How Well Do Our Watersheds Function?

The Characterization Reports recently finalized by WES display the best landscape-level picture of the Rock Creek and Kellogg/Mt. Scott watersheds. They are the launching point for developing the more detailed assessments crucial to knowing what restoration, enhancement and preservation actions are likely to improve site-specific watershed conditions. The result of these actions will be healthier functioning watersheds for us all to enjoy.

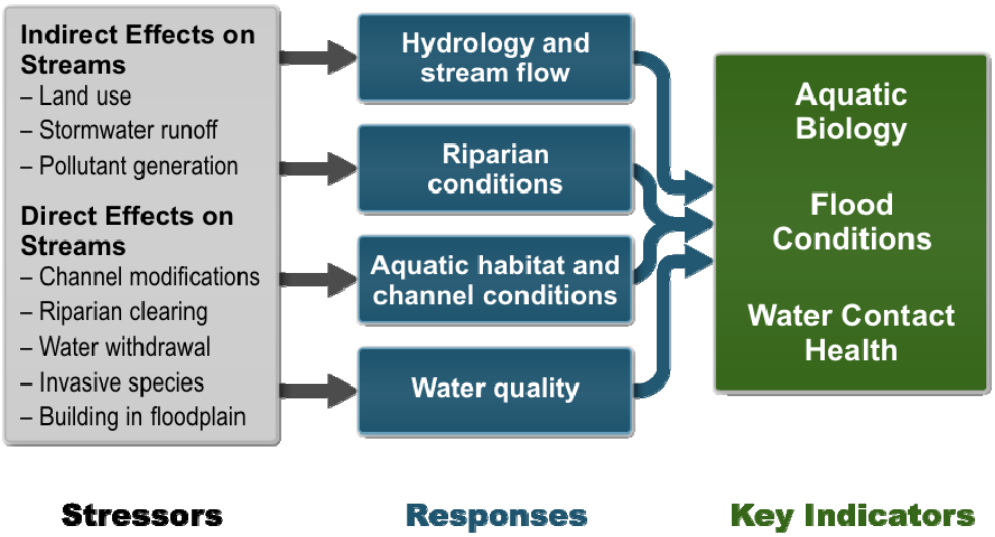
Watersheds bestow many benefits on the people and animals that reside in and around them. Some of the functions healthy urban watersheds perform are:

- Draining surface runoff back to rivers and streams
- Protecting against floods by absorbing rainfall, storing it and safely releasing it
- Filtering pollutants before they reach our rivers and streams
- Maintaining cool, running water for aquatic plants and animals
- Enhancing property values
- Furnishing educational and recreational opportunities
- Providing green, open spaces for humans and animals
- Sustaining the groundwater supply

The Rock Creek (RC) and Kellogg-Mt Scott (KMS) Characterization Reports broadly describe the current understanding of the state of these watersheds. Information was compiled from existing study findings, monitoring results, plans, Geographic Information Systems (GIS) databases, maps, surveys and modeling efforts. Each report depicts the interaction among:

- Stressors – human actions affecting watershed health,
- Responses – watershed health conditions affected by stressors, and
- Key Indicators – signals of watershed health conditions

Watershed Characterization and Assessment Process (Modified from Booth et al. 2005 and Karr and Yoder 2004).



Watersheds respond differently to stressors depending on how much urbanization has occurred around them and the nature of drainage area features such as soils, slopes, vegetation, and channel shapes. Key indicators help determine how a watershed is responding to the unique combination of stressors in the environment. They are also useful for monitoring the effectiveness of watershed health restoration and enhancement efforts.

The Characterization Reports display the best landscape-level picture of the RC and KMS watersheds. They are the launching point for developing the more detailed assessments crucial to knowing what restoration, enhancement, protection, and preservation actions are likely to improve site-specific watershed conditions resulting in a healthier functioning watershed for us all to enjoy.

The table highlights some key facts from the RC and KMS Characterization Reports. To view the complete reports go to the project website at;

http://www.riverhealth.org/watershed-action-plans

Comparison of Kellogg-Mt Scott and Rock Creek Watersheds

Characteristic	Rock Creek	Kellogg/Mt. Scott
Size	6.280 acres – 9.67 square miles	10.300 acres – 15.64 square miles
Area in CCSD #1	12% (including a portion of Happy Valley)	80% (including portions of Happy Valley, Milwaukie, Gladstone, & Johnson City)
Level of development	13% developed – whole area is within the Urban Growth Boundary (UGB)	Highly developed (see KMS sub-basin table below for detail)

	Happy Valley (about 35% of the watershed area) & Damascus (about 57%) will continue to grow	West of I-205: commercial and industrial mostly; older residential East of I-205: newer residential
Impervious area (hard surfaces such as roads, parking lots, rooftops, sidewalks)	Approximately 13%	Approximately 46% (see KMS sub-basin table below for detail)
Canopy cover (shaded area)	Approximately 40%	Ranges from 24 to 13% (see KMS sub-basin table below for detail)
Hydrology	Flooding currently not a significant issue Peak flows (after rainstorms) similar to a more developed watershed Future development projected to triple current flow levels	Urbanization has changed flows Flooding from runoff in upper Kellogg and in lower Mt. Scott Changes to channel shape
Water Quality	Elevated levels of E. coli bacteria Elevated summertime water temperatures Elevated levels of sediment and pesticides found	Elevated sediment loads Elevated levels of E. coli bacteria Elevated summertime water temperatures Periods of sustained high or low flows
Habitat	Sensitive and valuable habitat in lower Rock and Trillium Salmon, steelhead and cutthroat trout present Impassable natural waterfall 1.2 miles upstream of mouth Wetlands and mature forests in both riparian and upland areas - particularly in the northern and eastern portions	Salmon, steelhead, and cutthroat trout present Kellogg Lake - shallow 12 acre warm water formed by Hwy 99 bridge dam Dam is partial fish passage barrier (salmon and steelhead observed above the dam)

Kellogg-Mt Scott Sub-basin Characteristics					
KMS Sub-basins	Area, square mile	Primary land use	Total impervious area, percent	Estimated effective impervious area, percent	Canopy, percent
Lower Kellogg	15.64	Residential	35	18	16

Kellogg-Mt Scott Sub-basin Characteristics					
KMS Sub-basins	Area, square mile	Primary land use	Total impervious area, percent	Estimated effective impervious area, percent	Canopy, percent
Upper Kellogg	2.73	Residential	34	15	18
Lower Mt. Scott	11.04	Commercial	35	19	15
Middle Mt. Scott	4.34	Residential	30	14	23
Upper Mt. Scott	1.81	Residential	21	7	19
Phillips	2.68	Commercial	44	28	13
Dean	1.69	Commercial	31	15	24
Cedar	0.79	Residential	39	21	19

The Characterization Reports identify some shared RC and KMS watershed health issues. Those include:

- Lack and loss of riparian vegetation
- Intrusion of invasive, non-native species
- Fish passage obstructions
- Increased water quality impairment
- Erosion and stream channel deterioration

KMS problems include flooding and the current high level of development and impervious area. RC concerns are future development pressure, steep slopes, limited groundwater supply, and loss of tree canopy and native vegetation.

The Characterization Reports are the first step in WES' inventory and assessment of the watersheds. This information will guide a more detailed look at the watersheds and the development of site-specific actions to be included in RC and KMS Watershed Action Plans. For more information please click on the links below;

Rock Creek Characterization Reports

Kellogg/Mt. Scott Characterization Reports