Best Practices for Publishing Services, Layers and Maps

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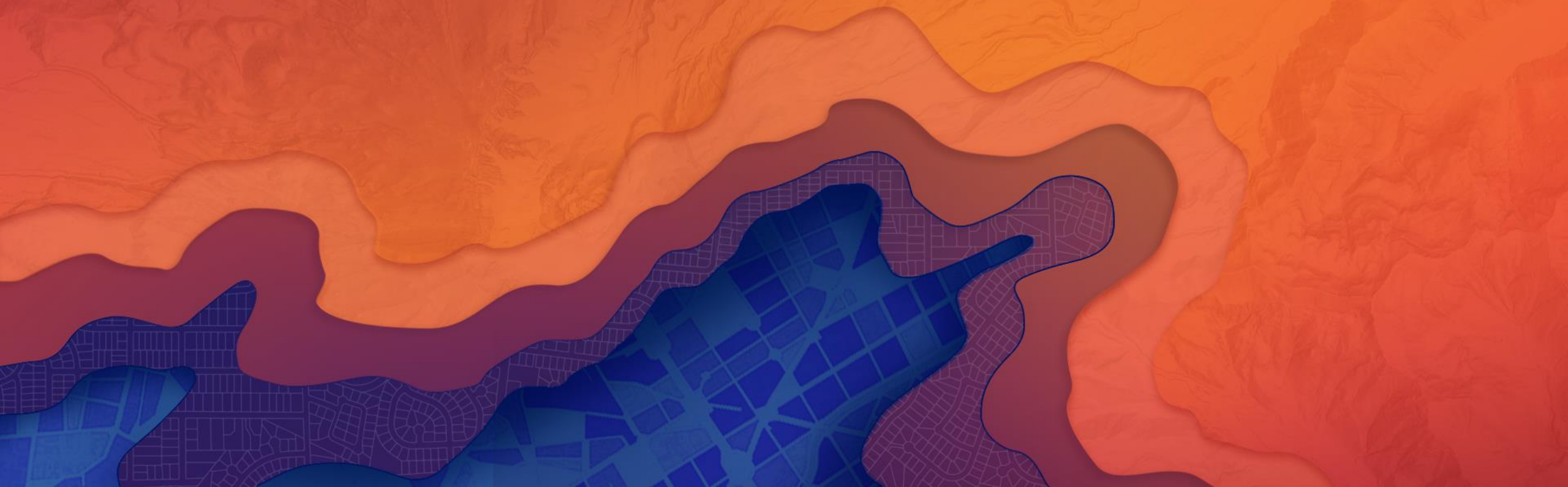
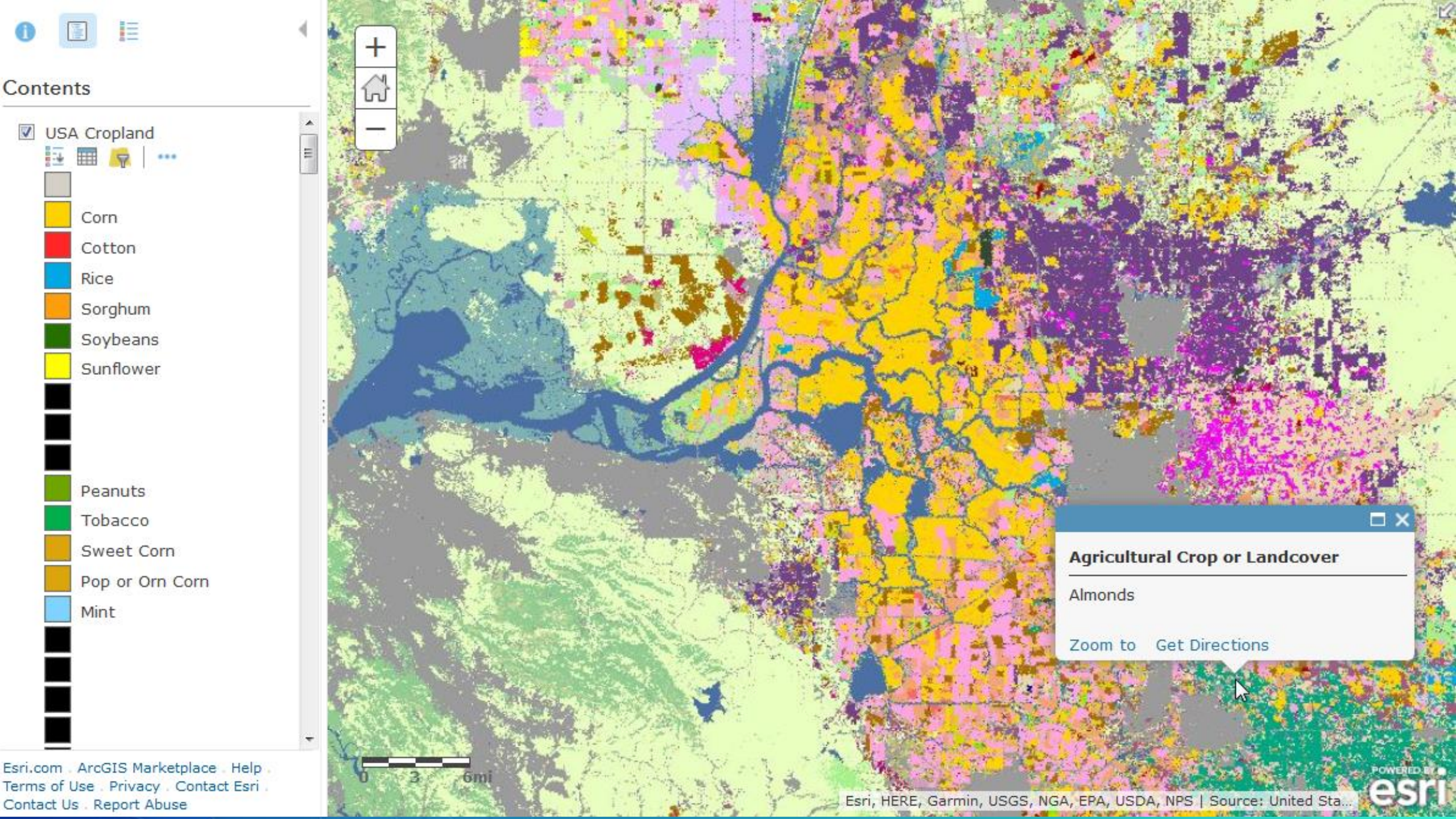
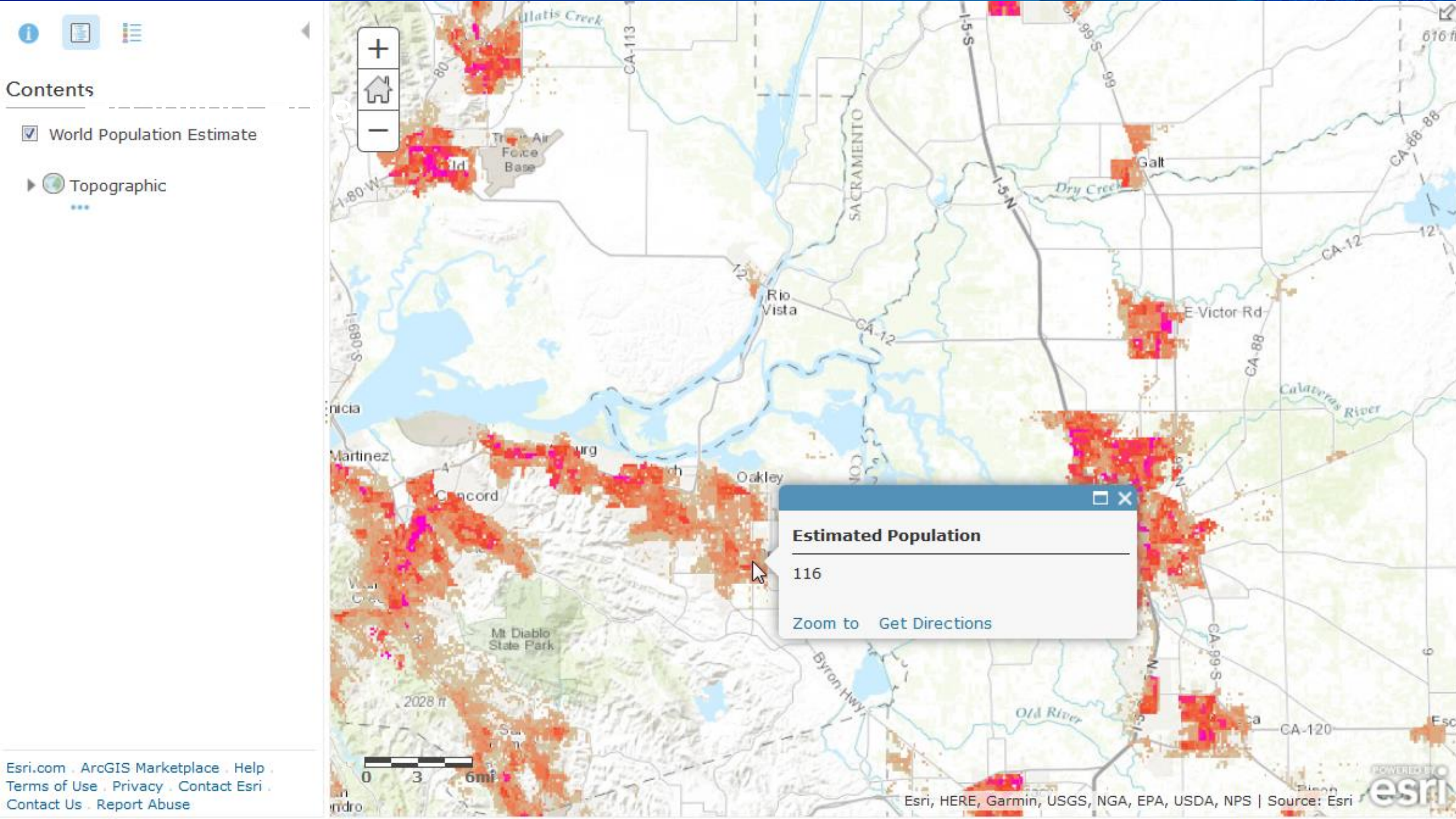
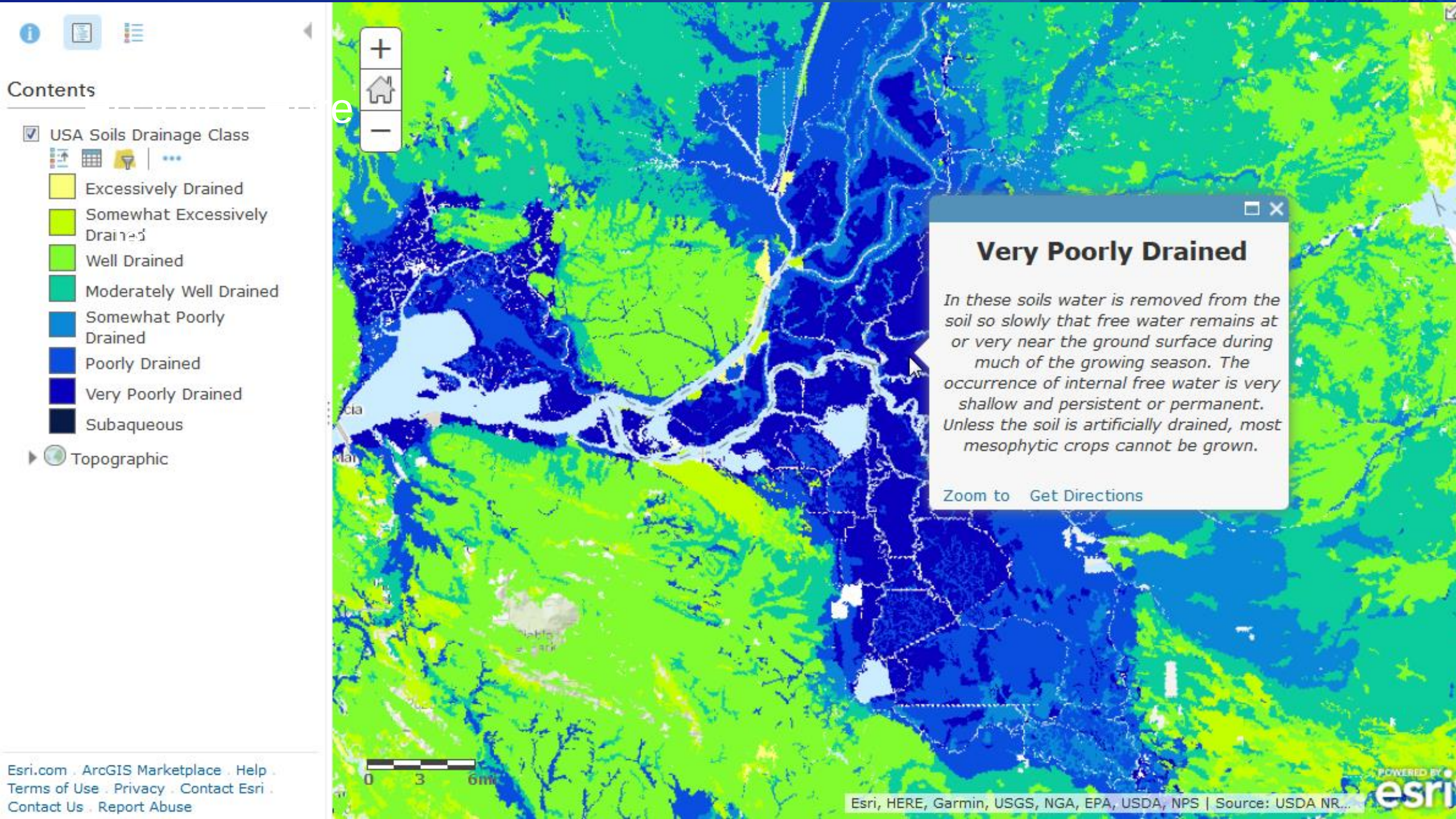
Thematic Image Services

Michael Dangermond




Contents
USA Cropland
Corn
Cotton
Rice
Sorghum
Soybeans
Sunflower
Peanuts
Tobacco
Sweet Corn
Pop or Orn Corn
Mint
Agricultural Crop or Landcover
Almonds
Zoom to
Get Directions
0 3 6mi
Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS | Source: United Sta...
Esri.com . ArcGIS Marketplace . Help .
Terms of Use . Privacy . Contact Esri .
Contact Us . Report Abuse


Contents
World Population Estimate
Topographic
Estimated Population
116
Zoom to
Get Directions
Esri.com . ArcGIS Marketplace . Help .
Terms of Use . Privacy . Contact Esri .
Contact Us . Report Abuse
Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS | Source: Esri
Rio Vista
Galt
E Victor Rd
Oakley
Martinez
Mt Diablo State Park
Calaveras River
Dry Creek
Old River
Byron Hwy
SACRAMENTO
CA-12
CA-113
CA-88
CA-99-S
CA-120
I-5-S
I-5-N
I-80-W
0
3
6mi


Contents
USA Soils Drainage Class
Excessively Drained
Somewhat Excessively Drained
Well Drained
Moderately Well Drained
Somewhat Poorly Drained
Poorly Drained
Very Poorly Drained
Subaqueous
Topographic
Very Poorly Drained
In these soils water is removed from the soil so slowly that free water remains at or very near the ground surface during much of the growing season. The occurrence of internal free water is very shallow and persistent or permanent. Unless the soil is artificially drained, most mesophytic crops cannot be grown.
Zoom to
Get Directions
Esri.com . ArcGIS Marketplace . Help .
Terms of Use . Privacy . Contact Esri .
Contact Us . Report Abuse
0 3 6mi
Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS | Source: USDA NR...
esri

Think Ahead

Who is your audience?

What are their expectations?

How, exactly, will they use your service?

Creating a Thematic Image Service

Four Main Steps

- 1. Organize or Create Rasters
- 2. Create an Attribute Table
- 3. Create a Mosaic
- 4. Publish an Image Service

Download the Checklist

Step by step instructions help you through the details as you publish services.
https://shar.es/1Bxpj4

Organizing Your Rasters

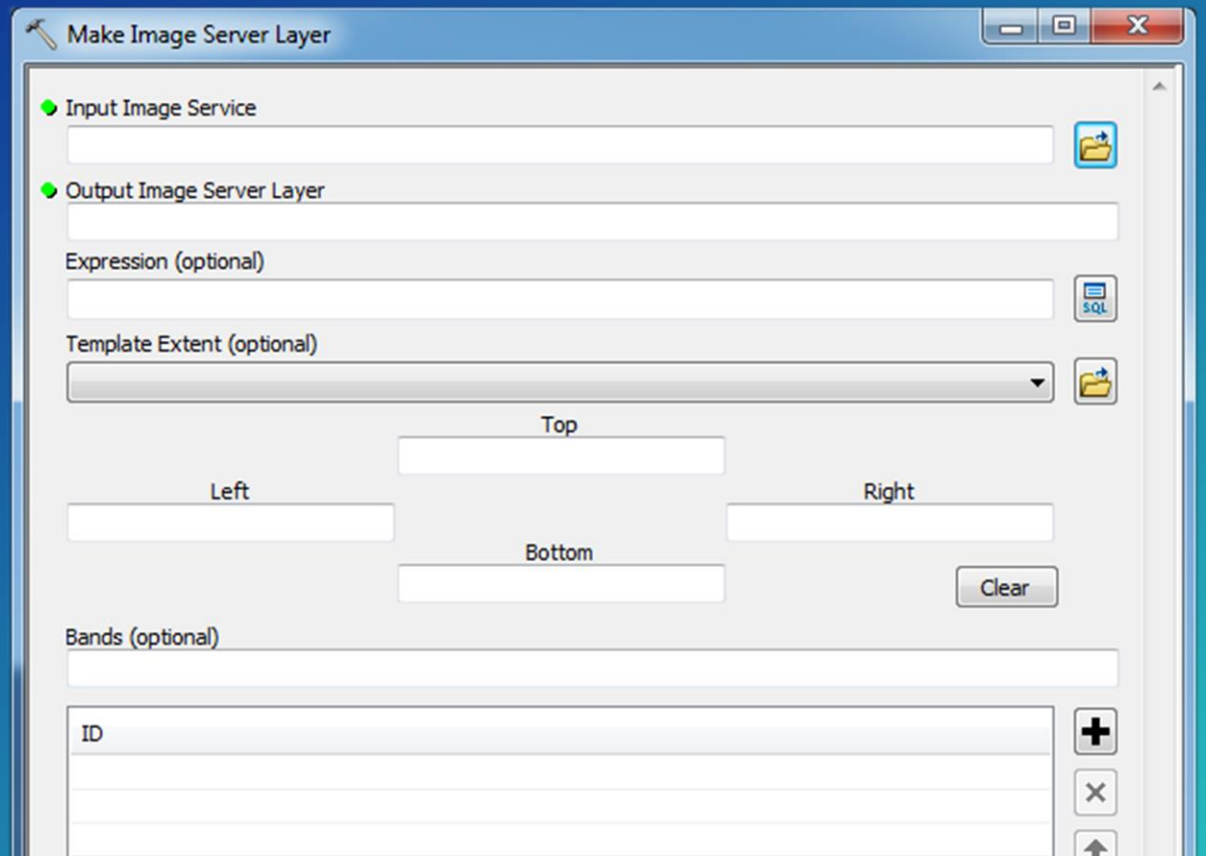
Recommended workflow: Use CopyRaster() to create TIFF images with LZW compression.
Use the same NoData symbol for each raster.

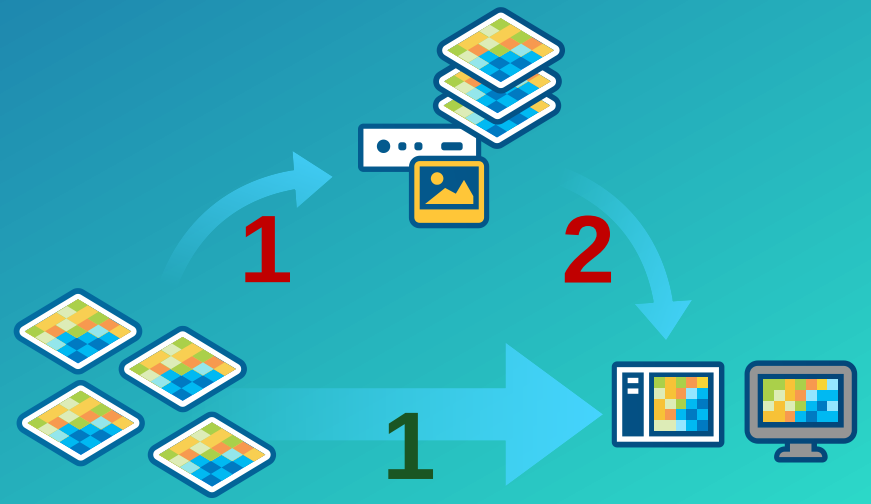
Best thematic global projection is **Mollweide**.

TIFFs can be an assortment of coordinate systems.

Make Image Server Layer tool

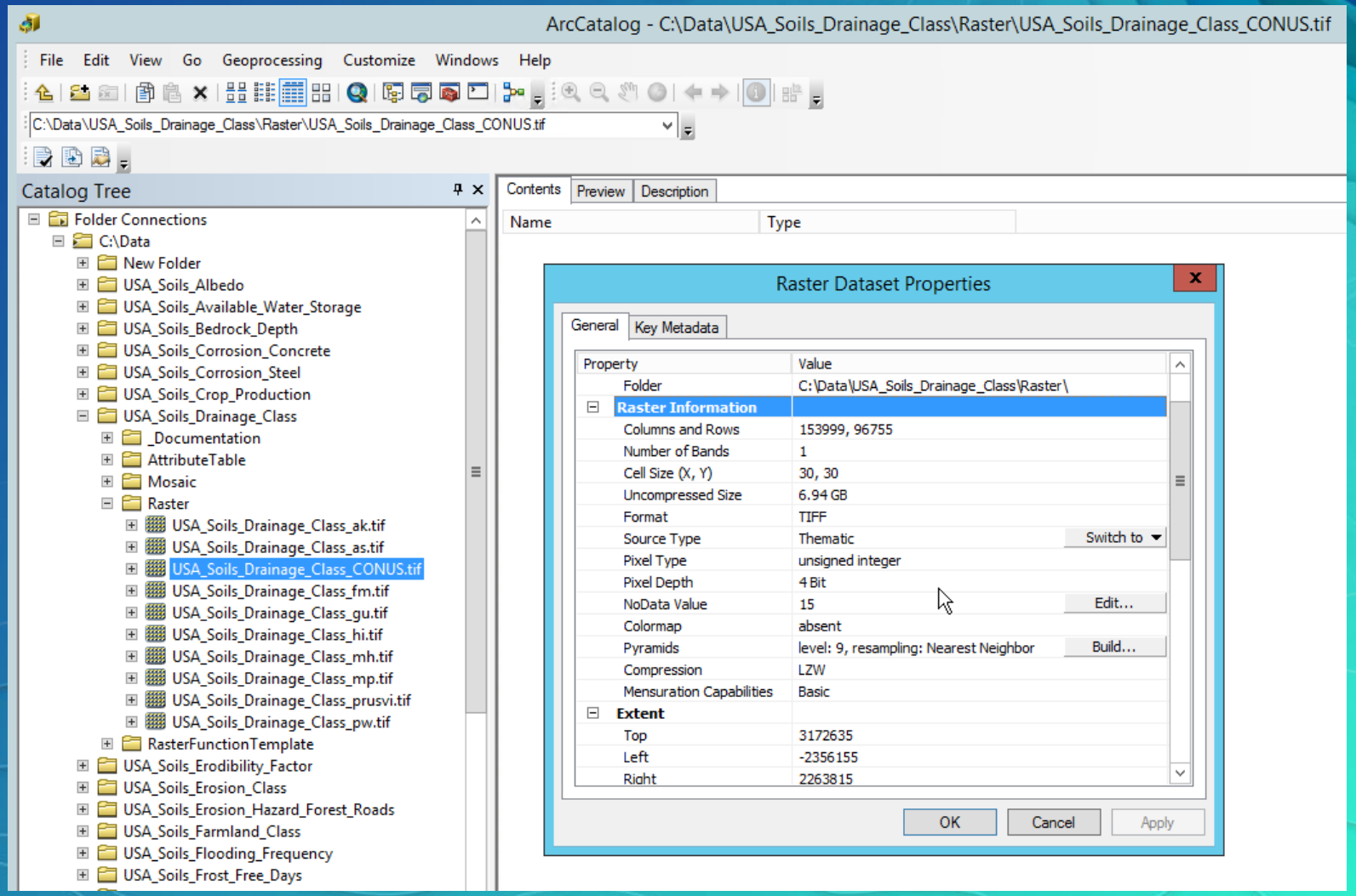
Creates a server layer that has access to a service's rasters in their native projections. Bypasses the "middleman" projection used by the image service.





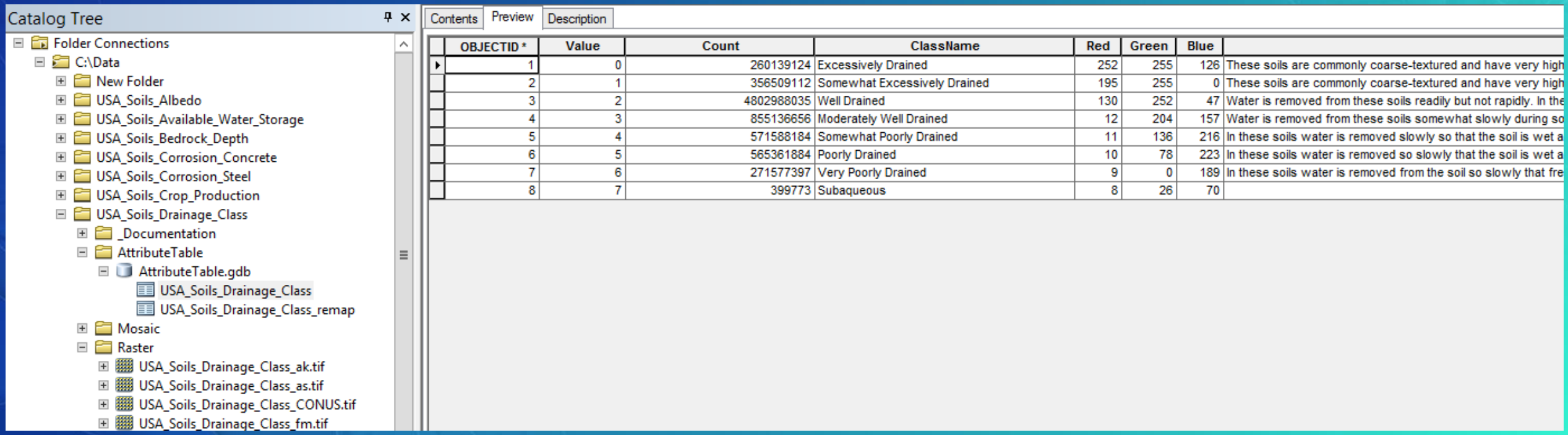
Making Consistent Rasters

- Same Source Type – Thematic
- Same Bit Depth
- Same NoData Symbol
- Same Band Count
- Build Pyramids
- Calculate Statistics



Prepare an Attribute Table

- A geodatabase table
- Value and Count fields required
- Add fields for the legend, map colors, and text to appear in ArcGIS Online popups

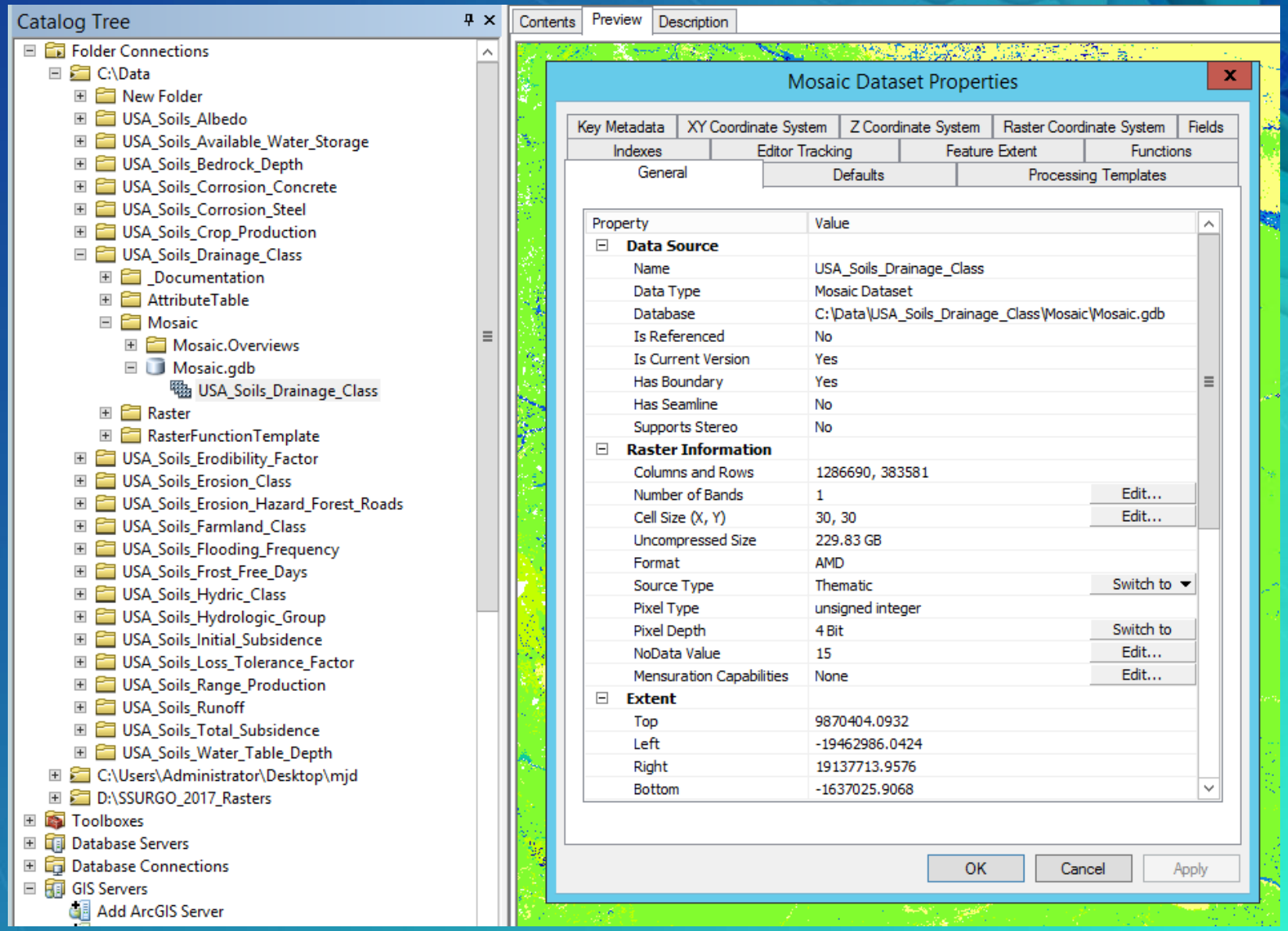


OBJECTID *	Value	Count	ClassName	Red	Green	Blue	
1	0	260139124	Excessively Drained	252	255	126	These soils are commonly coarse-textured and have very high
2	1	356509112	Somewhat Excessively Drained	195	255	0	These soils are commonly coarse-textured and have very high
3	2	4802988035	Well Drained	130	252	47	Water is removed from these soils readily but not rapidly. In the
4	3	855136656	Moderately Well Drained	12	204	157	Water is removed from these soils somewhat slowly during so
5	4	571588184	Somewhat Poorly Drained	11	136	216	In these soils water is removed slowly so that the soil is wet a
6	5	565361884	Poorly Drained	10	78	223	In these soils water is removed so slowly that the soil is wet a
7	6	271577397	Very Poorly Drained	9	0	189	In these soils water is removed from the soil so slowly that fre
8	7	399773	Subaqueous	8	26	70	

Creating a Mosaic

General Properties

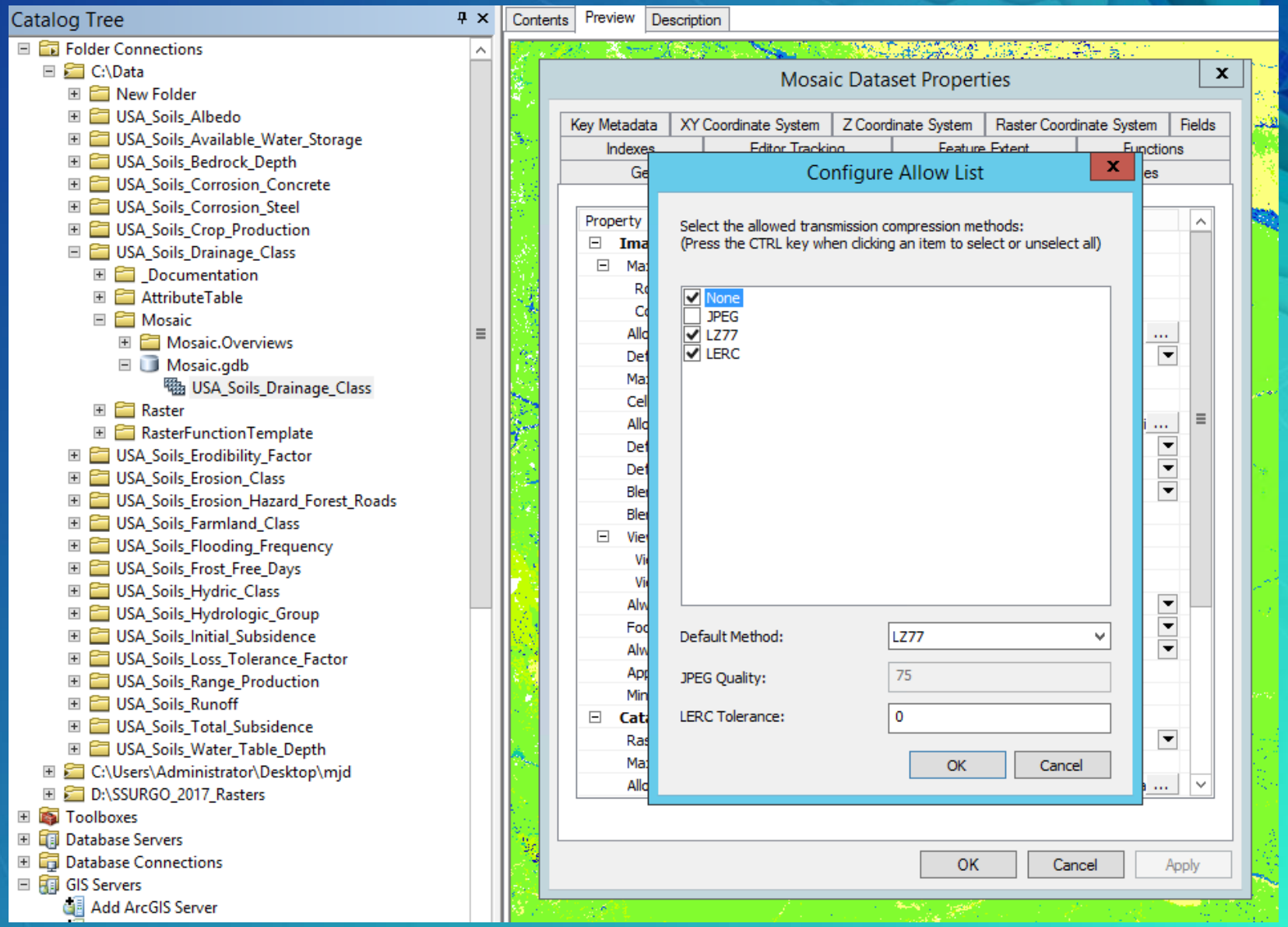
- Mosaic Name
- Source type: Thematic
- Bit depth: 1, 2, 4, 8, 16, 32
- Signed or Unsigned?
- Coordinate System
- NoData Value



Creating a Mosaic

Default tab - Image Compression

- Compression methods:
- LERC, tolerance: 0
- LZ77 (make default)
- None

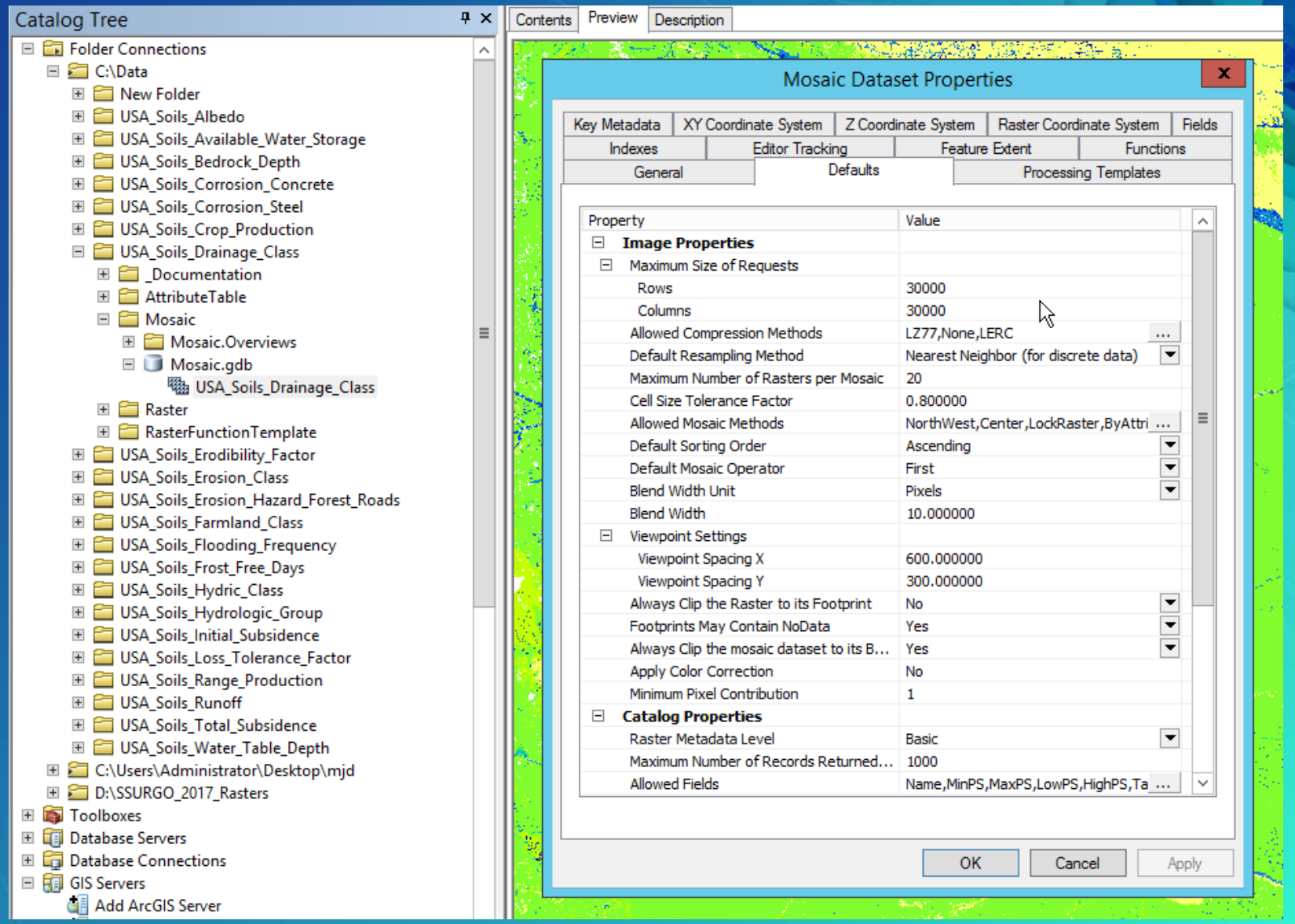


Creating a Mosaic

Defaults

- Maximum Rows, Columns
- LZ77, None, LERC
- Nearest Neighbor
- Maximum Number of Items Downloadable Per Request: 0

- Add Rasters
- Pyramids and Statistics
- Analyze the Mosaic



Overviews

Best practices

- Overviews are a lower resolution version of your rasters.
- Edit the mosaic footprint table, change all MaxPS and HighPS values to the maximum value in the table.
- Define Overviews
- Build Overviews

Functions on the Mosaic

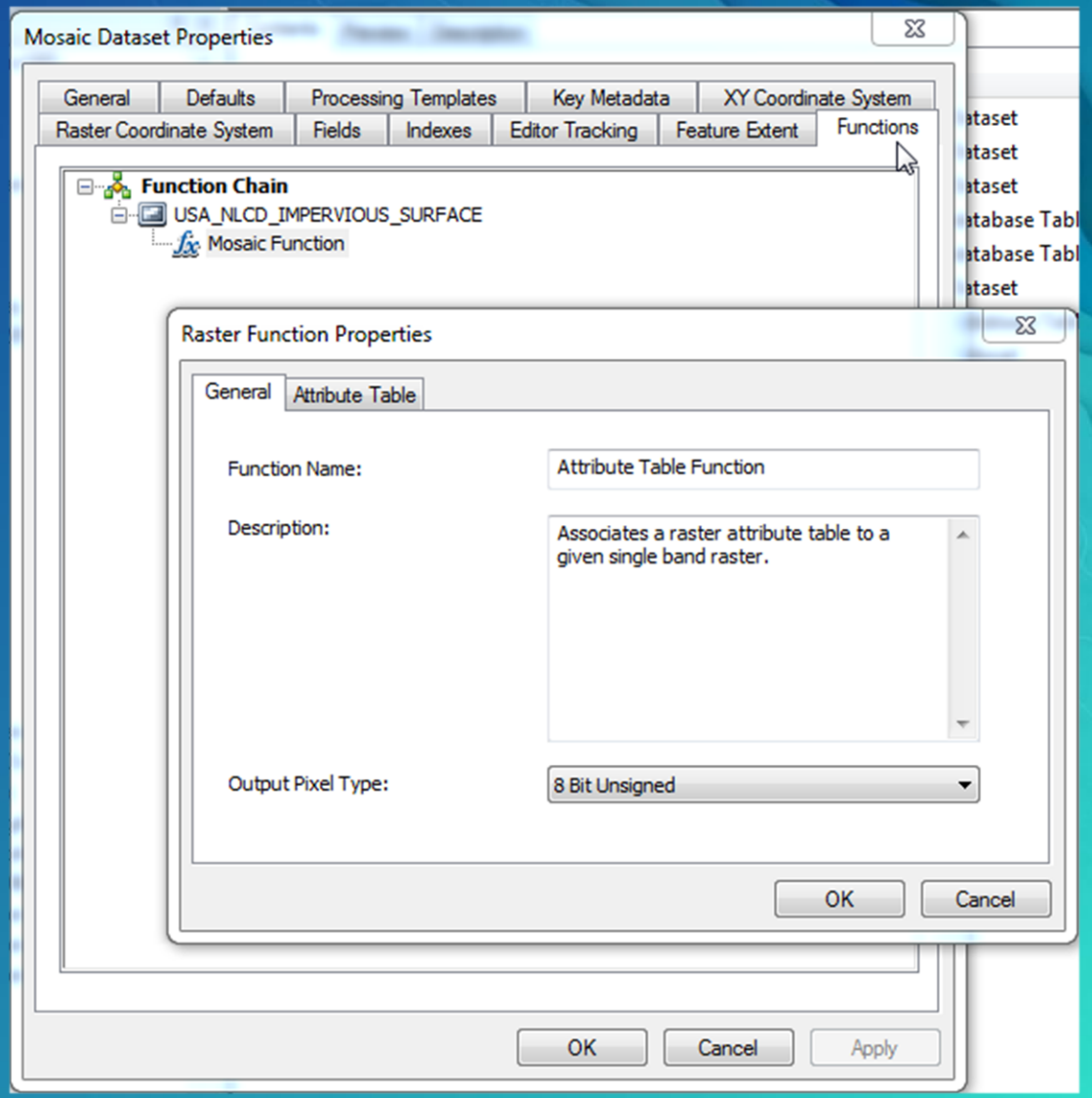
Two ways to apply functions:

Create a function on the mosaic, and Publish the image service.

Only one set of symbols per service.

Create a function, save as raster function Template, delete function. Include Template when publishing the service.

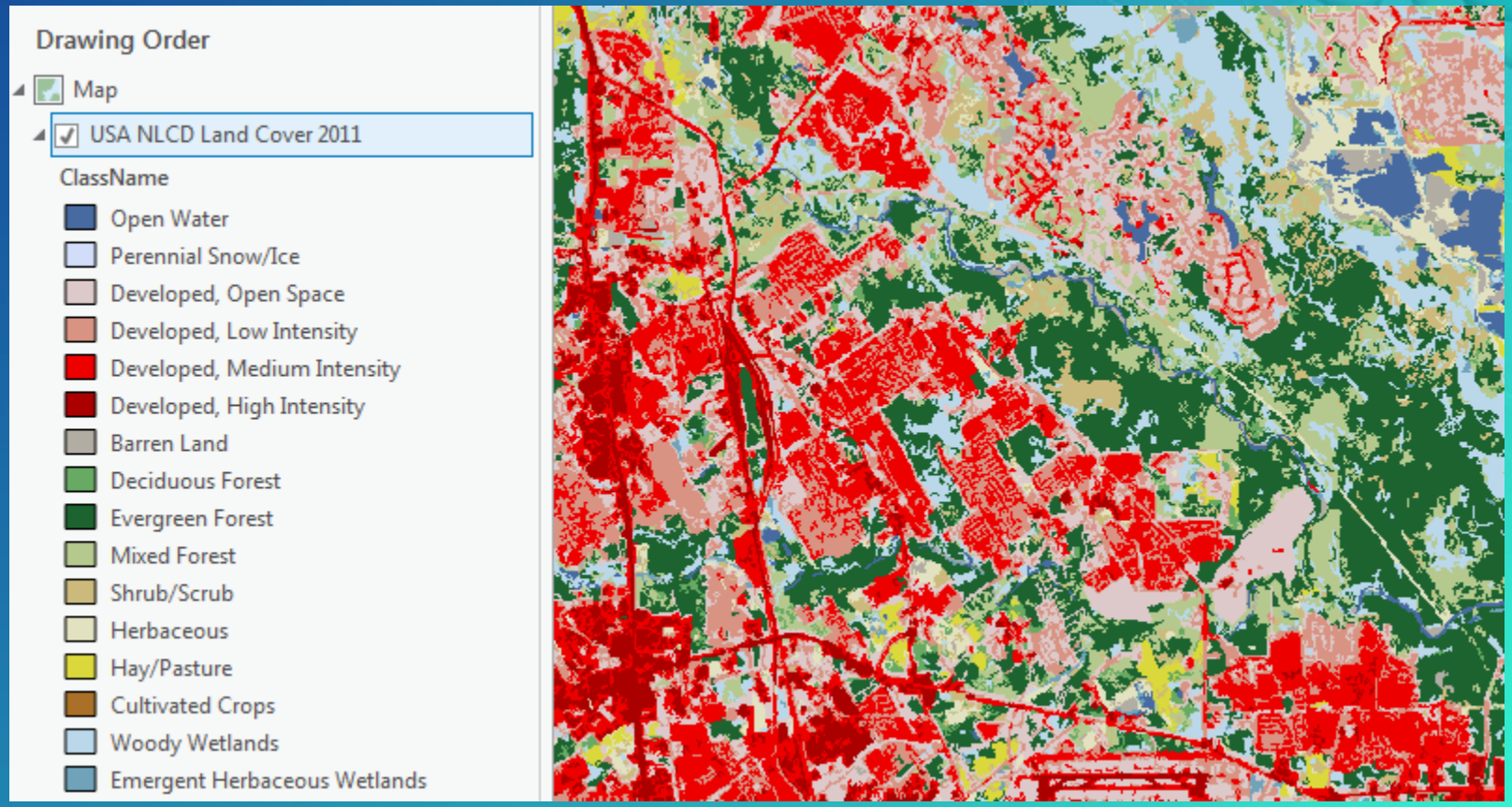
No attributes in popups besides pixel value.



Attribute Table Function

Best practices

- ClassName field appears in legend
- Red, Green, Blue fields color the map
- Other text fields display in an ArcGIS Online popup
- Maximum 2000 records in the attribute table.



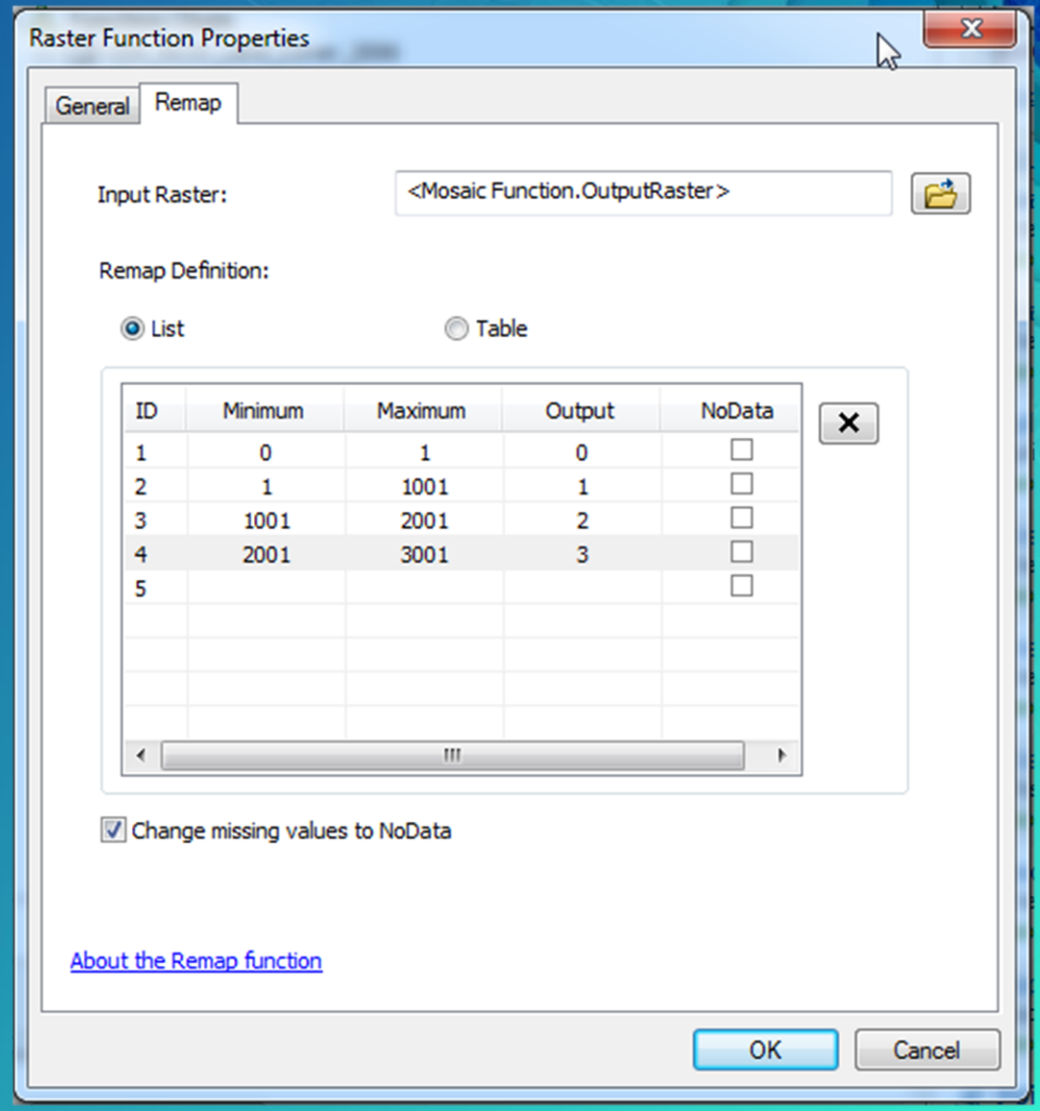
Dagwood Services

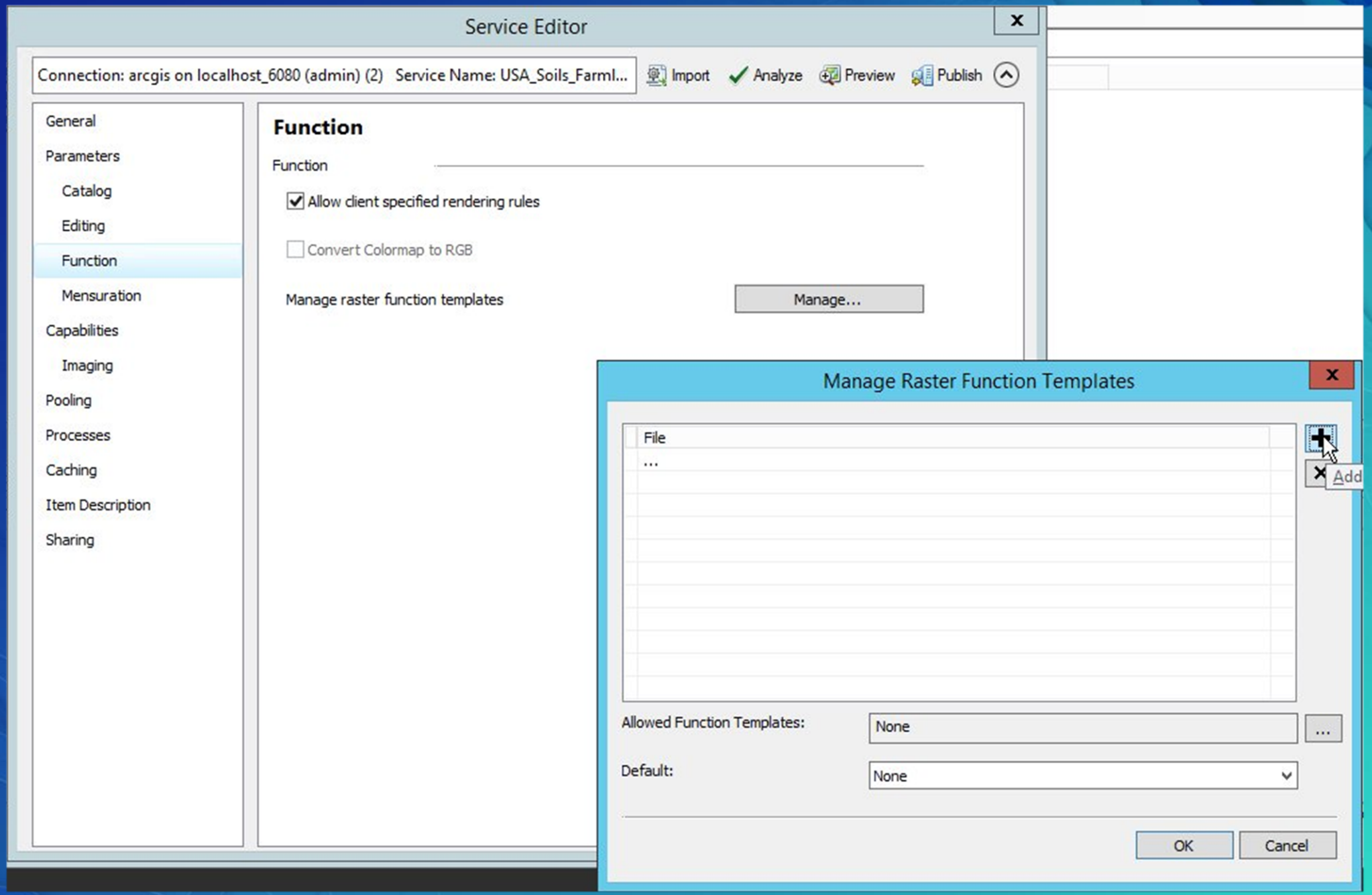
Are you trying to do too much with one service?

Remap Table Function

One of many functions you can apply to a mosaic

- Remap values if you have more than 2000 records in your attribute table.
- Disadvantage: Attributes will drive a legend and service symbols, but are not available to ArcGIS Online popups.
- Another disadvantage:
  ArcGIS Desktop can not show the raw pixel value, just the remapped value!
  ArcGIS Online popups will show the raw pixel value.

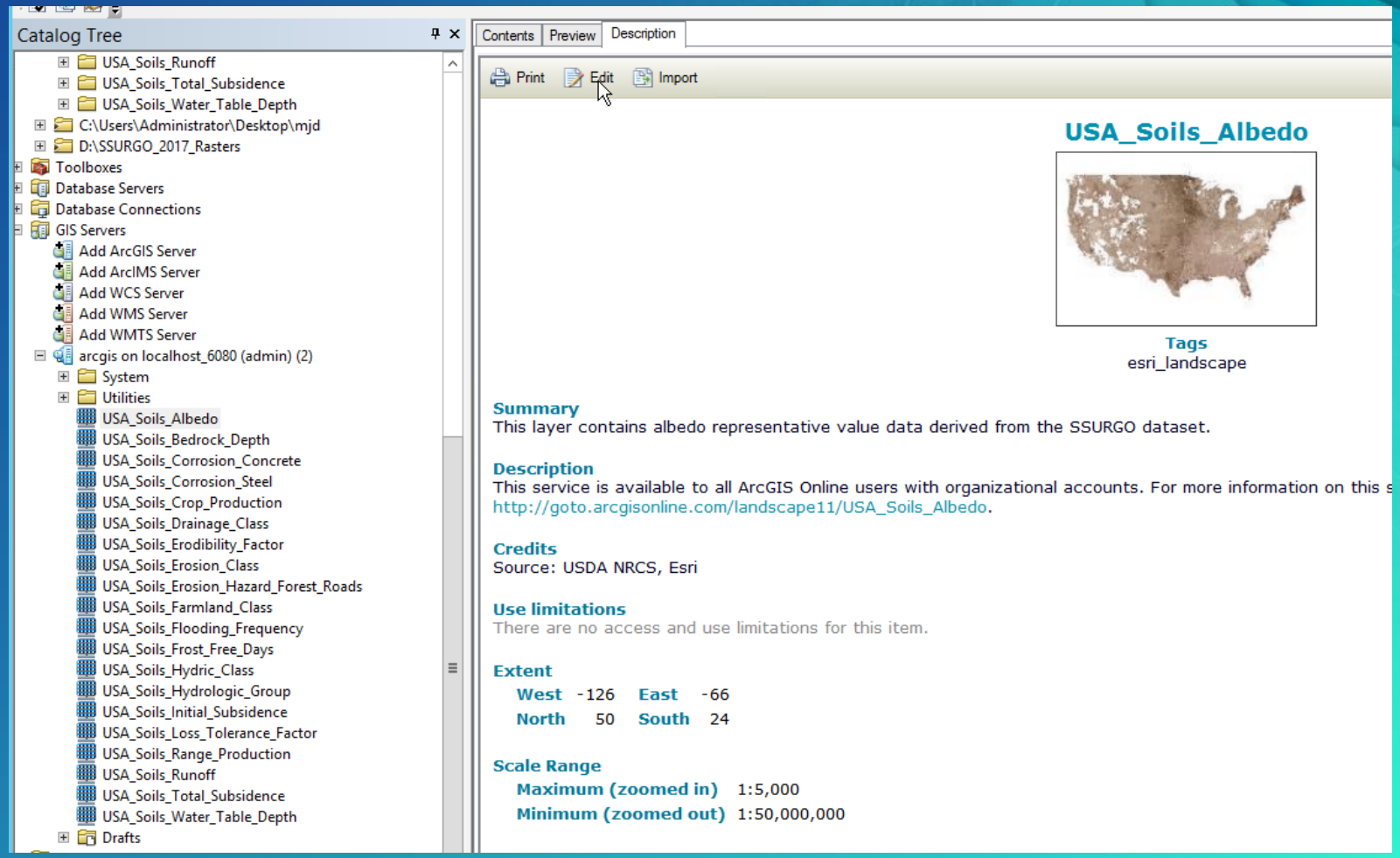



Service Editor
Connection: arcgis on localhost_6080 (admin) (2) Service Name: USA_Soils_Farml...
Import
Analyze
Preview
Publish
General
Parameters
Catalog
Editing
Function
Mensuration
Capabilities
Imaging
Pooling
Processes
Caching
Item Description
Sharing
Function
Function
Allow client specified rendering rules
Convert Colormap to RGB
Manage raster function templates
Manage...
Manage Raster Function Templates
File
...
Add
Allowed Function Templates:
None
...
Default:
None
OK
Cancel

After publishing

A few more things to take care of

- Set the bounding box
- Set the intended scale



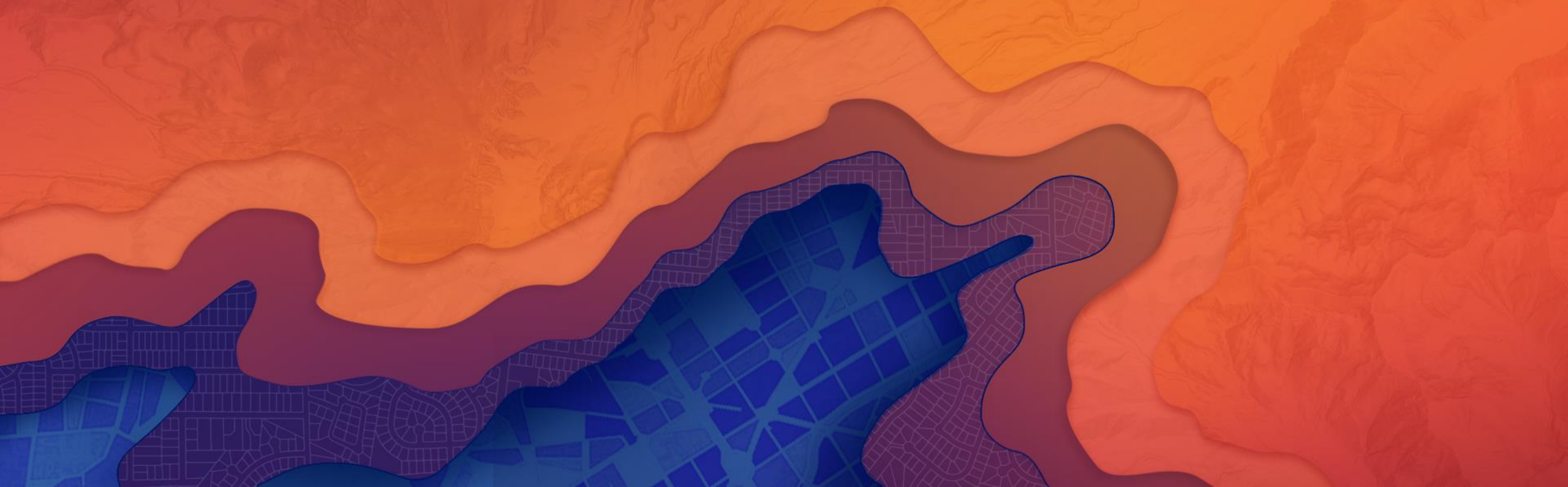
Thematic Image Service Checklist

Here's where to download the checklist:

https://shar.es/1Bxpj4

Feature Service Publishing

Keith VanGraafeiland



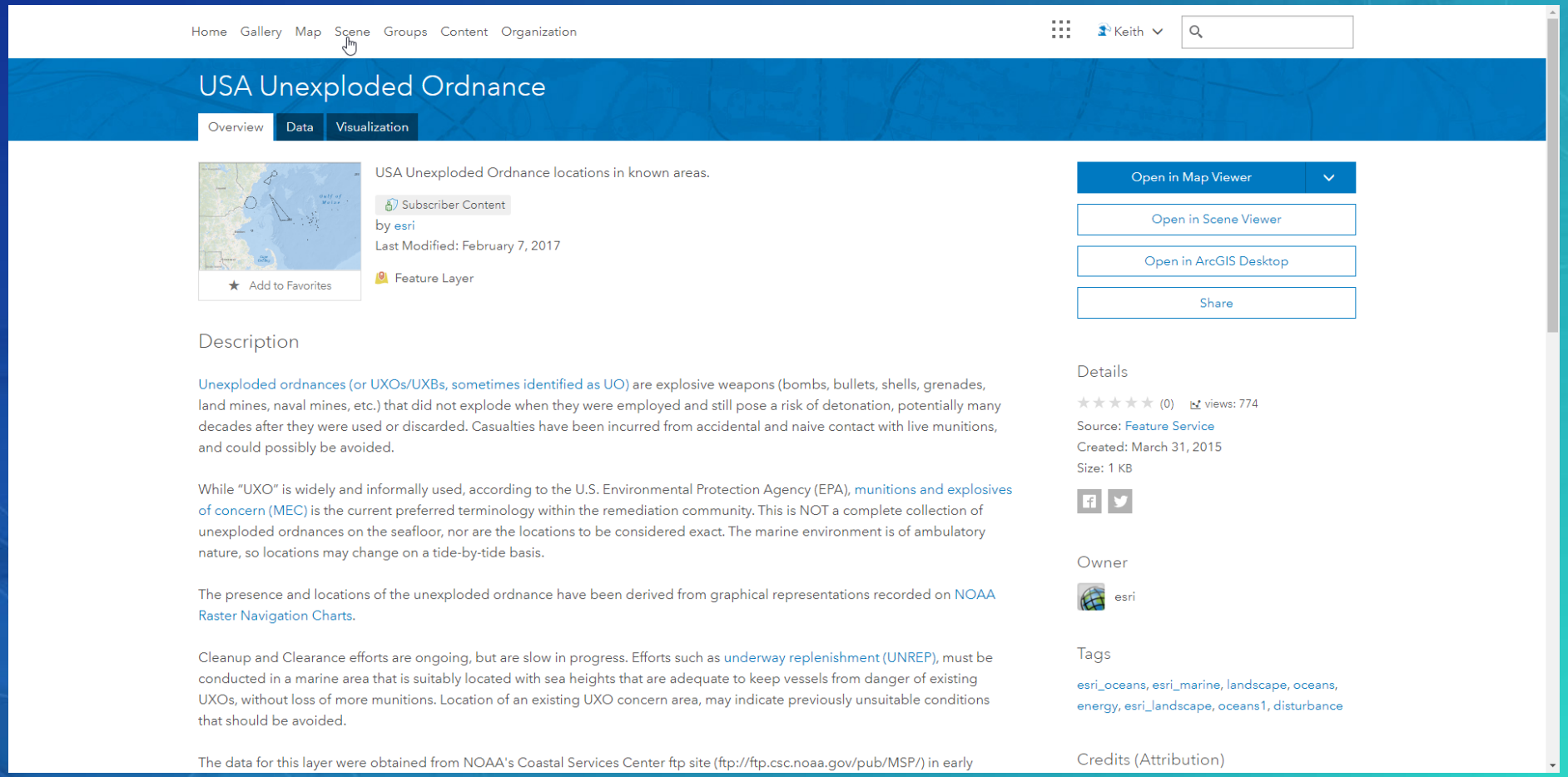
Feature Service Publishing Overview

- Planning for Publishing
  - What is it?
  - Who is going to use it?
  - How is it going to be used?
- GIS Workflow
  - Create a new map
  - Determine proper coordinate system
  - Fields
  - Symbology
  - Metadata (including thumbnail)
- Managing Web Layer
  - Content Item
  - Default behavior
  - Extent
  - Test

Feature Service Publishing

Subhead Here

- Today we are going to be working with Unexploded Ordnances.



Planning for Publishing

Why is this layer being published?

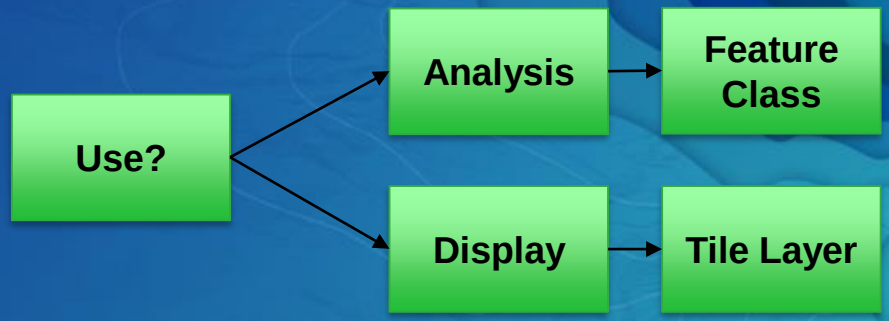
Who is the audience?

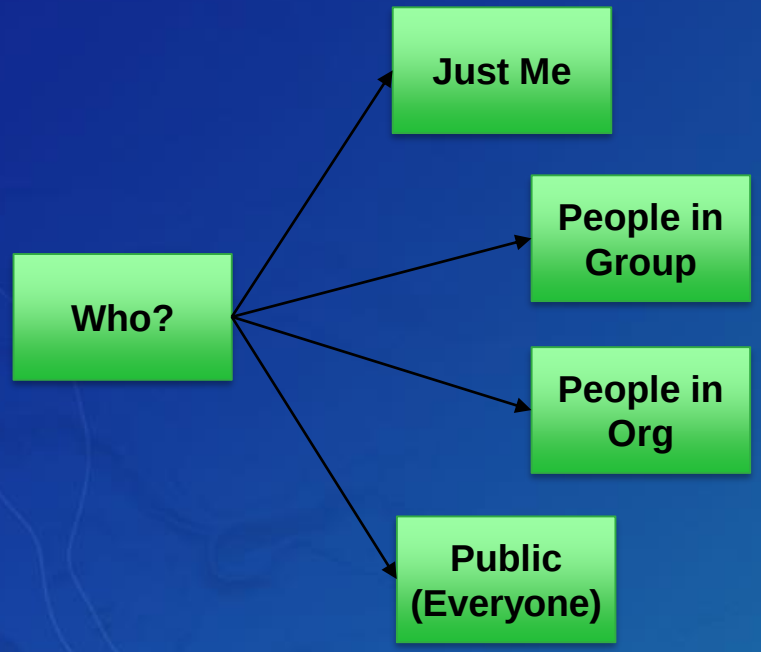
What is it going to be used for?

Take on the persona of the users that are going to be accessing this layer.

All of this is valuable information to use when populating your metadata in your content item, capture it somewhere.

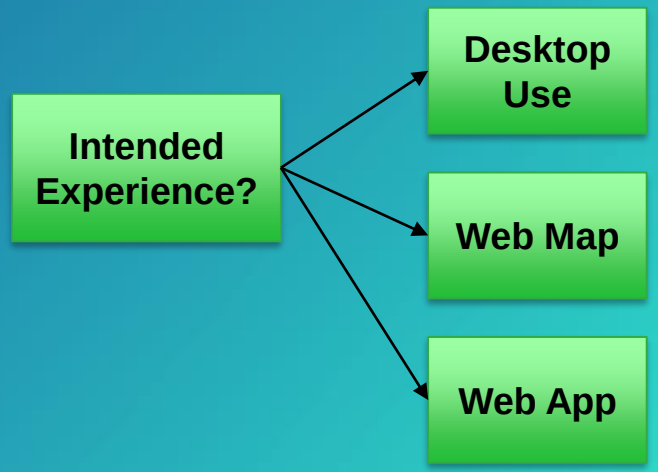
How is the data going to be used?





Who is going to use it?

What is the intended experience?



Planning for Publishing

Template for item success

Title:

Simple meaningful and short

Tags:

Keywords users can use to search for this data; ideally each layer will have between 5 and 10 tags that help users locate a layer.

Summary:

Everything that you wanted to put into the title; describe the dataset in one sentence.

Description:

Include hyperlinks, indicate where the data was downloaded from and when. This is a great opportunity to address users and let them know what they can do with this layer and what it was intended for when it was constructed.

Credits:

Where did the data come from? Give credit to the source where you obtained the data.

Access Use and Constraints:

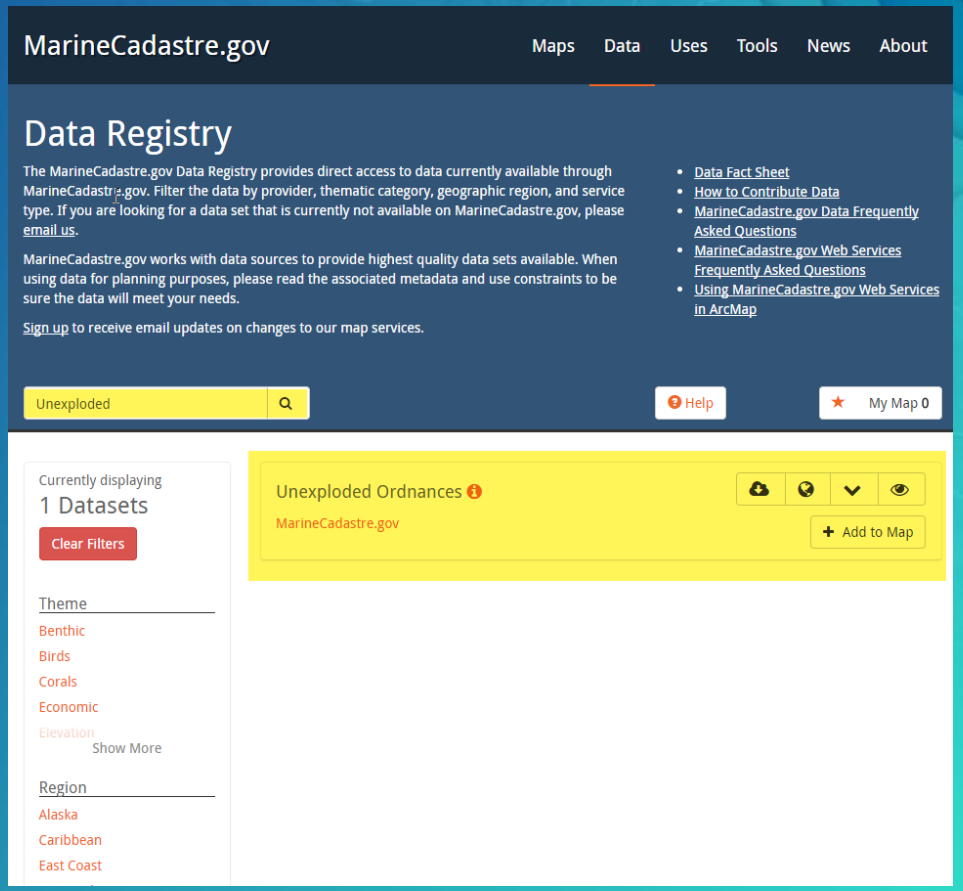
Are there any restrictions for using this data?

GIS Workflow

Download data from source.

Extract.

Import into your ArcGIS Pro Project.



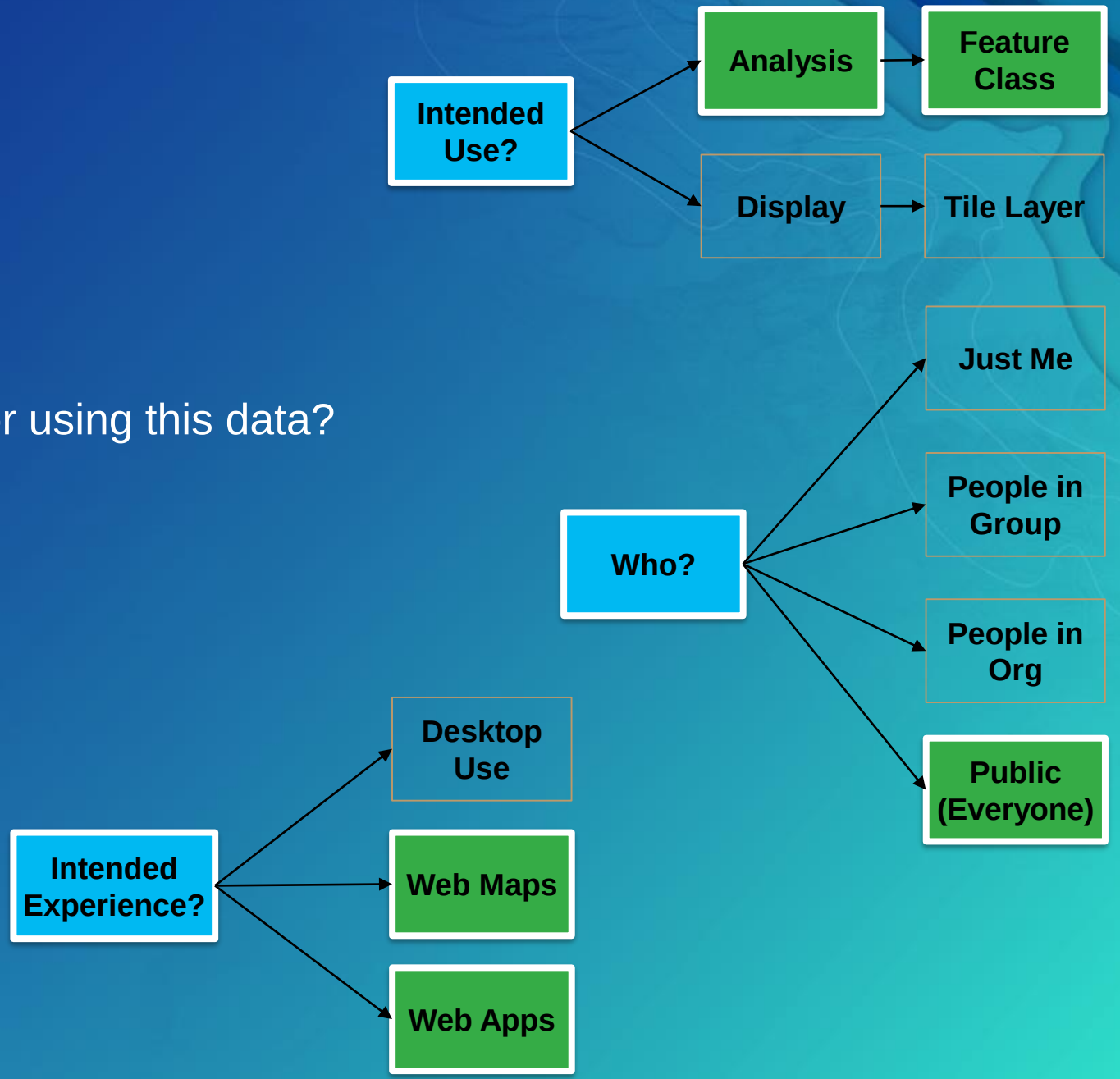
GIS Workflow

What is it?

Who's going to use it?

What's is the intended use?

What is the intended experience for using this data?



GIS Workflow

Populate the template for item success with the information you gathered.

Title:

USA Unexploded Ordnances

Tags:

esri_oceans, esri_marine, oceans, energy, oceans1, disturbance, UXO

Summary:

USA Unexploded Ordnance locations in known areas.

Description:

Unexploded ordnances (or UXOs/UXBs, sometimes identified as UO) are explosive weapons (bombs, bullets, shells, grenades, land mines, naval mines, etc.) that did not explode when they were employed and still pose a risk of detonation, potentially many decades after they were used or discarded. Casualties have been incurred from accidental and naive contact with live munitions, and could possibly be avoided.

While "UXO" is widely and informally used, according to the U.S. Environmental Protection Agency (EPA), munitions and explosives of concern (MEC) is the current preferred terminology within the remediation community. This is NOT a complete collection of unexploded ordnances on the seafloor, nor are the locations to be considered exact. The marine environment is of ambulatory nature, so locations may change on a tide-by-tide basis.

The presence and locations of the unexploded ordnance have been derived from graphical representations recorded on NOAA Raster Navigation Charts.

Cleanup and Clearance efforts are ongoing, but are slow in progress. Efforts such as underway replenishment (UNREP), must be conducted in a marine area that is suitably located with sea heights that are adequate to keep vessels from danger of existing UXOs, without loss of more munitions. Location of an existing UXO concern area, may indicate previously unsuitable conditions that should be avoided.

The data for this layer were obtained from NOAA's Coastal Services Center ftp site (ftp://ftp.csc.noaa.gov/pub/MSP/) in early March 2016. The polygon features in this layer contain attributes for the type of area and effective date. Metadata can be accessed via the ftp site.

What can you do with this layer?

Identification of the general Unexploded Ordnance locations.

Credits:

Marine Cadastre, NOAA

Access Use and Constraints:

None

GIS Workflow

Create a New Map

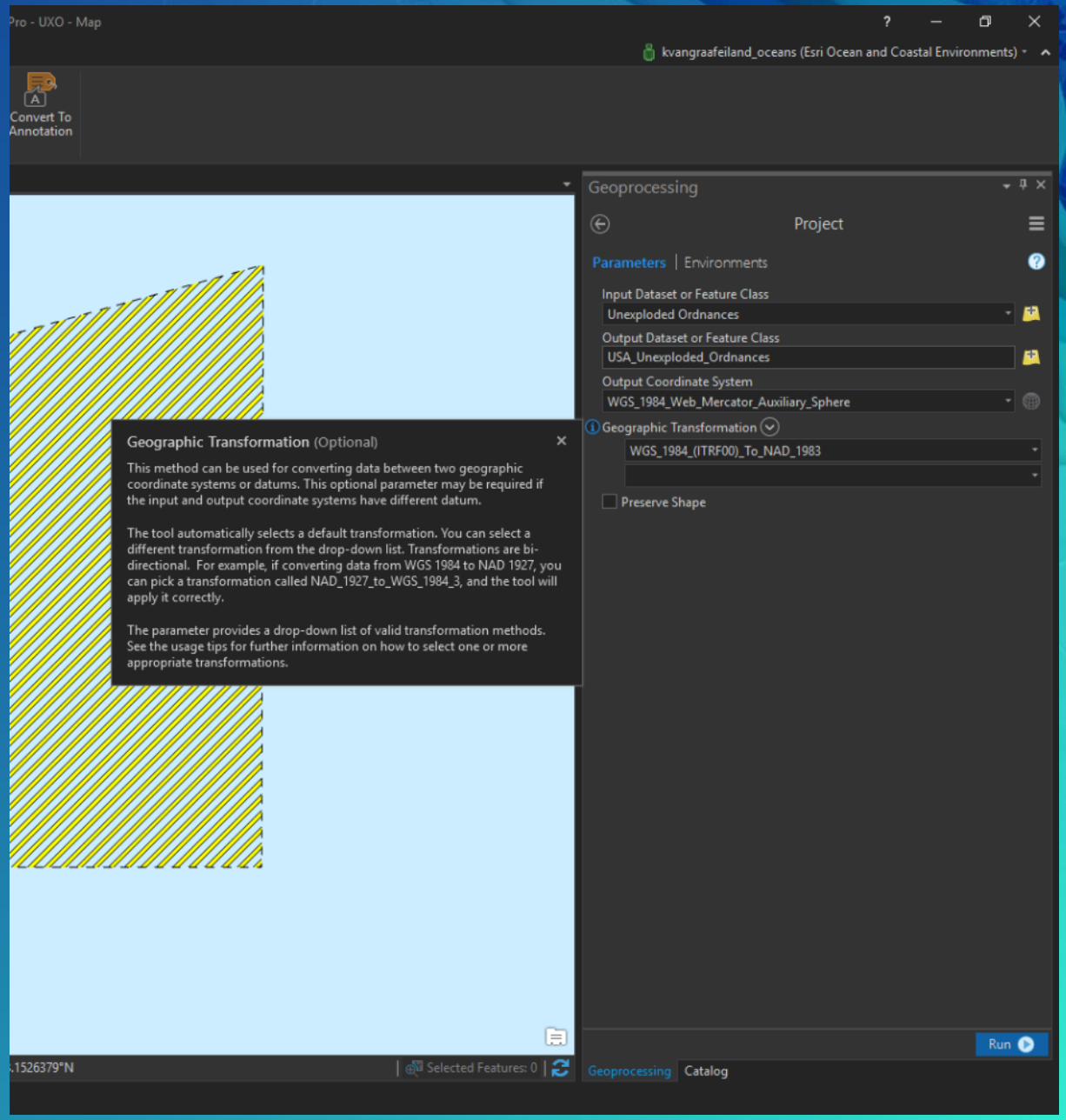
Insert - Map

Coordinate System

Project the data into Web Mercator

Output GP results to the ArcGIS Pro Project GDB.

Name Layer Accordingly



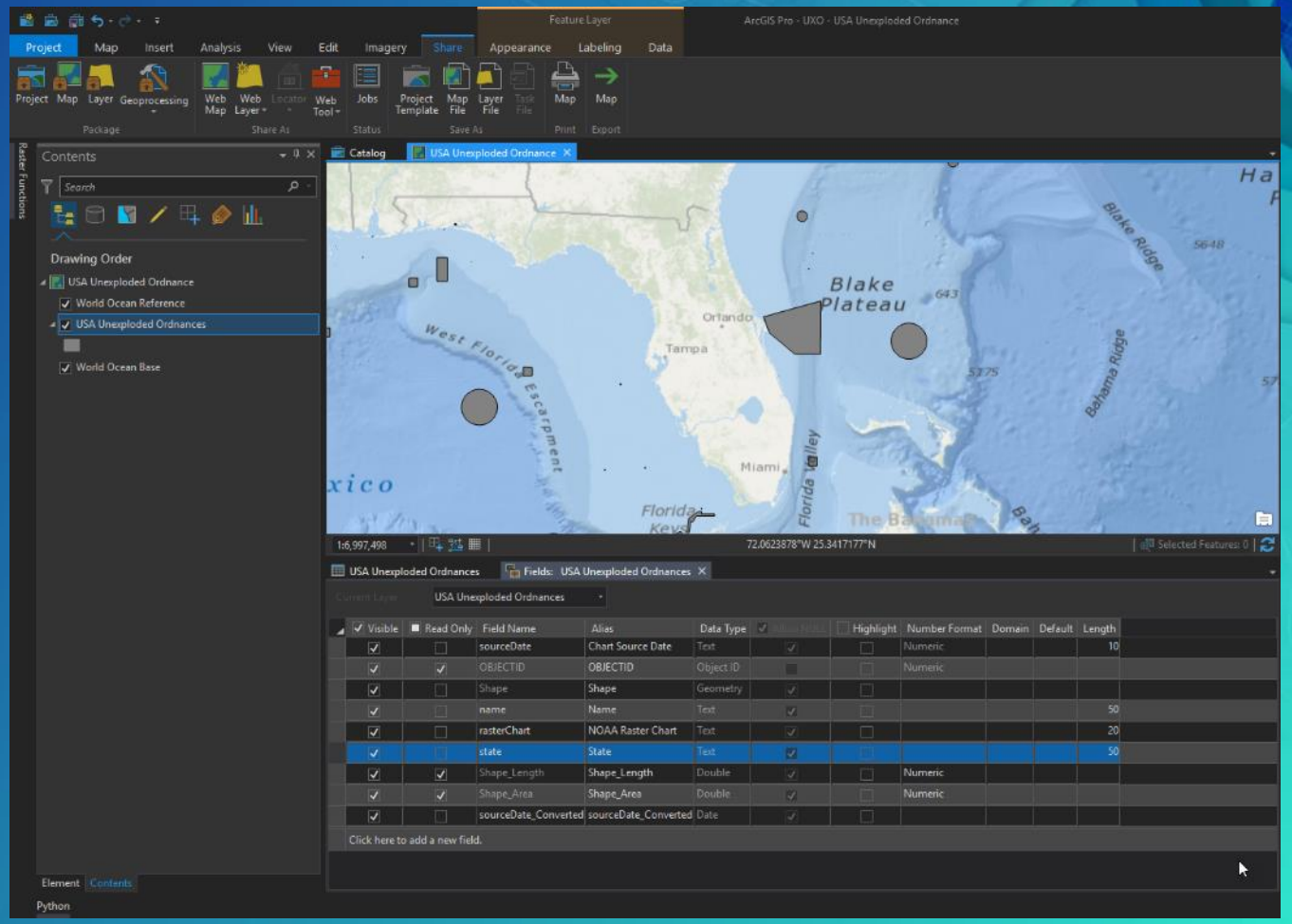
GIS Workflow

Fields

Field Names and Alias - do they make sense? Are they configured properly for analysis or for use in Pop-ups?

Symbology

Symbolize the data with web optimization in mind. Does it make sense? Is it distracting?

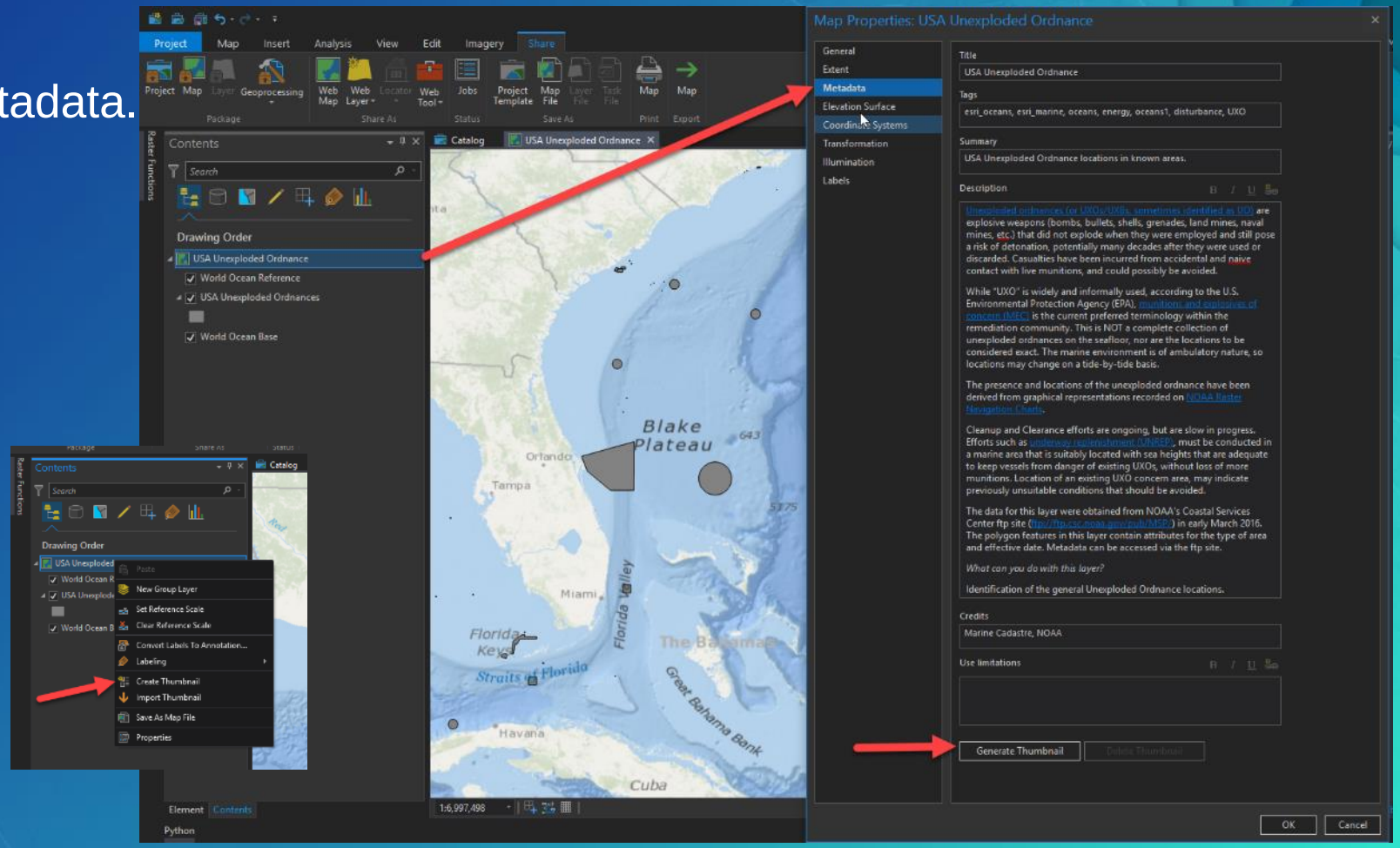


GIS Workflow

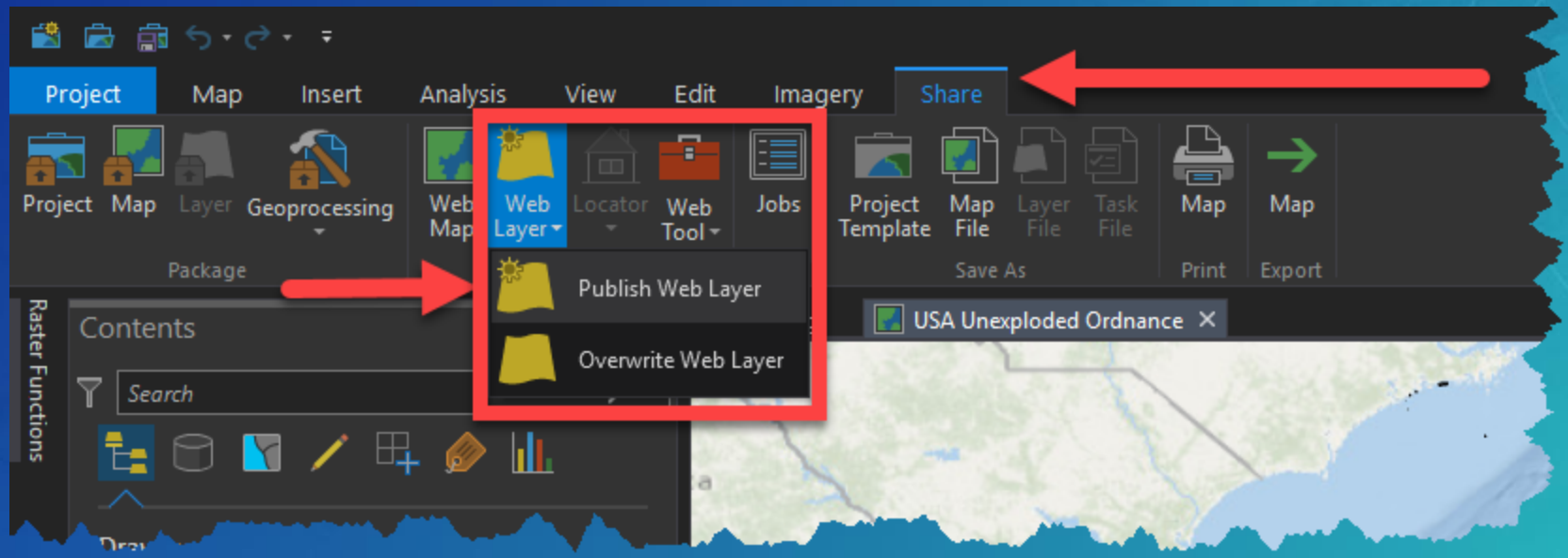
Map Metadata

Map properties - edit the Metadata.

Create Thumbnail

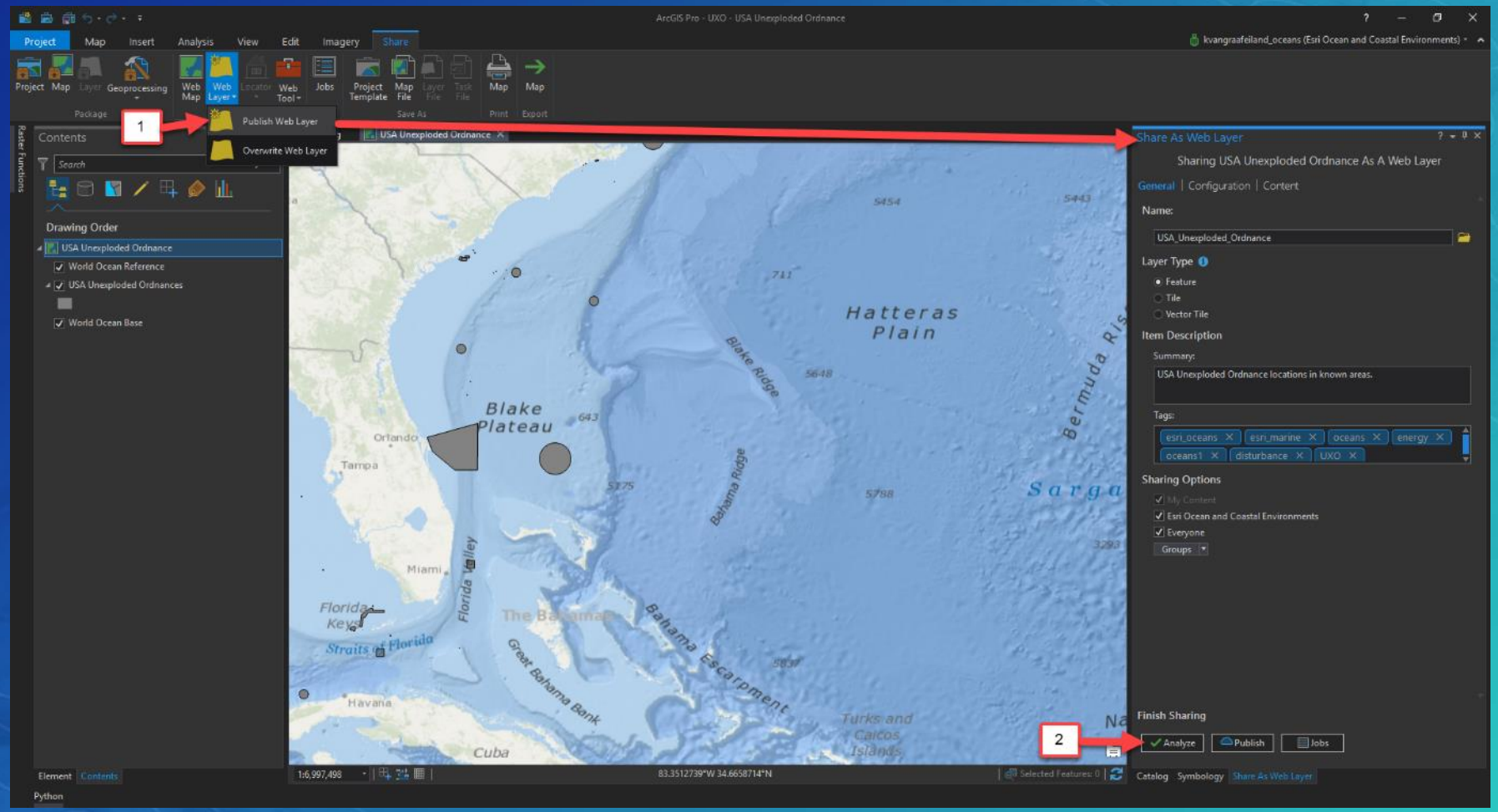


GIS Workflow



Sharing your data

GIS Workflow



Share as a Web Layer

GIS Workflow

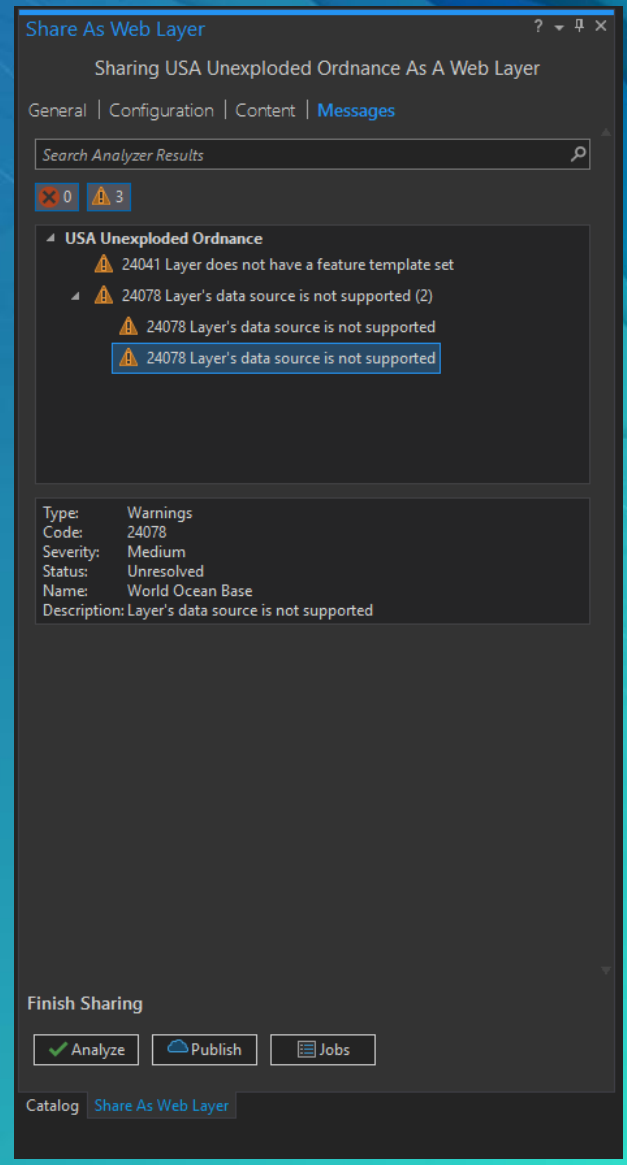
Analyze

Check for errors

Most common errors are not having a feature template set and having layers in your map that have not been removed prior to publishing.

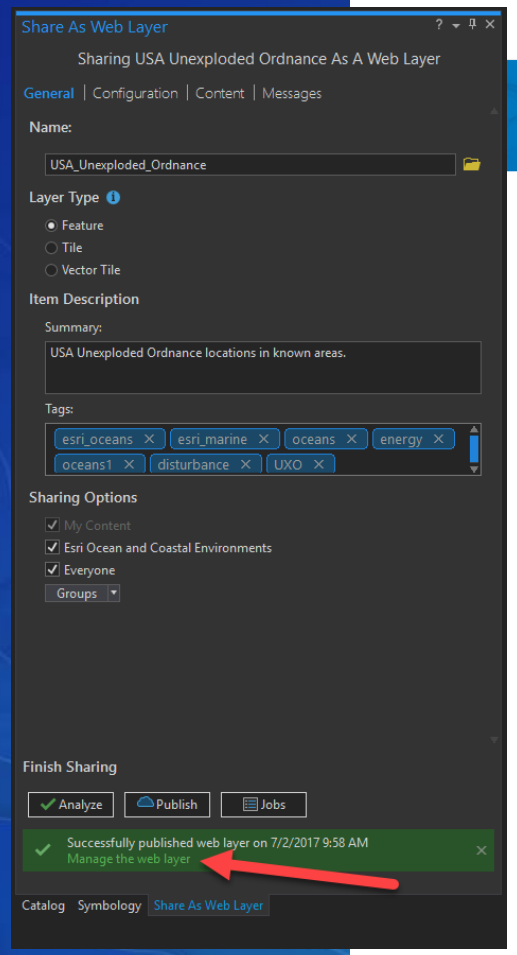
Publish

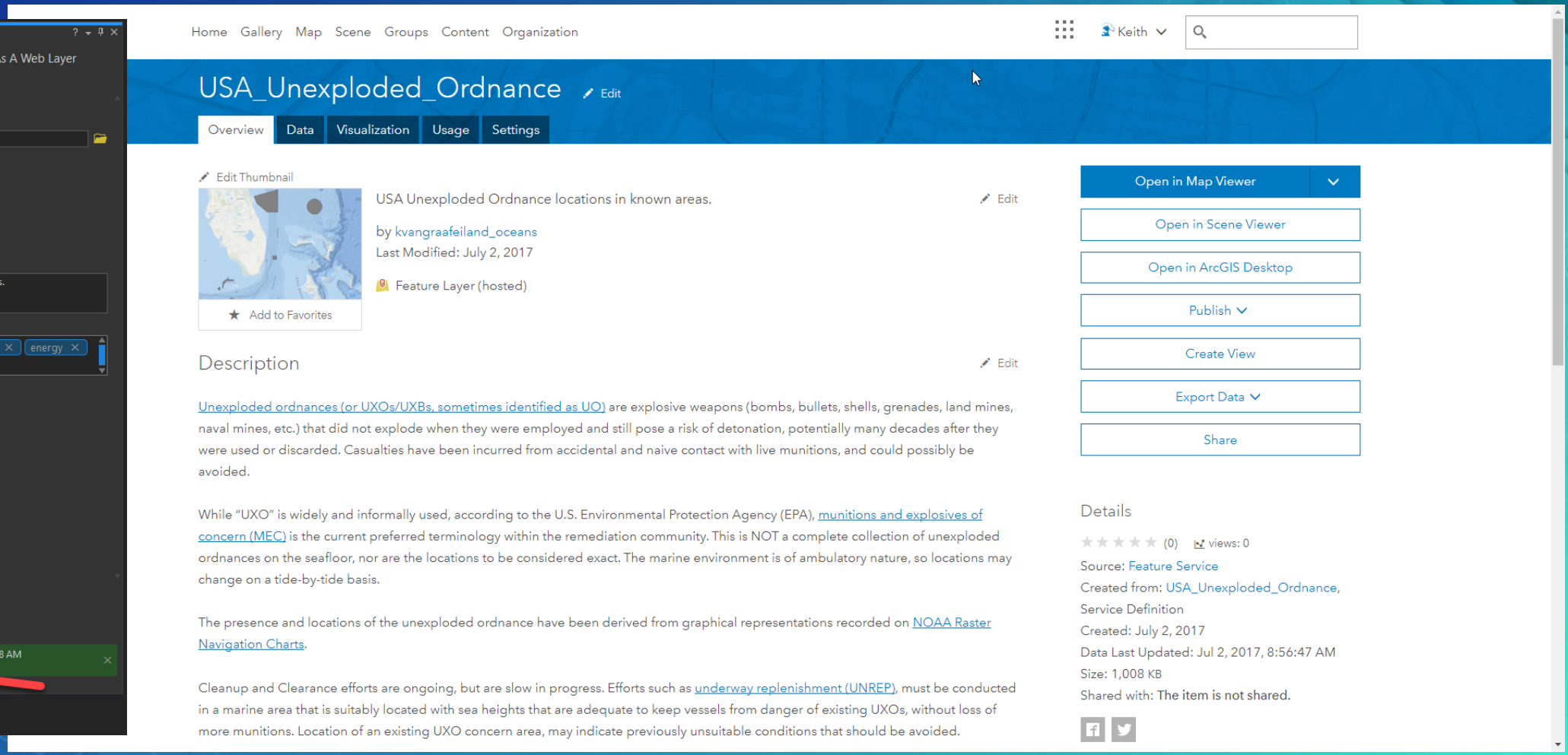
Ignore these errors and click “Publish”.



Managing Web Layer

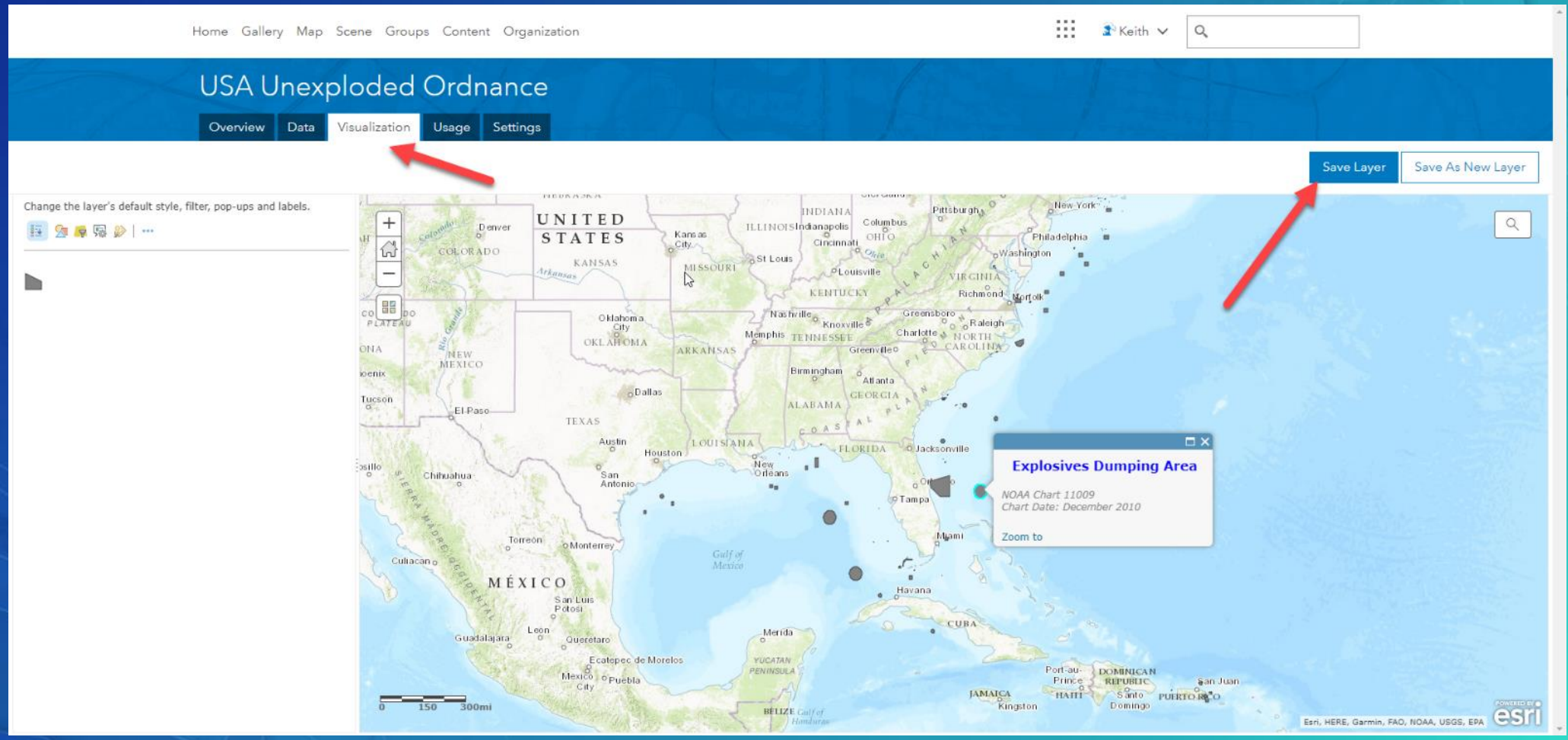
Content Item





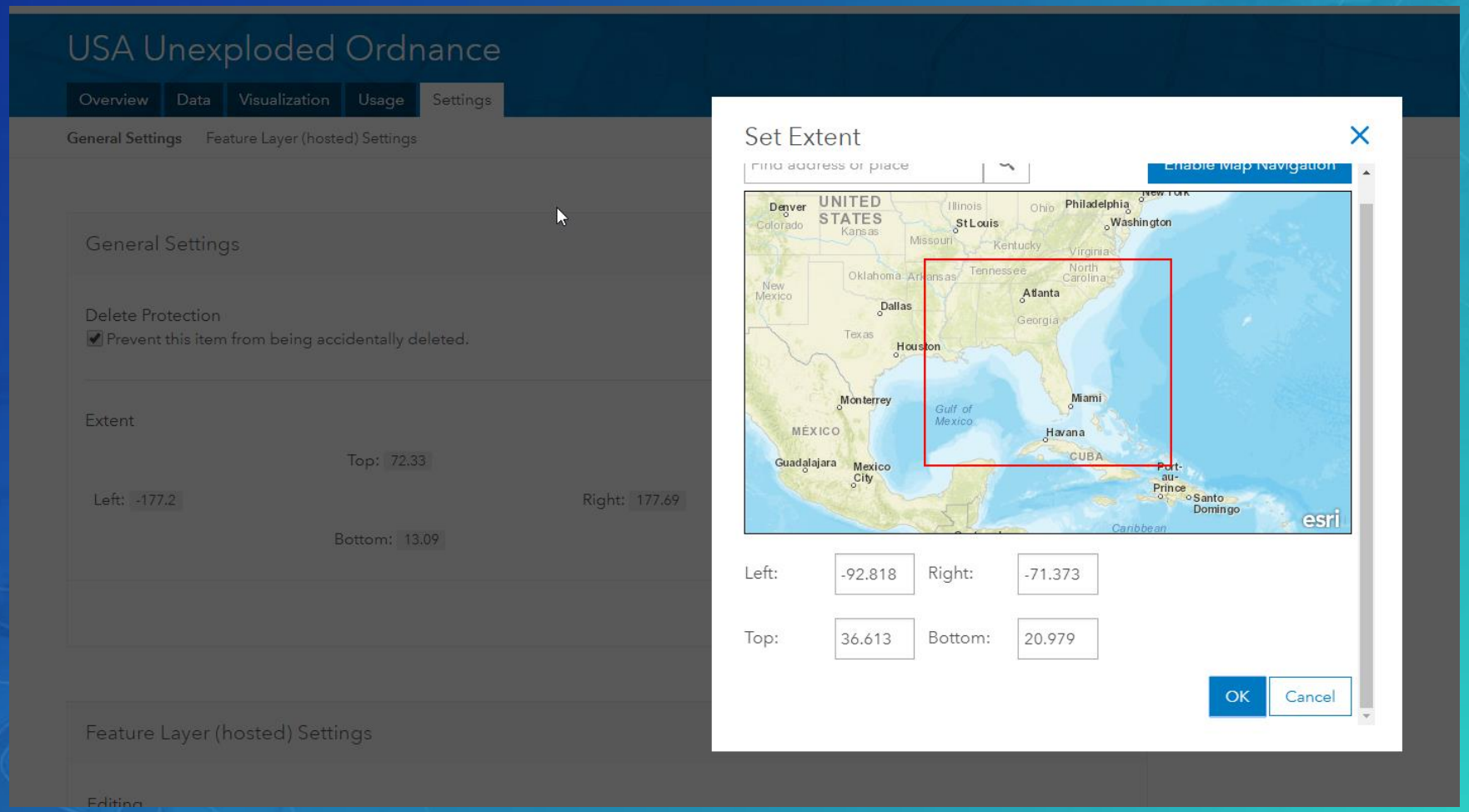
Managing Web Layer

Default behavior



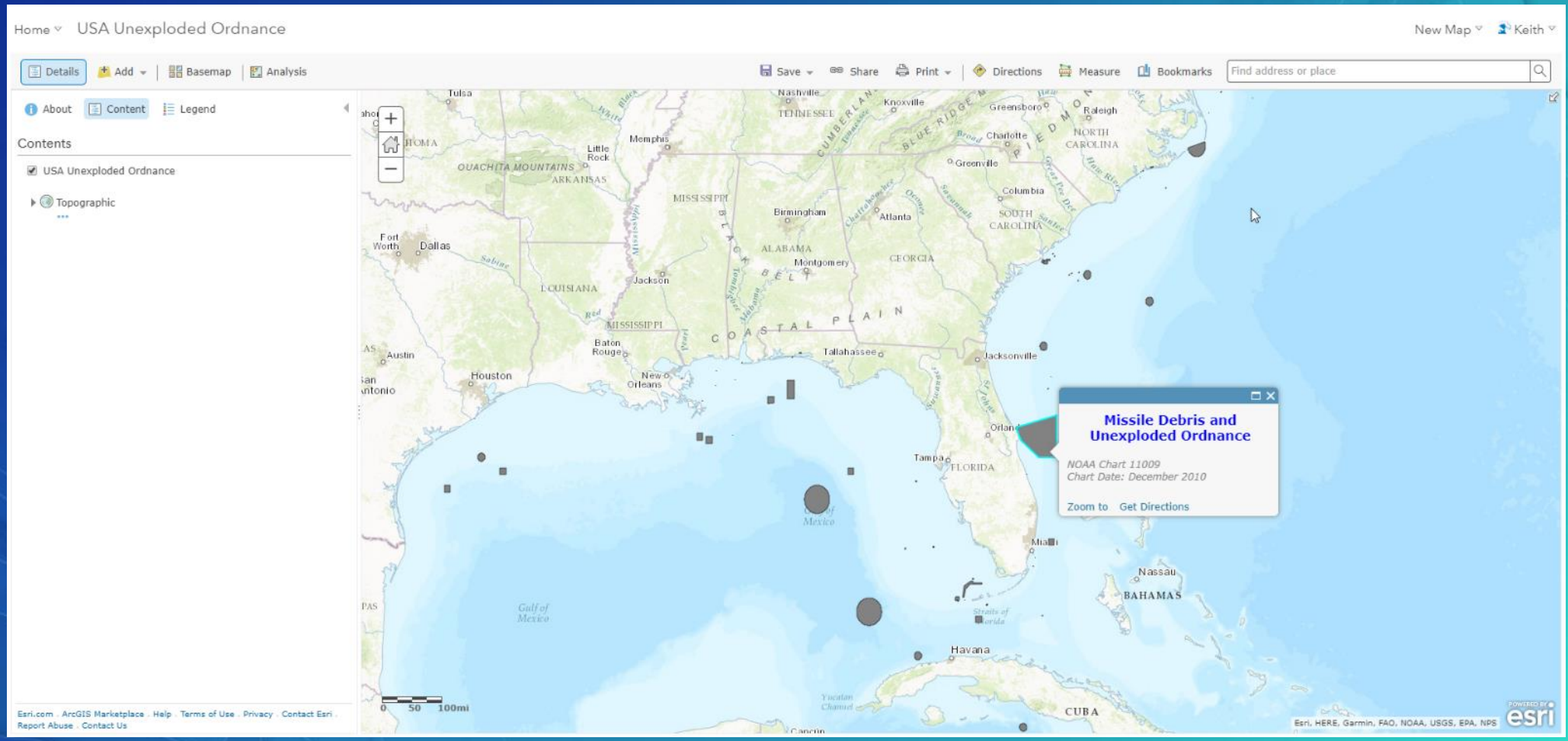
Managing Web Layer

Extent



Managing Web Layer

Launch in Web Map Viewer and Test



Recap

- Planning
  - What is it?
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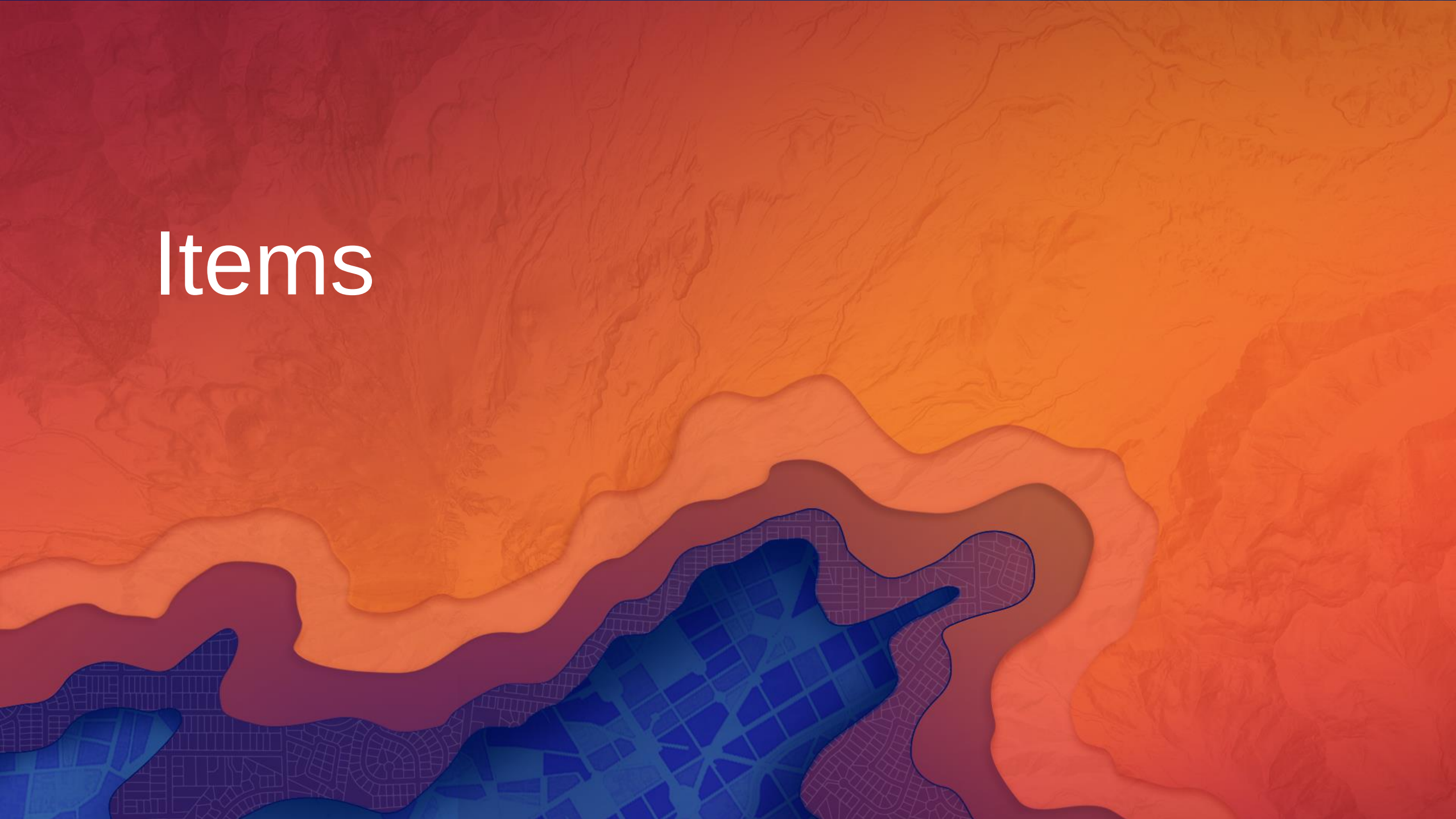
  - Symbology
  - Metadata (including thumbnail)
- Managing Web Layer
  - Content Item
  - Default behavior
  - Extent
  - Test

Items



Great Items Reflect Their Lifecycle

Jim Herries

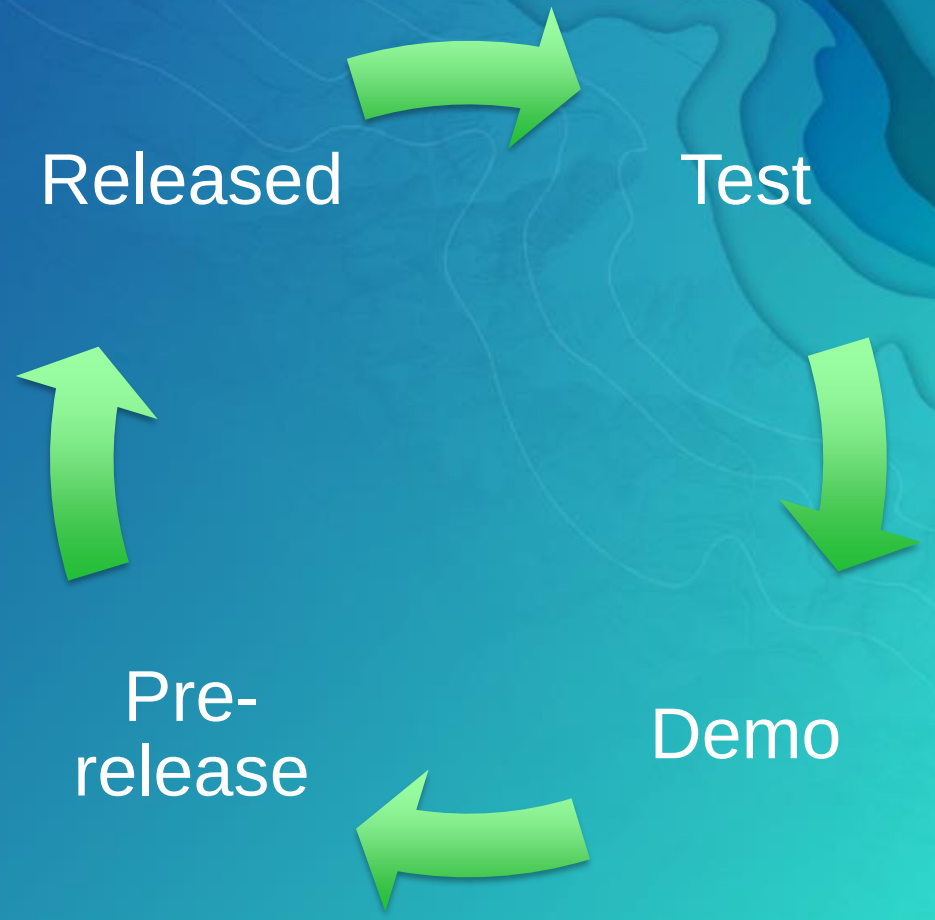
Every item has a lifecyle

Some are short-lived

Examples: “Test” or “Demo” or “vacant.csv”

Some are long-lived

Example: “Vacant Housing As of July 2017”



Every item has a lifecyle

Birth

Examples: “Test” or “Demo” or “vacant.csv”

Toddler

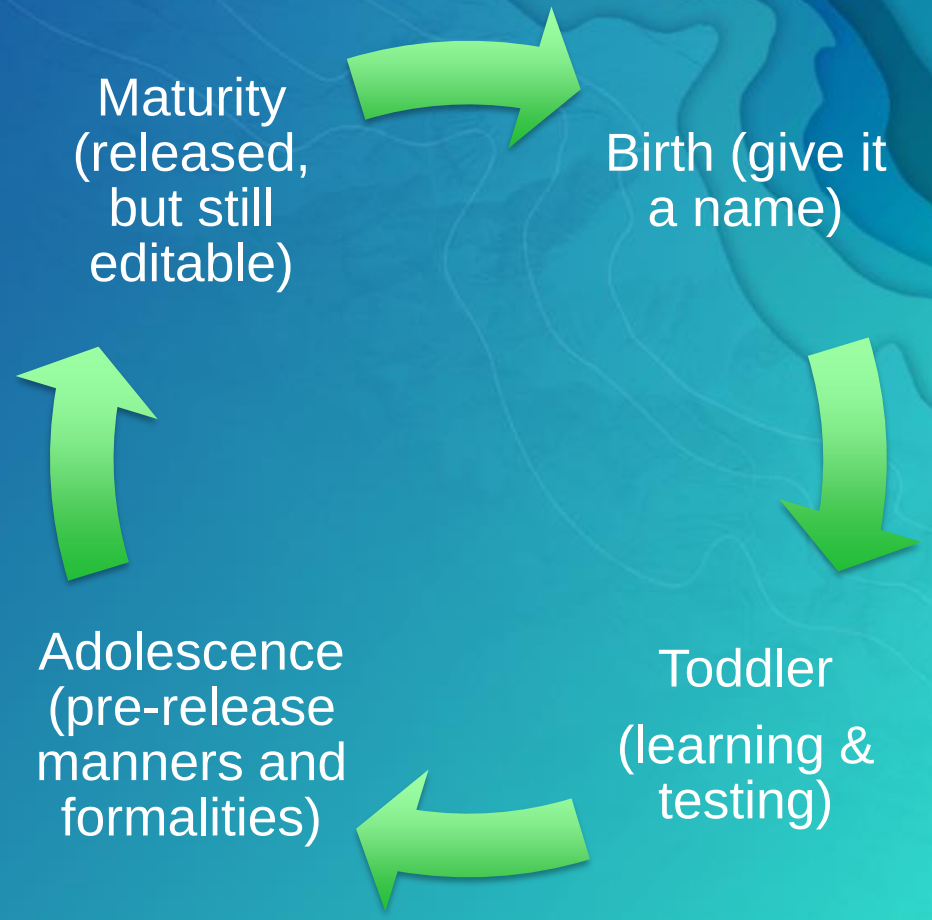
Example: “Vacant Housing As of July 2017”

Adolescence

Example: “Vacant Housing As of July 2017”

Maturity

Example: “Vacant Housing As of July 2017”



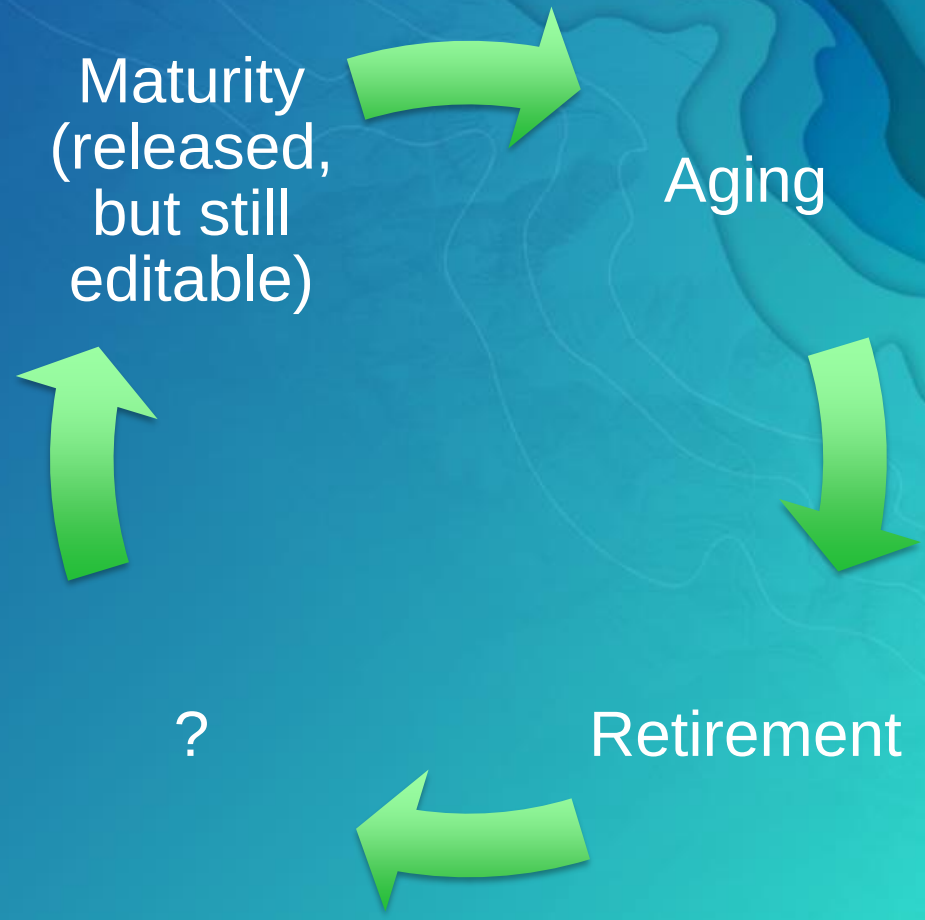
Every item has a lifecyle

Aging

Examples: “1995 Vacant Housing”

Retirement

Examples: “1995 Vacant Housing”



Birth: Your Service is Running!

Now what

Show your item to someone in the target audience

Why

They are not you. They see things differently.

Observe them as they look at your item and try to use it.

Every question and comment they have is useful.

Objective: address their questions and comments in your item

Why?

Well-documented things “travel well”

Your colleagues find your item, recognize what it is, and use it

People you don’t know find your item, recognize what it is, and use it.

How? Treat your service like the toddler it is

Open your item, start at the top, work your way down

- Title
- Summary
- Description
- Links from description to More Information
- Links from description to related web maps, apps, documentation
- Badges and images in Description are awesome
- Access and Use Constraints
- Tags
- Sharing

Title

Answers the question “What is this?”

- Avoid jargon
- No acronyms
- Don’t jam everything into the title
  - NO: “Department of Awesomeness, 2017 Survey of Relevant Questions: Garden Characteristics MOD13”
  - YES: “Garden Characteristics”

Summary

Answers the question “What is this?”

- As a full sentence.
- Use trigger phrases:
  - “This layer shows…”
  - “Updated information for …”

Description

Answers the question “What is this?”

- Two good paragraphs
- Data source

Fair game

- Documentation
- Full Metadata
- Related web maps
- Related apps
- Videos of someone using this thing

Other considerations

It’s the little things…

- **Extents… play them to your advantage**
- **Delete Protection**
- **Consider things like Web Map - Save a copy; tiles - allow mobile to download tiles**

Adolescence: Test your item out

Test it in the places you expect it to be used

- In ArcGIS Pro
- In ArcMap
- In ArcGIS Online web maps
- In ArcGIS Online scenes
- In configurable apps
- In your custom apps

Maturity

Lock in what works

- Save your item
- Turn delete protection on
- Copy/paste info back into source MXDs and Projects for next update

Note limitations

- Limitations of use
- Update frequency

Trust… but verify

Set up your own alerts for important services

- ServiceMonitor script
- Online monitoring services, e.g. UptimeRobot
- ArcGIS Online status page

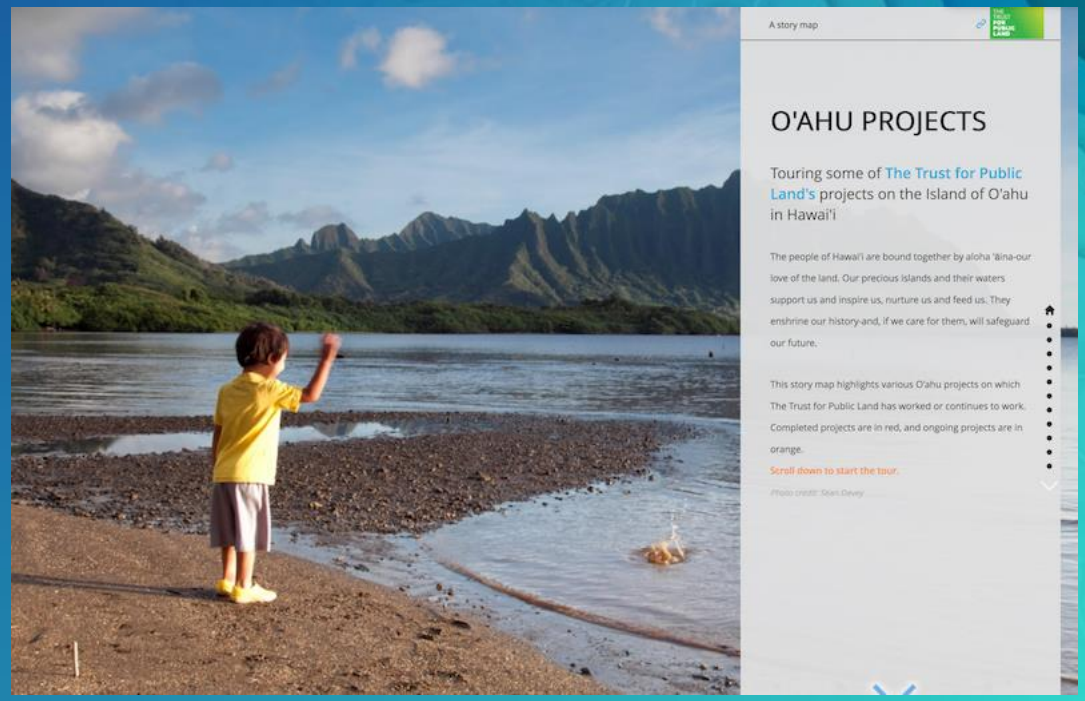
Work with your IS department for additional monitoring

- Servers, network, etc.

Tell someone

Provide assets to your public relations or social media team

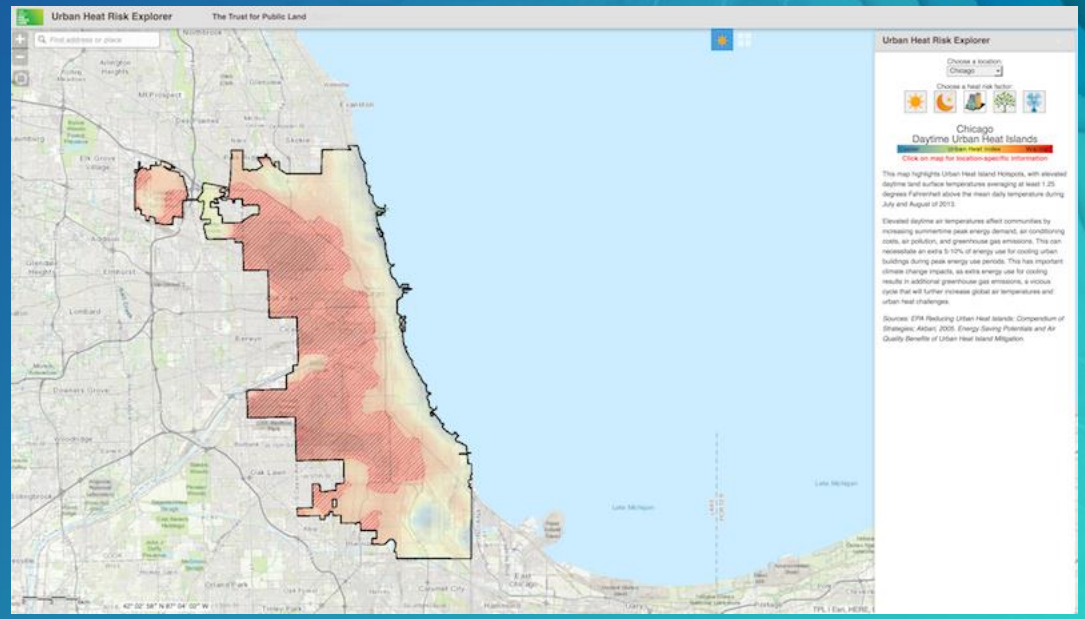
Story maps that explain your work or new content examples at right



Tell someone

Provide assets to your PR team and social media team

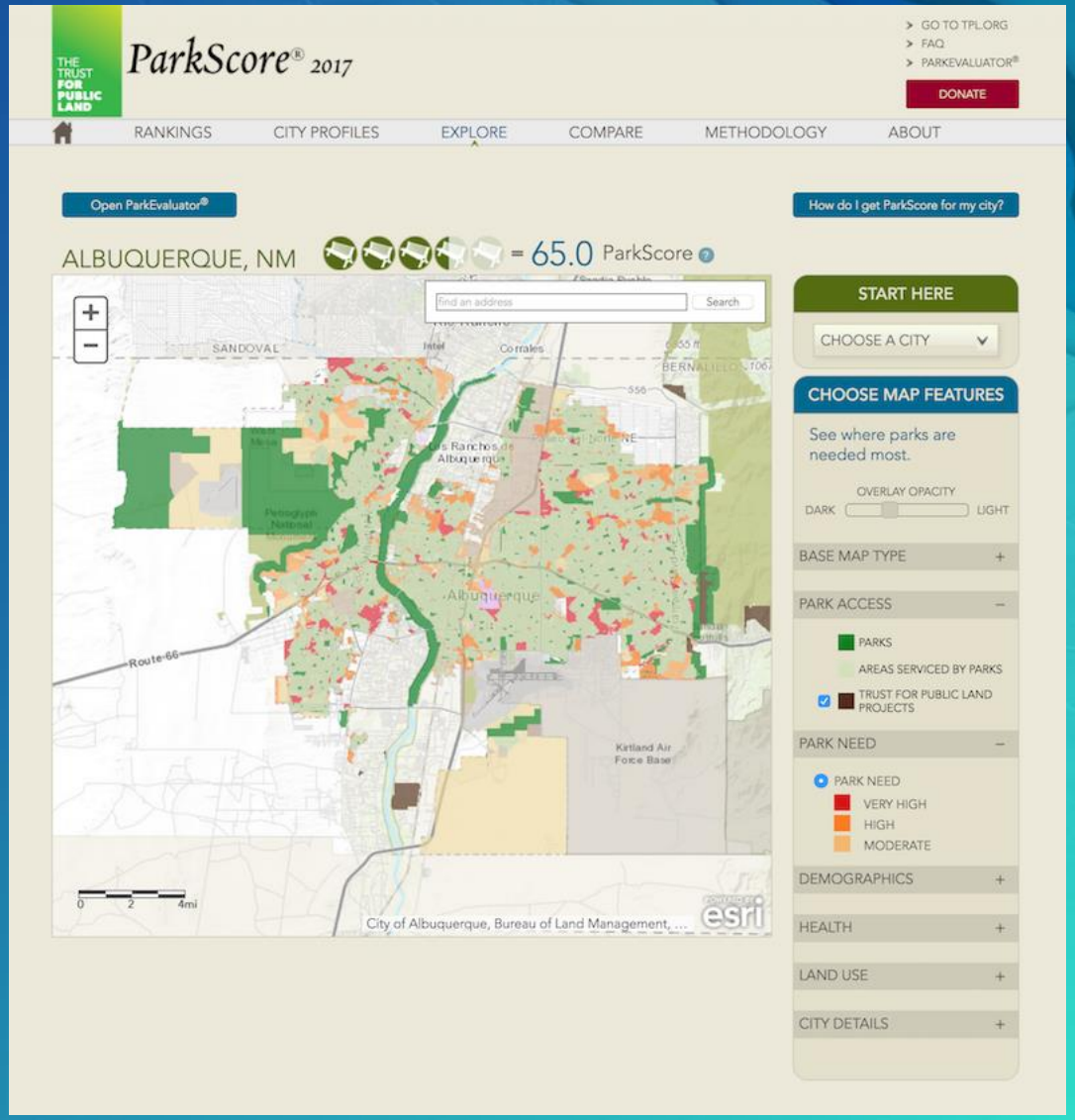
Apps that explain their purpose and deliver results to the user example



Tell someone

Provide assets to your PR team and social media team

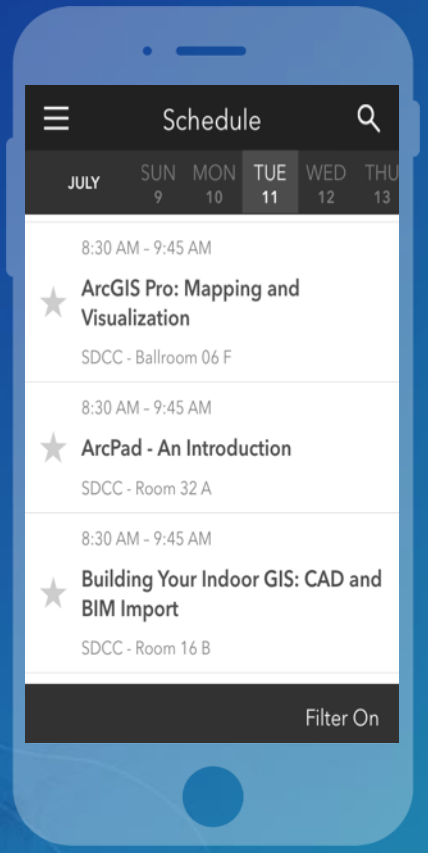
Web pages that embed or contain your work example



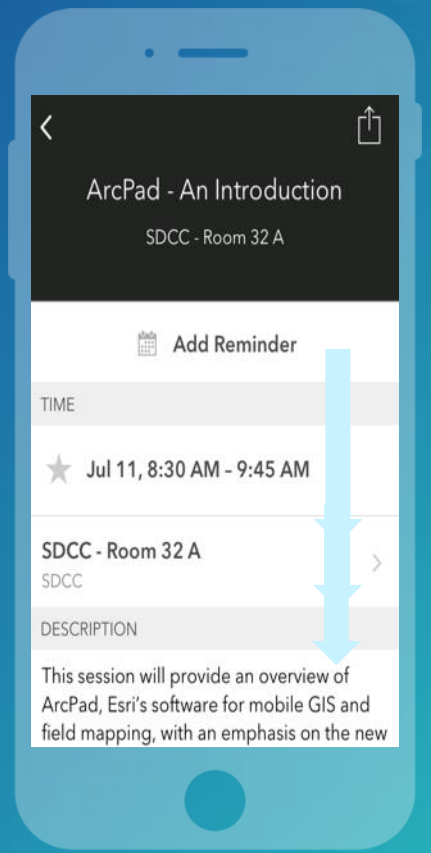
Please Take Our Survey on the **Esri Events App!**

Download the Esri Events app and find your event

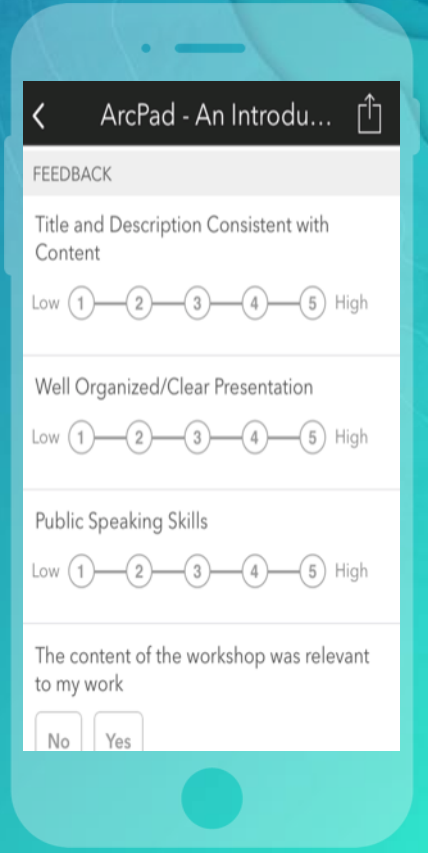
Select the session you attended



Scroll down to find the survey



Complete Answers and Select "Submit"



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