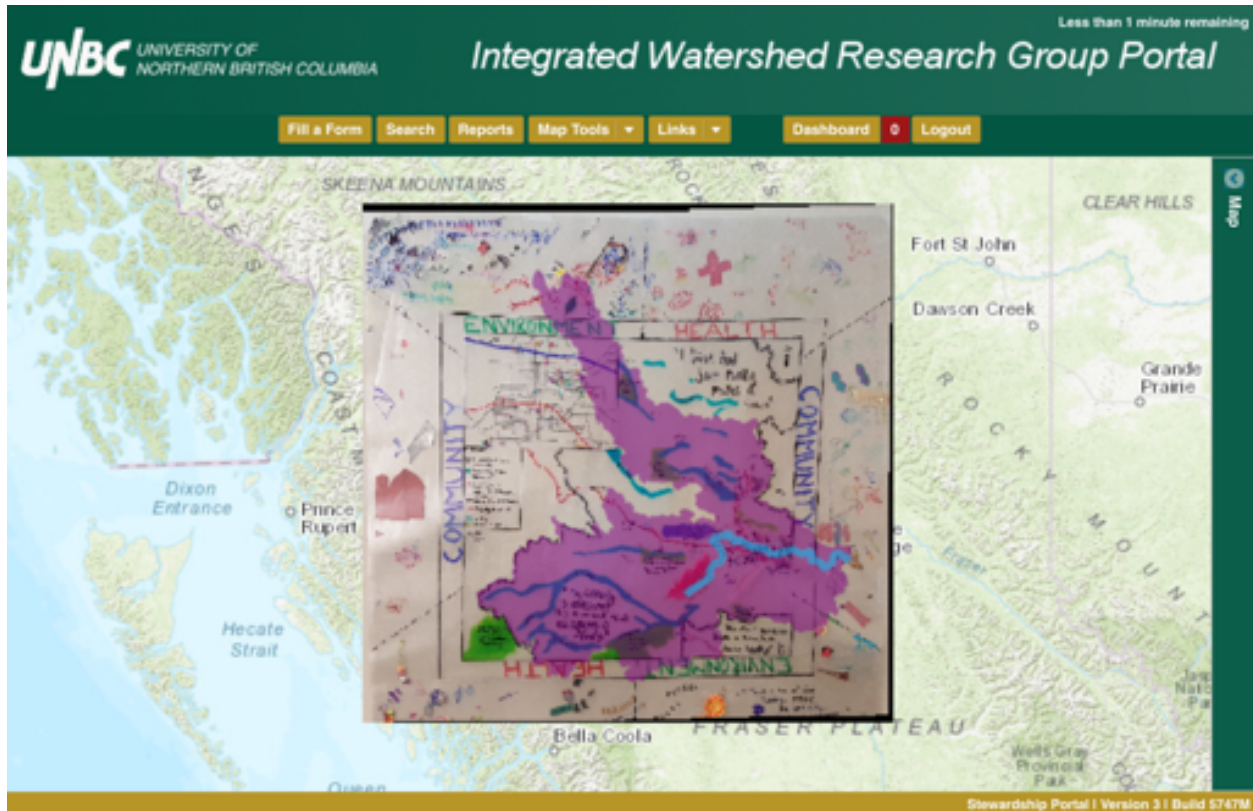


Portal User Guide



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1. Portal Definition

Our Portal is a map-centric web based tool that was originally designed by Scott Emmons (and team) in conjunction with First Nations communities in British Columbia. This tool is designed to be a next generation web geographic information system (GIS) that is able to store, display, manage, and share spatial and non-spatial data within its database. As a map-centric tool, it has basic GIS features, such as but not limited to: identifying features, creating new spatial layers on the fly, editing, buffering, clipping, querying attribute tables, and creating simple maps that can be downloaded. In addition to these GIS features it also provides the ability to search submissions and data, store and share any digital file format, and develop customized forms to display information.

As a total records system this tool also documents and permanently stores all information that is submitted into the database, protecting the integrity of the data. Unlike many other systems, such as Google Earth, this Portal allows users to be in complete control of their data. This is done by allowing users to determine who will have permission to access the data they are uploading, through a system of user and group permissions.

This Portal has been developed as a user driven tool, as such users determine the development path and provide all relevant data that is being uploaded. It should be mentioned that while this tool developed out of collaboration with First Nation groups, it has evolved to include a diversified user group portfolio which still includes various First Nations, the Integrated Watershed Research Group at the University of Northern British Columbia, British Columbia's School District 91, and many others across British Columbia, Canada, and even internationally.

Importantly this tool is open source in nature, the code and all API's and tools are freely available, however hardware and more importantly having the capacity to manage have inherent costs for groups wanting to start their own instance of this tool. While there are multiple distinct and separate instances of this tool being used, they all share a single development path. This means that as one user group invests in new feature and functionality all the other groups benefit from this investment by gaining access to the new code.

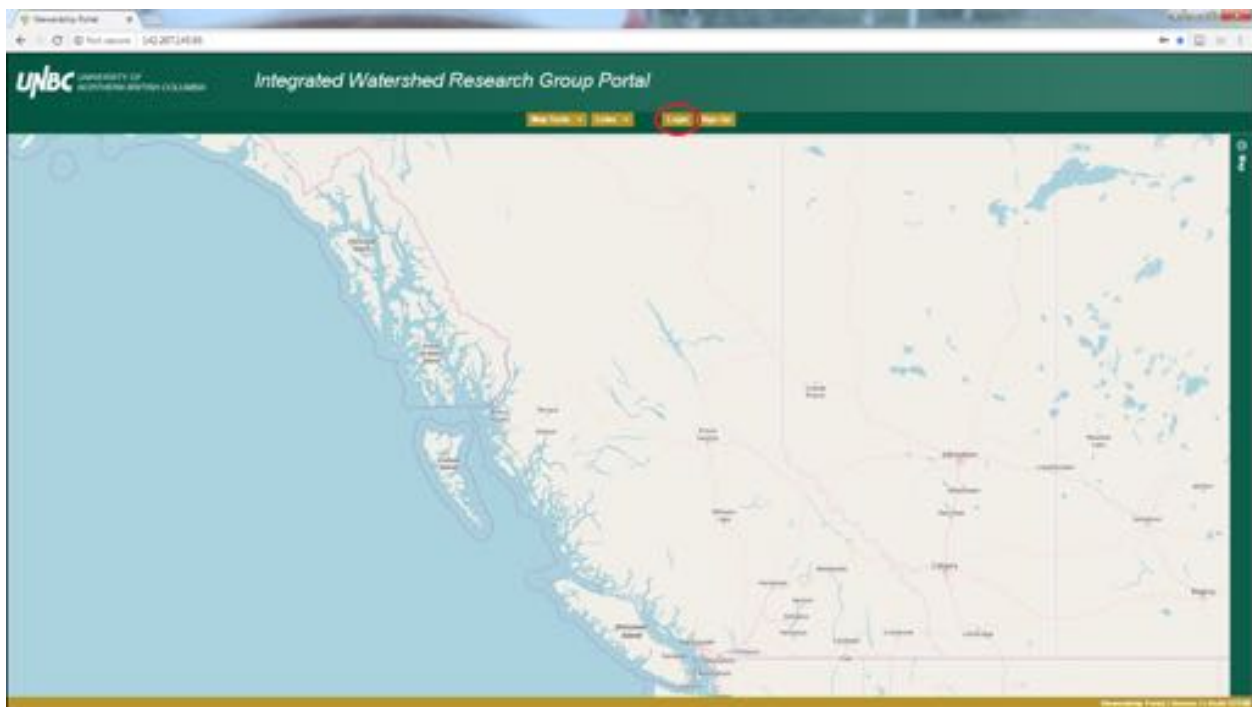
2. Finding your way around the portal

What to showcase in the demonstration session:

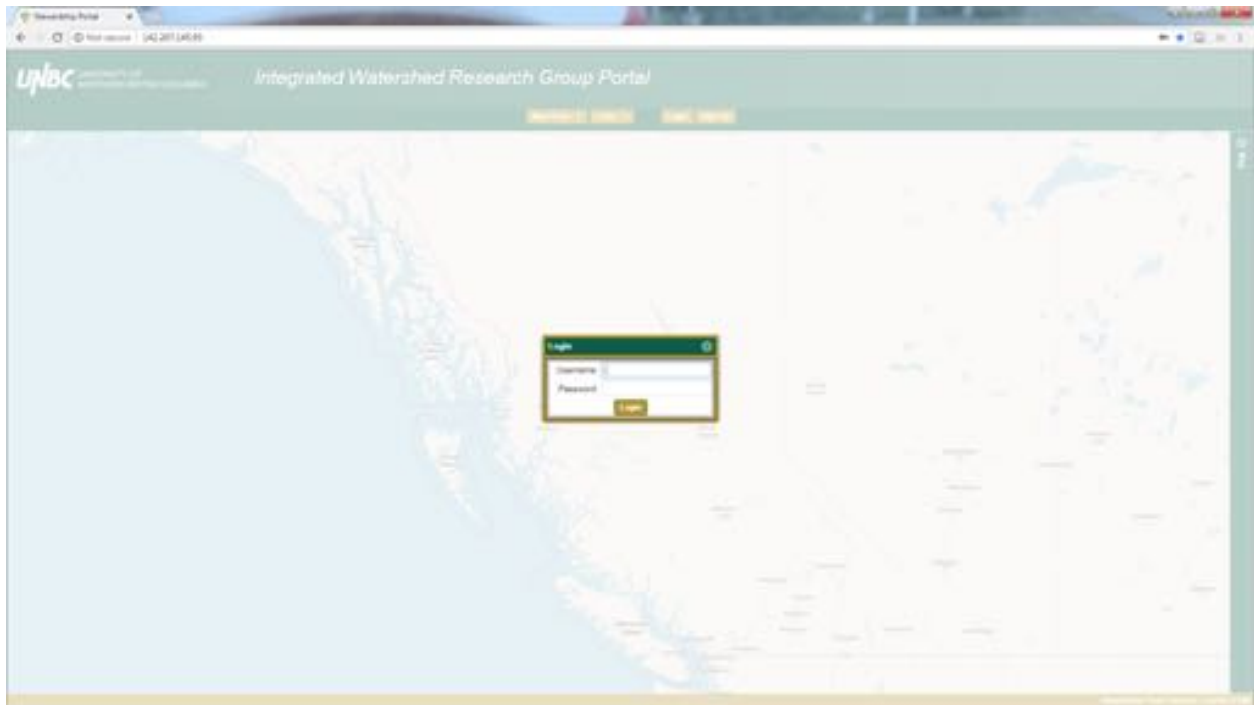
- Intro? Showing all the buttons and what they do.
- Query data with search
- Spatial visualization
- Map tools
- Forms
- Permissions

Home Screen of the Portal:

The landing screen of the Portal is map-centric, there isn't much you are able to do before logging in. To login use the login button, which is highlighted in red in this screen shot.

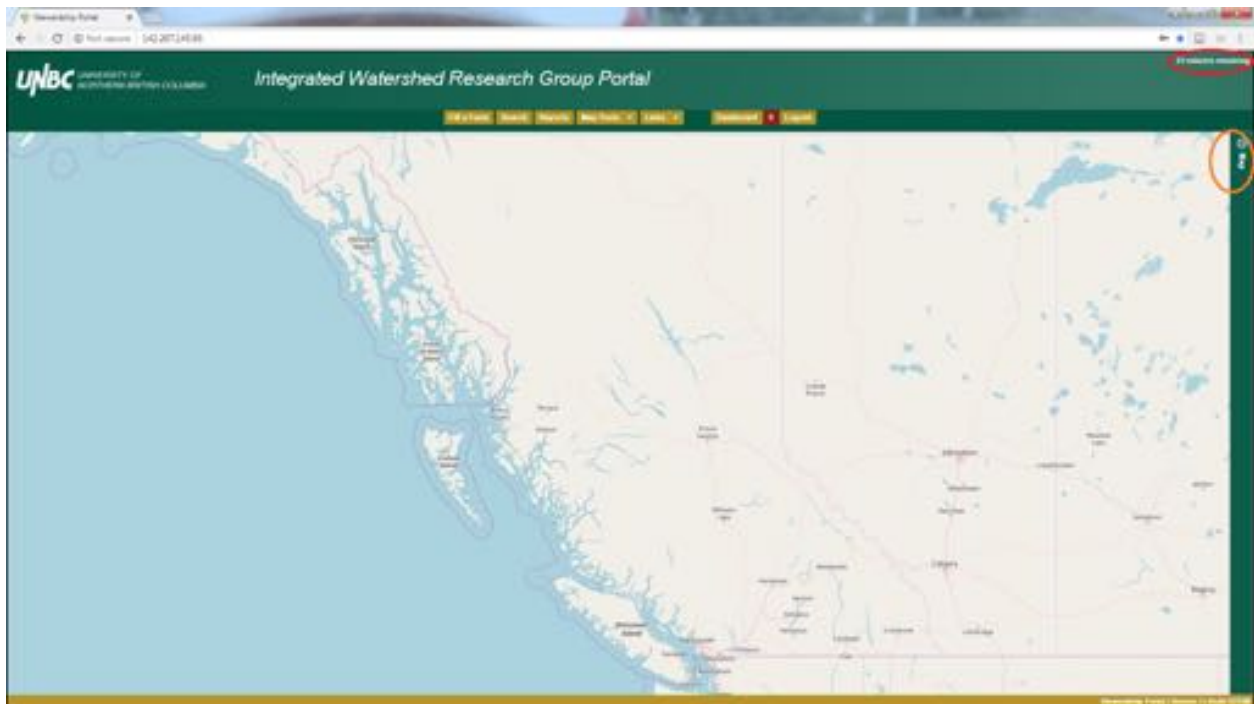


Doing so will open the login window where you use your Portal account details to gain access.

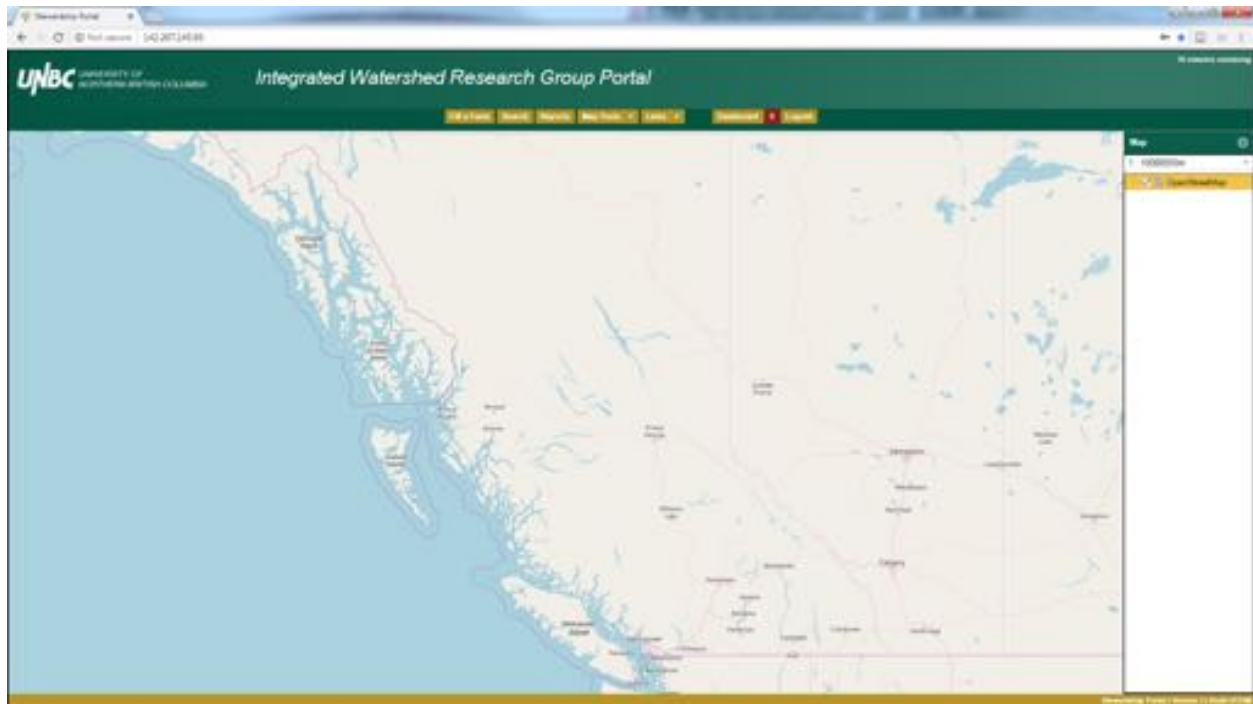


Now you have some new buttons available.

In the top right hand corner (highlighted in red here) you have a countdown showing. When this countdown ends you will have to enter your credentials again. You don't lose anything you were working on when it logs you out, as long as you log back in when prompted (if you close the window and come back later you will have lost your progress though).



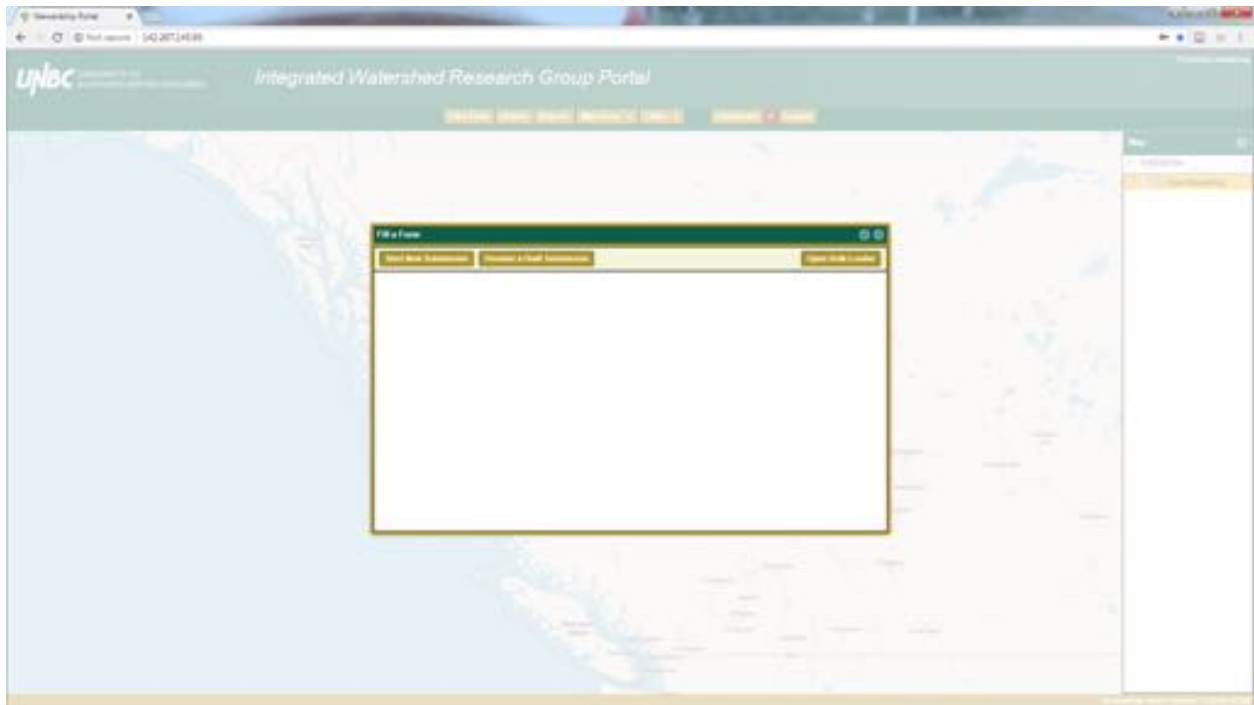
There is also a Map bar on the right of the screen (highlighted in orange), you can click on this bar and expand the spatial data content list as shown below.



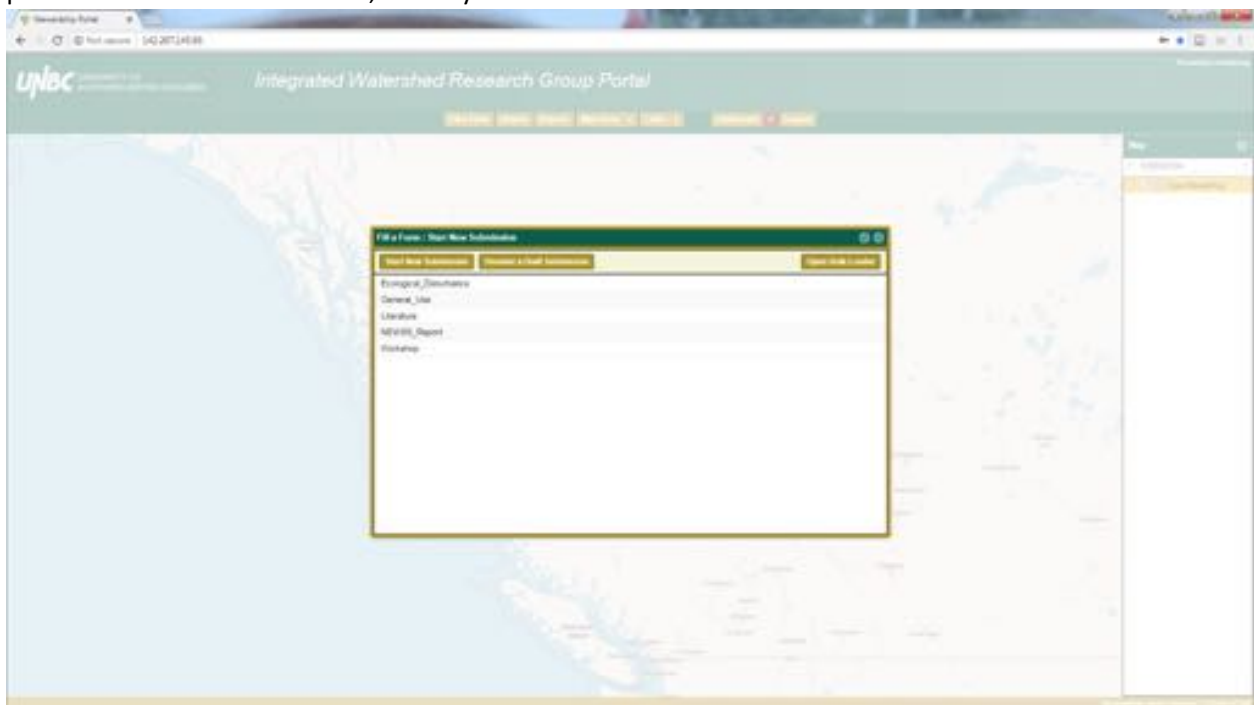
This opened Map bar will list all spatial data that is displayed on the map. You are able to change the order, check attributes, change symbology, among other features using the right click functions which we will explore in detail later.

In order from left to right we will quickly look at each button across the top of the screen.

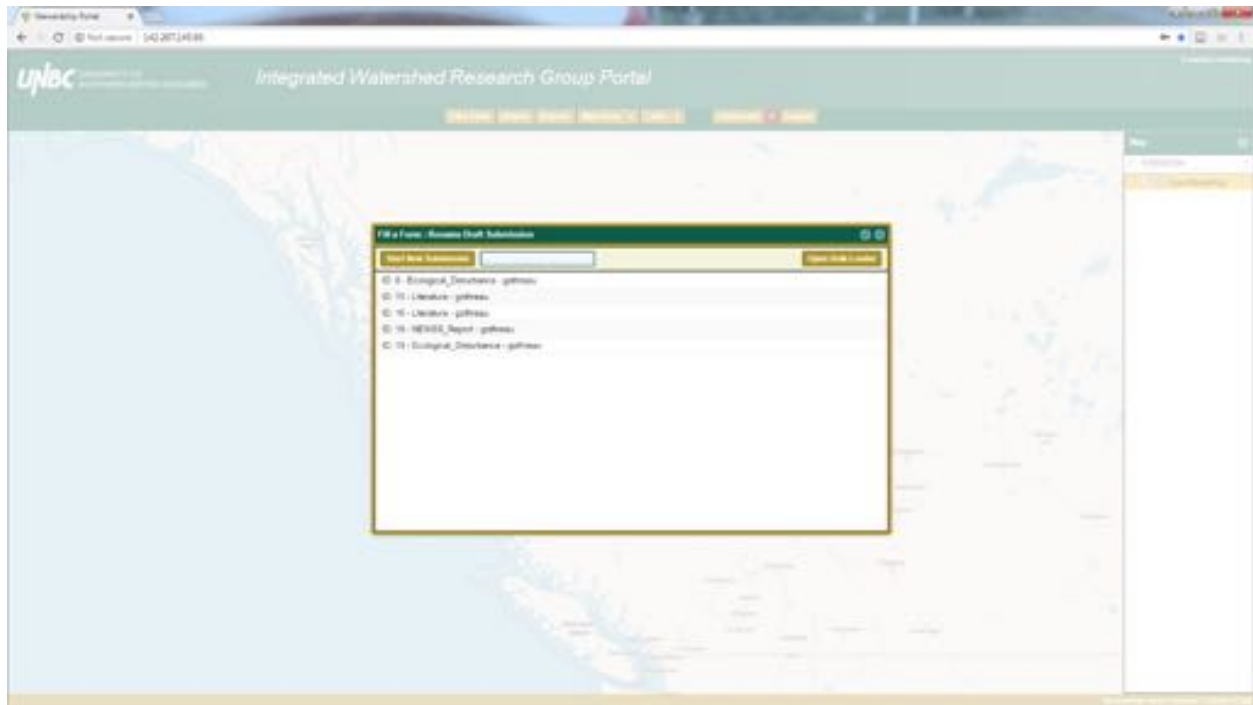
Fill a Form: This is used to start making a submission, continue a draft submission, and start the bulk-load process.



If you're starting a submission you will click Start New Submission and a list of forms that you have permission to access are listed, which you can fill out.

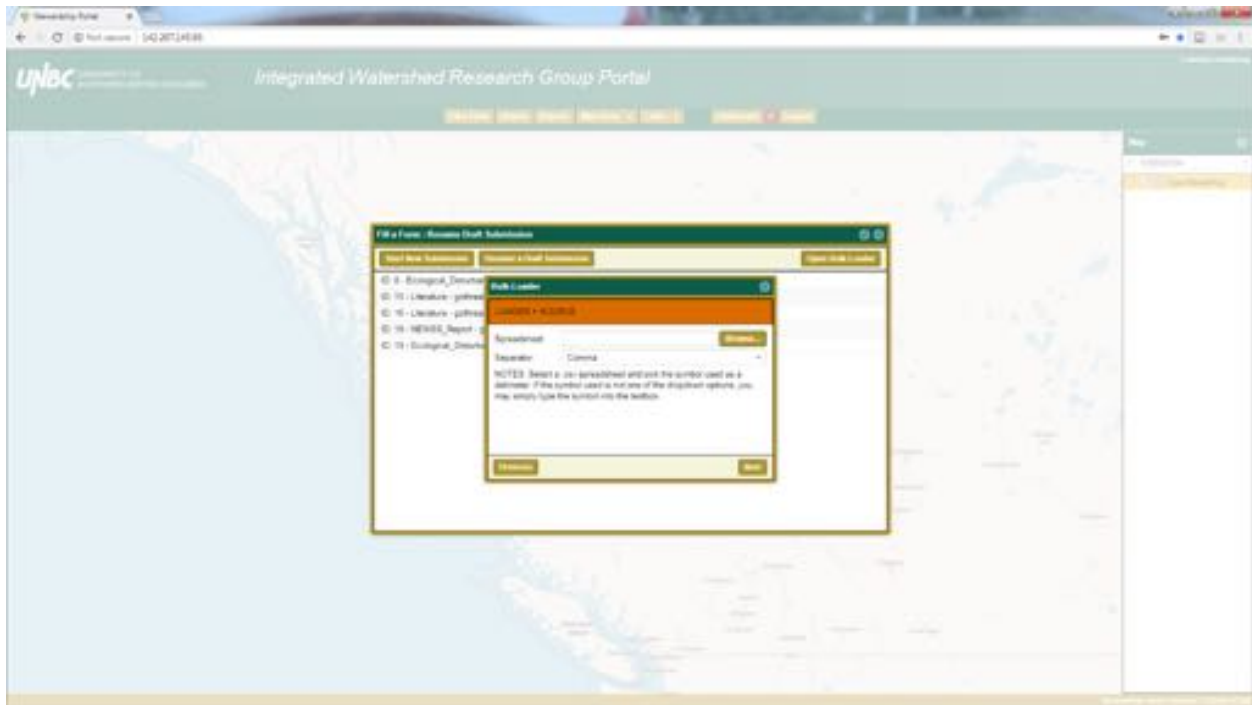


If you saved a draft submission, or have been asked to resume someone else's draft, you will use the Resume a Draft Submission button.

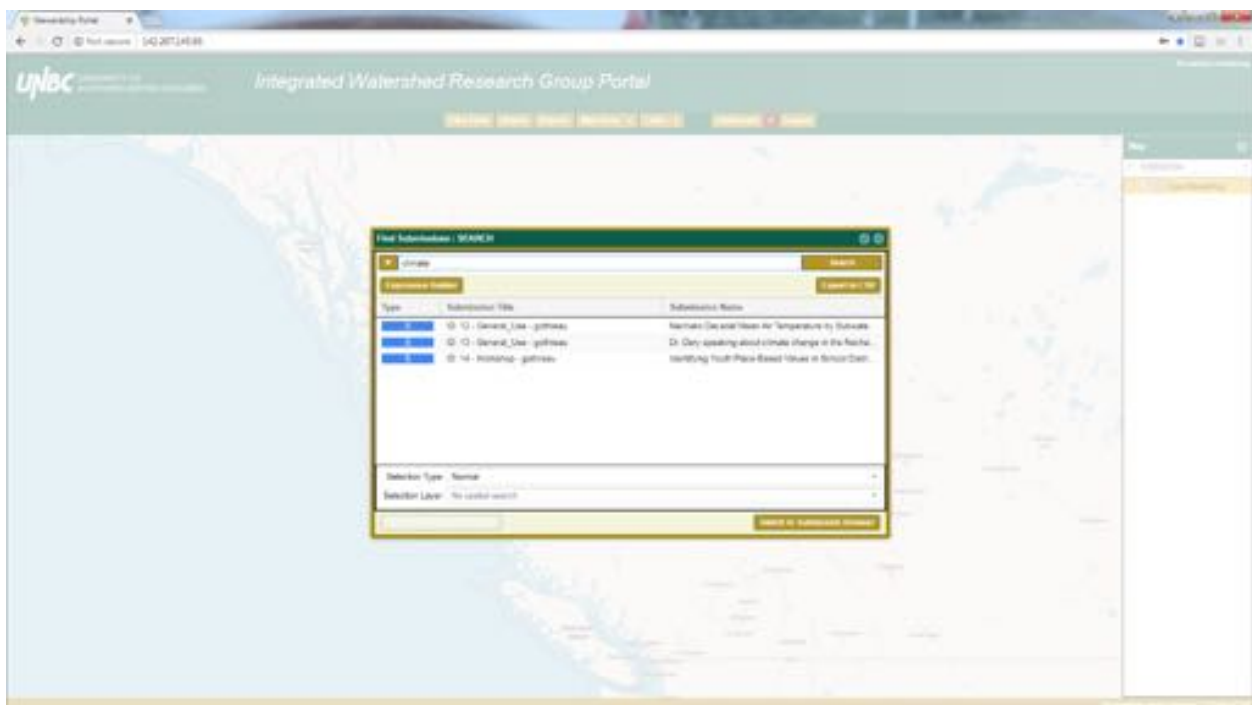


Double click on the Draft you want to continue and continue working on it.

The Open Bulk-Loader will allow you to start a bulk-loading session, for those times you have a large number of submissions to create. There is a fine line of when you are going to want to make use of this feature, as there is a lot of work that is required to prepare the data for bulk-loading. For example we have a literature review with over four hundred articles to be submitted, we are going to use the bulk-loader to complete this task. However, if this literature review had twenty articles it would probably be more efficient to load them in individually.



Next is the Search button, this is used to use words to search through data submitted to the Portal. For example you can search for submissions containing the word climate.



Clicking on the down arrow beside the search field allows you to select which fields you want to search through.

Submission Content: searches by content within the submission itself.

Submission ID: searches by the unique identifying number given to each submission.

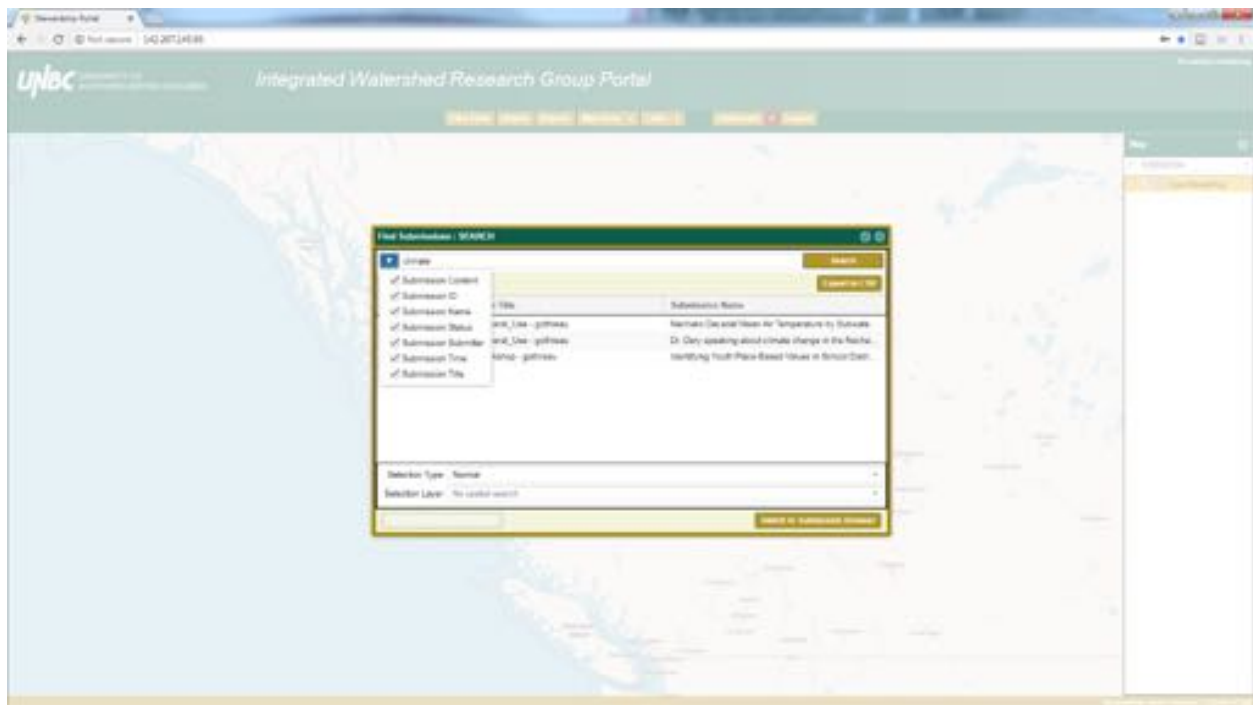
Submission Name: The name given to a submission.

Submission Status: Is the submission submitted or in a draft?

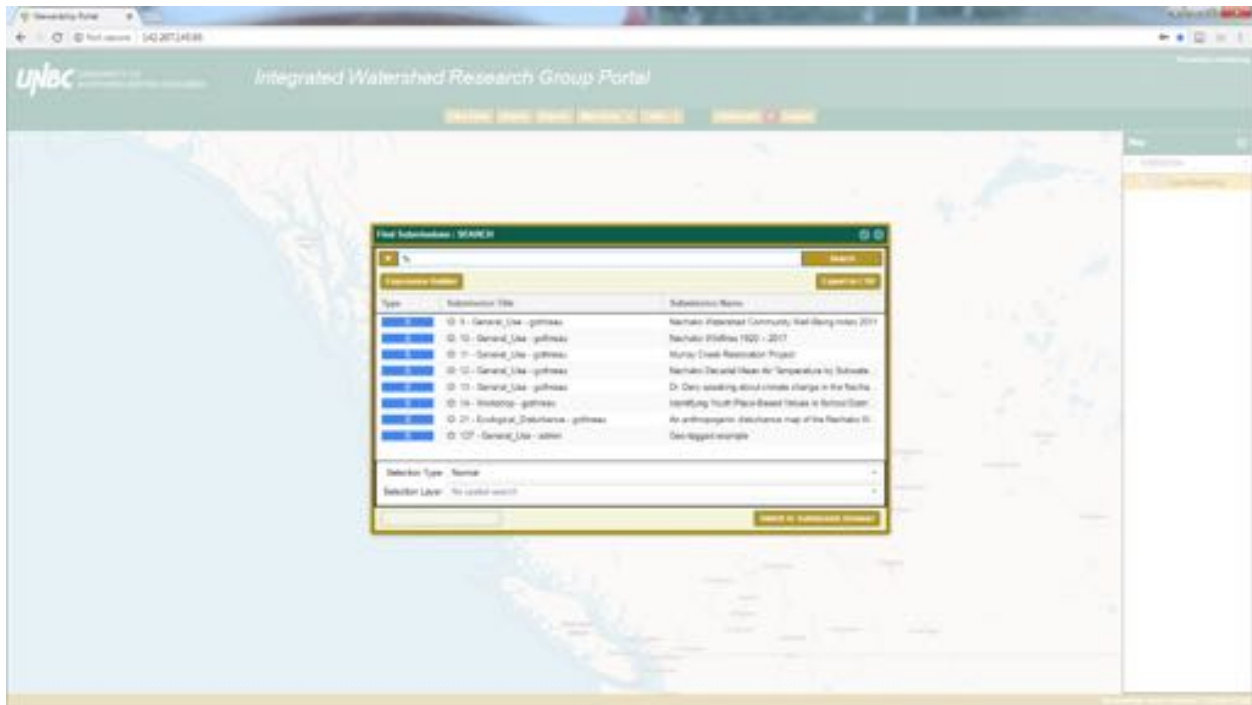
Submission Submitter: The user who created the submission.

Submission Time: The date and time that the submission was created (submitted or started?)

Submission Title: These are automatically created by the Portal and are in the following format. ID: XX – Form Name – User who created the submission

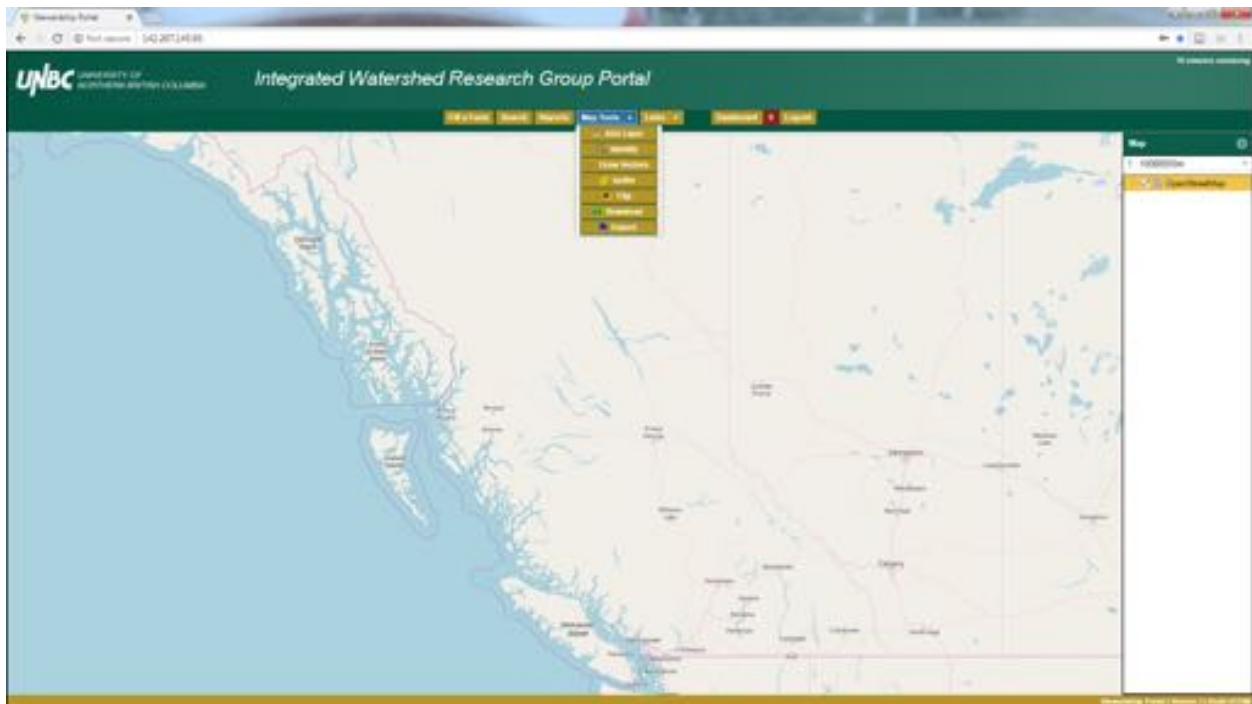


You can also search for everything by using the % character.



Next there is a Reports button, which we are going to ignore for now. This is under development, but currently you could also bulk-download data from the Portal using this tool.

Map Tools is next, and is used to load spatial data to the map and the various tools provided for working with spatial data. For the purposes of this demonstration the Add Layer and Identify tools are the most important for us.



Add a Layer brings us to a window that allows us to find spatial data which has been organized by:

WMS Service: These are Web Maps

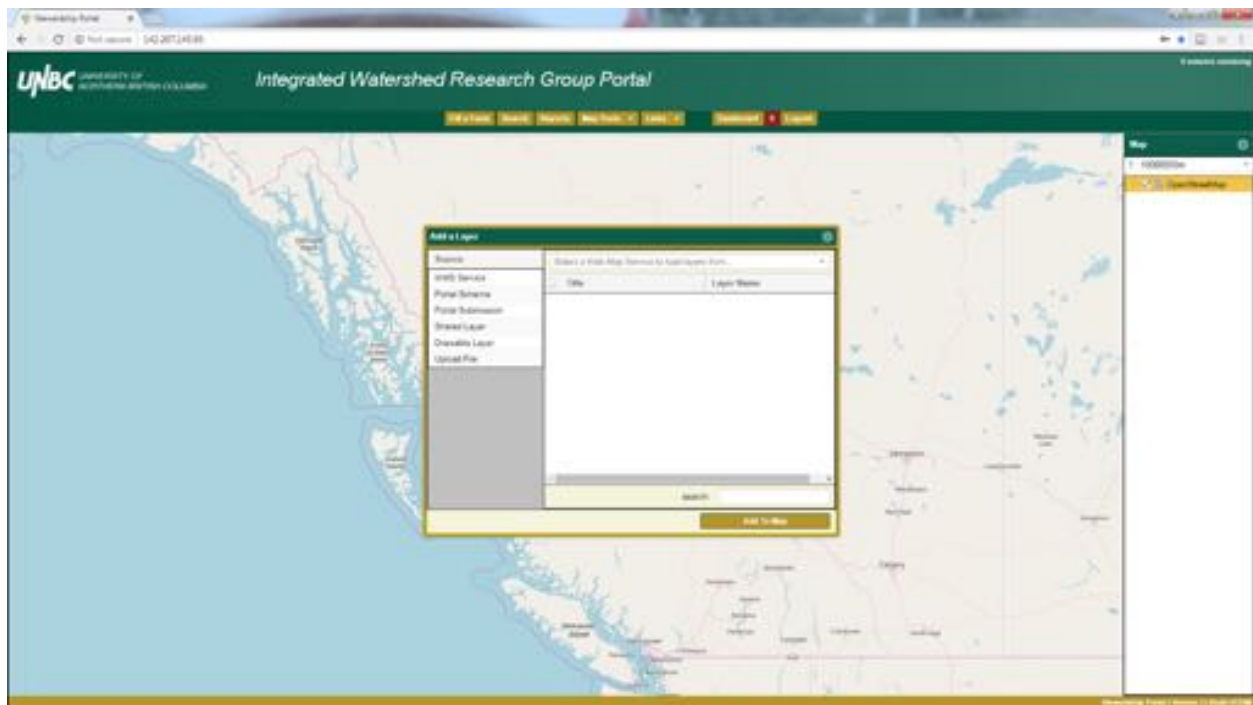
Portal Schema: You can find all spatial data that is associated with a specific schema.

Portal Submission: Find the spatial data associated with individual submissions

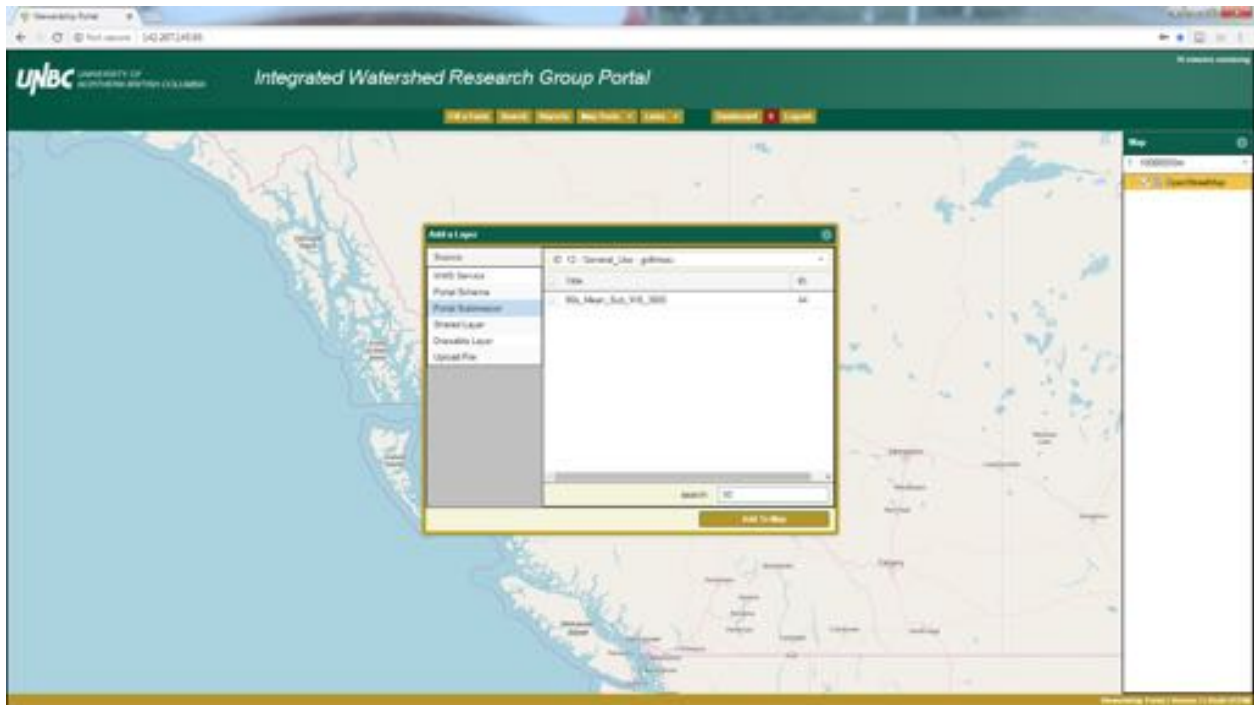
Shared Layers: These are spatial layers that are available to all Portal users.

Drawable Layer: Allows you to create a new spatial layer that you can draw on the map.

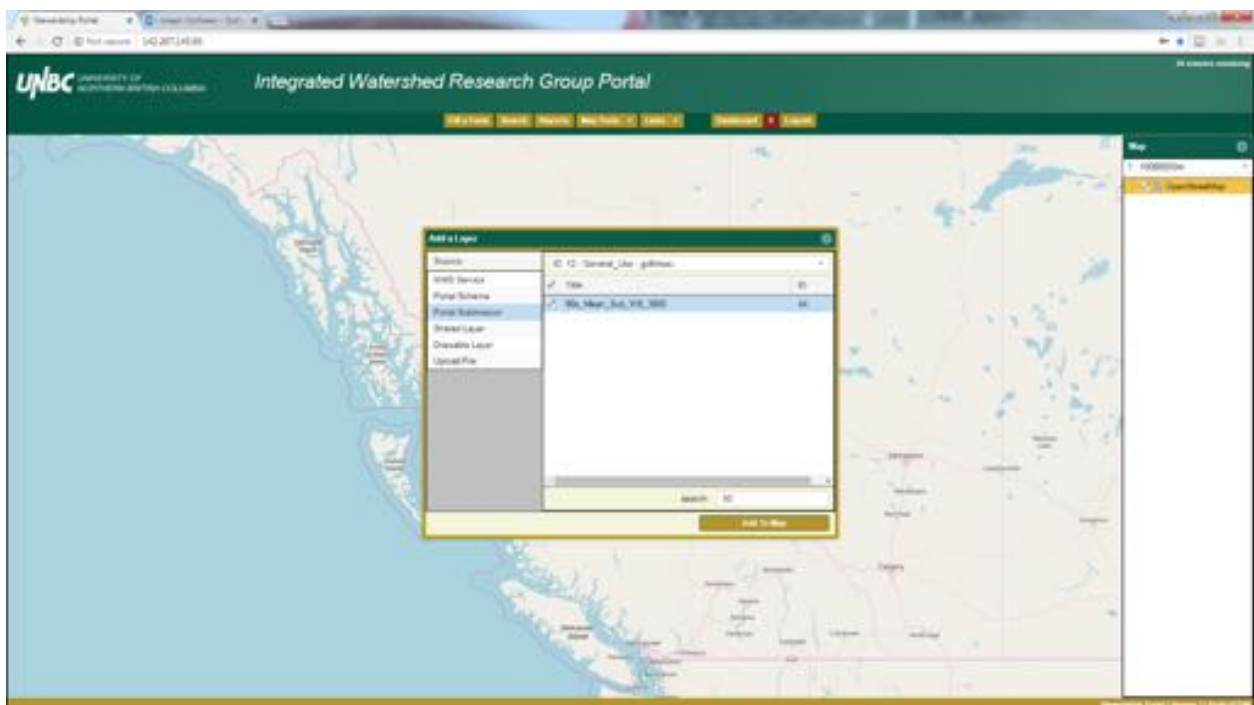
Upload File: This allows you to upload spatial data you have on your hard drive onto the map.

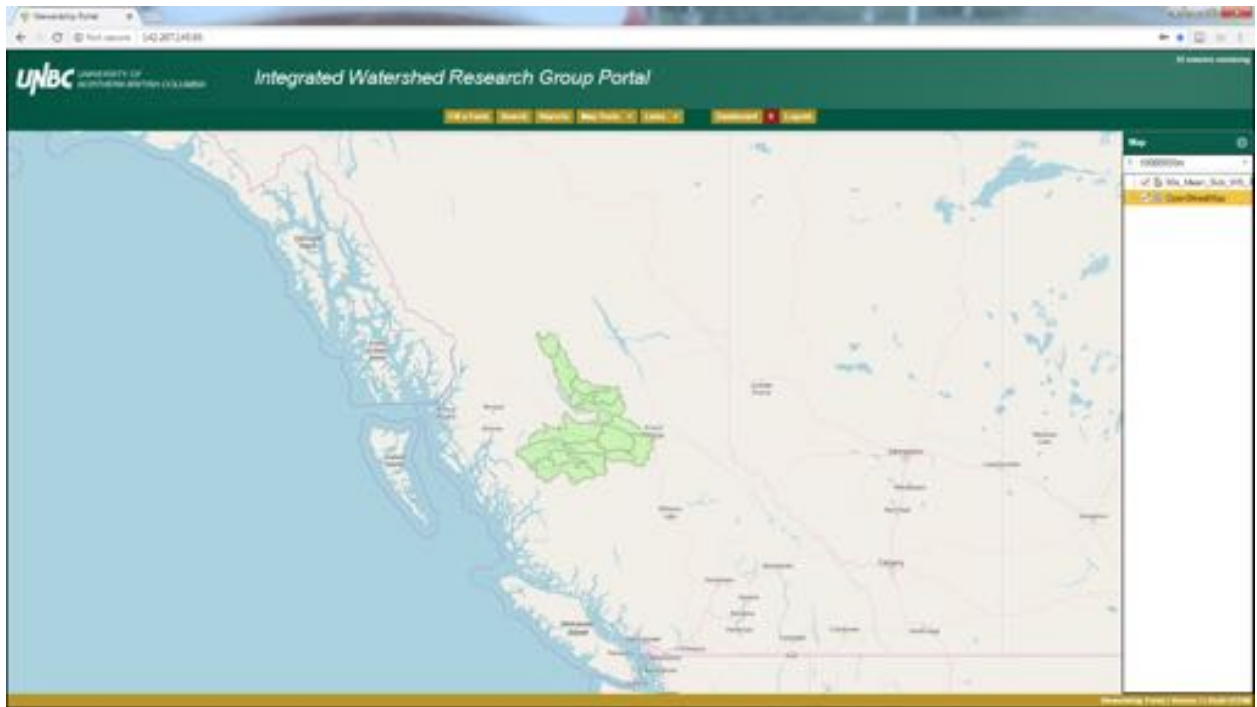


Unlike the search feature, you have to use a drop down menu to sort through spatial data after you have selected the Source category.



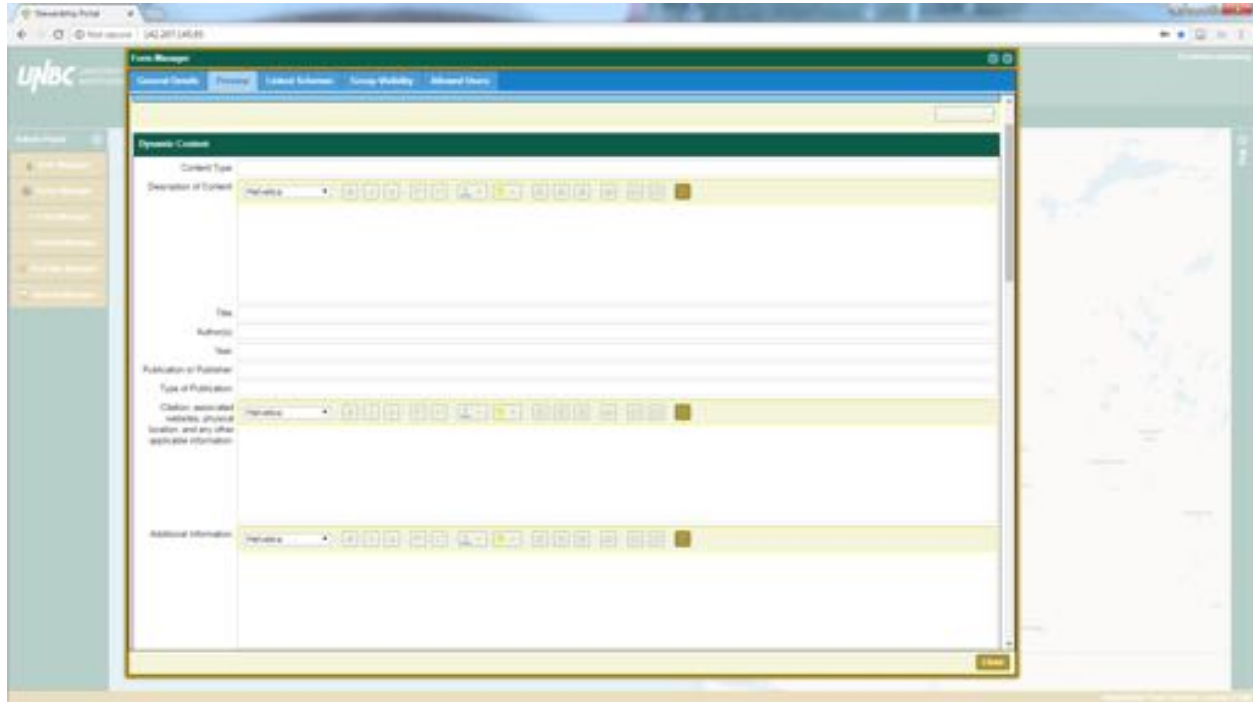
To actually add the spatial data to the map you need to click the checkbox and hit the Add to Map Button.





3. Filling out a form and making a completed submission

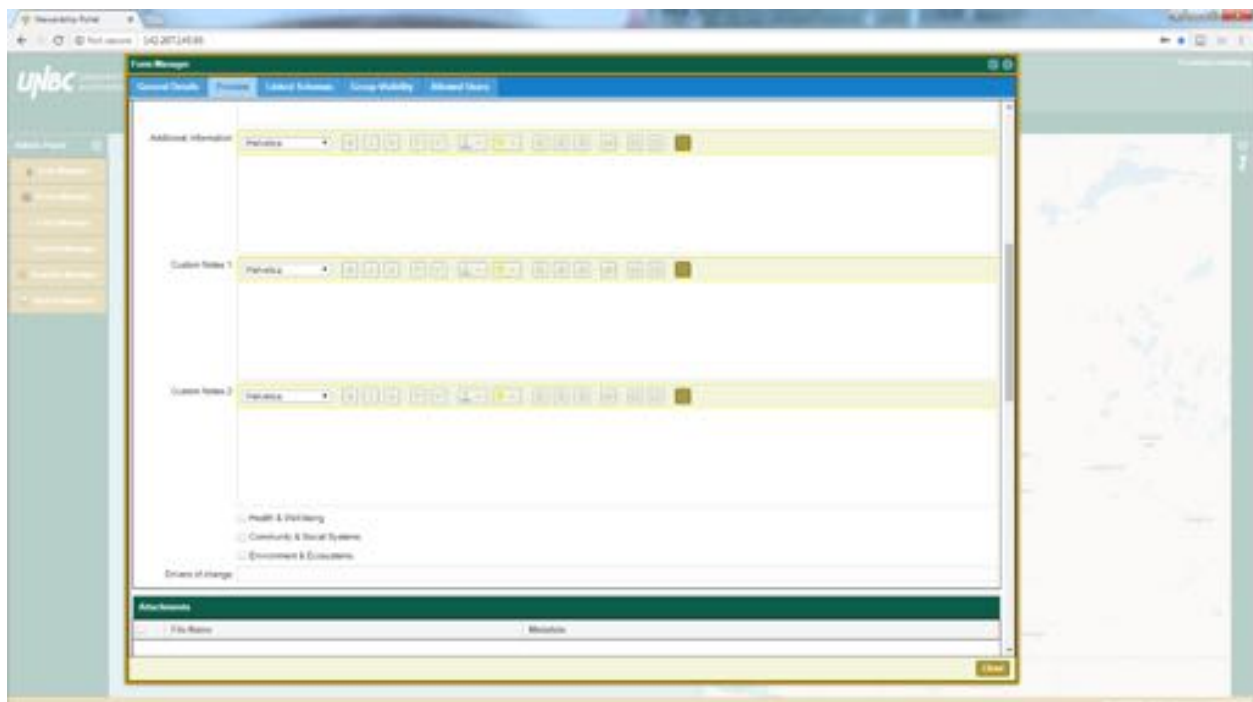
To add content to the Portal, we are required to fill out forms and submit these forms to the database. Forms are used to provide information about the data we are uploading into the Portal. For example we have developed a literature review form that when blank looks like:



This screenshot shows the 'Form Manager' interface for a 'Literature Review' form. The form is titled 'Dynamic Content' and contains several sections for data entry:

- Content Type:** A dropdown menu set to 'Literature'.
- Description of Content:** A large text area for describing the content.
- Title:** A text input field.
- Author:** A text input field.
- Year:** A text input field.
- Publication or Publisher:** A text input field.
- Type of Publication:** A dropdown menu set to 'Literature'.
- Click on associated website (provide location and any other applicable information):** A text input field.
- Additional Information:** A text input field.

The interface includes a sidebar with navigation options and a map on the right side.



This screenshot shows the 'Form Manager' interface for a form with 'Additional Information' sections. The form is titled 'Additional Information' and contains several sections for data entry:

- Additional Information:** A text input field.
- Custom Name 1:** A text input field.
- Custom Name 2:** A text input field.
- Categories:** A list of checkboxes for 'Health & Wellbeing', 'Community & Social Systems', and 'Environment & Ecosystems'.
- Dynamic of change:** A text input field.
- Attachments:** A section for 'File Name' and 'Metadata'.

The interface includes a sidebar with navigation options and a map on the right side.

All forms have a Title and a Name section, the title is automatically filled out upon submission by the Portal, and the name can be created by the person filling out the form. It is recommended that the

name field is filled out and is informative, otherwise the Portal will duplicate the title and it is not very human readable. In the case of a literature review the actual name of the article is the perfect information to be placed in the name field.

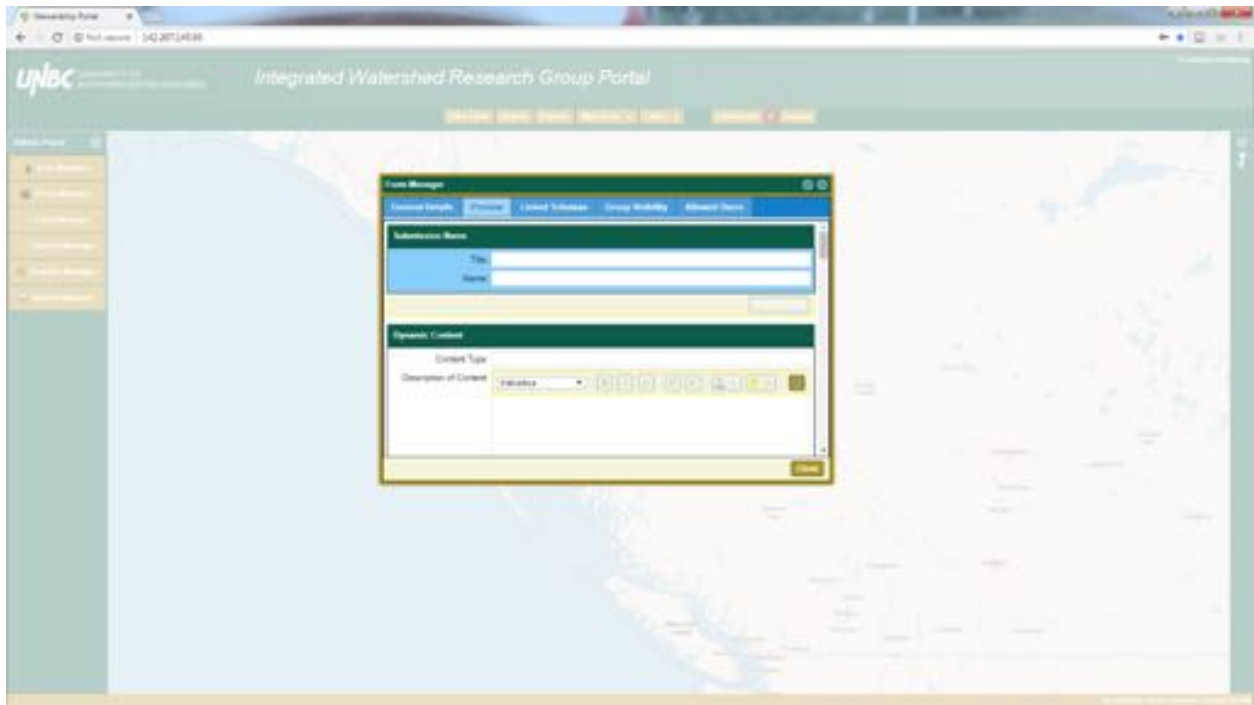
The various fields and features that fall within the Dynamic Content box are the majority of the content within the form. This is also where forms can be customized by the Portal Administrator for users. We will explore this literature form to learn about some of the features that can be customized.

The Content Type, Title, Author(s), Year, Publication or Publisher, Type of Publication, and Drivers of change fields are all text fields. These text fields are useful for short lines of text or numbers.

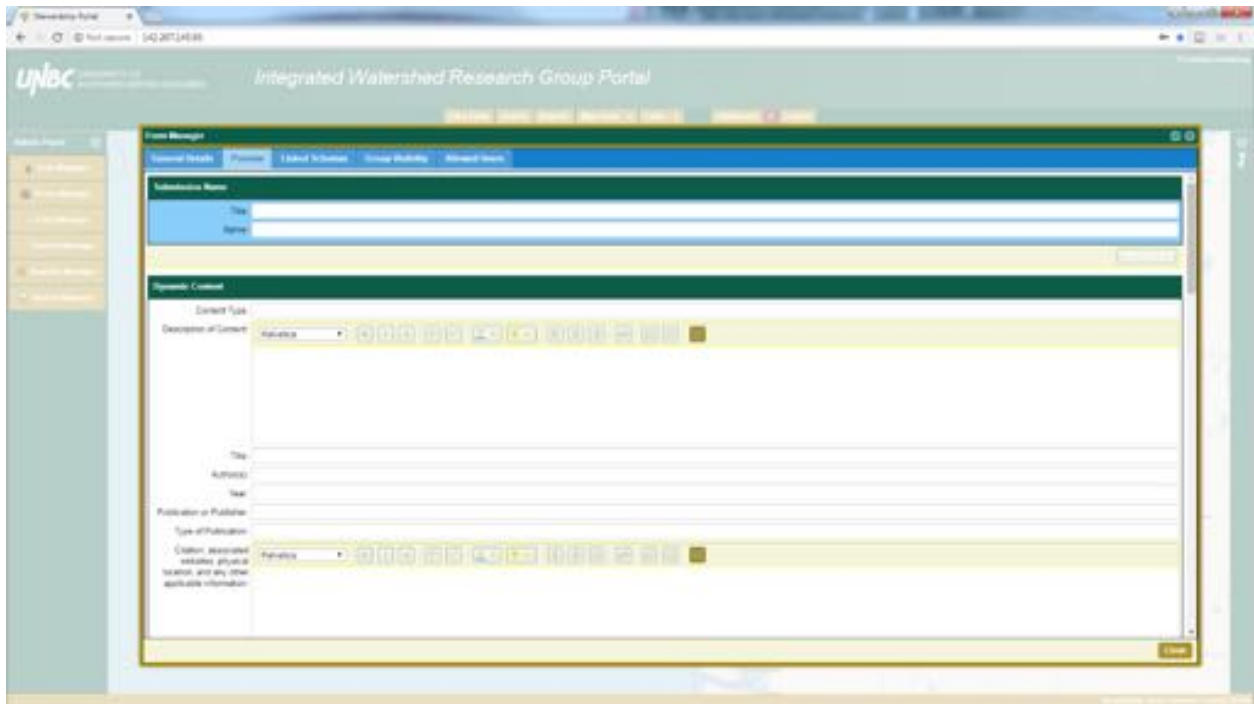
The Description of Content is our first example of a HTML editor box, which is essentially a text box with a few additional features. A text box is similar to the text field, but as the name indicates it gives you a box, which allows for larger amounts of text to be easily displayed. The HTML editor box used here gives us that larger area for more text, but it also provides additional features such as:

- Choosing different fonts
- Adding a bold effect to text
- Adding italics to text
- Underlining text
- Changing the font size
- Changing font colour
- Highlighting
- Aligning to the left, right, or center
- Creating hyperlinks to outside websites
- Creating lists
- It is also possible to paste excel sheets into the HTML editor box, which can be helpful with tables of information

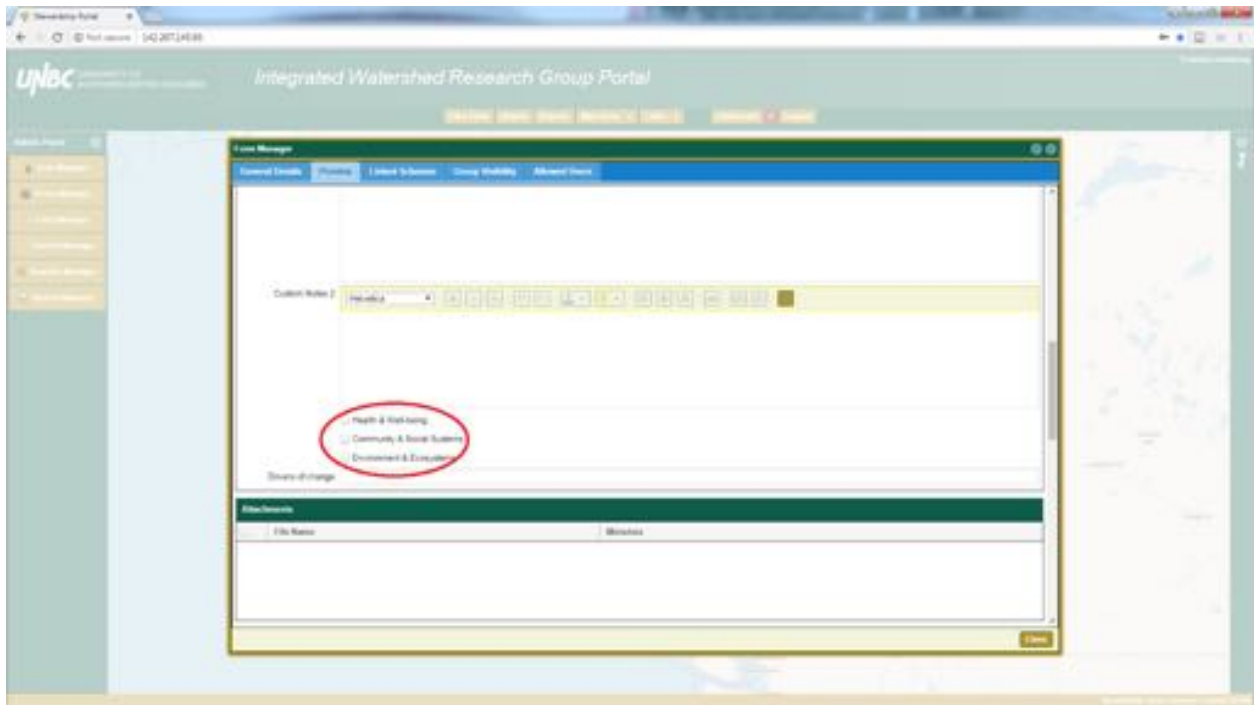
It needs to be noted that depending on the resolution of your screen, you will likely have to stretch the form window to be able to see all these features. For example on my screen this is what the form window looks like before being stretched:



If I stretch this window and resize it, we are able to see all the features available.

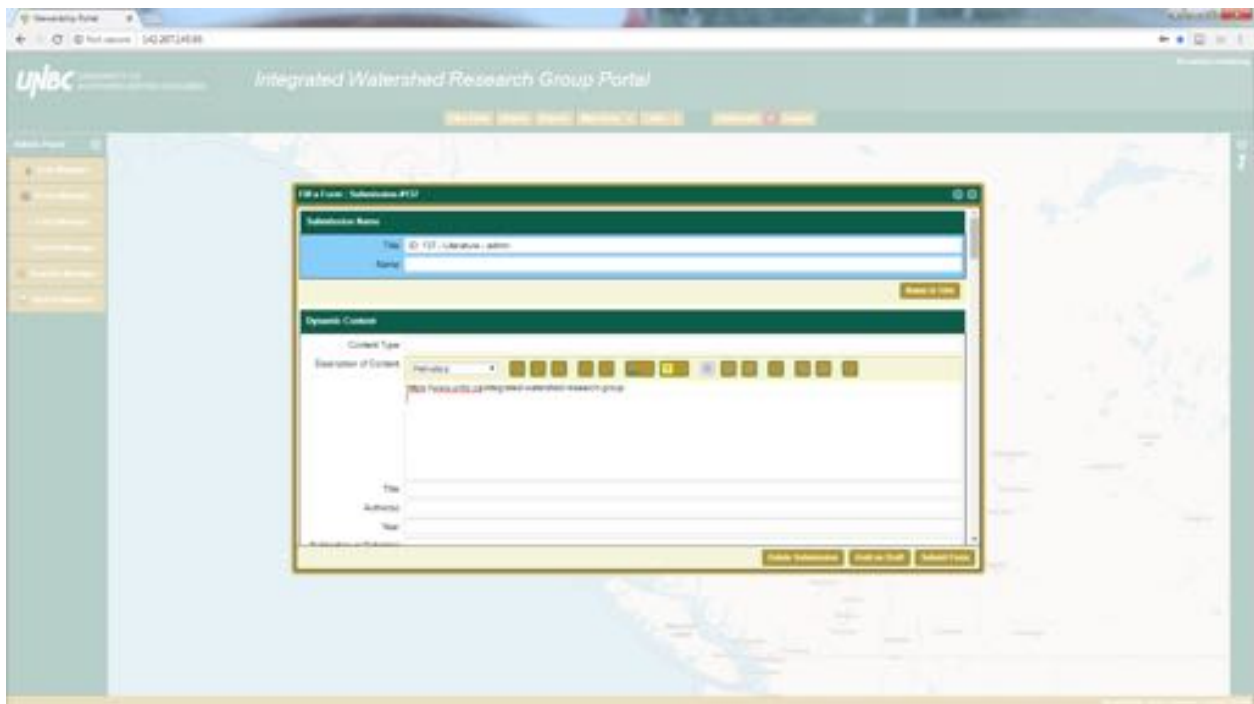


This literature form also makes use of Check boxes to indicate some of the themes that were of interest to us.

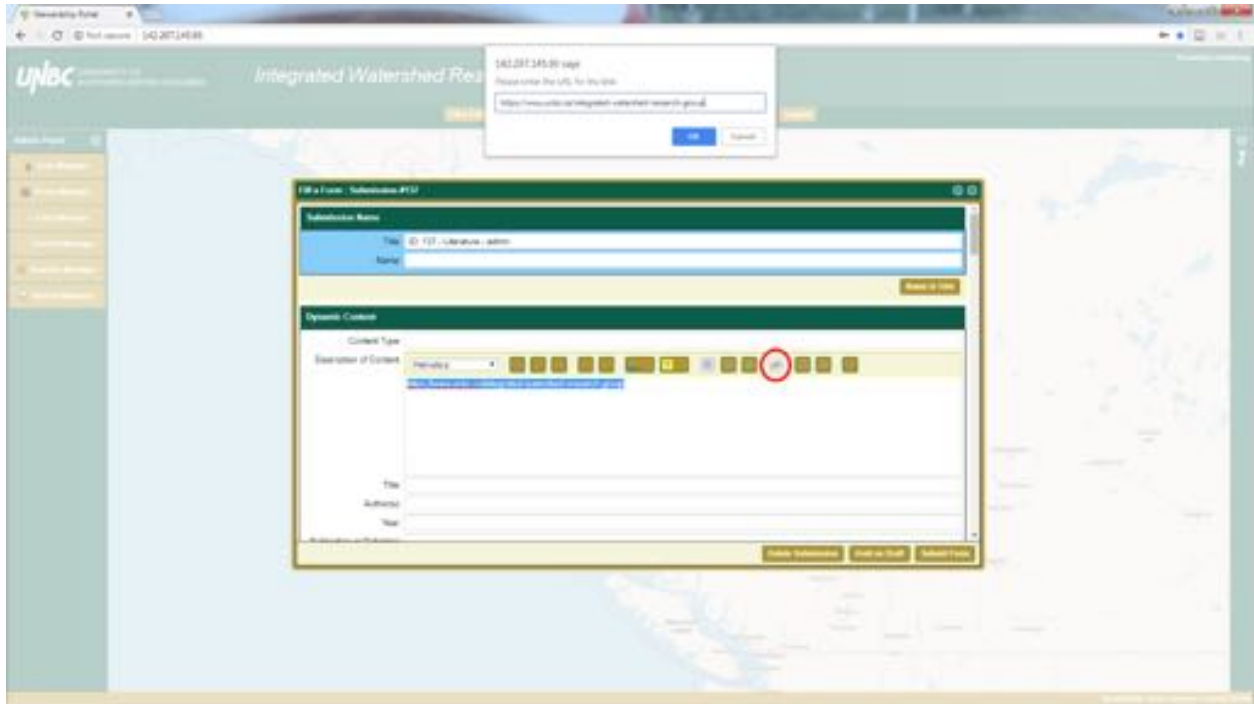


Most of filling out a form is straightforward, simply type or paste the necessary information into the appropriate section. However, creating a hyperlink has proven to be less obvious so we will cover how to do this.

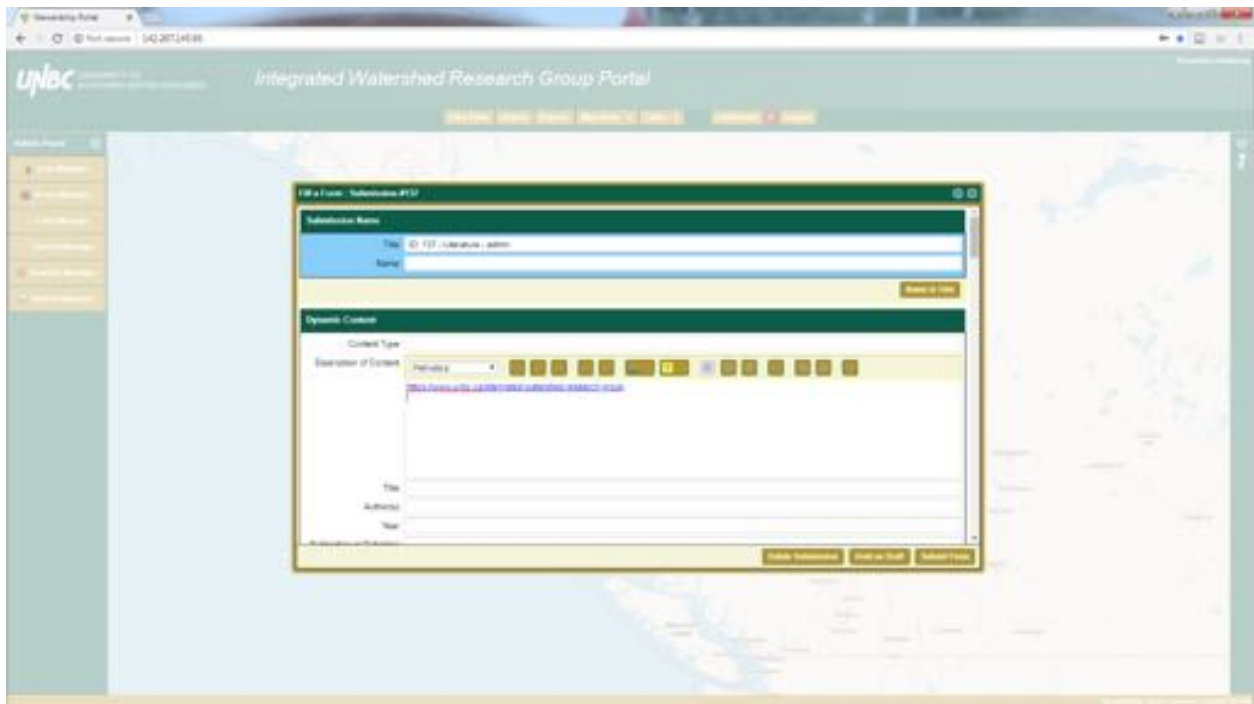
Within a HTML editor box you can copy and paste the URL of the site you would like to link to.



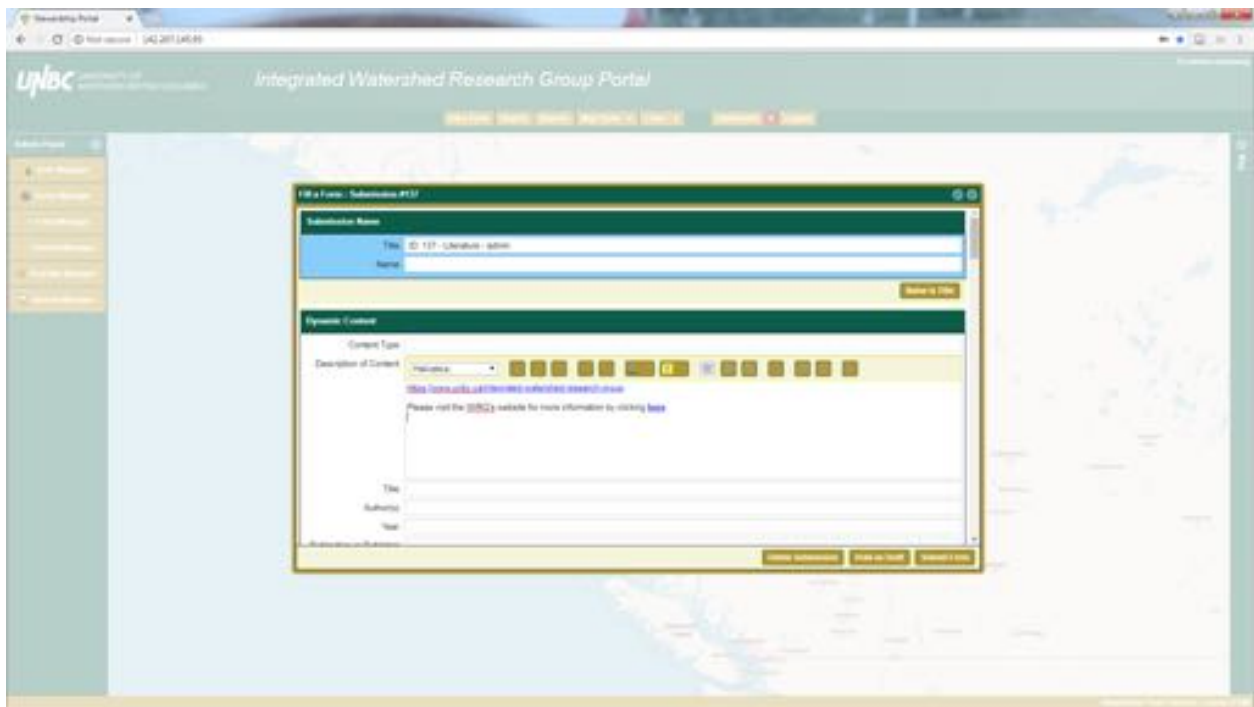
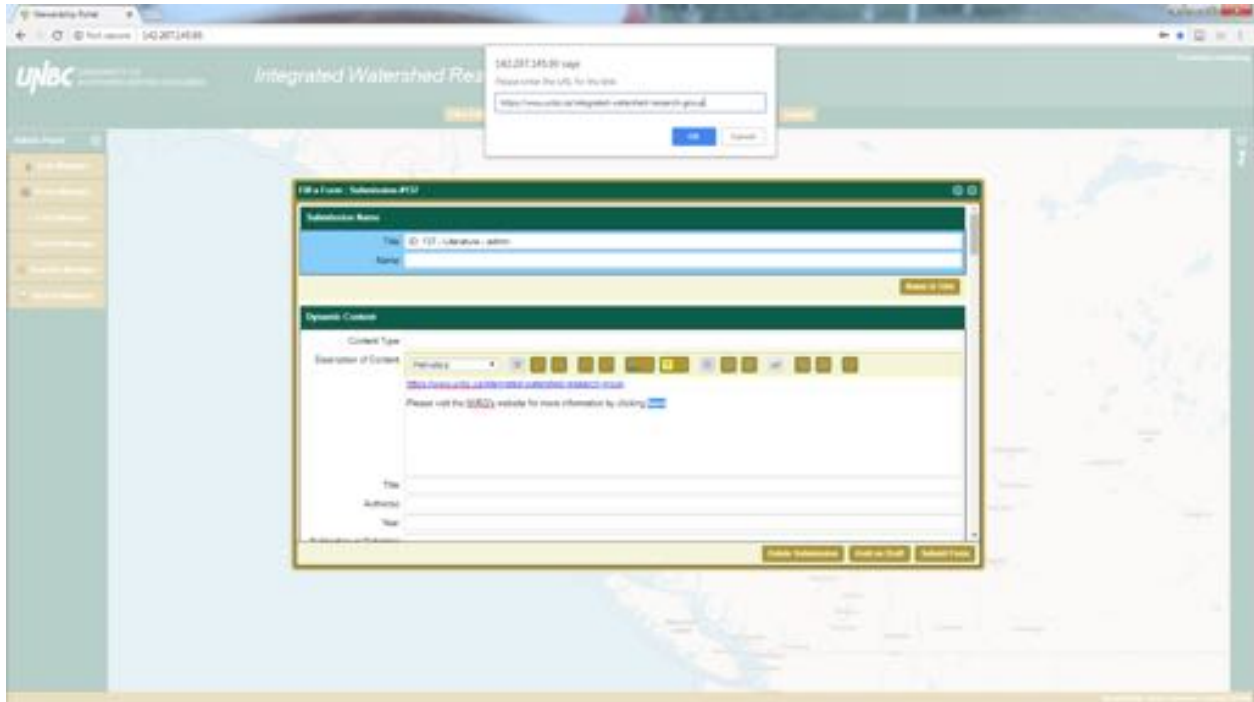
Note that this is just the text, which could be copied and pasted into a browser. However, we want to be able to click on it and have it take us to the website. So with the url highlighted we will click on the hyperlink button (two chain links) which is highlighted in red below. You then paste the url into the window that is asking for the url and hit the OK button.



Now you have a hyperlink that when clicked will bring you directly to the website.



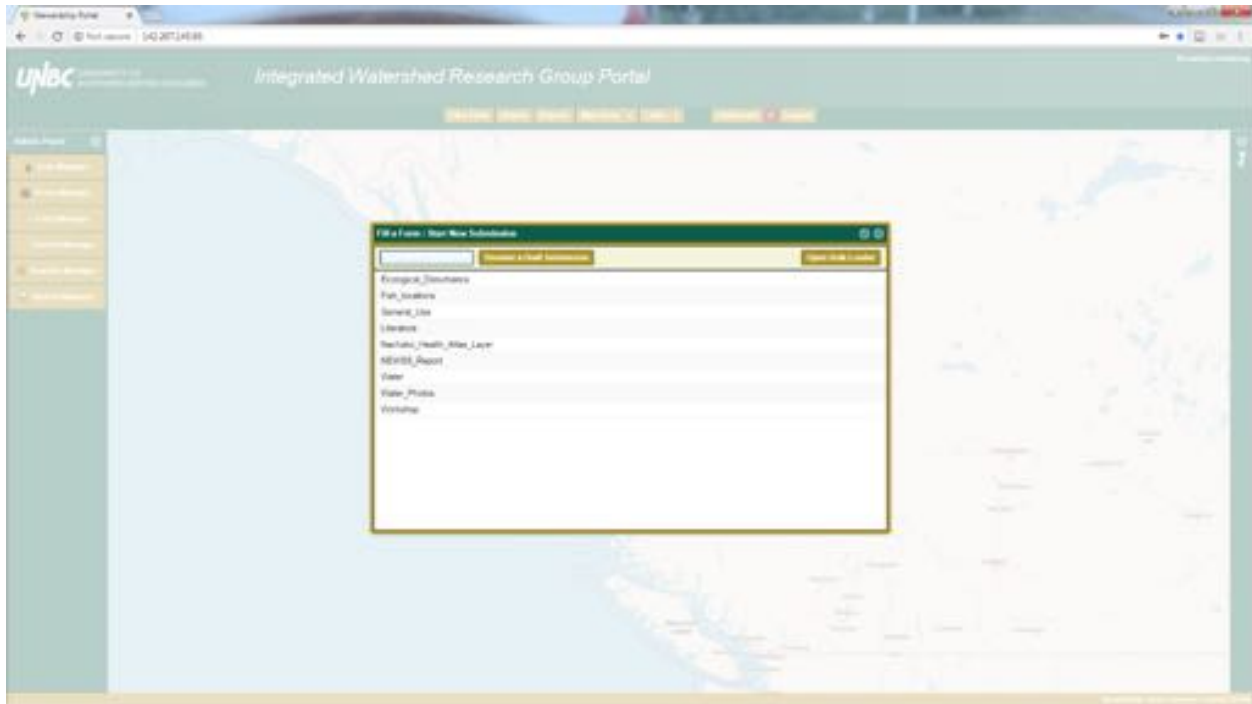
If we want to get really fancy we can actually make the hyperlink a word or series of words that when clicked will bring us to the desired website. To do this we simply type out some text, in this example we'll use the line "Please visit the IWRG's website for more information by clicking **here**". Here is the word we'll make into the hyperlink. Highlight here and paste the url into the box that appears.



To start making a submission you will have to login and click the Fill a Form bottom. You are then prompted with three options:

1. Start New Submission
2. Resume a Draft Submission
3. Open Bulk-Loader

Click on Start New Submission and you will be prompted with all of the forms that are available to you.



Double clicking on the form you want will open a blank version of that form. Note that the Title is automatically created for you, don't forget to give the submission a more readable name!

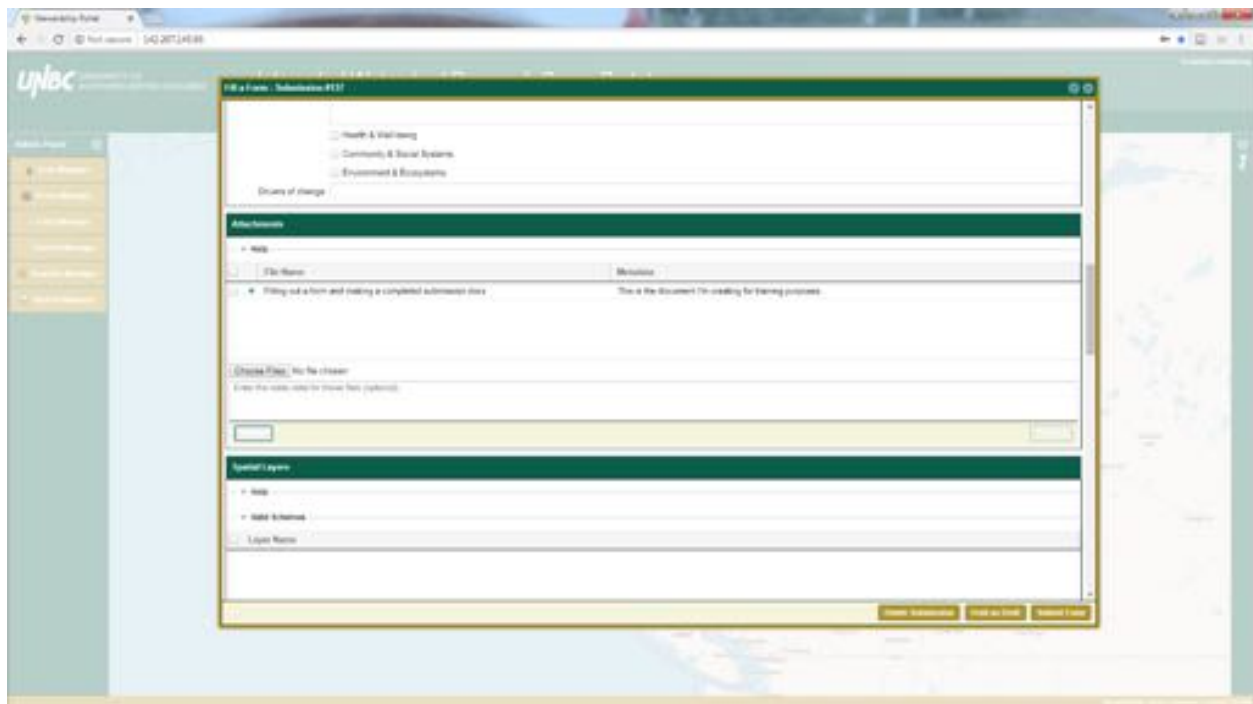
Fill out the sections of the Dynamic Content that are appropriate, while ideally every section would be completed the Portal will allow you to submit forms that have blank sections. We've made use of this particular feature with the Custom Notes sections of the Literature form. We can make use of additional sections if need be, while not limiting our ability to submit the form.

After finishing with the Dynamic Content section there are a few more sections that we can make use of. Of particular interest to us currently are the following sections:

- Attachments
- Spatial Layers
- Parent Submission
- Permissions
- Notifications
- Linked Layers

Attachments:

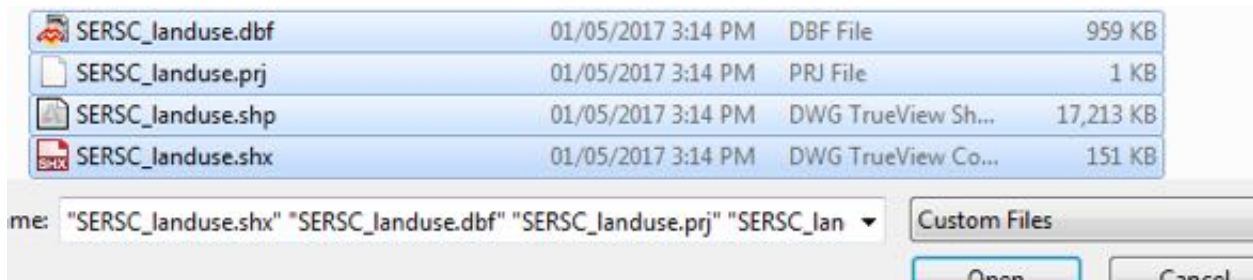
The attachments section is used to attach non-spatial data to the submission. This can be any type of digital file, e.g. documents, PDFs, pictures, video, and audio files to name a few possibilities. To attach a document simply click on the Choose Files button and browse to the location of the desired file and click the open button when you have the file. Beside the Choose Files button there should be the condensed name of the file you just selected. You can also add meta data directly below, where you may want to indicate where this file came from, or any other pertinent information that hasn't already been described in the form. You can upload multiple documents, simply repeat this process. If the files are large you may get an error, in which case you will want to contact the Portal Administrator and inquire about having the file size limit increased. When you have the attachments you want, hit the upload button. Below is an example of a single Word document being uploaded.



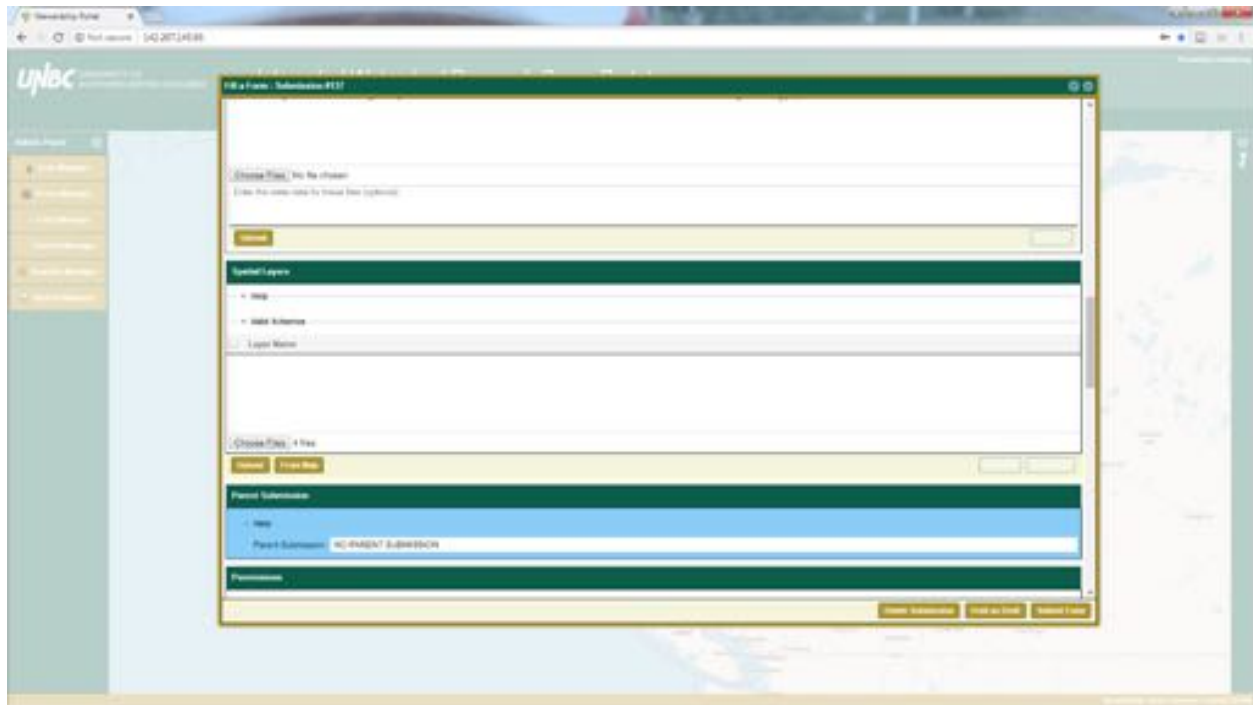
Spatial Layers:

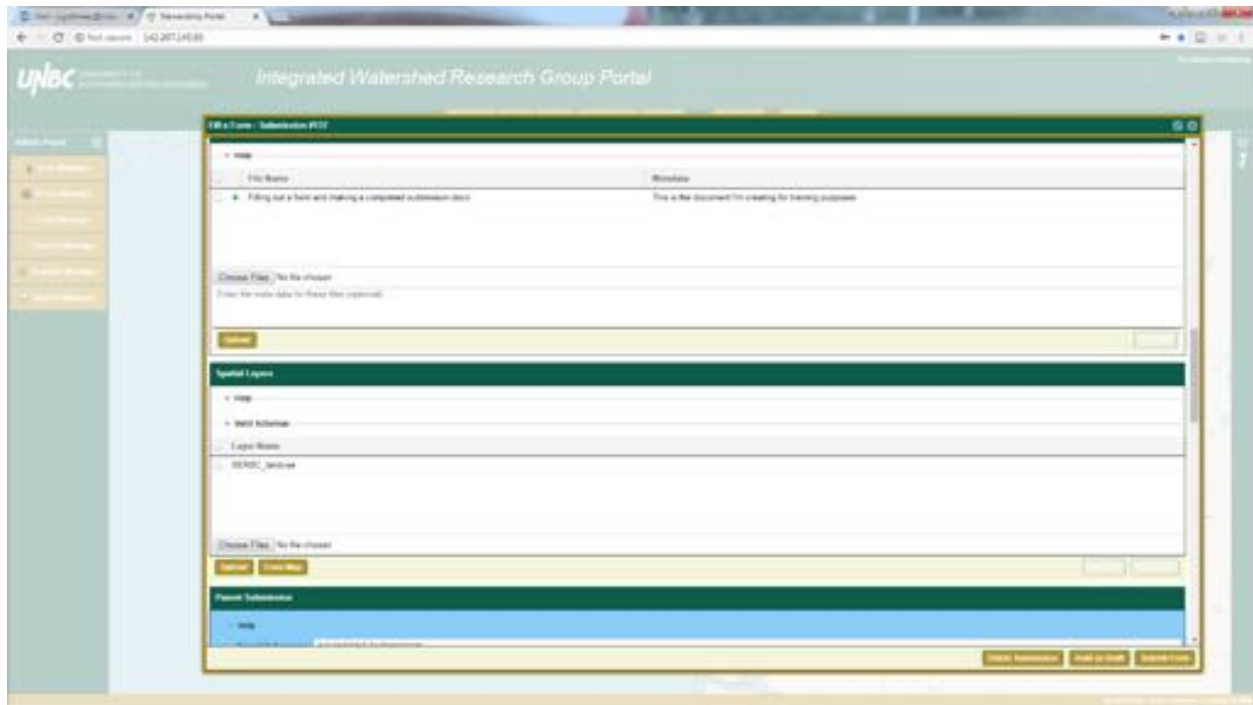
This is very similar to the attachment section, except it is designed exclusively for non-raster spatial data (points, lines, and polygons). The only significant difference with spatial layers is when you are dealing with shapefiles. To upload a shapefile you need to select four different files that make up the shapefiles, which are:

- .dbf
- .prj
- .shp
- .shx



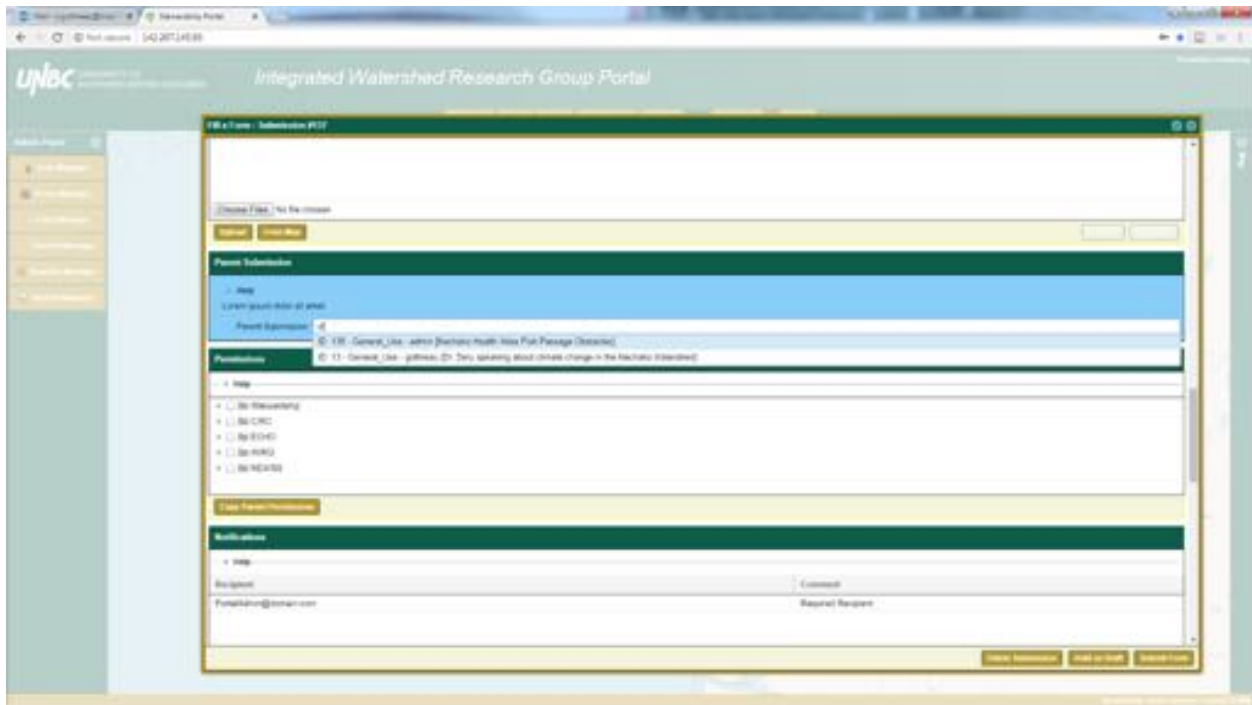
When you've selected all four files and hit open you'll see that there are 4 files ready to be uploaded.



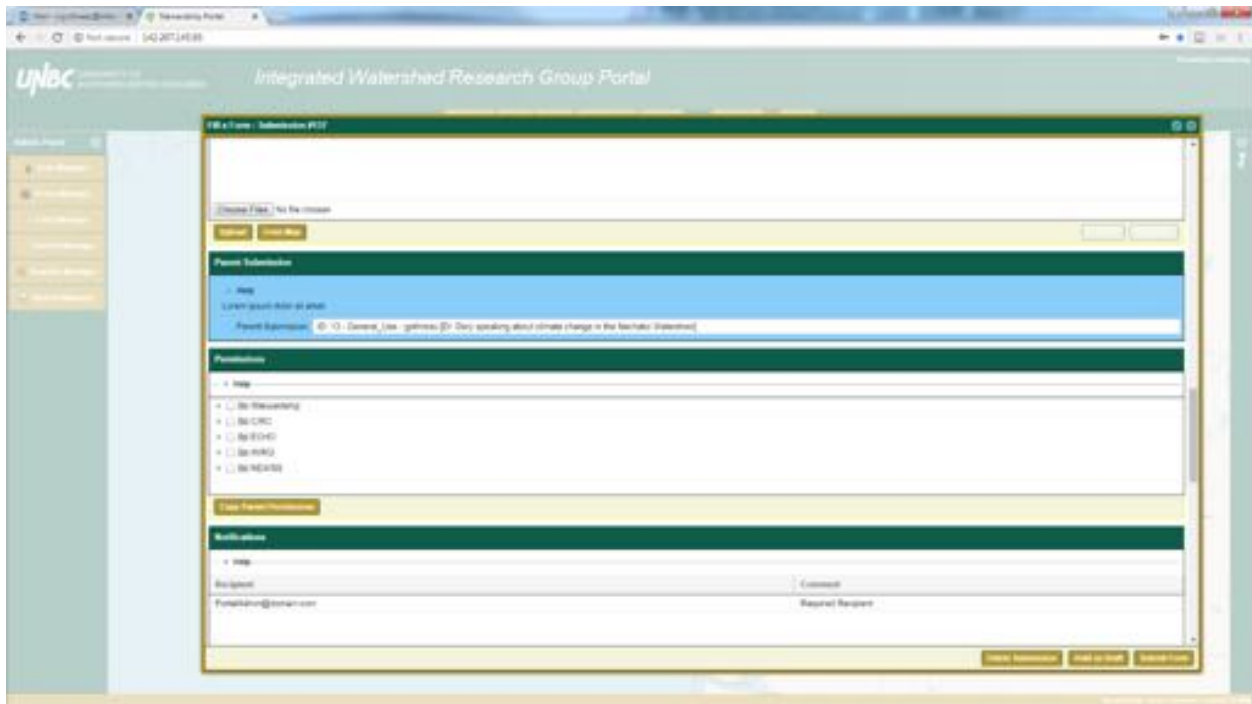


In this case we don't have any reason to make use of the Parent Submission option, but we will walk through it for the sake of being comprehensive. Parent Submissions are meant to make a connection between two or more submissions. We may want to make use of a Parent and Child submission relationship if we are trying to update a submission that is already in the database. Since this is a total records system, we are unable to edit a submission after it has been completed, so the only way to update information would be to make a child submission which has the updates. This isn't the only situation where we might want to make use of the Parent/Child relationship.

To create this relationship use the text field within the Parent Submission box by starting to type in a submissions name or submission ID.



When the submission you want to select appears simply click on it in the drop down menu.

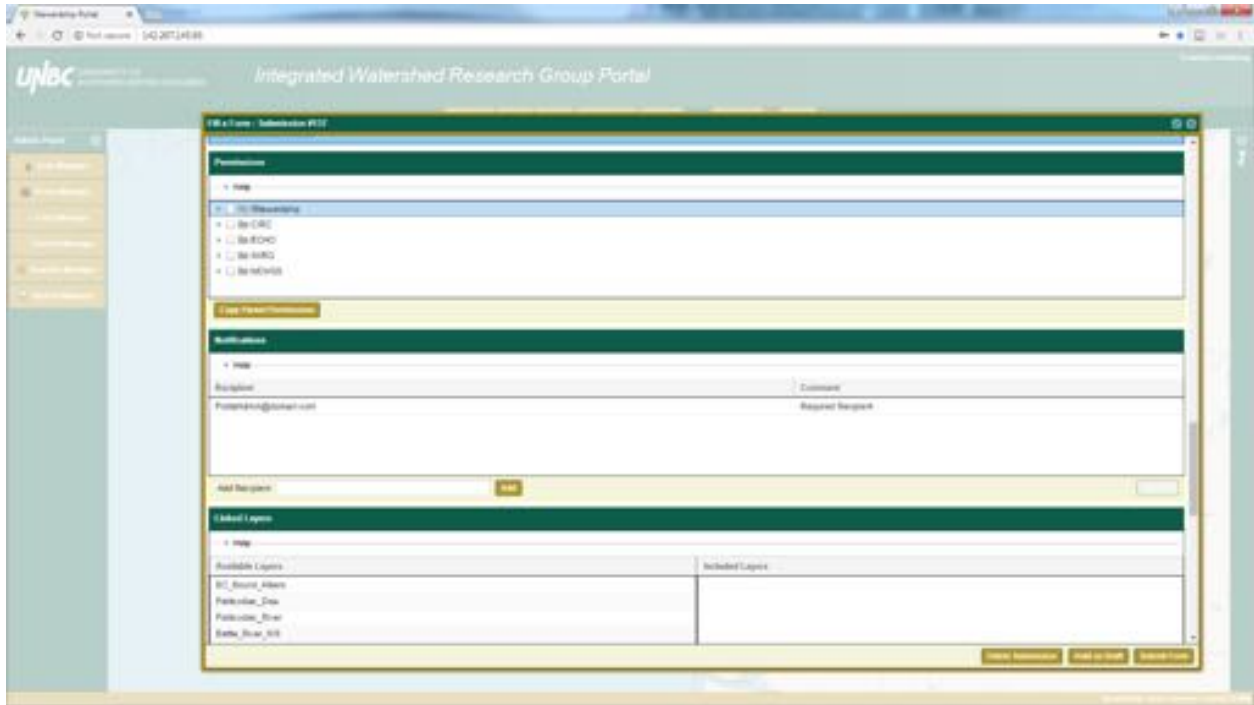


We have now successfully made this new submission a child of submission ID 13.

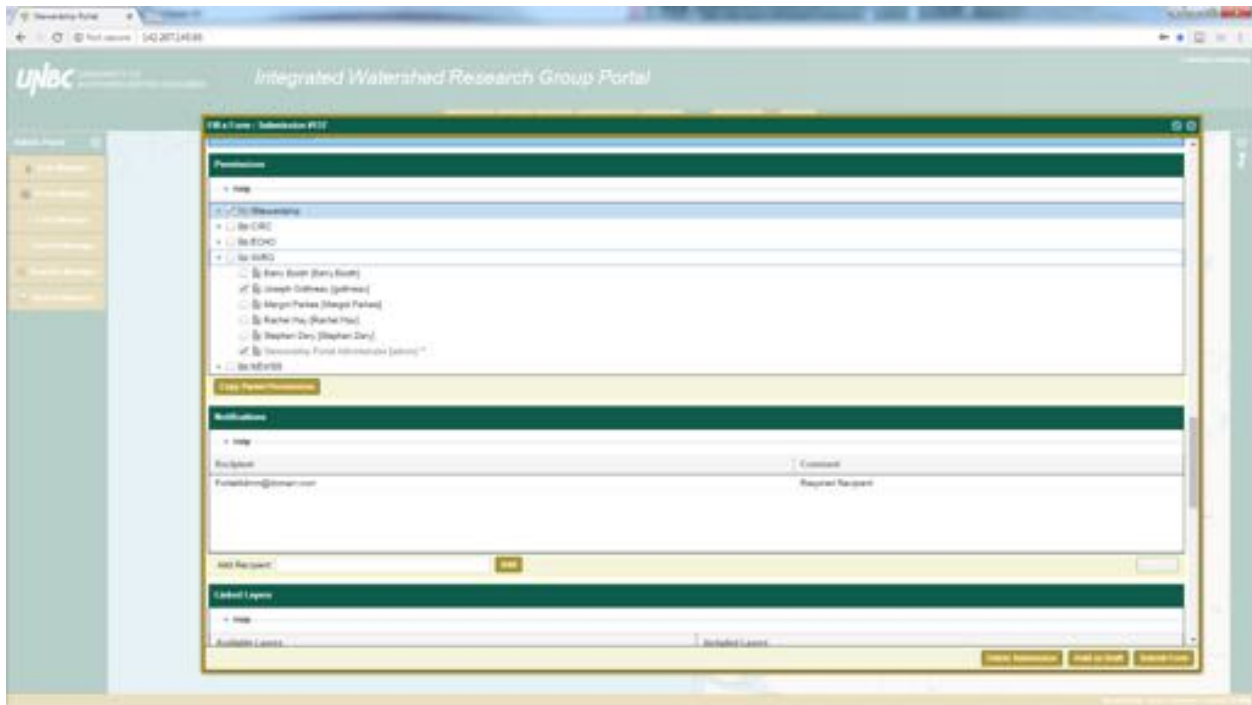
Permissions:

Next we need to determine which permissions are appropriate for the submission. If we were to leave the permissions all unchecked, only the administrator account will be able to see the submission. Since

we want to be able to share our submissions we will start determining who should have access to the submission. The Permissions box will show the various groups that currently exist within the Portal.



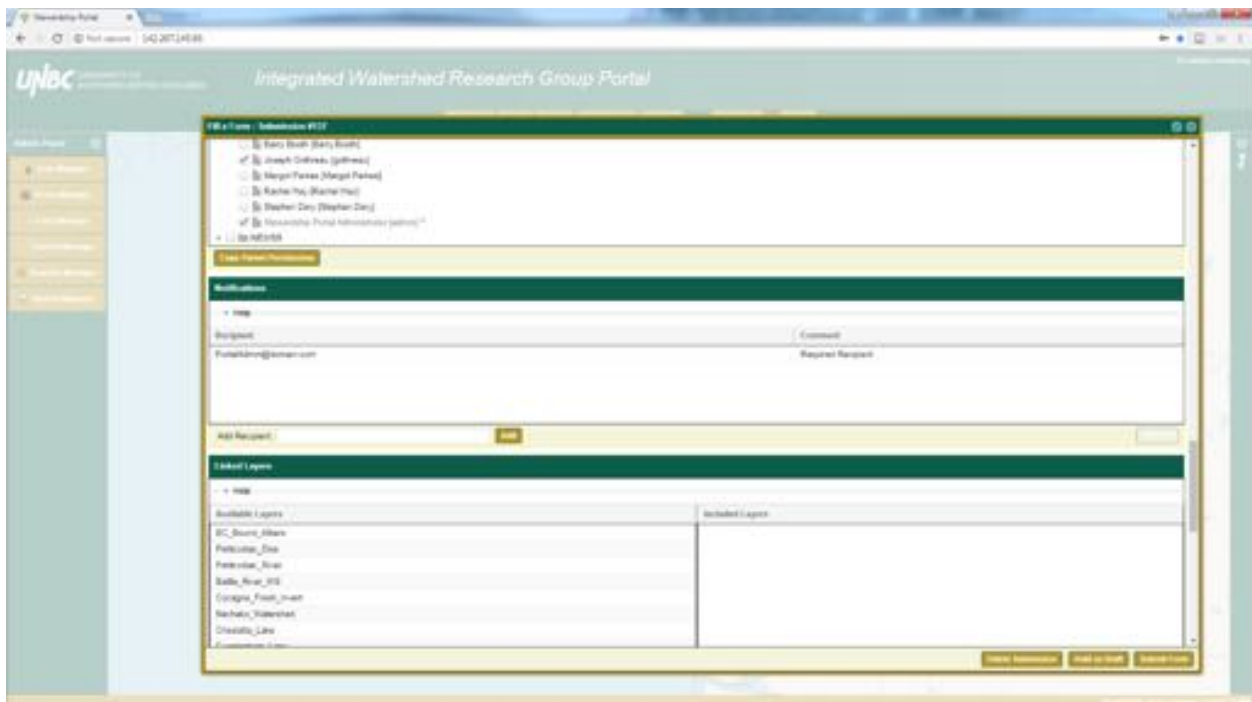
We can click the empty box beside a group to give everyone who is part of that group access, or we can click the triangle beside a group name to show a complete list of everyone who is a member of that group. This allows us to pick and choose who within a group can have permission. While it is unlikely we will have many reasons to not share across the network within the Portal, we do have the option to be more specific if required.



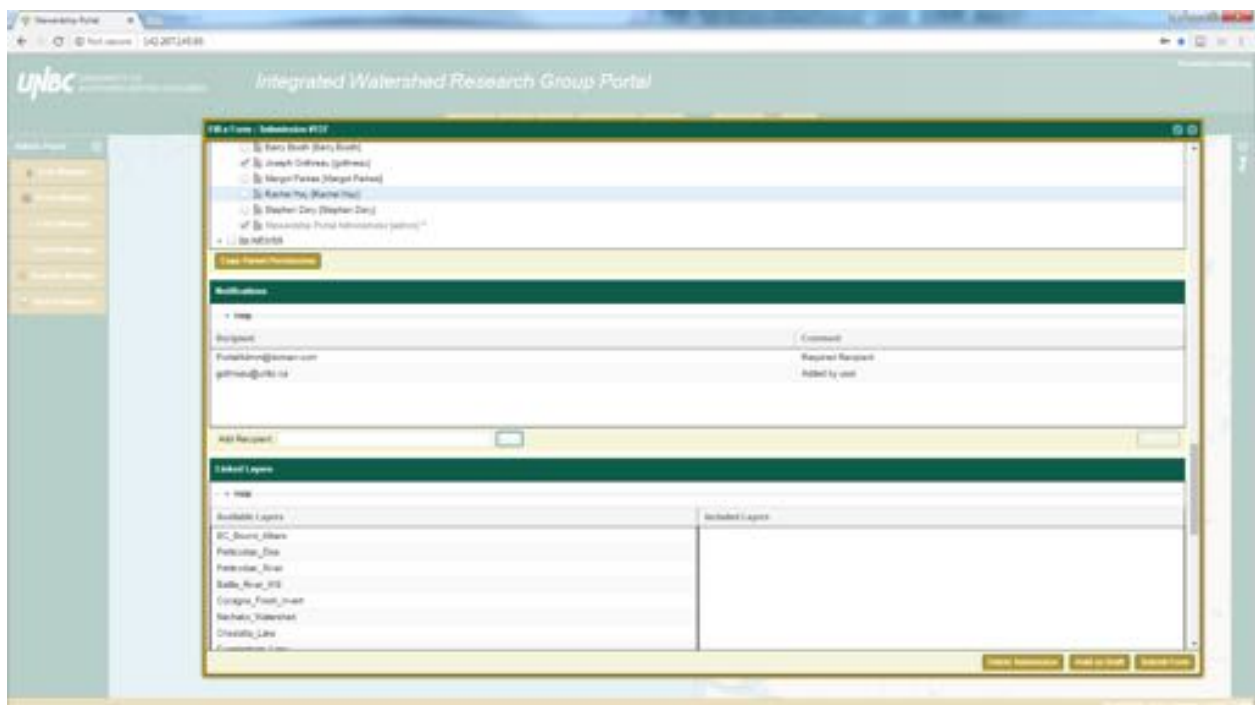
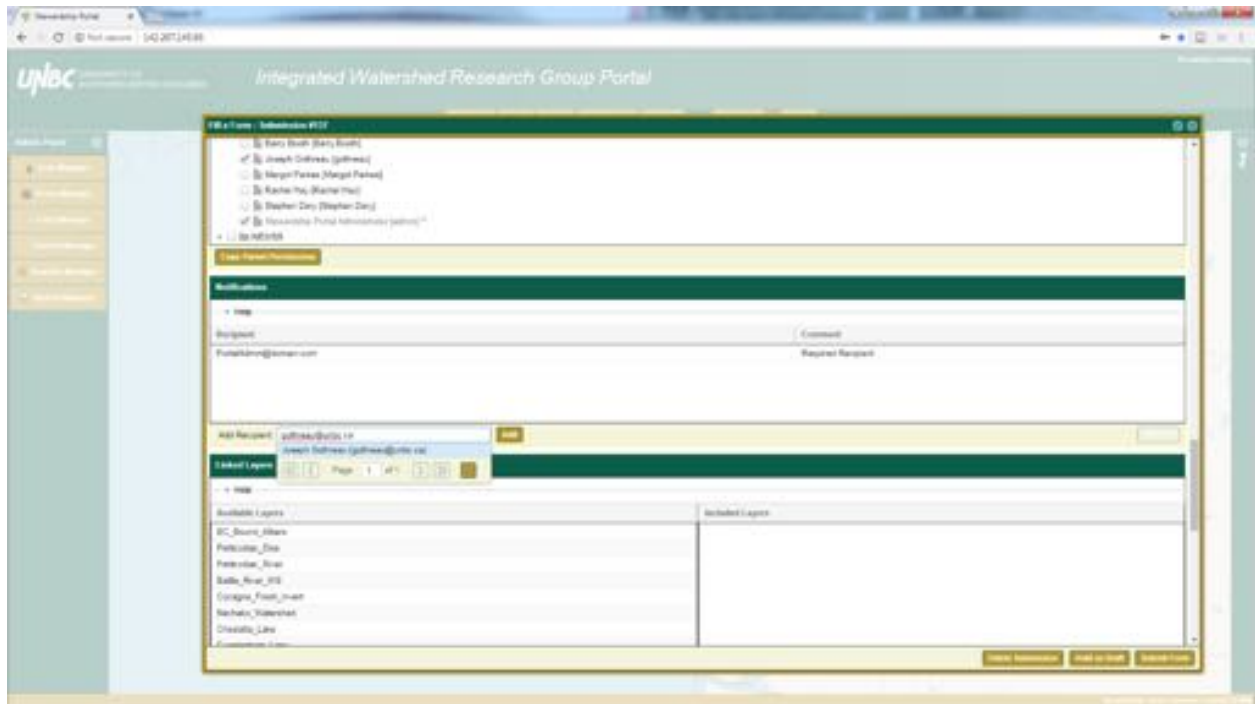
If we are making use of the Parent Submission relationship we are also able to simply copy the Parent's permissions.

Notifications:

The notifications box allows us to send an email out to users when we submit new content. The default is set to send the Portal Administrator an email.



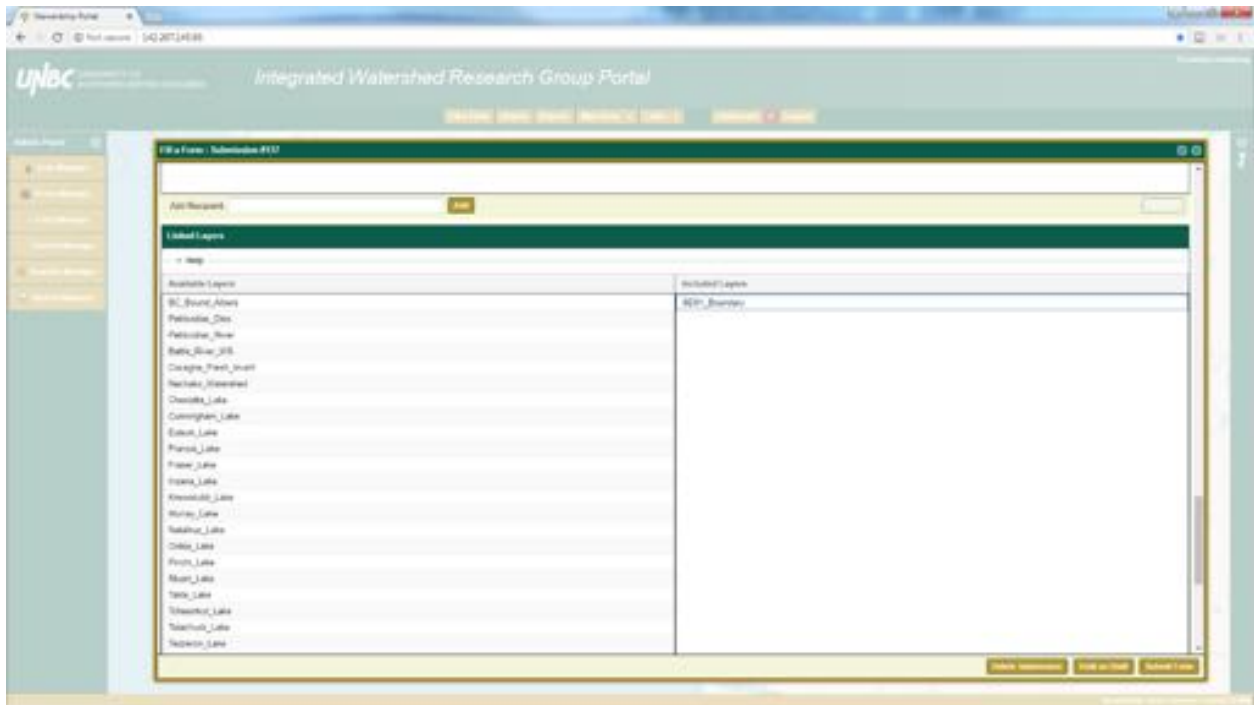
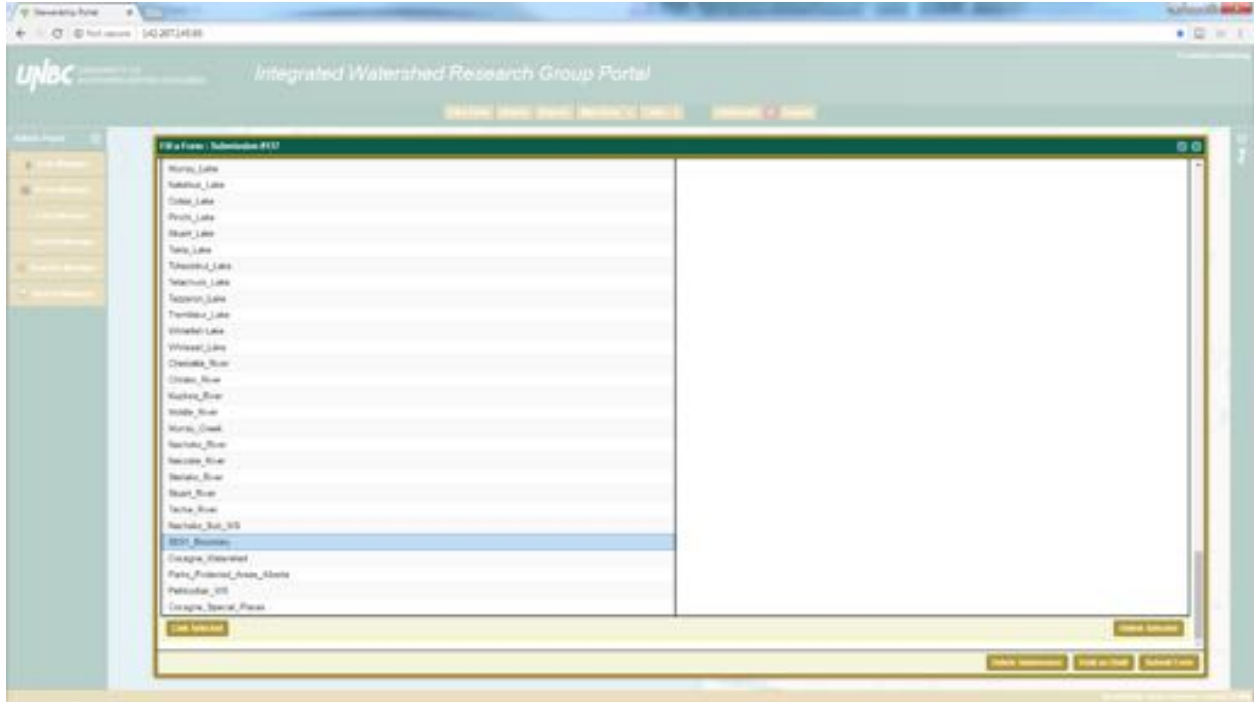
If the submission was of particular importance to someone we would type in their email in the Add Recipient box and hit the add button.



Linked Layers:

The last section of making a submission is the Linked Layers section. This may be a little confusing since elsewhere in the Portal it is referred to as Shared Layers. These are the spatial layers that have been

shared by other Portal users with the intent of saving others the hassle of going out and finding/creating these layers. To link one or more of these layers simply click on them to highlight the name (in the case of multiple selection you'll have to complete this step multiple times), and when you have the selection you are looking for scroll down and click the Link Selected button.



Finishing Steps:

Now all we really have left to do is review the content to make sure everything is how we want it before submitting the form.

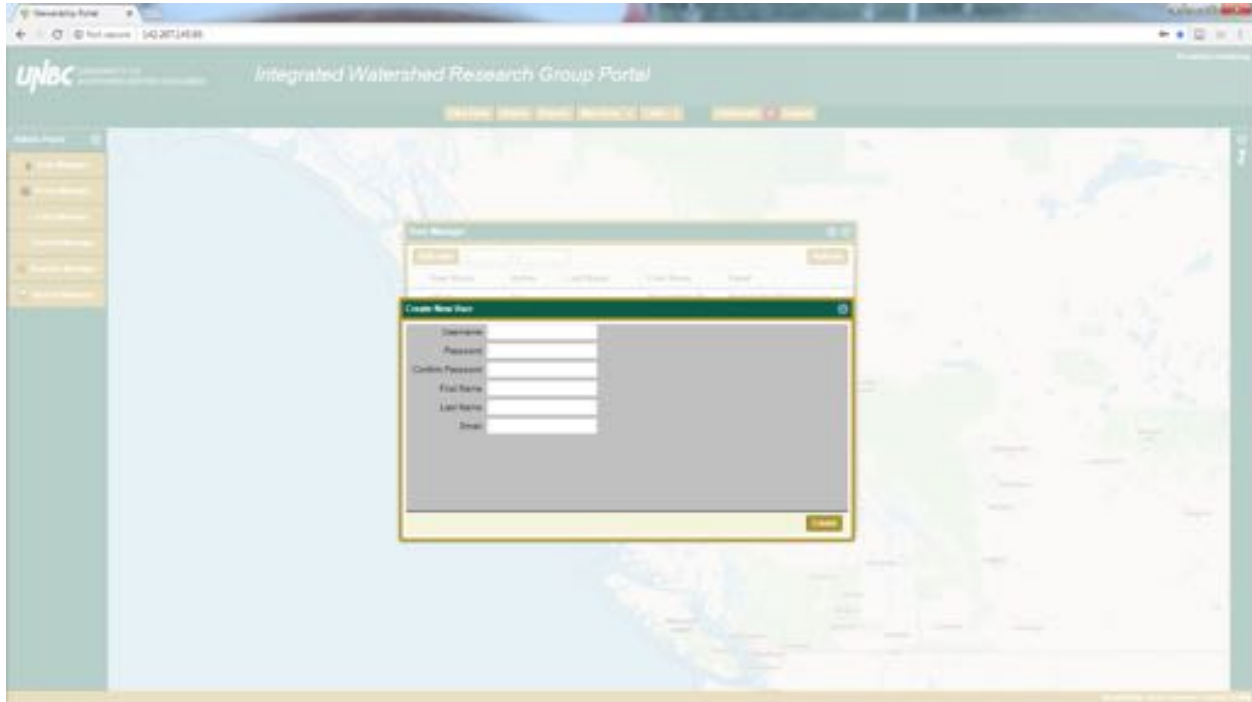
4. Setting Users Up:

Two ways:

1. Administrator setup
2. Self-Registration

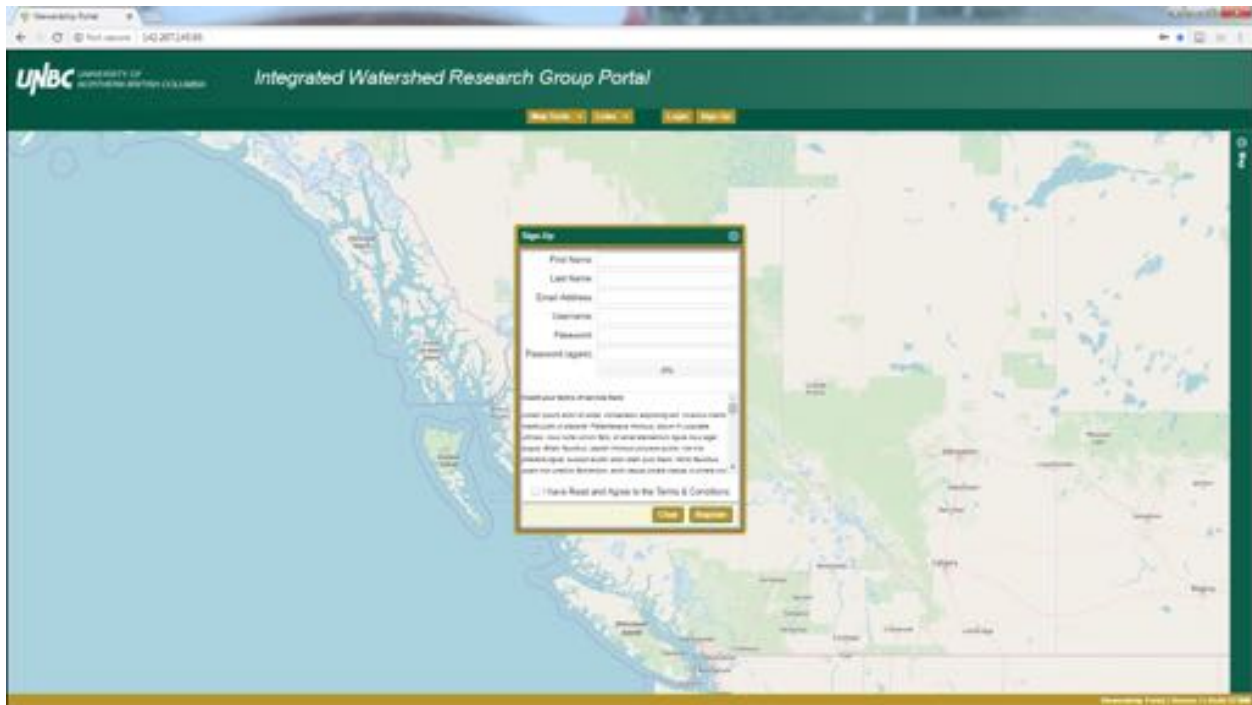
Administrator Setup:

Using the User Manager button on the Admin Panel go in and hit Add User, it will prompt you to fill in the necessary information.



Self-Registration:

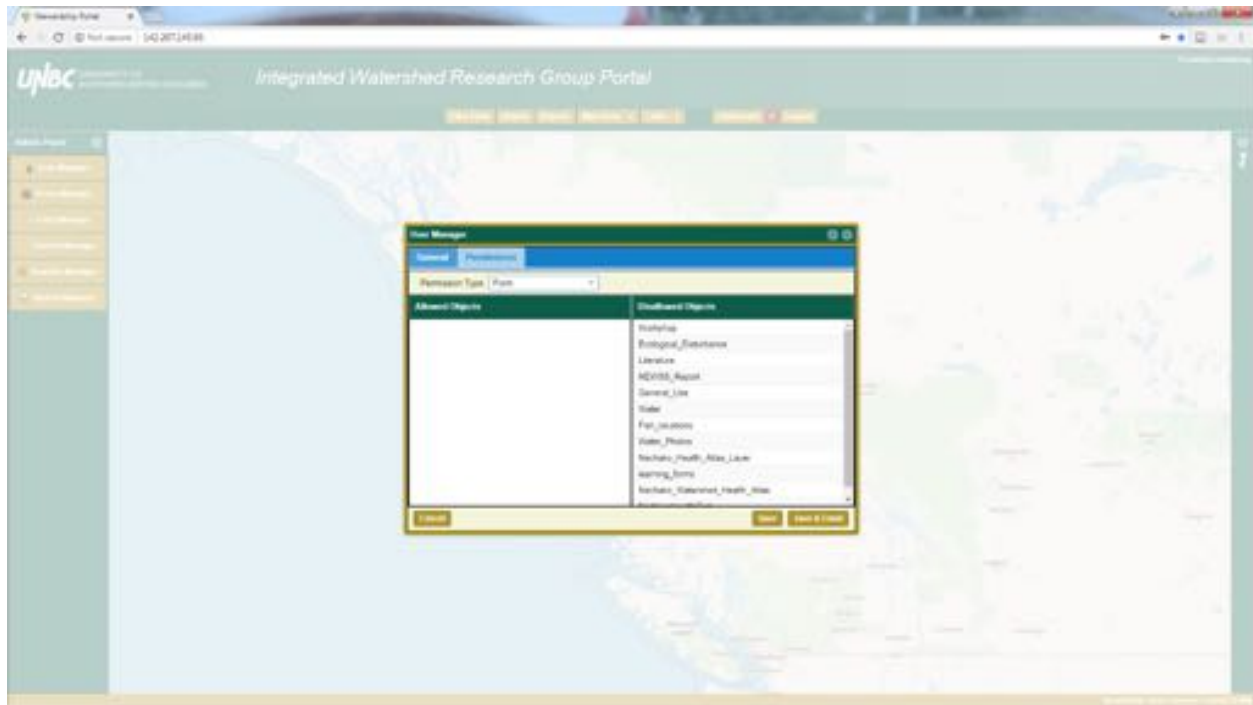
Simply go to the Portal (142.207.145.93) and use the Sign-Up button, it will prompt the person to put their information in.



Either of these registration processes brings us to the same spot, where an administrator needs to finish setting up the account.

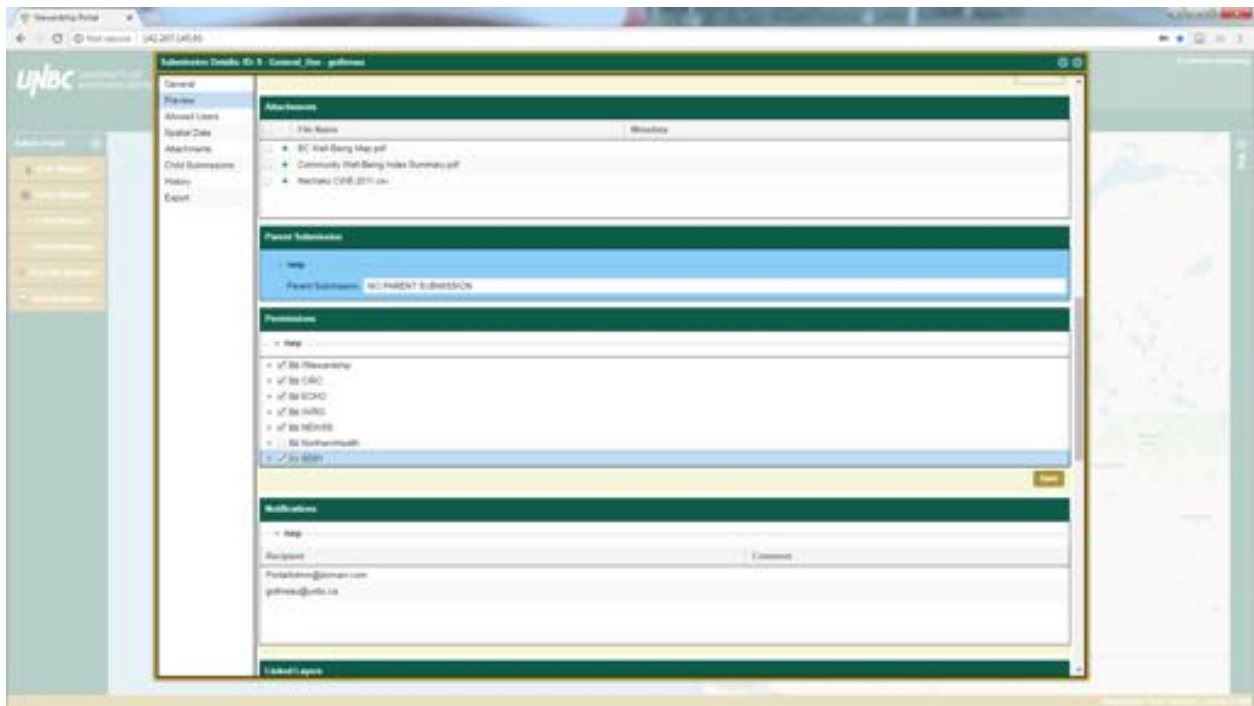
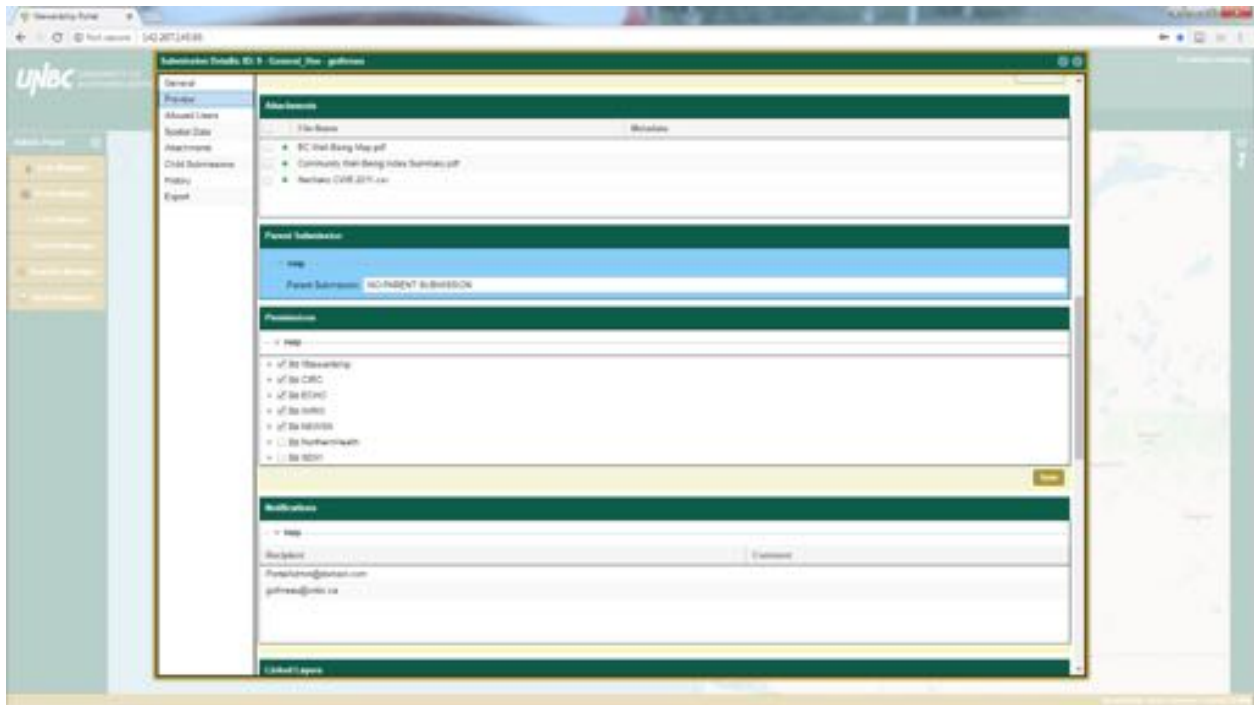
Now the administrator can use the User Manager to finish this process. Locate the new user and use the Edit User button to bring the profile up. The user needs at a bare minimum to have their “Is Active” button checked on. Depending on what each user is required to do you can setup notifications, the ability to assign or be assigned submissions, and a few other less important details.

Using the Permissions tab we will need to provide access to the forms the user will be able to fill out. We can also use the Permission Type to change from forms to submission, which may be helpful if only one new user is being setup. Please note that this list includes draft submissions as well. It is also possible to setup a single user or a batch of users using Group functionality.



After the account has been setup we need to place the user into a group. The Group Manager button is under the User Manager button, and this is where groups can be created or edited. To add people into a group use the edit group button and you can drag and drop people into the group.

It needs to be noted that when you put new users into the Group, they will not automatically be given access to submissions that pre-date the user, this needs to be completed manually. Using the admin account use the search menu and search for everything (%), go into the submissions the new users should have access to and click their group back on in the Permissions node.



This should allow them to gain access to the same content everyone else in their group has. I always verify that this has worked (if I've setup the account I log in and check).

5. Bulk-Loading

Bulk-loading can be helpful for uploading a large number of submissions into the Portal, as it can save a lot of time. There is however, some work that needs to be completed in order for this tool to work properly.

In order to complete a bulk-load you will need:

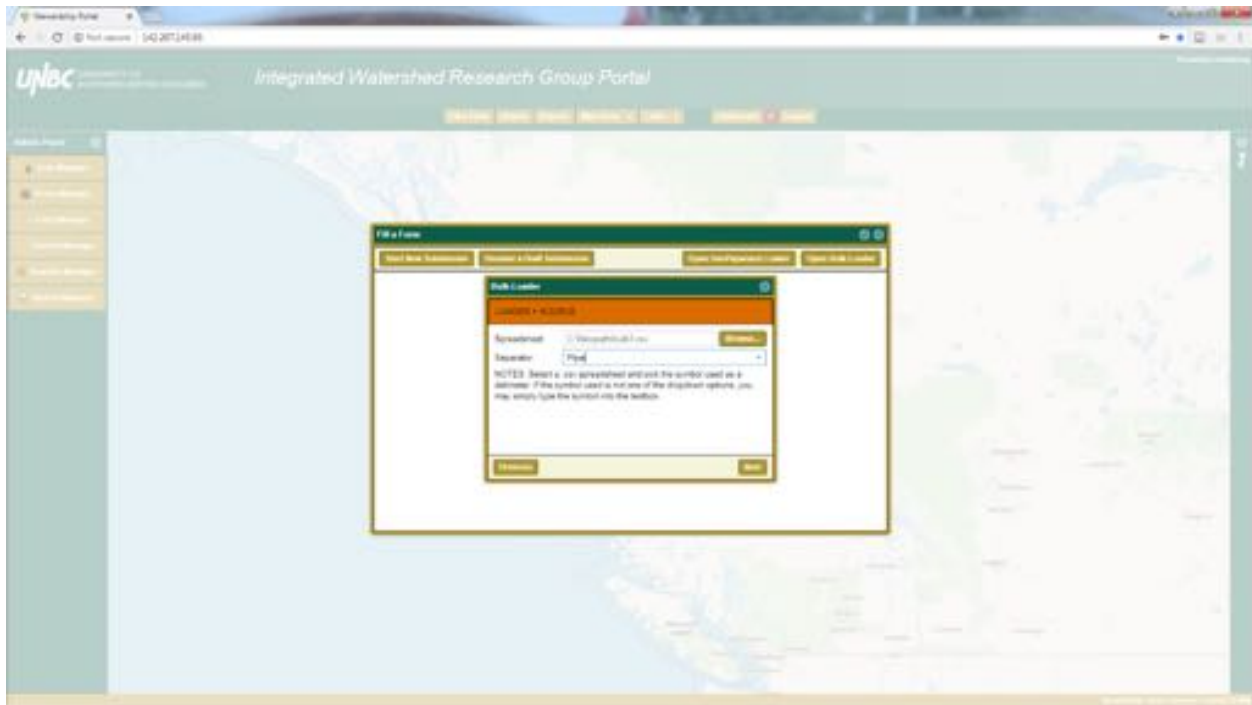
- A suitable form to match up with your data
- A spread sheet with your data
- Notepad ++ (free software) or some other software that will allow you to edit the spread sheet.

You will want to setup the spreadsheet so that each column corresponds to a section of the form you are using in the Portal.

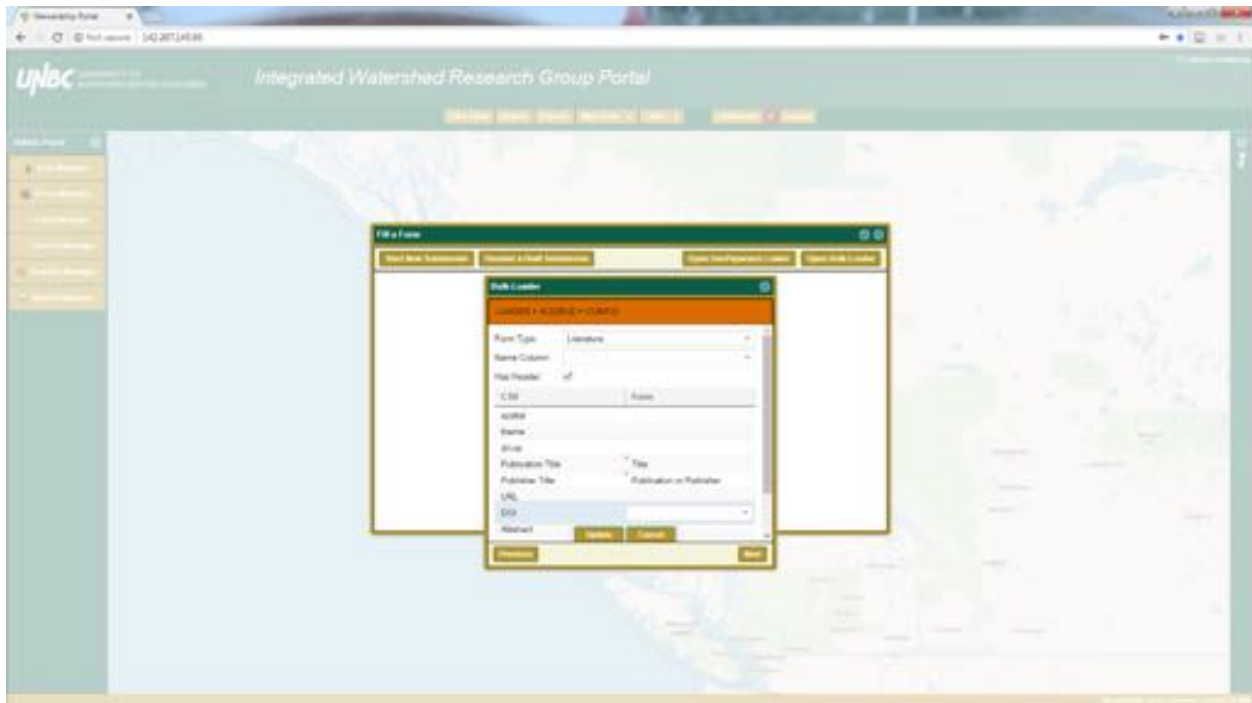
Please note that attachments (spatial and non-spatial) currently have to be added after the bulk-loader tool has been used.

The first real step is down in excel, and involves cleaning characters that will prove problematic during the bulk-loading process.

- Remove and/or replace all commas that are within the spread sheet. This is necessary because we are going to be converting the spread sheet to a .csv (comma separated value) format. If there are commas within any cells it will split that cell at each comma messing everything up. If you are replacing the commas use a character that doesn't appear in any of the data, as we will be converting this character with commas before the bulk-upload.
- Save the spread sheet (as it is possible you may have to come back to this multiple times to remove odd characters)
- Now use the save as feature to save the file as a .csv
- Open the .csv version of the file using Notepad++
- In Notepad++ complete a find and replace on the commas. We will be replacing these with the 'pipe' (|).
- It is critically important that 'odd' characters are removed from the excel sheet, which can be completed in Notepad ++. Under Encoding use the 'Convert to UTF-8' option.
- Now we should be good to go into the Portal and begin the bulk-loading process.



On the next screen select the appropriate form for the data. Click the Has Header checkbox on, and you will be able to see the column names from the csv file. Now we must match the csv columns to fields from the form.

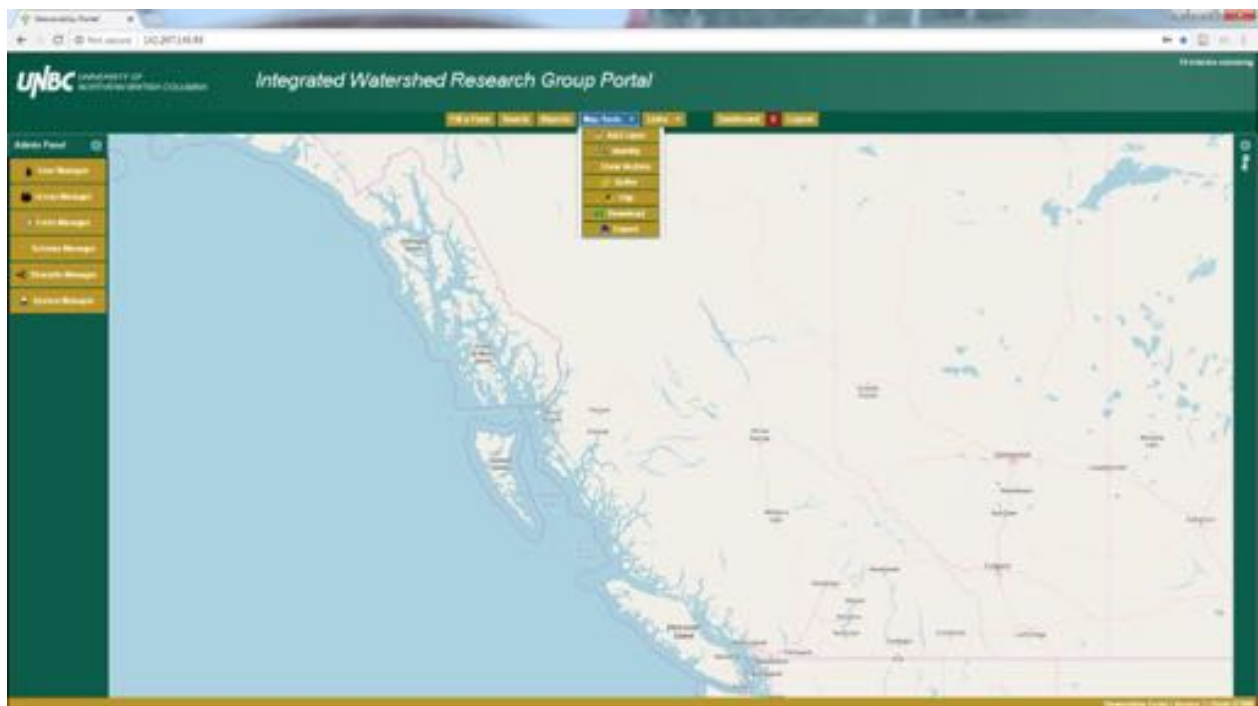


After matching the fields you are given a preview screen to verify the bulk-load and matching process has worked properly. Next you are asked if you want to start a draft submission for each row. You will have to go through the draft submissions finalize everything

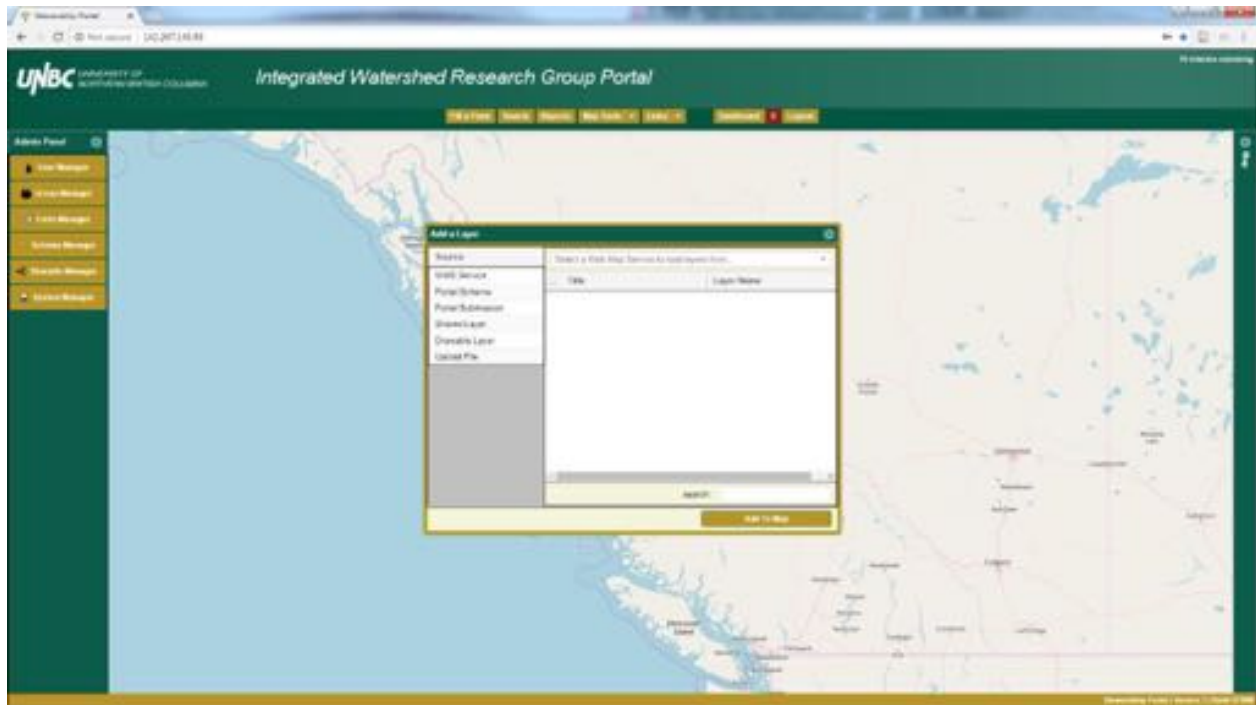
6. Spatial Visualization and Mapping Tools

This document focuses on spatial data within the Portal, and details all of the features found within the Map Tools button. We will follow the features in the order they are listed:

- Add Layer
 - o WMS Service
 - o PortalSchema
 - o Portal Submission
 - o SharedLayer
 - o DrawableLayer
 - o UploadFile
- Identify
- Draw Vectors
- Buffer
- Clip
- Download (currently broken)
- Export (currently broken)



Add a Layer: There are six ways to add spatial data to our map view which we will explore now.



WMS Service:

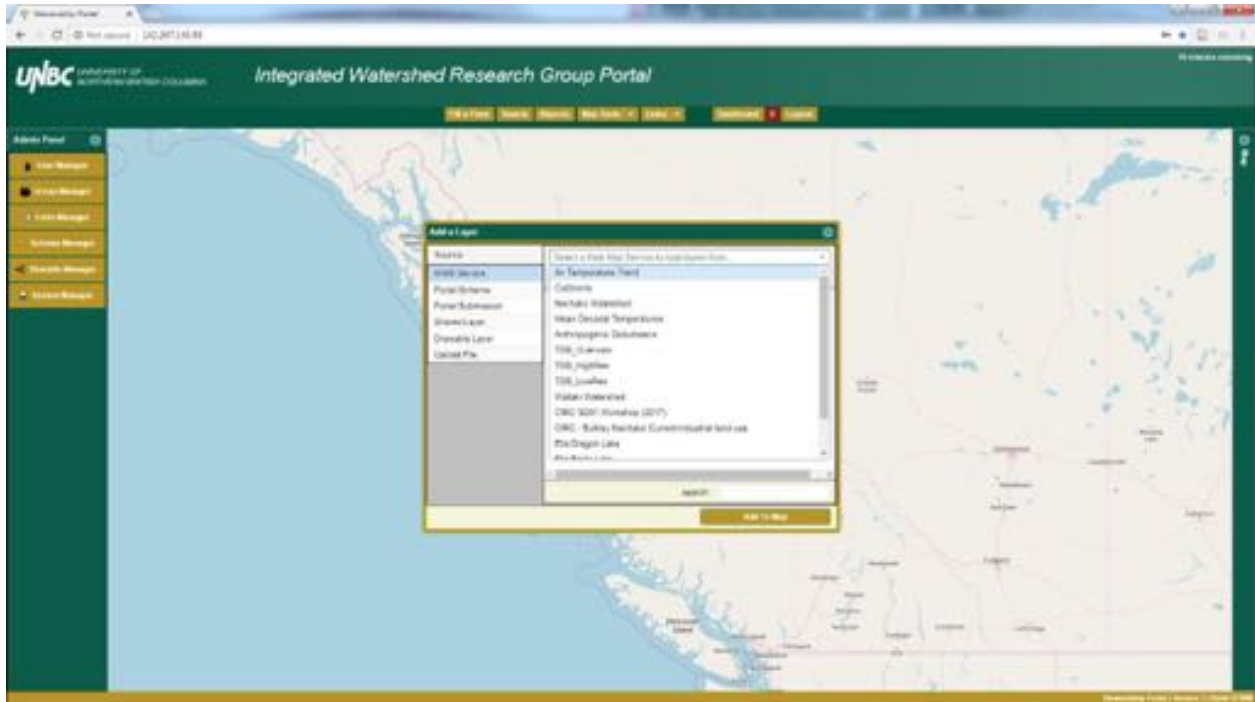
WMS stands for Web Map Service, which can be used to share spatial data or complete maps through the internet. A fairly easy example of this is the base map we see within the Portal, this is an Open Street Map WMS layer.

WMS layers can provide a consistent symbology and provide features such as a legend that currently aren't dealt with effectively within the Portal. This requires a little explanation. Currently if you use any of the other options to add spatial data to the map the symbology is randomly generated. However, the symbology of a WMS layer is defined within the layer itself, so it will appear the same way every time it is called.

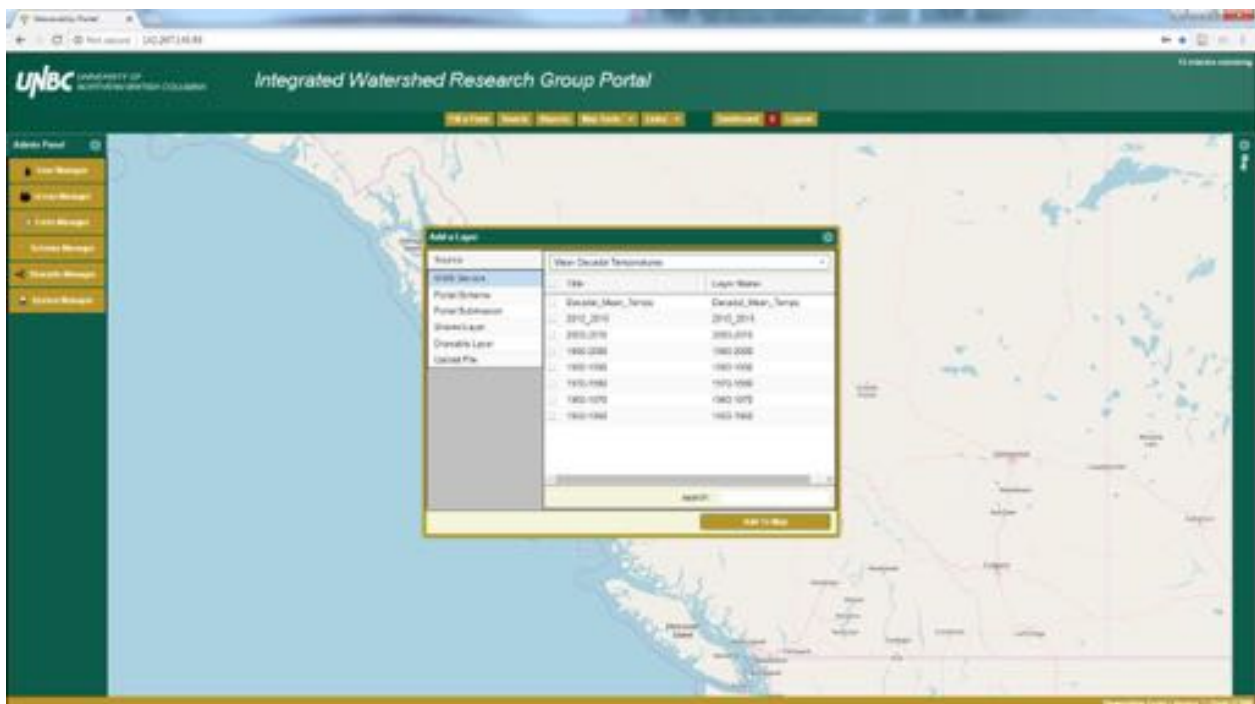
A disadvantage of WMS layers is that they are only images being provided. This means they have no attributes, they look good but we are unable to view any specific information contained within the layer. Whereas, the other spatial data options available can all contain attributes which can be queried. We can think about a spatial layers attributes as an excel sheet, containing specific information about the layer.

The WMS Service layer is brought up by default when accessing the Add a Layer option, however, if we've clicked something else we simply need to click

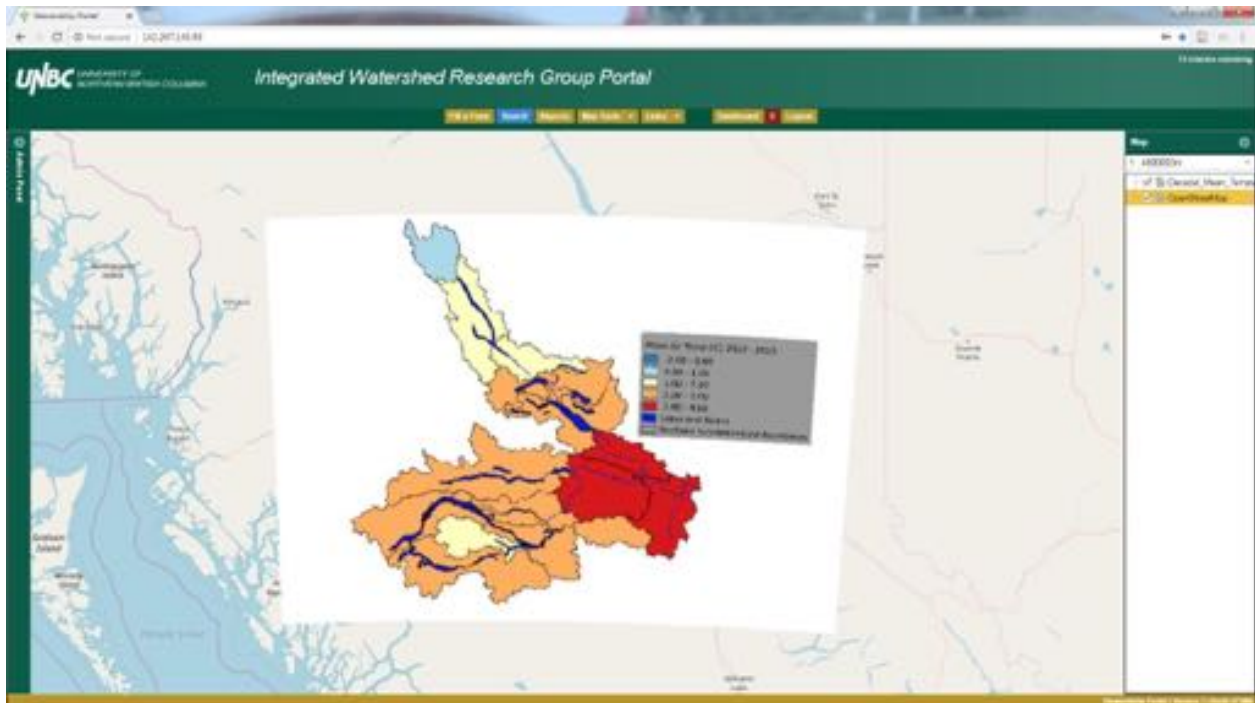
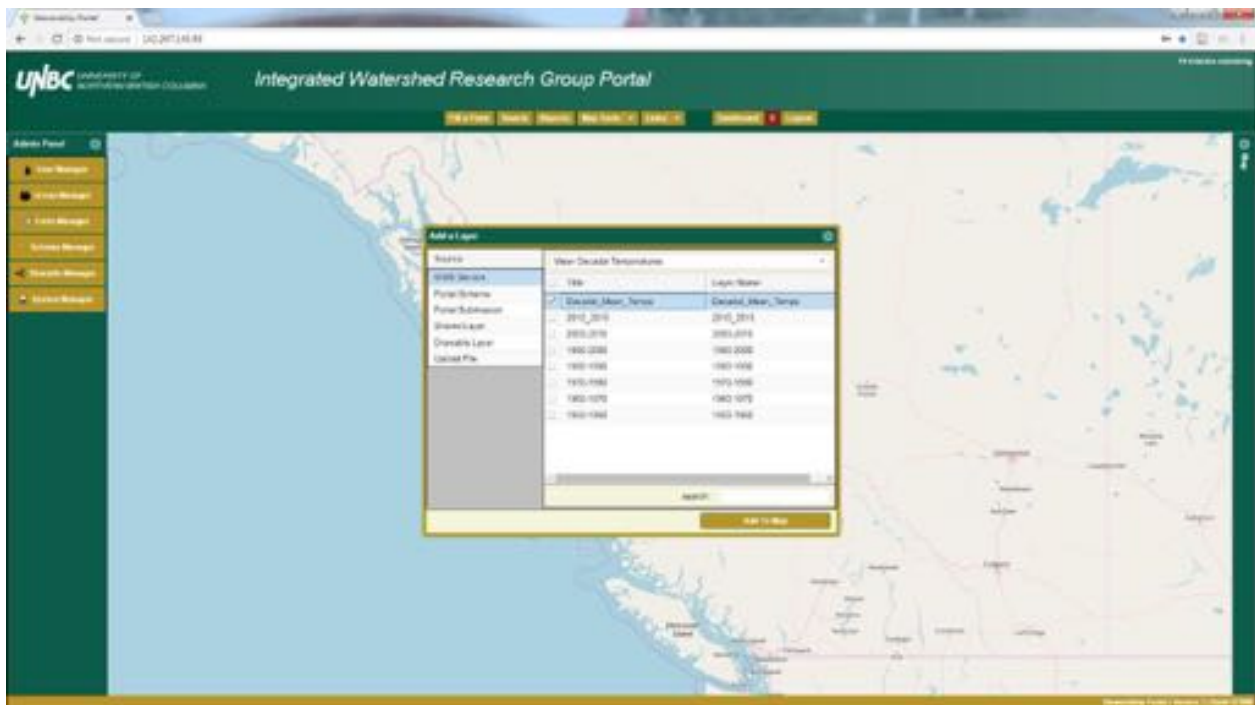
under Source where it says WMS Service. There is a drop down menu labeled “Select a Web Map Service to load layers from...”, we simply click this and select the WMS desired.



In this example we’ve selected Mean Decadal Temperatures, which brings us the following options to pick from.



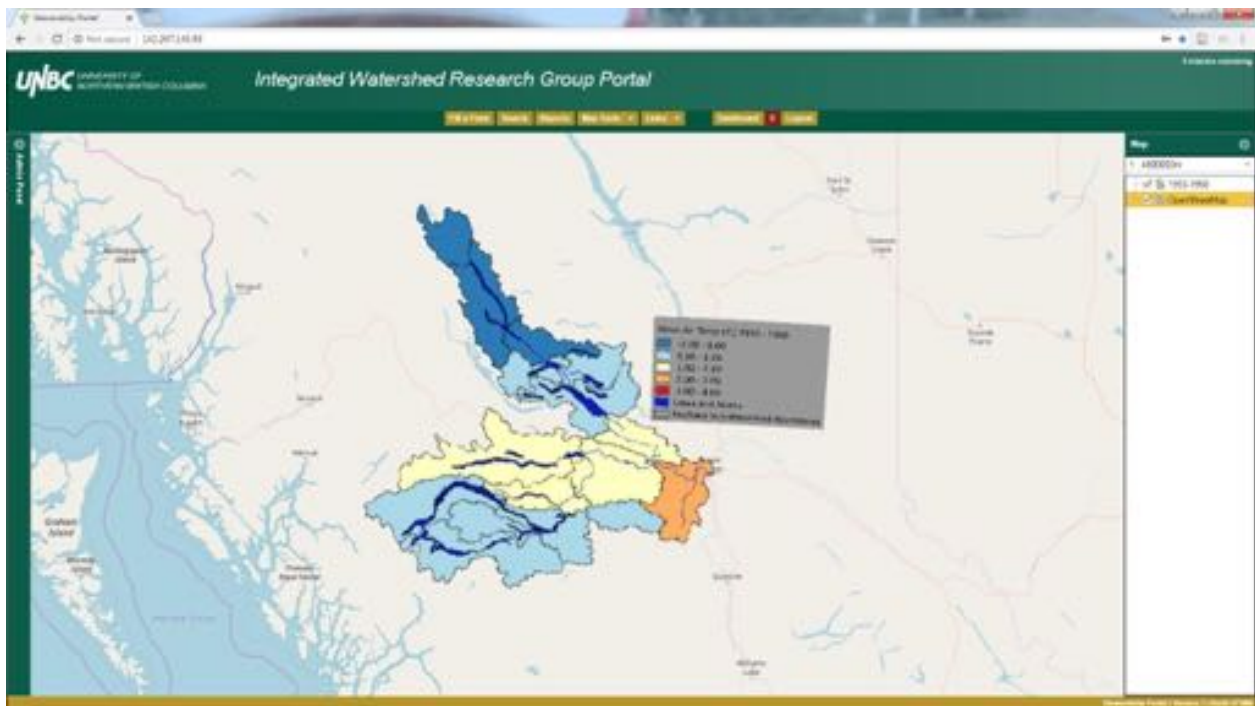
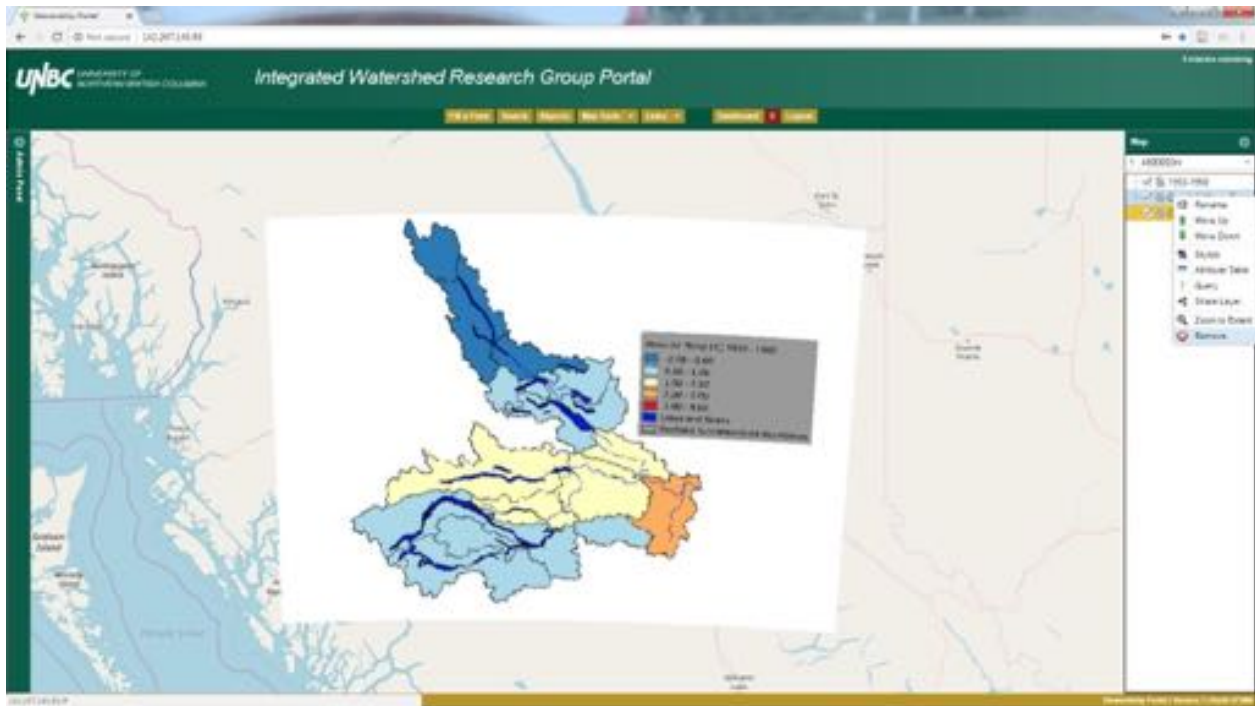
If we pick the first available layer named Decadal_Mean_Temperatures and click add to map we get the following:



This first option is actually all of the layers that are listed below it, this is an artifact of how we are using QGIS to serve up these WMS. This will be the case for all of our own WMS layers that we are hosting. To get around this we

simply ignore the first layer and select the layer that is of interest to us.

We will pick the layer 1950-1960 and add it to our map. We've added this layer right on top of the previous stack, so we will open our map tab, right click on Decadal_Mean_Temps and remove it from the map.



We will explore a way to combine WMS layers and shapefiles uploaded into the Portal by making use of stacking layers and using the Identify tool later.

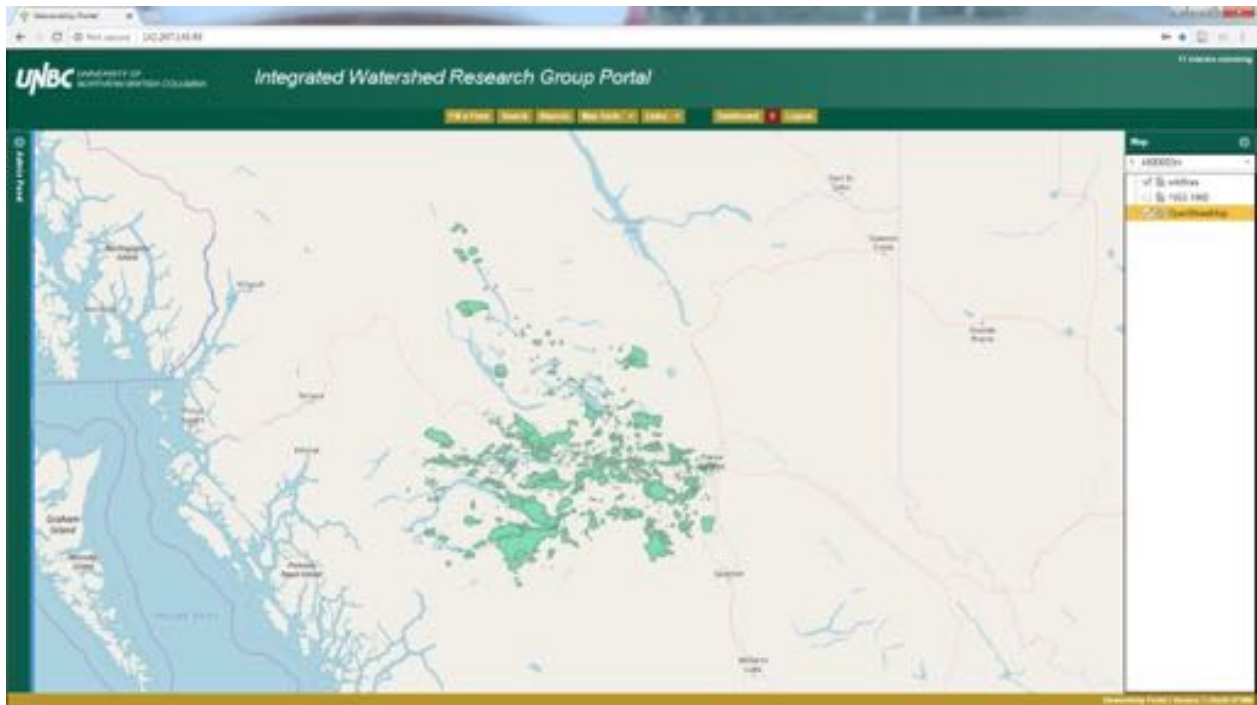
Portal Schema:

Adding layers by Portal Schema is probably the most difficult option available to us to understand. This stems from the fact that many people who aren't regular GIS and web-GIS users won't have had much

(or any) interaction with a spatial schema. Essentially a schema is a set of rules that the Portal uses to determine which attributes from a spatial file get shown within the Portal. All forms require at least a single schema to be linked to it for spatial files to be attached to a submission. This is a process the average user will never need to understand, and in situations where a schema needs developed the Portal Administrator will be crucial in assisting.

For our purposes today we simply need to understand that this option in our Add a Layer tool will allow us to grab all spatial layers that share a common schema and load them into the map. This could be helpful if we know there are multiple submissions that have a similar format of spatial data, and we want to add those all to the map without having to individually add them from their separate submissions.

When we select the Portal Schema option we are provided with a list of all the current schemas.



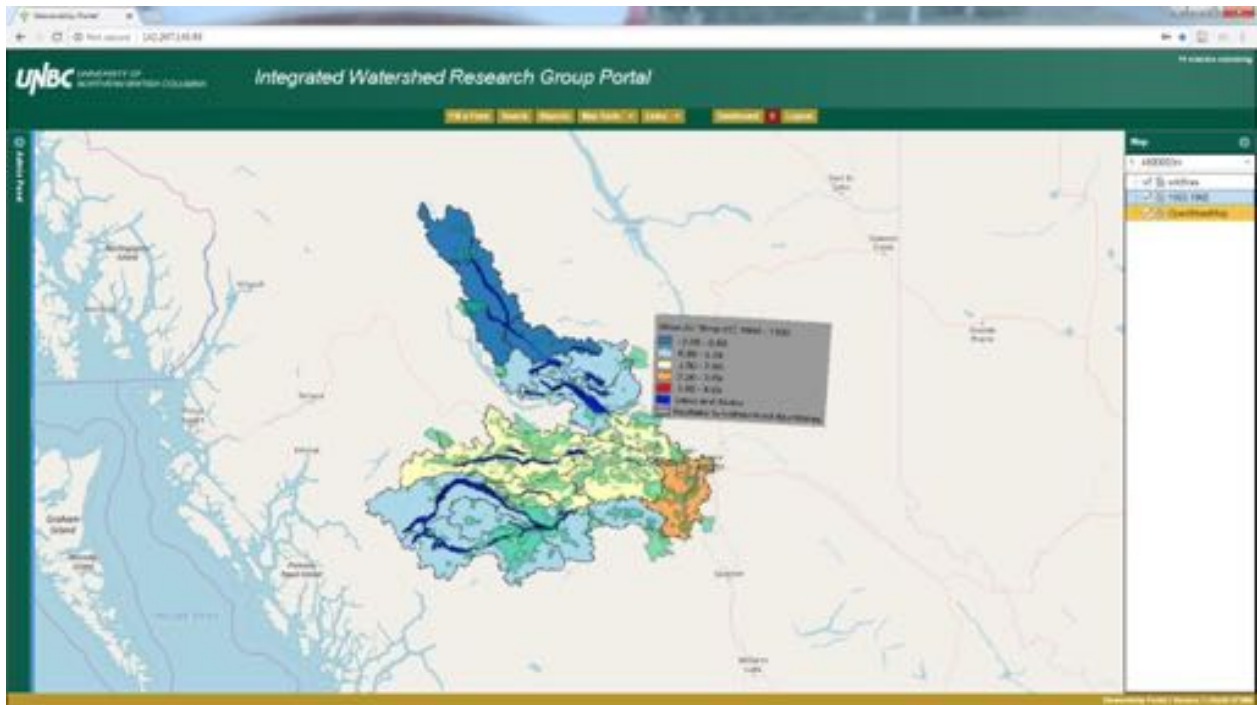
Please note that all of the separate spatial layers that use this schema are combined into this one layer, which can make it a bit more difficult to sort through data or symbolize.

Right Click Options:

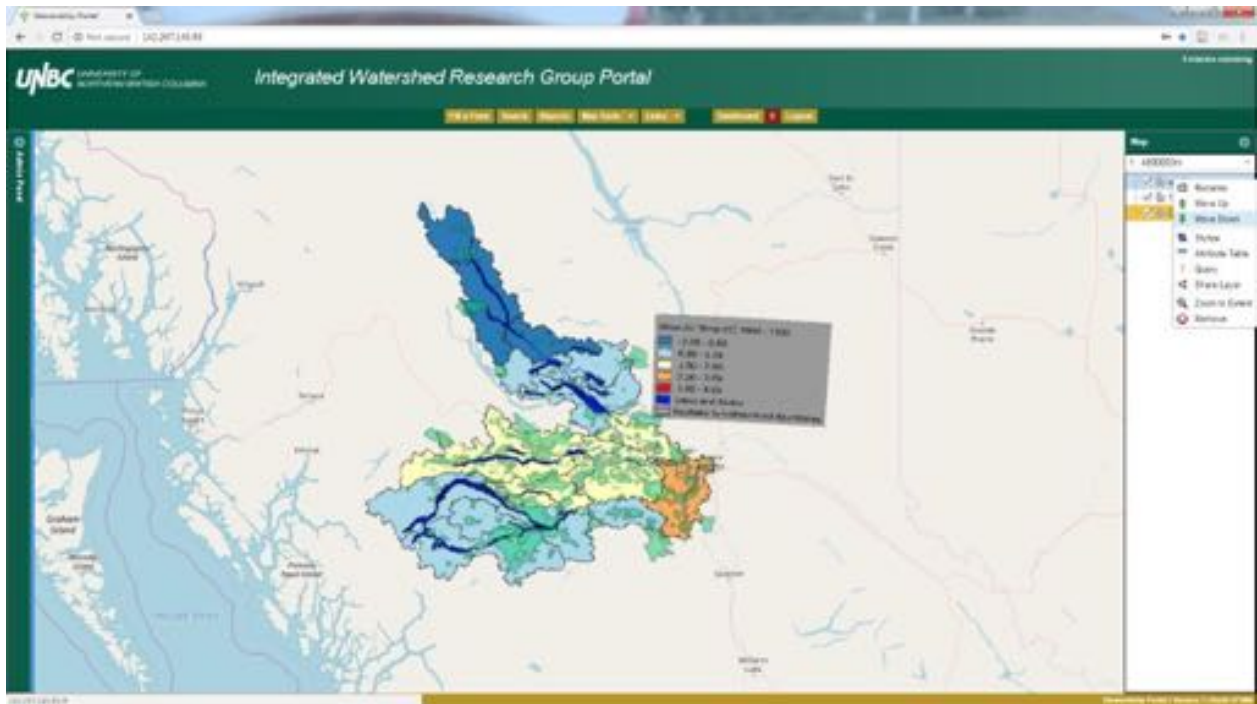
Now that we have a couple of spatial layers on our map we are going to look at the right click options within the Map tab.

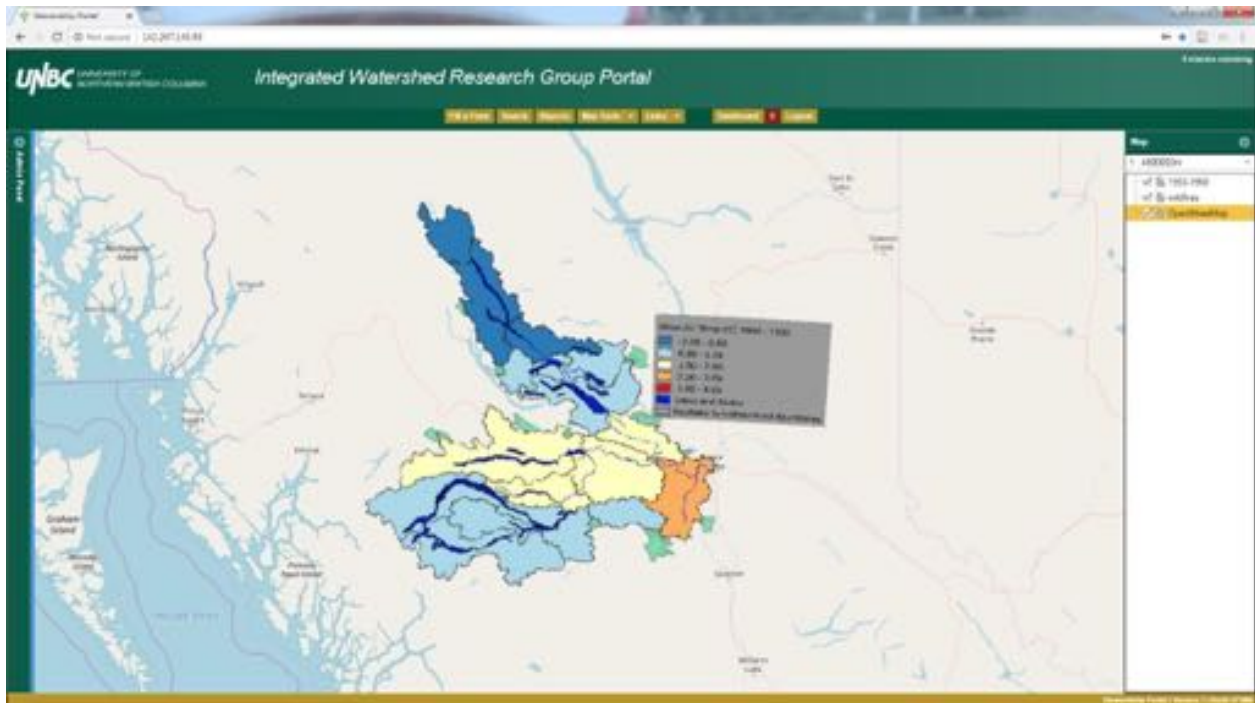
Rename: this allows us to temporarily rename a spatial feature

Move up and move down: this allows us to change the order in which layers appear in the map list. This also impacts the order which they are drawn, or stacked. The top most layer will appear on top of the layers below (if there is a spatial overlap). Note that the green from wildfires is above the climate layer, as wildfires is on the top of the map list.



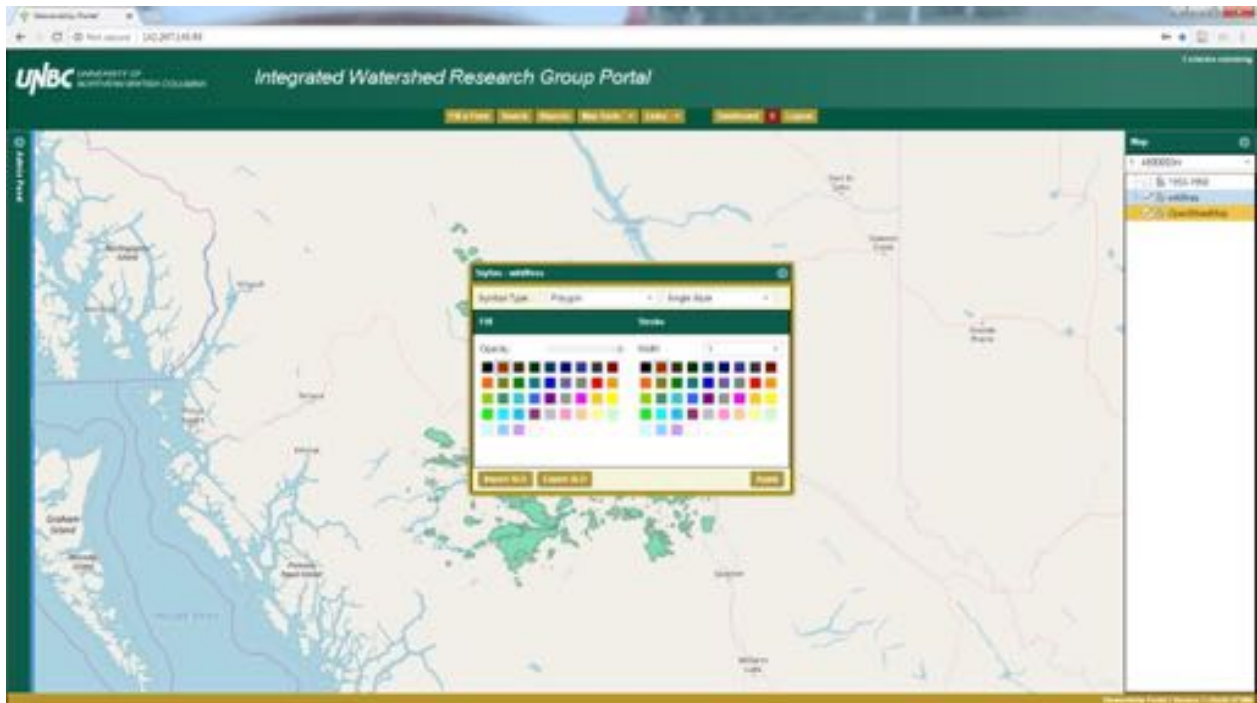
If we move wildfires down we get the following product:



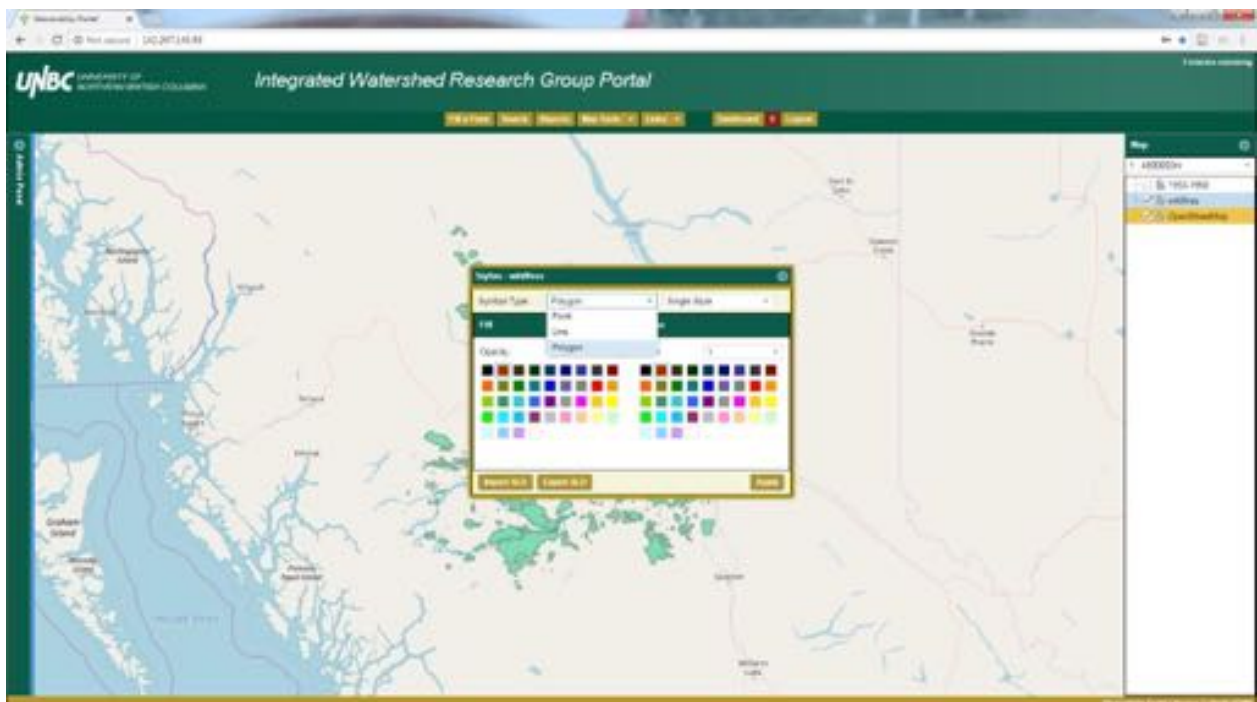


Note that we can no longer see the wildfire polygons that were overlapping with the climate layer. They are below 1950 – 1960 (climate layer) which has no transparency applied, which blocks the view of the wildfires below.

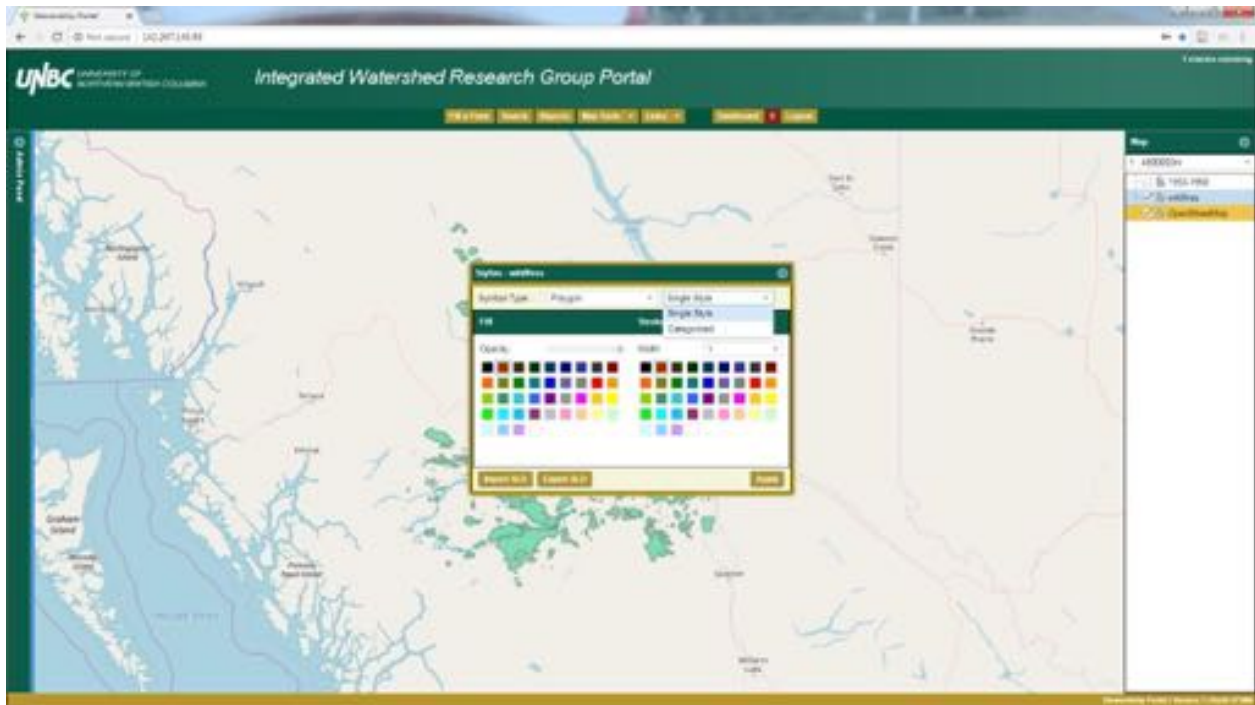
Stylize: For this example we've turned off the 1950 – 1960 layer by clicking the check mark off beside it. Now we can right click the wildfires layer and pick Stylize.



Here we are required to verify the Symbol Type matches our spatial data. In this case we are dealing with polygons so we are good. There are three options available: polygon, line, and point.



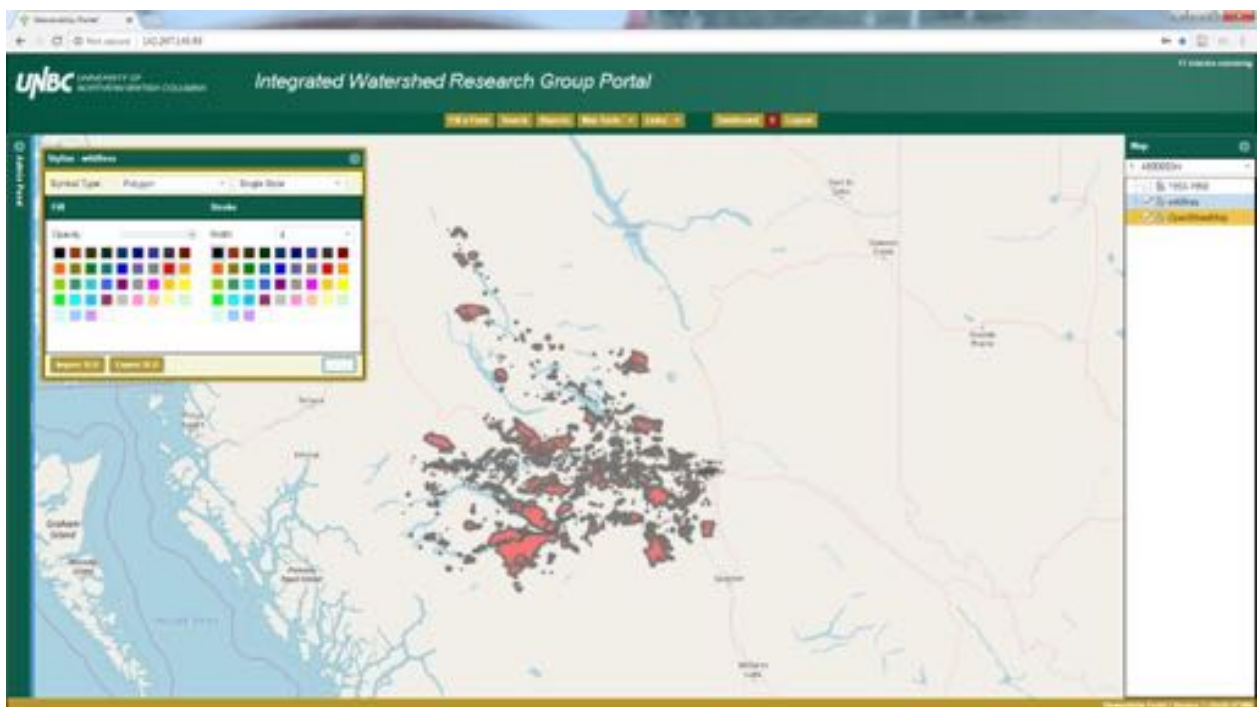
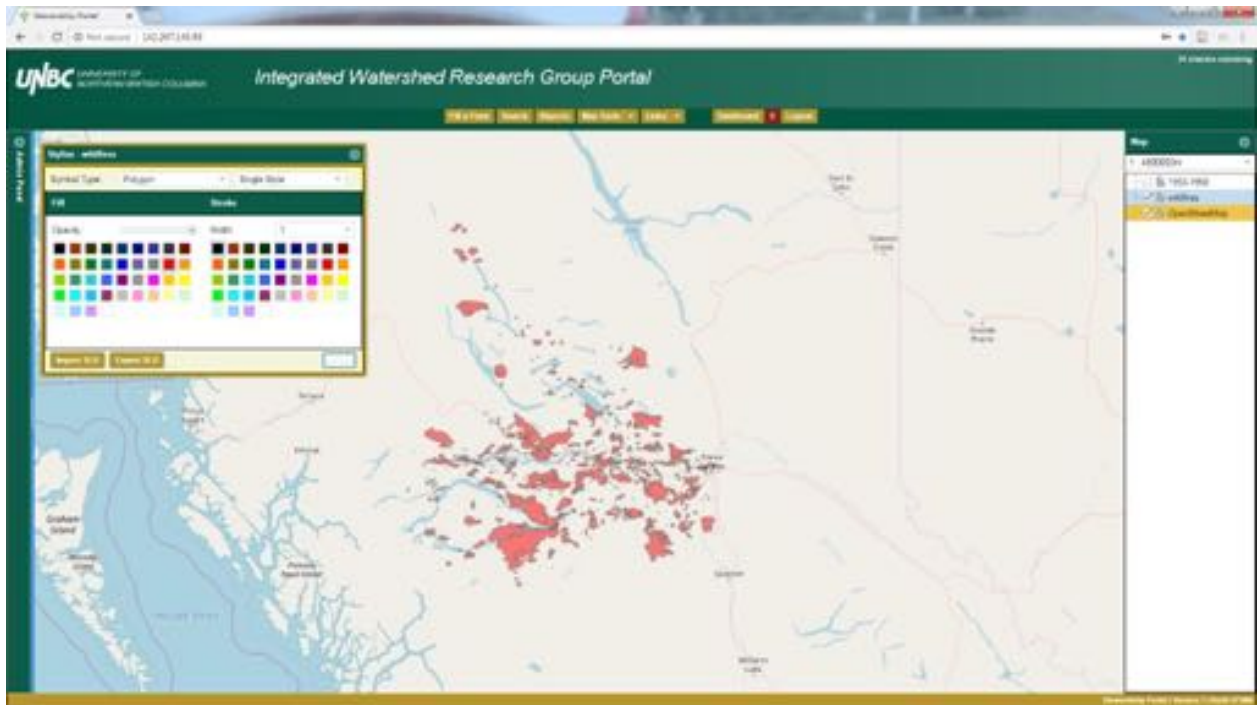
Next we must determine if we want to use a Single Style or Categorized style. Single Style will make all the features a uniform style, whereas Categorized can be used to style according to attributes to give an array of colours.



We are going to start with the Single Style.

We'll pick a bright red for the Fill colour (the inside of the polygon) and black for the Stroke (the outline). Hitting apply and moving the Stylize window to the side will produce the following:

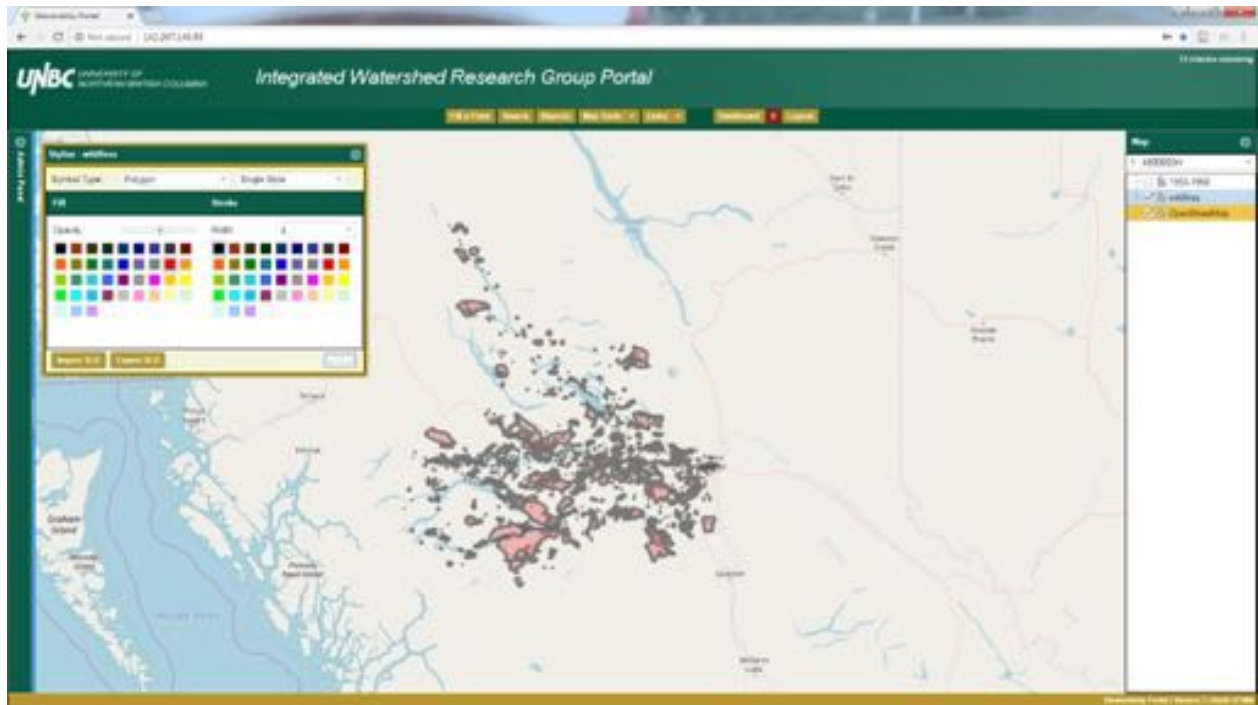
Now maybe we don't think the outlines stand out enough here, so we can adjust the Width number. We can use the drop down bar or simply type in a number, we'll try 4.



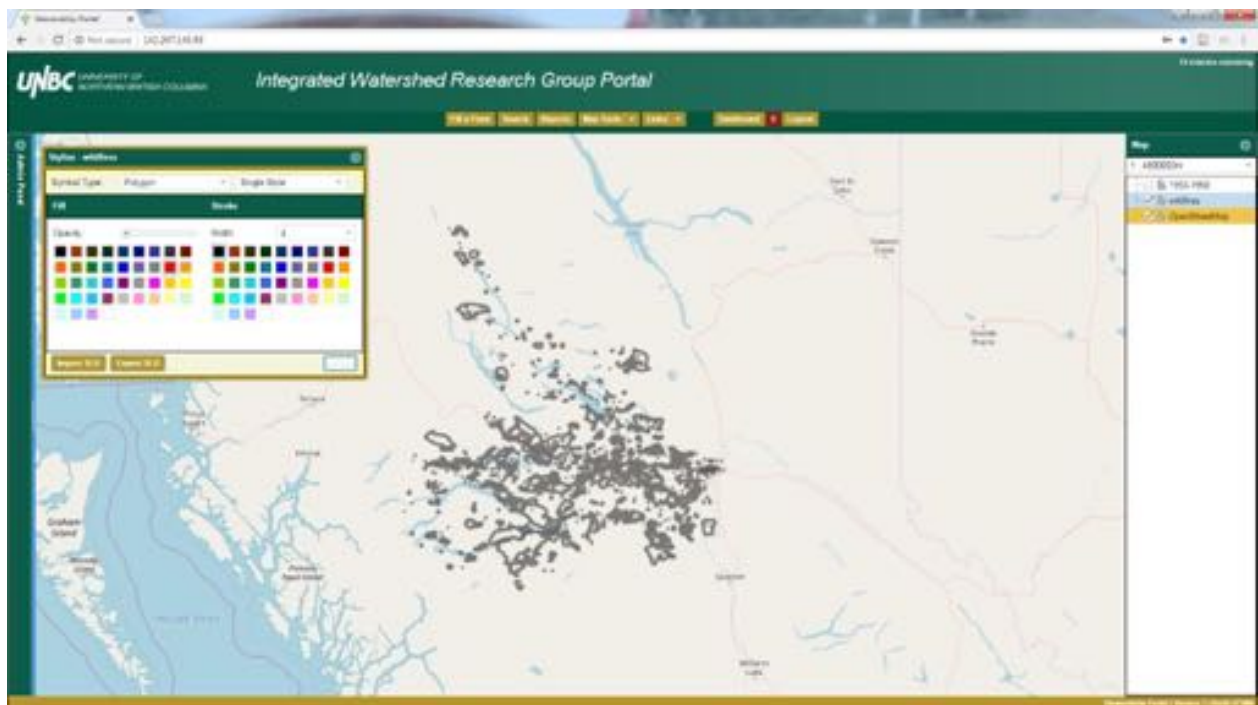
Now a 4 width was probably too much, but as we have now seen this is adjustable until we are satisfied.

There is also an Opacity scale so that we can adjust the transparency of the fill of a spatial layer. This scale seems to be backwards though, the default here is 100 which allows for the least transparency. If we turn it down to 50 we get

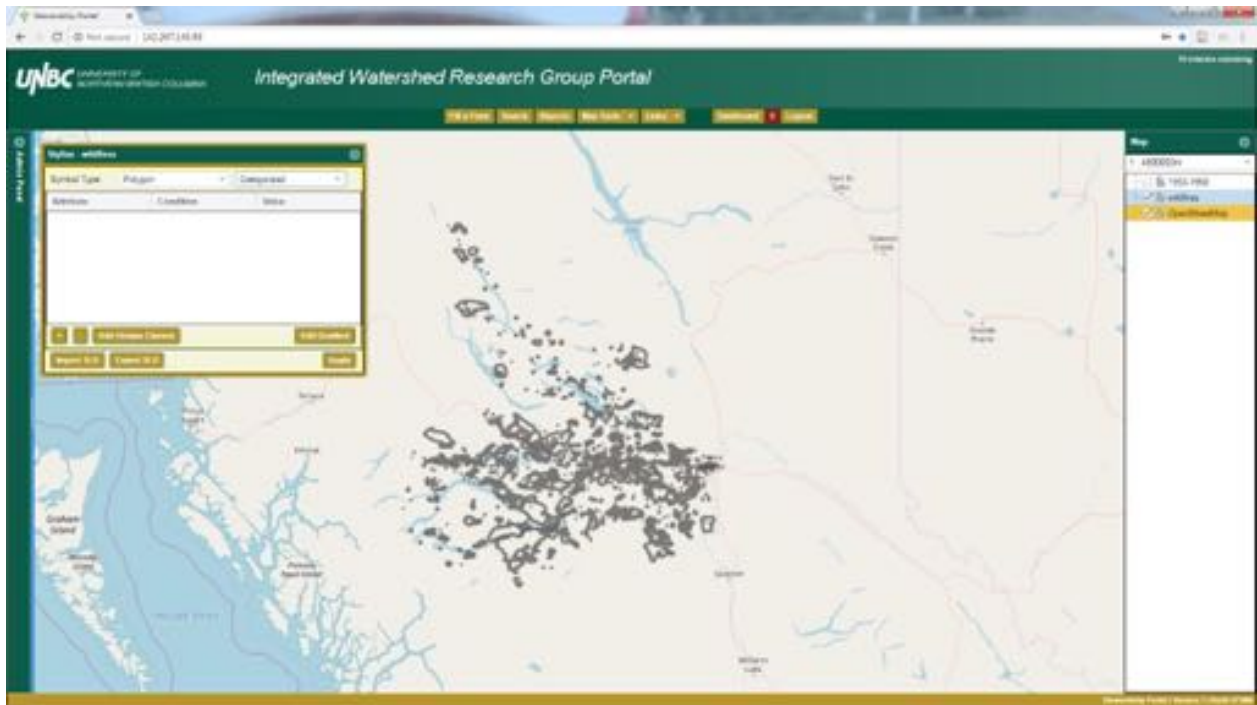
the following.



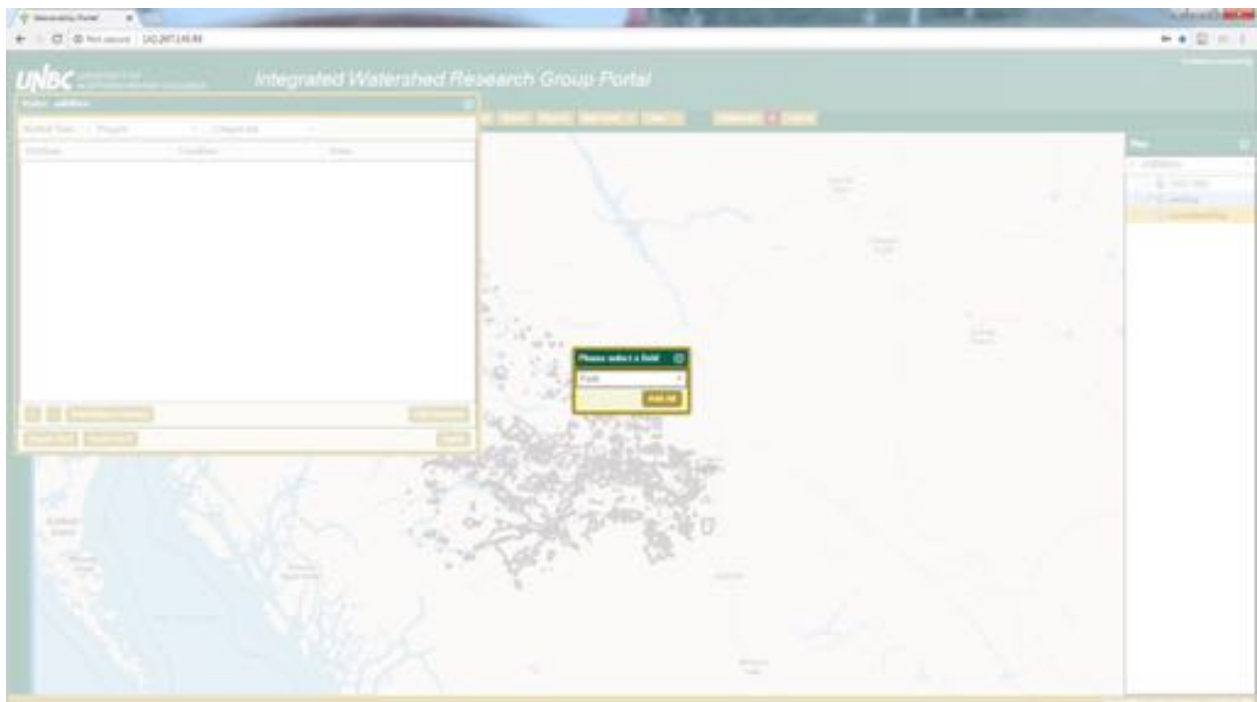
With an Opacity of 0 we get no fill colour.



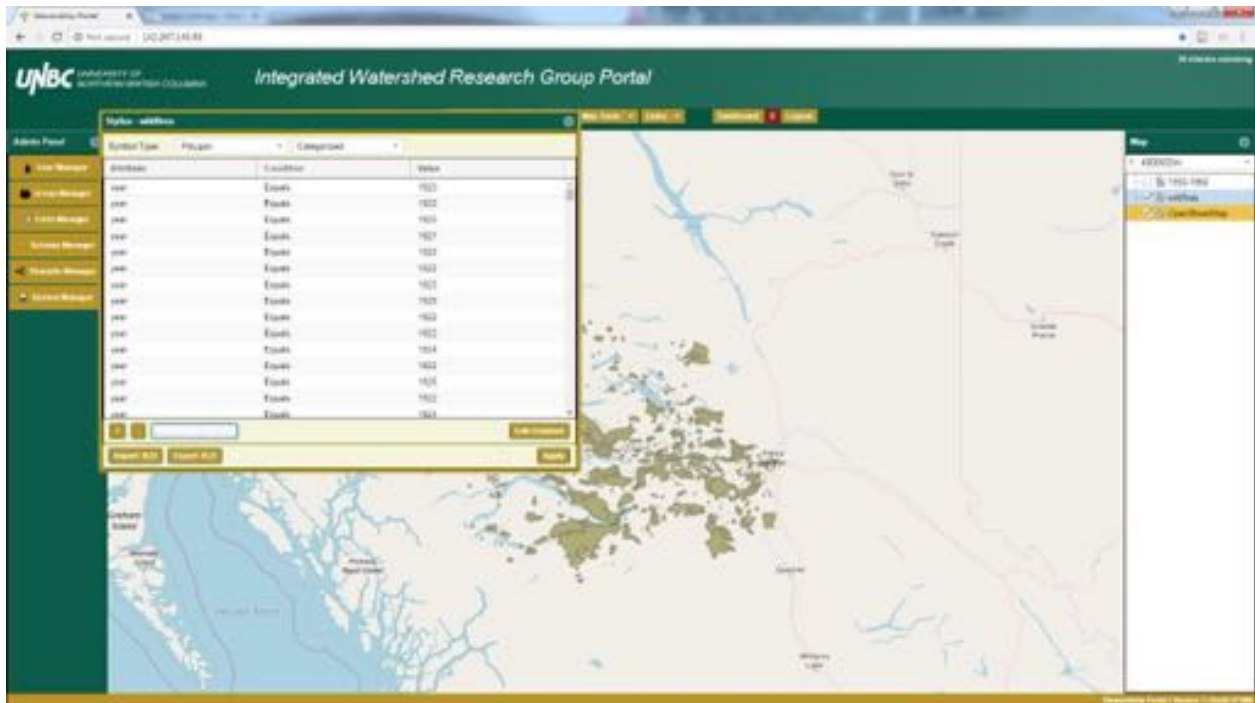
Now if we want to create a symbology according to categories, we can select the Categorized option.



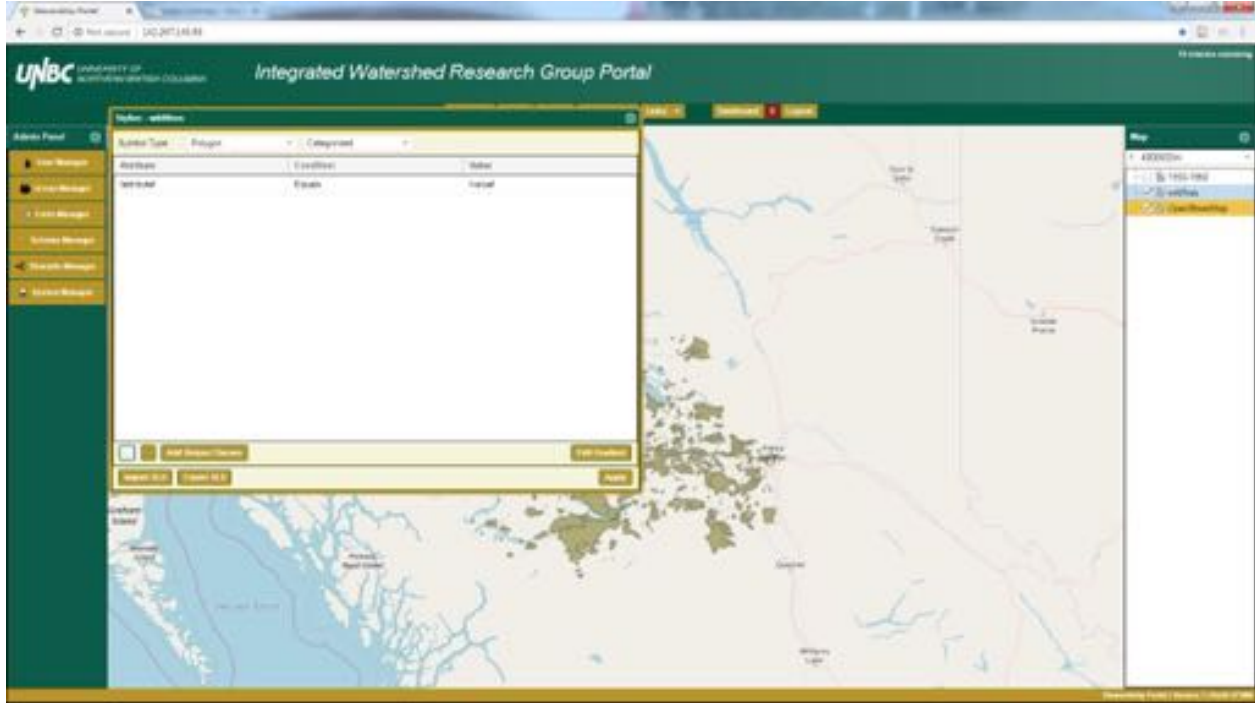
Here we need to determine which attribute we want to use to differentiate colours by. We'll do this by using the Add Unique Classes button.



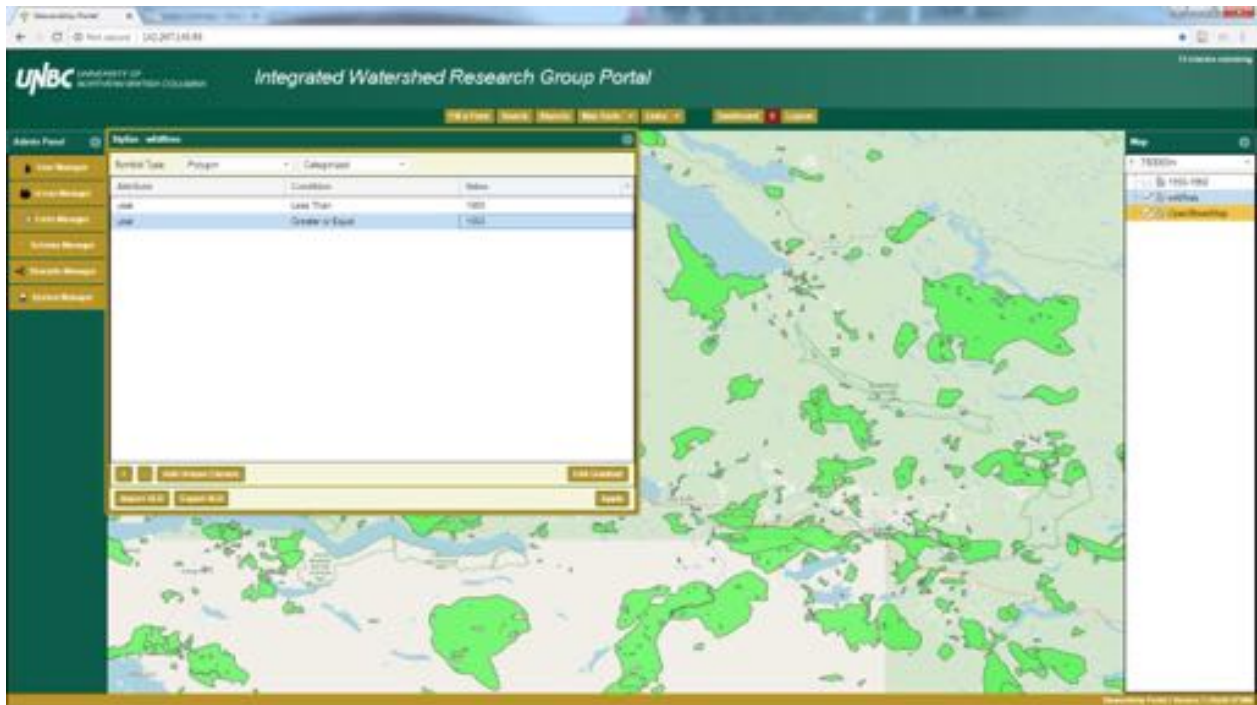
We'll use year here.



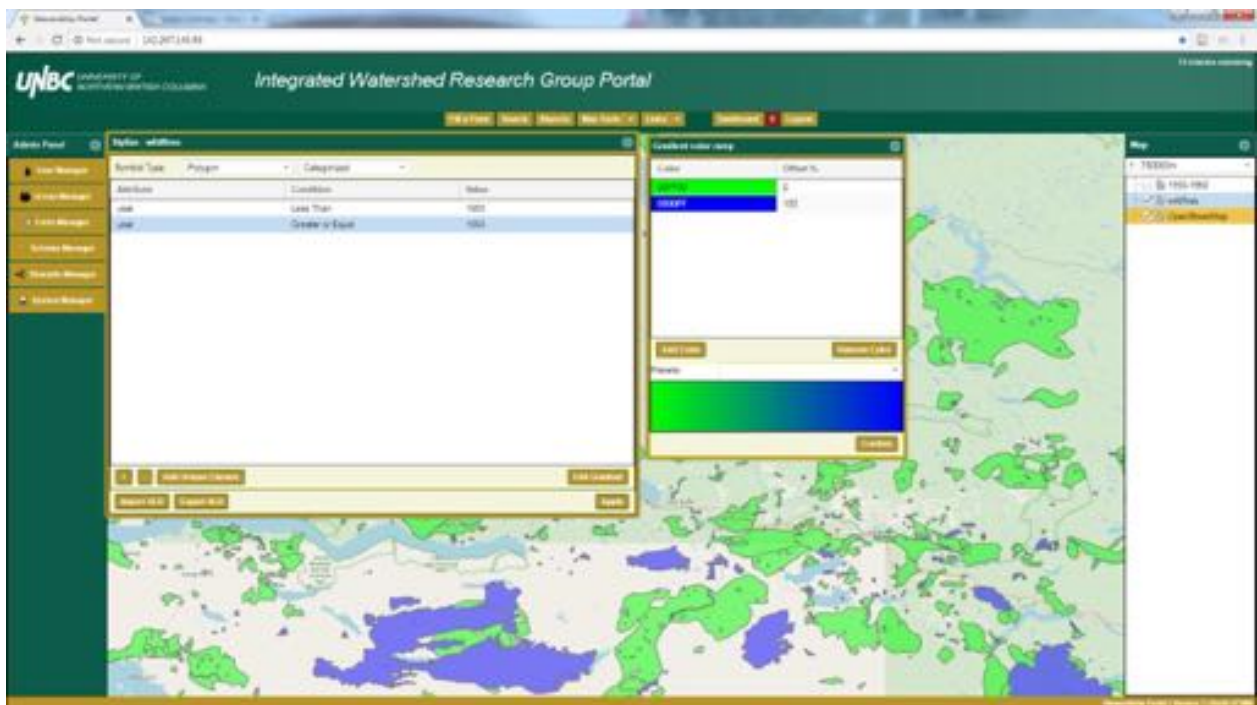
Instead we'll develop our own class to sort and symbolize this data. We'll close our Stylize window and re-open a new one. Back in the Categorized option we'll press the + button.



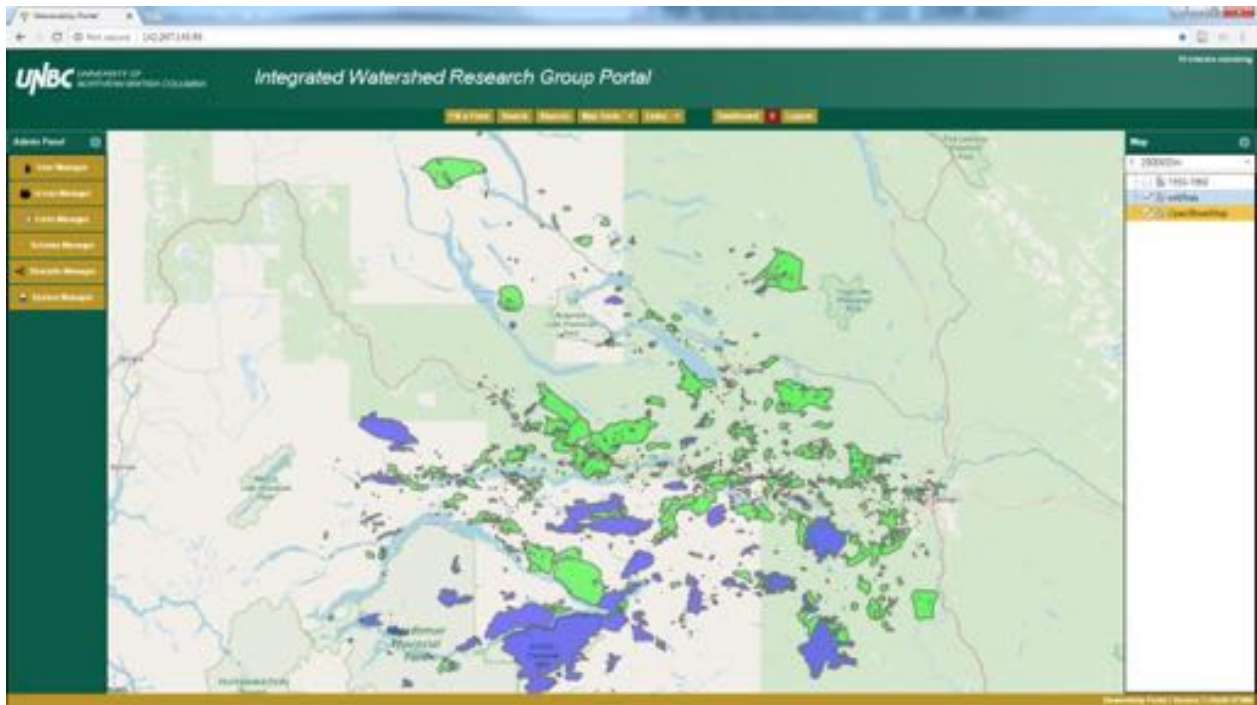
Now we will type in the year as the Attribute we want to sort by. Our condition will be less than, and the value will be 1955. So we are setting up a category to give us the first half of the decade and the second half.



Now by using the Edit Gradient button we get a new color ramp option.

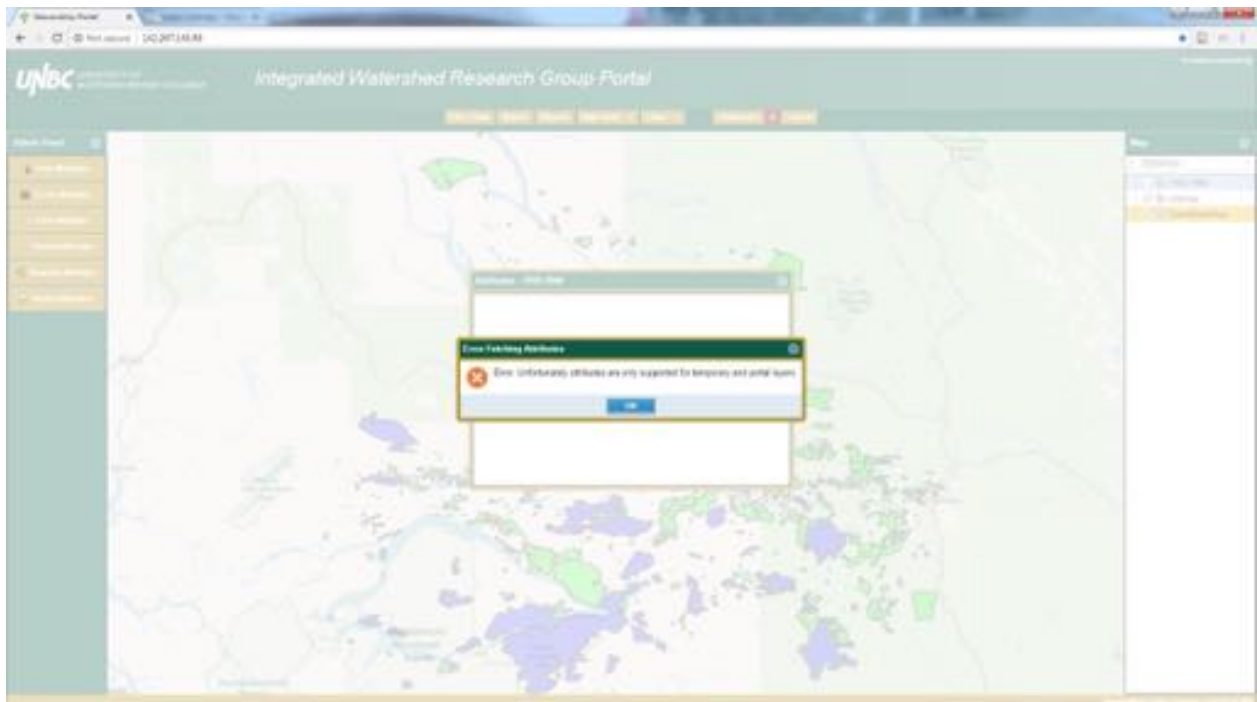


We hit confirm and we have create a style (or symbology) that has any fires that occurred from 1950 – 1954 in green and all the fires that occurred during or after 1955 in blue.



Attribute Tables:

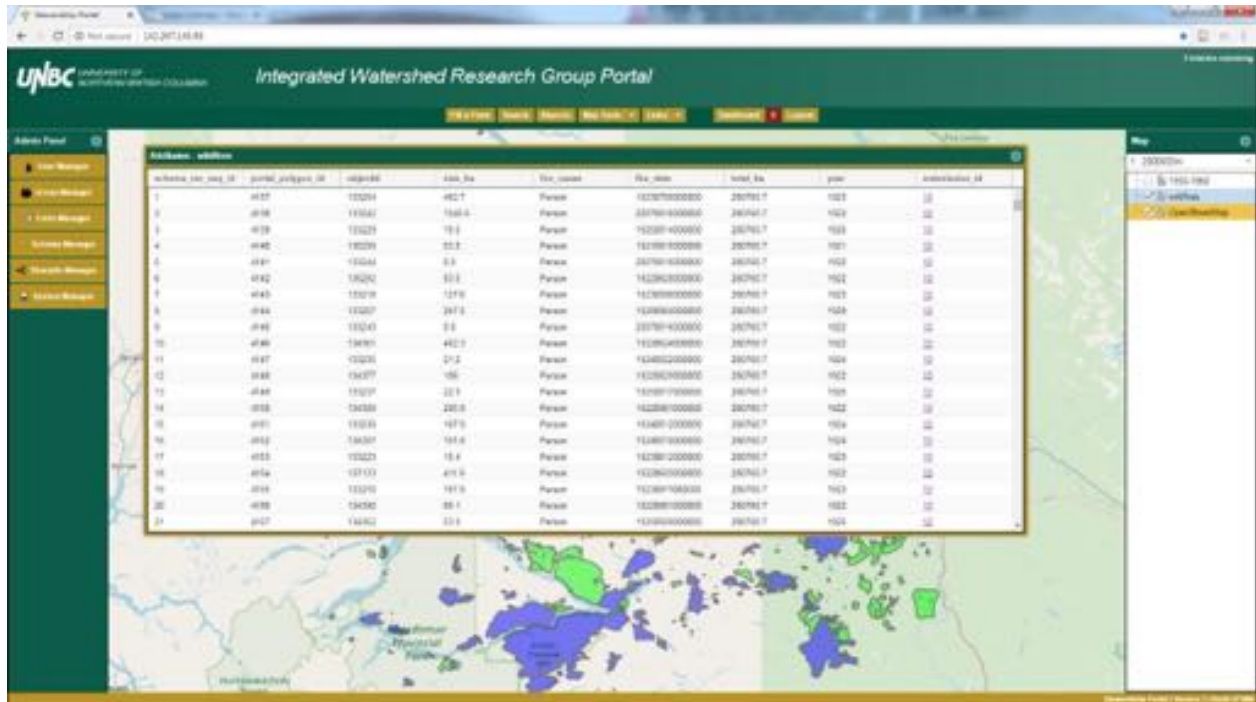
Another right click function available on spatial layers within the Map tab is being able to read the attribute table. We'll open the attribute table on the 1950 – 1960 layer.



This result is due to us trying to read the attribute table of a WMS layer, which

of course doesn't actually have an attribute table. Now we will try on our wildfires layer, and after resizing the window we get:

We are able to sort by descending or ascending order as well, which we will do by year by clicking the down arrow on the header when we are hovering on it, and choosing ascending. Now the 1920s are on the top and we can scroll down through the years in chronological order.



We can also click on the submission_id hyperlink and be sent directly to the submission for this data.

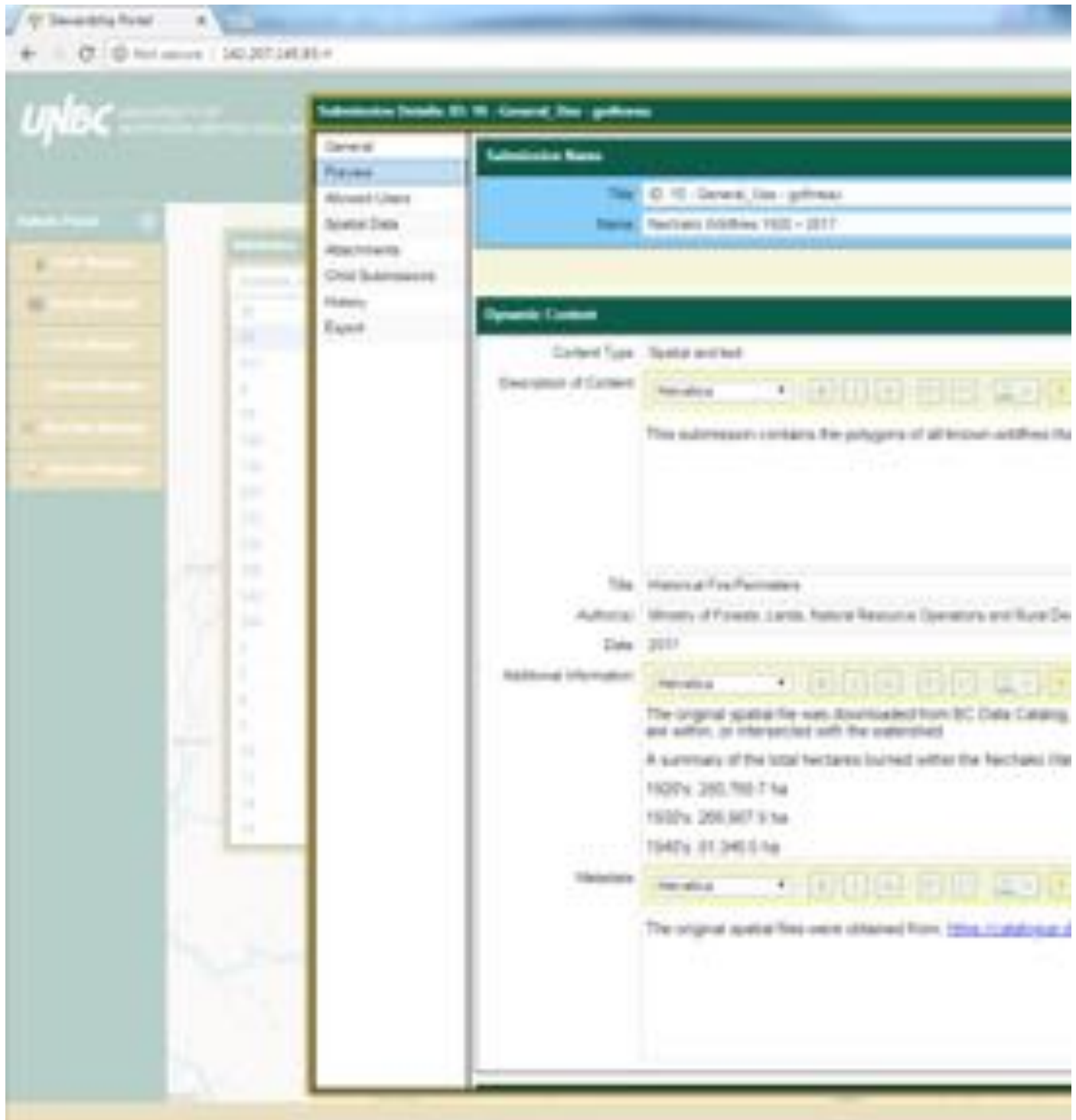
Integrated Watershed Research Group Portal

SEARCH | LOGIN | REGISTER | MY ACCOUNT | ABOUT US | CONTACT | HELP

Admin Panel

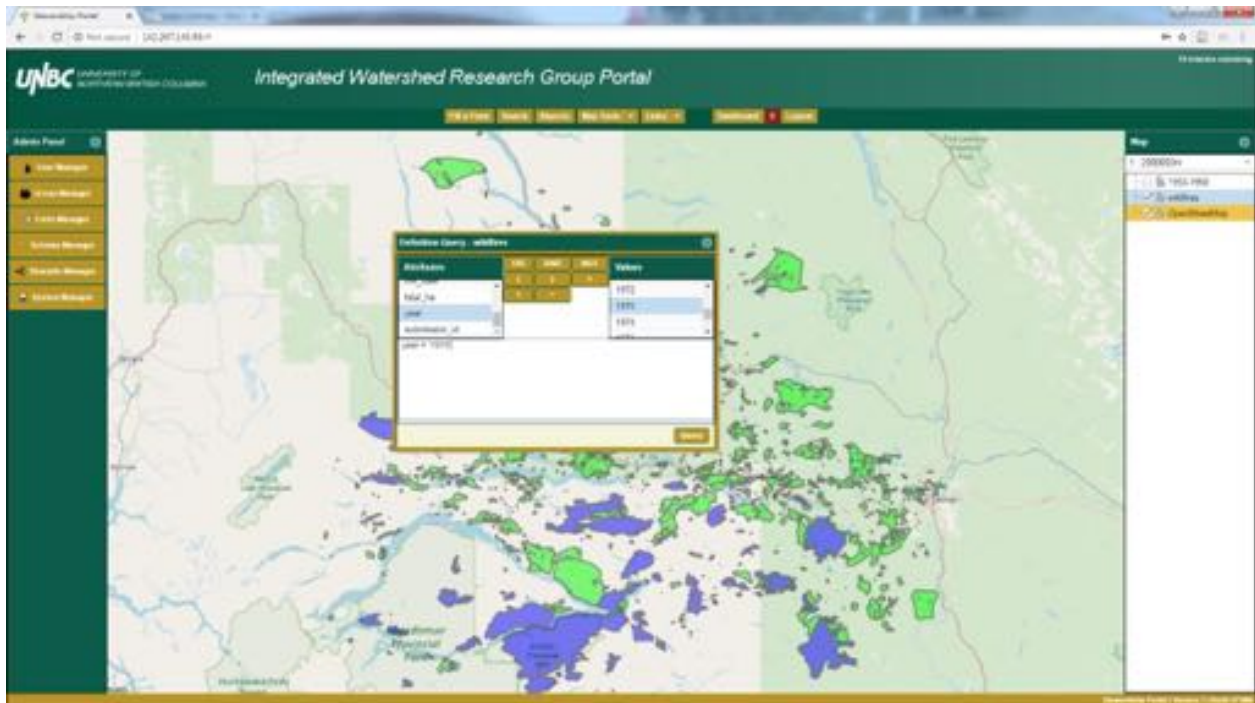
- User Manager
- Group Manager
- Location Manager
- System Manager
- Resource Manager
- Account Manager

id	name	group_id	parent_id	lat	lon	type	status	created_at	updated_at
32	483	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
36	484	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
40	485	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
44	486	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
48	487	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
52	488	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
56	489	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
60	490	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
64	491	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
68	492	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
72	493	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
76	494	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
80	495	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
84	496	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
88	497	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
92	498	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
96	499	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
100	500	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
104	501	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
108	502	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
112	503	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
116	504	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
120	505	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
124	506	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
128	507	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
132	508	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
136	509	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
140	510	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
144	511	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
148	512	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
152	513	14020	28.0	Person	1000000000	2007017	100	2007017	2007017
156	514	14020	28.0	Person	1000000000	2007017	100	2007017	2007017



Query:

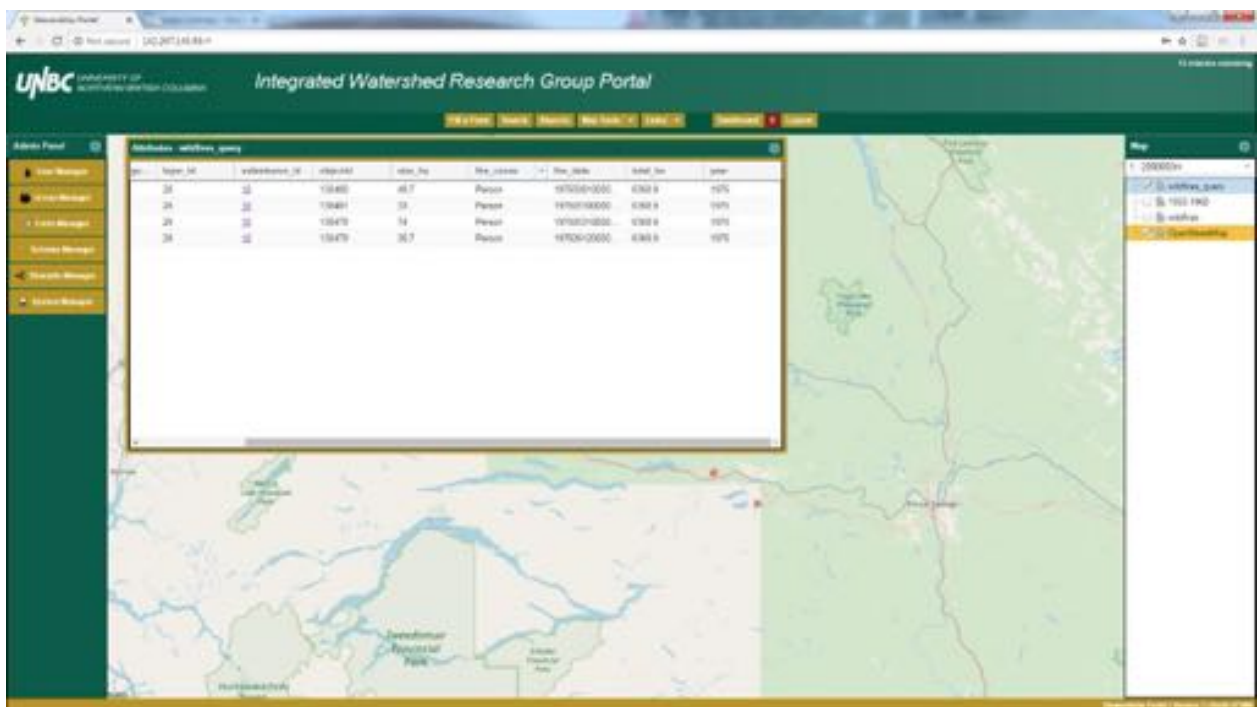
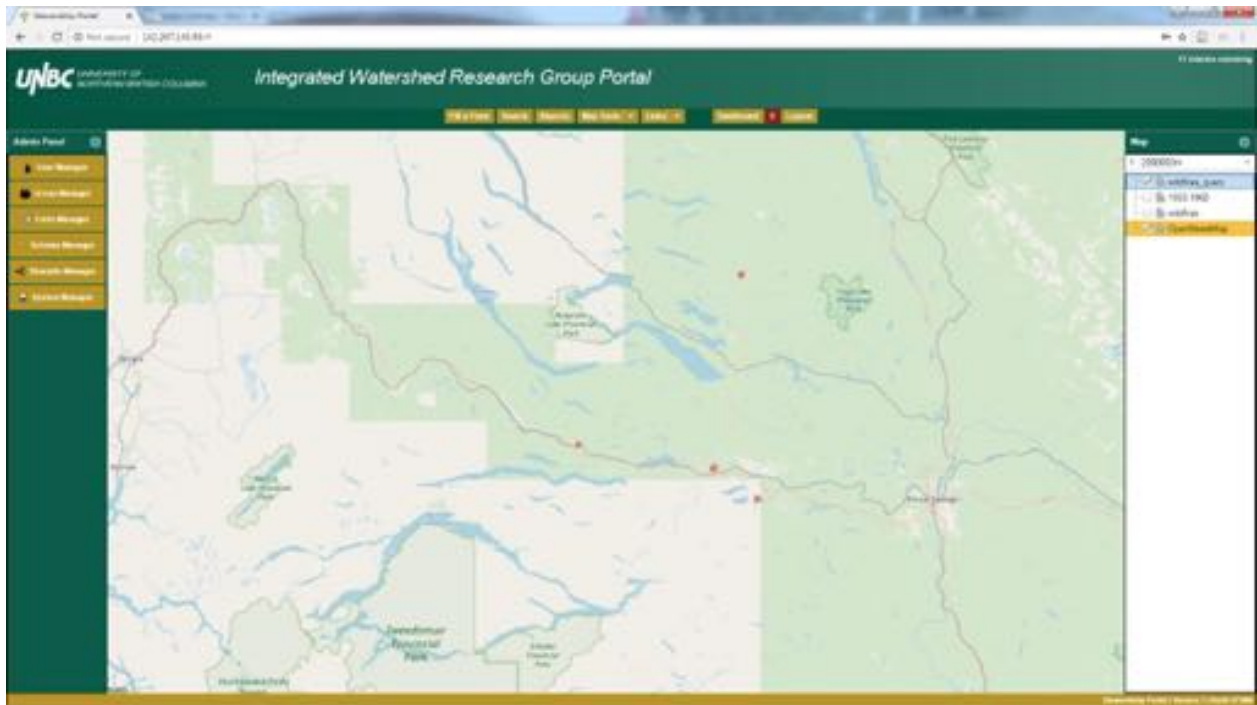
Next we are going to explore another right click function, Query. Let's perform a query on the wildfires layer. In this example we've asked for all wildfires that occurred in 1975 (year = 1975).



Hit the Query button and a new layer appears named wildfires_query. Close the query window and turn off wildfires. We are left with:

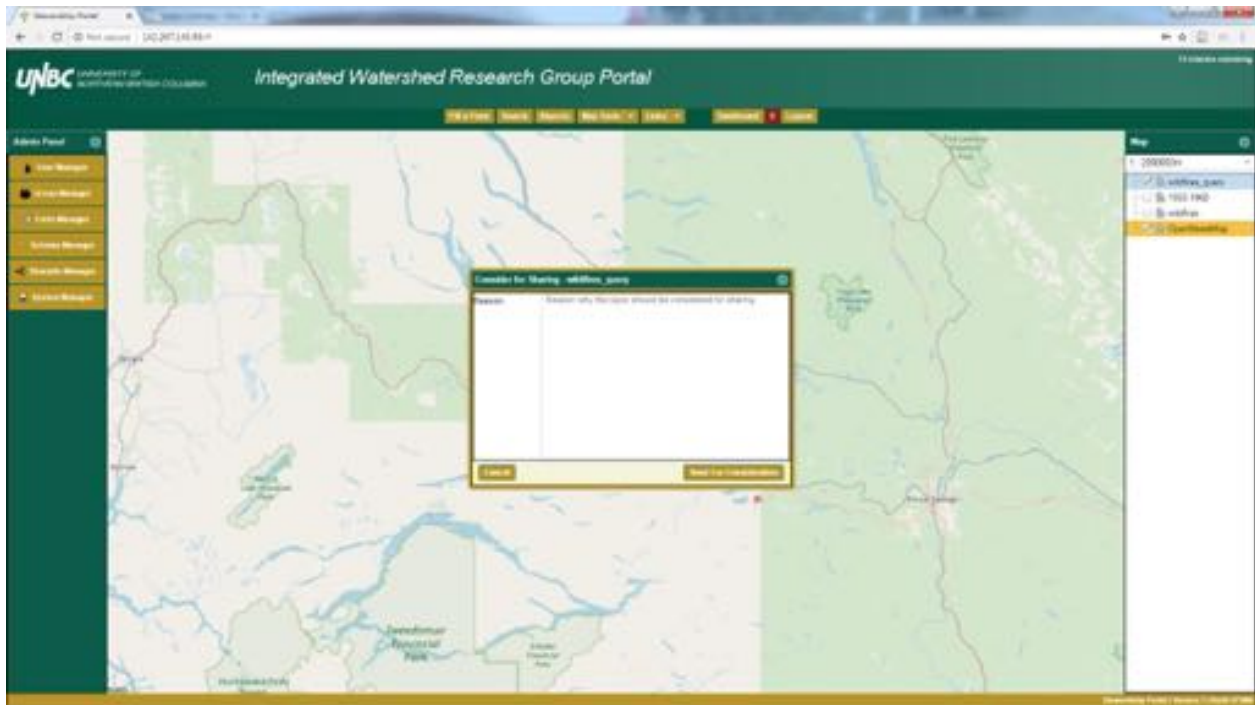
It needs to be noted that I've actually increased the stroke size on this example so it is more visible, if you picked this year the fires will be much smaller and difficult to see.

We can verify in the attribute table that we are left with only fires from 1975.



Share Layer:

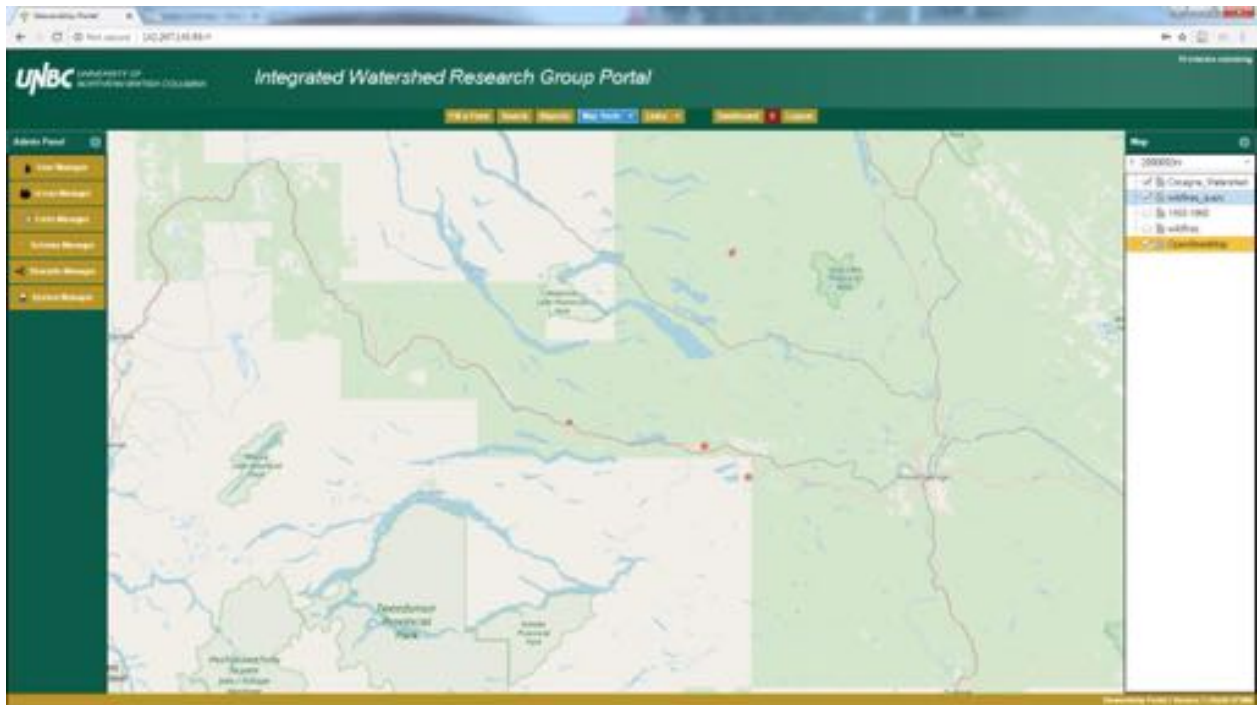
Another right click option is Share Layer. Share Layer allows us to request that the administrator makes this layer sharable across the Portal, and will appear in the Linked Layers section when filling out a form.



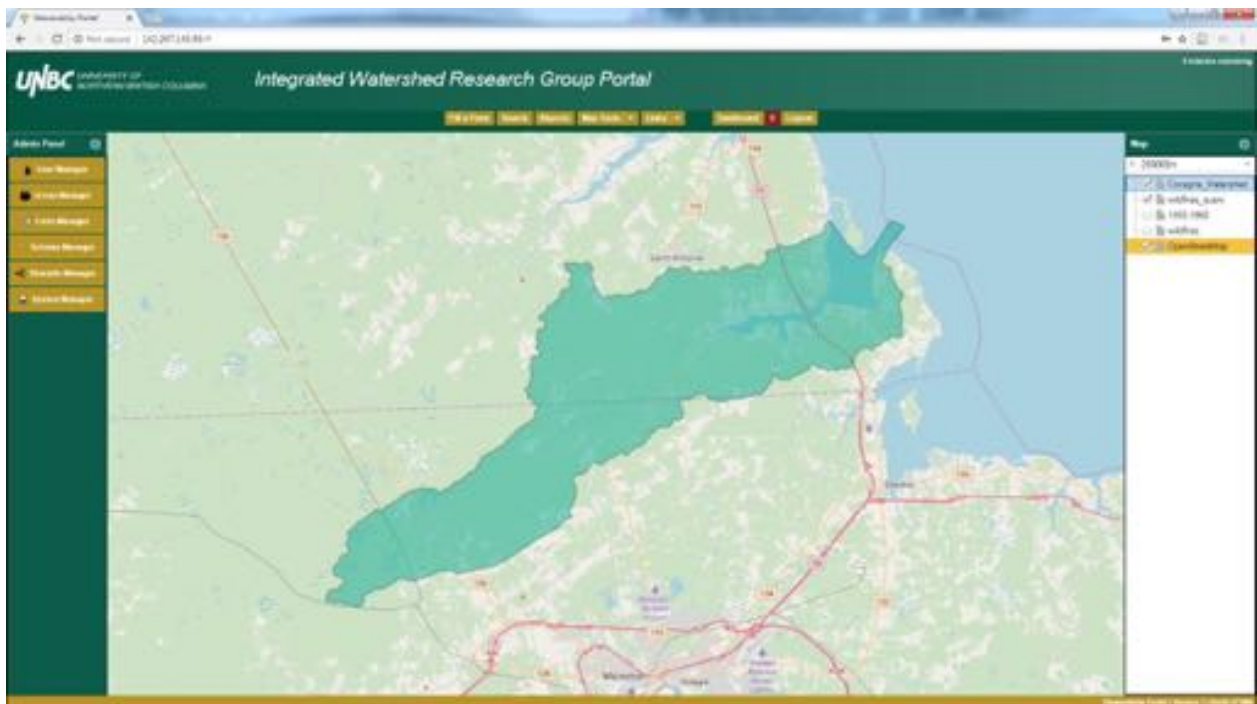
We simply type in a reason why this layer should be shared and hit the Send For Consideration button, the Portal Administrator takes care of the rest of the process.

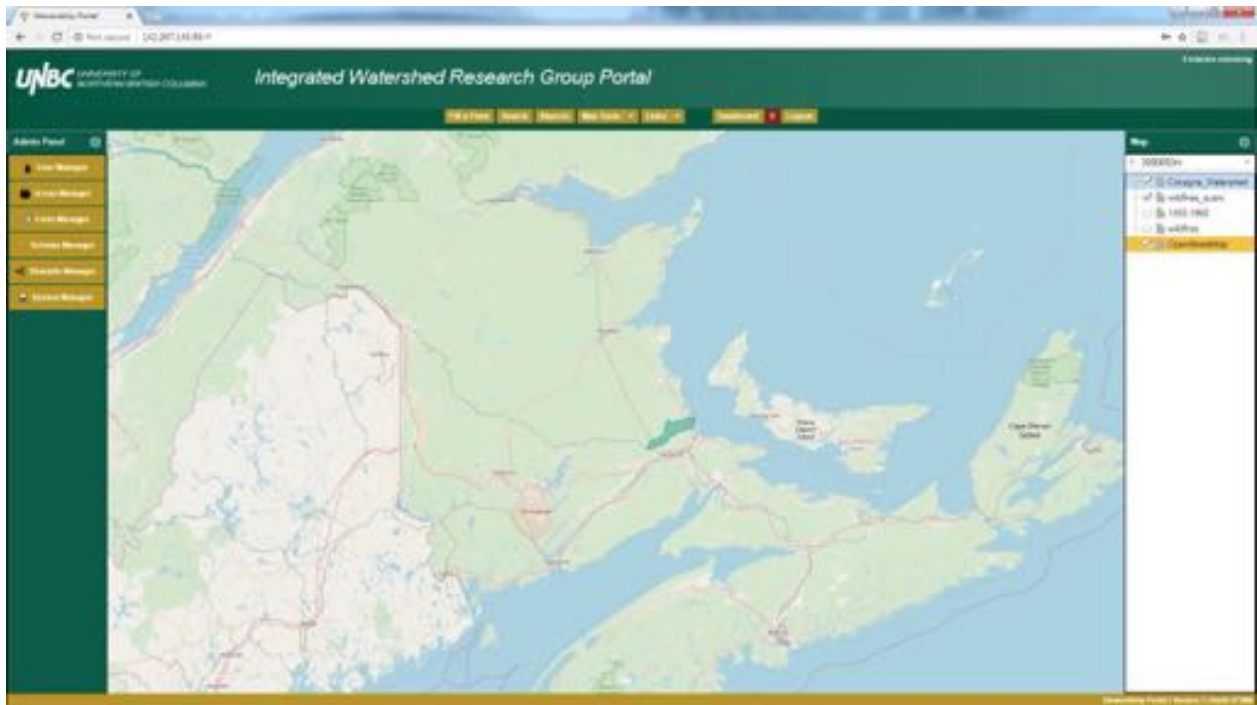
Zoom to Extent:

Being able to zoom to a layer can be very helpful, and we can do so using the Zoom to Extent feature. I've added a layer from New Brunswick named Cocagne_Watershed.



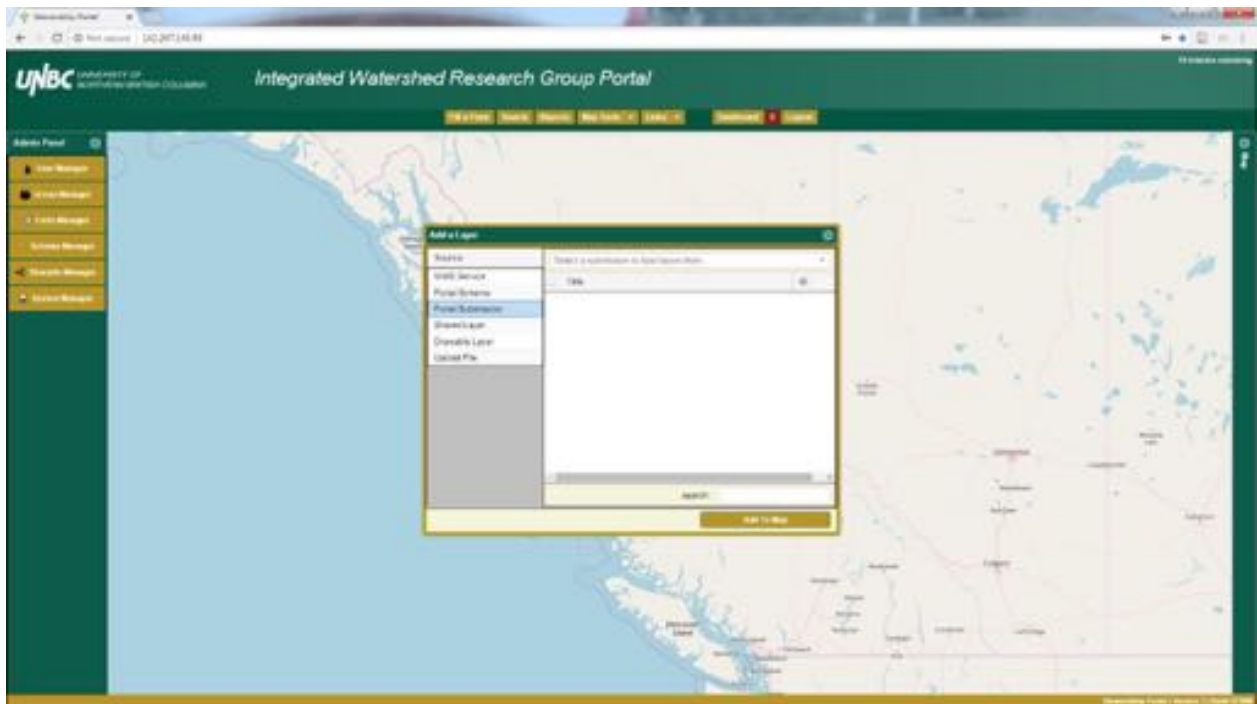
After zooming to the extent of Cocagne_Watershed our map is in New Brunswick.





Add a Layer by Portal Submission:

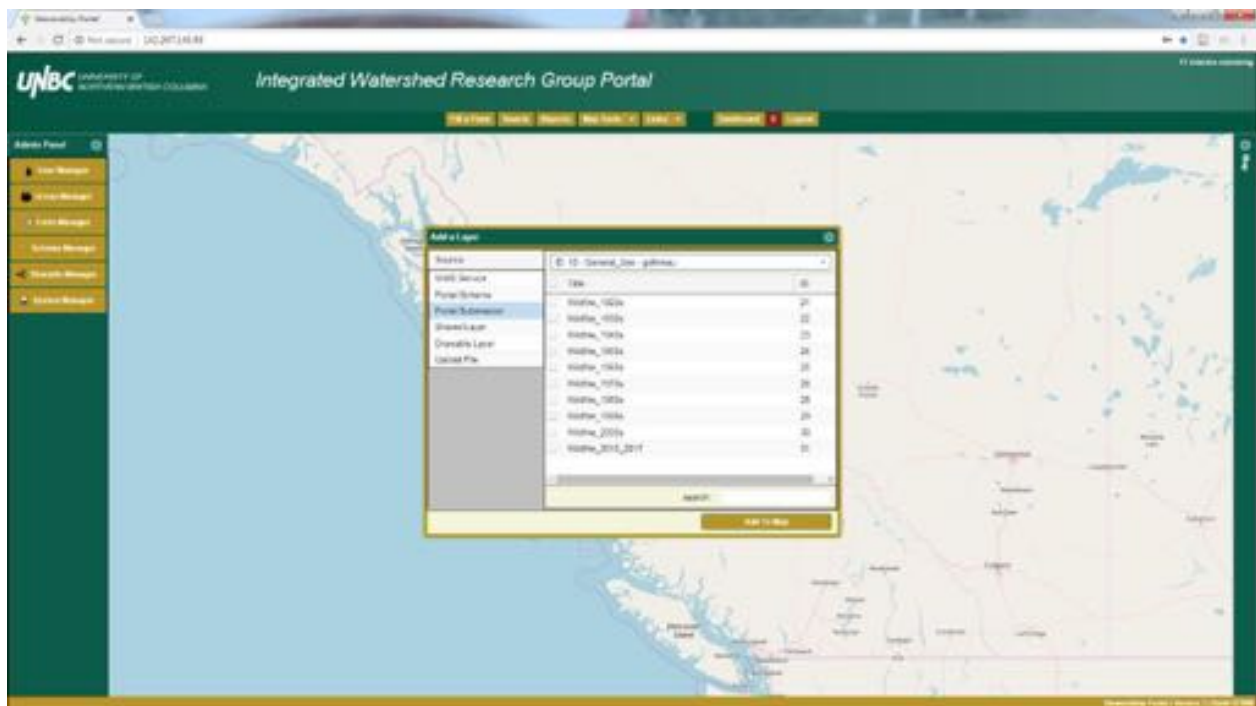
Going back to adding spatial layers to our map, we have already looked at adding WMS Service and Portal Schema, next we discuss adding by Portal Submission.

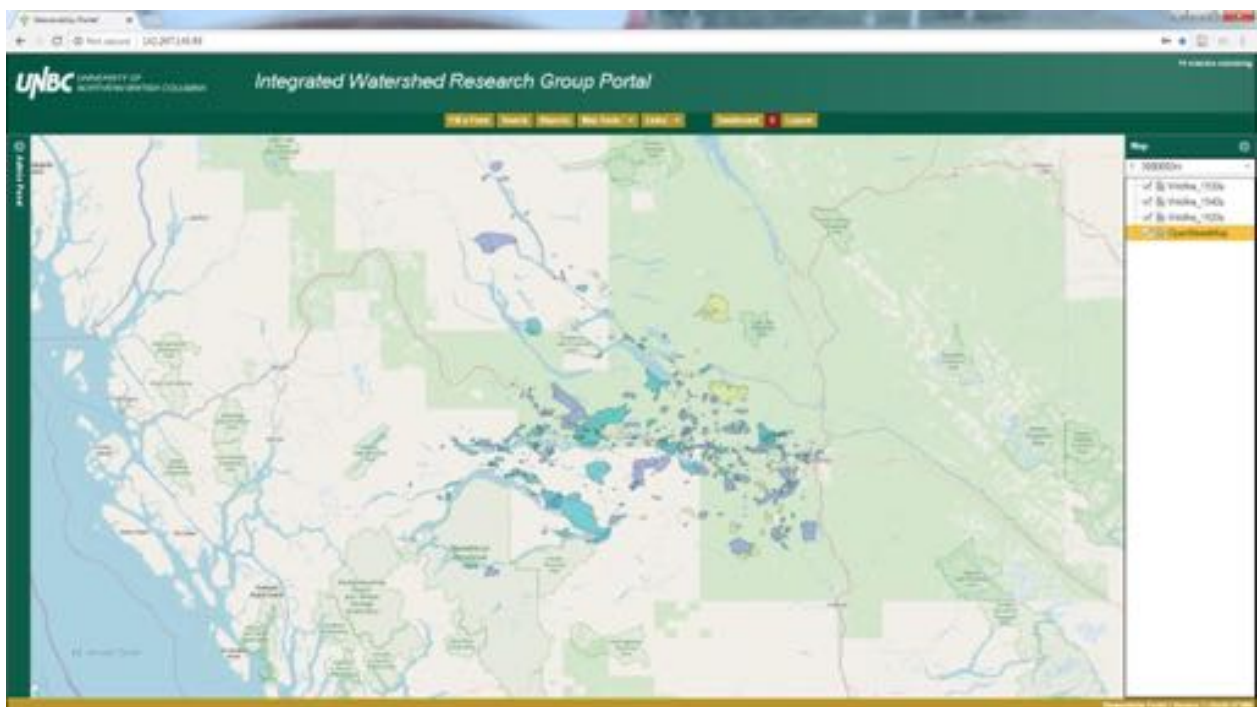
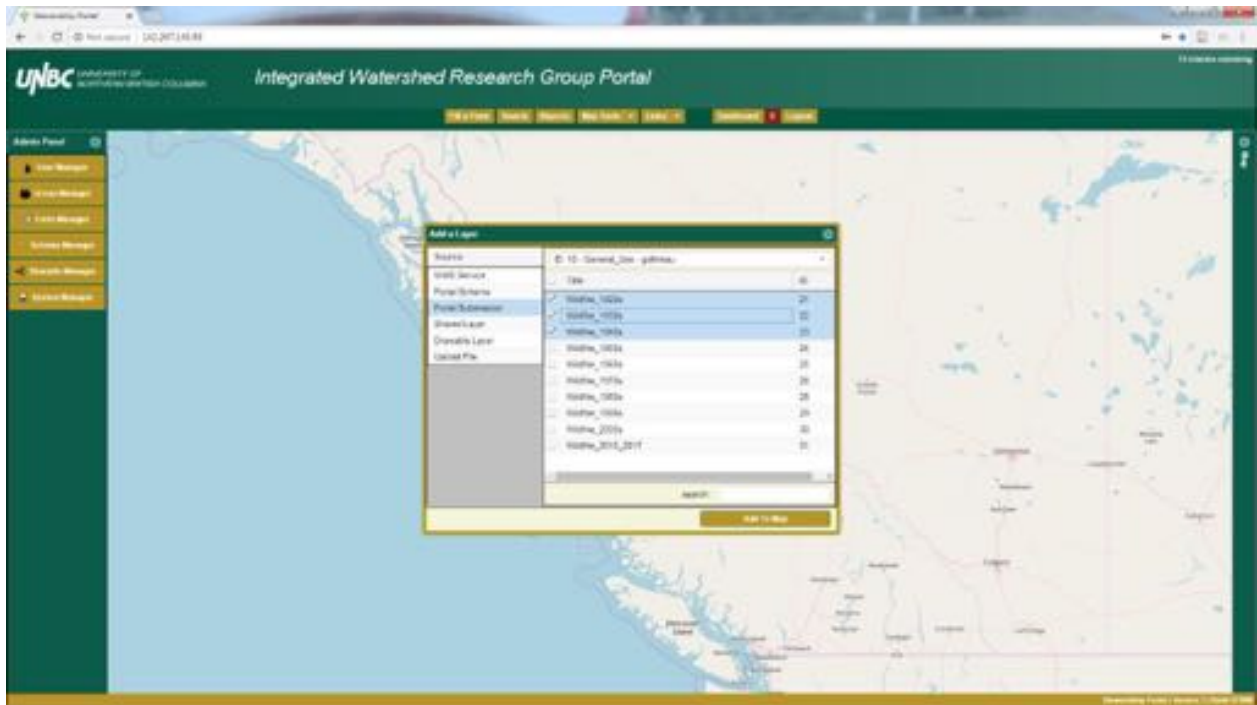


Using the drop down menu we have to select the submission that has the spatial data we wish to display on the map. This selection option only provides the title of the submission, which includes the submission ID, form name, and submitter but not the human readable name. This requires either an intimate knowledge of the submission ID's or a little bit of trial and error to find the right submission. As an alternative you could also perform a key word search and find the submission, note the ID number and then use this method to display it on the map.

After finding the submission of interest the spatial layers attached will appear in a list.

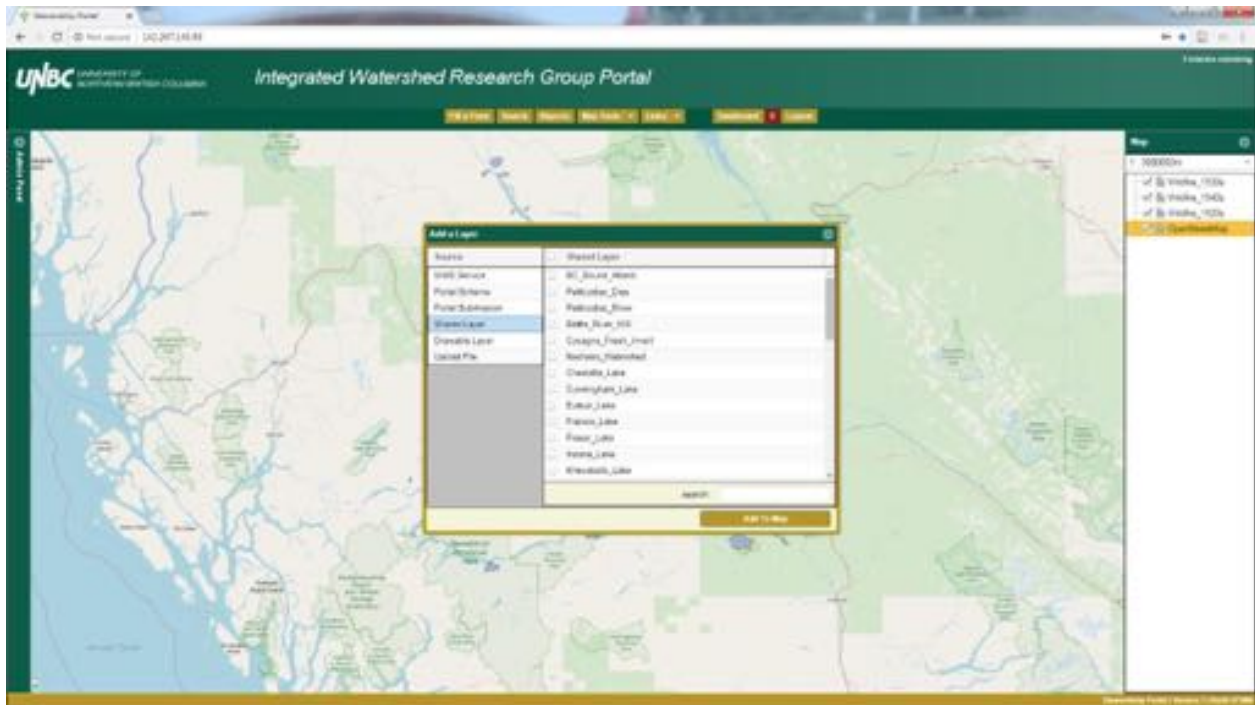
Now we just need to select the desired layers and add them to the map.





Shared Layer:

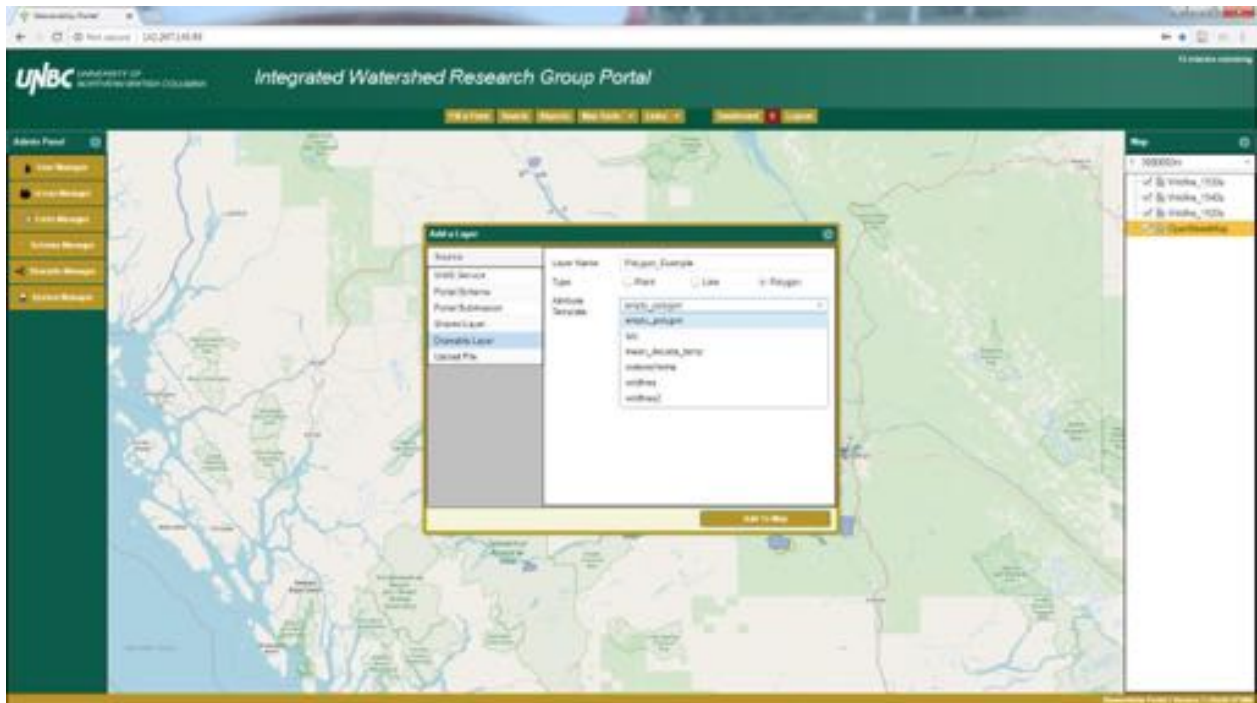
We are also able to make use of Shared Layers, which are spatial layers that have been shared by other Portal users. These are available for anyone to use, and if some of these are basic geographical features they can make it easier for individuals who don't have a spatial database or GIS experience to draw on.



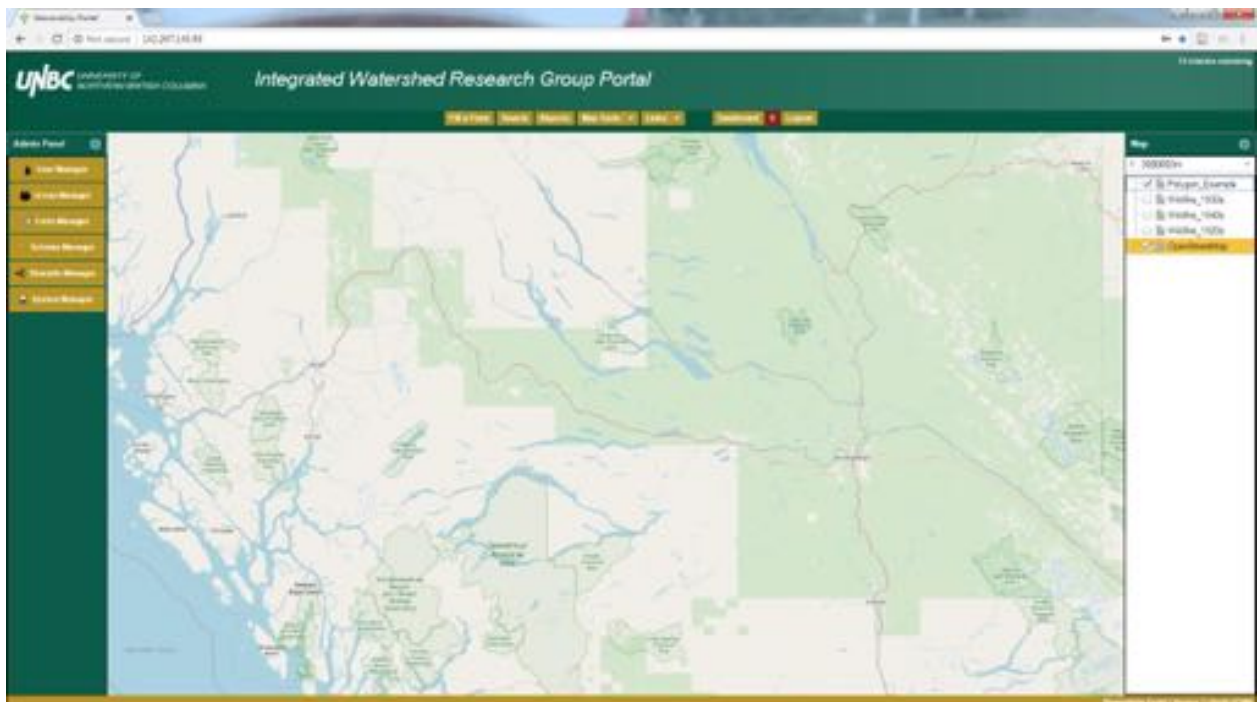
Drawable Layer:

Drawable Layers are used to create/draw new layers directly on the map within the Portal. This functionality will be covered later in this document, but for now we will cover how to create the blank layer required to draw on the map.

To create the layer give it a name, select the feature type (point, line, or polygon), and select an attribute template. Attribute templates are another term for schema, so if we intended on giving this attributes later it will be important to select an appropriate schema (attribute template). For this example we'll use an empty polygon schema.



Now we add this to our map. Since this is a blank layer that we will later draw on the map, it currently won't show anywhere but in the Map Contents tab.

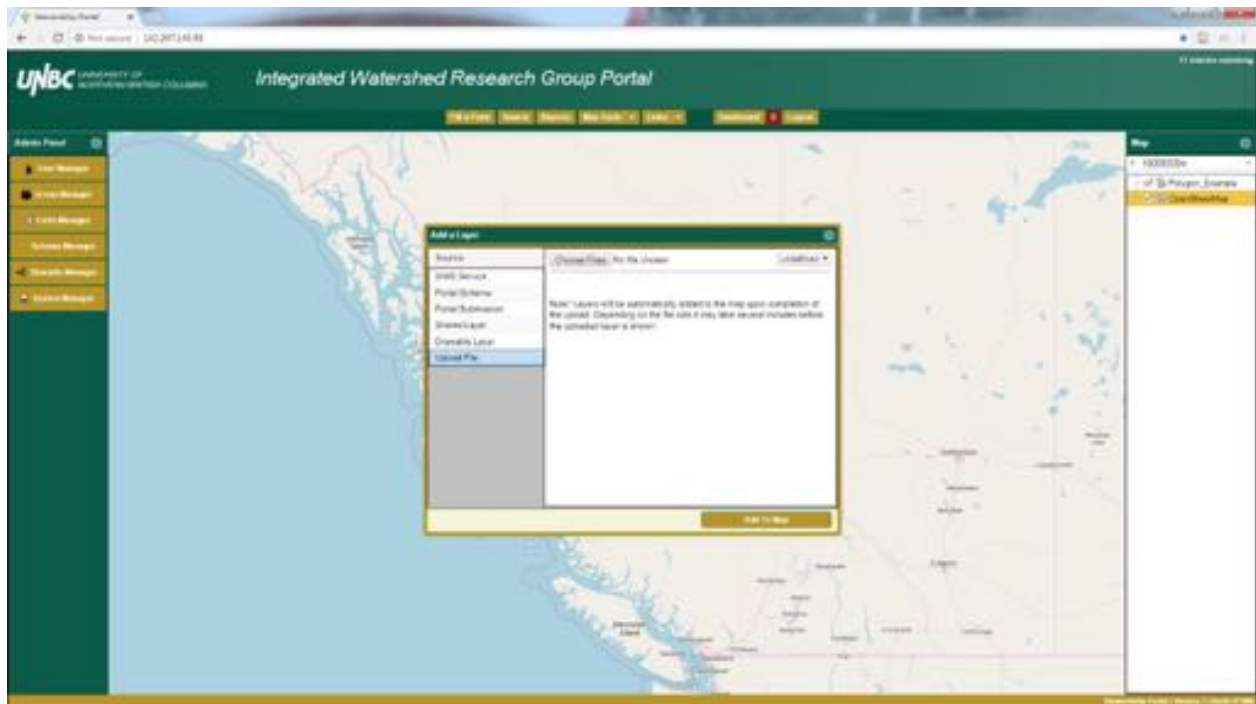


Upload File: Finally our last option for adding layers to our map, uploading a file from a hard drive. *note at the time of writing this the spatial data formats were glitched and only reading undefined*

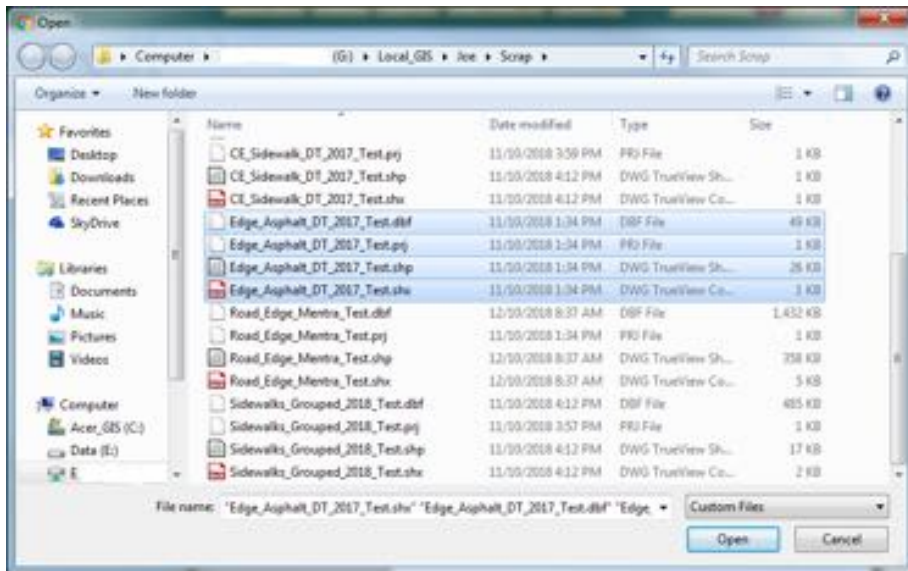
note: also cannot download layers from the map due to the same circumstances, there is no format you can pick

We will discuss how to upload shapefiles from a computer into the map. Shapefiles have been chosen because they are the most complicated spatial file to upload, while other formats such as KML, KMZ, etc. require only one file.

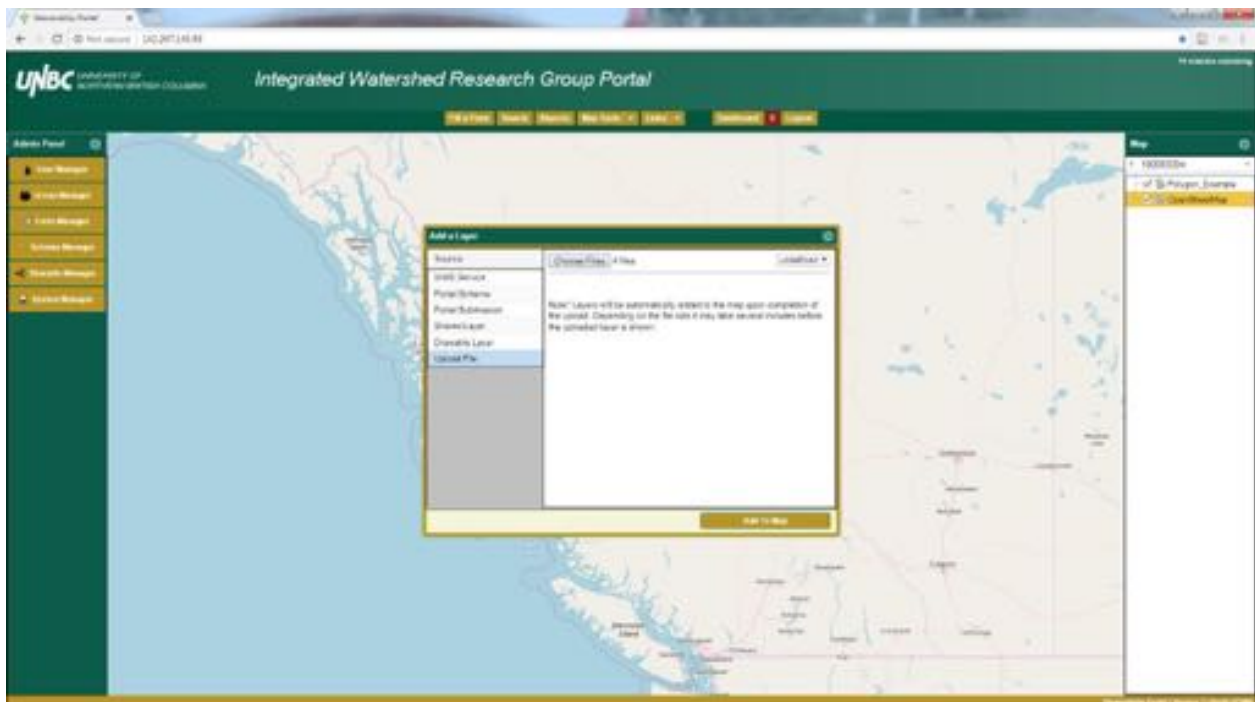
To upload a shape file we click on the Choose Files button in the Upload File window.



Navigate to the spatial file of interest, and select the necessary files. Since we are uploading a shapefile here we need to select the .dbf, .prj, .shp, and .shx files.



Now that all four files have been selected and 'opened' we are ready to add them to the map.



Identify:

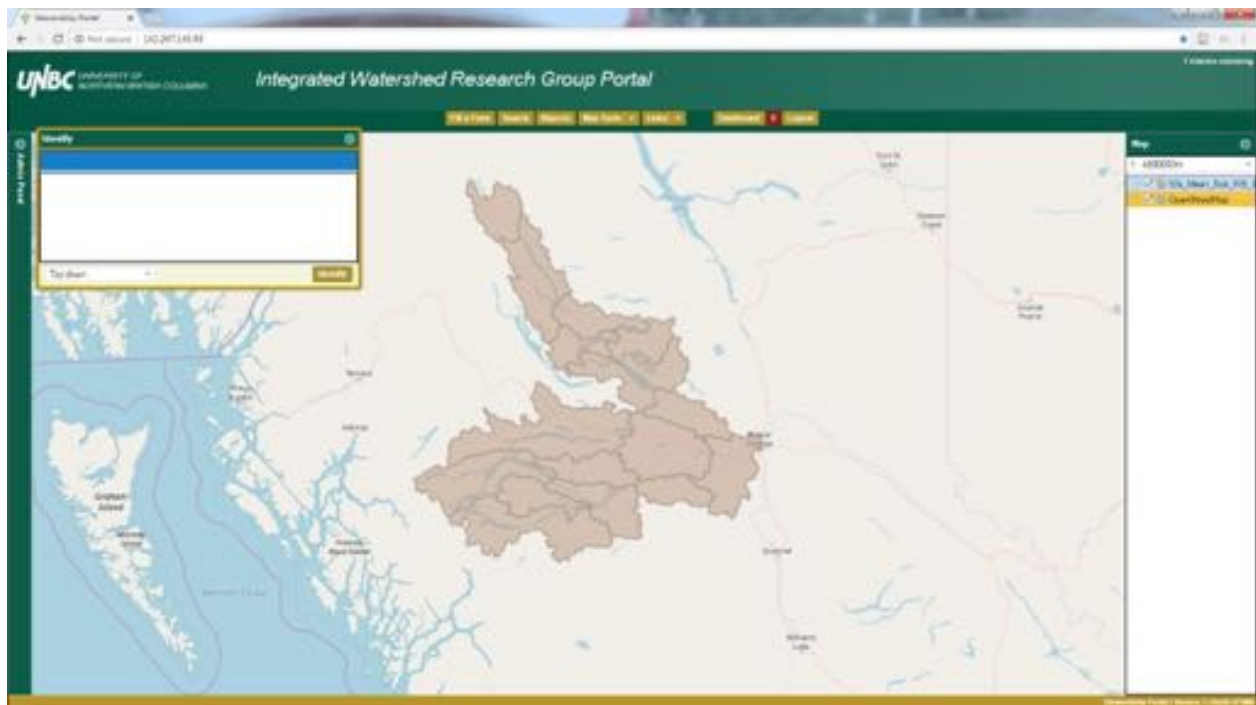
Using the identify tool we are able to investigate the attributes of spatial layers. We looked at how to view the complete record of attributes using the

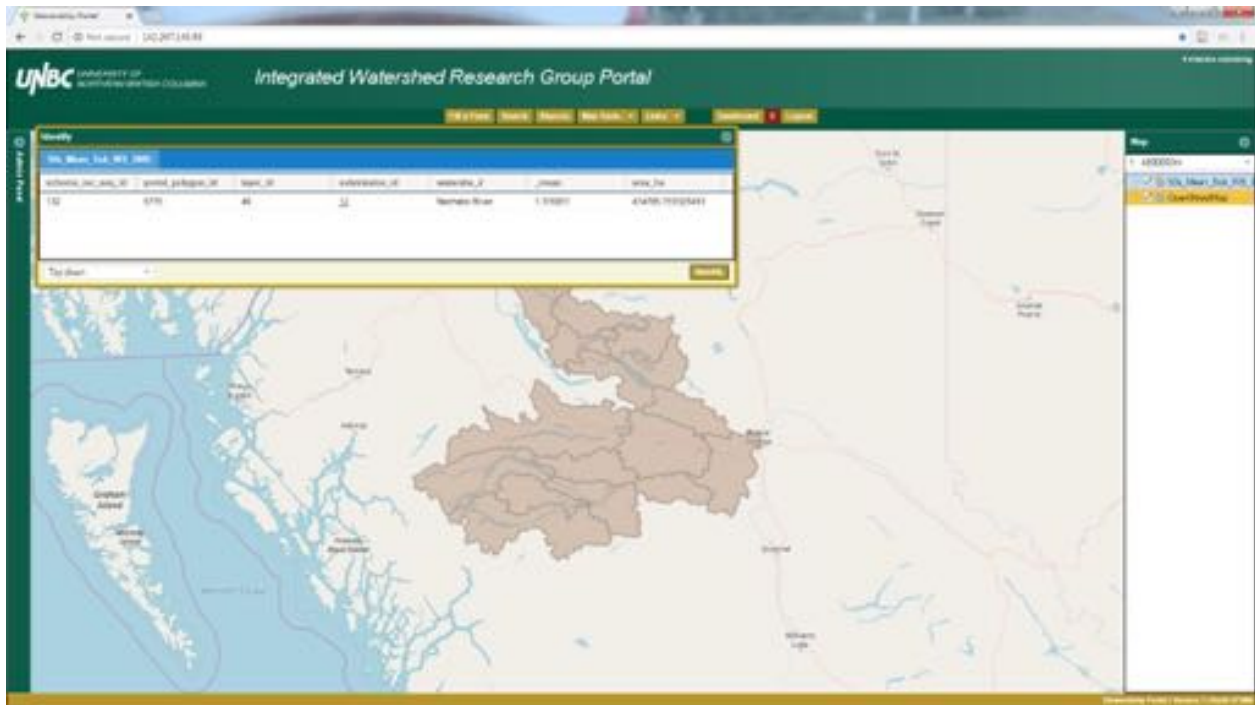
attribute table earlier, this tool allows us to view the attributes of a single point, line, or polygon within a spatial layer.

After opening the Identify window, we will move it out of the way.

Now by clicking on the Identify button, and clicking on a part of the spatial file we will obtain the attributes for that individual polygon.

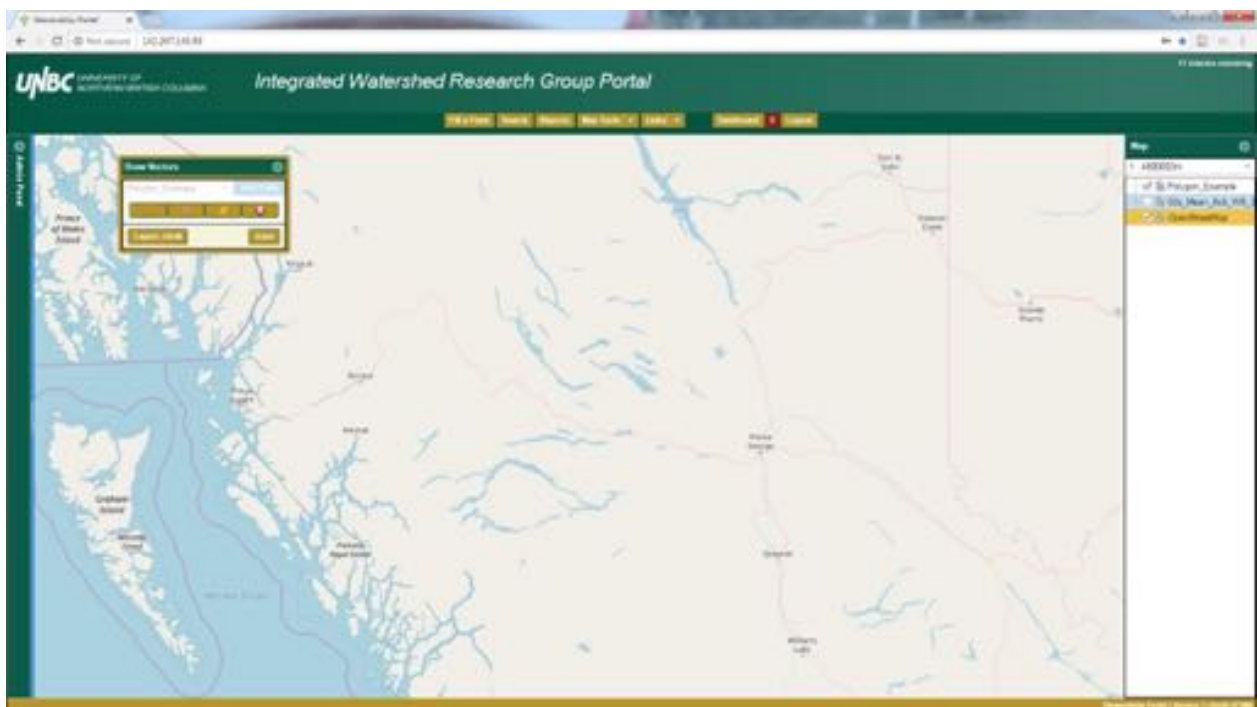
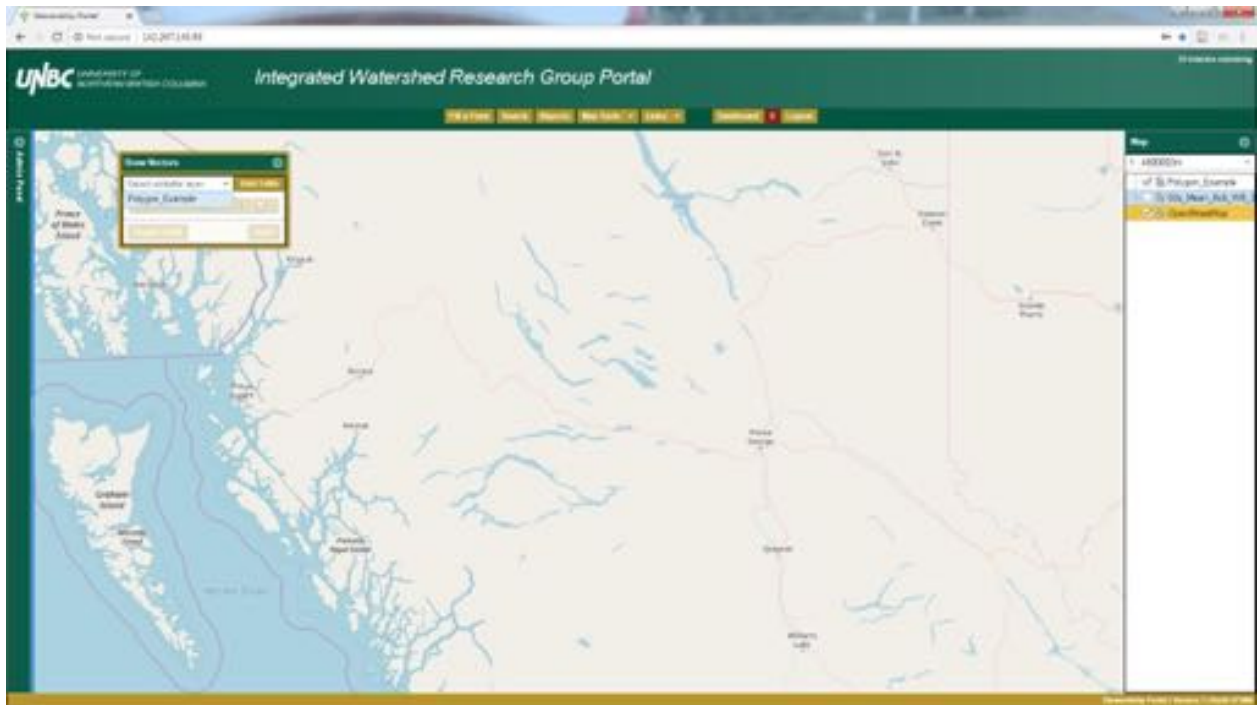
Please note that you cannot successfully identify a WMS layer, as they do not provide any attribute data.



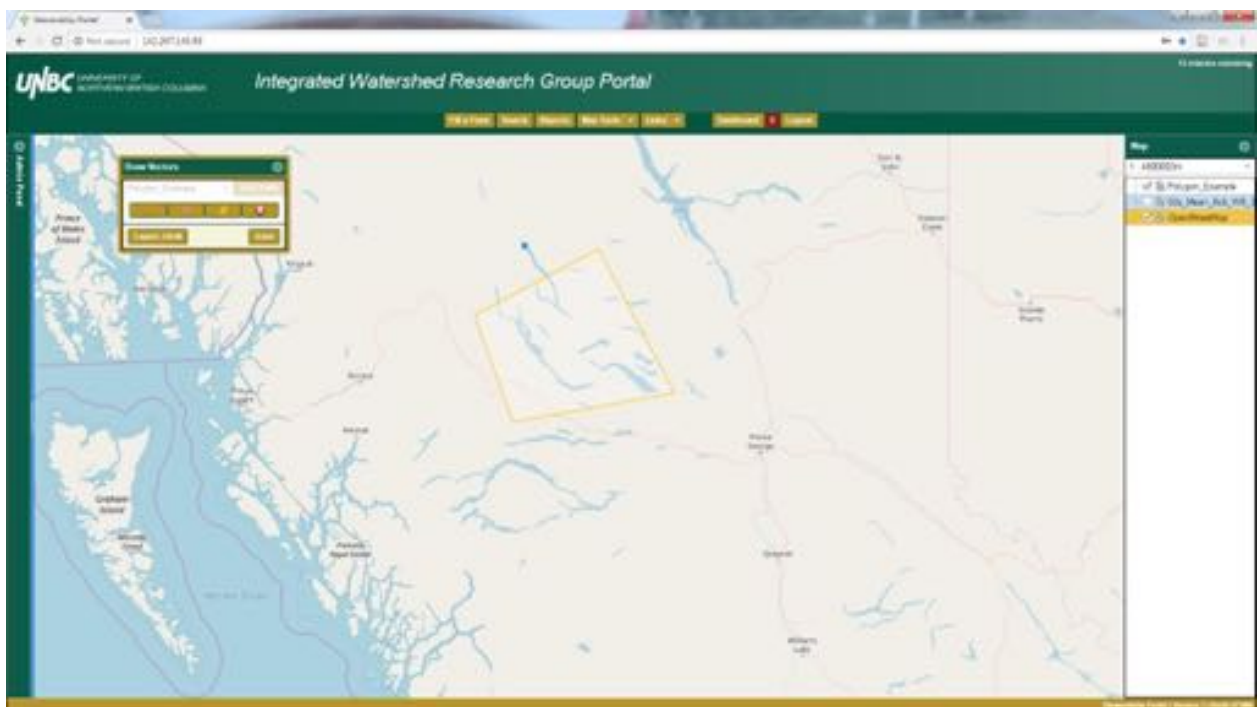
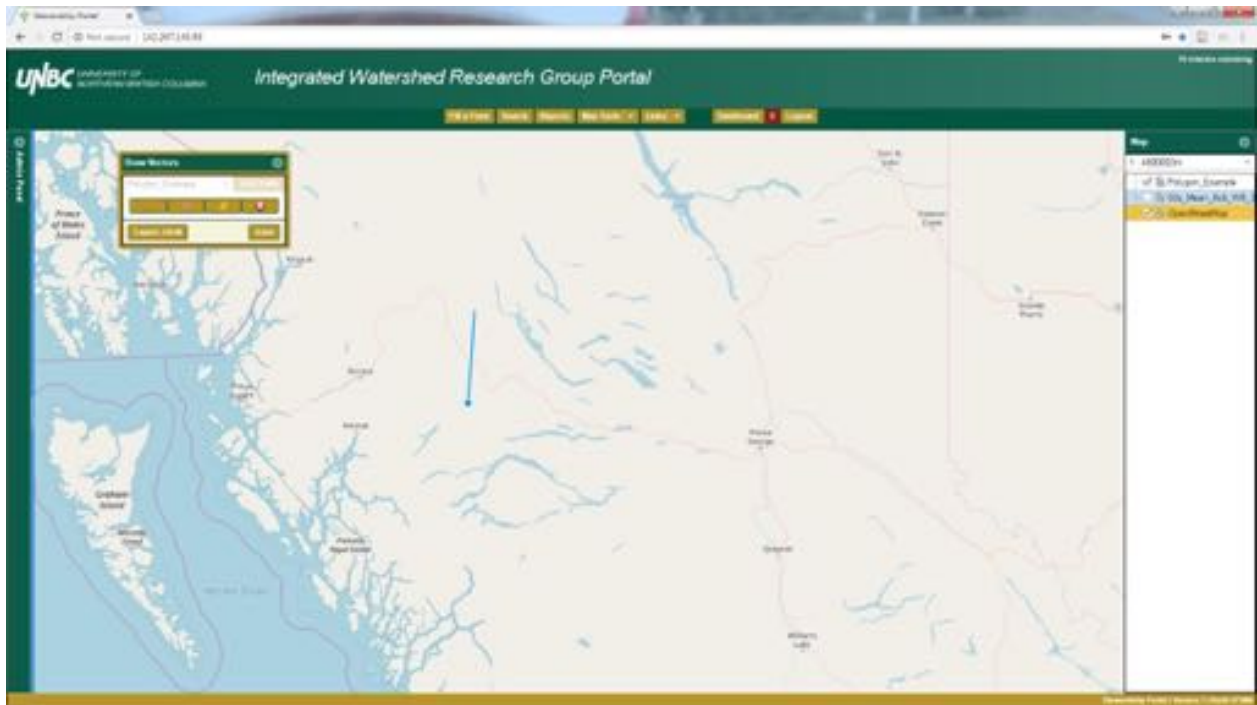


Draw Vectors:

Earlier we looked at how to create a drawable layer, now we will use that empty layer to draw on the map. After selecting the empty layer from the drop down menu we hit the Start Edits button, which allows us to pick from four options: draw new features (pencil icon), erase (eraser icon), reposition misplaced points (four points in a rectangle), and erase all features (white x in red circle).



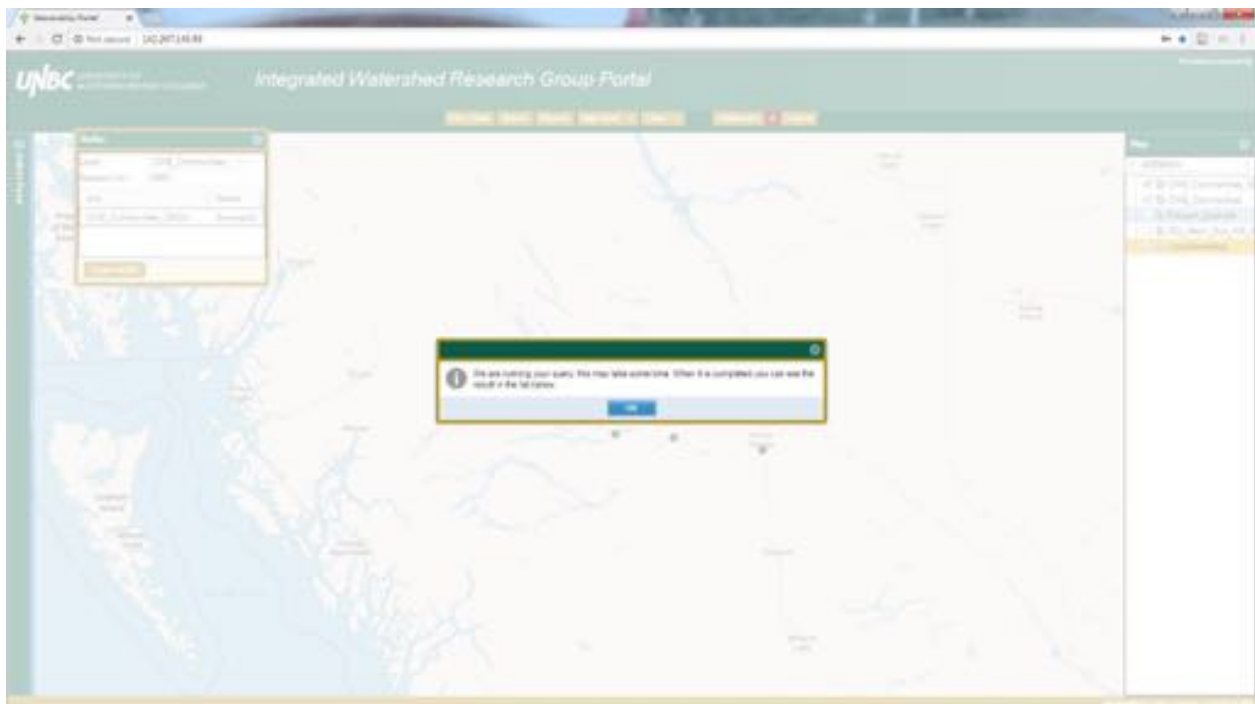
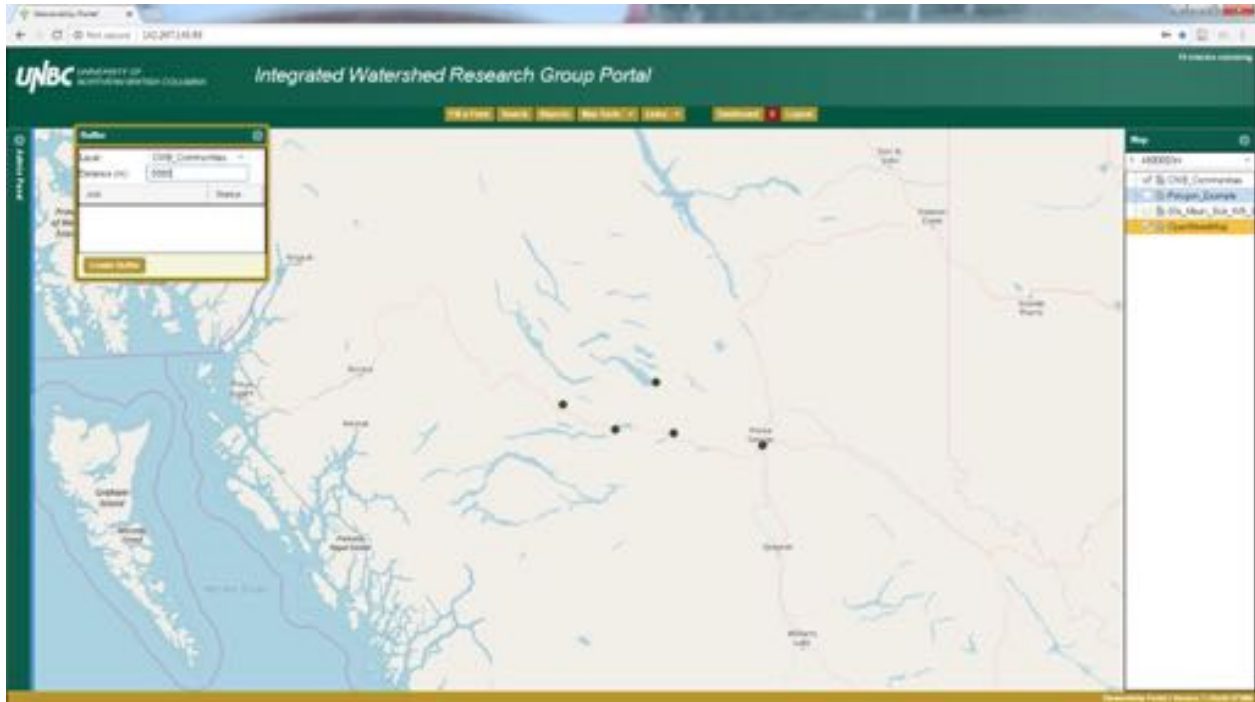
We will select the draw new features tool, which allows us to start creating our polygon. By clicking the blue dot we create lines, and eventually we connect them to make a polygon feature.



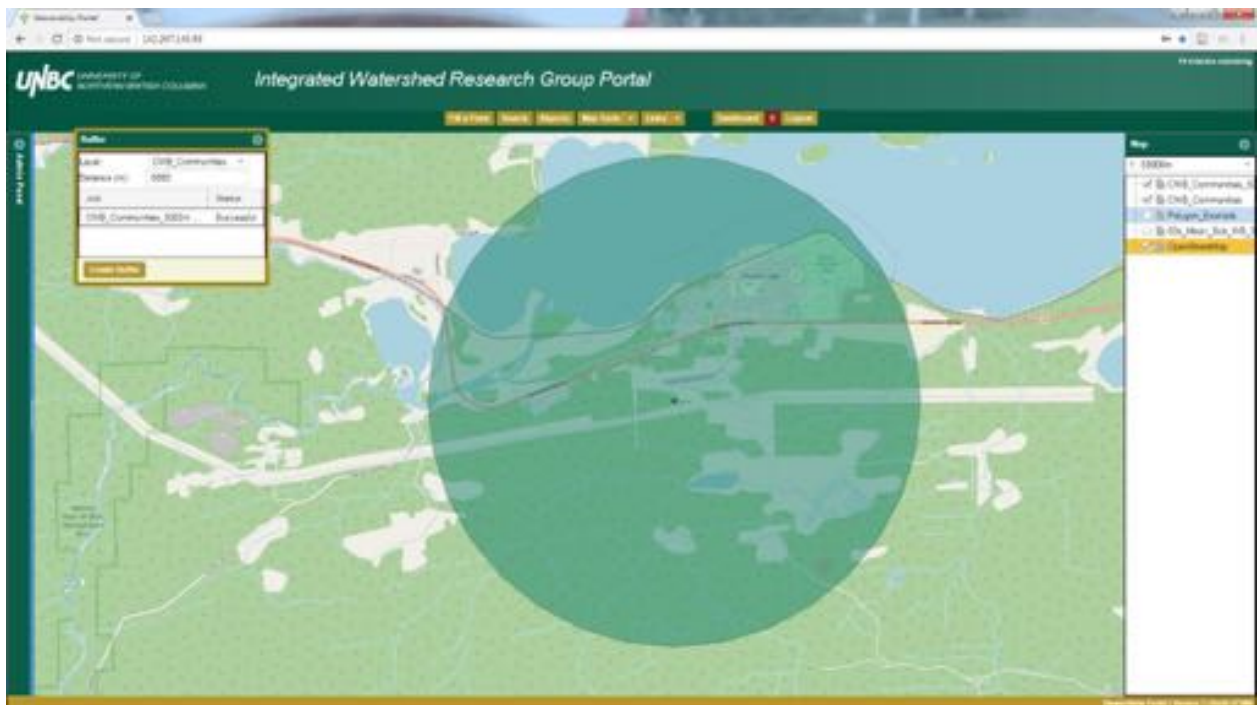
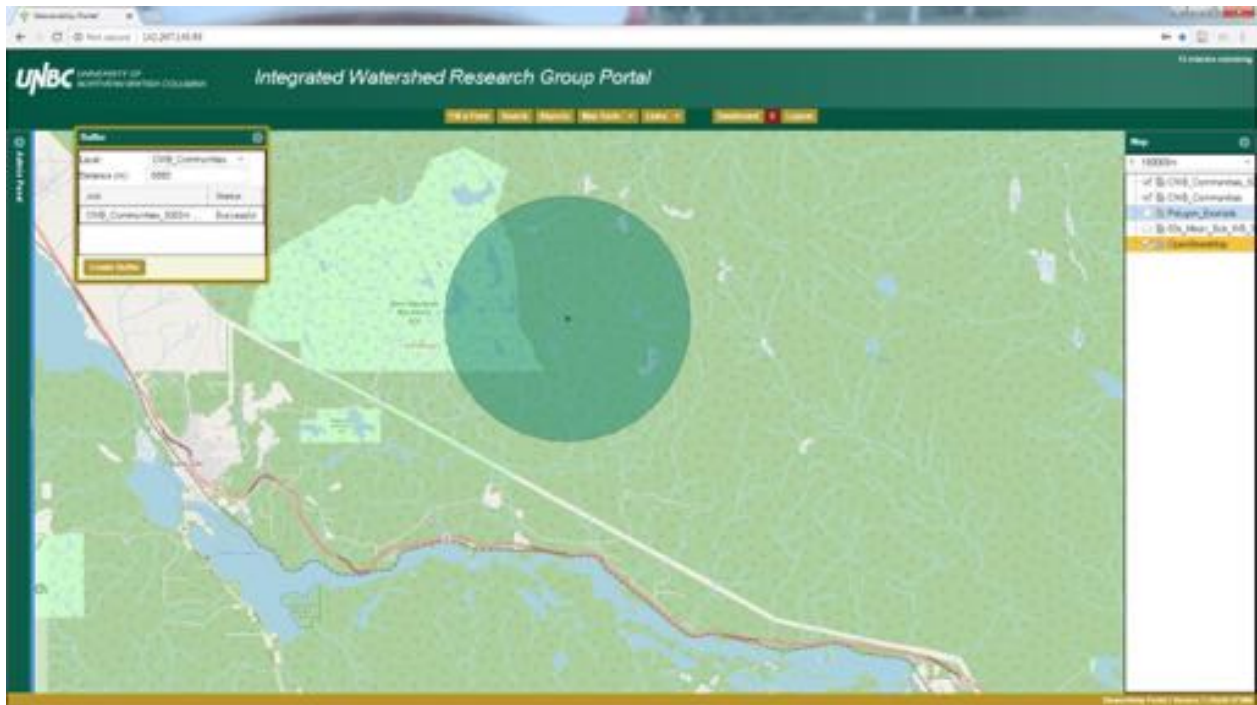
By clicking the done button we have a temporary polygon feature on the map. It is possible to create complicated features using this tool, but it can also be used to create simple features.

Buffer:

We can use the buffer tool to create buffers around points, lines, and polygons all within the Portal. All we do is pick the layer we want to buffer (it has to be one that has been submitted with a form into the Portal), put in the distance of the buffer we want, and click the create buffer button.



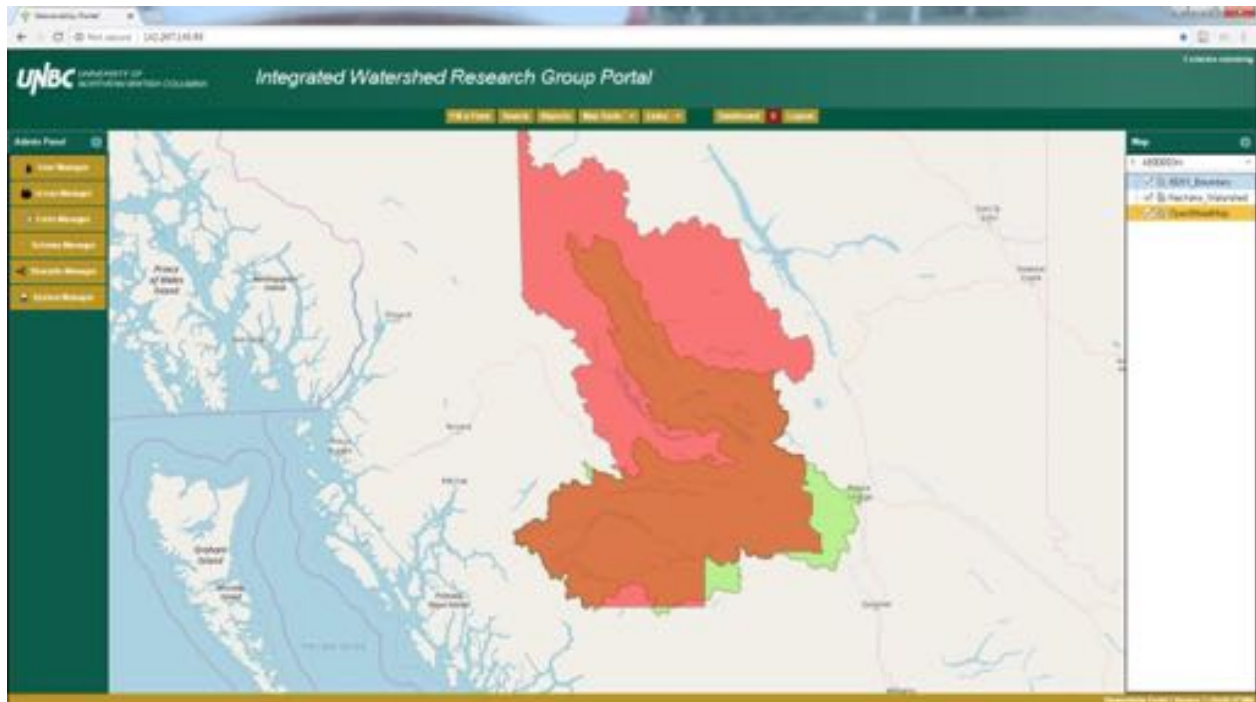
Now we can see the result of our buffer.



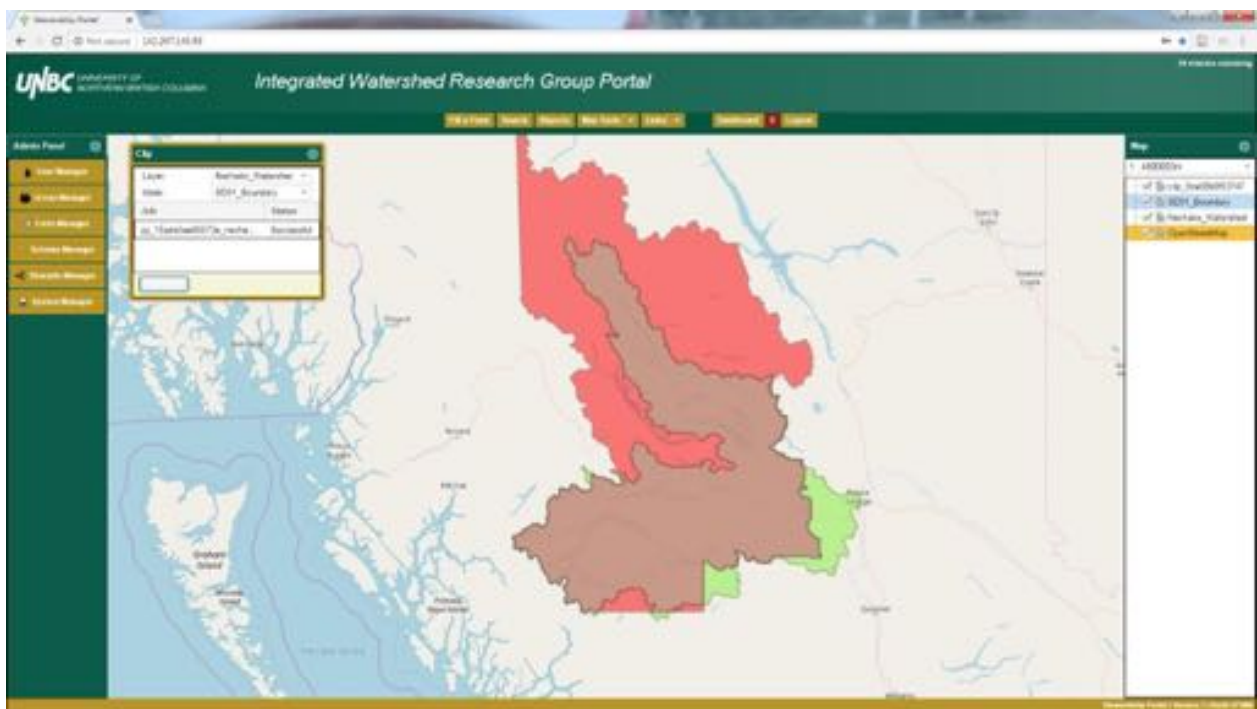
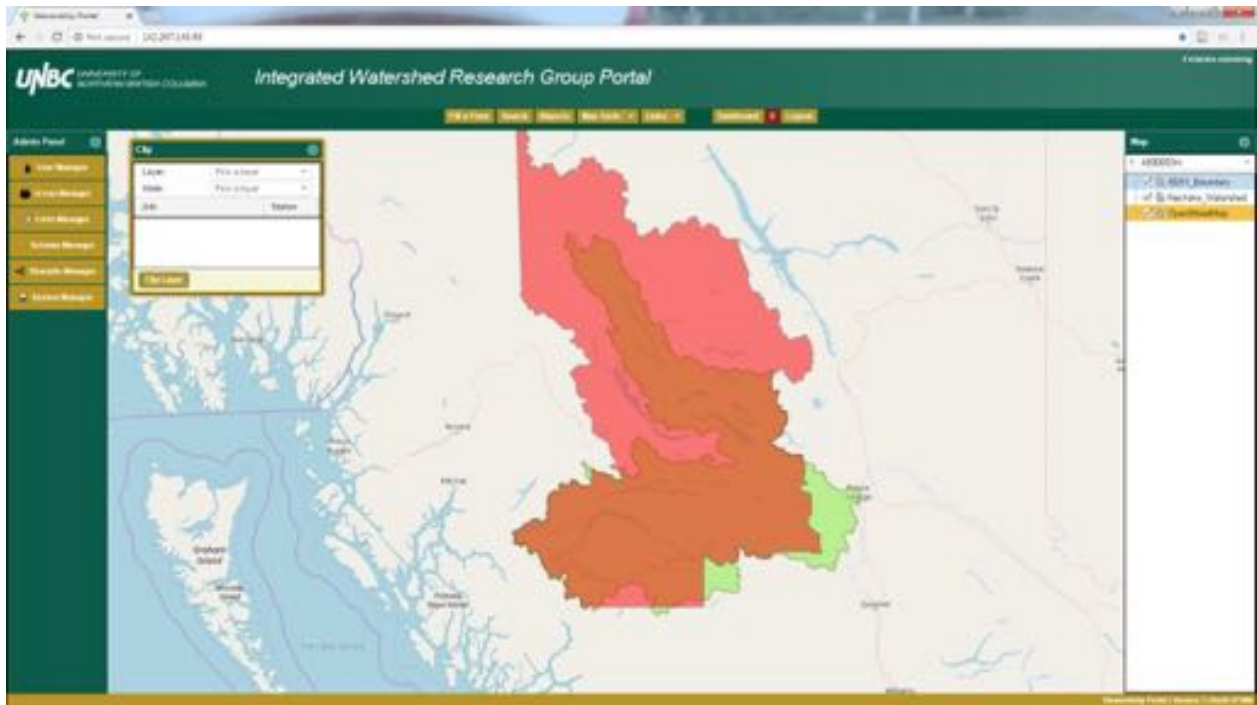
The buffer tool can be used on points, as we have done in this example, but also on lines and polygons.

Clip: The clip tool takes two spatial layers and uses one layer to cut an area out of the other layer. We'll use an example to flush this concept out.

In this image we have the School District 91 boundary in the red colour, and the Nechako watershed in green. The areas that overlap are all that we would be left with if we clipped the Nechako watershed using the School District boundary.



In the clip tool we have a Layer and a Mask, in this example we are going to use the Nechako watershed as the layer, and the School District boundary will be the mask. The layer is the feature that we want to retain, after being cut down by the other layer. The mask is the layer being used to cut the layers extent.



After performing the clipping action, we are left only with the area of the Nechako watershed that fell within the School Districts boundary.

