

# HU4890 GIS Workshop

Spring 2025  
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GIS Data Librarian



# Agenda

- What are Spatial Humanities?
- Spatial Humanities Examples
- GIS resources at Michigan Tech
  - Library LibGuides
  - MTU GeoPortal
  - Historic Map Catalog
  - Historic Image Catalog
- Introduction to ArcGIS Online
  - Geocode a dataset
- Introduction to Web Mapping
  - Create a simple Web Map



(Photo from calacademy.org)

# Spatial Humanities

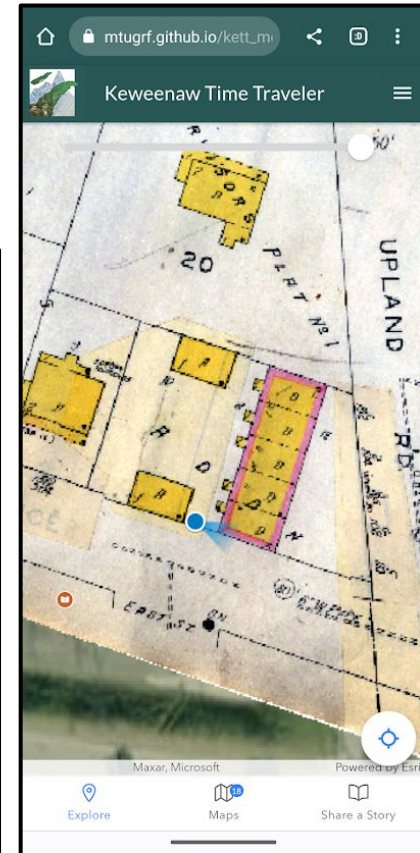
Spatial Humanities uses GIS tools and other digital media to enable researchers to explore connections between space, time, and human experiences in innovative ways.

GIS is often used in digital humanities projects in the form of interactive maps and visualizations.

With GIS we can track historical human migrations, show how the landscape has changed over time, map inequality, and recreate ancient cities and the people who lived there.

# Spatial Humanities Examples

- [The Keweenaw Time Traveler](#)
- [Keweenaw Time Traveler Mobile Storytelling](#)
- [Hamtramck Spatial Archaeology Project](#)
- [2D/3D Historical Scene View](#)
- [1908 Historical Map and Photo Viewer](#)
- [Digital Scholarship Kiosk](#)



# GIS Resources at Michigan Tech - Libguides

Geographic Information Systems (GIS) LibGuides


[mtu.edu/library](https://mtu.edu/library)

J. Robert Van Pelt and John and Ruanne Opie Library

Today's Hours | Library 8 a.m. - 10 p.m. | Archives By Appointment, 1 p.m. - 5 p.m.

Search Databases Journals Guides

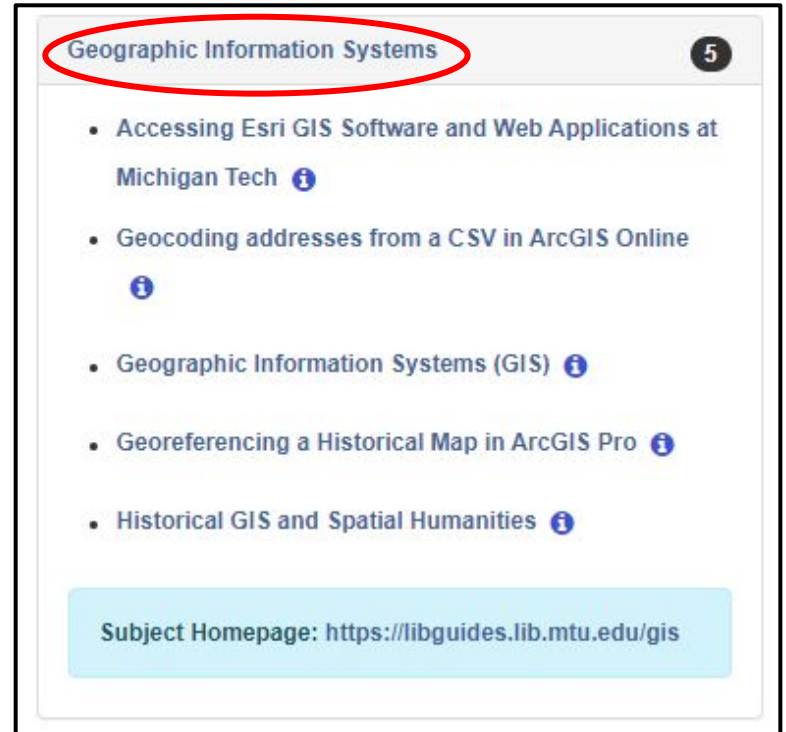
Search for guides on courses, research topics, and other instructional subjects.

 [Browse All Guides](#) | [Off-campus Access to eResources](#)

# LibGuides

Find Geographic Information Systems category and explore!

<https://libguides.mtu.edu/gis>



Geographic Information Systems 5

- Accessing Esri GIS Software and Web Applications at Michigan Tech i
- Geocoding addresses from a CSV in ArcGIS Online i
- Geographic Information Systems (GIS) i
- Georeferencing a Historical Map in ArcGIS Pro i
- Historical GIS and Spatial Humanities i

Subject Homepage: <https://libguides.lib.mtu.edu/gis>

# MTU GeoPortal

A place to find, share, download, and create geospatial data.

What can you do with the GeoPortal?

- Search for geospatial datasets
- View and download datasets
- Use datasets to create Web Maps and Story Maps
- Use datasets in ArcGIS Pro

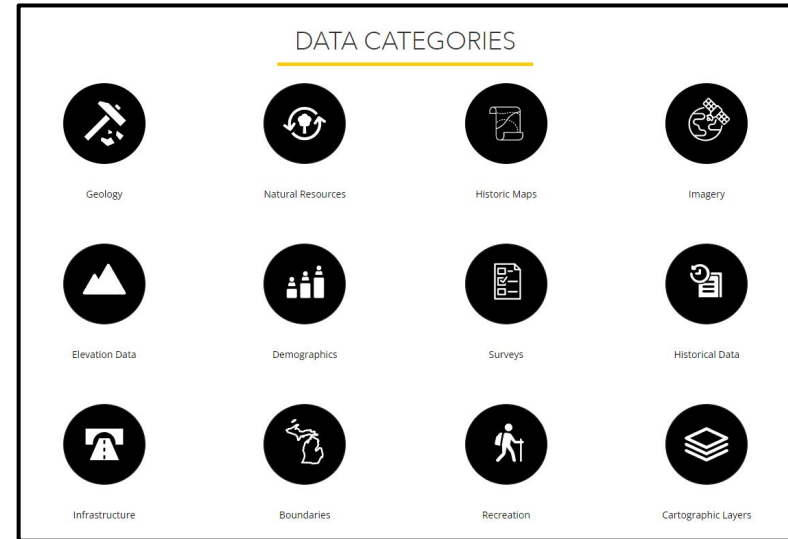
The screenshot shows the MTU GeoPortal website. At the top, there is a navigation bar with the Geospatial Research Facility logo, the text 'GeoPortal', and links for 'Data', 'Projects', 'Resources', 'GRF', and 'Contact Us'. A search bar is located in the top right corner with the text 'Sign In'. The main header features the title 'MTU GeoPortal' and 'Michigan Technological University' over a background image of a university building. Below the header is a search bar with the placeholder text 'Search for geographic datasets...'. A yellow banner below the search bar contains the text 'MTU GeoPortal' and 'The Michigan Tech GeoPortal provides MTU researchers, collaborators, and students a place to find, create, and share geospatial data and interactive geospatial applications.' Below the banner is a section titled 'DATA CATEGORIES' with four icons: a hammer and pickaxe for 'Geology', a globe with arrows for 'Natural Resources', a map with a ruler for 'Historic Maps', and a globe with a grid for 'Imagery'.

# Navigating the GeoPortal

You can access the GeoPortal at: <https://geoportal.mtu.edu>

There are two main ways to find datasets in the GeoPortal:

- Keyword searching
- Browsing datasets by category



# Finding Datasets in the GeoPortal

## Searching For Datasets

Let's practice searching for specific datasets.

- If I were interested in historical aerial imagery of Houghton from 1938
- Use search terms like **1938 aerial** or **1938 imagery**.
- Can also use more narrow search terms like **Houghton 1938 aerial imagery**.




# Finding Datasets in the GeoPortal

## Search Results

Scroll through the results and find **Houghton and Hancock Orthomosaic (1938)**

Click on the item and you will see a interactive map preview and metadata about the dataset.

 Map

**Houghton and Hancock Orthomosaic (1938)**  
rcowling


Orthomosaic build from single frame aerial photography scans, from original aerial survey flight data acquired over the region during June 1938....

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**Type:** Map Service  
**Sharing:** Public

**Uploaded:** February 26, 2024  
**Tags:** Aerial Photography, Houghton, Hancock, Orthomosi...



 Geospatial Research Facility GeoPortal


**Houghton and Hancock Orthomosaic (1938)**


 Bob  
Geospatial Research Facility


**Summary**


Historical Aerial Mosaic of the Houghton-Hancock region, from original single frame aerial photography scanned copies from a 1938 aerial coverage.


[View Full Details](#)


 **Map**  
Map Service

 **February 26, 2024**  
Date Updated

 **February 8, 2024**  
Published Date

 **Public**  
Anyone can see this content

 **Custom License**  
View license details



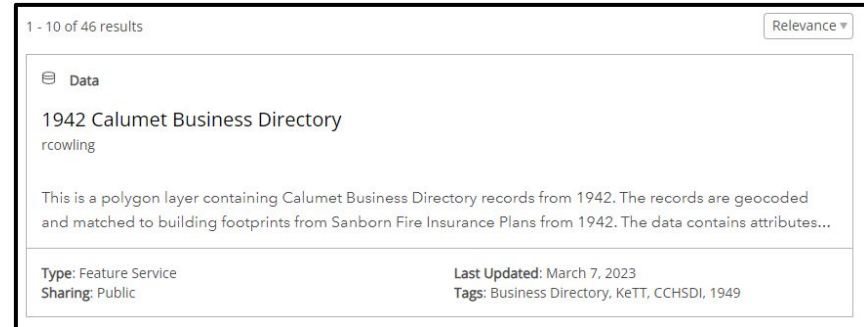
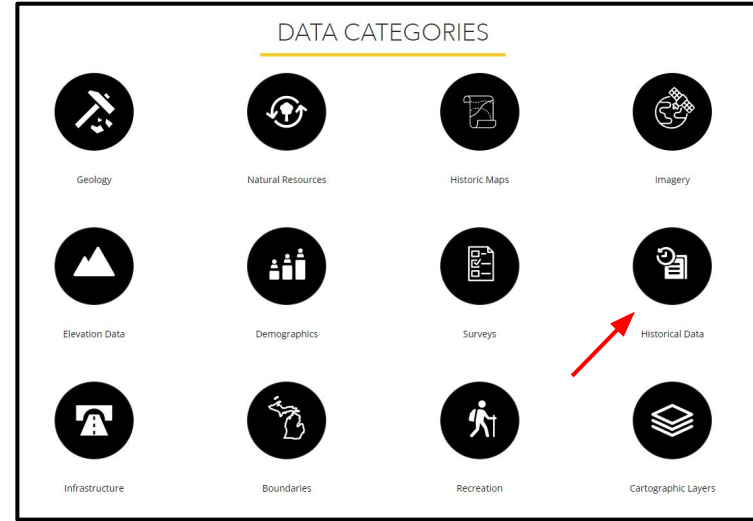
# Finding Datasets in the GeoPortal

## Data Categories

Navigate back to the GeoPortal homepage and browse the data categories.

Click on the Historical data category.

Click on 1942 Calumet Business Directory



# Finding Datasets in the GeoPortal

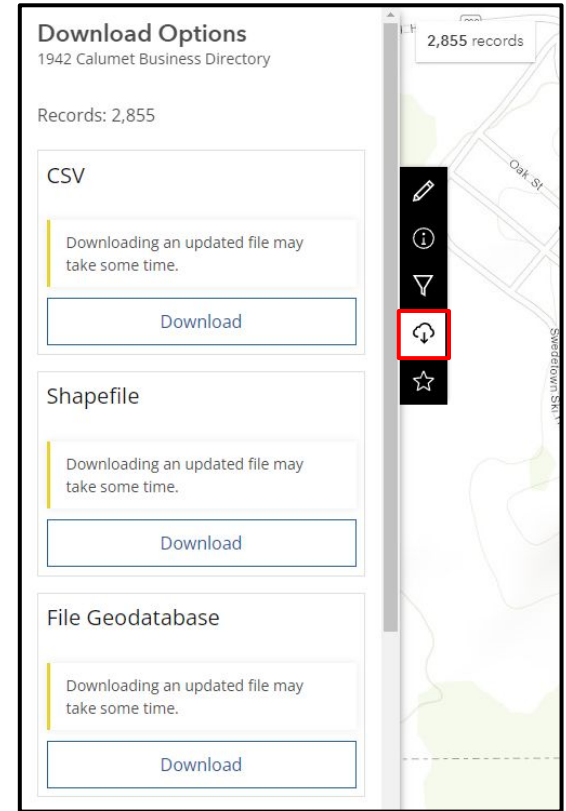
## Downloading data

This dataset contains building footprints and business locations for business in Calumet from the 1942 City Directory.

To download the dataset from the GeoPortal, click on the **download icon** and select a format.

The most commonly used format in Esri ArcGIS software is Shapefile.

This is simply an example of how to download data from the GeoPortal. You do not need to download anything.

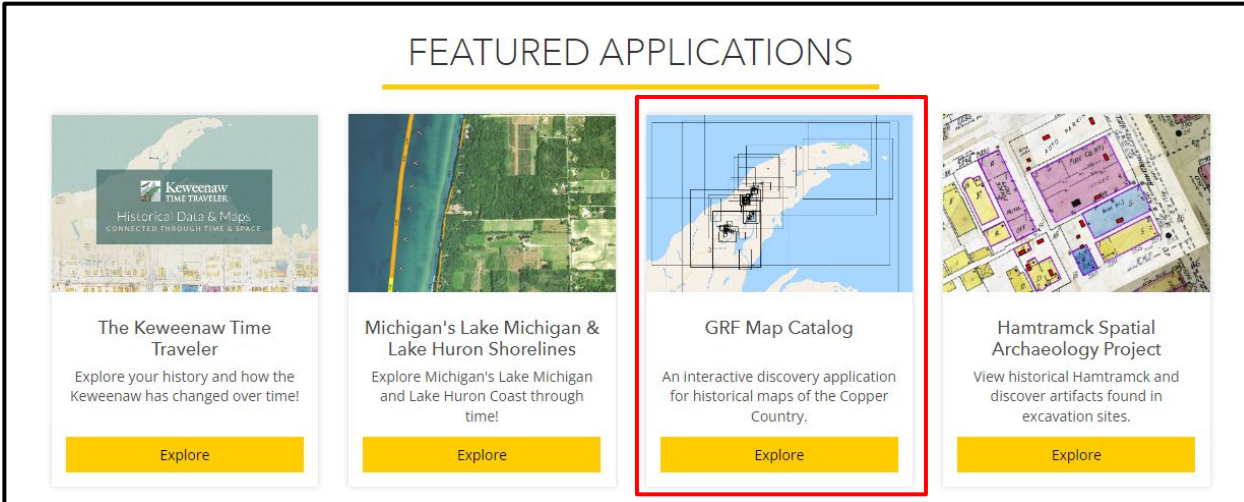


# Historical Map Catalog

On the GeoPortal homepage scroll to **Featured Applications**

Click on the **GRF Map catalog**

FEATURED APPLICATIONS



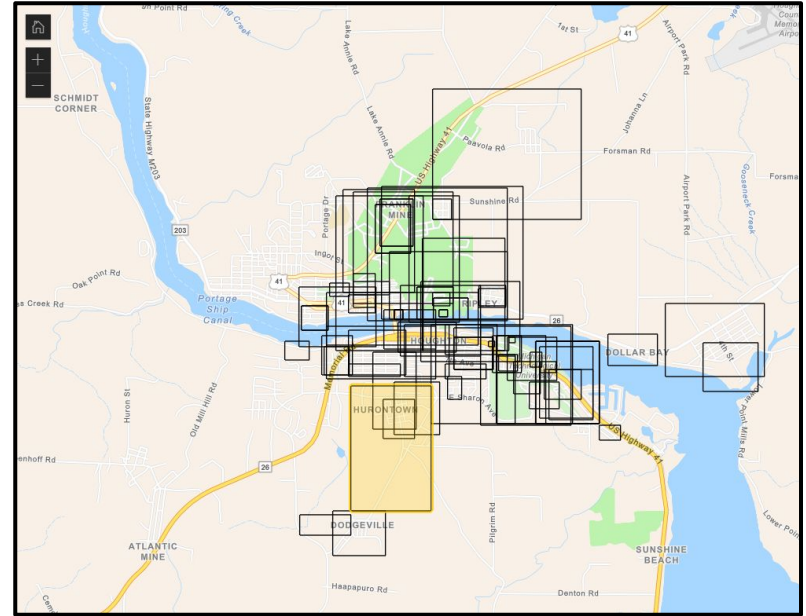
The screenshot shows a section titled "FEATURED APPLICATIONS" with a yellow underline. Below the title are four application cards, each with a thumbnail image, a title, a description, and a yellow "Explore" button. The "GRF Map Catalog" card is highlighted with a red border.

- The Keweenaw Time Traveler**  
Explore your history and how the Keweenaw has changed over time!
- Michigan's Lake Michigan & Lake Huron Shorelines**  
Explore Michigan's Lake Michigan and Lake Huron Coast through time!
- GRF Map Catalog**  
An interactive discovery application for historical maps of the Copper Country.
- Hamtramck Spatial Archaeology Project**  
View historical Hamtramck and discover artifacts found in excavation sites.

# Historical Map Catalog

The historical map catalog:

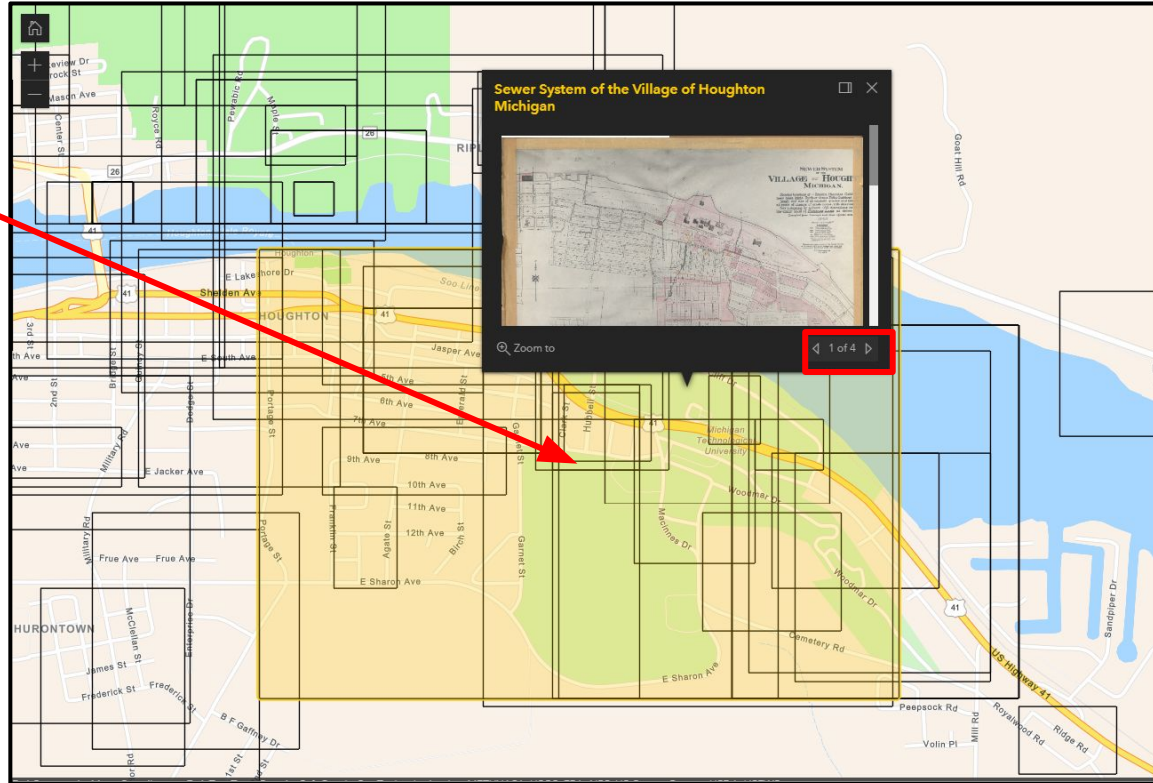
- Is a discovery tool for historical map scans of the Keweenaw
- Allows for locating maps by spatial extent
- Searching by keyword, between a range of years, or theme.
- Contains historical mining, land use, topographic maps and nautical charts.
- Great for historical research of a specific area!



# Historical Map Catalog

## Locating Images by Spatial Extent

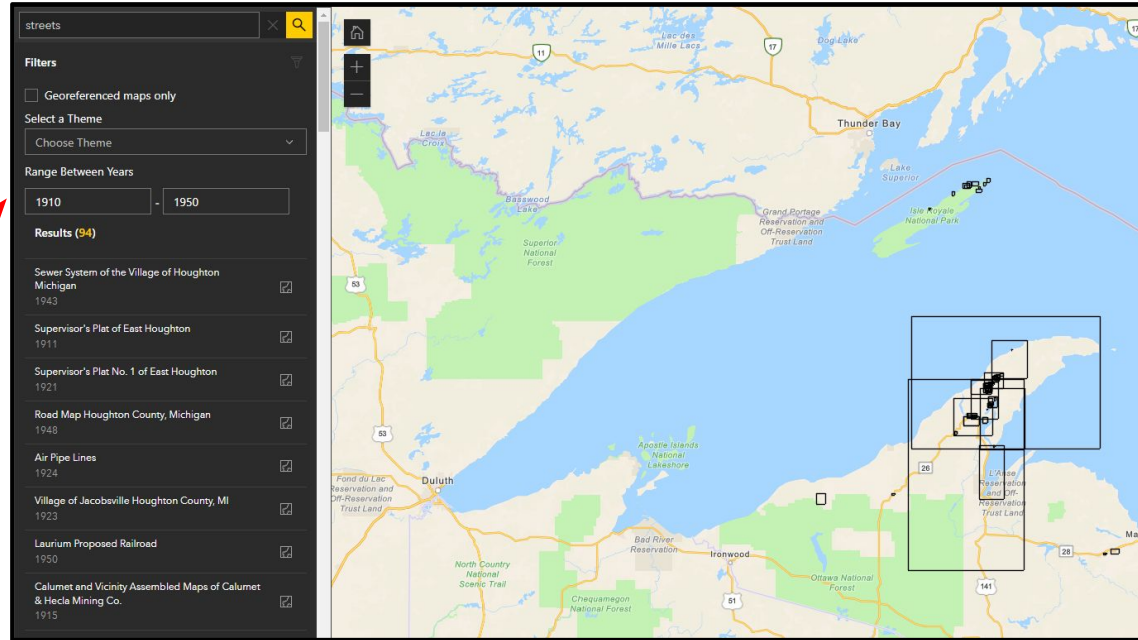
1. Zoom to a location of interest on the map. Click on any of the polygons to view maps of that area.
2. Use the forward back buttons in the popup to scroll through maps.



# Historical Map Catalog

## Searching Images by keyword

1. Search for any keyword of interest such as streets, roads, pipelines, etc.
2. Optionally use filters to narrow the results.
3. The results list and map will update with your new results.



The screenshot displays the Historical Map Catalog interface. On the left, a search bar contains the keyword 'streets'. Below the search bar, there are filter options: 'Georeferenced maps only' (unchecked), 'Select a Theme' (dropdown menu), and 'Range Between Years' (1910 - 1950). The 'Results (94)' list includes:

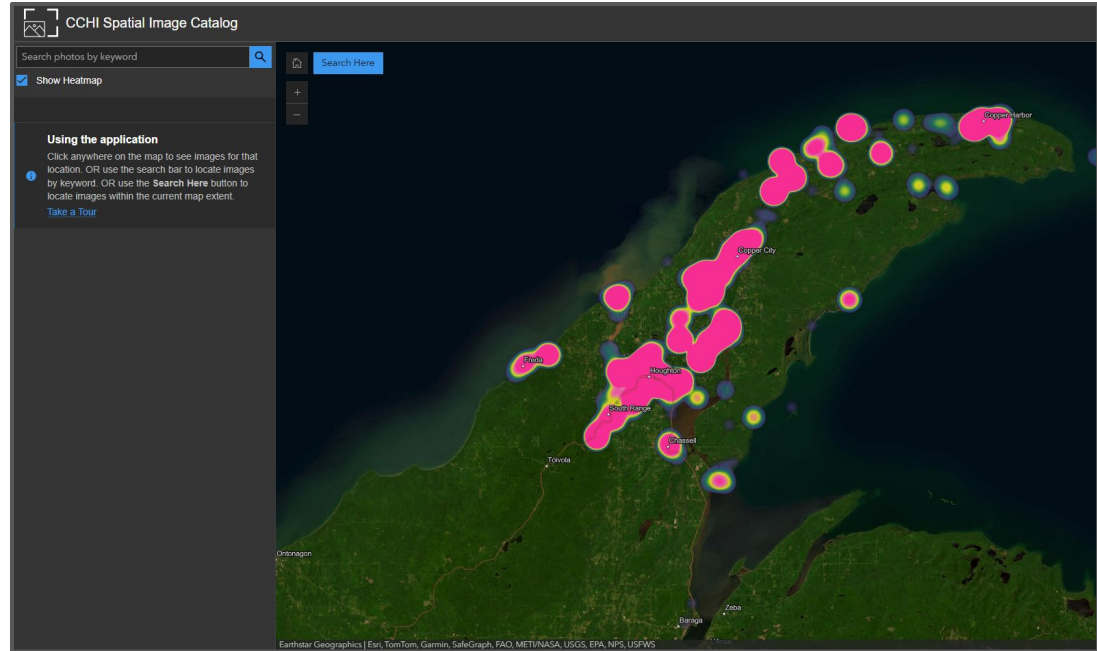
- Sewer System of the Village of Houghton Michigan (1943)
- Supervisor's Plat of East Houghton (1911)
- Supervisor's Plat No. 1 of East Houghton (1921)
- Road Map Houghton County, Michigan (1948)
- Air Pipe Lines (1924)
- Village of Jacobsville Houghton County, MI (1923)
- Laurium Proposed Railroad (1930)
- Calumet and Vicinity Assembled Maps of Calumet & Hecla Mining Co. (1915)

On the right, a map of the Houghton County area is shown, with a red box highlighting the search results area. The map includes labels for various locations such as Duluth, Ironwood, and Lake Superior.

Browse some areas and find maps that interest you!

# Spatial Image Catalog

1. Locate historical photographs of the Copper Country by geographic location.
2. An excellent tool for historical research.

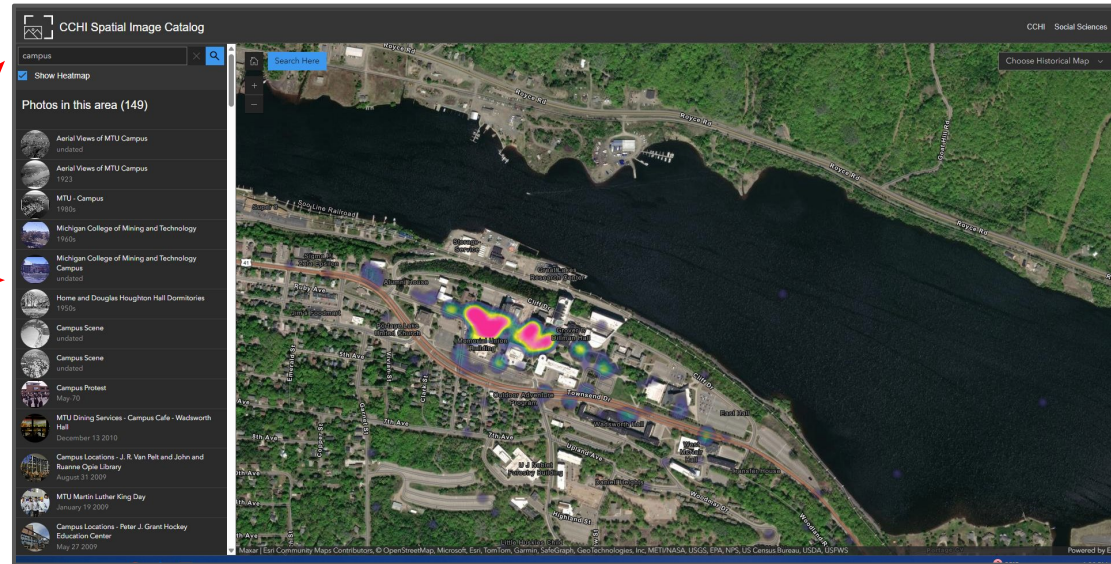


<https://mtu-vpol.github.io/photoindex/>

# Spatial Image Catalog

## Searching Images by keyword

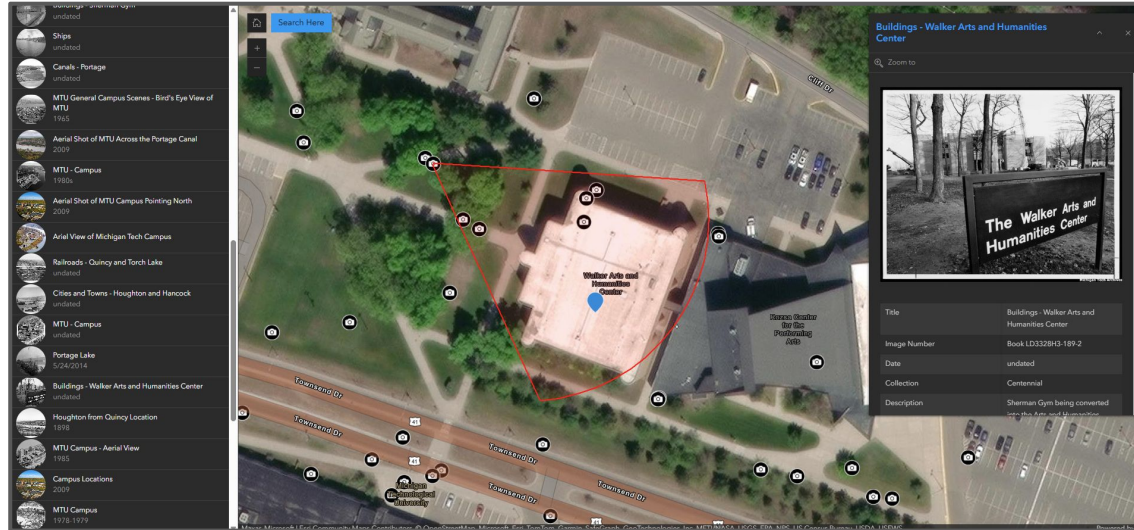
1. Search for any keyword of interest such as streets, roads, pipelines, etc.
2. The sidebar and map will update with your new results.



# Spatial Image Catalog

## Finding Images by geographic extent

1. Zoom to any area of interest and click on that area to find all photographs taken in that area.
2. The sidebar will update with your new results. Click on any result to show the 'viewing area' of each photo.



Browse some areas and find photos that interest you!

# Introduction to ArcGIS Online

## What is ArcGIS Online?

An online platform that allows you to:

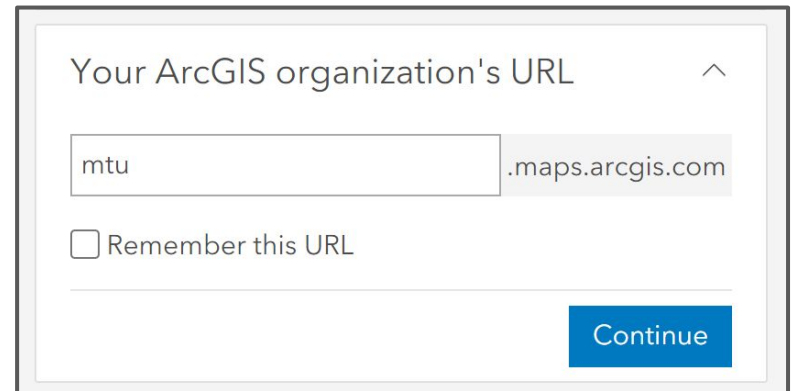
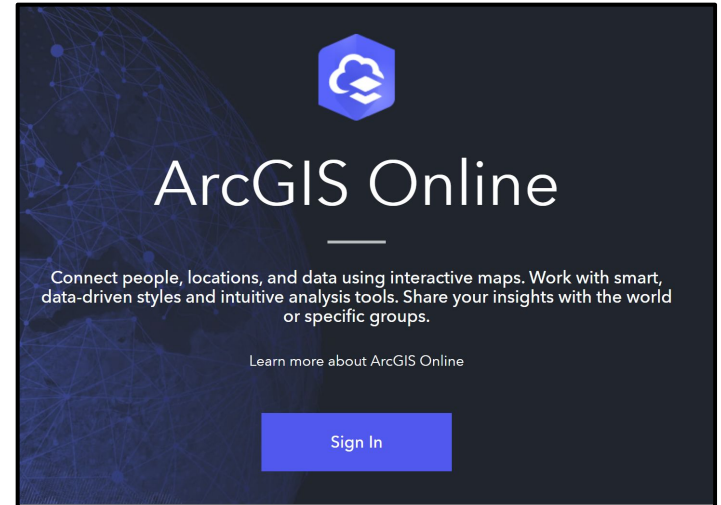
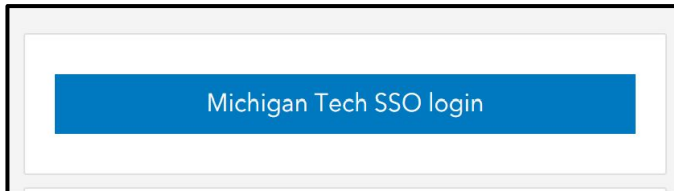
- Create maps and apps
- Store geospatial datasets
- Share geospatial datasets
- Create Story Maps
- Collaborate with others



# Introduction to ArcGIS Online

## Signing in

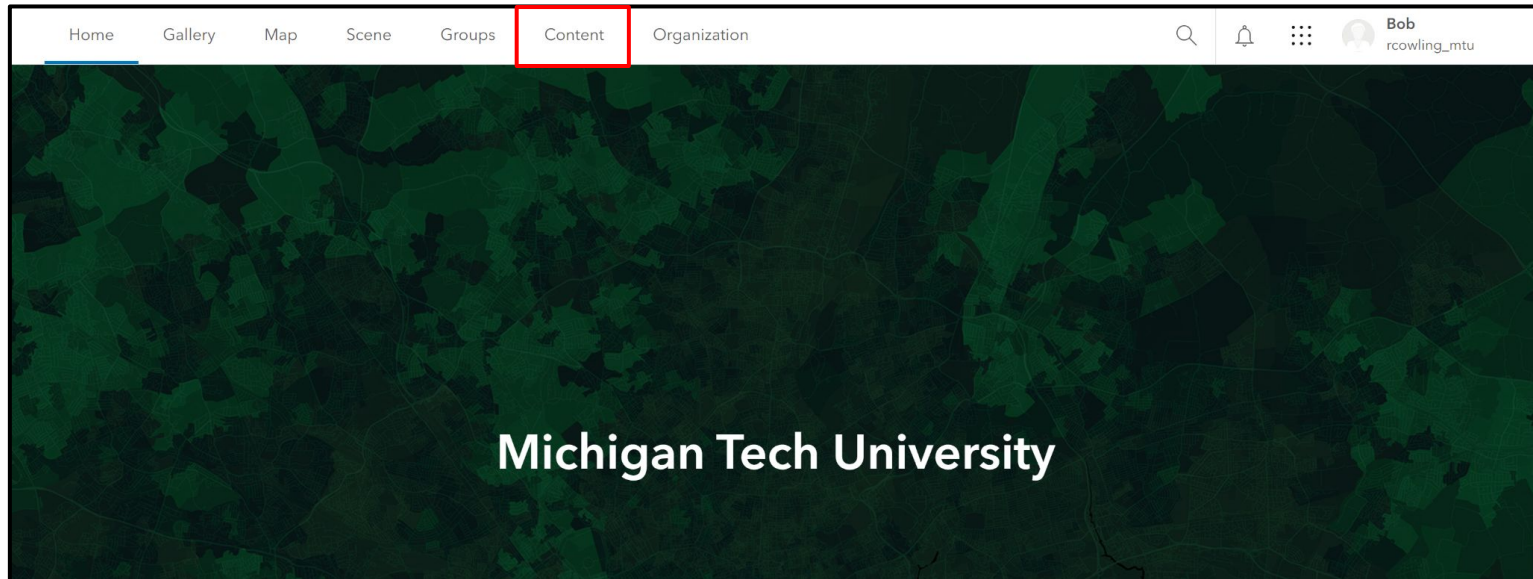
1. Navigate to <https://www.arcgis.com>
2. Click the **sign-in** button.
3. Under “Your ArcGIS organization’s URL” enter “mtu” and click the continue Button.
4. Click the **Michigan Tech SSO login** button and sign in with your MTU credentials.

A form for entering the ArcGIS organization's URL. The title is "Your ArcGIS organization's URL" with an upward arrow icon on the right. There is a text input field containing "mtu" and a dropdown menu showing ".maps.arcgis.com". Below the input field is a checkbox labeled "Remember this URL". At the bottom right of the form is a blue "Continue" button.

# Introduction to ArcGIS Online

## Overview

1. On the Michigan Tech organization's home page click **Content**



# Introduction to ArcGIS Online

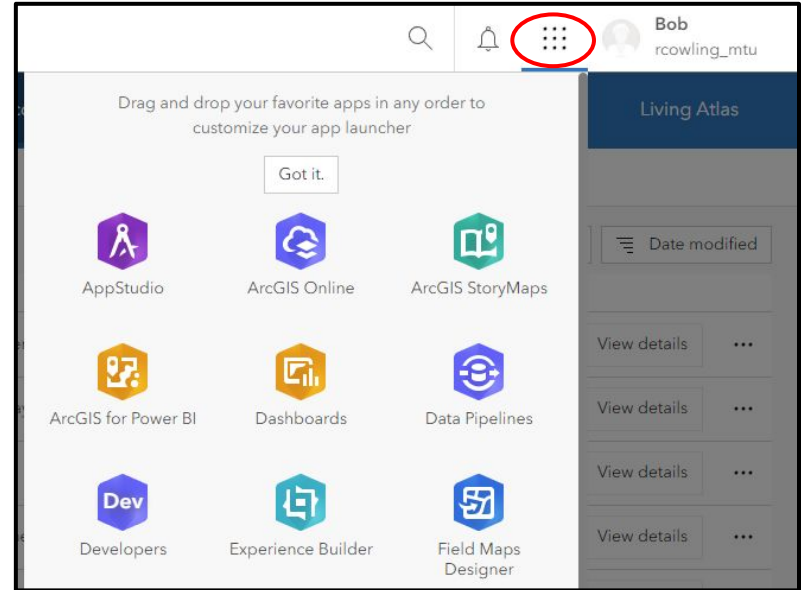
- My Content tab shows content you have uploaded or created.
- My Favorites shows datasets you have marked as favorites.
- My groups shows groups you are part of.
- My organization shows all the content in the Michigan Tech organization.
- Living Atlas allows you to find and search authoritative datasets by Esri and government agencies.

The screenshot displays the ArcGIS Online interface. At the top, a blue navigation bar contains tabs for 'Content', 'My content', 'My favorites', 'My groups', 'My organization', and 'Living Atlas'. Below the navigation bar, there are buttons for 'New item' and 'Create app', and a search bar labeled 'Search All my content'. On the left, a 'Folders' sidebar is visible, containing a search box and a list of folders: 'All my content', 'rcowling\_mtu', 'Campus\_History\_Project', and 'GLCID'. The main content area shows a table of items with columns for 'Title', 'Modified', and user information. The table displays four items:

Title	Modified	User	Actions
Scene1	Mar 6, 2024	[User Icon]	View details ...
Scene1_WFL1	Mar 6, 2024	[User Icon]	View details ...
Scene1_WFL1	Mar 6, 2024	[User Icon]	View details ...
Scene	Mar 6, 2024	[User Icon]	View details ...

# Introduction to ArcGIS Online

You can use the candy box menu next to your username to access ArcGIS Online applications such as Story Maps, Experience Builder, and Field Maps.

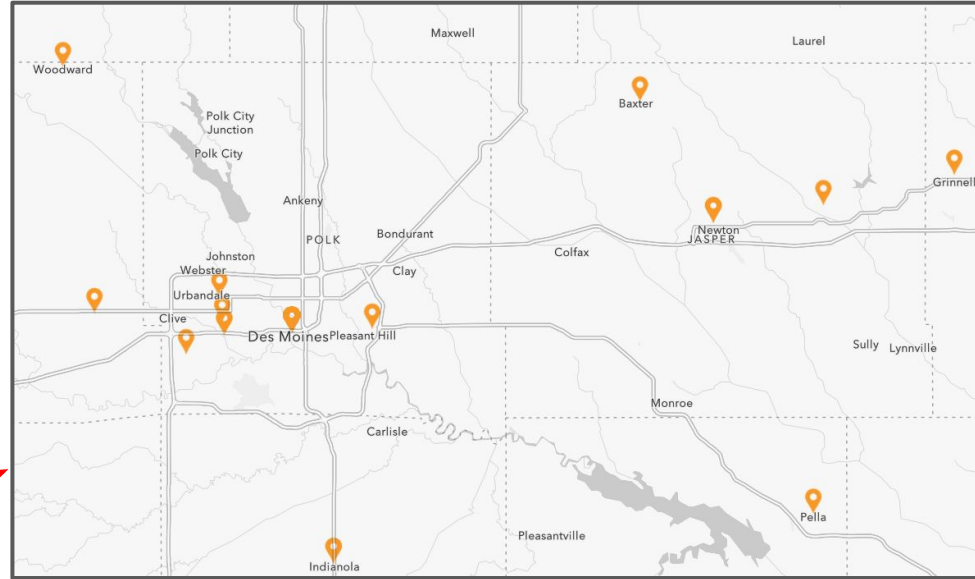


# Geocoding a dataset

Now let's practice uploading our own datasets!

**Geocoding** - Taking a text-based description of a location such as an address and assigning it geographic coordinates (latitude and longitude).

Y	Z	AA
Applicant City	Applicant Zip	County
Dubuque, Iowa	52001-0538	Dubuque
Elgin, Iowa	52141-9701	Fayette
Delhi, Iowa	52223-7715	Delaware
Delhi, Iowa	52223-7715	Delaware
Delhi, Iowa	52223-7715	Delaware

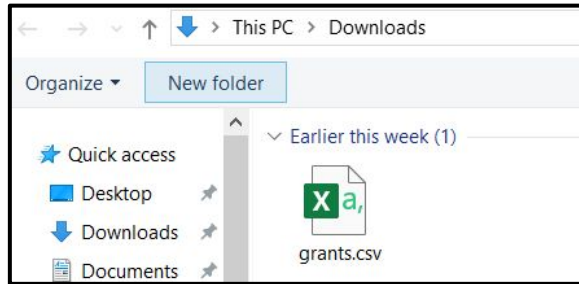
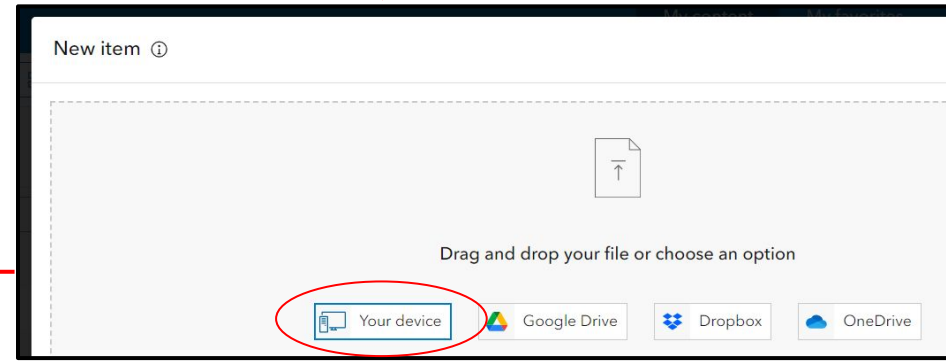
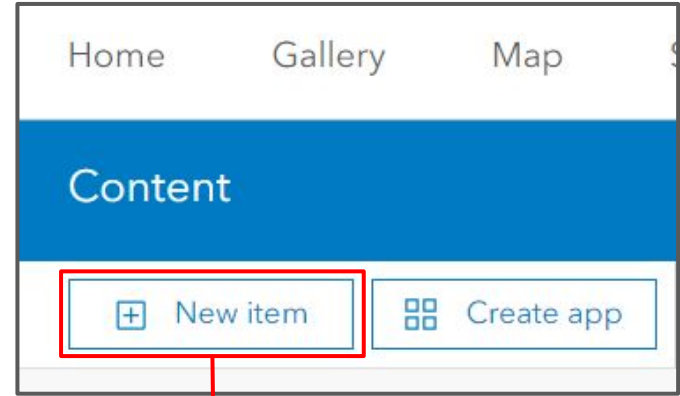


# Geocoding a dataset

Under the **My Content Tab**, click on the **New Item button**.

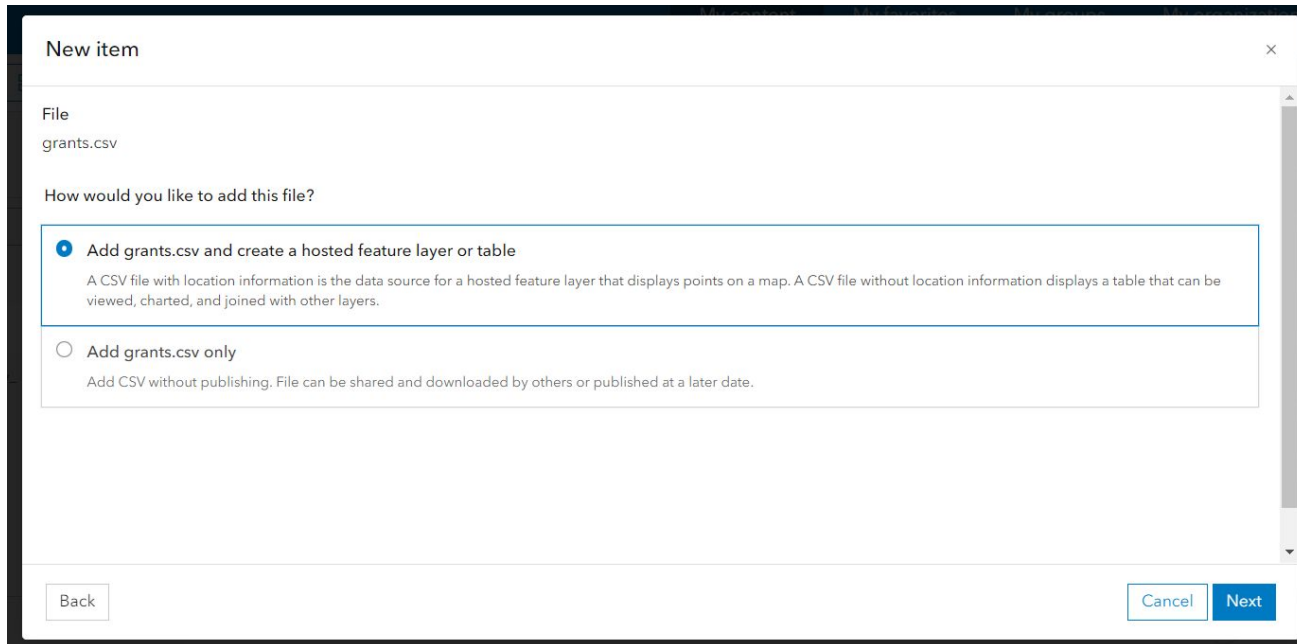
In the New Item window click on **Your Device button** under drag and drop a file or choose your option.

Select the grants.csv file from your downloads folder.



# Geocoding a dataset

In the New Item window under **how would you like to add this file** select, **Add grants.csv** and **create a hosted feature layer or table**.



The screenshot shows a 'New item' dialog box with a close button (X) in the top right corner. The 'File' section lists 'grants.csv'. Below this, the question 'How would you like to add this file?' is followed by two radio button options. The first option, 'Add grants.csv and create a hosted feature layer or table', is selected and highlighted with a blue border. Its description states: 'A CSV file with location information is the data source for a hosted feature layer that displays points on a map. A CSV file without location information displays a table that can be viewed, charted, and joined with other layers.' The second option, 'Add grants.csv only', is unselected and its description states: 'Add CSV without publishing. File can be shared and downloaded by others or published at a later date.' At the bottom of the dialog, there are three buttons: 'Back', 'Cancel', and 'Next'.

New item

File  
grants.csv

How would you like to add this file?

Add grants.csv and create a hosted feature layer or table  
A CSV file with location information is the data source for a hosted feature layer that displays points on a map. A CSV file without location information displays a table that can be viewed, charted, and joined with other layers.

Add grants.csv only  
Add CSV without publishing. File can be shared and downloaded by others or published at a later date.

Back Cancel Next

# Geocoding a dataset

In the following screen you can select which fields from the csv you want to include, the field names, and types. Leave everything as is and click **Next**.

### New item

**Fields**  
Select the fields that will be included in the hosted feature layer. Optionally, update the display name and field type.

Search for field All types

26 selected Clear selection

<input checked="" type="checkbox"/> Field name	Display name	Type
<input checked="" type="checkbox"/> Fiscal_Year	Fiscal Year	Integer
<input checked="" type="checkbox"/> Grants__Grants_Number	Grants: Grants Number	Integer
<input checked="" type="checkbox"/> Grant_Type	Grant Type	String
<input checked="" type="checkbox"/> Grantee_Name	Grantee Name	String

Back Cancel Next

# Geocoding a dataset


Next we will select the field or fields in the grants.csv file which contain the location information. In this case the location information is contained in multiple fields, so select under Location fields **Location information is in multiple fields.**

New item

---

Location settings

Specify the type of location information the file contains.

 Addresses or place names Consumes credits ▼

Location data is addresses, place names, postal codes, and countries. May consume credits.


> Advanced location settings

---

Location fields \*

Location information is in one field.

Location information is in multiple fields.



# Geocoding a dataset

Now we will select the **location fields**. Upon inspecting the csv file we can determine the csv fields containing location information include **applicant city, applicant zip, and county**. For City select Applicant City, for Subregion select County, and for Postal select Applicant Zip. Click **Next**.

City	Applicant City
Subregion	County
Region	Location type not used
Postal	Applicant Zip
Back	Cancel Next

# Geocoding a dataset

Note that geocoding requires Esri Service credits, which are consumed for using certain functionalities of ArcGIS Online. All students at MTU are allotted a certain amount of credits. This geocoding process consumes, in this case 9.12 credits. You can see the estimated credit usage and your available credits at the bottom of the window.



# Geocoding a dataset

Fill out some basic information about your item. Enter a title, tags, and a summary. Including good metadata will help others find and use your dataset. Click **Save** and begin geocoding.

New item ×

---

File  
grants.csv

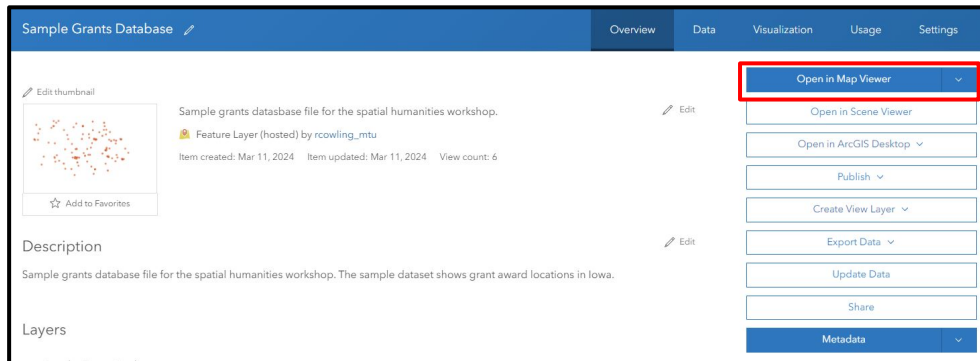
Title

Folder

Tags

# Create a Web Map

Go to the item page and click Open in Map Viewer. A new map should popup with this layer loaded. You can now inspect your newly geocoded dataset. Click on any dot on the map to view information about the grant awarded at that location.



The screenshot shows the ArcGIS Item page for 'Sample Grants Database'. The page has a blue header with the title and navigation tabs: Overview, Data, Visualization, Usage, and Settings. Below the header, there is a thumbnail of a map with red dots, a description, and a 'Layers' section. The 'Layers' section contains a list of actions: Open in Map Viewer (highlighted with a red box), Open in Scene Viewer, Open in ArcGIS Desktop, Publish, Create View Layer, Export Data, Update Data, Share, and Metadata. A yellow arrow points from the 'Open in Map Viewer' button to the right.

Sample Grants Database

Overview Data Visualization Usage Settings

Edit thumbnail

Sample grants database file for the spatial humanities workshop.

Feature Layer (hosted) by rowling\_mt

Item created: Mar 11, 2024 Item updated: Mar 11, 2024 View count: 6

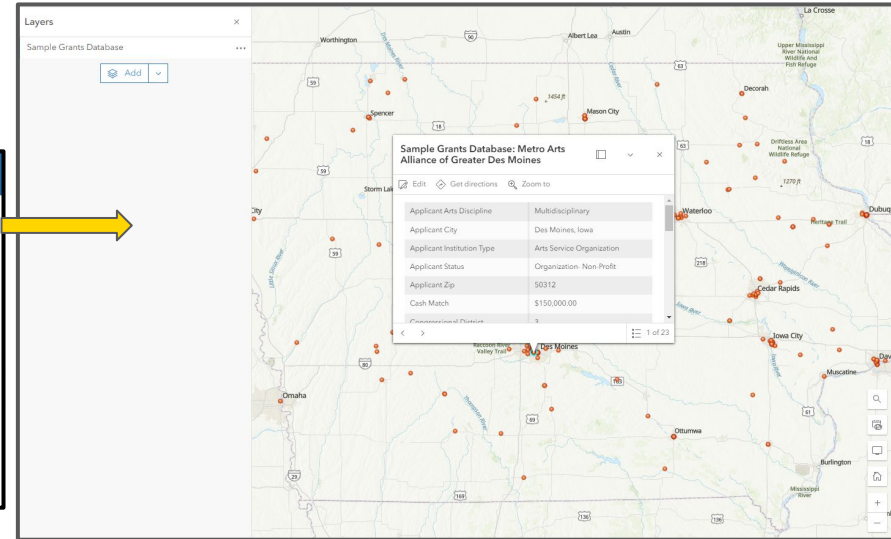
Add to Favorites

Description

Sample grants database file for the spatial humanities workshop. The sample dataset shows grant award locations in Iowa.

Layers

- Open in Map Viewer
- Open in Scene Viewer
- Open in ArcGIS Desktop
- Publish
- Create View Layer
- Export Data
- Update Data
- Share
- Metadata



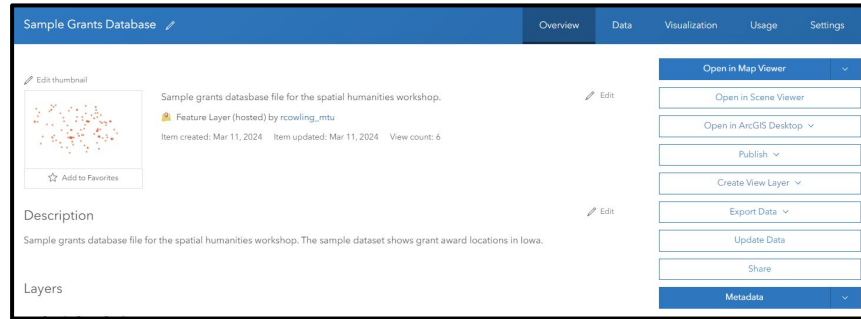
The screenshot shows the ArcGIS Map Viewer interface. The map displays a geocoded dataset of grant award locations in Iowa, represented by red dots. A pop-up window titled 'Sample Grants Database: Metro Arts Alliance of Greater Des Moines' is open, showing details for a specific grant. The pop-up window includes a table with the following information:

Property	Value
Applicant Arts Discipline	Multidisciplinary
Applicant City	Des Moines, Iowa
Applicant Institution Type	Arts Service Organization
Applicant Status	Organization - Non Profit
Applicant Zip	50312
Cash Match	\$150,000.00
Financial Year	1

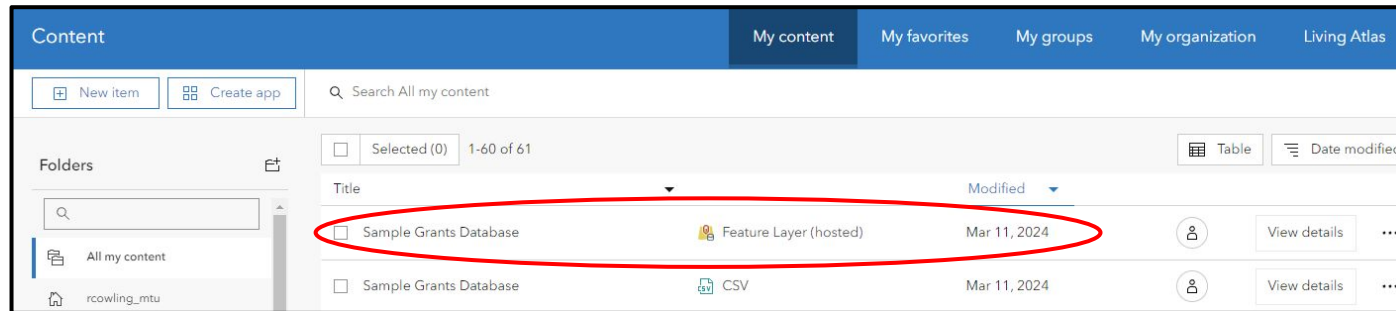
The map also shows a 'Layers' panel on the left with the 'Sample Grants Database' layer selected. The map includes various UI elements like a search bar, zoom controls, and a scale bar.

# Geocoding a dataset

Once your dataset has finished geocoding, you can optionally review the results. You should be on your new item page and your new item should also appear in the **My Content Tab**.



The screenshot shows the ArcGIS Item page for 'Sample Grants Database'. The page has a blue header with the title and a pencil icon for editing. Below the header are tabs for 'Overview', 'Data', 'Visualization', 'Usage', and 'Settings'. The main content area includes a thumbnail of a map with red dots, a description, and a 'Layers' section. On the right side, there is a vertical menu with various actions: 'Open in Map Viewer', 'Open in Scene Viewer', 'Open in ArcGIS Desktop', 'Publish', 'Create View Layer', 'Export Data', 'Update Data', 'Share', and 'Metadata'. The 'Open in Map Viewer' option is highlighted in blue.



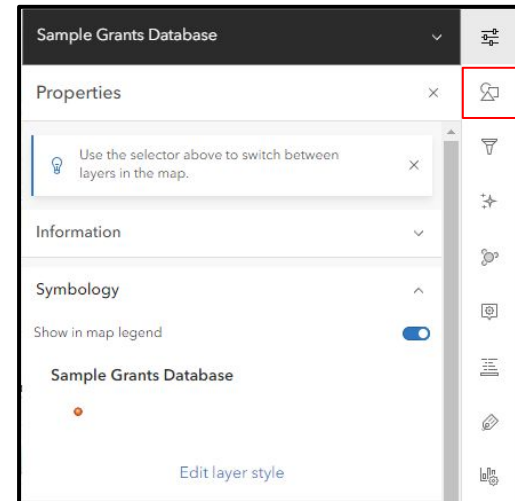
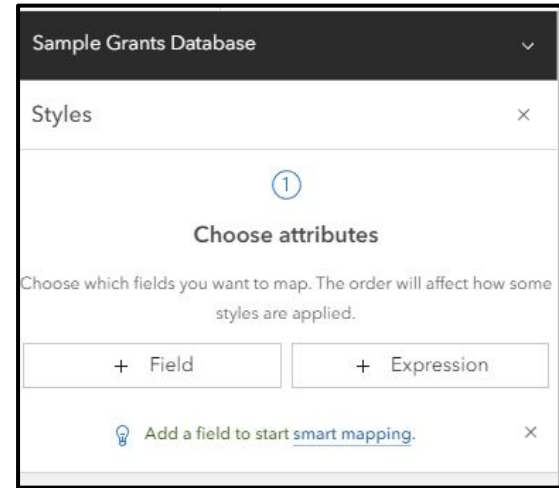
The screenshot shows the ArcGIS Content page with the 'My content' tab selected. The page has a blue header with the title 'Content' and navigation tabs for 'My content', 'My favorites', 'My groups', 'My organization', and 'Living Atlas'. Below the header are buttons for 'New item' and 'Create app', and a search bar for 'Search All my content'. The main content area shows a list of items. The first item, 'Sample Grants Database', is circled in red. It is a 'Feature Layer (hosted)' created on 'Mar 11, 2024'. The second item is another 'Sample Grants Database' which is a 'CSV' file, also created on 'Mar 11, 2024'. The list has columns for 'Title', 'Modified', and 'View details'.

Title	Modified	View details
Sample Grants Database	Mar 11, 2024	View details
Sample Grants Database	Mar 11, 2024	View details

# Create a Web Map

Now we will use this dataset to create a Web Map. We already have the data on a map and we can add symbology to it.

1. Click on the **Styles** symbol button on the right sidebar.
2. In the style window click **+ Field**. We are going to symbolize the grant awards points on the map according to the number of Youth Engaged. Select the **Youth Engaged In-Person** field.

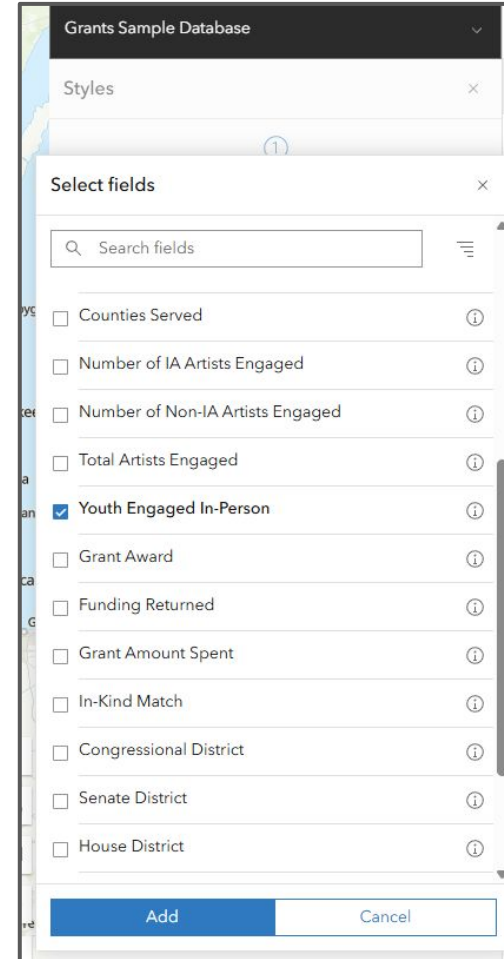
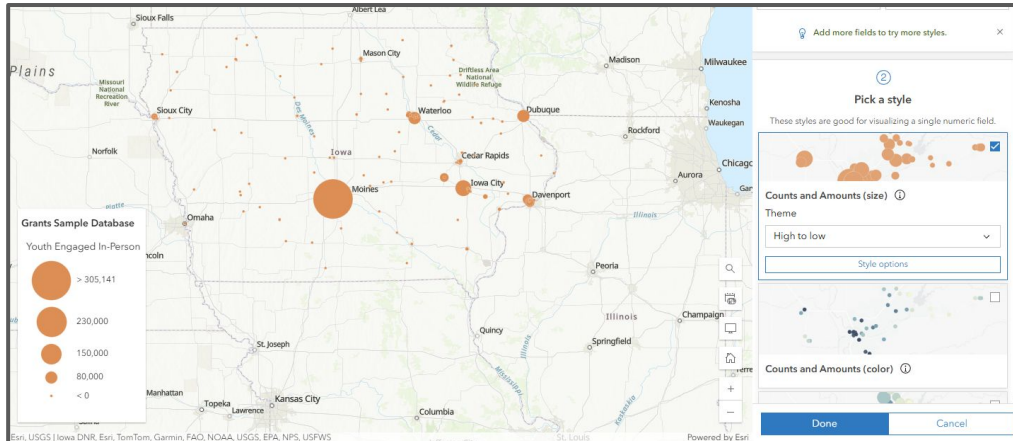


# Create a Web Map

In the Fields window scroll down and click the checkbox next to the field 'Youth Engaged In-Person' and click Add.

If not selected already, under pick a style choose Counts and Amounts Size.

The points on the map should now be symbolized as proportional symbols with larger circles representing a higher number of Youth Engaged In-Person.



# Create a Web Map

Our map is looking good but let's make the proportional symbols a different color. Click on the style options button under Counts and Amounts (size). Click on the **pencil icon** next to symbol style.

Click the **pencil icon** next to the fill color. Under **Size**, change color to purple.

When you are finished click **Done**.

**Symbol style**

Current symbol: Basic point

Rotation: 0°

Fill color: [Color swatch] [Pencil icon]

Fill transparency: 0%

Outline color: [Color swatch] [Pencil icon]

Outline transparency: 75%

Outline width: 1 px

**Counts and Amounts (size)**

Youth Engaged In-Person

Theme: High to low (Vary the size of features from high to low.)

Divided by: Choose a field

Symbol style: [Color swatch] [Pencil icon]

Data range: [Min/Max] [Search] [Reset]

305,141

305,141

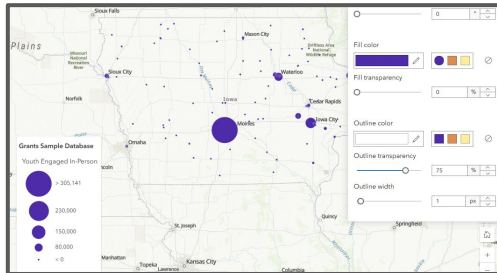
0.0

+a 36,274

x 7,160

0.0

Style options



2

Pick a style


These styles are good for visualizing a single numeric field.

Counts and Amounts (size) ⓘ

Theme: High to low

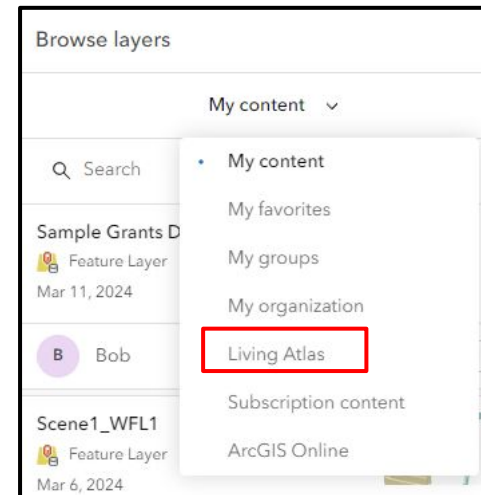
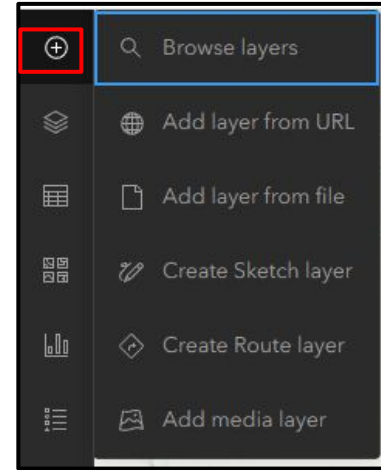
Style options

# Create a Web Map

Now we can try adding an additional layer to the map. Let's add a demographic data underneath the grants layer. On the left sidebar click the  button and select Browse Layers.

Under Browse layers, use the dropdown menu and select **Living Atlas**.

*Esri's Living Atlas consists of authoritative datasets curated by Esri and government agencies.*



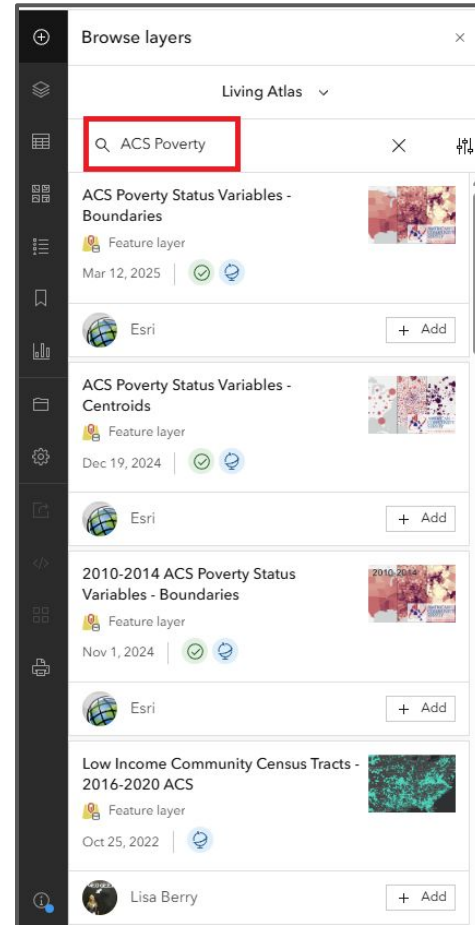
# Create a Web Map

We are going to add some data from the American Community Survey from the US Census Bureau. In the search box type ACS Poverty.

Scroll down and locate the item **ACS Poverty Status Variables - Boundaries** and click the **Add button**.


The layer will now be added to the map. The dataset shows poverty by age group per state, county, and census tract.

Esri makes the most recent demographic Census data available for easy use with the Living Atlas.



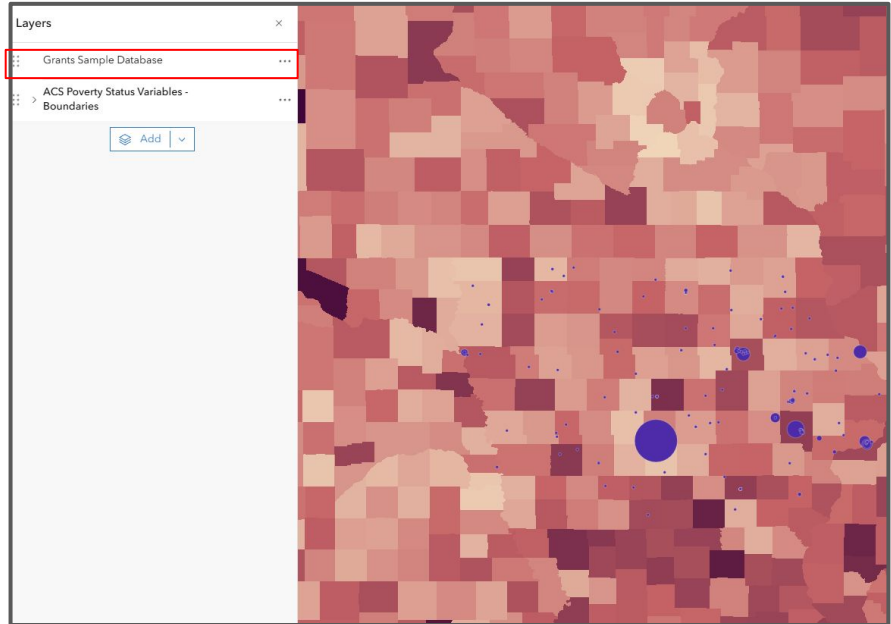
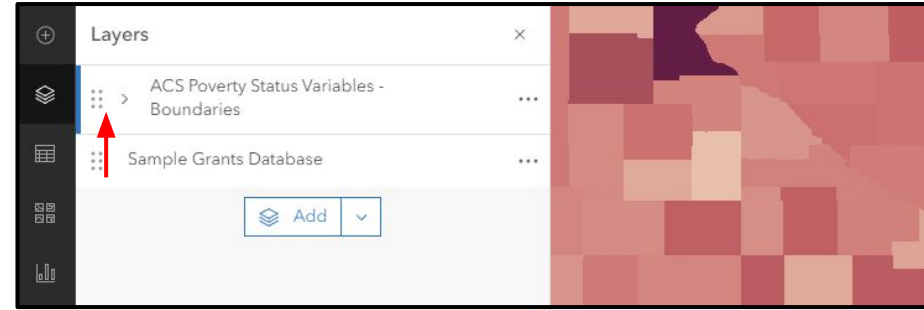
# Create a Web Map

You can see that the ACS layer has been added to the map but it is covering up the Grants Sample Layer.

Go to the **Layers** tab on the left side-bar and click the ellipses  icon and drag the Sample Grants Database Layer Above the ACS Poverty Status Variables layer.

This layer is styled as a choropleth map where counties with higher poverty levels are colored darker and counties with lower poverty levels are colored lighter. Click on any county to view the poverty variables for that county.

Overlaying the layers allows us to examine a potential correlation between the Number of Youth Engaged In-Person and the poverty level.



# Create a Web Map

Now we will change the variable being displayed in the choropleth map. Right now the variable from the data being displayed is **Percent of Population whose income in the past 12 months is below poverty level** but we would like to specifically target the percent of youth below the poverty level.

Click on right arrow next to the **ACS Poverty Status Variables layer** to expand it. This is a group of three individual layers at different zoom levels: State, County, and Census Tracts.

Click on the County layer and on the right sidebar click on the **Styles** button.

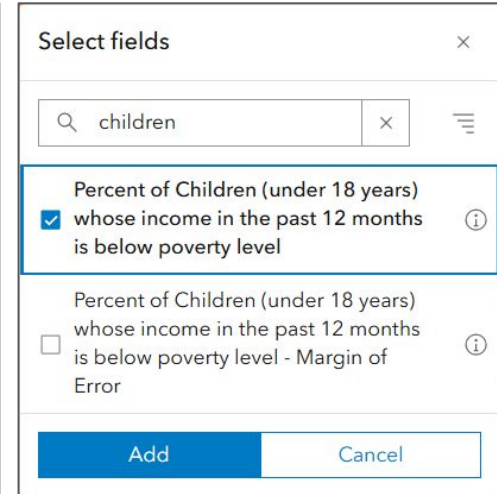
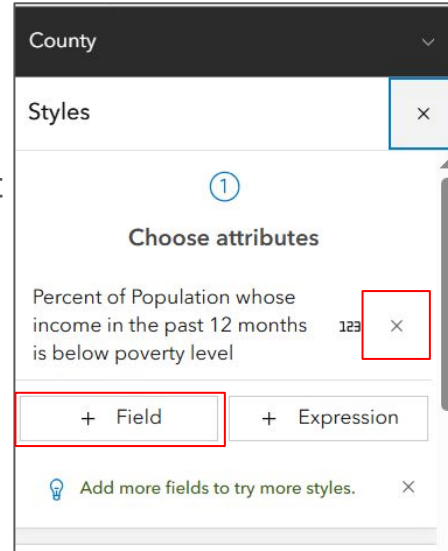
The image shows two panels from a web map interface. The left panel is the 'Layers' panel, which lists several layers: 'US State Boundaries', 'grants\_rcowling', 'ACS Poverty Status Variables - Boundaries', 'State', 'County', and 'Tract'. A yellow arrow points to the 'County' layer. The right panel is the 'Styles' panel, which is currently set to 'County'. It shows a 'Choose attributes' section with the text 'Percent of Population whose income in the past 12 months is below poverty level'. There are buttons for '+ Field' and '+ Expression'. A red box highlights the 'Styles' button in the top right corner of the panel.

# Create a Web Map

Under Choose attributes click the **X** next to the variable **Percent of Population whose income in the past 12 months is below poverty level** to remove it.

Click on the **+ Field** button. Search for children. A list of variables containing this text will be displayed. Find and check the variable Percent of Children (under 18 years) whose income in the past 12 months is below poverty level.

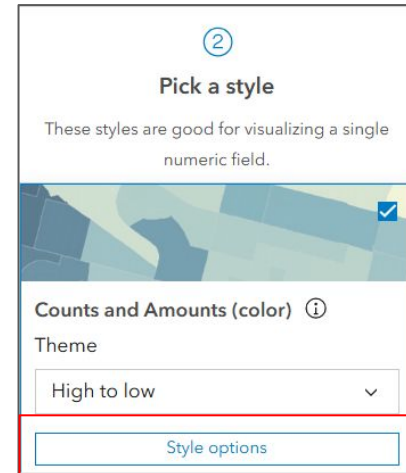
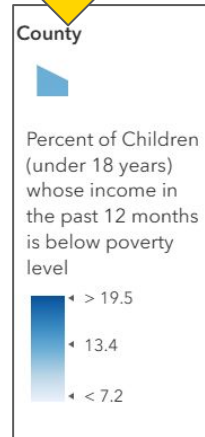
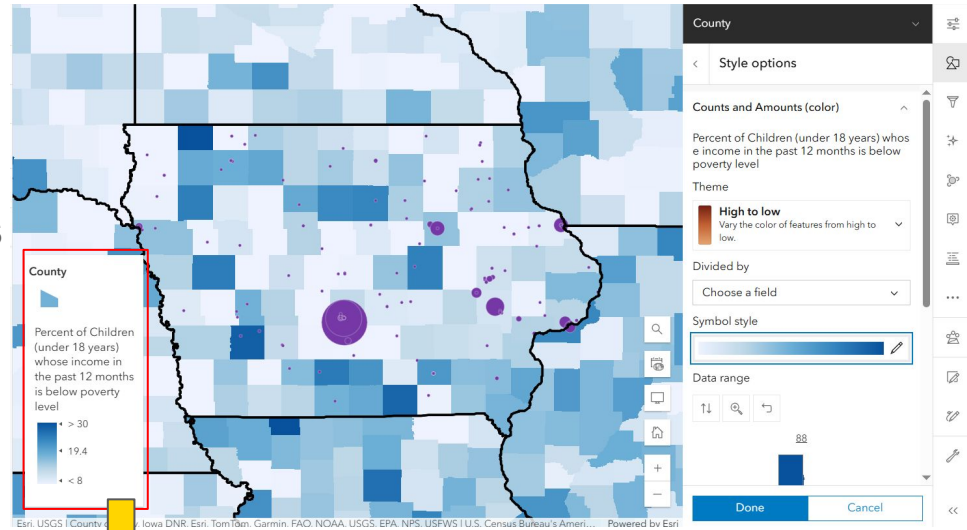
Click the **Add** button.



# Create a Web Map

The choropleth map changes colors and is now displaying the value for children whose income is below poverty level.

You can change the color ramp by clicking on the **Style options** button under **Counts and Amounts (color)**.

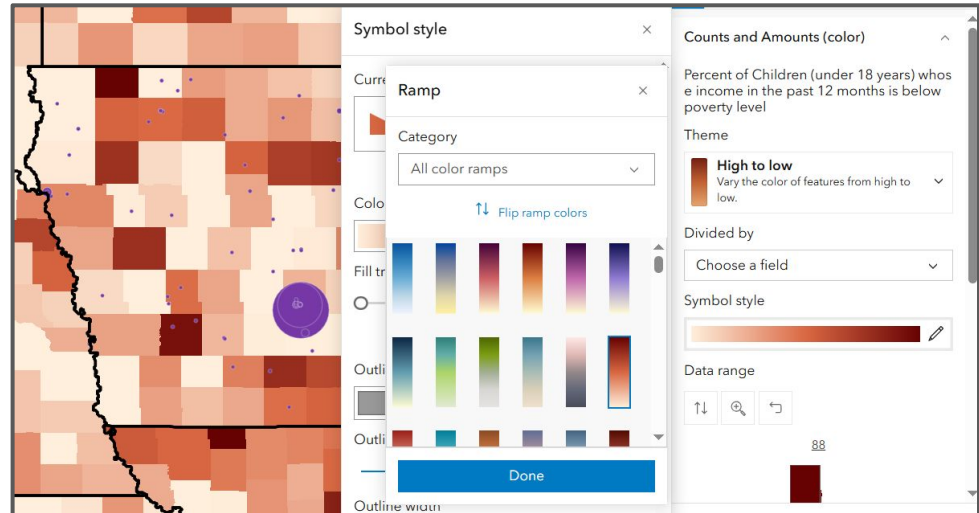
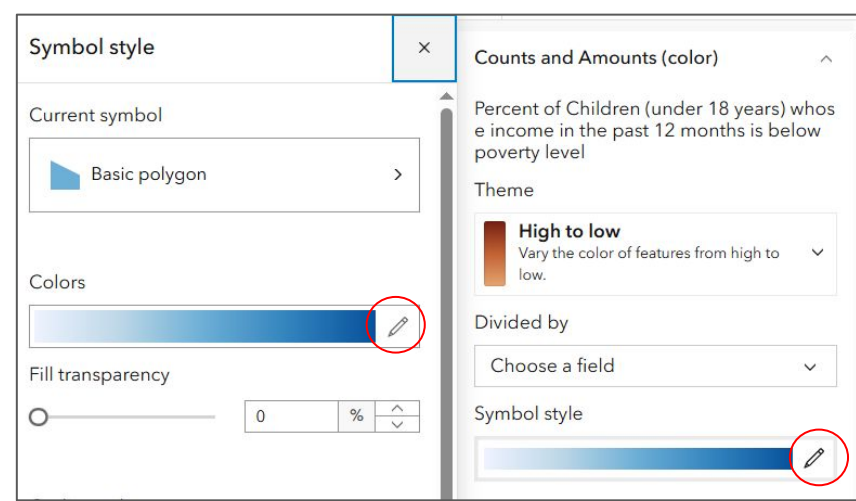
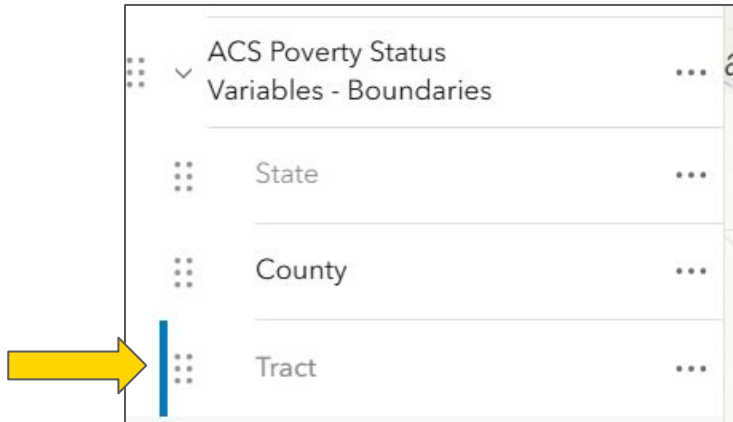


# Create a Web Map

In the Style options click in the **pencil icon** next to symbol style. In the symbol style window click the **pencil icon** next to Colors.

In the **Ramp** window. Select a color ramp such as Pink 1, Red 2 or Red 3. Click the **Done** button.

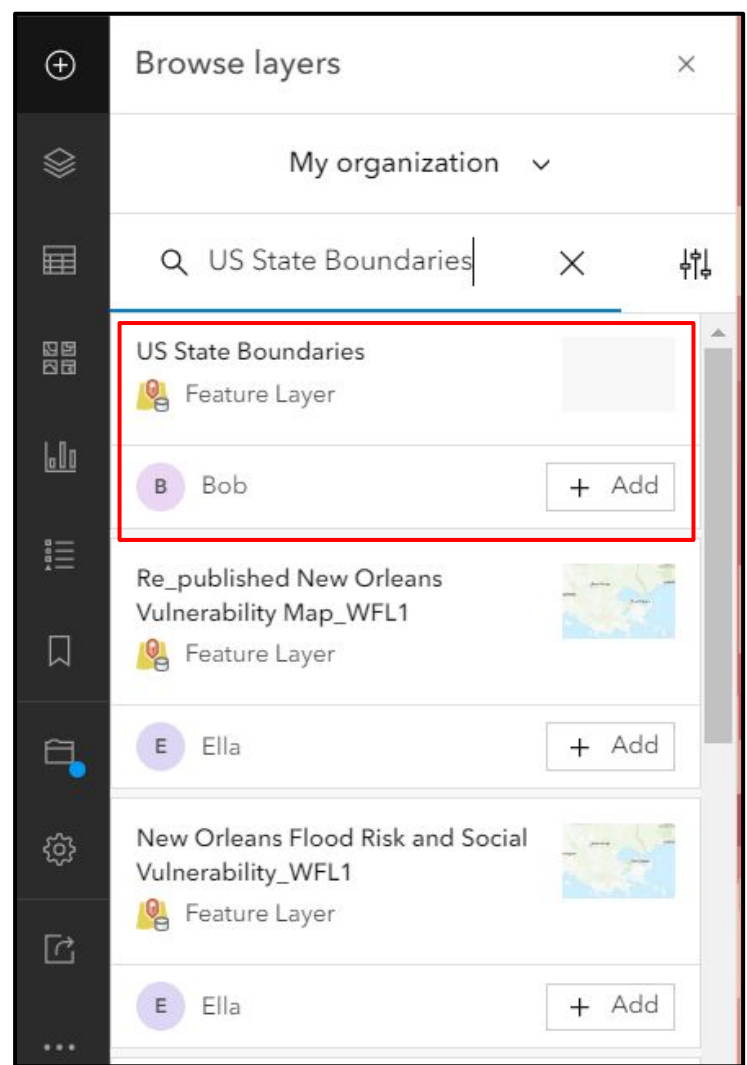
The color ramp has updated on your map. Repeat this process with the Census Tracts layer in the ACS Poverty Status Variables layer group.



# Create a Web Map

Our map looks good but we could use a layer of US States boundaries to help outline the state of Iowa.

Click the **Add Data** button again and select **Browse Layers**. This time you want to find content in **My Organization**. Search for **US State Boundaries**. Select the US State Boundaries by Bob result (you may have to scroll down a bit) and click the **Add** button.

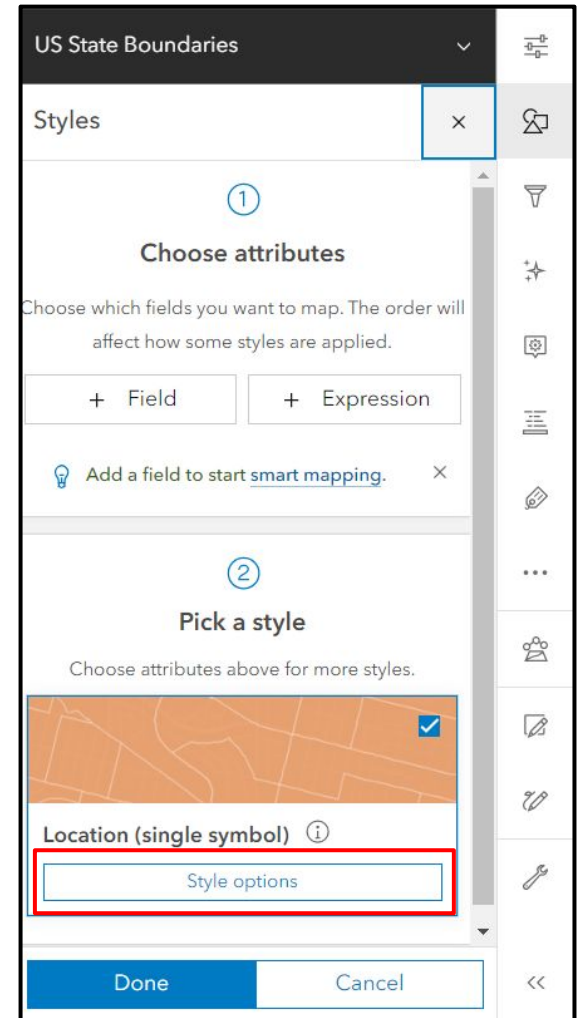


# Create a Web Map

Click the layers tab and select the **US State Boundaries** Layer.

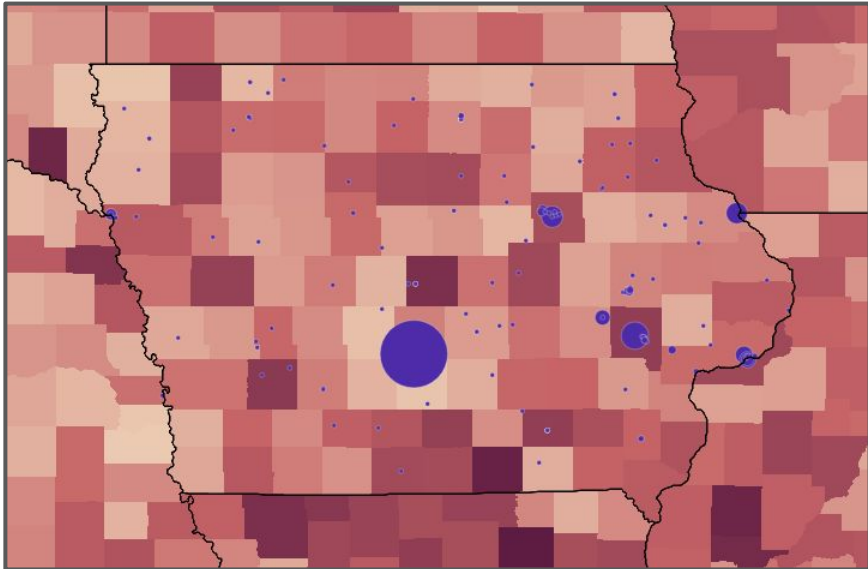
Click the **Style** button on the right sidebar.

Click the **Style options** button under Pick a style location (single symbol).



# Create a Web Map

Click the **pencil icon** under Symbol style and set the Fill color to **No Color**. Click the **Done button** when finished.



The screenshot shows the 'Symbol style' dialog box for the layer 'US State Boundaries'. The 'Current symbol' is 'Basic polygon'. The 'Fill color' is set to 'No Color', which is highlighted with a red box and a red arrow. The 'Fill transparency' is set to 25%. The 'Outline color' is set to black, and the 'Outline transparency' is set to 0%. The 'Outline width' is set to 1 px. The 'Done' button is highlighted in blue.

# What can our map tell us?

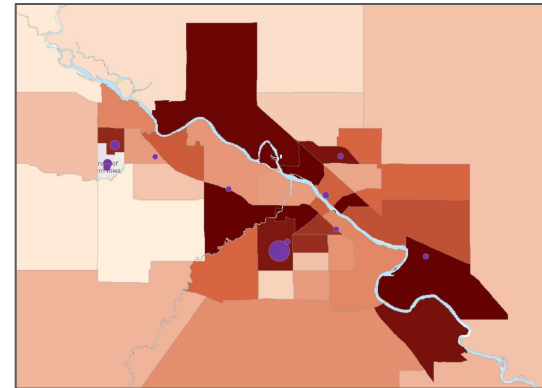
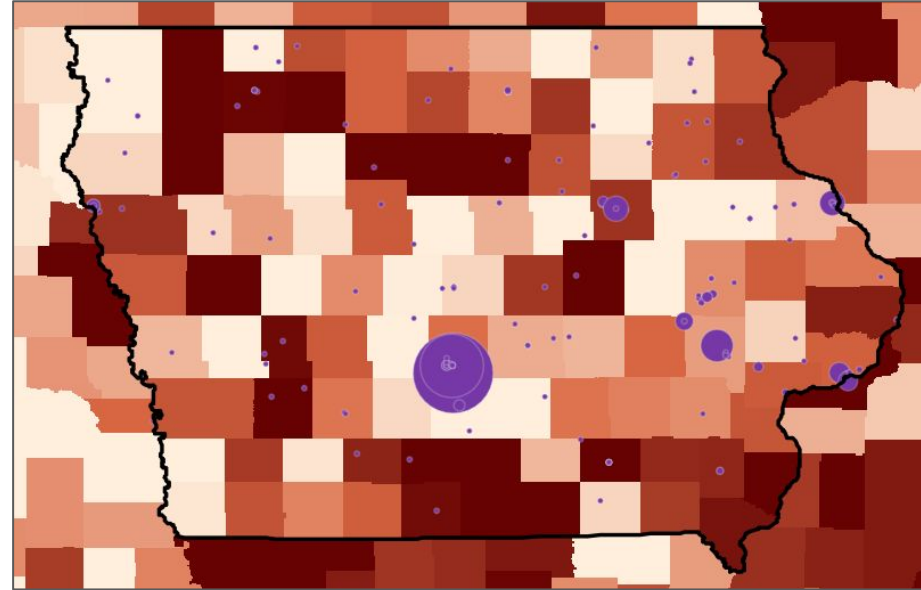
The proportional symbols tell us which counties have more youth participating in humanities activities.

The choropleth shows which areas have higher percentages of youth living below the poverty line.

**Areas with high poverty, high engagement.** These areas show where federal grants are actively engaging underserved youth.

**Areas with high poverty, low or no engagement.** These areas may lack access to humanities programming, despite high need.

**You can see whether grants are reaching high-need areas.**

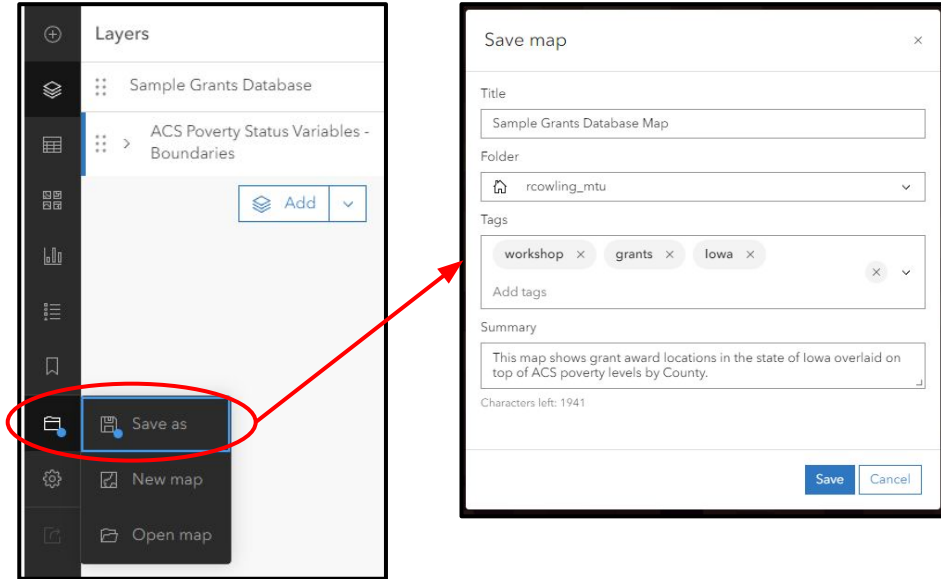


# Saving a Web Map

You can save your Web Map by clicking on the **Save and Open** button on the left side bar. Then click **Save as**.

Fill out a Title, tags, and a summary for your map and click **Save**.

Your map has now been saved in the **My Content** tab.



# Research/Project Consultation

- Schedule a project consultation
  - Help finding GIS data
  - Locating GIS resources for your project
  - How to use GIS in your project

**Bob Cowling**

**GIS Data Librarian**

Geospatial Research Facility, Great Lakes Research Center

Van Pelt and Opie Library

GLRC 303 / Library 204

[rcowling@mtu.edu](mailto:rcowling@mtu.edu)