



## CLIMATE *Friendly* PARKS

Cape Hatteras National Seashore, Wright Brothers  
National Memorial, & Fort Raleigh National Historic Site

Climate Action Plan

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## THE CHALLENGE OF CLIMATE CHANGE

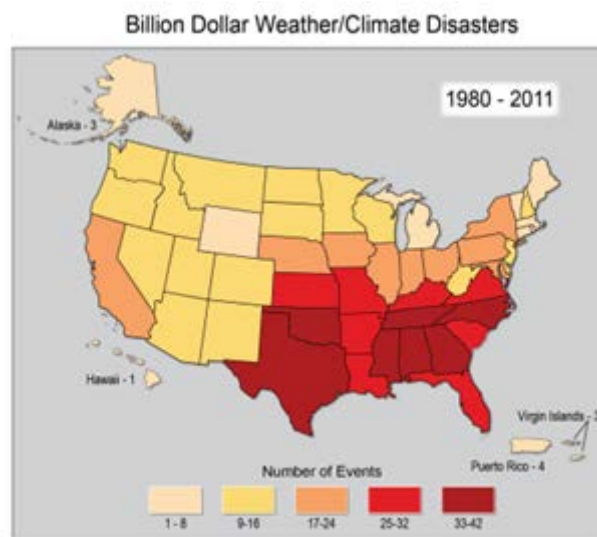
The effects of climate change are already impacting the physical and natural systems that sustain the American people. These changes present significant challenges to the National Park Service (NPS) and specifically Cape Hatteras National Seashore, Wright Brothers National Memorial, & Fort Raleigh National Historic Site (Outer Banks Group). Climate change threatens the natural and cultural systems that the Outer Banks Group is known for and established. National Park Service Director Jarvis testified before Congress in 2009, stating "Climate change is fundamentally the greatest threat to the integrity of our national parks that we have ever experienced."

Evidence of climate changes abounds, from a number of sources including but not limited to coral, tree rings, speleothems, ice, and monitoring equipment. Average global temperatures on the Earth's surface have already increased about 1.5°F since the late 19th century, and the 10 warmest years of the 20th century all occurred in the last 15 years.<sup>1</sup> However, climate change is more than just temperature increase, there are a variety of effects including potentially more intense and frequent storms. These changes mean that there could be an increasing number of climate disasters.<sup>2</sup> This map summarizes the number of weather and climate disasters over the past 30 years that have resulted in more than a billion dollars in damages ([http://www.ncdc.noaa.gov/billions/Population Distribution and Change: 2000 to 2010, 6 summary statistics](http://www.ncdc.noaa.gov/billions/Population%20Distribution%20and%20Change%202000%20to%202010%2C%206%20summary%20statistics)).

These changes are caused by the buildup of greenhouse gases (GHGs) in the atmosphere which trap heat that otherwise would be released into space. The Greenhouse effect is a natural one, making earth warm enough to be livable. However, human emissions of GHGs are increasing and accelerating the warming beyond natural levels.

With the rate of GHG emissions still increasing, average global temperature continues to rise. It is hard to predict the total magnitude of the expected change but the climate trends that are already emerging are expected to continue and to intensify as GHGs continue to be emitted. The Intergovernmental Panel on Climate Change has estimated that a global average warming of 5-10°F by the year 2100 is considered likely.<sup>3</sup>

The projected temperature increase would change the length and character of the seasons so that spring arrives earlier and summer lasts longer and is generally hotter, both in terms of its average and peak temperatures. Rising global temperatures would change weather patterns and result in more extreme events ranging from extreme hot days to more intense and frequent storm events. These changes will affect all aspects of the water cycle, including snow cover, mountain glaciers, spring runoff, water temperature, and sea level.



<sup>1</sup> Federal Advisory Committee. "Draft Climate Assessment Report Released for Public Review." Draft Climate Assessment Report Released for Public Review. U.S. Global Change Research Program, 14 Jan. 2013. Web. 18 Feb. 2013. <<http://ncadac.globalchange.gov/>>.

<sup>2</sup> <http://ncadac.globalchange.gov/download/NCAJan11-2013-publicreviewdraft-chap17-southeast.pdf>

<sup>3</sup> IPCC 2007. Climate Change 2007: The Physical Science Basis. Intergovernmental Panel on Climate Change, Geneva, Switzerland. Available online at [http://www.ipcc.ch/publications\\_and\\_data/publications\\_ipcc\\_fourth\\_assessment\\_report\\_wg1\\_report\\_the\\_physical\\_science\\_basis.htm](http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_wg1_report_the_physical_science_basis.htm)

In addition, heat waves and warm spells will likely be more frequent, more intense, and longer (IPCC 2012), potentially changing plant and animal habitats. Climate change is also expected to affect human health, infrastructure, water resources, agriculture, energy, and many other features of our natural and managed environments. These impacts can already be seen both on an international and local scale.

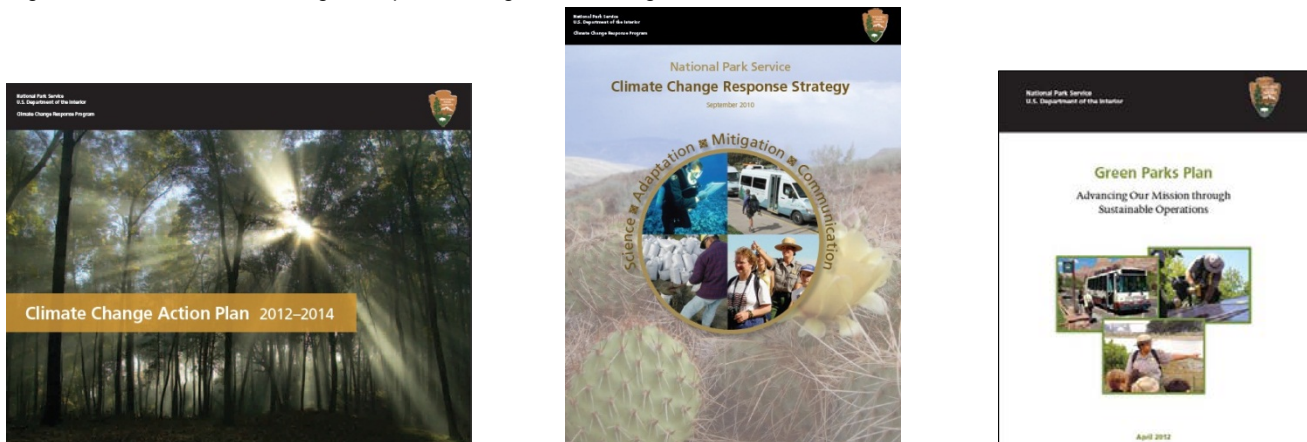
Though the general global climate effects might be the same, climate change is expected to impact different bioregions in different ways. At the Outer Banks Group, projections indicate that increasing temperatures and changing precipitation patterns will alter park ecosystems, changing vegetation communities, habitats available for species, and the experience of park visitors. Historic structures and built infrastructure are also at risk due to potential increase in shifting foundations, flooding, sea level rise and coastal inundation. The past is no longer an indicator for the future; climate events that were once rare or unusual will be common.

## CONTEXT FOR ACTION

Sustainability is at the cornerstone of the National Park Service (NPS). In fact, the 1916 NPS Organic Act outlines our foundational objective "...to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations".

The NPS acknowledges that climate change may threaten the very cultural and natural resources we strive to preserve. Through the establishment of many agency directives as well as federal government-wide executive orders and policies, we are encouraged to take action around adaptation and mitigation to climate change. These directives and guidelines include the Federal Executive Orders (EO) 13423 (Strengthening Federal Environmental, Energy, and Transportation Management) and 13514 (Federal Leadership in Environmental, Energy, and Economic Performance) and the Department of the Interior (DOI) and NPS policies, plans, and strategies such as the Green Parks Plan, (GPP), 2012-2014 Climate Change Action Plan, and Climate Change Response Strategy. The guidance from these documents has been integrated into this Climate Action Plan and the schematic in Figure 1 illustrates some of the NPS documents that influence the Climate Action Plan.

Figure 1. NPS Climate Change Response Program Planning documents





Executive Order (EO) 13693, *Planning for Federal Sustainability in the Next Decade*, combines and revokes existing EOs 13423 and 13514 as well as several Presidential Memoranda, and commits Federal agencies to a number of GHG and sustainability goals through FY 2025. While parks not *required* to meet each goal within the EO – or the GPP – they provide the national support needed to assist the NPS in moving operations in a more sustainable direction. These goals include:

- Energy Intensity Reduction Goal (current goal expires 2015) – The EO sets a new baseline of 2015 and a 2.5 percent reduction annually for a 25 percent reduction by 2025;
- GHG Reduction Goal – Agencies will need to establish 2025 reduction goals; the baseline remains at 2008 but Scope 3 emissions will now include energy consumption at new full service leases greater than 10,000 square feet (SF);
- Renewable Energy Consumption Goal – In 2025, 30 percent of facility electricity consumed must come from renewable sources;
- Alternative Energy Goal (includes electric and thermal renewable energy) – In 2025, 25 percent of facility energy consumed must come from alternative sources;
- Water Reduction Goals – The EO extends the existing goals to 2025 at the current reduction rate (2 percent annually) for the following targets:
  - Potable water – 36 percent reduction
  - Industrial, landscaping, and agricultural water – 30 percent reduction;
- Sustainable Buildings Goal – The existing 15 percent goal remains for 2025; revised Guiding Principles will be issued by September 2015;
- Green Infrastructure – The EO calls for agencies to incorporate rain gardens, rain barrels, and other stormwater management features where appropriate;
- Data Centers – The EO requires metering of all data centers and establishes power usage effectiveness targets for new and existing data centers;
- Fleet Emissions – The EO incorporates targets for fleet per mile GHG reductions, and zero emission/plug-in hybrids vehicle acquisition; and adds a requirement for planning for plug-in vehicle infrastructure;
- Net Zero Buildings – The EO requires planning for net zero energy, net zero water, or net zero waste buildings;
- Climate Resilience – The EO emphasizes climate change preparedness and resilience planning and incorporating climate resilient design and management into building inventory;
- Green Procurement – The EO continues to emphasize sustainable and biobased procurement;
- Performance Contracting – The EO continues the push for energy performance contracting.

The Green Parks Plan (GPP) is a strategic sustainability plan in response to EO 13514, and is being revised to comply with EO 13693. The GPP is intended to synthesize implementation objectives under multiple mandates into a single point of focus. The plan includes nine strategic goals and over 34 performance objectives addressing a range of topics in the key categories of sustainability and climate change to address climate change from a facilities standpoint. This includes:

- Continuously Improve Environmental Performance: The NPS will meet and exceed the requirements of all applicable environmental laws.
- Be Climate Friendly and Climate Ready: The NPS will reduce GHG emissions and adapt facilities at risk from climate change.
- Be Energy Smart: The NPS will improve facility energy performance and increase reliance on renewable energy.
- Be Water Wise: The NPS will improve facility water use efficiency.
- Green Our Rides: The NPS will transform our fleet and adopt greener transportation methods.
- Buy Green and Reduce, Reuse, and Recycle: The NPS will purchase environmentally friendly products and increase waste diversion and recycling.

- Preserve Outdoor Values: The NPS will minimize the impact of facility operations on the external environment.
- Adopt Best Practices: The NPS will adopt sustainable best practices in all facility operations.
- Foster Sustainability Beyond Our Boundaries: The NPS will engage visitors about sustainability and invite their participation.
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NPS Climate Change Action Plan (2012-2014) outlines the high-priority, no-regrets actions NPS will undertake to address climate change. This document is intended to serve as a guidance to help prioritize decisions so that actions are focused and integrated across NPS.

- Near Term Priorities
  - Enhance Workforce Climate Literacy
  - Engage Youth & Their Families
  - Develop Effective Planning Frameworks & Guidance
  - Provide Climate Change Science to Parks
  - Implement the Green Parks Plan
  - Foster Robust Partnerships
  - Apply Appropriate Adaptation Tools & Options
  - Strengthen Communication
- Preparing for New Challenges and Opportunities
  - Incorporate New Technology and Climate Science

# Understanding Climate Change at Cape Hatteras National Seashore, Wright Brothers National Memorial, & Fort Raleigh National Historic Site

*The following provides an overview of the Outer Banks Group greenhouse gas emissions inventory and shares emissions reduction goals and strategies the park has established as a member of the CFP Program.*



## OVERVIEW OF THE PARK

Stretched over 70 miles of barrier islands in North Carolina, Cape Hatteras National Seashore is a fascinating combination of natural and cultural resources, and provides a wide variety of recreational opportunities. Once dubbed the "Graveyard of the Atlantic" for its treacherous currents, shoals, and storms, Cape Hatteras has a wealth of history relating to shipwrecks, lighthouses, and the U.S. Lifesaving Service. These dynamic islands provide a variety of habitats and are a valuable wintering area for migrating waterfowl. The park's fishing and surfing are considered the best on the East Coast.

The first English attempts at colonization in the New World (1585-1587) are commemorated at Fort Raleigh. These efforts, sponsored by Sir Walter Raleigh, ended with the disappearance of 116 men, women, and children (including two who were born in the New World). The fate of this "lost colony" remains a mystery to this day. The park was established in 1941, and enlarged in 1990 by Public Law 1001-603 to include the preservation of Native American culture, The American Civil War, the Freedman's Colony, and the activities of radio pioneer Reginald Fessenden. The park is also home to the outdoor symphonic drama THE LOST COLONY, performed in the Waterside Theatre during the summer since 1937. The park is 513 acres in size.

The first successful sustained powered flights in a heavier-than-air machine were made on Kill Devil Hill on the Outer Banks by Wilbur and Orville Wright on December 17, 1903. A 60-foot granite monument dedicated in 1932 is perched atop 90-foot tall Kill Devil Hill commemorating the achievement of these two visionaries from Dayton, Ohio.

On average, Cape Hatteras has over 2 million annual visitors, Wright Brothers has over 400,000, and Fort Raleigh has over 250,000. By influencing and educating these visitors, the parks' actions on sustainability and climate change have the potential to extend beyond the borders of the park to help preserve natural and cultural resources now and into the future.

## PARK BECOMES A CLIMATE FRIENDLY PARK

As a participant in the Climate Friendly Parks program, the Outer Banks Group belongs to a network of parks nationwide that are putting climate friendly behavior at the forefront of planning. As part of this program, the Outer Banks Group has conducted a GHG emission inventory, held a workshop, and set a GHG emission reduction goal. These efforts have led to the development of this Climate Action Plan that includes, among other items, actions to be taken to mitigate and adapt to climate change. Through this Action Plan and a commitment to educate park staff, visitors, and community members about climate change, the Outer Banks Group provides a model for climate friendly behavior within the NPS.<sup>4</sup>



<sup>4</sup> More information about the Climate Friendly Park program <http://www.nps.gov/climatefriendlyparks/>

NPS staff, partners, and sustainability/climate change experts gathered to hold a Climate Friendly Parks Workshop from November 18 – 20, 2014 to better understand and discuss overall sustainability concepts, the implications of climate change for the Outer Banks Group, and to start implementing new actions. Strategies and action plan items were developed by work groups at the Climate Friendly Parks Workshop.<sup>5</sup>

This Climate Action Plan incorporates the strategies that were brainstormed at the workshop and identifies steps that the Outer Banks Group is taking to reduce GHG emissions to mitigate its impact on climate change. The plan presents the Outer Banks Group emission reduction goals, and associated reduction actions to achieve the Park's goals. To the extent possible, the park created goals that are Specific, Measurable, Attainable, Realistic, and Timely (SMART). Having structured SMART goals will ensure that the Outer Banks Group can iteratively monitor progress against the emission reduction goals and identify areas for improvement.

While the plan provides a framework needed to meet the park's emission reduction, it is not intended to provide detailed instructions on how to implement each of the proposed measures. These actions will be primarily carried out by the Outer Banks Group's Environmental Management System (EMS) Team and documented in the EMS plan. The EMS plan will further describe priorities and details to implement these actions.

The Outer Banks Group has identified the following goals to reduce its GHG emissions produced by their operations as follows:

- Energy use consumption emissions to 20% below 2008 levels by 2024
- Waste emissions to 5% below 2008 levels by 2024
- Transportation emission to 5% below 2008 levels by 2024
- Cumulatively, this will result in a GHG reduction of 10% below 2013 levels by 2024 in GHG emissions for the Outer Banks Group.

To meet these goals, the Outer Banks Group will implement strategies proposed in this plan that relate to the Outer Banks Group's current and future emission inventories. Specifically, the plan recommends three strategies:

**Strategy 1:** Identify and implement mitigation actions that the park can take to reduce GHG emissions resulting from activities within and by the Outer Banks Group.

**Strategy 2:** Increase climate change education and outreach efforts.

**Strategy 3:** Identify and implement actions to adapt to a changing climate.

As part of this, the Outer Banks Group will continue to monitor progress with respect to reducing emissions and identify areas for improvement.

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<sup>5</sup> Original notes from these workshops, including detailed action items not presented in the final plan have been archived by Park and are available upon request.

## GREENHOUSE GAS EMISSION INVENTORY AT THE OUTER BANKS GROUP

Naturally occurring GHGs include CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O. Human activities (e.g., fuel combustion and waste generation) have led to increased concentrations of these gases in the atmosphere.

### Greenhouse Gas Emissions

GHG emissions result from the combustion of fossil fuels for transportation and energy (e.g., boilers, electricity generation), the decomposition of waste and other organic matter, and the release of gases from various other sources (e.g., fertilizers and refrigerants).

In 2013, GHG emissions within the Outer Banks Group totaled 61,127 metric tons of carbon dioxide equivalent (MTCO<sub>2</sub>E). Carbon dioxide equivalent takes into account that some gases have a greater potential to warm the earth's atmosphere than others. This inventory includes emissions from park and concessioner operations and visitor activities including vehicle use within the park. For perspective, a typical single family home in the U.S. produces approximately 10 MTCO<sub>2</sub>E per year from natural gas and electricity consumption.<sup>6</sup> Thus, the combined emissions from park and visitor activities within the park—are roughly equivalent to the emissions from the natural gas and electricity use of 5,395 households each year.

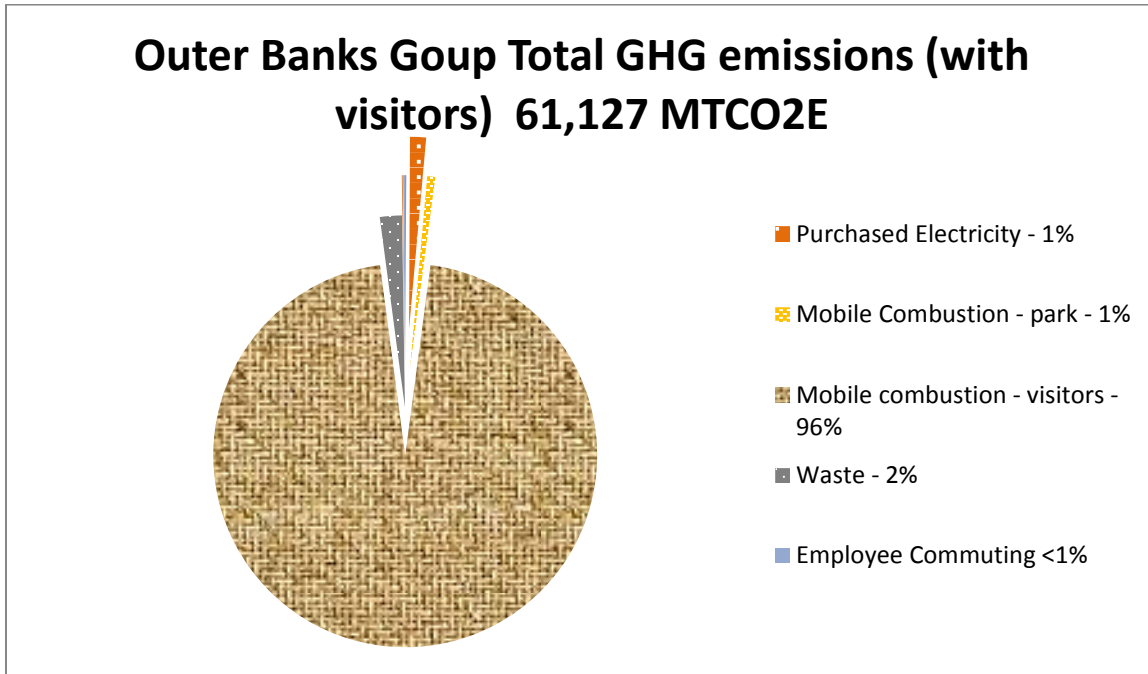
To help with analyzing the GHG inventory, Figure 2 presents total GHG emissions associated with the Outer Banks Group (with visitors) while Figure 3 shows emissions associated with only Outer Banks Group operations. The breakdown in Figure 3 represents what the Outer Banks Group has influence over relative to what is in their direct control. These distinctions help inform the relative impact a strategy and action can have and help inform how actions should be targeted.

As shown in Figure 2, the largest emission sector for the Outer Banks Group is visitor vehicle emissions, totaling 58,559 MTCO<sub>2</sub>E. This represents 96% of the total calculated emissions for the Outer Banks Group. Figure 3, shows only the emissions from Outer Banks Group operations, 2,568 MTCO<sub>2</sub>E and emissions associated with waste (44%), purchased electricity (32%) and mobile combustion (16%) represent the largest sources.

<sup>6</sup> U.S. EPA, Greenhouse Gases Equivalencies Calculators – Calculations and References, Retrieved , Website: <http://www.epa.gov/climatechange/ghgemissions/ind-calculator.html>

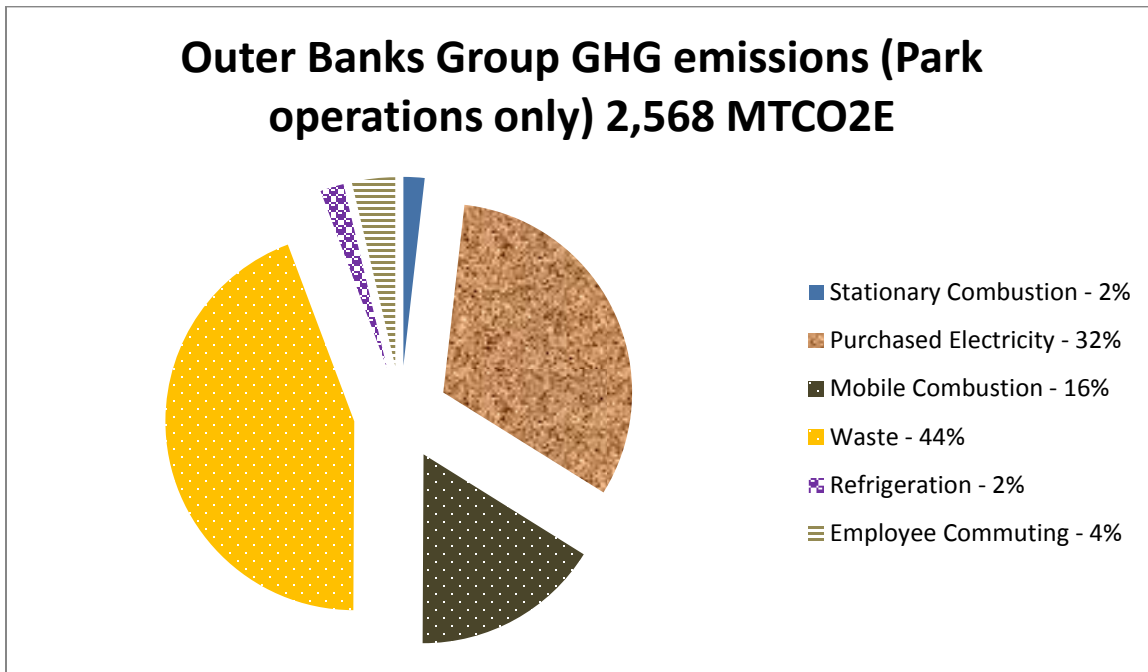
## FIGURE 2

Total GHG Emissions (including visitors) by Sector for 2013



## FIGURE 3

Total GHG Emissions (Park operations only) by Sector for 2013



# The Outer Banks Group Responds to Climate Change

*The following actions were developed during the Climate Friendly Parks Workshop on November 18-20, 2014 in order to meet the Outer Banks Group's climate change mitigation and adaptation goals.*

# STRATEGY 1: REDUCE GHG EMISSIONS RESULTING FROM ACTIVITIES BY OUTER BANKS GROUP OPERATIONS

The Outer Banks Group has developed a set of actions that they are committed to taking to reduce emissions from activities within and by them. These strategies have been prioritized based on a qualitative assessment of a set of criteria including: emission reduction potential, cost-effectiveness, feasibility, co-benefits, regional impact, and ability to rapidly implement. Actions that the Outer Banks Group will take have been presented below in order from highest to lowest priority within each sub-category. Finally, a cross-cutting strategy for evaluating progress and identifying areas for improvement is outlined.

## Energy Use Management

*Emission Reduction Goal: Reduce Outer Banks Group operations' energy use emissions to 20 percent below 2008 levels by 2024.*

Improving energy efficiency and implementing alternative energy sources reduces operation-based fuel use, lowers GHG emissions, decreases electricity consumption, and offers monetary benefits for the park. Emissions inventory results indicate that 32% of the Outer Banks Group's GHG emissions from their operations are from energy consumption. Consequently, the Outer Banks Group identified actions it will take to reduce energy-related emissions. Presented below are the actions that are currently under way and which comprise the Outer Banks Group's progress to date, as well as those actions they will pursue.

### Progress to Date

- ✓ Installation of solar photovoltaic systems throughout the park to supplement average monthly usage..
- ✓ Lighting fixtures and lights are being replaced by LEDs throughout.
- ✓ Geothermal heating and cooling systems installed within facilities.

## Energy Use Management – Planned Actions

### 1 Promote energy efficiency and energy conservation in the Outer Banks Group

- Thermostats are set by area in headquarters and have a limited range to adjust. Expand program to include all park buildings.
- HQ Thermostats set on timers. Expand park wide as well.
- Re-evaluate space use in offices. Reduce physical footprint.
- Heating and cooling: Many facilities in use only 8 hours of a 24 hour day—use programmable thermostats to turn off/down AC/heat when buildings unoccupied.
- Turn off computers/monitors or enable sleep mode when not in use.



## 2 Upgrade lighting options

- Conduct light inventory.
- Pursue efficient lighting

## 3 Switch to more efficient equipment

- Upgrade equipment when needed with energy star rating.

## 4 Improve building structures and envelopes.

- Rehab individual facilities—e.g., WRBR Visitor Center/Bookstore

## 5 Utilize alternative energy sources

- Explore alternate energy sources such as PV and wind.

## 6 Measure energy use throughout the Outer Banks Group

- Incorporate energy-efficiency criteria into new contracts for park and concessioner construction.
- Install building-level utility meters in existing buildings and in new major construction and renovation projects to track and continuously optimize performance.
- Conduct an energy audit for all park buildings.
  - Partner with local utilities to conduct the audit.
  - As part of energy audit, have recommendations made for appropriate lighting solutions for each space.

## Transportation Management

*Emission Reduction Goal: Reduce Outer Banks Group's operations transportation emissions to 5 percent below 2008 levels by 2024.*

Reducing vehicle miles traveled, improving vehicle efficiency, and using alternative fuels can significantly reduce the Outer Banks Group's emissions. As the inventory results indicate, GHG emissions from transportation comprise **16%** of the Outer Banks Group's overall emissions (not including visitors or concessioners). Accordingly, in addition to the Outer Banks Group's operations emissions reduction goal, the Outer Banks Group set a goal to reduce their operations transportation emissions by 5% below 2008 levels by 2024. Presented below are the actions that are currently under way and which comprise the Outer Banks Group's progress to date, as well as those actions that the park will pursue.

### Progress to Date

- ✓ Between 2008 and 2015, Park reduced number of vehicles in fleet by 11 percent
- ✓ Reduced Size of Law Enforcement Pick Up Trucks from 2500 series to 1500 Series
- ✓ Park uses two ecoboost vehicles
- ✓ 57% of Park fleet is alternative fuel-capable (E85)

## Transportation Management – Planned Actions

### 1 Promote transportation-related behavioral changes

- Emphasize carpooling, especially with seasonal employees
- Promote alternative work schedules: work 4 10-hour days to lengthen work day and eliminate need for overtime driving
- Improve communication between divisions about travel to carpool
- Enhance motor pool sign-up sheet to add where person is going and how long there to take advantage for carpooling
- Use google calendar to coordinate schedule
- Use video-conferencing/tele-conferencing where possible

### 2 Reduce visitor vehicle fuel consumption

- Work with NCDOT to improve efficiency of ferries
- Future passenger only ferries from Hatteras to Ocracoke village

### 3 Reduce NPS vehicle and equipment fuel consumption

- Park could use and then store vehicles onsite

### 4 Replace NPS vehicles and equipment

- Replace non-ORV vehicles with ones that are more efficient
- Consider electric vehicles at WRBR and FORA

### 5 Encourage appropriate vehicle maintenance

## Waste Management

*Emission Reduction Goal: Reduce waste emissions from Outer Banks Group operations 5% below 2008 levels by 2024 through waste diversion and reduction.*

The connection between waste and GHG emissions may not be obvious. However, waste management—in the form of source and solid waste reduction—can dramatically reduce the Outer Banks Group’s GHG emissions. Landfills are the largest human-generated source of methane (CH<sub>4</sub>) emissions in the United States. Reducing the amount of waste sent to landfills reduces CH<sub>4</sub> emissions caused by decomposition as well as the GHGs emitted from the transportation of waste. The less the Outer Banks Group and its visitors consume in terms of products and packaging, the more they reuse and recycle, the less energy is used and fewer GHGs are emitted.

The Outer Banks Group’s operation activities emitted 1135 MTCO<sub>2</sub>E from waste management in 2013. Diverting or reducing the Outer Banks Group’s waste stream through increased recycling efforts and waste management will also reduce the amount of waste sent to landfills and resulting emissions. Presented below are the actions that are currently under way and which comprise the Outer Banks Group’s progress to date as well as those actions that the park will pursue.

### Progress to Date

- HQ has established recycling program.
- Excess electronic equipment is recycled Group wide.
- Copy paper is 100% recycled material.

## Waste Management – Planned Actions

- 1 Decrease waste through behavior change
- 2 Establish new plans and policies that promote waste reduction.
- 3 Expand recycling and composting practices
- 4 Reduce waste through green procurement

## STRATEGY 2: INCREASE CLIMATE CHANGE EDUCATION AND OUTREACH

Climate change is a complex and integral issue that is already impacting everything from cultural and natural resources to the visitors themselves. The Outer Banks Group can play an integral role in communicating about climate change to visitors.

A better understanding of the challenges and benefits of reducing GHG emissions and adapting to climate change can motivate staff, visitors, and community members to incorporate climate friendly actions into their own lives.

The Outer Banks Group recognizes that the greatest potential impact the Outer Banks Group can have on mitigating climate change is through public education. Thus, the Outer Banks Group sees public education as an end goal of any climate initiative. From increasing the efficiency of public transportation to developing a green purchasing program, the actions the Outer Banks Group takes to address climate change serve as opportunities for increasing the public's awareness of climate change. Presented below are the actions that the Outer Banks Group will pursue.

### Park Staff

Developing a climate change education program for park staff is vital to increasing awareness about climate change and fostering a sense of collective responsibility among staff to help reduce Outer Banks Group emissions. By incorporating climate change education into staff development programs, the Outer Banks Group will enable staff to demonstrate their commitment through leading by example, and showing visitors the tools and resources needed to reduce GHG emissions in the Outer Banks Group and in their own communities. Potential actions include:

- Finding historical photos of the park and taking the same picture in the same place annually.
- Keep a park log of observations on
  - Phenology
  - Distribution

## Visitor Outreach

Understanding climate change and its consequences is essential to initiating individual behavioral change. The Outer Banks Group realizes that it has a unique opportunity to educate the public. By using existing materials, developing specific materials, highlighting what the Outer Banks Group is currently doing about climate change, identifying the ongoing impacts of climate change on natural and cultural resources, and encouraging visitors to reduce emissions. The Outer Banks Group can play an important role in educating the public about climate change.

The Outer Banks Group staff recognize the many different audiences that visit the Outer Banks Group, including recreational and non-recreational visitors, “virtual visitors” who visit the Outer Banks Group online, school-aged visitors, local and out of town visitors, local tribes, and external audiences. Reaching these various audiences with climate change information and engaging them in the Outer Banks Group’s efforts requires appropriately focused messaging. The Outer Banks Group has developed a number of strategies to reach these various audiences effectively. These strategies include:

- Communicate the photos of changes through social media including Facebook.

## Local Community Outreach

The gateway communities, agencies, vendors, and volunteers surrounding the Outer Banks Group can play a significant role in supporting the Outer Banks Group’s climate change mitigation goals. When appropriate, park staff will assist local communities with incorporating climate change messages into community events, find partners to promote climate change education at those events, and engage with surrounding agencies to coordinate effective outreach and education efforts. In addition, the Outer Banks Group will work with these communities to help ensure that visitors are aware of the impacts of climate change. Potential actions include:

- Engage with local schools
- Help coalesce plan for Outer Banks Group
- Engage communities
- Consider what visitors are interested in hearing about
- Talk about how islands are dynamic

## STRATEGY 3: ACTIONS FOR ADAPTING TO A CHANGING CLIMATE

Climate change threatens the cultural and natural resources that the Outer Banks Group is known for and so the Outer Banks Group has considered actions to take to adapt to climate change. In the context of climate change, adaptation is an adjustment in natural or human systems that moderates harm or seeks out beneficial opportunities in response to change. Adaptation may include a variety of social, economic, or ecological responses such as adapting the location, structure, or function of Outer Banks Group facilities in anticipation of climate change. Given the potential impact from climate change, it is important to closely monitor cultural and natural resources and identify those that are most at risk. From this identification, the Outer Banks Group can work towards reducing the risk or

documenting the resources to try and keep a record of them. Presented below are the actions that are currently under way and which comprise the Outer Banks Group's progress to date, and those actions that the Outer Banks Group will pursue.

#### Progress to Date

- Relocated Cape Hatteras Lighthouse and other buildings away from eroding seashore.

### Adaptation

- 1 Incorporate climate adaptation into all levels of NPS planning
  - Monitor resources for climate impacts
  - Develop management strategies to increase the adaptive capability of park resources and facilities
  - Identify species and resources most at risk
    - Conduct climate science within parks

### Evaluate Progress and Identify Areas for Improvement

By taking the actions established in the goals above, the Outer Banks Group plans to reduce its emissions to the specified goals. Achieving these goals will require an ongoing commitment by the Outer Banks Group, which may include subsequent emission inventories, additional mitigation and adaptation actions, and reevaluation of goals. Presented below are the actions that the Outer Banks Group will pursue.

### Monitoring – Planned Actions

- 1 Monitor progress with respect to reducing emissions and use this to drive continual performance
  - Track progress on climate friendly actions through the environmental management system.

## CONCLUSION

The Outer Banks Group has a unique opportunity to serve as a model for over 2 million recreational visitors annually.<sup>7</sup> This report summarized the actions the Outer Banks Group commits to undertake to address climate change. In particular, the Outer Banks Group realizes its ability to educate the public and serve as a valuable model for citizens. By seriously addressing GHG emissions within the Outer Banks Group and sharing its successes with visitors, the Outer Banks Group will help mitigate climate change far beyond the Outer Banks Group's boundaries.

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<sup>7</sup> Park Statistics. Available online at: <http://www.nature.nps.gov/stats/viewReport.cfm>

The National Park Service as a whole faces an uncertain future due to the possible effects of climate change. However, by adapting to climate change impacts and reducing emissions, the Outer Banks Group will preserve its resources; reduce its contribution to the problem while setting an example for its visitors. The strategies presented in this Climate Action Plan present an aggressive first step towards moving the Outer Banks Group to the forefront of Climate Friendly Parks.

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Stacy C. Wertman, Safety Officer

  
Cyndy Holda, PIO

  
John Kowlak, Chief of Maintenance

  
David Hallac, Superintendent, Cape Hatteras National Seashore, Wright Brothers National Memorial, and Fort Raleigh National Historic Site 9/29/15

  
Brian Cook, Southeast Region Climate Friendly Park Coordinator  
National Park Service August 20, 2015

**SHAWN NORTON** Digitally signed by SHAWN NORTON  
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Date: 2015.08.26 14:07:08 -0400  
Shawn Norton, Chief, Sustainable Operations and Climate Change Branch 08/26/2015

