

# The Role of Telephone Survey Data in

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## Introduction to the Baltimore Ecosystem Study (BES) LTER

In 1997, the urban LTER for metropolitan Baltimore, Maryland was added to NSF's LTER network in order to study urban areas as ecological systems, including physical, ecological and socio-economic factors (<http://www.beslter.org>). Today, the program includes researchers from the biological, physical, and social sciences working together to collect new data and synthesize existing information on how the ecological and engineered systems of the Baltimore metropolitan region work, including Baltimore City, and Baltimore, Harford, Howard, Anne Arundel, and Carroll Counties.

## Introduction to the BES Household Survey

The BES household survey is a telephone survey of metropolitan Baltimore residents created by the Demographic and Socio-economic group within the BES. The survey is part of the core data collection of the Baltimore Ecosystem Study to classify and characterize social and ecological dimensions of neighborhoods (patches) over time and across space.

The survey was first conducted in 1999 and consisted of 28 questions on outdoor recreation activities, watershed knowledge, environmental behavior, neighborhood characteristics and quality of life, lawn maintenance, and demographic information. In this iteration of the survey, there were 801 completed interviews. Respondents to this first version of the survey were not identified geographically (by census block group or other method) and therefore the data has not been widely analyzed.

The 2000 survey consisted of the same 28 questions as the 1999 survey and was conducted by the same survey firm of Hollander, Cohen, and McBride. In this iteration, however, the data from each respondent was also associated with a PRIZM® classification. PRIZM® classifications categorize the American population using Census data, market research surveys, public opinion polls, and point-of-purchase receipts. The PRIZM® classification is spatially explicit allowing the survey data to be viewed and analyzed spatially and allowing specific neighborhood types to be identified and compared based on the survey data. For the 2000 survey, there were 813 completed interviews with a response rate of 28%.

## Current Status of the BES Household Survey

The BES household survey has undergone significant revisions in 2003, as a result of new research interests, suggestions of focus groups, and time limitations. The revised survey consists of 32 questions and covers the topics of outdoor recreation, watershed knowledge, environmental behavior, social cohesion, neighborhood characteristics, neighborhood satisfaction, personal and environmental satisfaction, lawn maintenance, and demographics. Many of the questions have remained the same or simply undergone slight wording changes. Some questions were deleted and some new questions were added. This iteration of the survey is currently being conducted by Hollander, Cohen, and McBride and will reach a sample size of 1500 completed interviews. Additionally, the data from each respondent will be associated with not only a PRIZM® classification but also the census block group, census tract, and latitude/longitude. This will allow for very specific mapping of the results of the survey questions.

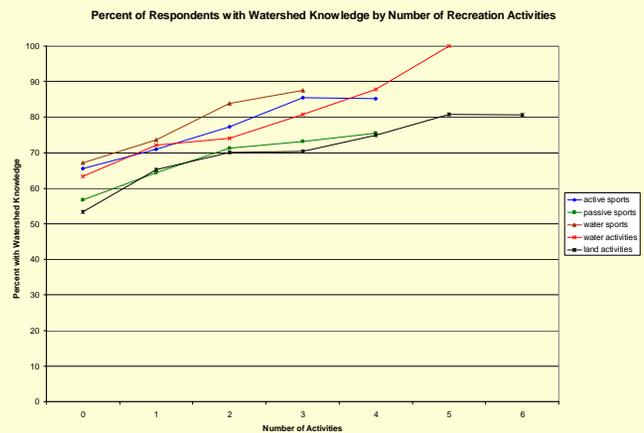
## Additional Core Data Sets

This survey is linked to other core data, including US Census data, remotely-sensed data, and field data collection, including the BES Demographic and Socio-economic Field Observation Survey.

## Findings from the 2000 BES Household Survey

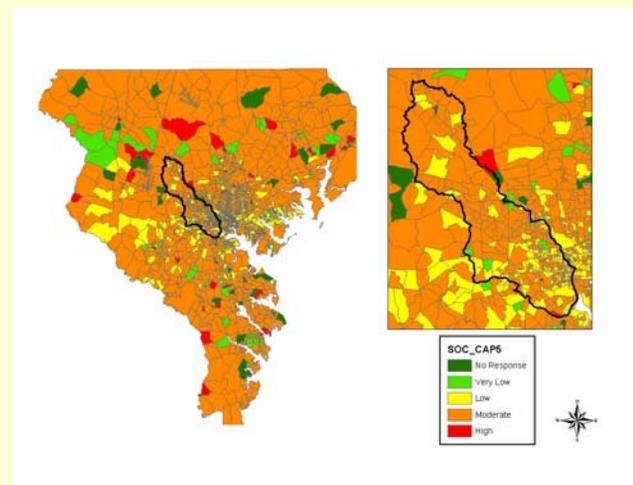
We found that people who participated in many water recreation activities were more likely to have knowledge of their watershed and were more likely to agree to perform environmental behaviors, such as pay increased recreation fees, volunteer on pollution patrols, or support a small tax increase to be used for water quality issues.

Across all types of recreation activities (land and water) people that participated in more activities were more likely to have knowledge of their watershed and were more likely to perform environmental behaviors.



We also found that social capital is spatially heterogeneous across the Baltimore metropolitan region. The heterogeneity appears to be independent of both socio-economic status (measured by median income) and the urban-rural gradient. Also, a significant relationship (Pearson chi-square p-value = 0.005) between neighborhood social capital and water quality is observed such that, neighborhoods with high levels of social capital are less likely to state that water quality is a problem in their neighborhood.

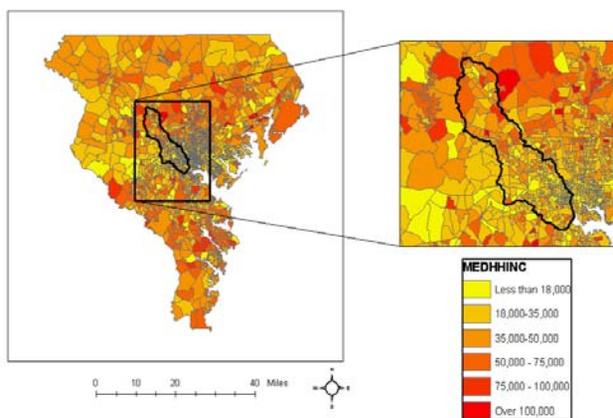
## Social Capital Index by Census Block Group



# The Baltimore Ecosystem Study LTER

Dr. J. Morgan Grove, and Dr. Matthew A. Wilson

Median Household Income by Census Block Group



## Future Analyses

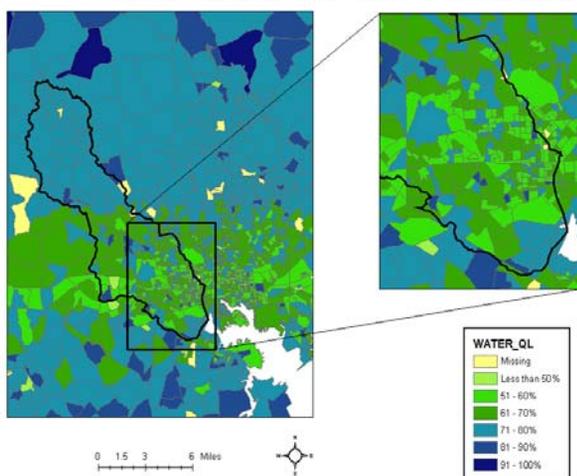
The Demographic and Socio-economic group within the BES LTER has many plans for how to use the data collected through the telephone survey. These data aim to help answer the three main BES questions: 1) What are the fluxes of energy and matter in urban ecosystems, and how do they change over the long term?; 2) How does the spatial structure of ecological, physical, and socio-economic factors in the metropolis affect ecosystem function?; and 3) How can urban residents develop and use an understanding of the metropolis as an ecological system to improve the quality of their environment and their daily lives?

Organized around the first question, we will be looking at the social impacts on ecological systems and the ecological impacts on the social systems. For example, do we have evidence of any feedback between the systems and how does this feedback loop change through time. One future analysis will be, do people located in a healthy natural environment report higher levels of life and neighborhood satisfaction than people located in areas with low levels of ecosystem health. We are also interested in the question of whether high social capital leads to higher environmental quality in neighborhoods or if improving neighborhood environmental quality can lead to increased social capital. The first step in this analysis would be to determine whether high levels of social capital spatially co-vary with high quality environmental variables. Building on those ideas, we might ask whether neighborhoods with high levels of social capital and indicators of a healthy natural environment exhibit higher levels of neighborhood satisfaction. And finally, do the relationships between social capital, the natural environment, and neighborhood satisfaction spatially co-vary by PRIZM® lifestyle classes throughout the Baltimore metropolitan region?

Related to the second question, we will be trying to determine how the configuration of land uses, neighborhoods, parks, and water resources influence environmental behaviors and perceptions. One future analysis will be to compare the survey environmental perception variables with measured environmental variables to determine whether people's perceptions match the reality of the environmental situation in their neighborhood. We could also investigate whether certain PRIZM® classes are more perceptive of the environmental situation around them than others. Similarly we could determine whether the people most likely to perform environmental behaviors are located more closely to areas of high environmental quality or high quality area parks.

Focusing on the third question, we plan to investigate trends in the types, frequency, location, and social aspect of recreation activities. From this information we will determine the potential constraints and/or reinforcement people encounter when trying to participate in outdoor recreation activities. We will also be exploring whether people's participation in recreation activities can be used to predict their level of environmental knowledge and willingness to perform environmental behaviors. Similarly, we will be determining whether recreation style is a better predictor of environmental knowledge and action than the usual demographic factors. Finally, we will tie these recreation questions back to reference group theory to determine whether reference group theory gives the best explanation of why recreation activities can predict environmental knowledge and behavior. For example, do certain reference groups encourage 'members' to give priority to the environment while other reference groups do not? Do these reference groups match up with the PRIZM® classifications?

Percent Agree that Water Quality is "Not a Problem"



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