



National Wildlife Refuge Visitor Survey 2012: Individual Refuge Results for Back Bay National Wildlife Refuge

By Alia M. Dietsch, Natalie R. Sexton, Lynne Koontz, and Shannon J. Conk

My children and I had a wonderful time at Back Bay National Wildlife Refuge. A friend told me about the environmental education program offered for children and it far exceeded my expectations. The staff was very knowledgeable and friendly... My 80 year old mother also joined us. She had a ball too. Keep up the good work.

— *Survey comment from a visitor to Back Bay National Wildlife Refuge*



Back Bay National Wildlife Refuge. Photo credit: U.S. Fish and Wildlife Service.

Contents

Acknowledgments	iv
Introduction	1
Organization of Results	2
Methods	3
Selecting Participating Refuges.....	3
Developing the Survey Instrument	3
Contacting Visitors	3
Interpreting the Results	5
Refuge Description.....	5
Sampling at This Refuge	8
Selected Survey Results	9
Visitor and Trip Characteristics.....	9
Visitor Spending in Local Communities	17
Visitor Opinions about This Refuge	18
Visitor Opinions about National Wildlife Refuge System Topics	24
Conclusion	29
References Cited	30
Appendix A: Survey Frequencies for This Refuge.....	A-1
Appendix B: Visitor Comments for This Refuge	B-1

Figures

1.	Map of this refuge.....	7
2.	How visitors first learned or heard about this refuge.....	10
3.	Resources used by visitors to find their way to this refuge during this visit.....	10
4.	Number of visitors travelling to this refuge by place of residence.....	12
5.	Modes of transportation used by visitors to this refuge during this visit.....	13
6.	Activities in which visitors participated during the past 12 months at this refuge.....	14
7.	The primary activity in which visitors participated during this visit to this refuge.....	15
8.	Visitor center activities in which visitors participated at this refuge.....	15
9.	Overall satisfaction with this refuge during this visit.....	18
10.	Opinions about fees at this refuge.....	19
11.	Importance-satisfaction ratings of services and facilities provided at this refuge.....	21
12.	Importance-satisfaction ratings of recreational opportunities provided at this refuge.....	22
13.	Importance-satisfaction ratings of transportation-related features at this refuge.....	23
14.	Visitors' likelihood of using alternative transportation options at refuges in the future.....	25
15.	Visitors' personal involvement with climate change related to fish, wildlife and their habitats.....	27
16.	Visitors' beliefs about the effects of climate change on fish, wildlife and their habitats.....	28

Tables

1.	Refuges participating in the 2012 national wildlife refuge visitor survey.....	4
2.	Sampling and response rate summary for this refuge.....	8
3.	Influence of this refuge on visitors' decisions to take their trips.....	11
4.	Type and size of groups visiting this refuge.....	13
5.	Total visitor expenditures in local communities and at this refuge expressed in dollars per person per day.....	17

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Introduction

The National Wildlife Refuge System (Refuge System), established in 1903 and managed by the U.S. Fish and Wildlife Service (Service), is the leading network of protected lands and waters in the world specifically dedicated to the conservation of fish, wildlife, and their habitats. There are 560 national wildlife refuges (refuges) and 38 wetland management districts nationwide, including possessions and territories in the Pacific and Caribbean, encompassing more than 150 million acres (U.S. Fish and Wildlife Service, 2013). As stated in the National Wildlife Refuge Improvement Act of 1997, the mission of the Refuge System is “to administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.” Part of achieving this mission is the goal “to foster understanding and instill appreciation of the diversity and interconnectedness of fish, wildlife, and plants, and their habitats” and the goal “to provide and enhance opportunities to participate in compatible wildlife-dependent recreation” (U.S. Fish and Wildlife Service, 2006, p. 2). The Refuge System attracts nearly 45 million visitors annually, including 34.8 million people who observe and photograph wildlife, 9.6 million who hunt and fish, and nearly 675,000 teachers and students who use refuges as “outdoor classrooms” (U.S. Fish and Wildlife Service, 2012). Understanding visitor perceptions of refuges and characterizing their experiences on refuges are critical elements of managing these lands and meeting the goals of the Refuge System.

The Service contracted with the U.S. Geological Survey (USGS) to conduct a national survey of visitors regarding their experiences on refuges. The purpose of the survey was to better understand visitor experiences and trip characteristics, to gauge visitors’ levels of satisfaction with existing recreational opportunities, and to garner feedback to inform the design of programs and facilities. The survey results will inform performance, planning, budget, and communications goals. Results will also inform Comprehensive Conservation Plans (CCPs), visitor services, and transportation planning processes.

Organization of Results

These results are specific to visitors who were contacted at Back Bay National Wildlife Refuge (NWR) (this refuge) during the specified sampling periods and are part of USGS Data Series 754. All refuges participating in the 2012 survey effort will receive individual refuge results specific to the visitors to that refuge. Each set of results is organized by the following categories:

- **Introduction:** An overview of the Refuge System and the goals of the national survey effort.
- **Methods:** The procedures for the national survey effort, including selecting refuges, developing the survey instrument, contacting visitors, and guidance for interpreting the results.
- **Refuge Description:** A brief description of the refuge location, acreage, purpose, recreational activities, and visitation statistics, including a map (where available) and refuge website link.
- **Sampling at This Refuge:** The sampling periods, locations, and response rate for this refuge.
- **Selected Survey Results:** Key findings for this refuge, including:
 - Visitor and trip characteristics
 - Visitor spending in the local communities
 - Visitors opinions about this refuge
 - Visitor opinions about Refuge System topics
- **Conclusion**
- **References Cited**
- **Survey Frequencies (Appendix A):** The survey instrument with frequency results for this refuge.
- **Visitor Comments (Appendix B):** The verbatim responses to open-ended survey questions for this refuge.

Methods

Selecting Participating Refuges

The national visitor survey was conducted from January–December 2012 on 25 refuges across the Refuge System (table 1). Each refuge was selected for participation by the Refuge Transportation Program National Coordinator in conjunction with regional office Visitor Services Chiefs. Selection was based on the need to inform transportation planning processes at the national level and to address refuge planning and transportation needs at the individual refuge level.

Developing the Survey Instrument

Researchers at the USGS developed the survey in consultation with the Service Headquarters Office, managers, planners, and visitor services professionals. The survey was peer-reviewed by academic and government researchers and was further pre-tested with eight Refuge System Friends Group representatives (one from each region) to ensure readability and overall clarity. The survey and associated methodology were approved by the Office of Management and Budget (OMB control #: 1018-0145; expiration date: 6/30/2013).

Contacting Visitors

Refuge staff identified two separate 15-day sampling periods, and one or more locations at which to sample, that best reflected the diversity of use and specific visitation patterns of each participating refuge. Sampling periods and locations were identified by refuge staff and submitted to the USGS via an internal website that included a customized mapping tool. A standardized sampling schedule was created for all refuges that included eight randomly selected sampling shifts during each of the two sampling periods. Sampling shifts were 3–5 hour (hr) time bands, stratified across AM and PM as well as weekend and weekdays. In coordination with refuge staff, any necessary customizations were made to the standardized schedule to accommodate the identified sampling locations and to address specific spatial and temporal patterns of visitation.

Twenty visitors (18 years of age or older) per sampling shift were systematically selected, for a total of 320 willing participants per refuge (or 160 per sampling period) to ensure an adequate sample of completed surveys. When necessary, shifts were moved, added, or extended to alleviate logistical limitations (for example, weather or low visitation at a particular site) in an effort to reach target numbers.

Table 1. Refuges participating in the 2012 national wildlife refuge visitor survey.

Pacific Region (R1)
Ridgefield National Wildlife Refuge (WA)
Southwest Region (R2)
Balcones Canyonlands National Wildlife Refuge (TX)
Hagerman National Wildlife Refuge (TX)
Kofa National Wildlife Refuge (AZ)
Santa Ana National Wildlife Refuge (TX)
Tishomingo National Wildlife Refuge (OK)
Great Lakes-Big Rivers Region (R3)
La Crosse District, Upper Mississippi River National Wildlife and Fish Refuge (WI)
Minnesota Valley National Wildlife Refuge (MN)
Southeast Region (R4)
Crystal River National Wildlife Refuge (FL)
Eufaula National Wildlife Refuge (AL)
Felsenthal National Wildlife Refuge (AR)
Lacassine National Wildlife Refuge (LA)
National Key Deer Refuge (FL)
Savannah National Wildlife Refuge (GA/SC)
Northeast Region (R5)
Assabet River National Wildlife Refuge (MA)
Back Bay National Wildlife Refuge (VA)
Chincoteague National Wildlife Refuge (VA)
Edwin B. Forsythe National Wildlife Refuge (NJ)
Rachel Carson National Wildlife Refuge (ME)
Mountain-Prairie Region (R6)
Bear River Migratory Bird Refuge (UT)
Lee Metcalf National Wildlife Refuge (MT)
Rocky Mountain Arsenal National Wildlife Refuge (CO)
National Bison Range (MT)
California and Nevada Region (R8)
Don Edwards San Francisco Bay National Wildlife Refuge (CA)
San Luis National Wildlife Refuge (CA)

Refuge staff and/or volunteers (survey recruiters) contacted visitors onsite following a protocol provided by the USGS that was designed to obtain a representative sample. Instructions included contacting visitors across the entire sampling shift (for example, every n^{th} visitor for dense visitation, as often as possible for sparse visitation) and contacting only one person per group. Visitors were informed of the survey effort, given a token incentive (for example, a small magnet or temporary tattoo), and asked to participate. Willing participants provided their name, mailing address, and preference for language (English or Spanish) and survey mode (mail or online). Survey recruiters were also instructed to record any refusals and then proceed with the sampling protocol.

All visitors that agreed onsite to fill out a survey received the same sequence of correspondence regardless of their preference for survey mode. This approach allowed for an assessment of visitors' likelihood of completing the survey by their preferred survey mode (see Sexton and others, 2011). Researchers at the USGS sent the following materials to all visitors agreeing to participate who had not yet completed a survey at the time of each mailing (Dillman, 2007):

- A postcard mailed within 10 days of the initial onsite contact thanking visitors for agreeing to participate in the survey and inviting them to complete the survey online.
- A packet mailed 9 days later consisting of a cover letter, survey, and postage paid envelope for returning a completed paper survey.
- A reminder postcard mailed 7 days later.
- A second packet mailed 14 days later consisting of another cover letter, survey, and postage paid envelope for returning a completed paper survey.

Each mailing included instructions for completing the survey online, so visitors had an opportunity to complete an online survey with each mailing. Those visitors indicating a preference for Spanish were sent Spanish versions of all correspondence (including the survey). Finally, a short survey of six questions was sent to nonrespondents four weeks after the second survey packet to determine any differences between respondents and nonrespondents at the aggregate level. Online survey data were exported and paper survey data were entered into Microsoft Excel using a standardized survey codebook and data entry procedure. All survey data were analyzed using *Statistical Package for the Social Sciences* (SPSS, v.20) software¹.

Interpreting the Results

The extent to which these results accurately represent the total population of visitors to this refuge is dependent on the number of visitors who completed the survey (sample size) and the ability of the variation

¹ Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

resulting from that sample to reflect the beliefs and interests of different visitor user groups (Scheaffer and others, 1996). The composition of the sample is dependent on the ability of the standardized sampling protocol for this study to account for the spatial and temporal patterns of visitor use unique to each refuge. Spatially, the geographical layout and public-use infrastructure varies widely across refuges. Some refuges can be accessed only through a single entrance, while others have multiple unmonitored access points across large expanses of land and water. As a result, the degree to which sampling locations effectively captured spatial patterns of visitor use will vary from refuge to refuge. Temporally, the two 15-day sampling periods may not have effectively captured all of the predominant visitor uses/activities on some refuges during the course of a year, which may result in certain survey measures such as visitors' self-reported "primary activity during their visit" reflecting a seasonality bias. Results contained within this report may not apply to visitors during all times of the year or to visitors who did not visit the survey locations.

In this report, visitors who responded to the survey are referred to simply as "visitors." However, when interpreting the results for Back Bay NWR, any potential spatial and temporal sampling limitation specific to this refuge needs to be considered when generalizing the results to the total population of visitors. For example, a refuge that sampled during a special event (for example, birding festival) held during the spring may have contacted a higher percentage of visitors who traveled greater than 50 miles (mi) to get to the refuge than the actual number of these people who would have visited throughout the calendar year (that is, oversampling of nonlocals). Another refuge may not have enough nonlocal visitors in the sample to adequately represent the beliefs and opinions of that group type. If the sample for a specific group type (for example, nonlocals, hunters, visitors who paid a fee) is too low ($n < 30$), a warning is included in the text. Finally, the term "this visit" is used to reference the visit during which people were contacted to participate in the survey.

Refuge Description for Back Bay National Wildlife Refuge

Back Bay NWR encompasses nearly 10,000 acres of beach, dunes, woodland, farm fields and marsh habitat near Virginia Beach, Virginia. The refuge is named after the bay created by the thin strip of coastline barrier islands. Marshlands in this bay area account for more than 75% of the refuge. Many plant and animal species thrive in the refuge's diverse habitat areas, particularly migrating birds, as the refuge is located along the Atlantic Flyway. Over 350 species of birds have been observed at Back Bay NWR. The sands of the barrier beach are constantly rearranged by the elements, making it difficult at best for vegetation to take root; however, a number of animals such as ghost crabs and migrating shorebirds are frequently spotted. Loggerhead turtles and occasional green sea turtles will also use the beach as a nesting site. The dunes beyond the beach act as a protective barrier for the marsh and woodlands. There, visitors may also see common woodland animals such as squirrels and deer.

Back Bay NWR was established in 1938 expressly to provide habitat for migrating birds, particularly the greater snow geese. Today, approximately 127,500 people visit Back Bay NWR each year (2011 Refuge Annual Performance Plan measures; Rob Miller, U.S. Fish and Wildlife Service, 2012, written commun.). The refuge offers visitors a variety of activities in which to participate: a visitor contact station, foot trails,

fishing, bicycling, hunting/trapping, environmental education, a tram tour during the spring, summer, and fall months, and the opportunity for wildlife observation and photography. Figure 1 displays a map of Back Bay NWR. For more information, visit <http://www.fws.gov/backbay/>.



Figure 1. Map of Back Bay NWR, courtesy of U.S. Fish and Wildlife Service.

Sampling at Back Bay National Wildlife Refuge

A total of 305 visitors agreed to participate in the survey during the two sampling periods at the identified locations at Back Bay NWR (table 2). In all, 198 visitors completed the survey for a 68% response rate, and $\pm 5.6\%$ margin of error at the 95% confidence level.²

Table 2. Sampling and response rate summary for Back Bay NWR.

Sampling period	Dates	Locations	Total contacts	Undeliverable addresses	Completed surveys	Response rate
1	4/7/12 to 4/21/12	Saltwater Beach Fishing Back Dock/D Pool Freshwater Fishing Entry Station				
		SP1 Totals	158	3	114	74%
2	06/30/12 to 7/14/12	Entry Station				
		SP2 Totals	147	12	84	62%
		Combined Totals	305	15	198	68%

² A margin of error of $\pm 5\%$ at a 95% confidence level, for example, means that, if a reported percentage is 55%, then 95 out of 100 times, that sample estimate would fall between 50% and 60% if the same question was asked in the same way. The margin of error is calculated with an 80/20 response distribution, assuming that for a given dichotomous choice question, approximately 80% of respondents would select one choice and 20% would select the other choice (Salant and Dillman, 1994).

Selected Survey Results

Visitor and Trip Characteristics

A solid understanding of visitor characteristics and details about their trips to refuges can inform communication and outreach efforts, inform managers about desired types of visitor services and modes of transportation used on refuges, and help forecast use and gauge demand for services and facilities.

Familiarity with the Refuge System

Many visitors to Back Bay NWR reported that before participating in the survey, they were aware of the role of the Service in managing refuges (85%) and that the Refuge System has the mission of conserving, managing, and restoring fish, wildlife, plants, and their habitats (92%). It is important to note that we did not ask visitors to identify the mission of the Refuge System or the Service, and positive responses to these questions concerning the management and mission of the Refuge System do not necessarily indicate that these visitors fully understand the day-to-day management practices of individual refuges, only that visitors feel they have a basic knowledge of who manages refuges and why.

Most visitors (88%) feel that refuges, compared to other public lands, provide a unique recreation experience (see Appendix B for visitor comments on “What Makes National Wildlife Refuges Unique?”); however, reasons for why visitors find refuges unique are varied and may not directly correspond to their understanding of the mission of the Refuge System.

A majority of visitors to Back Bay NWR had been to at least one *other* national wildlife refuge in the past year (57%), with an average of 6 visits to *other* refuges during the past 12 months.

Visiting This Refuge

Some surveyed visitors (37%) had only been to Back Bay NWR once in the past 12 months, while more than half had been multiple times (63%). These repeat visitors went to the refuge an average of 16 times during that same 12-month period. Visitors used the refuge during only one season (52%), during multiple seasons (24%), and year-round (24%).

Visitors first learned about the refuge from friends/relatives (42%), people in the local community (19%), or the refuge website (15%; fig. 2). Key information sources used by visitors to find their way to this refuge include their previous knowledge (58%), a GPS navigation system (16%), or signs on the highways (14%; fig. 3).

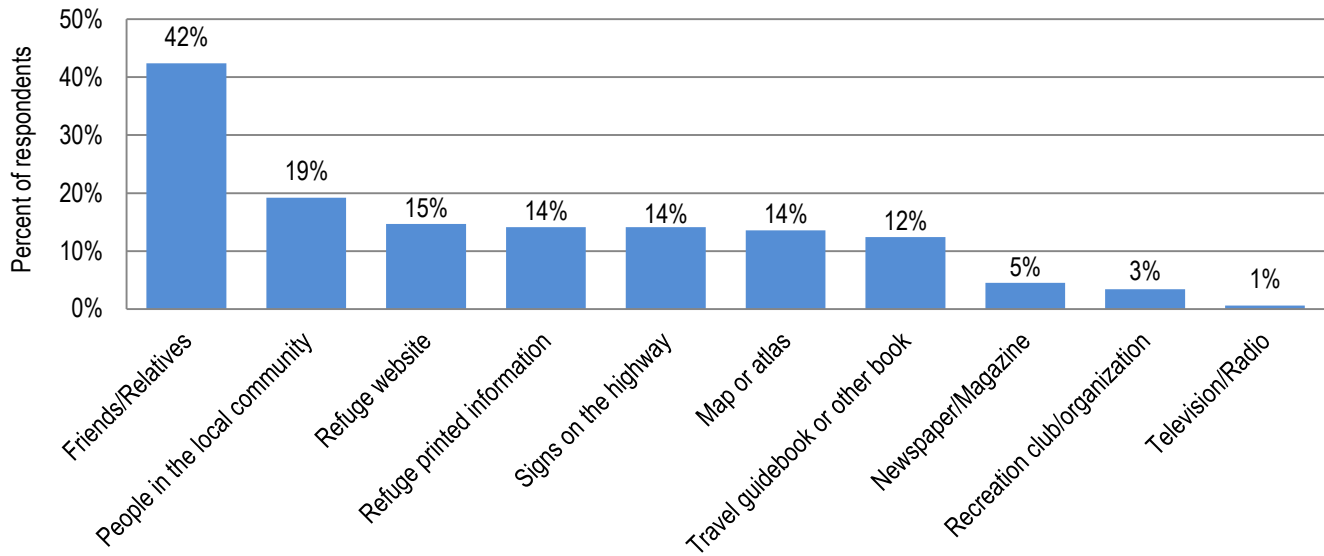


Figure 2. How visitors first learned or heard about Back Bay NWR (n = 177).

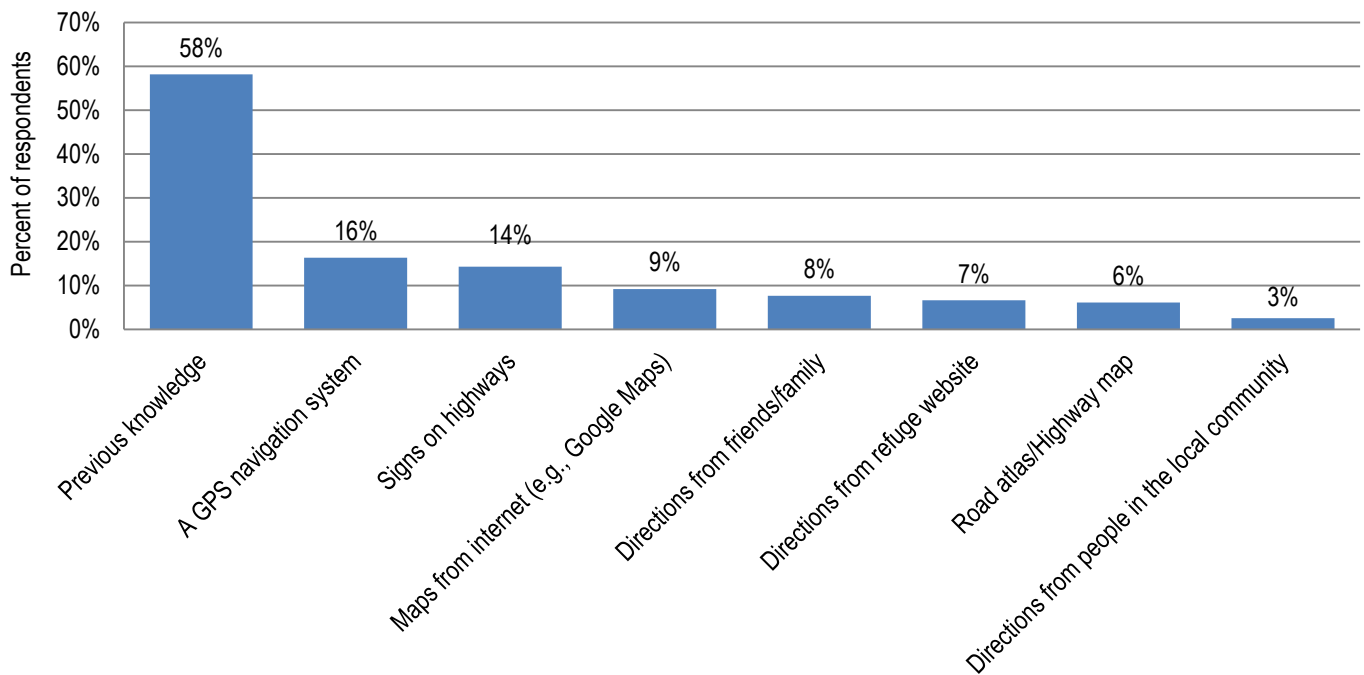


Figure 3. Resources used by visitors to find their way to Back Bay NWR during this visit (n = 196).

Most visitors (59%) lived in the local area (within 50 mi of the refuge), whereas 41% were nonlocal visitors. For most local visitors, Back Bay NWR was the primary reason for the trip (79%; table 3). For most nonlocal visitors, the refuge was either an incidental or spur-of-the-moment stop on a trip taken for other purposes (44%) or one of many equally important reasons for the trips they took (43%).

Local visitors reported that they traveled an average of 22 mi to get to the refuge, while nonlocal visitors traveled an average of 344 mi. The average distance traveled for all visitors to this refuge was 119 mi, while the median was 30 mi. Figure 4 shows the residences of visitors traveling to this refuge. About 73% of visitors traveling to Back Bay NWR were from Virginia.

Table 3. Influence of Back Bay NWR on visitors' decisions to take their trips.

Visitors	Visiting this refuge was...		
	the primary reason for trip	one of many equally important reasons for trip	an incidental stop
Nonlocal	14%	43%	44%
Local	79%	12%	9%
All visitors	52%	25 %	23%

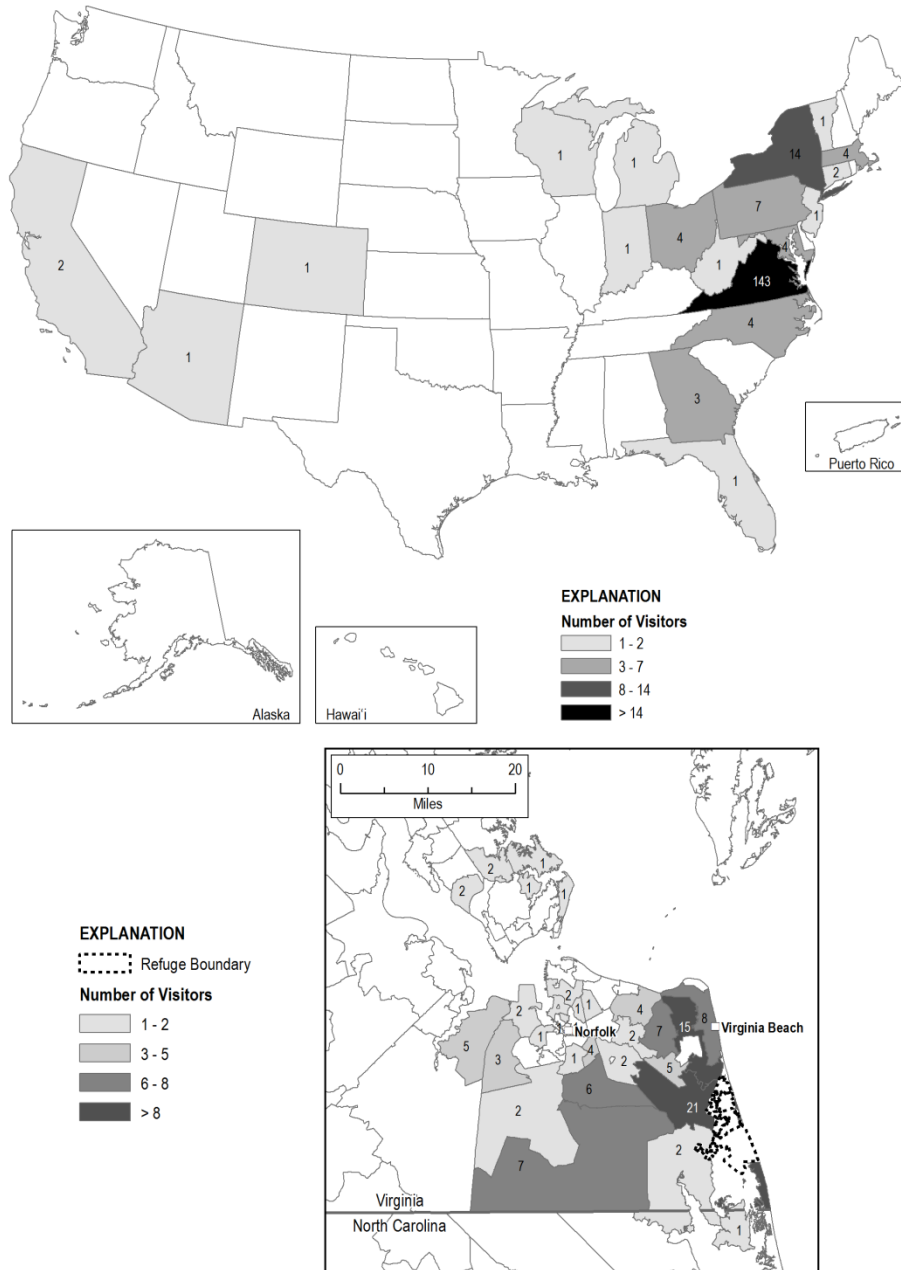


Figure 4. Number of visitors travelling to Back Bay NWR by place of residence. The top map shows visitors residence by state and the bottom map shows residence by zip codes near the refuge (n = 196).

Surveyed visitors reported that they spent an average of 4 hr at Back Bay NWR during one day there, while the most frequently reported length of a day visit, the modal response, was 8 hr (49%). Most visitors indicated they were part of a group on their visit to this refuge (76%). Of those people who indicated they traveled with a group, visitors primarily traveled with family/friends (table 4).

Table 4. Type and size of groups visiting Back Bay NWR (for those who indicated they were part of a group, n = 149).

Group type	Percent (of those traveling in a group)	Average group size		
		Number of adults	Number of children	Total group size
Family/Friends	97%	3	1	4
Commercial tour group	0%	0	0	0
Organized club/School group	3%	5	7	12
Other group type	1%	4	0	4

The key modes of transportation used by visitors to travel around the refuge were private vehicles (76%), bicycles (39%), and walking/hiking (37%; fig. 5)

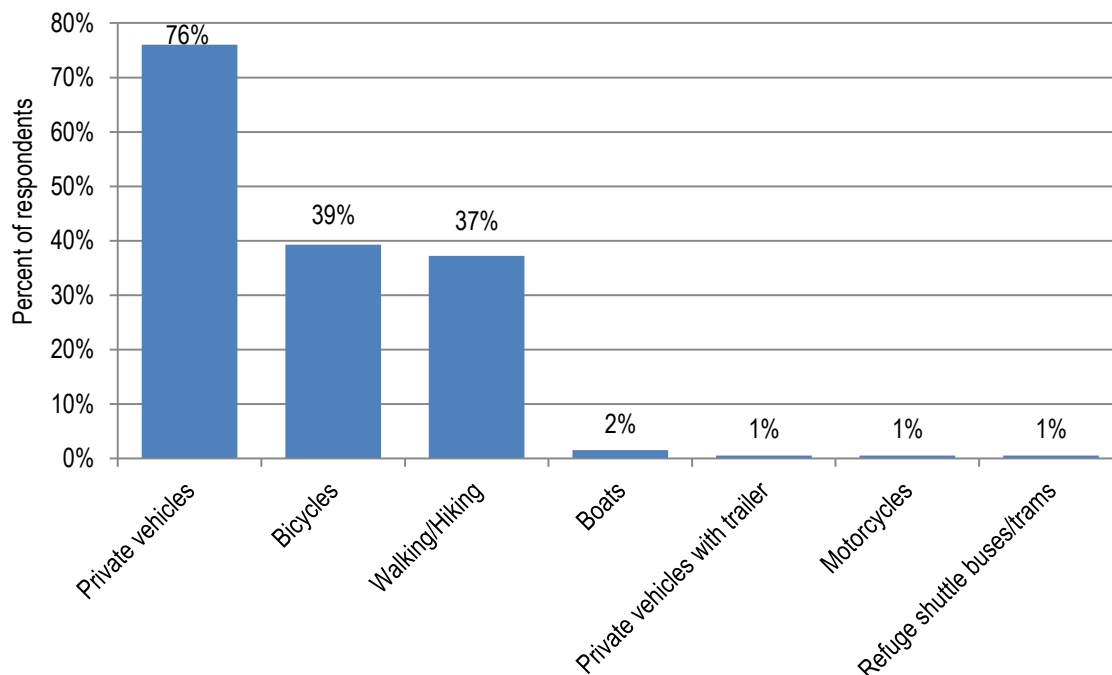


Figure 5. Modes of transportation used by visitors to Back Bay NWR during this visit (n = 196).

Surveyed visitors participated in a variety of refuge activities during the 12 months prior to completing the survey (fig. 6); the top four activities in which people reported participation were hiking

(69%), wildlife observation (68%), bicycling (53%), and bird watching (52%). The *primary* reasons for visitors' most recent visits included bicycling (31%) and hiking (28%; fig. 7). More the half of visitors also used the Visitor Center during their trips (64%), mostly to stop to use the facilities (75%), view the exhibits (60%), or ask information of staff or volunteers (49%; fig. 8).

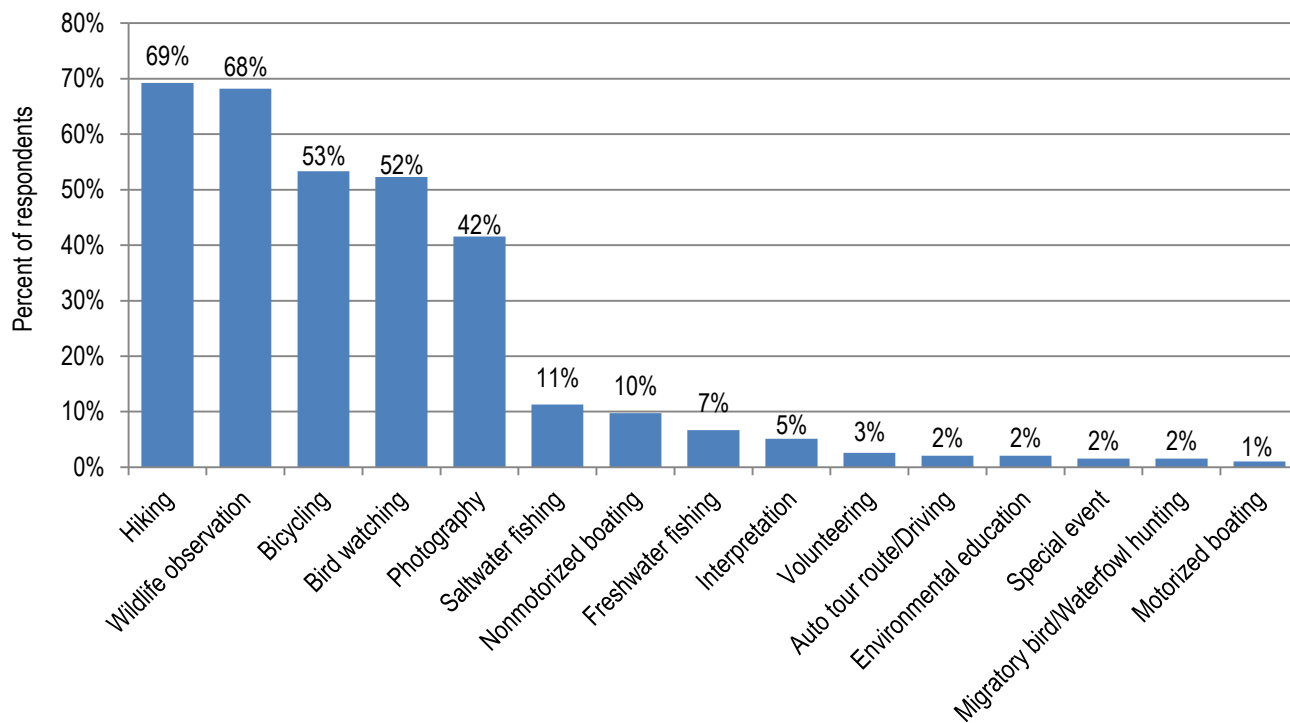


Figure 6. Activities in which visitors participated during the past 12 months at Back Bay NWR (n = 195). See Appendix B for a listing of “other” activities.

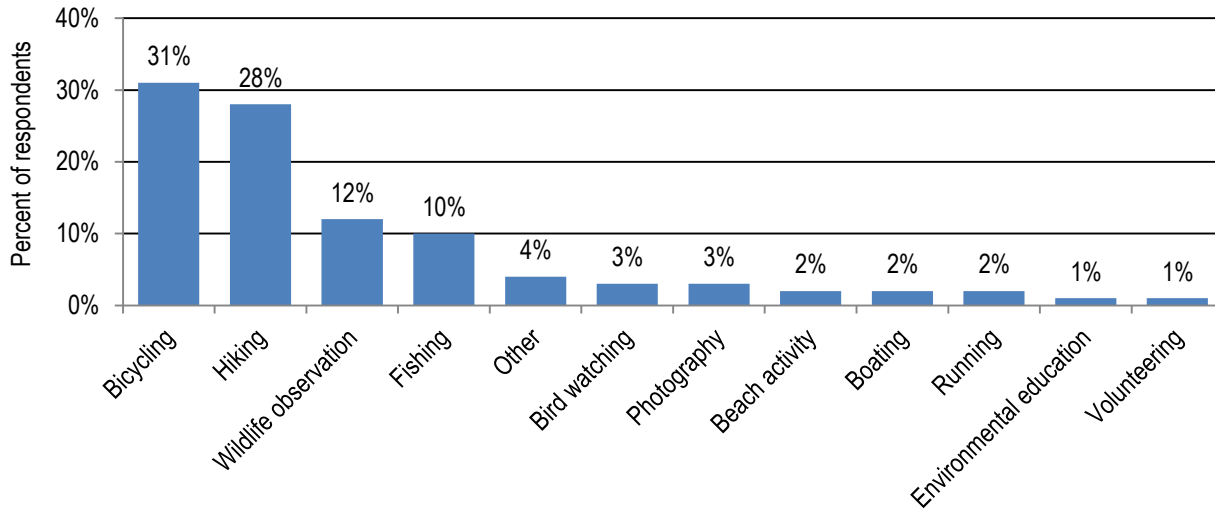


Figure 7. The **primary** activity in which visitors participated during this visit to Back Bay NWR (n = 180). See Appendix B for a listing of “other” activities.

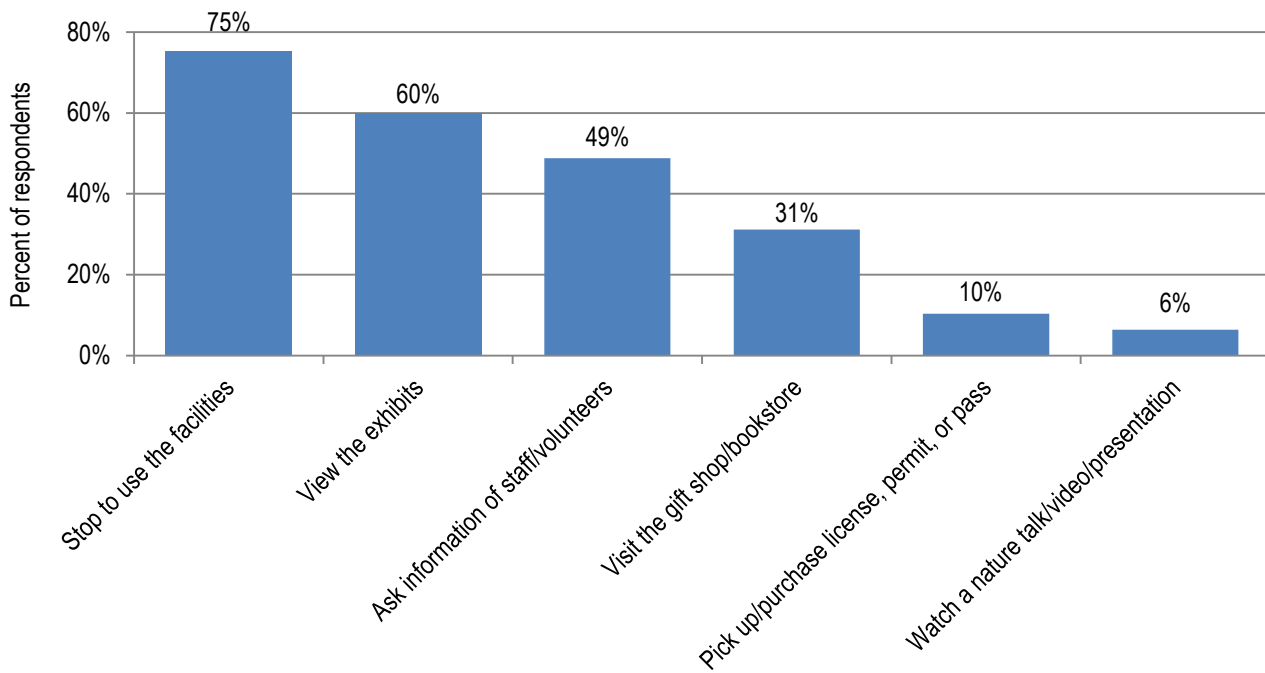


Figure 8. Visitor Center activities in which visitors participated at Back Bay NWR (n = 125).

Visitor Characteristics

Nearly all (98%) visitors who participated in the survey at Back Bay NWR indicated that they were citizens or permanent residents of the United States. These visitors were a mix of 60% male (with an average age of 48 years) and 40% female (with an average age of 46 years). Visitors, on average, reported they had 16 years of formal education (equivalent to four years of college or technical school). The median level of income was \$75,000-\$99,000. See Appendix A for more demographic information.

In comparison to these results, the 2006 National Survey of Fishing, Hunting and Wildlife-Associated Recreation (U.S. Fish and Wildlife Service, 2007) found that participants in wildlife watching and hunting on public lands were 55% male and 45% female with an average age of 46 years, an average level of education of 14 years (equivalent to an associate degree or two years of college), and a median income of \$50,000–74,999 (Anna Harris, U.S. Fish and Wildlife Service, 2011, written commun.). Compared to the U.S. population, participants in wildlife-related recreation are more likely to be male, and tend to be older with higher education and income levels (U.S. Fish and Wildlife Service and U.S. Census Bureau, 2007).

Visitor Spending in Local Communities

Tourists usually buy a wide range of goods and services while visiting an area. Major expenditure categories include lodging, food, supplies, and gasoline. Spending associated with refuge visitation can generate considerable economic benefits for the local communities near a refuge. For example, more than 34.8 million visits were made to refuges in fiscal year 2006; these visits generated \$1.7 billion in sales, almost 27,000 jobs, and \$542.8 million in employment income in regional economies (Carver and Caudill, 2007). Information on the amount and types of visitor expenditures can illustrate the economic importance to local communities of visitor activities on refuges. Visitor expenditure information also can be used to analyze the economic impact of proposed refuge management alternatives.

Visitors that live within the local 50-mile area of a refuge typically have different spending patterns than those that travel from longer distances. During the two sampling periods, 59% of surveyed visitors to Back Bay NWR indicated that they live within the local 50-mile area while nonlocal visitors (41%) stayed in the local area, on average, for 6 days. Table 5 shows summary statistics for local and nonlocal visitor expenditures in the local communities and at the refuge, with expenditures reported on a per person per day basis. During the two sampling periods, nonlocal visitors spent an average of \$96 per person per day and local visitors spent an average of \$26 per person per day in the local area. Several factors should be considered when estimating the economic importance of refuge visitor spending in the local communities. These include the amount of time spent at the refuge, influence of refuge on decision to take this trip, and the representativeness of primary activities of the sample of surveyed visitors compared to the general population. Controlling for these factors is beyond the scope of the summary statistics presented in this report

Table 5. Total visitor expenditures in local communities and at Back Bay NWR expressed in dollars per person per day.

Visitors	n ¹	Median	Mean	Standard deviation	Minimum	Maximum
Nonlocal	69	\$67	\$96	\$97	\$0	\$545
Local	82	\$17	\$26	\$28	\$0	\$115

¹n = number of visitors who answered both locality *and* expenditure questions.

Note: For each respondent, reported expenditures were divided by the number of persons in their group that shared expenses in order to determine the spending per person per trip. This number was then divided by the number of days spent in the local area to determine the spending per person per day for each respondent. For respondents who reported spending less than one full day in the local community, trip length was set equal to one day. These visitor spending estimates are appropriate for the sampling periods selected by refuge staff (see table 2 for sampling period dates and figure 7 for the *primary* visitor activities in which people participated), and may not be representative of the total population of visitors to this refuge.

Visitor Opinions about this Refuge

Refuges provide visitors with a variety of services, facilities, and wildlife-dependent recreational opportunities. Understanding visitors' perceptions of refuge offerings is a key component of the Refuge System's mission. In particular, a baseline understanding of visitor experiences provides a framework from which the Refuge System can monitor trends in visitor experiences overtime, which is increasingly useful in the face of changing demographics and wildlife-related interests. Some studies on wildlife-related recreation trends have indicated declines in participation over the latter part of the 20th century in traditional activities such as hunting (for example, U.S. Department of the Interior and others, 2007), while others highlight a need to connect the next generation of people to nature and wildlife (for example, Charles and Louv, 2009). These types of factors highlight a need to better understand visitors' opinions of their refuge experiences and to monitor trends in these opinions over time.

Surveyed visitors' overall satisfaction ratings with the services, facilities, and recreational opportunities provided at Back Bay NWR were as follows (fig. 9):

- 89% of visitors were satisfied with the recreational activities and opportunities,
- 87% of visitors were satisfied with the information and education about the refuge and its resources,
- 90% of visitors were satisfied with the services provided by employees or volunteers, and
- 95% of visitors were satisfied with the refuge's job of conserving fish, wildlife and their habitats.

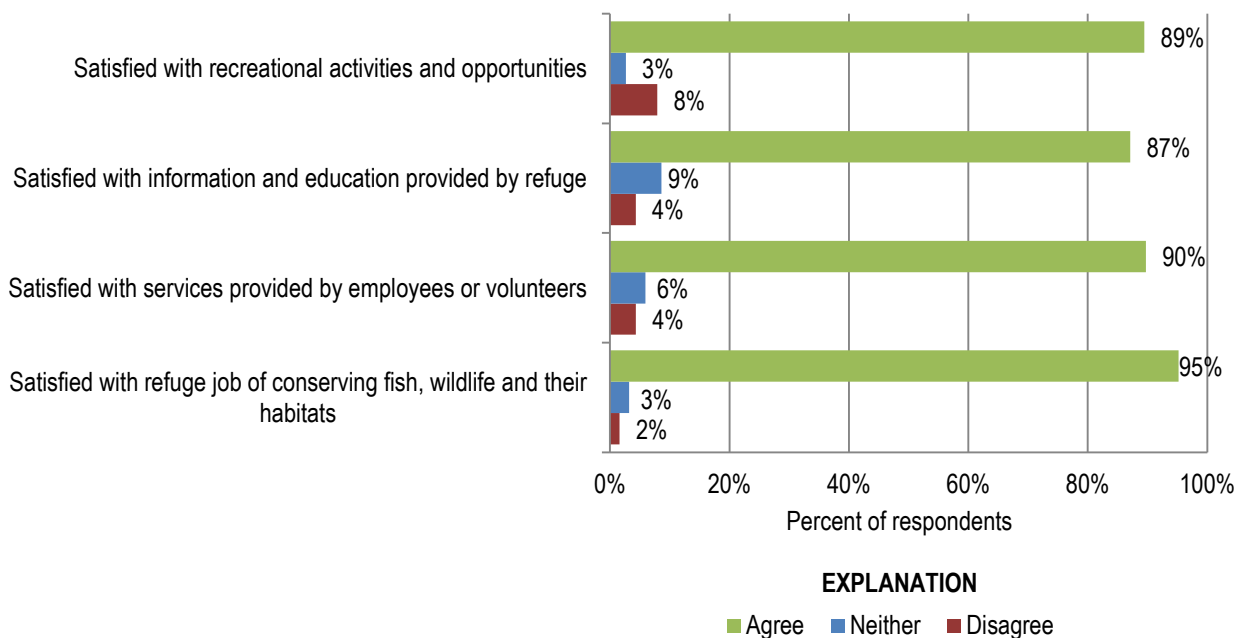


Figure 9. Overall satisfaction with Back Bay NWR during this visit (n ≥ 185).

Of the 84% of visitors who indicated that they paid a fee to enter the refuge, 87% agreed that the opportunities and services were at least equal to the fee they paid. Additionally, 90% of visitors felt the appropriateness of the fee was about right, whereas 6% felt the fee was low and 4% felt it was too high (fig. 10).

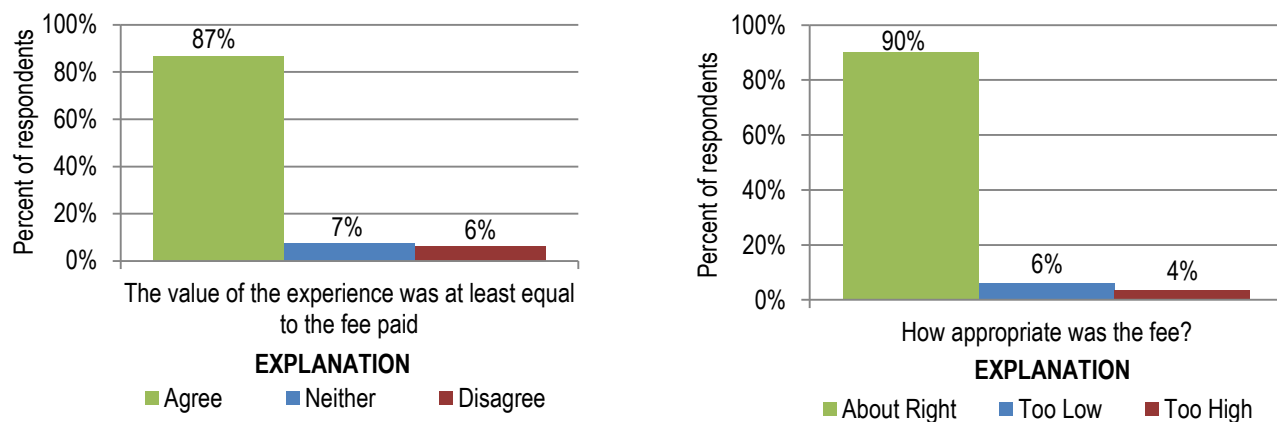


Figure 10. Opinions about fees at Back Bay NWR (for those visitors who indicated they paid a fee, n = 163).

Importance/Satisfaction Ratings

Comparing the importance and satisfaction ratings for visitor services provided by refuges can help to identify how well the services are meeting visitor expectations. The importance-performance framework presented in this section is a tool that examines the importance of an attribute to visitors in relation to their satisfaction with that attribute (Martilla and James, 1977). Drawn from marketing research, this tool has been applied to outdoor recreation and visitation settings (for example, Tarrant and Smith, 2002). Results for the attributes of interest are segmented into one of four quadrants (modified slightly for this study):

- Keep Up the Good Work = high importance/high satisfaction;
- Concentrate Here = high importance/low satisfaction;
- Low Priority = low importance/low satisfaction; and
- Look Closer = low importance/high satisfaction.

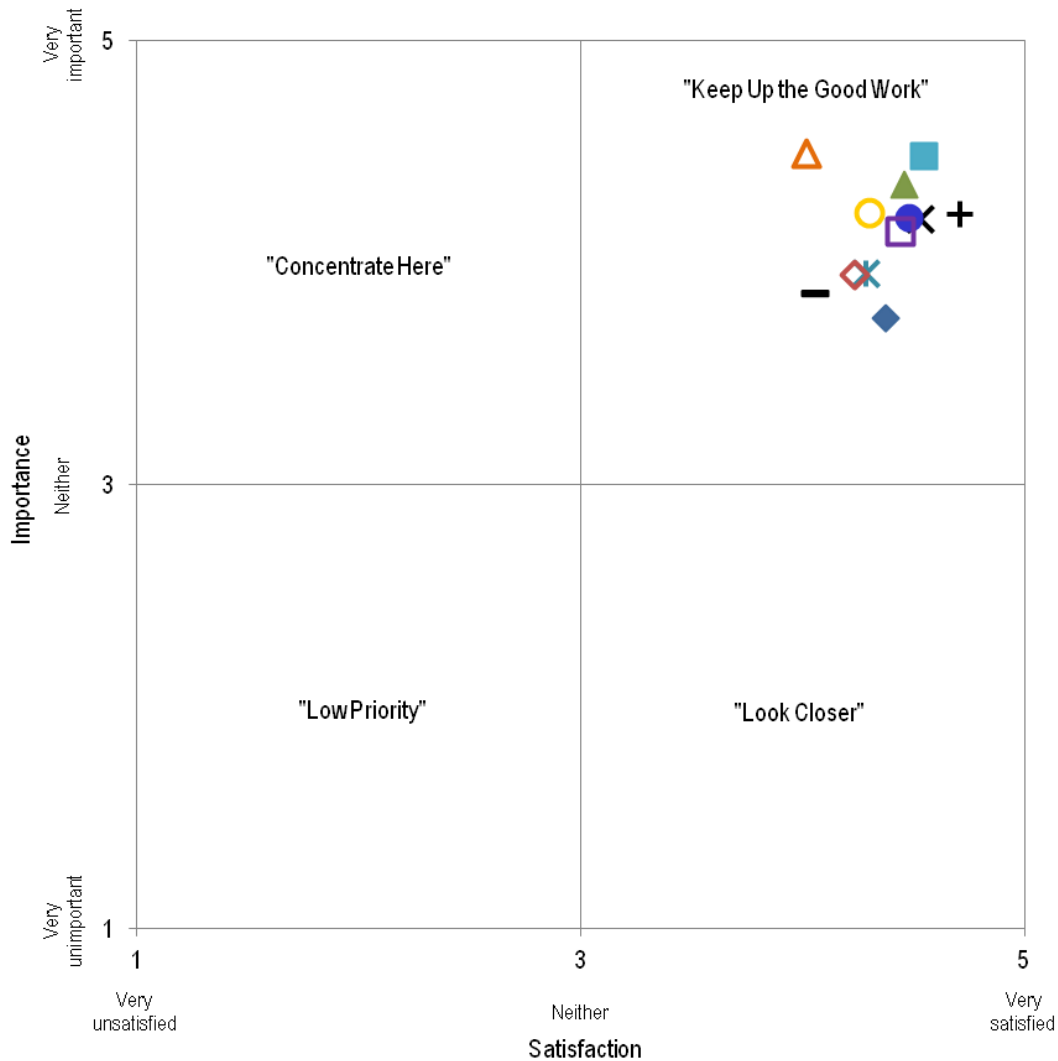
Graphically plotting visitors' importance and satisfaction ratings for different services, facilities, and recreational opportunities provides a simple and intuitive visualization of these survey measures. However, this tool is not without its drawbacks. One is the potential for variation among different visitor groups regarding their expectations and levels of importance (Vaske and others, 1996; Bruyere and others, 2002; Wade and Eagles, 2003); certain services or recreational opportunities may be more or less important for different segments of the visitor population. For example, hunters may place more importance on hunting opportunities and amenities such as blinds, while school-group leaders may place more importance on educational/informational displays than would other visitors. This potential for highly varied importance ratings needs to be considered when viewing the average results of this analysis. This consideration is especially important when reviewing any attribute that falls into the "Look Closer" quadrant. In some cases, these attributes may represent specialized recreational activities in which a small subset of visitors participate (for example, hunting or kayaking) or facilities and services that only some visitors experience (for example, exhibits about the refuge). For these visitors, the average importance of (and potentially their satisfaction with) the attribute may be much higher than the overall importance (and satisfaction) would be for the sample of visitors summarized in this report.

Figures 11–13 depict surveyed visitors' importance-satisfaction ratings for refuge services and facilities, recreational opportunities, and transportation-related features at Back Bay NWR. Results are summarized as follows:

- All refuge *services and facilities* fell in the "Keep Up the Good Work" quadrant (fig. 11).
- All refuge *recreational opportunities* fell in the "Keep Up the Good Work" quadrant, except hunting activities, which fell into the "Look Closer" quadrant (fig. 12). The average importance of this activity is likely higher among visitors to Back Bay NWR who actually participated in the activity during the 12 months prior to taking the survey than the score reported here. For example, hunters, as

part of the 2010–2011 national visitor survey, had an average importance score of 4.6 for this recreational opportunity, while the average importance score of hunting activities across all visitors was lower.

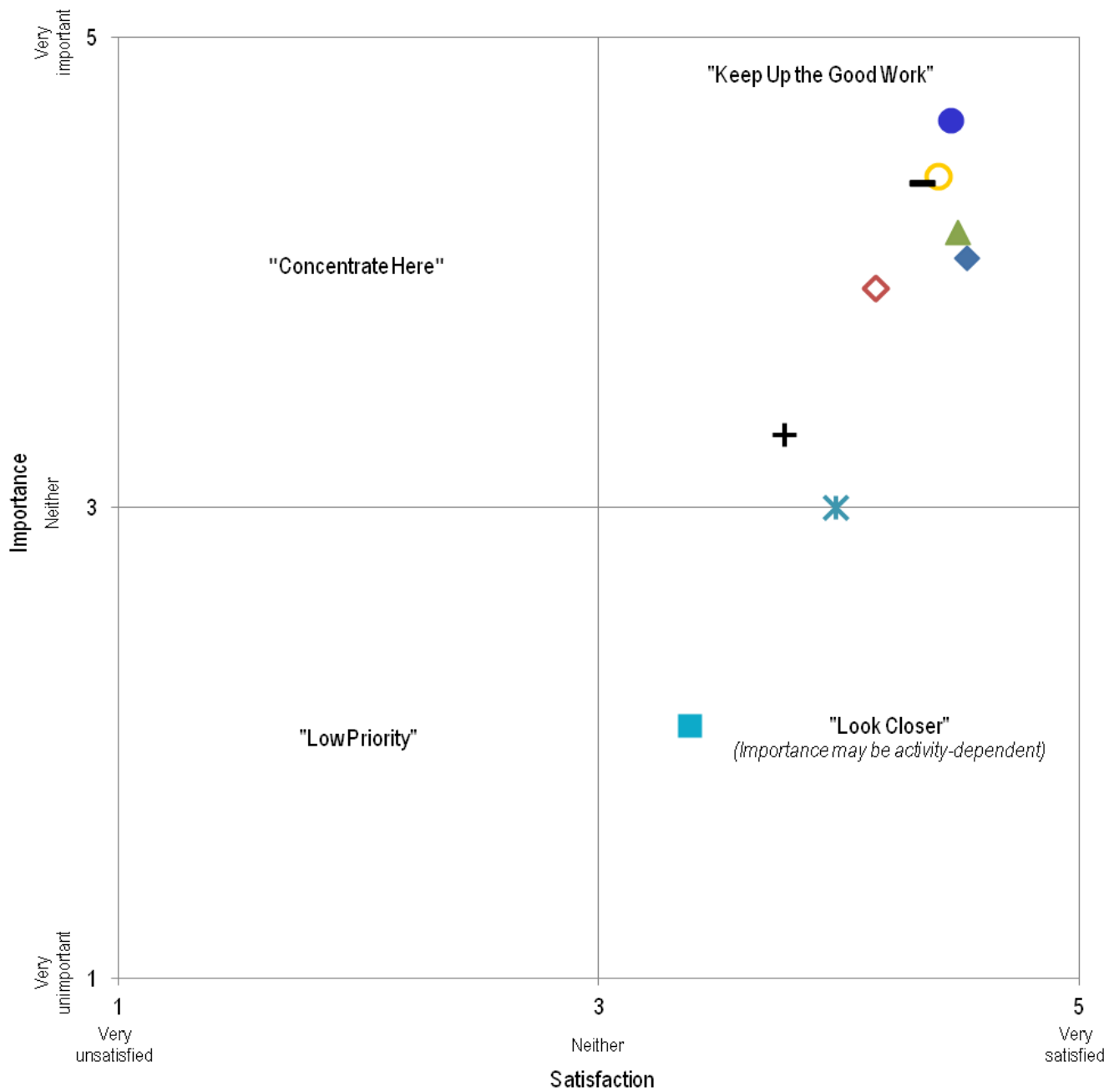
- All *transportation-related features* fell in the “Keep Up the Good Work” quadrant (fig. 13).



EXPLANATION

- ◆ Availability of employees/volunteers
- ▲ Knowledgeable employees/volunteers
- ⊠ Informational kiosks/displays about this Refuge
- ◇ Exhibits about this Refuge
- Visitor Center
- ▲ Well-maintained restrooms
- ⊕ Courteous/welcoming employees/volunteers
- ⊗ Printed information about this Refuge
- Signs with rules/regulations
- Environmental education programs/activities
- Convenient hours/days of operation
- Wildlife observation structures

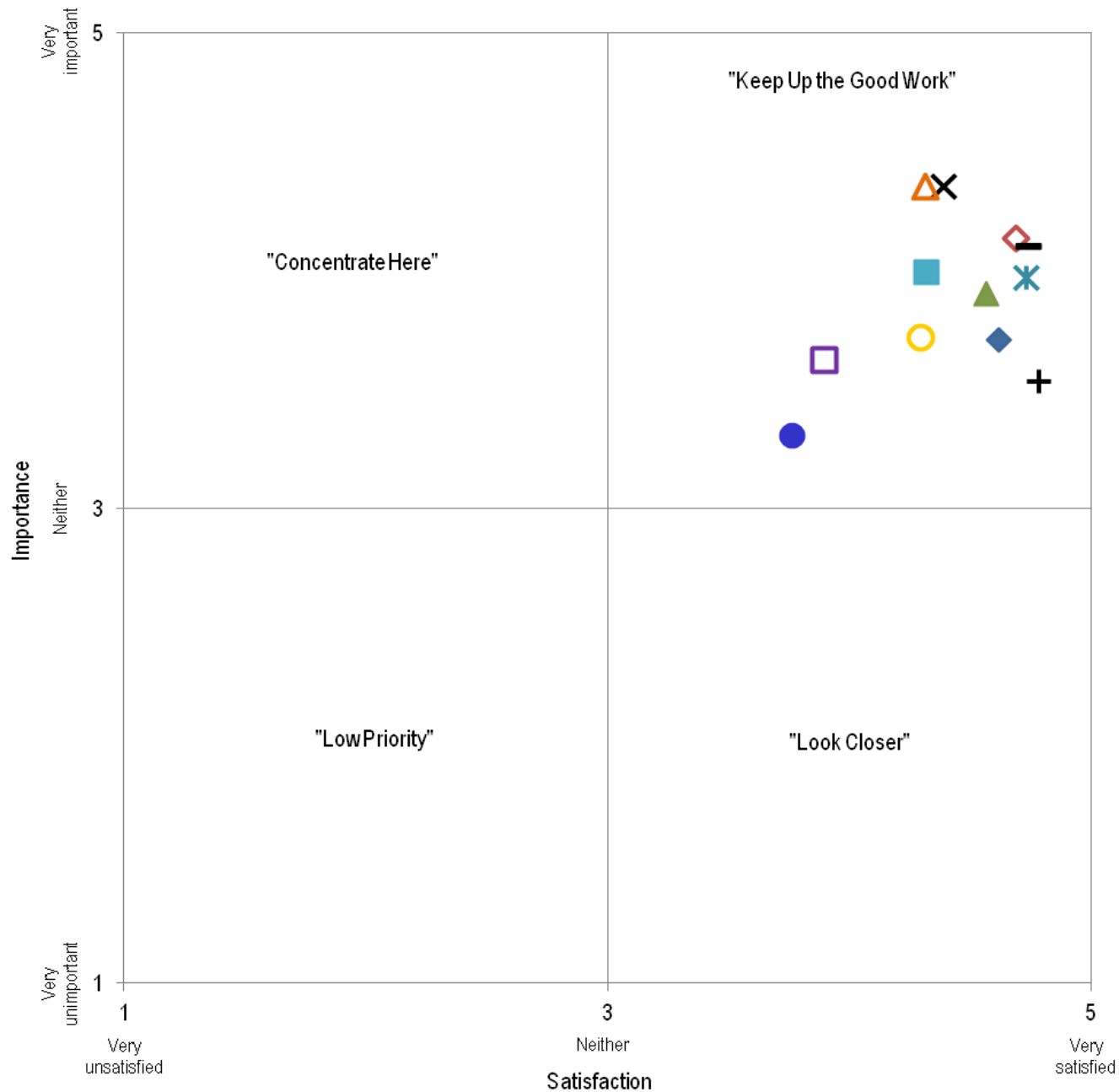
Figure 11. Importance-satisfaction ratings of services and facilities provided at Back Bay NWR.



EXPLANATION

- ◆ Bird watching opportunities
- Wildlife viewing opportunities
- ▲ Photography opportunities
- Hunting opportunities
- ✱ Fishing opportunities
- Hiking opportunities
- ◇ Kayak/Canoe opportunities
- Bicycling opportunities
- ✚ Volunteer opportunities

Figure 12. Importance-satisfaction ratings of recreational opportunities provided at Back Bay NWR.



EXPLANATION

- ◆ Condition of roads
- ⊕ Condition of parking areas
- ▲ Condition of bridges
- ✕ Condition of trails/boardwalks
- ⊗ Number of parking places
- Number of pullovers
- ◇ Safety of driving conditions
- Safety of Refuge entrances
- Directional signs on highways
- Directional signs on Refuge
- △ Directional signs on trails
- Disabled access

Figure 13. Importance-satisfaction ratings of transportation-related features at Back Bay NWR.

Visitor Opinions about National Wildlife Refuge System Topics

One goal of this national visitor survey was to identify visitor trends across the Refuge System to more effectively manage refuges and provide visitor services. Two important issues to the Refuge System are transportation on refuges and communicating with visitors about climate change. The results of these questions will be evaluated in aggregate form (data from all participating refuges together) to better address national-level goals. Basic results for Back Bay NWR are reported here.

Alternative Transportation and the Refuge System

Visitors use various types of transportation to access and enjoy refuges. While many visitors arrive at the refuge in private vehicles, alternatives such as buses, trams, watercraft, and bicycles are increasingly becoming a part of the visitor experience. Previous research has identified a growing need for transportation alternatives within the Refuge System (Krechmer and others, 2001), and recent efforts are beginning to characterize the use of transit and non-motorized transportation modes for visitor access to refuges (Volpe Center, 2010). However, less is known about how visitors perceive these new transportation options. An understanding of visitors' likelihood of using certain alternative transportation options can help in future planning efforts. Visitors were asked their likelihood of using alternative transportation options at refuges in the future.

Of six alternative transportation options listed on the survey, a majority of Back Bay NWR visitors were likely to use the following at refuges in the future (fig. 14):

- a boat that goes to different points on refuge waterways;
- a bus/tram that runs during a special event;
- a bus/tram that provides a guided tour;
- a bike share program;
- an offsite parking lot that provides trail access; and
- a bus/tram that takes passengers to different points on the refuge.

When asked specifically about using alternative transportation at Back Bay NWR, some visitors thought alternative transportation would enhance their experience (39%), while others thought it would not (23%). An additional 39% of surveyed visitors indicated they were unsure whether alternative transportation would enhance their experiences.

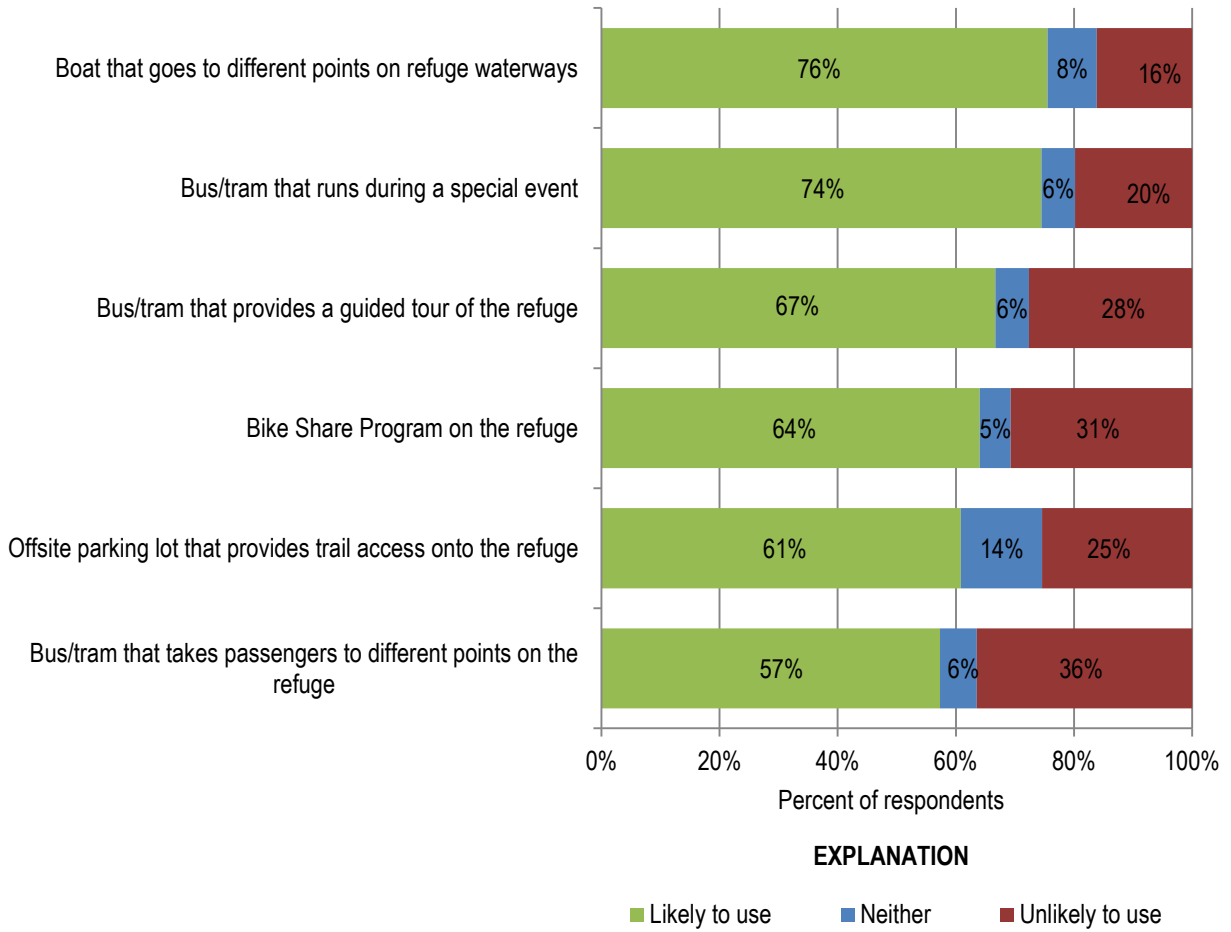


Figure 14. Visitors' likelihood of using alternative transportation options at refuges in the future (n ≥ 189).

Climate Change and the National Wildlife Refuge System

Climate change represents a growing concern for refuge management. The Service's climate-change strategy, titled "Rising to the Urgent Challenge," establishes a basic context for the agency to work within a larger conservation community to ensure wildlife, plant, and habitat sustainability (U.S. Fish and Wildlife Service, 2010). To support the guiding principles of the strategy, refuges will be exploring options for more effective engagement with visitors on the topic of climate change. Previous research suggests that human thought about climate change is influenced by individuals' levels of concern, levels of involvement, preferences for policies, and associated behaviors (Maibach and others, 2009). The results presented below provide baseline information on these factors in relation to the effects of climate change on fish, wildlife, and their habitats.

These results are most useful when coupled with responses to belief statements, because such beliefs may be used to develop message frames (or ways to communicate) about climate change with a broad coalition of visitors. Framing science-based findings does not alter the overall message, but rather places the issue in a context in which different audience groupings can relate (Nisbet, 2009). The need to mitigate impacts of climate change on refuges could be framed as a quality-of-life issue (for example, preserving the ability to enjoy fish, wildlife, plants, and their habitat) or an economic issue (for example, maintaining tourist revenues or supporting economic growth through new jobs/technology). Framing information in ways that resonate with visitors' beliefs may result in more engaged audiences who support strategies aimed at alleviating climate-change pressures. Data will be analyzed further at the national level to inform the development of a comprehensive climate change communication and engagement strategy.

The majority of visitors to Back Bay NWR agreed with the following statements related to their own *personal involvement* with the topic of climate change as it relates to fish, wildlife, and habitats (fig. 15):

- "I am personally concerned about the effects of climate change on fish, wildlife and habitats";
- "I take actions to alleviate the effects of climate change";
- "I stay well-informed about the effects of climate change"; and
- "My experience would be enhanced if the refuge provides information about how I can help address climate change effects."

The majority of visitors also agreed with the following *belief statements* regarding climate change effects on fish, wildlife and their habitats (fig. 16):

- "Future generations will benefit if we address climate change effects on fish, wildlife, and habitats";
- "We can improve our quality of life if we address the effects of climate change"; and
- "It is important to consider the economic costs and benefits to local communities when addressing climate change effects."

Results regarding such beliefs are important to consider when communicating with visitors about this topic, since the majority of visitors (52%) indicated their experiences would be enhanced if Back Bay NWR provided information about how visitors can help to address climate change impacts on fish, wildlife, and their habitats (fig. 15).

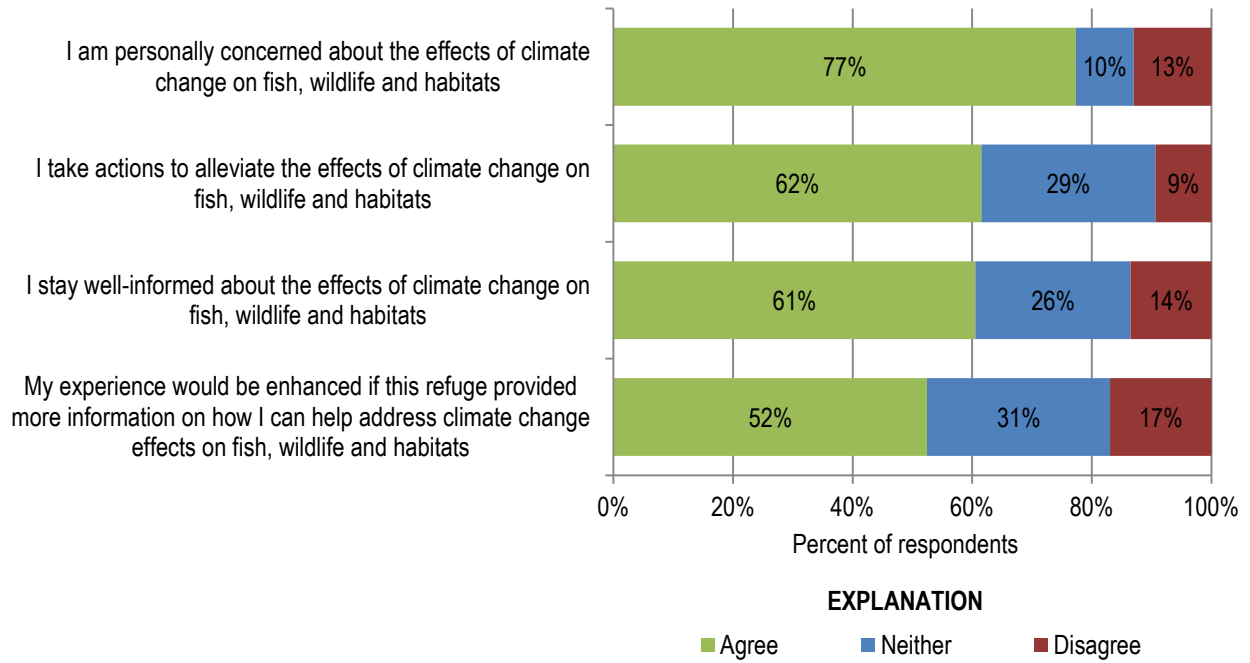


Figure 15. Visitors’ personal involvement with climate change related to fish, wildlife and their habitats (n ≥ 182).

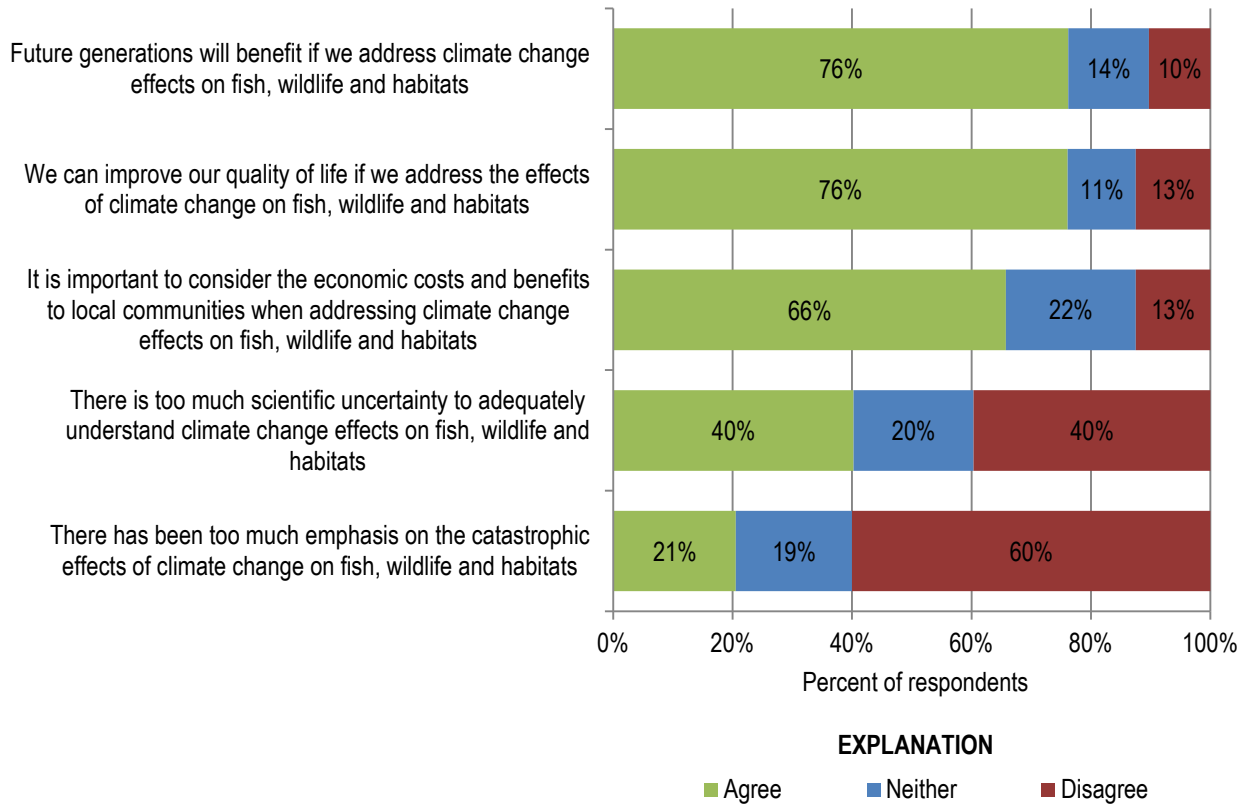


Figure 16. Visitors' beliefs about the effects of climate change on fish, wildlife and their habitats (n ≥ 184).

Conclusion

These individual refuge results provide a summary of trip characteristics and experiences of a sample of visitors to Back Bay NWR during 2012 and are intended to inform decision-making efforts related to visitor services and transportation at the refuge. Additionally, the results from this survey can be used to inform planning efforts, such as a refuge's Comprehensive Conservation Plan. With an understanding of visitors' trip and activity characteristics, visitor-satisfaction ratings with existing offerings, and opinions regarding fees, refuge managers are able to make informed decisions about possible modifications (whether reducing or enhancing) to visitor facilities, services, or recreational opportunities. This information can help managers gauge demand for refuge opportunities and inform both implementation and communication strategies. Similarly, an awareness of visitors' satisfaction ratings with refuge offerings can help determine if potential areas of concern need to be investigated further. As another example of the utility of these results, community relations may be improved or bolstered through an understanding of the value of the refuge to visitors, whether that value is attributed to an appreciation of the refuge's uniqueness, enjoyment of its recreational opportunities, or spending contributions of nonlocal visitors to the local economy. Such data about visitors and their experiences, in conjunction with an understanding of biophysical data on the refuge and its resources, can ensure that management decisions are consistent with the Refuge System mission while fostering a continued public interest in these special places.

Individual refuge results are available for downloading at <http://pubs.usgs.gov/ds/754/>. For additional information about this project, contact the USGS researchers at national_visitor_survey@usgs.gov or 970.226.9205.

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National Wildlife Refuge Visitor Survey



PLEASE READ THIS FIRST:

Thank you for visiting a National Wildlife Refuge and for agreeing to participate in this study! We hope that you had an enjoyable experience. The U.S. Fish and Wildlife Service and the U.S. Geological Survey would like to learn more about National Wildlife Refuge visitors in order to improve the management of the area and enhance visitor opportunities.

Even if you have recently visited more than one National Wildlife Refuge or made more than one visit to the same Refuge, please respond regarding only the Refuge and the visit when you were asked to participate in this survey for any question that uses the phrase “this Refuge.” Please reference the cover letter included with this survey if you are unsure of which refuge you visited.

SECTION 1. Your visit to this Refuge

1. Including your most recent visit, which activities have you participated in during the past 12 months at this Refuge?
(Please mark **all that apply.**)

- | | | |
|--|---|--|
| <input type="checkbox"/> 1% Big game hunting | <input type="checkbox"/> 69% Hiking | <input type="checkbox"/> 2% Environmental education (for example, classrooms or labs) |
| <input type="checkbox"/> 0% Upland/Small game hunting | <input type="checkbox"/> 53% Bicycling | |
| <input type="checkbox"/> 2% Migratory bird/Waterfowl hunting | <input type="checkbox"/> 2% Auto tour route/Driving | <input type="checkbox"/> 5% Interpretation (for example, exhibits, kiosks, videos) |
| <input type="checkbox"/> 68% Wildlife observation | <input type="checkbox"/> 1% Motorized boating | |
| <input type="checkbox"/> 52% Bird watching | <input type="checkbox"/> 10% Nonmotorized boating (including canoes/kayaks) | <input type="checkbox"/> 2% Refuge special event (<i>please specify</i>)
See Appendix B |
| <input type="checkbox"/> 12% Freshwater fishing | | |
| <input type="checkbox"/> 11% Saltwater fishing | <input type="checkbox"/> 3% Volunteering | <input type="checkbox"/> 8% Other (<i>please specify</i>)
See Appendix B |
| <input type="checkbox"/> 42% Photography | | |

2. Which of the activities above was the ***primary*** purpose of your visit to this Refuge?
(Please write **only one activity** on the line.) See report for categorized results; see Appendix B for miscellaneous responses

3. Did you go to a Visitor Center at this Refuge?

- 36% No
- 64% Yes → If yes, what did you do there? (Please mark **all that apply.**)
- | | |
|--|--|
| <input type="checkbox"/> 31% Visit the gift shop or bookstore | <input type="checkbox"/> 10% Pick up/purchase a license, permit, or pass |
| <input type="checkbox"/> 60% View the exhibits | <input type="checkbox"/> 75% Stop to use the facilities (for example, get water, use restroom) |
| <input type="checkbox"/> 49% Ask information of staff/volunteers | |
| <input type="checkbox"/> 6% Watch a nature talk/video/presentation | <input type="checkbox"/> 6% Other (<i>please specify</i>) See Appendix B |

4. Which of the following best describes your visit to this Refuge? (Please mark **only one.**)

Nonlocal	Local	All visitors	
<input type="checkbox"/> 14%	<input type="checkbox"/> 79%	<input type="checkbox"/> 52%	It was the primary purpose or sole destination of my trip.
<input type="checkbox"/> 43%	<input type="checkbox"/> 12%	<input type="checkbox"/> 25%	It was one of many equally important reasons or destinations for my trip.
<input type="checkbox"/> 44%	<input type="checkbox"/> 9%	<input type="checkbox"/> 24%	It was just an incidental or spur-of-the-moment stop on a trip taken for other purposes or to other destinations.

5. Approximately how many **hours/minutes and miles** (one-way) did you travel from your home to this Refuge?

Nonlocal	<u> 5 </u> Hours	<u> 49 </u> Minutes	<i>and</i>	<u> 344 </u> Miles
Local	<u> 0 </u> Hours	<u> 53 </u> Minutes	<i>and</i>	<u> 22 </u> Miles
All visitors	<u> 2 </u> Hours	<u> 22 </u> Minutes	<i>and</i>	<u> 119 </u> Miles

6. What type of group were you with on your visit to this Refuge?

24% None, I visited this Refuge alone

(of those visiting with a group)

97% Family and/or friends

3% Organized club or school group (for example, Boy/Girl Scouts, hiking club, bird watching group)

0% Commerical tour group

1% Other (*please specify*) See Appendix B

7. Including yourself, how many people were in your group? (*Please answer each category.*)

 3 number 18 years and over

 1 number 17 years and under

8. How did you **first learn or hear about** this Refuge? (*Please mark all that apply.*)

42% Family and/or friends

15% Refuge website

14% Signs on highway

5% Other website (*please specify*) See Appendix B

3% Recreation club or organization

1% Television or radio

19% People in the local community

5% Newspaper or magazine

14% Refuge printed information (brochure, map)

12% Travel guidebook or other book

14% Map or atlas

3% Other (*please specify*) See Appendix B

9. During which seasons have you visited this Refuge in the last 12 months? (*Please mark all that apply.*)

74% Spring
(March-May)

67% Summer
(June-August)

41% Fall
(September-November)

26% Winter
(December-February)

10. How many times have you visited...

...this Refuge (including this visit) in the last 12 months? 10 number of visits

...other National Wildlife Refuges in the last 12 months? 3 number of visits

SECTION 2. Transportation and access at this Refuge

1. What **forms of transportation** did you use on your visit to this Refuge? (*Please mark **all that apply.***)

- | | | | | | |
|------------------------------|---|-----------------------------|----------------------------------|------------------------------|---------------------------------------|
| <input type="checkbox"/> 76% | Private vehicle without a trailer | <input type="checkbox"/> 1% | Refuge shuttle bus or tram | <input type="checkbox"/> 39% | Bicycle |
| <input type="checkbox"/> 1% | Private vehicle with a trailer
(for boat, camper or other) | <input type="checkbox"/> 1% | Motorcycle | <input type="checkbox"/> 37% | Walk/Hike |
| <input type="checkbox"/> 0% | Commercial tour bus | <input type="checkbox"/> 0% | ATV or off-road vehicle | <input type="checkbox"/> 3% | Other (<i>please specify below</i>) |
| <input type="checkbox"/> 0% | Recreational vehicle (RV) | <input type="checkbox"/> 2% | Boat | <u>See Appendix B</u> | |
| | | <input type="checkbox"/> 0% | Wheelchair or other mobility aid | | |

Which of the following did you use to find your way to this Refuge? (*Please mark **all that apply.***)

- | | | | |
|------------------------------|--|-----------------------------|---|
| <input type="checkbox"/> 58% | Previous knowledge/I have been to this Refuge before | <input type="checkbox"/> 9% | Maps from the Internet (for example, MapQuest or Google Maps) |
| <input type="checkbox"/> 14% | Signs on highways | <input type="checkbox"/> 7% | Directions from Refuge website |
| <input type="checkbox"/> 16% | A GPS navigation system | <input type="checkbox"/> 3% | Directions from people in community near this Refuge |
| <input type="checkbox"/> 6% | A road atlas or highway map | <input type="checkbox"/> 8% | Directions from friends or family |
| | | <input type="checkbox"/> 3% | Other (<i>please specify</i>) <u>See Appendix B</u> |

2. Below are different alternative transportation options that could be offered at some National Wildlife Refuges in the future. Considering the different Refuges you may have visited, please tell us **how likely you would be to use each transportation option.** (*Please circle one number for each statement.*)

How likely would you be to use...	Very Unlikely	Somewhat Unlikely	Neither	Somewhat Likely	Very Likely
...a bus or tram that takes passengers to different points on the Refuge (such as the Visitor Center)?	<input type="checkbox"/> 22%	<input type="checkbox"/> 14%	<input type="checkbox"/> 6%	<input type="checkbox"/> 35%	<input type="checkbox"/> 22%
...a bike that was offered through a Bike Share Program for use while on the Refuge?	<input type="checkbox"/> 19%	<input type="checkbox"/> 8%	<input type="checkbox"/> 6%	<input type="checkbox"/> 31%	<input type="checkbox"/> 35%
...a bus or tram that provides a guided tour of the Refuge with information about the Refuge and its resources?	<input type="checkbox"/> 17%	<input type="checkbox"/> 14%	<input type="checkbox"/> 5%	<input type="checkbox"/> 44%	<input type="checkbox"/> 20%
...a boat that goes to different points on Refuge waterways?	<input type="checkbox"/> 12%	<input type="checkbox"/> 8%	<input type="checkbox"/> 6%	<input type="checkbox"/> 42%	<input type="checkbox"/> 33%
...a bus or tram that runs during a special event (such as an evening tour of wildlife or weekend festival)?	<input type="checkbox"/> 14%	<input type="checkbox"/> 12%	<input type="checkbox"/> 14%	<input type="checkbox"/> 38%	<input type="checkbox"/> 23%
...an offsite parking lot that provides trail access for walking/hiking onto the Refuge?	<input type="checkbox"/> 9%	<input type="checkbox"/> 7%	<input type="checkbox"/> 8%	<input type="checkbox"/> 34%	<input type="checkbox"/> 42%
...some other alternative transportation option? (<i>please specify</i>) <u>See Appendix B</u>	<input type="checkbox"/> 0%	<input type="checkbox"/> 4%	<input type="checkbox"/> 11%	<input type="checkbox"/> 36%	<input type="checkbox"/> 50%

3. If alternative transportation were offered at *this* Refuge, would it enhance your experience?

- 39% Yes 23% No 39% Not Sure

4. For each of the following transportation-related features, first, **rate how important** each feature is to you when visiting this Refuge; then **rate how satisfied** you are with the way this Refuge is managing each feature. *If this Refuge does not offer a specific transportation-related feature, please rate how important it is to you and then circle NA "Not Applicable" under the Satisfaction column.*

Importance						Satisfaction					
Circle one for each item.						Circle one for each item.					
Very Unimportant	Somewhat Unimportant	Neither	Somewhat Important	Very Important		Very Unsatisfied	Somewhat Unsatisfied	Neither	Somewhat Satisfied	Very Satisfied	Not Applicable
3%	17%	10%	48%	22%	Surface conditions of roads	2%	2%	4%	15%	77%	NA
4%	17%	16%	48%	16%	Surface conditions of parking areas	2%	1%	2%	7%	89%	NA
5%	6%	19%	37%	34%	Condition of bridges	3%	1%	9%	11%	76%	NA
4%	3%	3%	34%	56%	Condition of trails and boardwalks	2%	7%	3%	27%	62%	NA
5%	8%	10%	42%	36%	Number of places for parking	2%	1%	2%	14%	82%	NA
9%	15%	23%	41%	12%	Number of places to pull over along Refuge roads	3%	12%	27%	23%	36%	NA
1%	7%	11%	39%	42%	Safety of driving conditions on Refuge roads	1%	1%	5%	15%	79%	NA
2%	7%	10%	43%	39%	Safety of Refuge road entrances/exits	1%	1%	4%	10%	84%	NA
8%	10%	10%	45%	26%	Signs on highways directing you to the Refuge	1%	4%	16%	21%	57%	NA
6%	4%	13%	38%	38%	Signs directing you around the Refuge roads	1%	4%	13%	25%	56%	NA
4%	2%	5%	32%	56%	Signs directing you on trails	2%	6%	8%	29%	56%	NA
6%	11%	26%	30%	27%	Access for people with physical disabilities or who have difficulty walking	1%	4%	36%	22%	37%	NA

5. If you have any comments about transportation-related items at this Refuge, please write them on the lines below.

See Appendix B

SECTION 3. Your expenses related to your Refuge visit

1. Do you live in the local area (within approximately 50 miles of this Refuge)?

59% Yes

41% No → How much time did you spend **in the local area** on this trip?

Nonlocals If you spent one day or more in the local area, enter the number of days: 6 day(s)

only If you spent less than one day in the local area, enter the number of hours: 4 hour(s)

2. How much time did you spend **at this Refuge** during your most recent visit?

If you spent one day or more at this Refuge, enter the number of days: 3 day(s)

If you spent less than one day at this Refuge, enter the number of hours: 4 hour(s)

3. Please record the amount that **you and other members of your group** with whom you shared expenses (for example, other family members, traveling companions) spent in the local 50-mile area during **your most recent visit** to this Refuge. (*Please enter the amount spent to the nearest dollar in each category below. Enter 0 (zero) if you did not spend any money in a particular category.*)

Categories	Amount Spent in Local Communities & at this Refuge <i>(within 50 miles of this Refuge)</i>
Motel, bed & breakfast, cabin, etc.	
Camping	
Restaurants & bars	
Groceries	
Gasoline and oil	
Local transportation (bus, shuttle, rental car, etc.)	
Refuge entrance fee	
Recreation guide fees (hunting, fishing, wildlife viewing, etc.)	
Equipment rental (canoe, bicycle, kayak, etc.)	
Sporting good purchases	
Souvenirs/clothing and other retail	
Other (<i>please specify</i>) _____	

See Report for Results

4. Including yourself, how many people in your group shared these trip expenses?

2 number of people sharing expenses

5. As you know, some of the costs of travel such as gasoline, hotels, and airline tickets often increase. If your total trip costs were to increase, what is the maximum extra amount you would pay and still visit this Refuge? *(Please circle the highest dollar amount.)*

\$0	\$10	\$20	\$35	\$50	\$75	\$100	\$125	\$150	\$200	\$250
7%	31%	21%	9%	8%	4%	9%	1%	1%	2%	8%

6. If you or a member of your group paid a fee or used a pass to enter this Refuge, how appropriate was the fee? *(Please mark **only one**.)*

16% Did not pay a fee *(skip to Section 4)*

1% Far too low 6% Too low 90% About right 3% Too high 1% Far too high

7. Please indicate whether you disagree or agree with the following statement. *(Please mark **only one**.)*

The value of the recreation opportunities and services I experienced at this Refuge was at least equal to the fee I paid.

2% Strongly disagree 4% Disagree 7% Neither agree or disagree 38% Agree 48% Strongly agree

SECTION 4. Your experience at this Refuge

1. Considering your visit to this Refuge, please indicate the extent to which you disagree or agree with each statement. *(Please circle one number for each statement.)*

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Not Applicable
Overall, I am satisfied with the recreational activities and opportunities provided by this Refuge.	<input type="checkbox"/> 2%	<input type="checkbox"/> 6%	<input type="checkbox"/> 3%	<input type="checkbox"/> 35%	<input type="checkbox"/> 55%	NA
Overall, I am satisfied with the information and education provided by this Refuge about its resources.	<input type="checkbox"/> 2%	<input type="checkbox"/> 3%	<input type="checkbox"/> 9%	<input type="checkbox"/> 42%	<input type="checkbox"/> 45%	NA
Overall, I am satisfied with the services provided by employees or volunteers at this Refuge.	<input type="checkbox"/> 1%	<input type="checkbox"/> 3%	<input type="checkbox"/> 6%	<input type="checkbox"/> 38%	<input type="checkbox"/> 52%	NA
This Refuge does a good job of conserving fish, wildlife and their habitats.	<input type="checkbox"/> 1%	<input type="checkbox"/> 1%	<input type="checkbox"/> 3%	<input type="checkbox"/> 27%	<input type="checkbox"/> 69%	NA

2. For each of the following services, facilities, and activities, first, **rate how important** each item is to you when visiting this Refuge; then, **rate how satisfied** you are with the way this Refuge is managing each item.
If this Refuge does not offer a specific service, facility, or activity, please rate how important it is to you and then circle NA "Not Applicable" under the Satisfaction column.

Importance					Refuge Services, Facilities, and Activities	Satisfaction					
Circle one for each item.						Circle one for each item.					
Very Unimportant	Somewhat Unimportant	Neither	Somewhat Important	Very Important		Very Unsatisfied	Somewhat Unsatisfied	Neither	Somewhat Satisfied	Very Satisfied	Not Applicable
5%	10%	14%	46%	25%	Availability of employees or volunteers	1%	4%	16%	17%	63%	NA
4%	3%	5%	42%	45%	Courteous and welcoming employees or volunteers	0%	2%	7%	10%	82%	NA
2%	2%	6%	37%	52%	Knowledgeable employees or volunteers	0%	4%	11%	21%	65%	NA
1%	6%	8%	40%	44%	Printed information about this Refuge and its resources (for example, maps and brochures)	0%	2%	7%	26%	65%	NA
2%	8%	10%	55%	26%	Informational kiosks/displays about this Refuge and its resources	1%	3%	15%	30%	52%	NA
1%	5%	7%	48%	40%	Signs with rules/regulations for this Refuge	1%	1%	11%	26%	62%	NA
1%	7%	13%	54%	25%	Exhibits about this Refuge and its resources	1%	4%	16%	29%	50%	NA
3%	6%	19%	46%	26%	Environmental education programs or activities	0%	4%	28%	24%	43%	NA
2%	1%	7%	51%	39%	Visitor Center	1%	4%	13%	27%	55%	NA
4%	1%	2%	30%	63%	Convenient hours and days of operation	2%	1%	4%	27%	67%	NA
1%	1%	4%	35%	59%	Well-maintained restrooms	8%	6%	11%	26%	49%	NA
3%	4%	9%	44%	40%	Wildlife observation structures (decks, blinds)	0%	3%	10%	28%	59%	NA
4%	4%	12%	43%	37%	Bird-watching opportunities	0%	1%	11%	22%	66%	NA
1%	2%	5%	41%	51%	Opportunities to observe wildlife other than birds	0%	4%	7%	34%	56%	NA
2%	4%	14%	32%	47%	Opportunities to photograph wildlife and scenery	0%	1%	11%	24%	64%	NA
56%	6%	19%	10%	8%	Hunting opportunities	4%	3%	63%	8%	21%	NA
27%	13%	17%	20%	23%	Fishing opportunities	2%	0%	38%	18%	42%	NA
2%	0%	2%	24%	72%	Trail hiking opportunities	1%	3%	3%	33%	60%	NA
9%	4%	13%	33%	41%	Water trail opportunities for canoeing or kayaking	2%	2%	26%	21%	50%	NA
4%	4%	6%	22%	64%	Bicycling opportunities	1%	5%	12%	25%	58%	NA
11%	10%	32%	32%	15%	Volunteer opportunities	0%	3%	49%	17%	32%	NA

3. If you have any comments about the services, facilities, and activities at this Refuge, please write them on the lines below.

See Appendix B

SECTION 5. Your opinions regarding National Wildlife Refuges and the resources they conserve

1. Before you were contacted to participate in this survey, were you aware that National Wildlife Refuges...

...are managed by the U. S. Fish and Wildlife Service?

85% Yes

15% No

...have the primary mission of conserving, managing, and restoring fish, wildlife, plants and their habitat?

92% Yes

8% No

2. Compared to other public lands you have visited, do you think Refuges provide a unique recreation experience?

88% Yes

12% No

3. If you answered "Yes" to Question 2, please briefly describe what makes Refuges unique. _____

See Appendix B

There has been a lot of talk about climate change recently. We would like to know what you think about climate change as it relates to fish, wildlife and their habitats. To what extent do you disagree or agree with each statement below? (Please circle one number for each statement.)

Statements about climate change	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I am personally concerned about the effects of climate change on fish, wildlife and their habitats.	5%	8%	10%	31%	46%
We can improve our quality of life if we address the effects of climate change on fish, wildlife and their habitats.	5%	8%	11%	35%	41%
There is too much scientific uncertainty to adequately understand how climate change will impact fish, wildlife and their habitats.	19%	21%	20%	23%	17%
I stay well-informed about the effects of climate change on fish, wildlife and their habitats.	1%	12%	26%	44%	16%
It is important to consider the economic costs and benefits to local communities when addressing the effects of climate change on fish, wildlife and their habitats.	1%	11%	22%	45%	21%
I take actions to alleviate the effects of climate change on fish, wildlife and their habitats.	3%	7%	29%	41%	21%
There has been too much emphasis on the catastrophic effects of climate change on fish, wildlife and their habitats.	30%	30%	19%	11%	9%
Future generations will benefit if we address the effects of climate change on fish, wildlife and their habitats.	5%	5%	14%	28%	49%
My experience at this Refuge would be enhanced if this Refuge provided more information about how I can help address the effects of climate change on fish, wildlife and their habitats.	10%	7%	31%	39%	13%

SECTION 6. A Little about You

**** Please tell us a little bit about yourself. Your answers to these questions will help further characterize visitors to National Wildlife Refuges. Answers are not linked to any individual taking this survey. ****

1. Are you a citizen or permanent resident of the United States?

98% Yes 2% No → *If not, what is your home country?* See Figure 2 in Report

2. Are you? 60% Male 40% Female

3. In what year were you born? 1964 (YYYY)

4. What is your highest year of formal schooling? (Please circle one number.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
(elementary)					(junior high or middle school)			(high school)				(college or technical school)				(graduate or professional school)			
					0%			8%				52%				40%			

5. What ethnicity do you consider yourself? 3% Hispanic or Latino 97% Not Hispanic or Latino

6. From what racial origin(s) do you consider yourself? (Please mark **all that apply.**)

<input type="checkbox"/> 3%	American Indian or Alaska Native	<input type="checkbox"/> 2%	Black or African American	<input type="checkbox"/> 96%	White
<input type="checkbox"/> 3%	Asian	<input type="checkbox"/> 1%	Native Hawaiian or Pacific Islander		

7. How many members are in your household? 3 persons

8. How many members of your household contribute to paying the household expenses? 2 persons

9. Including these members, what was your approximate household income from all sources (before taxes) last year?

<input type="checkbox"/> 1%	Less than \$10,000	<input type="checkbox"/> 9%	\$35,000 - \$49,999	<input type="checkbox"/> 24%	\$100,000 - \$149,999
<input type="checkbox"/> 5%	\$10,000 - \$24,999	<input type="checkbox"/> 18%	\$50,000 - \$74,999	<input type="checkbox"/> 10%	\$150,000 - \$199,999
<input type="checkbox"/> 3%	\$25,000 - \$34,999	<input type="checkbox"/> 23%	\$75,000 - \$99,999	<input type="checkbox"/> 8%	\$200,000 or more

10. How many outdoor recreation trips did you take in the last 12 months (for activities such as hunting, fishing, wildlife viewing, etc.)?

22 number of trips

Thank you for completing the survey.

There is space on the next page for any additional comments you may have regarding your visit to this Refuge.

Comments?

See Appendix B for Comments

PAPERWORK REDUCTION ACT STATEMENT: The Paperwork Reduction Act requires us to tell you why we are collecting this information, how we will use it, and whether or not you have to respond. The information that we collect in this survey will help us understand visitor satisfaction with and use of National Wildlife Refuges and to make sound management and policy decisions. Your response is voluntary. An agency may not conduct or sponsor and you are not required to respond to a collection of information unless it displays a valid OMB Control Number. We estimate it will take an average of 25 minutes to complete this survey. You may send comments concerning the burden estimate or any aspect of the survey to the Information Collection Clearance Officer, Fish and Wildlife Service, 4401 North Fairfax Drive, MS 222-ARLSQ, Arlington, VA 22203. OMB CONTROL #1018-0145 EXPIRATION DATE 6/30/2013

Appendix B: Visitor Comments to Open-Ended Survey Questions for Back Bay National Wildlife Refuge

Survey Section 1

Question 1: "Including your most recent visit, which activities have you participated in during the past 12 months at this Refuge?"

Special Event	Frequency
I wanted to go kayaking but was unable to enter the refuge because I had my small dog with me.	1
My children participated in an environment education program that was very interesting.	1
Twilight kayaking	1

Other Activity	Frequency
Beach	1
Enjoying the beach/ocean.	1
I asked a ranger questions at the Visitor Center.	1
I pick up washed up balloons etc. when I walk.	1
Nature observation of dunes/ocean.	1
Operation Second Chance VCAN, Spring Surf Fishing Class with VCAN.	1
Picnic	1
Running	3
Saltwater crabbing	1
Swimming	1
Tram ride to False Cape.	1
Vacation	1
Visited Visitor Center with grandchildren and their parents.	1

Question 2: “Which of the activities above was the primary purpose of your visit to this Refuge?”
Primary activities are categorized in the main report; the table below lists the “other” miscellaneous primary activities listed by survey respondents.

Other Miscellaneous Primary Activities	Frequency
1st visit, just drove thru	1
Backpacking Trip to False Cape State Park	1
Curiosity	1
Enjoying nature and appreciating life in general	1
Getting a National Parks Pass/Book Stamp	1
Solitude	1
Unspoiled solitude	1

Question 3: “Did you go to a Visitor Center at this Refuge?”; If Yes, “What did you do there?”

Other Visitor Center Activity	Frequency
Chat with ranger	1
Drank water	1
Grab a snack and drink	1
I wanted to say hi to all the friendly employees.	1
Picked up brochures	1
Tried to go, but was closed and used outhouse.	1
Volunteer	1

Question 6: “Were you part of a group on your visit to this Refuge?; If Yes, “What type of group were you with on your visit?”

Other Group Type	Frequency
Meet Up group	1

Question 8: "How did you first learn or hear about this Refuge?"

Other Website	Frequency
Google	2
Google Earth	1
Google/Trip advisor	1
I went to a website to get directions and learn more about it before we visited.	1
Internet search for bike trails	1
Virginia Birding Wildlife Trail	1
Virginia Islands for Lovers	1

Other Ways Heard about This Refuge	Frequency
I am a lifelong VA resident who visited Sandbridge and explored further.	1
I use my GPS to find fishing spots when working out of town.	1
Sandbridge, VA	1
Some guy told us.	1
Stay at False Cape State Park.	1
Work	1

Survey Section 2

Question 1: "What forms of transportation did you use on your visit to this Refuge?"

Other Forms of Transportation	Frequency
10' truck topper johnboat	1
2 wheel cart	1
Fishing cart	1
Running	2

Question 2: "Which of the following did you use to find your way to this Refuge?"

Other Ways Found This Refuge	Frequency
Directions in brochure and a phone call to refuge.	1
I followed the road.	1
Refuge map	1
Signs in refuge	1

Question 3: “Below are different alternative transportation options that could be offered at some National Wildlife Refuges in the future...please tell us how likely you would be to use each transportation option.”

Other Transportation Option Likely to Use	Frequency
ATV	1
Bicycle	1
Bicycle (own/rent)	1
Bike rental, kayak rental, tour bus	1
Bike trail	1
Boat/canoe rental	1
Canoe	2
Canoes/kayaks	1
Cycling	1
Electric cart	1
Electric motorized bike share program; fast, quiet, low environmental impact transportation	1
Handicap access	1
Horseback	2
Horses	1
I would like a special one time use permit to take my dog to False Cape State Park.	1
Kayak	2
Kayak, personal bike	1
Kayak/boat share or rentals	1
My own bike	1
Personal 4-wheel drive	1
Pontoon boat rental	1
Self guided in own car	1
Shuttle bus from off-site parking into refuge.	1
Ride or some kind of train or bus from a major transportation hub so you don't have to drive.	1
Walk	1

Question 6: "If you have any comments about transportation-related items at this Refuge, please write them on the lines below."

Comments on Transportation-related Items at This Refuge (n = 47)

Although it was handicap accessible, it would be difficult for disabled persons to reach accessible areas, as you can't travel by roads by vehicle to reach observation platforms.

Beautiful refuge. My son and I had a nice visit.

Before even entering Sandbridge (forgot the name of the road) there was a big sign on the right for Back Bay NWR. Did not know if I should take that road or not.

Better signage for trails from the beach areas and barrier dunes would be nice.

Better signs on back trail.

During our last visit to Sandbridge, we went to the refuge every day. We drove to the refuge where there was always excellent and ample parking. We rode our bikes throughout the refuge and were very pleased by the condition of the roads and trails. One tiny complaint was that on our last trip there was a tram and we had no where to pull over as the embankment was very grassy and steep. It is not really a complaint as that was the lay of the land. The tram driver was friendly and waited for us to bike ahead to where the trail forked and we could pull over there and then they could pass.

For the price of the annual pass, the refuge is a bargain.

I am concerned that pets are not allowed, even if just driving through in your car.

I feel that this facility offers a good selection for most modes of transportation. I feel that if kayaking and/or canoeing rentals were offered, it would bring more visitors to Back Bay.

I have noticed over the past year that there are many vehicles, official and unofficial, driving up and down the dike roads. This takes away from the experience of Back Bay. It disturbs the wildlife, as well as visitors trying to enjoy the peace and quiet (and the wildlife). I think that allowing any other types of transportation in Back Bay will totally destroy all that makes it such a special place.

I like the new "rotary" at the entrance station... much easier for people to turn around if needed.

I wish access of private vehicles on bike trails was more restricted.

I would like to see beach access from the bike trails further down the beach.

I would love to provide BIKE RENTALS at this refuge and biking tours as well, especially as it is a hassle to have to bring bikes via car! I think this is a good business option! Call me about this! [NAME and NUMBER provided]

In some instances, trail signs were not clearly marked.

It was hot. My 8 year old daughter and I thought it was fine, but my 81 year old mother could not handle it and had no option but to sit in the air conditioning in the Visitor Center to wait for us.

Most of this refuge is limited to walking.

My nephew is in a wheelchair; some of the refuge was hard to navigate because many areas are unpaved. I know there's probably a reason for this, but it did make some things more difficult.

No access on walkways for people with wheelchairs. Also, for a fishing only beach there is no walkway for carts, such as a fishing cart, to be pulled to the beach. Walkway that is there is dangerous for both fishing carts and wheelchairs. It would be nice to have a walkway provided to the beach area. :)

One area was closed, but we were not informed until we came to a site. Had to turn around and follow another route. Workers were unaware of trail closings.

Roads need to be marked better (at intersections) indicating which are currently open. In two visits, they shifted and there were NO signs until you reached closed gates.

Sand on the boardwalks made it hard for a wheelchair to get through. The boardwalk stopped way before the beach and he could not see the beach area. You need a walkway all the way to the beach.

Signage on the beach itself needs to be bigger, particularly the one that leads from the beach to a boardwalk. Hiking is my mode of transportation. It's about 1/4 mile heading south on beach. [picture of a sign drawn]

Since I cycle, the condition of the roads is of paramount importance to me. The roads are moderately well packed; however, there is an overabundance of rocks (1"+ in diameter) that makes riding rather uncomfortable on a mountain bike and virtually impossible on a road bike.

Some boardwalks are not wheelchair safe.

Strongly recommend "bike share" program.

The beauty of False Cape is that it is remote and not easily accessible. You can't be all things to all people. Don't jazz it up; it will spoil it.

The beauty of this refuge is the peace, quiet, and lack of motor vehicles. If you add any transportation, I would limit the access, and keep the purpose in mind of maintaining an untouched natural refuge.

The dike trail was partially closed, but not marked as such. We had to backtrack due to trail closure.

The gravel trails to False Cape State Park are not very smooth to bike. The large sharp type of gravel used to pave them shifts under your tires a lot and the trails are very bumpy from vehicles driving too fast on them with refuge vehicles. Also in the evening when the tram comes through, we are often required to pull-off into the grass where we have also seen and photographed snakes. I think a big improvement (virtually free) would be an earthen bike lane along the shortest route to False Cape for bikers passing through the refuge to get there. In the future, some shade trees along such a trail would make the dikes seem more natural and add to the bird habitat, as well as make the ride more enjoyable.

The large rocks/gravel on the walking/biking road make riding our bikes rather difficult. We would use the trail more frequently if the ride was more comfortable. It is actually quite a disappointment for us since we are at Sandbridge nearly every weekend and would like to ride our bikes there.

The main thing I did not like about the surface of the roads was that, in most places, the crushed stone used is very loud when riding a bike, meaning it is not ideal for wildlife observing.

The snakes are getting to a level where people are scared to walk the trails. This needs to be addressed! Venomous!

The trails in Back Bay are not smooth for biking - very rocky and very bumpy.

The two parks being right together is nice, but there is no easy way to get through Back Bay National Wildlife Refuge so that False Cape can be explored for the day. Always felt like I had to do the extra 6 miles roundtrip as payment to get to False Cape and explore. I wish there was a way to fix this.

The walking trails to the dunes were difficult to walk on.

There is one main parking area, which somewhat limits how far most people go "in" on the trails, etc. This could be good or bad, depending on how you look at it! Another 'access road' or parking area to another area of the refuge would be welcomed.

There needs to be better signage on bike/road trails. I got lost due to lack of signage pointing out that the East Dike was closed for maintenance but no sign showing how to get to West Dike.

There was a tram offered at this refuge, however, we were there for a specific educational program for kids. I'd like to go back and take the tram tour.

This refuge could expand and add some more sand at the kayak/canoe launch. It has deteriorated over the last 6 years and is overgrown.

Wasn't always completely certain where I was to go on the trails.

We look forward to visiting again.

We thought it was confusing when a volunteer in the Visitor Center told us there was a gravel road to the other end, but didn't tell us that you had to travel only by bike or a tram that leaves once per day. We would suggest offering more tram options that are shorter in duration (cannot bring a 2-year old on a four-hour tram trip, for example, but 2 hours would be okay).

We were here in April - no real roads available for private cars. Tram not running, signage for trails not very good.

We were walking on the beach and some idiot nearly ran our family over with his jeep!

When RVs or trucks pass, have them slow down or get ticketed - I almost got hurt.

You need to get bicycles off of the walking and boarded paths. They need to stay on roads only!!!!!!

Survey Section 4

Question 3: "If you have any comments about services, facilities, and activities at this Refuge, please write them on the lines below."

Comments on Services, Facilities, and Activities at This Refuge (n = 64)

Again, an earthen bike lane along the main dikes to False Cape State Park, with shade trees (native pines like in the park), would make the ride more enjoyable. Riding on the rough gravel and getting pushed off into the grass by the tram is unpleasant.

Bathrooms were dirty (garbage was not taken out), and there was no toilet paper.

Bathrooms were not maintained. Not a lot of info or anything. There is not a lot to do there. The volunteer opportunities need help.

Beautiful refuge. Could stand more accessible fishing areas.

Don't make it too easy to get to those amazing, sacred places. Make it worth the effort to get there.

Electronic outside kiosk did not work correctly. Bathrooms were closed before the "park" closed.

Excellent Visitor Center staff. I was impressed that park entrance was staffed even on Easter. There is good literature on site and maps. Wonderful refuge; just needs a few signs telling user which trail is which. I wish there were more like this one!

For campers planning to go to False Cape, there should be parking near the refuge office and a special one time use permit/fee provided to bring our dogs with us, as well as education about our responsibilities to pick up after our dogs.

Great place. Can't wait to visit again.

I am not sure if Back Bay National Wildlife Refuge trails are closed in the winter (until April) for bird mating or because of lack of staffing, but it would be nice to use the trails all year round.

I did not have a chance to view the Visitor Center as it was closed.

I drive a 34 mile round trip to launch my 10' truck topper johnboat to fish for bass because there is no ramp for boats on trailers here. (this is a good thing.)

I enjoyed bicycling through the refuge, but my primary purpose that day was to cycle to the North Carolina border. The scenery in the Back Bay National Wildlife Refuge and False Cape State Park compliment each other.

I enjoyed hiking through the sand dunes.

I have enjoyed visiting the Back Bay National Wildlife Refuge many times in the past. It is a beautiful area that I would travel to for peaceful adventures. When I attempted to visit this time to go kayaking, they refused my entry because I had my small dog with me. They told me pets are not allowed and that this has been the case since last year. My dog went with me in the past and was better behaved than most children I observed. Not allowing pets is like telling people not to bring their children. People who travel with pets are very conscientious and courteous regarding the behavior of their animal. Refuges will lose a lot of business by cutting out this "outdoor" type of client. It saddens me that I can no longer go enjoy one of my favorite places.

I really hate the porta potty. I would definitely visit more often and stay longer if the bathroom was indoors and clean (my only complaint).

I run one mile into the park and back out. My running shorts do not have pockets for money or my life time pass. Some let us in, others do not. When biking, I am in the park longer and do not mind carrying my pass or paying the \$2.00 as my biking jersey has pockets.

I use the refuge several times a week when the dikes are open during the spring/summer, but limit my use during the winter because they are closed. I wish they were open year-round for foot traffic! More signage about the refuge and the animals within its protection would be welcomed, too. It is also unclear whether certain parts of the beach are open for foot traffic or not; the signage that says something to the effect of "area beyond this sign is closed" is confusing. Closed to the public (those who haven't paid the entry fee) or closed to EVERYONE?

I was here to photograph wildlife, but the signage led me to believe I could only come into the park once it was open. Talking to other photographers who were leaving while I entered, I found out that I missed most of the wildlife photography opportunities with good light and low heat, while the animals were still out. I knew earlier would be better, but I did not think I was allowed to enter the park.

I wish I had been able to access better maps of the refuge online.

I wish I had known they had children's programs before we went so I could have signed my daughter up. They should advertise that to the seasonal renting community so folks know it is there and can take advantage of it.

I wish more observation areas were available. Again, need to get bicycles off of the walking trails and keep them on roads only!!!!!!

I wish the "off limit dykes" would have better viewing or accessible areas to observe wildlife. But I recognize this is important for nesting/migration preservation. It seems like all the deer, foxes and wild boar also migrate to the 'less human involved areas' making it harder to view wildlife.

I wish the refuge would not allow private vehicles and use the bike trails to access the state line.

I would like to see less traffic including bicycling, tram and vehicles. I have been coming to the refuge for over 25 years and have observed negative impact through these aforementioned activities.

I would like to see the internal roads open for hiking during the fall and winter bird migration periods.

I would love for you to allow sunbathing on the beach.

I would LOVE to be able to bring my well-behaved dog on a leash to the refuge. I clean up after her religiously. My dog and I would both benefit from the bonding of hiking outdoors all day together. Maybe certain trails could be dog friendly?

I would love to provide bike rentals and guided biking tours!

In my past experiences visiting Back Bay I have found the employees to be very helpful and informative. The park is very well kept and offers (family, friends and myself) a sense of pride as Virginia residents.

In the past, visitors were permitted to hike with dogs on leash. This is no longer allowed and it is disappointing.

It is a great wildlife refuge that we haven't been to in a long time.

It is unbelievable that there was no water to provide to hikers/bikers. There were signs on one cooler that forbid the use of visitors from filling their water bottles. Twenty dollars to enter and most refuges/parks are moving away from selling water bottles, making up for it by providing bulk water opportunities. Not here.

It would be nice to have a handicap accessible walk way to the beach area. Also a place hikers, bikers, and anglers could wash off sand from the beach area :) with well water of course :)

It would be nice to have an easy way to tell which were the dates for beach birding.

It would be so nice to have some benches between Back Bay and False Cape along the dikes, and some picnic tables at the Visitor Center.

It's a nice refuge. I don't like the ATVs on beaches (unless it's a staff member). There once was a man running naked in the dunes. That was kind of scary, as I was four miles south alone on the beach. It would be nice to have a couple trash bins that could be emptied by refuge team (for washed up stuff.)

Love False Cape. I bicycle mainly, spring and fall. Difficult in the summer. Wonderful park and facility.

Maintain the restrooms a little better.

My children and I had a wonderful time at the Back Bay National Wildlife Refuge in VA Beach. A friend told me about the environmental education program offered for children and it far exceed my expectations. The staff were very knowledgeable and friendly. I would highly recommend this program. I wish the programs were better advertised.

Needs launching ramp/dock for boats/bug access.

On my last visit, it appeared that the Visitor Center was being upgraded, which it very much needed! Nice new entrance - things are looking good!

One of the trails was closed (Charles Kuralt) so I cannot completely answer these questions.

Our only complaint - restrooms need improvement and should be open as long as the refuge is open.

Outstanding staff.

Overall, the Back Bay Visitor Center was a bit lacking in updated educational materials. However, the restroom facilities were fairly clean (no complaints from my kids). The star attraction were the GREAT hiking trails, which were very well maintained and provided plenty of opportunity for viewing local flora and fauna.

Regulate snakes. They are venomous and, at this point, a safety issue. Several were seen enjoying the sun on the trails.

Staff was friendly and welcoming both at the entrance and Visitor Center. Visitor Center was simple but charming, and it was nice to have cold water and a restroom. Trails were great.

Thank you for having a location that is perfect for making memories.

The feral pig population is a problem. If they allowed hunting via permit for these and allowed night fishing, it would heighten our enjoyment of the park.

The restrooms are in need of repair, and were closed all of 2011; however, I cannot see where any improvements were made...

The rules are not being enforced at the beach. People are bringing pets and sunbathing, but there are never any employees around to enforce the rules.

The volunteers and employees we have had the pleasure of interacting with are very knowledgeable and very friendly. They make us want to come back!!

They need to allow swimming in certain areas.

Think I came too early in the year to catch any good fish. Would love to visit again.

Trails were easy to follow and well maintained.

Very well staffed and maintained.

We always enjoy our visits!

We first went there July 3rd and the Visitor Center was closed for the holiday. We had to come back another day for the stamp.

We have been coming to this refuge for four years every spring. We continue to be amazed by how warm, friendly, knowledgeable and courteous the staff have been on each and every visit. On our first visit a ranger came to find us in the midst of a torrential rain storm to offer us a ride back to our car. On this last visit another ranger stopped to inform us that a particular road, which is usually closed, was opened and we might like to bike that path. We saw an entirely different array of wildlife and were thrilled. Fabulous staff!

We just stopped in to quickly hike around and take in the view. We did not seek anyone out or expect anyone to come greet us.

We park and pass through Back Bay on our bicycles to get to False Cape State Park where we enjoy the beach, fishing, and camping.

We were at this refuge in the spring, April, and they were only in full service on the weekend. We were there during the week. Saw no employees or volunteers.

Would like sit-on-top kayaks available there in refuge.

Survey Section 5

Question 3: "If you answered "Yes" to Question 2, please briefly describe what makes Refuges unique."

Comments on What Makes Refuges Unique? (n = 128)

A small piece of nature that has not been ruined by money and greed, which makes it unique.

All experiences are unique.

Although I'm here to bass fish, there are a lot of other opportunities for a lot of other people.

An area where you have to pay to enter typically is reserved for those persons who are there to enjoy a specific purpose. In other words, it keeps out the riff-raff, allowing the rest of us to do what we want in relative peace and quiet.

Being able to view nature and wildlife away from any "park" like locations is wonderful. The animals have not developed a fear of humans and are curious about us, so they stay close.

Being located so close to a major urban area is unique. It is a short trip for us out to the refuge and we try to get out there at least 3 - 4 times a week. We love to go out hiking and picture taking and always see something different. I would hate to see anymore vehicles on the dike roads.

Better managed, better maintained, more opportunities to view wildlife in nature.

Calm'; peaceful; no motor vehicles; not a lot of people; relaxing. Bring back the horses.

Closer experience to wildlife and less crowded than the ones I've been to.

Everything is so well done and well-maintained.

False Cape is a jewel. Do whatever you can to keep it safe!

For us, the fact that the refuge is focused on fishing, hunting, bird watching, and not swimming, sunbathing etc. is the key reason for our visits.

Gives a safe opportunity to explore using many modes of transportation, and experience wildlife and outdoors.

I am able to observe wildlife in their natural environment.

I am not sure, but I think wildlife refuges provide a greater opportunity to observe wildlife than at national parks.

I can see the great outdoors without trespassing.

I do like the program for the turtles they provide during hatching :)

I enjoyed the remoteness of this refuge.

I like being able to go to the ocean and the bay. I like how there are lots of trails where you can see all sorts of wildlife.

I like that the setting is left as natural as possible.

I live in upstate New York: it was interesting to see wildlife in a beach setting.

I love how natural the setting was and how untouched by human development it remains. Just having my kids exposed to the nature of the refuge was a super experience.

I love the fact that lands are conserved for the public interest. I hate the fact that catch and release fishermen like myself are controlled when we do absolutely zero damage to fisheries.

I love the primitive environment at the refuge and the opportunities to explore, within boundaries. We visit the refuge on a fairly regular basis, and it never seems as if we are visiting a 'location,' but seems more like we are visiting a remote, uninhabited area. We love enjoying the peace and beauty at Back Bay.

I love walking through groves of non-manicured indigenous plants, depending on my own two feet to get me around from the bay to the oceanfront in minutes.

I typically conflate the National Wildlife Refuges with the National Parks. However, while the mission of the National Parks seems to be to provide recreational opportunities in a dramatic natural setting, the NWRs seem focused on a more profound mission - protecting wildlife and nature. I appreciate this mission and was glad that my family and friends could experience it with me.

I was amazed at the size of the refuge. I don't think other agencies could adequately staff or manage a park of this size.

Isolated area, very low population density. Incredible beaches and bay areas. No crowds!

It is a beautiful, relatively unspoiled wilderness with hiking and biking trails, and is not ridiculously tiny.

It is a great place for kids raised in cities/suburbs to see nature.

It is a handy location for me.

It is a quiet, relaxing, beautiful place to spend the day.

It is an expansive and thorough experience. Creates a real sense of being in the wild but protected.

It is just so beautiful, and wild, unspoiled, and not touristy.

It is not built up; it is as it was originally.

It is not run for profit and can operate for long-term wildlife preservation.

It is open, diverse, and very accessible.

It is the best way to experience wildlife in its natural habitat.

It is unique because of the preservation of both salt/fresh and brackish water species.

It provides a peaceful opportunity to experience nature in a near pristine state.

It seems undisturbed.

It truly provides a unique place for the wildlife to live fairly undisturbed.

It was an amazing place to visit and everyone should visit refuges.

It was an excellent chance to experience solitude from development without too many people and was as close to nature as is possible.

It was not as crowded as other public lands, lending to a more serene and peaceful atmosphere.

It was the first one I've been to, but seemed VERY well maintained. Staff was really devoted to the purpose of their job and are well informed. I wish there were MORE (paid) staff as it is not an easy job..

It's a beautiful place to hike, bike, fish, observe wildlife, etc. Excellent measures are taken to preserve wildlife and habitat areas.

It's a natural habitat you don't get to see often.

It's a place where the public can go to see wildlife as it should be.

It's local, and connects to False Cape State Park. The staff are friendly, the new entrance is really nice, the bathrooms are fine, and the shuttle van is available.

Many state parks I've visited are somewhat exploited or undersized to accommodate any wildlife. NWRs are better protected and kept clean.

Marsh, ocean environment.

More natural setting, harder to access.

Most public lands are not natural in presentation. Refuges are unique, as visitors can enjoy their undisturbed state.

National Wildlife Refuges are unique because the primary purpose is conservation of the land, habitat, and wildlife, which encourages visitors to observe and protect the area and wildlife. There is more emphasis on preservation and leaving minimal impact. In contrast, I think the National Park System wants to conserve their respective lands and wildlife, but their purpose is recreation.

Natural habitat and minimal public impact (i.e. compared to national parks). Also, preservation of public lands and wildlife resources for future generations.

Natural resources and wildlife.

Nice place to bike.

Not only can you hike along the trail, but all the signage tells you to beware, especially of snakes (ugh).

NWRs provide hunting and fishing opportunities not found on all other lands.

Ocean and back bay areas.

Ocean views.

One side is an ocean and the other in on Back Bay with access. Both are very unique.

Preservation.

Preservation of the lesser accessible areas and protection of indigenous resources is paramount and Virginia Beach needs this unique recreation area before every bit of it is over commercialized and covered with crappy humongous awful colored condos and hotels!!

Protecting the nature and, at the same time, seeing nature and wildlife.

Provides critical habitat for a diversity of wildlife. Protects sensitive environmental areas (i.e. marshes, wetlands etc.) from commercial development. Promotes the principle of "land stewardship."

Quiet getaway.

Refuges are unique because they provide services to conservation as well as recreation. Because of this, the area remains natural and wild, instead of being built into a resort for just the recreationalists. I'd rather visit unspoiled wild lands than any man-made area.

Refuges offer entertaining, safe and educational outlets to the public while conserving and protecting natural resources from constant natural elements and human elements.

Restrictions on traffic and accessibility make it unique.

That the refuge remains wild and as much as possible "unimproved."

That you are ensuring the animals' natural habitat makes it unique. My daughter was asking where the animals were (she was thinking zoo). I explained that this land is here for them so they can live their natural way without human invasion. She was quite impressed with that idea.

The ability to explore nature as it should be, instead of how we create it to be, was great!

The amount and variety of birds make it a very fun and unique experience. I like how little has been done to the refuge habitats in terms of alteration, with the exception of the dikes it appears and is largely still wild. Further domestication of the park may increase use, but I would fear it would also increase noise and traffic, which would diminish the experience. I feel accessibility for hiking and biking would be a happy medium of increasing access while preventing added motorized traffic.

The amount of wildlife makes it unique!

The area was very "pristine."

The attempt to leave nature undisturbed.

The balance necessary convenience with raw nature.

The beach, the Visitor Center, and the friendly people that work there all make it unique.

The beautiful and well kept landscape, all the opportunities to help preserve wildlife, and the great outdoor activities make it unique. I love fishing; the fishing here is great.

The conservation efforts and the educational opportunities make it unique.

The emphasis is on wildlife only, as opposed to concession opportunities. Availability for experienced guides who will lead all sorts of nature walks and specimen "collections" (photograph and viewing) - tiger beetles, ducks, birds, etc.

The emphasis on preserving and protecting the wildlife is unique to these refuges and provides a focus for their existence and outreach.

The lands and properties that we visit are basically untouched and left naturally as God made them. Additions of just what is needed to be comfortable to enjoy the properties such as welcome center with small pleasant, knowledgeable staff, outdoor unmanned kiosks, water stations, manageable road ways/trails. You feel like it's you and nature; the good, the bad, and the ugly.

The long stretch of ocean front beach is beautiful. You aren't allowed to sunbathe or surf and swim there so it's never busy and looks beautiful.

The national wildlife refuge is unique because it is untouched by commercial property, real estate, and is left to be natural.

The opportunity to observe numerous species of wildlife in a natural environment which are usually not as abundant in other parks makes it unique.

The opportunity to observe wildlife in a natural environment makes it unique.

The opportunity to see a variety of wildlife and geologic formations makes it unique.

The opportunity to visit untouched, large stretches of undeveloped land that accommodate unique and rare animal species makes refuges unique.

The park is pristine and well maintained, with a great mix of beach and wetlands.

The park is so natural.

The preservation of wildlife and the conservation of land for future generations to enjoy.

The quality of the trails, boat launch and fishing docks are great!

The reason for the refuge is for managing the wildlife.

The rest of VA Beach is very developed. This is the only strip of beach that is natural.

The secondary mission of recreation ensures that the opportunities for hiking and wildlife viewing are increased. I like that the main concern is preservation of space for species other than humans.

The very unspoiled beach makes it unique.

There are not a lot of tourists clogging up the beaches and trails everyday. This means a lot to me because we like to fish and hike/bike the trails without a lot of trash and touristy things in the vicinity.

There are not many people around.

They allow people to see how wildlife lives in their natural habitat. When you live in a large city, you do not have that luxury. It allows you to take your time and be patient with what is around you.

They are affordable, family appropriate and educational.

They are better maintained and well staffed.

They are in areas where you can provide a refuge.

They are less traveled, so it is a great place to get away from other people and just relax.

They are one of the last natural places in our urban and suburban environments.

They are very concerned about nature.

They minimize the impact of the visitor to the park and its inhabitants, and make you more aware of its importance.

They must balance the needs of a visiting public against the best interest of the wildlife they are seeking to support. Without public engagement their mission would fail, but too much visitation might compromise the safety of the wildlife.

They offer a chance to photograph wildlife and birds in a natural habitat.

They offer potentially good photography opportunities.

They offer the visitor an opportunity to view native species in an uncontrolled natural habitat.

They provide a fantastic natural environment for people to experience nature and wildlife. In a world full of technology, it is a calm, peaceful escape for people. My main criticism would be there is no public transport to these facilities for poorer people in the cities.

They provide wide open spaces, with attention to the visitor experience. My heart goes out to the staff and volunteers; it seems they are doing their very best with what must be diminishing resources to do their jobs. Hats off to them.

They seem to be less crowded.

They usually have more areas (within the refuges) that you cannot visit at all because those areas are for wildlife only.

This refuge is along the Atlantic Ocean. The primary mode of transportation of this refuge is walking or biking. Each refuge varies with strengths and weaknesses.

Very enjoyable on bicycle. Experienced wildlife - birds and turtles - besides observing nature's beauty - water/land with my wife.

Water and barrier environment.

We enjoy the serenity and the wildlife. Another favorite activity is walking on the UNCROWDED beach.

We feel in this ever more crowded world that someone must care and protect the animals. Humans without thinking are far too often the worst, or only, predator of most birds and animals. National Wildlife Refuges provide a haven for the animals but even more so for us!

We love having the opportunity to observe birds and wildlife in the beach setting (our favorite place).

Well maintained and easily accessible.

Well maintained.

Wild areas, restoration, pristine environment, animal life.

Wilderness is maintained and offered to the public for viewing, enjoyment, and research.

You are given a chance to be in nature as it's supposed to be: wild and completely natural.

Additional Comments (n = 41)

Again, we pass through Back Bay on our way to enjoy False Cape State Park where we can use the beach, fish, and camp. We travel by bicycle and would appreciate the dikes being better maintained (i.e., not so much gravel). We find the roads in False Cape State Park to be in much better shape and easier to travel.

Although I love Back Bay, I really regret that dogs are no longer permitted. It appears dogs on leash should at least be permitted on the beach. Many other wildlife refuges permit dogs on leashes.

Back Bay is one of my favorite places to bike! I live close to Richmond, VA and was vacationing at Virginia Beach when I recently visited.

Back Bay National Wildlife Refuge is much more open and welcoming than Plum Island near me. Parker River is highly restricted and heavily policed with only a few roads, trails and boardwalks which you can use.

Back Bay NWR is really great. It would be nice if they could place a couple of trash bins (attached to sign pole or something so they are permanent) on the beach walk. It would be helpful to re-size the 'nature trail' sign on the dune, heading south, as I didn't even notice it for 3 years. There is a \$9 tram fee to False Cape. Maybe there could be a discount for season pass holders? It would be nice to offer a military discount to state and national year pass holders. Thank you!

Back Bay offers a unique look into wildlife and scenery in Virginia. A special place for residents, family, friends, students, and tourists to experience a vital part of the conservational effort and see first hand how it truly pays off.

Hunting and fishing should be banned from all refuges. They should be places to enjoy nature, not take it.

I am trying to begin bringing groups to Back Bay NWR and FCSP in ongoing efforts to keep these parks and refuges alive! If anyone were to visit VA Beach and NOT see Back Bay NWR I feel they will have missed the BEST PART!

I enjoy the solitude that is possible at this refuge along the beach. The refuge is becoming more popular though, thus less solitude. I would like to be able to access the beach further into the refuge, as I ride my bike into the park, then carry my fishing equipment to the ocean.

I go out for exercise and to view nature almost every day.

I have been at this refuge several times. The east and west dikes seem to be alternately closed to all hikers and cyclists. Why?

I have come to the refuge twice in October during the wild boar hunting season and was denied access. I think it would be more considerate if notice to pass holders by email or better notification were improved through news or newspapers... thanks!

I hope that while increasing the programs and alternative transportation, the uniqueness of this refuge is maintained. Such a special place.

I just happened upon the refuge and drove through. Used restroom and looked at displays. I will visit again, but only if I'm in the neighborhood. Thanks [signed]

I love it. I am almost always see something new and exciting.

I spend most of my free time outside, at the beach fishing, in the woods hiking, etc. I been visiting this refuge for years, and I love it.

If we go back, I will find out more info ahead of time so we can take better advantage of the available programs.

It's close to home and I like to go there and walk along the ocean.

Looking forward to returning!

Love "the refuge"!

Love the biking trails and would love to sunbath on the beach.

More signage along the trails would be welcomed.

My family loved the Back Bay NWR. We made it a destination on a cold, blustery day while we rented a house at Sandbridge. It helped turn what would have been a somewhat boring day stuck inside into a special day that I'll remember for a long time.

Please consider allowing pets. I have visited places that will allow pets in certain parts of the park and ban them in other parts. That way visitors who do not want to see animals (why are they there anyway) don't have to.

Please, let's keep these parks and refuges working and updating so future children and families can come and enjoy seeing turtles laying eggs in the dunes or near the seashore, or looking for freshwater fish, or turtles too, or bird watching. Thanks for a great experience.

See comments. Please do not ignore the snake issue. It is a safety issue. Someone will get a bite. My child almost stepped on one on the path. Several other people at the refuge were also concerned.

Staff are always friendly and happy to help. We love all the birds and wildlife we see and are grateful for the access to unspoiled ocean-front so close to home. I think the refuge and adjoining state land are priceless to the state and nation.

Thank you for trying to improve the bass fishing. (initials)

Thank you for what you do! (Thanks for caring.)

Thank you!

Thank you.

Thanks.

The primary reason for the visit to this refuge at the time we were there was to get to False Cape Park, and also to do a little bicycling.

The refuges and National Parks are the crown jewels of America. We should create more of them. People who do not pay taxes (i.e. visitors to the US) should pay higher entry fees to help with the costs of maintenance. The budget of the NWRs and the NP System should be increased 5x and this should be paid for by decreases in the military budgets. NWR employees are heroes. They are the friendliest and best people in the government. I personally volunteer to guide wildlife walks at several NWRs on the Eastern Shores of Virginia. Keep up the good work!!! love [signed]

There needs stronger enforcement of the "no pet" rule.

This is my favorite local outdoor area and preserves an area of outstanding beauty and environmental significance in an area rapidly being covered by urban sprawl.

This was one of the best years we have ever had for observing wildlife. We saw an ibis nesting, fish spawning, a turtle laying eggs, several snakes, hundreds of turtles sunning themselves, and even more herons, osprey and egrets. Everyday was a fantastic and beautiful adventure!

We are looking forward to future visits! P.S. I don't believe science has shown that man can control global warming. In fact, the past 12 years have shown no additional significant global warming and, even if there had been some, mankind can do little to change its course in the short/medium term.

We love to sail and fish here.

We loved our experience at the Back Bay National Wildlife Refuge in VA Beach, VA. The children's educational program was very well done and my 80 year old mother also joined us. She had a ball too. Keep up the good work. Regarding the question about climate change and if I'm actively working to protect fish and wildlife: I answered "agree" because I am doing what I can, but change is more dependent on factories to reduce the use of fossil fuels and switch to alternative renewable sources. We can not afford an electric car. Sometimes I feel, aside from reducing vehicle use and recycling and saving energy at home, there is not much I can do. I do vote for candidates that support a green agenda.

You're doing a great job!!