

## **Coastal Virginia Outdoor Recreation Study Frequently Asked Questions**

**February 2025**

**Description:** Researchers with the National Oceanic and Atmospheric Administration's (NOAA) National Centers for Coastal Ocean Science (NCCOS) are conducting this study to better understand outdoor recreation in the coastal zone of Virginia. To achieve this research goal, NCCOS will 1) conduct a household survey of residents within a one-hour drive of the York River to collect information about their experiences, beliefs, and values related to outdoor recreation and 2) analyze spatial and temporal visitation patterns using human mobility data and pedestrian and vehicle counter devices.

### ***Why is NCCOS conducting this study?***

NCCOS has significant experience conducting research to inform coastal and marine spatial planning efforts throughout the U.S. and its territories, including the development of quantitative assessments to evaluate people's opinions, values, attitudes, and behaviors from a spatial perspective. This study will inform planning for use of the marine environment to achieve important national goals.

### ***Who is NCCOS working with locally on this study?***

NCCOS is working with local and state parks, municipalities, and agencies, including York River State Park; New Quarter Park; Machicomoco State Park; Beaverdam Park; Chesapeake Bay National Estuarine Research Reserve in Virginia; Gloucester Parks, Recreation, and Tourism; York County Parks and Recreation; Virginia Institute of Marine Science; Middle Peninsula Planning District Commission; Hampton Roads Planning District Commission; PlanRVA; Virginia Department of Conservation and Recreation; Virginia Department of Wildlife Resources; and Virginia Coastal Zone Management.

### ***Who is funding this study?***

This project is funded by NCCOS.

### ***Why is this study being conducted in the coastal zone of Virginia?***

The Virginia coast offers abundant recreational opportunities, many which require access to water like boating, fishing and swimming. These activities support coastal tourism and in turn also help fuel the Commonwealth's economy. The survey will focus on the York River, specifically, because of its historic and ecological importance and its connection to the National Estuarine Research Reserve System.

### ***How will you collect the data?***

Data will be collected using a survey mailed to a randomly selected sample of households within the study area. Vehicle and pedestrian counters may be installed in key recreational locations along the York River, and data will be continuously logged by the device and downloaded by staff at regular intervals. Human mobility data will be purchased from a data provider.

***What is the timeline for this study?***

The study began in September 2022 and will last four years. Survey data collection will occur during a 3-4 month period in 2025. Human mobility data will be purchased in early 2025, and data covering the entire year of 2024 will be analyzed. Pedestrian and vehicle counters data will be collected from Spring 2024 until Winter 2025.

***What products will be derived from this study?***

Findings from this study will be compiled into a final report that NCCOS will provide to project partners and will be available to the public. The report will include data tables, maps, and other information. Data from this study may also be used to contribute to the scientific literature and present at conferences.

***Will the final report be posted on the NCCOS website?***

Yes. The final report will be posted on the NCCOS website. A weblink will be provided as soon as it is available.

***How will partners and NOAA use the information collected in this study?***

Partners can use the results of this study to better understand visitor experiences, pressures on recreational sites, and potential barriers to access for Virginians. This information can be used to justify future investments related to conservation, preservation, infrastructure maintenance and improvement, and education and outreach. This information can also be used to demonstrate the value of outdoor recreation and shed light on various factors that influence visitation patterns and recreation values.

***How will findings from this study help my community?***

Findings from this study can be used to promote inclusivity and accessibility for a broader range of communities, enhance visitation rates among underrepresented groups, and improve overall access to recreational opportunities in the area. This information can help decision-makers make informed and sustainable choices in outdoor recreation management, benefiting both visitors and the environment while ensuring effective preservation of natural resources.

***Who can I contact with questions about this study?***

For questions about this study, please contact the study project manager, Sarah Gonyo at [sarah.gonyo@noaa.gov](mailto:sarah.gonyo@noaa.gov).

## **PEDESTRIAN AND VEHICLE COUNTERS**

***What are pedestrian and vehicle counters?***

Pedestrian and vehicle counters are devices that measure visitor traffic (people or vehicles) on trails or roadways. These devices use infrared and motion sensors to count people or objects passing by the device. There is no camera on these devices.

***How is this data collected?***

Data may be automatically uploaded to a cloud-based platform or manually downloaded onsite at regular intervals during the data collection period.

***How anonymous is this data?***

No Personal Identifiable Information (PII) is logged by the counter devices.

***How accurate is this data?***

Visitor counters are not 100% accurate and accuracy may vary based on factors such as visitor use frequency and intensity, site conditions, counter settings, and weather conditions. This data requires calibration. Calibration involves direct observations of the number of people or vehicles that pass the counter in a given time period and using that information to adjust the estimates from counter data. NCCOS staff will calibrate the estimates from each counter individually as these factors may vary between counters and sites.

***How will this data be used?***

This will allow our team to estimate visitation within these selected areas, as well as calibrate other visitation data collected for the entire study area.

## **HUMAN MOBILITY DATA**

***What is human mobility data?***

Human mobility data is an anonymous, aggregated measurement of people's movements surrounding points of interest or neighborhoods. It is derived from mobile device applications in which location information is voluntarily opted-in by the device user. Human mobility data can include where people come from, how long they stay, and where they go afterwards.

***How is the human mobility data collected?***

Raw geolocated data is gathered from over one hundred million smartphones and mobile applications. Geolocated data collection works by sending signals, or "pings," from your mobile device to a constellation of satellites or cellular towers. This geolocation uses triangulation to determine where on the planet your device is and describe that position using latitude and longitude. Each ping from a device also has a timestamp. The raw pings are clustered by algorithms into events that indicate activity, such as traveling or dwelling at a location.

***How representative of the population is the human mobility data?***

The representativeness of the data can vary depending on the data source/provider and region. This data provides information on spatial patterns in human mobility, but to provide accurate counts of people would require validation with observation counts of visitors. Human mobility data can be analyzed to look for biases related to geographic area, income, and age.

***How anonymous is the human mobility data?***

NCCOS never collects or stores any personal data, which ensures the anonymity of user identity and personal information at all times. The human mobility data used within this work is completely anonymized prior to NCCOS receiving it for analysis.

***How accurate is the human mobility data?***

NCCOS will choose to purchase data from a provider with the best available and transparent methods in data acquisition and processing. NCCOS will prioritize validation of this data with other sources such as direct observations and pedestrian and vehicle counters.

***How will this human mobility data be used?***

This data will be used to estimate visitor use trends in the coastal zone of Virginia. This information could be used by resource managers to understand human use and pressures on outdoor recreation sites and potential barriers to access for communities.

## **SURVEY DATA COLLECTION**

***Is anyone else involved in the implementation of this survey?***

NOAA will be working with a third-party vendor who has experience conducting social surveys. The study team of NCCOS social scientists is responsible for the survey design and guides decisions related to survey implementation.

***When will data collection take place?***

A pre-test of the survey will occur in mid-2024. The survey will take place over a three to four month period in 2025.

***Is participation in the survey mandatory?***

No, participation in the survey is voluntary.

***What types of questions will you ask?***

The survey will consist of questions designed to assess residents' preferences and experiences related to outdoor recreation around the York River. Information will also be collected on the demographic characteristics of the survey participants.

***Are responses confidential?***

Yes, responses to the survey will remain confidential. For analysis and reporting purposes, all answers provided will be aggregated with the responses of others who participate in the study.

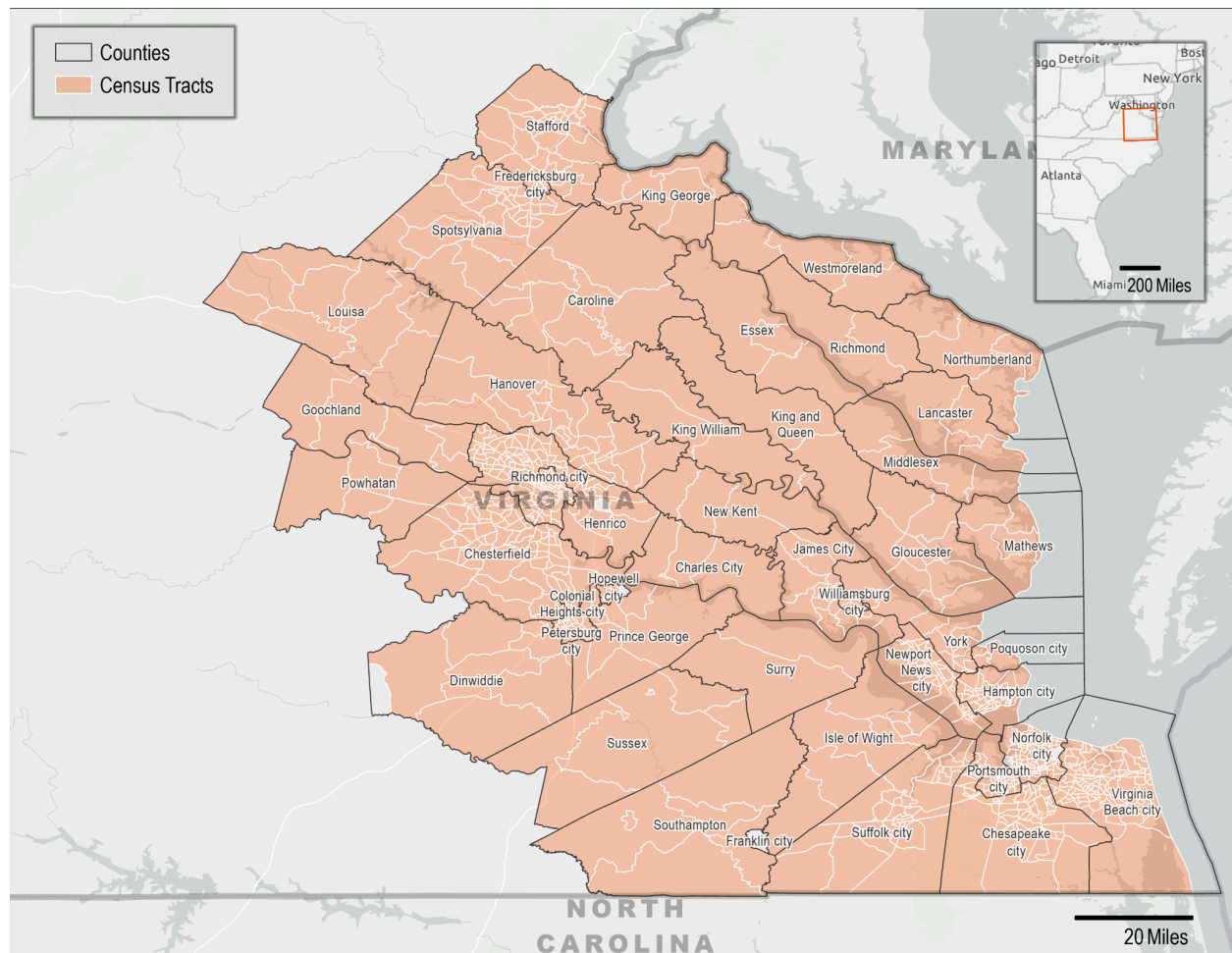
***Can I take the survey?***

Due to the random sampling design, only those who are selected through the sampling process will be invited to take the survey. All households within the study area are eligible for random selection. Selected households will receive an invitation in the mail to complete the survey. If you receive a survey in the mail, we encourage you to complete it and return it to us.

***Who will be asked to take the survey?***

The study area (depicted in the map below) consists of the coastal counties within a one-hour drive of the York River. This distance was selected based on results from a pilot study conducted in 2022, which found that roughly two-thirds of the visitors to the York River live

within a one-hour driving radius. Adults living in households in this region will be randomly selected to participate.



***Are Tribal communities included in the randomly selected households to be surveyed?***

Yes, all households within the study area that are served by the U.S. Postal Service have a chance to be selected for the survey.

***How long will the survey take?***

The survey will take approximately 10 to 15 minutes to complete.

***Will a copy of the survey questions and survey data be made available to the public online?***

Yes, both the survey questions and survey data will be made available to the public online.

***How much will the survey cost?***

This survey is funded by NCCOS with approximately \$200,000 budgeted for the survey. For more details about the study, see the project website at <https://coastalscience.noaa.gov/project/using-anonymous-cell-phone-data-to-characterize-visitor-use-patterns-in-the-middle-peninsula-virginia/>.