

Using the Web-based Map

Idaho Department of Water Resources

Written by Ben Britton

Geographic Information Systems – Internet Mapping

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Note: Each of the entries in the *Table of Contents* is hyperlinked to the document.

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Welcome

The Idaho Department of Water Resources provides this interactive web mapping application as a way for the public to easily locate and view data from our databases. In some cases, the data can be downloaded. Currently, this interactive map allows users to access the data from most of the Department's business processes. The information served by this map covers water rights and adjudication, well drillers' Logs, the Underground Injection Control program, floodplain management, the Environmental Data Management System (EDMS) database, geothermal resources, groundwater levels, the Hydrologic Model and the Idaho Water Resource Board.

This web mapping application does not require any GIS experience or any software other than your internet browser. As with all of the information provided by the department via the internet, you will be asked to acknowledge and agree to the site's **Conditions of Use**.

Getting Started

Navigate to: <http://www.idwr.idaho.gov/Map>. The web-page will show this disclaimer:

Disclaimer ✕

Conditions of Use

The Idaho Department of Water Resources is maintaining this web site as a public service. The Idaho Department of Water Resources strives to ensure that all technical data and other information made available to the public through this web site is accurate, complete and in conformance with the Idaho Public Records Act. Neither the Department of Water Resources nor the State of Idaho, however, assumes any legal responsibility for the accuracy or completeness of the information contained on this site.

Persons using information from this site for official purposes, or other purposes, for which accuracy and completeness are required, are hereby notified that they should first verify the information with the public records or other primary sources from which the information was obtained.

Note: some layers and background images will not be visible until you zoom into the map. Layers can be added via the **Change layers** tool. For information on using this application, click the **Help** icon.

If you are using Internet Explorer from a desktop or laptop PC and you do not see a map underneath this disclaimer, turn off **Compatibility View**. If that didn't fix the problem, try using a different browser, such as **Chrome** or **Firefox**.

This application was designed to be used with the Firefox browser, on desktop personal computers. It is usable with most versions of Internet Explorer (IE), newer than version 7. It has been tested on Safari and Opera. Some capabilities of this application are not available in older versions of IE.

The terms personal computer, "desktop," or PC are used, in this document, in the broadest fashion. There is no distinction between desktop and laptop hardware or between Microsoft, Apple or Unix/Linux operating systems software. They are all "personal computers," as are tablets and smart phones. However, the interaction between the user and the interface varies widely with the size and resolution of touch-capable devices, be they smart phones or tablets. See [Using Mobile Devices](#). Touch-capable laptops are high-resolution and do not (usually) change orientation, so they are not classified in this documentation as mobile devices.

The mobile-device gesture-related terms "touch" or "tap" are meant to be synonymous with the instances where this document uses the word "click." Note: A long-touch gesture must be used on mobile devices to dismiss the dialog displaying details about a specific feature (well, water right, etc.).

The IDWR's Geographic Information System

The Department of Water Resources maintains a geographic information system (GIS) which integrates all of the Department's data. This interact map is a portal to those data.

"A map is the greatest of all epic poems. Its lines and colors show the realization of great dreams."

– **Gilbert H. Grosvenor, Editor of National Geographic (1903- 1954)**

"GIS is the what of where."

– **Author unknown**

Our GIS ties water-related data for rights, rules, regulations, quantity (and quality) measurements to their corresponding location. It allows us to determine the impact that one water use has on another. Tabular information concerning water rights, groundwater quality, geothermal resources, etc. is tied to geography and available through this map. Many of the map services (groups of GIS layers) shared on this map link to query-tools which let you view and/or download detailed information about the Department's business processes. The information served by this map covers water rights and adjudication efforts, well drillers' logs, the injection wells, floodplain management, geothermal resources, groundwater levels, and our water rights accounting and groundwater models.

The queries and tools accessed through this map vary, depending on business process. For water rights layers, the *water right report* and the *Document Search Results* can be run. Other applications, such as HydroOnline and EDMS, provide access to large amounts of historical time-series data.

You can request that this map show a specific IDWR business process by adding one of the project names, from the table below, to the main map address. For example, <http://maps.idwr.idaho.gov/edms> will set the map so that the primary map service is EDMS and the active layer is "EDMS wells with samples." You will see EDMS well-sites and be able to query those records for water quality data.

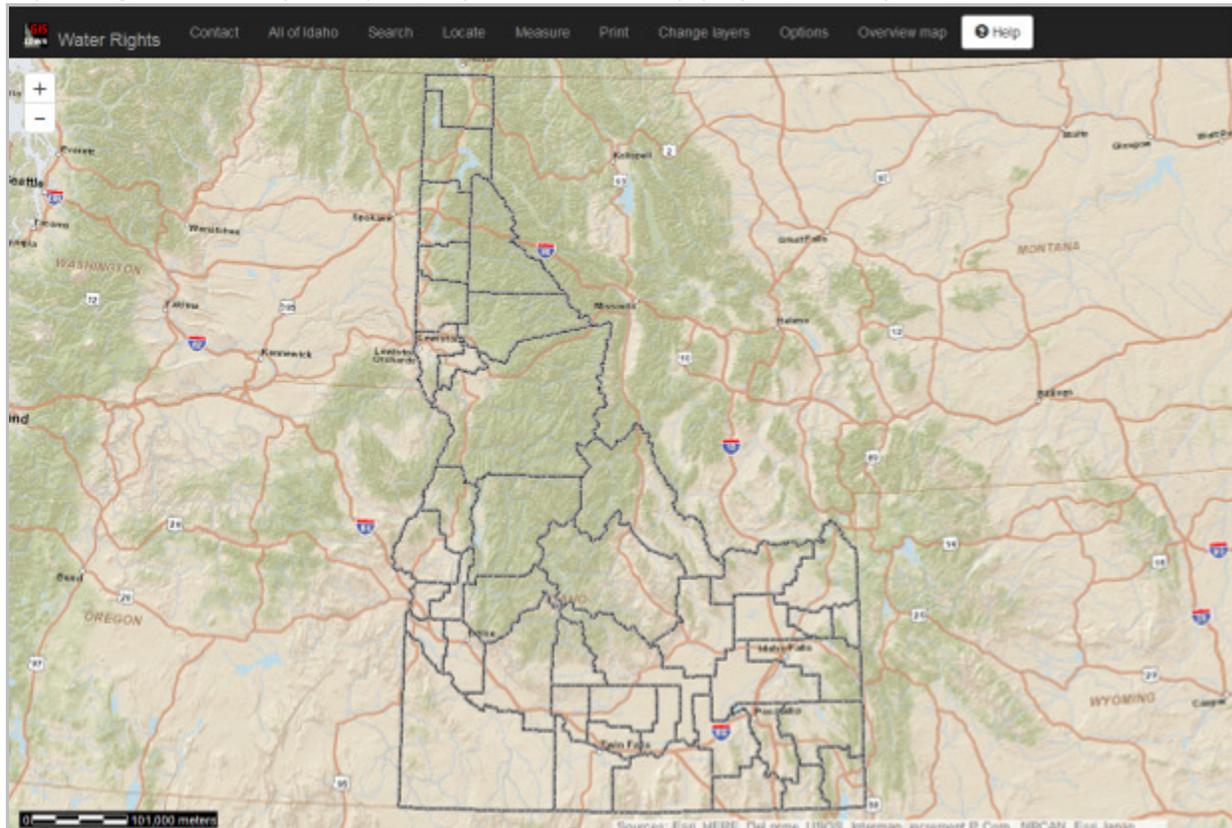
<i>waterrights</i>	Water rights, permits, applications; adjudication claims and recommendations
<i>edms</i>	Groundwater quality data stored in the <i>Environmental Data Management System</i>
<i>gwm</i>	Groundwater monitoring and protection, well construction
<i>geothermal</i>	Geothermal resources – wells and springs
<i>hydroOnline</i>	Groundwater well-level observations – time-series data
<i>hydrologicdata</i>	Hydrologic data used to support modeling, planning and decision making
<i>accounting</i>	Surface water rights accounting model
<i>waterboard</i>	Programs, projects and planning efforts of the <i>Idaho Water Resource Board</i>
<i>espa</i>	Hydrologic modeling of the Eastern Snake River Plain

Regardless of the initial address you use, you can add other map services in order to explore relationships between data for the IDWR's various business processes. However, if you wish to download time-series data for the EDMS and hydro.online projects, specify those application names when you start the application.

The terms "dialog" "pop-up" or "window" are used interchangeably within this document. The terms "map service" and layer both refer to GIS layers represented on the map; a map service is a collection of closely related layers. See [Appendix – Glossary](#), at the end of this document, for an explanation of the GIS and internet mapping terms used in this document.

Using the Map

Once you have dismissed the disclaimer message, the map will show the entire state of Idaho. Depending on whether you request a specific view or map-project, the map will look similar to this.



You must use the [Navigation Tools](#) to position the map and magnify it in order to view your area of interest. You can display the entire state of Idaho within the on-screen map or magnify the view so that you can see just a few acres. The map-scale indicator is located at the lower, left corner of the map.

Make the Map Faster

You can make the map respond more quickly by turning off the background image. It is shown on the initial screen to show major features, such as streams and mountain ranges. See [Changing Backgrounds](#).

Map Scale Indicator

The map scale indicator is visible at the lower, left corner of the map (defaults to meters).



This example shows (approximately) how many miles there are in one map inch.

Click the scalebar to display the map scale reciprocal.



Map scales within this document are referred to in language like “until the scalebar shows a value less than 2,450 meters.” Using that example, for desktop browsers, the actual map scale would be 1:100,000 (displayed by clicking the scalebar). The relationship varies by device. The map-scale indicator can be hidden/shown by clicking “Hide Scale Bar” or “Show Scale Bar” on the [Options Menu](#).

This scale may not be accurate on mobile devices. See [Checking Scale Bar](#).

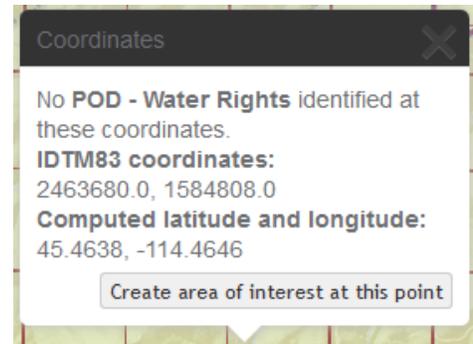
Displaying Coordinates of a Point

The map coordinates of the mouse cursor are shown when you click on any point on the map, except when clicking a feature from the *active layer*. You can highlight the coordinate text shown in the dialog in order to copy the coordinate values and paste them into another document. The units used to display the coordinates (latitude and longitude in the example) can be changed using the [Options Menu](#).

If you have set an active layer to identify features on the map, but click a point where no features from the active layer are present you will see an error message – e.g. “No Wells identified at these coordinates.”

If you do not have an *active layer* selected you will see the IDTM coordinates and the latitude and longitude.

If you click on a *feature* belonging to the *active layer* you will see a pop-up dialog containing the details of that *feature* (as shown in the discussion on [identifying features](#)).



Navigation Tools

Within the interactive map you can display the entire state of Idaho or magnify the view so that you can see just a few acres or city blocks. The tools used to resize and reposition the on-screen map are called navigation tools. The terms "zoom in" and "zoom out" will be used throughout this document to mean to view a smaller portion of the earth or a larger portion, respectively. This application has no visible navigation controls except for the *zoom slider*, which is positioned on the map at the upper, left-hand corner.

Zoom Slider

Used to double the scale of the map or reduce it by half. Click on the upper button to see more detail. Click on the bottom button to view a larger area.



Resizing the Map

Zoom In – use any of the following methods:

- Click the upper arrow on the *Zoom Slider*.
- Press the *plus sign* (+) on the keypad.
- Hold down the **Shift** key, click on the map and hold the button down while dragging the mouse cursor to outline the area you wish to see.

Zoom Out – use any of the following methods:

- Click the lower arrow on the *Zoom Slider*.
- Press the *minus sign* (-) on the keypad.
- Hold down the **Ctrl** and **Shift** keys, click on the map and hold the button down while dragging the mouse cursor to outline an area of the map. If you cover a large area, you will be zoomed out a little bit; if you cover a small area you will be zoomed out a lot.

Note that zooming in/out using the mouse wheel is not available.

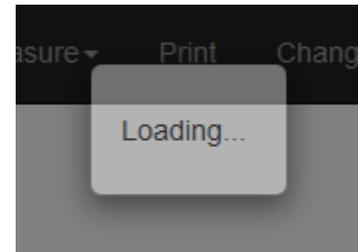
Moving the Map

In order to move or “pan” the map, click on the map, hold the mouse-button down and drag the cursor to a new position.

The “Loading...” Message

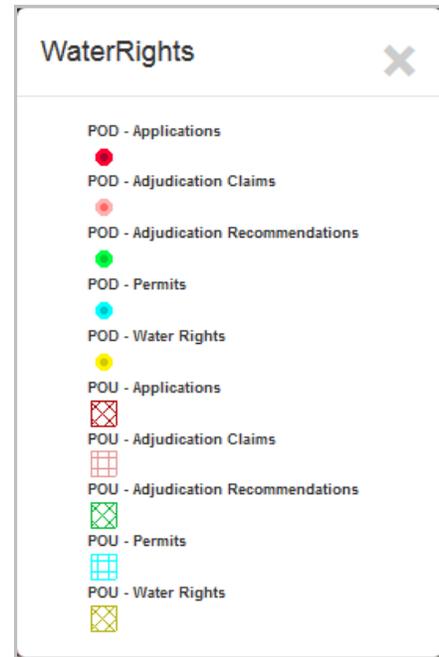
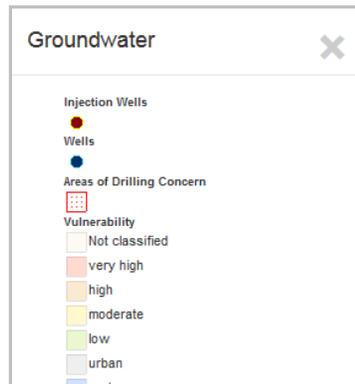
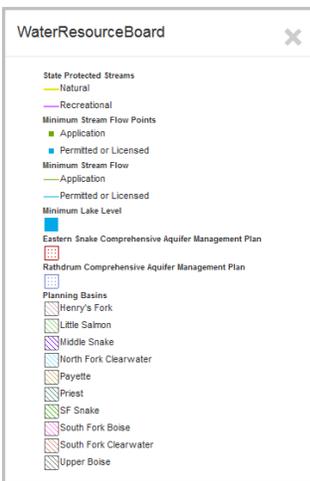
Although not a tool, the “Loading...” message appears when you resize the map, add layers or perform queries. It indicates that the application is waiting for information from the server.

There may be times when the map may seem to pause but the “Loading...” message is not displayed. Also, if it is obvious that the map is done processing, click on the map to remove the message.



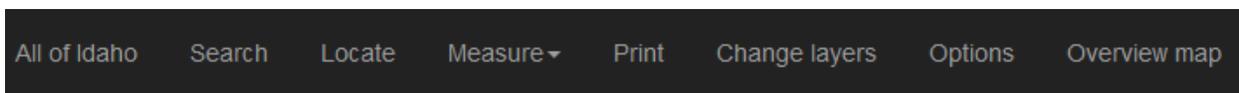
The Legend

The legend displays a list of all of the layers within a map service and the graphics or symbols which represent them. The content of the legend shows only what is available in that map service, as shown in these examples.



The Toolbar

The toolbar, located above the map, holds all of the tools you need to find, select and view data for features from the various layers on the map.



Identifying features

The default action, when interacting with the map, is to identify what is present at a location – there is no *identify* tool button. Click on any feature in the *active layer* to display the attributes of the record at that point. See how to set the active layer in the section entitled [Identifying Features in Active Layer](#). As discussed in the section entitled [Displaying Coordinates of a Point](#), if you click on the map away from any features, the IDTM coordinates and latitude/longitude for that point will be displayed in a pop-up window.

All of Idaho

The *show entire state* tool will set the map extent so that the entire state of Idaho is visible.

Search

Search for data using a simple query or find features using queries like “what water rights are in this polygon,” “what wells are within a one-mile radius of this water quality monitoring site,” “where are the sites associated with these EDMS well IDs.”

You can search by any of the following methods: select fields matching user-specified text, query a value or range of values for a specific field, use a list of identifying names or by using geometry (point, line or polygon) to highlight features from a given layer. The results of the search are presented in a table that allows you to see some of the key attributes of the selected features. If the layer you are querying is linked to an advanced query, you can use the search-results to submit a request to that application. Please read the discussion in the section entitled [Searching for Features](#).

Locate

The *locate* tool is used to find a location in Idaho using various methods, including entering a northing/easting in one of a variety of coordinate systems.

Finding a street address, tax parcel or stream can only be accomplished using this tool. This tool also provides the simplest way of finding a water right.

Note that if you wish search for features within a certain distance of the “located” point, check the *Use for queries* and *Use buffer* checkboxes and enter the search-distance (buffer) in the text-box.

Measure

The *measure* tool is discussed in the section entitled [Measuring Distances](#).

Print

The *print* tool creates an 8 ½” x 11” map, complete with legend, scale-bar, creation date and title. Set the browser to use the same orientation as your output, landscape or portrait.

Create an image from the map

Also known as the *capture* or *screenshot* tool, it allows you to save a picture of the current map. It is useful for making electronic “slide presentations.” See [Saving or Printing the Map](#).

Change layers

The *change layers* tool allows you to add layers to the map, turn them on/off, change their transparency and many other operations. See [The Initial Map](#).

Options

The options menu gives you a way to change a number of settings and locate previously buffered data.

Map Options and Settings ✕

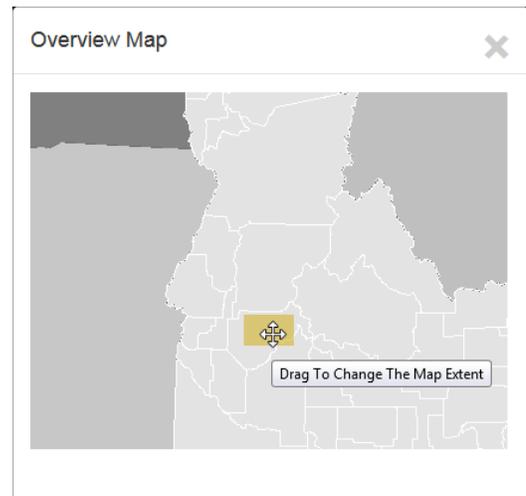
Show Scale Bar	Hide Scale Bar
Set Map Scale Units ▼	
Set Map-display Coordinate System ▼	
Set Length Measurement Units ▼	
Set Area Measurement Units ▼	
Set 'Identify' window transparency ▼	
Set Buffer Parameters	
Show Buffer	
Hide Buffer	
Zoom to Buffer	
Zoom to Selected Features	

The Overview Map

The overview map shows the portion of Idaho you are viewing in the main map window. Normally, you will be viewing a very small area which will be shown as a point on the overview map.

If the area you are viewing is quite large it may be displayed as a rectangle on the overview map, as is the case in the example.

You can drag the highlighted area to a different place on the map, in order to change the map extent.



Help

Click the *help* button to display this document in new browser window or tab.

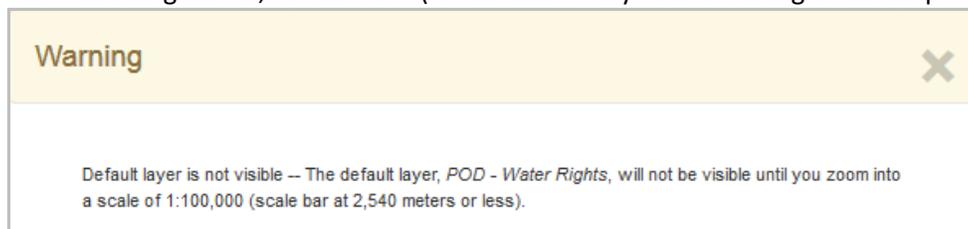
The Initial Map

The IDWR is home to an extensive Geographic Information System (GIS). This GIS allows the department to store, maintain and analyze data in support of the Idaho Water Resources Board and pertaining to the responsibilities of the IDWR. The data are used to plan for, allocate and monitor water uses throughout the state. This interactive mapping application was designed to allow users outside the IDWR to use the GIS. Depending on how you navigated to this web page, the layers shown on the map may be sufficient to answer your questions. If not, click the *Change layers* tool, open the “Map Contents” dialog and add a layer.

As explained in the section entitled [Using the Map](#), the initial map may be pretty boring. You should see the outlines of all of the counties in Idaho overlaying a new USGS topographic map. However, as you zoom into the map and see a smaller area, other layers will show. Several of our GIS layers have so many features that they completely fill the map with overlapping symbols at small scales (entire state).

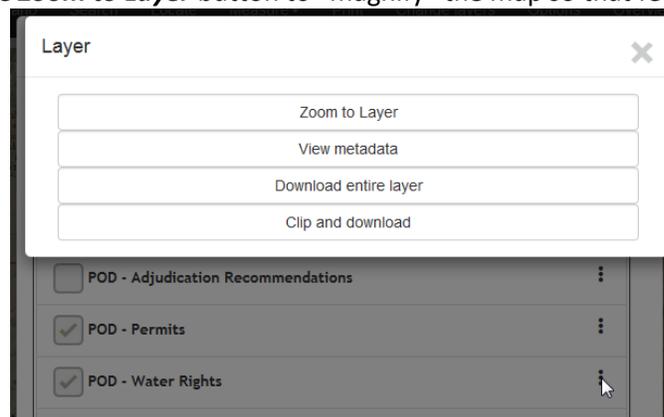
Blank Map Warning

Your initial map may be essentially blank or show only a background image. You will be warned if the primary layers for the business process you selected are not visible on the initial map. For instance, the **POD – Water Rights** layer (part of the **WaterRights** map service) is not visible until you zoom in to where the scale is, at most, 1:100,000. For desktop browsers, the map scalebar at the lower left corner of the map will show something like “2,540 meters” (or “1.6 miles” if you have changed the map scale units).



If the map is already centered on your area of interest,

- Click the **Change layers** tool to open the **Map Contents** dialog.
- Click the WaterRights heading to show all water rights layers.
- Click the layer “menu” button  for the **POD - Water Rights** layer.
- Click the **Zoom to Layer** button to “magnify” the map so that features from the layer are visible.



There is a similar option, available when you click on a map service “menu” button , labeled “Zoom to Map Service.” That option will set the extent of the map to show all of the features from all of the layers in that map service, which is usually the entire state. It is useful, for example, in showing the Eastern Snake Plain Aquifer.

Viewing the Initial “Map Contents” Dialog

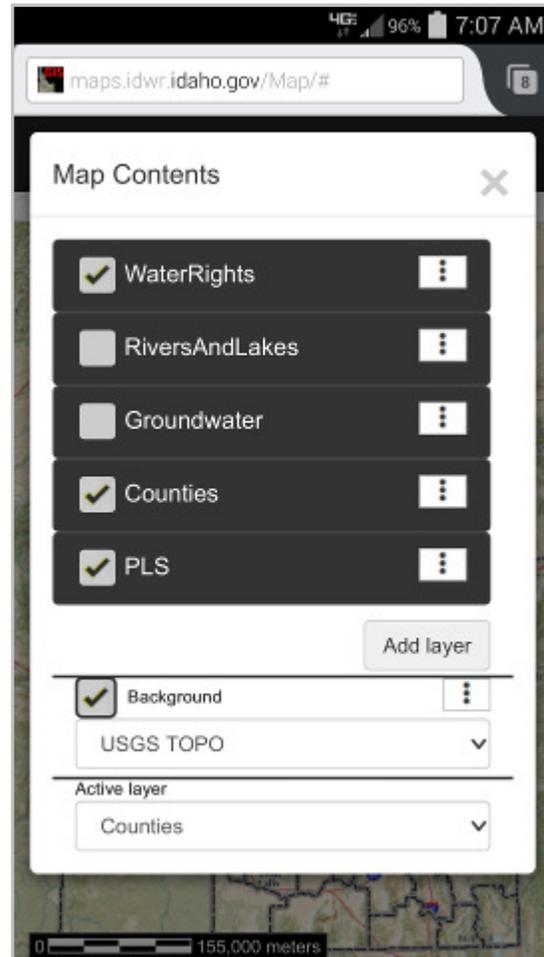
The **Map Contents** dialog is displayed when you click the **Change layers** tool. Not all layers will be visible on the initial map. In fact, you may see only the county boundaries overlaying a background image.

The initial layer list shows that the **WaterRights**, **PLS** and **Counties** map services should be visible. But, since the *WaterRights* map service is not visible until the map scale is larger than 1:100,000 (the map-scale on a desktop browser will display 2,540 meters), none of its layers are visible. See [Get Closer](#). Click the map-service name to see all of the layers in that service.

Likewise, since the *Show background* checkbox is checked and the **USGSS TOPO** is selected we expect to see a background.

The **2009 NAIP** (aerial photography) layer, which is suitable for created printed maps, is not available until the scale is at least 1:300,000 (one inch equals 7,620 meters). See [Changing Backgrounds](#).

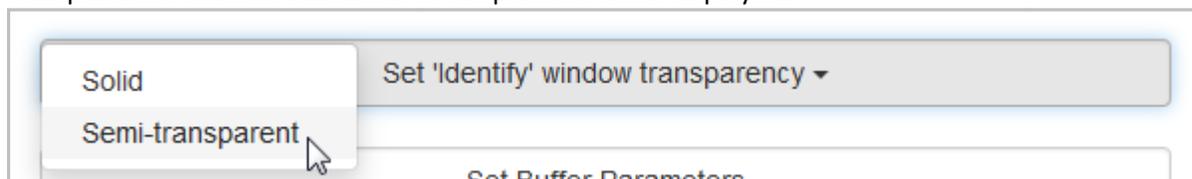
The **Counties** layer is the only one in the **Active layer** drop-down list because no other layers are “queryable” at the scale of the initial map. As mentioned in [Get Closer](#), the map scale affects which layers are visible on the map.

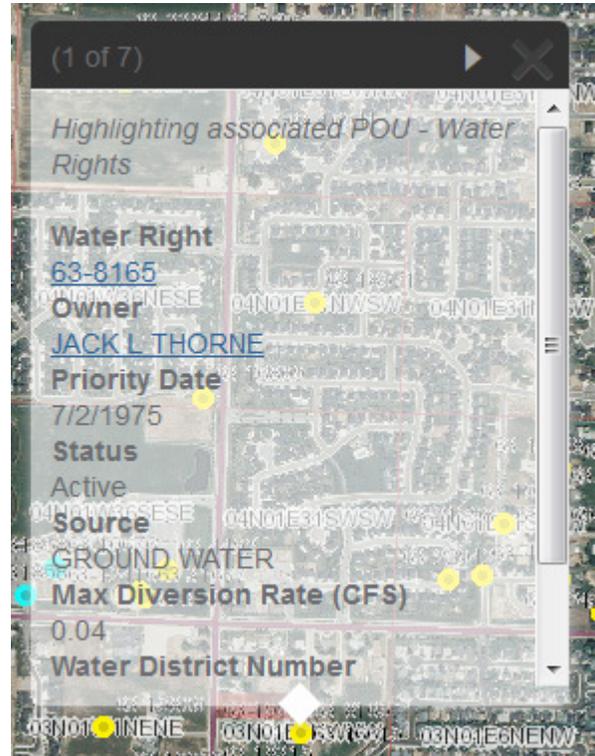
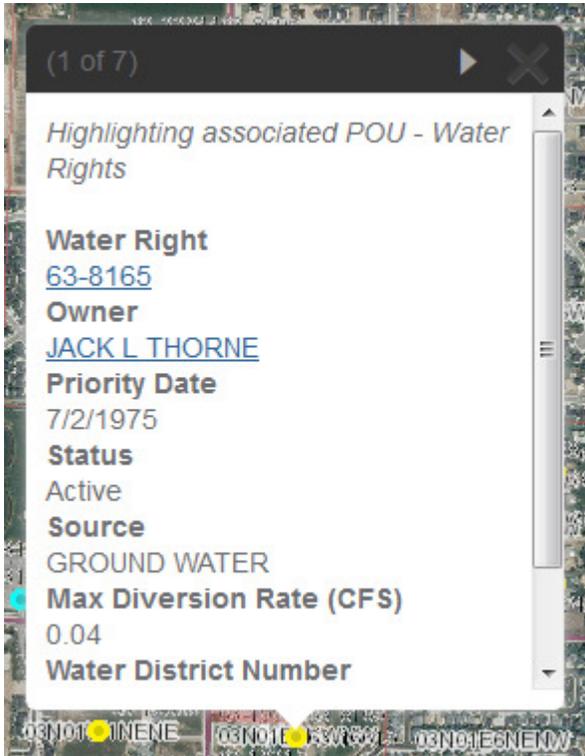


Identifying Features in Active Layer

The active layer is the feature layer which will be queried when you click on the map. The “Identify” (details) window shows the attributes of the selected feature; a pointer at the base of the window points to the feature. In the example on the next page, seven water rights are tied to a POD (point of diversion). Each of those PODs are tied to one or more POUs (places of use).

The first record is related to a very small tract of land, which is not entirely visible. In fact, each of the related tracts is at least partially occluded by the “Identify” window. Use the *Set ‘identify’ window transparency* button on the **Options** menu to set the transparency of the “Identify” window to semi-transparent so that the full extent of the place-of-use is displayed.



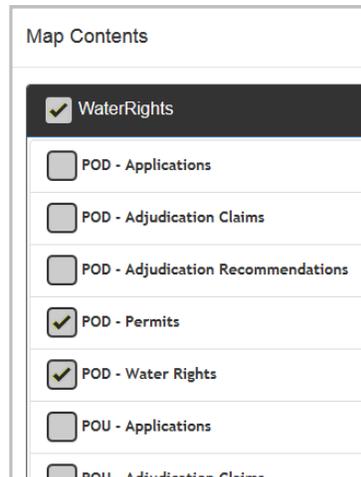
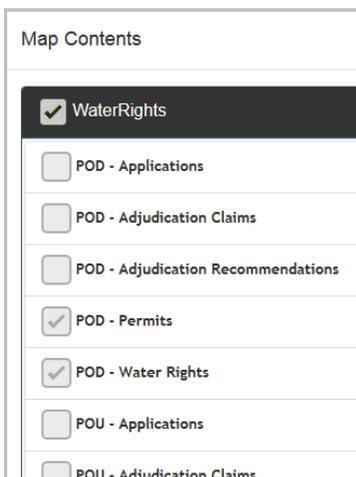


Get Closer

In order to view the data you are interested in, you may need to select a smaller portion of the state by zooming into the map (see the [Navigation Tools](#) section). The visibility of layers may change due as the map scale changes. The visibility of layers is reflected in the **Map Contents** dialog. Using the **WaterRights** map service as an example: the initial map-scale, where the entire state of Idaho is visible is far less than 1:100,000 (the scale at which all of the layers in the **WaterRights** map service are turned on), so you cannot turn on/off any water rights layers. When you zoom into the map, where the scale is greater than 1:100,000, those checkboxes are enabled.

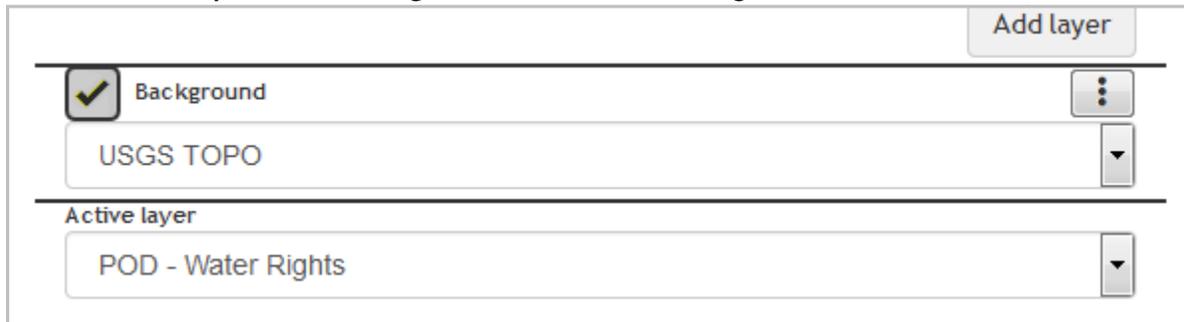
Initially, the **Map Contents** dialog showed that the checkboxes for all **WaterRights** layers are “grayed out” (not available).

At a larger scale, all of the **WaterRights** map service layers can be turned on/off.



As shown in the figures above, the **WaterRights** map service has five layers which show where the water comes from, a well, river, canal, etc., called “points of diversion.” It also has five layers which show the area where the water is used, called “place of use.”

Since the water rights map is configured so that the **POD – Water Rights** is the default active layer, zooming in to the map caused it to be set as the active layer. Note, you must collapse the **WaterRights** section of the **Map Contents** dialog in order to see that setting.



Using the “Map Contents” Dialog

The **Map Contents** dialog is displayed when you click the **Change layers** tool on the tool bar. As the names imply, clicking the **Change layers** tool will give you access to a dialog that allows you to do the following, in addition to the operations shown below:

- Add a map service (a group of layers) to the map
- Select a background image and control its transparency
- Select the active layer – the one for which records will be displayed when a user clicks on the map

For a map service (group of layers):

- Show or hide map services
- Zoom to the extent of an entire map service – useful in only a few circumstances
- View a map service legend
- Show a description of the map service
- Set the transparency of a map service

For an individual layer:

- Show or hide layers
- Zoom to the extent where the layer becomes visible
- View metadata
- Download an entire layer
- Clip and download a portion of a layer

All of these operations are explained, below.

The map services contain multiple GIS layers, grouped by function or IDWR business process. The **PLS** map service, for example, contains three layers – townships, sections and quarter-quarter sections. In the simplest of map-configurations the initial dialog will hold three or four map services, each of which may hold multiple layers.

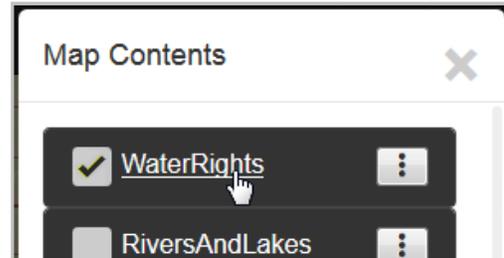
The default map configuration for instance, contains the **WaterRights** map service, which has ten layers. The **RiversAndLakes** map service holds six layers and the GroundWater map service holds seven. So, there are more than twenty-five GIS layers on the default map. The **Counties** map service contains a single layer while others contain as many as twenty.

In order to see the names of the selected background and active layer, it may be necessary collapse the map-service panels (by clicking on the map service name) so that the layer names are hidden.

Viewing Layers Contained in a Map Service

To view layers in a map service, click on a map service name to expand a map-service panel .

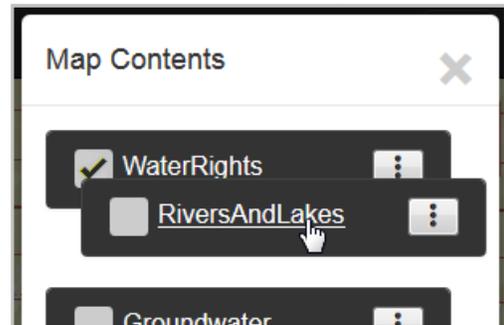
Click on the map service name to collapse the panel, when finished.



Re-ordering Map Services

The order of the names in the list show the order they hold in the “stack” of map services. The top-most map service is drawn over the top of all other features. There are times when the order in which the map services are drawn on the map cause features from one service to occlude features from another layer.

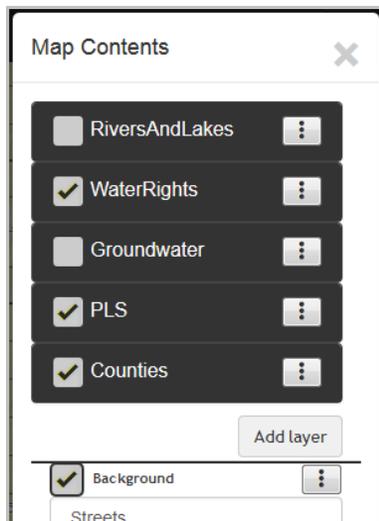
You can click-and-hold a map service name and drag that service to different position, to re-order the list.



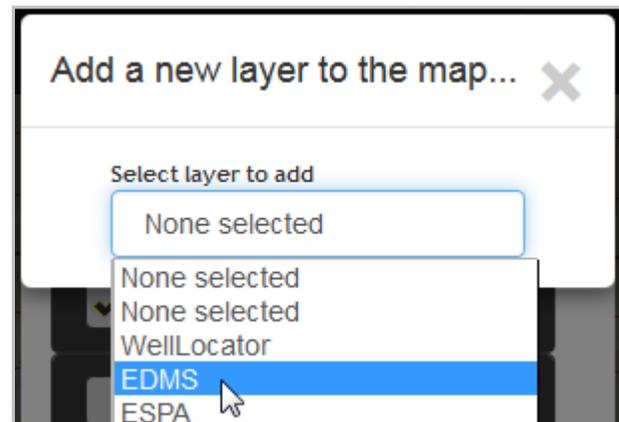
Adding Layers

The map services included in the initial map were selected by the way you arrived at the web-page. If you arrived using a link on an IDWR web-page, the list of map services is tailored to the context of that page. You may add map services in order to see more layers from our GIS.

When you click on the *Add layer* button, you will see a list of map services offered by this application.



Select the layer you wish to add. Once the server adds the map service, its name appears on the list.

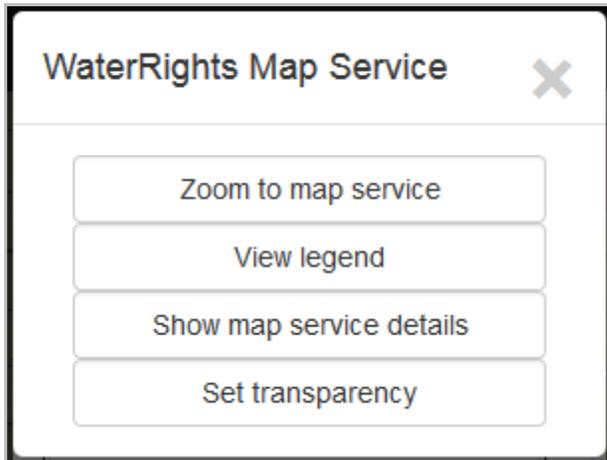


Getting Information about the Map Services and Layers

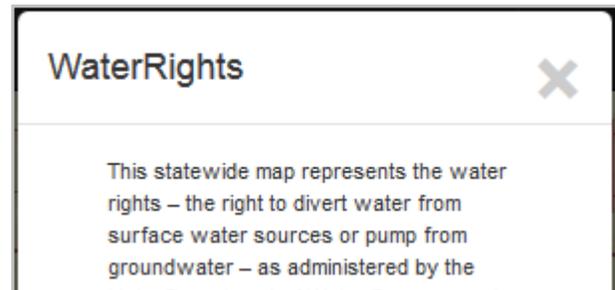
This application uses menus within pop-up dialogs to allow the user to view details about the map services or their layer-collections.

Map Service Menu

The map service menu pertains only to functions provided on entire map services. To access this menu, click Map Service “menu” button ☰.



Besides viewing the map service legend and setting transparency for all layers in the map service, you can see a detailed description of the map service.



Viewing the Map Service Legend

Click on the Map Service “menu” button ☰, then click *View legend* to display the legend for the specified map service. Examples of map service legends are shown in the section entitled **The Legend**.

Setting the Map Service Transparency

Click on the Map Service “menu” ☰, then click *Set transparency* to set the transparency for the specified map service. The transparency setting affects all layers in the map service.



Zoom to Map Service

Zoom to Map Service sets the extent of the viewable map to the extent of the map service. This is useful when the map service covers an area which is much smaller than the state. It is not useful for statewide map services such as **WaterRights**, **Wells**, **PLS**, etc. – if you intend to zoom to an extent where a particular layer is visible, use the **Zoom to layer** function on the Layer Menu.

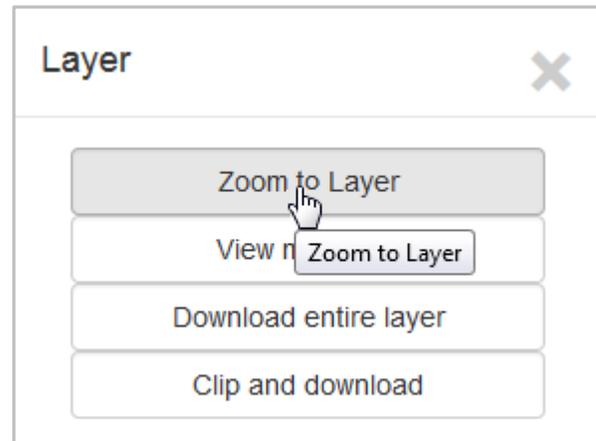
Layer Menu

This menu allows the user to get specific information about a layer, or download the layer. Click on the Layer “menu”  on an individual layer within the map service to display the menu.

Zoom to Layer

The *Zoom to Layer* tool will set the map extent, centered on the current center of the map, to an extent where this layer is visible. In the case of **POD – Water Rights**, the layer becomes visible at a map scale of 1:100,000.

Note, in the initial map, the “gray” checkbox indicates that the layer is not visible at such a small scale.



View metadata

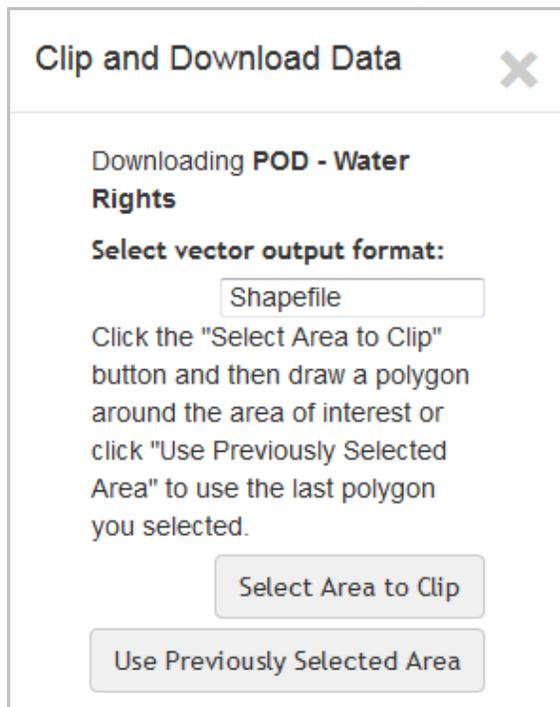
The *View metadata* tool is a link to metadata about the GIS layer. The metadata, if available, gives you a description of the layer, when it was created and who created it.

Download entire layer

The *Download entire layer* tool is a link to a page where you can download the GIS layer as a shape-file.

Clip and download

The *Clip and download* tool allows you to draw a polygon around a small portion of Idaho and create a shape-file of all of the features in the layer you choose to download.



In addition to **shape-files**, you can save the output as a file-geodatabase, **Google KML** or in a format suitable for AutoCAD.

When you click *Select Area to Clip* the draw polygon tool will be activated. Follow the on-screen tooltips.

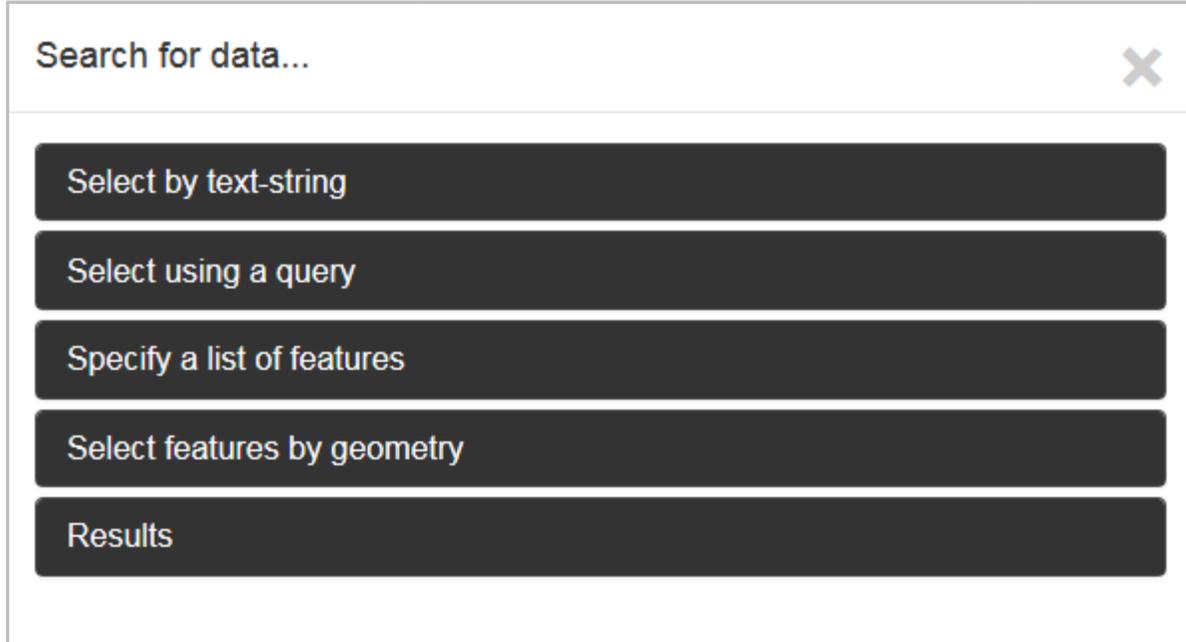
When you have finished the polygon, you will get a popup window. The contents of this popup is dependant on which browser you are using. It will ask if you wish to open the file or save it.

If you searched for features by polygon or buffered points or lines, you may use a previously selected buffered area.

Note: If the layer you wish to clip and download is not visible on the map you will get an error message stating that you cannot download it without making it visible.

Searching for Features

In order to request information from the IDWR databases, you must select the features you wish to view. Click on the **Search** tool, located on the toolbar, then click on the specific search tool you wish to use. The *search* tool provides three search-functions which query the database based on values stored in fields and one function which performs a spatial search, based on an area of land.



Select by text-string – find features using text. The user cannot select which fields to search.

Select using a query – find features by composing a query by supplying values for one or more fields.

Specify a list of features – enter a list of unique identifiers, such as SiteID, Metal tag number, etc.

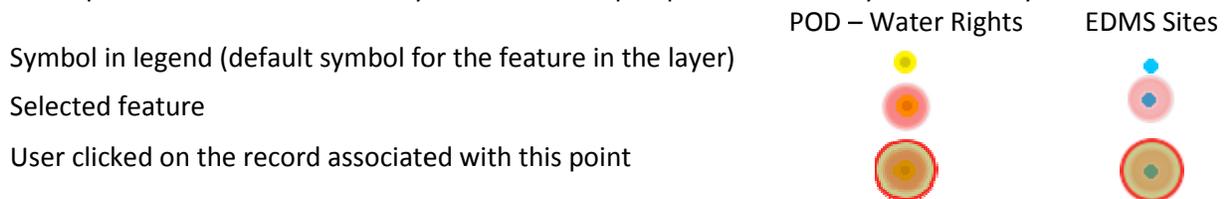
Select features by geometry – use geometry (point, line or polygon) to select and highlight all features from a given layer.

Results – display a spreadsheet-like grid containing details for all of the records returned from the search, regardless of the function used.

The layers (and attributes) available to the search tool vary by map service. In general, if a GIS layer is present in the application and has been developed by the IDWR, its records can be searched. The examples below use **POD - Water Rights** or **EDMS** layers to demonstrate the use of the tools.

Point-Symbols Used to Highlight Features

The representation of a selected symbol on the map depends on the way it is normally drawn.



Search by Text String

Enter text or numbers without quotation marks or any other punctuation. All searches are case-insensitive.

Search for data... ✕

Select by text-string

Search layer (does not have to be visible)

POD - Water Rights

Search Water Rights by owner name...[Example: John Smith] or by water right number.

Use only letters, numbers or dashes; do not include any other special characters. Searches are case-insensitive.

The following fields will be searched using the string you provide:
Water Right Number, Owner, Priority Date and Source.

Note: The symbol used to highlight the selected features is semi-transparent. If multiple features are found in one location, the symbol will appear more opaque.

Search by text-string is the default search tool. It is active when you open the search window for the first time. Select a layer to search and then enter (as the tooltip says) the numbers or character string you wish to search for.

The example and the list of fields which will be searched are specific to the layer selected – in this case, only the Water Right Number, Priority Date and Owner fields will be searched.

Viewing Results

Searching for the number **28080** yields one feature from the POD – Water Rights layer. Double-click on a row in the results grid and the map will be zoomed to, and centered on, the feature from that row.

Results

Found 1 features.

Click on record to highlight; double-click to zoom to it. Click link-buttons to view available details.

	WR Report	Related Docs	Print a map	Water Right	Owner	Priority Date	Sta
1				63-28080		1/1/1969	Act

Highlight the actual point of diversion associated with water right 63-28080, using the symbol shown on the previous page, by clicking on a row in the results-grid.



The buttons shown at the beginning of each row are hyperlinks to web pages that show detailed information about that feature. The number of buttons depends on the layer being searched.

The information available in those hyperlinks depends on the layer being searched; the links may point to web pages at other agencies, USGS, DEQ, etc. In the case of water rights, the first link displays the water right report for that record, the second link performs a search of all documents associated with that water right and the third link allows you to print a formatted map of the place of use and point of diversion for the water right. Well-construction logs are linked from the *Wells* layer, surface water gage information provided by the USGS is linked from the **Surface Water Hydrologic Data** layer.

Search Using a Query

You can search specific fields by specifying a single value or range of values. The field-list presented changes when a new search layer is selected. You can query most active layers on the map.

Not all fields in the table will be available to query. For example, some dates are stored in the database as a string, e.g. "10/20/10" (mm/dd/yy), which provides no 'queryable' information. Where dates are stored in binary, or formatted like "20101020" (yyyymmdd), those fields will be made available for query.

Compose the query by selecting a *Field* and an *Operator*, then supplying a *Value* to be searched. Layer-specific examples are provided on the form.

The only non-alphanumeric characters allowed in the value box are the wildcard (%) and the dash (-).

Do not insert apostrophes or quotation marks in the *Value* text-box.

Click the *Add field/value to query* button to add your choices to the contents of the *Query* text-box.

When you are finished forming the query, click the *Query* button.

Note that the quotation marks were automatically added to the **WellUse** value because it is stored as a text-string in the database. If you wish to make a compound query, click one of the *And/Or/Not...* buttons, then repeat the steps to add to the contents of the *Query* text-box.

If you are familiar with the field-names, you do not have to use the drop-down lists to compose the query; you can fill the *Query* text-box by typing or pasting characters into it.

Results

Found 1000 features. Water Quality

Click on record to highlight; double-click to zoom to it. Click link-buttons to view available details.

	Well Log	Water Quality	Agency	EDMS Well ID	Agency Well	Well Name	Well Construction ID	USGS Site ID	Production Rate
1	--		IDWR	68	2145	13S 44E 26BDD1		421548111	
2			IDWR	73	2185	13S 43E 14DCB2	268392	421720111	10
3			IDWR	78	53	13S 26E 01CCC1	389456	421852113	1120
4	--		IDWR	79	54	13S 16E 07BBC1		421854114	
5	--		IDWR	84	59	13S 22E		421921113	

The number of records returned to the client is limited to 1000, as is the case in the example above. If you wish to download all of the records in a GIS layer, the shape-files are available from our [Geographic Information Systems Data](#) page. A link to that page is available in the *Layer Menu*.

Downloading Feature Attributes

If you wish to download the detailed information for each of the features you selected, for inclusion in a spreadsheet or document, you can download them by clicking the arrow shown here.



The feature-attributes shown in the table can be downloaded using the “Download these features” button – at the top, left corner of the **Results** panel. This button packages all of the attributes for all of the records in the **Results** table and prompts you to save them to your PC, tablet, etc. Although you can select the records in the **Results** table (by starting your selection in the left margin, before a row) and cut/paste them to another application, the “Download these features” button will make the

operation much easier.

As stated in the **Conditions of Use**, these data are provided as a public service. Although most feature datasets are updated nightly, the information you get from this download may not be the latest copy or may otherwise differ from the version being used by the IDWR. Further, some formatting of information may be necessary. The example below illustrates how to make numeric values usable.

Numeric attributes may need to be re-formatted; the example shows before and after formatting.

	C	D	E	F	G
1	AgencyWell	AgencyWellName	WCWellID	USGSSiteID	ProductionRate
2	70	12S 46E 22DDC1	268031	4.22131E+14	35
3	581	IDEQ-GW-581	268044	--	0
4	3	16S 44E 13CAD1	268061	4.20205E+14	0
5	33	14S 44E 13CCC1	268077	4.21154E+14	50
6	1834	13S 44E 15DAD1	268111	4.21725E+14	20

	C	D	E	F	G
1	AgencyWell	AgencyWellName	WCWellID	USGSSiteID	ProductionRate
2	70	12S 46E 22DDC1	268031	4221311111033201	35
3	581	IDEQ-GW-581	268044	--	0
4	3	16S 44E 13CAD1	268061	4202051111152501	0
5	33	14S 44E 13CCC1	268077	4211541111155701	50
6	182A	12S 46E 15DAD1	268111	4217251111171601	20

Dates may be converted to an actual date object or returned as a string, depending on the database. This is the case with the **ConstructionDate** attribute in this table – the dates in this table look like “19840425,” instead of 4/25/1984.

If an error occurs while downloading data, you will see the following page – you may see this when you try to download hundreds of records. If so, narrow your search and try again.

IDAHO Department of Water Resources
Geographic Information Services

IDWR
Contact Us

Error. An error occurred while processing your request.

Please close this page and try the request again. If you continue to get this error, contact us. If you are trying to download records from the database, your request may be too large to process; select a smaller list of features and try again.

Send an e-mail message to GISinfo@idwr.idaho.gov.

Include the address of the page, like "maps.idwr.idaho.gov/Map/Map?mapproject=geothermal", and describe the operation that you are having trouble with. If you wish to speak with someone about this error, please call the telephone number at the bottom of this page and ask for the person in charge of internet mapping applications.

Additional contact information:

Idaho Department of Water Resources
The Idaho Water Center
322 East Front Street
PO Box 83720
Boise, Idaho 83720-0098
Phone: (208) 287-4800
Fax: (208) 287-6700

Search by Specifying a List of Features

This search is a very specific query, allowing only the “equals” comparison for each value specified in a list; it is only available for certain layers.

In this example, names of **EDMS** wells from three different agencies were specified – like '04N 03W 12BACC1','IDEQ-GW-25','ISDA-4250201'

Note that this *Results* pane has a button, labeled *Water Quality*, that was not present on the results shown for POD - Water Rights.

That button is displayed when the layer being queried can pass multiple IDs from this map to another query.

In this example, these EDMS Well IDs would be sent to an application that allows you to download water quality test-results for these three records.

Specify a list of features

Search layer
EDMS Wells with samples

Field
Well Name

Value list
'04N 03W 12BACC1','IDEQ-GW-25','ISDA-4250201'

Enter a comma-separated list of values for the chosen field. Use only letters, numbers, spaces or hyphens.

Results

Found 3 features. Water Quality

Click on record to highlight; double-click to zoom to it. Click link-buttons to view available details.

	Well Log	Water Quality	Agency	EDMS Well ID	Agency Well	Well Name	Well Constructio ID	USGS Site ID	Production Rate	Me
1			IDWR	1198	1935	04N 03W 12BACC1	300354	434213116	150	
2			IDEQ	5949	25	IDEQ-GW-2	301578	434308116	25	
3	--		ISDA	2535	4250201	ISDA-42502				

Search by Selecting Features (by Geometry)

You can select features by drawing a polygon around them. As previously mentioned, this tool is grouped with the search tools because it delivers the same kind of results, which allows you to view and compare the *attributes* for several records at the same time. You can use a point, line or polygon to select features. For the most part, you will use only the polygon tool to select features.

If you have already drawn a polygon or created a buffer using points, lines or polygons, you have the option to use those areas for the query by clicking the button shown below.

Select features by geometry

Search layer
EDMS Wells with samples

Select the feature(s) you wish to query using one of the feature-types below. Usually the polygon tool will give the desired result.

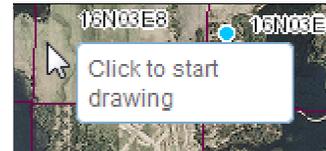
Use buffer feet

Note: The symbol used to highlight the selected features is semi-transparent. If multiple features are found in one

You have the option of expanding the area you select (or previously selected) by checking the “Use buffer” checkbox and entering an appropriate distance. The units-of-measure for this distance can be set using the *Options* tool.

In the following example, the **EDMS Wells with samples** layer will be selected using the polygon-selection tool, which will create a list of well-sites for which water quality results can be obtained.

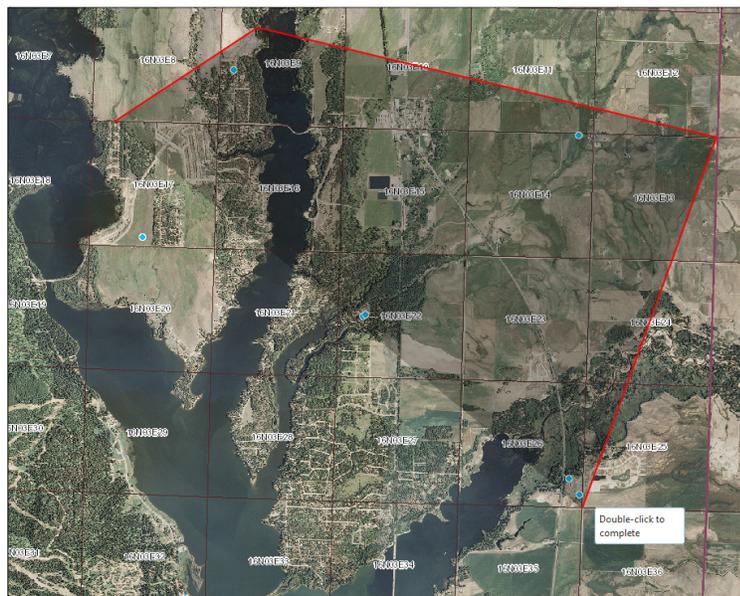
Select the *Select by polygon* button to begin the operation. When you move the mouse over the map, you will see the tooltip “Click to start drawing.” If you do not see that tooltip, select the polygon tool again.



Once you have clicked the initial point of the polygon, the tooltip will change to “Click to continue drawing.”

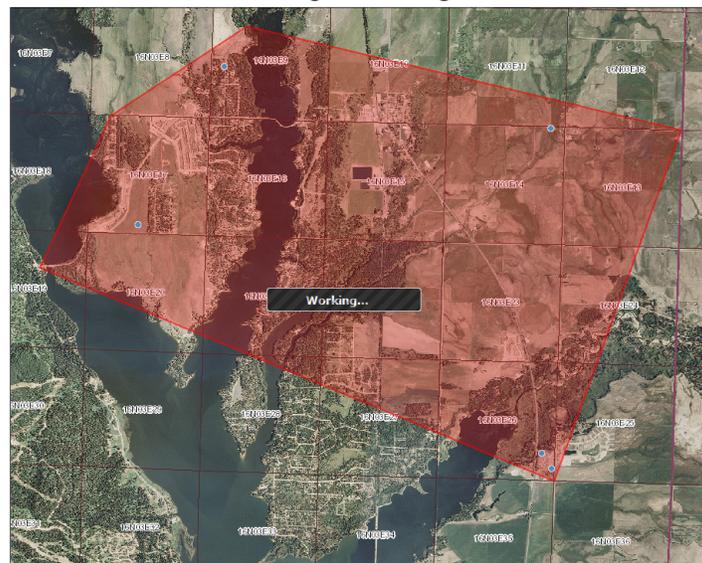
When you add a second point, you will see the “Double-click to complete” tooltip.

Double-click the mouse to finish selecting **EDMS** wells.

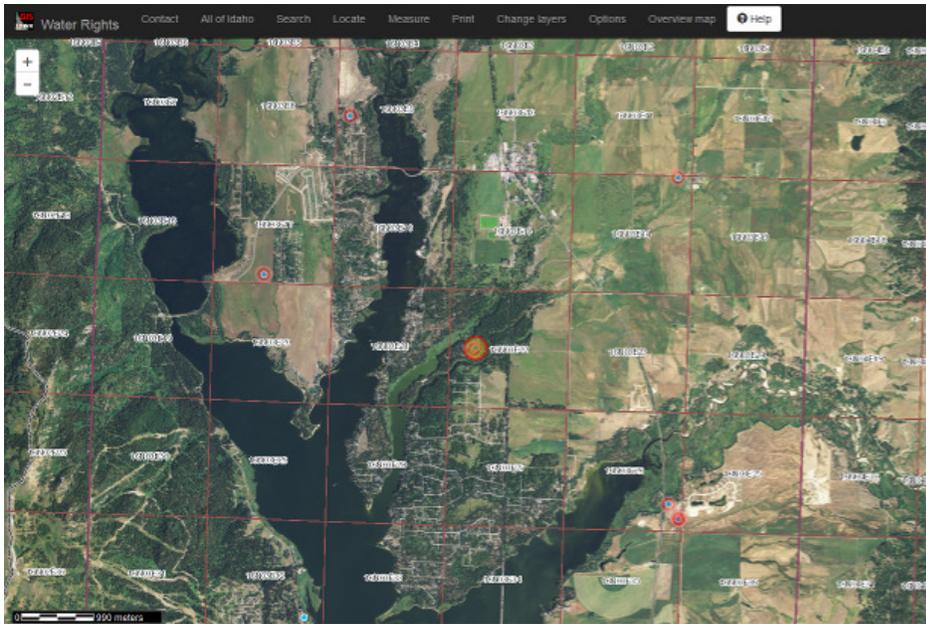


Note: If you see the “Loading...” message before you have finished drawing the polygon, wait for it to disappear and continue drawing.

Your polygon will be highlighted and the map will be overlaid with a shadow to indicate that you cannot interact with it. You will see the “Loading...” message.



As in the previous examples, the table in the **Results** panel will show the eight features (EDMS wells) enclosed by the polygon. Once the wells have been located, the way in which the symbols representing the wells are drawn will change – in general, all selected points, lines or polygons will be highlighted using the appropriate symbol .



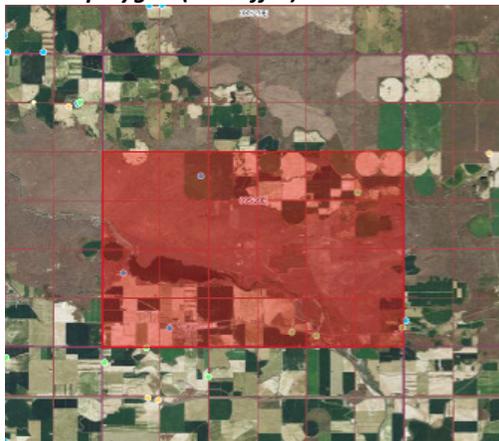
Examples of the different types of “highlighting” for points was shown in an earlier figure. These highlights are shown in red. [If you have color diffecient vision, please refer to the section entitled **Point-Symbols Used to Highlight Features.**]

Using a Previously Drawn Polygon or Buffered Area

If you have already drawn a polygon or created a buffer using points, lines or polygons, you have the option to use those buffered areas for the query. You may even add a secondary buffer to the previously identified areas. If you wish to buffer the area you are currently digitizing, you must set the “Use buffer” checkbox and the buffer distance before digitizing.

Examples of features selected using the polygon tool; buffered versus non-buffered.

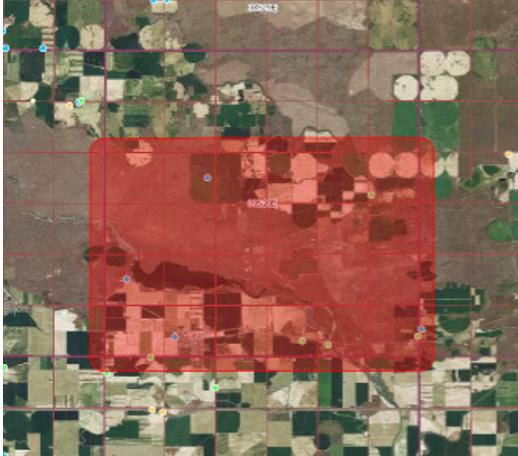
Draw a polygon (no buffer).



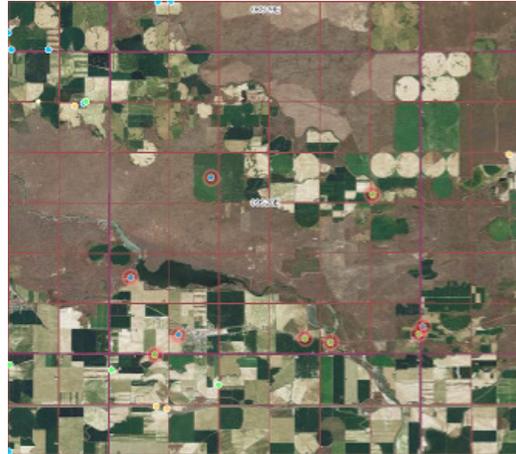
Seven wells were selected.



Add a 1500' buffer to the previously drawn polygon.



Two additional wells were selected.



If you have already stored an area in the buffer you can reuse it to select features from the same layer or a different layer. **This functionality is very useful for the following (common) non-scientific scenario:**

You draw a polygon around an area and the *Results* pane says “No features found!” You return to the *Select features by geometry* pane and discover that the **wrong layer-name** is shown in the *Search layer* dropdown list. You fix this by selecting the correct *Search layer* and clicking the *Use previously drawn polygon or buffered area* button. You get the expected results.

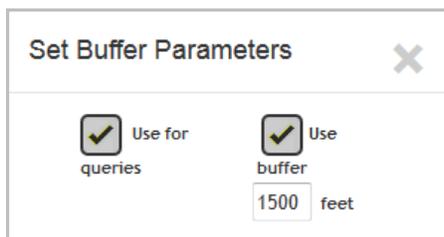
Of course, this type of operation allows you to select features from one layer based on the boundaries or locations of features in a different layer.

Using the “Create area(s) of interest” button

The *Create area(s) of interest* button does not save the database identifiers for the resultant features. It saves the area covered by those features. So, if the features are points or lines, you must specify a buffer in order to save the locations.

Creating an area of interest allows you to look at the relationship of the selected features to others in the same layer or explore the interaction between two different feature-layers.

If you click the *Create area(s) of interest* button and the features are not polygons (and you have not set a buffer), you will receive this message:



Click the *Options* tool, select the *Set Buffer Parameters* option and set the buffer you wish. Close this dialog and then reopen the *Search* dialog and click the *Create area(s) of interest* button.

Example showing selection of water rights based on location of previously selected EDMS wells.

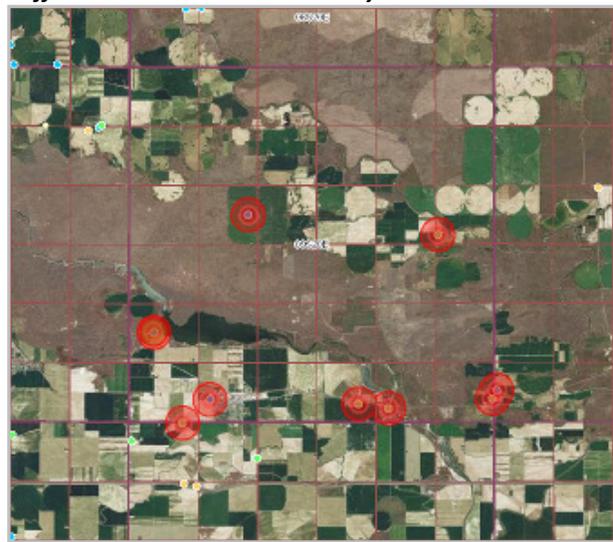
This example shows how the user would go about finding water rights near **EDMS** wells. This would be useful if a water-quality issue was discovered.

1. Start with the nine EDMS wells from the last example.
2. From the *Results* panel, check the *Use buffer* checkbox, using a distance of 1500 feet.
3. Click the *Create area(s) of interest* button.
4. Set the search layer to *POD – Water Rights*.
5. Use *Select features by geometry*.
6. Uncheck the *Use buffer* checkbox.
7. Click the *Previously drawn polygon* icon.
8. 50 features (water rights) were found within 1500' of the nine selected EDMS wells.

EDMS wells from previous example.



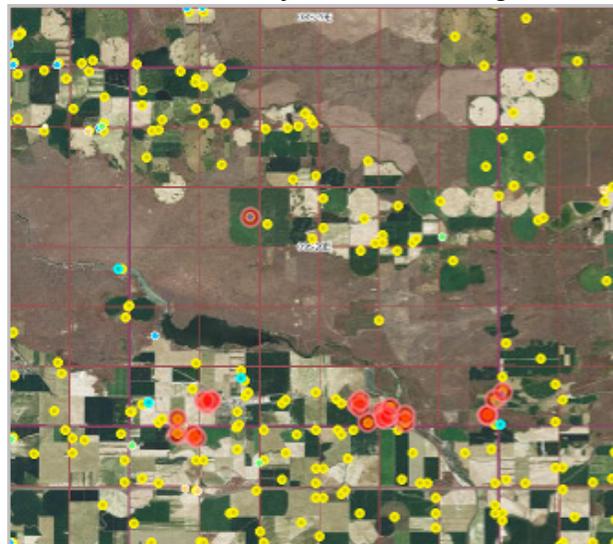
Buffer those well-site locations by 1500'.



The final buffer shapes look like this.



50 records were selected from POD-Water Rights.



Using “Found” Locations

The final way to create a buffer is to do so using the *Locate by...* tool. This is useful when you have a known location and wish to discover water rights, groundwater levels, groundwater quality, etc. close to that location. The *Locate by...* tool yields a single point for coordinates, place names/addresses, and water rights. It returns a line for stream name and polygons for tax parcel and PLS description requests.

In order to use the location to find features, you must check the *Use for queries* checkbox before you click the button to find that location. If the location is a point or line (coordinates, address, water right or stream name), you must check the *Use buffer* checkbox and specify a buffer distance, as well. Your location is converted to a “buffered area” and can now be used by the *Select features by geometry* tool.

Use for queries
 Use buffer feet

Use Search Results in Advanced Queries

As mentioned in [Search by Specifying a List of Features](#), in some cases, the values of key fields in the **Search Results** records can be passed to other IDWR web applications, for further processing in “advanced queries.”

In this example, the link-button displayed above the upper, right corner of the **Results** table allows the user to pass multiple groundwater-site IDs (well numbers) would be sent to an application that allows you to create a hydrograph and download measured groundwater levels.

Results								
Found 3 features.								
Download time series								
Click on record to highlight; double-click to zoom to it. Click link-buttons to view available details.								
	Well Log	Station ID	Well Number	Water Use	County	Year Drilled	Min Well Opening	Max Well Opening
1		D3F7C433-0ABD-4	12N 19E 19BAD1	Domestic	CUSTER	5/1/1998	68	78
2		FADA21FF-B9BF-4	10N 18E 24ABA1	Domestic	CUSTER	8/6/1999	45	75
3		2581F6B8-9DE4-4	11N 17E 28ACD1	Domestic	CUSTER	4/17/1999	23	125

Currently, there are three applications that use these advanced queries for further processing.

EDMS – <http://maps.idwr.idaho.gov/Map/EDMS>

Values from the **EDMS Wells with samples** layer will be passed to another application where you can select a number of water quality characters and graph or download those characteristics. You may pass up to 50 records to the EDMS query application.

HydroOnline – <http://maps.idwr.idaho.gov/Map/HydroOnline>

Time-series data for the selected records from the **Groundwater levels** layer will be downloaded. You may obtain time-series data for up to 1000 groundwater level measurement sites at one time.

WaterMeasurement – <http://maps.idwr.idaho.gov/Map/WaterMeasurement>

A summary of measurements, for all methods, for the selected records from the **WMIS** layer will be downloaded. You may obtain the data summaries for up to 1000 water measurement sites at one time.

Downloading Data

Downloading results from a table

If you wish to download the records shown in the table, refer to the section entitled **Downloading Feature Attributes**.

Downloading a shape-file

See the sections entitled **Download entire layer and Clip and download** for instructions on how to use the tools.

Downloading a time-series data

The only way time-series data become available for download through the map is by using “advanced queries.” If the *Link* button is not shown above the **Results** table, no time-series data are available.

Saving or Printing the Map

The *Print* tool can be used to create a “screen shot” of the map and save it as an image. This is useful for capturing the map-image for use in “slide presentations.” You can also create a PDF, complete with legend, scalebar, creation date and a user-supplied title. Click the *Print* tool, then enter a title and select the format and layout of the output from the *Print the map* dialog.

Print the map ✕

Select the desired output format and layout to create a map. It will be displayed in a new browser tab or page.

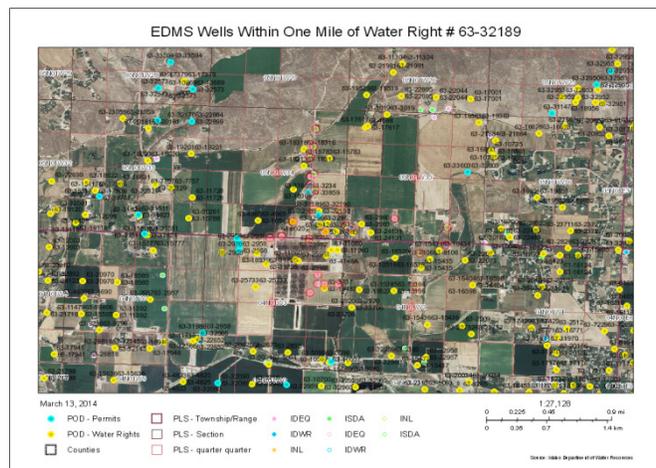
Select the *Image Only* layout to create a “screen-shot.”

Title:

Format: Layout:

PDF Letter ANSI A Landscape

Include legend? Print Map



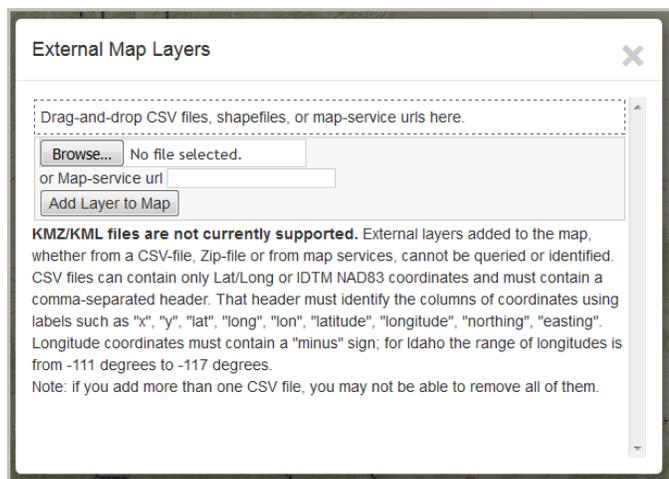
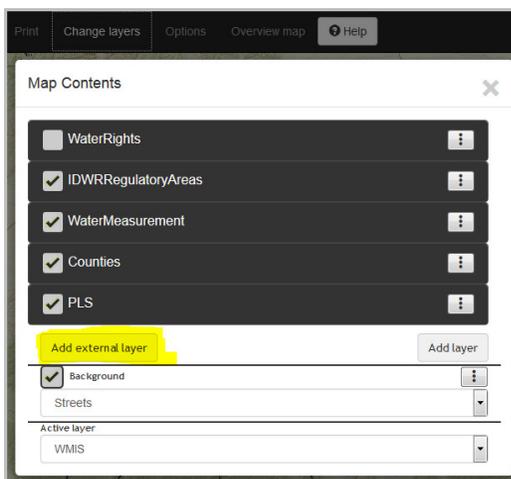
The layer-transparency settings from the map are used for the printed map. Note that if a large number of layers are shown on the map, there may be too much information to show in the legend.

Adding External Layers to the Map

You can add features from shape-files or CSV-formatted files from your device as well as internet map services. **External layers added to the map, whether from a CSV-file, Zip-file or from map services, cannot currently be queried or identified.**

The dialog for adding “external” layers is accessed via the **Change layers** tool. Click the *Add external layer* button and drag-and-drop your layer into the box that says “Drag-and-drop CSV files, shapefiles, or map-service urls here.” Note that the same button is used to view the *External Map Layers* dialog at any time.

If you do not wish to use the drag-and-drop function, you can browse your desktop or device file system or type in a map-service URL and then click the *Add Layer to Map* button to add the layer. As noted in the on-screen explanation, the use of KML or KMZ files is not currently supported.



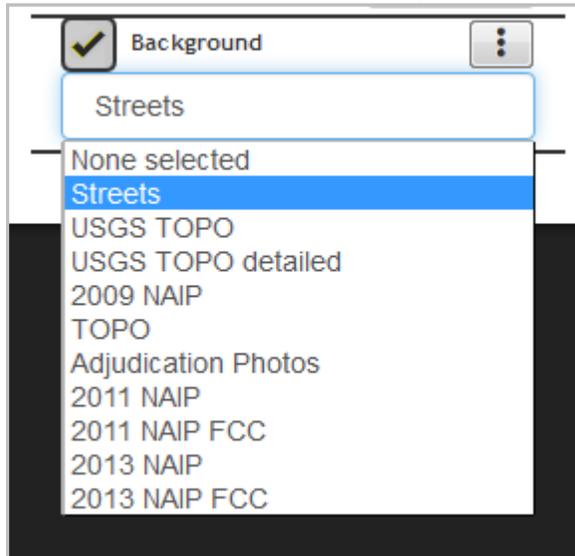
Shape-files (which must include all component-files, including a PRJ-file, compressed as a zip-file) and map services using any coordinate system can be placed on the map. CSV-files from the user’s device can be in latitude/longitude or IDTM NAD 83 coordinates. As shown below, map-service URLs are displayed when hovering over the title of an external layer. Paths to user files are not shown.



The symbols used to represent layers from a map service will reflect the way those layers are configured within the map service. If a shape-file includes a LYR-file, the map symbols should match those from that file. Points added from CSV-files will be represented with the “map pin” marker shown in the left-hand example, above. At this time, all CSV-file layers are represented with the same symbol.

Changing Backgrounds

The imagery used as a background for the maps can be changed to any of those available from the **Map Contents** dialog. These datasets are hosted on the IDWR’s servers, those of the State’s universities, the U.S. Geologic Survey and Esri (a GIS vendor). Some of these layers are not visible at all scales. For example, the **USGS TOPO detailed** layer is available when the map’s scalebar shows a number smaller than 4,540 meters and the **2009 NAIP** is visible only when that value is smaller than 13,000 meters.



The **Streets** layer, provided by Esri, is the default background image; it is a modern topographic map, showing major rivers and roads; hills are shown in shaded relief. The two “USGS TOPO” layers are much the same as the **Streets** layer, except that they show contour lines. There is a gap when neither the **USGS TOPO** (small scale) or the **USGS TOPO detailed** (large scale) layers will be visible.

The **TOPO** layer shows historical topographic maps, which are between forty and eighty years old.

The **NAIP** layers are aerial photography in true-color and false-color (FCC, near infrared) versions for multiple years. The **Adjudication Photos** layer was composed for the IDWR’s adjudication efforts.

Limitations

There are limits set on the number of records returned from the queries due to networking and hardware considerations. You will be able to see as many as 1000 records resulting from your search. Selection of EDMS wells is currently limited to 200 sites.

The number of records allowed in a single download may be limited due to other configuration parameters, based on the target layer. You can download as many records as you wish but not “all at once.” It is up to the user to manage the number of selected sites to stay within those limits.

Using Mobile Devices

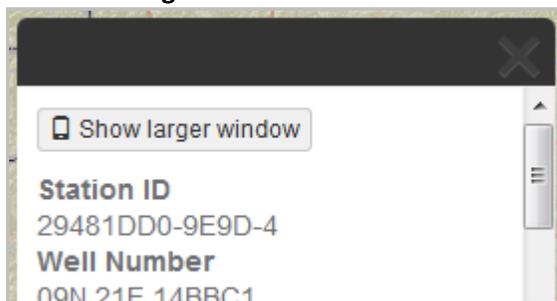
This application is designed to be used on any “personal computer,” from large desktops to smart phones. However, the interaction between the user and the interface varies widely with the size, resolution and type of hand-held, touch-capable devices, be they cell phones or tablets. It has been tested on Android tablets and phones. For Android devices, the native browser and Chrome work the best; Firefox is not recommended if you intend to measure areas or select features by drawing on the screen. It works on iOS devices from the iPhone 3, forward. The Opera browser is not recommended on iOS devices. The application has not been tested on Windows phones except to ensure basic functionality – displaying and navigating the map and identifying wells sites.

The mobile-device gesture-related terms are meant to be synonymous with desktop navigation. Where this document instructs you to “click,” you must “touch” or “tap” your mobile device.

Improper Scrolling on Mobile Devices

If you cannot get the pop-up window to scroll on your phone or tablet, click the **Show larger window** button; the information from the dialog will be moved to larger, scrollable window.

Default dialog



Scrollable dialog



Hiding the Dialog

In order to dismiss the pop-up dialog that shows details/hydrograph for a well you must use a long-touch gesture on the “X” in the upper, right hand corner of the dialog. Just tapping the “X” will cause the map to act as if you meant to get details about a well positioned where the “X” is located.

Drawing on the Screen

If you digitize a polygon or line on the screen – to measure or select features – the tooltips may not show or may not reflect the state of the operation.

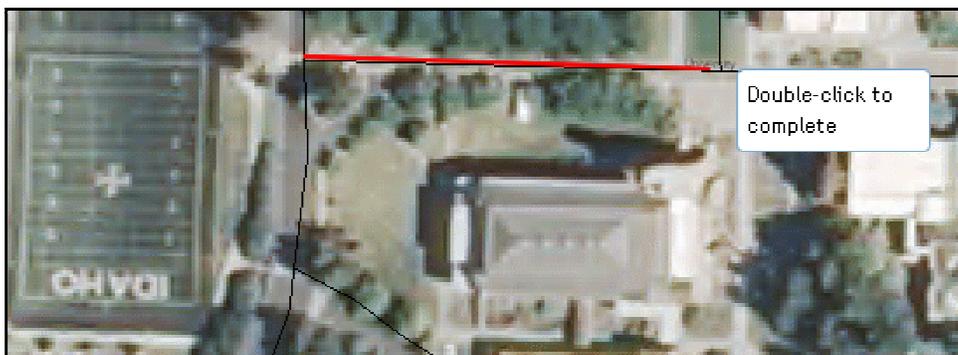
Make the Map Faster

The background map on the initial screen is there to show major features to allow you to find your area of interest. You can make the map respond more quickly by turning it off.

To turn off the background image, click **Change Layers** on the navigation bar. Click the “Background” checkbox to remove the checkmark, or click the drop-down list, beneath the checkbox, and change the value to “None selected.”

Appendix - Measuring Distances

Measure an area or distance (length) by clicking the *measure* tool and selecting the proper option. Tooltips guide you through the process. This tool operates exactly like the tool used to *select features by geometry*. The measurement is displayed when you double-click the map.

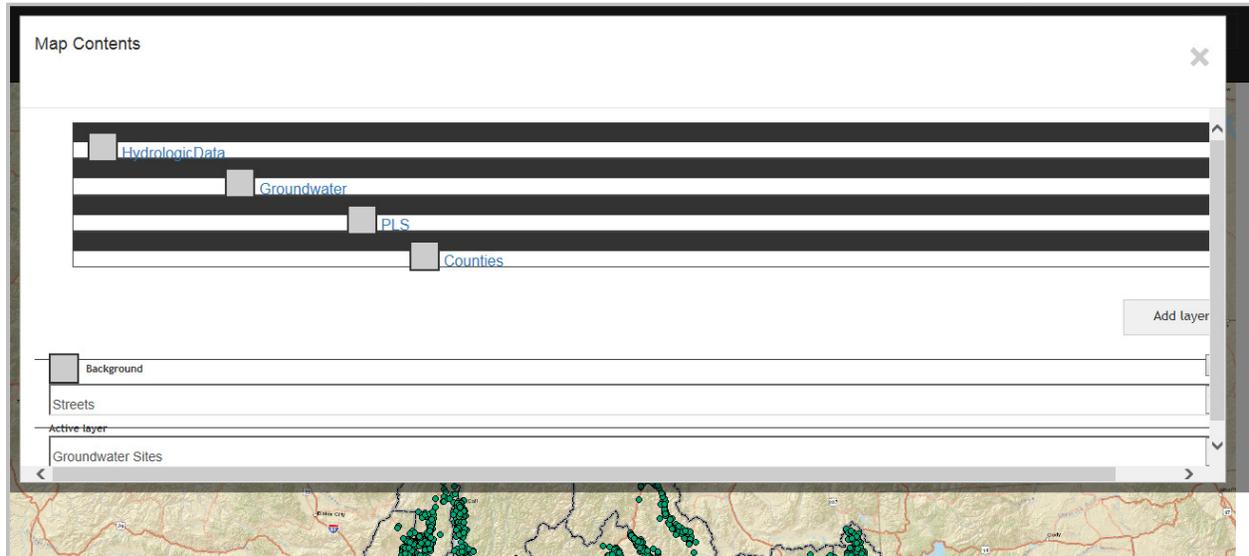


Handling Errors

Web-Site Does Not Match Examples When Using Internet Explorer

If you use the Internet Explorer browser, make sure that Idaho.gov is not listed in the Websites you've added to *Compatibility View* pane in IE's *Compatibility View Settings*. See Microsoft's web-site for details: <http://windows.microsoft.com/en-us/internet-explorer/use-compatibility-view#ie=ie-11-win-7>

Example of improperly drawn dialog in Internet Explorer with idaho.gov sites using *Compatibility View*.



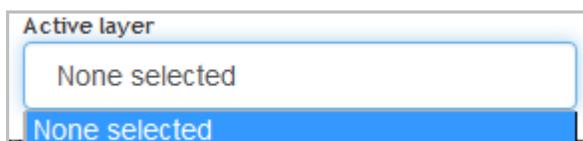
List of Layers in Table of Contents is Incorrect

If you try to use the *Change layers* tool before all of the map services have loaded, the layers listed in the *Map Contents* may be blank. Close the dialog and wait for the "Working..." message to disappear. Then, open the dialog. If it is still blank, click the *Refresh layer list* button.

No Layers in List of Possible Active Layers

The layer you are interested in may not be "queryable" because only those layers for which queries have been attached to the map can be selected as the active layer.

If you try to change the active layer and see that "None selected" is the only value in the list, click the checkbox on the map service you are interested in (make the checkbox empty) and then click it again to set the checkmark. That should make the "queryable" layers in that map service appear in the drop-down list.



The Loading... Message Remains After All Layers Have Loaded

If the *Loading...* message remains on the page long after all layers have loaded, pan or zoom the map.

That should reload the visible map and turn the message off. It can be dismissed by clicking on the map, outside of message box.



If the Application is not Responding

Do not use the “Back” button on your browser. It will not fix the problem. Instead, click your browser’s “Refresh” button. It may look like  or . The map will be reloaded. If it still does not work, try again in a few minutes or contact us using the instructions provided in [Contacting IDWR](#).

Final Thoughts

Cookies

The information collected and passed from one page to another is stored in local storage on your PC, Mac or hand-held device. You must have cookies enabled in order to use this application. Although you may use the browser's "Back" button to go the previous page, you may cause the application to lose any selections you made on the page you are leaving.

Contacting IDWR

If you have any problems with this application, or have questions not answered by this document, you can contact the IDWR using the information shown below. Please provide the address of this web-page – it will be something like <http://maps.idwr.idaho.gov/Map>.

Please include your telephone number and browser name/version when requesting assistance. Comments on how to make this application better are welcome, of course.

For comments and questions concerning this application, or any of the IDWR's interactive maps, send an e-mail message to GISInfo@idwr.idaho.gov or call the telephone number shown below:

Idaho Department of Water Resources

The Idaho Water Center
322 East Front Street
PO Box 83720
Boise, Idaho 83720-0098
Phone: (208) 287-4800
Fax: (208) 287-6700

Appendix – Glossary

The following list of terms is for those of you who are not familiar with internet mapping applications.

General Terminology used in GIS

GIS – Geographic (or geographical) Information System. The GIS ties IDWR data – wells, water rights, etc. – to locations in Idaho. The use of GIS allows data from dissimilar layers to be analyzed against each other.

Attribute – a characteristic of the data; a value from one of the columns/fields in the database.

Active layer – the layer used when identifying features on the map. This layer is selected from the *Layers* menu.

Buffer – an area surrounding a point, line or polygon that describes the extent of an item in the IDWR’s GIS. It is defined as a polygon, the points of which are set at a minimum distance from the point, line or boundary of another feature. E.g. “the area within 1000’ of this well”

Extent – the scope or limit of the geographical area, usually expressed as coordinates, using IDTM.

Feature – a point, line or polygon that describes the extent of an item in the IDWR’s GIS.

Layer – a collection of features of the same type, e.g. streams.

IDTM – Idaho Transverse Mercator is the official coordinate system used to exchange geographic information within the state.

Map Service – a collection of GIS layers pertaining to the same type of business, e.g. the *RiversAndLakes* map service contains many surface-water layers.

Terms Specific to the Map

Map – the portion of the display used to emulate a paper map.

Navigation – the act of sizing or repositioning the content of the interactive map.

Click – press the mouse button (usually the left button). This application does not provide any functionality to “right-clicking.”

Drag – press and hold the mouse button while moving the mouse. The only use for this (in this application) is as a short-cut to zoom to a specific portion of the map.

Hover – mouse your mouse cursor over an area of the map, icons or menus in order to see more information about that item.

Pinch – a gesture on smart phones and tablets which causes the area on the map to become smaller (be displayed at a smaller scale).

Rubber-band box – if you use the **Shift** and **Ctrl** keys while dragging the mouse you will see a rectangular overlay showing the extent of the area which will be operated on. Used for navigation or feature selection.

Zoom in – view a smaller portion of Idaho (magnify).

Zoom out – view a larger portion of Idaho (minify).

Pan – reposition the map by dragging it in any direction.

Tooltip – small text-boxes which become visible when you place your mouse cursor over certain components.

Map scale – the approximate scale of the map, given as a ratio, e.g. 1:24000. The larger the number on the right-hand side of the scale, the smaller the scale.