

# User Guide

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Domain: <https://erams.com/co-abandoned-mines-water-quality>

## Abandoned Mine Lands: Water Quality Information



**One Water Solutions Institute**

Colorado State University

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## EXECUTIVE MESSAGE

Catena Analytics offers powerful platforms for building accessible and scalable analytical tools and simulation models that can be accessed via desktop or mobile devices. Our team has spent that last decade developing the Environmental Resource Assessment and Management System (eRAMS), an open source technology that provides cloud-based geospatially-enabled software solutions as online services and a platform for collaboration, development, and deployment of online tools. Our services are used to assist with strategic and tactical decision making for sustainable management of land, water and energy resources. Thank you for choosing Catena Analytics and the eRAMS platform to meet your data, modeling, analysis and geospatial needs.

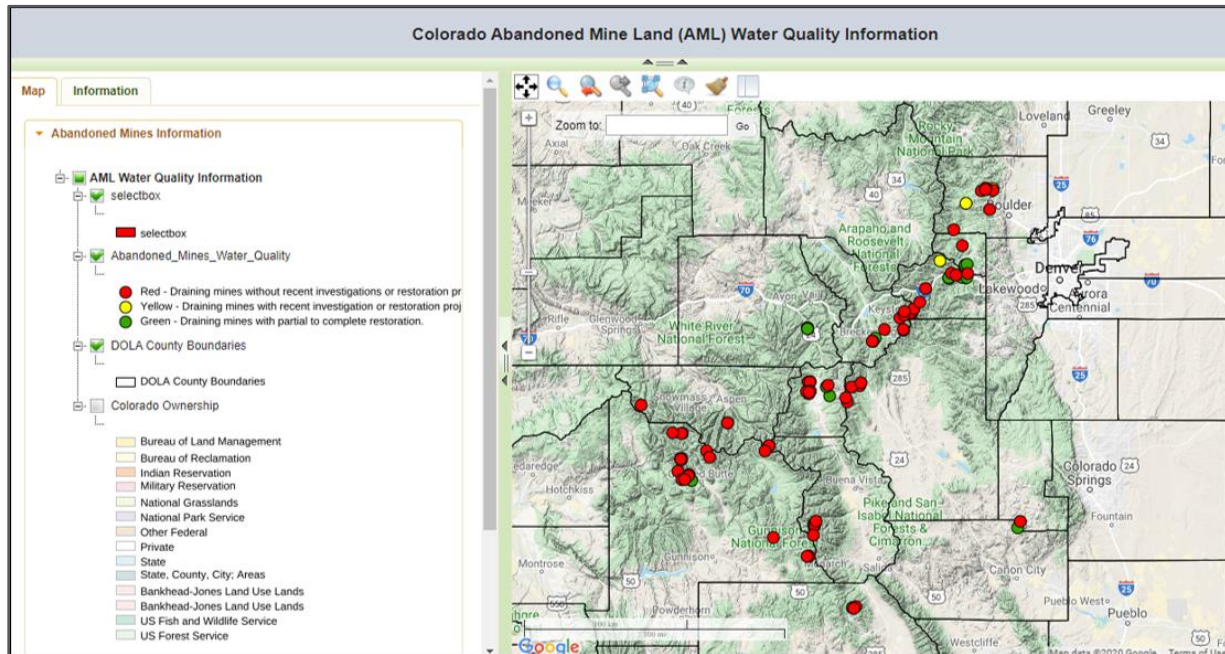
### WHO SHOULD USE THIS GUIDE

This guide is a tutorial to get you started using eRAMS and the [Abandoned Mine Lands Water Quality Information Dashboard](#). The guide provides instructions for commonly performed tasks and uses of the tool. This tool is intended for use by urban planners and water managers, academic groups, regulatory officials, consultants as well as state, local and federal agencies planning for the future of water resources.

### NEED HELP?

After reviewing the guide if you need additional assistance we are here to help! This guide is designed to provide instruction on commonly performed operations and answers to many frequently asked questions. If you find any aspect of the tool challenging or missing information from this guide, please engage an eRAMS expert to guide you through any hurdles. Contact us at: [eramsinfo@gmail.com](mailto:eramsinfo@gmail.com)

# INTRODUCTION



## PURPOSE

This interface displays a variety of abandoned mine related water quality data from the Division of Reclamation Mining and Safety (DRMS) and [Colorado Department of Public Health and Environment \(CDPHE\)](#).

## DESCRIPTION

Abandoned mine sites are prevalent throughout the state of Colorado. Water quality impacts from these abandoned mines is a long-time concern. Efforts by federal, state, and local entities to assess and address pollution is an ongoing effort. This document describes the purpose and implementation of the Abandoned Mines Water Quality Study. This study was championed by Governor Hickenlooper in the 2016 State of the State address. The agencies leading this study surveyed and sampled 145 abandoned mines discharging water.

The information collected through the study and the analytical results are presented through the environmental Resources Assessment and Management Systems (eRAMS), developed by Colorado State University and the One Water Solutions Institute.

For more information, the extensive [Abandoned Mines Water Quality Study Report](#) can be found here: <https://erams.com/catena/tools/colorado-collaborative/abandoned-mines/>

### SOFTWARE AVAILABILITY

#### Domain

<https://erams.com/co-abandoned-mines-water-quality>

#### Documentation URL

<https://erams.com/catena/tools/colorado-collaborative/abandoned-mines/>

### SYSTEM REQUIREMENTS

A modern web-browser is required to connect and run CFA. Browser options include: Google Chrome v.69, Mozilla Firefox v.62, Safari v.11.1, and Microsoft Edge v.17.

### AUTHORIZED USE PERMISSION

The information contained in the [Abandoned Mine Lands Water Quality Information Dashboard](#) (the "Service") is for general information purposes only. Colorado State University's One Water Solutions Institute ("CSU-OWSI") assumes no responsibility for errors or omissions in the contents of the Service. In the Service (<https://erams.com/co-abandoned-mines-water-quality>), you agree to hold neither the creators of the software platform nor CSU-OWSI liable for any action resulting from use or misuse of the Service. In no event shall CSU-OWSI be liable for any special, direct, indirect, consequential, or incidental damages or any damages whatsoever, whether in an action of contract, negligence or other sort, arising out of or in connection with the use of the Service or the contents of the Service. CSU-OWSI reserves the right to make additions, deletions, or modification to the contents of the Service at any time without prior notice.

# GET STARTED

## ACCESS THE TOOL

This tool is publicly available and can be accessed here: <https://erams.com/co-abandoned-mines-water-quality>

## GEOGRAPHIC INTERFACE

The Home page, which provides basic background information about the [Abandoned Mines Water Quality Study](#) and development of the eRAMS data interface.

## Select Layers

### Abandoned Mines Information

With the AML interface open, click the “Abandoned Mines Information” tab on the left dashboard. Here users can select from a variety of geographic information including Colorado DOLA county boundaries and land ownership entities. The results of the study are also displayed (Figure 1):

- Green: Draining mines with partial to complete restoration
- Yellow: Draining mines with recent investigation or restoration project in process
- Red: Draining mines without recent investigations or restoration project

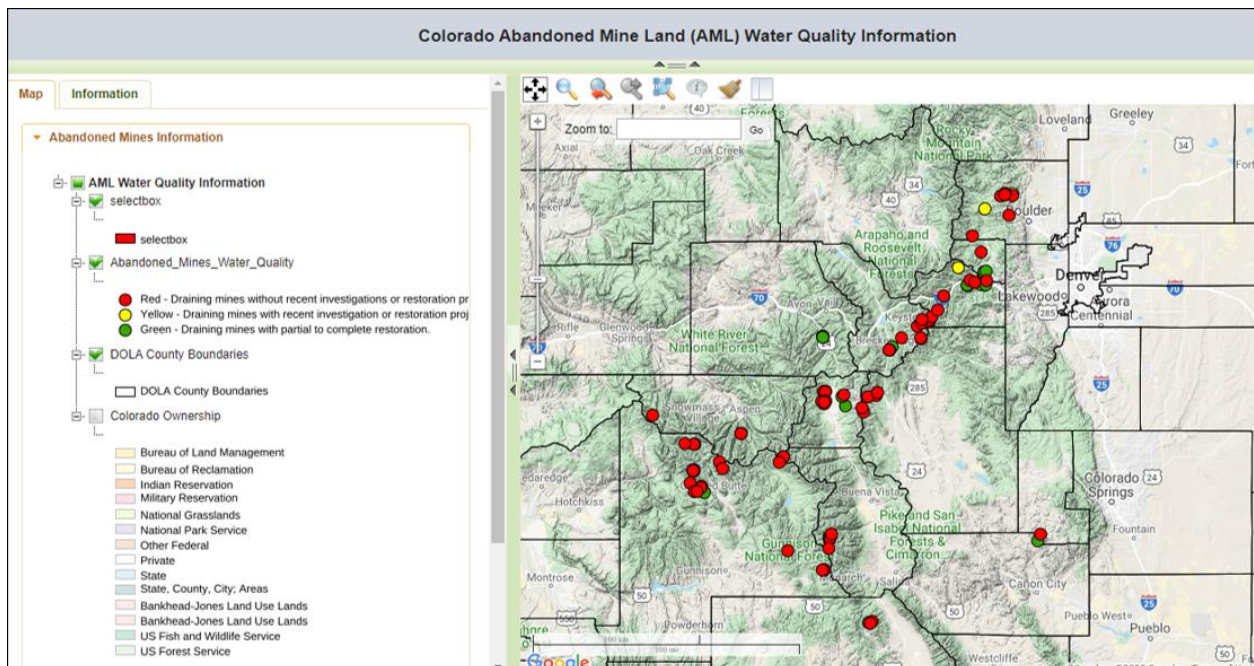


Figure 1: Abandoned Mines Water Quality Study results

### Base Layers (optional)

With the AML interface open, click the “Map” tab on the left dashboard

1. Select the “Base Layers” tab drop-down
2. Select the desired base layer
  - Options include: None, Google, Bing or USGS National Map

### Public Layers (optional)

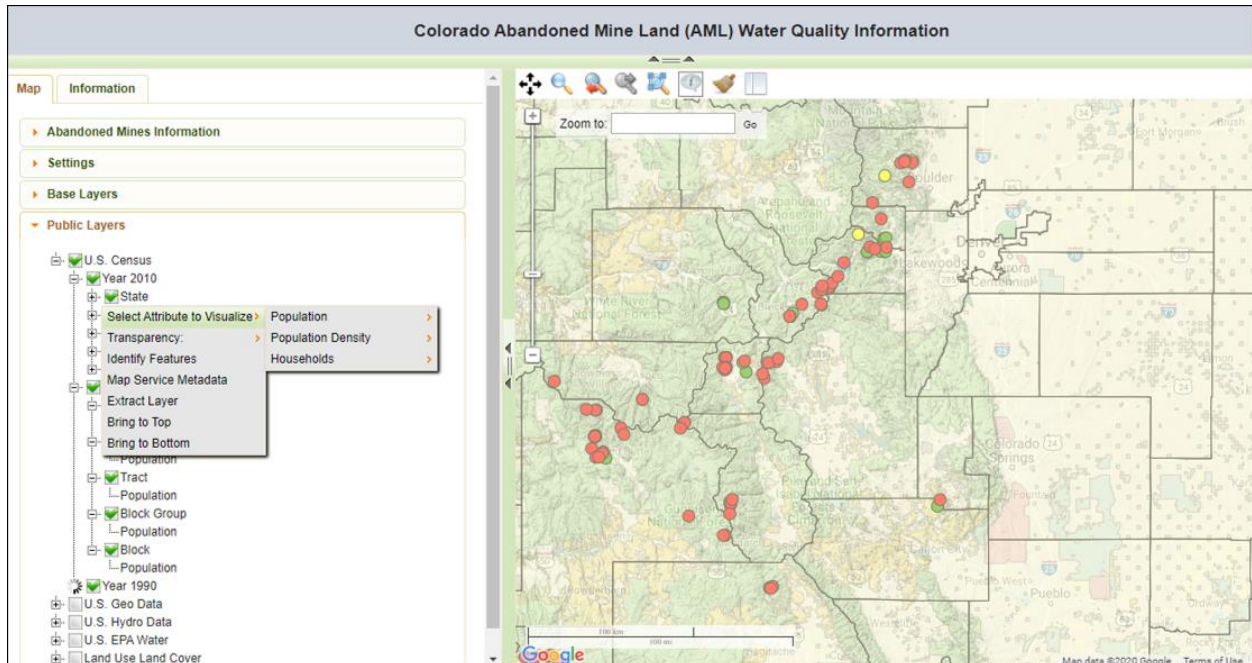


Figure 2: AML public layer options

In addition, users can also select from a variety of public geospatial layers to display on the interface (Figure 2).

1. Select the “Public Layers” tab drop-down
2. Select the desired public layer. Options include:
  - US Census
  - US Geo Data
  - US Hydro Data
  - US EPA Water Data
  - Land Use Land Cover
3. If an item is struck out with a line, it is not visible at the current scale. Zooming in will activate this layer.
4. To access additional information on the Public Layers, click on the individual layers. This will bring up a list of options:
  - Zoom to Full Extent - Zooms to the full extent of the data
  - Zoom to Visible Extent - Zooms to visible extent of the data

- Transparency/DPI - The transparency slider changes the transparency of the layer. The DPI slider will change the size of the points.
- Identify Features - When selected, this activates an information tool. Draw a box around the feature to show more information about it.
- Map Service Metadata - Information about the data.
- Extract Layer - This is used to extract information from the Public Layers into the main project "Abandoned Mines Information" list of layers. From the drop down, the user can select the layer or "new layer" to place this information into. To choose the data points/features, choose the method (e.g. polygon, rectangle, etc.) you would like to use to choose the points/features on the map. Choose the features on the map using the selected tool and click the "Generate" button. This will extract the selected data as a layer into the "Abandoned Mines Information" section.

## Export Data

The "Information" tab on the left dashboard provides access to supplementary information as well as the Water Quality Data by clicking on the desired link (Figure 3).

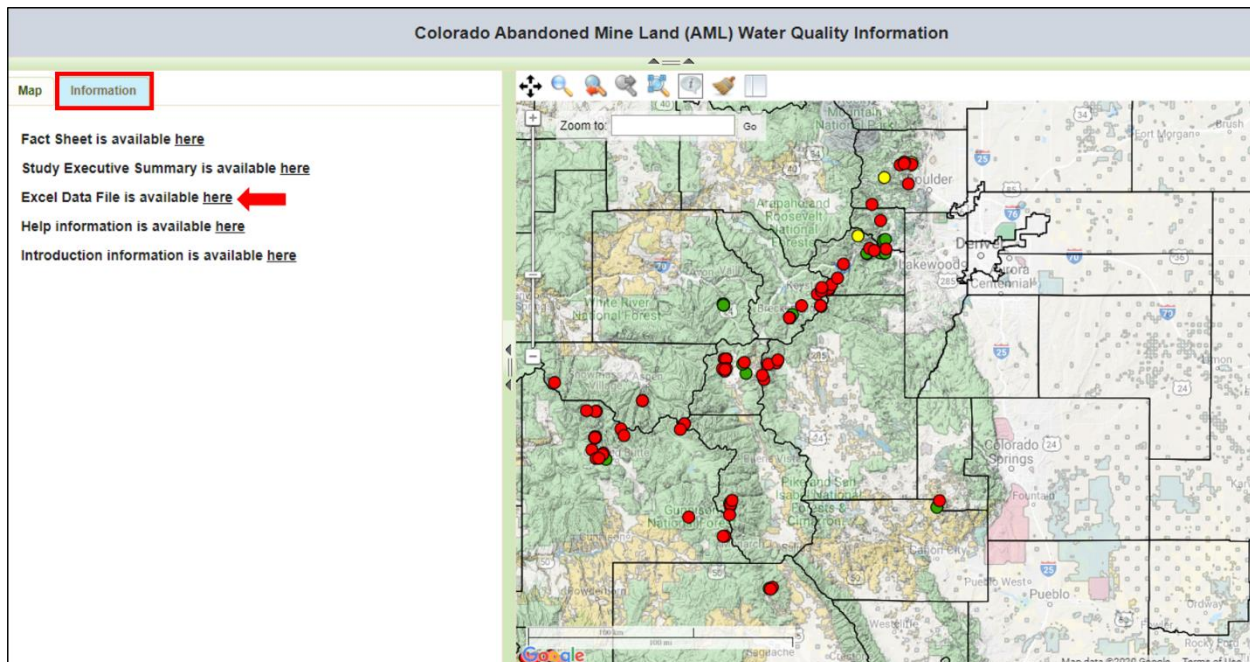









Figure 3: Export AML Water Quality Study Data



### Additional Mapping Features

The eRAMS geographic interface also allows users to perform basic mapping tasks, which can be accessed from the top menu of the map interface (Figure 4):

- The  tool to allows you to pan/move on the map
- The  tool to allows you to zoom to a selected area on the map
- The  tool to allows you to zoom to the previous zoom extent
- The  tool to allows you to zoom to the next zoom extent (only available after using the zoom to previous extent)
- The  tool to allows you to zoom to the extent of all project layers
- The  tool to allows you to clear your query selection from the map
- The  tool to allows you to print the current map extent

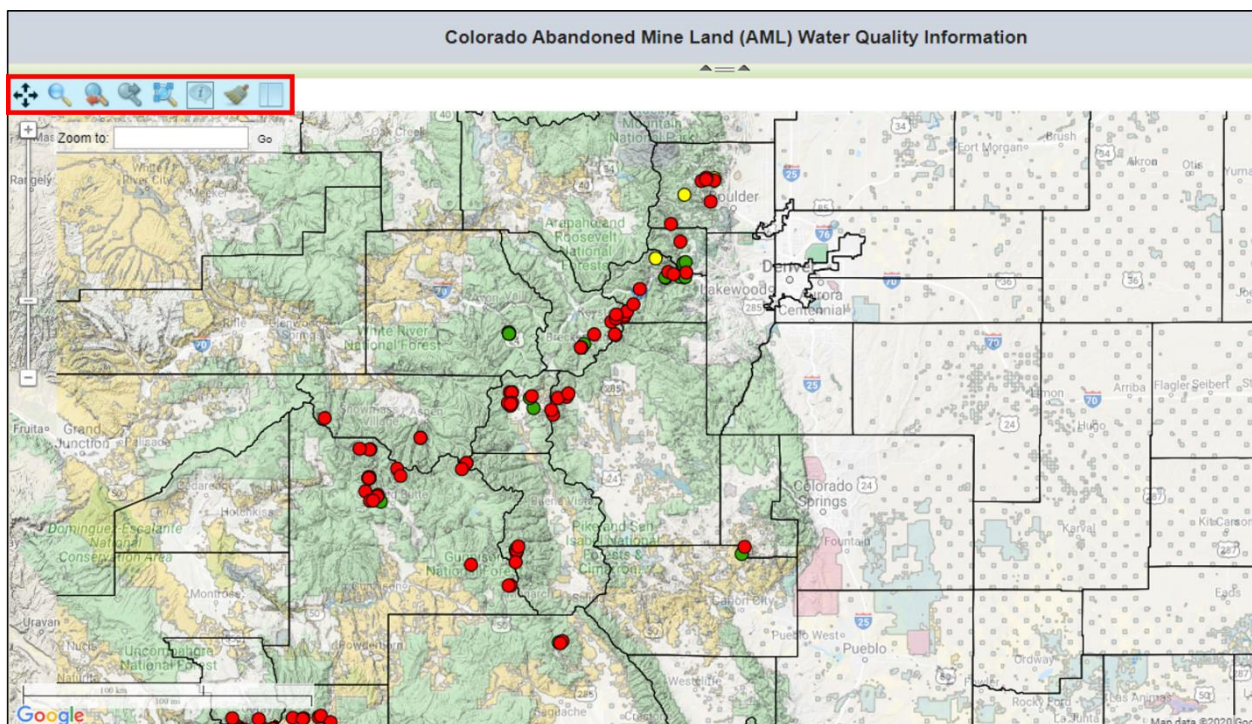


Figure 4: eRAMS mapping features