

INDICATOR 7

HABITAT AND AQUATIC RESOURCES



OVERVIEW

About 36.5 percent of the stream miles in the basin are currently classified by SRBC as higher quality waters based on various state regulations. About 13.5 percent of stream miles are currently impaired for aquatic life use. In Pennsylvania, siltation, metals, and nutrients are the top three impairment causes. In New York, water level and flow as well as nutrients lead the causes. Habitat alterations in both Pennsylvania and New York are documented as a major cause of habitat degradation.

Capitalizing on vulnerabilities along the basin's streams, opportunistic invasive species threaten aquatic resources by altering the food web, competing with native species for resources, and reducing available habitat for native species. There are numerous aquatic, semi-aquatic, and terrestrial invasive species within the basin that are of interest to many agencies and organizations, but zebra and quagga mussels are the two most publicized and tracked invasive species within the basin. In 2012, SRBC began incorporating brief visual screening for presence of invasive species at monitoring sites during habitat evaluation.

SRBC has conducted site assessments on streams through subbasin surveys since 1995 in each of the six major subbasins on a rotating schedule. Biological condition categories are based on macroinvertebrate samples. Level of impairment is determined by SRBC using a different method than what the states use for listing streams in Integrated Reports. Based on the

Overarching Issue

The Susquehanna River Basin contains a large number of healthy surface waters, with a subset classified as higher quality waters. However, several different chemical and physical stressors degrade the habitat and aquatic resources along many of the basin's surface waters. These stressors in turn affect the ability of surface waters to provide healthy drinking water and support recreational activities such as hunting, fishing, nature study, wildlife, photography, bird watching and eco-tourism.

INDICATOR CRITERIA

Criteria		Assessment Period	
		2007 - 2010	2010 - 2012
Number (%) of stream miles	Habitat impairment (PA & NY)	346.0 (0.71%)	321.5 (0.66%)
	Impaired for aquatic life use (PA & NY)	6,347.0 (13.0%)	6,626.7 (13.5%)
	Classified as higher quality waters	17,844.3 (36.1%) (PA & NY)	18,068.9 (36.5%) (PA, NY, & MD)
General aquatic health of major subbasins		See Biological Conditions Categories bar graph on pg. 19	
Number of occurrences	PA Sea Grant monitoring sites with zebra/quagga mussels	29	36

Sources: NY/PA/MD stream impairment data, PFBC trout natural reproduction lists, NY/PA/MD stream classifications, MDE Tier II waters

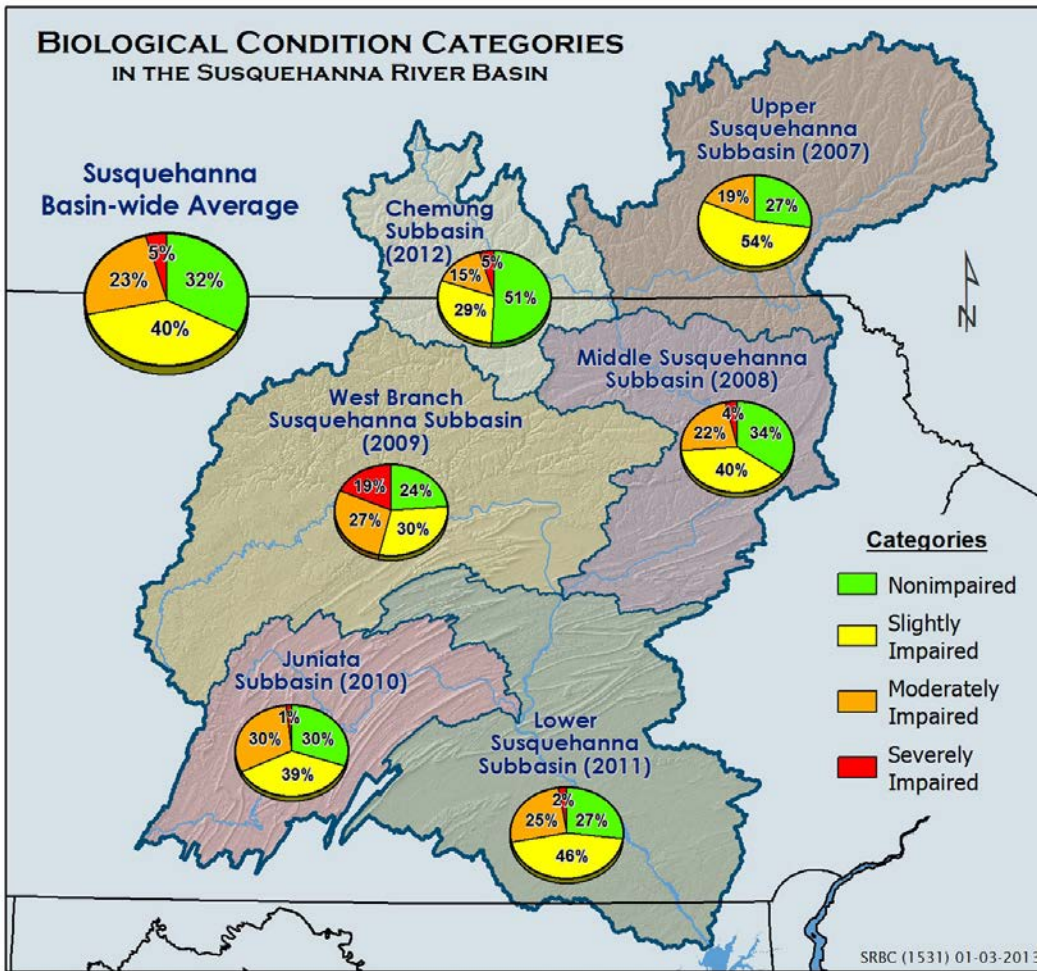
most recent round of sampling, about 72 percent are either nonimpaired or slightly impaired. Overall, the Chemung subbasin tends to have the greatest percentage of healthiest assessed sites.

Moderately or severely impaired conditions were located mostly throughout the West Branch subbasin, in the Tioga River headwaters, in some areas of the Frankstown Branch Juniata River, in tributaries to the Raystown Branch Juniata River, in Shamokin Creek, and around Wilkes-Barre, Scranton, and Harrisburg, Pa. Moderately or severely impaired biological conditions can result from compromised water quality or habitat degradation. Threats to the basin's aquatic resources and habitat include stormwater runoff, mine drainage discharges, habitat encroachment, invasive species and changes to land use.

WHAT IS IMPAIRMENT?

SRBC staff follows USEPA's Rapid Bioassessment Protocols to determine levels of impairment by comparing biological conditions for any particular study site to the biological conditions at a corresponding reference site. The specific level of impairment is assigned based on percent comparison of a site's biological score to the reference site's biological score.

Each member state (NY, PA, MD) has a different method for determining impairment and regulatory use. While SRBC methods are designed to assess conditions at a site and provide some qualitative comparison across the entire watershed, the final impairment rating is not designed to meet regulatory standards.



Sources: SRBC Year-1 Subbasin Reports 2007 - 2013

FOCUS STORY

LOW FLOW MONITORING PROJECT

During periods of low flow, many streams in the Susquehanna River Basin experience partial or complete drying. Resulting compromised water quality and habitat availability can be detrimental to the health of biological communities. After the completion of a two-year pilot study, SRBC established the Low Flow Monitoring Project in 2012 involving a network of 19 forested sites across Pennsylvania and New York portions of the basin. The purpose of the project is to characterize the effects of low flows on biological communities.

Under this project, SRBC is collecting data for both field and laboratory water quality analysis, water depth, streamflow, fish and macroinvertebrate communities and physical habitat during both base flow and low flow conditions. Findings from the data analyses will be used to advise management strategies, as well as to monitor water quality conditions and the general health of aquatic life during periods of low flows.



Great Trough Creek, Huntingdon County, Pa., in base flow conditions (June 2010, above) and low flow conditions (September 2010, below).

