

# A Call to Action

## Crystal Clear

National Park Service  
U.S. Department of the Interior

Northeast Region Parks



## Baseline Groundwater Quality in National Park Units Within the Marcellus and Utica Shale Gas Plays



Sunrise at Diamond Point at  
New River Gorge National  
River, West Virginia. NPS/GARY  
HARTLEY

Advances in directional drilling and high pressure (hydraulic) fracturing of underground rock have led to an increased interest and ability to mine natural gas from shale zones, or *plays*, that exist from New York west to Ohio and south to Tennessee. Approximately 35 National Park Service (NPS) units and additional NPS affiliated areas including National Trails, National Natural Landmarks, and National Heritage Areas overlie or are in the vicinity of the Marcellus and Utica shale plays. Groundwater from a subset of these park units was sampled through an agreement between the NPS and the U.S. Geological Survey in order to establish pre-development (baseline) water quality conditions. This information will help the NPS evaluate current water quality conditions and identify change that may occur over time.

### Background

In November 2009, the NPS produced a primer on shale gas development to make parks aware of how this energy source is produced and prepare managers for this activity in the Northeast Region. This document, titled *Development of the Natural Gas Resources in the Marcellus Shale*, identified potential water-related concerns including quantity of water withdrawn for hydraulic fracturing (also known as fracking) and water quality impacts from drilling fluids. The report also identifies benefits that can be derived from proper planning that makes use of the ability to drill from areas that may be less sensitive.

Given the fact that many of the national parks in the Marcellus and Utica shale play region

use groundwater for visitor use and contain springs that provide water for wildlife, the NPS determined it would be beneficial to establish water quality conditions prior to development of this energy resource. Various groups have expressed concern regarding impacts from shale gas development, and studies are ongoing to assess whether there are links between fracking and groundwater or other natural resources.

The groundwater baseline study provides an opportunity to improve the understanding of groundwater conditions in the shale gas development zones of the Northeast and helps ensure this resource is not diminished within areas protected for public enjoyment.

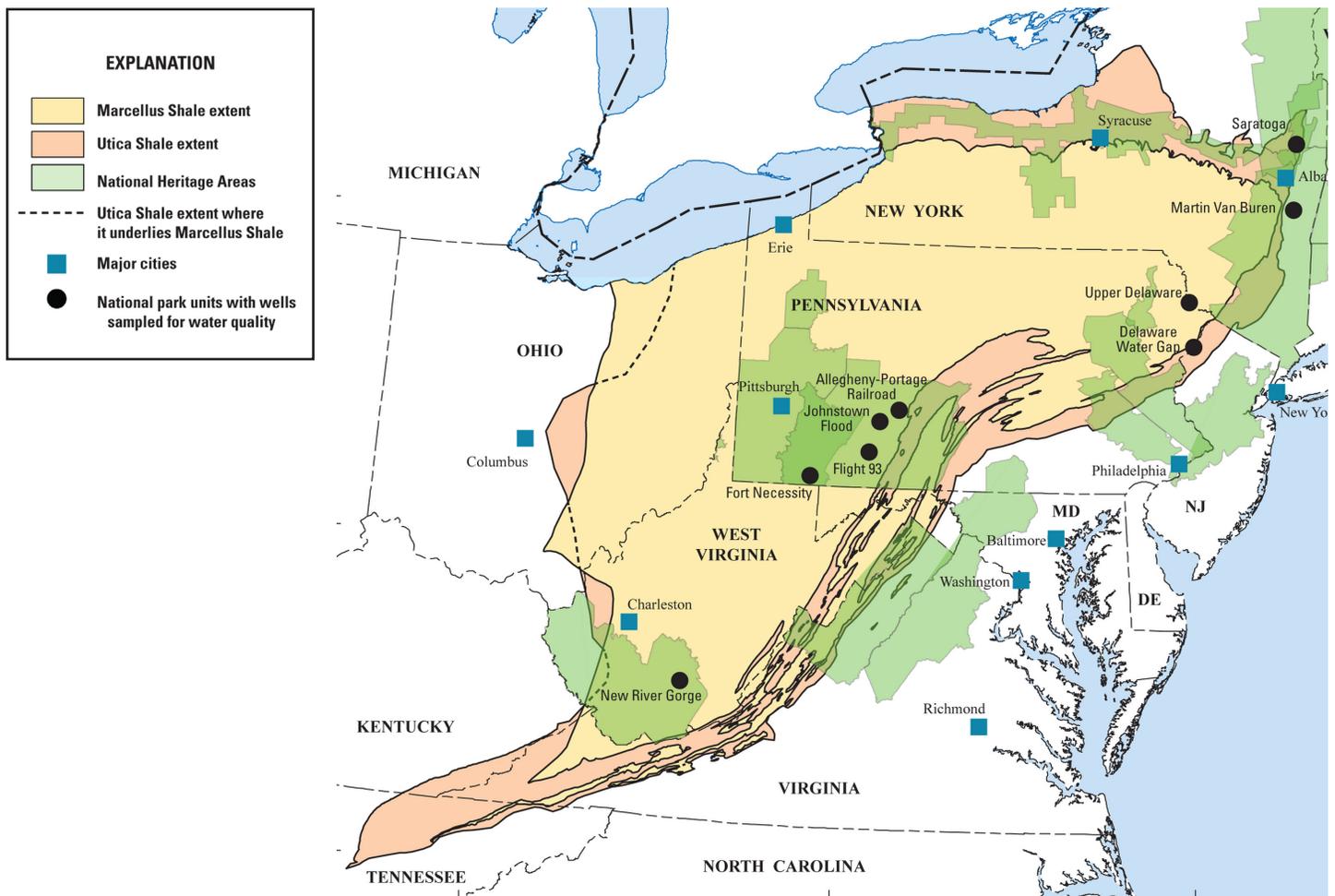
## Status

Groundwater samples were collected from 15 wells and one spring at nine national parks in New York, Pennsylvania, and West Virginia. Samples were analyzed for 53 constituents including nutrients, inorganics, trace elements, chemical oxygen demand, radioactivity, and dissolved gases.

Results indicated that the groundwater is of generally good quality and helped improve the understanding of the composition of groundwater in these parks. The results of this study

are available in a report produced by the U.S. Geological Survey. This report has already helped inform park managers of water quality conditions for wells that are operated for visitor use and will provide an opportunity to evaluate changes that may occur over time.

[http://pubs.usgs.gov/of/2012/1150/pdf/ofr2012-1150\\_report\\_508.pdf](http://pubs.usgs.gov/of/2012/1150/pdf/ofr2012-1150_report_508.pdf)



## More Information

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