Water Boards

A Water Quality Portal for the Sacramento River Watershed

Supporting Community-Based Watershed Management

Holly Jorgensen

SACRAMENTO RIVER watershed PROGRAM

Amye Osti

34NORTH
WEB SERVICES · GIS · VISUALIZATION

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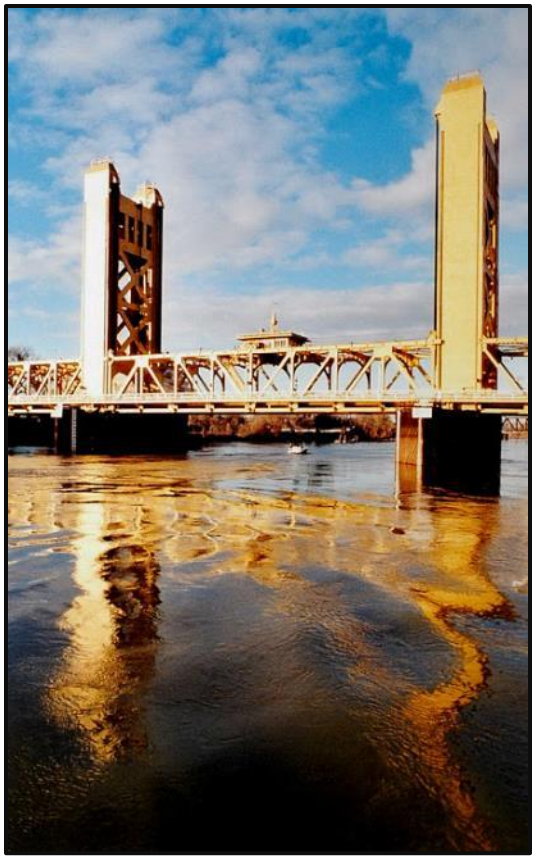
Overview

- SRWP background & recent activities
- Future data and tool development
- Project process
- CWQMC overlap

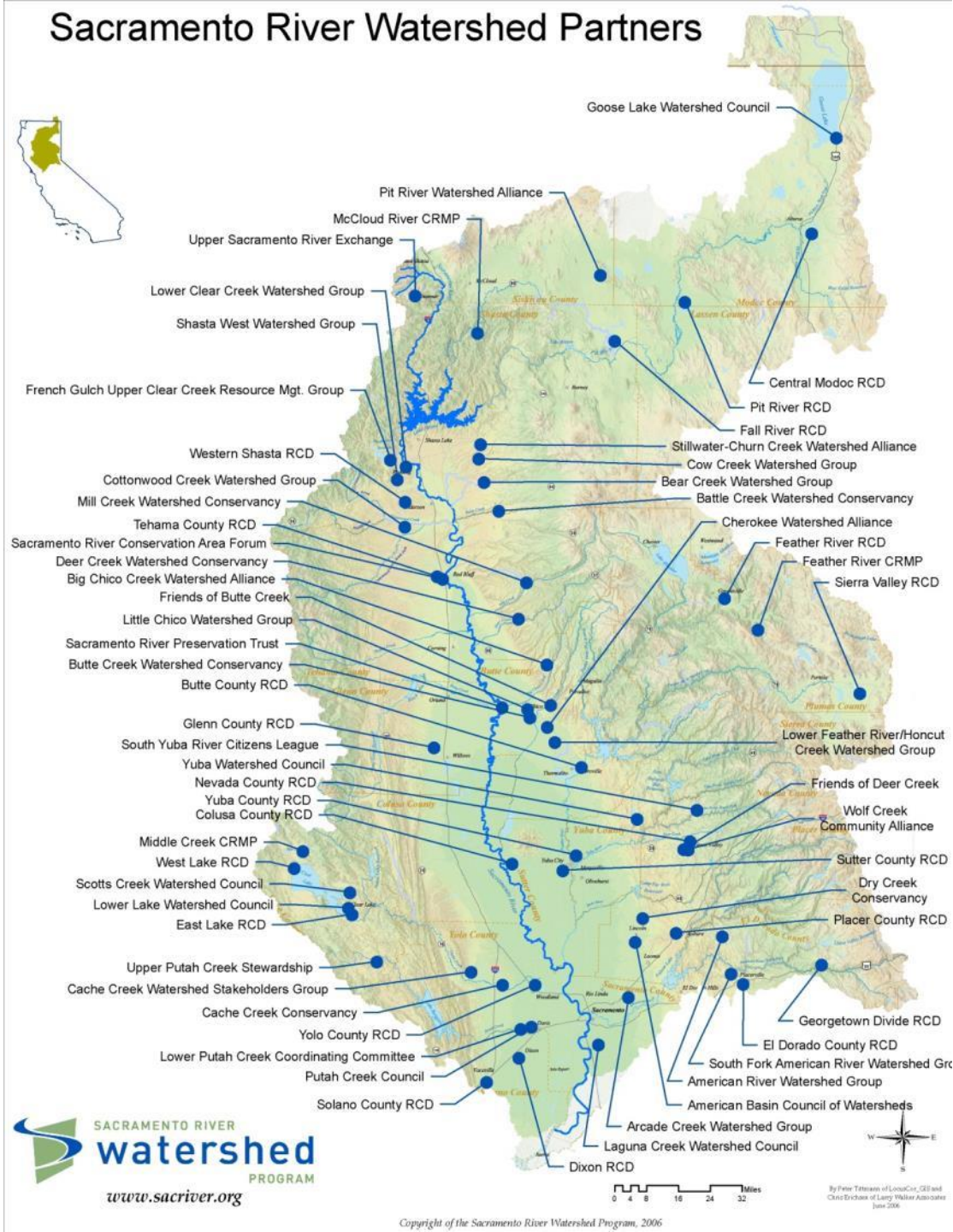
Core SRWP Functions

- Public Outreach and Education
- Local Watershed Support
- **Watershed Monitoring and Assessment**



Partners Everywhere

>300 contacts in Watershed Monitoring stakeholders



Regional Monitoring Efforts

2008-2009

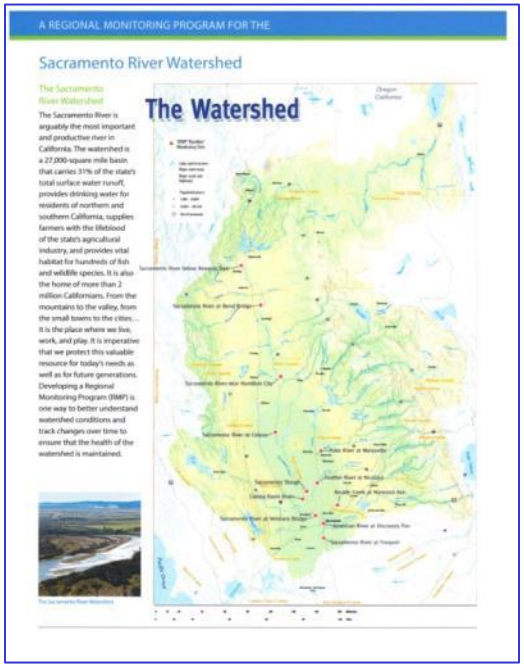
- Feasibility Study

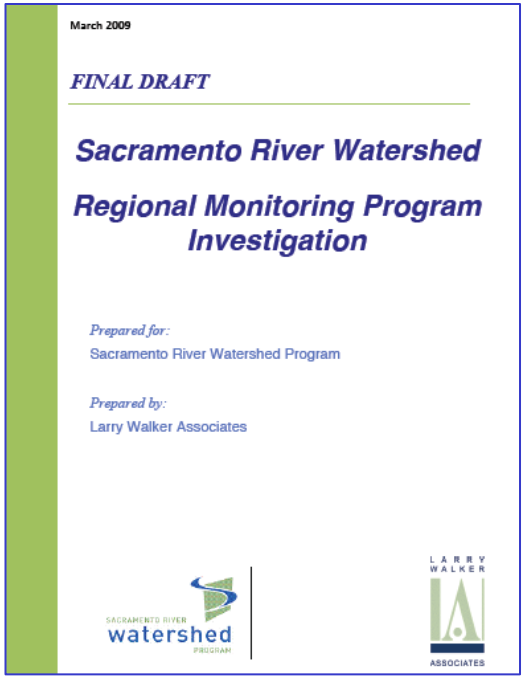
2009

- Stakeholder Meeting
- RMP Fact Sheet
- Investigation Report

2013

- Stakeholder Interviews
- Summary of Responses and Recommendations





Stakeholders

- NPDES permittees – POTWs, MS4s
- Irrigated Lands Regulatory Program

} Regulated Dischargers

- FERC-licensed reservoir operators
- California Urban Water Agencies
- State Water Contractors

} Water Purveyors

- IEP agencies
- Reclamation Districts
- Dept. Water Resources

} Agencies

- USEPA, State & Regional Boards
- Dept. Public Health

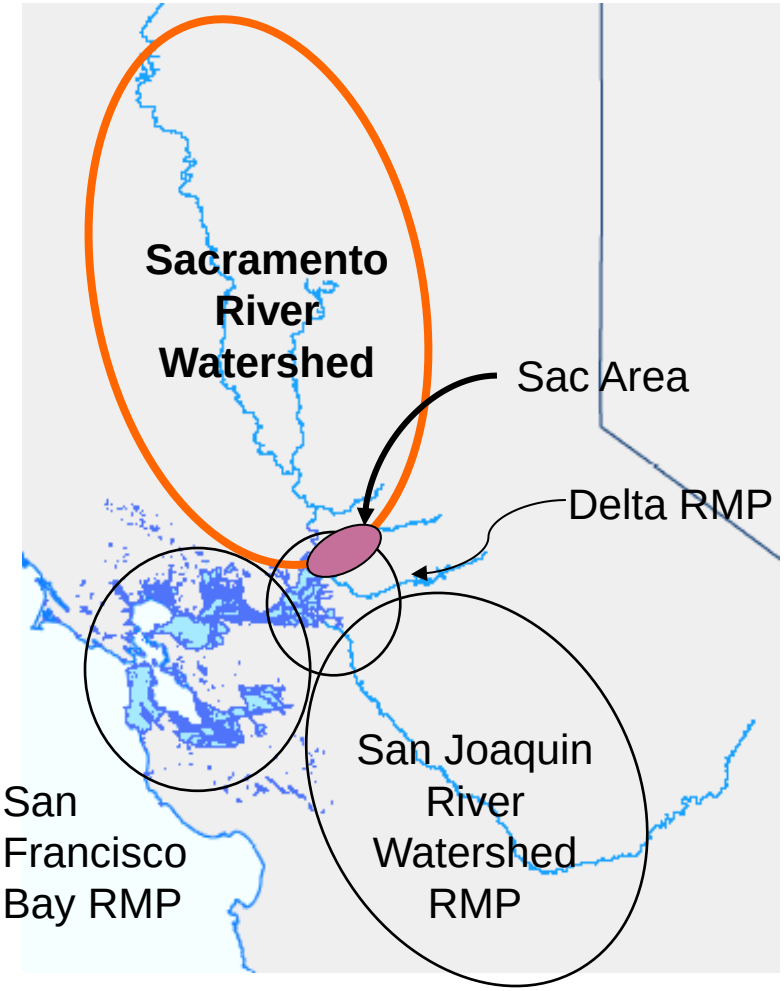
} Regulators

- Non-Government Organizations
- General public

} Others

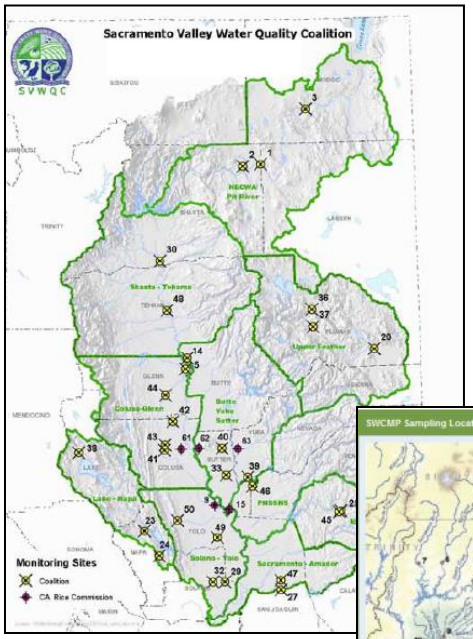
Building a Comprehensive RMP

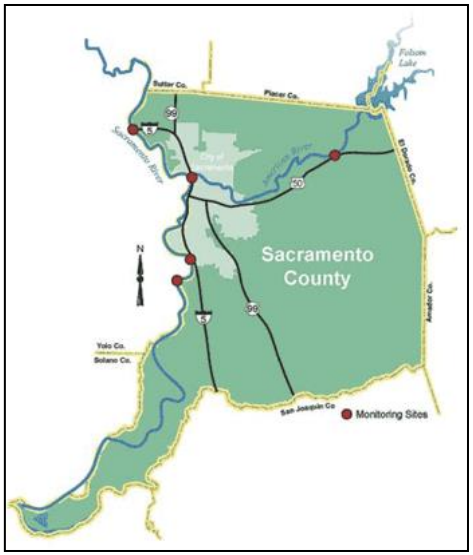
- Currently least RMP effort in the State's largest watershed
- No stakeholder input
- No data synthesis
- No broad reporting

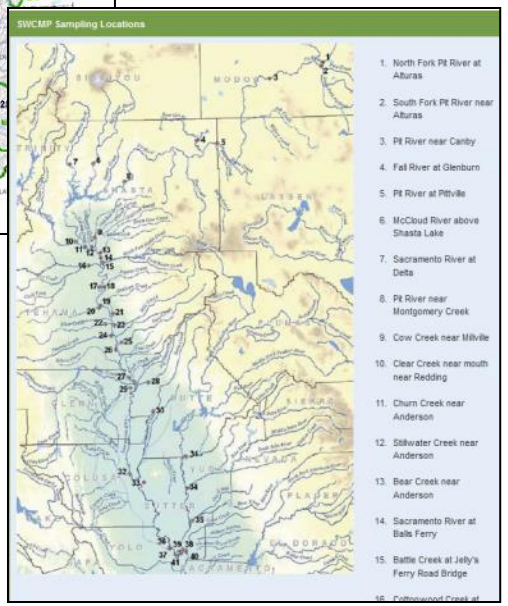


Current Monitoring Activities

- Sac. Area CMP
- Irrigated Lands Coalitions (Rice & Other)
- Regional SWAMP by DWR







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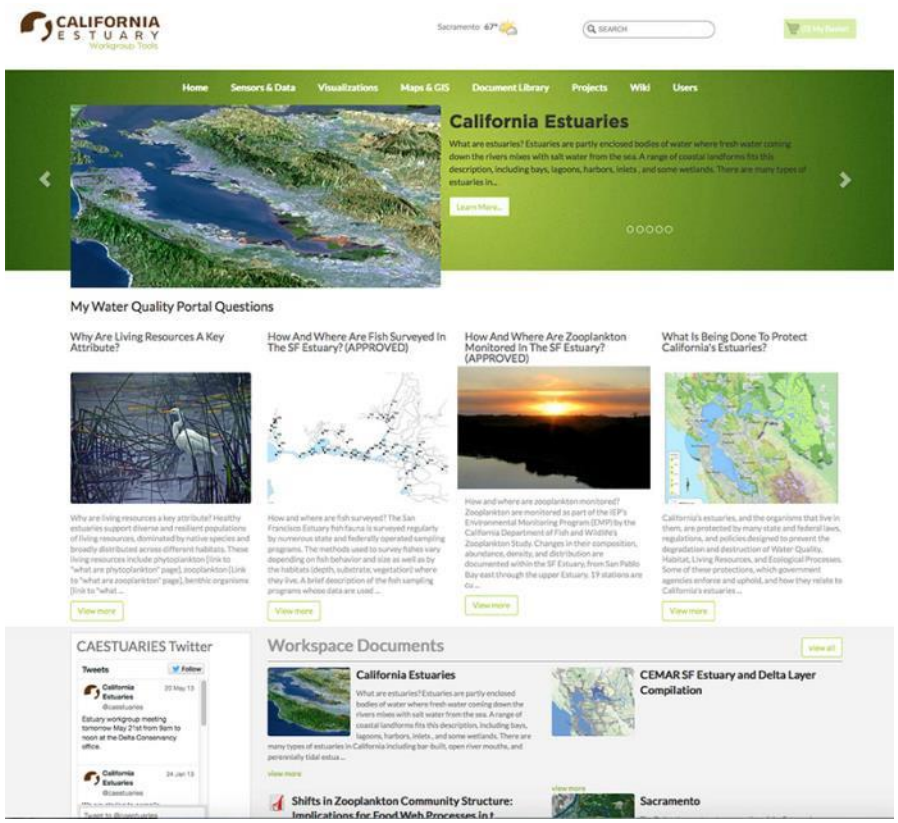
Building on Existing Programs

- Existing software infrastructure
- Multi-stakeholder investments: Data sets, data tools, content, GIS

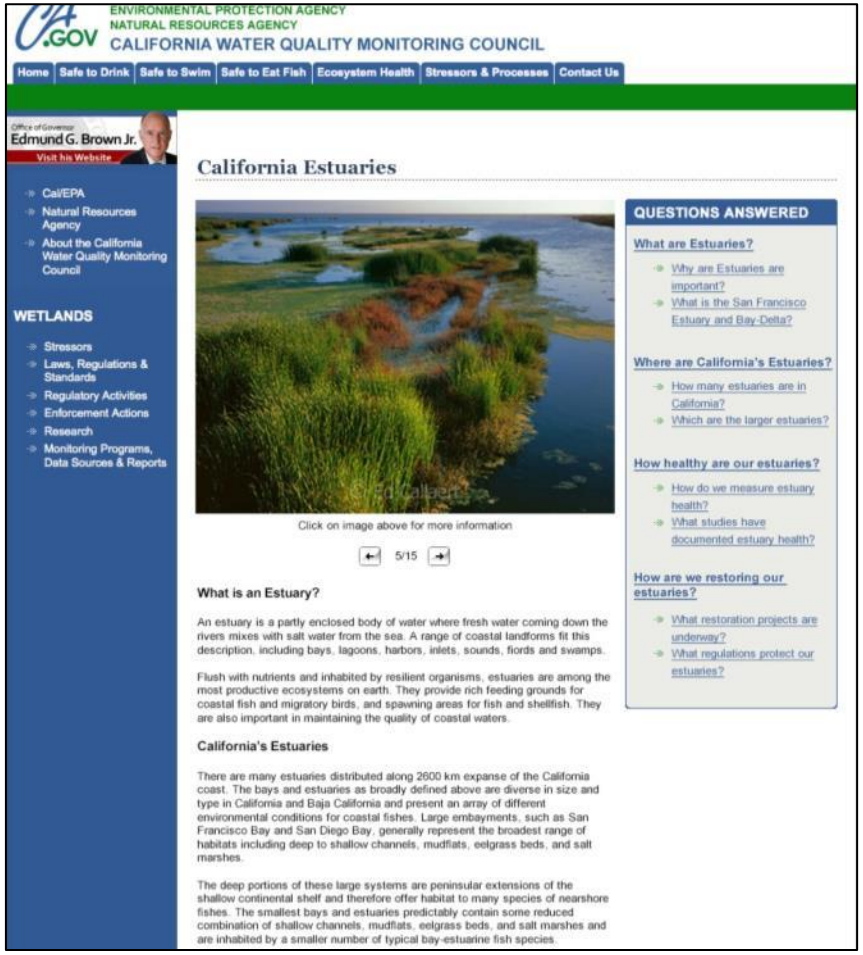
- Project will contribute back: Content, GIS, data sets, mapping tools
- Data shared with all stakeholders for larger watershed assessments

CA Estuaries Portal

- Workspace for My Water Quality portal content (>85 Q&A!)
- Source project for critical estuary data
- Estuary wiki
- Custom GIS files



MY WATER QUALITY PORTALS

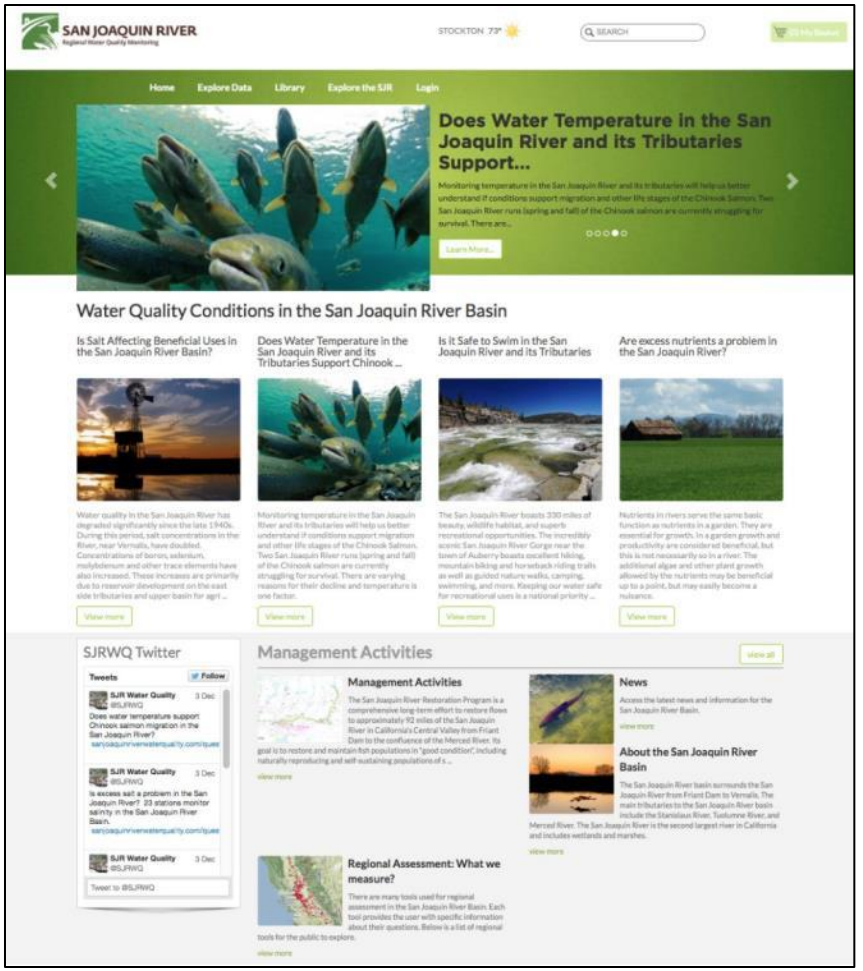


Baydeltalive.com

- Data central for the Delta
- Extensive libraries for Delta data, photos, reports
- Real time reporting dashboards: salinity, WQ
- Weekly survey results, fish tracking
- Relevant news
- Collaborator workspace
- Ecosystem projects
- Post model results

San Joaquin River RMP and RT Portals

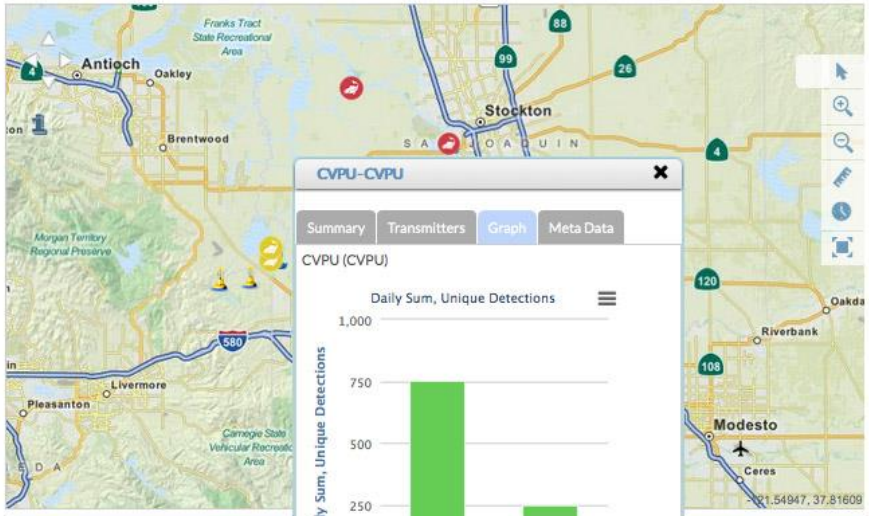
- 50+ datasets for multi-stakeholder use & evaluation
- Real-time. Public assessments for Temp., Salinity, Nutrients, etc.
- Current phase: SJR Real-time WQ management
- Funded by USEPA, CURES, SFCWA and 34 North



www.sanjoaquinriverqaterquality.com/

Quick Links

All Stations | Release Site | Head of Old River | Garwood Bridge | Turner Cut | Facilities | Current Extent



CVPU-CVPU

Summary | Transmitters | Graph | Meta Data

CVPU (CVPU)

Updated 5/11/2015 11:58 Display Markers as Values: ☐

UnMap | Add to Favorites | Zoom to Station

FISH RECEIVER DATA: DAILY SUM, 30 MIN

Roll over each icon on the map to see time se … r area detail. Scroll down to build your own graphs with the aggregated d…

MORE

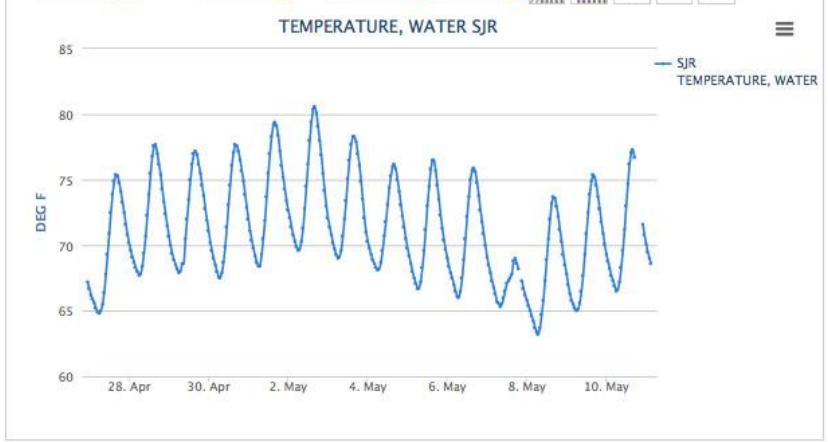
M May 11, 2015 10:00AM Show Timeline ?

13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

Start Date 2015-4-26 | End Date 2015-05-11 | Duration 14 Day | Timestep 1 day

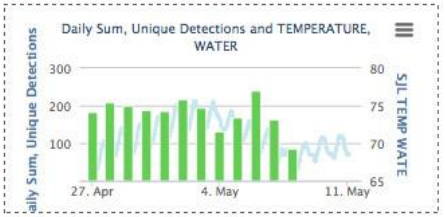
USGS | Department of Water Resources CALIFORNIA DATA EXCHANGE CENTER

Data TEMPER… Location SJR: SAN… Graph Line Overlay

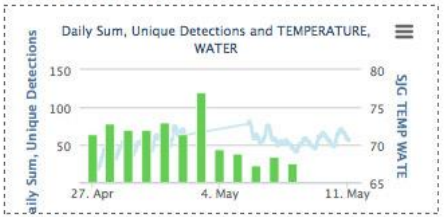


Tag Detection Data/Current Conditions

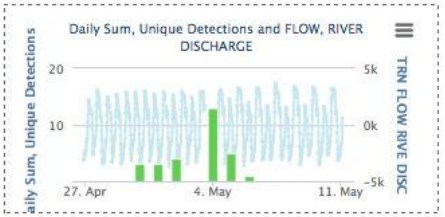
HORU - 14.5 Miles from Release Point



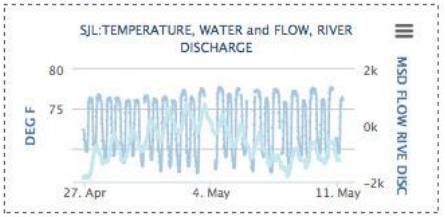
SJGU - 26.5 Miles from Release Point



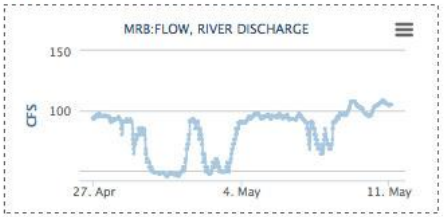
TCW - 36.4 Miles from Release Point



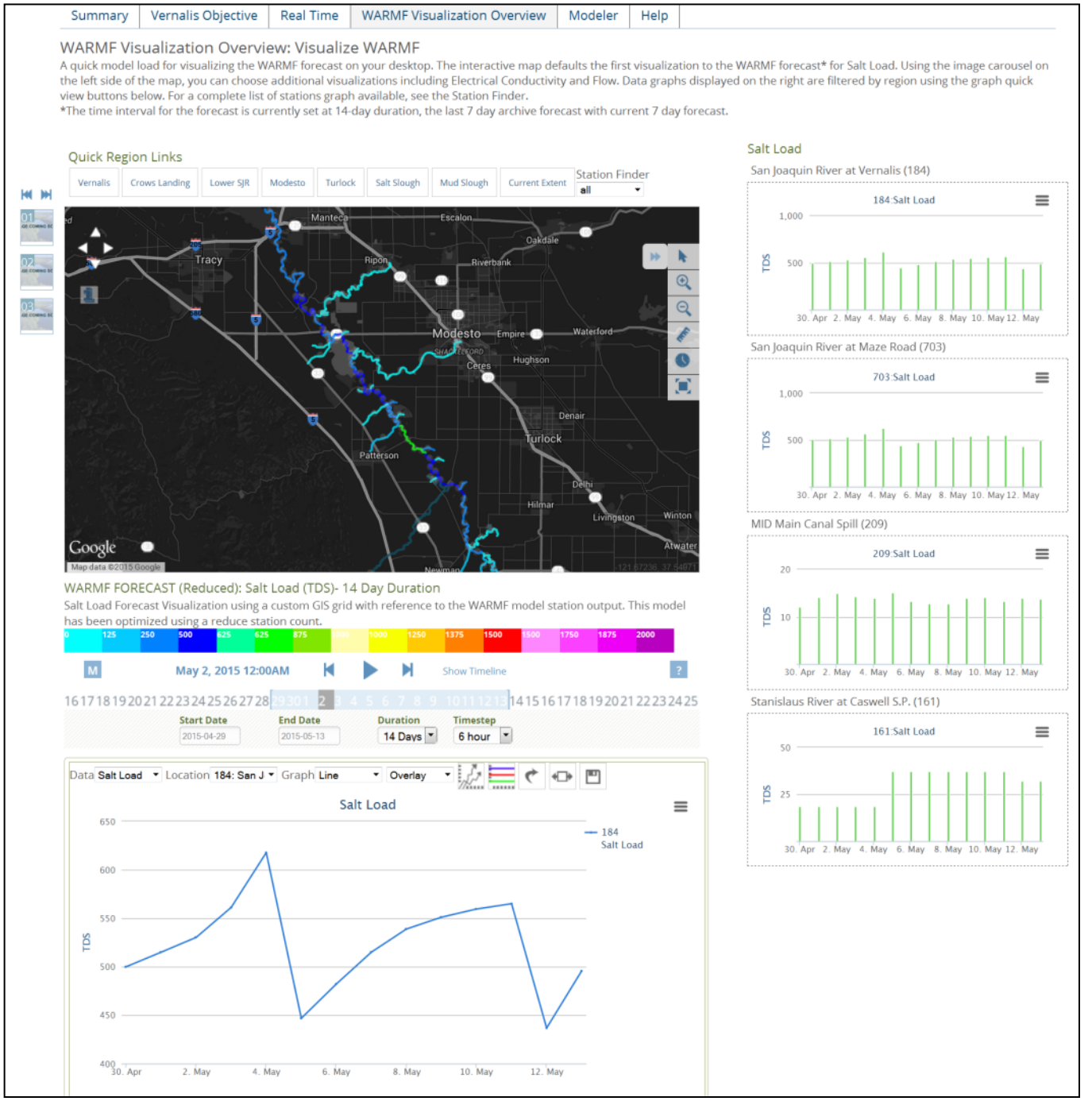
SJL Temp.&MSD Flow



MRB Flow



Model Forecasts



DATA STORIES

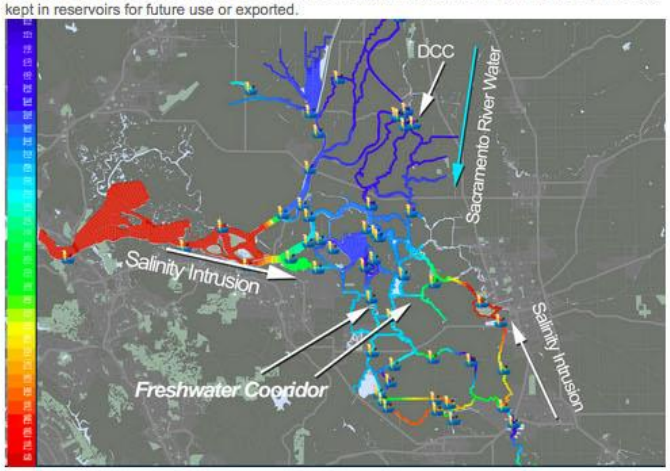
Managing Salinity in the Sacramento-San Joaquin River Delta- During Drought Conditions

An Overview

Flows and water quality in the Sacramento-San Joaquin Delta (Delta) are strongly influenced by freshwater inflow from the rivers, by the tides in San Francisco Bay and by salinity from Bay waters. Prior to human influence, the historical distribution of salinity in the Delta was controlled primarily by the seasonal and inter-annual distribution of precipitation, the geomorphology of the Bay and Delta, daily tides, the spring-neap tidal cycle, and the mean sea level at Golden Gate. Extended wet and dry periods are both evident in the historical record. Since about 1860, a number of morphological changes to the Delta landscape and operational changes of reservoirs and water diversions have affected flows and the distribution of salinity within the Delta.

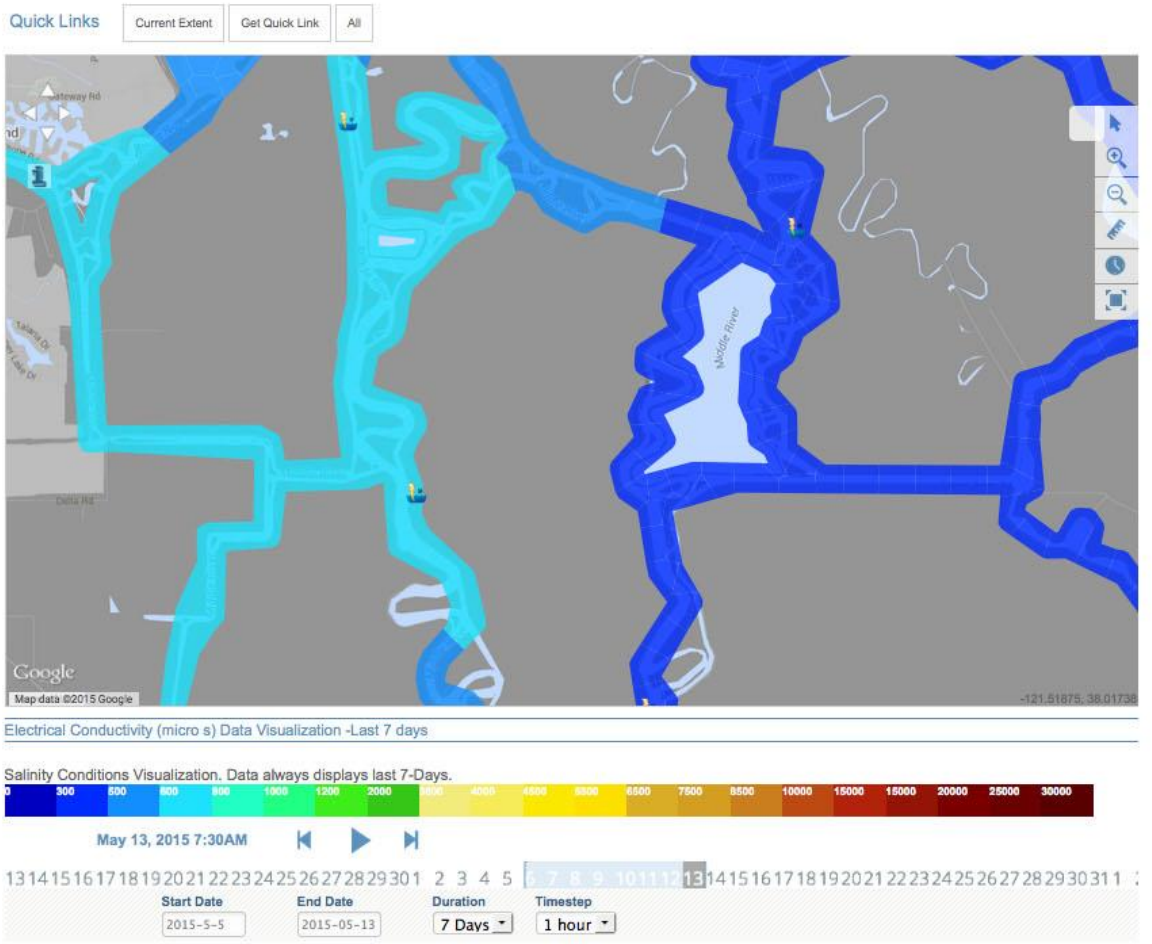
Dought Conditions

Salinity controls exports during droughts. As river flows entering the delta decrease, the water in the south delta will become so salty it will be unusable and exports from the delta will stop. This document outlines a number of alternatives for "controlling" the salt field in the central delta. These alternatives principally rely on strategically placed "temporary" barriers. In the absence of these barriers, a great deal of water will be used to repel salinity intrusion in the delta, rather than being kept in reservoirs for future use or exported.



Caption:Salinity Intrusion and the Fresh Water Cooridor Illustrated

There number of drought mitigation strategies that will allow the water projects to reduce reservoir releases, minimize the impacts on the ecosystem of very low river flows and continue to deliver water to the greatest extent possible as water supplies dwindle. A variety of numerical models are being used to evaluate the response of the salt field to a sequence of mitigation measures, which involve export curtailments, reservoir releases, gate operations and temporary barriers. All of these strategies could help us minimize the amount of water needed to keep the "fresh water



QUESTION TEMPLATES

Does water temperature support Chinook salmon migration in the San Joaquin River?

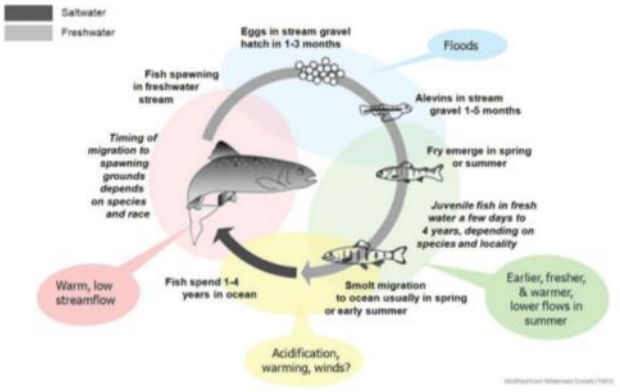
Next Question

Chinook Salmon and the SJR Basin | Current Conditions for Salmon | Fun Facts | Water Quality Objectives and Beneficial Uses

Monitoring temperature in the San Joaquin River and its tributaries will help us better understand if conditions support migration and other life stages of Chinook salmon (Oncorhynchus tshawytscha). Two San Joaquin River runs (spring and fall) of Chinook salmon are currently struggling for survival. There are varying reasons for their decline and temperature is one important factor.

About the Chinook salmon life-cycle

Chinook salmon are anadromous, which means they spawn in freshwater, but migrate to the ocean where they remain for their adult lives. After years of living in the open ocean, they return to their natal freshwater streams to reproduce. Females dig nests in gravel- bedded streams called redds where they deposit their eggs. After the male fertilizes the eggs, the female covers the redd with gravel. The embryos hatch into larval fish called alevin that remain in the gravel redd nourished by the yolk sac of the egg from which they were born. The alevin absorbs the yolk sac and grows, emerging from the gravel as fry (see life stage illustration below). The fry begin their migration downstream toward the ocean. As they to grow, they develop scales and dark vertical bars on their sides called parr markings. At this stage they are called parr. Smoltification is a physiological change



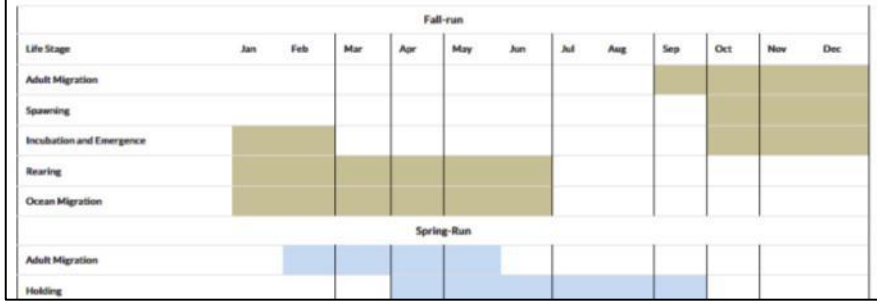
The life cycle of a salmon takes it from rivers to the ocean and back again. At every steps, they face challenges of a changing world, shown in the shaded bubbles. Source: Washington State Recreation and Conservation Office

Chinook Salmon and the San Joaquin River?

There are two distinct runs of Chinook salmon in the San Joaquin River. Runs are designated based on the timing that adults enter into freshwater from the ocean toward their natal spawning streams. Many factors, however, influence the precise timing of the runs such as water temperature, flow characteristics and maturation of the fish.

Fall-run Chinook salmon migrate upstream between September and December. They are sexually mature when they enter freshwater streams and spawn between October and December.

Spring-run Chinook salmon typically migrate upstream between February and May. They remain in cold freshwater habitats while they sexually mature and spawn between August and October.



Overview

- SRWP background & recent activities
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Project Process

- Stakeholder commitments
- ID practices, questions, underlying issues
- ID & characterize available info. (data, maps, reports, programs, photos)
- Script analyses & visualizations
- Build & host site
- Outline future activities

ID Current Practices

- What data are you accessing now?
- How are you evaluating those data to make decisions?
- How and where are your data stored, assessed and reported?
- How do you communicate for effective coordination of monitoring ?
- Where are your reports stored for access?

Clarify Value Proposition

- How could a portal support your needs & interests?
  - What questions do you have about water quality in the watershed?
  - What data do you want but can’t find?
- How could a portal save you time & money?

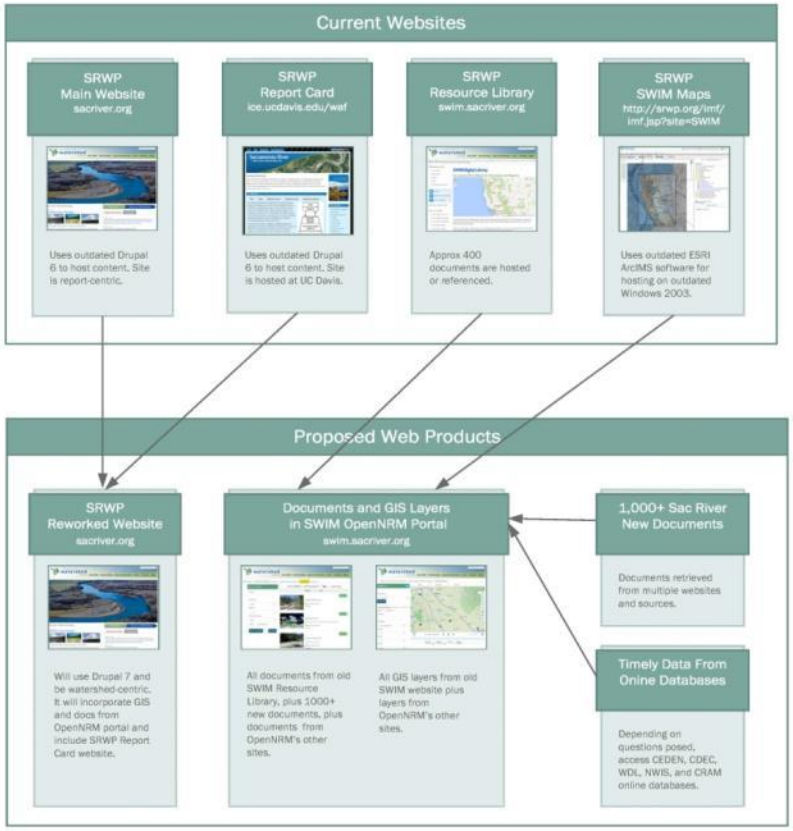
Potential Questions

- Are the fish safe to eat?
- Is the water safe for recreation?
- Is the aquatic ecosystem healthy?
- Are salmon runs healthy?
- Is riparian habitat increasing? Are habitats benefiting wildlife?
- Who is monitoring water quality? Where and how?
- Who is doing what to protect water quality?



Design and Content

- Create, customize, integrate OpenNRM templates
- Use collaboration (pages, teams, docs, links, wiki)
- Import 1,400+ documents using metadata standards
- Import ~120 GIS layers
- Access data with open data standards
- Entirely web-based (no desktop app)



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CWQMC Overlap

- CA Estuaries Monitoring Workgroup
- CA Wetland Monitoring Workgroup
- Healthy Watersheds Partnership
- Data Management Workgroup
- BOG Workgroup for "Is it safe to eat fish?"

Anticipated Challenges

- Initial outreach and engagement
- Relevant, accurate interpretations
- Sustainable hosting & maintenance

Near-term Activities

- Host 1st stakeholder meeting (June 11)
- Communicate with SWAMP, IRWMPs, ILRP…
- Gather letters of commitment

CWQMC Questions

- What questions would be most useful/ practical regionally?
- Who should we target for use cases?
- What will be our keys to success (i.e. sustainability)?
- ??

For more information

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