Sample Design In MonitoringResources.org

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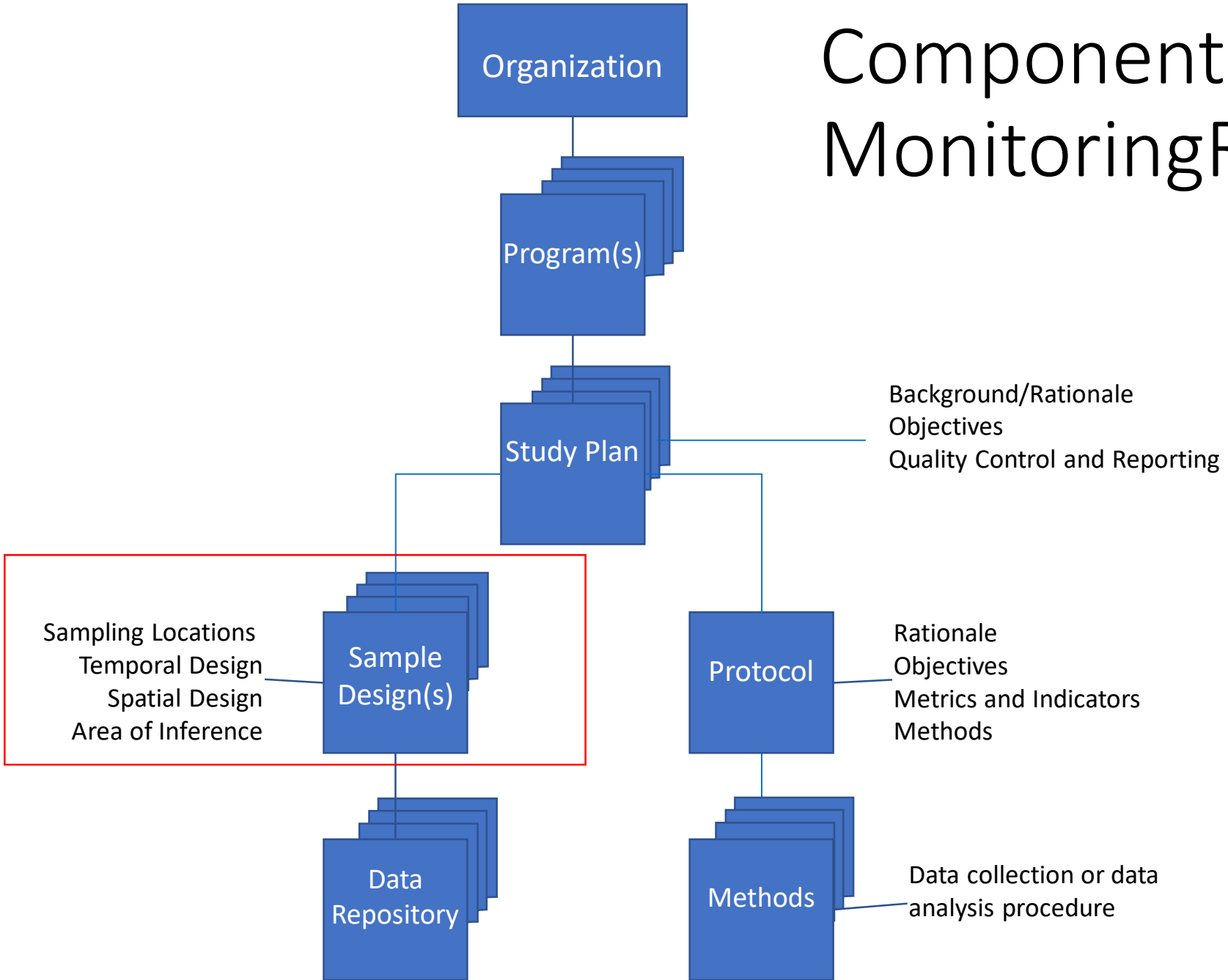
General MonitoringResources.org Tips

- Login to Edit!
- If you have a question, check the FAQ or glossary.
- Only owners and colleagues can edit or make new versions.
- Components must be Finalized (formerly called “Published”).
- You can make new versions or clone published content.
- Within components, red asterisk fields * are required.

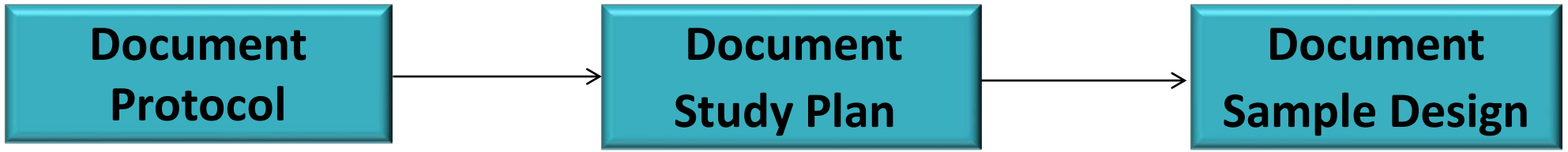
Components of MonitoringResources.org



Workflow for MonitoringResources.org

If you have a new project to document, login into MonitoringResources.org, then follow these steps:

1. Create and finalize a Protocol.
2. Create a Study Plan. In the Study Plan, link to your Protocol.
3. Create a Sample Design. In the Sample Design, link to your Study Plan.

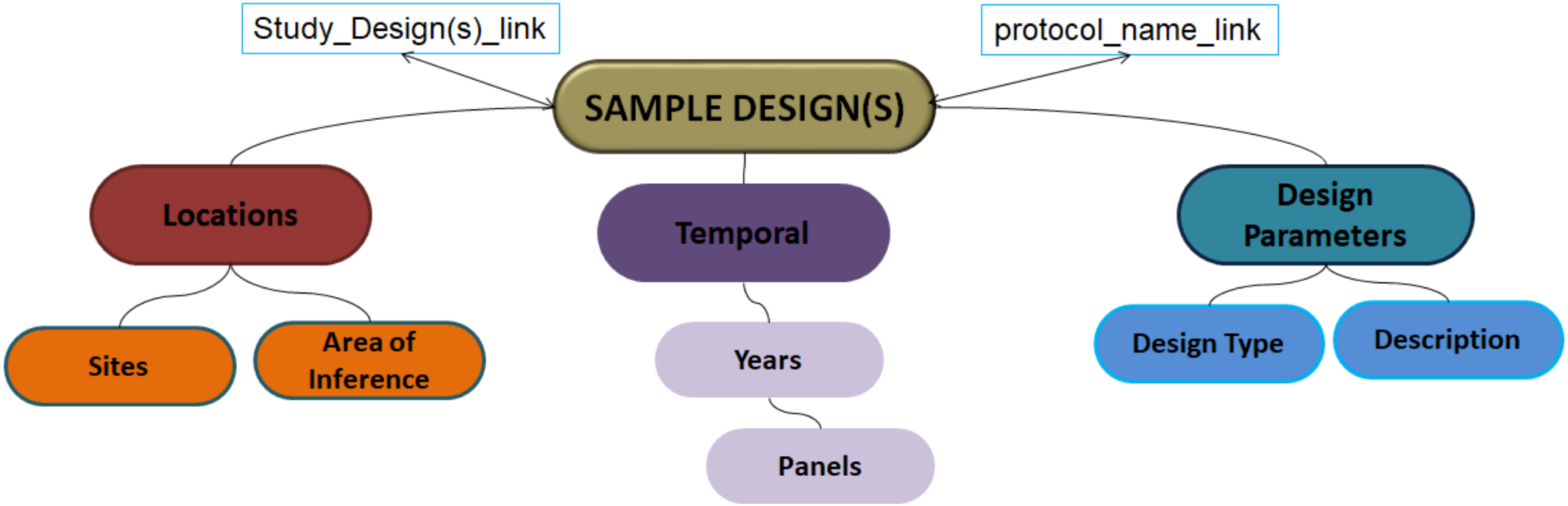


After you complete the documentation you can perform your field work. After performing field work for the season or the year, you can return to your Sample Design to revise planned locations to document the actual locations that you sampled, for the dates you sampled, and add post-implementation notes about each site sampled. You can use this same workflow to complete drafts of metadata that you or a colleague started some time ago.

What is a Sample Design?

Documentation of the spatial and temporal designs applied to data collection and analysis

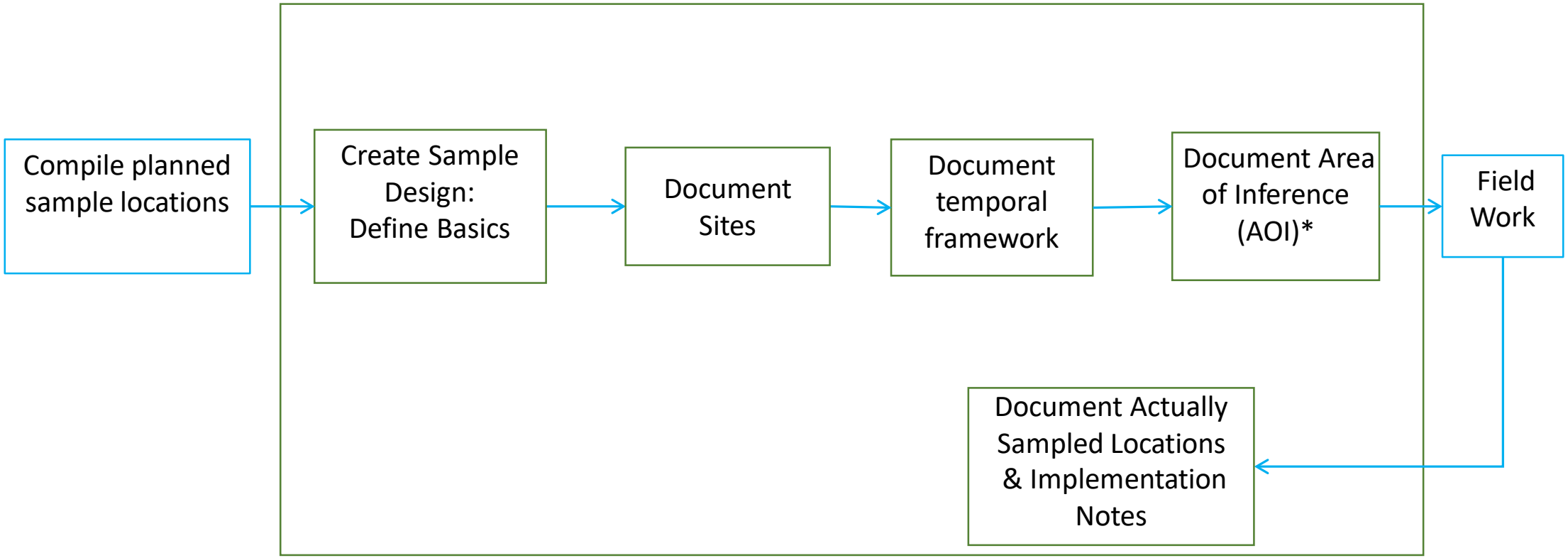
- **Spatial Design:** where metrics will be determined And how and why locations were chosen
- **Temporal Design:** the total duration (# years) and the frequency sites will be sampled



Tips for Sample Designs in MonitoringResources.org

- Document all the planned sampling locations for the total duration of your study. For example, if you plan to conduct your study from 2017-2026, include all planned locations across all years.
- After each field season, return to your Sample Design to document actual locations sampled, add new sites you sampled, and write any necessary post-implementation notes about each site.
- For BPA projects:
    - you may have Work Elements 157 ***and*** 162. When a project includes both of these WEs, document both planned data collection locations and the area of inference in one Sample Design.
    - If you have a WE 162 with no associated WE 157 in your contract, only document area of inference in one Sample Design, and select design type Analysis: Inference.

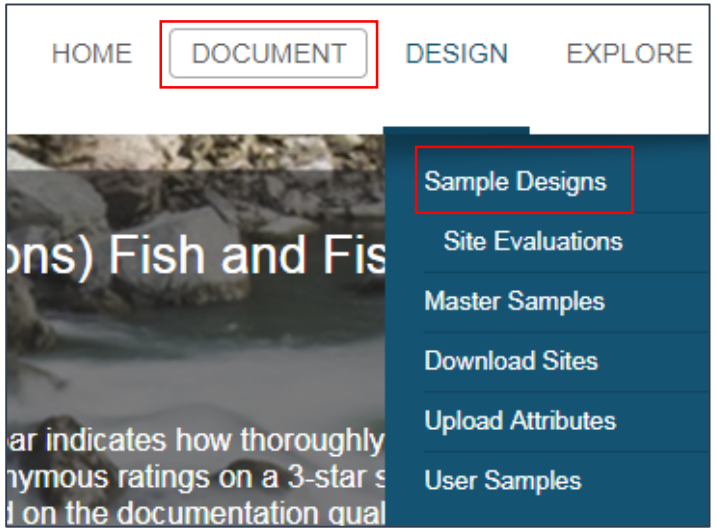
Sample Design Workflow

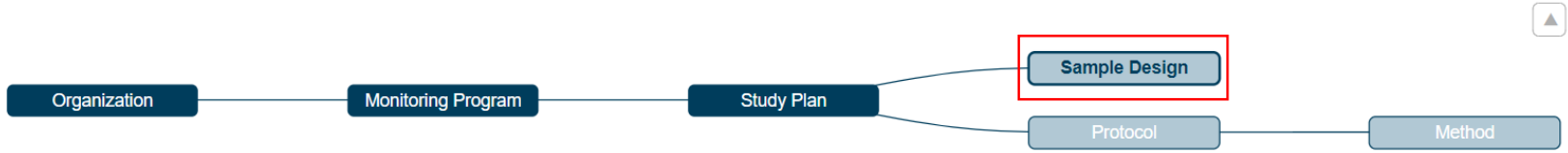


*for BPA projects, AOI is only documented for WE 162

Create A Sample Design

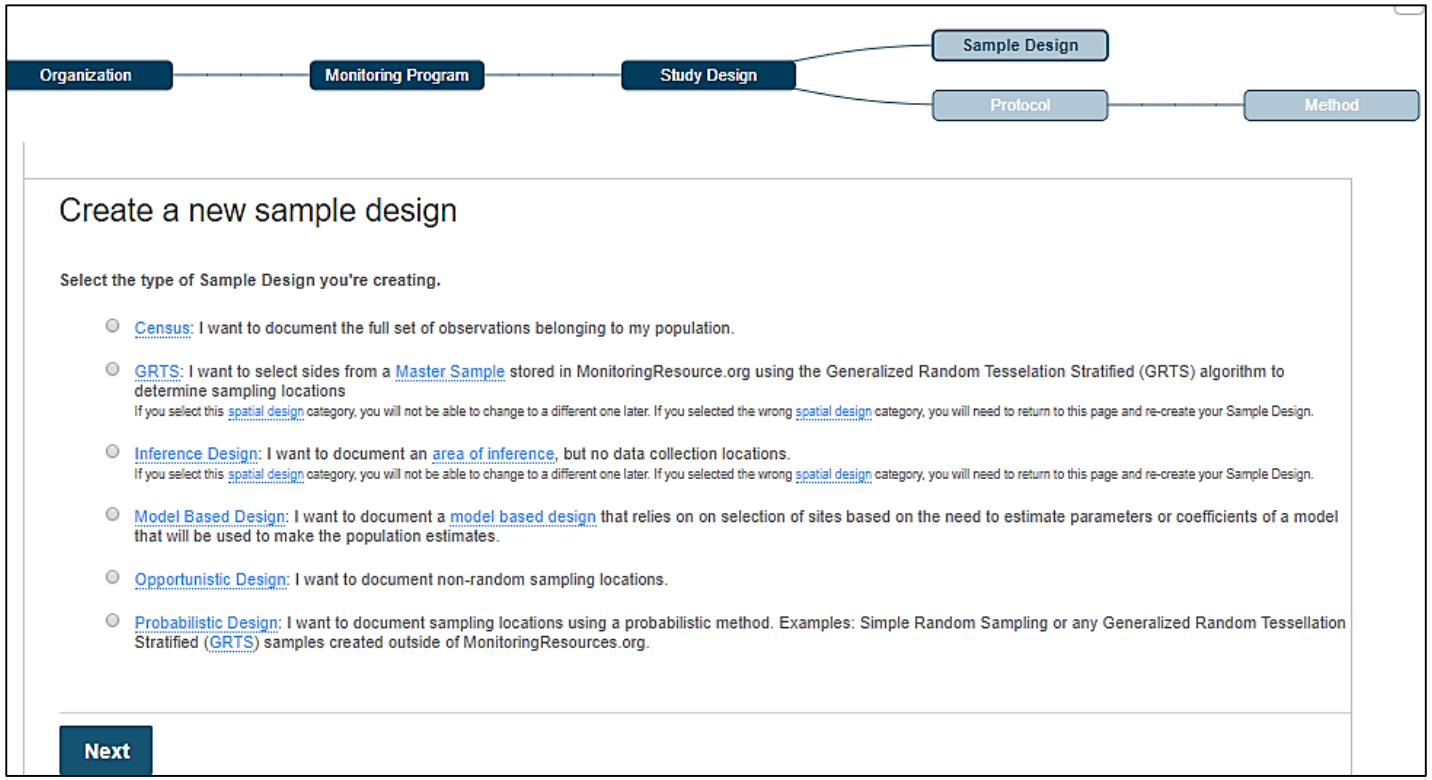
To create a new sample design, choose DESIGN/Sample Design from the top menu in MonitoringResources.org or use the road map. Then click the Create Sample Design button at the top right of the Sample Design table.





Select Sample Design Type

Choose from six sample design types. Each of these sample design types will begin a different workflow.



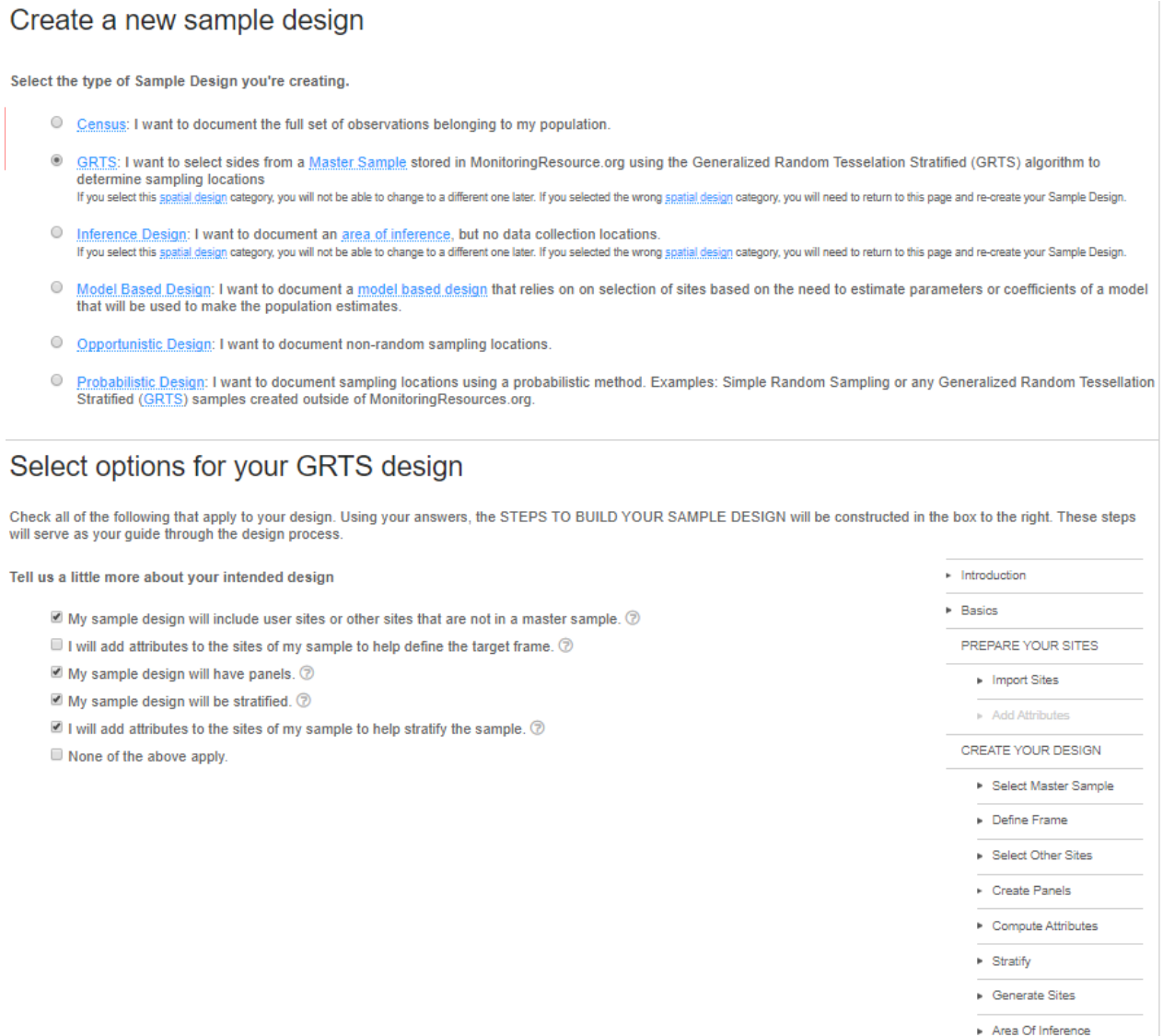
For BPA projects, Inference Design is a way to document "Area of Inference" for projects that only have analysis WEs (162) and no data will be collected. If your design is not one of these types, please contact both your COR and RM&E Support (rmesupport@bpa.gov).

Select Sample Design Type - Generalized Random Tessellation Stratified (GRTS)

When you choose GRTS, you will have the opportunity to develop a spatially balanced survey design using a GRTS algorithm.

You'll notice if you do not select a particular option for your GRTS design (such as: I will add attributes to the sites of my sample to help define the target frame), that option (Add Attributes) will not be available as you prepare your sites for your GRTS design.

Please contact gs-monitoringresources@usgs.gov for a consultation if you are designing a survey using the GRTS design tool.

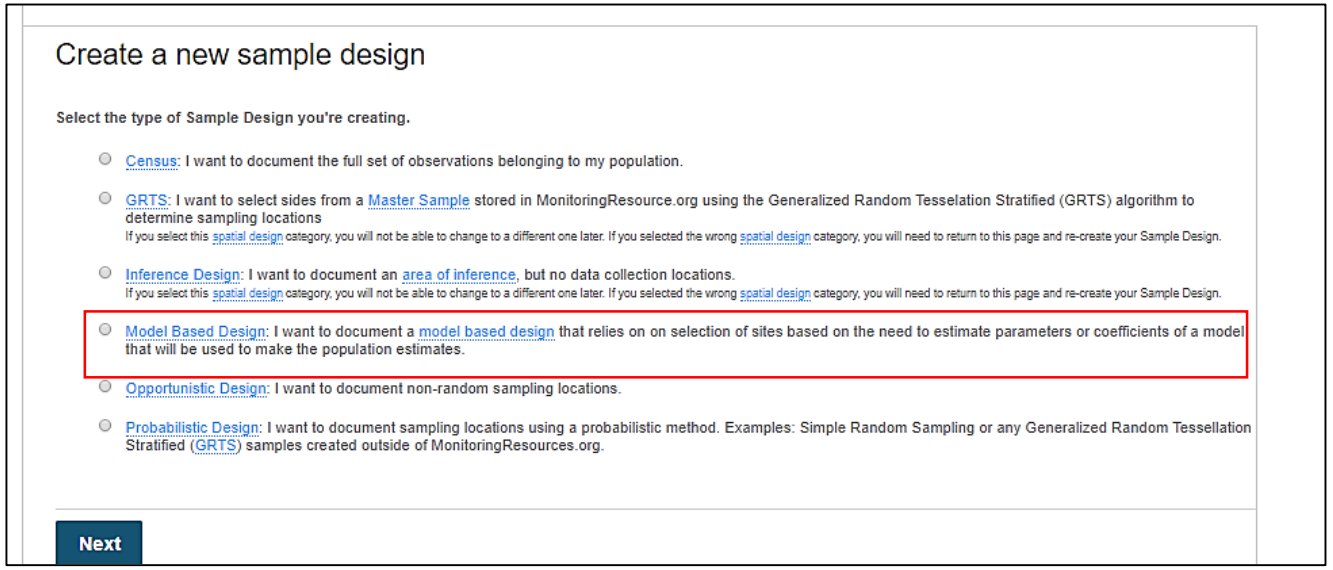


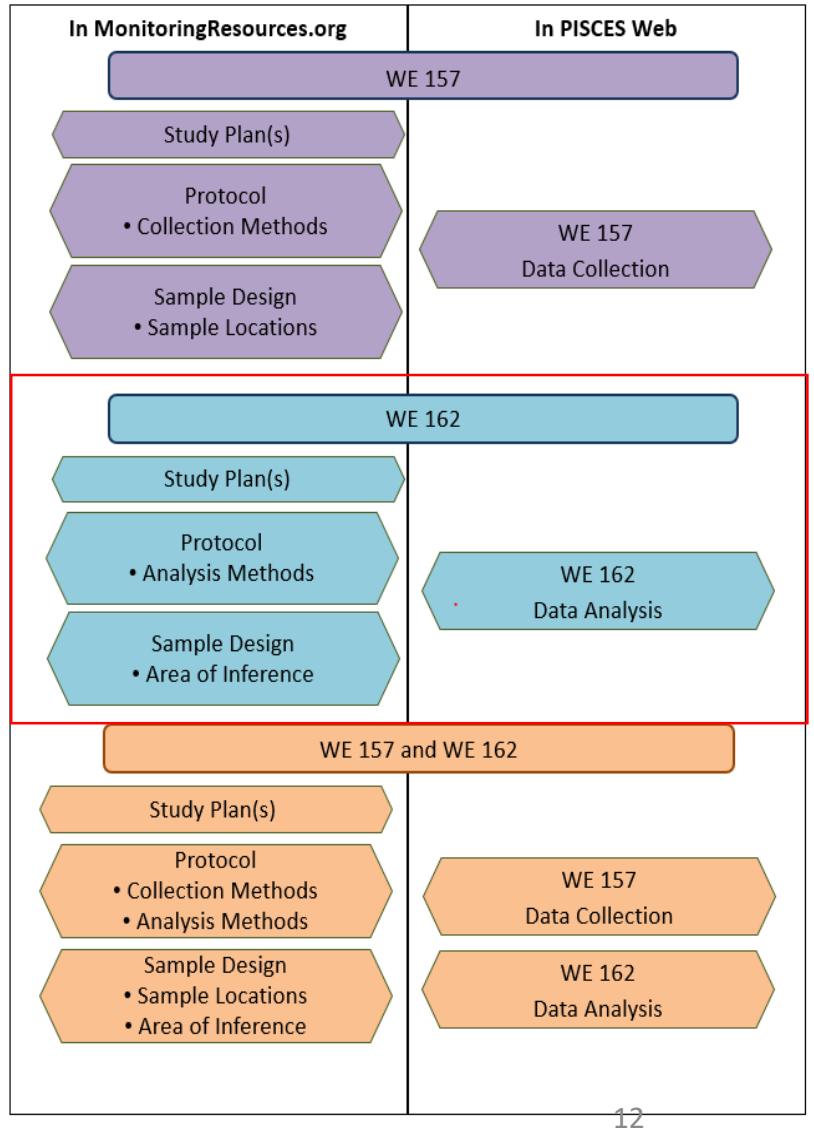
Select Sample Design Type - Inference Design

The Area of Inference is the area (basin, site, reach or population) you will analyze or the area to which you will extrapolate your data findings.

Will you extrapolate data to a 3rd field Hydraulic Unit Code (HUC), specific reach on a stream, or a population from points along a reach? If you will not draw an expanded inference, just specify the latitude and longitude where you collect the data points you will analyze.

For BPA projects, if you have a WE 162 with no data collection, select Inference Design and you'll only need to define your area of inference (AOI).





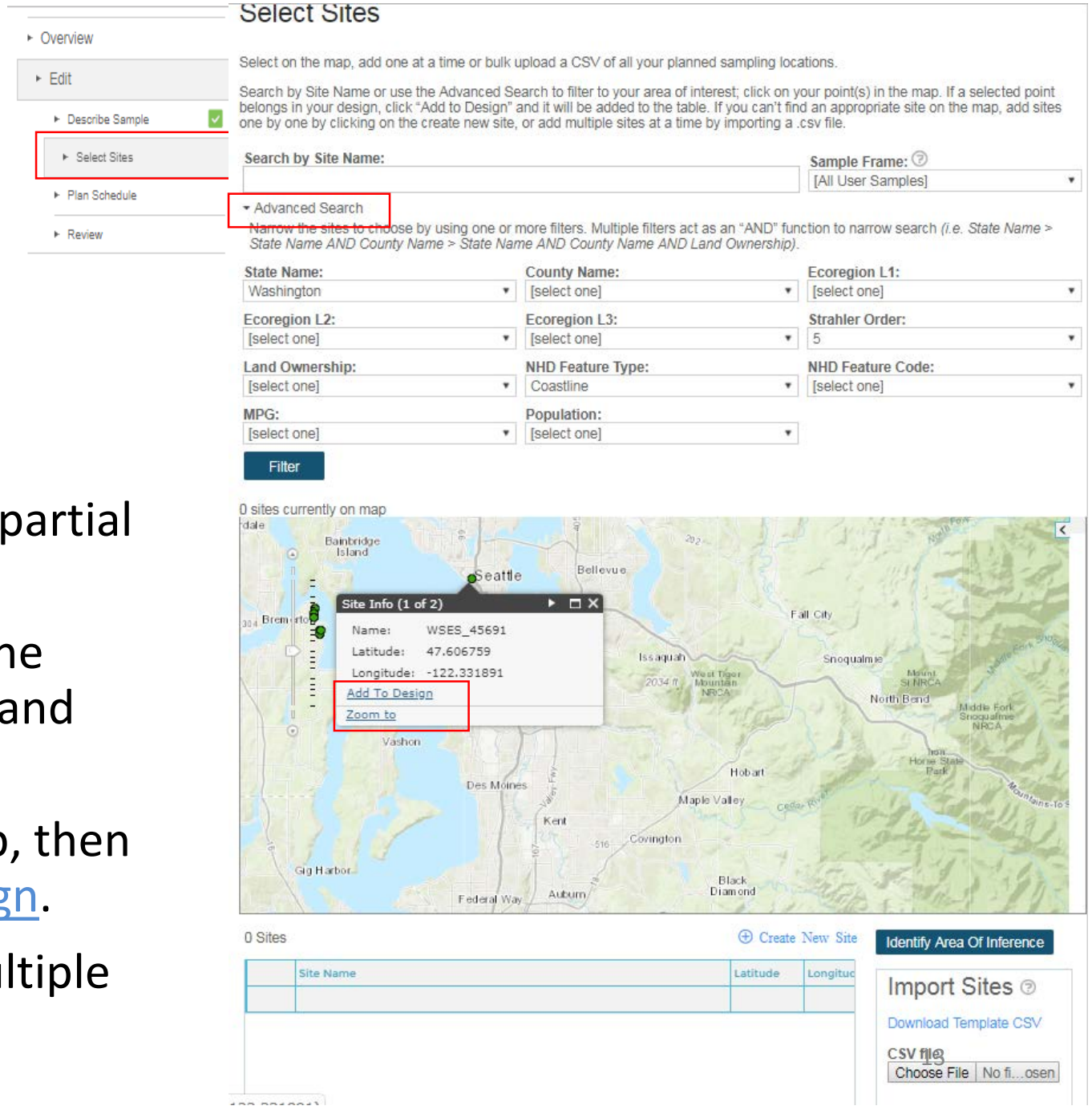
Select Sites

Choose Select Sites from the Sample Design Edit menu.

There are two pathways to add your sites:
1) Using the Map to:

- search for a known site name (or its partial name) to add it to your design
- dropping a pin (clicking a point) on the map or entering the known latitude and longitude of a site
- using filters to add points to the map, then choose each point, click Add to Design.

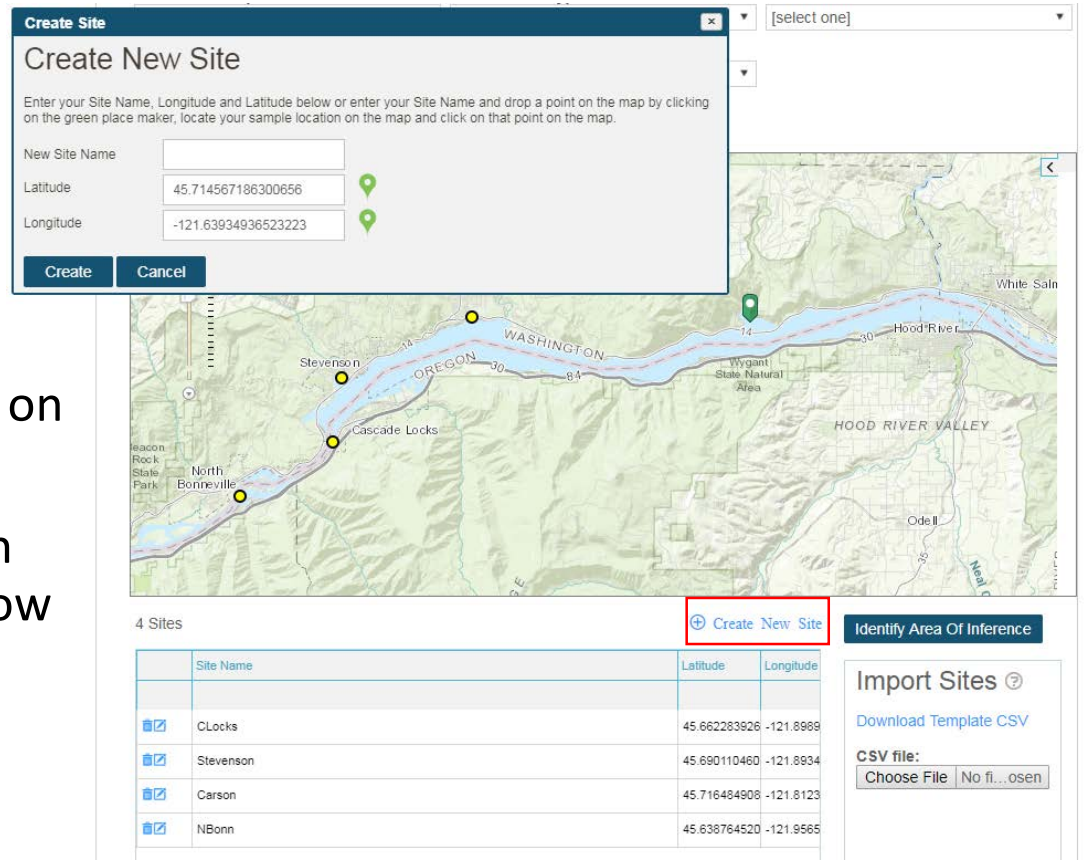
2) Uploading a *.csv file that describes multiple sites.



Select Sites – Create New Site

If you only have a few points to add to the map, Create a New Site by dropping a pin on the map.

- Click the + Create New Site button.
- Type a site name in the pop-up box
- Click on one of the green markers.
- Release your click
- Move your mouse to the map and click again on a point on the map



The latitude and longitude will appear in the pop-up box. When you click Create in that box, the site will appear in the table below the map.

You can also create a new site by typing in the Name, and the known latitude and longitude of your site, then click Create.

Save your site selections when you have chosen all your sites.

Select Sites- Suggested Site Name Conventions

Whether you identify sites on a map and name them one at a time, or you upload a prepared CSV file, it will be helpful to name your sites with descriptive, unique names that have no separators or spaces. Your site names will be machine readable and ultimately transferrable among data exchanges that are compliant with global standards. The following is a suggested convention for naming sites: code_ year_project_WE

Where, code: unique identifier your agency assigns, e.g. wfhrw2 (West Fork Hood River Weir 2), or ccnvt7_5 (Catherine Creek North Bank Vegetation Transect 7_5 meter); year: start year of the monitored site; project: contract or project #; WE: work element letter if a BPA contract.

Comma Separated Value (*.csv) File Format Rules

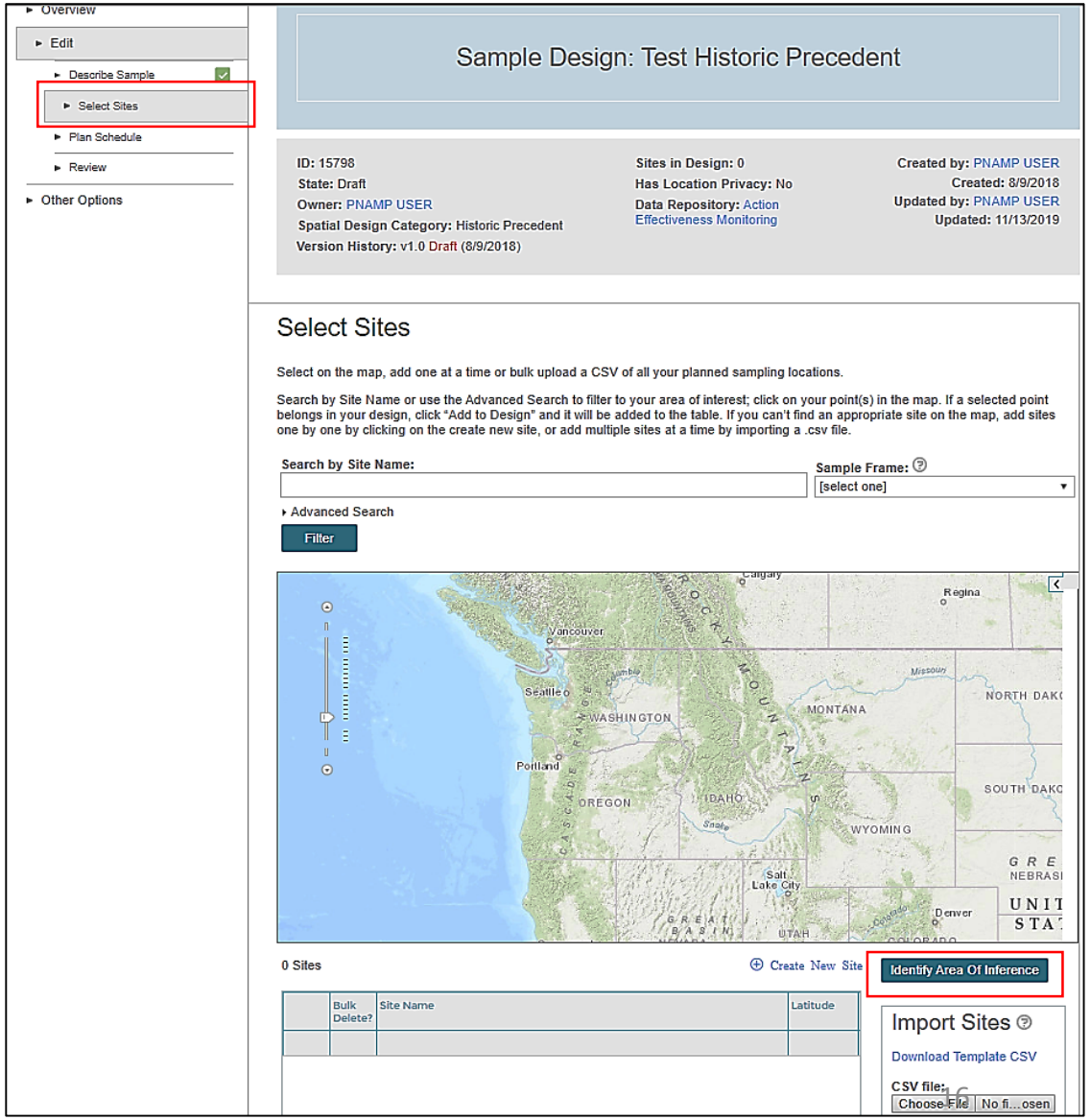
- A .csv file for importing sites must have at least three columns with the headers: Name, Latitude, and Longitude. You can include as many columns of attributes after these first three as needed. Or after you import a file, you can use the Edit Schema section of the User Sample tool to add one attribute at a time.
- The names need to be descriptive enough so that you can return to the website and identify each site.
- If your locations are described in UTMs, convert to latitude and longitude. You will need to know the zone of your UTMs for accurate conversion. There are many converters available online and open source GIS programs to support data conversion.
- All .csv files upload will be converted to a projection of the **WGS84** datum; if the data file has a different projection, you will need to convert your data to WGS84.

Select Sites – Area of Inference (AOI)

For BPA projects, if you have a Work Element 162 (data analysis), defining an AOI is required.

Area of Inference was designed for aquatic monitoring in the Pacific Northwest. If you cannot find an appropriate area to define the extent of your work, skip this step or contact gs-monitoringresources@usgs.gov. After you have selected or uploaded your sites, to identify Area of Inference, select the button below the map to the right.

Define your Area of Inference by clicking on the Identify Area of Inference button below the map, from within the Select Sites menu. You will be shown the Area of Inference screen.



Select Sites – Area of Inference

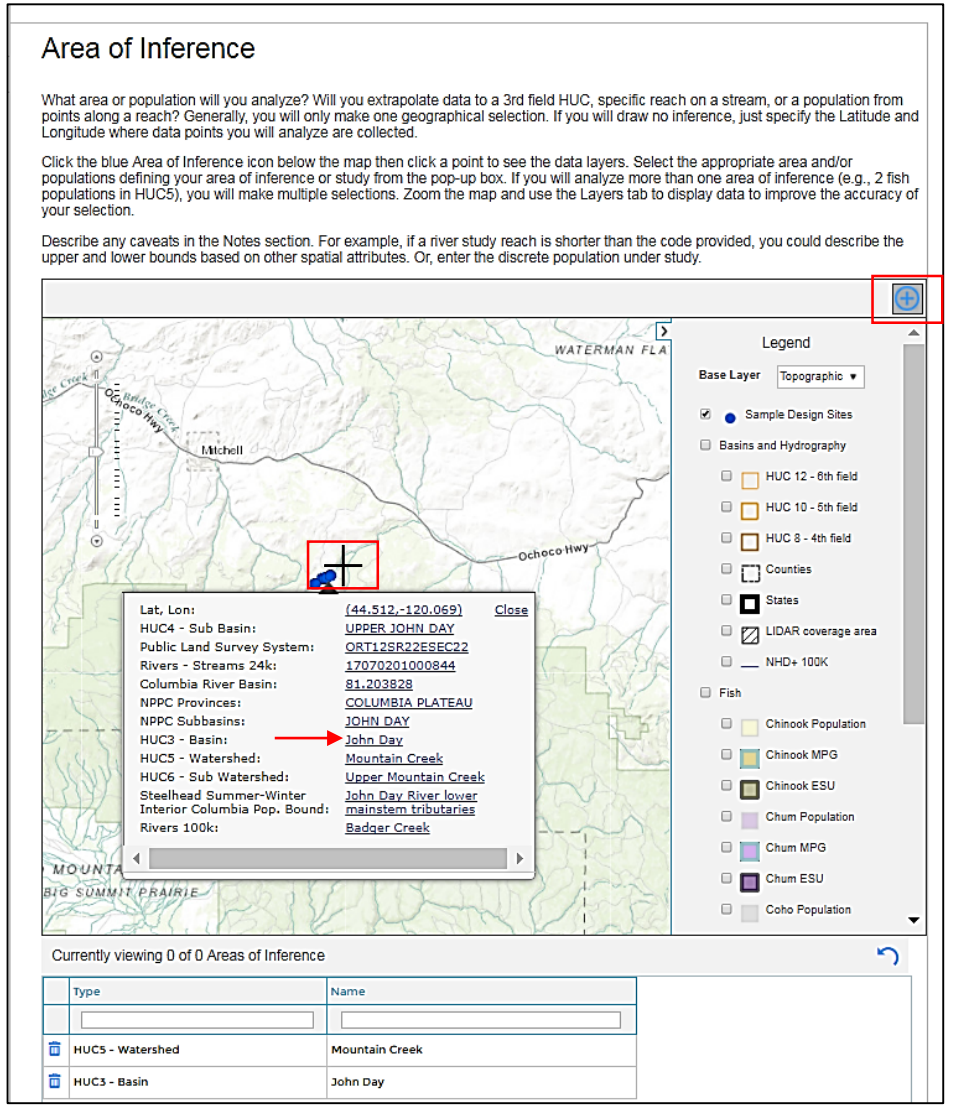
In the Area of Inference screen, click on the blue circle plus button in the upper right, then click on a point in the map

Next click on the description that represents the area to which you will expand your inference, based on your design and analyses.

After you click the + button, place the crosshair symbol + over one of your site locations and click to see layers.

You can then choose larger spatial extents, such as HUC3. Your choices will appear in the table below the map.

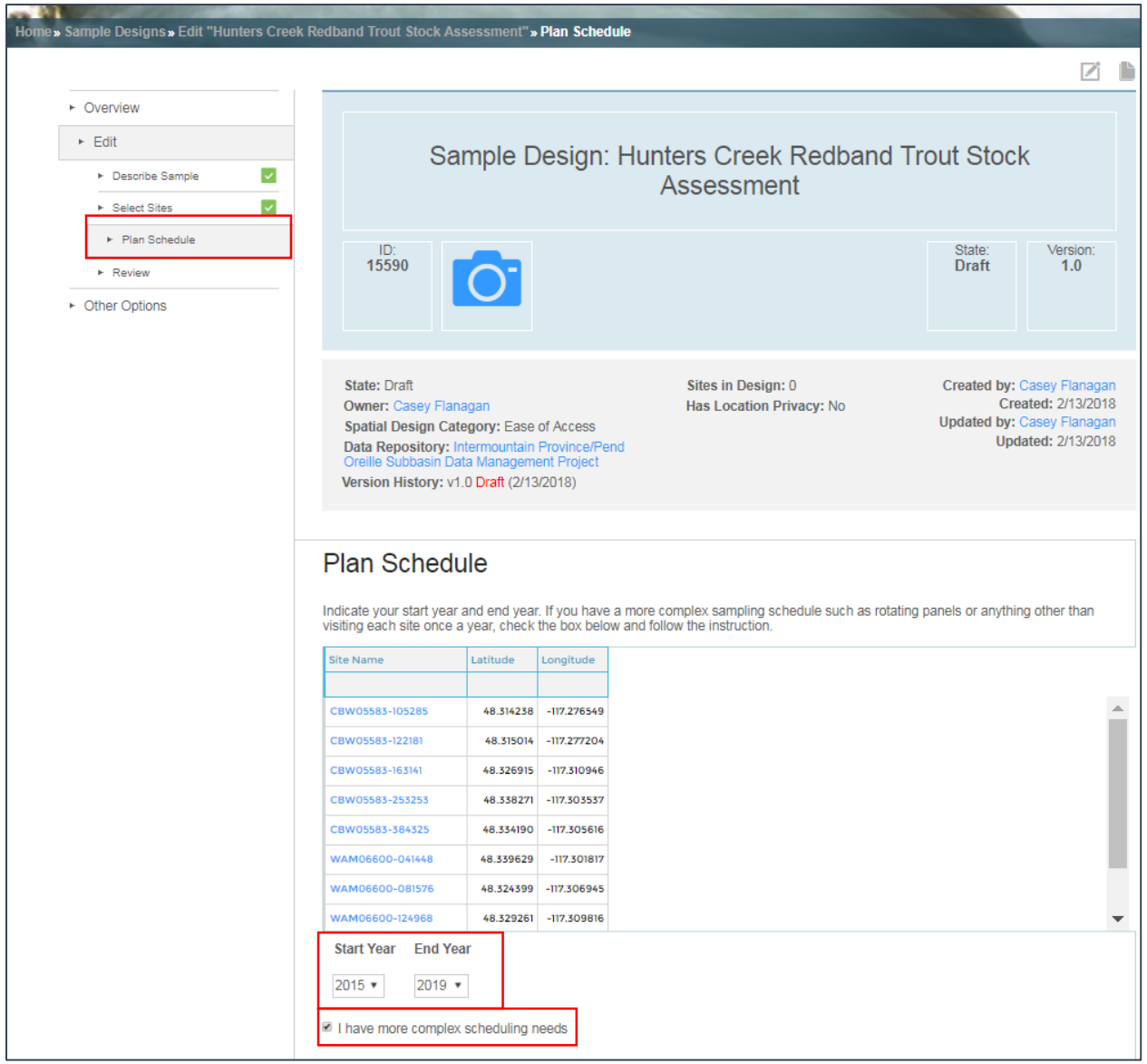
Then save your choices.



Plan Your Schedule

Schedule when you will visit your sites next.

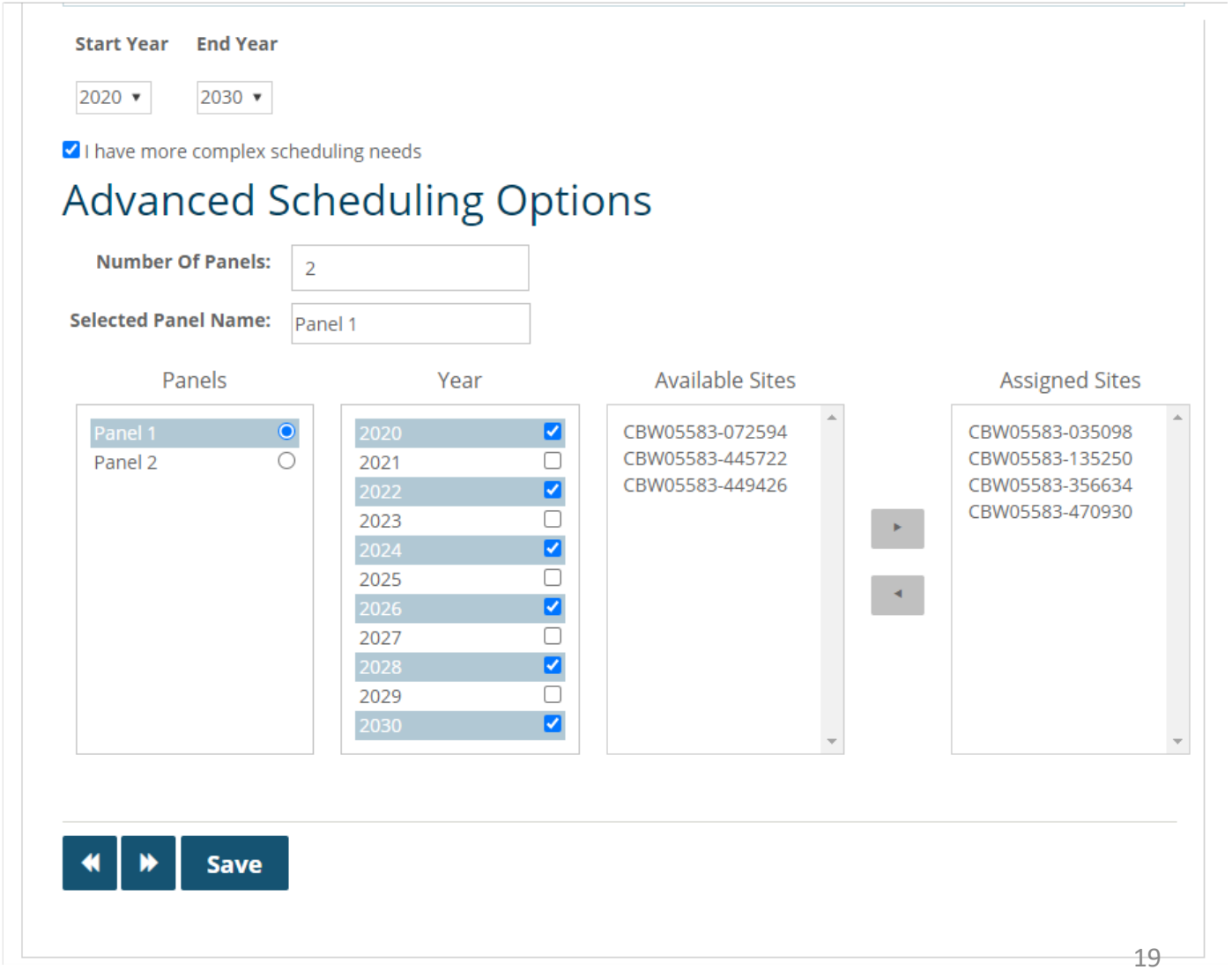
Specify start and end years for the study, then click SAVE, unless you need to schedule a more complex schedule such as rotating visits to your sites with Panels.



Plan Your Schedule – Complex Scheduling Needs

When you check the box "I have more complex scheduling needs" you can then choose to build rotating panels of site visits.

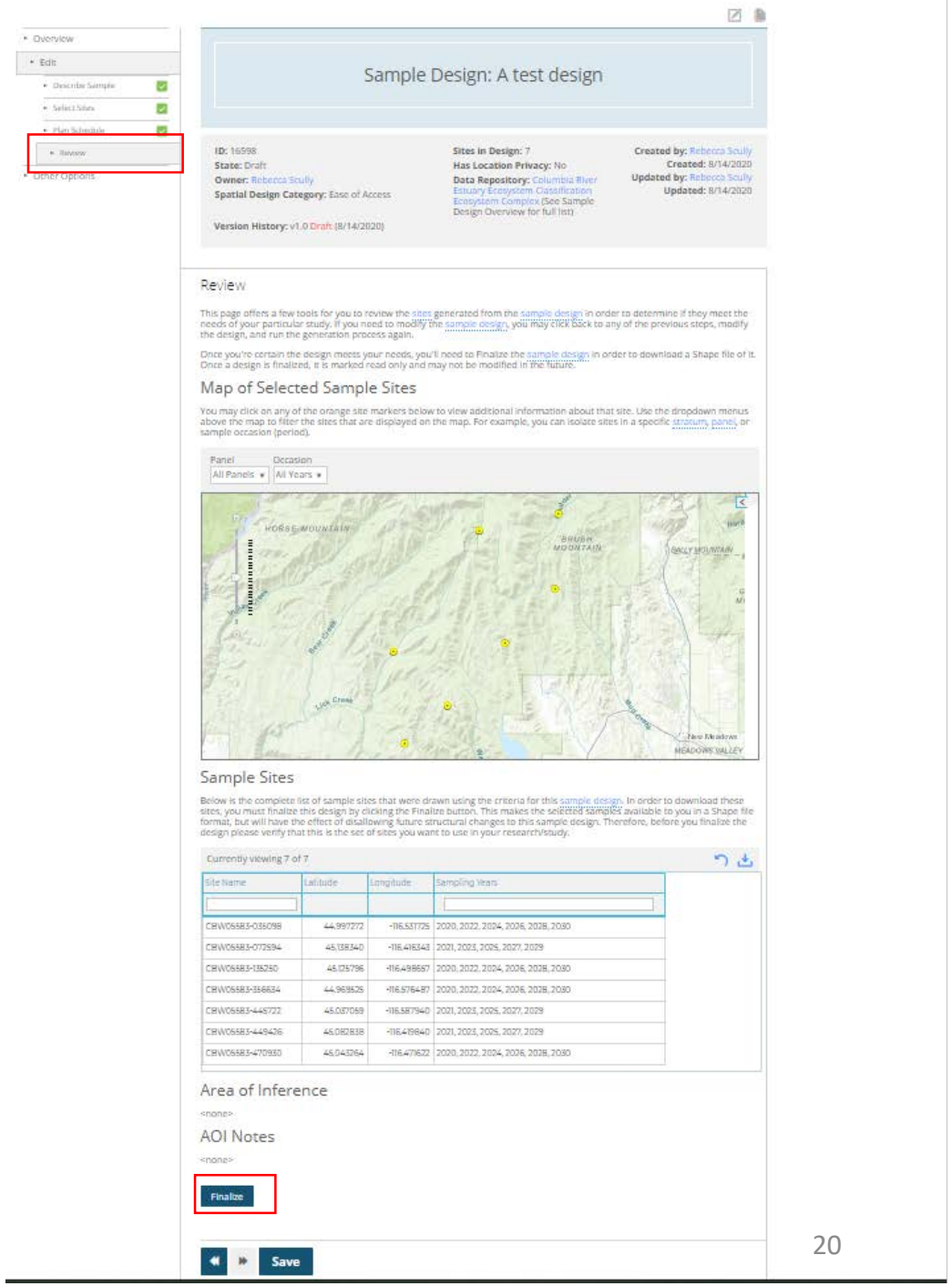
You select the number of panels, the years that panel will be sampled and assign sites to the panel.



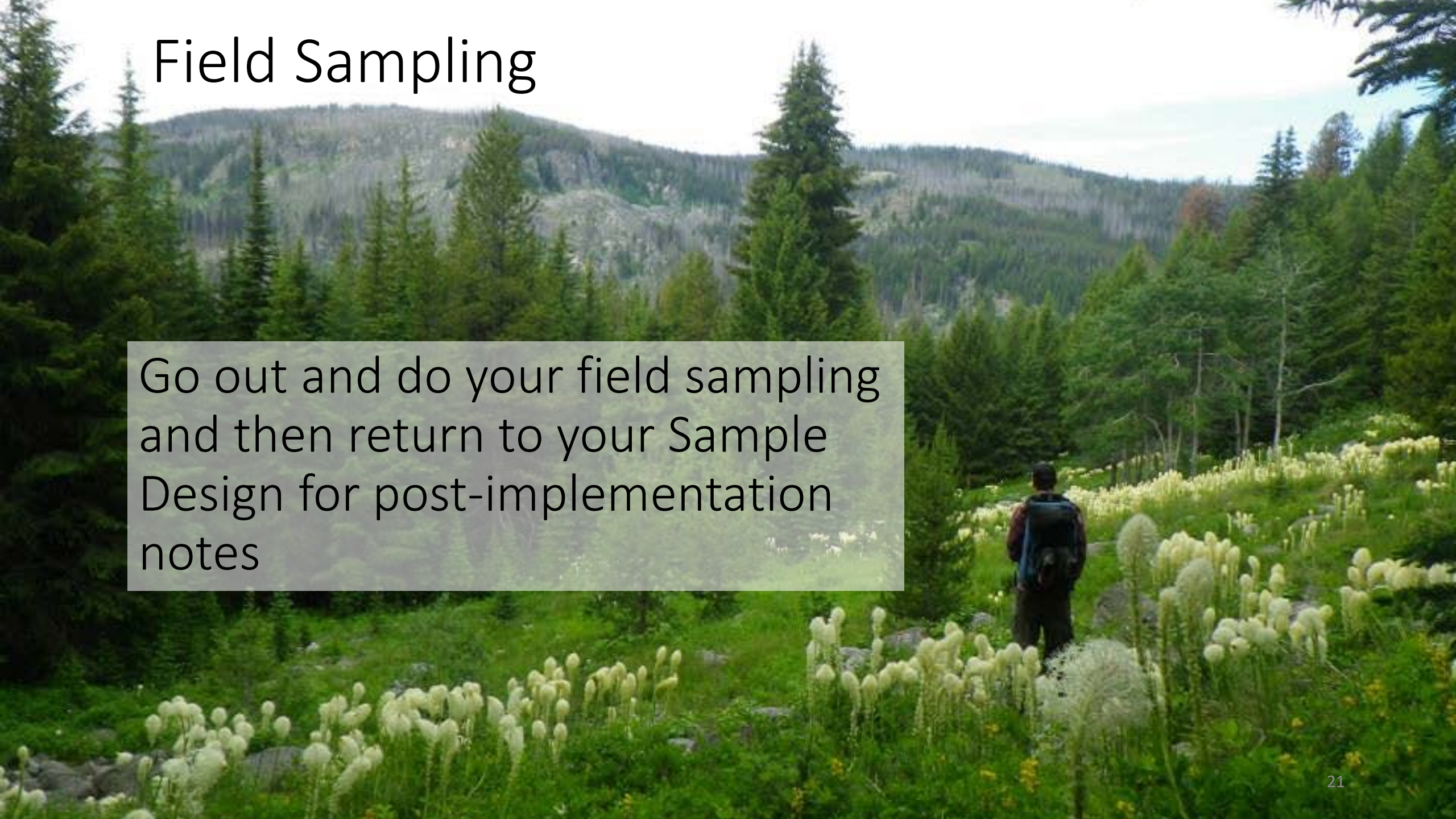
Review and Finalize your Sample Design

You will be asked if you are certain you wish to finalize the Sample Design.

Sample Designs do not go through a review process by the Monitoring Resources team like what is done for a Method or Protocol.



Field Sampling



Go out and do your field sampling and then return to your Sample Design for post-implementation notes

Document Data Collection Event and Post-implementation Notes

After you complete your field season, return to MonitoringResources.org, and choose Design/Sample Design. Search for your Sample Design. Or go to MonitoringResources.org click on your Portfolio and select your Sample Design from the components that display.

Open your Sample Design, choose Other Options, and then select the Data Collection tab.

Select the Data Collection Period on which you are reporting (i.e. 2019).

Select the + button to Create a New Data Collection Event. Change the Data Collection Period to the correct year to report your data collection.

Click the + button to add individual data collection events.

Troubleshooting: If no table appears in the Data Collection tab, return to the edit screen and check that you have filled in the Data Repository and the Sample Design is finalized.