

Wetland Tech Tools

Wetland Tracker and eCRAM Development

CWMW August 16, 2011

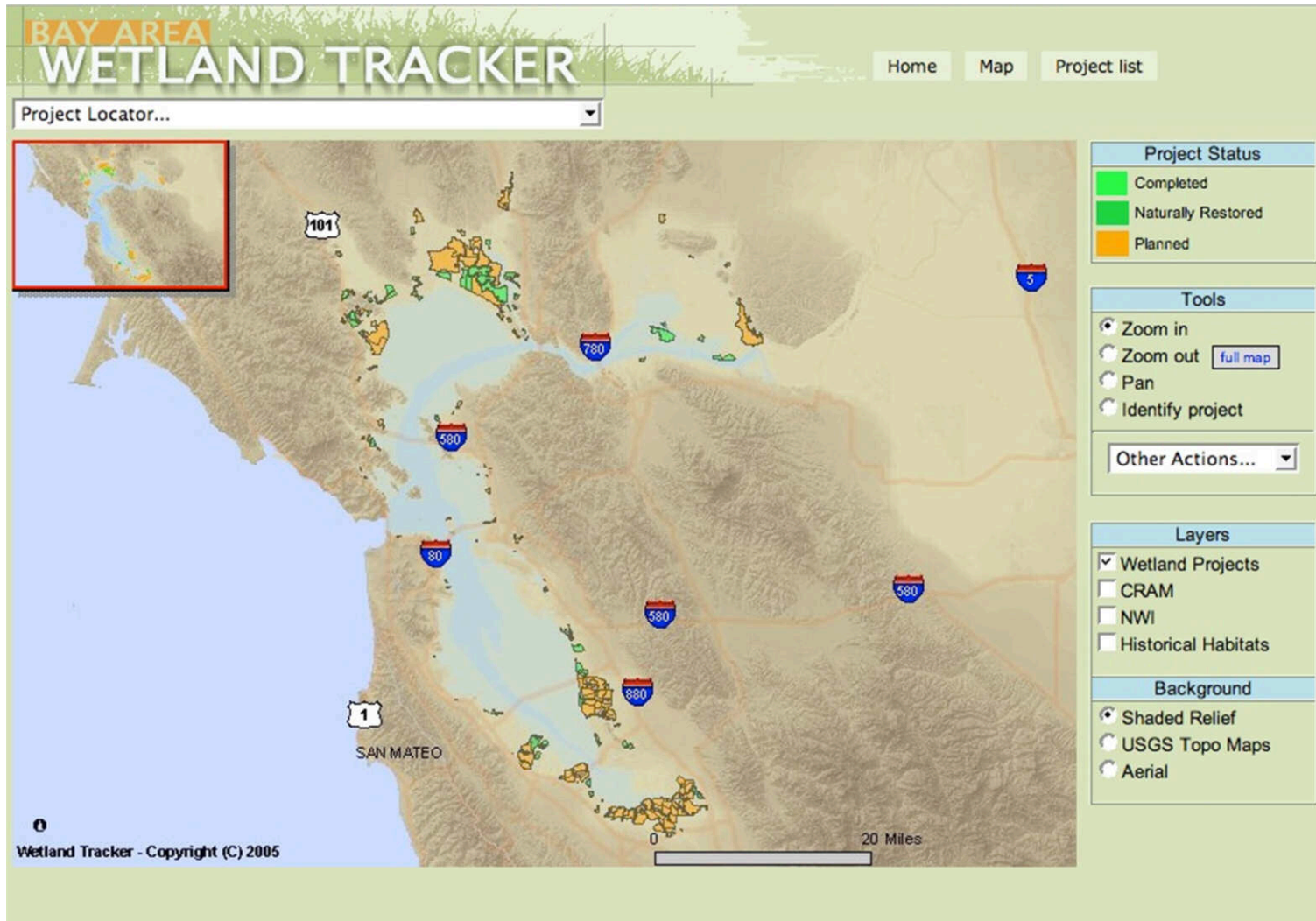
Where are the wetlands? and how are they doing?

- Technology tools designed to help people find answers
 - Wetland Tracker
 - Wetlands Portal
 - Aquatic Atlas
- The tools are currently providing some of the answers...
...but they need to do more

Are the tools on track to support CWMW objectives?

2007 Wetland Tracker (v 2.0)

Bay Area Ony



Recently added tech tool functionality

Online 401

- Online mapper
- Form submission
- Permit approval management

Project Activity Reports

- Downloadable pdf reports of changes resulting from project activity
(RB2 only)
Prop 50

Improved Level 1 content

- Bay Area Aquatic Resources Inventory
- South Coast Eelgrass base layer

Tracker has been improved through multiple appropriate funding sources

Current Statewide Wetland Tracker (v 2.1)

CALIFORNIA WETLANDS

Search

California
Bay Area
Project List
Map
Summaries
Questions

Questions Answered
Background Info on Wetlands
About Wetlands Portal
Wetland Condition (CRAM)
California Environmental Data Exchange Network (CEDEN)
Feedback

My Water Quality
Home
Water Quality Monitoring Council
California Wetlands Monitoring Workgroup
Contact Us

Need help using this map?

Layers

- Wetland Projects
- Condition (CRAM)
- NWI Modern Habitats
- BAARI Modern Habitats
- Eelgrass Habitat
- Historical Habitats

Background

- Basic
- USGS Topo Maps
- Google Satellite
- Google Terrain

Legend

Projects

- Construction completed
- Construction in-progress
- Construction planned
- Approximate boundary

Wetland Projects | Wetland Condition (CRAM) | Zoom to Location | BAARI Habitat Data

New habitat base layers

Portal content

More condition and habitat information

WT 2.1 Extent

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Need help using this map?

Interactive Mapper by SFEI. BAARI Data created by SFEI (2007-2011)

Wetland Projects | Wetland Condition (CRAM) | Zoom to Location | BAARI Habitat Data

BAARI Habitat Data

The **Bay Area Aquatic Resources Inventory (BAARI)** is a geographic information system (GIS) designed to support local and regional planning, monitoring, and management of surface waters including tidal waters, lakes, rivers and streams, wetlands, and riparian areas. The BAARI base map is the Bay Area component of the California Aquatic Resource Inventory (CARI).

The **BAARI classification system** is the same system used by the California Rapid Assessment Method (CRAM). Whereas BAARI is used to assess the extent of wetlands and streams, CRAM is used to assess their condition. BAARI and CRAM can be used together for a comprehensive assessment of wetlands and streams because they use the same classification system.

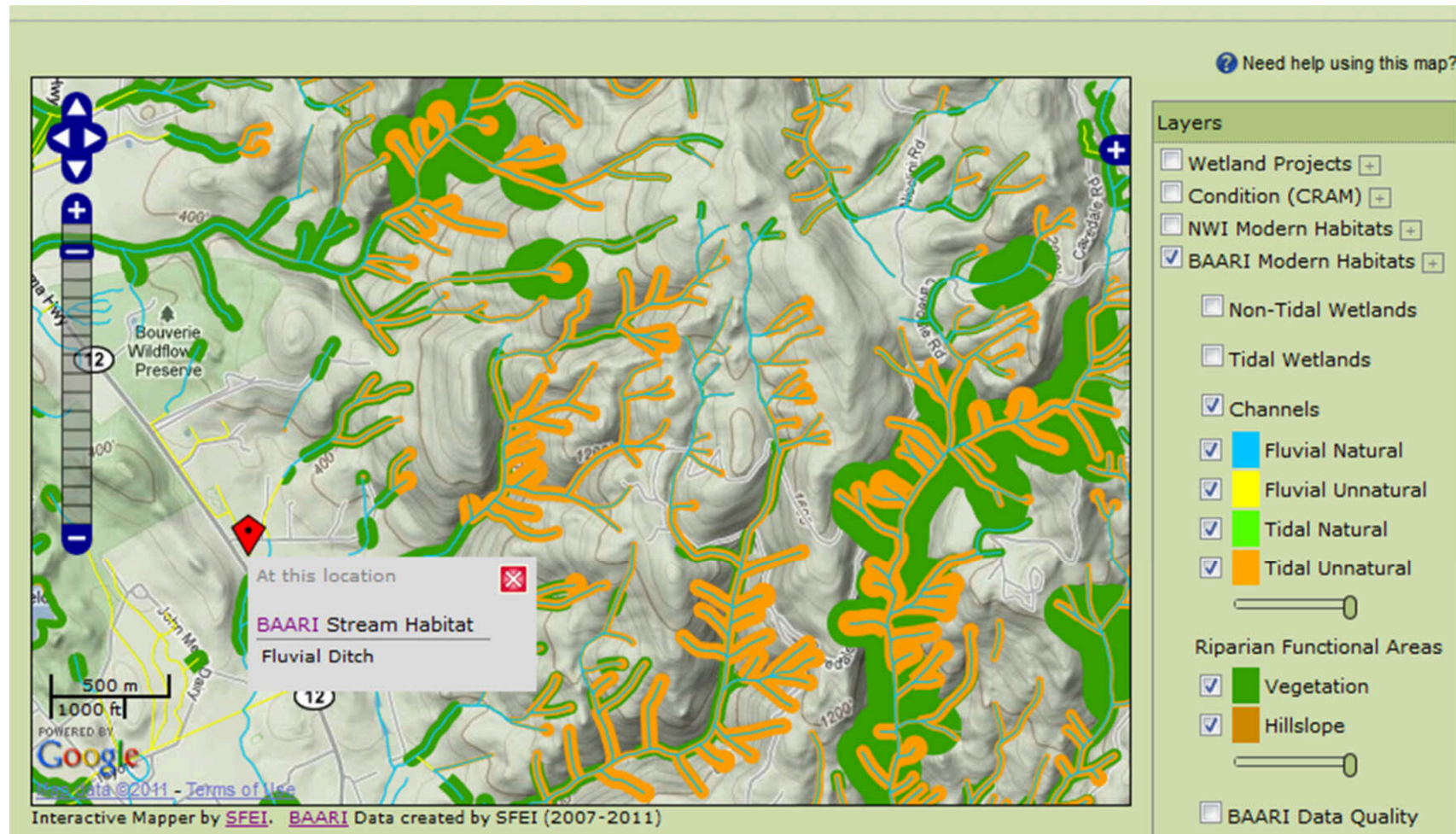
Quality Assurance and Quality Control (QAQC) is a process used to assure that BAARI meets or exceeds the 85% minimum accuracy standard (15% maximum error standard) with regard to the size, shape, location, classification, omission, and mistaken identification of tidal waters, lakes, rivers and streams, and wetlands.

Layers

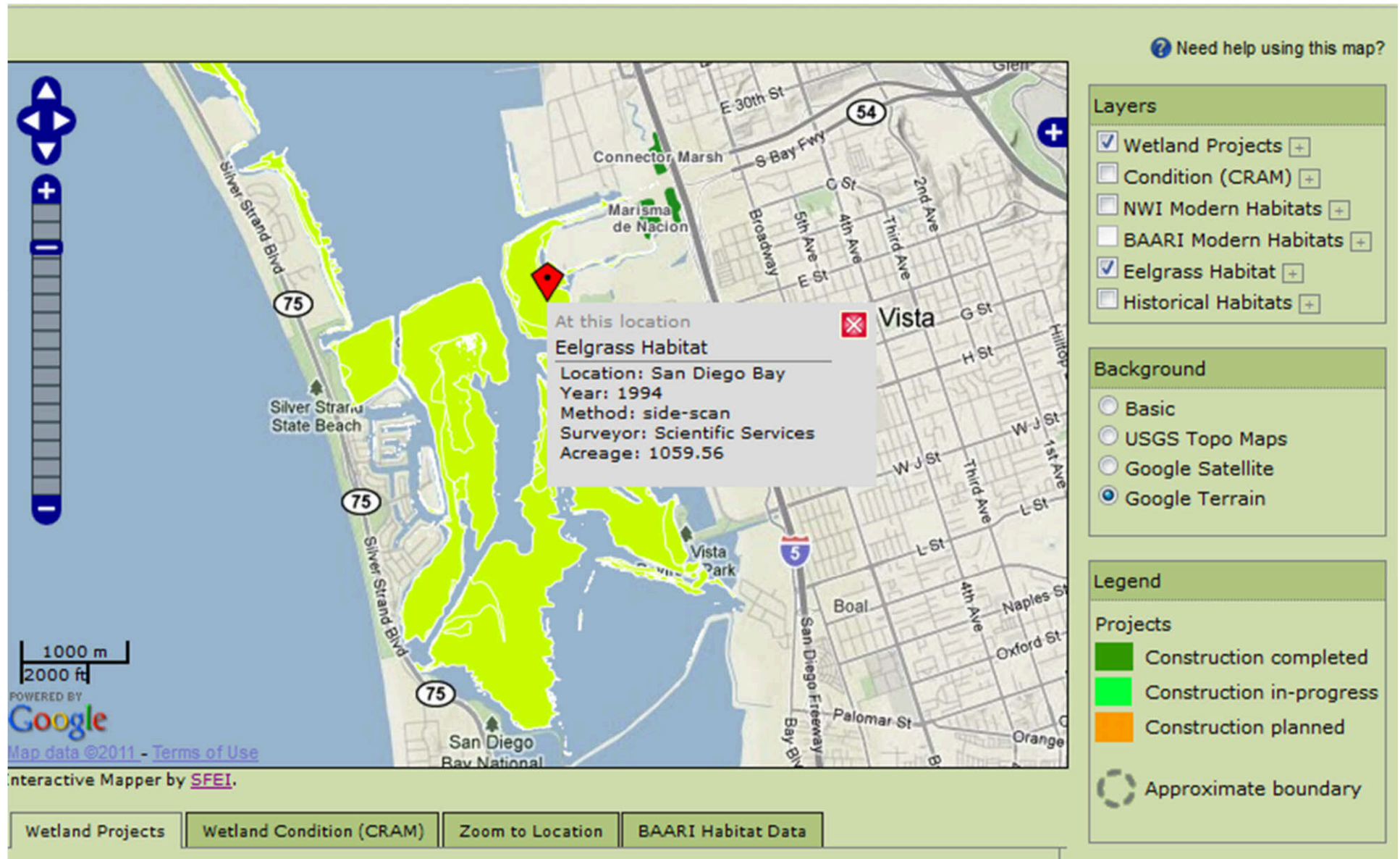
- Wetland Projects
- Condition (CRAM)
- NWI Modern Habitats
- BAARI Modern Habitats
 - Non-Tidal Wetlands
 - Vegetated
 - Open Water
 - Slope
 - Vernal Pool
 - Unvegetated Flat
 - Tidal Wetlands
 - Marsh
 - Marsh Flat
 - Bay Flat
 - Panne
 - Lagoon
 - Bay Deep
 - Bay Shallow
 - Channels
 - Fluvial Natural
 - Fluvial Unnatural
 - Tidal Natural
 - Tidal Unnatural
 - Riparian Functional Areas
 - Vegetation
 - Hillslope
 - BAARI Data Quality

Click within a Quad to get QAQC report for

Extent



Wetland Tracker 2.1 Extent



Condition: eCRAM development

6 module development efforts
are underway

Module
Perennial depressional
Seasonal depressional
Wet meadow
Arid streams
Vernal pool
Bar-built estuaries

Next L2 technology steps

- **Address CRAM practitioner needs – data access, upload and download, summary reports!**
- www.cramwetlands.org to be subsumed within www.californiawetlands.org
- Redesign CRAM database and improve ease-of-use
- Align with SWAMP

Portals:

- Wetlands Portals portal on line through Wetland Tracker
 - Moving content to MWQ Wetlands Portal for consistency with other Portals
- Healthy Streams Portal under development
 - Includes toxicity, bioassessment, CRAM data views
 - Links to CEDEN

The screenshot displays the California Water Quality Monitoring Council website. The header includes the CA.GOV logo, the State of California Environmental Protection Agency and Natural Resources Agency, and the Council's name. Navigation tabs include Home, Safe to Drink, Safe to Swim, Safe to Eat Fish, Ecosystem Health, Stressors & Processes, and Contact Us. A search bar and location selector (California/This Site) are in the top right.

The main content area shows a breadcrumb trail: Home > Aquatic Ecosystem Health > Streams & Rivers > Alameda County. A large "MOCKUP" watermark is overlaid on the page.

Alameda Creek
Site Code: 401ALA032

BMI scores:
O/E = 0.34
IBI=46
Conclusion: Degraded

BMI scores:
IBI=53
Conclusion: Degraded

Habitat scores:
%F+S=45
CRAM = 51
Conclusion: Degraded

The page also features a map of Alameda County with a legend for stream conditions: Good (green), Degraded (yellow), and Very Degraded (red). A "QUESTIONS ANSWERED" section contains a link: [What is the condition of California's streams and rivers? In Alameda County](#). Other links include [Bay Area Aquatic Resource Inventory \(BAARI\)](#) and [Tools to Assess Condition Statewide Condition Assessment Stream and River Impairments](#).

Overall status of tech tools

Tracker must support

Status and Trends

- L1 Extent (CARI)
- L2 Condition
- L3 Condition (Streams)
- L3 Condition (Wetlands)

401/WDR

- Permit tracking
- Watershed-scale mitigation planning

	Definitions & Methods	Online data mgt	Online Reporting	Outreach & Adoption
– L1 Extent (CARI)	■	■	■	■
– L2 Condition	■	■	■	■
– L3 Condition (Streams)	■	■	■	■
– L3 Condition (Wetlands)	■	■	■	■
– Permit tracking	■	■	■	■
– Watershed-scale mitigation planning	■	■	■	■

Tracker functionality: how to get from red to green

- Watershed delineation
- Use mapped feature polygons for data input/output
- Automated L1-L2 watershed summary reports
 - Aquatic resource extent
 - Ambient condition
 - Project information
- Move eCRAM into Tracker
- Advanced query and viewing tools
- Improved web site speed

Streamlined Permitting Process

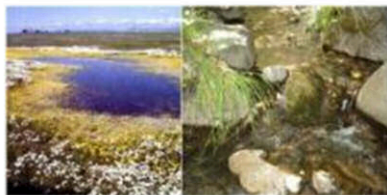
Online Application for 401 Certification/Waste Discharge Requirements

[Log Out](#)
[Account](#)

- ▶ [My Applications](#)
- ◆ [Submitted Applications](#)

Protecting Streams and Wetlands

Sat, 01/08/2011 - 22:22 — public (not verified)



Streams and wetlands are essential elements of California's natural heritage. In addition to their aesthetic qualities, they protect and enhance water quality throughout our state.

You should apply for Clean Water Act §401 Water Quality Certification and/or file a Report of Waste Discharge if you are planning a project that includes dredging, filling, or otherwise impacting waters of the United States and/or waters of California.

To begin an application, [create an account](#) or [log in](#).

Read more about California's [Dredge/Fill \(401\) and Wetlands Program](#).

[Read more](#)

Reporting

Tracking net change due to permitted projects

RB2 downloadable reports

Project Gains and Losses by Habitat Type - 2008 [Print PDF](#)

Wetland Areas (63 Projects¹)

Habitat Type	Number of Habitat Patches ²		Permanently Impacted Acres	Acres ³ Gained ⁴		Gain/Impact Ratio	Acres Improved (Other Than Gained)		Net Change in Acres	
				Restored	Created		Enhanced	Preserved	Gained or Lost	Improved
Vegetated estuarine wetlands	10	(16%)	0.0	0.0	1.4	0.0	0.3	6.4	1.4	6.7
Rivers and streams	15	(24%)	0.0	3.0	0.6	0.0	5.5	0.0	3.7	5.5
Lakes	0	(0%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depressional wetlands	9	(14%)	0.0	0.1	1.4	0.0	0.1	4.1	1.5	4.2
Vernal pools and swales	4	(6%)	0.0	0.0	1.5	0.0	0.0	2.5	1.5	2.5
Playas	0	(0%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Seeps and springs wetlands	2	(3%)	0.0	0.0	2.0	0.0	0.5	0.0	2.0	0.5
Riparian areas	17	(27%)	0.0	0.8	9.1	0.0	22.3	1.2	9.9	23.4
Unknown wetland habitat	38	(60%)	0.0	1.1	0.5	0.0	8.3	3.2	1.6	11.5
Totals (acres)	95	(150%)	0.0	5.0	16.5	0.0	37.0	17.4	21.6	54.4

Tracker 3.0

Improved functionality - Advanced filtering

The screenshot displays the 'CALIFORNIA WETLANDS' web application. At the top, there is a search bar and a 'Search' button. The main header features the title 'CALIFORNIA WETLANDS' in large, bold, white letters on a green background. Below the header, the interface is divided into several sections:

- Left Sidebar:** A vertical menu with links for 'California Bay Area', 'Project List', 'Map', 'Summaries', 'Questions', 'Questions Answered', 'Background Info on Wetlands', 'About Wetlands Portal', 'Wetland Condition (CRAM)', 'California Environmental Data Exchange Network (CEDEN)', 'Feedback', 'My Water Quality', 'Home', 'Water Quality Monitoring Council', 'California Wetlands Monitoring Workgroup', and 'Contact Us'.
- Map:** A central satellite map showing a coastal area with a large body of water and surrounding land. The map includes navigation controls (directional arrows and a zoom slider) on the left and a zoom-in button on the right. The Google logo and 'Imagery ©2011 - TerraMetrics' are visible at the bottom of the map.
- Right Panel:** A 'Legend' section titled 'Projects' with three color-coded categories: 'Construction completed' (green), 'Construction in-progress' (light green), and 'Construction planned' (yellow). Below the legend is a 'Filter Data' button, which is circled in blue in the image. At the bottom of the right panel is a link that says 'Need help using this map?'.
- Bottom Section:** A horizontal row of buttons labeled 'Wetland Projects', 'Wetland Condition (CRAM)', 'Zoom to Location', and 'BAARI Habitat Data'. Below these buttons is a 'Project Locator...' search input field.

New filter functions proposed

Select content to be displayed from multiple categories

The screenshot displays the 'CALIFORNIA WETLANDS' web application interface. The top header includes the title and a search bar. A left sidebar contains navigation links such as 'California Bay Area', 'Project List', 'Map', 'Summaries', 'Questions', 'Questions Answered', 'Background Info on Wetlands', 'About Wetlands Portal', 'Wetland Condition (CRAM)', 'California Environmental Data Exchange Network (CEDEN)', 'Feedback', 'My Water Quality', 'Home', 'Water Quality Monitoring Council', 'California Wetlands Monitoring Workgroup', and 'Contact Us'. The main content area features three filter panels: 'Administrative' (with options: 401 Permit Projects, 1600 Permit Projects, SFBJV Projects, Trash), 'Habitats' (with options: Modern habitats, Historical habitats), and 'Condition' (with options: CRAM, IBI, Toxicity). The 'Condition' panel is highlighted with a blue circle. Below the filters is a satellite map with a vertical zoom slider on the left. At the bottom, there are tabs for 'Wetland Projects', 'Wetland Condition (CRAM)', 'Zoom to Location', and 'BAARI Habitat Data', along with a 'Project Locator...' dropdown menu. A 'Filter Data' button is located on the right side of the filter panels.

Map reloads based on filter selections

The screenshot displays the 'CALIFORNIA WETLANDS' web application interface. The main map area shows a satellite-style view of a coastal region with several colored overlays representing different wetland types and conditions. A search bar is located at the top right. On the left side, there is a navigation menu with options like 'Project List', 'Map', 'Summaries', and 'Questions'. Below the map, there are buttons for 'Wetland Projects', 'Wetland Condition (CRAM)', 'Zoom to Location', and 'BAARI Habitat Data'. On the right side, there is a 'Filter Data' section with a 'Layers' panel. The 'Layers' panel includes checkboxes for 'Wetland Projects', 'Condition (CRAM)', 'Modern Habitats', and 'BAARI Modern Habitats'. Below these are transparency controls and two main categories: 'Non-Tidal Wetlands' and 'Tidal Wetlands'. The 'Non-Tidal Wetlands' category includes 'Depressional' (green), 'Lacustrine' (blue), 'Spring/Seep' (orange), 'Vernal Pool' (yellow), 'Playa' (light green), and 'Fluvial' (cyan). The 'Tidal Wetlands' category includes 'Marsh' (light green), 'Marsh Flat' (darker green), 'Bay Flat' (yellow), 'Panne' (orange), 'Lagoon' (purple), 'Bay Shallow' (light blue), 'Bay Deep' (dark blue), and 'Tidal Modified Channel' (orange). At the bottom of the 'Layers' panel, there is a checked box for 'Channel Network' with a sub-option for 'Fluvial Natural' (cyan). The map itself shows a large river system with various colored areas along its banks and in the surrounding landscape. A white box labeled 'Condition' has arrows pointing to red dots on the map, and another white box labeled 'Habitat' has arrows pointing to purple and yellow areas. A vertical scale bar is on the left side of the map.

Wetland Projects **Condition (CRAM)** **Modern Habitats** **BAARI Modern Habitats**

Transparency

Non-Tidal Wetlands

- Depressional
- Lacustrine
- Spring/Seep
- Vernal Pool
- Playa
- Fluvial

Tidal Wetlands

- Marsh
- Marsh Flat
- Bay Flat
- Panne
- Lagoon
- Bay Shallow
- Bay Deep
- Tidal Modified Channel

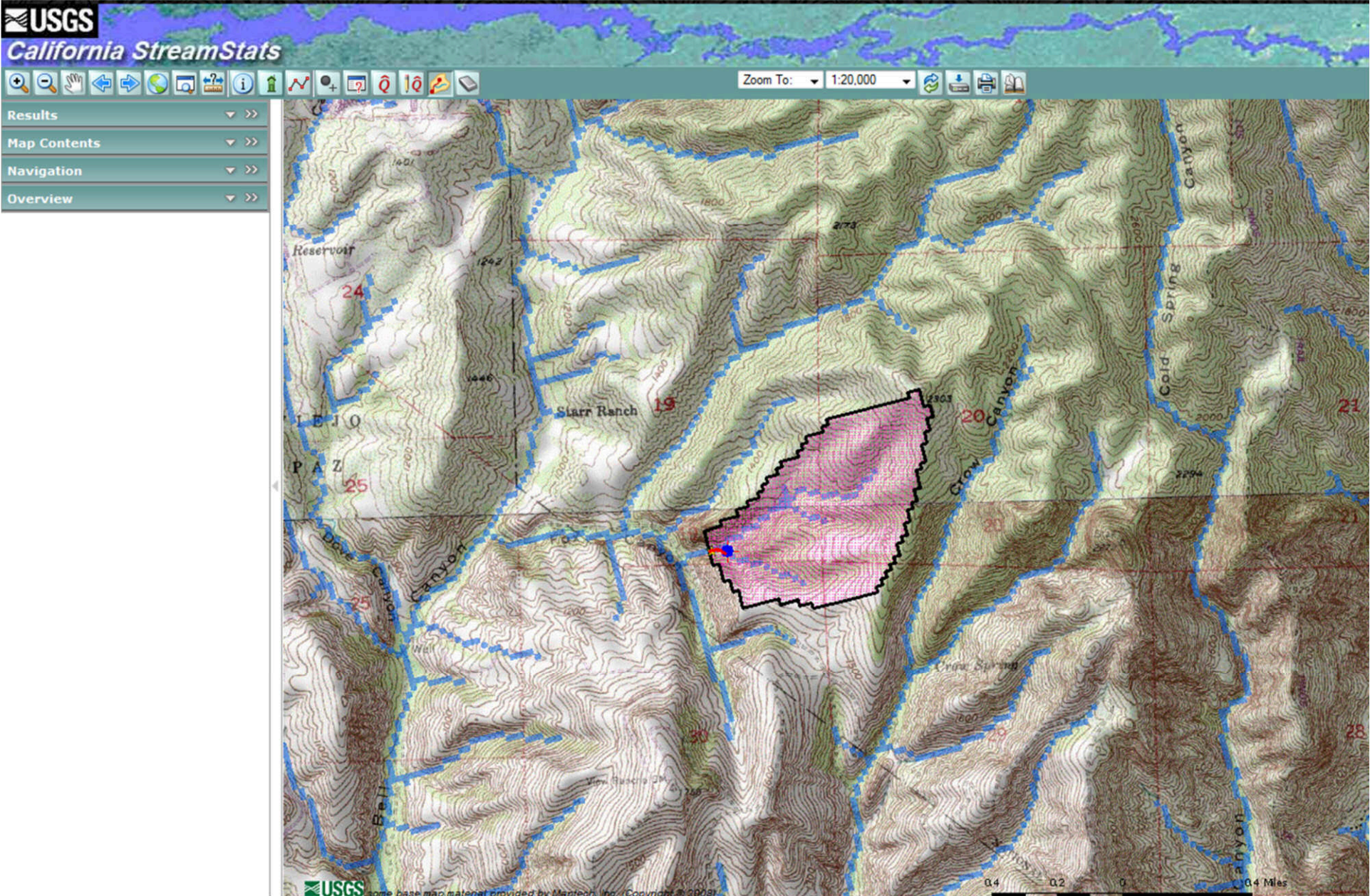
Channel Network

- Fluvial Natural

BAARI Habitat Data

Information about the Bay Area Aquatic Resource Inventory (BAARI) can be found at <http://www.sfei.org>

Watershed Delineation



Currently funded functionality improvements

CIAP eCRAM

- CRAM practitioner needs
- CRAM database upgrade
- Condition reporting
- Subsume or integrate cramwetlands.org with californiawetlands.net

CIAP Wetland Tracker

- Online mapper
- Online Tracker info entry system
- Tracker workflow improvements
- Reporting tools for net change due to permit activity

Aquatic Atlas Functionality (RDC contract)

- Add L3 data and associate with habitat
- Manage content by Management, Condition, & Habitat

Watershed Profiles

- Aggregation of Atlas-type data at the watershed scale
- Funding for template definition

Next steps for Wetland Tracker (3.0)

Tracker must support

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– Permit tracking	■	■	■	■
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L2 Condition	■	■	□	■
L3 Condition (Streams)	■	■	■	■
L3 Condition (Wetlands)	■	□	□	■
Permit tracking	■	■	■	■
Watershed-scale mitigation planning	□	□	□	■