

FINAL

PHASE 2 DWR FLOOD PERFORMANCE TRACKING SYSTEM

User Guide

Prepared for
California Department of Water Resources

December 30, 2021



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Prepared for:

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PREFACE

The California Department of Water Resources (DWR) Division of Flood Management (DFM) and Division of Multi-Benefit Initiatives are developing an information tracking and data management system to support tracking the status and performance of the flood system via implementation of the Central Valley Flood Protection Plan (CVFPP), including the CVFPP's Conservation Strategy (Conservation Strategy) and the Flood System Status Report (FSSR). The DWR DFM Tracking System (tracking system) includes a data management tool (database) and an accompanying software application (user interface) and will focus on the CVFPP Systemwide Planning Area as its geographical extent.

Organization of the user guide

This User Guide is complemented by the *DWR Division of Flood Management Tracking System Summary Document* (April 2019). It provides the background and instructional information to support the primary users of the tracking system: DWR staff.

The first part of this guide provides an initial system description along with some background on the development of the system, including steps needed prior to users using the tracking system. For example, for data to be entered into the system, it must first be developed in a format in which the system can process the data as intended.

The remaining sections of the user guide include step-by-step instructions for how to use the tracking system, and, finally, a section on managing, updating, and maintaining the tracking system. A complete background on the development of the DWR DFM tracking system can be found in the Workplan (February 2018).

BEFORE USING THE TRACKING SYSTEM

Introduction and system description

The California Department of Water Resources (DWR) Division of Flood Management (DFM) and Division of Multi-Benefit Initiatives Flood Performance Tracking System (tracking system) supports DWR in documenting, tracking, and reporting progress on major components of the Central Valley Flood Protection Plan (CVFPP). For Phase 1 of this project, the system is designed to address performance tracking of the CVFPP outcomes, including: (1) the status and performance of flood system facilities;*¹ and (2) progress toward meeting the Conservation Strategy measurable objectives (the current means of tracking ecosystem vitality).* All management actions and flood projects occurring within the Systemwide Planning Area (SPA) that affect flood facilities (or the ecosystem, as related to Conservation Strategy measurable objectives) will be included in the tracking system and their influence on CVFPP outcomes assessable via queries and reporting.

What will the tracking system do and how will it operate?

The tracking system will track DWR’s progress over time toward key goals and objectives established in the CVFPP. Specifically, the tracking system will collect information about flood management, habitat restoration, and multi-benefit projects, and will track how those projects improve both flood control infrastructure (as identified in the FSSR) and the ecosystem. Users will be able to look at the Central Valley Flood “System” at any point in time and observe how it changes over time.

Condition and performance of flood facilities (Flood System Status Report)

The application will track all facilities information that was previously included in the 2011 FSSR and 2017 FSSR updates, including an overview of flood risk and conditions data for levees (such as the status of levee geometry, seepage, structural instability, erosion, settlement, penetrations, levee vegetation, rodent damage, and encroachments), channels (such as the status of channel conveyance capacity, channel vegetation, channel sedimentation), and flood control structures (such as the status of hydraulic structures, pumping plants, and bridges).

¹ An * indicates that this component is included as a module in this initial version of the system.

Conservation strategy measurable objectives

The application will: (1) document the contribution of flood projects and other actions toward the Conservation Strategy measurable objectives (CSMOs) over time; and, (2) monitor the near- and long-term ecosystem changes in the SPA (irrespective of flood projects) over time.

What will the system track?

Projects and management actions should be captured in the tracking system if they meet all of the following criteria:

- Occur in the SPA
- Have the ability to meaningfully contribute to the FSSR or CSMOs
- Have a project footprint of at least 0.5 acres in size each
- Are funded in part or in whole by the DWR Division of Flood Management and/or the Division of Multi-Benefit Initiatives.

The following project types and management actions will be captured:

- Flood-management improvements
- Multi-benefit projects
- Habitat restoration actions
- Mitigation-only projects²
- Levee restoration and rehabilitation

The following activities will **not** be captured in this version of the Tracking System³:

- Annual operations and maintenance outside of those reported in DWR annual inspections ratings are tracked through the DWR Flood Maintenance Office (FMO). The annual inspections ratings are captured in the FSSR updates.
- Levee repairs (e.g., the 2017 Storm Damage DWR Emergency Repairs). These are tracked separately by DWR FMO.
- Mitigation and monitoring reporting plan (MMRP) projects. As mentioned in the TO 33 Workplan (deliverable #2, February 2018, section 2.2.1) MMRP activities can be captured in a separate effort.

User interface

Tracking system users will access the application online and upload information through the DWR website at:

² Mitigation-only refers to projects that mitigate impacts on the landscape and contribute to the recovery of species and natural communities. This project type does not include MMRP projects, or mitigation banking projects.

³ Though these activities are not captured in Phase 1 of the tracking system, they may be considered for future updates as resources allow.

<https://Flood-Performance-Tracking.water.ca.gov>. Site and data administrators will also access the application through a modern web browser (i.e. Google Chrome, Microsoft Edge). At this phase, the application resides behind the DWR firewall so only DWR staff and credentialed contributors will have access to this application. DWR can choose to make this application publically accessible in a subsequent phase if there is interest in doing so.

Developing the data for your project

This system relies on spatial information to track the CSMOs and condition of the state’s flood facilities. Prior to entering project data, you must develop this project information in a shapefile format that can be used with geographical information system (GIS) software.

Creating the necessary shapefiles for your project will likely require the use of GIS software such as ESRI ArcGIS. You will need a polygon shapefile that represents the overall project footprint and additional shapefiles that represent *only the change* in each metric from the baseline conditions. For example, if your project includes existing riparian habitat and will be creating new, additional riparian habitat, only the area added by your project should be included in the shapefile for upload. This requires having the baseline conditions data for creating *only what will be a change* from baseline conditions. For reduction in an existing metric, such as riparian habitat removal, these should be mapped with a negative value.

A template for the necessary shapefiles is available to download from the DWR DFM Tracking System the Resources Page. You may then create your project shapefiles within this template and compress them into a .zip file for uploading in the data entry process. Your shapefiles must use this template (which contains a specific geometry type, naming convention, and symbology) in order for the system to track them. You will create a separate shapefile for every metric that changes. Table 1 lists the baseline metrics layers and their attributes. The structure for each layer you create must match that in the baseline metrics in order for the system to accept the shapefiles you upload.

**TABLE 1
BASELINE METRICS AND ATTRIBUTES**

Metric	GIS Layer	Field Name*	Secondary Field Name	Type	Units Field
Ecosystem					
Floodplain inundation	Ecosystem_Floodway_Major_River_Reach	Floodway		polygon	Acres
Floodplain inundation	Ecosystem_Floodway_Bypass_Transient_Storage	Floodway		polygon	Acres
Natural bank	Ecosystem_NaturalBank	BANK_TYPE		linear	Miles
River meander potential	Ecosystem_RiverMeander	Meander		polygon	Acres
SRA Cover	Ecosystem_SRA	SRA		linear	Miles
SRA Cover - Natural bank	Ecosystem_SRA	SRA_Nat			
Habitat - Riparian	Ecosystem_Habitat_Riparian	Riparian		polygon	Acres

**TABLE 1
BASELINE METRICS AND ATTRIBUTES**

Metric	GIS Layer	Field Name*	Secondary Field Name	Type	Units Field
Habitat - Marsh and wetlands	Ecosystem_Habitat_Wetlands	Wetlands		polygon	Acres
Stressors - Revetment	Ecosystem_Revetment	BANK_TYPE		linear	Miles
Stressors - Levees	Ecosystem_Stressors_LeveeLength	DWR_Desig		linear	Miles
Stressors - Fish passage barriers	Ecosystem_FishPassageBarriers	WebLegend		point	N/A
Stressors - Invasive plants	Ecosystem_Stressors_Invasives	Inv_List		polygon	Acres
Flood System Status					
Levees					
Overall Hazard Classification	FSS_Levees_OverallHazard	OverallRes	Program	linear	Miles
Geometry	FSS_Levees_Geometry	Geometry	Program	linear	Miles
Underseepage	FSS_Levees_Underseepage	Underseepa	Program	linear	Miles
Through Seepage	FSS_Levees_ThroughSeepage	ThroughSee	Program	linear	Miles
Structural instability	FSS_Levees_StructuralInstability	LandsideSI	Program	linear	Miles
Erosion	FSS_Levees_Erosion	Erosion	Program	linear	Miles
Settlement	FSS_Levees_Settlement	Rating		point	N/A
Penetrations	FSS_Levees_Penetration	N/A		point	N/A
Levee vegetation	FSS_Levees_LeveeVegetation	Rating		point	N/A
Burrowing animals	FSS_Levees_BurrowingAnimals	Persist	Program	linear	Miles
Encroachments	FSS_Levees_Erosion	Rating		point	N/A
Channels					
Conveyance capacity (rating)	FSS_Channels_ConveyanceCapacity	Chan_Statu		polygon	Acres
Channel vegetation	FSS_Channels_ChannelVegetation	Rating		point	N/A
Channel sedimentation	FSS_Channels_ChannelSediment	Rating		point	N/A
Structures					
Hydraulic - Structural inspection rating	FSS_Hydraulic_StructuralInspection	RatingSI		point	N/A
Hydraulic - Vegetation and obstruction rating	FSS_Hydraulic_VegetationObstruction	RatingVO		point	N/A
Hydraulic - encroachment inspection rating	FSS_Hydraulic_Encroachment	RatingEI		point	N/A
Pumping plant inspection rating	FSS_PumpingPlants_InspectionRating	RatingPP		point	N/A
Bridge condition	FSS_Bridges_Conditions	RatingBR		point	N/A

NOTE:

*Where Field Name = N/A, the layer itself serves as the metric.

Note about “negative” changes to CSMOs

New projects (e.g., levee improvement projects) are likely to have some negative impacts on the CSMOs. For example, improving or expanding the geometry of a levee may reduce floodplain or riparian habitat. These types of changes will be captured first in the development of GIS layers for a project. After a user submits their project shapefiles, the Data Stewardship Team will compare the project shapefiles to the baseline data to see where an increased levee footprint (or other action) affects the CSMOs. The Data Stewardship Team would then modify the base dataset accordingly. In an effort to capture progress toward the CSMO targets, negative values for a particular metric will not be counted in the accounting of the tracking system at this point.

USING THE TRACKING SYSTEM

Overview

Users will navigate to the application through the DWR landing page (Figure 1).

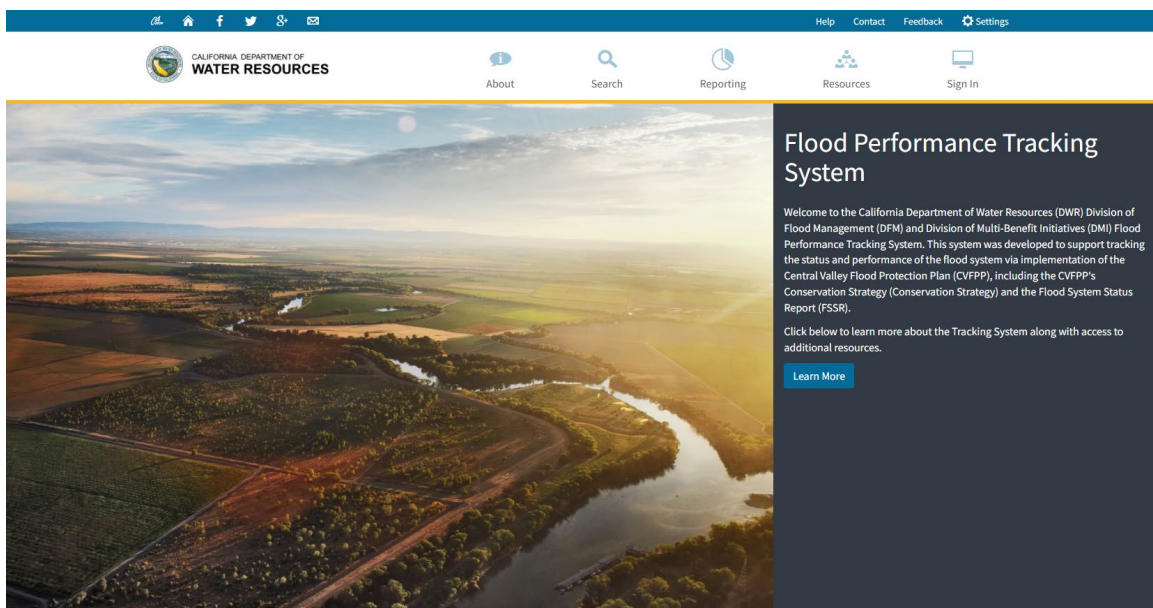


Figure 1. Tracking system landing page

At the landing page, users can initially choose from the following options, each of which are described in more detail in the following sections. Once a user is signed in with the appropriate authentication, they will see an additional option for “Enter Data.”

- About
- Sign in
- Search
- Reporting
- Resources

New user registration and sign in

New user registration

If you are a new user, you must send an email to the tracking system administrator and request a user name with a password. Click the Contact button to request.

Sign in

On the Secure Sign-In page (Figure 2), users must enter the email and password assigned to them during registration. Click “Sign In.”

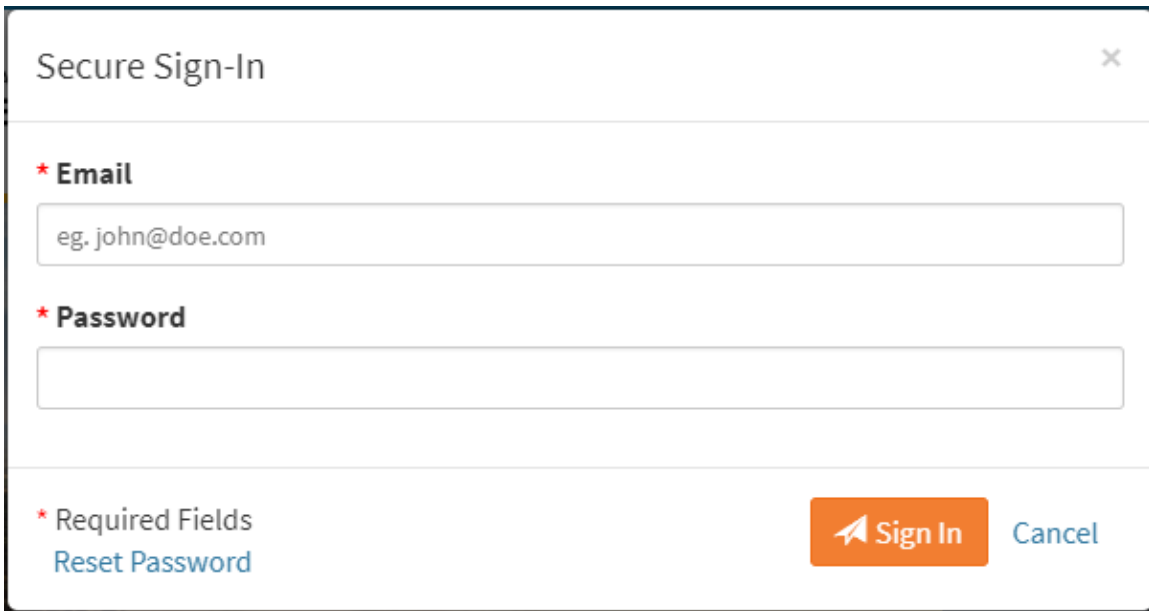

A screenshot of a 'Secure Sign-In' pop-up window. The window has a title bar with 'Secure Sign-In' and a close button (X). Below the title bar, there are two input fields. The first is labeled '* Email' and contains the placeholder text 'eg. john@doe.com'. The second is labeled '* Password' and is empty. At the bottom left, there is a link '* Required Fields' and a link 'Reset Password'. At the bottom right, there is an orange button with a white arrow and the text 'Sign In', and a blue text link 'Cancel'.

Figure 2. Sign-in pop-up

Reset password help

If you would like to change your password or reset it because you have forgotten it, click on the “Reset Password” link (see Figure 3). This will take you to the password reset page, where you must enter your email and your first and last name. Click “Submit.” You should then receive an email explaining how to reset your password.



The image shows a 'Secure Sign-In' form. It has a title bar with 'Secure Sign-In' and a close button. Below the title bar, there are two required fields: '* Email' and '* Password'. The email field contains the placeholder text 'eg. john@doe.com'. Below the password field, there is a link for '* Required Fields' and a 'Reset Password' link, which is circled in red. To the right of the 'Reset Password' link are two buttons: 'Sign In' (orange) and 'Cancel' (blue).

Figure 3. Reset password link

Authentication

All users who visit the tracking system will be able to view information, search, and query projects. Special authentication (Figure 4) is required for users who will perform the following activities:

- Enter project information
- Review project information (e.g., QA/QC, as data steward)
- Produce a report
- Download data, and upload or modify system-wide data
- Grant permission and access to additional users

The screenshot shows the 'Create User' page in the California Department of Water Resources tracking system. The page has a blue header with navigation links: Home, Create User, Search, Enter Data, QAQC, Reporting, Admin Tools, and Sign Out. The main content area is titled 'User Profile' and contains several required fields marked with an asterisk. The 'First Name' field contains 'John', 'Middle Name' contains 'Middle Name', and 'Last Name' contains 'Smith'. The 'Email' field contains 'johnsmith@water.ca.gov'. The 'User Roles' field is a dropdown menu with 'QAQC Editor' selected, and a list of other roles: 'Administrator' (highlighted in blue), 'Editor', and 'Viewer'. Below the roles, there are fields for 'Address' (1416 9th Street), 'City' (Sacramento), 'State' (CA), and 'Zip' (95814). There is also a 'Phone' field and an 'Agency' dropdown menu set to 'DWR'. A blue 'Create' button is located at the bottom left of the form.

Figure 4. Tracking system administrator will assign authentication

Data entry

Two primary types of data are needed to support the tracking system, as described in the companion Summary Report (April 2019). The first is the system-wide existing conditions information (geospatial), and the second is information about projects (geospatial, qualitative, and other) that the tracking system will track.

The system-wide data include all information available in the SPA, such as the inspection status or existing conditions of all levees, channels, and hydraulic structures for the FSSR and the presence of the CSMOs in the ecosystem, such as the amount of habitat, natural bank, floodplain area, etc. Only the DWR data steward/site administrator are permitted to upload or update baseline/existing conditions data.

As of the time of this printing, time step 0 - existing conditions data, have already been loaded into the tracking system by the system administrator and details on how to update it are provided in the section “Managing the tracking system.” Information on the source and date of the base data is provided later.

Project entry form

To enter project data, visit the landing page, click on “Enter Data” and then “Create new project.” If you are not yet signed in, the system will require you to sign in first.

Project information

Project data includes all types of information related to a particular project: physical attributes, geospatial attributes, and qualitative information. The appropriate project information required to complete a project entry form is described below.

Select project category and project type and enter project name

When users create a new project, they must select a project type from a drop-down menu (see Figure 5). Users can choose from multi-benefit and single-purpose projects.

The screenshot shows the 'Create new project' form. At the top, there is a navigation bar with the California Department of Water Resources logo and several menu items: About, Search, Enter Data, QAQC, Reporting, and Sign Out. Below the navigation bar, the breadcrumb trail shows 'Home > Enter Data'. The main heading is 'Create new project' with a pencil icon. Below the heading is a paragraph of instructions: 'Enter a new project into the Flood Management Tracking System. It is advised to have all project information available ahead of time, but is designed so users may save progress and add project details and data over multiple visits. When finished entering project details, click submit and your project will be queued for QA/QC review. Note: Only projects that have been QA/QC reviewed and approved will be visible in a search or query, or on a map.' The form contains two required fields: '* Project Type' with a dropdown menu showing 'Select an option...' and '* Project Name' with a text input field containing the placeholder 'Enter Project Name'. A blue 'Create' button is positioned below the 'Project Name' field. At the bottom of the page, there is a footer with links for 'Back to Top', 'Conditions of Use', 'Privacy Policy', 'Accessibility', and 'Contact Us', along with social media icons for Pinterest, Twitter, and YouTube, and a copyright notice: 'Copyright © 2019 State of California'.

Figure 5. Create a new project

Users must select the project *type* from a drop-down list (see Figure 6). For guidance in selecting the appropriate project type to match your project, Table 2, below, provides the options on the left, and a description or example of those project types on the right. In the application, users may hover the pointer over each project type to see the same description provided below. Because it is only possible to select one type from the drop-down menu, if your project does not easily fit into one of the categories and descriptions provided, or if your project contains multiple project types on the drop-down, then select “Other Project Type.”

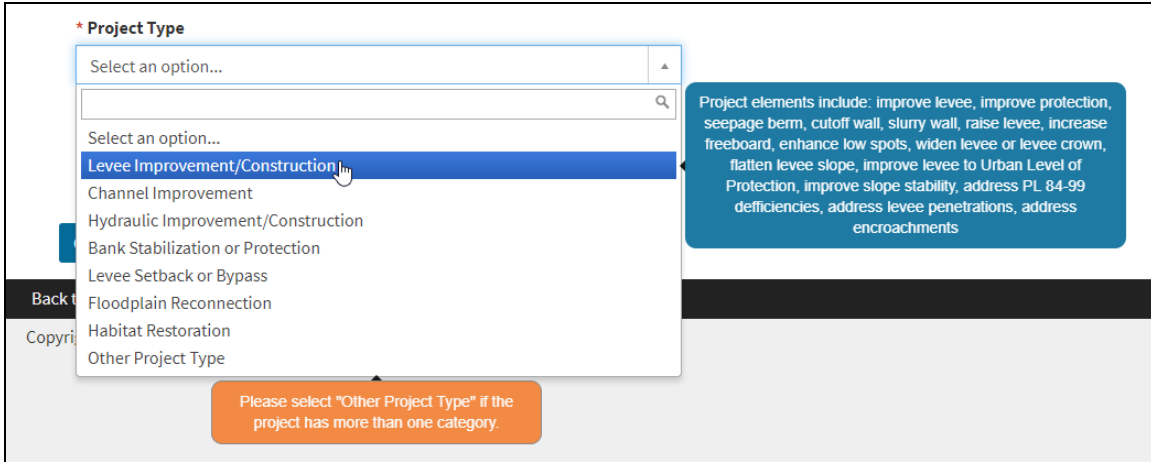


Figure 6. Select project type using the descriptions in the table

To reduce the number of data inputs for the user, this application was developed so that the project type you select will determine which (and how many) remaining questions you must answer; if some information is not relevant to a given project type, those questions will not appear. Selecting “Other Project Type” allows you the ability to enter information in all project categories.

TABLE 2
DESCRIPTIONS OF VARIOUS PROJECT TYPES AND MANAGEMENT ACTIONS

Project Type	Description
Levee improvement/construction	Project elements include: improve levee, improve protection, seepage berm, cutoff wall, slurry wall, raise levee, increase freeboard, enhance low spots, widen levee or levee crown, flatten levee slope, improve levee to Urban Level of Protection, improve slope stability, address PL 84-99 deficiencies, address levee penetrations, address encroachments
Channel improvement	Project elements include: remove vegetation, remove sediment, dredge, restore capacity, widen channel
Hydraulic improvement/construction	Project elements include: new pump, new intake, new bridge, new weir, upgrade pump station, backup fuel at pump stations, repair motor at pump station, raise bridge, replace bridge, new decking at bridge, repair canal, widen weir, inflow/outflow channel; raise structures, construct upstream reservoir, replace outfall gates, replace motor controls,
Bank stabilization or protection	Project elements include: erosion protection, add revetment, add riprap, add rock slope protection, build berm, flatten levee slope, levee reconstruction, settling basin enlargement
Levee setback or bypass	Project elements include: levee setback, levee shortening, new weir, widen bypass
Floodplain reconnection	Project elements include: excavate floodplain, lower floodplain, breach levee, notch weir, lower weir, transient/transitory floodwater storage
Habitat restoration	Project elements include: invasive species removal, plant riparian vegetation, shoreline plantings, plant vegetation on levee slopes, riparian restoration, wetland restoration, remove revetment, SRA, plantings in setback area
Other project type	Project elements include: remove fish barrier, increase reservoir height/capacity, <i>all other project types and elements not previously mentioned</i>

Table 3 identifies which metrics are likely to be affected by each project type. This table was used to determine which additional questions would be asked based on the project type selected.

TABLE 3
METRICS AFFECTED BY VARIOUS PROJECT TYPES AND MANAGEMENT ACTIONS

Project Type	Flood Control System Effects			Ecosystem Effects											
	Levee conditions	Channel conditions	Hydraulic structure conditions	Floodplain inundation	Natural bank	River meander potential	SRA cover-riparian-lined bank	SRA cover natural bank	Habitat riparian	Habitat marsh/wetlands	Stressors revetment	Stressors levees	Stressors fish barriers	Stressors invasive plants	Targeted Species
Levee improvement/construction	x			x	x	x	x	x	x	x		x			
Channel improvement		x		x	x	x	x	x	x	x	x			x	
Hydraulic improvement/construction			x	x	x				x	x	x		x		
Bank stabilization or protection	x	x			x	x	x	x	x	x	x				
Levee setback or bypass	x	x		x	x	x	x	x	x	x	x	x			
Floodplain reconnection				x	x	x	x	x	x	x	x	x	x		
Habitat Restoration	x	x			x	x	x	x	x	x	x			x	
Other project type	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Basic information

Enter organization name

First select your organization from the drop-down menu (see Figure 7). If you don't see your organization listed, then select "Other" and enter the name of your organization.

Enter your name and contact information

Enter your name, address, and contact phone number (Figure 7).

The screenshot shows the 'Basic Information' form in the California Department of Water Resources system. The sidebar on the left contains several menu items, with 'Basic' selected. The main content area is titled 'Basic Information' and includes a 'Required Field' indicator. The 'Organization' section has a dropdown menu with a search bar and a list of organizations, with 'AMEC Earth & Infrastructure, Inc.' highlighted. The 'Project Contact Address' section includes input fields for Street Address, City, State, Zip, and Phone.

Figure 7. Select organization name and enter contact information

Enter project purpose

Add a sentence that describes the primary purpose of this project. Consider purposes such as, but not limited to:

- Flood control
- Habitat restoration
- Recreational improvements
- Mitigation

Enter project summary

Use up to four sentences to describe the various components of your project. For example, include items such as the number, length, and type of levee improvements; the amount of habitats or natural banks that are being improved; the name of the weir or pump station that is being

improved; or what kind of fish passage barrier that is being removed. No need to make it complicated—a stranger should be able to read this project description and understand the key components of the project.

Is the project part of a larger program?

Your project may be part of a larger effort, such as Early Implementation Projects or the American River Common Features program. If your project is part of a larger program, select “Yes” and then select the appropriate program from the dropdown menu. Figure 8 shows the list of options, and this list will expand over time.

* Is this project part of a larger program?

Yes No

* If yes, what larger program?

Select an option...

Select an option...

EIP

UFRR

American River Common Features

Lower Feather River CMP

Other

Central Valley Tributaries Program

Delta Levees Maintenance Subventions Program

Delta Levees Special Flood Control Projects

Flood Control Subventions Program

Figure 8. Select whether the project is part of a larger program or effort

Upload photo

If available, upload a photo (jpeg, .gif, or .png) of the project or site improvement. This is not a mandatory field and is intended to provide future tracking system users with a visual idea of the project work that was completed.

Save progress and next page

Be sure to save your progress frequently so you can return to your project if interrupted. When you have entered all of the project information you wish to enter, press “Next Page.”

Project status page

On this page, you will indicate project status, schedule, and federal assurances information.

Project status

Select from the drop-down whether your project is in the preliminary (1) Planning phase, has been (2) Permitted but construction hasn't begun yet, is (3) In Construction, or is (4) Complete. Projects should be entered into the tracking system even if the footprint and project design are not finalized. Project designs and footprint (including shapefiles) can be modified at a future date.

Assurances

Enter "yes" or "no" as appropriate for whether your assurance for nonfederal cooperation have been acquired, and if the letter of assurances has been sent/received.

Completion date and project schedule

Select from the drop-down calendar the date of project completion, or, if not complete, the date you anticipate the project will be complete. Then upload the relevant project schedule if desired.

Project funding

On the Funding Source(s) page (see Figure 9), you will enter information about project costs, budget, and all funding sources used to pay for your project.

Estimated Project Cost Total and Budget

In the first box, enter the estimated project cost total. Then upload a file that contains the project budget.

Funding source(s)

Often projects are funded from multiple sources, including state money, local contributions, and federal or grant programs. Review the list of possible project funding sources. Check each box from which you have received monies for this project. After you check a box, indicate the dollar amount of funding that came from that source.

*** Funding Source(s) (Check all that apply)**

Add Search:

Funding Source	Other Source	Value	
FEMA Grant		\$1000000.00	Remove
Proposition 1			
Proposition 84			
DWR Special Projects	Local fundraising	\$0	Remove
EIP			
USACE		\$50000.00	Remove
FEMA Grant			
Local Contribution			
Other			
Proposition 1E			
Proposition 68			
WRDA			
General Fund			
Proposition 13			

Previous 1 Next

Save Progress
Next Page

Figure 9. Select funding source and enter amount of money from each source

Project details

Select project category and upload project footprint

As shown in Figure 10, select the project category that is most appropriate for your project from the drop-down menu. Then upload your project footprint. The footprint should be a shapefile compressed into a .zip folder.

Project Details

* Required Field

* **Project Category**

Select an option...
▼

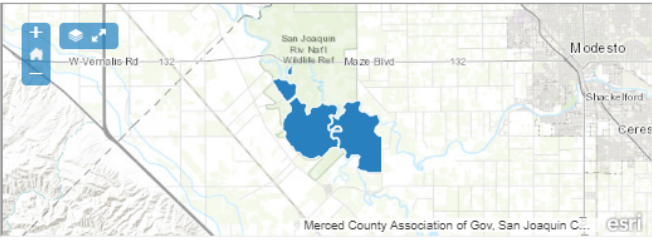
* **Upload zipped shapefile of project**

38.4 KB

DosRios3Ami...

Remove file

The Estimated Location will be calculated based on the shapefile's centroid.



Hide Map

Project Location (please provide centroid). Need help finding your coordinates? [Click Here](#)

* **Project Location - Water Body**

* **Project Location - Conservation Planning Area**

* **Project Location - RFMP**

* **Project Location - County**

Project Location - Local Maintenance Areas

Previous Page

Save Progress

Next Page

Figure 10. Project details information requirement

Project Location

Based on the uploaded .zip shapefile of the project footprint, the application will calculate the project location, Water Body(s), Conservation Planning Area(s), Regional Flood Maintenance Plan(s), , County(s), Local Maintaining Agency(s), Congressional District(s), Urban/Nonurban Delineation(s) and Disadvantaged Communities. Click “Save Progress” to save your project details before moving to the next page.

Project permits and mitigation

Programmatic permits

Some projects are covered under regional permits. If your project is part of a regional permitting program listed here, please check the appropriate box (Figure 11).

Central Valley Flood Protection Board Permit Number

Please enter the appropriate CVFPB encroachment permit number (Figure 11).

Existing or new mitigation credits

From the dropdown menu, select whether this project will use existing mitigation credits, or whether it creates new mitigation credits that can be used by others. If you select “use existing,” more boxes will appear. Use the arrow to toggle to the amount of credits that will be used by your project. Then enter the name of the mitigation bank (or source) that these mitigation credits belong to. Finally, select from the drop-down menu the mitigation type that was used by the existing mitigation credits (Figure 11).

Figure 11. Select programmatic permits, encroachment number, and specify mitigation credits

Upload shapefile of mitigation used

Using the template provided to you, upload the shapefile of mitigation required for the project as a .zip file. If you purchased mitigation credits, it is unlikely you would have a location already specified and, therefore, you would not have a shapefile. In this case, select the option “Purchased credits.”

Levee conditions

If your project made modifications to a levee, the “Levee Conditions” page (Figure 12) will appear. In order to track the improvements or deterioration of the SPFC infrastructure, it is important to capture how each project changes the condition of the levee system. In this section, you will upload the GIS shapefile of the levee segment that your project modified for every deficiency that was improved. If you have previously downloaded a GIS template in which to develop this shapefile, this is what you should upload.

Levee Conditions * Required Field

Change in Levees - Erosion - Upload zipped shapefile Template

Drop .zip shapefile here or click to upload.

Change in Levees - Overall Hazard Classification - Upload zipped shapefile Template

Drop .zip shapefile here or click to upload.

Change in Levees - Geometry - Upload zipped shapefile Template

Drop .zip shapefile here or click to upload.

Change in Levees - Underseepage - Upload zipped shapefile Template

Drop .zip shapefile here or click to upload.

Figure 12. Upload shapefile for each levee deficiency that is addressed with your project

Channel conditions

If your project type modified a channel in some way, the Channel Conditions page will appear. You must first check which channel deficiency (Figure 13) was improved by your project; select from channel capacity, channel vegetation, and/or sedimentation. For each box that you check, you must then upload the shapefile for your reach of channel. You will be required to upload one shapefile as a .zip file for each deficiency that was modified by your project.

Channel Conditions * Required Field

1 * Which channel deficiency was improved by this project?

Capacity Vegetation Sedimentation N/A

2 Channel Capacity - Upload shapefile

8.5 KB

DosRios3Ami...

Remove file

Previous Page Save Progress Next Page

Figure 13. Select channel deficiency and upload channel shapefile

Hydraulic structures

If your project improved a hydraulic structure or bridge, pumping plant, etc., this page will appear (Figure 14). You must then upload the shapefile (as a .zip) you developed using the template for the appropriate structure given your project. Only upload a shapefile for the appropriate structure, some are likely to remain empty.

Project Results - Structures * Required Field

If your project modified or improved a hydraulic structure, pumping plant, or bridge, please upload a shapefile for each structure that was improved.

Change in Hydraulic Structure - Structural - Upload zipped shapefile Template 

Drop .zip shapefile here or click to upload.

Change in Hydraulic Structure - Vegetation and Obstruction - Upload zipped shapefile Template 

Drop .zip shapefile here or click to upload.

Change in Hydraulic Structure - Encroachment - Upload zipped shapefile Template 

Drop .zip shapefile here or click to upload.

Change in Pumping Plant - Upload zipped shapefile Template 

Drop .zip shapefile here or click to upload.

Change in Structures - Bridge Conditions - Upload zipped shapefile Template 

Drop .zip shapefile here or click to upload.

Previous Page Save ProgressNext Page

Figure 14. Hydraulic structures information page

Ecosystem

In this section, we will capture how your project affects the conservation strategy measurable objectives. If uploading a floodplain reconnection or restoration project, enter the amount of Expected Annual Habitat (EAH) (if calculated). Then answer the subsequent questions as appropriate (Figure 15). Use the template previously downloaded and upload the various shapefiles as a .zip file.

Ecosystem
*** Required Field**

How many acres of floodplain are within the Expected Annual Habitat (EAH)? (optional)

Enter number

*** Will the project change the elevation of the floodplain to below 2-year floodwater level (50% FIP)?**

Yes No

If project increased floodplain, by what means did project expand floodplain (check all that apply)?

<input type="checkbox"/> Raising a River Bed	<input type="checkbox"/> Lowering Floodplain
<input type="checkbox"/> Remove Levee	<input type="checkbox"/> Setback Levee
<input type="checkbox"/> Breaching	<input type="checkbox"/> Other Reconnection

If project decreased floodplain, did project add a levee or structure to disconnect floodplain?

Yes No

Change in Fish Passage Barriers - Upload zipped shapefile Template ↕

Drop .zip shapefile here or click to upload.

Change in Habitat Area in Floodway - Riparian - Upload zipped shapefile Template ↕

Drop .zip shapefile here or click to upload.

Figure 15. Enter appropriate information for changes to the ecosystem measurable objectives

Submit your project

Be sure to submit your project. If any required fields are missing information, they will show up at this time (see Figure 16), and you will not be able to submit your project until they are complete. If you are not ready to submit your application, your progress will automatically be saved. When you finish, be sure to submit it.

The screenshot shows the 'Enter Data' interface for Habitat Restoration. A modal window titled 'Required Fields' is open, listing the following items that need to be completed:

- Last name
- Phone
- Completion Date
- Completion Date
- Have assurances for nonfederal cooperation been acquired?
- Has letter for assurances been sent/received?
- Project Status
- Estimated Project Cost Total
- Funding Source(s)
- Does project remove a facility from the State Plan of Flood Control?
- Project Category
- Water Body
- Conservation Planning Area
- RFMP
- Project shapefile (footprint) upload
- CVFPB Encroachment Permit Number
- Which channel deficiency was improved by this project?
- What was the dominant species that was removed?
- Which listed species is project designed to benefit? (Check all that apply)

The background form includes a 'Submit' button and a list of categories: Basic, Project Status, Project Funding, Project Details, Project Permits and Mitigation, Levee Conditions (checked), Channel Conditions, and Ecosystem. The form also displays project details such as Project ID (421), Project Name (College of Environmental Design; University of California, Berkeley), and Project Contact Address (230 Wurster Hall, Berkeley).

Figure 16. If project entry is incomplete, a list of missing information will pop up after clicking “Submit”

Query and search for information

Information entered into the tracking system can be viewed, queried, and displayed only after the data steward has reviewed the project that was entered and QA/QCs it for submission.

From the Home landing page, select the Search page to search for projects, review baseline data, and perform other queries.

Search for a project by a range of parameters

Searching for projects is possible by selecting from a number (or all) of parameters including: Keyword (item 1), by project type (item 2); by Conservation Planning Area (item 3); by River/Waterbody (item 4); by County (item 5); by Local Maintenance Area (item 6); by Regional Flood Maintenance Plan (RFMP) (item 7); by Congressional District (item 8); and by Legislative District (item 9). To aid in selecting the appropriate value for each filter, for example RFMPs, the range of values are displayed, as shown in Figure 17, when clicking one of the options in the box.

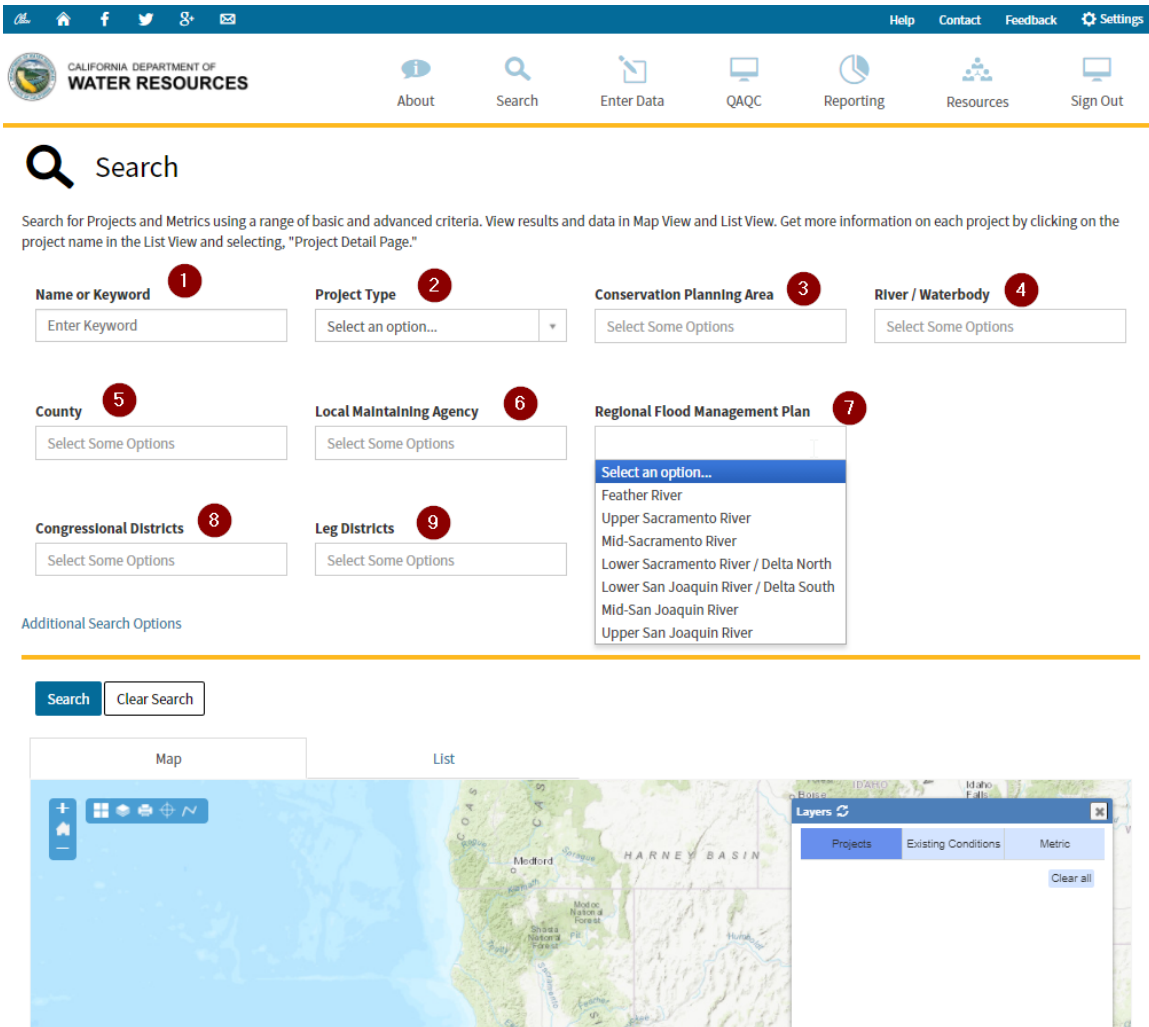


Figure 17. Basic options to search by a range of parameters

Advanced search

By clicking “Additional Search Options” as shown in Figure 18, you may now search for projects using additional parameters, including: project name (enter the text), regional flood management plan area (select from a drop-down menu), funding source (select from a drop-down menu), by a metric that was created during the project (select from a drop-down menu), from a date range (enter date), by location (type a name), and by Central Valley Flood Protection Board Permit

Number (enter the number). In any of these cases, once you select your search parameters, click the “search” button.

Search

Search for Projects and Metrics using a range of basic and advanced criteria. View results and data in Map View and List View. Get more information on each project by clicking on the project name in the List View and selecting, “Project Detail Page.”

Name or Keyword <input type="text" value="Enter Keyword"/>	Project Type <input type="text" value="Select an option..."/>	Conservation Planning Area <input type="text" value="Select Some Options"/>	River / Waterbody <input type="text" value="Select Some Options"/>
County <input type="text" value="Select Some Options"/>	Local Maintaining Agency <input type="text" value="Select Some Options"/>	Regional Flood Management Plan <input type="text" value="Select Some Options"/>	
Congressional Districts <input type="text" value="Select Some Options"/>	Leg Districts <input type="text" value="Select Some Options"/>		

Additional Search Options 1

Project Name <input type="text" value="Enter Name"/>	Funding Source <input type="text" value="Select an option..."/>		
Metric <input type="text" value="Select an option..."/>	Characteristic <input type="text" value="Select an option..."/>	From <input type="text"/>	To <input type="text"/>
Project Status <input type="text" value="Select an option..."/>	Date Range <input type="text" value="2010"/>	CVPFB Permit Number <input type="text" value="Enter Number"/>	

Figure 18. Advanced search options provide additional parameters for search

View search results on a map and list

The map will then display all projects that meet the search parameters and you may zoom in or out to view the project (Figure 19).

You may also view these projects in a list by clicking the “list” option (Figure 20). This also displays the project development phase.

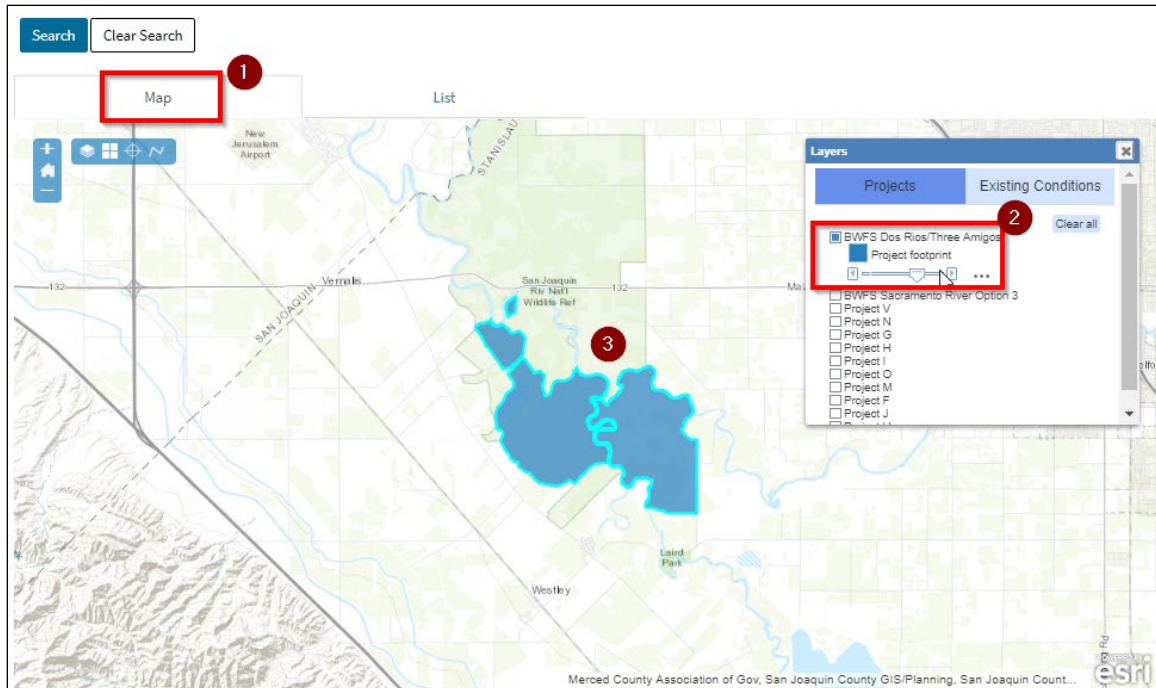


Figure 19. View search results on map

Search Clear Search

Map List

Search:

	Name	Status
+	Agricultural Road Crossing 4 Fish Passage	Planning
+	Arroyo Canal Screening and Sack Dam Passage	Planning
+	Dos Rios Ranch Floodplain Expansion and Ecosystem Restoration Project	Complete
+	Eastside Bypass Improvements	Permitted
+	Fremont Weir Adult Fish Passage	Complete
+	Kopta Slough Flood Damage Reduction & Habitat Restoration	Planning
+	Lookout Slough Tidal Habitat Restoration and Flood Improvement	Permitted
+	Lower Elkhorn Basin Levee Setback Project	In Construction
+	Mendota Pool Bypass and Reach 2B Improvements	In Construction
+	Oroville Wildlife Area Flood Stage Reduction	Complete
+	Tisdale Weir Rehabilitation and Fish Passage	Planning
+	TRLIA Feather River Setback Conservation Bank	Complete
+	Yolo Bypass Salmonid Habitat Restoration and Fish Passage	Planning

Showing 1 to 13 of 13 entries Previous 1 Next

Figure 20. View search results in list

View project details

To get more information about a project, select the project from the list or the map, and click on the “+” symbol to expand it. Then click “Project Detail Page” (Figure 21).

Search Clear Search

Map List

		Search: <input type="text"/>
	Name	Status
+	Agricultural Road Crossing 4 Fish Passage	Planning
+	Arroyo Canal Screening and Sack Dam Passage	Planning
-	Dos Rios Ranch Floodplain Expansion and Ecosystem Restoration Project	Complete
Project Title: Dos Rios Ranch Floodplain Expansion and Ecosystem Restoration Project Project Status: Complete <input type="button" value="Project Detail Page"/> <input type="button" value="Download Project Shapefiles"/>		
+	Eastside Bypass Improvements	Permitted
+	Fremont Weir Adult Fish Passage	Complete

Figure 21. Expand project to view project details

Project Detail page

On the Project Detail page (Figure 22), you can review a description of the project, the agency or project contact responsible for implementation, a map of the project, and the metrics that were changed by this project. If a project photo was uploaded during the project data entry process, then a photo will display on this page as well. You also have the option to return to search results.

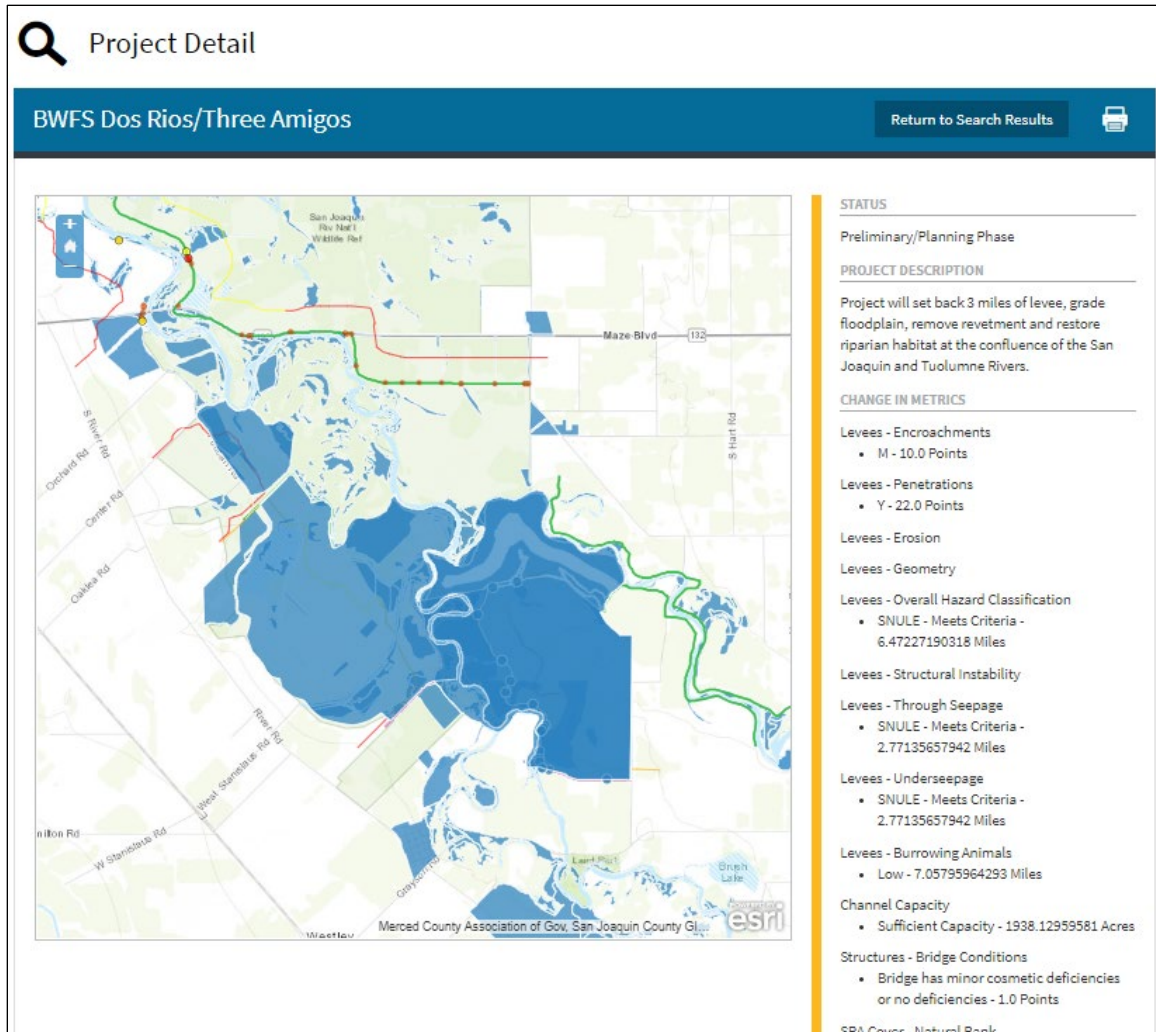


Figure 22. View project detail page

Mapping functions

The map will show the existing conditions information as recent as the last update. For example, you may not see your project on the map immediately after you upload it. But as soon as the DWR data steward validates and confirms your project, they will upload it and the results should be visible on the map. You can choose which layers you want to see using the check boxes next to each layer in the “Layers” pop out (Figure 23). In addition, all projects that have been approved and QA/QC’d will be available to view on the map.

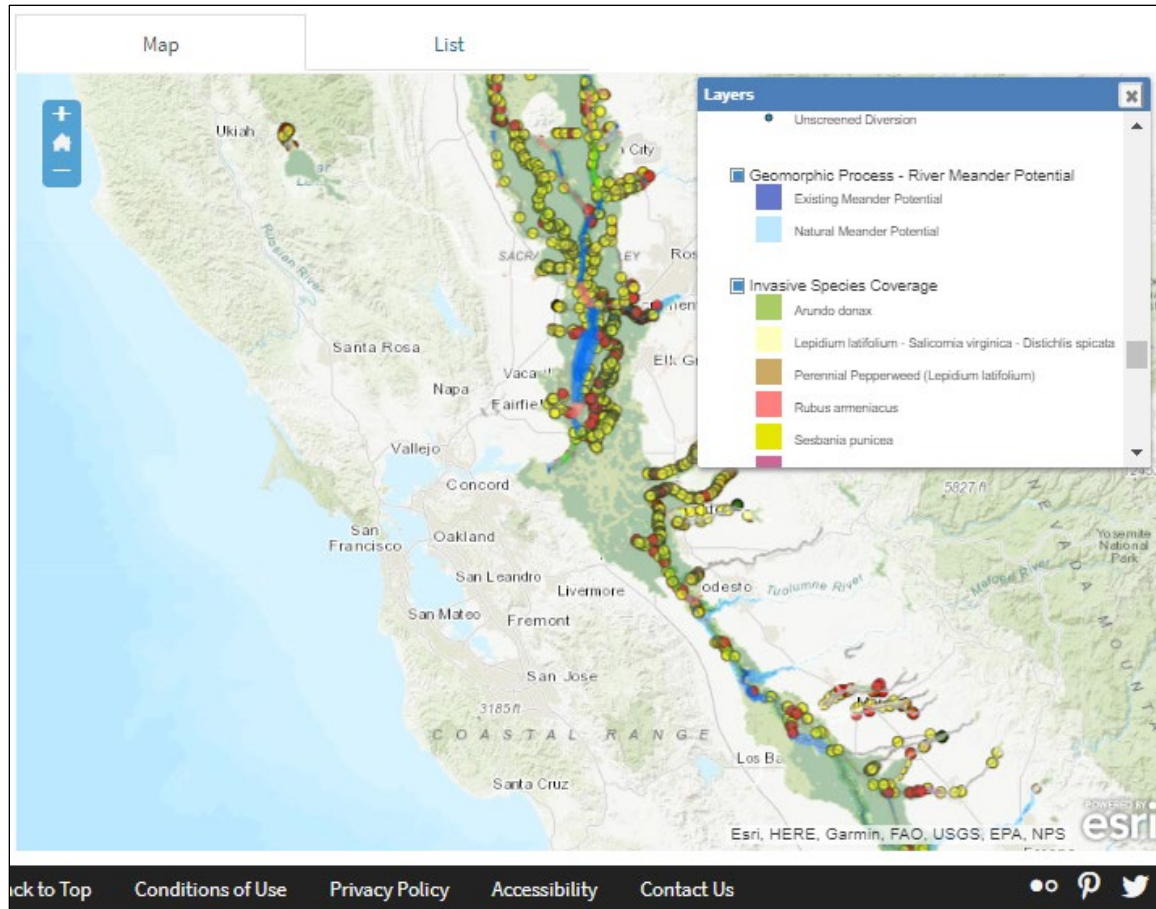


Figure 23. “Layers” box enables you to scroll and select which metrics you would like to view

Produce a report

The Reporting landing page (Figure 24) can be accessed from the primary landing page. Here you may opt to create reports on the flood system status, progress, and targets; you could view reports related to project funding; and you may view “other” reports. At this time, “other” is a placeholder for any future reports that may be developed.

Produce a report

Home | Reporting

Reporting

View the status and trends of a flood system or conservation strategy measurable objective metric for a given time period or geographic extent in the Central Valley. Explore financial investments by project type, status, or funding source.

Status, Progress, and Targets
Review flood infrastructure and habitat status. Investigate project benefits and progress toward goals.

Funding and Financial
View basic information on the costs and funding sources of projects in the Central Valley.

Other Reports
Coming soon

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Figure 24. Reporting landing page allows users to select from different report types

Status, progress, and targets reports

Select an ecosystem metric from the dashboard

On this page, you are presented with three tabs—Ecosystem, Levees, and Channels & Structures. On each tab, as shown in Figure 25, each metric is identified with a corresponding icon. Selecting that metric allows you to generate a specific report for that metric.

Status, Progress, and Targets

Review flood infrastructure and habitat status. Investigate project benefits and progress toward goals.

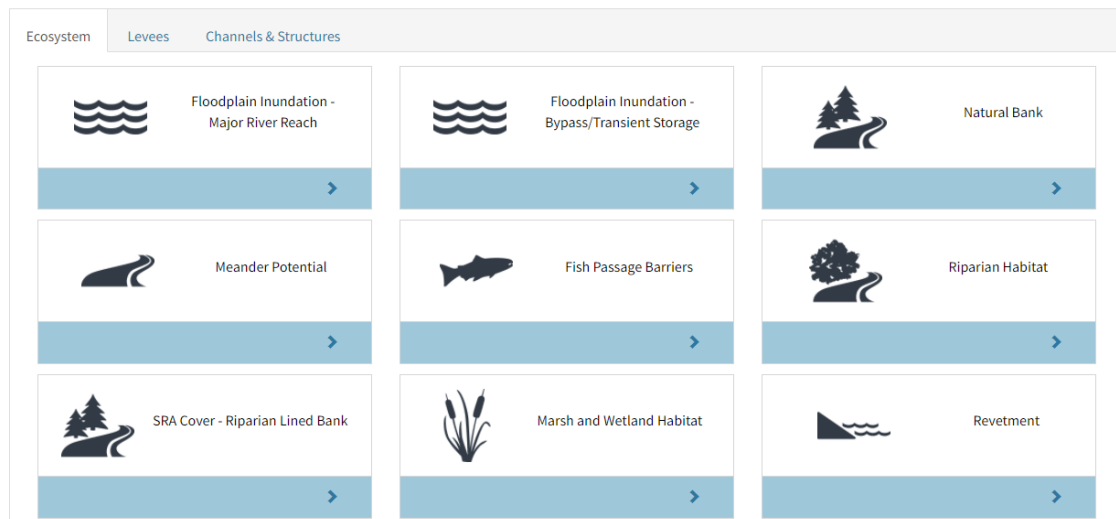


Figure 25. Choose from ecosystem metrics, levees, or channels and structures

Select a Conservation Planning Area and project status, and choose a date range

On the Selection pane on the left-hand side (Figure 26), you will first use the drop-down menu to select which of the five Conservation Planning Areas (or the whole Systemwide Planning Area) you would like a report on for this metric. You can also select by RFMP, County, Urban/Non-Urban Delineations or Disadvantaged Communities. Then select whether you want a report on only completed projects or on projects in another phase. The default is completed projects. Finally, use the slider bar to select the date range to see the amount of that metric (e.g., floodplain) that was created through projects during that period.

Figure 26. Use the drop-down menu to select the appropriate reporting parameters

View results numerically and on a map

The results of that query, including the total amount of that metric created, is shown in the Results box. In addition, the map to the right shows the total of amount and location of the metric that was created in the query. A large number in **bold** displays the calculation of the total amount of the metric compared to the target for that metric set in the 2016 Draft Conservation Strategy (Figure 27).

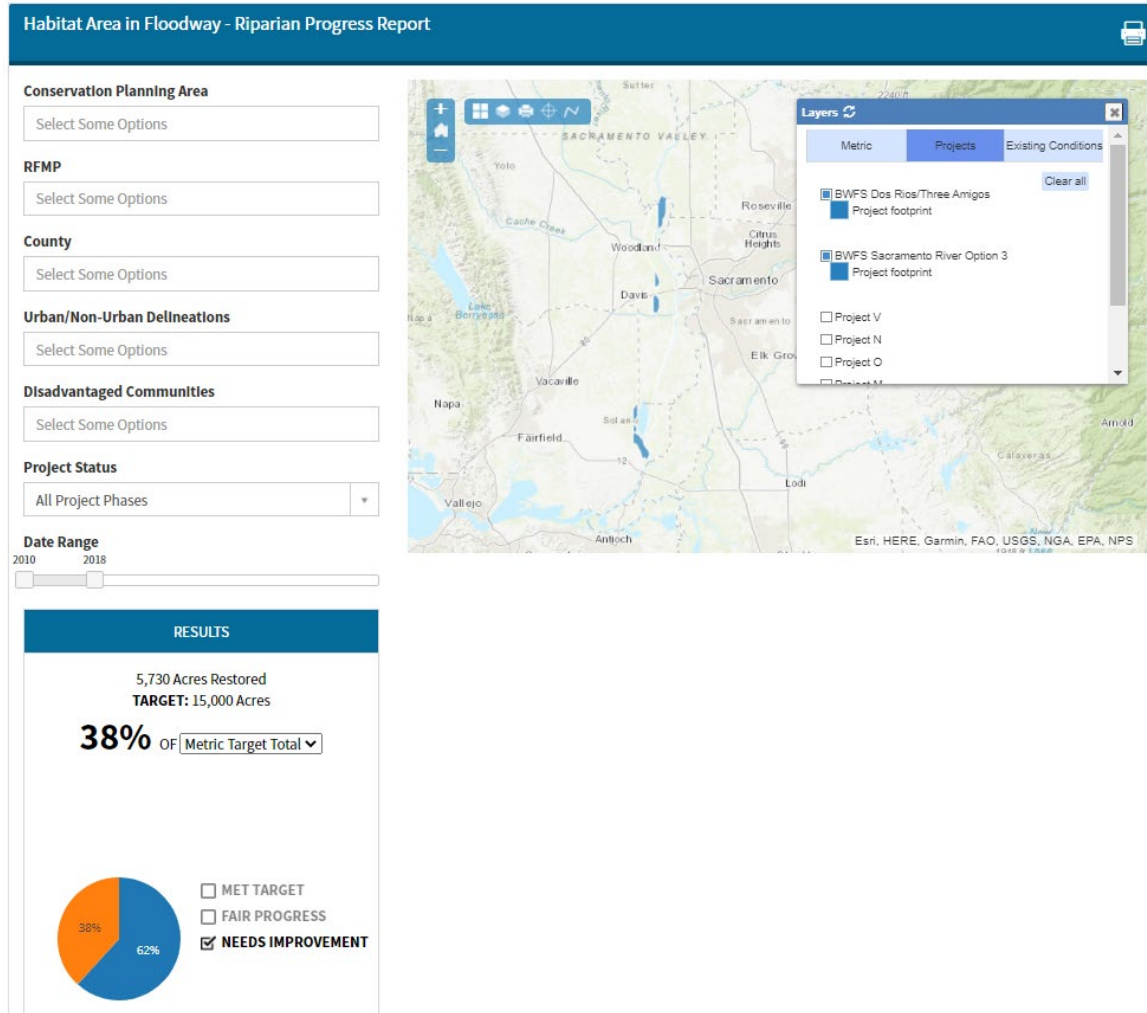


Figure 27. Report shows progress toward conservation targets and the presence of metrics on the map

The circle will be green if the progress is 70 percent of target or greater, indicating “Met Target” or “Making good progress.” The circle will be orange if the progress is between 50 percent and 70 percent, and red if progress is 50 percent or less.

Display results over time and view the projects that are accounted for in this report

At the bottom of the page is a graph that shows the total amount of that metric restored on the vertical y-axis, and the time period on the horizontal or x-axis (Figure 28). The bar is divided by Conservation Planning Area, so it displays the total amount of metric restored, and the different

shades are portioned to the amount restored in each Conservation Planning Area. Below that is a list of all the projects included in the report. You may click on the projects for more information.

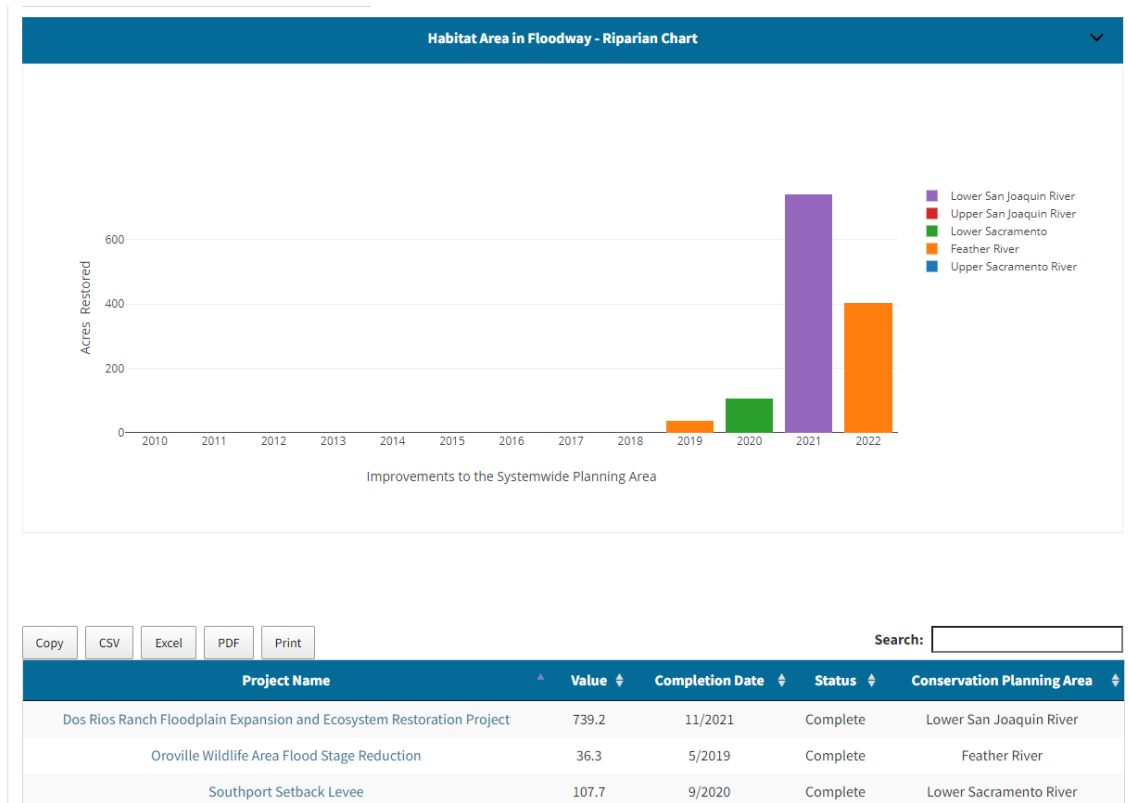


Figure 28. View progress over time by Conservation Planning Area and the projects included in the report

Export results

To export your results, click the camera icon as shown in Figure 29 to download as a .png.

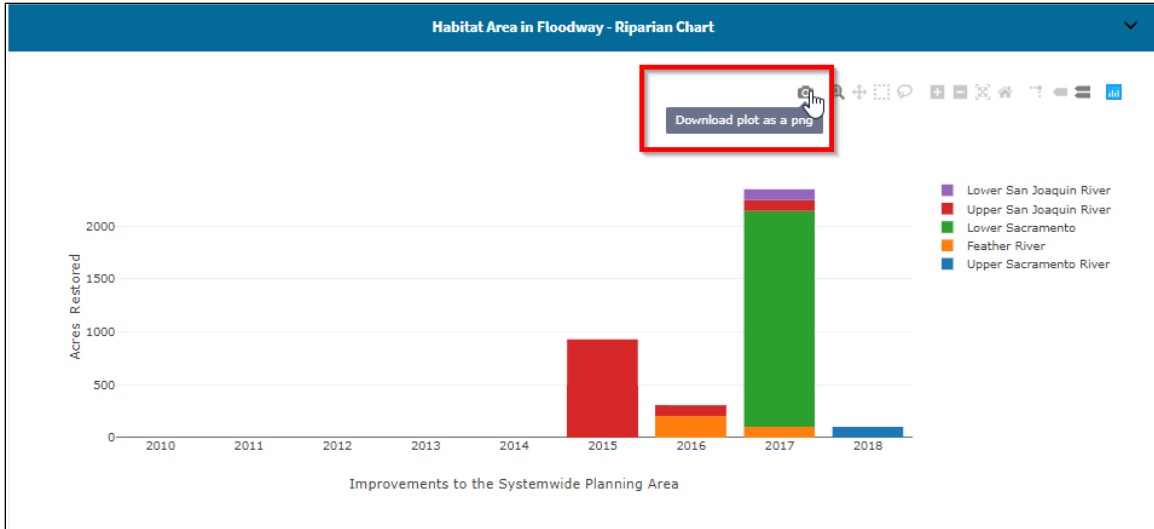


Figure 29. Export results using camera icon

Select levee metrics from the Status, Progress, and Targets page

Selecting a levee metric brings you to the Levees dashboard (Figure 30) with icons for all levee deficiencies that are tracked and reported in the FSSR.

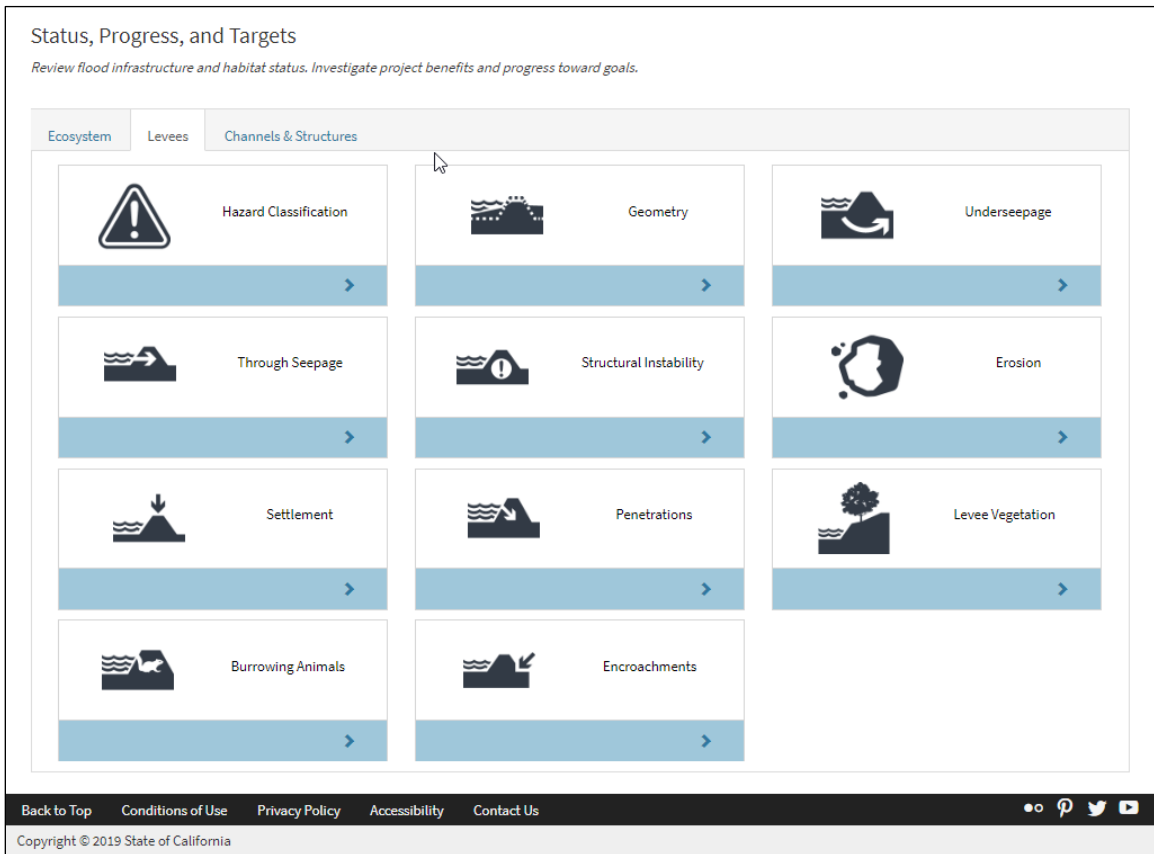


Figure 30. Levee metrics on Status, Progress, and Targets Reporting page

You will then select for the desired Conservation Planning Area and date range as in the prior instructions.

View results in a table and on a map

On the right, the map will show all those segments of levees that were improved to meet criteria over the date range selected. As with the ecosystem reports, first select the Conservation Planning Area, project phase, and date range (Figure 31).

The table at the bottom of the page displays the total amount of levees that meet the state’s inspection criteria (within the parameters chosen), the length of levees that was improved in the given time range, the cost of improvements, and the average cost of levee improvement. A list of projects accounted for in the report will also appear at the bottom of the page.

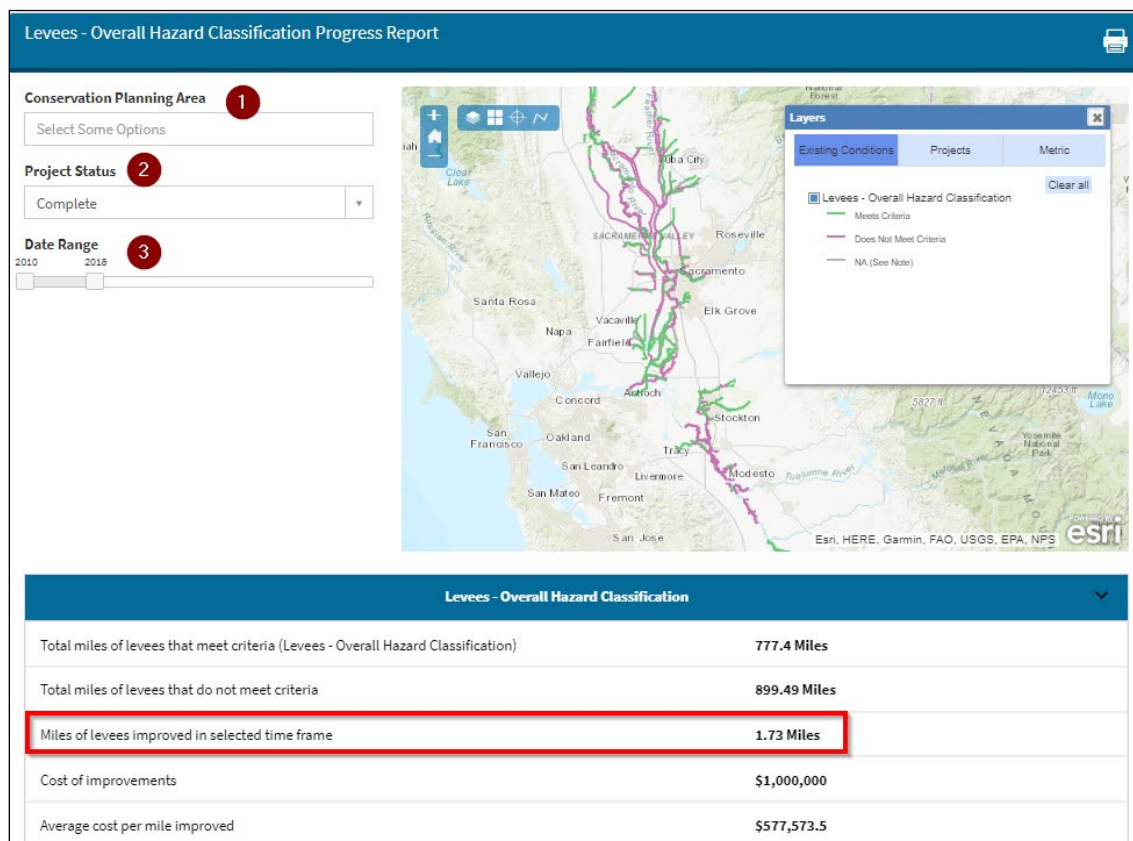


Figure 31. Levees report

Funding and financial reports

To date, there is one primary report available related to the funding used to implement flood system projects. To create a financial report, users must start from the Reporting landing page (Figure 32) again by clicking “Reporting” and then select the link with the “\$” icon labeled “Funding and Financial.”

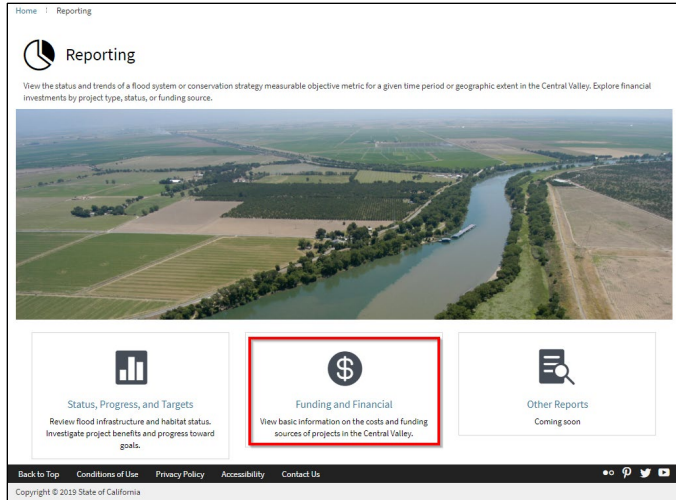


Figure 32. Reporting page – Funding and Financial page selection

Once a user has arrived at the Funding and Financial page (Figure 33), they may select from the drop-downs to choose a particular project or management action type (item 1), project status (item 2), conservation planning area (item 3), funding source (item 4), and date range (item 5) to see how much money was spent according to those criteria. Figure 38 and Figure 39 show example results that will be displayed in both a histogram and a pie chart. The histogram shows the amount of money that was spent on that particular project type based on the funding source. The pie chart captures the percentage of the total funding that was contributed by each funding source.



Figure 33. Users can see the amount of money spent on projects based on project type, project status, the region, and the funding source

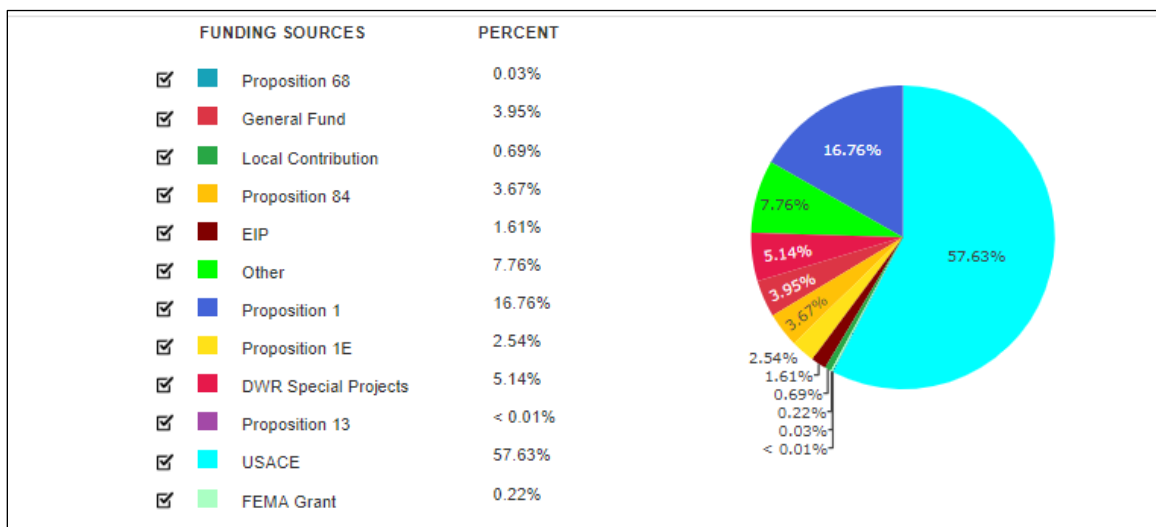


Figure 34. A pie chart displays the proportion of funding spent by each source

Finally, Figure 35 displays a list of all projects that are accounted for in the funding report that was just generated.

Project Name	Amount Funded	Source	Completion Date	Project Type	Project Status	Conservation Planning Area
Project B	\$10,000	FEMA Grant	10/5/2018	Channel Improvement	Complete	Upper Sacramento River
Project E	\$10,000	Proposition 1E	10/5/2018	Channel Improvement	Complete	Feather River
Project I	\$4,666	DWR Special Projects	12/10/2015	Channel Improvement	Complete	Lower San Joaquin
Project I	\$3,444	Proposition 84	12/10/2015	Channel Improvement	Complete	Lower San Joaquin
Project I	\$40	Other	12/10/2015	Channel Improvement	Complete	Lower San Joaquin
Project J	\$45,000	USACE	8/3/2017	Channel Improvement	Complete	Upper San Joaquin
Project J	\$35,000	FEMA Grant	8/3/2017	Channel Improvement	Complete	Upper San Joaquin
Total:	\$108,150					

Showing 1 to 7 of 7 entries Previous **1** Next

Figure 35. A list at the bottom of the page displays all of the projects that are factored into the results including the total for all projects.

FREQUENTLY ASKED QUESTIONS

What are the requirements, incentives, and/or triggers for projects being included in the tracking system?

Within DWR, any applicant seeking grant or local assistance funding from its programs should be required to submit GIS data for their project. With projects implemented by other agencies, someone within DWR may be tasked with coordinating with other agencies, and then tracking down GIS files for those projects.

At what phase in project development should a project be uploaded to the tracking system?

Projects should be entered no later than when permit authorization requests/applications are complete, typically at the 65% design phase. Projects *could* be uploaded as early as immediately after state funding notifications. Uploaded projects must input one of four status categories:

- Planning
- Permitted
- In construction
- Complete

The system is designed such that projects uploaded early in the process can be edited as the project evolves or is implemented, reflecting any differences on the ground.

At what phase in project development should project benefits be shown/realized in the tracking system relative to progress to targets?

One-hundred-percent completed projects that have been QA/QC'd by a data steward will be reported as counting toward overall CVFPP goals and objectives. Completed projects are defined as 100 percent complete when construction is complete (i.e., all benefits are on the ground).

The system is configured for query and reporting of projects and benefits that are in one of the other three phases (preliminary/planning; permitted; in construction); however, the default in reporting will show only those that are complete.

How frequently should the queue of uploaded projects be reviewed and posted by the Data Stewardship Team?

Quarterly review and posting would be appropriate; however, the Data Stewardship Team can review and post more frequently if directed. More frequent updates may be particularly important if knowing the running total of, for example, recently funded yet still-to-be-constructed projects (which would only be in preliminary/planning phase) is desired to understand the spectrum of project types as funding is allocated.

How/when should Expected Annual Habitat be calculated, given that only floodplain area polygons are being uploaded?

This is still being determined. Calculation of EAH is somewhat complicated, as the metric is not yet broadly included as a standard part of restoration planning and the procedure for calculation is mostly in academic publications.

How will Meander Potential be included in the system when data aren't available?

This is still being determined. Meander Potential information is available for portions of the Upper Sacramento River, but not for other locations in the Central Valley.

What is system-wide existing conditions data, as opposed to project data?

As described previously and in the companion Summary Report, system-wide or existing conditions data are the data that represent the best information we have on the flood system metrics today in terms of the amount, location, and condition. *Project data* is the information we will enter into the tracking system about each project for which we wish to account.

How frequently will system-wide data (existing conditions) be updated?

This will vary. Levee inspections information is collected annually, for example, but other information is not. See Table 1 in Section 2 of the Summary Report.