

## An introduction to ArcGIS Field Maps

This document contains step-by-step instructions on how to prepare for data collection in the field using Collector for ArcGIS.

*ArcGIS Field Maps* is a mobile data collection app that allows anybody in the field to capture accurate data and return it to the office or classroom for further use. It has been designed to replace the *Collector for ArcGIS* application. Fieldworkers use web maps on mobile devices to capture and edit data. *Field Maps* works even when disconnected from the Internet; the next time your device is connected to the internet, the collected data will automatically transfer to your ArcGIS Online map. It is free to download and can be downloaded onto personal phone devices or tablets. All you need is your ArcGIS login credentials.

### Overview of ArcGIS Field Maps

1. Create

In ArcGIS Online, create and symbolise feature layers specific to your fieldwork requirements.

2. Prepare

In Field Maps, create forms with detailed instructions for your data collectors (students).

3. Collect

Efficiently collect and capture your data and observations on your mobile device by recording the location of data sites and completing data input forms.

4. Collate

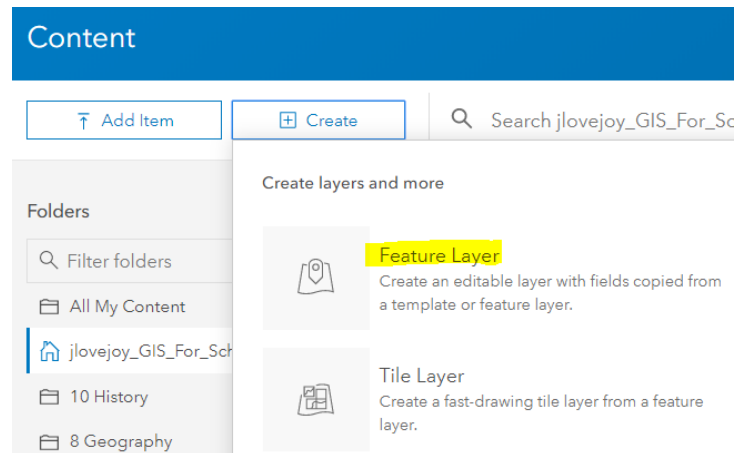
Return to the classroom to view your data in ArcGIS Online. Perform further analysis according to your objectives.

### Context for training

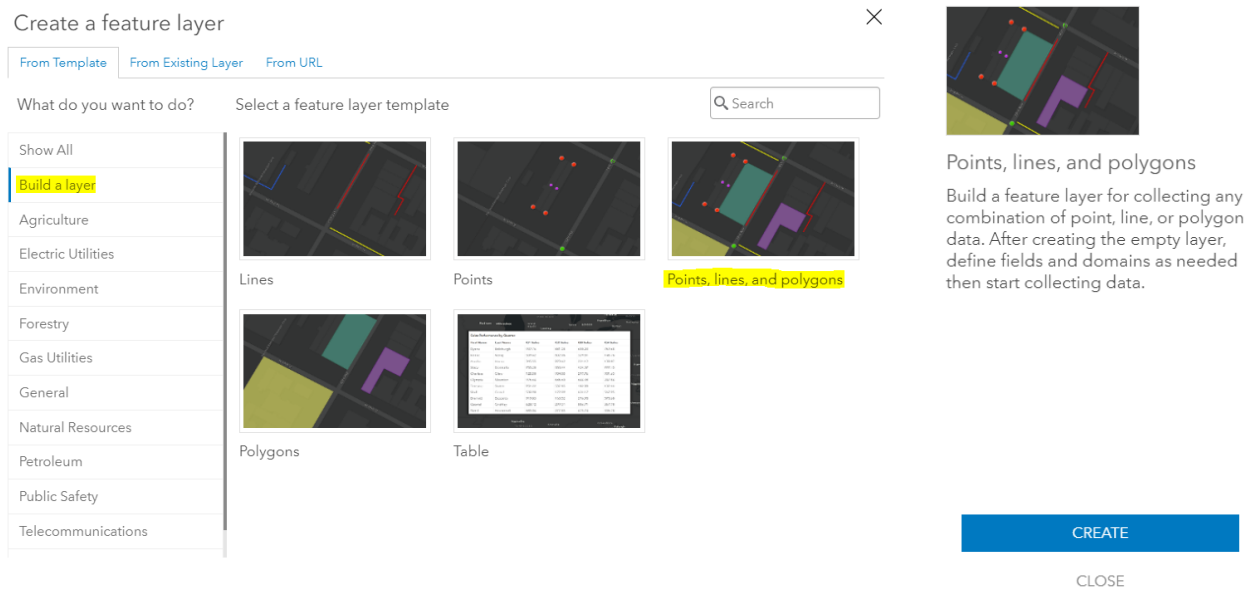
For this guide, you will prepare feature layers, a map and forms to collect data at sites along a local waterway. Optionally, if you had a specific objective in mind, you can apply the steps in this document to your needs.

## Step 1: Create your feature layers and data fields

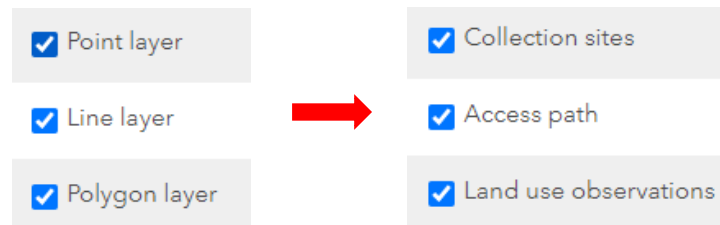
1. Sign into your ArcGIS organisational account in a browser (ArcGIS Online).
2. Go to **Content**, and in **My Content** click **Create** and choose **Feature Layer** to open the **Create a feature layer** form.



3. Select the **Build a layer** category. Choose **Points, lines, and polygons**, and click **Create**.



- Click on the text '**Point layer**'. Rename it to **Collection sites**. Click outside the textbox to complete this change. Repeat this for **Line layer** and **Polygon layer**, renaming the layers **Access path** and **Land use observations**.



- Click **Next**.
- Set the map extent for your new hosted layer. This is the portion of area that will show in a map by default. For this example, the map extent has been refocused on Brisbane. Click **Next**.

Create a feature layer



Pan and zoom this map to set the map extent for the new hosted layer.



Left:	<input type="text" value="152.485"/>	Right:	<input type="text" value="153.54"/>
Top:	<input type="text" value="-27.313"/>	Bottom:	<input type="text" value="-27.63"/>

[Back](#)

**Next**

Cancel

- Enter a title, tags and summary for your feature layer. Choose an appropriate folder to save your feature layers in e.g. *Year 12, Term 1*. Click **Done**.
  - Title: Water and land quality along the Brisbane River
  - Tags: Data collection
  - Summary: *A suitable sentence that outlines the purpose of the feature layers*

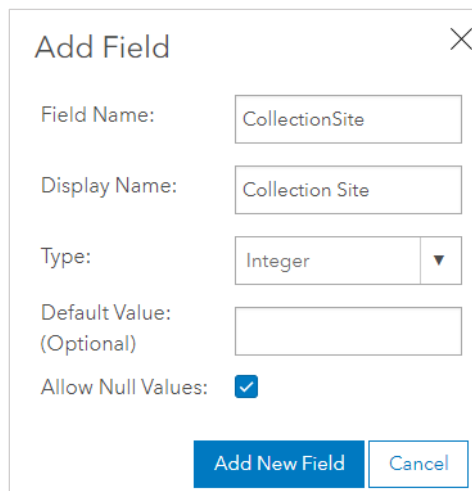
Your feature layers have now been created. The item page will automatically open. In the following steps you will create a number of data fields for the **Collection sites (points)** layer.

- Go to the **Data** tab of the item page and go to **Fields**. In the **Layer** drop-down box, ensure **Collection sites** is selected.



- Click **Add**. In Field Name, type **CollectionSite**, ensuring that there is no spacing. In Display Name, enter **Collection Site**, this time with spacing. Note that field names cannot have spaces however, display names will be what data collectors see.

Choose **Integer** for Type. Accept the other defaults and click **Add New Field**.



The 'Add Field' dialog box contains the following fields:


- Field Name:** CollectionSite
- Display Name:** Collection Site
- Type:** Integer (selected from a dropdown menu)
- Default Value:** (Optional) (empty text box)
- Allow Null Values:** ☒


At the bottom, there are two buttons: 'Add New Field' (highlighted in blue) and 'Cancel'.

- Your newly created field will now be added to the list of fields displayed on the page. Click on the newly created field, **Collection Site**.



<input type="checkbox"/> Display Name	Field Name	Type
<input type="checkbox"/> OBJECTID	OBJECTID	ObjectID
<input type="checkbox"/> GlobalID	GlobalID	GlobalID
<input type="checkbox"/> CreationDate	CreationDate	Date
<input type="checkbox"/> Creator	Creator	String
<input type="checkbox"/> EditDate	EditDate	Date
<input type="checkbox"/> Editor	Editor	String
<input type="checkbox"/> <b>Collection Site</b>	CollectionSite	Integer
<input type="checkbox"/> Photos And Files	Photos And Files	Attachment

11. Click **Create List** to create a list that will allow data collectors to specify what site they are at when in the field and collecting data.

Collection Site 
×

Description
 Edit

A brief summary of the item is not available.


Field Value Type 
 Edit

Create List




Delete

Details


12. Type a label of **Site A** with a code of **0**.

Label	Code	
Site A	0	

13. Click **Add**. Add entries for **Site B** (code **1**) **Site C** (code **2**). Add as many sites as necessary.

Label	Code	
Site A	0	
Site B	1	
Site C	2	
+ Add		

14. Click **Save**. Click on the 'X' to return to the fields page.

Collection Site 
×

15. Add another field. Name this field **Average Surface Temperature**. Set the type as **Double**. This will allow fieldworkers to enter data containing numbers only. However, setting the type as **Double** allows fieldworkers to enter numbers with decimal places.

Add Field

×

Field Name:

AvgSurfaceTemp

Display Name:

Average Surface Tempei

Type:

Double

▼

Default Value:  
(Optional)

Allow Null Values:

☒

Add New Field

Cancel

16. This time, you will not create a list for this field as this would force fieldworkers to choose a predefined value. Instead, this will give fieldworkers the freedom to record any temperature.
17. Add another field. Name this field **Additional notes**. Set the type as **String** and the length as **256** characters. This will allow fieldworkers to enter brief notes (character-based) that may be pertinent to the data collection site. You will not create a list for this field as this will give fieldworkers the freedom to record relevant notes, if needed.
18. You may wish to add additional fields for your **Collection sites (points)** layer. This will allow fieldworkers to collect a wider range of data at each site. A number of additional fields have been provided below for further guidance:

Field name and specifications	Create a list?	List example														
<p><b>pH Level</b></p> <div>Add Field</div> <div><div>Field Name:</div><div>PHLevel</div></div> <div><div>Display Name:</div><div>pH Level</div></div> <div><div>Type:</div><div>Double</div><div>▼</div></div> <div><div>Default Value:</div><div>(Optional)</div><div></div></div> <div><div>Allow Null Values:</div><div><input checked="" type="checkbox"/></div></div>	No	<p>Do not create a list. This will allow fieldworkers to input a specific pH level (inclusive of decimals).</p> <p>The option exists to set the ‘Type’ as <b>Integer</b> if your measurement tool provides whole numbers, rather than decimal numbers or percentages.</p>														
<p><b>Salinity Level</b></p> <div>Add Field</div> <div><div>Field Name:</div><div>SalinityLevel</div></div> <div><div>Display Name:</div><div>Salinity Level</div></div> <div><div>Type:</div><div>Double</div><div>▼</div></div> <div><div>Default Value:</div><div>(Optional)</div><div></div></div> <div><div>Allow Null Values:</div><div><input checked="" type="checkbox"/></div></div>	No	<p>Do not create a list. This will allow fieldworkers to input a specific record based on their measurements (inclusive of decimals).</p> <p>The option exists to set the ‘Type’ as <b>Integer</b> if your measurement tool provides whole numbers, rather than decimal numbers or percentages.</p>														
<p><b>Water Turbidity</b></p> <div>Add Field</div> <div><div>Field Name:</div><div>WaterTurbidity</div></div> <div><div>Display Name:</div><div>Water Turbidity</div></div> <div><div>Type:</div><div>Integer</div><div>▼</div></div> <div><div>Default Value:</div><div>(Optional)</div><div></div></div> <div><div>Allow Null Values:</div><div><input checked="" type="checkbox"/></div></div>	Yes	<p>In this case, a visual inspection and qualitative record may be collected to measure water turbidity. Here is an example of a visual inspection list that may be used:</p> <table><thead><tr><th>Label</th><th>Code</th></tr></thead><tbody><tr><td>Very cloudy (deep brown with significant particles)</td><td>0</td></tr><tr><td>Cloudy (Significant colour and particles but slight visib</td><td>1</td></tr><tr><td>Partially cloudy (Some colour and obvious particles)</td><td>2</td></tr><tr><td>Partially clear (Coloured tinge, fewer particles)</td><td>3</td></tr><tr><td>Clear (No colour, fewer particles)</td><td>4</td></tr><tr><td>Very clear (No colour, very few particles)</td><td>5</td></tr></tbody></table>	Label	Code	Very cloudy (deep brown with significant particles)	0	Cloudy (Significant colour and particles but slight visib	1	Partially cloudy (Some colour and obvious particles)	2	Partially clear (Coloured tinge, fewer particles)	3	Clear (No colour, fewer particles)	4	Very clear (No colour, very few particles)	5
Label	Code															
Very cloudy (deep brown with significant particles)	0															
Cloudy (Significant colour and particles but slight visib	1															
Partially cloudy (Some colour and obvious particles)	2															
Partially clear (Coloured tinge, fewer particles)	3															
Clear (No colour, fewer particles)	4															
Very clear (No colour, very few particles)	5															

Field name and specifications	Create a list?	List example
<b>Visual human disturbances</b> Add Field ✕ Field Name: <input type="text" value="VisualDisturbances"/> Display Name: <input type="text" value="Visual Human Disturban-"/> Type: <input type="text" value="Integer"/> ▼ Default Value: (Optional) <input type="text"/> Allow Null Values: <input checked="" type="checkbox"/>	Yes	In this case, a simple list containing a 'Yes' and 'No' option may suffice. Students would be able to expand in the 'Additional notes' section if needed.

19. Optional: Repeat steps 8 – 18 to create a set of fields for your **Access path (line layer)** and **Land use observations (polygon layer)**. Suggestions of possible fields have been provided in the table below:

Access path (line layer) Field name and specifications	Create a list?	List example
<div>Type of Access Path</div> <div>Add Field</div> <div>Field Name: <input type="text" value="AccessPathType"/></div> <div>Display Name: <input type="text" value="Type of Access Path"/></div> <div>Type: <input type="text" value="Integer"/></div> <div>Default Value: <input type="text"/></div> <div>(Optional)</div> <div>Allow Null Values: <input checked="" type="checkbox"/></div>	Yes	<div><div>Label</div><div>Code</div><div><div>Trail</div><div>0</div></div><div><div>Paved</div><div>1</div></div><div><div>Forged own path to waterway</div><div>2</div></div></div>
<div>Litter count</div> <div>Add Field</div> <div>Field Name: <input type="text" value="LitterCount"/></div> <div>Display Name: <input type="text" value="Litter Count"/></div> <div>Type: <input type="text" value="Integer"/></div> <div>Default Value: <input type="text"/></div> <div>(Optional)</div> <div>Allow Null Values: <input checked="" type="checkbox"/></div>	No	Do not create a list. This will allow fieldworkers to record any amount of litter along the path travelled (whole number).

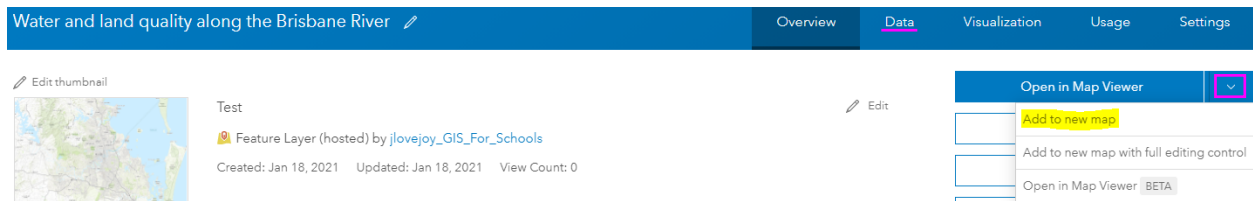


<b>Land use observations (polygon layer)</b> <b>Field name and specifications</b>	<b>Create a list?</b>	<b>List example</b>
<p>Animal count or Tree species count</p> <p>Add Field <span>×</span></p> <p>Field Name: <input type="text" value="AnimalCount"/></p> <p>Display Name: <input type="text" value="Animal Count"/></p> <p>Type: <input type="text" value="Integer"/> ▼</p> <p>Default Value: <input type="text" value=""/></p> <p>(Optional)</p> <p>Allow Null Values: <input checked="" type="checkbox"/></p>	<p>No</p>	<p>Do not create a list. This will allow fieldworkers to record the number of animals observed (whole number) in a specified area (e.g. a 5m x 5m quadrat).</p>
<p>Evidence of human disturbance to area</p> <p>Add Field <span>×</span></p> <p>Field Name: <input type="text" value="HumanDisturbance"/></p> <p>Display Name: <input type="text" value="Evidence of human distu"/></p> <p>Type: <input type="text" value="Integer"/> ▼</p> <p>Default Value: <input type="text" value=""/></p> <p>(Optional)</p> <p>Allow Null Values: <input checked="" type="checkbox"/></p>	<p>No</p>	<p>By setting the 'type' as <b>Integer</b>, you may create a list of predefined values (e.g. recreation, commercial etc.).</p>

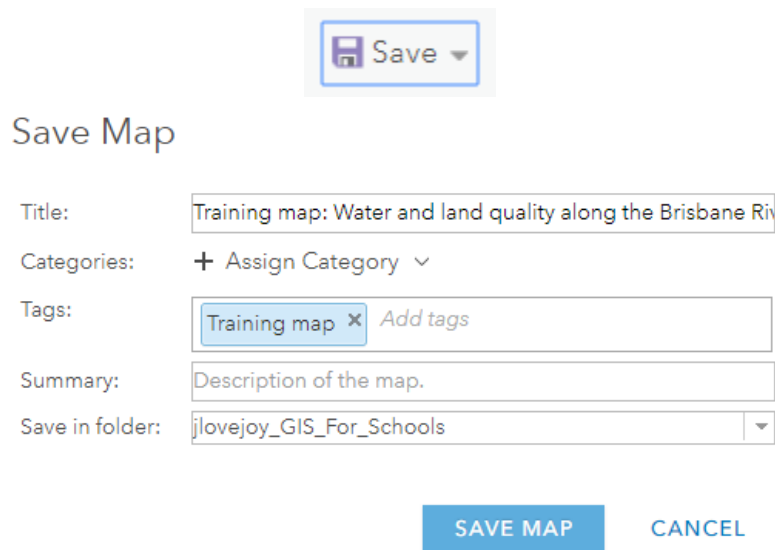
You have now created a list of feature layers – and appropriate fields for each – based on the type of data to be collected in the field.

## Step 2: Symbolise your feature layers and save them in a map

1. Return to the **Overview** page of your feature layers. Click on the drop-down list titled **Open in Map Viewer**. Pick **Add to new map** to start making your map. Alternatively, you can open it in Map Viewer Beta if you are transitioning from Map Viewer Classic.




2. Save your map. Give it an appropriate title and tag so that it is easily identifiable.

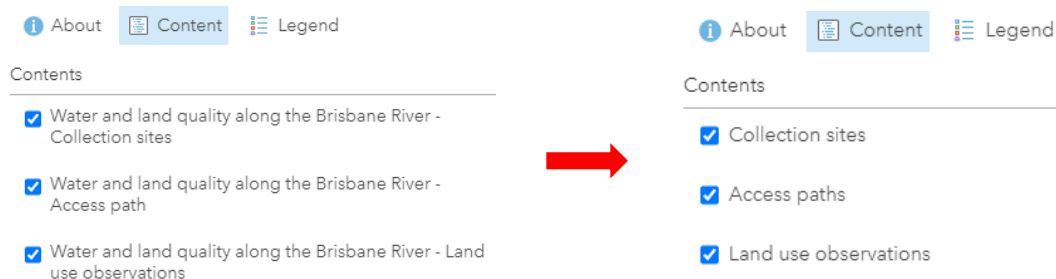


The 'Save Map' dialog box is shown with the following fields:

- Title:** Training map: Water and land quality along the Brisbane Riv
- Categories:** + Assign Category
- Tags:** Training map (tag), Add tags
- Summary:** Description of the map.
- Save in folder:** jlovejoy\_GIS\_For\_Schools

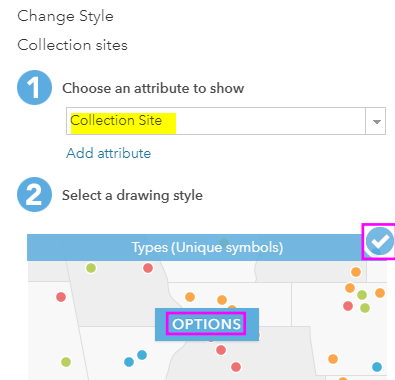
At the bottom, there are two buttons: **SAVE MAP** and **CANCEL**.

3. In the **Contents** pane, hover over each layer, click **More Options** , choose **Rename**, and rename the layers as shown below.




4. Hover over the **Collection Sites** layer. Click **Change Style** .

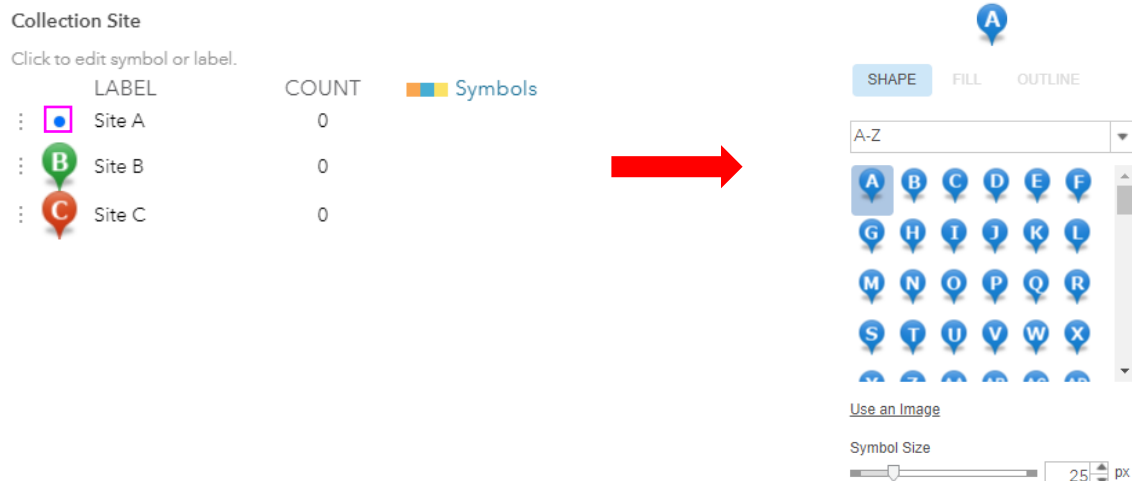
5. Choose to show the **Collection site** attribute.



6. Ensure **Types (Unique symbols)** drawing style is selected, indicated by a tick in the top-right corner. Click **Options**.

7. Click the symbol next to **Site A**. You may choose to change the colour fill of each site.

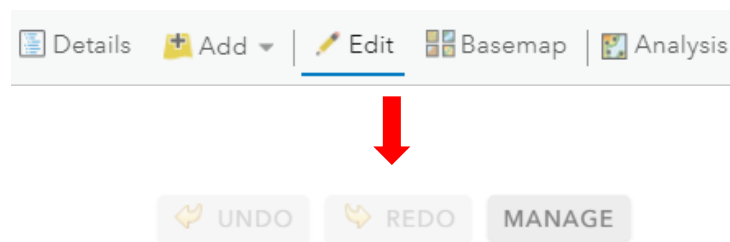
Alternatively, click **Shape**, choose the **A-Z** category, and click the **blue 'A'** . Set it to a size of **25** and click **OK**.



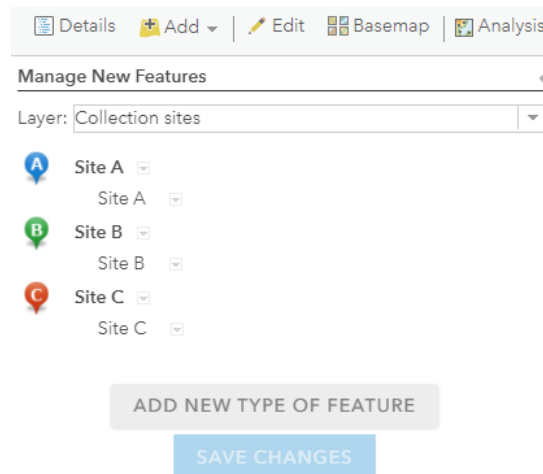
8. Repeat this step, choosing appropriate symbols for Site B and Site C, as seen in the image above.

9. Click **OK**, then **DONE** to lock in the changes.

10. On the toolbar, click **Edit**, then **Manage**.



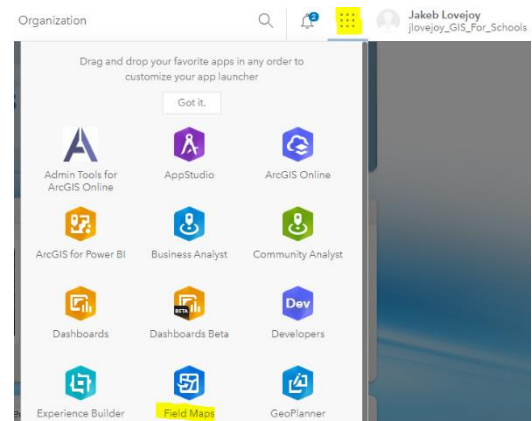
11. Ensure the layer **Collection sites** is selected. Click **Save Changes**. This will save the symbols that you have selected for **Collection sites**. If you update your symbols at any time, you will need to return to this step and save the changes again.



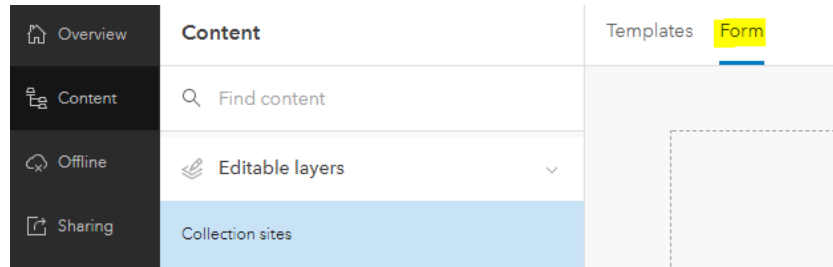
12. If required, repeat steps 1 – 11 in this section for your **Access paths**. Select the **Type of access path** as the attribute you wish to display and then select a suitable colour for each path/line.
13. Save your map again.
14. If you want others to be able to access this map, set your share settings appropriately (organisation level). You may need to update the sharing level of the feature layers you created as well.

## Step 3: Create forms in Field Maps

1. Return to the **Home** page of your ArcGIS account.
2. Click on the apps menu and select **Field Maps**.
3. Select the map you just created in the steps above.  
This will open up the **Overview** page.

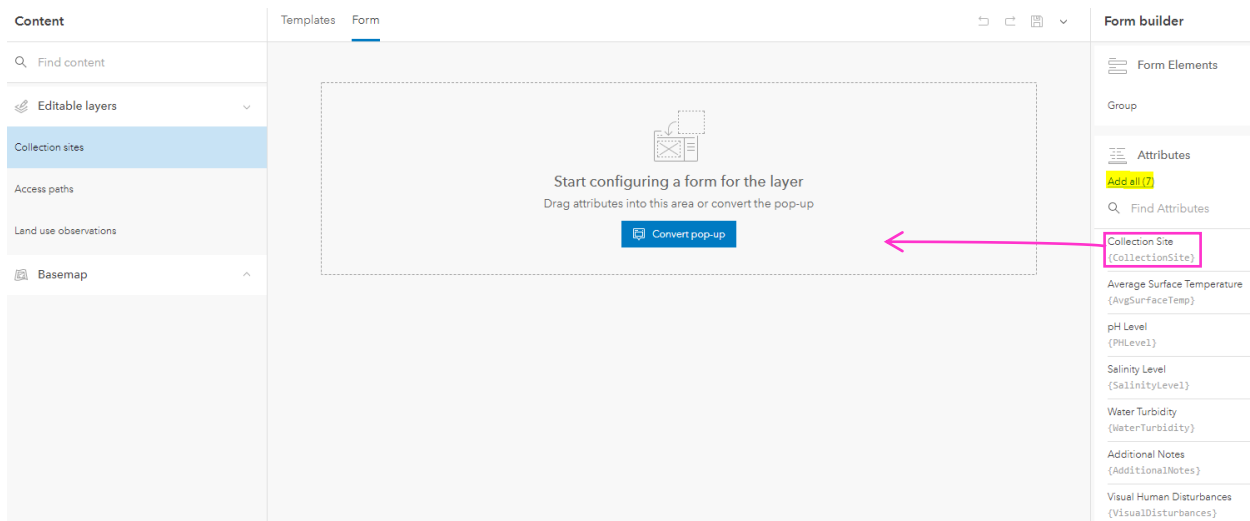


- Navigate to **Content** in the left-hand column. Then select the **Form** tab at the top of the page.



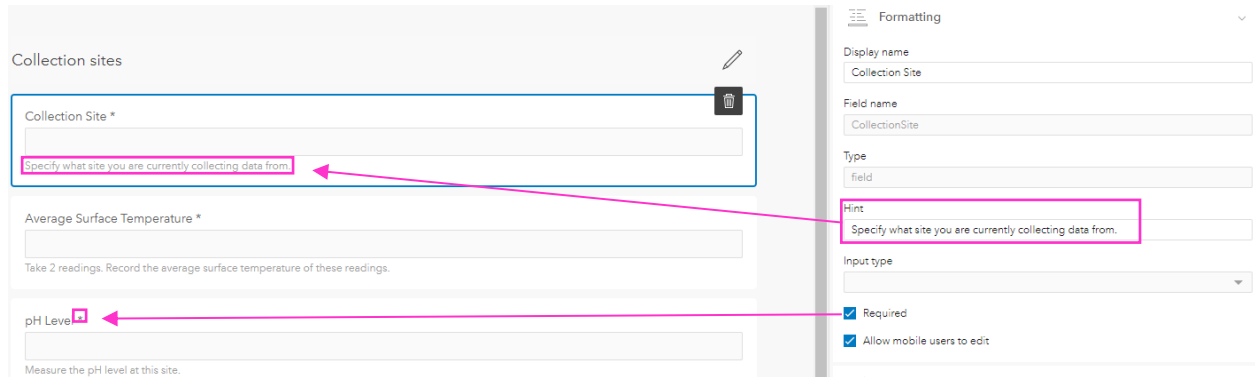
You will now build a form for each of the layers you previously created: Collection sites, Access paths, Land use observations. This will allow fieldworkers to efficiently collect data about a point, line or area they have recorded on the map.

- Ensure **Collection sites** is selected under **Editable layers** in the left-hand column. On the right-hand column, you will notice all the fields you previously added when you created your feature layers. Click and drag a layer into the central workspace to begin building your form. Alternatively, you can click **Add all (7)** at once if desired.



- As you design your form, consider the best order for your fields. In this instance, it is most appropriate to begin the form with the **Collection site** field as it is important that fieldworkers specify what site they are collecting the remaining data from.

- By clicking on a field once it has been entered into the form, you can provide further instructions by populating the **Hint** box. You can also mark the field as **required**, which will mean that fieldworkers must populate that field with an answer or data record. See the example below:



Collection sites

Collection Site \*

Specify what site you are currently collecting data from.

Average Surface Temperature \*

Take 2 readings. Record the average surface temperature of these readings.

pH Level

Measure the pH level at this site.

Formatting

Display name  
Collection Site

Field name  
CollectionSite

Type  
field

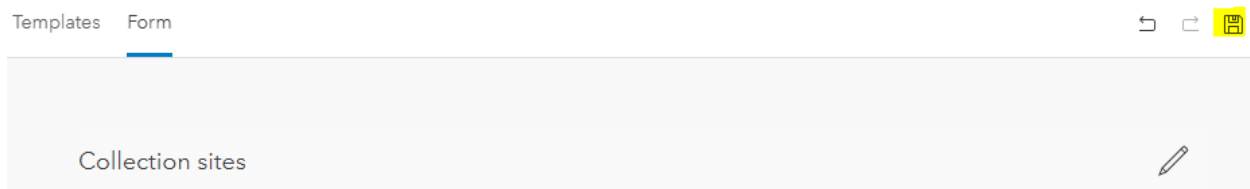
Hint  
Specify what site you are currently collecting data from.

Input type

☒ Required

☒ Allow mobile users to edit

- Once you have completed your form, click on the **Save** icon to finalise your form.



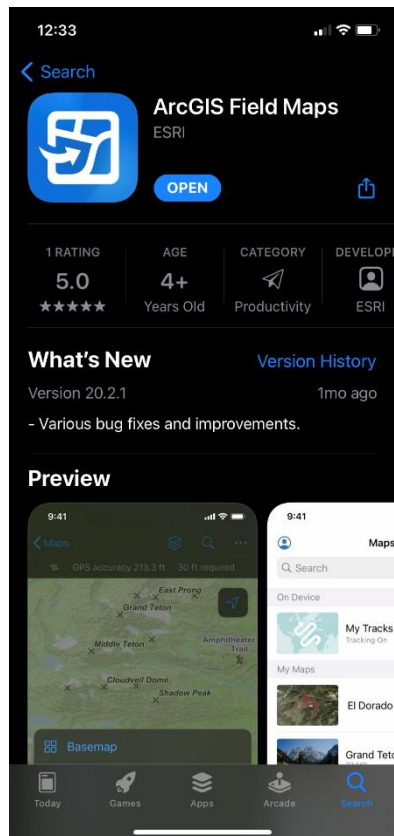
Templates Form

Collection sites

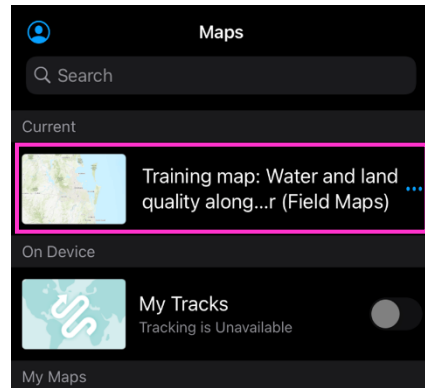
- Repeat steps 5-8 in this section to build appropriate data collection forms for your **Access paths (lines)** and **Land use observations (polygons)** layers.

## Step Four: Collect data in the field

1. On your mobile device or tablet, Open the ArcGIS Field Maps app. Alternatively, download it from the App Store or Android Store.
2. Choose **Sign in with ArcGIS Online** and enter your ArcGIS login credentials.



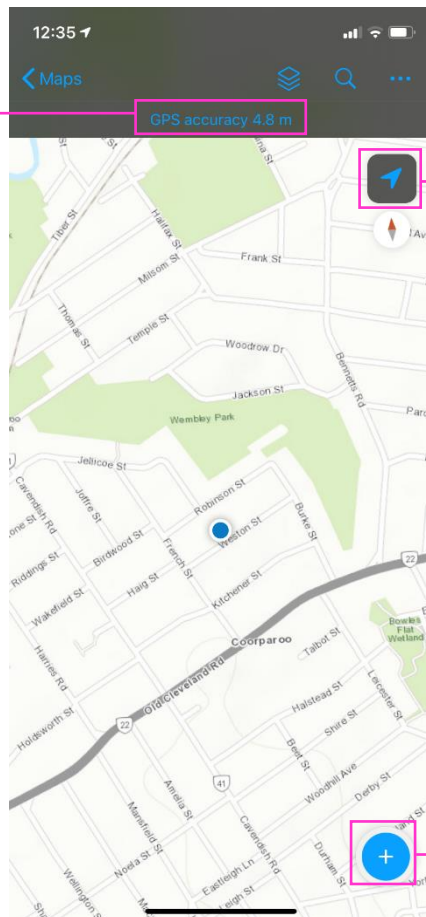
3. In the Field Maps app, browse and select the map you created in ArcGIS Online (Step 2 of this guide).



4. Travel to the location of Site A in the field. Alternatively, you can manually move your GPS location if you are at home and are just experimenting for training purposes.

**GPS accuracy:**

Depending on your location, your GPS accuracy may be less accurate. For example, built up areas tend to interfere with a device's GPS accuracy.

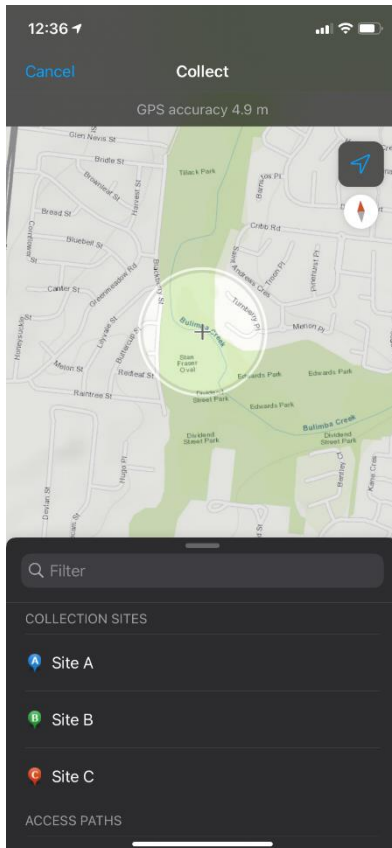


Click the Pointer to centre the map onto your current location.

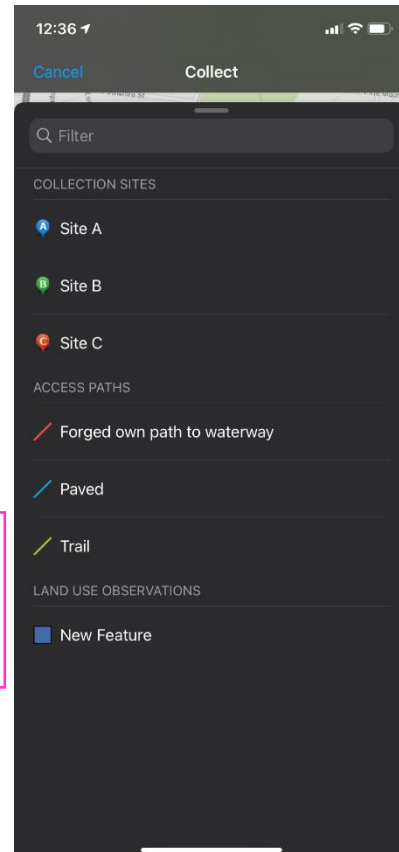
Press the Add icon to begin adding features.



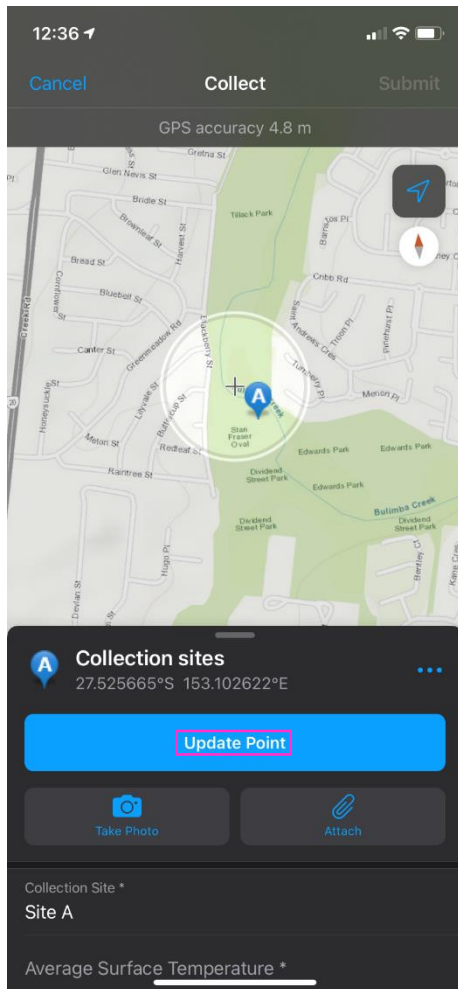
5. Press the **Add** icon. A cursor will appear at your current location. If needed, you can manually refine the location by panning and zooming on the map until you are happy with the accuracy of the cursor. Select Site A to add a point to the map.



You can scroll down on this menu for more options.



6. Once you have selected the site, it will be recorded in the centre of the target. If you would like to adjust the point, click **Update Point**.
7. Use your finger to scroll the menu up. Enter the required data in the form you set up in Section 3 of this guide (see right image below). If desired, you can also take a photo of the site.
8. Press **Submit** to finalise the entry.

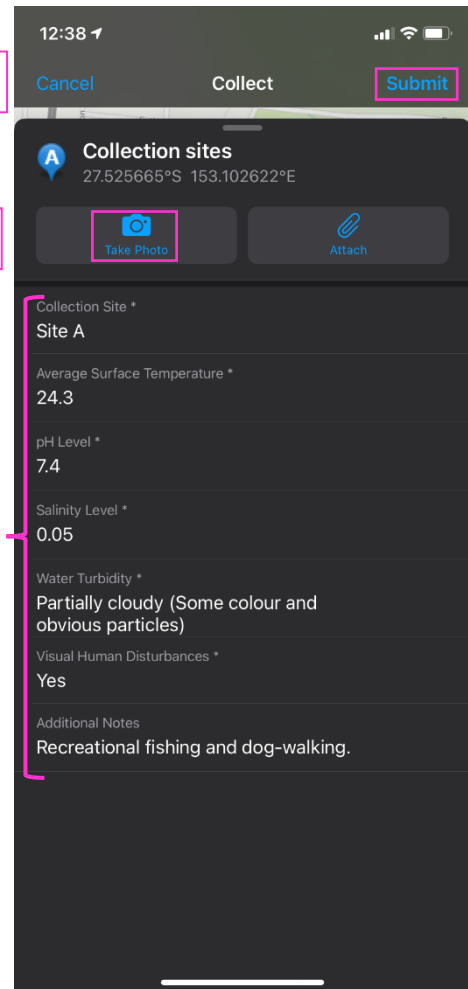


Step 6

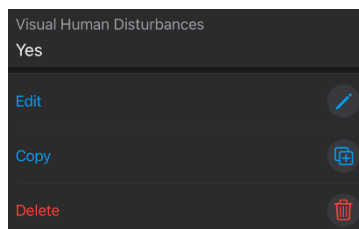
Step 8

Step 7

Step 7

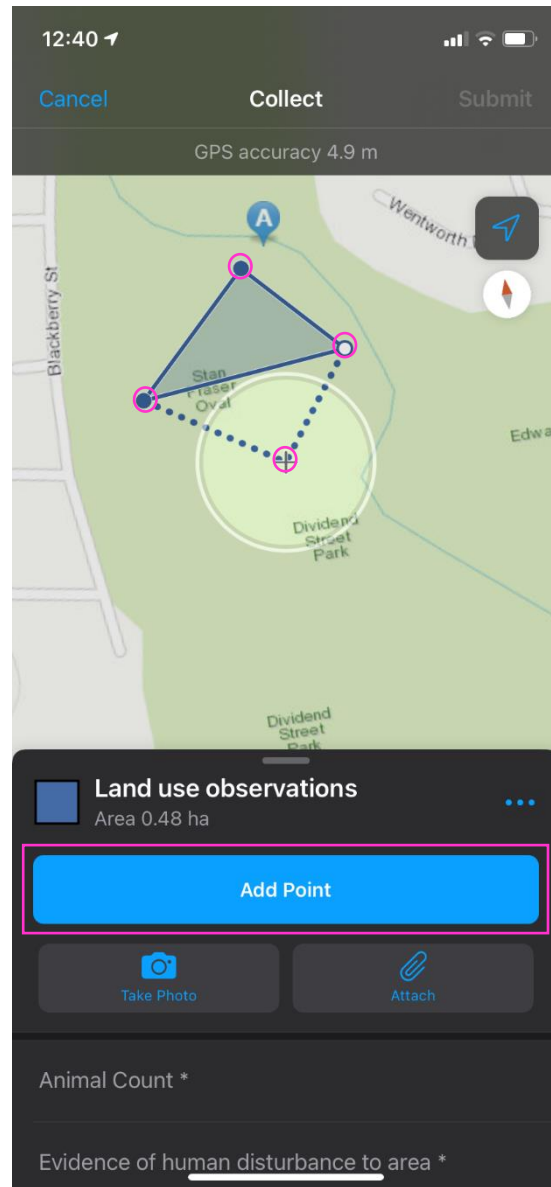
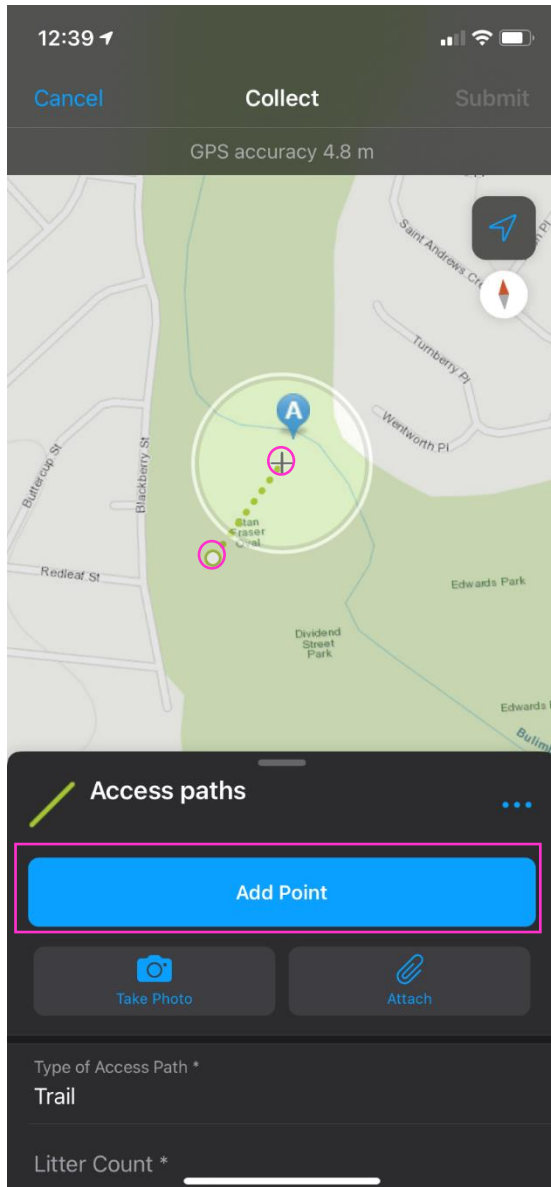


9. If you make an error, simply press on the completed entry. It will allow you to **Edit** or **Delete** the entry.



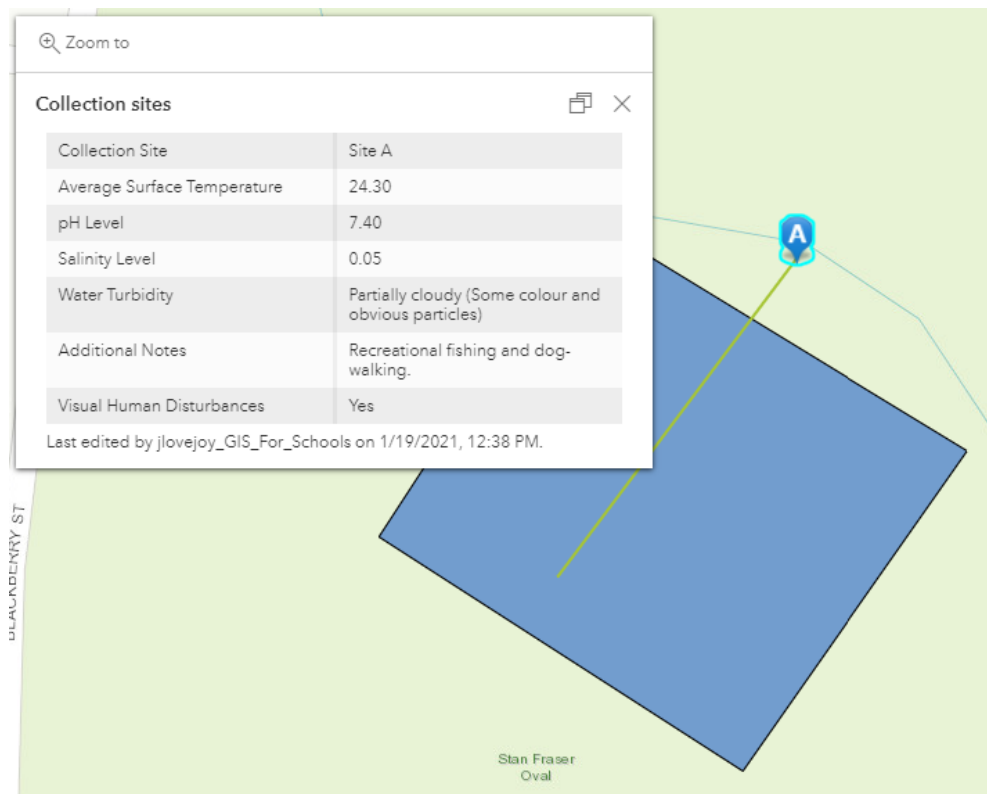
10. Repeat this process for your line and polygon data as needed.

As these features can cover larger areas, you will need to add points where the paths may change direction. Similarly, you will need to add points to your polygon layers to define the area of these features.



## Step five: View data in ArcGIS Online, Map Viewer Beta

Once you have finished collecting data on the Field Maps application, your application should look like the image below. You will need to open the map in Map Viewer Beta as the forms created in Field Maps is only supported in this version. It has all the same capabilities as the current map viewer.



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## Next Steps:

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### *Request a free ArcGIS Online Account for your school:*

Australian schools can request a free ArcGIS Online account as part of Esri Australia's Classroom GIS Initiative. A school subscription provides additional map layers, content, features and privacy. Learn more about ArcGIS Online, and apply for your ArcGIS Online School subscription at <http://esriaustralia.com.au/education>

### *Speak to Esri Australia's Education Program Manager:*

Australian schools can seek additional support or speak to our Education Program Manager by emailing [education@esriaustralia.com.au](mailto:education@esriaustralia.com.au).