Delta Monitoring Programs & Directory

Thomas Jabusch
Aquatic Science Center
What we said

- Build on existing efforts
- Identify efficiencies
- Data gaps?
Products

www.centralvalleymonitoring.org
Water Quality Monitoring in the Delta

Overview of Delta Monitoring Sites by Program
Continuous Receiving Water

Water Supply Regional/Watershed
“Box” 1: continuous

Continuous Multiparameter
- IEP EMP

Continuous Recorders
- DWR
- Reclamation

Delta Flows Network
- USGS

Delta-Mendota Canal
- Reclamation

MWQI!
- DWR

State Water Project
- DWR

Surface Water Monitoring
- DWR Central District
- DWR/SJVDA
“Box” 2: receiving water

- Irrigated Lands
- NPDES Stormwater
- NPDES Wastewater

Green:
- NPDES Wastewater
“Box” 3: water supply

Delta-Mendota Canal
- Reclamation

State Water Project
- DWR

MWQI
- DWR

Source Water Monitoring
- CCWD
“Box” 4: regional/watershed

- SWAMP
- Continuous Multiparameter (IEP EMP)
- Continuous Recorders (DWR)
- Continuous Recorders (Reclamation)
- Discrete Physical/Chemical (IEP EMP)
- San Francisco Bay RMP
- Sacramento CMP
- National Water Quality Assessment Pr.
San Francisco Bay Regional Monitoring Program
http://www.sfei.org/rmp/index.html

<table>
<thead>
<tr>
<th>Agency/Organization</th>
<th>Project Contact</th>
<th>Start Date</th>
<th>End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Francisco Estuary Institute</td>
<td>Meg Sedlak</td>
<td>1993</td>
<td>ongoing</td>
</tr>
<tr>
<td></td>
<td>(510) 746-7345</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><a href="mailto:meg@sfei.org">meg@sfei.org</a></td>
<td></td>
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</tr>
</tbody>
</table>

Monitoring Objectives
Collect data and communicate information about water quality in the San Francisco Estuary to support management decisions.

<table>
<thead>
<tr>
<th>Annual Budget</th>
<th>Sampling Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>$3M(entire program)</td>
<td>Number of active sites (Delta only): 2</td>
</tr>
</tbody>
</table>

BG20-Sacramento River
BG30-San Joaquin River

www.aquaticsciencenter.org
## San Francisco Bay Regional Monitoring Program

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Sample Type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bioassessment:</strong> Chlorophyll a, Phaeophytin a</td>
<td>Community</td>
</tr>
<tr>
<td><strong>General Sediment Quality:</strong> Particle Size</td>
<td>Sediment Quality</td>
</tr>
<tr>
<td><strong>General Water Quality:</strong> DO, EC, pH, Temperature, TSS</td>
<td>Water Quality</td>
</tr>
<tr>
<td><strong>Hydrology:</strong> Depth</td>
<td>Water Quality</td>
</tr>
<tr>
<td><strong>Major Ions and Minerals:</strong> Hardness, Silica</td>
<td>Water Quality</td>
</tr>
<tr>
<td><strong>Trace Elements &amp; Metals:</strong> Arsenic (Dissolved), Cadmium (Dissolved), Copper (Dissolved), Iron (Dissolved), Lead (Dissolved), Manganese (Dissolved), Cobalt (Dissolved), Nickel (Dissolved), Selenium (Dissolved), Silver (Dissolved), Zinc (Dissolved)</td>
<td>Water Quality</td>
</tr>
<tr>
<td><strong>Mercury:</strong> Mercury (dissolved), Methylmercury (dissolved)</td>
<td>Water Quality</td>
</tr>
<tr>
<td><strong>Pesticides:</strong> Herbicides, Organochlorine Pesticides, Organophosphates</td>
<td>Water Quality</td>
</tr>
<tr>
<td><strong>Sediment Chemistry:</strong> Aluminum (Total), Ammonium as N, DOC, Mercury (dissolved), Methylmercury (dissolved), Nitrate as N, Nitrite as N, PAHs, PBDEs, PCBs, TOC, Phosphate as P, Total Phosphorus, Nitrogen,</td>
<td>Sediment Quality</td>
</tr>
<tr>
<td><strong>Tissue Chemistry:</strong> Aluminum (Total), Mercury (dissolved), Methylmercury (dissolved)</td>
<td>Bioaccumulation</td>
</tr>
<tr>
<td><strong>Sediment Toxicity:</strong> (Amphipod) % Survival; (Bivalve) % Normal Development</td>
<td>Toxicity</td>
</tr>
<tr>
<td><strong>Water Toxicity:</strong> (Amphipod) % Survival; (Bivalve) % Normal Alive</td>
<td>Toxicity</td>
</tr>
</tbody>
</table>

### Data Availability

<table>
<thead>
<tr>
<th>Annual Report</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.sfei.org/rmp/rmp_docs.html">http://www.sfei.org/rmp/rmp_docs.html</a></td>
<td></td>
</tr>
</tbody>
</table>
Data Availability:

**Programs**
- IEP EMP
- Continuous Recorders
- ILRP, SWAMP, SF Bay RMP
- DWR: MWQI
- DWR: State Water Project, Surface Water Delta Flows Network

**Public Databases**
- BDAT
- SWAMP databases/ CEDEN
- DWR Water Data Library
- CDEC
- NWIS

**Access Points**
- http://bdat.ca.gov/
- http://wdl.water.ca.gov
- http://cdec.water.ca.gov
Ammonia
Sediment Contaminants
Sediment Toxicity
Water Toxicity
If we took the funds currently being spent on monitoring and prioritized information needs on which to spend it, would monitoring look the same as it does today?
Shared monitoring/assessment objectives or topics

= > Patterns?
   - potential redundancies
   - gaps
   - opportunities for coordination

= > exchange of requirements for participation?
   - reduce frequency, parameters, or stations?
   - periodic shifts?
Speaking Points - On-line Directory

- What it is and how it could help
- How it works
- Status as of today
- Where to take it from here
Purpose of the online-directory:

- **Basic Information Needed to Improve Coordination**
  - Who else is sampling what when where?
  - Where’s the data/information available?

- **Report goes out of date**

- **Directory virtual monitoring “yellow pages”; can be updated and maintained**
Directory “Tour”: 

- Directory itself (“yellow pages”) 
- Populating - updating
Beta Version

Central Valley Watershed

MONITORING DIRECTORY

DISCLAIMER: THE SITE IS UNDER DEVELOPMENT AND THE MONITORING LISTED IS STILL BEING VALIDATED.

The Central Valley Monitoring Directory provides access to program and metadata information of current water quality monitoring efforts in the Central Valley watershed. The directory has been developed as a tool to help improve the coordination and integration of existing monitoring efforts. A database access tool allows searches of monitoring information with a modular search form and an interactive map viewer. Links to actual water quality data have been provided when available.

Features include:

- Monitoring program information (objectives, duration, funding) and metadata (sampling sites, frequency, parameters, data availability)
- A search form for customized searches
- An interactive map for GIS based searching and viewing of monitoring locations and program information
## Central Valley Watershed Monitoring Directory

### Main Directory

**Basins**: All, Delta, Sacramento River, San Joaquin River, Tulare Lake

<table>
<thead>
<tr>
<th>Program</th>
<th>Lead Organization</th>
<th>No of sites (map all)</th>
<th>Basin</th>
<th>Bioassessment</th>
<th>Bulk Organics</th>
<th>Disinfection Byproducts</th>
<th>General Sediment Quality</th>
<th>General Water Quality</th>
<th>Hydrology</th>
<th>Major Ions &amp; Minerals</th>
<th>Mercury</th>
<th>Metals &amp; Trace Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>NDEE Self Monitoring Program</td>
<td>CVRWQS Show Partner</td>
<td>79</td>
<td>Delta</td>
<td>11 sites</td>
<td>11 sites</td>
<td>28 sites</td>
<td>11 sites</td>
<td>72 sites</td>
<td>29 sites</td>
<td>31 sites</td>
<td>29 sites</td>
<td>34 sites</td>
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<tr>
<td>IEP Environmental Monitoring Program: Discrete Water Quality Sampling</td>
<td>IEP</td>
<td>9</td>
<td>Delta</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9 sites</td>
<td>9 sites</td>
<td>7 sites</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DWR Operations &amp; Maintenance - State Water Project Water</td>
<td>DWR</td>
<td>4</td>
<td>Delta</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 sites</td>
<td>4 sites</td>
<td>4 sites</td>
<td>4 sites</td>
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</tr>
</tbody>
</table>
Central Valley Watershed Monitoring Directory

Program Info

Regional Monitoring Program for Water Quality in the San Francisco Estuary

<table>
<thead>
<tr>
<th>Organization</th>
<th>Start Date</th>
<th>End Date</th>
<th>Basins &amp; sub-basins monitored</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Francisco Estuary Institute</td>
<td>1993-01-01 00:00:00</td>
<td>None</td>
<td>Delta (North Delta)</td>
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</table>

<table>
<thead>
<tr>
<th>Contact</th>
<th>Objectives</th>
<th>South Delta</th>
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<tbody>
<tr>
<td>Meg Sediak</td>
<td>Collect data and communicate information about water quality in the San Francisco Estuary to support management decisions</td>
<td></td>
</tr>
<tr>
<td>510-746-7345 <a href="mailto:meg@sfei.org">meg@sfei.org</a></td>
<td>Annual Budget $3M</td>
<td></td>
</tr>
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</table>

Monitoring Plans

Monitoring Plan for Regional Monitoring Program for Water Quality in the San Francisco Estuary
<table>
<thead>
<tr>
<th>Contaminants</th>
<th>Nutrients</th>
<th>Organic Carbon (OC)</th>
<th>Organic Contaminants</th>
<th>Pesticides</th>
<th>Sediment Chemistry</th>
<th>Sediment Toxicity</th>
<th>Water Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chlorophyll a, Phosphate as P PO4-P, Total Ammonia as Nitrogen NH3-N</td>
<td>Dissolved Organic Carbon (DOC)</td>
<td>PAHs, PCBs</td>
<td>Organochlorine Pesticides, Organophosphates, Pesticides - other</td>
<td>Aluminum, Arsenic, Cadmium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Organochlorine Pesticides, PAHs, PCBs, Sediment Chemistry - other, Sediment Organic Contaminants - other, Sediment Trace Element - other, Selenium, Silver, Total Organic Carbon (TOC), Zinc</td>
<td>Bivalve (% normal development)</td>
<td>Amphipod (% survival)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data Products</th>
<th>Available Online</th>
<th>URL</th>
<th>Available by Request</th>
<th>Comment</th>
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</thead>
<tbody>
<tr>
<td>Annual Report</td>
<td>Yes</td>
<td><a href="http://www.sfei.org/rmp/rmp_docs.html">http://www.sfei.org/rmp/rmp_docs.html</a></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Downloadable data</td>
<td>Yes</td>
<td><a href="http://www.sfei.org/rmp/rmp_data_access.html">http://www.sfei.org/rmp/rmp_data_access.html</a></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Newsletter</td>
<td>Yes</td>
<td><a href="http://www.sfei.org/rmp/rmp_news.htm">http://www.sfei.org/rmp/rmp_news.htm</a></td>
<td>Yes</td>
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<tr>
<td>Other</td>
<td>Yes</td>
<td><a href="http://www.sfei.org/sfeireports.htm#RMP">http://www.sfei.org/sfeireports.htm#RMP</a></td>
<td>Yes</td>
<td>Program reports</td>
</tr>
<tr>
<td>Synthesis Report</td>
<td>Yes</td>
<td><a href="http://www.sfei.org/sfeireports.htm#RMP">http://www.sfei.org/sfeireports.htm#RMP</a></td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
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Features include:

- Monitoring program information (objectives, duration, funding) and metadata (sampling sites, frequency, parameters, data availability)
- A search form for customized searches
- An interactive map for GIS based searching and viewing of monitoring locations and program information
The Central Valley Watershed Monitoring Directory is a tool to program and maintain a coordinated system of water quality monitoring efforts for the Central Valley watershed. The directory aims to help improve the quality and quantity of data by supporting existing monitoring efforts and enhancing the sharing of data and methods. Searches of monitoring data can be conducted via a search form and an interactive map. Quality data have been provided when available.

Features include:

- Monitoring program information (objectives, duration, funding) and metadata (sampling sites, frequency, parameters, data availability)
- A search form for customized searches
- An interactive map for GIS-based searching and viewing of monitoring locations and program information
- Password-protected domains as a convenient tool for

A username and password are being requested by http://dataentry.centralvalleymonitoring.org. The site says: "Restricted Area"

User Name: waterboards
Password: **********
Program: Surface Water Ambient Monitoring Program (SWAMP) - Statewide
Plan: Stream Pollution Trends (SPoT)

<table>
<thead>
<tr>
<th>Permit ID</th>
<th>None</th>
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<tbody>
<tr>
<td>Monitoring Plan Name</td>
<td>Stream Pollution Trends (SPoT)</td>
</tr>
<tr>
<td>Mon Plan Status</td>
<td>Active</td>
</tr>
<tr>
<td>Monitoring Objectives</td>
<td>The overall goal of this long-term trends component of the SWAMP statewide assessment of California streams is to detect meaningful change in the concentrations of stream-borne contaminants and their effects in large</td>
</tr>
<tr>
<td>URL</td>
<td><a href="http://www.waterbo">http://www.waterbo</a></td>
</tr>
<tr>
<td>Start Date</td>
<td>01/01/2009</td>
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<tr>
<td>End Date</td>
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<tr>
<td>Annual Budget</td>
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<tr>
<td>Funding Source</td>
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Next:

- Public release
- Consult with regional monitoring groups
- Feasibility study