

1.0 INTRODUCTION

1.1 Purpose and Objectives

SRBC identified the need for a thorough assessment of the available water resources of the Morrison Cove area in the southwestern portion of the Susquehanna River Basin. Developed areas in Morrison Cove (Martinsburg and Roaring Spring) have experienced conflicts among the various water users. Additionally, Morrison Cove has a long history of elevated nitrate levels in groundwater which poses a health risk and potentially limits available resources for development. The Roaring Spring area in Morrison Cove is one of eight Potentially Stressed Areas (PSAs) within the Susquehanna River Basin (Figure 1-1) identified by SRBC in 2005. PSAs are areas where the demand for and use of water resources is potentially approaching or has exceeded the sustainable limit. Roaring Spring was included due to: (1) stresses on groundwater resources during the severe droughts in 1999 through 2002; (2) indications that withdrawals within the groundwater basin exceed the recharge anticipated during a 1-in-10-year average annual drought (i.e., the 10-year base flow); and (3) the increasing demands for water due to recent industrial and commercial growth. In addition to instream and other naturally occurring water needs, the water supplies in the area must meet the needs of communities, industrial and commercial enterprises, agricultural operations, and mining and natural gas development.

The objectives of the Morrison Cove Water Resources Availability Study were to assess existing water resources, establish an estimated sustainable yield from the constituent watersheds, inventory current water uses, and evaluate quantity and quality issues in the study area. The assessment of existing water resources includes a characterization of the Roaring Spring and its sustainable capacity.

SRBC plans to use the findings of this study, within the framework of the Susquehanna River Basin Compact and in cooperation with the Commonwealth of Pennsylvania, to guide future regulatory and planning decisions affecting the Morrison Cove area. To the extent that the study provides a detailed investigation of water availability and current demands for water, focuses on key issues used in the identification of the Pennsylvania Department of Environmental Protection's Critical Water Planning Areas (CWPA), and proposes alternative measures and actions to address these problems, it supports the requirements for a Critical Area Resource Plan (CARP) under The Water Resources Planning Act of 2002 (P.L. 1776, No. 220), 27 Pa. C.S. §3101 et. Seq., referred to herein as Act 220.

Information, recommendations, and guidance for sustainable management and development of water resources will be of value to local government, water resource development consultants, and water users.

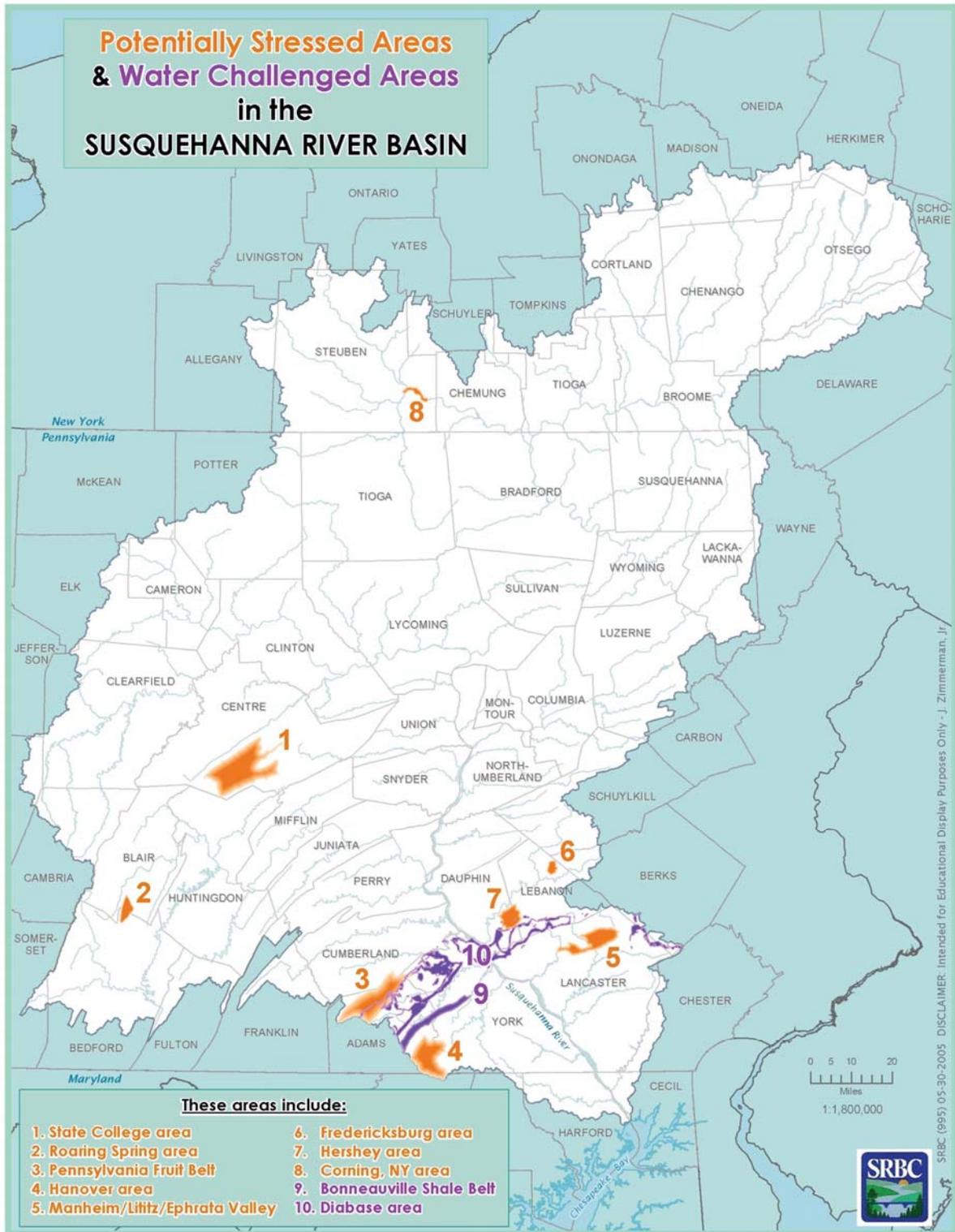


Figure 1-1. SRBC Potentially Stressed Areas (The Roaring Spring area is identified as Potentially Stressed Area Number 2.)

1.2 Study Methodology

SRBC contracted with Meiser & Earl, Inc. to conduct multiple tasks to assist in characterizing the water resources of Morrison Cove, including literature review, area reconnaissance, stream and spring flow gaging and monitoring, interpretation of groundwater elevations, and the summary and interpretation of collected data. Data and draft text and figures prepared by Meiser & Earl, Inc. are incorporated into this final report by SRBC staff.

SRBC staff developed the overall plan of investigation and performed a number of activities for the assessment of water resources, including the selection of key monitoring and sampling locations, field data collection and interpretation, performance of seepage runs, creation of base maps, water quality sampling, habitat evaluation, groundwater level measurements, overall hydrologic and hydrogeologic analyses, stakeholder meetings, and preparation of the final report and recommendations for action.

Tasks related to the study included the following:

- 1) Reviewed water quality and quantity literature for the Morrison Cove area.
- 2) Obtained several months (typically June through December 2009) of onsite streamflow data for the five major watersheds (Halter, Plum, Piney, Clover, and Yellow Creeks).
- 3) Obtained several months (typically June through December 2009) of onsite springflow data for the two major karst springs (Roaring Spring and Williamsburg Spring).
- 4) Measured water levels in water supply wells during the week of October 5, 2009, and created a water table map.
- 5) Sampled surface water (streams and springs) to complement the large body of existing groundwater water quality data during October 2009.
- 6) Evaluated aquatic and riparian habitat during October 2009.
- 7) Performed a base flow seepage run on all five major watersheds during the week of October 5, 2009. Multiple teams were employed to complete a seepage run of each watershed within a 24-hour period.
- 8) Developed flow statistics for the five major watersheds in Morrison Cove.
- 9) Developed a water budget for the base flow watersheds in Morrison Cove. This essentially subtracts consumptively used water from the naturally produced water, providing a status check of the level of water resource development in each base flow watershed.