EcoAtlas
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EcoAtlas

Tools for Restoration Practitioners

SFEI
SAN FRANCISCO ESTUARY INSTITUTE

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PMEP Effective Estuary Restoration Workshop

May 6, 2025

What is EcoAtlas?

A scientifically produced toolset to visualize the abundance, diversity and condition of aquatic resources within a landscape

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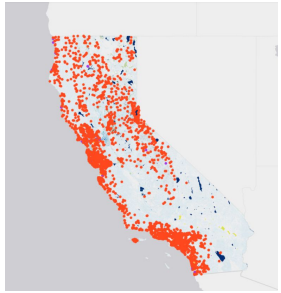
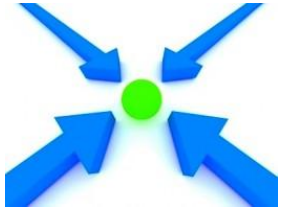
What is EcoAtlas?

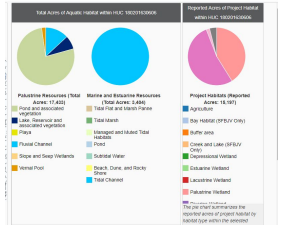
Provides dynamic summary tools that support wetland project planning, monitoring, and tracking throughout California



Aggregates different kinds of environmental data from multiple sources in one place and allows for comparability across a landscape/region



Provides adaptable and customized reporting tools



Wetland and Riparian Area Monitoring Program

Data management framework and standardized methods for **monitoring, assessing, and adaptively managing** aquatic resources within a watershed or landscape context

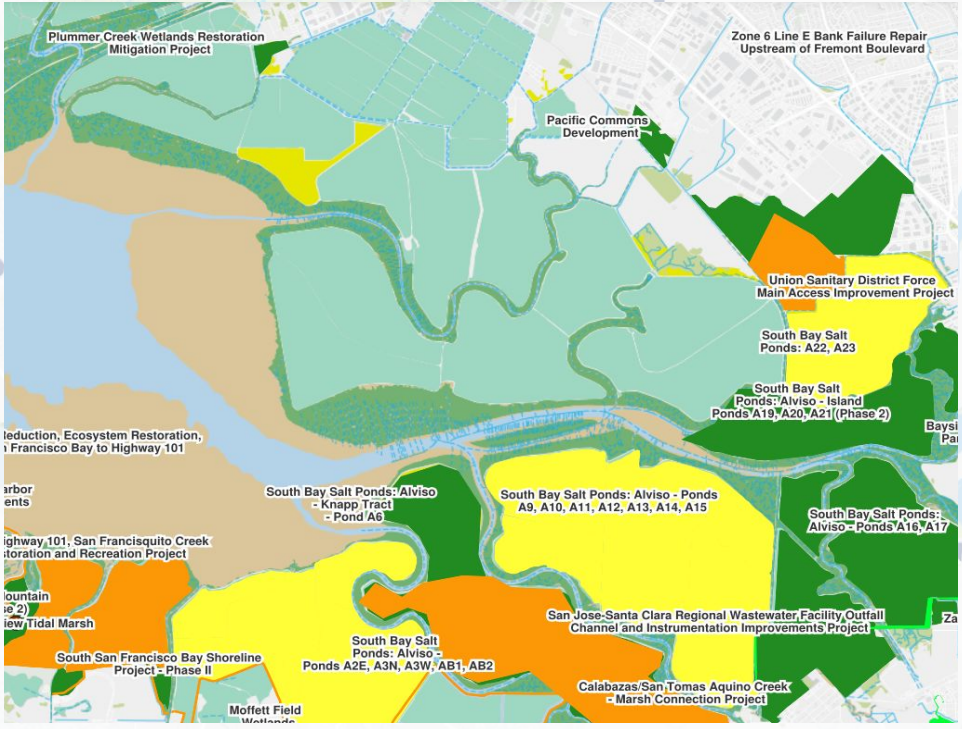
What are the WRAMP goals?

- **Public access** to standardized environmental data and visualization/summary/download tools
- Develop **standardized monitoring protocols** and **data management procedures** to support sound science
- **Support stream and wetland resource management and restoration** at the watershed or landscape scale

What is Level 1?

Map-based inventories of aquatic resources

- **Where are the streams and wetlands?** What types of streams and wetlands? How many miles or acres are there?
- **Where are the habitat projects?** What ecological enhancement actions have they completed? How have they affected adjacent wetlands?



California Aquatic Resources Inventory (CARI) + Project Tracker

What is Level 2?

Rapid, field-based visual assessments of overall condition

- **How healthy are the streams and wetlands?**
- How does my project compare to the ambient condition in the watershed?
- What aspects of my project's overall condition need improvement?

California Rapid Assessment Method (CRAM) + RipRAM

What is Level 3?

Site-specific detailed measurements (*field*, *lab*)

- **What species are supported?**
- What contaminants are present?

Fish Surveys

How do these levels work together?

Level 1 maps tell us:

- watershed context of wetland resources
- nearby restoration/mitigation projects and impact sites
- where to conduct Level 2 and 3 data collection

Level 2 condition assessments can:

- quickly provide information on overall ecological condition
- help to inform decisions or prioritize data collection

Level 3 data provides:

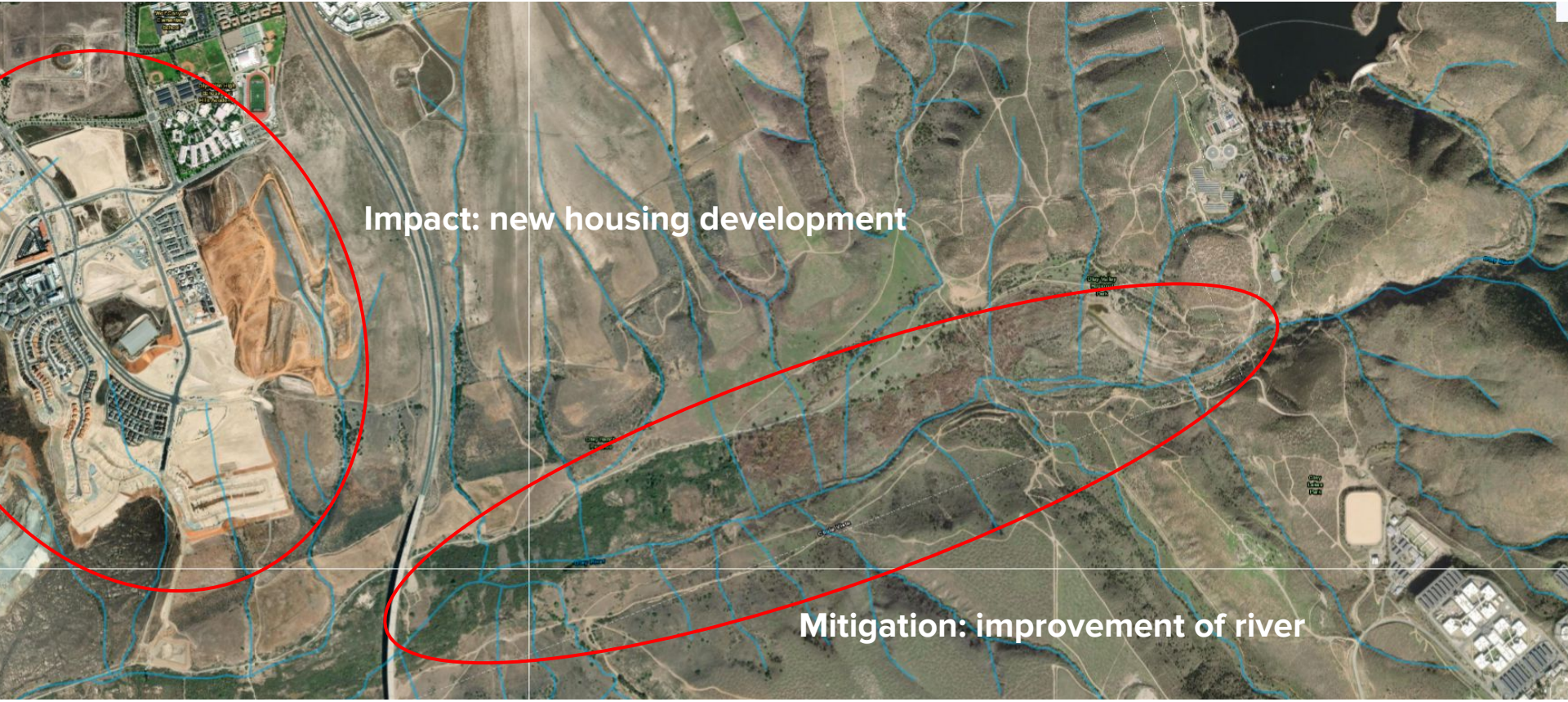
- detailed information to help explain Level 2 findings
- regulatory monitoring and project success criteria

Tools for every stage of the project lifecycle

EcoAtlas tools can be applied to projects throughout the project lifecycle:

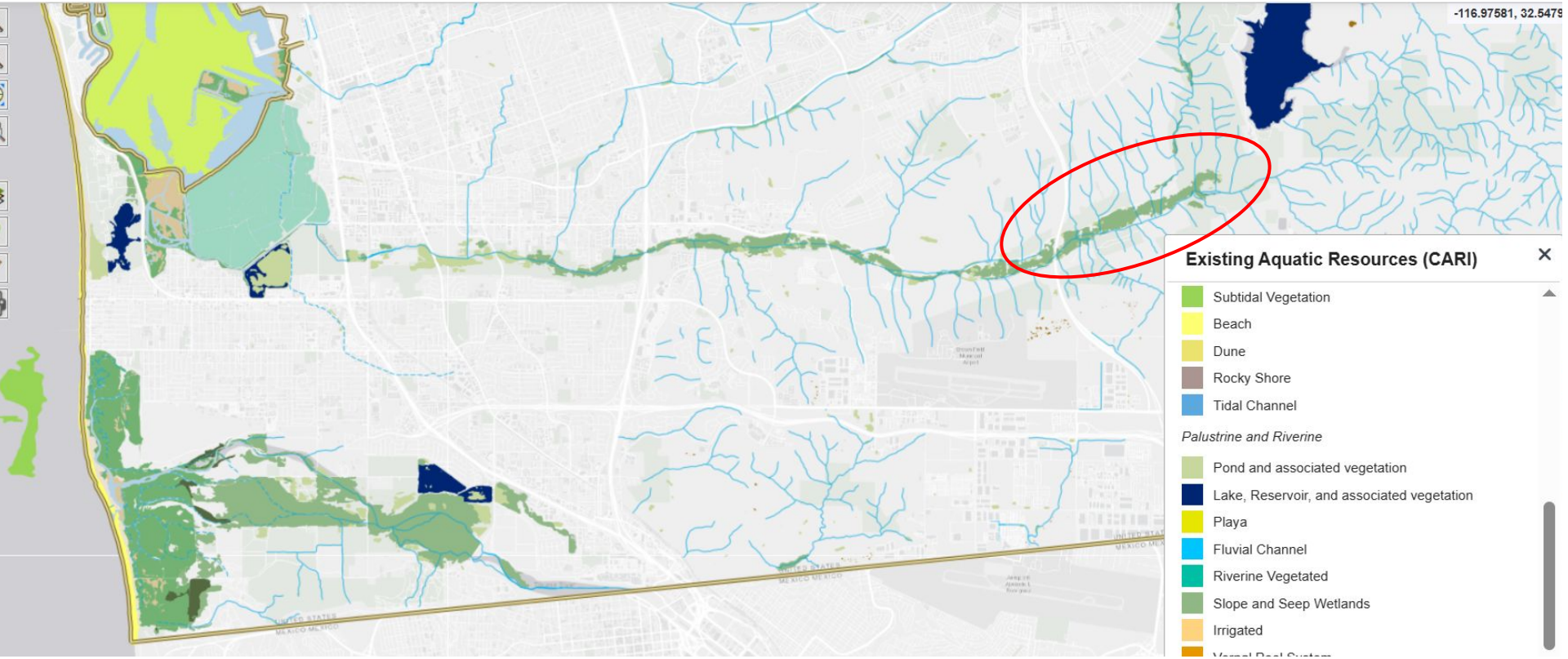
- Planning
- Implementation
- Monitoring (*methods, data collection*)
- Tracking project performance
- Reporting

Example: Otay River Mitigation Project

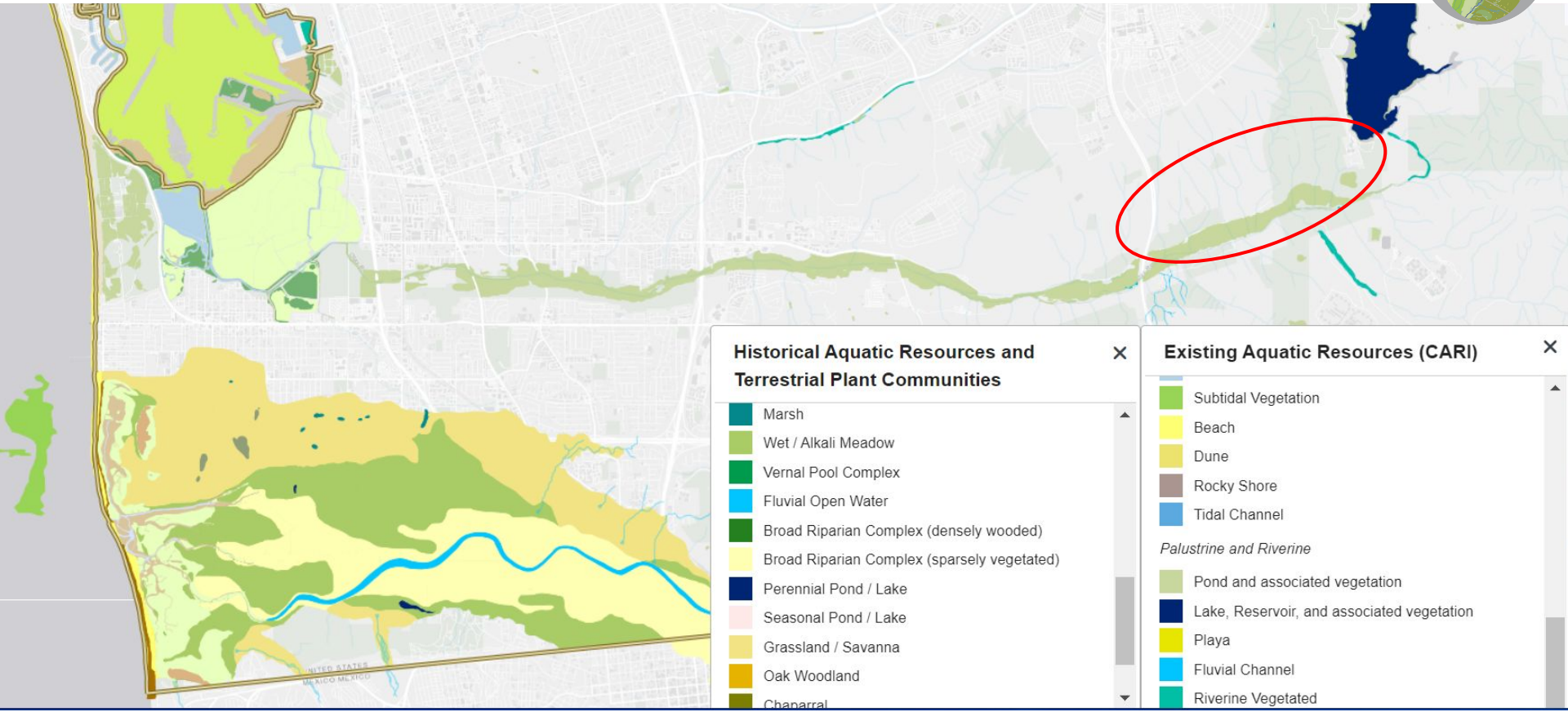


View existing aquatic resources

Using California Aquatic Resource Inventory

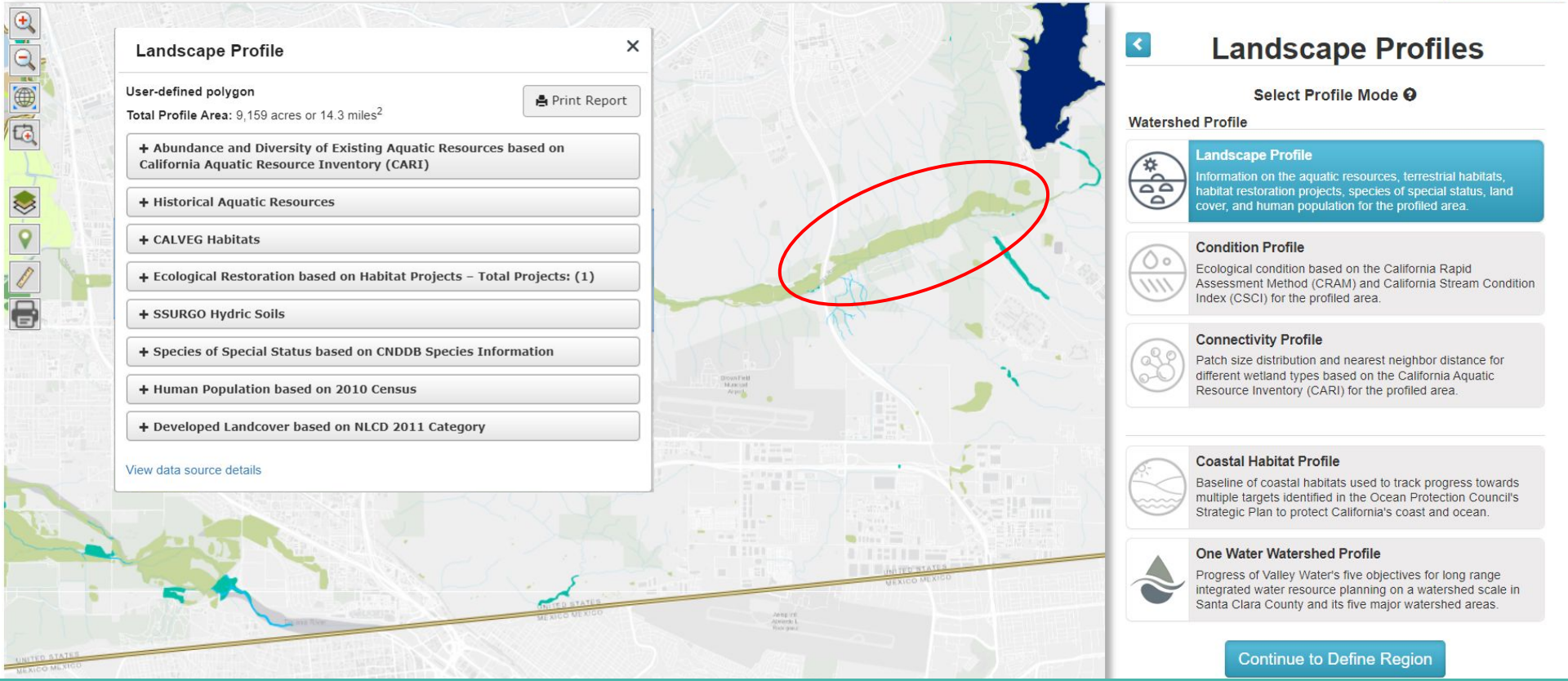


View historical aquatic resources



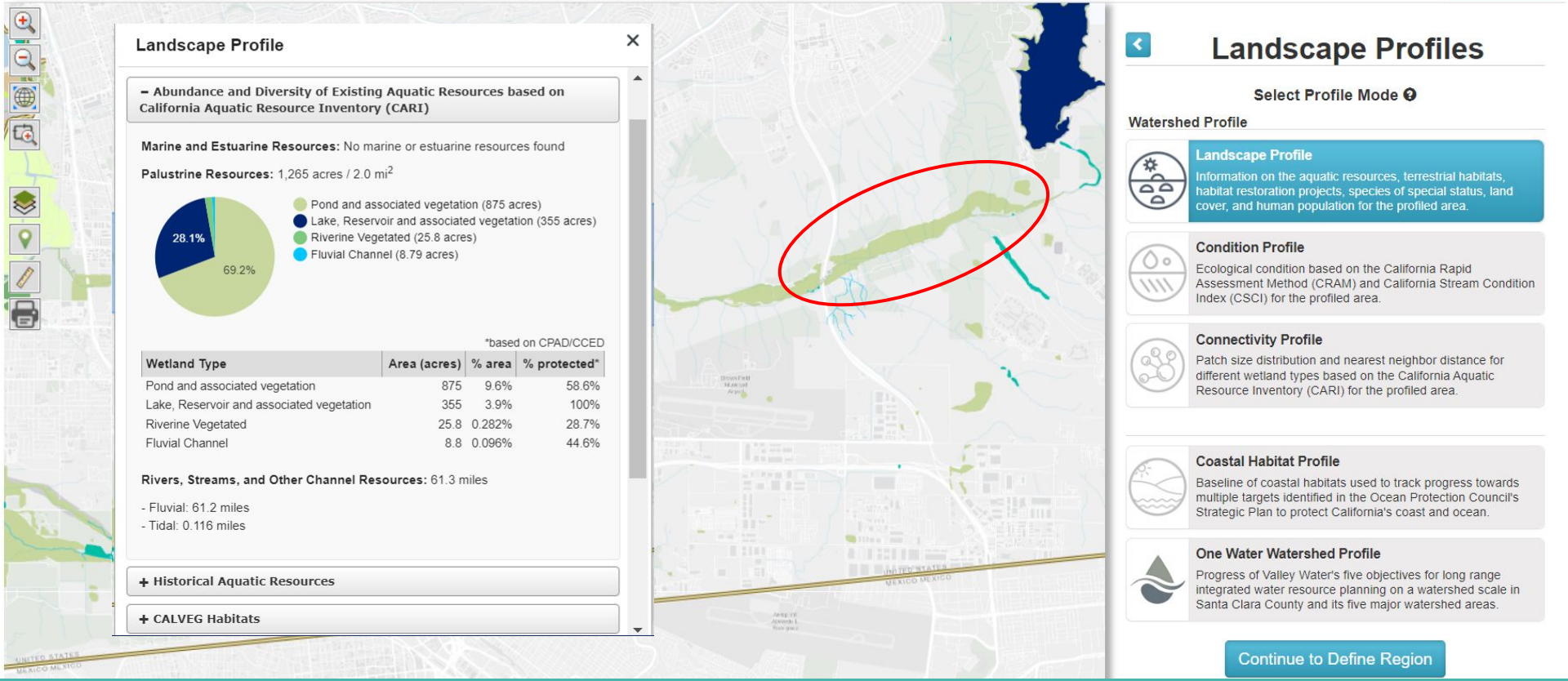
Quantify resources

Generate a Landscape Profile

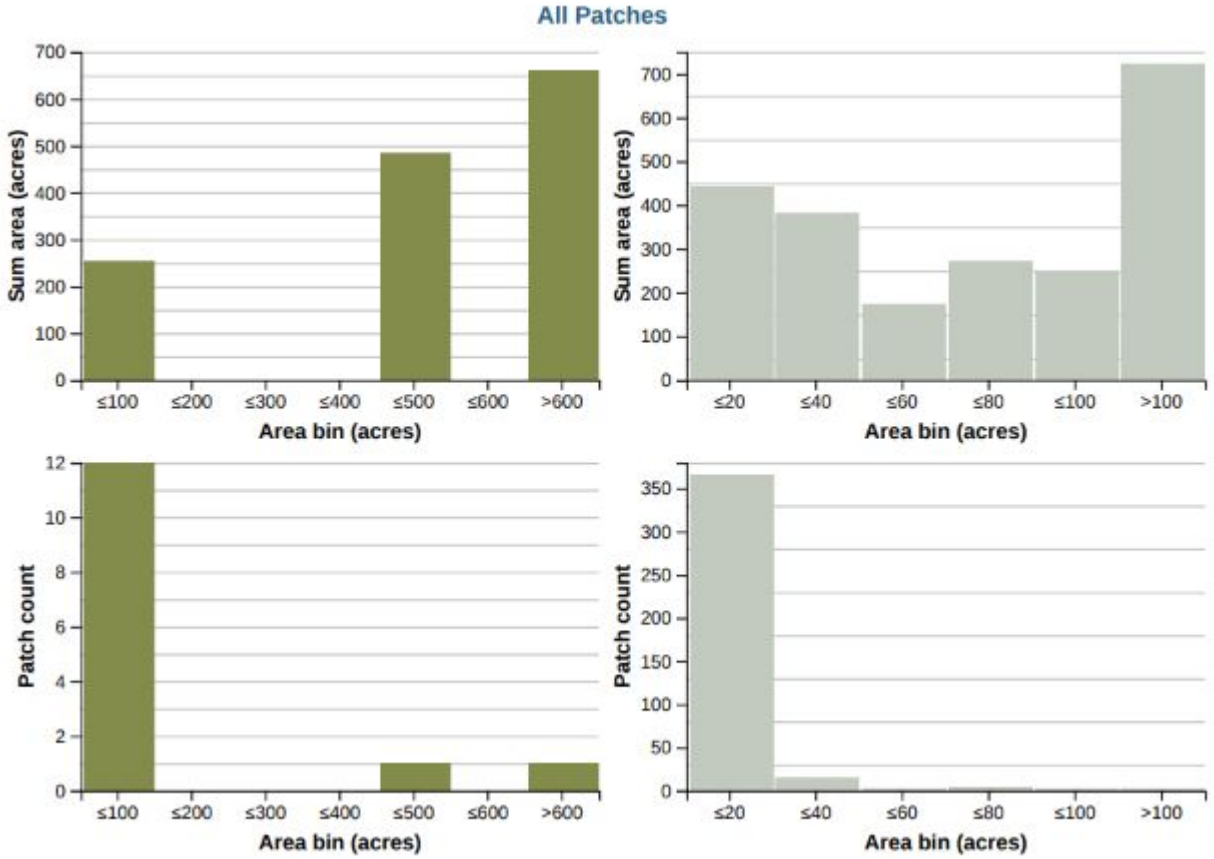


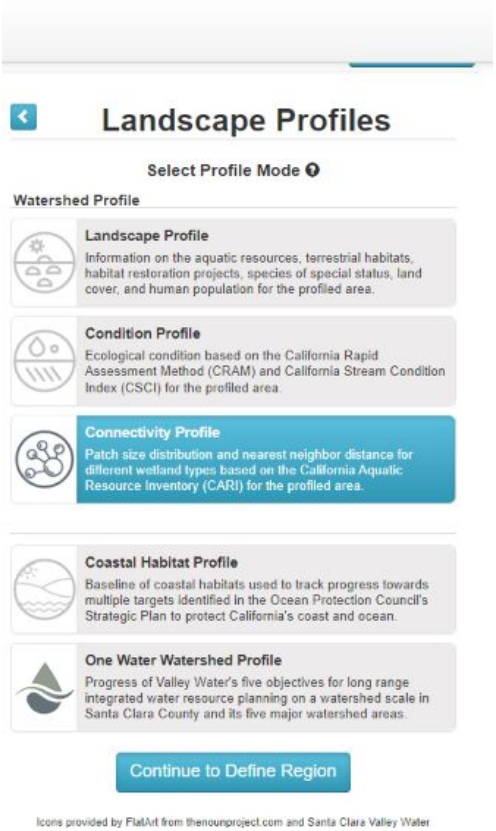
Quantify resources

Abundance and diversity of resources



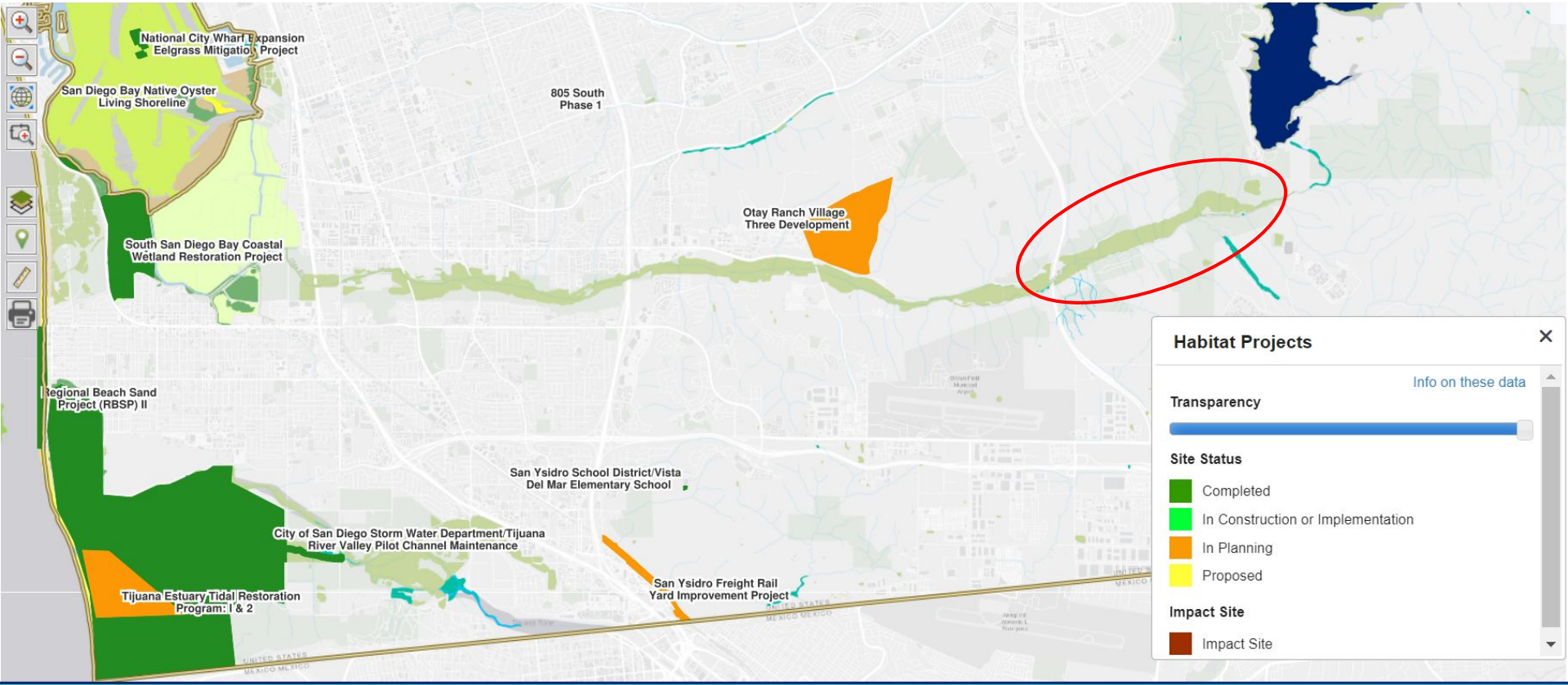
Quantify habitat patch connectivity





View nearby projects

Restoration, enhancement, creation, mitigation



Determine condition using CRAM

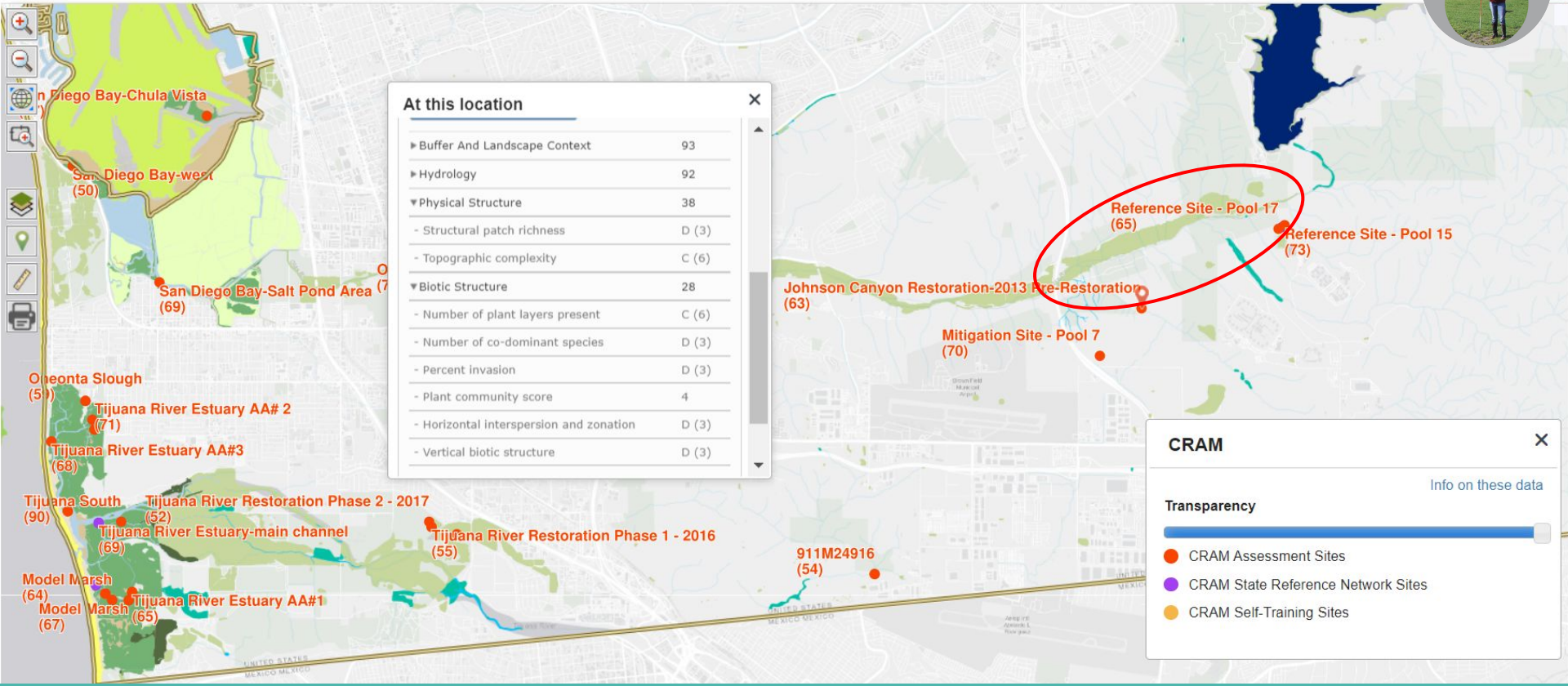
Conduct CRAM field assessments to determine **overall ecological condition**

Scoring Sheet: Riverine Wetlands

AA Name: Guadalupe Creek at Meridian			Date: 6/30/23
Attribute 1: Buffer and Landscape Context (pp. 11-19)			**Comments**
Stream Corridor Continuity (D)	Alpha. A	Numeric 12	0m upstream, 60m downstream
Buffer:			
Buffer submetric A: Percent of AA with Buffer	A	12	100% with buffer
Buffer submetric B: Average Buffer Width	C	6	104m average
Buffer submetric C: Buffer Condition	C	6	Dominated by non-natives, compaction of levee, road, road edge, recreation on trail
Raw Attribute Score = D+[C x (A x B)$^{1/2}$]$^{1/2}$		19.13	**Final Attribute Score = (Raw Score/24) x 100** 79.73
Attribute 2: Hydrology (pp. 20-26)	Alpha.	Numeric	
Water Source	C	6	>20% urbanized watershed
Channel Stability	A	12	Equilibrium
Hydrologic Connectivity	D	3	1.43 ratio
Raw Attribute Score = sum of numeric scores		21	**Final Attribute Score = (Raw Score/36) x 100** 58.33
Attribute 3: Physical Structure (pp. 27-33)	Alpha.	Numeric	
Structural Patch Richness	B	9	10 patches
Topographic Complexity	A	12	2 benches with micro
Raw Attribute Score = sum of numeric scores		21	**Final Attribute Score = (Raw Score/24) x 100** 87.50
Attribute 4: Biotic Structure (pp. 34-41)			
Plant Community Composition (based on sub-metrics A-C)			
Plant Community submetric A: Number of plant layers	A	12	4 layers
Plant Community submetric B: Number of Co-dominant species	A	12	12 co-doms
Plant Community submetric C: Percent Invasion	A	12	8% invasive
Plant Community Composition Metric *(numeric average of submetrics A-C)*		12	
Horizontal Interspersion	C	6	A high C
Vertical Biotic Structure	B	9	>50% w/ 2 layers
Raw Attribute Score = sum of numeric scores		27	**Final Attribute Score = (Raw Score/36) x 100** 75.00
Overall AA Score (average of four final Attribute Scores)			75

Identify improvements at site/landscape scale

Using details from CRAM condition score



Plot project CRAM score on ecoregional CDF

Compare project to ambient condition

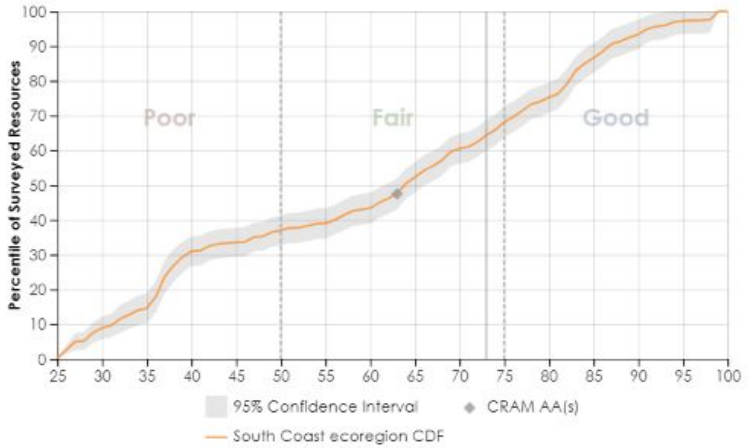
EcoAtlas ABOUT CONTACT DATA PROJECT TRACKER REGIONS WEB SERVICES/API PARTNERS

Layers Legends Basemap Overlays Hide Tools

CRAM Cumulative Distribution Function Plot (CDF)

Back | For All Riverine CRAM Assessments in the South Coast ecoregion | Print

Index Score



64% of the surveyed resources for the South Coast ecoregion CDF have a CRAM score of 73 or less.

There are 1 total All Riverine CRAM AA(s) in the selected evaluation area.
100% of these AA(s) (n=1) in your selected evaluation area have a CRAM score of 73 or less and 0 have a score of exactly 73

Landscape Profiles

Select Profile Mode

Watershed Profile

Landscape Profile
Information on the aquatic resources, terrestrial habitats, habitat restoration projects, species of special status, land cover, and human population for the profiled area.

Condition Profile
Ecological condition based on the California Rapid Assessment Method (CRAM) and California Stream Condition Index (CSCI) for the profiled area.

Connectivity Profile
Patch size distribution and nearest neighbor distance for different wetland types based on the California Aquatic Resource Inventory (CARI) for the profiled area.

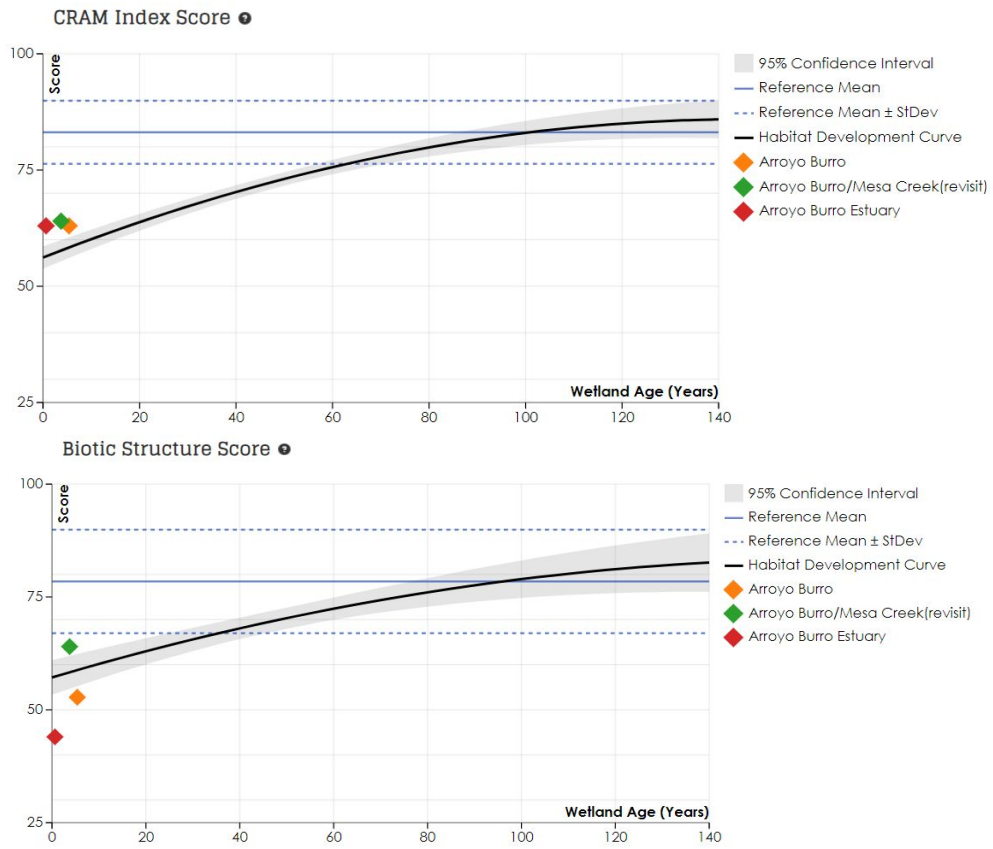
Coastal Habitat Profile
Baseline of coastal habitats used to track progress towards multiple targets identified in the Ocean Protection Council's Strategic Plan to protect California's coast and ocean.

One Water Watershed Profile
Progress of Valley Water's five objectives for long range integrated water resource planning on a watershed scale in Santa Clara County and its five major watershed areas.

Continue to Define Region

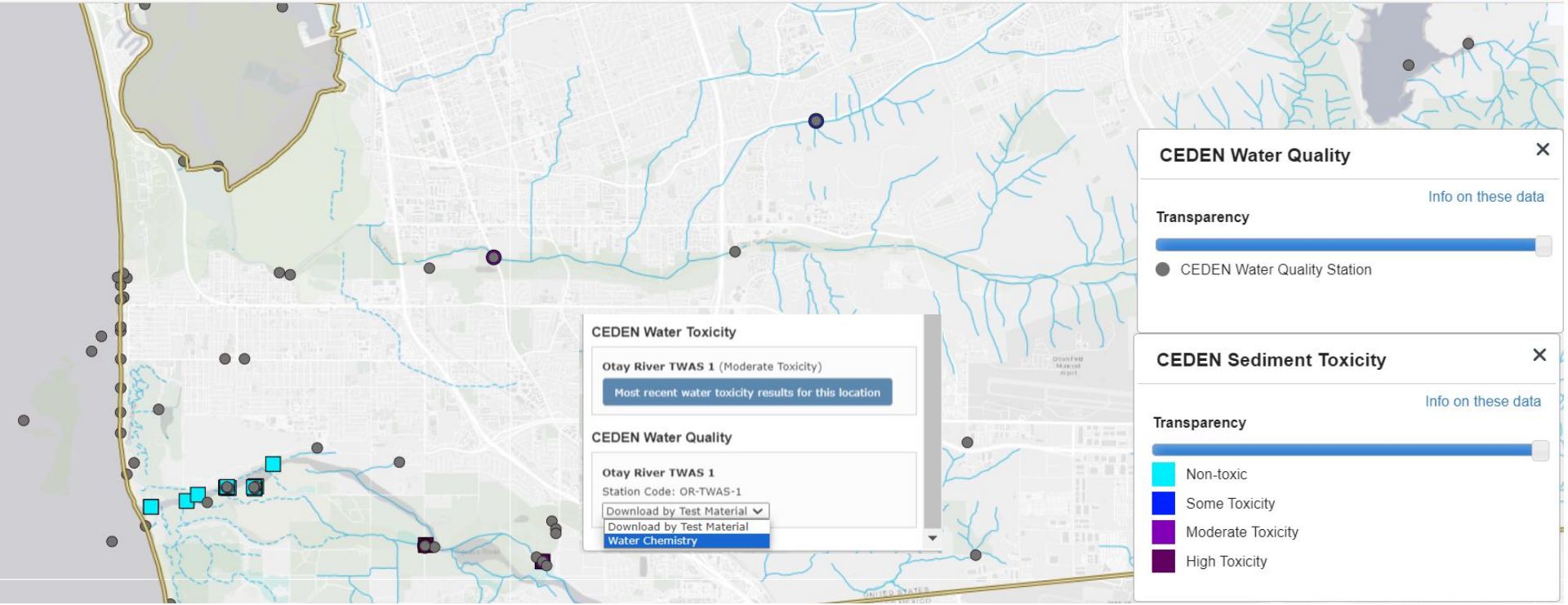
Track project performance

Using CRAM/Habitat Development Curves

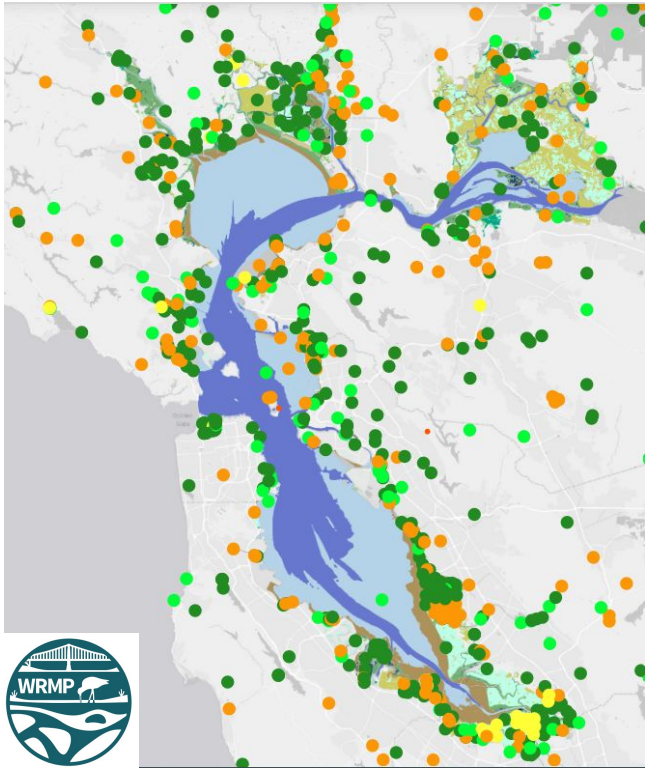


Access site-specific field measurements

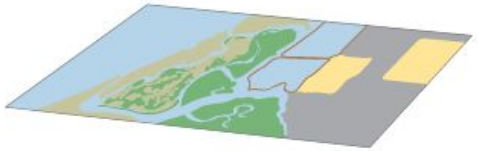
CEDEN water quality and toxicity data



Track change extent and progress towards **regional restoration goals**



Baylands Habitat Map



- water
- tidal wetland
- upland
- tidal flat
- agriculture
- levees

+

Project Tracker Tidal Wetland Restoration Map

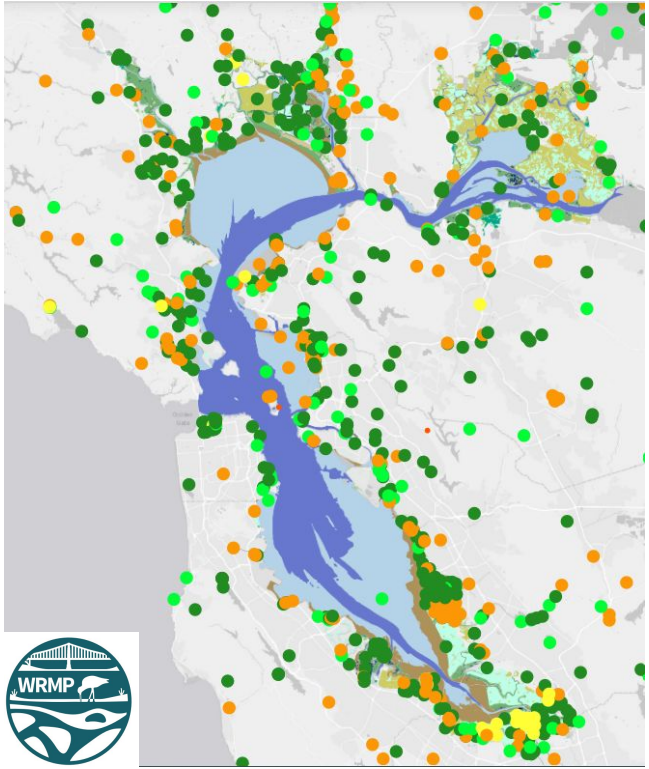
- in-progress restoration
- completed restoration activity

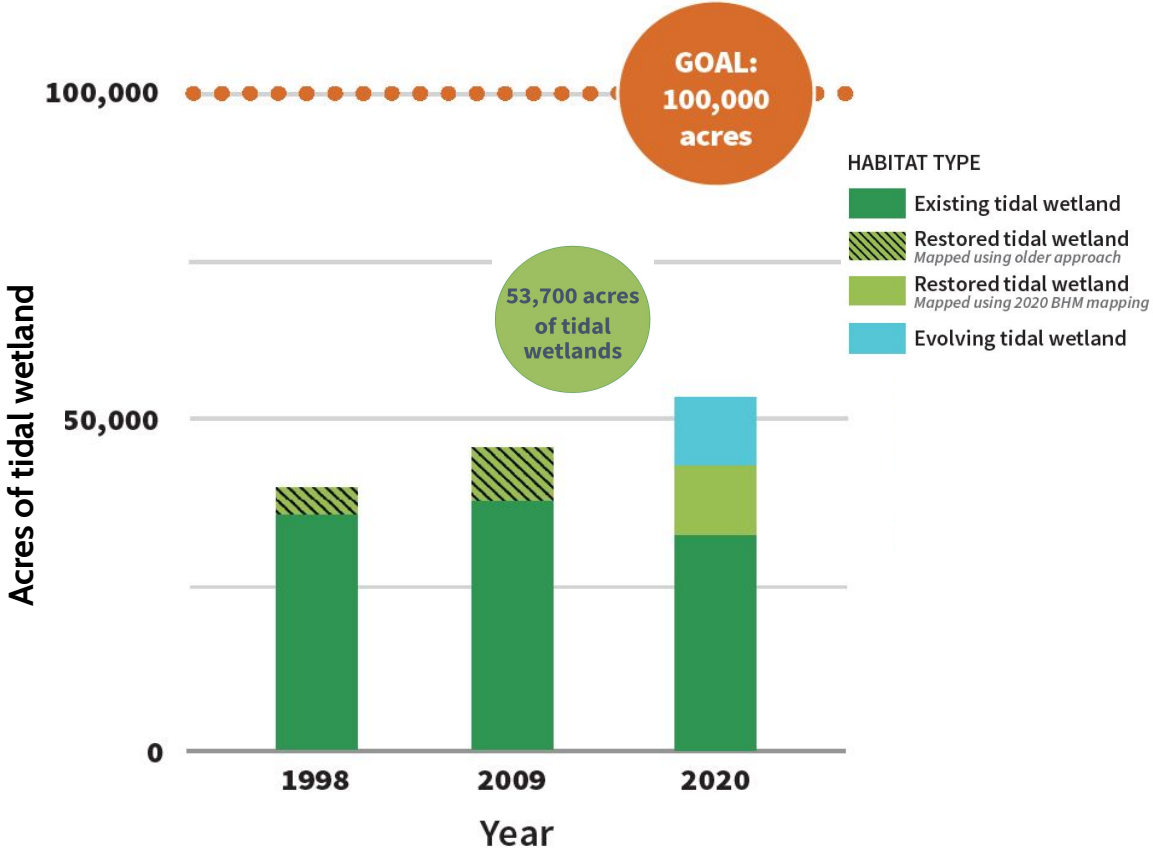
=

Tidal Wetland Extent & Restoration Progress

- existing tidal wetland
- restored tidal wetland
- evolving tidal wetland
- in-progress tidal wetland restoration
- other landcover types

Track change extent and progress towards **regional restoration goals**





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LEVEL 1 LANDSCAPE ASSESSMENT

C·A·R·I

PROJECT TRACKER

RIPZET

LEVEL 2 RAPID ASSESSMENT

CRAM

RipRAM

Riparian Rapid Assessment Method

LEVEL 3 INTENSIVE ASSESSMENT

CEDEN

SWAMP

Surface Water Ambient Monitoring Program

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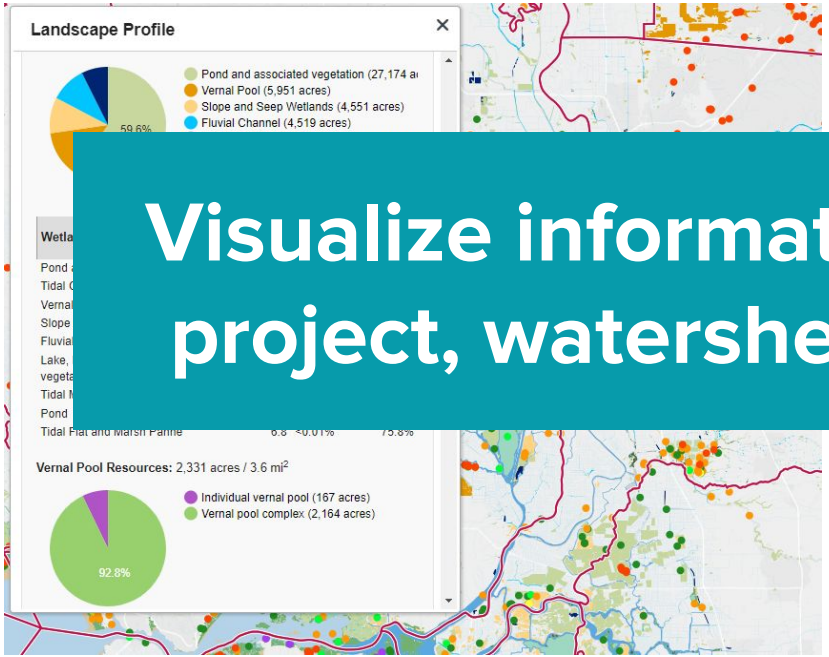

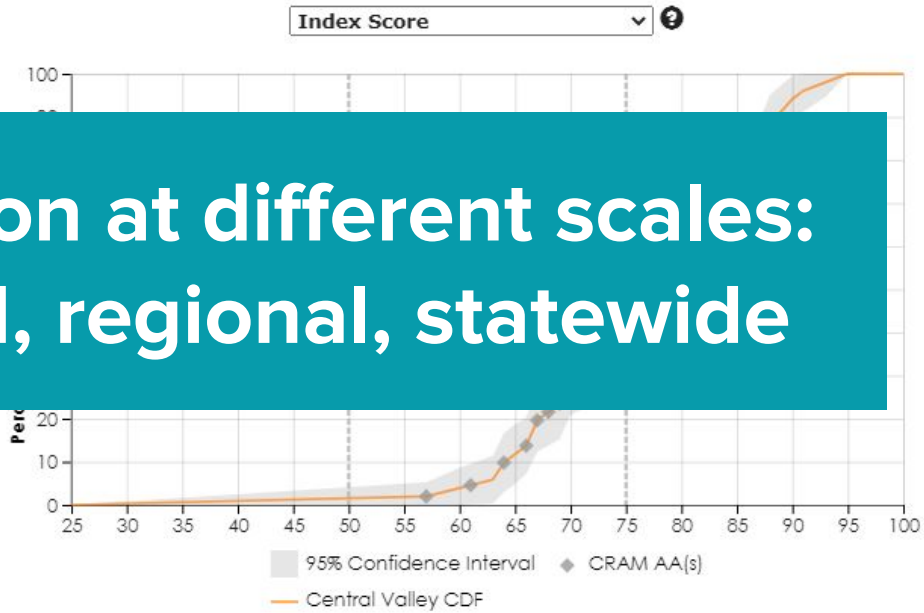

Visualize information at different scales: project, watershed, regional, statewide

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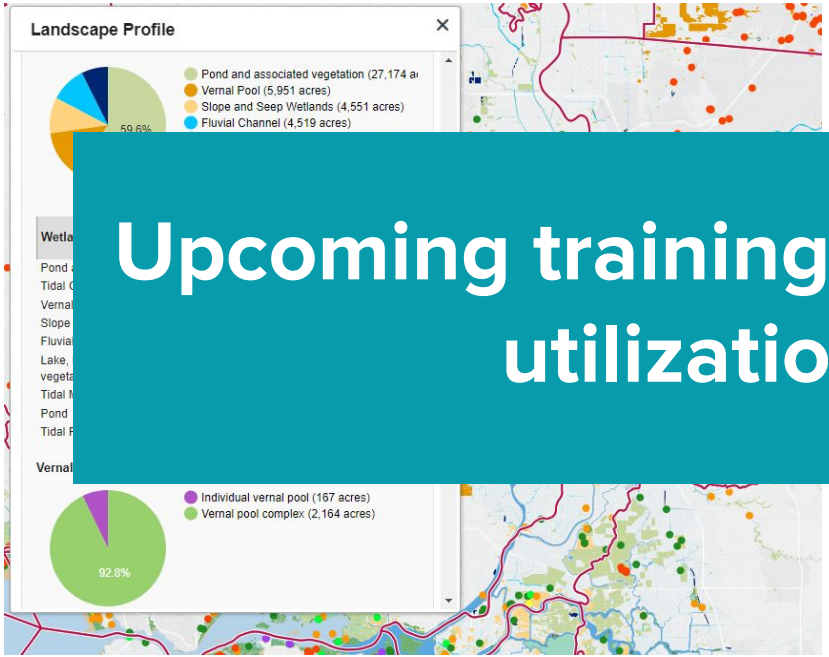

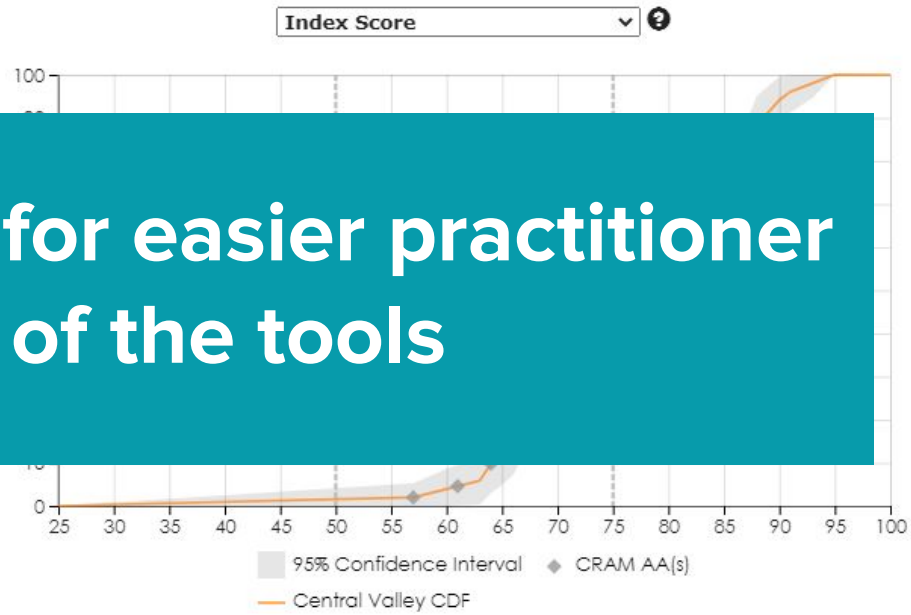

Upcoming trainings for easier practitioner utilization of the tools

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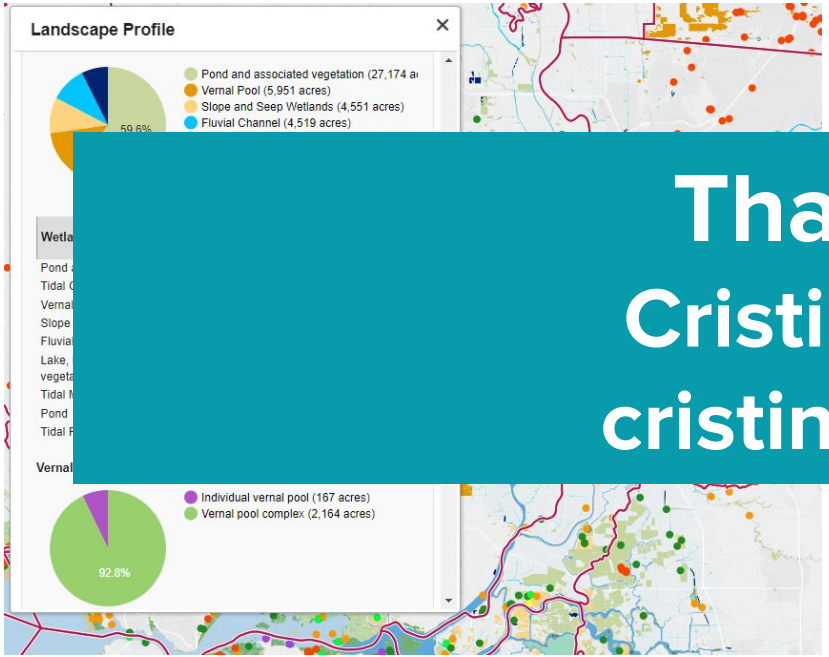

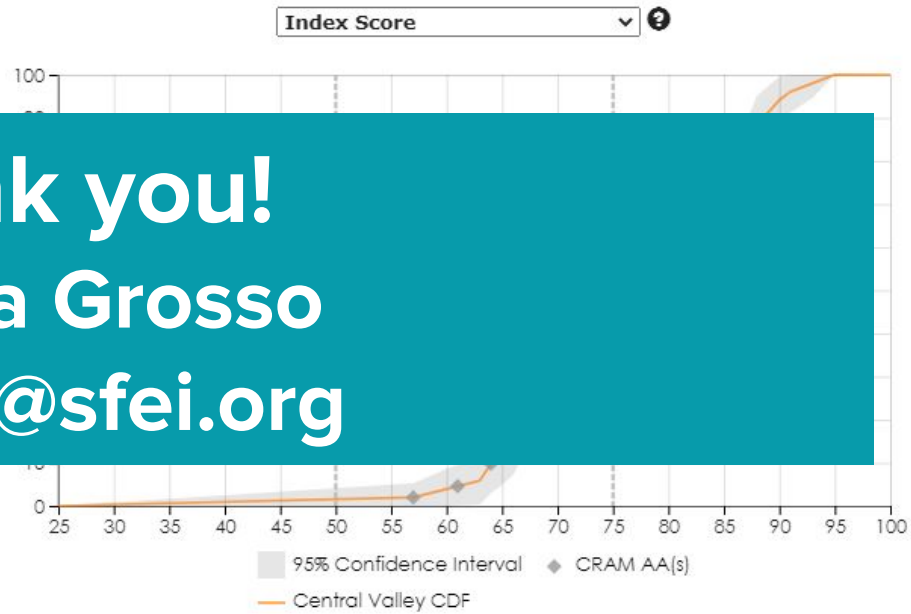

Thank you!

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