

BRCST User Guide

Barrier Removal Collaborative Suite (BRCST)

August, 2017

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HOW TO USE BRCS?

Exercise 1: The Essentials

In this section, you will learn:

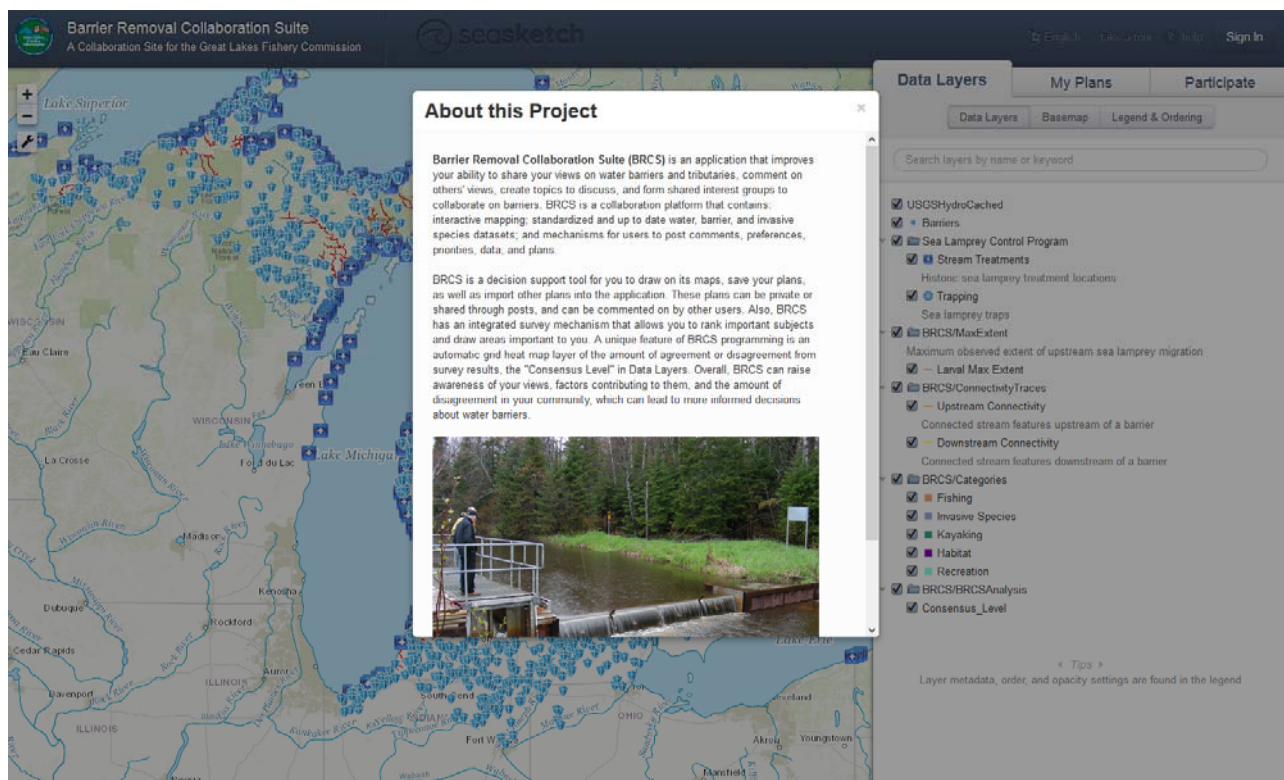
- How to open BRCS in a browser and sign in;
- The general layout of the BRCS interface, and
- How to navigate the map by zooming, panning, searching for a location and using measurement tools.

Step 1: Accessing BRCS

BRCS requires a computer with a modern web browser and an Internet connection. The following web browsers are supported: Chrome, Safari (version 7 and up), Firefox and Internet Explorer (version 8 and up). Although you must be connected to the Internet to use BRCS, some of your work products may be printed or downloaded for sharing offline.

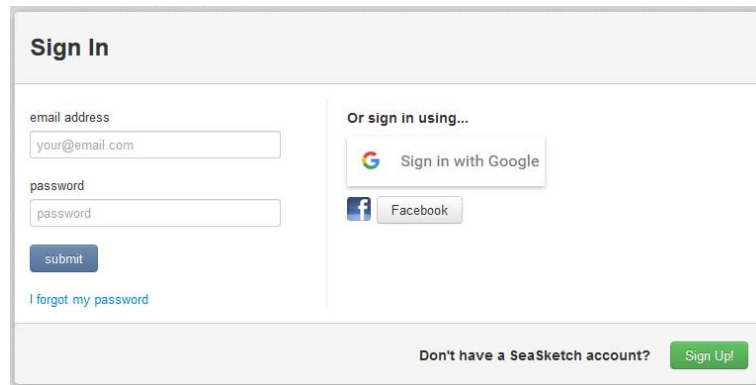
- Open your browser and enter this address into the location bar or click on the link:
<http://brcs.seasketch.org>

Remember to enter the web-address into the *URL bar*, not the search bar (e.g., the Google Search bar). You are opening a web site (the BRCS project), not searching for one. It should look like this:



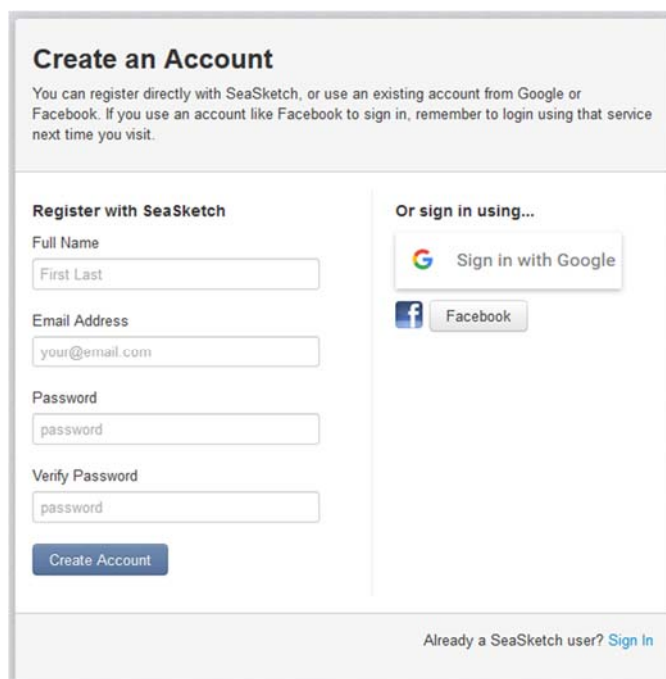
Assuming you have not yet created an account or logged into BRCS or SeaSketch on your computer, this is the public view of the BRCS project via SeaSketch. Notice that the “About this Project” side bar contains some basic information and may contain links to other resources. In the top right-hand corner of the project description, there is an “X”. Click on that “X” to close the description of the project. You may always re-open the project description by clicking on the word “BRCS” in the upper left-hand corner of the project.

- Click on the words “Sign In” at the top right corner of the project. You will then see this:



If you like, you may sign in using your existing Google (i.e., “Gmail”) or Facebook account and password. (Note that Facebook and Gmail accounts are only used for authentication. There is no link between Facebook/Gmail and BRCS.) Or, you may use any other email account but, to do this, you will need to create an account by clicking on the green “Sign Up!” button in the lower right-hand corner of the Sign In window.

- When creating an account, enter your full name, your email address and any password you choose. (This does not need to be the password that you use to retrieve your email from

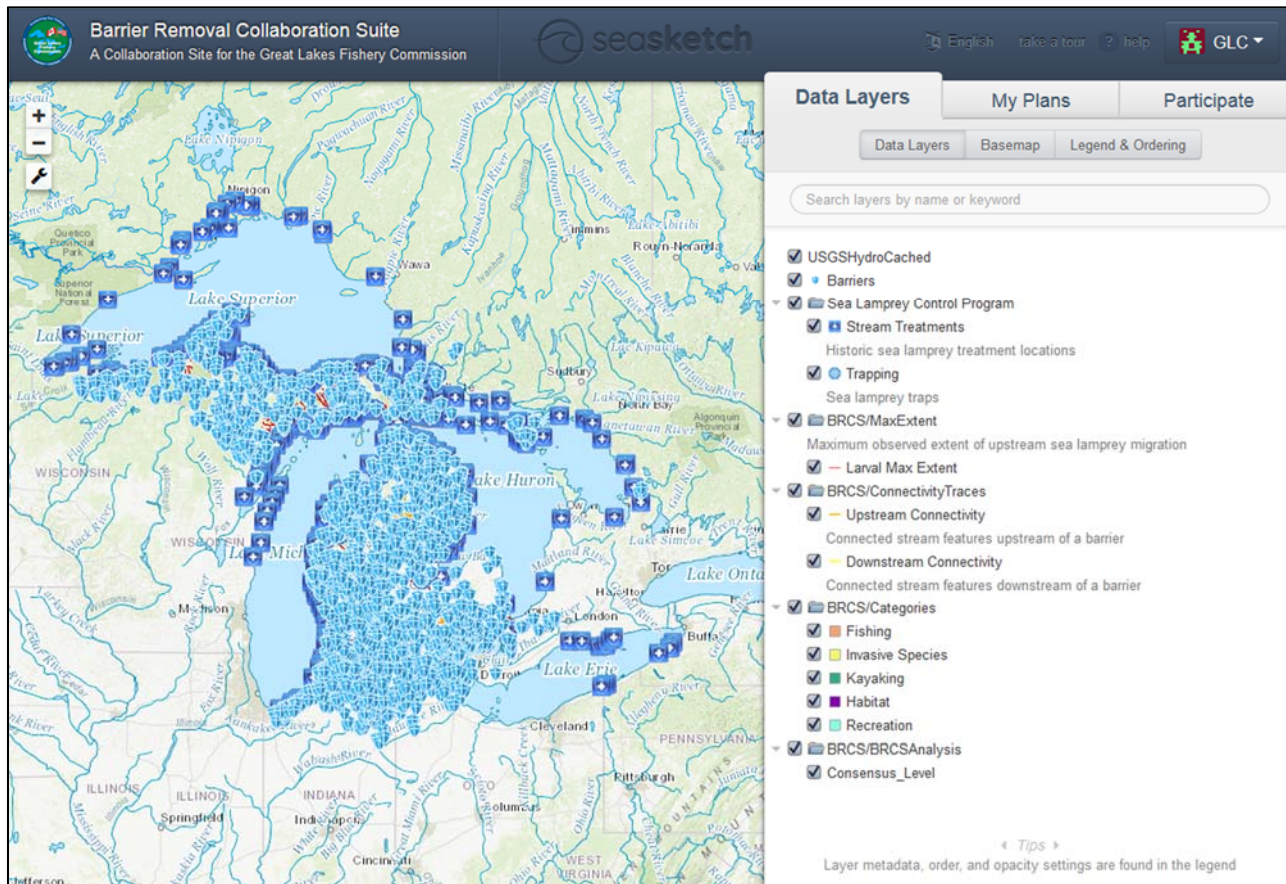


your email provider.) If you forget your password you may always retrieve it from the system at a later time.

- Once you are ready, return to the Sign In window by clicking the words “Sign In” in the top right corner of the screen. Then, sign in!

Important: If you are working on a computer to which others have access, make sure you log out after each session. Otherwise, others may have access to your work and any privileged information to which you have access.

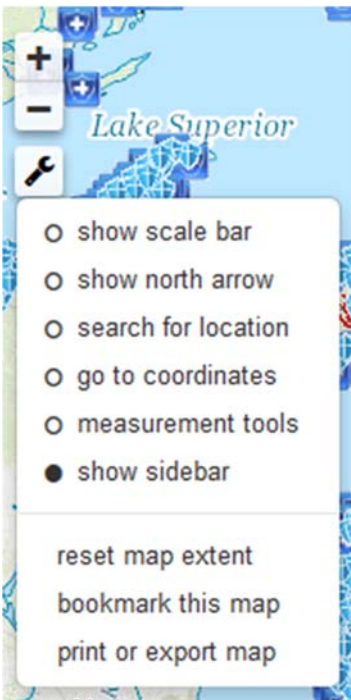
Step 2: Familiarizing yourself with the layout



Upper bar:

Take some time to familiarize yourself with the entire layout of the project. Look at the dark blue bar along the top. On the far left is the GLFC logo, when clicked it opens a new window to the GLFC website. Next to the logo is the project title (Barrier Removal Collaboration Suite) that you may click on to bring back the “About this Project” splash page. To the right of the project title, you will see a subtle “SeaSketch” watermark that is highlighted when you hover over it with your cursor. Clicking on the SeaSketch watermark will bring you to the SeaSketch website home page. To the right, is the word “English” which is the language selected. You may click it, and choose alternatives such as Español or Indonesian. Next to the right, is “take a tour” which is a guided tour to the BRCS interface, similar to this user guide. Next to the right, on the far right of the dark blue bar you will see a “? help” button. On the far right, is your user name. Click it, and you will see a drop-down menu with options for “My Profile”, “About SeaSketch”, and “Log Out”.

Map layout:



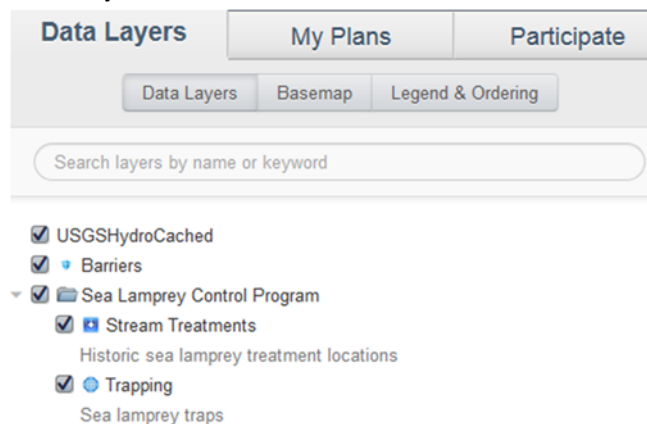
Notice the “+” and “-“ buttons in the upper right hand corner of the map. These may be used to zoom in and out on the map. Click on the wrench (spanner) icon to view a list of tools, including:

- **Show scale bar**
 - **Show north arrow**
 - **Search for location**
 - **Measurement tools** for measuring distances, areas and coordinates.
 - **Show sidebar** for showing / hiding the Data Layers, My Plans and Participate Tab. This is particularly useful if you are working on a small computer screen, such as a laptop, and you wish to view the map only.
 - **Reset map extent** for returning the default map extent. This is useful when you want to view the entire planning region or if you have simply lost where you are on the map.
- **Bookmark this map.** Bookmarking a map generates a URL that can be shared with others, for example, by email. We will discuss this topic in more detail later. For now, notice that clicking on this tool brings up a window and a URL that you may copy and share with others.
 - **Print or export map.** You may also share your maps by printing them as a PNG image or PDFdocument in a variety of sizes, with or without a legend.

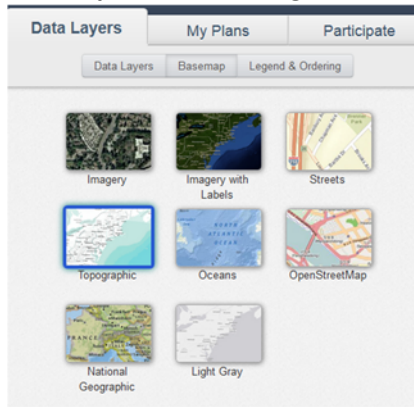
To the right of the map, you will see three tabs: **Data Layers**, **My Plans** and **Participate**. You can click on each tab to view its contents.

The **Data Layers** tab contains a complete list of authoritative map layers and base maps available to you in this project. **Data layers** may be individually turned on, inspected and re-ordered on the map whereas **Basemap** will always appear below all other map data.

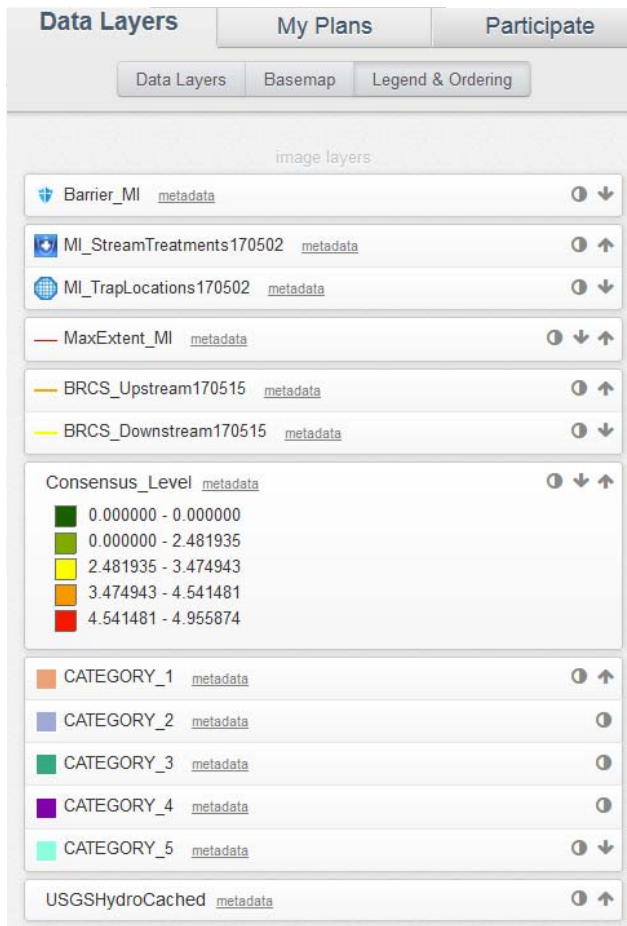
Data Layers Button



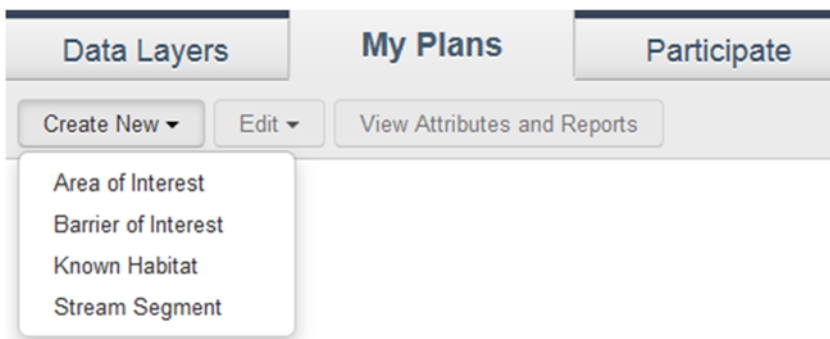
Basemap Button – Changes the background maps of BRCS.



Legend & Ordering button

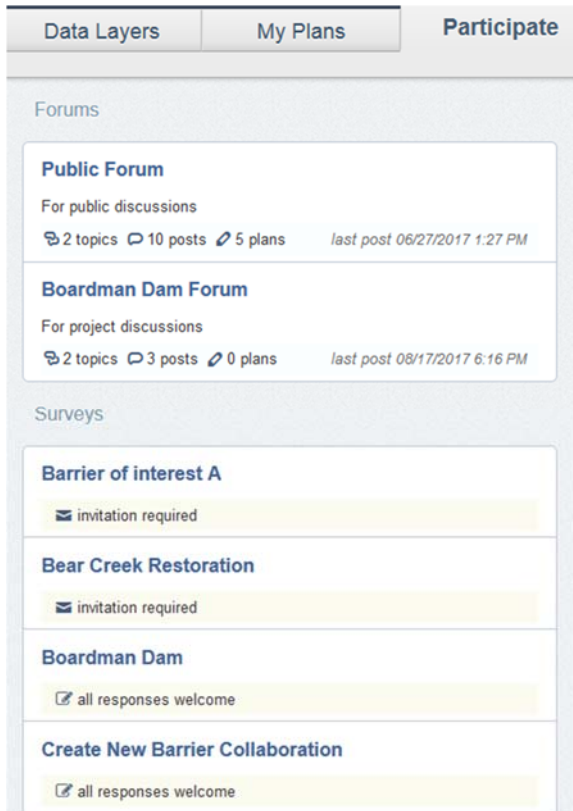


The **My Plans** tab is blank (empty) by default. This is your own private workspace and, over time, you



will begin to see this space fill up with plan elements that you have sketched and copies of those that have been shared with you. Plan elements include Mooring and Areas of interest, Barrier of Interest, Known Habitat, and Stream Segment.


The **Participate** tab lists the forums and surveys for which you have permission to access. **Forums** are places to post messages, drawings, plans and files (e.g., documents). Some are public and some are private to designated user groups. **Surveys** may be completely open to the public (crowd-sourced) like Create New Barrier Collaboration, or they may be private to a designated group of users.



ASSIGNMENT: Fill out Your Profile

- Click on your name in the top right-hand corner of the screen and choose “Edit Profile”. This is
 - the information others will be able to see when collaborating with you in BRCS.
- If you like, enter an email address that others may use to contact you, list any affiliations you have and write a short biography to help others know who you are.

Your Profile



To add or update your profile picture, use [Gravatar.com](https://www.gravatar.com) to assign a new profile picture to greatlakescommission@yahoo.com

Name
GLC

Display Email
Optionally provide an email address that's shared with other users.
When blank, none will be shown

Affiliations
List any important organization affiliations here.
e.g., University of California

Bio
This brief bio will be available for other users to read when viewing your profile.

Notification Preferences
SeaSketch can keep you up to date with email notifications when there are new data layers or discussions in the forum.

Email me
 Daily of relevant activity in this project
 Weekly summaries of project activity

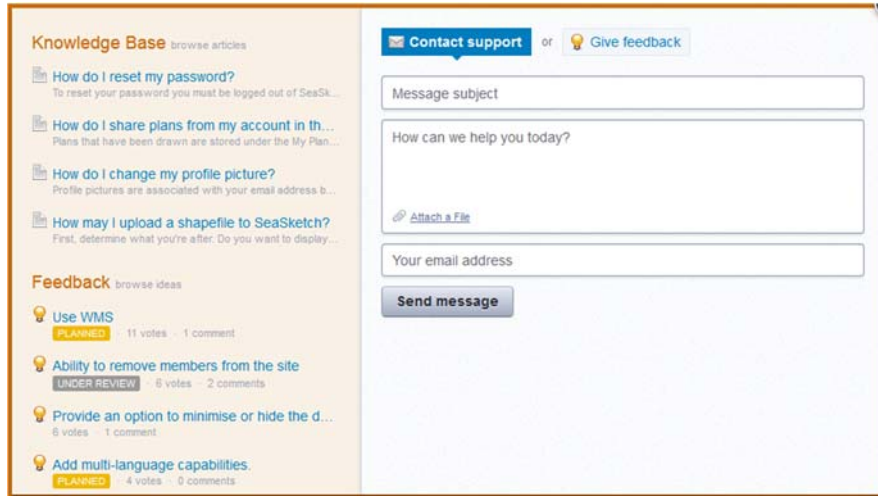
Save changes Cancel

Step 3: Getting Help

As you begin to use BRCS, you may discover that you have questions or are experiencing problems using the tool. There are several ways you can get help.

- Beyond this How To Use BRCS guide, the SeaSketch platform maintains a Knowledge Base set of files at <https://seasketch.uservoice.com/knowledgebase>

- Click on the “? help” in the top right corner of the blue menu bar to bring up a window that looks something like this:



In the upper left, there are links to get to the Knowledge Base. In the bottom left, there are links for Feedback and some previously suggested improvements to SeaSketch. On the right, there is the Contact support email form. Messages sent through this will go to the technicians who built the tool. Notice that if you begin typing a word in the “Message Subject” bar, you will automatically begin to search the knowledge base. Try typing the word “profile” and notice that there is one article in the knowledge base on changing your profile picture.

You may browse and/or search these articles through this window. You may also **submit questions and feedback** using this tool. If you have questions or comments, please be sure to provide lots of context. You can also reach this window through this link:

seasketch.uservoice.com

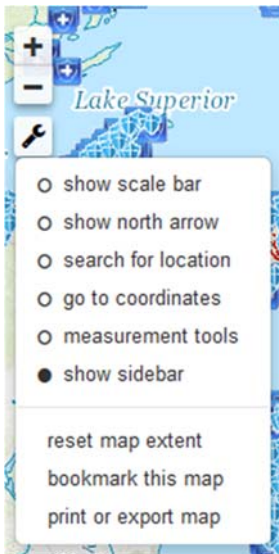
- If you have **general suggestions about BRCS** (i.e., how BRCS was developed with SeaSketch) please send an email to Greg Parrish (gparrish@glc.org) rather than using the help. If you have **general suggestions about SeaSketch** please send an email to Will McClintock (will@ucsb.edu). Messages sent to the SeaSketch Help will go to the technicians who built the tool.

Important: *To accurately trouble-shoot the problem you are having, we need to know the operating system (Windows, Mac) and version you are using, your browser (Internet Explorer, Safari, Chrome, Firefox) and version you are using, and as many other specifics you can provide. The more detail you can provide us, the faster we can help you find a solution to the problem. Details on finding your browser version may be found in the Knowledge Base.*

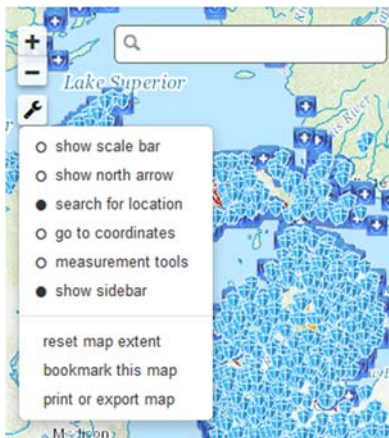
Step 4: Map Navigation

Using a number of different controls, you may pan and zoom to any location on the map.

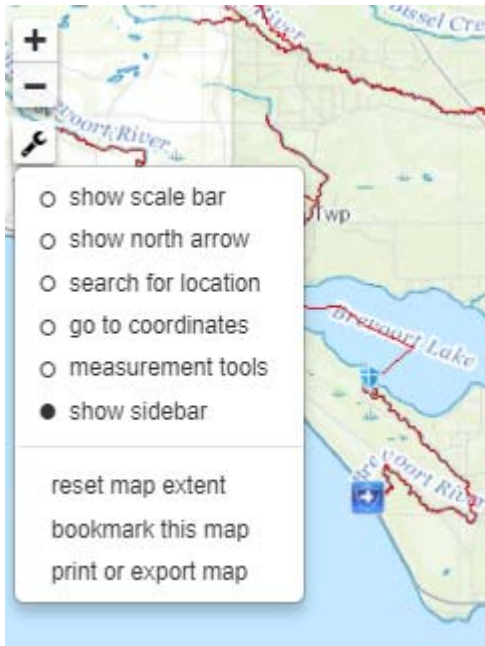
- Try **zooming** in and out using the “+” and “-” buttons in the top left corner of the map. You may also zoom in by holding down the shift key, clicking and dragging your mouse on the map. This will zoom the map to the area you identified on the map. On some computers, the mouse is equipped with a wheel and this too can be used to zoom in and out on the map.



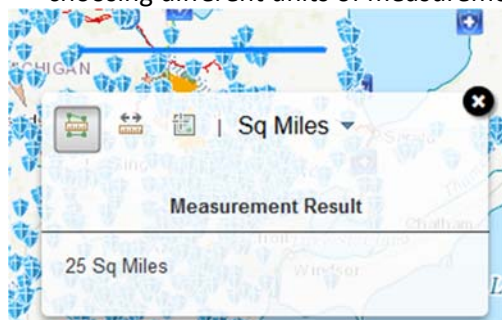
- Try **panning** (moving the map side to side or up and down). To pan, simply click and hold down your mouse button anywhere on the map and move your mouse left, right, up or down.
- To **search for a specific location** on the map, click on the tool (spanner) icon and choose “search for location”. In the search bar, enter the name of a place you would like to search for and press enter. The map will pan and place a marker on the map if that is a known place name. (Note you may need to zoom out to view your location in a wider geographical context.) To clear the marker off the map, click the “x” next to the search bar. To hide the “search for location” bar, simply click “search for location” again in the tool bar.



- The map extent is the portion of area of a region shown on the map. If you have zoomed in or out or panned to an area on the map, you have changed the map extent. When you wish to return to the default extent (i.e., the view of the entire area of BRCS), click on the tool icon and choose “reset map extent.”



- Select “**measurement tools**” under the tool bar to see options for measuring distances (lines), areas (polygons) and location (coordinates).
- Hover your cursor over the three icons to see which tool is which. Try using each of them.
- To begin a measurement, click once on the map. To finish a measurement, double click your mouse on the map. Click on the map in several locations to practice each tool. Experiment with choosing different units of measurement

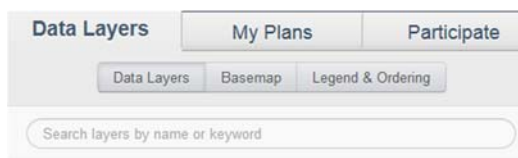


Exercise 2: Basemaps and Data Layers

In this section, you will learn:

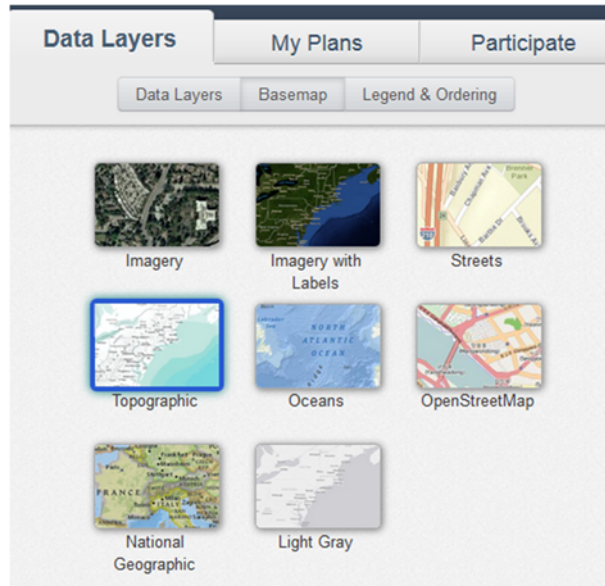
- About map layers and features,
- How to search for data layers and base maps,
- How to turn on/off layers, change their order and transparency on the map, and view legends,
- How to view metadata,
- About permissions for viewing public versus private layers.

Orient yourself to the Data Layers tab. Notice that if one has full access to the project it will have three buttons: “Data Layers”, “Basemap” and “Legend and Ordering”. If there are no Sketch Classes set up, one would only see the Data Layers and Participate tabs. Administrators may also choose to restrict sketching to a defined group of users. In that case, only those users with permission to sketch would see the My Plans tab. In this case, anyone from the general public can sketch, so you should see the My Plans tab as in the image below.



Step 1: Basemaps

- Click on the “**Basemap**” button and notice that you have 8 different basemaps to choose from. Click on each one to see how the map changes. Each of these basemaps has utility, depending on the kinds of information you want to see and what kinds of other data you wish to overlay on top of them.



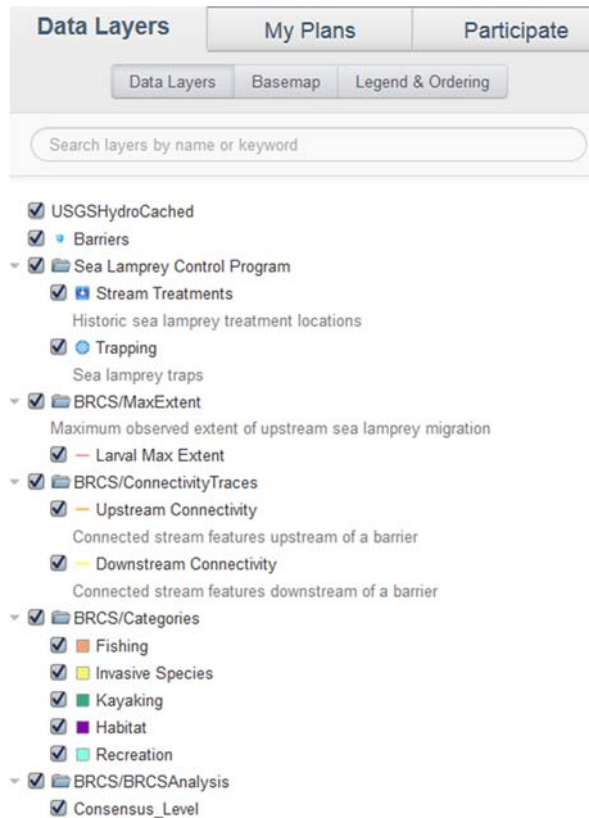
The “Imagery with Labels” basemap is particularly good for identifying particular locations that you (e.g., a stakeholder or planner) may be familiar with.

- Zoom in and out notice how the map changes. Sometimes, clouds obscure the ground surface at some scales (e.g., zoomed out) but then the clouds should disappear at other scales (e.g., zoomed in).
- Restore the map to the default extent.

Basemaps vary in quality, particularly when you consider how they look at different scales. For simplicity, you might just stick with the “Light Gray” or “Topographic” basemaps that display well at all scales. Then, use a different basemap (e.g., “imagery with labels”) if you want to view specific features on the land or in the river.

Step 2: Data Layers

- Click on the **Data Layers** button under the Data Layers tab. Notice that some of the data have been organized into folders: Sea Lamprey Control Program, MaxExtent, ConnectivityTraces, Categories, and BRCSAnalysis.



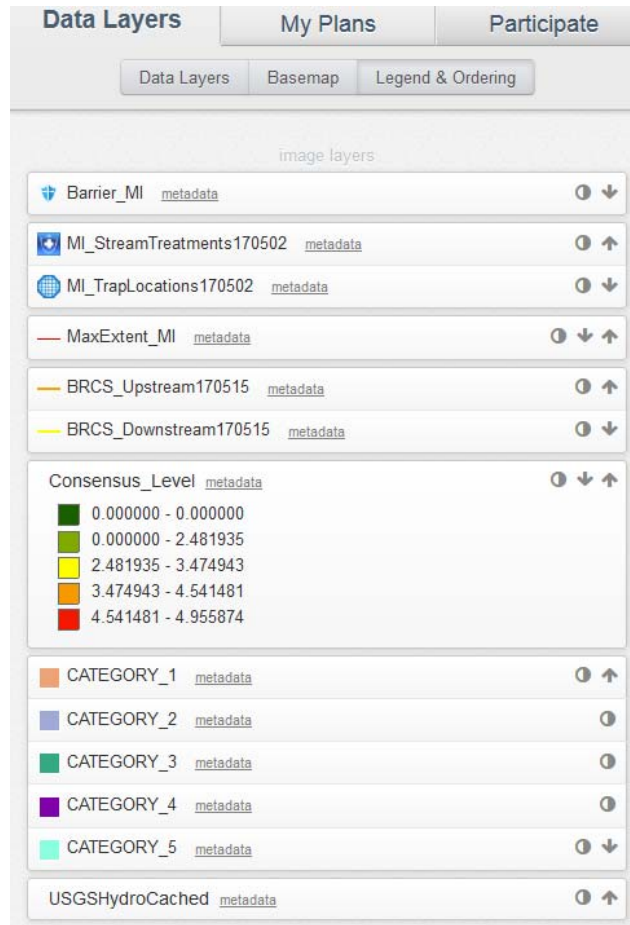
- Click on the arrow next to a folder to expand the list of layers contained within that folder.
- Click the checkbox next to a layer to turn it on or off.

Important: Map layers may be designated private to some user groups and others are completely public. If you are not logged into BRCSTraining, you may not see some layers that are visible to you.

Turn on all of the layers within the “Sea Lamprey Control Program” folder by clicking on the

checkbox next to the folder name.

- Click on the Legend & Ordering button to view the **legend**. Notice that each layer that is turned on will be listed in the legend. All layers turned off will not show up in the legend.



There is a lot to this legend, so take your time to understand it! First, notice that each layer has unique symbols that can help you understand features in that layer. For example, the Food Crops have been symbolized differently from Mangroves to help you distinguish between these two features of a single map layer (the Land Use layer).

- Click on the icon that looks like a circle with white and black halves. This brings up a slider that lets you adjust the **transparency** (or opacity) of a map service (that may contain one or more layers). Adjust the transparency of CATEGORY_1 layer for example.
- Click on the **down arrow** associated with one of the layers to change the order in which it draws on the map. In the example above, if you wanted to the Stream Treatments layer to appear above the Barriers layer, you could simply click on the Up arrow on the Stream Treatments layer until it appeared above the Barriers layer.
- Click on the “**metadata**” link next to a layer name. This will bring up another tab in your browser to show you a description of that layer.

[JSON](#) | [SOAP](#)

BRCS/BRCSAnalysis (MapServer)

View In: [ArcGIS JavaScript](#) [ArcGIS Online map viewer](#) [Google Earth](#) [ArcMap](#) [ArcGIS Explorer](#)

View Footprint In: [ArcGIS Online map viewer](#)

Service Description:

Map Name: Layers

[Legend](#)

[All Layers and Tables](#)

Layers:

Description:

Copyright Text:

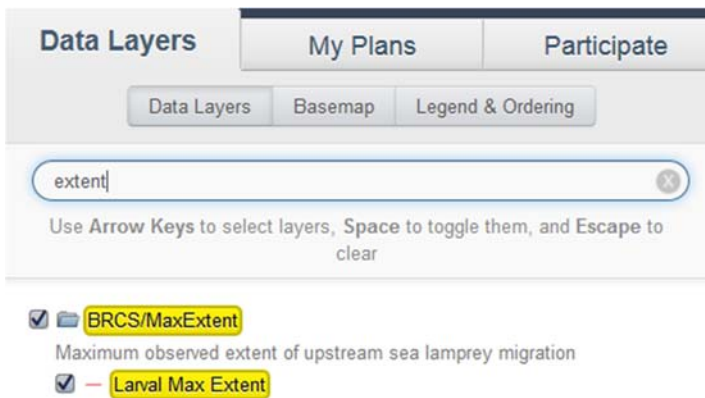
Spatial Reference: 102100 (3857)

Single Fused Map Cache: false

Initial Extent:

XMin: -9556476.38858383
 YMin: 5573066.796851763
 XMax: -9506747.851626756
 YMax: 5592077.147372463
 Spatial Reference: 102100 (3857)

- Close the tab in your browser where the metadata is displayed and return to the map.
- **Search for a map layers** by clicking on Data Layers tab and button and typing in the name of a layer in the “Search” bar at the top. An example of a search for “extent” is below. It results in the BRCS/MaxExtent folder and a layer being filtered. After you have completed your search, use the “X” icon at the end of the search bar to clear the contents of the bar and return to the full list of map layers. *Notice you may also use Arrow Keys, the Space Bar and Escape Key as shortcuts to some of these actions.*



Exercise 3: Participation

BRCS has two major participation features,

- Discussion Forums, which enable real-time chat, sharing of plans, and map annotations; and
- Surveys, which allow project administrators to collect information from participants.

Both are found under the **Participate Tab**. Each existing barrier survey has a corresponding forum for survey participants to share their opinion regarding this specific barrier.

- Click on the Participate Tab and scroll down to see the list of Forums and the list of Surveys available to you.

The screenshot shows the 'Participate' tab selected in a navigation bar. Below the tab, there are two main sections: 'Forums' and 'Surveys'.

Forums

- Public Forum**
For public discussions
3 topics 12 posts 5 plans last post 10/19/2017 5:56 PM
- Staff Forum**
For internal discussions
One topic 10 posts 2 plans last post 05/11/2017 10:42 AM
- Sixth St Dam Forum**
For project discussions
One topic 9 posts 0 plans last post a day ago
- Boardman Dam Forum**
For project discussions
One topic One post 0 plans last post a day ago

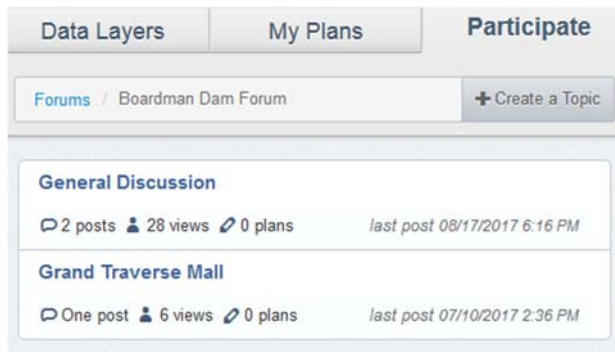
Surveys

- * Create New Barrier Collaboration ***
all responses welcome
- Boardman Dam**
all responses welcome
- Project Survey**
invitation required
- Sixth St Dam**
all responses welcome

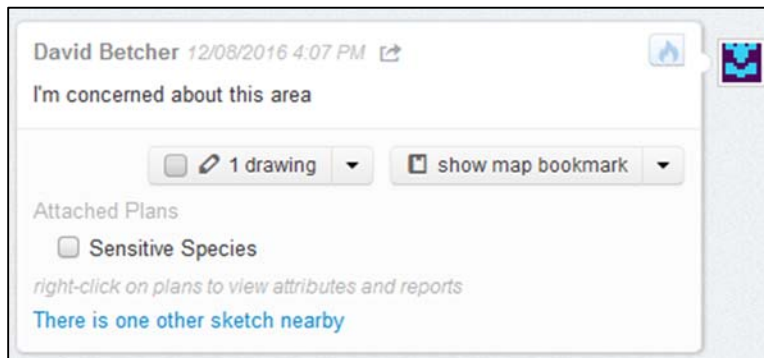
Step 1: Discussion Forums

Throughout a typical planning process, you would be encouraged to share your ideas by way of discussion forums. Some forums are open to the public, while others are private to designated groups. In most cases, if you have access to a forum, you will have permission to read and write messages.

- Click on the topic “Boardman Dam Forum”. This is a public forum and you will have permission to read and write messages. There are two Topics to choose from in this Forum: General Discussion, and Grand Traverse Mall. Each topic has a summary count of the number of posts, views, and plans within it.



Take a good look at first message, located at the very top of the forum topic. Notice that the message has a time stamp next to the name of the poster. Immediately next to the time stamp is a link icon.



The post from David Betcher above includes some text, a drawing, and an attached plan. Messages may also include embedded images, hyperlinks and formatted text. It may be difficult for others to follow what the post refers to unless you click on “show map bookmark”. This will turn on the layers and zoom to the extent that David was looking at when he sent this message.

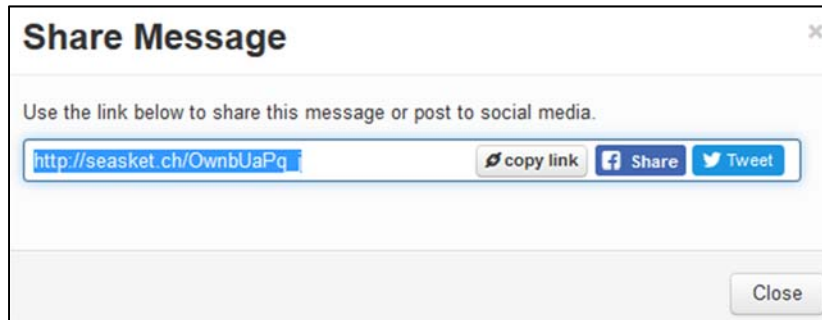
Drawings can be saved with each post. Turn these drawings on and off by checking the box next to it. Drawings may be points, lines and polygons. Drawings can help by highlighting certain areas.

- Click on the checkbox “1 drawing” and a drawing will appear on the map. If you don’t see it, you can always right click on the name of the drawing and choose “zoom to” from the popup menu.

Notice that there are other options in the pop-up menu associated with attached plans, including “View Reports”, “Copy” and “Export to Shapefile”. We will discuss these features in a later exercise.

- Hover your mouse over the link icon next to the time stamp and you will see the words “share

Clicking on this link will open this window to share this post as a link that you can copy, or click on Facebook or Twitter to Share via these services.



This URL is a direct link to the posted message, including drawings and a bookmark.

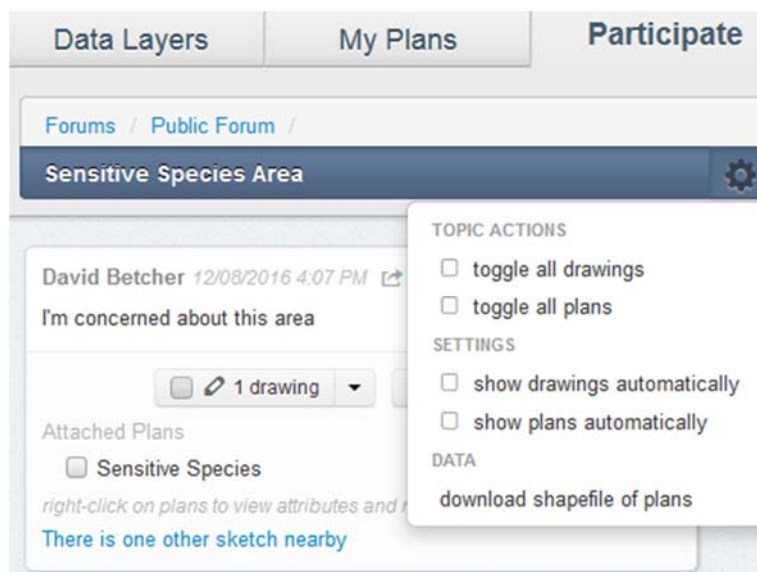
- Copy and paste this URL into another browser tab. Notice that BRCS opens directly to the message and turns on all of the drawings and plans included in the post.

This feature is handy if you want to save the message link to a document or if you want to email the link to a colleague.

Important Note: *If you send the link to somebody who does not have permission to view the message (i.e., in a private forum) they will not be able to see it. You must be a member of a privileged group to view messages in a private forum. In this case, the “Announcements” forum is public (with read-only access) so anyone in the world is able to read it.*

By default, drawings and attached plans are loaded when you open a forum. If you like, you can toggle on or off all of the drawings and plans in a forum at once.

- Click on the gear icon at the top right of the forum topic (e.g., to the right of “Sensitive Species Area” in the image below).
- Toggle all drawings on and off (i.e., show/hide all drawings)



Notice that one can also attach files (documents, PDFs, images, zip files, etc.) to a forum message. At the bottom of any message there is an “Attach Files” option, just as there is an “Attach Plans” option.

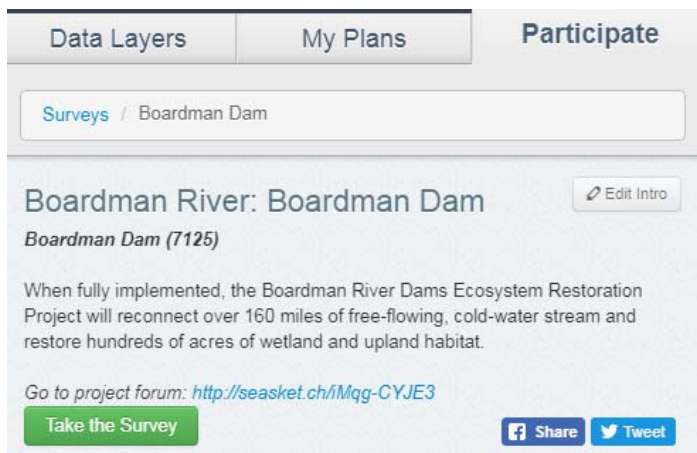
Step 2: Surveys

BRCS surveys are issued by administrators and used to collect information from participants. Example survey questions might include:

- How does the removal of this barrier affect fishing?
- How does the removal of this barrier affect invasive species?
- How does the removal of this barrier affect recreation?

Surveys are listed under the Participate tab and may be open to the public (crowd-sourced) or they may require an invitation. In this section, you will participate in a demonstration Boardman Dam survey that is open to the public.

Open the Boardman Dan survey, and click on the green button Take the Survey.



In the survey, assign a weight to each of the categories.

Optionally, for each of these categories, the user may add a new feature by creating a plan (click on the blue Add a Feature button), or attach an existing plan (click on Choose from My Plans). You may add multiple plans for one category.

Additionally, the user can also use the links below the button to toggle between My Responses and All Responses to view or change past responses.

When finished, click the **Submit Response** at the bottom of this form.

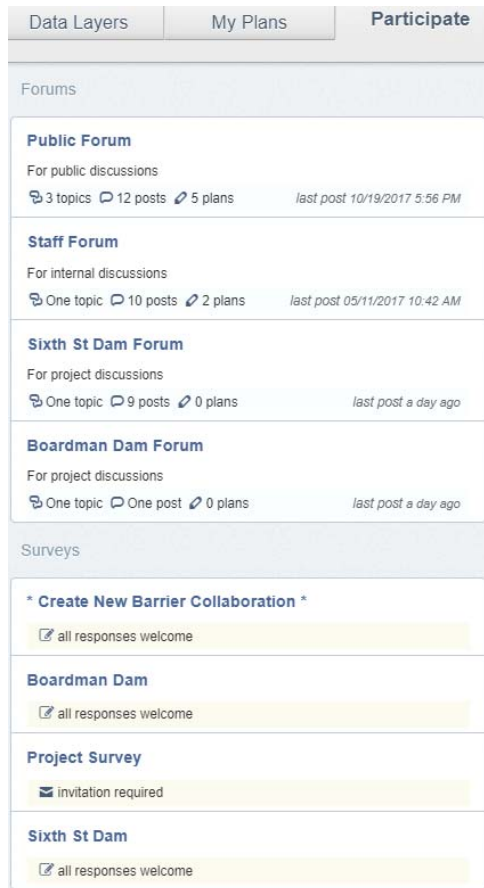
Step 3: Create a new barrier collaboration

Take the new barrier survey to start a survey, or the location of a barrier needs correction.

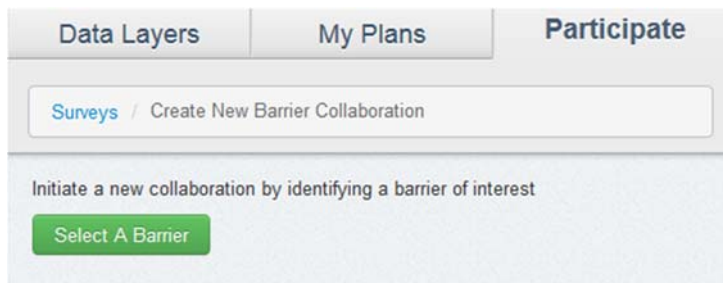
Users can create a survey and its corresponding forum by taking the Create New Barrier Collaboration survey. Once the request is approved by the administrators, the survey will become available to the

groups of interest or the public.

Click on the Participate tab, and then click on the Create New Barrier Collaboration Survey link.




- Click the button that says “Select a Barrier”



Data Layers
My Plans
Participate

Surveys / Create New Barrier Collaboration



GLC
You are filling out this survey as GLC. If this is not you please [logout](#).

Is your barrier of interest shown on the map?

Select an option ▼

Barrier location on the map: is this barrier icon in the correct location?

Select an option ▼

What is your interest in this barrier?

Entered 0 characters out of a limit of 254

cancel
Save Draft
Submit Response

Path 1: If the barrier of interest is on the map already

For the first question “Is your barrier of interest shown on the map?”, if your barrier is already shown on the map, select Yes from the drop-down list. A follow up question, “Barrier Location”, will show up requesting the user to identify the barrier of interest.

Is your barrier of interest shown on the map?

Yes ▼

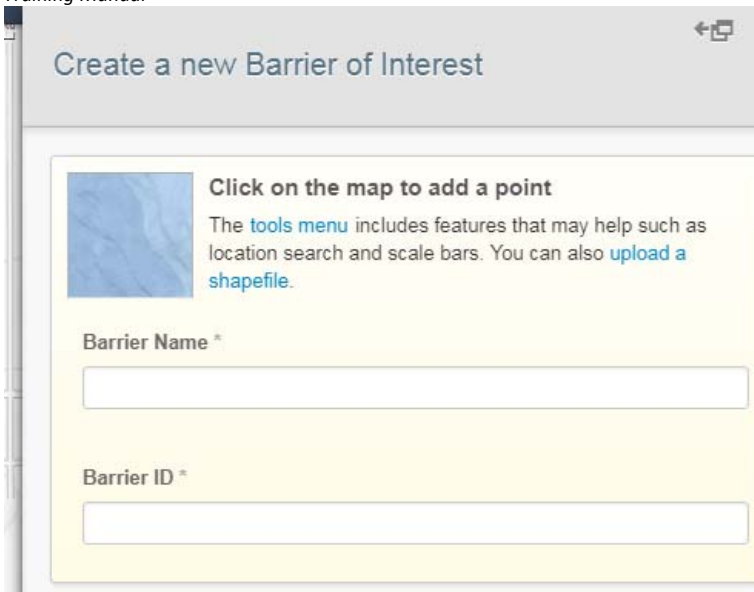
Barrier Location

Please identify your barrier of interest by adding a new feature or attaching an existing sketch.

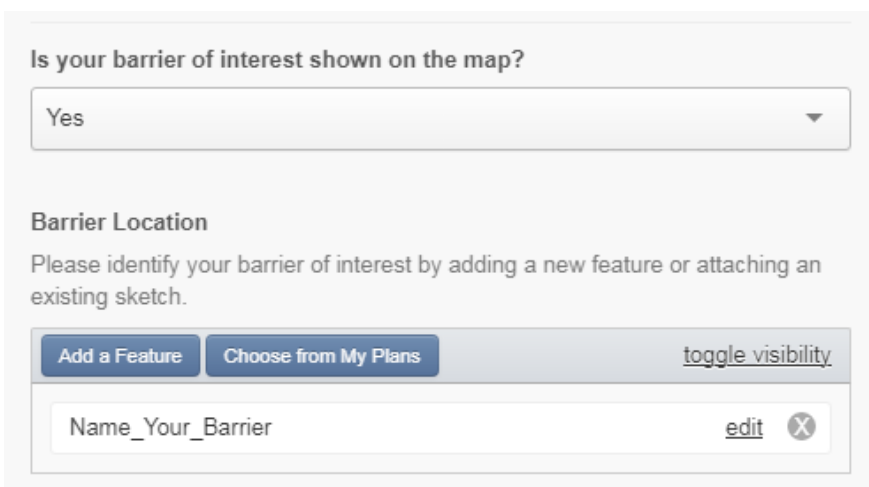
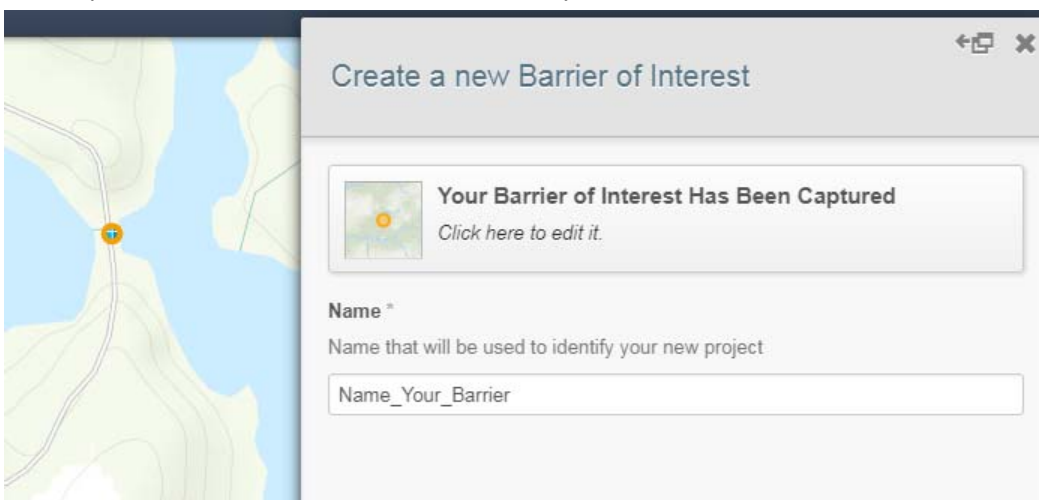
Add a Feature
Choose from My Plans
toggle visibility

You must provide a minimum of 1 Points

Click on Add a Feature button will bring up a new side window for barrier identification.



Click a barrier on the map, BRCST will automatically snap your selection to the nearest existing barrier. Fill in the Name field and click Save Plan button at the bottom. The selected barrier will show up in the barrier location list of the survey.



The next question, “Barrier location on the map: is this barrier icon in the correct location?”, aims to

help the administrators provide more accurate location information about a barrier. If you are uncertain of the location, choose “No response or unknown” from the drop-down list. If the location of the selection barrier is correct, select Yes. Otherwise, select No and click on Add a Feature and use the map to point out the correct location of the barrier.

Barrier location on the map: is this barrier icon in the correct location?

No

Please place a point where the barrier should be located:

Add a Feature Choose from My Plans toggle visibility

You must provide a minimum of 1 Points

Fill in the optional explanation of your interest. When finished, click the **Submit Response** at the bottom of this form.

Path 2: The barrier of interest is not on the map

If your barrier is already shown on the map, select No from the drop-down list for the first question in the survey. Then you will be asked to use the Add a Feature or Choose from My Plans button to point out the location of the barrier on the map.

Is your barrier of interest shown on the map?

No

Drop a point on the map to indicate the location of your barrier of interest.

Add a Feature Choose from My Plans toggle visibility

What is your interest in this barrier?

Entered 0 characters out of a limit of 254

cancel Save Draft Submit Response

Fill in the optional explanation of your interest. When finished, click the **Submit Response** at the bottom of this form.

Exercise 4: Sketching Plans

SeaSketch was primarily designed as a planning tool; a means by which people with just a little training could sketch prospective spatial plans. In this section, you will be using simple drawing tools to sketch, edit and analyze plans.

Before you get started, it is important to distinguish sketching from drawing. In the previous exercises, you used drawing tools to highlight features and areas on a map and these drawings were included in forum messages. **Drawings**, unlike sketches, cannot be analyzed. When you sketch a plan in BRCS, you are actually creating geospatial plans that are evaluated using other kinds of map data.

Sketching and refining plans is an iterative process. For example, you may choose to sketch a prospective Sanctuary, evaluate that sketch in terms of size, representation of habitats, and fisheries impact. Based on that evaluation, you may decide to edit the sketch by changing the boundaries, re-evaluate, and so on. This iterative design process is sometimes called “Geodesign”, a process that combines the unencumbered art of design with science-based analytical feedback.

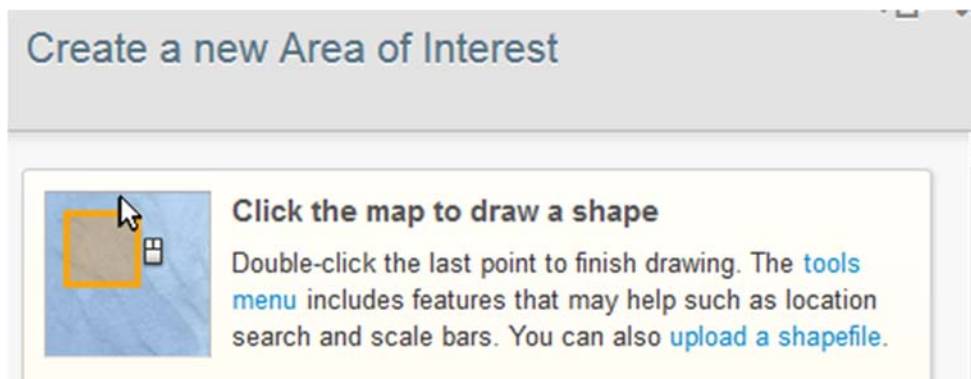
Step 1: Sketching Plans

- Restore the map to the default extent and turn off all data layers that are currently turned on, except the Barriers. (Hint, reset the extent using the tool under the spanner icon.)
- Click on the My Plans tab. By default, you will not see any plans listed here. You haven’t yet created any.



The **My Plans** tab is a workspace private to each user. Think of this as a sandbox where you can create sketches, see what they look like, analyze them and, *when you are ready*, share them with other users. An important part of this process involves playing with designs. You don't need to get anything “right” to begin with. Geodesign involves experimentation, so play around!

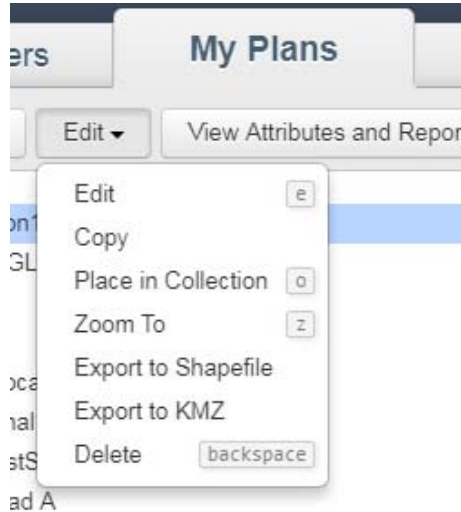
- Click “Create New and choose “Barrier of Interest” and start creating your first plan on the map. Single clicks add vertices to your plan in order and a double click ends sketching. Fill in required and optional fields then click Save Plan button to save the sketch in My Plans.



Step 2: Editing Plans

Now that you know how to sketch plans and evaluate them with reports, you need to know how to refine and improve on them. You can copy your area of interest plan and modify the boundaries. Then, you can compare the reports for both areas of interests.

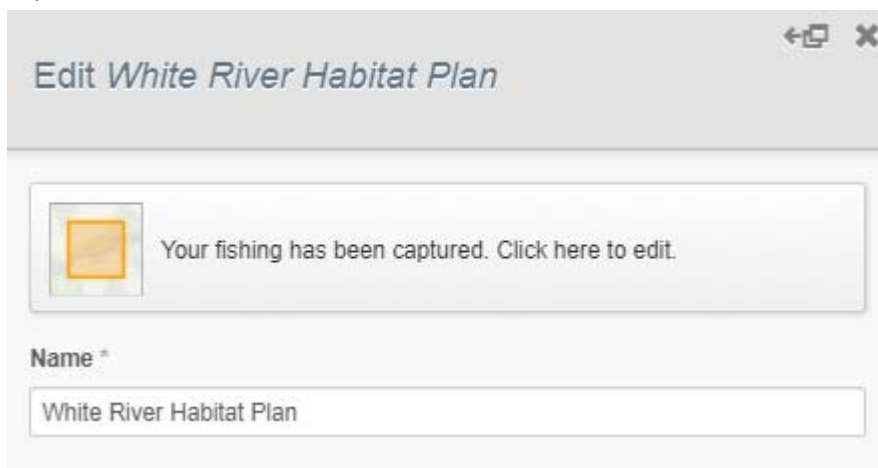
- Under the My Plans tab, click on a plan you previous created. Then, click on the Edit menu and choose “Copy”.



This action places an exact copy of your plan under the My Plans tab.

- Click on the copy to highlight it. Then, click on the Edit menu and choose “Edit”.

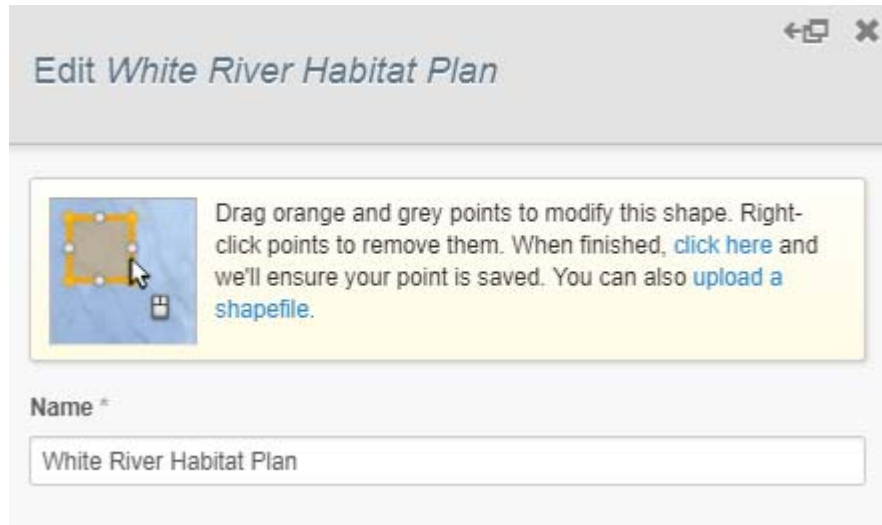
Notice that you can choose to edit the geometry (shape), the attributes (name, description, source of information) or both. Start editing the geometry by clicking on the button at the top of the panel that says “Click here to edit”.



Notice that your plan has a few orange dots and a few white dots. These are points that you may click on and drag to change the shape of your plan.

- Click and drag an orange point to change the boundary of your area of interest.

- Click and drag a white point. Notice that when you click and drag a white point, it changes to orange and two new, white points appear on either side of it. In this way, you can create more points and have complete control over the shape of your plan.
- If you right click an orange point you can choose to delete it. Note that white points cannot be deleted except by deleting the orange points on either side of them.
- When you are done changing the shape of your reserve, click the button at the top of the panel to stop editing the geometry.



- If your changes are successfully saved, the content of the button will be updated.
- Click “Save Plan”.

Exercise 5: Collaboration

BRCSTraining was designed to facilitate collaboration, primarily by means of sharing through discussion forums. These forums allow for collaboration with others by sharing one of your plans, copying plans from others, and editing a shared plan. You can also discuss differences between your plans and those shared with you in forums.

Step 1: Copying a Plan

- In Participate tab, go into a Forum. Look for a post with a plan attached. Right click on the Plan name and choose “Copy”. The plan will be copied into your My Plans tab and be available for you to modify it there.

Exercise 6: Advanced Topics

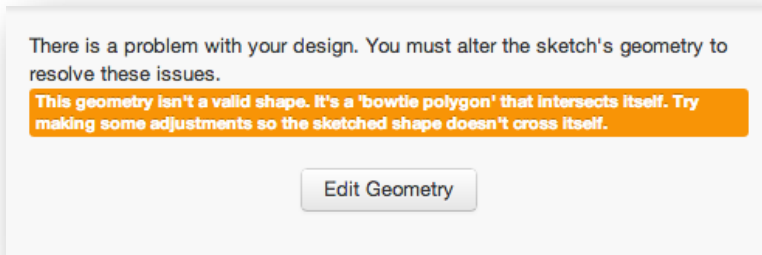
Topic 1: Troubleshooting

From time to time you may experience problems with BRCS. As discussed in Exercise 1, Step 3, the Help system in BRCS might be used to find answers to questions about how to use BRCS. As a general rule of thumb, if you are having trouble with BRCS, do the following before using the help system:

- Check to ensure that you still have an Internet connection. BRCS and the SeaSketch platform are a web-based tool and will not work without an Internet connection. If you have lost your Internet connection, re-establish your connection before continuing to use BRCS.

In addition, you should be aware of the following issues and ways to help resolve them.

- **Map layers are not loading.** When you click on the checkbox next to a map layer name, you are actually making a request to a remote server to load some data. If the server is overloaded (busy) or if the data are not available (i.e., the map service is “down”), you will see a blue bar appear over the layer name.
- **The cursor appears to be stuck to the map.** Sometimes your cursor may appear to get stuck to the map after clicking and dragging on it. In this case, even after releasing the mouse button, the map will move when you move your mouse. To restore BRCS to normal behavior, simply refresh your browser.
- **This geometry isn't a valid shape.** Sometimes when creating a sketch, you may see a message that says that the geometry isn't valid. This may occur when you are trying to draw a polygon (e.g., a box) and it is overlapping itself.



- o To correct this issue, draw your polygon again and remember to double-click AWAY from the first point to close your polygon.
- o You can also edit the polygon so that the geometry does not overlap itself.

Topic 2: Engaging Constituents and the General Public

BRCS is open to the general public and we encourage you to engage the public in the design, evaluation and discussion about plans. Here are some of the ways you can do so:

Sharing the web address, brcs.seasketch.org. Remember that some functionality may be limited to

privileged users. For example,

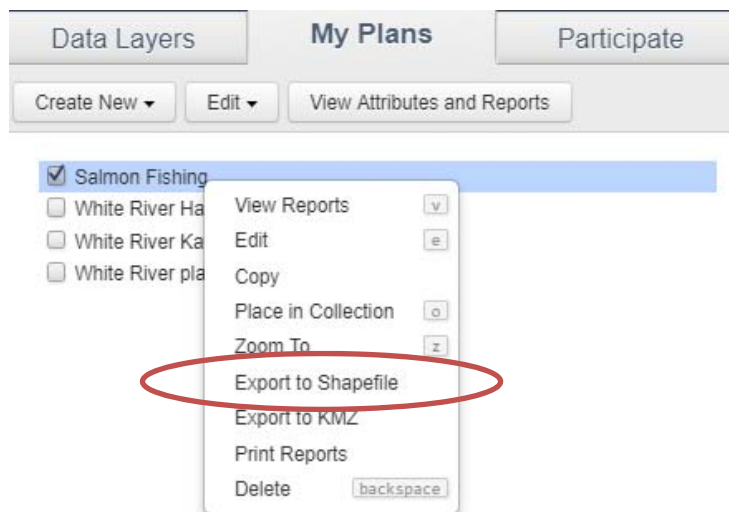
- Some data layers are private to some predefined groups (e.g., staff).
- Some forums are private to some groups (e.g., your class).
- Some surveys are private to some groups (e.g., your class).

So, while the BRCS project in SeaSketch is public, they may not be able to see everything you see, simply because you may be a privileged user.

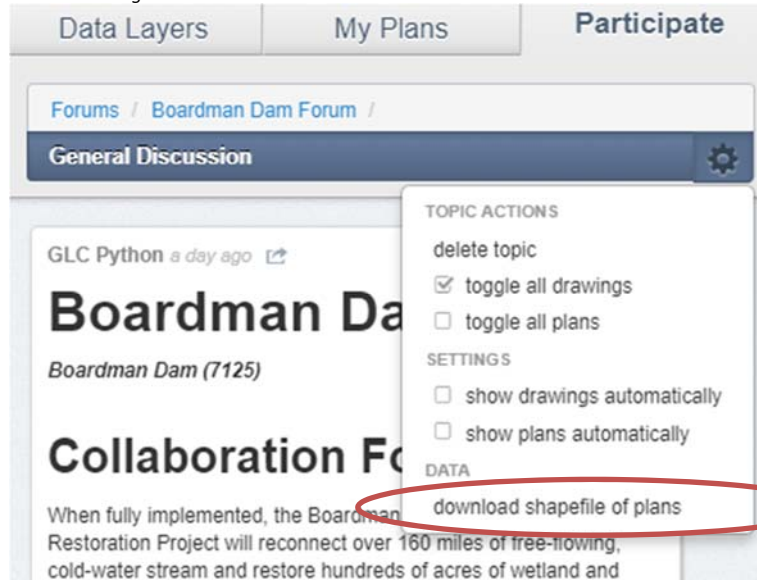
Printing maps. You may print or save maps in BRCS in two formats: PNG and PDF. These may be shared with others via email or in printed form. To save a map as PNG or PDF, select “print or export map” from the tools menu. A map will be saved to your computer, most likely in your Downloads folder. Maps may include a legend and will include any plans you have turned on.

Sharing a plan as a Shapefile. *Advanced users* with experience in geographic information systems (GIS) may wish to download plans as Shapefiles, a format that can be opened with applications such as Esri’s ArcMap.

- Individual plans may be exported as Shapefiles by highlighting a plan under My Plans, clicking the Edit menu (or right clicking) and choosing “Export to Shapefile”. This will create a compressed (zip) file that contains the Shapefile.



- Additionally, you can download all of the plans in a given Forum by clicking on the cog icon in a forum and choosing “Download Shapefile of Plans.”



When plans are exported from BRCSTraining as Shapefiles, they are unprojected in geographic coordinates (WGS84 datum).

Topic 3: Uploading Shapefiles as plan components

Typically, plan components are sketched. Those with GIS experience may wish to upload plans from Shapefiles. This is possible but note that complex Shapefiles (i.e., those with many vertexes) may only be uploaded as a non-editable shape. In other words, in order to upload a Shapefile and then edit the vertexes, the Shapefile must contain a relatively low number of vertexes. This number is not fixed so it may take some experimentation to see what can be uploaded as an editable shape.

To upload a plan as a Shapefile, follow these steps:

- Save your Shapefile to your hard drive in the unprojected geographic coordinate system, WGS84.
- Click "Upload a Shapefile" to define this geometry and read the instructions. Locate the file with the .shp extension (you can ignore the others), then drag and drop this file onto the map in BRCSTraining.
- You may only upload a single geometry at a time. If you have chosen a Shapefile with multiple geometries, you must click on the one that you wish to upload.

APPENDICES

Appendix A: BRCS and SeaSketch at a Glance

User Groups	<ul style="list-style-type: none"> • Are configured by BRCS project administrators. • One user can be included in multiple Groups. • Self-registered users that haven't been assigned to a group by the project administrator are automatically categorized into the 'Non-Project Self Registered'.
Forums	<ul style="list-style-type: none"> • Are enabled by the project administrator and can be customized to be: <ul style="list-style-type: none"> - Readable (by public, administrators only, or by group) - Writeable (by public, administrators only, or by group) • Can be customized so project administrator needs to approve messages before they are published • Messages be flagged as "inappropriate" and reviewed, deleted or accepted by administrators
Map Layers (geospatial data)	<ul style="list-style-type: none"> • Accessible to everyone by default. Access can be restricted to specific user groups. • Pop-up boxes with attributes can be customized to display specific attributes including hyperlinks, images (if available)
Sketch classes	<ul style="list-style-type: none"> • Also known as "plan elements" • Are publicly available by default unless access per user group is specified. • May be tied to analytical reports that detail the potential consequences or value of a prospective zone. • Are configured by project administrators.
Surveys	<ul style="list-style-type: none"> • A survey may be open to everyone or by invitation only, require login or not or be entirely anonymous • Surveys can be customized to restrict one single response by user or be unlimited

Appendix B: Glossary

Annotation	Also called a “drawing”. Within a discussion forum, users may place points, lines and polygons as a means of calling attention to geographic locations or features. Annotations are to be distinguished from plan elements (aka “sketches”), which are prospective plan elements and may be analyzed. Annotations cannot be analyzed, nor can they be exported from BRCS.
Array	A collection of prospective management zones, such as a group of aquaculture zones and/or protection zones.
Collection	Sometimes called an “array” or “network”, a collection is two or more zones that have been grouped together, representing a prospective comprehensive plan.
Drawing	A Map object is an Annotation. See Annotation. It cannot be used in analysis.
Feature	A Map object that has attributes. It can be used in analysis.
Basemap	A map layer upon which all other map layers are placed. In SeaSketch, basemaps are provided by Esri, Inc., and cannot be altered. In other words, the BRCS project does not have any control over the names, features or cartographic representations in any of the base maps. They are provided, “as is”.
Layer	A dataset that describes the distribution of geographic features. In SeaSketch, map layers are found under the “data layers” tab. These are the authoritative datasets provided by the BRCS project partners.
Map Extent	A map extent is the portion of area of a region shown in a map.
Pan	Panning refers to the horizontal scrolling of an image that is wider than the display. In SeaSketch, you can pan by clicking and holding your mouse button down anywhere on the map, then moving your mouse.
Plans (and plan elements)	A point, line or polygon representing a prospective management plan. In the Sea Change project, these may be prospective Aquaculture Zones, Protection Zones and Collections. Plans may also be referred to as “sketches” and should be distinguished from annotations (aka drawings) than cannot be analyzed.
Sketch	This term is sometimes used interchangeably with “plan elements”. Using the tools under the My Plans tab, users may sketch prospective plan elements and generate reports on the potential consequences of that plan.
SeaSketch	A software service for marine spatial planning located at www.seasketch.org

Appendix C: BRCS Analysis

The goal of BRCS analysis is to drive discussion within the forums and inform strategy decisions for addressing sources of agreement or disagreement between collaborators within the project area. This is accomplished by crowdsourcing weight values, which represent the collaborator's perception of the effect from the proposed action, e.g., barrier removal, on five factors related to water use in the project area. The weight value assigned to each category is used to score the project area based on the presence of geographic features related to the category.

Methodology

Users respond to survey questions using sliders to indicate a value for each category between -5 and 5, with -5 representing an extremely negative outcome and 5 representing an extremely positive outcome. These weight values are recorded and applied to features on the map. As users reply to the survey, they also have the option of drawing or attaching additional features which are not yet represented on the map. Features corresponding to any category may be added. Multiple features may be attached to a single category or across multiple categories within a given survey response. Existing weights from survey responses will be applied to features as they are added to the map.

Example survey questions, top: a value slider indicates weight value for a category, bottom: A new feature can be created from within the survey or added from existing sketches in "My Plans".

Because a barrier collaboration is identified by the point location of the barrier, it is necessary to delineate a boundary for the analysis. This project area is used to determine the subset of category map features to which the weight values from the survey will be applied. Stream connectivity is used to determine the extent of the project area. When a barrier is identified as the subject of a collaboration, upstream and downstream connected stream features are generated using a stream network tracing function. The trace terminates at adjacent barriers along the network. Where no barriers are encountered, the trace will follow all connected stream features upstream to the headstream features and downstream to open water. The resulting collection of connected stream features are used to select intersecting HU10 watersheds. Dissolving the selected watershed features into a single polygon gives the project area boundary.

User	Category A	Category B
X	-3	4
Y	2	-1
Z	4	-5

Example weights collected from survey responses for users X, Y, and Z

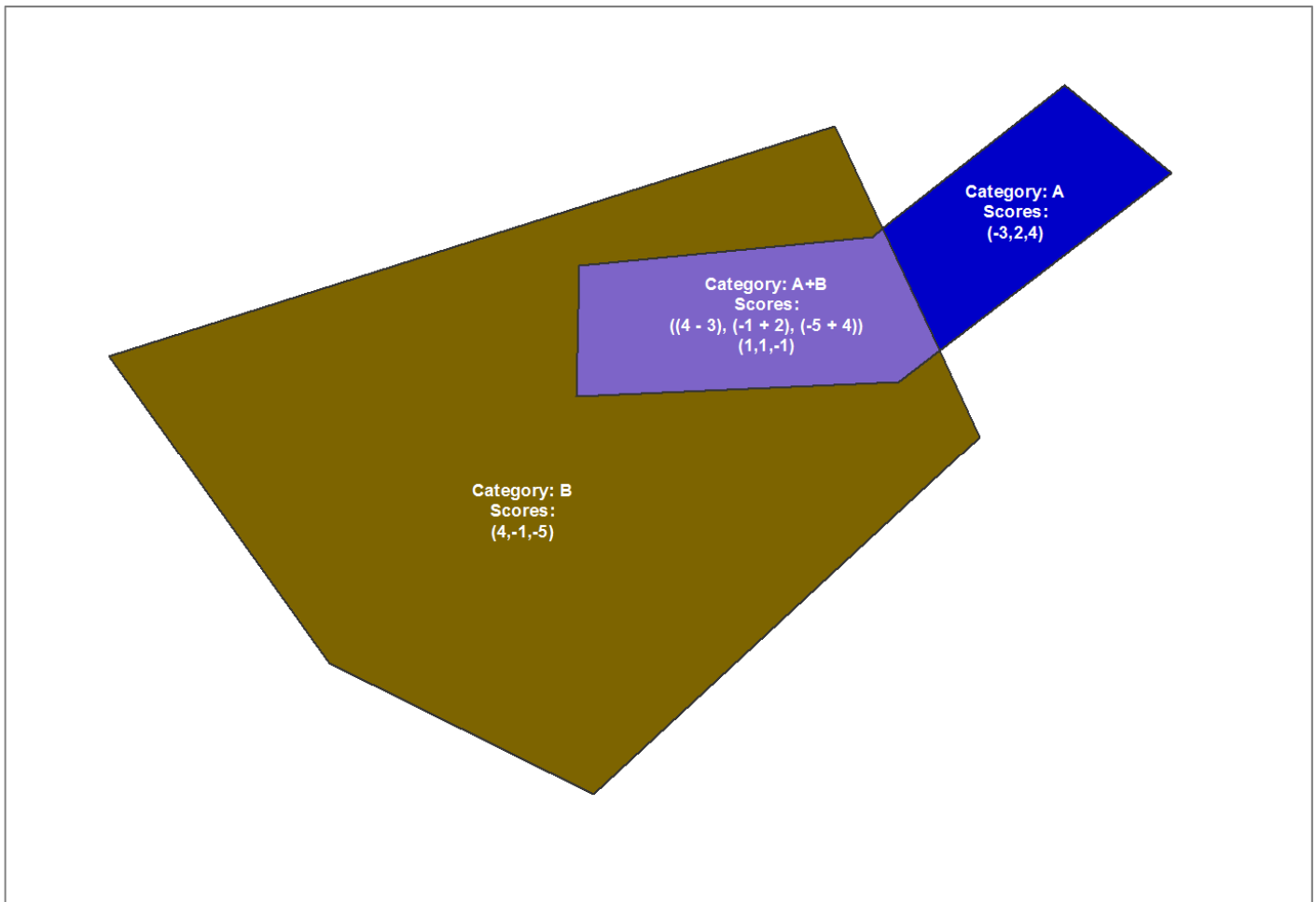
The entire project area is scored using weight values from survey responses; however, areas with no features present are not assigned weights and, thus, cannot be subject to agreement or disagreement. For this reason, areas devoid of any category features are excluded from the final consensus map layer output. A list of scores resulting from the survey responses is attached to each feature in the project area. In the case of overlapping features, the weights for each

category present will be summed to create the list of scores for the feature. Given n users who have taken a survey containing m categories, the equation to calculate the list of scores for a feature k is given as

$$S_k = (f_{1k} \quad \dots \quad f_{mk}) \begin{pmatrix} W_{11} & \dots & W_{n1} \\ \vdots & \ddots & \vdots \\ W_{1m} & \dots & W_{nm} \end{pmatrix}, f_{jk} = \begin{cases} 1, & \text{a feature in category } j \text{ contains feature } k \\ 0, & \text{otherwise} \end{cases},$$

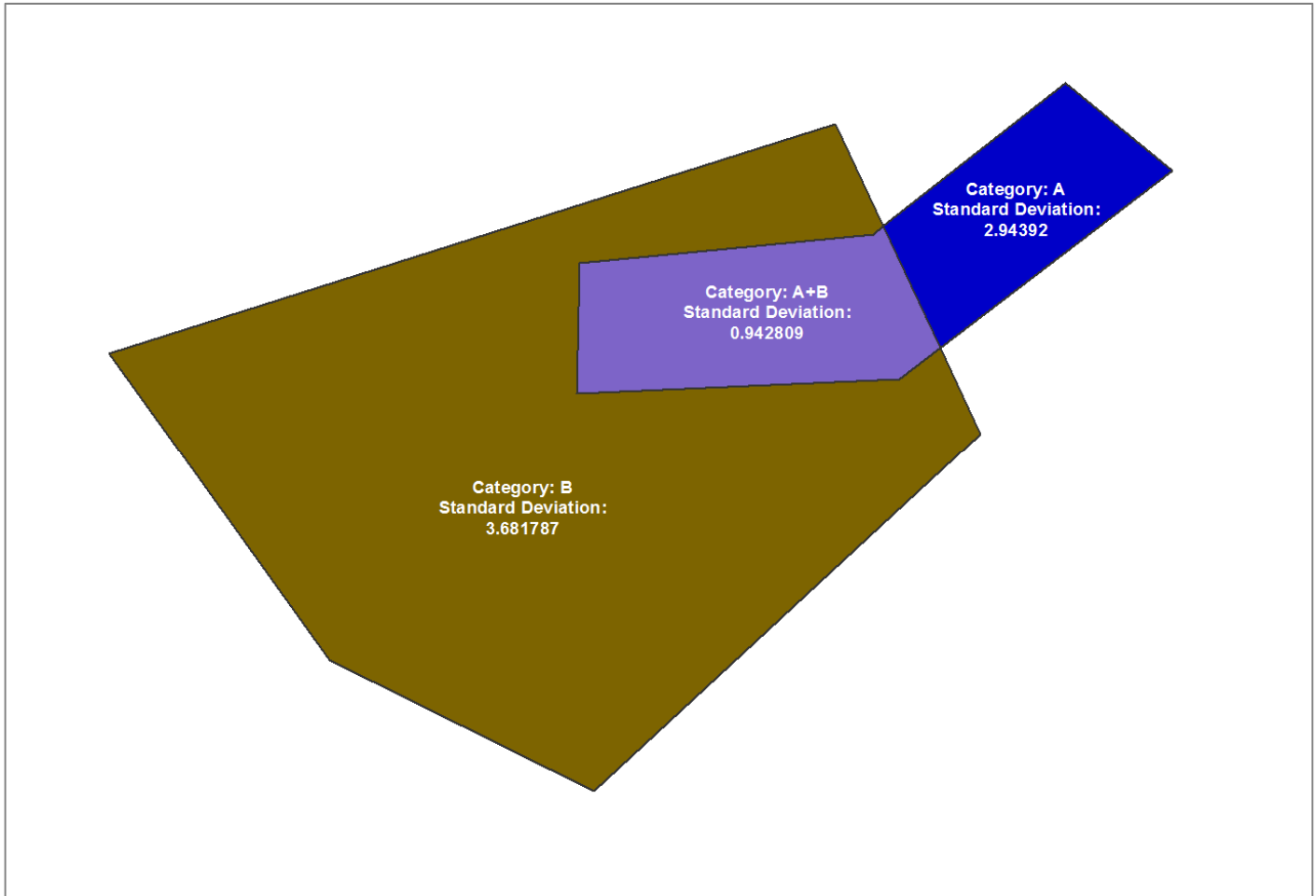
where S_k is a $1 \times n$ matrix containing the list of scores for feature k , W_{ij} represents the weight of category j from user i 's response, and f_{jk} is a factor determined by the presence of the feature k within features of category j .

Responses from the surveys of all barrier collaborations with a project area boundary that intersects a feature will be added to that feature's list of scores. This may occur if the project areas of two or more barrier collaborations intersect or a feature is large enough to intersect multiple project areas. A feature's list of scores represents all of the opinions that are relevant to the feature, as determined by its spatial relationships. This approach reduces the impact of compartmentalization between barrier collaborations on the ability to perceive the outcomes of change at a watershed level.



Areas with overlapping features are scored based on a sum of the weights assigned to each of their categories

The standard deviation of the survey result scores is calculated for each feature. This measure of variability is taken as an indication of the level of consensus between survey respondents on the impact of the proposed action to the areas represented by each feature. Summing the weights of overlapping features creates a measure of perceived net effect to the area based on the categories present. The goal of the analysis is to represent the level of consensus surrounding this net effect, rather than the perceived effect on any individual components.

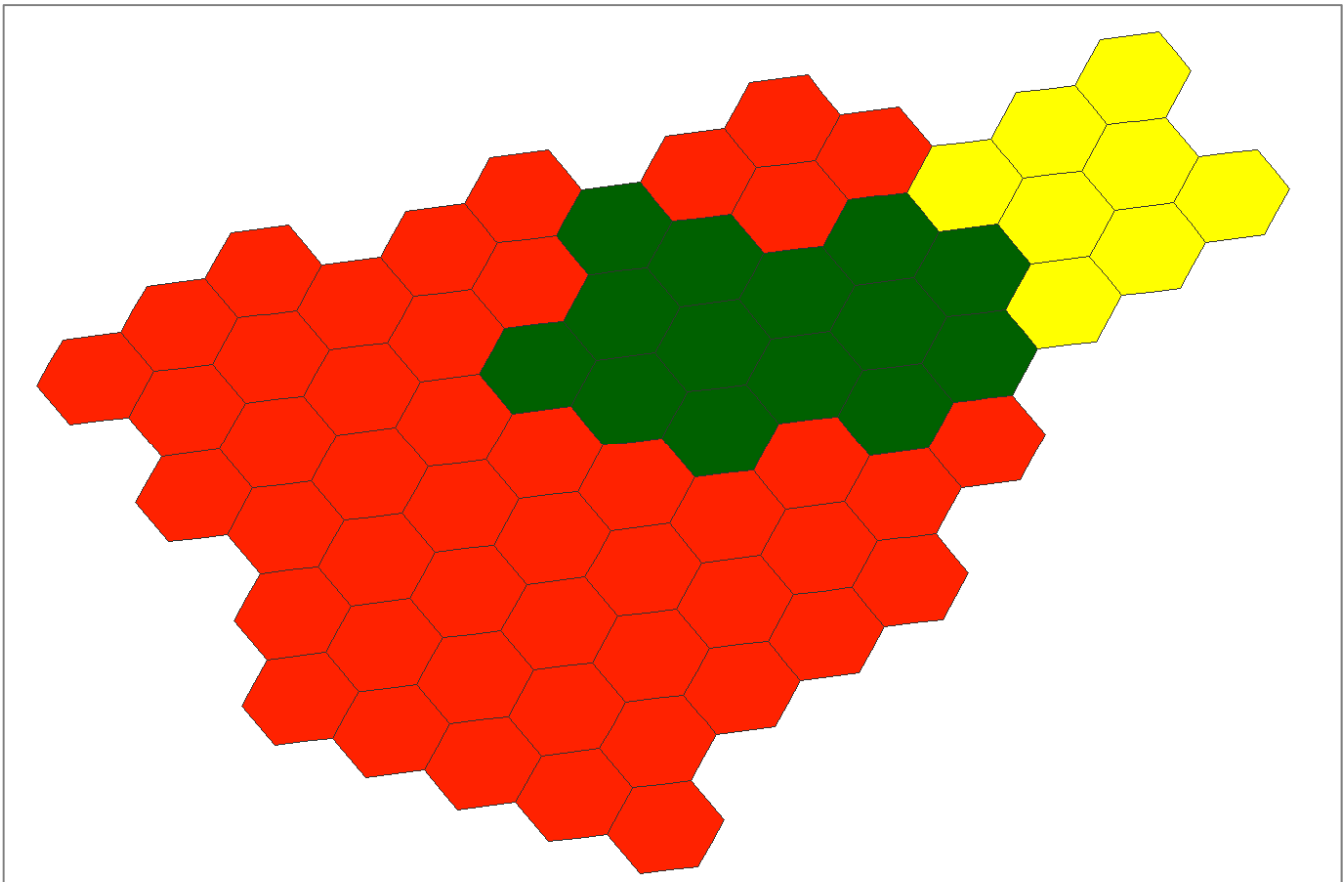


Calculated standard deviation of the scores representing net effect on the areas indicated by each feature

The purpose of the resulting map layer, called the "Consensus Level" in the BRCSTraining application, is to draw attention to areas on the map that would benefit from further discussion surrounding the impact of the proposed action and collaborator priority outcomes. To encourage the use of the Consensus Level layer as a driver for such discussion, the results are generalized in such a way that the original geometry of the contributing features does not limit the scope of the discussion in areas that need further collaborative efforts. The use of drawing and discussion tools within the forum are encouraged where there is a need to discuss matters tied to specific geometry.

To complete the Consensus Level layer product a hexagonal grid is overlaid atop the features. Each individual hexagon is assigned the mean of the calculated standard deviation values of all the features it intersects. These mean values are then classified and assigned colors along a gradient resembling the colors of a stop light. Areas with colors closer to the green end of the spectrum represent a higher level of consensus, while

areas with colors that are closer to red represent a lower level of consensus.



Example consensus layer indicating levels of agreement between survey responses

The colors do not indicate a positive or negative outcome but, rather, the level of agreement on the net effect of the proposed action in each area. If there is consensus that the impact will be negative in a given area, the resulting hexagons will appear green because the negative effect is agreed upon.