

Background & Purpose

The Restoration and Protection Screening (RPS) Tool was developed by the U.S. Environmental Protection Agency (EPA) to support strategic planning to prioritize waters and watersheds. Key steps in the RPS process include selecting watersheds to screen and choosing indicators that serve as the basis for comparison and prioritization (Figure 1). Recognizing that these steps can be challenging for beginner RPS Tool users, the EPA developed the RPS Scenario Fact Sheet Series to support users who have a basic understanding of RPS concepts but are uncertain about how to begin their own screening.

Users that are new to the RPS Scenario Fact Sheet Series can first review the [RPS Scenario Fact Sheet Introduction](#) to understand how to apply the concepts presented in this Fact Sheet. The RPS Tool is available as both a web application (the Web RPS Tool) and an Excel-based version (the Excel RPS Tool). Users can apply the information in this Fact Sheet using either version of the RPS Tool.

This Fact Sheet describes HUC12 subwatershed¹ and indicator selection for a screening that considers environmental justice in the selection of priority watersheds.

Environmental justice is defined by the EPA as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.² While the approaches described in this Fact Sheet offer a starting point for conducting a screening with the RPS Tool, users can refine and customize their watershed and indicator selections based on their own specific objectives and initial results (Figure 1).

Select Watersheds

Although a screening can include all HUC12 subwatersheds in a state, river basin or other large geographic area, RPS Tool users often target a subset of relevant HUC12s to compare within a screening. Both the Web RPS Tool and the Excel RPS Tool include built-in menus for defining a subset of HUC12s to screen. For a screening that incorporates environmental justice considerations, users can create a subset of HUC12s with potential key demographic characteristics using the indicator data stored in an RPS Tool. Table 1 lists example indicators that could be used to create a HUC12 subset for a screening that considers demographic characteristics.

Table 1. Example Indicators in the RPS Tool that describe population demographics.

Indicator Subcategory	Indicator Name
Community Context	% Low-Income Population in HUC12
	% Minority Population in HUC12
	% < High School Educated Population in HUC12
	% Linguistically Isolated Population in HUC12
	% Vulnerable Age Group Population in HUC12

The RPS Tool contains pre-calculated values of the indicators listed in Table 1 for HUC12s in the contiguous U.S. The demographic characteristics measured by the example indicators in Table 1 are consistent with other EPA environmental justice tools³ and include populations classified as:

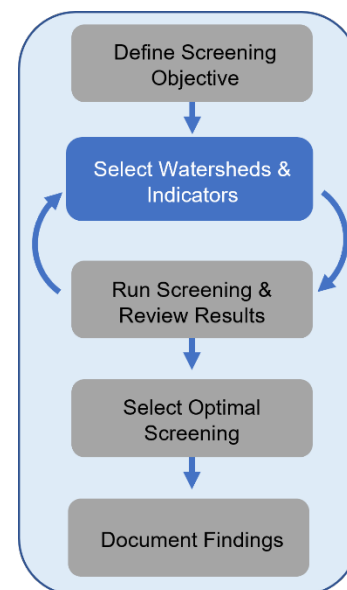


Figure 1. The RPS process. This Fact Sheet focuses on the **Select Watersheds and Indicators** step.

¹ HUC12s are subwatershed delineations in the [National Watershed Boundary Dataset](#). HUC12s are referenced by their 12-digit Hydrologic Unit Code.

² EPA. 2021. [Environmental Justice](#). Accessed December 16, 2021.

³ EPA. 2019. [EJSCREEN Technical Documentation](#).

- Low income – Individuals with a household income that is less than or equal to twice the federal poverty level.
- Minority groups – Individuals who define their race as other than white alone and/or list their ethnicity as Hispanic or Latino. In other words, all people other than non-Hispanic white-alone individuals.
- Less than high school education— Individuals aged 25 or older with less than a high school degree.
- Linguistically isolated— Households in which all members, age 14 years and over, self-report to the US Census Bureau as speaking a non-English language and also speak English less than ‘very well’.
- Vulnerable age groups— Individuals that are under age 5 or over age 65.

As a starting point for watershed subsetting, users could select any HUC12 with non-zero values of the demographic indicators (for example, % Low-Income Population in HUC12 greater than 0%). This would generate a list of HUC12s that contains any amount of the demographic groups described above.

Selection criteria for subsetting HUC12s can be refined to better match a user’s specific geographic setting and screening objectives by adding or removing indicators or adjusting thresholds for HUC12 selection. For example, users may want to refine their selection criteria to align with any environmental justice laws or policies that have been implemented in their state, which may define communities of focus for environmental justice initiatives based on specific demographic characteristics.

Select Indicators

The indicators selected for a screening serve as the basis for users to compare watersheds and evaluate priorities for restoration and protection. For a screening that incorporates environmental justice considerations, the **Ecological** indicator selections can reflect attributes that are associated with healthy aquatic ecosystems and functional ecosystem services; the **Stressor** indicator selections can reflect potential exposure to pollution or other environmental hazards; and the **Social** indicator selections can reflect demographic characteristics that relate to a community’s potential vulnerability to be impacted by pollution and environmental degradation.⁴ A complete list of indicators available in the RPS Tool and indicator descriptions are provided in the RPS Tool for users to review when selecting indicators.

As a starting point for indicator selection, Table 2 highlights example indicators for a screening that incorporates environmental justice considerations. The example indicators in Table 2 are intended to assist users in setting up an initial screening in the RPS Tool to better understand how the RPS Tool works and the results that are generated.

Table 2. Example indicators for an initial screening that considers environmental justice in the selection of priority watersheds for restoration and protection.

Category	Subcategory	Indicator Name	Description
Ecological	Integrated Watershed Health Index & Sub-Indices	PHWA Watershed Health Index, State	The statewide Watershed Health Index score for the HUC12 from the EPA Preliminary Healthy Watersheds Assessment (PHWA).
Stressor	Impaired Waters	Impaired Waters, % of Assessed in HUC12	Percent of the Assessed Area of the HUC12 containing Impaired Waters. The Assessed Area is the portion of the HUC12 containing waters that have been assessed for attainment of surface water quality standards under Section 305(b) of the Clean Water Act. Impaired Waters are not attaining water quality standards.
		Impaired Waters Cause Count in HUC12	Count of unique Impairment Causes in the HUC12. An Impairment Cause is a pollutant or related parameter that is causing non-attainment of water quality standards.
Social	Community Context	% Low-Income Population in HUC12	Percent of the total population in the HUC12 living in a household with low-income.
		% Minority Population in HUC12	Percent of the total population in the HUC12 that is in a minority group.
		% < High School Educated Population in HUC12	Percent of the age 25 and over population in the HUC12 with less than a high school degree.
		% Linguistically Isolated Population in HUC12	Percent of households in the HUC12 that are linguistically isolated.
		% Vulnerable Age Group Population in HUC12	Percent of the total population in the HUC12 that is under age 5 or over 64 years old.

Below is additional discussion of the example indicators for an initial screening listed in Table 2 and their relevance to a screening that incorporates environmental justice considerations:

- The **Ecological** indicator listed in Table 2 is the Watershed Health Index from the EPA Preliminary Healthy Watersheds Assessment (PHWA). The Watershed Health Index is an integrated measure of watershed condition that combines several indicators that reflect six key attributes of watershed health: Landscape Condition, Geomorphology, Habitat, Water Quality, Hydrology, and Biological Condition. An [Overview of the Preliminary Healthy Watersheds Assessments Project](#) provides additional background and methodology on the PHWA.

Higher Watershed Health Index scores correspond to greater potential for a watershed to have the structure and function in place to support healthy aquatic ecosystems and provide important ecosystem services to surrounding communities. HUC12s with poor watershed health scores could signal environmental health issues that may disproportionately affect certain communities.

- The **Stressor** indicators listed in Table 2 describe characteristics of impaired waters in a HUC12. Impaired waters are rivers, lakes, and other waterbodies that have been identified as not meeting surface water quality standards based on an evaluation of site-specific conditions. HUC12s that contain extensive impaired waters with a number of different causes could be considered priorities for implementing environmental justice initiatives. The pollutants causing water quality impairments may have human health or other effects on surrounding populations through, for example, direct contact of polluted waters or ingestion of contaminated drinking water. Further, impaired waters are often a focus of restoration efforts by government and non-government organizations and their presence could motivate action to address pollution sources for the benefit of surrounding communities.

- The **Social** indicators listed in Table 2 describe population demographics. By including these indicators in an RPS Tool screening run, the results will reflect the population size of demographic groups in a HUC12 that may face disproportionate burdens of environmental degradation. HUC12s that contain relatively high values of the demographic indicators will receive higher Social Index scores. These Social Index scores can be reviewed in combination with Ecological Index and Stressor Index to identify HUC12 that combine potentially disadvantaged populations and degraded environmental conditions.

Users may choose an alternative set of ecological, stressor, and social indicators depending on a user's specific geographic setting and screening objective. For example, other indicators in the Stressor group describe pollutant sources and environmental hazards (impervious cover, sea level rise, etc.), which may be the focus of on-the-ground actions in underserved communities.

After running a screening and reviewing results, users may refine their initial watershed and indicator selections. For example, a user could be interested in evaluating how the screening results change when an indicator is removed, or a new indicator is added. Iterative adjustments to watershed or indicator selections are an important part of the RPS process (Figure 1) and the RPS Tool is designed to allow users to easily adjust watershed and indicator selections.

Links to RPS Tools and Additional Information

The Web RPS Tool and Excel RPS Tool can be accessed from the [EPA RPS](#) website.

The [EPA Environmental Justice Learning Center](#) provides training webinars and other resources to support the integration of environmental justice into federal, state, and local operations and activities. EPA's [EJSCREEN Tool](#) website and [technical document](#) as well as the [Climate and Economic Justice Screening Tool](#) may also provide ideas for how demographics and other data in the RPS Tool could be used to factor environmental justice into watershed prioritization.