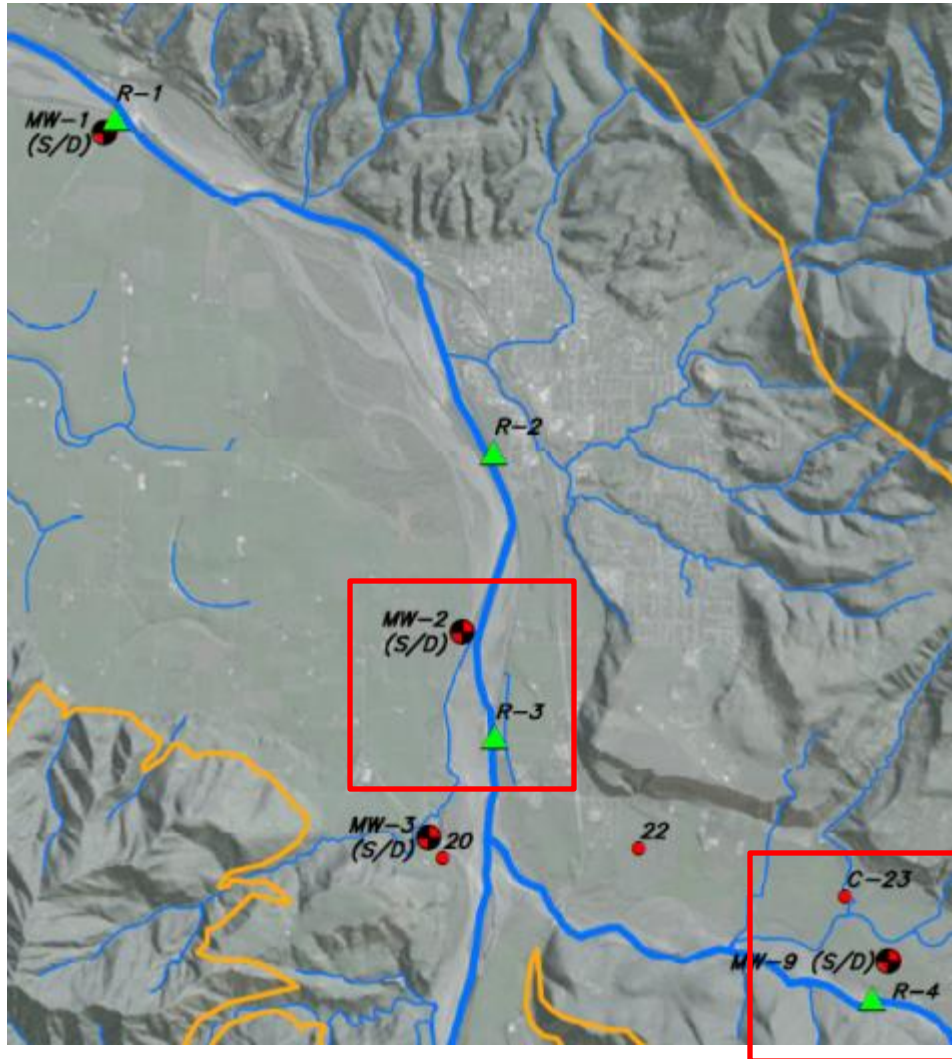
# Surface Water/Ground Water Interaction

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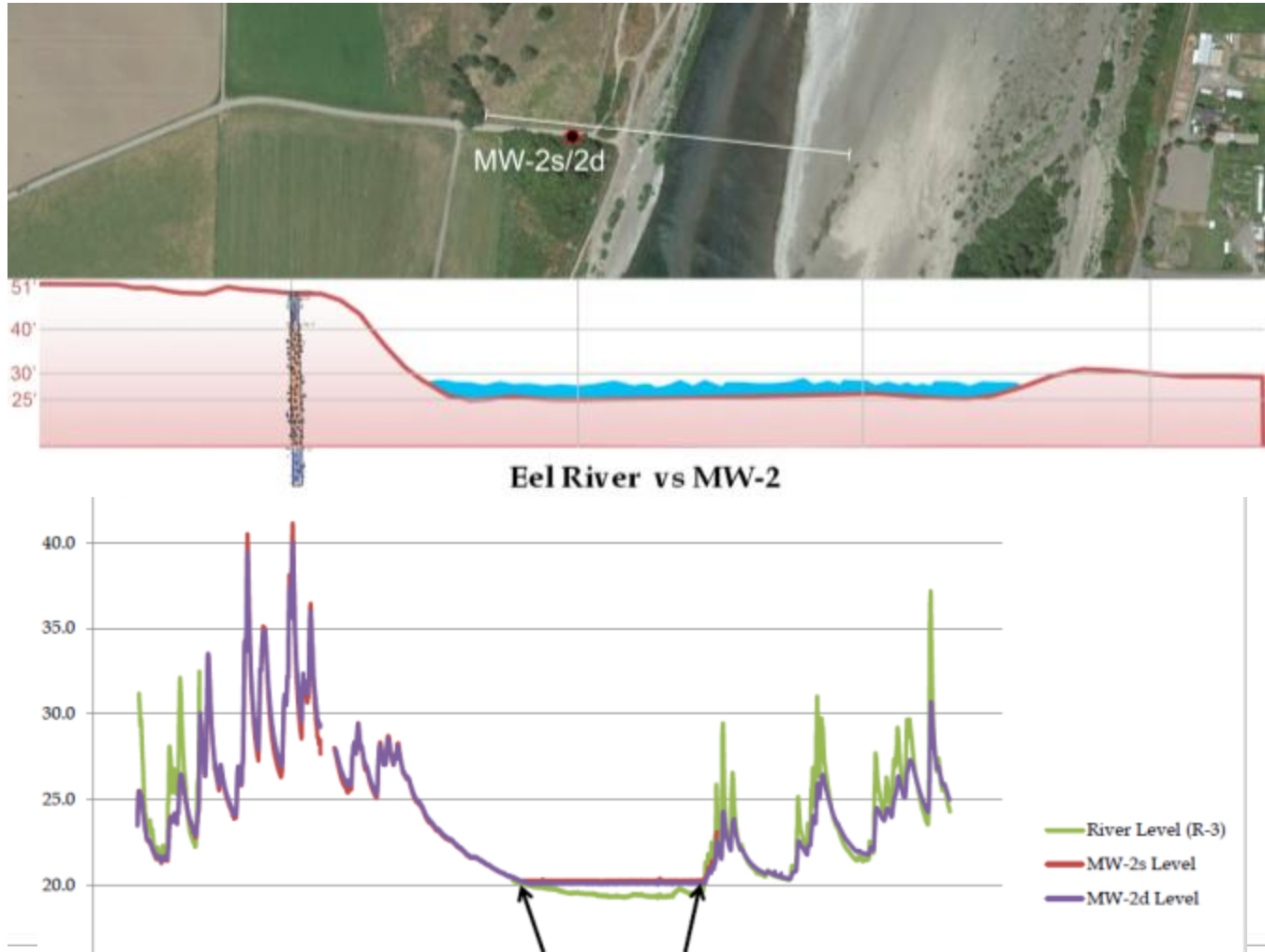
# Surface Water/Ground Water Interaction

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# Surface Water/Ground Water Interaction

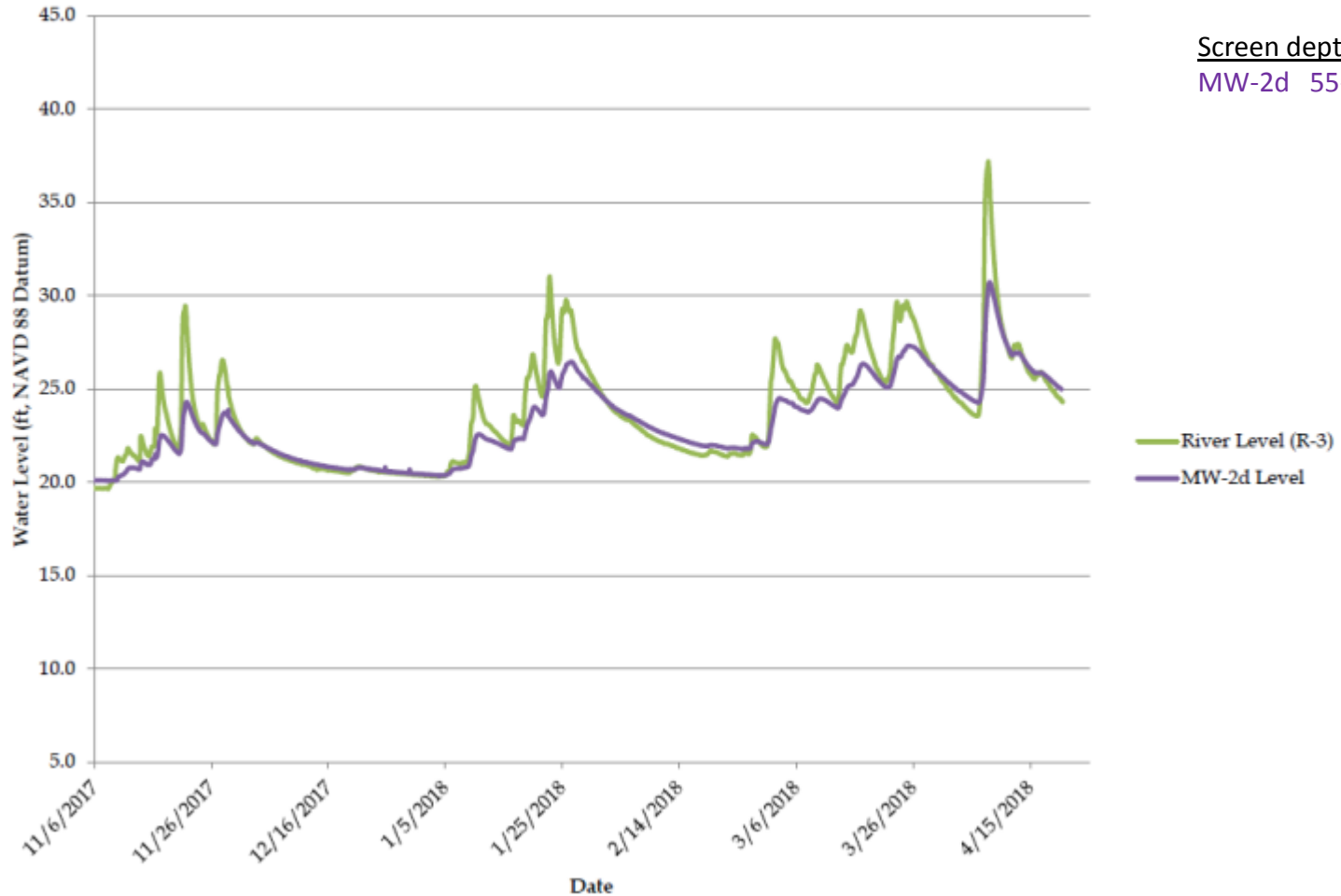
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## MW-2 versus Eel River - 2017/2018 Wet Season



Screen depth:  
MW-2d 55-60 ft

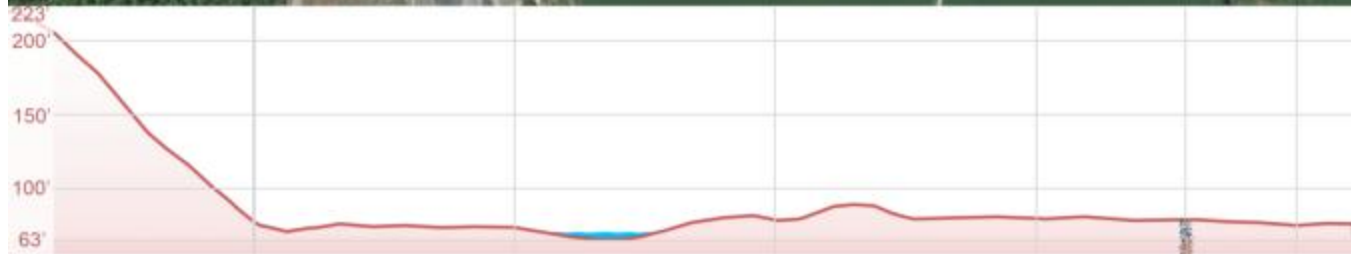
# Surface Water/Ground Water Interaction

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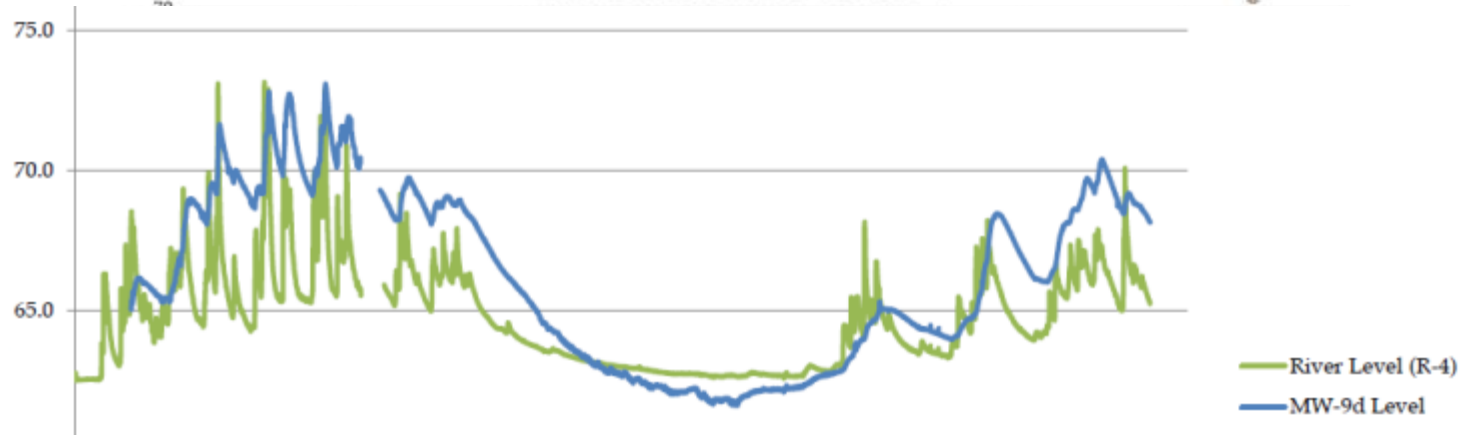
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Van Duzen River vs MW-9



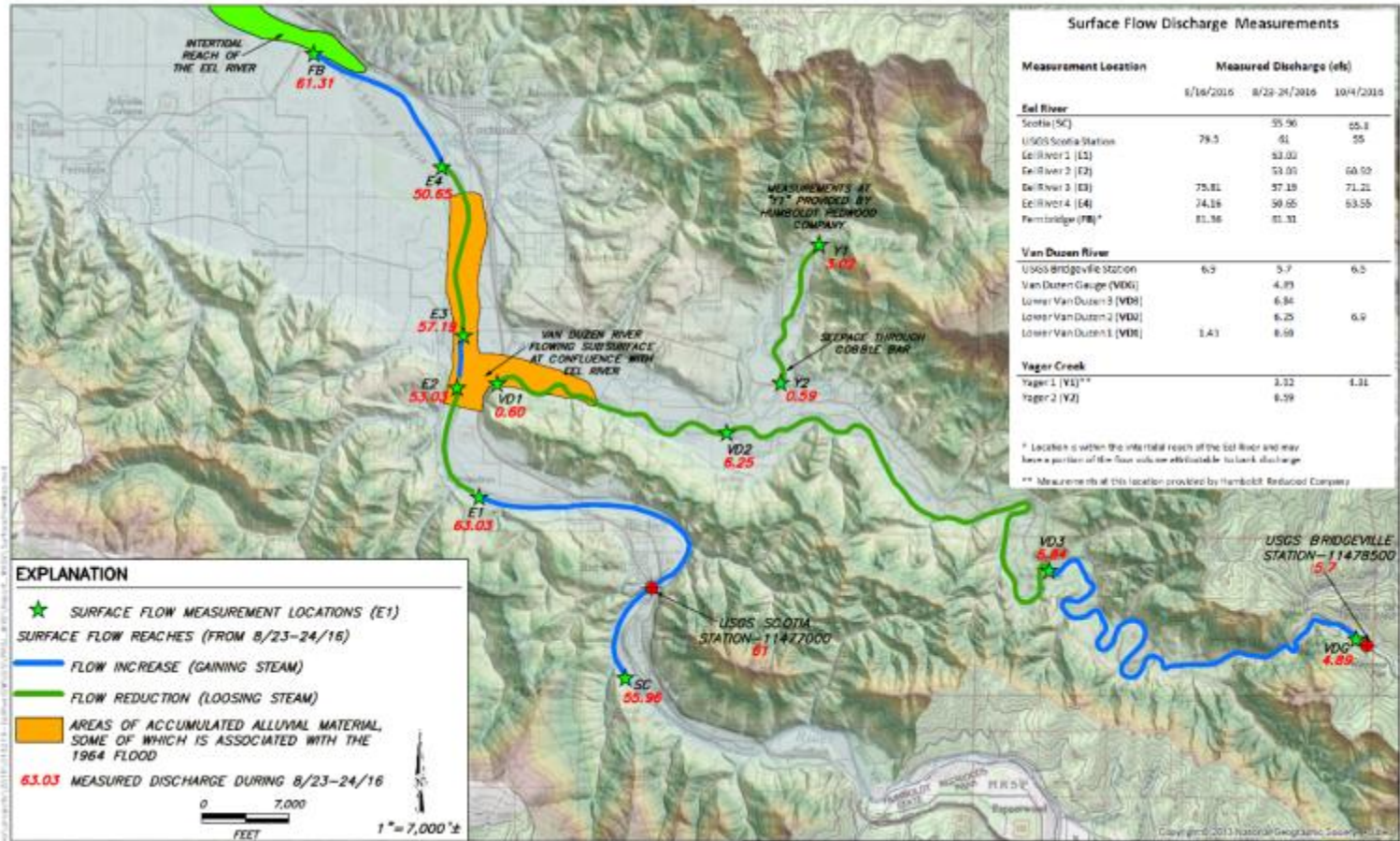
# Surface Flow Measurement

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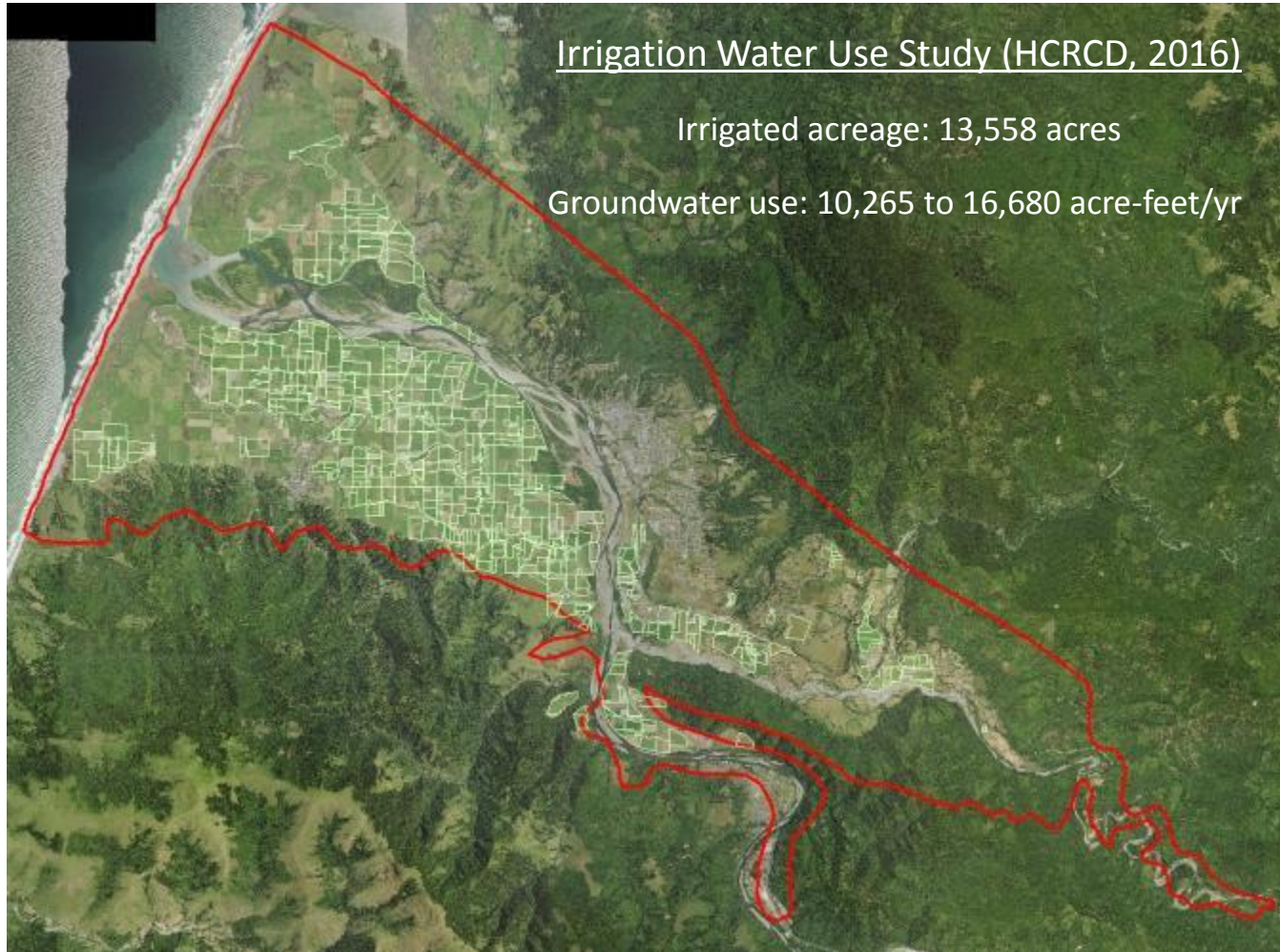
# Water Demand

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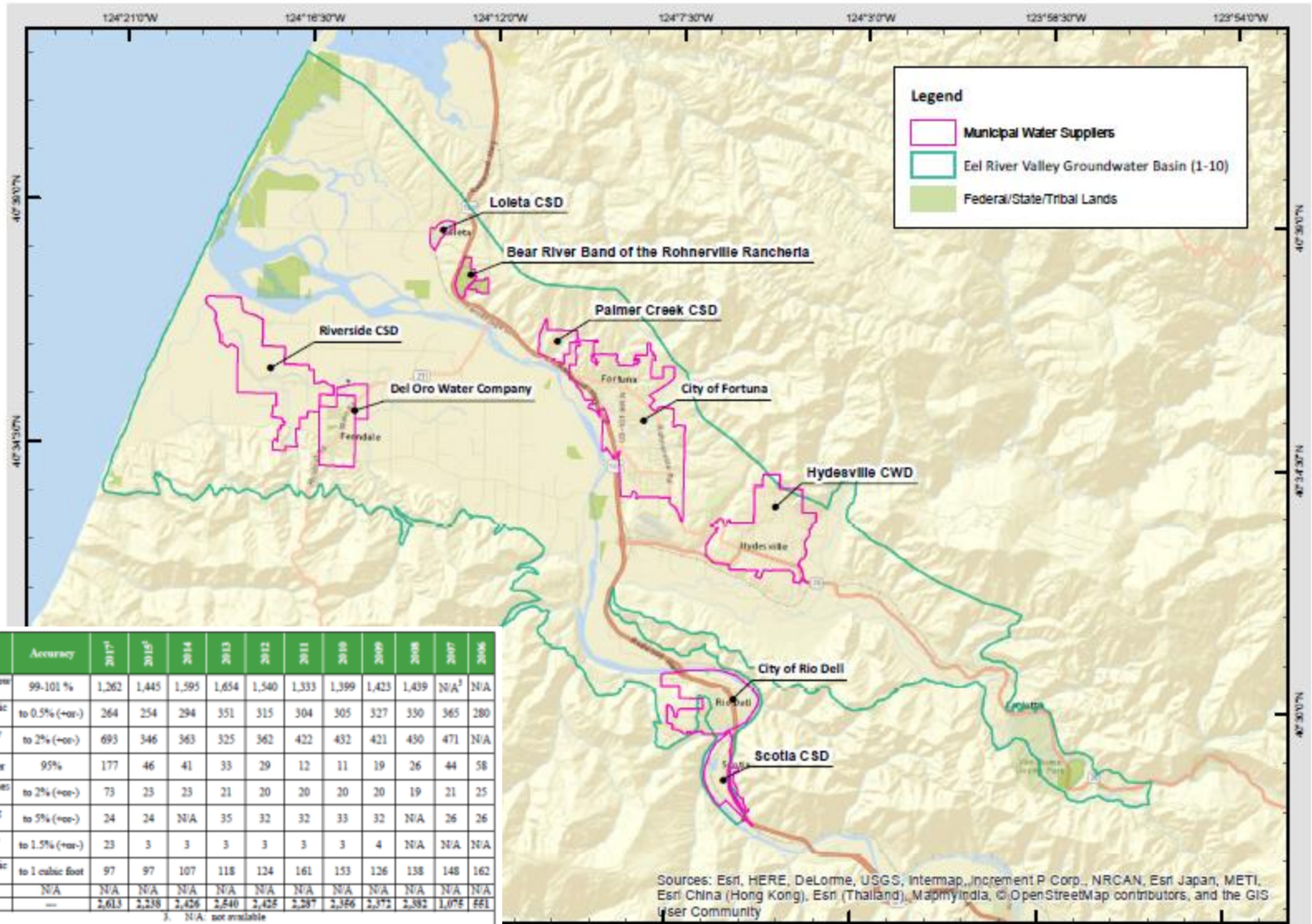


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Supplier	Measuring Device	Accuracy	2017 <sup>1</sup>	2015 <sup>2</sup>	2014	2013	2012	2011	2010	2009	2008	2007	2006
City of Fortuna	McCrometer flow meter	99-101 %	1,262	1,445	1,595	1,654	1,540	1,333	1,399	1,423	1,439	N/A <sup>3</sup>	N/A
City of Rio Dell	Electromagnetic flow meter	to 0.5% (+/-)	264	254	294	351	315	304	305	327	330	365	280
Town of Scotia	Spalling flow meter	to 2% (+/-)	693	346	363	325	362	422	432	421	430	471	N/A
Del Oro Water Co.	Propeller meter	95%	177	46	41	33	29	12	11	19	26	44	58
Loleta CSD	Water Specialist mag meter	to 2% (+/-)	73	23	23	21	20	20	20	20	19	21	25
Riverside CSD	Siemens Mag flow meter	to 5% (+/-)	24	24	N/A	35	32	32	33	32	N/A	26	26
Palmer Creek CSD	Siemens turbo meter	to 1.5% (+/-)	23	3	3	3	3	3	3	4	N/A	N/A	N/A
Hydeville CSD	Electromagnetic meter	to 1 cubic foot	97	97	107	118	124	161	153	126	138	148	162
Bear River	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Total</b>			<b>2,613</b>	<b>2,218</b>	<b>2,426</b>	<b>2,640</b>	<b>2,426</b>	<b>2,287</b>	<b>2,346</b>	<b>2,373</b>	<b>2,682</b>	<b>1,076</b>	<b>661</b>

1. Water Year  
 2. 2006 to 2015 are reported in Annual Totals  
 3. N/A: not available  
 4. CSD: Community Services District

Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, ©OpenStreetMap contributors, and the GIS User Community

# Total Water Use

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Agricultural Water Use:.....	<b>10,265 Acre-feet (estimated)</b>
Municipal Water Use:..... (domestic, commercial, industrial)	<b>2,613 Acre-feet (measured)</b>
Rural Domestic Water Use:.....	<b>1,000 Acre-feet (estimated)</b>
Surface Water Use.....	<b>Presumed Negligible*</b>
<hr/>	
<b>Total Water Use:.....</b>	<b>13,878 Acre-Feet</b>

\* No significant industrial, municipal, or commercial surface water withdrawals are known. Some private or otherwise insignificant uses may exist.

# DWR's draft 2018 basin prioritization results (May 2018)

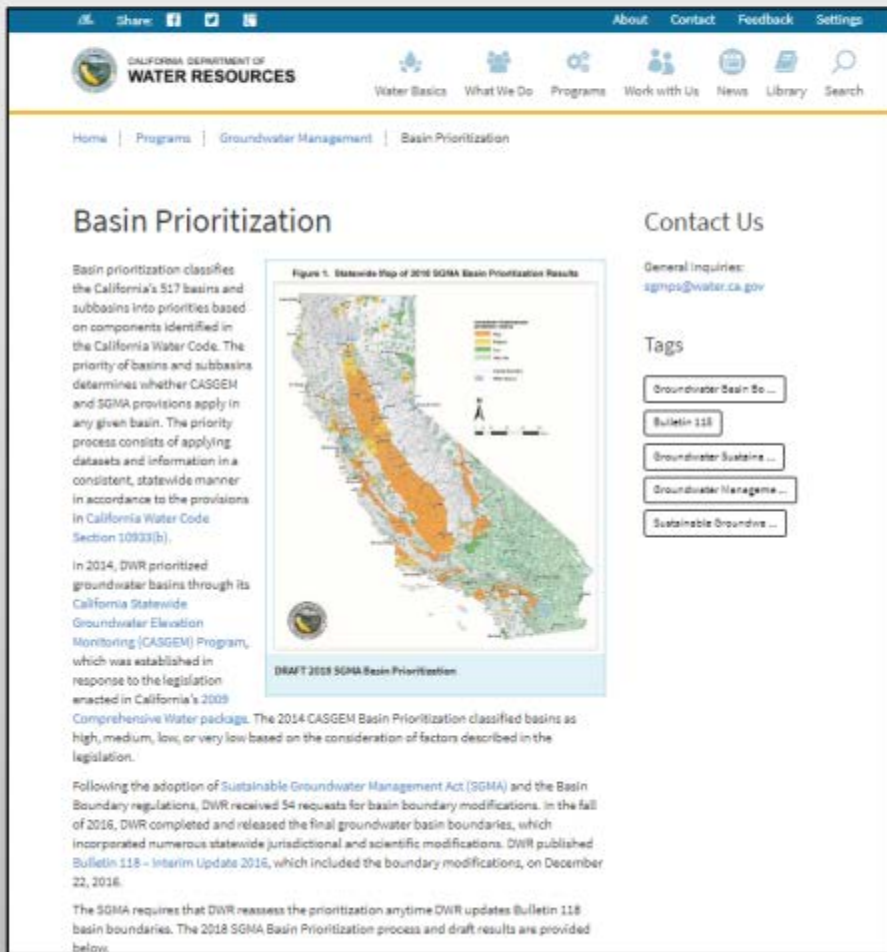


June 21, 2018

# Basin Prioritization Resources

<https://www.water.ca.gov/Programs/Groundwater-Management/Basin-Prioritization>

## Basin Prioritization Webpage



The screenshot shows the official website for Basin Prioritization. At the top, there is a navigation bar with 'Share' icons and links for 'About', 'Contact', 'Feedback', and 'Settings'. Below this is the 'CALIFORNIA DEPARTMENT OF WATER RESOURCES' logo and a secondary navigation menu with icons for 'Water Basics', 'What We Do', 'Programs', 'Work with Us', 'News', 'Library', and 'Search'. The main content area features a breadcrumb trail: 'Home | Programs | Groundwater Management | Basin Prioritization'. The central heading is 'Basin Prioritization'. To the left, there is a text block explaining the prioritization process, followed by a map titled 'Figure 1. Statewide Map of 2016 SGMA Basin Prioritization Results'. To the right, there is a 'Contact Us' section with a 'General Inquiries' email address and a 'Tags' section with several clickable buttons.


Basin prioritization classifies the California's 517 basins and subbasins into priorities based on components identified in the California Water Code. The priority of basins and subbasins determines whether CASGEM and SGMA provisions apply in any given basin. The priority process consists of applying datasets and information in a consistent, statewide manner in accordance to the provisions in California Water Code Section 10933(b).

In 2014, DWR prioritized groundwater basins through its California Statewide Groundwater Elevation Monitoring (CASGEM) Program, which was established in response to the legislation enacted in California's 2009 Comprehensive Water package. The 2014 CASGEM Basin Prioritization classified basins as high, medium, low, or very low based on the consideration of factors described in the legislation.

Following the adoption of Sustainable Groundwater Management Act (SGMA) and the Basin Boundary regulations, DWR received 54 requests for basin boundary modifications. In the fall of 2016, DWR completed and released the final groundwater basin boundaries, which incorporated numerous statewide jurisdictional and scientific modifications. DWR published Bulletin 118 - Interim Update 2016, which included the boundary modifications, on December 22, 2016.

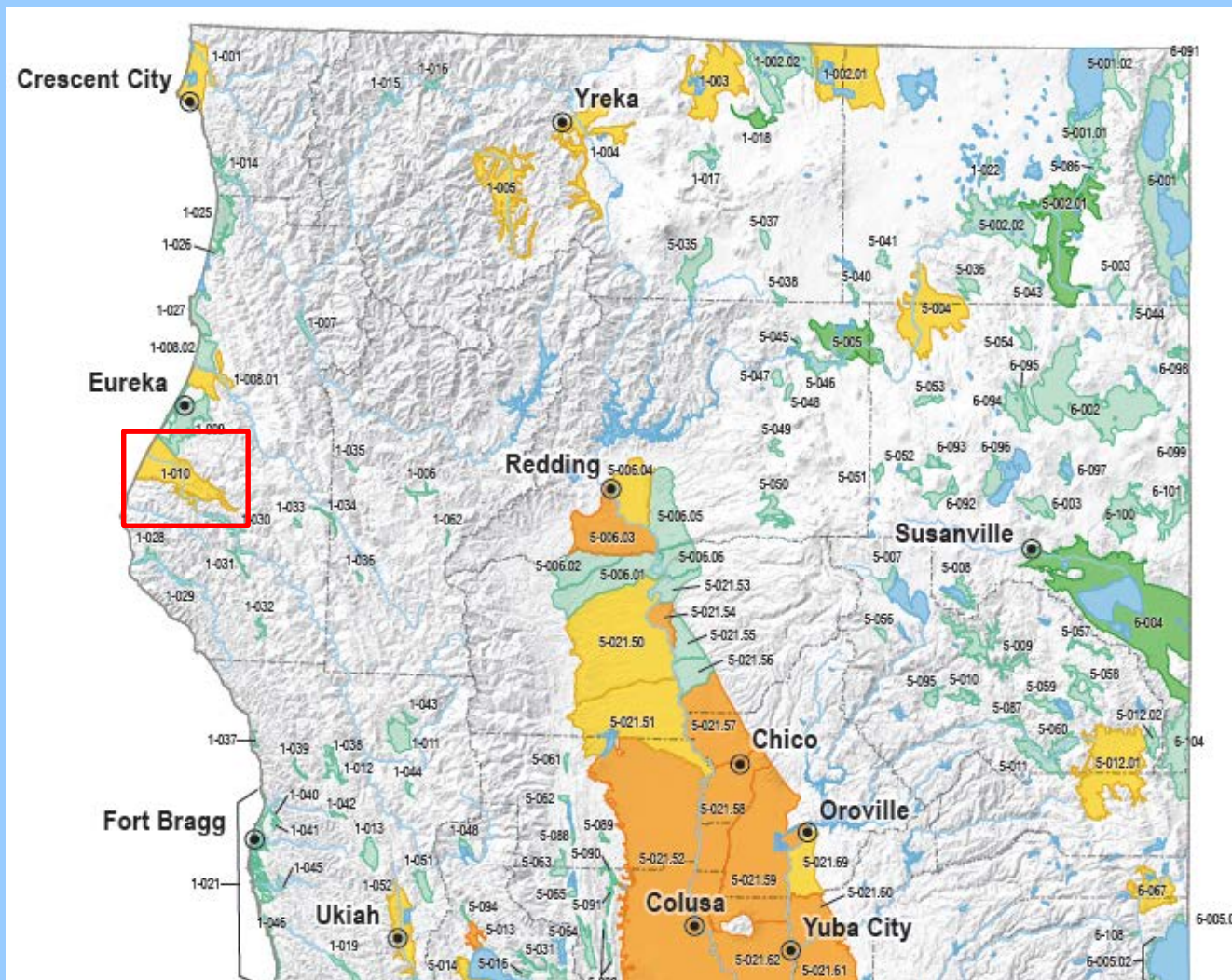
The SGMA requires that DWR reassess the prioritization anytime DWR updates Bulletin 118 basin boundaries. The 2018 SGMA Basin Prioritization process and draft results are provided below.

## Basin Prioritization Dashboard

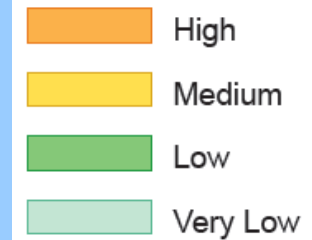


The screenshot shows the SGMA Basin Prioritization Dashboard. It features a map of California with a legend for '2018 DRAFT Prioritization' and 'Reference Layers'. The legend includes categories for 'Very Low (1-7 points)', 'Low (8-14 points)', 'Medium (15-21 points)', and 'High (21+ points)'. The Reference Layers include 'Critically Overstressed Basins', 'Adjudicated Areas', 'Hydrologic Regions', 'Groundwater Basins 2003', 'CA Counties', and 'DWR Region Offices'. The map shows various basins across California, with some highlighted in orange and yellow. The dashboard also includes a search bar and navigation icons.

# Draft Ranking of Groundwater Basin Importance – Northern California (DWR, May 2018)



## Groundwater Basin/Subbasin prioritization ranking



## Eight criteria:

1. Population density
2. Population growth
3. Public supply wells
4. Total wells
5. Irrigated acreage
6. Groundwater reliance
7. Documented impacts
8. Other information



June 21, 2018

# DWR's Draft 2018 Ranking for Eel River Valley Basin

Component	2014 Score	2018 Score
Population	1	1
Population growth	2	2
Public supply wells	2	2
Total wells	2.25	2
Irrigated acreage	4	3
Groundwater reliance	4	5
Documented impacts	0	1
Other information	1	0
<b>Total Priority Points:</b>	<b>16.25</b>	<b>16</b>

## 2018 SGMA Basin Prioritization Priority Based on Total Priority Points

Priority	Total Priority Point Ranges X = Cumulative Priority Points
Very Low	$0 \leq x \leq 7$
Low	$7 < x \leq 14$
Medium	$14 < x \leq 21$
High	$21 < x \leq 42$



# DWR's Draft 2018 Ranking for Eel River Valley Basin

	<b>Component</b>	<b>Data</b>	<b>Priority Points</b>	<b>Range</b>
1	Population (2010 census data)	23,384 persons 205 persons/sq-mi	1	7-250 persons/sq-mi
2	Population growth (projected to 2030)	10.5%	2	6-15%
3	Public supply wells	25 wells 0.21 wells/sq-mi	2	0.1 – 0.25 wells/sq-mi  (Need <12 wells to be less than 0.1 wells/sq-mi)
4	Total wells	510 wells 4.47 wells/sq-mi	2	5-10 wells/sq-mi – 3 pts 2-5 wells/sq-mi – 2 pts  (Need <228 wells to be less than 2 wells/sq-mi)
5	Irrigated acreage	19,575 acres 172 acres/sq-mi  (reduced from 33,309 acres)	3	100-200 acres/sq-mi

Basin area:  
114 square miles (72,957 acres)

Components 1-5 Subtotal: 10 points

# DWR's Draft 2018 Ranking for Eel River Valley Basin

	<b>Component</b>	<b>Data</b>	<b>Priority Points</b>	<b>Range</b>
6	Groundwater reliance	73,030 acre-feet/yr 1.0 acre-feet/acre 97% of total water supply  (raised from 55,000 acre-feet/yr and 77% of total water supply)	5	>0.75 acre-feet/acre >80% total supply
7	Documented impacts (4 subcomponents): - Declining GW levels - Salt intrusion - Subsidence - Water quality	- No declining GW levels - No salt intrusion - No subsidence - 3 points (no discussion)	1	--
8	Habitat and Other information (4 subcomponents): - Streamflow and habitat - Other information	No discussion	0	--

Basin area:  
114 square miles (72,957 acres)

Components 6-8 Subtotal: 6 points

15

# Groundwater Use

Source	Irrigated Land (Acres)	Agricultural Groundwater Use (Acre-feet)	Total Groundwater Use (Acre-feet)
DWR (1968)	11,700	18,800	
USGS (1978)	17,300	17,300	
DWR (2003)	-	49,000	
DWR (2012)	26,800	24,400	
DWR (2014)	33,309	-	55,000
RCD (2016)	13,558	10,265 to 16,680 (varies seasonally)	-
Humboldt Co. (2016)	13,558	10,265 to 16,680 (varies seasonally)	20,000 (dry season)
DWR (2018)	19,575	59,938	73,030



# Summary

1. The next step is ensuring that DWR is relying on the most accurate data for the Eel River Valley groundwater basin for the final 2018 prioritization
2. Humboldt County has requested additional information on several scoring components
3. The public comment period for DWR's draft 2018 basin prioritization results ends on August 20, 2018
4. Humboldt County will provide an e-mail update to the Working Group in mid-July



June 21, 2018