Broadsheet for Monitoring Sample Designer – Workflow: Create Sample Design (experienced user)

The Action – Page flow diagram (top) shows the user flow through pages in both Monitoring Site Manager (pink boxes) and Sample Designer (green boxes). In this particular use case, we model the situation where the experienced user has already created a monitoring project and a 'container' for a sample design. Before working in the Sample Designer, however, they "get their ducks in a row" ahead of time by going to Site Manager to add their legacy sites and whatever additional attributes are needed to define their frame. Once their preparation is complete, the user goes to Sample Designer, retrieves their sample design 'container' and follows the steps to build their sample. They will execute most steps in the Sample Designer, but will return to the Site Manager to review their sample's sites and to export the final GRTS sample draw. They will also return to the Site Manager to add attributes to their sample to support stratification - doing this late in the process so that they need worry about only a few hundred sites rather than the tens of thousands in a master sample.

The Site Map diagrams (lower half) are abbreviated site maps (think main menu navigation) which show the pages the user will move through in this use case.



Broadsheet for Monitoring Site Manager Home Page

This page illustrates how we might update the site navigation (main menu) and shows a potential home page for this area of Monitoring Resources.



table displays, interactive maps, and export capabilities to help you review your sample sites or your legacy sites as you build your sample.

Add sites, and add attributes and site evaluations to your sets of sample sites.

- Import new sample sites with their attributes and field data.
- Upload attributes, site evaluations and field data to existing sites.
- Perform map-based site evaluations for your GRTS sample draw.
- Connect with GIS expertise to create and import the attributes you need (coming soon).

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Update

Sites

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Select

Analyst / Researcher

Sample Designer Program Manager

Just Curious

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Explore Sites

Other Sites

Sample Design Sites

View and Compare Sample Attributes

Monitoring Explorer

Update Sites mport Sites

Add Attributes Evaluate Sites A potential tool within Monitoring Site Manager – see the mockup later in this document. The idea is to let people find past, current, and planned monitoring within their area of interest. Not sure what the best name is for this.

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Broadsheet for Monitoring Site Manager

Monitoring Site Manager

Manager Update Sites: Import Sites (as shapefile)

SAPPS Welcome Joe! Log Off | Help



User is logged in

The primary purpose of this page is to add legacy sites. This page is enabled for users who are logged in and who have created a monitoring project. The added sites are associated with the user; thus the sites can be associated to various sample designs belonging to the user. Not shown here: the user will be able to give access to others (colleagues / anyone).

Home	Explore Sites	Update Sites	Community	About			Name vour sites.	Х			
Import Sites pdate Sites – Import Sites mport sites here. For sample designers, this enables you to integrate historic or legacy sites into your design. If you are building a GRTS sample, adding sites to your sample design may affect your ability to create a statistically sound survey. Please consult with a monitoring design expert when adding such samples. Do not import sites from master samples. 1. Name your set of sites. Sites sampled in 2005 on Willow Creek					Launches this form: We could display this below the Other Sites grid instead of Design Documentation(?)	Name your sites. X Sample Name Give this set of sites a short descriptive name: Sites sampled in 2005 on Willow Creek Background of this set of sites Tell us about these sites and why you are importing them. If you have design documentation for this sample, please refer to it in the text above.					
 2. Import your sites. Import shapefile (preferred) Identify Geographic Coordinate System, and Import CSV Import shapefile (zip file). Note: The information contained in the .prj file of the shapefile specifies the geographic coordinate system (GCS) of the geometric data in the .shp file, and must be included in this import. The specified GCS of this file must match the GCS of whatever master sample you use with these sites. C:/SurveyFiles/LegacySite_WC2005.zip Import Shapefile 						The page will encourage importing shapefiles. .prj is mandatory (as well as .shp, .shx and .dbf) An alternative method might be defining the geographic coordinate system and importing a CSV file. <i>Is</i> <i>this alternative important</i> ?	 Monitoring Project Is this Sample part of an existing Monitoring Project? Is this sample part of an existing Monitoring Project? Is this sample part of an existing Monitoring Project? Is this sample part of an existing Monitoring Project? Is this sample part of an existing Monitoring Project? Is this sample part of an existing Monitoring Project? Is this sample part of an existing Monitoring Project? Is this sample part of an existing Monitoring Project? Is this sample part of an existing Monitoring Project? Is this sample part of an existing Monitoring Project? Is this sample part of an existing Monitoring Project? Is this sample part of an existing Monitoring Project? Is this sample part of an existing Monitoring Project? Is this sample part of an exist				
Results of Import: Sample sites successfully imported: 24 Sample sites rejected: 2 Why? This sample has been added to the list of Other Samples. View the sites of this sample at Explore Sites > Other Samples > Sample Detail						The import process will accept any sl Verification of compatible geographic when the sample designer selects th sample. This would launch a form that lists the <i>NOT SHOWN:</i> We need to do some to mitigate users importing sites that	We need to work out th details regarding mana access to sites and to designs. We are likely follow a modified MM r and employ common colleagues across MR Colleagues could view integrate sites, but not change their attributes				
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Broadsheet for Monitoring Site Manager Explore Sites: View and Compare Attributes

Lets user compare various samples to see overlap (or lack thereof) in their attributes – important for users to gauge how much work they have to do if they want to integrate "legacy" sites with a master sample.



✓ = All sites of the sample contain values for this attribute.

 \checkmark = Only some of the sites of the sample contain values for this attribute.

User is logged in

This page may be viewed by anyone; however, as shown here it is enabled for users who are logged in and who have created a monitoring project and uploaded legacy sites.

- The purpose of this page is primarily to help users:
- · View the attributes of a selected sample, and
- Compare attributes across samples to see which attributes are available to both samples, and which attributes may need to be added.

The form (below) launched by this button lets user choose between adding Master Samples or Other Samples. User can add n-number of either.

Select a Sample									
Master Samples Other Sites									
Sample	Monitoring Project	Monitoring Program	Owner Type						
Strahler strata A	Entiat	CHaMP	User						
Survey A	LC Lamprey Monitoring	Lower Columbia	Private Access						
Survey A – GRTS Sample	LC Lamprey Monitoring	Lower Columbia	Private Access						
Draft 1	Secesh Public Lands	Phil's Graduate Class	User						
Draft 2	Secesh Public Lands	Phil's Graduate Class	User						
Public-only frame	South Fork Salmon	CHaMP	Public						
Sites sampled in 2005	Willamette Chinook Monitor	Willamette Monitoring	User						
	Add	ancel							

When user clicks "Add" a row is added to the first grid, and a column is added to the second grid.

We may need some attribute matching capability – "this attribute in the legacy sites is the same as that attribute in the master sample." This would likely be expensive, and we're not sure how important it is.

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Broadsheet for Monitoring Site Manager Update Sites: Add Attributes

Provides a way for user to add attributes to sites within a Sample. This models being able to add attributes to master sample sites and legacy sites.



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Broadsheet for Monitoring Sample Designer Home Page

This broadsheet illustrates how we might update the site navigation (main menu) and home page





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Broadsheet for Monitoring Sample Designer Sample Designs



Below is the current list of Sample Designs. The list contains public sample designs and any private sample designs that you own. Check the Map Boundary box to view sites on the map. Click the pencil icon to edit your sample design.

Create a New Sample Design -

	Map Boundary	Sample Design	Monitoring Project	Monitoring Program	Date	Access	Owner
		Strahler strata A	Entiat	CHaMP	2-Mar-11	Public	John Doe
2 😑		Survey A	LC Lamprey Monitoring	Lower Columbia	29-Feb-12	Owner	Joe Sample
1		Secesh Final - GRTS	Secesh Public Lands	Phil's Graduate Class	12-Jan-12	Reviewer	Carol Monit
2		Draft 1	Secesh Public Lands	Phil's Graduate Class	21-Dec-11	View	Steve Helpe
		SF Public-only frame	South Fork Salmon	CHaMP	12-Nov-04	Public	John Doe



— This takes the user to the Create Sample Design page.

View Sample Design list

#180

#191) Copy a sample design

The user can create a new sample design from a sample design that is selected from the index, with identical selection and criteria decisions.

* The new sample design will be automatically named and added as a row in the index

* The naming convention may be the same as in MM, which is to append " Copy" then " Copy2", etc. to the end of the source name as new sample designs are created.

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Broadsheet for Monitoring Sample Designer Sample Design Details



More Information

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— User is logged in, and is the owner of the selected sample design.

This page serves a similar purpose as the protocol or method details pages in MM. It provides a read-only view of the design documentation that has been (or is in the process of being) built for the selected sample design.

Logged-in owner of sample design has access to these links; other users are restricted.

Edit Sample Design: Goes to Basics page.

<u>View Sample Design Sites</u>: Goes to Monitoring Site Manager – Site Details



View Sites of Sample Design: If the sample design has been saved at the Define Frame step (or later), this is enabled for the owner of sample design.

For now, this collapsible design documentation format is just a shell for future stories.

Broadsheet for Monitoring Sample Designer Basics

Broadsheet for Monitoring Sample	Designer Basics	(#204) Edit and describe sample design, and view step structure					
Monitoring Sample Des	APPS Welcome Joe! Log Off Help	User is logged in and has selected their sample design.	s				
Home Explore Design Sample Evaluat Home > Design Sample > Basics and Objectives	e Site Status Analyze Field Data Discuss About		<i>nport Sites</i> is not accessible from here. This step is isabled according to the responses given in the				
Sample Design: Monitoring Project:Survey A L C Lamprey Monitoring		'disabled' step (In (grey), this message (C would appear.	ntroduction when this sample design was created. Ince a sample design is created, its steps cannot be hanged. Please create a new sample design if you				
STEPS TO BUILD YOUR SAMPLE DESIGN Introduction Sample Design Name:	Survey A						
Basics Description:							
Import Sites							
Create Your Sample Design							
Select Master Sample Select Other Sites Define Frame	LC Lamprey Monitoring	Admin will be able #182 Give	to change who the owner is. access to private sample design (plus document and derivative samples)				
Add Attributes to Stratify Stratify Owner:	Joe Sampler	The concept here f not be "states" for t <i>Let's discuss</i> .	for giving access includes the use of a common set of "colleagues" with MM. There would the sample designs; however, the owner is able to confine access to themselves only.				
Generate Sample Sites Access:	Owner O Owner & Colleagues O Everyone		#185 Select protocol and monitoring program				
Document Your Design Protocol:	< none > Select the appropriate protocol for this Monitoring Project and Sample Design. If the protocol doesn't exist, please go to monitoringmethods.org and create one.	This launches a list of filterabl protocols with an abbreviated list of columns • We assume one protocol per sample design, Correct	List of Protocols Currently viewing 16 of 667 protocols (clear filters) Select for your Sample Design ID Protocol Name Monitoring Program Owner State Iamprey				
	Save Go to Next Step	Are all states of protocol (draft, proposed, revising acceptable	Image: Sign of the second s				
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(#204)

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Broadsheet for Monitoring Sample Designer Select Master Sample



#186 Select Master Sample

This page is enabled for users who are logged in, and have created a monitoring project and sample design.

They typically will have arrived here from the Basics page.

This is **single-select** (even though we're showing checkboxes rather than radio buttons). We may enable selecting multiple master samples in the future. We use a list because we expect the number of master samples to grow.

/ This needs to check if the user has returned to this step and changed their selection.

- If so, the tool then needs to check whether "Save" has happened at the Define Frame or Stratify steps.
- If so, a message must appear:

"You are changing the master sample for this sample design. This will cause you to lose the information entered in the Define Frame step (and in the Stratify step). Continue?"

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Broadsheet for Monitoring Sample Designer Select Other Sites (Legacy Sites)



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Broadsheet for Monitoring Sample Designer Define Frame (complex case)

APPS Welcome Joe! Log Off | Help Monitoring Sample Designer sored by: pacific northwest aquatic monitoring partnership Evaluate Site Status Analyze Field Data Explore Design Sample Discuss About Home Home > Design Sample > Define Frame Sample Design: Survey A Monitoring Project: L C Lamprey Monitoring STEPS TO BUILD **Define Frame** YOUR SAMPLE DESIGN Introduction Include all Legacy Sites in the defined frame. Basics 1. Build criteria: Use the criteria groups and individual criteria here to filter the set of Prepare Your Sites sites so that the set represents your target population. Import Sites Criteria Group 1 – criteria in this group are OR'ed 🗸 together Attribute Operation Value Add Attributes ~ 4 Strahler Order ✓ Is less than Create Your Sample Design Group 1 is AND'ed V to Group 2 Select Master Sample Criteria Group 2 – criteria in this group are OR'ed together Select Other Sites Attribute Operation Value Subbasin ✓ is Lewis \sim Define Frame ✓ Marine West Coast Forest Eco Region contains Create Panels Add Attributes to Stratify **Criteria Summary** Sites where Strahler Order is less than "4" 1 ((see next page). 2 AND Stratify Sites where Subbasin is "Lewis" OR Eco Region contains "Marine West Coast Forest" Generate Sample Sites Document Your Design 2. Apply criteria to define your survey frame. Apply Criteria Sites in the source samples: 551,070 Sites in your survey frame: 582 Go to Next Step Save © Pacific Northwest Aquatic Monitoring Partnership (PNAMP) Version 4.2.1140.0 | Compiled 2012-02-22 18:30 | PID 2156 Designed, built, and maintained by Sitka Technology Group Privacy Policy | Contact

#187 Define frame – Build Criteria

#209 **Define frame – Apply Criteria**

The default treatment of legacy sites initially will be to include them all - the checkbox will be locked "TRUE".

The Criteria Summary will also be displayed in the Design Documentation

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Broadsheet for Monitoring Sample Designer Documenting the Design



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Broadsheet for Monitoring Sample Designer Create Panels





This copies the panel building feature in Monitoring Methods. Once this site is in production, the capability in MM will be removed and replaced with a message to go here (very few study designs in MM have used the panel creation capability).

The necessary output of this page for strat_panel.fcn (the design R-code) is:
 * Number of panels
 * Number of sites (samples) per panel.

For this sample design, the design documentation will use:

- * The panel table with its rotation scheme (name and check boxes).
- * Temporal design description: the background and rationale.

Broadsheet for Monitoring Sample Designer Add Attributes to Stratify



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Broadsheet for Monitoring Sample Designer Stratify



#193 Stratify and allocate samples across strata

The user may winnow the sample as well as stratify it in this step. To make this clear, we could call this out in the portion of the Design Documentation that is "auto-populated" with their selections.

Pop-up entry form for Categorical Variable List is automatically populated with values.

Sample Design:

Attribute Type:

Accept

 $\mathbf{\nabla}$

 \checkmark

 \checkmark

0

1

2

3

4

Attribute:

Entry form for Continuous Variable User enters minimum and maximum 'bin' values

Х



We hope to limit the number of stratifying attributes to three (or four...) Any issues with such a limit?

*I have stratified my sample offline. How do I do this?

We hope to avoid this. This would give the user maximum flexibility but we would lose information about how the sample is designed. If offered, the user could possibly download their sample, add a Stratum column, and using the Add Attributes page, import the Stratum column as an attribute.

The strata names given here by the user provide a useful means of filtering the final GRTS sample, and will later be used in the 'block' names, which are panel name - strata name permutations.

The Strata Code column is applied to each site in the sample. This is used by the R-code design functions.

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Broadsheet for Monitoring Sample Designer Generate Sample Sites

	C APPS Welcome Joe! Log Off Help	#195 Run the R-code design function					
	ing Sample Designer acific northwest aquatic monitoring partnership	#196 Save GRTS sample and display it in Site Manager - Other Samples.					
Home Explore	Design Sample Evaluate Site Status Analyze Field Data Discuss About						
Sample Design: Surv Monitoring Project: L C L	ey A Lamprey Monitoring						
STEPS TO BUILD YOUR SAMPLE DESIGN	Generate Sample Sites.	If no Panels or Stratification:					
Introduction	 Review the desired number of samples and over-samples (enter if the Create Panels and the Stratify steps were skipped). 	1. Review the desired number of samples and over-samples (enter if the Create Panels and the Stratify steps were skipped).					
Basics	# Samples # Oversamples	# Samples # Oversamples					
Prepare Your Sites	Stratify 100 36	Stratify 0 0 These text boxes are enabled only if nothing has been					
Import Sites	Create Panels 100 36	Create Panels 0 0 entered in the Create Panels or Stratify steps.					
Add Attributes	Enter here 100 36	Enter here 100 36					
Create Your Sample Design	Note: The Stratify numbers will be used if the numbers differ between Stratify and Panels.	Note: The Stratify numbers will be used if the numbers differ between Stratify and Panels.					
Select Master Sample							
Select Other Sites	2. Generate a GRTS sample. Generate GRTS Sample						
Define Frame	3. View the results.	This runs the design function of the R-code. It first tests that:					
Create Panels	Number of sites before generating the GRTS sample. 366	 A Master Sample has been selected. The number of desired samples (sites) is greater than zero. 					
Add Attributes to Stratify	Number of sites after generating the GRTS sample. 100 Number of oversamples 36	A message should display informing the user what's missing if the button is disabled.					
Stratify	Number of panels 4 Number of strata 6	The output is displayed in Other Samples: Sample Detail of Monitoring Sites Manager.					
Generate Sample Sites	Congratulations! You have completed your Sample Design!	A message, either error or success, will deliver summary results here. The full data frame results is displayed in Other Samples: Sample Detail of Monitoring Sites Manager.					
Document Your Design	Go to Monitoring Site Manager to view and export your GRTS design sample.						
	and don't forget to	This redirects the user to Monitoring Site Manager > Explore Sites > Other Samples > Sample Detail.					
	DOCUMENT YOUR DESIGN : Please complete any items that are still open regarding your design documentation.	so does this.					
	Save Go to Monitoring Site Manager to view GRTS design sample						
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Generate Sample Sites

#194

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Broadsheet for Monitoring Site Manager Explore Sites: Other Sites / Sample Design Sites - Sample Detail



Provides details for the selected Sample – a place to view representative sites, their attributes, and design doc.



User is NOT logged in

All users may view public samples. As shown, this page is displaying the first set of sample sites from the Sample Design named "SF Public-only frame" under the "South Fork Salmon" monitoring project (which itself is under the "CHaMP" monitoring program.

This single page is designed to support the following "types" of sample:

- Other Sites (e.g. A user's private samples, aka legacy sites)
- Sample Design Sites
 - A user's first cut at defining their frame for their sample design see grid at left
 - A "final" sample design that has been run through GRTS see grid below

TBD. Idea here is that this link will take the user to a read-only "Monitoring Project Details" page. This page is likely at the "Monitoring Resources" level.

The map displays the boundary or points (or clusters of points if necessary to optimize page load time), of the selected sample. Is this necessary? This map could exist only at the index page.

We believe we can build shapefiles 'on the fly' for most sample sizes (need to test). We may need to take request and notify when shapefile is available.

Columns may be filtered and sorted.

Design Documentation: necessary?

• Sample Design sites: same as in the SD Details page in Sample Designer

Grid for a final draw of a GRTS Sample Design.

Use Order	Panel	Strata	Over- sample	Adj. Weight	Site ID	X coord.	Y coord.	Lat_dd	Long_dd	
1	Annual	Transport - Public		1.21987	CBW0553-003113	1122768.405	249236.1582	45.99847	-122.537	
2	Annual	Transport - Public		1.12987	CBW0553-010029	1081807.741	235520.2376	45.95786	-122.697	Ē
3	Annual	Transport - Private		1.49877	CBW0553-020041	1104909.597	245053.7656	45.98572	-122.607	
4	Annual	Depositional - Public		1.28491	CBW0553-030068	1122074.892	217593.4272	45.91168	-122.537	
5	Rotating Yr 1	Source - Public	Yes	1.08744	CBW0553-040089	1083801.85	227512.1227	45.93606	-122.668	
										-

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