Dataset Information

Dataset Title: NCCOS Assessment: Outdoor Recreation Counter Calibration and Visitor Assessment, 2024-02-26 to 2025-05-13

Project Page URL: https://coastalscience.noaa.gov/project/outdoor-recreation-coastal-virginia/

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Description:

This tabular dataset contains raw and calibrated counts of people or vehicles collected from select parks and natural areas around the York River in Virginia and Grand Bay National Estuarine Research Reserve in Mississippi. Data was collected using field observation and the use of automated vehicle and pedestrian counters. Counters used were four TraFx vehicle counters, two TraFx pedestrian counters, and four Eco-counter pedestrian counters. The datasets estimate recreational visitation to select trails or attractions in two state parks (Machicomoco and York River), three county parks (Gloucester Point Beach, Beaverdam, and New Quarter), one national park (Colonial National Historical Park), and one National Estuarine Research Reserve. The numbers represent aggregated hourly counts of people or vehicles and do not include any personally identifiable information.

Date of Collection

Start Date: 2024-02-26
End Date: 2025-05-13

Time period of Data

Start Date: 2024-02-26
End Date: 2025-05-13

Keywords

Sea Areas, Water Bodies, Marine Protected Areas:

- Atlantic Ocean, York River, Chesapeake Bay

- Gulf of America (formerly Gulf of Mexico)

Discovery Theme Keywords
- Visitor Assessment, Trail Counters

NCCOS Keywords:
- NCCOS Research Priority > Social Science
- NCCOS Research Topic > Ecosystem Valuation
- NCCOS Research Location > Geographic Areas > Coastal Ocean
- NCCOS Research Location > U.S. States and Territories > Virginia
- NCCOS Research Location > U.S. States and Territories > Mississippi
- NCCOS Research Data Type > Field Observation

Notes

The National Oceanic and Atmospheric Administration's (NOAA) National Center for Coastal Ocean Science (NCCOS) installed vehicle and pedestrian counters in select parks and natural areas around the York River in Virginia and Grand Bay NERR Mississippi. NCCOS staff, external project partners and volunteers assisted with the data collection. This effort of recreational visitor estimation helps NCCOS and the park managers better understand the human use of coastal areas to better allocate resources to meet the recreational use demand in their parks.

Contributor(s)

- Amy Freitag (NCCOS) - Data Collector
- Katherine Auerswald (NCCOS/CSS) - Data Collector
- Jeffrey Beauvais (NCCOS/CSS) - Data Collector
- Dwayne Scheid (Colonial National Historical Park)- Related Person
- Ryo Murasaki, Kai Scarangella, Andre Alquiza, and Kaylin Fleenor (Colonial National Historical Park)- Data Collector
- Josh Gomersall (York River State Park)- Data Collector
- Josh Mazzatenta (Machicomoco State Park)- Data Collector
- Kimberly Ammons (Beaverdam Park)- Data Collector
- Amanda Roche (New Quarter Park)- Data Collector
- Gabriel Afonso (Virginia Institute of Marine Science) - Data Collector (Gloucester Point Beach Park)
- Jonathan Pitchford and Sandra Bilbo (Grand Bay NERR)- Data Collector

Funding

- U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, National Centers for Coastal Ocean Science
    - Identifier: https://ror.org/05ba43f71

Geospatial Metadata

Geographic Coverage: Beaverdam Park, Colonial National Historical Park, Gloucester Point Beach Park, Machicomoco State Park, New Quarter Park, York River State Park, Grand Bay NERR
Geographic Unit: individual

File Information

Data Type: tabular (automated counter data of people and vehicles)
Data Sources:

- N/A

Associated Datasets:

- N/A

Total File Size: 5.67 MB total, 38 files in 4 folders
Data File Format(s):

- Comma-separated value (.CSV)
- MS Word (.docx)
- R-script (.R)

Data Files

Observation data files (Observation_data_files-20250929T183631Z-1-001.zip)

- Beaverdam_entrance_observation.csv
- Beaverdam_HN_trail_observation.csv
- Gloucester_Point_observation.csv
- Grandbay_Boardwalk_observation.csv
- Grandbay_Savanna_observation.csv
- Machicomoco_observation.csv
- New_Quarter_Park_observation.csv
- Yorktown_observation.csv
- YRSP_Taskinas_Creek_observation.csv
- YRSP_Fossil_Beach_observation.csv

Counter data files (Counter_data_files-20250929T183631Z-1-001.zip)

- Beaverdam_entrance_counter_hourly.csv
- Beaverdam_HN_trail_counter_hourly.csv
- Gloucester_Point_counter_hourly.csv
- Grandbay_boardwalk_counter_hourly.csv
- Grandbay_savanna_counter_hourly.csv
- Grandbay_counters_total_hourly.csv
- Machicomoco_counter_hourly.csv
- New_Quarter_Park_counter_hourly.csv
- Yorktown_counter_hourly.csv

- YRSP_Taskinas_Creek_counter_hourly.csv
- YRSP_Fossil_Beach_counter_hourly.csv

Documentation Files

- Field observation forms (Documentation_files20250929T183631Z-1-001.zip)
    - Pedestrian counter observation log (.docx)
    - Two-way vehicle counter observation log (.docx)
    - One-way vehicle counter observation log (.docx)
    - Counter and observation data files metadata (.docx)
- R-scripts (R-scripts20250929T183631Z-1-001.zip)
    - Beaverdam_Entrance_total_analysis.R
    - Beaverdam_HN_trail_total_analysis.R
    - Eco_counter_rawdata_reading.R
    - Gloucester Point Beach Park- TraFx_vehicle_counter_one-way.R
    - Grandbay-Boardwalk_Savanna_combined_revised.R
    - Grandbay-Boardwalk_total_analysis.R
    - Grandbay-Savanna_total_analysis.R
    - Machicomoco_TraFx_vehicle_counter_two-way.R
    - NQP_TraFx_vehicle_counter_two-way.R
    - Yorktown- TraFx_vehicle_counter_one-way.R
    - YRSP- Fossil Beach_TraFx_pedestrian_counter_two-way.R
    - YRSP- Taskinas Creek_TraFx_pedestrian_counter_two-way.R

Data Types (Parameter Information)

List of major parameters included in this accession:
Parameter Description:

Parameters:	Number of people or vehicles
Property Type:	Observed or measured
Units:	People or vehicle
Observation Category:	In situ
Sampling Instrument:	Field observation and automated counters

Sampling and Analysis Method:

Calibration coefficients for each counter were calculated using two methods: ratio method and regression method. In the ratio method, observation counts were divided by the counter counts for each of the hours observed and then an average was taken. In the regression method, a linear model was fitted (without a constant term) with observed counts as the dependent variable and counter counts as the independent variable, and the coefficient was used as the calibration coefficient. Calibrated people or vehicles were calculated by multiplying the counter counts by the calibration coefficients. When the counter recorded both incoming and outgoing visitors or vehicles (two-way mode), the combined IN and OUT counts were divided by two. For a vehicle

counter, calibrated numbers of vehicles were multiplied by the average number of people per vehicle (from observation data) to estimate the number of people.

Data collection start and end dates varied across the counter sites. Fossil Beach Trail was closed for restoration and maintenance from March to April 2024. Therefore, to estimate daily averages as well as monthly and annual totals, data from Fossil Beach Trail were filtered from May 1, 2024, to April 30, 2025, to reflect normal use. Data from all other Virginia sites were filtered from March 1, 2024, to February 28, 2025, while data from Grand Bay counters were filtered from April 1, 2024, to March 31, 2025.

Data Quality Method:

Both the counter data and observation data collection did not collect any personally identifiable information. Observations conducted for each counter were verified to cover the full hour (HH:00 - HH:59) as consistent with the counter setup that recorded hourly total counts of people or vehicles. Data from counters were downloaded each month and functionality (e.g., battery status) was monitored regularly to minimize risk of counter failure and data loss. TraFx counters do not record counts of people or vehicles for the hours data downloading occurs. Other than the missing data due to the data downloading, complete 12 months of data collection did not result in any missing data. When counter counts were excessively high for any days or hours, the numbers were verified with the park partners to identify the possible reasons (e.g., park event).

Document Information

Date Last Updated: 2025-12-03

Resource Provider: NCCOS Data Manager, nccos.data@noaa.gov, US DOC; NOAA; NOS; National Centers for Coastal Ocean Science (NCCOS)

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