



Estuary Monitoring Workgroup:

Using Web Portals to
Improve Scientific
Understanding

Kris Jones
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GET ALL THE
INFORMATION YOU CAN,
WE'LL THINK OF A
USE FOR IT LATER.



These web portals, supported by a wide variety of public and private organizations, present California water quality and aquatic ecosystem monitoring data and assessment information that may be viewed across space and time.

Welcome to My Water Quality

Is Our Water Safe to Drink?



Safe drinking water depends on a variety of chemical and biological factors regulated by

Is it Safe to Swim in Our Waters?



Swimming safety of our waters is linked to the levels of pathogens that have the potential to cause

Is it Safe to Eat Fish and Shellfish From our Waters?



Aquatic organisms are able to accumulate certain pollutants



Estuary Monitoring Workgroup



DELTA STEWARDSHIP COUNCIL



WEB SERVICES • GIS • VISUALIZATION



Interagency Ecological Program

COOPERATIVE ECOLOGICAL INVESTIGATIONS SINCE 1970



BENTHIC INVERTEBRATES: SAN FRANCISCO BAY-DELTA ESTUARY



< Benthic Monitoring >

[What Are They ?](#)
[How Are They Monitored ?](#)
[Reporting Requirements](#)
[Data Dashboard](#)
[Q&A](#)

WHAT ARE BENTHIC ORGANISMS ?

Benthic organisms are creatures that live at the bottom of water bodies. This includes common invertebrates (animals without backbones) like clams, shrimp, and crabs and other less-known creatures including worms, small crustaceans called amphipods, and aquatic insects. Some benthic organisms live in or on the soft mud of the San Francisco Estuary, while others attach themselves to rocks and other hard surfaces. There are also benthic vertebrates (animals with backbones) that include various fish species.

Many benthic organisms are filter feeders. They pump water through their bodies or through holes in the mud to catch food suspended in the water. Others graze on food they find in and on the bottom. Filter feeders and grazers eat phytoplankton, zooplankton, other benthic organisms, or decaying organic debris of aquatic or terrestrial origins.



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WHY ARE BENTHIC ORGANISMS IMPORTANT?

Benthic organisms are central part of the estuarine food web, consuming and consumed by other creatures. Every winter during low-tides, thousands of migrating shorebirds feast upon uncovered clams, crabs, and worms found in the mudflats. Humans can also take advantage of the low tides to harvest these organisms. Certain fish species, including juvenile salmon, striped bass, and sturgeon, also consume many types of benthic organisms.

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Name:	Gammarus daiberi
Phylum:	Arthropoda
Class:	Amphipoda
Origin:	Non-native from east asia, introduced in 1986
Habitat:	Muddy sand bottom from the low salinity zone (1-6 ppt) of Suisun Bay up into freshwater
Size:	up to 8mm
Notes:	Grazes on phytoplankton; is a common fish

EMP Monitoring Data

- Benthic Invertebrates
- Phytoplankton
- Zooplankton
- Water Quality
- Hydrology



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Notes: Grazes on phytoplankton; is a common fish food item; reaches sharp seasonal peaks of density in spring and summer.

QUESTIONS ANSWERED

What are estuaries , And why are they important ?





DEPARTMENT OF WATER RESOURCES BENTHIC ORGANISM STUDY

The Department of Water Resources' 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 Environmental Monitoring Program (EMP). Changes in their composition, abundance, diversity, and distribution are documented within the SF Estuary, from San Pablo Bay east through the upper Estuary to the mouths of the Sacramento, Mokelumne, and San Joaquin Rivers.

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DEPARTMENT OF FISH AND WILDLIFE SAN FRANCISCO BAY STUDY

EMP monitoring sites are too far up the estuary to sample many species of crab or shrimp, but the CDFW San Francisco Bay Study surveys collect crabs and shrimp monthly using an otter trawl. Thirty-five fixed monitoring stations are distributed evenly throughout four sub-regions of the estuary, including South, Central, San Pablo, and Suisun Bays.

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QUESTIONS ANSWERED



WATER RIGHTS DECISION 1641 COMPLIANCE

The State Water Resources Control Board (SWRCB) establishes water quality objectives and monitoring plans to protect variety of beneficial uses of the water within the upper San Francisco estuary.

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2015 SUMMARY

The State Water Resources Control Board (SWRCB) establishes water quality objectives and monitoring plans to protect the variety of beneficial uses of the water within the upper San Francisco estuary. The SWRCB ensures that these objectives are met, in part, by issued to DWR and USBR as conditions for operating the SWP and CVP, respectively. These requirements includes minimum outflows, limits to water diversion by the SWP and CVP, and maximum allowable salinity levels. In addition, DWR and USBR are required to conduct a comprehensive monitoring program to determine compliance with the water quality objectives and reports the finding to the SWRCB. Water quality objectives were issued in December 1999 by D-1641(SWRCB,1999) and revised by order WR 2000-02 in March 2000.

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REPORTS

Water Rights Decision 1641



Description of Department of Water Resources Compliance with State Water Resources Control

2011 Water Quality Conditions



Implementation of water quality objectives for the Sacramento-San Joaquin Delta and Suisun and San

Revised Water Rights Decision 1641



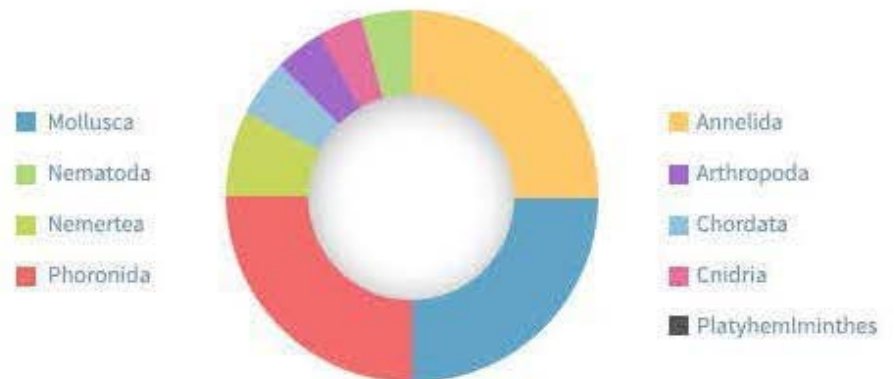
Implementing flow objectives for the Bay-Delta Estuary, approving a petition to change points of diversion of

2010 Water Quality Conditions



Implementation of water quality objectives for the Sacramento-San Joaquin Delta and Suisun and San

2015 BENTHIC DATA HIGHLIGHTS





CHOOSE DATA SOURCE

EMP Benthic

DATA TIME EXTENT

Starting Date: [dropdown]
Ending Date: [dropdown]
Duration: [dropdown] **GO**

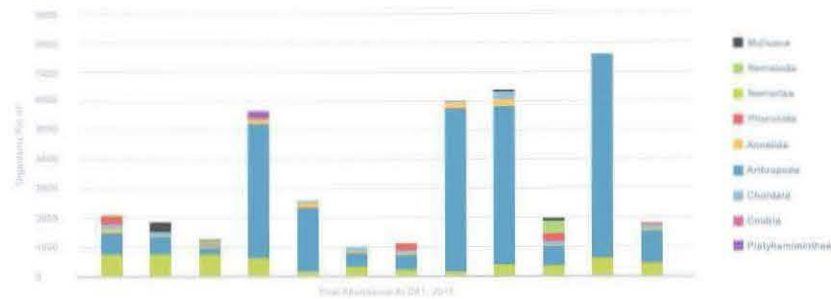
FILTER DATA

Survey Type: [dropdown]
Station: [dropdown]
Phylum: [dropdown]
Family: [dropdown]
Genus/Species: [dropdown]
Station Code: [dropdown]

GO

Map | Graphing | Results

SAN PABLO BAY NEAR PINOLE POINT STATION D41



SAN PABLO BAY NEAR PINOLE POINT STATION D41

Station & Meta Data

San Pablo Bay near Pinole Point Station D41

TITLE: DATA
County: SAN JOAQUIN
River Basin: DELTA
Longitude: -121.541000
Latitude: 38.066000
river_basin: DELTA

Links: [Add to Favorites](#) [Zoom to station](#)



Data Sets Layers Tools

CHOOSE DATA SOURCE

EMP Estuary Fish

DATA TIME EXTENT

Starting Date:

Ending Date:

OR

Duration: **GO**

FILTER DATA

Survey Type:

Station:

Phylum:

Family:

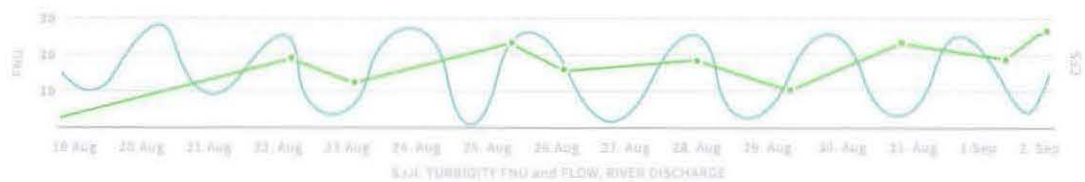
Genus Species:

Station Code:

GO



SAN JOAQUIN RIVER AT JERSEY POINT: TURBIDITY FNU/FLOW CFS



CHIPPS ISLAND SB018S: CHINOOK SALMON (CHN): FALL UNMARKED CATCH



Station & Meta Data

Chipps Island SB018S: Chinook Salmon

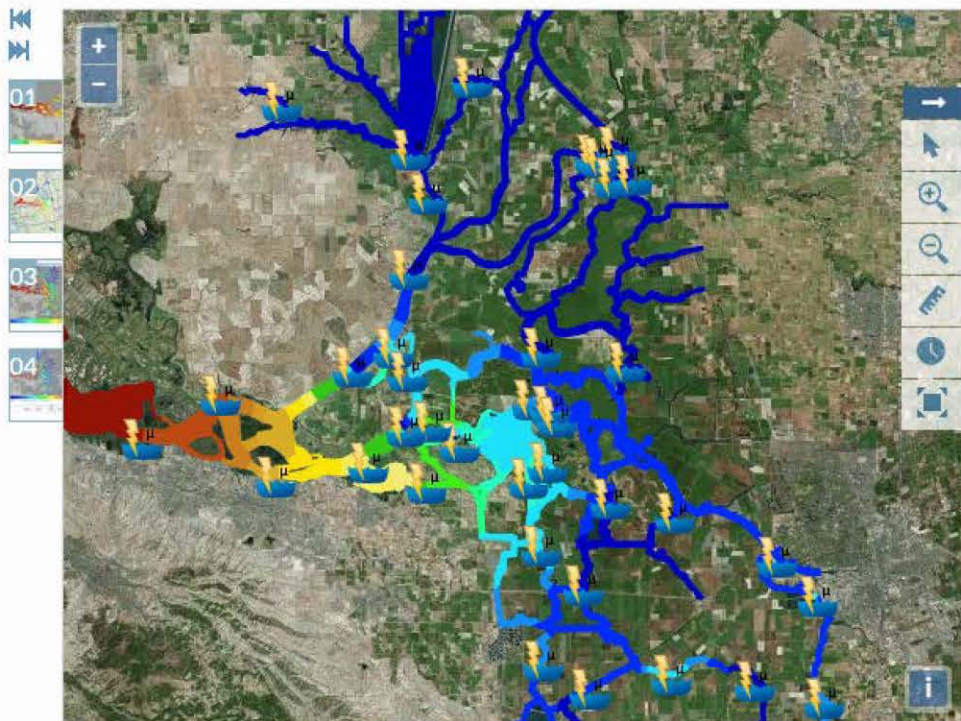
TITLE	DATA
County:	SAN JOAQUIN
River Basin:	DELTA
Longitude:	-121.502000
Latitude:	38.066000
river_basin	DELTA

Unhelp Add to Favorite Zoom to station



Salinity Conditions in the Delta [Read More](#)

Electrical Conductivity (micro s) Data Visualization -Last 7 days



Current Salinity Conditions: Electrical Conductivity (micro s) Data Visualization -Last 7 days

Salinity Conditions Visualization. Data always displays last 7-Days.



Delta Operations Summary

[Summary](#) | [Graphs](#)

Scheduled Exports

Clifton Court Inflow
4,500 cfs CFS

Jones Pumping Plant
3,660 cfs CFS

Last Updated: 2016-11-10

[Data Sources](#) ▼

Estimated Hydrology

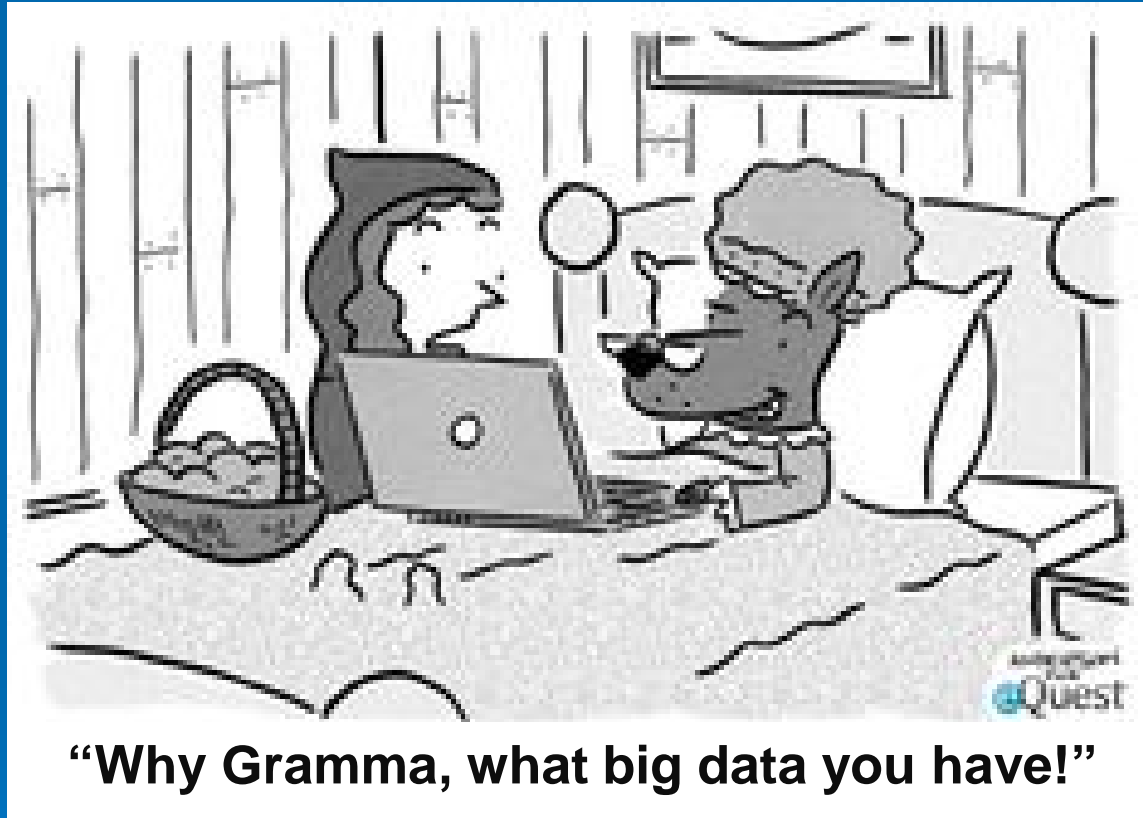
Total Delta Inflow
~ 14,042 cfs CFS

Sacramento River
12,151 cfs CFS

San Joaquin River
1,345 cfs CFS

Last Updated: 2016-11-10

Thank You!



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