



Watershed Index Online and Recovery Potential Screening

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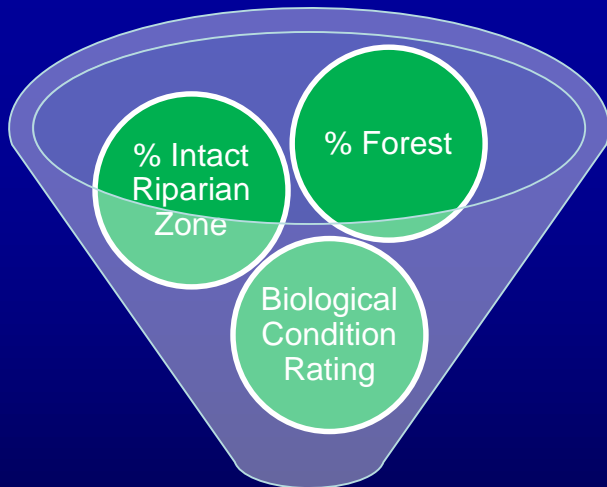
About Watershed Index Online and Recovery Potential Screening

- ❑ Data and tools to support watershed comparison and prioritization
- ❑ Watershed Index Online (WSIO)
 - ❑ National library of watershed indicators
 - ❑ WSIO Tool – desktop application for accessing and analyzing indicator data
- ❑ Recovery Potential Screening (RPS)
 - ❑ Framework for systematically comparing watersheds
 - ❑ RPS Tool – Custom Excel file for applying RPS

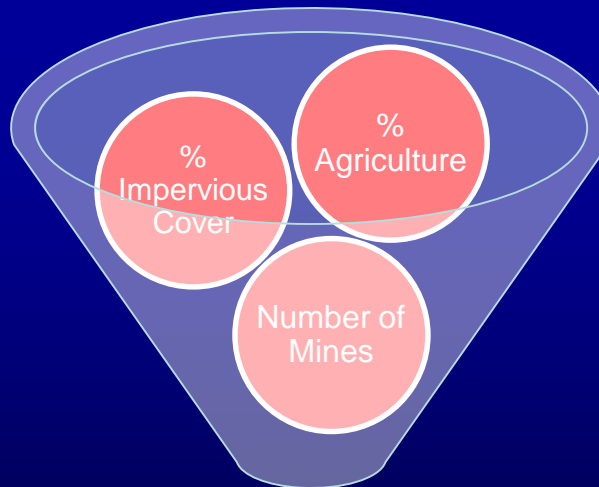
Recovery Potential Screening - Basic Concepts

- ❑ **Indicator-based** method for watershed comparison and priority-setting
- ❑ Indicators are measures of watershed attributes that are relevant to water quality restoration and protection

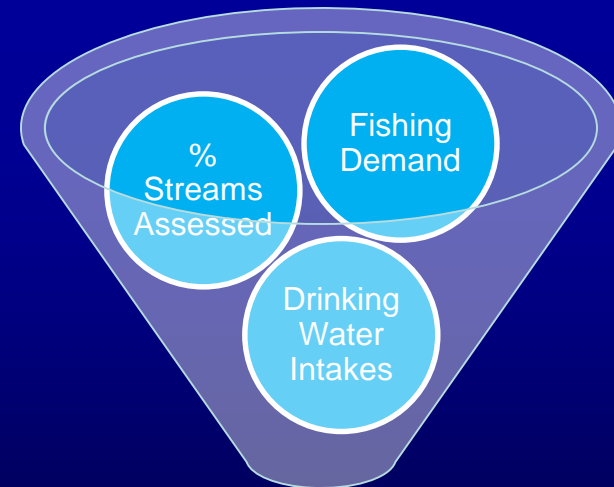
Ecological Indicators



Stressor Indicators

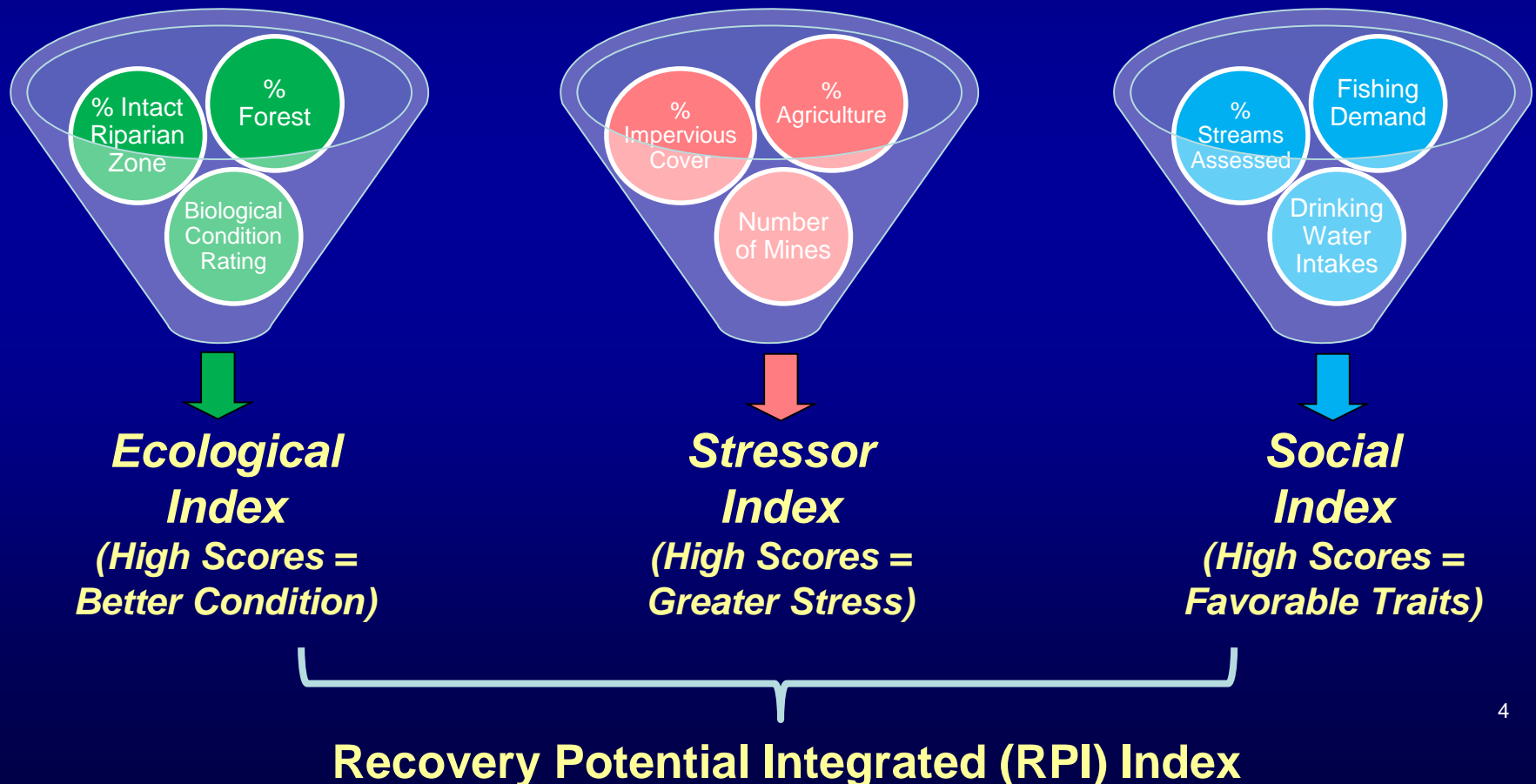


Social Indicators



Recovery Potential Screening - Basic Concepts

- Indicators are combined into **Index Scores** – overall picture of ecological, stressor, and social characteristics



Applying RPS Results

Upper Left Watersheds

▲ Ecological Index

▼ Stressor Index

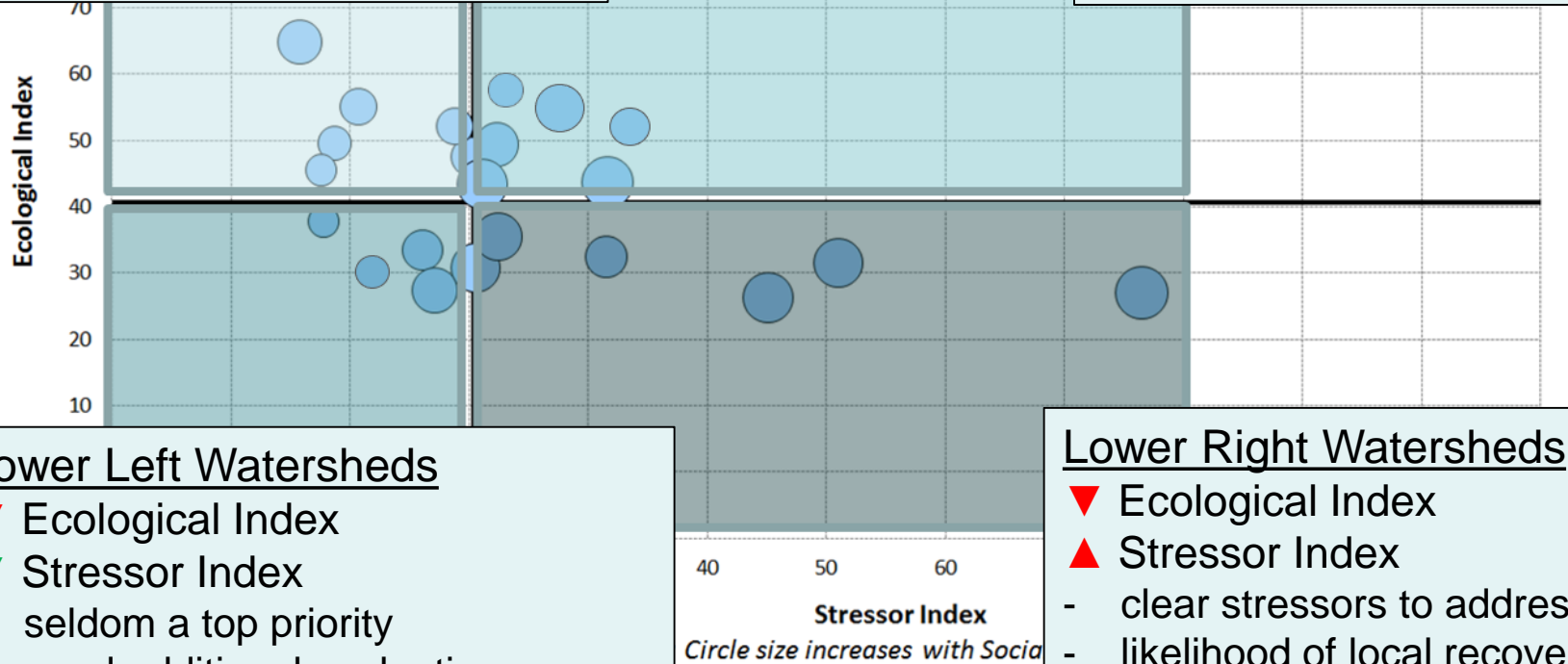
- best condition
- maybe more responsive to restoration/protection

Upper Right Watersheds

▲ Ecological Index

▲ Stressor Index

- still in good condition
- but higher stressor levels, possibly more threatened



Lower Left Watersheds

▼ Ecological Index

▼ Stressor Index

- seldom a top priority
- need additional evaluation

Lower Right Watersheds

▼ Ecological Index

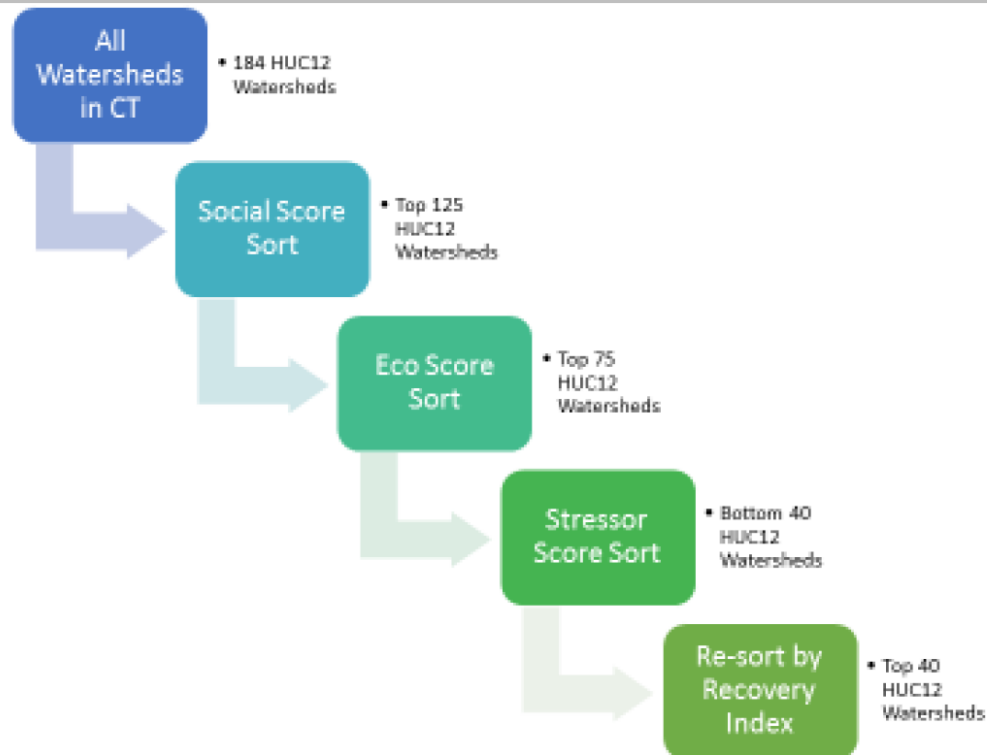
▲ Stressor Index

- clear stressors to address
- likelihood of local recovery may be low

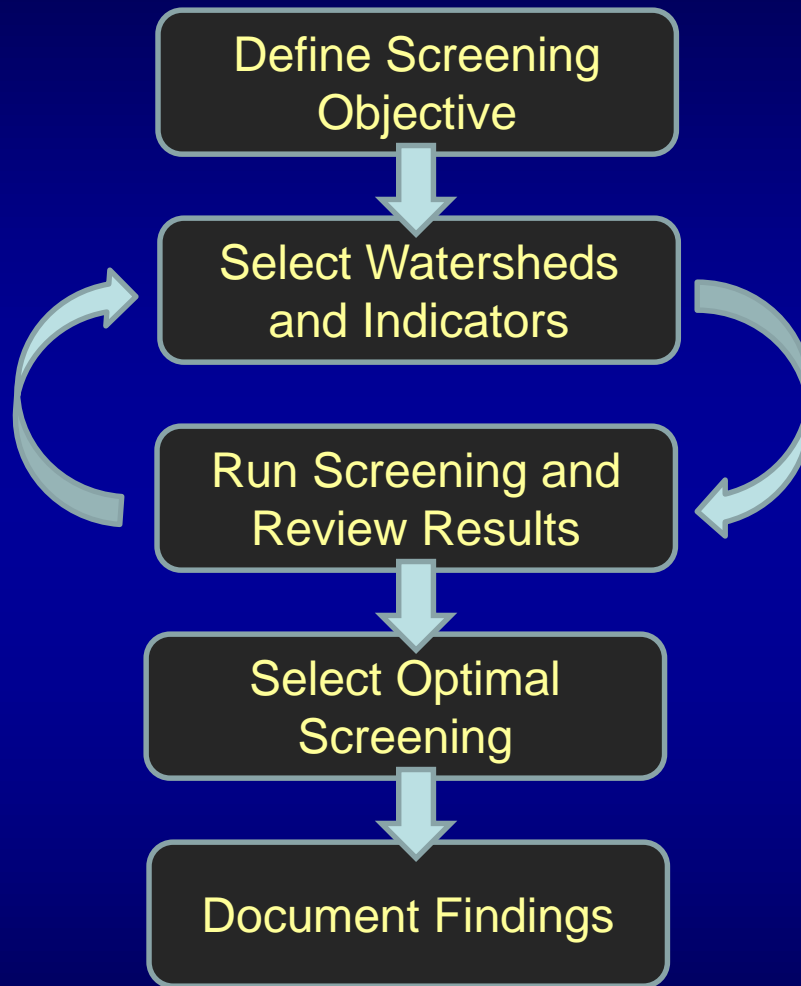
Applying RPS Results

Figure 5. Graphic flow chart of watershed sorting for restoration after RPS Tool Screening

Method of
Using
Restoration
Rankings
from
Recovery
Potential
Screening
Tool



RPS Screening Process



RPS Scoring Tool

- Pre-loaded with state indicator data***
- Calculates index scores and ranks***
- Creates tables, maps, and plots***

RUN SCREENING	RESET SCREENING		
<p>Select Watersheds</p> <p>Select watersheds to include in the screening by clicking the <i>Select Watersheds</i> button below. To clear your selections, click the <i>Clear Watershed Selections</i> button.</p> <div style="text-align: center; margin-top: 20px;"> <input type="button" value="Select Watersheds"/> </div> <div style="text-align: center; margin-top: 20px;"> <input type="button" value="Clear Watershed Selections"/> </div>	<p>Select Ecological Indicators</p> <p>Select ecological indicators to include in the screening by clicking the <i>Select Ecological Indicators</i> button below. To clear your selections, click the <i>Clear Ecological Indicator Selections</i> button.</p> <div style="text-align: center; margin-top: 20px;"> <input type="button" value="Select Ecological Indicators"/> </div> <div style="text-align: center; margin-top: 20px;"> <input type="button" value="Clear Ecological Indicator Selections"/> </div>	<p>Select Stressor Indicators</p> <p>Select stressor indicators to include in the screening by clicking the <i>Select Stressor Indicators</i> button below. To clear your selections, click the <i>Clear Stressor Indicator Selections</i> button.</p> <div style="text-align: center; margin-top: 20px;"> <input type="button" value="Select Stressor Indicators"/> </div> <div style="text-align: center; margin-top: 20px;"> <input type="button" value="Clear Stressor Indicator Selections"/> </div>	<p>Select Social Indicators</p> <p>Select social indicators to include in the screening by clicking the <i>Select Social Indicators</i> button below. To clear your selections, click the <i>Clear Social Indicator Selections</i> button.</p> <div style="text-align: center; margin-top: 20px;"> <input type="button" value="Select Social Indicators"/> </div> <div style="text-align: center; margin-top: 20px;"> <input type="button" value="Clear Social Indicator Selections"/> </div>

HUC12 ID	Ecological Indicator	Weight	Stressor Indicator	Weight	Social Indicator	Weight
020503061304 (Fishing Creek-Muddy Creek)	% Forest Change in HCZ (2001-11)	1	% Urban in WS (2011)	1	Drinking Water Source Protection Area, Cumulative	1
020503061502 (Tweed Creek-Octoraro Creek)	% Shrub/Scrub in RZ (2011)	1	% Developed, High Intensity in RZ (2011)	1	Drinking Groundwater Population Served	1
020503061503 (Basin Run-Octoraro Creek)	% Woody Vegetation Change in HCZ (2001-11)	1	% Agriculture in WS (2011)	1	% Any IUCN Status	1
020503061601 (Headwaters Deer Creek)	% Wetlands in WS (2011)	1	% Slope of Pasture, Mean in WS (2011)	1	Nonpoint Control Projects Count	1
020503061602 (Upper Deer Creek)	% Wetlands Remaining in WS	1				
020503061603 (Middle Deer Creek)	% N-Index1 in WS (2011)	1				
020503061604 (Lower Deer Creek)	Habitat Condition Index, Local Buffer WS (2015)	1				
020503061710 (Broad Creek)						
020503061711 (Conowingo Creek)						
020503061712 (Conowingo Dam-Susquehanna River)						
020503061713 (Rock Run-Susquehanna River)						
020600010000 (Upper Chesapeake Bay)						
020600020101 (Little North East Creek)						
020600020102 (North East Creek)						
020600020103 (Mill Creek-Furnace Bay)						
020600020104 (Hance Point Creek-North East River)						
020600020105 (Elk Neck-Upper Chesapeake Bay)						
020600020202 (Little Elk Creek)						
020600020203 (Big Elk Creek)						
020600020204 (C&D Canal West-Back Creek)						

Requires only spreadsheet skills to run screenings and review results

Example RPS & WSIO Uses

General Watershed Health (~ALUS)

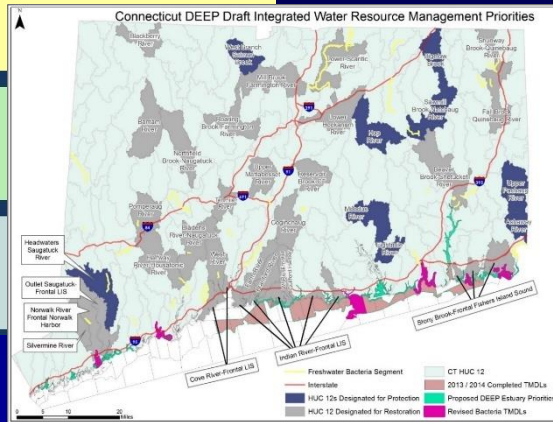
- Restoration
- Protection

Stormwater

- Restoration
- Protection

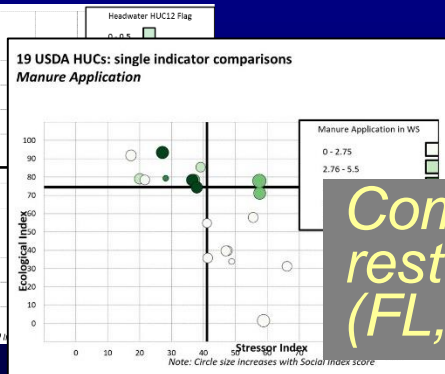
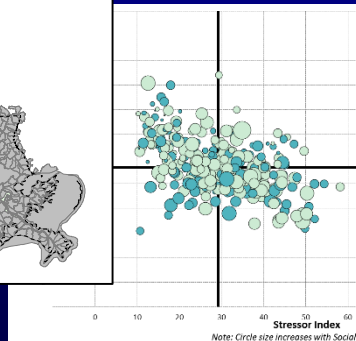
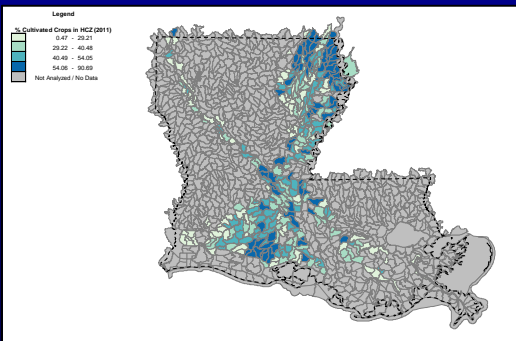
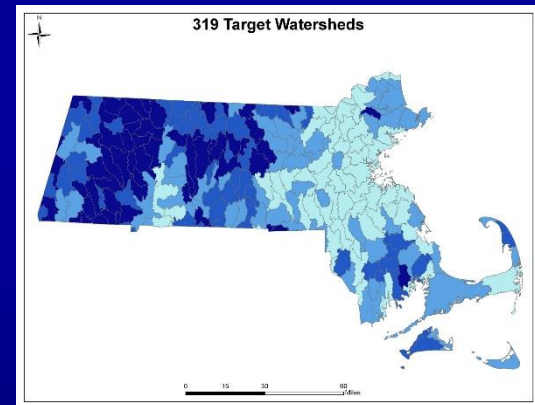
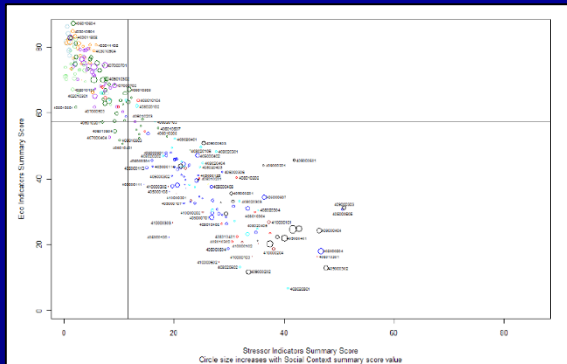
Nutrients

- Restoration
- Protection



Identify TMDL/303(d) Vision restoration priorities

Support NPS/319 state program five year plan



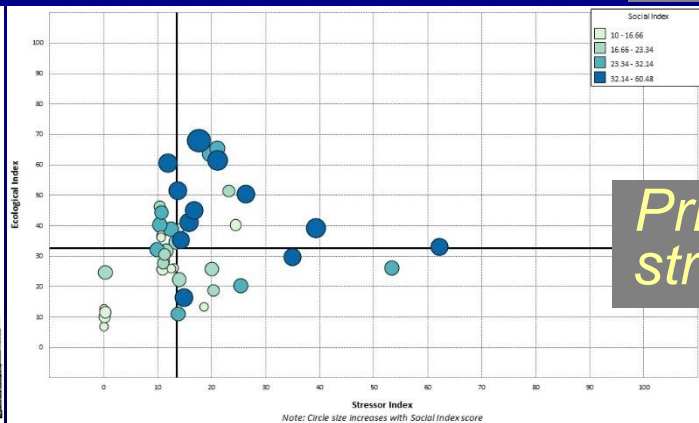
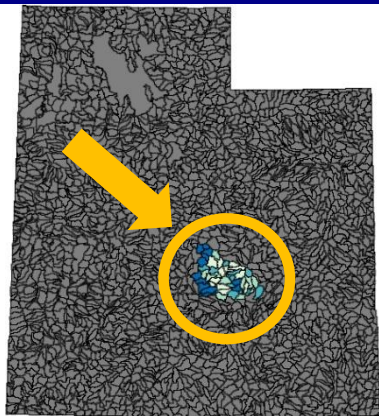
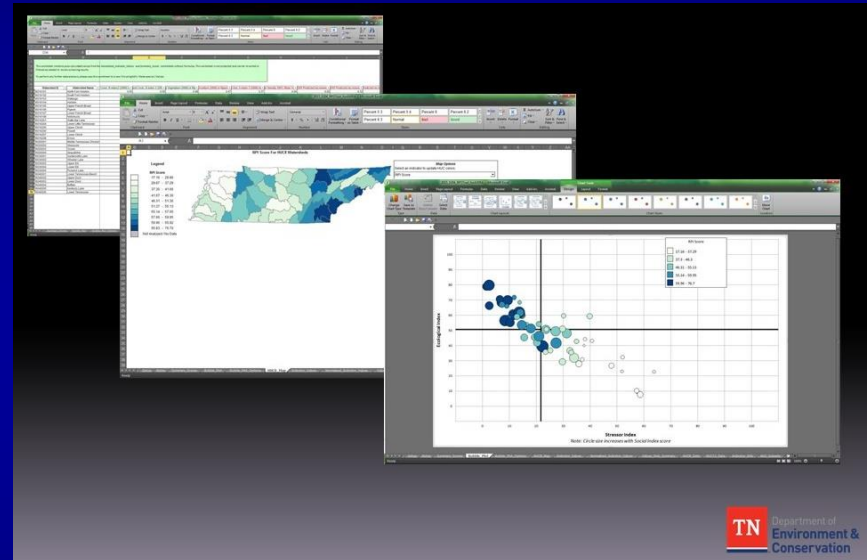
Compare Deepwater Horizon restoration funding options (FL, LA)

Example RPS & WSIO Uses



Species Status Assessments (US Fish & Wildlife Service)

Guide Healthy Watersheds Protection



Prioritize nutrient control strategies

What's New?

- ❑ WSIO Version 2.1 released February 2020
 - ❑ 436 HUC12 indicators
- ❑ Example new/updated indicators:
 - ❑ 2016 land cover, imperviousness, and agriculture on sloped lands (2016 National Land Cover Database [NLCD])
 - ❑ 2001-2016 land cover change from NLCD
 - ❑ 2010-2050 developed cover projections (EPA ICLUS v2)
 - ❑ Protected lands (2019 Protected Areas Database)
 - ❑ Drinking water intakes, wells, and protection areas (updated using 2018 SDWIS)
- ❑ Available as web service or for download in Excel or geodatabase formats

What's New?

- ❑ Updated RPS Tool series also released February 2020
- ❑ Tools for all lower 48 states are pre-loaded with HUC12 indicators from WSIO

Downloadable Statewide RPS Tools

You may need additional software to view some of the links on this page. See [EPA's Free Viewers and Readers page](#). The links will vary in file size.



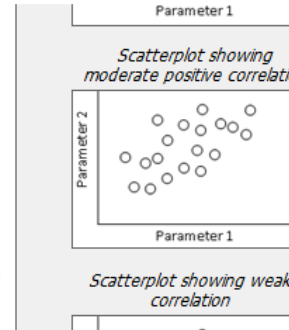
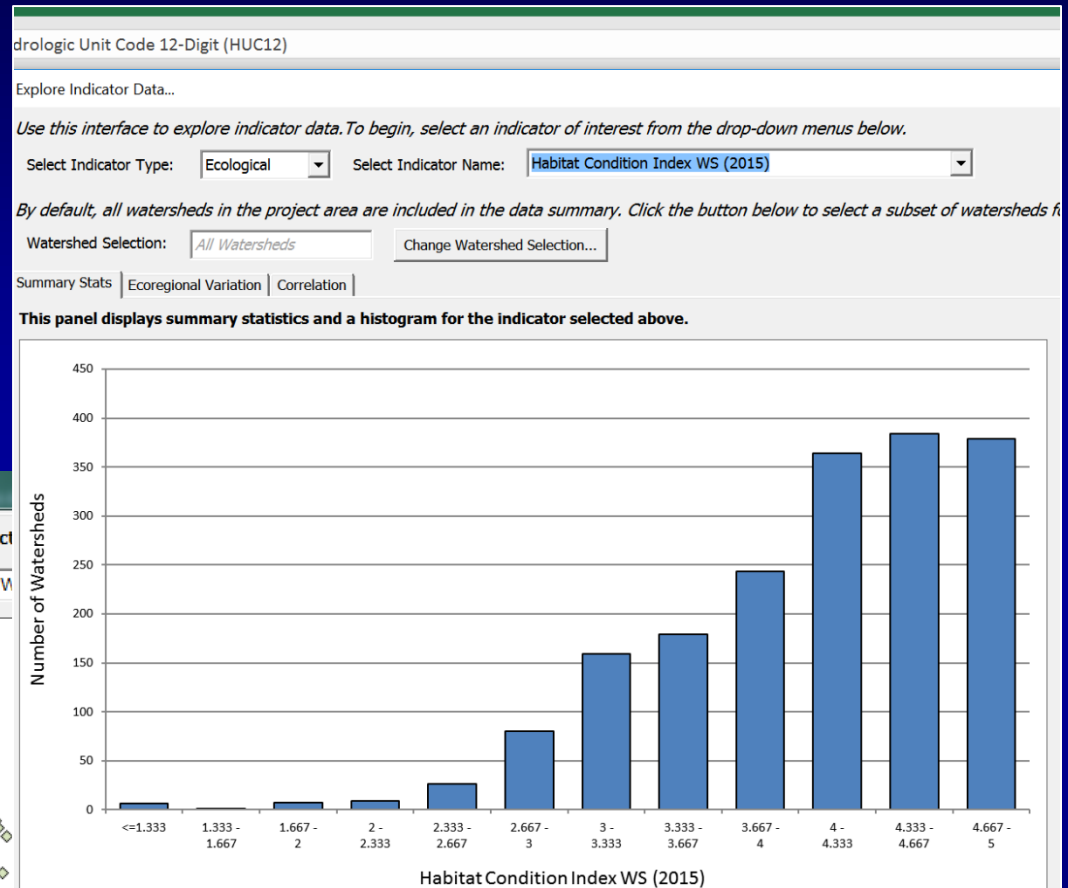
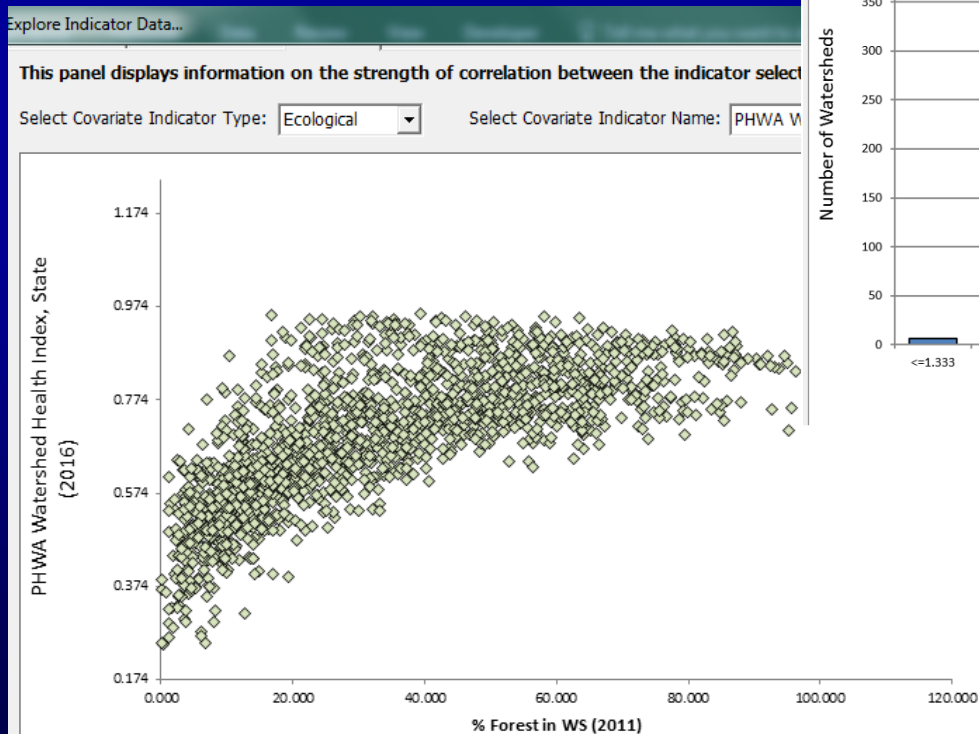
Choose a state from the map above or the pull-down list below. Find your tool copy in your computer's downloads folder, then open it offline in Excel.

Alabama ▼

GO

New RPS Tool Features: Indicator Statistics Viewer

- *Summary statistics*
- *Data distribution*
- *Correlation*
- *Ecoregional variation*



New RPS Tool Features: Watershed Subsets

Define Watershed Subset...

On this menu you can define and store a subset of watersheds of interest based on one or more indicators. For example, a subset could include all watersheds with agricultural land cover greater than 50%. Use the controls below to specify which watersheds you would like to include in your subset. The selected watershed IDs will be stored as a new list on the HUC_Subsets sheet and can be copy/pasted onto the Setup sheet for screening.

Enter Subset Name (required, 50 character

NUTRIENT AND SEDIMENT IMPAIRED HUC12S

Enter Subset Description (optional):

A "subset condition" is an indicator, and set of values for that indicator, used to define watersheds to include in the subset. Use the menus below to define a subset condition then click the "Add Condition" button to add it to the list of conditions defined in the box to the right. Up to 10 subset conditions can be defined but must be entered one-at-a-time using the menus below.

Select Indicator Type: Stressor

Select Indicator

Sediment 303d-Listed Segments Count (2015)

Select Subset Method: Unique Values

Include Watersheds
with Values Between:

To

Include Watersheds
with Values Of:

0
1
2
3

Add Condition

Check this box to save a copy of the subset name, description, and conditions as a PDF file for your records.

☒ If this box is checked the PDF file will be saved after clicking the "Add Subset to HUC_Subsets Sheet" button below. The PDF file will be saved in the same directory as this tool file and will be named using the subset

Subset conditions are listed below after they are added with the "Add Condition" button. Up to 10 conditions can be defined.

Your subset can include watersheds that meet at least one of the subset conditions or only those watersheds that meet all of the subset conditions. Use the option buttons to select a subsetting method.

Watersheds must meet: ☐ At Least One Condition ☒ All Conditions

Nutrients 303d-Listed Segments Count (2015) = 1 To 100

You can remove a subset condition by highlighting it in the list above and clicking the "Remove Selected Condition" button below.

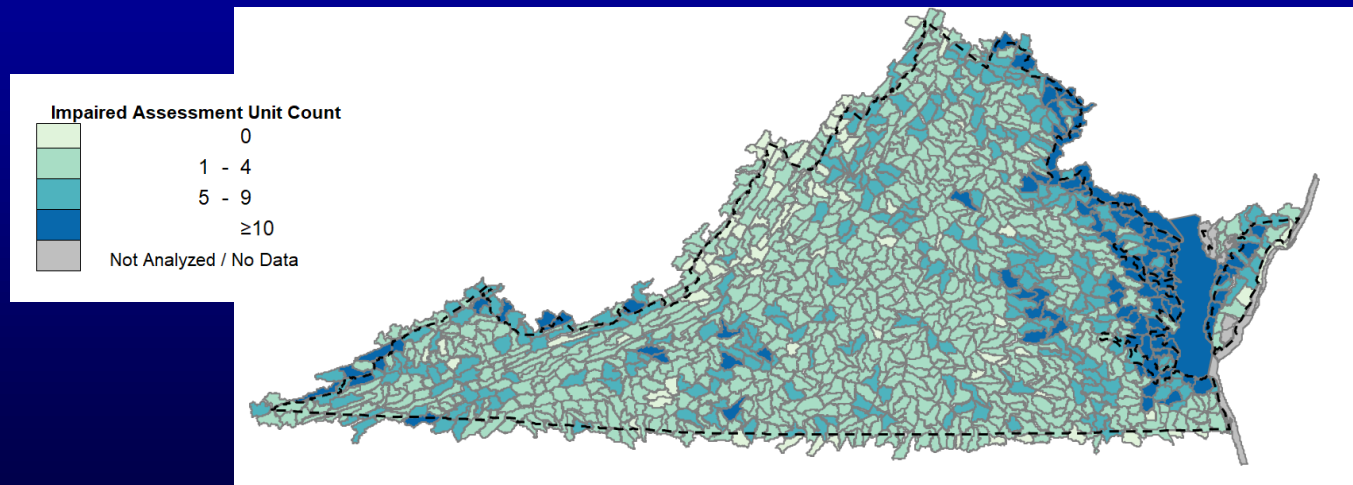
Remove Selected Condition

When you have defined all of your subset conditions click the "Add Subset to HUC_Subsets Sheet" button below to add the list of watershed IDs to the HUC_Subsets sheet

Add Subset to HUC_Subsets Sheet

Looking Ahead...

- ❑ Planned update for fall 2020:
 - ❑ Indicators of assessed/impaired waters and TMDLs from EPA ATTAINS database
 - ❑ Revised web services for easier application development
- ❑ Expanded training resources
- ❑ Additional watershed scales (HUC8, catchment)
- ❑ Other formats for RPS Tool



Questions?

www.epa.gov/rps

www.epa.gov/wsio