



# CA Estuaries Portal



# CA ESTUARIES PORTAL

- Multi-Agency Workspace
- Source project for critical estuary data: EMP, Estuary GIS, 1641 and Trawl Data
- 50+ GIS files
- 85+ question driven WQ pages on [mywaterquality.ca.gov](http://mywaterquality.ca.gov)
- Assessment
- TMDL Report Cards

The screenshot displays the California Estuaries Portal website. The top navigation bar includes links for Home, Sensors & Data, Visualizations, Maps & GIS, Document Library, Projects, Wiki, and Users. A search bar and a '25 May 2014' date indicator are also present. The main content area features a large banner image of a coastal estuary. Below the banner is a section titled 'California Estuaries' with a brief description and a 'Learn More' button. Further down, there are four article cards: 'Why Are Living Resources A Key Attribute?', 'How And Where Are Fish Surveyed In The SF Estuary? (APPROVED)', 'How And Where Are Zooplankton Monitored In The SF Estuary? (APPROVED)', and 'What Is Being Done To Protect California's Estuaries?'. Each card includes a small image and a 'View more' button. At the bottom, there is a 'CAESTUARIES Twitter' section with two tweets and a 'Workspace Documents' section with two document cards.

# CA ESTUARIES COLLABORATORS



US Bureau of Reclamation

US Fish and Wildlife Service

US EPA

US Geological Survey

CA Department of Water Resources

CA Department of Fish and Wildlife

Delta Conservancy

Delta Stewardship Council

Interagency Ecological Program

State and Federal Contractors Water Agency

Metropolitan Water District

Sacramento Regional County Sanitation District

SFEI

SWRCB

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WATER QUALITY MONITORING COUNCIL

# CALIFORNIA ESTUARIES PORTAL

PORTALS | CA ESTUARIES | LEARN THE ISSUES | REPORTING | MANAGEMENT TOOLS



Sacramento - San Joaquin Delta

## ABOUT US

What is the Estuary Monitoring Workgroup?



The California Estuary Monitoring Workgroup, is tasked with identifying key questions to assess the

Ecological health of California's Estuaries, the data and methods available and needed to address the questions, and the methods to access these data. [Learn more](#)

## STEWARDSHIP

What is being done to protect California's Estuaries?



It is every citizen's responsibility acting as a steward in protecting the environment. The Sacramento

Regional County Sanitation District is in the process of purchasing and restoring habitat surrounding the their treatment plant.... [Learn more](#)

## WATER NEWS

What are headlines in California's water news?



A new weather satellite was launched (February 27) from Japan aimed at providing high-tech, three

Dimensional snowfall around the earth. The Global Precipitation Measurements.... [Learn more](#)

## HIGHLIGHTS

### REPORTING

What is the Water Quality Conditions Report?

### MANAGEMENT TOOLS

How is salinity being managed during the drought?

### RESEARCH

How are tagged fish being used in the Delta?



## Benthic Invertebrates

What Are they?

How are they monitored?

Reporting

### SAN FRANCISCO BAY DELTA ESTUARY

**Benthic organisms** are creatures that live at the bottom of water bodies. They include common invertebrates (animals without backbones) like clams, shrimp, and crabs and other less recognized creatures including worms, little crustaceans called amphipods, and aquatic insects. These organisms live in or on the soft mud of the Estuary, while others attach themselves to rocks and





Sacramento - San Joaquin Delta

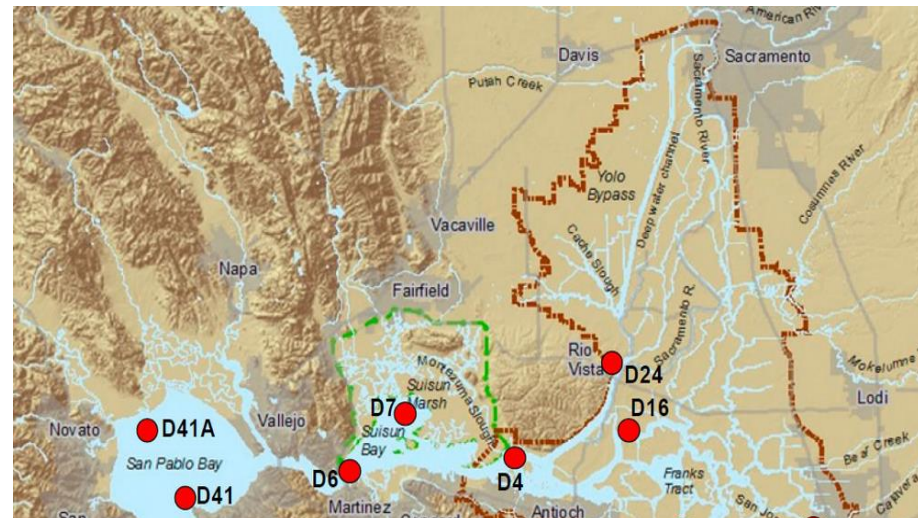
## Benthic Invertebrates

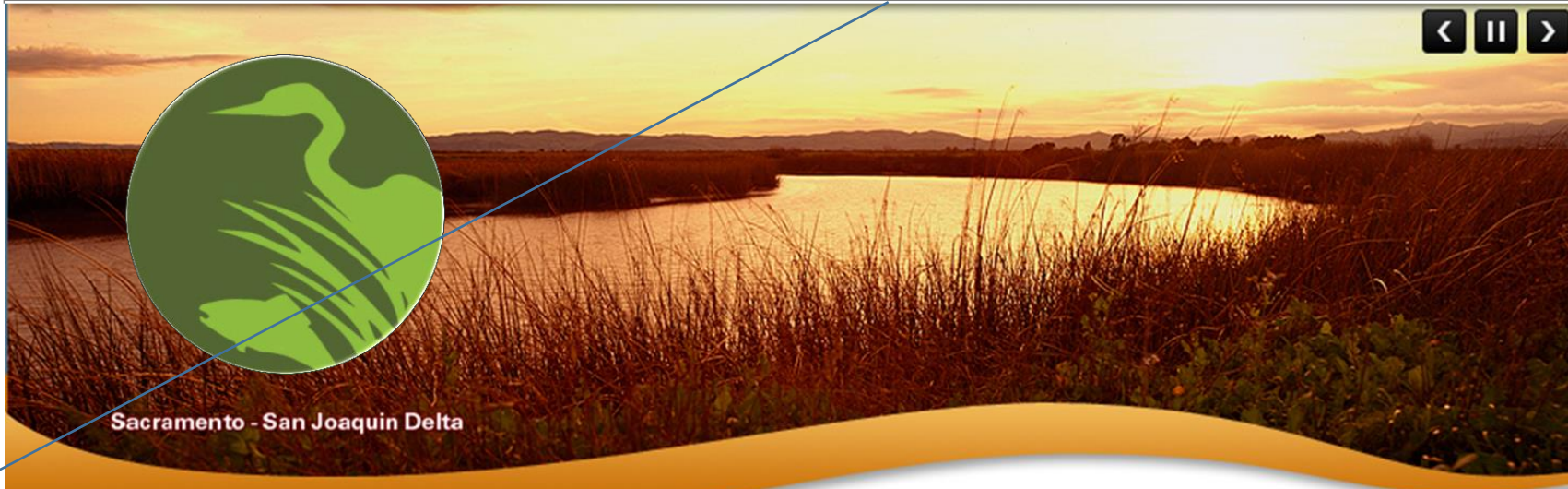
- What Are they?
- How are they monitored?
- Reporting

### SAN FRANCISCO BAY DELTA ESTUARY

#### Department of Water Resources Benthic Organism Study

The California DWR Benthic Organism Study measures the composition (what kinds?), abundance (how many?), diversity (how many kinds?), and distribution (where are they?) of benthic organisms as part of the IEP's





User's will be able to access "Reporting" information and data in various ways.

## Benthic Invertebrates

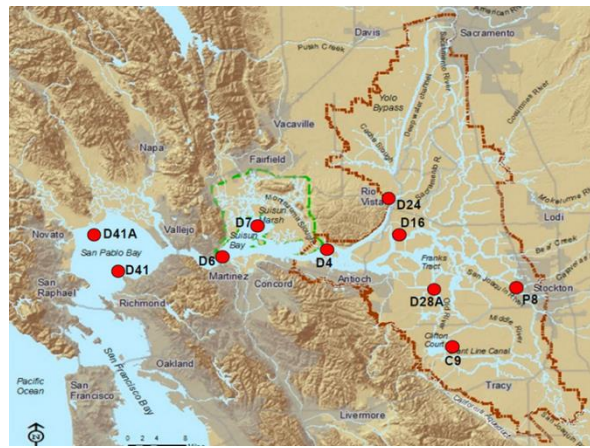
- What Are they?
- How are they monitored?
- Reporting**

### SAN FRANCISCO BAY DELTA ESTUARY

#### Water Rights Decision 1641 Compliance

The SWRCB establishes water quality objectives and monitoring plans to protect the variety of beneficial uses of the water within the upper San Francisco estuary (estuary). The SWRCB ensures that these objectives are met, in part, by inclusion of water quality monitoring

A brief introductory paragraph will be provided for



SELECT DATA

Where?

When?

What Species?



Sacramento - San Joaquin Delta

## Zooplankton

What Are they?

How are they monitored?

Reporting

### SAN FRANCISCO BAY DELTA ESTUARY

**Zooplankton** are small aquatic invertebrates (animals without backbones) that drift in the water with prevailing currents. Although they do not have the ability to swim against currents, they use behaviors such as vertical migration to maintain their approximate positions in the estuary. They include mysids (sometimes referred to as opossum shrimp because of the pouch







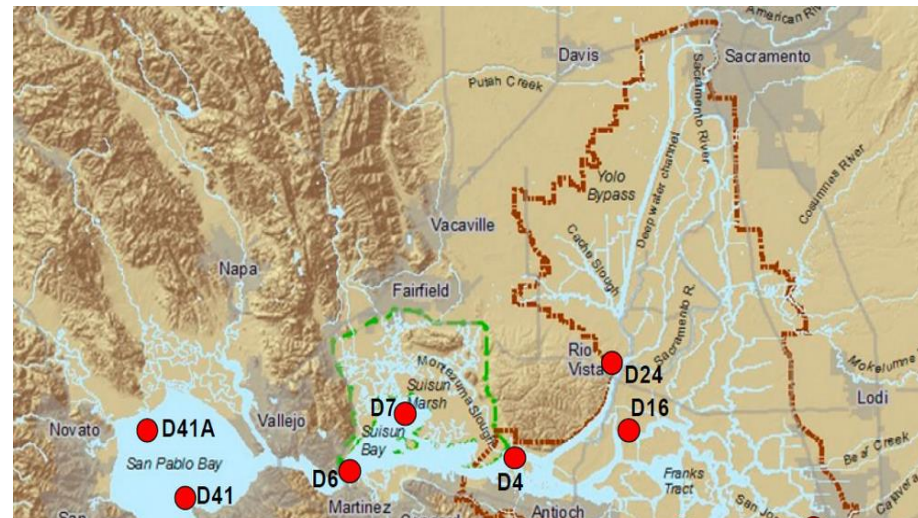
## Zooplankton

- What Are they?
- How are they monitored?
- Reporting

### SAN FRANCISCO BAY DELTA ESTUARY

#### Department of Fish and Wildlife's Zooplankton Study

The California Department of Fish and Wildlife's Zooplankton Study determines the composition (what kinds?), abundance (how many?), and distribution (where are they?) of zooplankton in the upper San Francisco





Sacramento - San Joaquin Delta

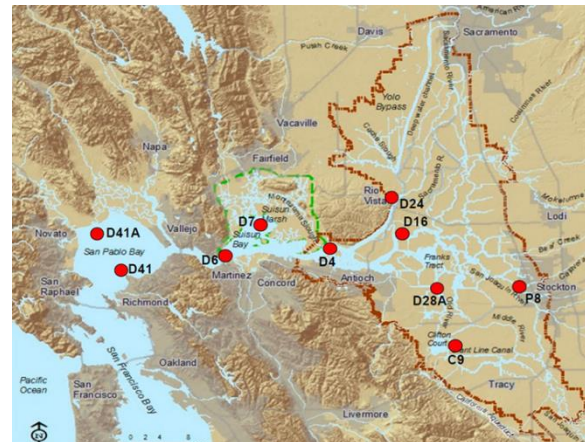
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SELECT DATA

Where?

When?

What Species?



## Phytoplankton

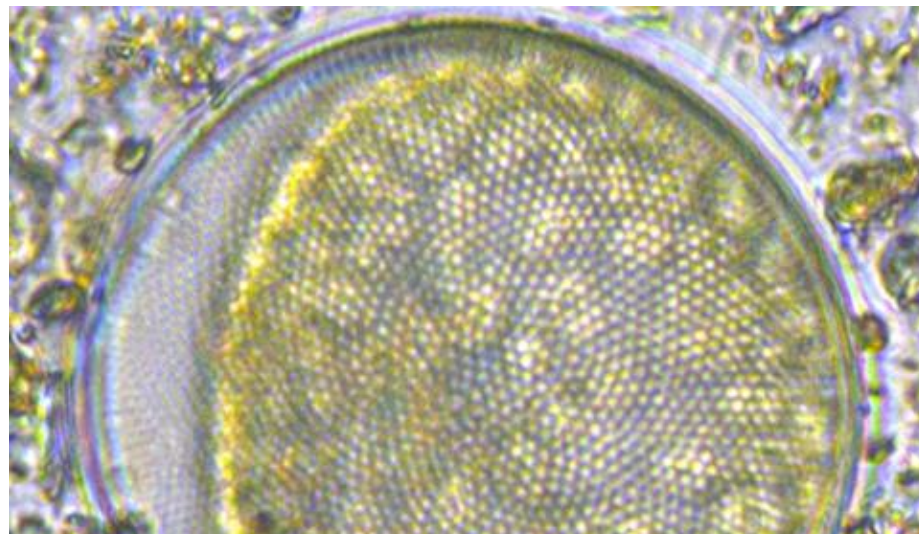
What Are they?

How are they monitored?

Reporting

### SAN FRANCISCO BAY DELTA ESTUARY

**Phytoplankton** are small organisms that can be found floating in most water bodies. Like plants, they are primary producers; they convert light energy from the sun and carbon dioxide into the living matter of their cells through photosynthesis. Phytoplankton from the San Francisco Estuary fall into four broad categories: cyanobacteria, diatoms, green algae, and various





Sacramento - San Joaquin Delta

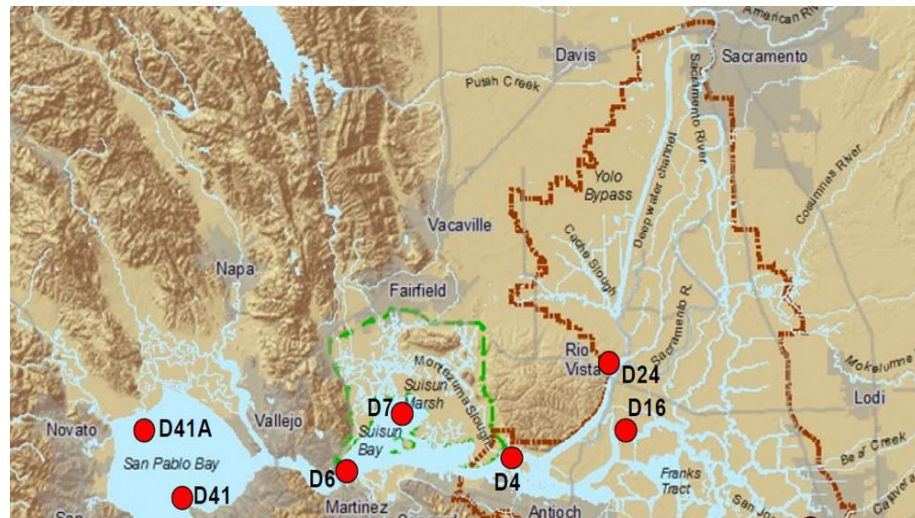
## Phytoplankton

- What Are they?
- How are they monitored?**
- Reporting

### SAN FRANCISCO BAY DELTA ESTUARY

#### Department of Water Resources Phytoplankton and Chlorophyll-a Monitoring

The California DWR Phytoplankton and Chlorophyll-a Monitoring measures the composition (what kinds?), abundance (how many?), diversity (how many kinds?), and distribution (where are they?) of phytoplankton as





Sacramento - San Joaquin Delta

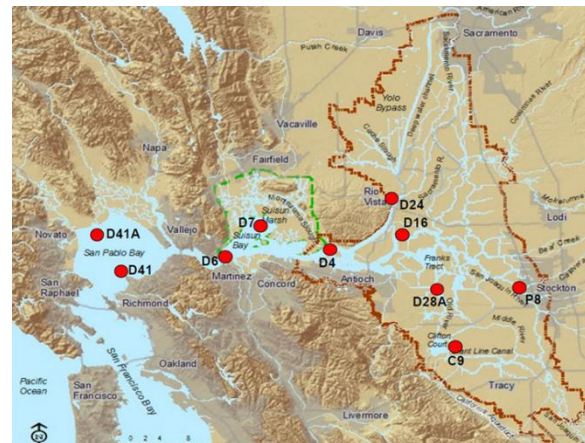
## Phytoplankton

What Are they?    How are they monitored?    **Reporting**

### SAN FRANCISCO BAY DELTA ESTUARY

#### Phytoplankton and Chlorophyll-a Monitoring

Phytoplankton samples are counted using an inverted microscope. Phytoplankton are identified to the lowest taxonomic level possible (usually genus or species) and counted. The counts are used to calculate organisms per milliliter.



#### SELECT DATA

Where?

When?

What Species?

# Delta in Crisis- All hands on Deck

- Natural Ecosystem in collapse
- Major changes to the food web
- Fish surveys at lowest levels
- Drought
- Real Time Operations
- Water Fix
- Ecorestore
- Different questions!

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[Data Catalog](#)
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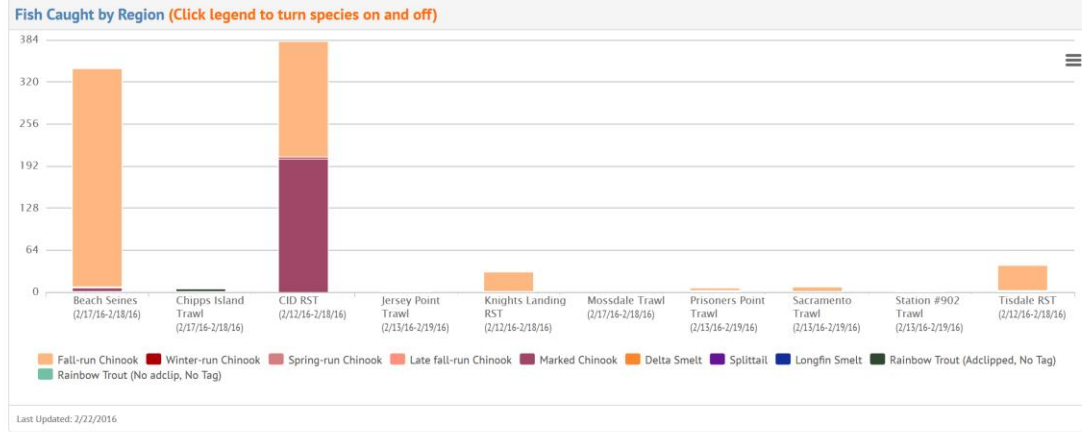
[Triggers and Indices](#)
[DJFMP Highlights](#)
[DJFMP Details](#)
[Water Quality](#)
[NOAA Forecasts](#)
[Visualizations](#)

### CATCH SUMMARIES, INDICES, AND KEY STATIONS

Preliminary data, subject to change.

#### Key Monitoring Surveys Catch Highlights <sup>i</sup>

Species of management concern caught at key survey monitoring locations (last 7 days).



#### Catch Indices <sup>i</sup> for DCC Gate Operations per NMFS BiOp's Action IV.1.2 <sup>i</sup>

Catch indices indicate Chinook salmon movement upstream of the Delta and inform water operations of migration timing for real-time management decisions.



#### Environmental Indicators of Fish Migration <sup>i</sup>

Key river flow and water temperature station data help managers better understand salmon migration.



#### Environmental Indicators of Fish Migration <sup>i</sup>

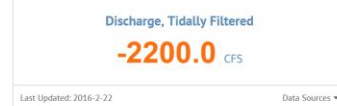
Key river flow and water temperature station data help managers better understand salmon migration.



#### Old Middle River (OMR)



#### Old River at Bacon Island (OBI)



#### Middle River at Middle River (MDM)



#### OMR Index Calculation WY16

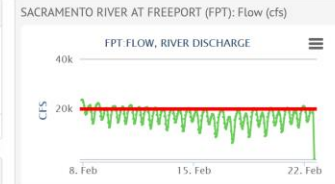


[Download PDF](#)

#### Reservoir Conditions



#### Key Stations



#### Delta Operations Summary



#### Delta Operations



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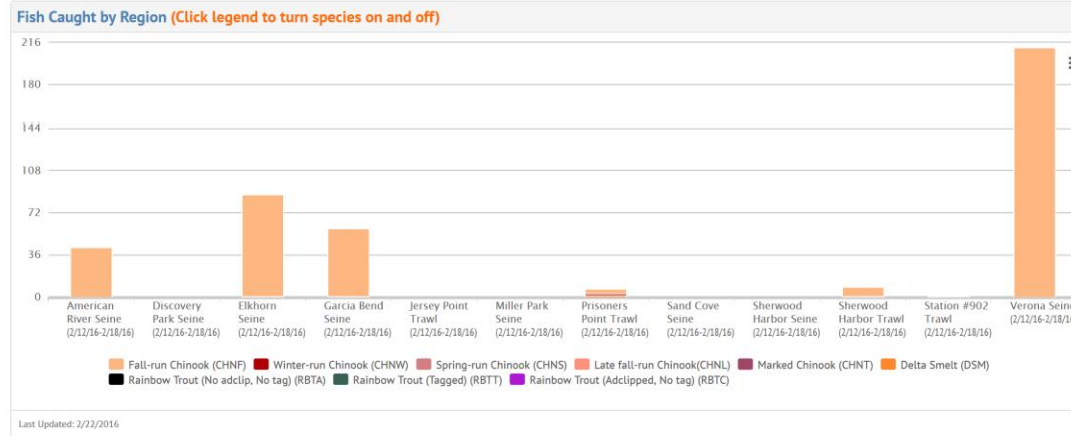
[Triggers and Indices](#)
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### DJFMP HIGHLIGHTS

Preliminary data, subject to change.

#### DJFMP Recent Catch Highlights (Species of Management Concern)

Species of management concern caught at key DJFMP monitoring locations (last 7 days).



#### Trawl Snapshot

List of all fish species caught during the most recent day of DJFMP surveys (trawls and seines).

Sample Date	Method Code	Tow Number	Description	Sum Catch	Sample ID	Organism Code	Mark Code	Race By Length	Dead	Comments
2/17/2016	SEIN	No Current Data	Tisdale	26	234240	RSN	None	No Current Data	No	
2/17/2016	SEIN	No Current Data	Tisdale	19	234240	CHN	None	Fall	No	
2/17/2016	SEIN	No Current Data	Terminous	4	234251	MQF	None	No Current Data	No	
2/17/2016	SEIN	No Current Data	Terminous	2	234251	RES	None	No Current Data	No	
2/17/2016	SEIN	No Current Data	Terminous	1	234251	LMB	None	No Current Data	No	
2/17/2016	SEIN	No Current Data	Terminous	2	234251	BGS	None	No Current Data	No	
2/17/2016	SEIN	No Current Data	Terminous	1	234251	SAPM	None	No Current Data	No	
2/17/2016	SEIN	No Current Data	Knights Landing	3	234244	LMB	None	No Current Data	No	1 boat retrieved and 1 boat launched immediately prior to sampling = High Disturbance

2/17/2016	SEIN	No Current Data	Knights Landing	69	234244	SAPM	None	No Current Data	No	1 boat retrieved and 1 boat launched immediately prior to sampling = High Disturbance
2/17/2016	SEIN	No Current Data	Knights Landing	20	234244	SASU	None	No Current Data	No	1 boat retrieved and 1 boat launched immediately prior to sampling = High Disturbance
2/17/2016	SEIN	No Current Data	Knights Landing	1	234244	CHN	None	Fall	No	1 boat retrieved and 1 boat launched immediately prior to sampling = High Disturbance
2/17/2016	SEIN	No Current Data	Knights Landing	13	234244	FHM	None	No Current Data	No	1 boat retrieved and 1 boat launched immediately prior to sampling = High Disturbance
2/17/2016	SEIN	No Current Data	Knights Landing	13	234244	FHM	None	No Current Data	No	1 boat retrieved and 1 boat launched immediately prior to sampling = High Disturbance
2/17/2016	SEIN	No Current Data	Knights Landing	18	234244	LP	None	No Current Data	No	1 boat retrieved and 1 boat launched immediately prior to sampling = High Disturbance
2/17/2016	SEIN	No Current Data	Knights Landing	1	234244	SPB	None	No Current Data	No	1 boat retrieved and 1 boat launched immediately prior to sampling = High Disturbance
2/17/2016	SEIN	No Current Data	Knights Landing	1	234244	BGS	None	No Current Data	No	1 boat retrieved and 1 boat launched immediately prior to sampling = High Disturbance
2/17/2016	SEIN	No Current Data	Knights Landing	1	234244	C	None	No Current Data	No	1 boat retrieved and 1 boat launched immediately prior to sampling = High Disturbance
2/17/2016	SEIN	No Current Data	Knights Landing	1	234244	RES	None	No Current Data	No	1 boat retrieved and 1 boat launched immediately prior to sampling = High Disturbance
2/17/2016	SEIN	No Current Data	Knights Landing	1	234244	HH	None	No Current Data	No	1 boat retrieved and 1 boat launched immediately prior to sampling = High Disturbance
2/17/2016	SEIN	No Current Data	Knights Landing	3	234244	MSS	None	No Current Data	No	1 boat retrieved and 1 boat launched immediately prior to sampling = High Disturbance
2/17/2016	SEIN	No Current Data	Knights Landing	1	234244	TFS	None	No Current Data	No	1 boat retrieved and 1 boat launched immediately prior to sampling = High Disturbance
2/17/2016	SEIN	No Current Data	Knights Landing	1	234244	HH	None	No Current Data	No	1 boat retrieved and 1 boat launched immediately prior to sampling = High Disturbance
2/17/2016	SEIN	No Current Data	Knights Landing	3	234244	MSS	None	No Current Data	No	1 boat retrieved and 1 boat launched immediately prior to sampling = High Disturbance
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2/17/2016	SEIN	No Current Data	Knights Landing	110	234244	RSN	None	No Current Data	No	1 boat retrieved and 1 boat launched immediately prior to sampling = High Disturbance
2/17/2016	SEIN	No Current Data	King's Island	5	234250	LMB	None	No Current Data	No	
2/17/2016	SEIN	No Current Data	King's Island	1	234250	SHM	None	No Current Data	No	
2/17/2016	SEIN	No Current Data	King's Island	1	234250	RES	None	No Current Data	No	
2/17/2016	SEIN	No Current Data	Elkhorn	5	234249	CHN	None	No Current Data	No	

Showing 1 to 25 of 138 entries

Previous 1 2 3 4 5 6 Next

Last Updated: 2/22/2016



### DJFMP DETAILS

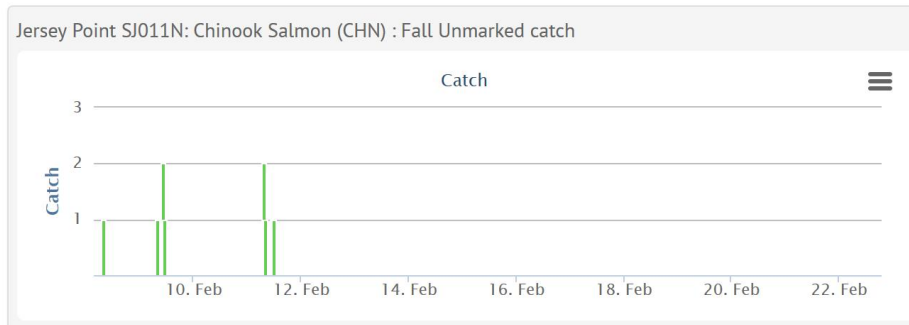
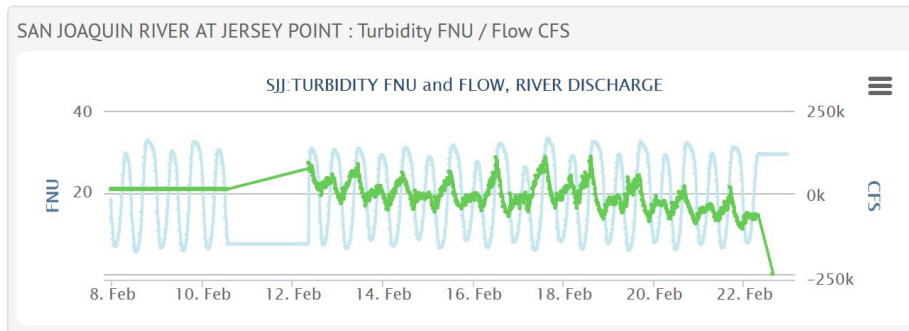
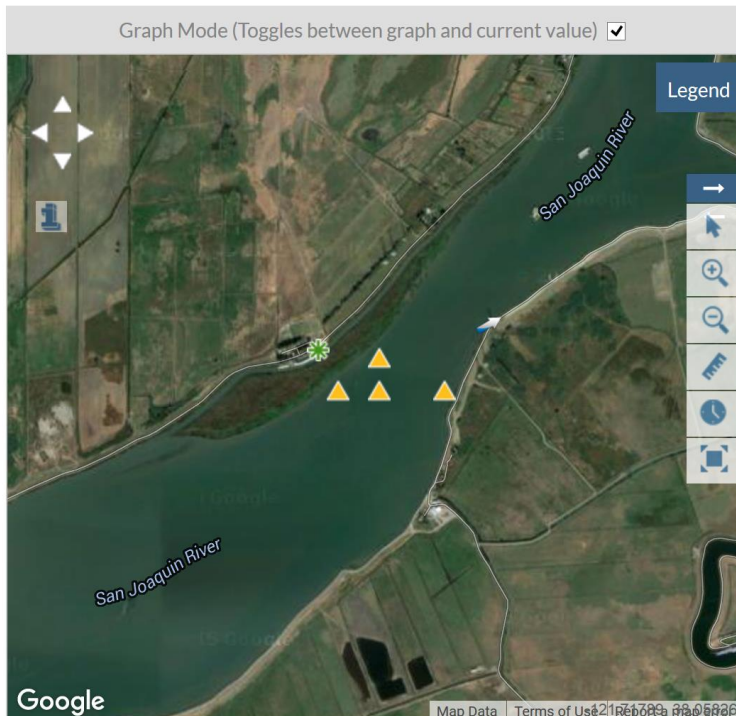
Preliminary data, subject to change.

Choose a Species: Unmarked Chinook Salmon Fall Run: Catch

#### Navigate Key Survey Locations

- Chippis Island
- Sandy Beach
- Sherwood Harbor
- Jersey Point
- Prisoners Point
- Mossdale
- Station #902
- Current Extent
- Station Finder all

List of all fish species caught during the most recent day of DJFMP surveys (trawls and seines).





WATER QUALITY MONITORING COUNCIL

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Sacramento - San Joaquin Delta

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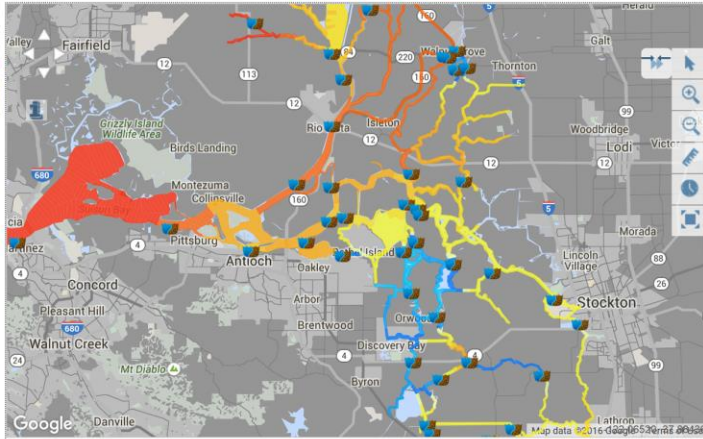
How is salinity being managed during the drought?

### RESEARCH

How are tagged fish being used in the Delta?

### Real Time Turbidity Conditions [read more](#)

Turbidity Hydrology Fish



#### REAL TIME TURBIDITY CONDITIONS NTU/FNU

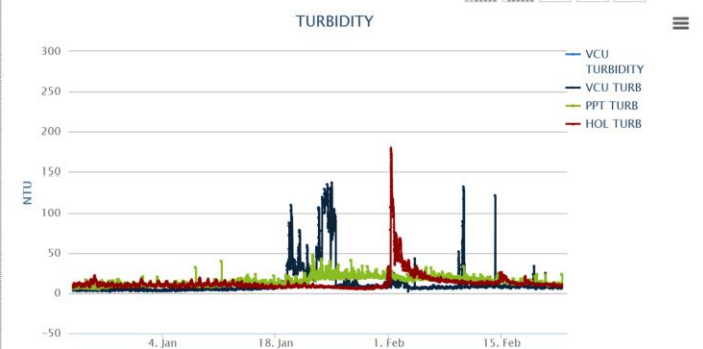
Sensor: TURB W, model type: mesh, animation type: color



M Jan 29, 2016 12:00AM
 1 hour
ADJUST TIMELINE



Data: TURBIDITY Location: VCU: VICT Graph: Line Tiles



#### OPERATIONS SUMMARY FEB 22, 2016

Summary Graphs

##### SCHEDULED EXPORTS for Today

Clifton Court Inflow	2,400 cfs
Jones Pumping Plant	3,400 cfs

##### ESTIMATED HYDROLOGY

Total Delta Inflow	~ 19,541 cfs
Sacramento River	17,664 cfs
San Joaquin River	878 cfs

##### DELTA OPERATIONS

Delta Conditions	Excess
Delta X Channel	0%
% of Inflow Diverted	30.2%
Outflow	15,500 cfs
X2 Position	~ 72 km
Source Data	<a href="#">View deltaops.pdf</a>

#### KEY DATA FEB 22, 2016

Summary Graphs

##### OLD MIDDLE RIVER

OMR (CFS) Daily	-5010
OMR (CFS) 5 Day	-4990
OMR (CFS) 14-Day	-3660

##### QWEST

Qwest Daily	-519
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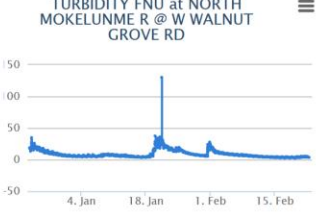
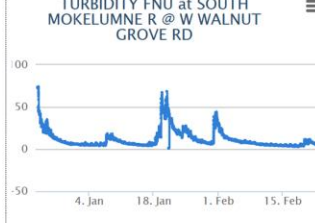
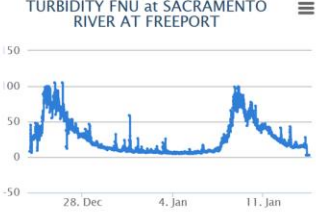
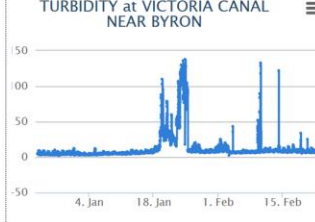
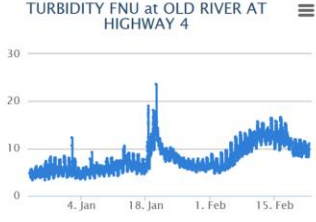
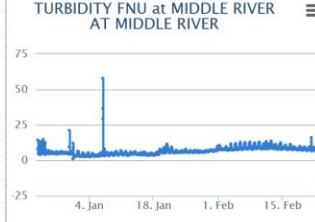
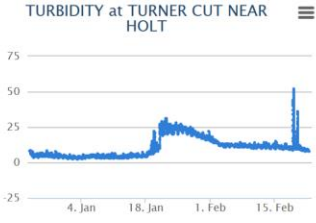
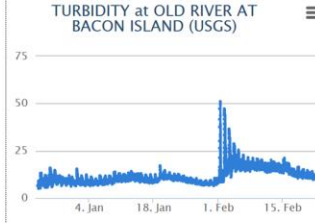
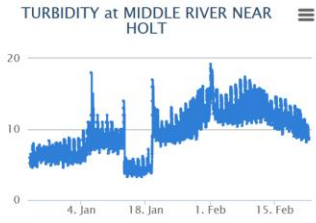
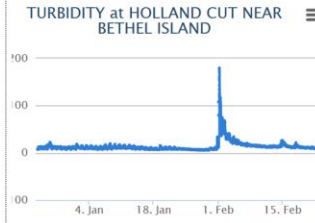
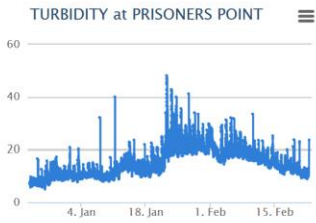
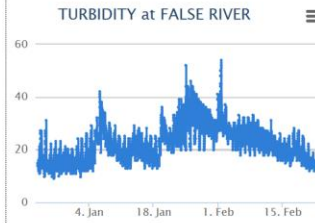
##### Temperature

Temperature Clifton Court	14.4
Temperature Antioch	56.1
Temperature Rio Vista	56.1
Temperature Mossdale	58.2
Source Data	<a href="#">View OMR.pdf</a>

#### RESERVOIR CONDITIONS FEB 22, 2016

Summary Graphs

Reservoir Name	Capacity (AF)	Storage (AF)	Outflow (CFS)
Castaic	325000	91994	----
Don Pedro	2030000	908548	----
Folsom	977000	632652	2880
Keswick	23772	22513	3057
MC Clure (Exchequer)	1024600	171866	230
Millerton (Friant)	520500	245840	428
New Hogan	317000	80346	----
Nimbus	9000	8205	3055
Oroville	3537577	1785708	454
Pine Flat	1000000	250722	----
Pyramid	180000	167869	----
San Luis	2041000	840988	----
Shasta	4552000	2660180	3242
Trinity Lake	2447650	819074	213





# Regional (Federated) Data Portal Updates



# A COLLABORATIVE EFFORT

CALIFORNIA ESTUARY PORTAL

SWRCB MY WATER QUALITY PORTALS

BAY DELTA LIVE

SAN JOAQUIN RIVER REGIONAL MONITORING PROGRAM

SAN JOAQUIN REAL TIME MANAGEMENT

DWR 1641 WATER QUALITY INTERACTIVE

SACRAMENTO RIVER WATERSHED

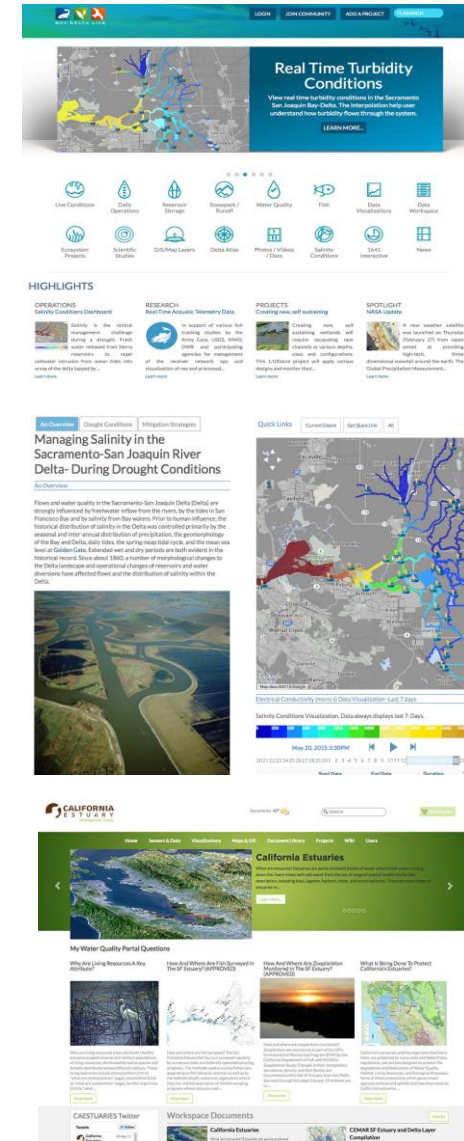


# BUILDING ON EACH OTHER'S PROGRAMS

Each region's needs are different:

- Various Stakeholder Requirements
- Regional Data
- Region Specific Data Analysis
- Local Mapping and GIS
- Regional Document Libraries
- Stakeholder Specific Data Dashboards
- Tool for Local Ecosystem Projects
- Special Studies
- Regulatory Reporting
- Web Service Development

...Share data and products with other portal's for system wide view



# BENEFITS OF A COLLABORATIVE PROGRAM

- Benefit and learn from each other's regional monitoring programs and assessment efforts
- All investments are contributed back to the community: Content, GIS, data sets, mapping tools
- Data is managed at the regional level and shared with all stakeholders for larger watershed assessment and analysis
- Application updates



# BDL WORKGROUP COLLABORATORS



*“Directing  
development and  
new data  
investments”*

US Bureau of Reclamation

NOAA

NMFS

US Geological Survey

CA Department of Water Resources

Metropolitan Water District

State and Federal Contractor

US Fish and Wildlife Service

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25,000 Unique Visits (Annual)

400+ Registered Users

1500 + Images, Documents, Research Articles

100+ Ecosystem Projects

250+ Downloadable Datasets

Feed Libraries





- Data central to 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
- Delta Community
- Post and view model results

The screenshot shows the BAY-DELTA LIVE website interface. At the top, there is a navigation bar with the logo, 'LOGIN', 'JOIN COMMUNITY', 'ADD A PROJECT', and a search bar. Below the navigation bar is a main content area featuring a map of the Sacramento-San Joaquin Bay-Delta system with a 'Real Time Turbidity Conditions' overlay. To the right of the map is a text box with the title 'Real Time Turbidity Conditions' and a 'LEARN MORE...' button. Below the map and text box is a grid of 16 icons representing various data categories: Live Conditions, Daily Operations, Reservoir Storage, Snowpack / Runoff, Water Quality, Fish, Data Visualizations, Data Workspace, Ecosystem Projects, Scientific Studies, GIS/Map Layers, Delta Atlas, Photos / Videos / Docs, Salinity Conditions, 1641 Interactive, and News. Below the grid is a 'HIGHLIGHTS' section with four columns: OPERATIONS (Salinity Conditions Dashboard), RESEARCH (Real-Time Acoustic Telemetry Data), PROJECTS (Creating new, self sustaining wetlands), and SPOTLIGHT (NASA Update). At the bottom is a 'WATER NEWS' section with five news items, each with a small thumbnail image and a headline.



# SJR REGIONAL MONITORING AND REAL TIME MANAGEMENT

- 50+ Datasets contributed for multi-stakeholder use and evaluation
- Real Time WQ Assessments for Temperature, Salinity, Nutrients, etc. available to the public
- Current phase SJR Real Time WQ Management
- View model results and data dashboards

**SAN JOAQUIN RIVER**  
Regional Water Quality Monitoring

STOCKTON 73°

SEARCH

My Basket

Home Explore Data Library Explore the SJR Login

## Does Water Temperature in the San Joaquin River and its Tributaries Support...

Monitoring temperature in the San Joaquin River and its tributaries will help us better understand if conditions support migration and other life stages of the Chinook Salmon. Two San Joaquin River runs (spring and fall) of the Chinook salmon are currently struggling for survival. There are...

Learn More

### Water Quality Conditions in the San Joaquin River Basin

- Is Salt Affecting Beneficial Uses in the San Joaquin River Basin?**  
Water quality in the San Joaquin River has degraded significantly since the late 1940s. During this period, salt concentrations in the River, near Vernalis, have doubled. Concentrations of boron, selenium, molybdenum and other trace elements have also increased. These increases are primarily due to reservoir development on the east side tributaries and upper basin for agri...
- Does Water Temperature in the San Joaquin River and its Tributaries Support Chinook ...**  
Monitoring temperature in the San Joaquin River and its tributaries will help us better understand if conditions support migration and other life stages of the Chinook Salmon. Two San Joaquin River runs (spring and fall) of the Chinook salmon are currently struggling for survival. There are varying reasons for their decline and temperature is one factor.
- Is it Safe to Swim in the San Joaquin River and its Tributaries**  
The San Joaquin River boasts 330 miles of beauty, wildlife habitat, and superb recreational opportunities. The incredibly scenic San Joaquin River Gorge near the town of Auberry boasts excellent hiking, mountain biking and horseback riding trails as well as guided nature walks, camping, swimming, and more. Keeping our water safe for recreational uses is a national priority...
- Are excess nutrients a problem in the San Joaquin River?**  
Nutrients in rivers serve the same basic function as nutrients in a garden. They are essential for growth. In a garden growth and productivity are considered beneficial, but this is not necessarily so in a river. The additional algae and other plant growth allowed by the nutrients may be beneficial up to a point, but may easily become a nuisance.

View more View more View more View more

### SJRWQ Twitter

Tweets

- SJR Water Quality** @SJRWQ 3 Dec  
Does water temperature support Chinook salmon migration in the San Joaquin River?  
sanjoaquinwaterquality.com/ques
- SJR Water Quality** @SJRWQ 3 Dec  
Is excess salt a problem in the San Joaquin River? 28 stations monitor salinity in the San Joaquin River Basin.  
sanjoaquinwaterquality.com/ques
- SJR Water Quality** @SJRWQ 3 Dec  
Tweet to @SJRWQ

### Management Activities

The San Joaquin River Restoration Program is a comprehensive long-term effort to restore flows to approximately 72 miles of the San Joaquin River in California's Central Valley from Friant Dam to the confluence of the Merced River. Its goal is to restore and maintain fish populations in "good condition", including naturally reproducing and self-sustaining populations of ...

### News

Access the latest news and information for the San Joaquin River Basin.

### About the San Joaquin River Basin

The San Joaquin River basin surrounds the San Joaquin River from Friant Dam to Vernalis. The main tributaries to the San Joaquin River basin include the Stanislaus River, Tuolumne River, and Merced River. The San Joaquin River is the second largest river in California and includes wetlands and marshes.

### Regional Assessment: What we measure?

There are many tools used for regional assessment in the San Joaquin River Basin. Each tool provides the user with specific information about their questions. Below is a list of regional tools for the public to explore.



(In-Development)

# SRWP PORTAL TOPICS AND DATA

## Drought Management

- Domestic, Municipal and Industrial Supply
    - Monitoring Program Management
  - Sustainable Ground Water Management Act (5 high priority sub-basins and 16 medium priority)
    - Federal Clean Water Act/Porter-Colonge (Beneficial uses)
      - Regional Water Quality Control Plans
        - 1641 Water Quality
          - Nutrients
          - Recreation
        - Fish and Wildlife
      - Hydropower and Fire
-

# Summary- CA Estuaries Monitoring Workgroup -

- The workgroup is continuing to develop portal content
  - Moving toward new look and feel
  - Adding fish
  - Management tools/data dashboards
  - Planning “stewardship” and “habitat”
- 
- Collaborating with CEMW member agencies
  - Collaborating with other CWQMC portals
  - Collaborating with other data portals (40% of state)
  - Implementing recommendations of Delta Data Vision Report
-

# CA Estuaries Monitoring Workgroup -Portal

## Challenges/Opportunities:

- Addressing other Estuaries
  - Addressing management ?? vs public ??
  - Cutting the cake differently—geographic connections
  - Collaboration takes time!
  - Developing web services is complicated!
-