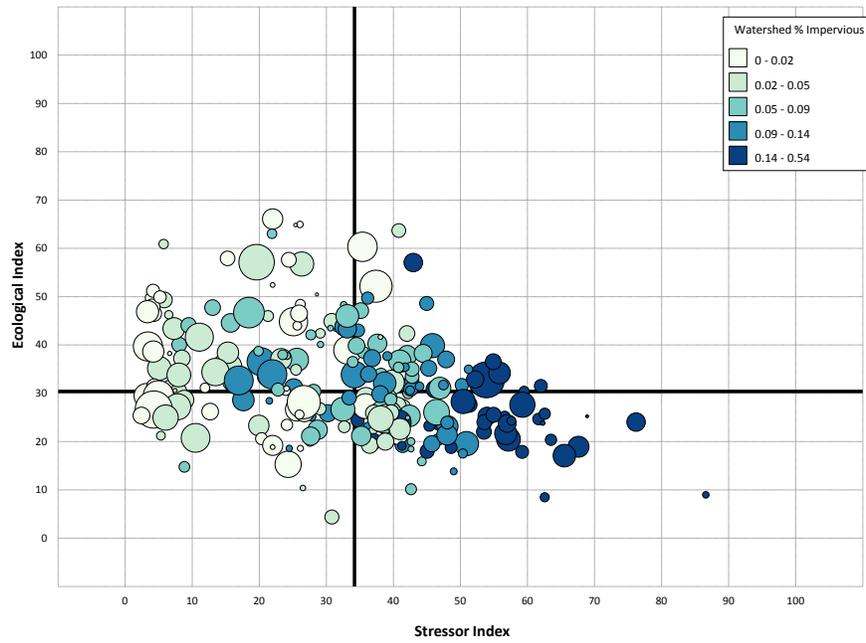


USER GUIDE FOR THE RECOVERY POTENTIAL SCREENING (RPS)



SCORING SPREADSHEET TOOL

September 2015

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1. Introduction & Background

1.1. RPS Overview

Recovery Potential Screening (RPS) is a systematic method for comparing watersheds based on characteristics that may influence the relative likelihood of successful watershed restoration or protection. RPS was developed to provide states and other planners with a flexible screening tool to guide prioritization of watersheds according to differences in key environmental and social factors affecting prospects for restoration and protection success.

RPS involves identifying a group of watersheds to be compared and a specific purpose for comparison, selecting appropriate indicators of recovery potential in three categories (Ecological, Stressor, and Social; Figure 1), and calculating recovery potential index scores for the watersheds. Index scores include the Ecological Index, Stressor Index, and Social Index and are calculated by combining indicators from each category. For example, the Ecological Index is calculated from all ecological indicators while the Stressor Index is calculated from all stressor indicators. In addition, an overall Recovery Potential Integrated (RPI) Index score is calculated by combining the Ecological Index, Stressor Index, and Social Index.

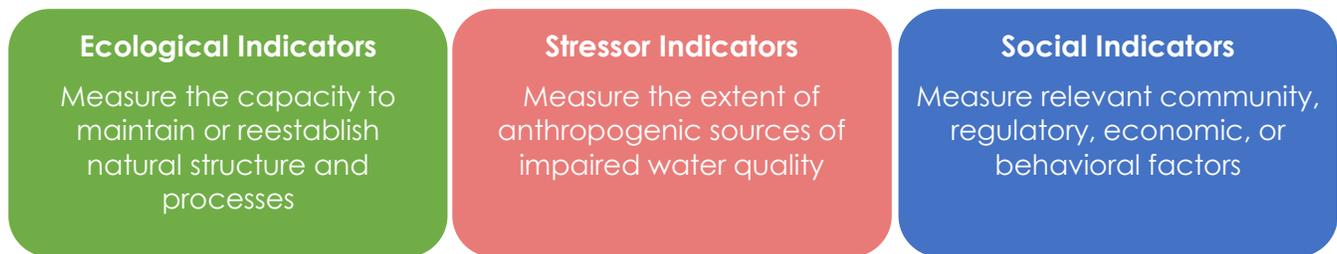


Figure 1. RPS uses three categories of recovery potential indicators to compare watersheds.

1.2. RPS Scoring Spreadsheet Tool

The RPS Scoring Spreadsheet Tool (RPS Tool) is a custom-coded Microsoft Excel workbook designed to facilitate setting up an RPS screening run, perform all recovery potential index calculations, and display results. The State RPS Tool series was released in July 2014 as a set of ready-to-use RPS spreadsheet tools for each of the lower 48 States. Each RPS Tool has pre-calculated indicator data already embedded for all 12-digit hydrologic unit (HUC12) subwatersheds of the National Watershed Boundary Dataset that are wholly or partially within the State's boundary. In addition to storing pre-calculated indicator data, each State RPS Tool:

- Contains a user-friendly interface for setting up a screening;
- Automatically calculates RPS index scores and ranks for the HUC12 subwatersheds of interest;
- Displays results in customizable table, plot, and map form;
- Can be readily updated with user-generated indicator data.

The RPS Tool is designed for use by anyone with basic familiarity with Microsoft Excel. Instructions for each step are contained within the RPS Tool and this User Guide provides a more detailed directions on tool use.

1.3. User Guide Organization

The RPS Tool is made up of several worksheets within a Microsoft Excel workbook. Some worksheets contain interactive menus and buttons while others store data for viewing and use in RPS calculations.

Each section of this User Guide describes a worksheet in the RPS Tool. Worksheet contents are summarized and step-by-step instructions are provided for interactive features within the worksheet. For some worksheets and features, a set of advanced tips are also provided for users that have become proficient in basic use of the tool.

2. Instructions Worksheet

The **Instructions** worksheet provides an abridged set of instructions for using the RPS Tool. The **Instructions** worksheet is intended to serve as a built-in reference for users of the RPS Tool. It does not supplant the more detailed instructions presented in this User Guide.

Listed at the top of the **Instructions** are three key pieces of information for the tool file you are working with:

- **Project Area** – The state, river basin, or other geographic area that the RPS Tool file is designed for. Each tool file comes with a table of pre-calculated indicator data for all watersheds in the Project Area at one or more watershed scales (defined below). Users can decide to screen all watersheds within the Project Area or only a subset of watersheds of interest.
- **Watershed Scales** – The watershed scales that the RPS Tool file is able to screen. The term “watershed scale” refers to pre-defined watershed delineations. A typical tool file is able to screen, at minimum, 12-digit hydrologic units (HUC12s) of the National Watershed Boundary Dataset (WBD). Tool files for some Project Areas are able to screen additional watershed scales such as 8-digit hydrologic units (HUC8s).
- **Version Date** – The date the RPS Tool file was last updated to add new user features or modify existing features.

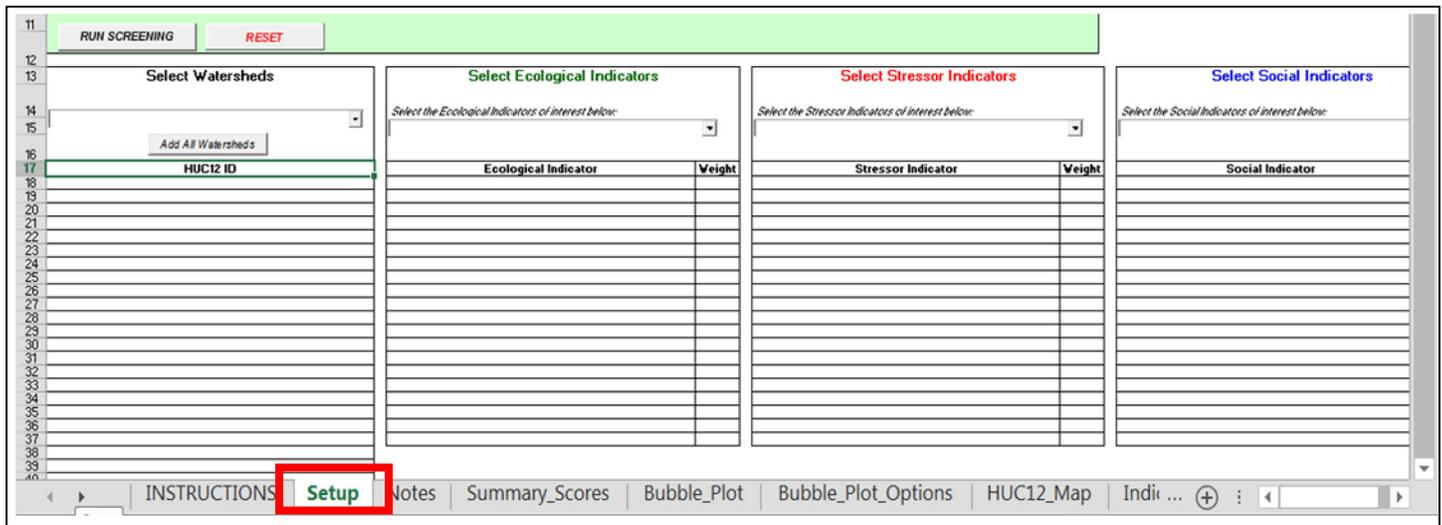
	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Scoring Spreadsheet for Recovery Potential Screening												
2	Project Area: Tennessee												
3	Watershed Scales: HUC8, HUC12												
4	Version Date: May 19, 2015												
5													
6	TROUBLESHOOTING NOTE: In December 2014, Microsoft released Office updates that affect the functionality of Excel macros and												
7	controls (drop-down menus, buttons, etc.). This tool file contains a patch to address these issues, but the file must be opened twice for the												
8	patch to be fully implemented. If this is your first time opening the file, please close and re-open a second time before proceeding. If you												
9	continue to receive error messages while using the Setup worksheet, you will need to download and run the Administrator level Microsoft												
10	Fix it solution (#51031) from http://support.microsoft.com/kb/3025036/EN-US .												
11													
12	This MS Excel file is specially coded to perform Recovery Potential Screening (RPS) calculations for the project area and watershed												
13	scales listed above using indicator data stored in this file. This procedure supports the assessment and comparison of relative												
14	restorability of impaired waters or watersheds by measuring ecological, stressor, and social indicators and calculating summary indices.												
15	This file should function properly in Excel 2003, 2007, 2010, or 2013.												
16	Each of the worksheets in this spreadsheet file (see tabs along the bottom of the screen) begins with instructions and a summary of its												
17	contents. Below is an overview of all the steps involved to perform Recovery Potential Screening from this spreadsheet tool. For												
18	general background information about Recovery Potential Screening, please visit www.epa.gov/recoverypotential/ .												
19	Print a copy of this <i>Instructions</i> worksheet, if desired, for reference when using other worksheets.												
20	1. ENABLE THE MACROS THAT RUN THIS FILE. If the message “Security warning – macros have been disabled” appears -- click on												
21	<i>Options</i> and select <i>Enable this Content</i> . If any other message appears regarding security, click on <i>Enable Macros</i> or <i>Enable this Content</i> .												
22	The message may vary with different versions of Excel. You should only need to do this step once to activate all of the tool's functions.												
23	2. REVIEW/ADD INDICATOR DATA AND DESCRIPTIONS. Click on the <i>HUC_Data</i> tab below for the watershed scale of interest (e.g.,												
24	<i>HUC12_Data</i>). There will be one worksheet for each watershed scale included in this file. Each worksheet stores the complete data												
25	table of raw indicator values for all indicators measured and for all watersheds in the project area at a given scale.												
26													
27	Indicator data (values of specific attributes for every watershed, in a data table) have been pre-loaded to this file. Some pre-loaded												
28	indicators are measured from the in-state portion of each watershed only. Other indicators are measured from the entire watershed												
29	area (including the out-of-state portion). Indicators that consider in-state conditions only contain "(ISO)" in their names (In-State Only).												
30	If you wish to enter data for new indicators, follow the steps below.												
31													
	<div style="display: flex; justify-content: space-between; border: 1px solid black; padding: 2px;"> < INSTRUCTIONS Setup Notes Summary_Scores Bubble_Plot Bubble_Plot_Options HUC12_Map Indicator_Values > </div>												

3. Setup Worksheet

3.1. Overview

Basics

The **Setup** worksheet is your “home base” for configuring and running a Recovery Potential Screening. It is the first worksheet you should use after opening the tool file, reviewing instructions, and planning your Recovery Potential Screening run. The **Setup** worksheet is the only worksheet where you can choose (and change) the watersheds and indicators that are used in your screening run.



The **Setup** worksheet is organized into four sections:

- In the **Select Watersheds** section you will specify which watersheds will be included in the screening.
- In the **Select Ecological Indicators** section you will specify which ecological indicators will be used in the screening and how those ecological indicators will be weighted.
- In the **Select Stressor Indicators** section you will specify which stressor indicators will be used in the screening and how those stressor indicators will be weighted.
- In the **Select Social Indicators** section you will specify which social indicators will be used in the screening and how those social indicators will be weighted.

After selecting watersheds, indicators, and weights, you will click the **RUN SCREENING** button to populate other worksheets in the tool with screening results. The **Setup** worksheet also includes a **RESET** button to clear the current watershed/indicator selections from the **Setup** worksheet and screening results from other worksheets so that a new screening run can be configured from scratch.

The following sections provide step-by-step instructions for how to:

- **Choose a Watershed Scale**
- **Select Watersheds to Screen**
- **Select Indicators and Assign Weights**
- **Use the Run Screening Button**
- **Respond to Warning Messages**
- **Use the Reset Button**

Advanced Tips

- Completing the setup process is far easier if you have already planned out your screening by identifying the screening purpose, watersheds of interest, and relevant indicators (from the full list available) beforehand.
- The process of selecting watersheds and indicators to screen can be streamlined by copying and pasting watershed IDs, indicator names, and indicator weights that have already been compiled in other spreadsheets. This is faster than typing or selecting individually from drop-down menus on the **Setup** worksheet. Instructions for copying and pasting watersheds and indicators into the **Setup** worksheet are provided in the following sections.
- After setting up and running a screening, you may want to make minor adjustments to your screening by adding or removing watersheds, adding or removing indicators, or adjusting indicator weights. Do not click the **RESET** button on the **Setup** worksheet if you want to make minor adjustments to an existing screening since clicking the **RESET** button will clear all selections from the **Setup** worksheet. Instead, to adjust an existing screening, simply make the desired changes on the **Setup** worksheet and then re-click the **RUN SCREENING** button. This will update results stored on other worksheets to reflect the changes made to watershed and indicator selections on the **Setup** worksheet.
- Save completed screening runs and change the file name before beginning a new run with different watersheds or indicators, or before using **RESET**.

3.2. Choose Watershed Scale

Basics

Some RPS Tool files are designed to screen watersheds at a single scale (e.g., HUC12 subwatersheds only). Others allow users to select between multiple watershed scales for screening (e.g., either HUC8 watersheds or HUC12 subwatersheds). If your tool file includes multiple watershed scales, you must specify which scale your screening will consider on the **Setup** worksheet.

Watershed scale options are displayed right below the **Select Watersheds** section title on the **Setup** worksheet.

To select a watershed scale, click the option button next to the watershed scale name.

If your RPS tool contains watershed data at one scale only, there will be no options buttons visible.

Select Watersheds

HUC8 HUC12

HUC8 ID

10240005 (Tarkio-Wolf)
10240011 (Independence-Sugar)
10250003 (South Fork Republican)

Advanced Tips

- Users must select only **one** watershed scale per screening run (i.e., you cannot screen watersheds from multiple scales in a single screening run).
- Clicking a watershed scale button will prepare the watershed and indicator drop-down menus on the **Setup** worksheet for next steps. For example, clicking the HUC12 option button will add HUC12 IDs to the drop-down menu in the **Selection Watersheds** section.
- Be aware that changing to a different watershed scale will reset the **Setup** worksheet by clearing any selected watersheds, indicators, and weights. If you have begun to setup your screening run by entering watersheds, indicators, or weights on the **Setup** worksheet then those entries will be deleted if you click a different watershed scale button and will not be recovered by returning to the original scale.

3.3. Select Watersheds to Screen

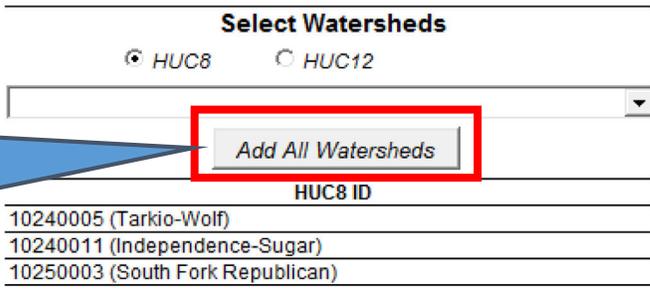
Basics

A Recovery Potential Screening run can include all watersheds in the Project Area that the RPS Tool is designed for or a smaller subset of watersheds of interest. Users must decide which watersheds to screen based on the purpose and goals of their screening.

In the **Select Watersheds** section of the **Setup** worksheet, you will specify which watersheds to include in the screening by entering a list of watershed IDs (one ID per row). Three options are available for entering watersheds IDs.

**Select Watersheds to Screen Option 1 –
Add All Watersheds**

Click the **Add All Watersheds** button. This automatically adds all watershed IDs in the Project Area covered by the RPS Tool to the watershed ID list.



Select Watersheds

HUC8 HUC12

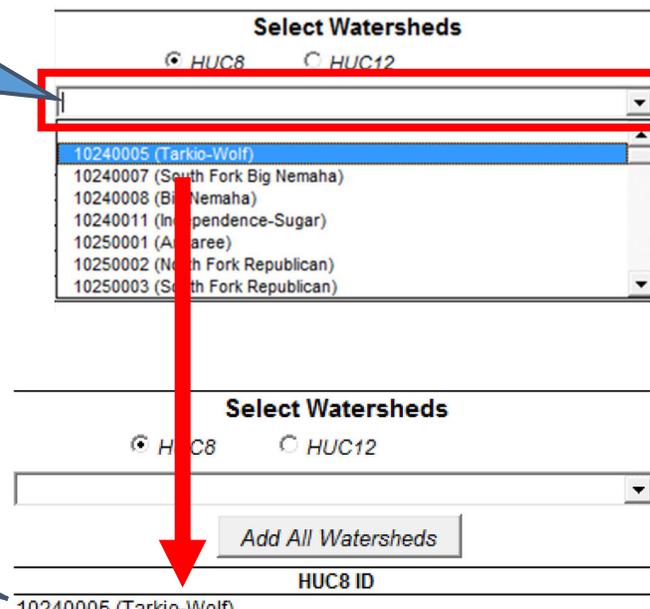
Add All Watersheds

HUC8 ID

10240005 (Tarkio-Wolf)
10240011 (Independence-Sugar)
10250003 (South Fork Republican)

**Select Watersheds to Screen Option 2 –
Select Watersheds Individually**

Click the drop-down menu in the **Select Watersheds** section to display watershed IDs in a pick list.

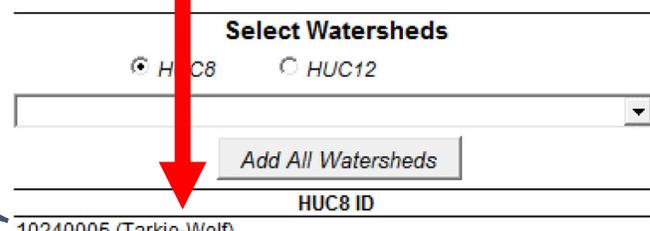


Select Watersheds

HUC8 HUC12

▼

- 10240005 (Tarkio-Wolf)
- 10240007 (South Fork Big Nemaha)
- 10240008 (Big Nemaha)
- 10240011 (Independence-Sugar)
- 10250001 (Aaree)
- 10250002 (North Fork Republican)
- 10250003 (South Fork Republican)



Select Watersheds

HUC8 HUC12

Add All Watersheds

HUC8 ID

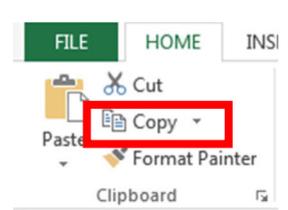
10240005 (Tarkio-Wolf)

Select Watersheds to Screen Option 3 – Copy and Paste Watershed IDs

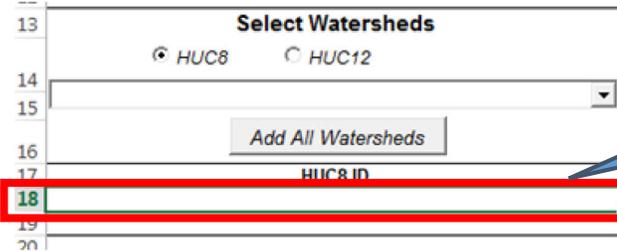
To use this options you must already have a pre-existing list of watershed IDs to screen in a separate worksheet. The list of watershed IDs must be formatted with one ID per row.

Open the worksheet containing the pre-existing list of watershed IDs to screen. Select the list and click “Copy” on the Excel menu.

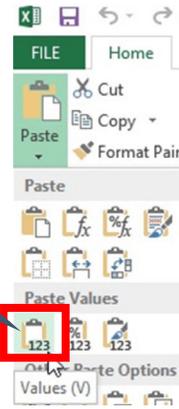
10260006
10260007
10260008
10260009
10260010
10260011
10260012
10260013
10260014
10260015
10270101



Go back to the *Setup* worksheet and set the cursor to cell A18 on the *Setup* worksheet (the first cell of the watershed ID list in the *Select Watersheds* section).



Select “Paste Values” from the Excel menu to paste the watershed IDs into the *Select Watersheds* section.



Select Watersheds	
<input checked="" type="radio"/> HUC8	<input type="radio"/> HUC12
<input type="text"/>	
<input type="button" value="Add All Watersheds"/>	
HUC8 ID	
10260006	
10260007	
10260008	
10260009	
10260010	
10260011	
10260012	
10260013	
10260014	
10260015	
10270101	
10270102	
10270103	

Advanced Tips

- The watershed ID list in the **Select Watersheds** section must begin in cell A18 of the **Setup** worksheet and must contain one watershed ID per row.
- The watershed ID list must be continuous (no blank rows). If blank rows are present, any watershed IDs below the first blank row will not be screened.
- Watershed names alone cannot be added to the watershed ID list. Watershed names can be included in the text but must occur after the watershed ID. For example, the Jacks River HUC12 (HUC12 ID 031501010102) can be entered as “031501010102” or “031501010102 (Jacks River)” but not “Jacks River”.
- When manually typing watershed IDs or copying and pasting from another worksheet, be sure that all IDs are present in column A of the **Indicator Data** worksheet for the watershed scale you are screening (e.g., the **HUC12_Data** worksheet HUC12 subwatersheds are being screened). The tool cannot screen watersheds that are not present in the **Indicator Data** worksheet.
- Use the **HUC Subsets** worksheet to store lists of watershed IDs that will be of interest for future screenings. For example, you can use the **HUC Subsets** worksheet to store lists of HUC12 IDs within each HUC8 in the Project Area. You can then copy and paste a group of HUC12s from the **HUC Subsets** worksheet to the **Setup** worksheet for a screening run.
- Do not omit leading zeros from watershed IDs (e.g., “04030001” cannot be entered as “4030001”). Omitting leading zeros will cause errors in the screening run.
- If HUC8 watersheds are being screened, the first 8 characters in each watershed ID are used to extract indicator values from the indicator data worksheet. Any text after the eighth character is ignored.
- If HUC12 subwatersheds are being screened, only the first 12 characters in each watershed ID are used to extract indicator values from the indicator data sheet. Any text after the twelfth character is ignored.

3.4. Select Indicators and Weights

RPS index scores and ranks are calculated for each watershed included in a screening using ecological, stressor, and social indicators. The choice of which indicators to use for a screening depends on the purpose of the screening and the nature of the watersheds being screened. Thus, users should review the full list of indicators and their definitions in the **Indicator Info** worksheet before selecting indicators on the **Setup** worksheet.

Basics

At least one ecological indicator, one stressor indicator, and one social indicator must be selected in order to perform a Recovery Potential Screening run. In general, three to ten indicators per category are recommended. If too few indicators are selected, index scores will not adequately reflect the factors influencing recovery potential. If too many indicators are selected, index scores will reflect random noise in the indicator data rather than true patterns in recovery potential.

Indicator weights determine the relative influence of each indicator on index scores. Weights must be numeric but any set of numeric values can be used. A typical approach is to select a certain number of weight categories (e.g., 3 = high; 2 = medium; 1 = low) and assign weights to indicators based on their relevance to the purpose of the screening and data quality considerations.

Two options are available for selecting indicators and weights on the **Setup** worksheet.

Select Indicators and Weights Option 1 – Select from Drop-Down Menu

Click on the drop-down menu in the **Select Ecological Indicators** section. Scroll through the indicator menu and click on the indicator of interest.

The selected indicator will be added to the indicator list below the drop-down menu.

Select Ecological Indicators

Select the Ecological Indicators of interest below:

- % Barren Land (2006) in Watershed
- % Natural Cover, N-index2 (2006) in Watershed
- % Natural Cover, N-index1 (2006) in Watershed
- % Natural Cover, N-index 2 (2006) in HCZ
- % Natural Cover, N-index1 (2006) in HCZ
- % Natural Cover, N-index 2 (2006) in Riparian Zone
- % Natural Cover, N-index (2006) in Riparian Zone
- HUB National Ecological Framework 2001, WS

Select Ecological Indicators

Select the Ecological Indicators of interest below:

Ecological Indicator	Weight
% Natural Cover, N-index2 (2006) in Watershed	1

Select Ecological Indicators

Select the Ecological Indicators of interest below:

Ecological Indicator	Weight
% Natural Cover, N-index2 (2006) in Watershed	2
Watershed Mean Soil Stability	1
% NEF2001, National Ecological Framework, WS	1

By default, indicators selected from the drop-down menu will be assigned a weight of 1.

Indicator weights can be adjusted by placing the cursor on the cell containing the weight and typing in a new weight.

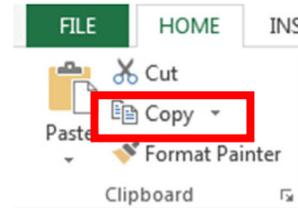
Repeat these steps in the **Select Stressor Indicators** section to select stressor indicators and weights and in the **Select Social Indicators** section to select social indicators and weights.

Select Indicators and Weights Option 2 – Copy and Paste Indicator List

To use this option you must already have a pre-existing list of ecological indicator names and weights stored in a separate worksheet. The pre-existing indicator list must be formatted with one indicator per row with the indicator name in the first column and indicator weight in the second column.

Open the worksheet with the pre-existing indicator list. Select the indicator names and weights and click “Copy” on the Excel menu.

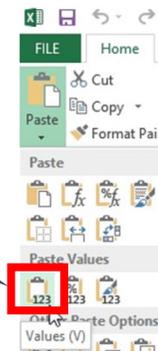
% Natural Cover, N-index2 (2006) in Watershed	2
Watershed Mean Soil Stability	1
% NEF2001, National Ecological Framework, WS	1



C		D
13	Select Ecological Indicators	
14	Select the Ecological Indicators of interest below:	
15	<input type="text"/>	
16		
17	Ecological Indicator	Weight
18		
19		
20		

Go back to the *Setup* worksheet and set the cursor to cell C18 (the first cell of the indicator list in the **Ecological Indicators** section).

Select “Paste Values” from the Excel menu to paste the ecological indicators and weights into the **Select Ecological Indicators** section.



Select Ecological Indicators	
Select the Ecological Indicators of interest below:	
<input type="text"/>	
Ecological Indicator	Weight
% Natural Cover, N-index2 (2006) in Watershed	2
Watershed Mean Soil Stability	1
% NEF2001, National Ecological Framework, WS	1

Repeat these steps in the **Select Stressor Indicators** section to select stressor indicators and weights and in the **Select Social Indicators** section to select social indicators and weights.

Advanced Tips

- The Ecological Indicator list must begin in cell C18 of the **Setup** worksheet and must contain one indicator per row.
- The Stressor Indicator list must begin in cell F18 of the **Setup** worksheet and must contain one indicator per row.
- The Social Indicator list must begin in cell I18 of the **Setup** worksheet and must contain one indicator per row.
- The Ecological, Stressor, and Social Indicator lists must be continuous (no blank rows). If blank rows are present, any indicators below the first blank row will not be included in the screening.
- When copying and pasting from another worksheet, be sure that indicator names exactly match names in the header row (row 7) of the **Indicator Data** worksheet for the selected watershed scale (e.g., the **HUC12_Data** worksheet if HUC12 subwatersheds are being screened). Any differences in indicator spelling, capitalization, or whitespace will result in errors when the screening is run.
- Indicator weights can be set to zero. A weight of zero means that the indicator has no effect on index scores.
- Indicator weights can be set to negative values. A negative weight will reverse the directional effect of the indicator on index scores. The standard directionality is for larger indicator values to increase Ecological Index, Stressor, and Social Index scores. A negative weight will reverse directionality so that smaller values increase Ecological Index, Stressor, and Social Index scores.
- Indicator selections within each category (Ecological, Stressor, and Social) should be topically diverse. A diverse set of indicators will reflect a range of factors relevant to recovery potential rather than one single topic.
- Users may want to consider numeric redundancy as part of the indicator selection process. Non-redundant indicators can be identified by examining correlation coefficients between indicator pairs.

Advanced Tips

- After clicking the **RUN SCREENING** button an error message may appear. A screening will not successfully run to completion and an error message will be displayed if any of the following errors occur:
 - Watersheds, indicators, and/or weights are not specified.
 - One or more watershed IDs entered in the **Select Watersheds** section do not have an exact match in column A of the **Indicator Data** worksheet for the watershed scale you are screening (e.g., the **HUC12_Data** worksheet if HUC12 subwatersheds are being screened).
 - One or more indicator names entered in the **Select Ecological Indicators**, **Select Stressor Indicators**, or **Select Social Indicators** sections do not have an exact match in the header row of the **Indicator Data** worksheet (e.g., the **HUC12_Data** worksheet if HUC12 subwatersheds are being screened).
 - One or more of the indicators selected for screening contain non-numeric data in the **Indicator Data** worksheet. Indicator data must be numeric (blank cells are allowed for missing data).

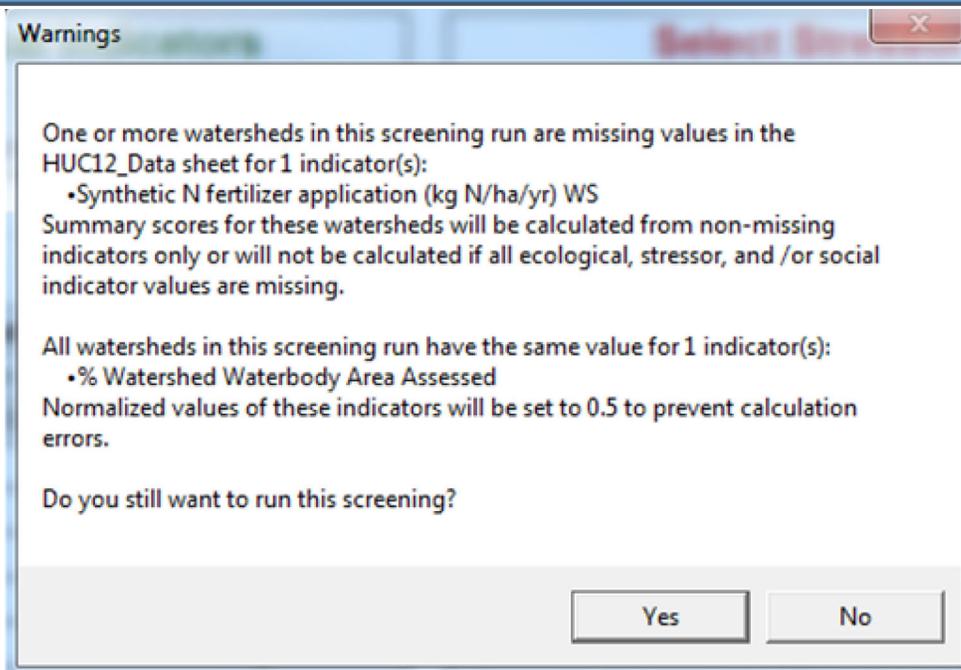
3.6. Respond to Warning Messages

Basics

After clicking the **RUN SCREENING** button on the **Setup** worksheet, the tool will automatically check for potential issues with indicator data, including:

- **Missing indicator values.** In most cases, each indicator will have a numeric value for every watershed selected for screening in the **Indicator Data** worksheet. However, indicator values may be missing for one or more watersheds. Missing indicator values are denoted as blank cells in the **Indicator Data** worksheet. If a watershed is missing indicator values, then RPS index scores for that watershed will be calculated from non-missing indicators only. In rare cases, a watershed will be missing values of all ecological, stressor, and social indicators selected for the screening. If a watershed is missing values for all indicators, RPS index scores cannot be calculated for that watershed.
- **Equal-value indicators.** Equal value indicators are indicators that have the same exact value for every watershed selected for screening. Equal value indicators therefore provide no information on recovery potential differences between watersheds. RPS index calculations are based on the assumption that indicator values vary between watersheds and cannot be applied to equal value indicators. An equal-value indicator can be included in a screening but normalized values of the equal-value indicator are set to 0.5 for all watersheds to prevent index calculation errors.

After clicking the **RUN SCREENING** button, a message box will appear if the tool finds any indicator data issues. The warning message will notify users if missing indicator data or equal-value indicators were found and will list the names of indicators with issues. Users have the option to continue the screening by clicking **Yes** on the message box or to stop the screening to adjust indicator selections by clicking **No**.



Advanced Tips

- Users can remove indicators with missing values or equal-value indicators by clicking **No** on the warning message box and deleting the names of indicators from the **Select Ecological Indicators**, **Select Stressor Indicators**, and/or the **Select Social Indicators** sections.
- Decisions on whether to remove indicators with missing values can be based on the number of watersheds with missing data. Missing indicator values are denoted as blank cells on the indicator data worksheet. As the number of watersheds with missing data increases, the value of the indicator for describing recovery potential differences between watersheds decreases. If most of the watersheds selected for screening are missing values of an indicator, it is likely advantageous to remove that indicator from the screening, particularly if it can be replaced with another indicator with a more complete record that describes a similar watershed characteristic.
- Equal-value indicators should be removed from a screening since they provide no information on recovery potential differences between watersheds. The exception is when a user intentionally selects an equal-value indicator as the only indicator for one of the Ecological, Stressor, or Social groups to evaluate the effect on RPI index scores. For example, selecting an equal-value indicator as the only Social indicator will nullify the effect of Social Index scores on the RPI Index since all watersheds will receive an equal Social Index score.

4. Notes Worksheet

The **Notes** worksheet provides users with a space to document information related to their screening run, including a screening run name, screening objectives, watershed scale screened, and notes on indicator selection and weighting.

Filling the **Notes** worksheet is optional, its contents are not used in any of the auto-calculation methods in the RPS Tool.

5										
6	Screening Run Name:	Tennessee Urban/Suburban Nutrient Screening								
7										
8	Objectives:	Identify Tennessee HUC12s with significant urban/suburban sources of nutrients that are restoration priorities.								
9										
10	Watershed Scale:	HUC12								
11										
12	Indicator Selection Notes:	Focus is on indicators relevant to recovery from urban/suburban sources of nutrients.								
13										
14										
15										
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17										
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24										
25										
26										
27										
28										
<table border="1"> <tr> <td>INSTRUCTIONS</td> <td>Setup</td> <td>Notes</td> <td>Summary_Scores</td> <td>Bubble_Plot</td> <td>Bubble_Plot_Options</td> <td>HUC12_Map</td> <td>Indicator_Values</td> </tr> </table>			INSTRUCTIONS	Setup	Notes	Summary_Scores	Bubble_Plot	Bubble_Plot_Options	HUC12_Map	Indicator_Values
INSTRUCTIONS	Setup	Notes	Summary_Scores	Bubble_Plot	Bubble_Plot_Options	HUC12_Map	Indicator_Values			

5. Summary Scores Worksheet

Basics

The **Summary Scores** worksheet displays a table of Ecological Index, Stressor Index, Social Index, and Recovery Potential Integrated (RPI) Index scores and ranks for each watershed selected for screening.

Index scores and ranks are automatically calculated and added to the **Summary Scores** worksheet after clicking the **RUN SCREENING** button on the **Setup** worksheet. Watersheds are displayed in the same order as they are entered in the **Select Watersheds** section of the **Setup** worksheet.

Ecological Index, Stressor Index, and Social Index scores are calculated from weight-adjusted, normalized indicator values displayed in the **Normalized Indicator Values** worksheet while RPI scores are calculated from Ecological Index, Stressor Index, and Social Index scores. Index scores can be interpreted using the following guidelines:

- **Higher** Ecological Index scores correspond to **higher** recovery potential.
- **Lower** Stressor Index scores correspond to **higher** recovery potential.
- **Higher** Social Index scores correspond to **higher** recovery potential.
- **Higher** RPI Index scores correspond to **higher** recovery potential.

7	Watershed ID	Watershed Name	Ecological Index	Ecological Rank	Stressor Index	Stressor Rank	Social Index	Social Rank	RPI Score	RPI Rank
8	051301080101	Glade Creek	69.16	14	25.23	26	20.35	36	54.76	20
9	051301080102	Bee Creek Upper	69.20	13	24.74	24	51.78	1	65.41	4
10	051301080103	Bee Creek Lower	77.68	5	16.75	15	41.00	3	67.31	2
11	051301080201	Cane Creek Middle	75.60	9	12.86	6	15.01	42	59.25	12
12	051301080202	Cane Creek Upper	79.05	3	9.34	4	28.85	18	66.19	3
13	051301080203	Piney Creek	78.10	4	15.02	11	20.11	37	61.06	9
14	051301080204	Dry Fork	70.75	12	20.70	19	19.19	38	56.41	17
15	051301080205	Cane Creek Lower	71.34	11	9.33	3	21.49	32	61.17	8
16	051301080301	Laurel Creek	76.30	6	11.33	5	22.96	30	62.64	6
17	051301080302	Caney Fork River Headwaters	76.04	7	23.73	23	26.30	26	59.54	11
18	051301080303	Caney Fork River-Clifty Creek	75.85	8	18.18	17	22.41	31	60.03	10
19	051301080304	Lost Cove	65.14	15	13.89	9	5.13	47	52.13	23
20	051301080305	Caney Fork River-Suggs Branch	58.49	20	20.01	18	28.37	19	55.62	18
21	051301080401	Bridge Creek	74.14	10	15.13	12	27.00	22	62.01	7
22	051301080402	Calfkiller River Upper	60.17	18	22.50	20	18.07	39	51.91	25
23	051301080403	Calfkiller River Middle	60.07	19	14.88	10	11.18	44	52.13	24
24	051301080404	Calfkiller River Middle	46.26	32	32.64	35	16.07	41	43.23	38
25	051301080405	Calfkiller River Lower	30.47	44	41.71	40	17.09	40	35.28	45
26	051301080501	Rocky River Lower	95.12	1	13.16	8	21.00	35	67.65	1
27	051301080502	Rocky River Upper	88.90	2	6.43	1	11.00	45	64.49	5
28	051301080503	Lower Rocky	52.40	26	23.45	22	35.92	8	54.96	19

Advanced Tips

- Users can view the Excel formulas used to calculate index scores by clicking on a cell in the **Summary Scores** worksheet and reviewing the formula bar.
- RPI scores are calculated from Ecological Index, Stressor Index, and Social Index scores using the formula:

$$RPI = \frac{[Ecological\ Index + Social\ Index + (100 - Stressor\ Index)]}{3}$$

- Ecological Index, Social Index, and RPI Index ranks are determined by sorting index scores from highest to lowest (i.e., the watershed with the highest Ecological Index score receives a rank of 1).
- Stressor Index ranks are determined by sorting index scores from lowest to highest (i.e., the watershed with the lowest Stressor Index score receives a rank of 1).

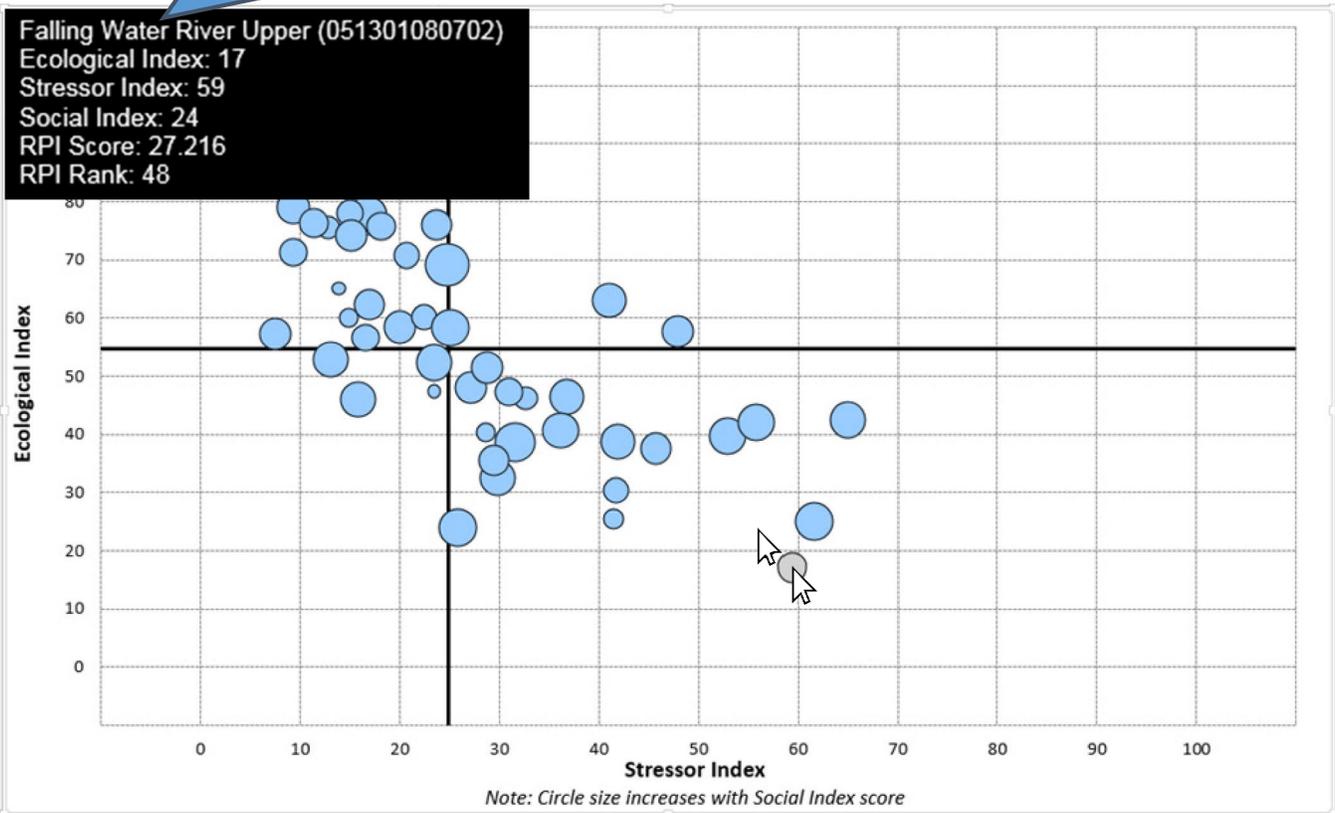
6. Bubble Plot Worksheet

The **Bubble Plot** worksheet contains a bubble plot that displays RPS results.

The **Bubble Plot** is automatically created when the **RUN SCREENING** button is clicked on the **Setup** worksheet. It contains one “bubble” for each watershed selected for screening, with the Stressor Index score plotted on the horizontal (x) axis, Ecological Index score plotted on the vertical (y) axis, and Social Index plotted as the bubble size. Larger bubbles have higher Social Index scores relative to smaller bubbles.

The bubble plot can be customized using controls on the **Bubble Plot Options** worksheet.

The bubble plot displays Ecological Index, Stressor Index, and Social Index scores for watersheds included in your screening. Hover over any bubble with your mouse cursor to view a popup information box with index scores and ranks for that watershed.



Summary_Scores

Bubble_Plot

Bubble_Plot_Options

HUC12_Map

Indicator_Values

Normalized_Indicator_Values

7. Bubble Plot Options Worksheet

7.1. Overview

The **Bubble Plot Options** worksheet provides users the ability to customize the **Bubble Plot** worksheet that displays screening results.

The screenshot shows the 'Bubble Plot Options' worksheet interface. It is organized into four main functional panels:

- REPOSITION AXES:** Contains instructions for repositioning axes based on percentiles. It includes a dropdown for '(a) User-Defined Percentiles' and two input fields for 'Enter a new Stressor Index percentile for the y-axis (0-100):' and 'Enter a new Ecological Index percentile for the x-axis (0-100):', both with the value '50' entered. Buttons for 'REPOSITION AXES' and 'RESET AXES' are present.
- ADD LABELS TO BUBBLES:** Allows selecting a watershed identifier for labeling. It features a 'Watershed Name' dropdown, an 'ADD ALL LABELS' button, and a 'REMOVE LABELS' button. A note states: 'Note: To highlight the watershed, the box above must be checked BEFORE selecting from the drop-down list.' There is also a 'Highlight Selected Watershed' checkbox.
- EDIT BUBBLE SIZES:** Lets users enter a bubble size (1-300) and provides a 'RESIZE BUBBLES' button. A 'RESET BUBBLE SIZES' button is also available. A 'SAVE AS IMAGE FILE' section includes a 'SAVE BUBBLE PLOT' button.
- EDIT BUBBLE COLORS:** Provides options to select an indicator, classification method, number of classes, and color scheme. It includes 'UPDATE BUBBLE COLORS' and 'RESET BUBBLE COLORS' buttons.

At the bottom, a navigation bar shows the following worksheets: Setup, Notes, Summary_Scores, Bubble_Plot, **Bubble Plot Options** (highlighted with a red box), HUC12_Map, and Indicator_Values.

The following sections provide step-by-step instructions for how to use the **Bubble Plot Options** worksheet to:

- **Reposition Plot Axes**
- **Toggle Between Plotting a Subset Only Screening or an All Watersheds Screening**
- **Add Labels to Bubbles**
- **Edit Bubble Sizes**
- **Edit Bubble Colors**
- **Save an Image File of the Bubble Plot**

7.2. Reposition Axes

The horizontal axis and vertical axis of the **Bubble Plot** can be set to any user-defined position.

By default, the horizontal axis is positioned at the median of Ecological Index scores for the active screening and the vertical axis is positioned at the median of Stressor Index scores.

Users have two options for repositioning **Bubble Plot** axes:

- Reposition to new index percentiles – Under this option, users can reposition axes to any desired percentile of Ecological Index and Stressor Index scores (25th percentile, 75th percentile, etc.);
- Reposition to specific index scores – Under this option, users can reposition axes to any desired Ecological and Stressor Index score (e.g., index scores of 50).

**Reposition Axes Option 1 –
Reposition to New Percentiles**

To reposition axes to new percentiles, select the “User-Defined Percentiles” option from the drop-down menu in the **Reposition Axes** section of the **Bubble Plot Options** worksheet.

REPOSITION AXES

By default, axes cross at the median of Ecological Index (horizontal axis) and Stressor Index (vertical axis) scores listed in the Summary_Scores sheet. Axes can be repositioned to:

(a) User-Defined Percentiles ▼

This option will position axes to percentiles entered below.

Enter a new Stressor Index percentile for the y-axis (0-100):

Enter a new Ecological Index percentile for the x-axis (0-100):

Then enter new a new Stressor Index percentile for the vertical axis and a new Ecological Index percentile for the horizontal axis in the designated cells.

Enter a new Stressor Index percentile for the y-axis (0-100):

Enter a new Ecological Index percentile for the x-axis (0-100):

**Reposition Axes Option 2 –
Reposition to Specific Index Scores**

To reposition axes to specific index scores, select the “User-Defined Index Scores” option from the drop-down menu in the **Reposition Axes** section of the **Bubble Plot Options** worksheet.

REPOSITION AXES

By default, axes cross at the median of Ecological Index (horizontal axis) and Stressor Index (vertical axis) scores listed in the Summary_Scores sheet. Axes can be repositioned to:

(b) User-Defined Index Scores ▼

This option will position axes to Index Scores entered below.

Enter a new Stressor Index score for the y-axis (0-100):

Enter a new Ecological Index score for the x-axis (0-100):

Then enter new Stressor Index score for the vertical axis and a new Ecological Index score for the horizontal axis in the designated cells.

Enter a new Stressor Index score for the y-axis (0-100):

Enter a new Ecological Index score for the x-axis (0-100):

After entering new index percentiles or scores, click the **REPOSITION AXES** button.

Axes on the **Bubble Plot** will be automatically moved to the new index percentiles or scores.

REPOSITION AXES

RESET AXES

To move **Bubble Plot** axes back to their default position, click the **RESET AXES** button.

7.3. Toggle Screening to Plot

By default, the **Bubble Plot** displays Ecological Index, Stressor Index, and Social Index scores listed in the **Summary Scores** worksheet. These scores are derived from indicators that are normalized to minimum and maximum values for the subset of watersheds included in the screening. Index scores are therefore relative rather than absolute, they depend on the subset of watersheds selected for screening. A given watershed will have two different sets of index scores for two screenings that include different groups of watersheds.

Users may be interested in how the subset of watersheds selected for screening compares to all other watersheds in the Project Area. For example, users may want to know whether ecological conditions in the screened subset are above- or below-average for the Project Area as a whole. Such questions can be answered by running the same screening on all watersheds in the Project Area and then reviewing the resulting index scores for the watershed subset of interest. To streamline this process, the RPS Tool allows users to view an alternate version of the bubble plot with index scores that result from a screening that includes all watersheds in the Project Area. This can be done on-the-fly in the **Select Screening to Plot** section of the **Bubble Plot Options** worksheet without adjusting settings on the **Setup** worksheet or creating a new file.

The **Select Screening to Plot** section contains option buttons to toggle between a “Subset Only” screening or an “All Watersheds” screening. A “Subset Only” screening includes only those watersheds selected for screening on the **Setup** worksheet. An “All Watersheds” screening includes all watersheds in the Project Area. Note that if you selected all watersheds in the Project Area on the **Setup** worksheet then there is no difference between the two options.

SELECT SCREENING TO PLOT

If your screening focuses on a subset of watersheds from the project area, you may want to know if Ecological and Stressor Index scores for your subset are generally above or below average for the project area. Clicking the "ALL WATERSHEDS SCREENING" option below will plot scores from a screening that includes all watersheds in the project area, with axes set to the median of all Ecological and Stressor Index scores. Clicking the "SUBSET ONLY SCREENING" option will return to the default option of plotting scores from the screening that only includes those watersheds selected on the Setup sheet.

SUBSET ONLY SCREENING
 ALL WATERSHEDS SCREENING

By default, the **Bubble Plot** displays index scores resulting from “Subset Only” screening.

Click the **ALL WATERSHEDS SCREENING** option button to view index scores resulting from a screening that includes all watersheds in the Project Area. The **Bubble Plot** worksheet will automatically update with new index scores for the “All Watersheds” screening.

If you have viewed bubble plot for the “All Watersheds” screening and want to return to the “Subset Only” screening bubble plot, click the **SUBSET ONLY SCREENING** button. The **Bubble Plot** worksheet will automatically update with index scores for the “Subset Only” screening.

7.4. Label Bubbles

Bubbles in the **Bubble Plot** worksheet can be labeled to identify one or more watersheds. Bubbles can be labeled with the watershed name or the watershed ID. Users also have the option to highlight labeled bubbles to make them stand out from other unlabeled bubbles.

Basics

To label bubbles, first select a label option from the drop-down menu in the **Add Labels to Bubbles** section of the *Bubble Plot Options* worksheet.

Users can choose to have labels display watershed names or watershed IDs.

ADD LABELS TO BUBBLES

Select a watershed identifier for labeling:
Watershed Name ▼

Click the button below to label all bubbles:
ADD ALL LABELS

Or, select watersheds individually from the list below (repeat to label multiple watersheds):
 ▼

Highlight Selected Watershed

Note: To highlight the watershed, the box above must be checked *BEFORE* selecting from the drop-down list.

Label locations can be changed by clicking on the label in the bubble plot and dragging to the desired location.

Click the button below to remove labels and highlighting:
REMOVE LABELS

Add Labels Option 1 – Label All Bubbles

If you would like to add labels to all bubbles on the *Bubble Plot* worksheet, click the **ADD ALL LABELS** button. Labeling all bubbles is generally not recommended if your screening includes more than 20 watersheds.

Click the button below to label all bubbles:

ADD ALL LABELS

Add Labels Option 2 – Label Bubbles Individually

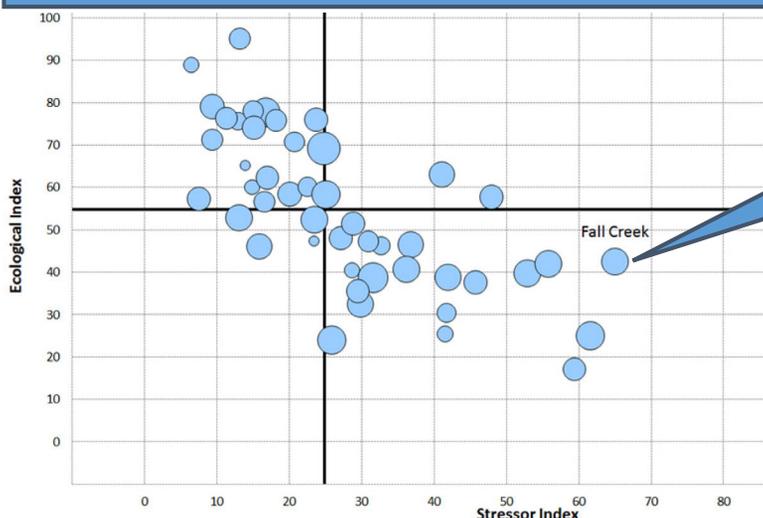
To label individual bubbles in the *Bubble Plot*, select the watershed to label from the drop-down menu in the **Add Labels to Bubbles** section of the *Bubble Plot Options* worksheet. Watersheds names are displayed in the drop-down menu alphabetically from A to Z. Watershed IDs are displayed in ascending numerical order.

Or, select watersheds individually from the list below (repeat to label multiple watersheds):

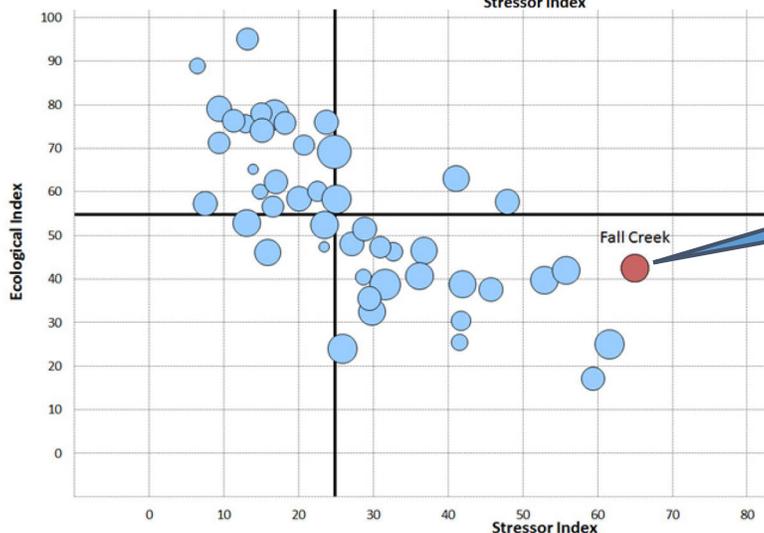
To highlight the labeled bubble, check the **Highlight Selected Watershed** box before selecting a watershed from the drop-down menu.

Highlight Selected Watershed

A label will be automatically added to the bubble for the selected watershed.



The labeled bubble will also be highlighted if the **Highlight Selected Watershed** box is checked when selecting the watershed from the drop-down menu.



To remove labels from the *Bubble Plot*, click the **REMOVE LABELS** button. This will also remove any highlighting from labeled bubbles.

REMOVE LABELS

Advanced Tips

- Label text, formatting, and position can be edited manually after labels are added.
- To edit label text, click on the label in the **Bubble Plot** worksheet and revise the text as desired using your keyboard.
- To edit label formatting (font size, color, etc.) click on the label in the **Bubble Plot** worksheet and use Excel's font formatting menu.
- To edit the position of a label, click on the label in the **Bubble Plot** worksheet and drag it to the desired location.

7.5. Edit Bubble Sizes

The size of each bubble in the **Bubble Plot** is based on the Social Index score for the corresponding watershed (i.e., bubbles for watersheds with higher Social Index scores are larger than bubbles for watersheds with lower Social Index scores).

While users cannot adjust the size of an individual bubble, they can collectively increase or decrease the size of all bubbles to improve the look of the **Bubble Plot**.

A common reason for editing bubble sizes is to reduce overlap between bubbles with similar Ecological Index and Stressor Index scores.

The image shows a screenshot of the 'EDIT BUBBLE SIZES' section of the Bubble Plot Options worksheet. It includes a text input field for bubble size, a 'RESIZE BUBBLES' button, and a 'RESET BUBBLE SIZES' button. Two blue callout boxes provide instructions: the top one explains how to enter a new size and the range of possible sizes (1-300), while the bottom one explains how to apply the new size and how to reset to the default.

To adjust bubble sizes, enter a new size in the **Edit Bubble Sizes** section of the **Bubble Plot Options** worksheet.

Bubble sizes can range from 1 (small) to 300 (large). The default bubble size is 20.

Click the **RESIZE BUBBLES** button to apply the new bubble size. The Bubble Plot worksheet will automatically be updated with the new bubble sizes.

To return to the default size, click the **RESET BUBBLE SIZES** button.

EDIT BUBBLE SIZES

Enter a bubble size (1 - 300):

10

The default bubble size is 20.

Click the button below to resize:

RESIZE BUBBLES

RESET BUBBLE SIZES

7.6. Edit Bubble Colors

The **Bubble Plot** worksheet displays three pieces of information for each watershed included in your screening: the Ecological Index score on the y-axis, Stressor Index score on the x-axis, and Social Index score using the bubble size. The **Bubble Plot** worksheet can also display a fourth piece of information by shading bubbles different colors to reflect different values of an indicator. This feature is implemented in the **Edit Bubble Colors** section of the **Bubble Plot Options** worksheet.

To display indicator values using bubble colors, users must select the number of **Classes** to display, a method for defining **Class Breaks**, and a **Color Scheme**. These terms are defined below.

- **Classes** – The number of groups or bins to separate watersheds into. Up to 10 classes can be selected.
- **Class Breaks** – The cutoff indicator values used to define class membership. Three options are available for defining class breaks:
 - *Quantile Breaks* result in classes that have an equal number of watersheds. For example, if four classes are selected then then quantile breaks option would result in each class containing one-quarter of the total number of watersheds using the 25th percentile, 50th percentile, and 75th percentile of indicator values as class breaks.
 - *Equal-Interval Breaks* result in classes that cover an equal range of indicator values. For example, if four classes are selected for an indicator with a minimum value of 0% and a maximum value of 100%, then the equal-interval breaks option would result in each class spanning 25 percentage points use values of 25%, 50%, and 75% as class breaks. Under the equal-interval option, the definition of breaks is independent of the number of watersheds within each class. Depending on the distribution of indicator values, some classes may contain zero watersheds.
 - *User-Defined Breaks* are supplied by the user.
- **Color Scheme** – The primary color(s) used to shade bubbles. Options are blue, green, or blue-green.

To display values of an indicator on the **Bubble Plot** worksheet using bubble colors, first select which indicator you would like to plot from the indicator drop-down menu in the **Edit Bubble Colors** section of the **Bubble Plot Options** worksheet.

Any indicator can be selected for plotting, regardless of whether it was included in your screening or not.

Index scores such as the Recovery Potential Integrated (RPI) Index can also be selected.

EDIT BUBBLE COLORS

Select the indicator that will determine bubble colors:

Select a classification method:

Select the number of classes:

Select a color scheme:

Click the button below to update bubble colors:

Legend
 % Natural Cover, N-index1 (2006) in Watershed

Click the button below to reset bubble colors:

Select a classification method: **Quantile Breaks**

- Quantile Breaks
- Equal-Interval Breaks
- User-Defined Breaks

After selecting an indicator, choose a method for defining class breaks (Quantile, Equal-Interval, or User-Defined) from the classification method drop-down menu.

Select the number of classes: **4**

- 3
- 4**
- 5
- 6
- 7
- 8
- 9
- 10

Next, choose the number of classes to use for plotting (between 2 and 10).

If the Quantile or Equal-Interval options are selected for defining class breaks, then break values will be automatically calculated.

If the User-Defined option is selected, a pop-up form will display for you to enter class breaks.

In the class break form, the lower bound of the first class will automatically be set to the minimum value of the selected indicator. The upper bound of the last class will be set to the indicator's maximum value.

Enter break values for each class in the "Upper Bound" column. The lower bound of the next class will be calculated automatically by adding 0.01 to the upper bound you entered for the preceding class.

When all breaks have been entered, click the **OK** button.

Define Class Breaks...

Enter the upper bound for each class below.

Click OK when finished.

	Lower Bound	to	Upper Bound
Class 1:	26.43	to	40
Class 2:	40.01	to	60
Class 3:	60.01	to	80
Class 4:	80.01	to	93.42
Class 5:		to	
Class 6:		to	
Class 7:		to	
Class 8:		to	
Class 9:		to	
Class 10:		to	

Select a color scheme: **Blue-Green**

- Blue
- Green
- Blue-Green**

Finally, select a color scheme to use for shading bubbles. Options are blue, green, or blue-green.

EDIT BUBBLE COLORS

Select the indicator that will determine bubble colors:

Select a classification method:

Select the number of classes:

Select a color scheme:

Click the button below to update bubble colors:

UPDATE BUBBLE COLORS

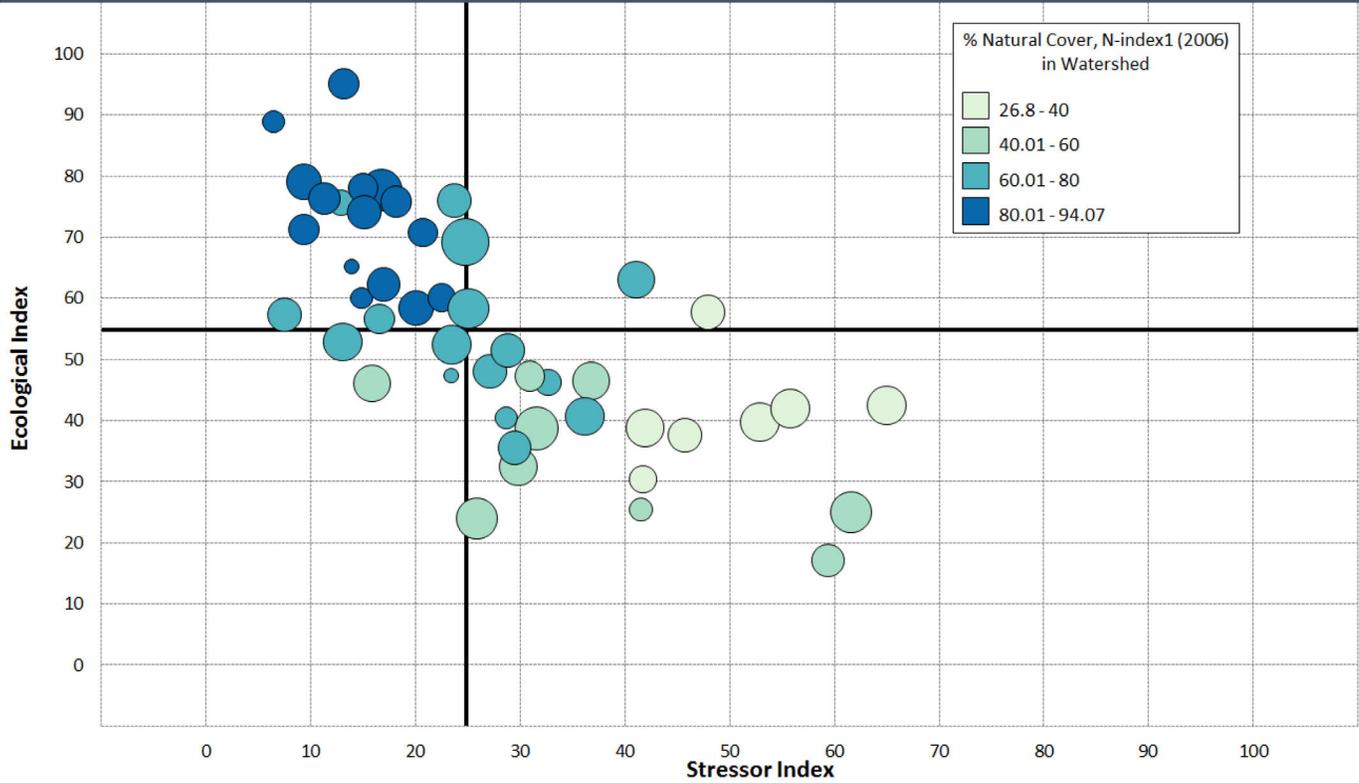
Legend
 % Natural Cover, N-index1 (2006) in Watershed

	26.80 - 40
	40.01 - 60
	60.01 - 80
	80.01 - 94.07

After you have selected the indicator to plot, the method for defining class breaks, the number of classes, and the color scheme, a legend will display in the **Edit Bubble Colors** section that illustrates your selections.

Click the **UPDATE BUBBLE COLORS** button to apply the selected settings to the **Bubble Plot** worksheet.

After clicking the **UPDATE BUBBLE COLORS** button the **Bubble Plot** worksheet will automatically update to shade bubbles according to the selected indicator. Users can adjust bubble color settings at any time by revising selections in the **Edit Bubble Colors** section of the **Bubble Plot Options** sheet and clicking the **UPDATE BUBBLE COLORS** button.



Note: Circle size increases with Social Index score

To return to the default bubble plot (all bubbles shaded the same color), click the **RESET BUBBLE COLORS** button.

RESET BUBBLE COLORS

7.7. Save As Image File

A copy of the **Bubble Plot** worksheet can be saved as an image file for use in reports or presentations.

SAVE AS IMAGE FILE

Click the button below to save the bubble plot as an image (.jpg) file:

SAVE BUBBLE PLOT

The **Bubble Plot** can be saved as an image file from the **Save As Image File** section of the **Bubble Plot Options** worksheet.

First, click the **SAVE BUBBLE PLOT** button.

You will then be prompted to enter a filename for the image file.

Type a filename into the space provided and click **OK**.

A message box will notify you that the image file saved in JPEG format using the filename you provided.

The file will be saved in the same directory that the RPS Tool file is saved in.

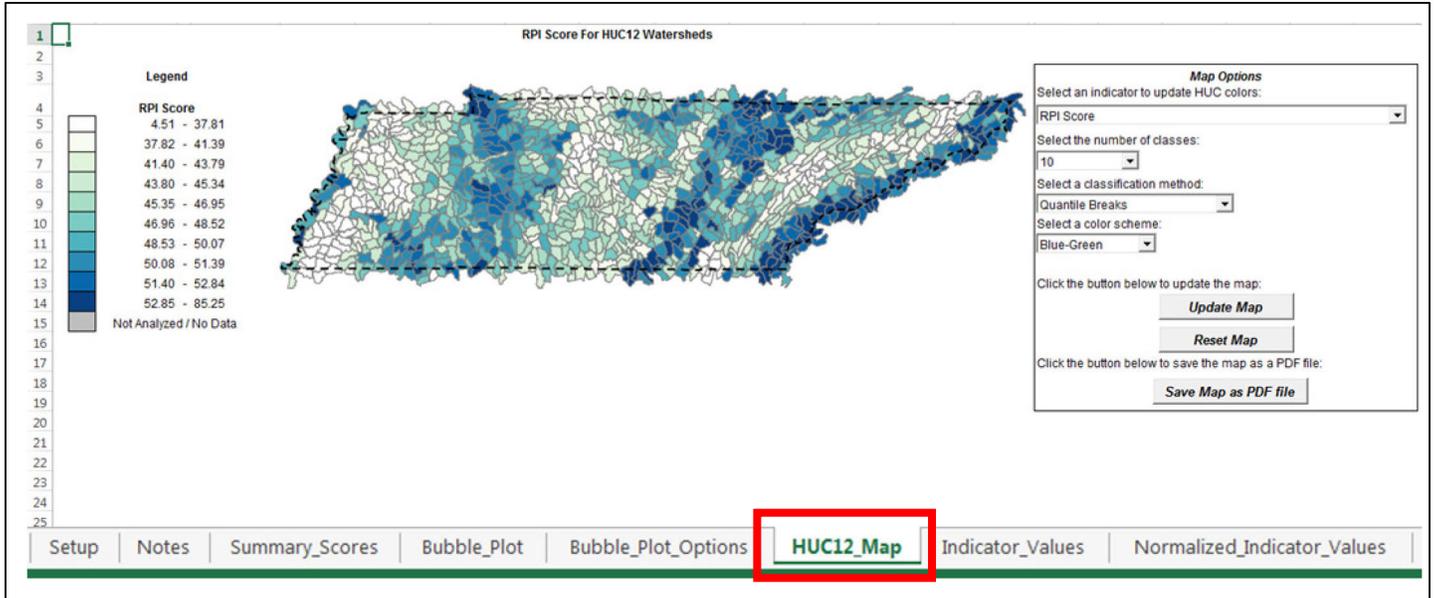
Two PDF files storing the contents of the **Setup** sheet and **Notes** sheet are also saved to provide a record of the screening settings used to produce the **Bubble Plot** image file.

8. Map Worksheet

8.1. Overview

The **Map** worksheet that displays screening results in map form. The **Map** worksheet is automatically created when the **RUN SCREENING** button is clicked on the **Setup** worksheet. By default, the **Map** worksheet displays Recovery Potential Integrated (RPI) index scores.

The name of the **Map** worksheet displayed in the bottom tab of your RPS Tool will reflect the scale of watersheds selected for screening. For example, if you screened HUC12 subwatersheds then the **Map** worksheet will be named **HUC12_Map**. Most RPS tools have a map worksheet for HUC12 subwatersheds and, if the tool is also setup to screen HUC8 watersheds, a map HUC8s. RPS Tools that are setup to screen other watershed scales may not have a map for those additional watershed scales.



The following sections describe how to:

- **Create a Custom Map**
- **Save the Map as a PDF File**

8.2. Create Custom Map

Users can customize the **Map** worksheet to shade watersheds on the map using any indicator or index. To customize the **Map** worksheet, users must select the number of **Classes** to display, a method for defining **Class Breaks**, and a **Color Scheme**. These terms are defined below.

- **Classes** – The number of groups or bins to separate watersheds into. Up to 10 classes can be selected.
- **Class Breaks** – The cutoff indicator values used to define class membership. Three options are available for defining class breaks:
 - *Quantile Breaks* result in classes that have an equal number of watersheds. For example, if four classes are selected then the quantile breaks option would result in each class containing one-quarter of the total number of watersheds using the 25th percentile, 50th percentile, and 75th percentile of indicator values as class breaks.
 - *Equal-Interval Breaks* result in classes that cover an equal range of indicator values. For example, if four classes are selected for an indicator with a minimum value of 0% and a maximum value of 100%, then the equal-interval breaks option would result in each class spanning 25 percentage points using values of 25%, 50%, and 75% as class breaks. Under the equal-interval option, the definition of breaks is independent of the number of watersheds within each class. Depending on the distribution of indicator values, some classes may contain zero watersheds.
 - *User-Defined Breaks* are supplied by the user.
- **Color Scheme** – The primary color(s) used to shade watersheds on the map. Options are blue, green, or blue-green.

Map Options

Select an indicator to update HUC colors:

% Natural Cover, N-index1 (2006) in Watershed

Select the number of classes:

[]

Select a classification method:

[]

Select a color scheme:

[]

Click the button below to update the map:

Click the button below to save the map as a PDF file:

To map an indicator, first select which indicator you would like to plot from the indicator drop-down menu in the **Map Options** section of the **Map** worksheet.

Any indicator can be selected for mapping, regardless of whether it was included in your screening or not.

Index scores such as the Recovery Potential Integrated (RPI) Index can also be selected.

Select the number of classes:

- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

Then select the number of classes to use for mapping (between 2 and 10).

Select a classification method:

- Quantile Breaks
- Equal-Interval Breaks
- User-Defined Breaks

Next, select a method for defining class breaks (Quantile, Equal-Interval, or User-Defined).

If the Quantile or Equal-Interval options are selected for defining class breaks, then break values will be calculated automatically.

If the User-Defined option is selected, a popup form will display for entering class breaks.

In the class break form, the lower bound of the first class will automatically be set to the minimum value of the selected indicator. The upper bound of the last class will be set to the indicator's maximum value.

Enter break values for each class in the "Upper Bound" column. The lower bound of the next class will be calculated automatically by adding 0.01 to the upper bound you entered for the preceding class.

When all breaks have been entered, click the **OK** button.

Define Class Breaks...

Enter the upper bound for each class below.

Click OK when finished.

	Lower Bound	to	Upper Bound
Class 1:	2.41	to	25
Class 2:	25.01	to	50
Class 3:	50.01	to	75
Class 4:		to	100
Class 5:		to	
Class 6:		to	
Class 7:		to	
Class 8:		to	
Class 9:		to	
Class 10:		to	

Select a color scheme:

- Blue
- Green
- Blue-Green

Finally, select a color scheme to use for shading watersheds in the map. Options are blue, green, or blue-green.

Map Options

Select an indicator to update HUC colors:

Select the number of classes:

Select a classification method:

Select a color scheme:

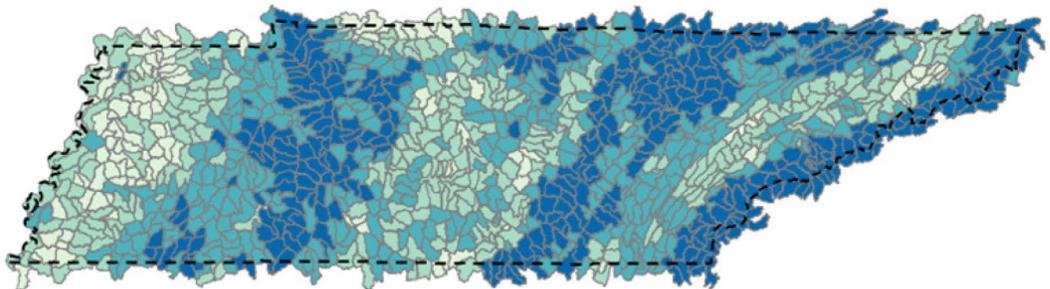
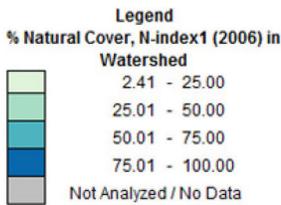
Click the button below to update the map:

Click the button below to save the map as a PDF file:

After you have selected the indicator to map, the number of classes, the method for defining class breaks, and the color scheme click the **UPDATE MAP** button to apply the selected settings to the watershed map.

The **Map** worksheet will automatically update to shade watersheds according to the selected indicator or index. Users can adjust map settings at any time by revising selections in the **Map Options** section of the **Map** worksheet and clicking the **UPDATE MAP** button.

% Natural Cover, N-index1 (2006) in Watershed For HUC12 Watersheds



To return to the default map (displaying Recovery Potential Integrated Index scores), click the **RESET MAP** button.

8.3. Save Map as PDF File

The watershed map on the **Map** worksheet can be saved as a PDF file for use in reports or presentations.

Map Options

Select an indicator to update HUC colors:

Select the number of classes:

Select a classification method:

Select a color scheme:

Click the button below to update the map:

Click the button below to save the map as a PDF file:

The watershed map can be saved as a PDF by clicking the **SAVE MAP AS PDF FILE** button from the **Map Options** section of the **Map** worksheet.

You will then be prompted to enter a filename for the PDF file.
 Type a filename into the space provided and click **OK**.

Please enter a filename.
 The map will be saved in the current directory as filename.pdf

Microsoft Excel

File saved in current directory as Test.pdf
 A record of the Setup and Notes worksheets have also been saved.

A message box will notify you that the PDF file saved using the filename you provided.
 The file will be saved in the same directory that the RPS Tool file is saved in.
 Two PDF files storing the contents of the **Setup** sheet and **Notes** sheet are also saved to provide a record of the screening settings used to produce the watershed map.

9. Indicator Values Worksheet

The **Indicator Values** worksheet contains a table of indicator values for the watersheds and indicators you selected for your screening on the **Setup** worksheet.

The **Indicator Values** worksheet is automatically filled when you click the **RUN SCREENING** button on the **Setup** worksheet using values from the **Indicator Data** worksheet (e.g., the **HU12_Data** worksheet if HUC12 subwatersheds are being screened). Data in the **Indicator Values** worksheet are used in formulas in other worksheets in the tool. The **Indicator Values** worksheet should therefore not be edited or modified by users.

7	Watershed ID	Watershed Name	% Woody Vegetation (2006) in Riparian Zone	% Natural Cover, N-index 2 (2006) in HCZ	HCZ Mean Soil Stability	NFHAP - Cumulative Disturbance Index (ISO)	% Developed, Low intensit
8	051301080101	Glade Creek	15.22	9.63	0.71	2.78	
9	051301080102	Bee Creek Upper	15.82	7.62	0.73	2.90	
10	051301080103	Bee Creek Lower	19.56	7.43	0.71	3.81	
11	051301080201	Cane Creek Middle	15.80	9.14	0.72	3.47	
12	051301080202	Cane Creek Upper	17.94	8.87	0.71	3.82	
13	051301080203	Piney Creek	16.18	10.08	0.70	3.88	
14	051301080204	Dry Fork	15.33	8.08	0.71	3.55	
15	051301080205	Cane Creek Lower	16.21	7.08	0.71	3.81	
16	051301080301	Laurel Creek	19.99	8.11	0.70	3.52	
17	051301080302	Caney Fork River Headwaters	18.83	7.63	0.72	3.42	
18	051301080303	Caney Fork River-Clifty Creek	17.24	7.40	0.72	3.83	
19	051301080304	Lost Cove	11.48	8.17	0.72	3.35	
20	051301080305	Caney Fork River-Suggs Branch	11.40	5.83	0.71	3.57	
21	051301080401	Bridge Creek	17.87	7.12	0.71	3.81	
22	051301080402	Calkiller River Upper	14.23	5.58	0.71	3.27	
23	051301080403	Calkiller River Middle	9.85	6.75	0.72	3.54	
24	051301080404	Calkiller River Middle	7.95	4.76	0.72	2.80	
25	051301080405	Calkiller River Lower	3.17	3.17	0.71	2.53	
26	051301080501	Rocky River Lower	21.80	12.82	0.71	3.71	
27	051301080502	Rocky River Upper	20.18	10.38	0.72	3.87	
28	051301080503	Lower Rocky River	9.11	4.76	0.72	3.39	
29	051301080601	Caney Fork River-Rocky River	4.84	4.26	0.63	2.86	
30	051301080602	Sink Creek	12.98	8.14	0.62	1.91	
31	051301080603	Pine Creek	13.29	10.20	0.70	1.67	
32	051301080604	Center Hill Lake	7.59	7.18	0.72	2.12	
33	051301080605	Center Hill Lake	11.41	5.89	0.62	2.22	
34	051301080606	Fall Creek	11.42	6.45	0.68	1.89	
35	051301080607	Center Hill Lake	15.57	3.48	0.71	2.75	
36	051301080701	Falling Water River Headwaters	8.71	7.83	0.72	1.96	

Bubble_Plot | Bubble_Plot_Options | HUC12_Map | Indicator_Values | Normalized_Indicator_Values | Values_Only_Summary

10. Normalized Indicator Values Worksheet

Basics

The **Normalized Indicator Values** worksheet contains a table of weight-adjusted, normalized indicator values for the watersheds and indicators you selected for your screening on the **Setup** worksheet.

The **Normalized Indicator Values** worksheet is automatically filled when you click the **RUN SCREENING** button on the **Setup** worksheet. Indicator values are normalized by rescaling to a range of zero to one. Normalized values are then weight-adjusted by multiplying by the weight specified for the indicator on the **Setup** worksheet.

Data in the **Normalized Indicator Values** worksheet are used in formulas in other worksheets in the RPS Tool. The **Normalized Indicator Values** worksheet should therefore not be edited or modified by users.

	Watershed ID	Watershed Name	% Woody Vegetation (2006) in Riparian Zone	% Natural Cover, N-index 2 (2006) in HCZ	HCZ Mean Soil Stability	NFHAP - Cumulative Disturbance Index (ISO)	% Developed, Low intensity (2006) in Ripari
8	051301080101	Glade Creek	1.94	2.14	1.64	1.20	
9	051301080102	Bee Creek Upper	2.04	1.60	2.00	1.29	
10	051301080103	Bee Creek Lower	2.64	1.54	1.64	1.95	
11	051301080201	Cane Creek Middle	2.03	2.01	1.82	1.70	
12	051301080202	Cane Creek Upper	2.38	1.93	1.64	1.96	
13	051301080203	Piney Creek	2.10	2.26	1.46	2.00	
14	051301080204	Dry Fork	1.96	1.72	1.64	1.76	
15	051301080205	Cane Creek Lower	2.10	1.45	1.64	1.95	
16	051301080301	Laurel Creek	2.71	1.73	1.46	1.74	
17	051301080302	Caney Fork River Headwaters	2.52	1.60	1.82	1.67	
18	051301080303	Caney Fork River-Citty Creek	2.27	1.54	1.82	1.96	
19	051301080304	Lost Cove	1.34	1.74	1.82	1.62	
20	051301080305	Caney Fork River-Suggs Branch	1.33	1.11	1.64	1.78	
21	051301080401	Bridge Creek	2.37	1.46	1.64	1.95	
22	051301080402	Calkiller River Upper	1.78	1.04	1.64	1.56	
23	051301080403	Calkiller River Middle	1.08	1.36	1.82	1.75	
24	051301080404	Calkiller River Middle	0.77	0.82	1.82	1.22	
25	051301080405	Calkiller River Lower	0.00	0.39	1.64	1.02	
26	051301080501	Rocky River Lower	3.00	3.00	1.64	1.88	
27	051301080502	Rocky River Upper	2.74	2.34	1.82	1.99	
28	051301080503	Lower Rocky River	0.96	0.82	1.82	1.64	
29	051301080601	Caney Fork River-Rocky River	0.27	0.69	0.18	1.26	
30	051301080602	Sink Creek	1.58	1.74	0.00	0.57	
31	051301080603	Pine Creek	1.63	2.29	1.46	0.39	
32	051301080604	Center Hill Lake	0.71	1.48	1.82	0.72	
33	051301080605	Center Hill Lake	1.33	1.13	0.00	0.79	
34	051301080606	Fail Creek		1.28	1.09	0.55	

HUC12_Map
Indicator_Values
Normalized_Indicator_Values
Values_Only_Summary
HUC8_Data
HUC12_Data
Indicator_Info

Advanced Tips

- The formula used to calculate each weight-adjusted normalized indicator value is:

$$Ind_{Norm} = Weight * \frac{(Ind - Ind_{Min})}{(Ind_{Max} - Ind_{Min})}$$

where Ind_{Norm} is the weight-adjusted normalized indicator value, $weight$ is the indicator weight, Ind is the raw indicator value, Ind_{Min} is the minimum indicator value for watersheds selected for screening, and Ind_{Max} maximum indicator value for watersheds selected for screening.

11. Value Only Summary Worksheet

11.1. Overview

The **Values Only Summary** worksheet combines the contents of the **Normalized Indicator Values** and **Summary Scores** worksheets into a single table.

The table contains values only (without calculation formulas found in the **Normalized Indicator Values** and **Summary Scores** worksheets) to facilitate copying and pasting to another file for further analysis of recovery potential data and scores. The table also contains values of all Base indicators. The **Values Only Summary** table can be sorted and filtered by users to explore screening results.

Watershed ID	Watershed Name	Area Of Watershed (HUC12) In Square Meters (Grid)	% Riparian Zone (RZ) in Watershed	% Hydrologically Connected Zone (HCZ) in Watershed
0315010101	Headwaters Conasauga River	95344200	23.67705639	5.857199494
0315010102	Jacks River	127184400	21.75266778	4.8182796
0315010103	Ball Play Creek-Conasauga River	77161500	26.56091445	12.1397329
0315010104	Old Fort Creek-Mill Creek	63687600	22.58351704	20.37476683
0315010105	Perry Creek-Conasauga River	54007200	25.63491534	27.86795094
0315010106	Sugar Creek	52865100	24.06067519	21.54616183
0315010301	Coahulla Creek Headwaters	117395100	29.03809443	19.865991
0315010302	Mills Creek	34851600	23.60551596	17.65571738
0315010303	Coahulla Creek	67117500	23.23969159	19.82567885
050500010102	Big Laurel Creek	75533400	24.23682768	5.34637657
050500010103	Headwaters North Fork New River	107905500	19.60131782	5.74358772
050500010105	Big Horse Creek	91665000	21.55719195	5.494354443
051100020101	Little Trace Creek-Line Creek	102894300	19.61391447	12.46337261
051100020102	Trace Creek-Line Creek	75423600	21.08013937	10.633144
051100020105	Long Fork	162519300	22.43142814	10.47641726
051100020106	Salt Lick Creek	144657000	24.20954396	9.787220805
051100020108	Puncheon Creek	75887100	18.40984831	9.007459766
051100020109	Sugar Creek-Barren River	93788100	22.14108186	10.68813634
051100020201	Upper Long Creek	134667000	17.9656486	9.609703936
051100020203	Pinchgut Creek-Barren River	75322800	21.84557664	12.80050662
051100020501	Headwaters Trammel Creek	66985200	20.32030956	9.563605095
051100020502	Rough Creek-Trammel Creek	62374500	18.67397735	8.997907799
051100020503	Little Trammel Creek	70362900	19.40880777	9.190212456
051100020601	West Fork Drakes Creek Headwaters	138340800	19.18002498	14.18952326
051100020602	Sharps Branch-West Fork Drakes Creek	136977300	14.36687718	25.93809339
051100020604	Dutch Creek-Middle Fork Drakes Creek	148890600	17.99932299	10.45673803
051100020605	Sulphur Fork Creek	116599900	20.25426636	15.10867025

HUC12_Map
Indicator_Values
Normalized_Indicator_Values
Values_Only_Summary
HUC8_Data
HUC12_Data

Below, you can read about how to **Sort and Filter** the **Values Only Summary** table.

11.2. Sort and Filter

By default, the **Values Only Summary** table displays indicator data and index scores for all watersheds included in the screening and sorted by watershed ID. Users can sort the **Values Only Summary** table based on values in any column in the table (e.g., from highest to lowest Ecological Index score). Users can also filter the **Values Only Summary** to only display watersheds that meet certain criteria (e.g., watersheds within a particular ecoregion).

To sort the **Values Only Summary** table, right-click on the name of the column that you would like to use for sorting. Scroll to **Sort** in the pop-up menu and select a sorting option.

% Riparian Zone (RZ) in Watershed	% Hydrologically Connecti
67705639	
75266778	
56091445	
58351704	
63491534	
06067519	
03809443	
60551596	
23969159	
23682768	
60131782	
55719195	
61391447	
08013937	
43142814	

EcoRegion (2010) Level 3, 1st Code (Largest Area)

- Sort Smallest to Largest
- Sort Largest to Smallest
- Sort by Color
- Clear Filter From "EcoRegion (2010) ..."
- Filter by Color
- Number Filters

Search

- (Select All)
- 65
- 66
- 67
- 68
- 69
- 71
- 73
- 74

OK Cancel

To filter the **Values Only Summary** table, click the drop-down arrow next to the column you would like to use to filter and select a filter option.

12. Indicator Data Worksheet(s)

12.1. Overview

The **Indicator Data** worksheet contains a table of indicator values for all watersheds in the Project Area covered by your RPS Tool file.

Indicators are grouped by category in the **Indicator Data** worksheet and are ordered from left-to-right as Base, Ecological, Stressor, and Social indicators. Indicator categories are displayed in row 6. Indicator names are displayed in row 7.

The name of the **Indicator Data** worksheet displayed in the bottom tab of your RPS Tool will reflect the watershed scale of the indicator data it stores. For example, the **Indicator Data** worksheet for HUC12 subwatersheds is named **HUC12_Data**. If your tool file includes multiple watershed scales (e.g., both HUC8 and HUC12) then it will contain multiple **Indicator Data** worksheets, one for each scale (e.g., **HUC8_Data** and **HUC12_Data**).

ADD INDICATORS				
BASE INDICATORS				
	Hydrologic Unit Code 12-Digit (HUC12)	Name HUC12 Watershed	Area Of Watershed (HUC12) In Square Meters (Grid)	% Riparian Zone (RZ) in Watershed
8	031501010101	Headwaters Conasauga River	95344200.0000	23.6771
9	031501010102	Jacks River	127184400.0000	21.7527
10	031501010103	Ball Play Creek-Conasauga River	77161500.0000	26.5609
11	031501010104	Old Fort Creek-Mill Creek	63687600.0000	22.5835
12	031501010105	Perry Creek-Conasauga River	54007200.0000	25.6349
13	031501010106	Sugar Creek	52865100.0000	24.0607
14	031501010301	Coahulla Creek Headwaters	117395100.0000	29.0381
15	031501010302	Mills Creek	34851600.0000	23.6055
16	031501010303	Coahulla Creek	67117500.0000	23.2397
17	050500010102	Big Laurel Creek	75533400.0000	24.2368
18	050500010103	Headwaters North Fork New River	107905500.0000	19.6013
19	050500010105	Big Horse Creek	91665000.0000	21.5572
20	051100020101	Little Trace Creek-Line Creek	102894300.0000	19.6139
21	051100020102	Trace Creek-Line Creek	75423600.0000	21.0801
22	051100020105	Long Fork	162519300.0000	22.4314
23	051100020106	Salt Lick Creek	144657000.0000	24.2095
24	051100020108	Puncheon Creek	75887100.0000	18.4098
25	051100020109	Sugar Creek-Barren River	93788100.0000	22.1411
26	051100020201	Upper Long Creek	134667000.0000	17.9656
27	051100020203	Pinchgut Creek-Barren River	75322800.0000	21.8456
28	051100020501	Headwaters Trammel Creek	66985200.0000	20.3203
29	051100020502	Rough Creek-Trammel Creek	62374500.0000	18.6740
30	051100020503	Little Trammel Creek	70362900.0000	19.4088
31	051100020601	West Fork Drakes Creek Headwaters	138340800.0000	19.1800
32	051100020602	Sharps Branch-West Fork Drakes Creek	136977300.0000	14.3689
33	051100020604	Dutch Creek-Middle Fork Drakes Creek	148890600.0000	17.9993
34	051100020605	Sulphur Fork Creek	115533000.0000	16.3613
35	051301010201	Little Yellow Creek-Yellow Creek	145656900.0000	17.8163

The following section describes how to **Add New Indicators** to the RPS Tool from the **Indicator Data** worksheet.

12.2. Add New Indicators

New indicators can be added to the **Indicator Data** worksheet for use in a screening run. Note that the RPS Tool does not include features for calculating new indicators. New indicators must be calculated outside of the RPS Tool and, once calculated, can be added at any time.

If your RPS Tool file is setup to screen multiple watersheds scales then it will have multiple **Indicator Data** worksheets (one for each watershed scale). When adding indicators, be sure you are adding them to the correct **Indicator Data** worksheet. For example, if you have calculated new indicators for HUC12 subwatersheds in your Project Area, then you must add new indicators to the HUC12 **Indicator Data** worksheet.

Before adding new indicators to the RPS Tool, the indicator values must be organized in a table in a separate spreadsheet file. The indicator data table must contain one row for each watershed in the Project Area and watersheds must be listed in the same order as they appear in the **Indicator Data** worksheet.

New indicators added to the **Indicator Data** worksheet will be immediately available for use in a screening run. The new indicator names will display in the indicator drop-down menus on the **Setup, Bubble Plot Options, and Map** worksheets.

To add new indicators, click the **ADD INDICATORS** button on the **Indicator Data** worksheet.

Enter the number of new indicators you would like to add for each indicator category (Base, Ecological, Stressor, and Social) in the **Add Indicators** popup form.

Then click the **Update Table** button.

A message box will appear to notify you that new indicator names and values must be entered on the **Indicator Data** worksheet and that indicator descriptions should be entered on the **Indicator Info** worksheet.

Click the **OK** button.

ADD INDICATORS

Add Indicators...

Enter the number of new indicators to add to the data table below.

Click "Update Table" when finished.

Number of new Base indicators:

Number of new Ecological indicators:

Number of new Stressor indicators:

Number of new Social indicators:

Update Table **Cancel**

Microsoft Excel

Indicators Successfully Added.

Indicator names and values must be entered in this worksheet for all watersheds before the indicator can be included in a screening run.

After entering indicator data, it is recommended that you enter indicator descriptions on the **Indicator_Info** worksheet and save a copy of this file under a new filename using the **Save As** option.

OK

Blank columns will automatically be added to the **Indicator Data** worksheet. The number of blank columns will equal the number of new indicators you entered in the **Add Indicators** popup form. You must enter indicator names and values in these new columns.

Blank columns will be added to the right of existing columns for each indicator category. For example, if you entered “2” as the number of new Base indicators then 2 blank columns will be added to the right of other Base indicators.

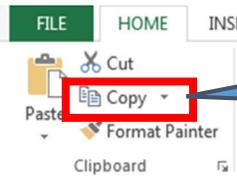
			ECOLOGICAL INDICATORS
Name Hydrologic Unit Code 8-Digit			% Deciduous Forest (2006) in Watershed
Conasauga			74.3473
Conasauga			75.4989
Conasauga			47.3634

To enter a new indicator name, scroll to the newly added blank columns. Click on a cell in the header row (row 7) of one of the blank columns and type the indicator name.

Repeat for each new indicator.

New Base Indicator 1	New Base Indicator 2

85.0816	14.9184
87.1151	12.8849
87.0177	12.9823
	5.76641
67.195	32.805
94.43621	5.56379
83.1983	
85.8784	14.1216
80.6721	19.3279



Next, add values of new Base indicators to the **Indicator Data** worksheet.

Open the spreadsheet file containing your pre-calculated new Base indicators. Select the new Base indicator values in that file and click “Copy” on the Excel menu.

You must ensure that the pre-calculated indicators you copy are organized with one value per row for each watershed in the **Indicator Data** worksheet and that rows are sorted in the correct order (the same order that watersheds are sorted on the **Indicator Data** worksheet). If data gaps prevent calculating a value for every watershed then leave a blank row for watersheds with missing values.

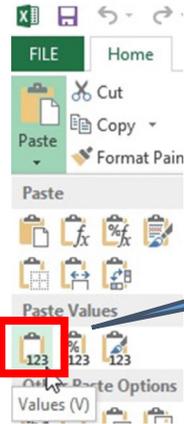
The order of columns in your pre-calculated indicator data table must also be consistent with the order of indicator names you entered in the header row of the **Indicator Data** worksheet.

You can copy multiple columns in your pre-calculated indicator data table at once. For example, if you are adding values for two new Base indicators then you can copy both Base indicator columns in your pre-calculated indicator data table at once.

After you have copied your new Base indicator values, go back to the *Indicator Data* worksheet and set the cursor below the header row in the first new Base indicator column.

New Base Indicator 1	New Base Indicator 2

New Base Indicator 1	New Base Indicator 2
85.0816	14.9184
87.1151	12.8849
87.0177	12.9823
	5.7664
67.1950	32.8050
94.4362	5.5638
83.1983	
85.8784	14.1216
80.6721	19.3279
93.8225	6.1775
91.7750	8.2250
79.1765	20.8235
91.8009	8.1991
94.7386	5.2614



Select "Paste Values" from the Excel menu to paste the Base indicator values into the new Base indicator columns.

Repeat the copy and paste steps for Ecological indicators, then Stressor indicators, and then Social indicators until all of your pre-calculated indicator values have been added to the *Indicator Data* worksheet.

If you do not have any new indicators to add for a given category then skip to the next category. For example, if you do not have any Base indicator values to add then start by adding new Ecological indicators.

13. Indicator Info Worksheet

13.1. Overview

The **Indicator Info** worksheet contains a table of indicator information, including the category of each indicator (Base, Ecological, Stressor, or Social), the watershed scale(s) that each indicator is quantified at, and a description of what watershed characteristic the indicator measures.

Indicator Name	Indicator Type	Indicator Scale(s)	Description
Hydrologic Unit Code 8-Digit (HUC8)	Base	HUC8 & HUC12	HUC8 Code (TEXT)
Hydrologic Unit Code 12-Digit (HUC12)	Base	HUC12	HUC12 Code (TEXT)
Name HUC12 Watershed	Base	HUC12	Name of primary stream draining area or description of area bounded by HUC12 polygon. (TEXT)
Name HUC8 Watershed	Base	HUC8 & HUC12	Name of primary stream draining area or description of area bounded by HUC08 polygon. (TEXT)
Area Of Watershed (HUC8) In Acres	Base	HUC8	Total area of the HUC8 watershed. Units Acres.
Area Of Watershed (HUC12) In Square Meters (Grid)	Base	HUC12	Total area of the HUC12 watershed. Value calculated from 30 meter grid of HUC12s. Units Square Meters.
% Riparian Zone (RZ) in Watershed	Base	HUC12	% of HUC12 that is in the Riparian Zone. The Riparian Zone includes the 100-meter buffer on both sides of: (1) water features in the medium-resolution National Hydrography Dataset (NHD); and (2) areas classified as water in the National Land Cover Database (NLCD) 2006 land cover dataset.
% Hydrologically Connected Zone (HCZ) in Watershed	Base	HUC12	% of HUC12 that is in the Hydrologically Connected Zone. The HCZ consists of areas estimated to have high runoff potential based on a topographic wetness index that are contiguous with water.
% Water in Watershed	Base	HUC12	% of HUC12 that is water (NHD CatSeed + 2006 National Land Cover Dataset; 11, 90, 95)
% Land in Watershed	Base	HUC12	% of HUC12 that is land (100 - % Water)
Watershed NHDPlus2 Streamlength	Base	HUC12	Length of NHD stream features in HUC12 (kilometers). Calculated from the "NHDPlus2 NHD Snapshot" dataset. Includes all NHDFlowline features with FTYPE (feature type) equal to StreamRiver, CanalDitch, or Connector. NHDFlowline features with FTYPE equal to ArtificialPath are only included if they pass through a NHDArea feature with FTYPE equal to StreamRiver.
Watershed NHDPlus2 Waterbody Area	Base	HUC12	Area of NHD waterbody features in HUC12 (square kilometers). Calculated from the "NHDPlus2 NHD Snapshot" dataset.
EPA Region	Base	HUC12	EPA Region Codes for all regions containing HUC12. (Comma delimited, TEXT)
Instate Area Of Watershed (HUC8) In Acres	Base	HUC8	Instate area of the HUC8 watershed. Units Acres.
All States in HUC8 (WBD)	Base	HUC8	2-letter state abbreviations for states intersecting HUC8 polygon, ordered alphabetically and comma-separated. From "STATES" field of NHDPlus Version 2 Watershed Boundary Dataset snapshot.
Border HUC	Base	HUC8	Flag indicating whether the HUC boundary intersects the TN border.
All States in HUC12 2014	Base	HUC12	2-letter state abbreviations for states containing at least 1% of HUC12 instate area, ordered alphabetically and comma-separated. Analysis based on NHDPlus2 WBD snapshot HUC12 dataset and 2013 state boundaries dataset from http://www2.census.gov/geo/tiger/TIGER2013/STATE/
			Percent of total HUC12 area within TN. Analysis based on NHDPlus2 WBD snapshot HUC12 dataset and 2013 state

Indicator_Values | Normalized_Indicator_Values | Values_Only_Summary | HUC8_Data | HUC12_Data | **Indicator_Info** | HUC_Subsets

The following sections describe how to:

- Filter the Indicator Info Table
- Add Indicator Info

13.2. Filter Table

The indicator information table can be filtered to view information for a specific indicator type (Base, Ecological, Stressor, or Social) or for a specific watershed scale by clicking the drop-down arrow next to the column name and selecting a filter option.

In the example below, the table is filtered to only display information for Ecological indicators.

6	Indicator Name	Indicator Type	Indicator Scale(s)
7	Hydrologic Unit Code 8-Digit (HUC8)		HUC8 & HUC12
8	Hydrologic Unit Code 12-Digit (HUC12)		HUC12
9	Name HUC12 Watershed		HUC12
10	Name HUC8 Watershed		HUC8 & HUC12
11	Area Of Watershed (HUC8) In Acres		HUC8
12	Area Of Watershed (HUC12) In Square Meters		HUC12
13	% Riparian Zone (RZ) in Watershed		HUC12
14	% Hydrologically Connected Zone (HCZ) in W		HUC12
15	% Water in Watershed		HUC12
16	% Land in Watershed		HUC12
17	Watershed NHDPlus2 Streamlength		HUC12
18	Watershed NHDPlus2 Waterbody Area		HUC12
19	EPA Region		HUC12
20	Instate Area Of Watershed (HUC8) In Acres		HUC8
21	All States in HUC8 (WBD)		HUC8
22	Border HUC		HUC8

6	Indicator Name	Indicator Type	Indicator Scale(s)
33	% Deciduous Forest (2006) in Watershed	Ecological	HUC12
34	% Evergreen Forest (2006) in Watershed	Ecological	HUC12
35	% Mixed Forest (2006) in Watershed	Ecological	HUC12
36	% Forest (2006) in Watershed	Ecological	HUC12
37	% Forest (2006) in HCZ	Ecological	HUC12
38	% Forest (2006) in Riparian Zone	Ecological	HUC12
39	% Shrub/Scrub (2006) in Watershed	Ecological	HUC12
40	% Shrub/Scrub (2006) in HCZ	Ecological	HUC12
41	% Shrub/Scrub (2006) in Riparian Zone	Ecological	HUC12
42	% Woody Vegetation (2006) in Watershed	Ecological	HUC12

6	Indicator Name	Indicator Type	Indicator Scale(s)
33	% Deciduous Forest (2006) in Watershed	Ecological	HUC12
34	% Evergreen Forest (2006) in Watershed	Ecological	HUC12
35	% Mixed Forest (2006) in Watershed	Ecological	HUC12
36	% Forest (2006) in Watershed	Ecological	HUC12
37	% Forest (2006) in HCZ	Ecological	HUC12
38	% Forest (2006) in Riparian Zone	Ecological	HUC12
39	% Shrub/Scrub (2006) in Watershed	Ecological	HUC12
40	% Shrub/Scrub (2006) in HCZ	Ecological	HUC12
41	% Shrub/Scrub (2006) in Riparian Zone	Ecological	HUC12
42	% Woody Vegetation (2006) in Watershed	Ecological	HUC12

13.3. Add Indicator Info

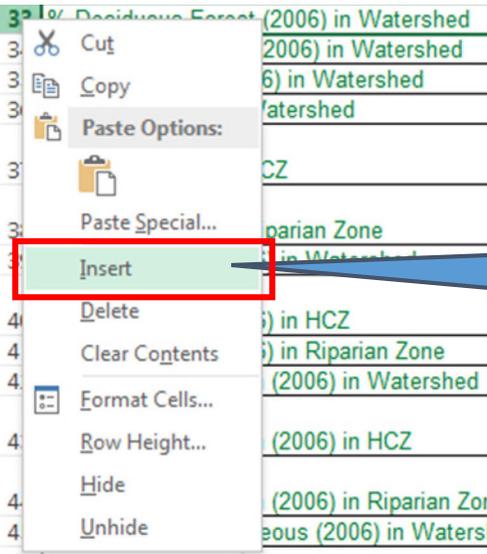
The **Indicator Info** worksheet can be updated by users to store information for new indicators added to the **Indicator Data** worksheet(s).

To add indicator information for a new indicator, first insert a row for the new indicator.

Right-click the margin of the **Indicator Info** worksheet (where row numbers are displayed) where you would like to insert the new row.

For example, if you would like to add information for a new Base indicator, right-click the margin of the first Ecological indicator row.

	Indicator Name	Indicator Type
6		
30	Tribal Lands in HUC12 Flag	Base
31	% Tribal Lands in HUC12	Base
32	HUC12 Adjacent to Tribal HUC12s	Base
33	% Deciduous Forest (2006) in Watershed	Ecological
34	% Evergreen Forest (2006) in Watershed	Ecological
35	% Mixed Forest (2006) in Watershed	Ecological
36	% Forest (2006) in Watershed	Ecological
37	% Forest (2006) in HCZ	Ecological



After right-clicking, select “Insert” from the Excel popup menu.

A new row will be inserted into the indicator information table.

Type the name of the new indicator in the Indicator Name column.

	Indicator Name	Indicator Type
32	HUC12 Adjacent to Tribal HUC12s	Base
33	New Base Indicator	
34	% Deciduous Forest (2006) in Watershed	Ecological
35	% Evergreen Forest (2006) in Watershed	Ecological
36	% Mixed Forest (2006) in Watershed	Ecological

Type the category of the new indicator (Base, Ecological, Stressor, or Social) in the Indicator Type column.

6	Indicator Name	Indicator Type
32	HUC12 Adjacent to Tribal HUC12s	Base
33	New Base Indicator	Base
34	% Deciduous Forest (2006) in Watershed	Ecological
35	% Evergreen Forest (2006) in Watershed	Ecological
36	% Mixed Forest (2006) in Watershed	Ecological

Type the watershed scale of the new indicator in the Indicator Scale(s) column. For example, if the indicator is calculated for HUC12s in the Project Area then type “HUC12”.

6	Indicator Name	Indicator Type	Indicator Scale(s)
32	HUC12 Adjacent to Tribal HUC12s	Base	HUC12
33	New Base Indicator	Base	HUC12
34	% Deciduous Forest (2006) in Watershed	Ecological	HUC12
35	% Evergreen Forest (2006) in Watershed	Ecological	HUC12

Type a description of the new indicator in the Indicator Description column.

6	Indicator Name	Indicator Type	Indicator Scale(s)	Description
32	HUC12 Adjacent to Tribal HUC12s	Base	HUC12	Reservation Trust Lands, and Census O
33	New Base Indicator	Base	HUC12	Example new Base indicator.
34	% Deciduous Forest (2006) in Watershed	Ecological	HUC12	% of HUC12 with deciduous forest cover
35	% Evergreen Forest (2006) in Watershed	Ecological	HUC12	% of HUC12 with evergreen forest cover

Repeat these steps for each new indicator added to the *Indicator Data* worksheet.

14. HUC Subsets Worksheet

14.1. Overview

The **HUC Subsets** worksheet is provided to store lists of watershed subsets that can be copied and pasted into the **Select Watersheds** section of the **Setup** worksheet for screening.

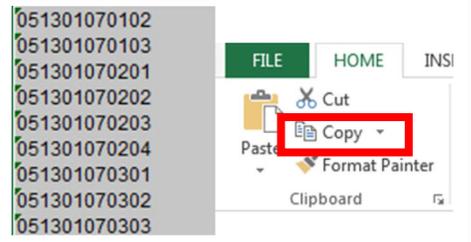
Watershed subsets are comprised of only a portion of all watersheds in the Project Area.

	Conasauga 03150101 (7)	Barren 05110002 (13)	Upper Cumberland 05130101 (10)	Upper Cumberland-Lake Cumberland 05130103 (3)	South Fork Cumberland 05130104 (27)	Obeys 05130105 (22)	Upper Cumberland-Cordell Hull 05130106 (22)
9	031501010102	051100020101	051301010201	051301030708	051301040101	051301050101	051301060101
10	031501010103	051100020102	051301010501	051301030709	051301040102	051301050102	051301060102
11	031501010104	051100020105	051301010502	051301030710	051301040103	051301050103	051301060103
12	031501010106	051100020106	051301010503		051301040201	051301050104	051301060104
13	031501010301	051100020108	051301010601		051301040202	051301050105	051301060105
14	031501010302	051100020201	051301010602		051301040203	051301050106	051301060201
15	031501010303	051100020203	051301010603		051301040204	051301050107	051301060202
16		051100020501	051301010604		051301040205	051301050108	051301060203
17		051100020503	051301010605		051301040301	051301050109	051301060204
18		051100020601	051301010701		051301040302	051301050201	051301060205
19		051100020602			051301040303	051301050202	051301060206
20		051100020604			051301040304	051301050203	051301060207
21		051100020605			051301040305	051301050301	051301060301
22					051301040306	051301050302	051301060302
23					051301040307	051301050303	051301060303
24					051301040308	051301050401	051301060304
25					051301040401	051301050402	051301060305
26					051301040402	051301050403	051301060306
27					051301040501	051301050406	051301060307
28					051301040502	051301050502	051301060308
29					051301040503	051301050503	051301060309
30					051301040504	051301050504	051301060310
31					051301040505		
32					051301040506		
33					051301040507		
34					051301040508		
35					051301040601		
36							

The following section describes how to **Add a Subset List** to the **HUC Subsets** worksheet.

14.2. Add a Subset List

To add a new subset list to the *HUC Subsets* worksheet, select the pre-existing list of watershed IDs from a separate worksheet (formatted with one ID per row) and click “Copy” on the Excel menu.



051301070102
051301070103
051301070201
051301070202
051301070203
051301070204
051301070301
051301070302
051301070303

	Conasauga 03150101 (7)	Barren 05110002 (13)	Upper Cumberland 05130101 (10)
7			
8	031501010102	051100020101	051301010201
9	031501010103	051100020102	051301010501
10	031501010104	051100020105	051301010502
11	031501010106	051100020106	051301010503
12	031501010301	051100020108	051301010601
13	031501010302	051100020201	051301010602
14	031501010303	051100020203	051301010603
15		051100020501	051301010604
16		051100020503	051301010605
17		051100020601	051301010701
18		051100020602	
19		051100020604	
20		051100020605	

Set the cursor to row 8 in the first open column on the *HUC Subsets* worksheet.

Select “Paste Values” from the Excel menu to paste the watershed IDs into the *HUC Subsets* worksheet.
If desired, type a descriptive header for the subset list in row 7. Save the tool file. The new subset list is now stored for future use in a screening run.

