

U.S. Fish and Wildlife Service



National Wildlife Refuge Visitor Satisfaction Survey: Data Analysis and Report

Prepared by:

Keith Brown
Management Systems International, Inc.
600 Water St., SW
Washington, D.C. 20024
202-484-7170
www.msi-inc.com

Tara Carpenter
Federal Management Partners
1500 N. Beauregard St.
Alexandria, VA 22311
703-671-6600
www.fmpconsulting.com

TABLE OF CONTENTS

Executive Summary	1
I. Introduction	4
Purpose.....	4
Report Organization.....	4
Presentation of Data	5
II. Methodology	8
Development of the Survey Instrument	8
Sampling Approach	8
Administration of the Survey.....	10
Data Management and Processing.....	10
Data Analysis	10
III. Analyses and Findings	12
Overall Response Rates	12
Refuge Response Rates.....	12
Quality/Enjoyment.....	14
Interaction with Employees/Volunteers.....	14
General Perceptions	20
Overall Satisfaction.....	22
Relationship between Satisfaction and Other Survey Responses	25
Conclusions and Recommendations	30
Access	32
Maps/Signs.....	33
Length of Travel	33
Refuge Knowledge.....	34
Refuge Information.....	36
Adequacy of Opportunities	38
Special Assistance.....	40
Conclusions and Recommendations	41
Fair Value.....	41
Appropriateness of Fee	42
Value of Recreation Opportunities and Services	42
Conclusions and Recommendations	43
Purpose/Use	43
Primary Purpose.....	44
Use of Facilities and Recreational/Educational Opportunities	44
Relationship between Primary Purpose and Use	49
Conclusions and Recommendations	50
Background.....	50
Knowledge that Site is a Refuge.....	50
Number of Visits to this Refuge	51

Number of People in Group.....	51
Number of Visits to Other Refuges	52
Zip code	53
Age.....	53
Education	54
Race and Ethnicity	55
Gender.....	56
Citizenship	57
Primary Language.....	57
Time of Day of Survey Completion.....	58
Conclusions and Recommendations	58
IV. Summary of Conclusions.....	60

APPENDICES

Appendix A: Satisfaction Contingency Tables
Appendix B: Purpose Contingency Tables
Appendix C: Analysis of Refuges with Low Response Rates and Low Numbers of Completed Surveys
Appendix D: Analysis of Narrative Data
Appendix E: OMB Clearance Document
Appendix F: Instructions for Refuge Surveyors
Appendix G: Survey Instrument
Appendix H: Refuge Log Sheet
Appendix I: List of Refuges

Executive Summary

In late July and August of 2002, the Division of Visitor Services and Communications, National Wildlife Refuge System, U.S. Fish and Wildlife Service (FWS) conducted a survey of National Wildlife Refuges (NWR) in order to gather information about visitor satisfaction. The two principal reasons for conducting the survey were: (1) to establish a baseline for evaluating FWS refuge performance within the context of its GPRA goal, “By 2005, 90% of National Wildlife Refuge visitors are satisfied with the quality of their recreational/educational experience,” and (2) to better understand the interests and perspectives of refuge visitors and thereby improve the experiences of future visitors, particularly in the areas of recreation and information/education services.

A sample of 50 “high visitation” refuges was identified. Forty-five refuges from this sample participated in the survey. The analysis presented in this document is based on survey results from 43 of the 45 participating refuges (refer to the *Methodology* section of this report for additional information). It is important to note that the findings and conclusions presented in this report can be applied only to summer season visitors of high visitation refuges (the survey population). Due to the understandable boundaries of both the survey instrument and the survey process, broader generalizations cannot be made.

Key Findings and Conclusions

The most important and most evident conclusion to take away from the survey data is that refuge visitors have a high level of satisfaction with regard to their refuge visits. Slightly more than ninety percent of visitors reported satisfaction with their experiences at refuges and almost 90% indicated that they would likely visit a refuge again within two years. Importantly, satisfaction was to a large extent, consistent across all sub-populations. Similarly, the primary purpose of an individual’s visit to a refuge, as well as the range of activities s/he participated in while at the refuge, had very little apparent impact on his or her satisfaction – in all cases, satisfaction was very high. And visitor satisfaction was not only consistently high, it was also durable. That is, even visitors who perceived some aspect of a refuge’s services or facilities to be inadequate were very likely to express overall satisfaction with regard to their refuge visit.

As noted in the preceding paragraph, there do not appear to be any fundamental areas of concern related to visitor satisfaction that affect the overall refuge survey population. However, there is evidence that one or two issues require further inquiry. One of these issues is law enforcement. As compared to other refuge services and facilities, survey respondents were substantially less likely to view law enforcement as satisfactory. Interestingly, visitors’ perceptions of law enforcement did not appear to substantially impact their overall satisfaction with regard to their refuge visit. Given these somewhat inconsistent data, this is a question which calls for further investigation.

The issue of race is a second area which calls for additional examination. A smaller portion of “Non-whites” express satisfaction with regard to their refuge visits than do Whites (86.3% for

the former and 90.4% for the latter). The difference in satisfaction levels between these two groups is not large, but the weight of the issue increases the justification for taking a closer look.

Similar to overall satisfaction, survey findings with regard to refuge access and refuge fees were also strongly positive. As regards access, survey respondents indicated that refuges provide a high level of access to visitors. The vast majority of respondents noted that maps and signs made it easy to find the refuges, that they were satisfied with the accessibility of information while visiting a refuge, and that they were satisfied with the recreational and educational opportunities available to them while at refuges. This conclusion holds for visitors requiring special assistance or mobility aids. Interestingly, survey data further indicate that highway/road signs are not only important for providing refuge visitors with directions to refuges, but also are very important for initially attracting visitors to refuges.

The message from survey respondents regarding fees and value is very unambiguous. That is, fees currently being charged by refuges are appropriate and represent fair value. Survey data also indicate that the current level of fees have no apparent impact on visitor satisfaction, i.e., only a very small minority of refuge visitors feel fees are too high, and the majority of these visitors nonetheless indicate that they are satisfied with their refuge visits.

Finally, a review of the demographics of survey respondents indicates that “Non-white” racial groups are underrepresented as refuge visitors. Though not directly related to the issue of satisfaction, this finding seems substantially important, and is thus included in the discussion presented in this report.

Principle Recommendations

- 1) Based on the information from this survey, identify improvements aimed at increasing visitor satisfaction on a *refuge-by-refuge* basis. Given the lack of any fundamental patterns of dissatisfaction across the population of survey respondents, efforts to improve services and facilities should be based on refuge-specific circumstances.
- 2) Conduct targeted aggregate level analysis that focuses on those groups of refuges with either comparatively high or low satisfaction rates. This type of examination may identify particular patterns related to visitor characteristics or refuges resources and facilities that are aligned with high or low levels of satisfaction.
- 3) Consider modifications to this current survey, either in terms of the survey instrument or survey administration. With regard to the survey instrument, the Service may want to add a small number of questions, while maintaining the base survey, which ask respondents to focus specifically on any concerns they might have. Any such modifications would recognize the likelihood that visitors can be satisfied and still have legitimate and important concerns about specific refuge operations or circumstances. In terms of survey administration, changes could focus on looking at visitor satisfaction during different seasons, or across different types or sizes of refuge.

- 4) Examine further the issues of law enforcement and race with regard to the satisfaction of refuge visitors. Additional analyses and data collection may indicate that these are largely refuge-specific issues or may confirm that they represent systemic concerns. Exploration of these issues might involve targeted evaluative activities, such as focus groups, or individual or group interviews.
- 5) To the extent that doing so would be of use to refuge programs and services, the Service should consider expanding the number of refuges that charge fees. Most visitors to refuges that charge fees indicated in their survey responses that fees are set at an appropriate level. This would argue against increasing fees at those refuges. However, survey data also clearly indicate that fees (at least at their current level) have little impact on visitor satisfaction, indicating room for expanding the number of refuges collecting fees.
- 6) Through targeted assessments and evaluative activities, explore the reason for low visitation by “Non-white” racial groups. Dependent on the findings of this assessment, modify or supplement refuge services and facilities to better attract “Non-white” visitors.

I. Introduction

Purpose

The Division of Visitor Services and Communications, National Wildlife Refuge System, U.S. Fish and Wildlife Service (FWS) conducted a survey of refuges to gather information about visitor satisfaction. Following guidance from the Office of Management and Budget (OMB), the FWS has developed a GPRA goal for measuring visitor satisfaction with the quality of recreational/educational experiences at the National Wildlife Refuges. FWS' long-term goal states: "By 2005, 90% of National Wildlife Refuge visitors are satisfied with the quality of their recreational/educational experience." The purpose of this survey is to establish a baseline for evaluating FWS refuge performance within the context of this GPRA goal. The information gathered will help FWS to better understand visitors' perspectives of services offered at its refuges, particularly in the areas of recreation and information/education services.

Report Organization

The report is organized into seven major areas:

- ◆ **Methodology:** Describes the process FWS used to administer the survey of refuges.
 - ◆ **Quality/Enjoyment:** Details findings and analyses, and provides conclusions and recommendations, regarding the quality of respondents' experiences with the refuges and their enjoyment of refuge visits. Results from the following survey questions are included in this section: 9, 10a-10e, 12, 13, 14a-14d, 20, 21, and contingency tables relating satisfaction to other survey responses.
 - ◆ **Access:** Describes findings and analyses, and provides conclusions and recommendations, regarding refuge accessibility. Results from the following survey questions are included in this section: 2, 3, 7, 11a-11d, 16a-16d, 17.
 - ◆ **Fair Value:** Reports findings and analyses, and provides conclusions and recommendations, regarding the value and fairness of fees charged. Results from the following survey questions are included in this section: 18, 19.
 - ◆ **Purpose/Use:** Details findings and analyses, and provides conclusions and recommendations, regarding the purpose of respondents' visit to the refuge and what facilities and recreational/educational opportunities they took advantage of during their visit. Results from the following survey questions are included in this section: 1, 15, and contingency table relating purpose and use.
-

- ◆ **Background:** Describes findings and analyses, and provides conclusions and recommendations, regarding respondent demographics and other information that describes respondents. Results from the following survey questions are included in this section: 4, 5, 6, 8, 22, 23, 24, 25, 26, 27, 28, 29, 31.
- ◆ **Conclusion:** Provides a summary of the findings of the FWS refuge survey.
- ◆ **Appendices** Appendices A through D present data and analyses that are directly relevant to the discussion presented in the main body of this report. Appendices E through H provide background materials related to the development and administration of the survey.

Presentation of Data

For each question in the survey a frequency table is reported. The use and presentation of frequency and contingency tables (see below) is consistent with standard analytic practice for survey data of the type collected through the 2002 FWS National Wildlife Refuge Visitor Satisfaction Survey. The following information is included in each frequency table.

- **Frequency:** The count or number of cases having each value (or range of values) of a variable.
- **Percent:** The percentage of cases having a particular value. The raw percent is calculated by dividing the frequency of the value by the total number of cases in the sample including missing values¹. The raw percent may differ from the valid percent which is computed with missing values excluded from the percentage base.
- **Valid Percent:** The percentage of cases having a particular value when only cases with non-missing values are considered. It is obtained by dividing the valid number of cases by the total number of cases and multiplying by 100.
- **Cumulative Percent:** The percentage of cases with non-missing data that have values less than or equal to a particular value².

¹ A response is defined as missing if (a) a respondent did not provide a response to a survey question (i.e., left the question blank); (b) a respondent provided more than one answer to a question that required a single response only; or (c) a respondent answered a question with a response that was different in kind from the expected response (e.g., if asked for the # of miles traveled to get to the refuge (Q3), and the response was something like, "it took about 20 minutes," the response would be defined as a missing value).

² Cumulative percentages reflect the "running total," of the responses for all of the response categories for a given question. An illustrative example: a given survey question has 4 possible responses (A thru D); 100 people are surveyed; 25 people answer with response A, 25 with response B and so on with responses C and D. In this example, the valid percent for response A is 25%. The cumulative percent, *through* response A, is also 25%. Continuing with the illustration, the valid percent for response B is 25%. The cumulative percentage, *through* response B is 50% (response A + response B = 50 respondents; 50 out of 100 total respondents = 50%). With 25 respondents answering C, the cumulative percentage *through* response C is 75%, and so on. Cumulative percentages help analysts and users of data to quickly identify important thresholds or "patterns" internal to a specific survey question.

In addition to frequency tables, contingency tables³, which report frequencies and percentages of a variable at each level of another variable, are included. Contingency tables capture the relationship of one survey question (or variable) to a second survey question. Contingency tables are included which examine the following relationships.

- **Quality/Enjoyment** (Question 21). Relationship between survey questions and overall satisfaction (in these analyses quality/enjoyment is treated as a dependent variable), including:
 - ◆ “primary purpose” (Question 1),
 - ◆ “previous visits to this NWR” (Question 5),
 - ◆ “previous visits to other NWRs” (Question 8),
 - ◆ “experience with refuge staff” (Question 10),
 - ◆ “general perceptions” (Question 14),
 - ◆ “services and/or facilities used” (Question 15),
 - ◆ “adequacy of opportunities” (Question 16),
 - ◆ “requires special assistance” (Question 17),
 - ◆ “appropriateness of fee” (Question 18),
 - ◆ “age” (Question 23),
 - ◆ “Hispanic/Latino” (Question 25),
 - ◆ “race” (Question 26),
 - ◆ “gender” (Question 27),
 - ◆ and “primary language” (Question 29).

- **Purpose/Use.** Differences in “uses of the refuge” (Question 15) by “primary purpose” (Question 1).

Rationale for Data Presentation. As noted above, data are presented as frequencies (“actuals”) and as percentages. The majority of the survey questions are measured with ordinal level or dichotomous (yes/no) scales. Ordinal level data reflect a rank ordering of responses and it is standard analytic practice to summarize both ordinal level and dichotomous data using frequencies and percentages. The decision to present the data in this manner was also based on the benefits – or more to the point, requirement - of understanding data within a context. Actual numbers are useful, but without a context for understanding the figures, “actuals” can create more questions than answers. Similarly, percentages without the actual numbers behind the respective percentage calculations are also problematic.

Two brief illustrative examples: First, if 100 respondents answered a question in a positive manner, the “findings” will differ dramatically if the total number of valid responses is 200 (50%) versus 500 (20%). In both cases, the “actuals” are exactly the same. The percentage calculation, however, provides the context for understanding what those actuals may in fact indicate. Second, if survey findings indicate that 60% of valid responses show, for example,

³ Contingency tables relate two variables. If data are missing for either variable the case cannot be included in the contingency table. Therefore, frequency tables for certain variables may indicate less missing data than contingency tables for the same variables.

strong support for a given policy, knowing the actual number of valid responses is important. If it is determined that only 20 individuals provided valid responses (lets say that 120 were interviewed), with 12 responding positively, then the import of the 60% positive response figure diminishes substantially. Providing both actual numbers and percentages should allow reviewers of this report to better understand the context and possible implications of the survey findings.

Three survey questions (#3, #5 and #6) are not measured on nominal or ordinal scales, but instead are measured on interval level scales. Interval level data reflect a rank ordering of responses in which the intervals between categories are the same size. The range of values is presented for these questions, as well as the mean, median, mode, and standard deviation. This approach to data analysis and presentation is consistent with standard analytic practice for interval level data.

II. Methodology

The following discussion summarizes the methodological considerations and procedures that guided the development of the survey instrument, the administration of the survey, and the management and analysis of the survey data. A more thorough and contextual understanding of these issues can be obtained by reviewing both Appendix E, *DOI Programmatic Clearance for Customer Satisfaction Survey* and Appendix F *Instructions for Refuge Surveyors*.

Development of the Survey Instrument

In order to inform the design of the survey instrument, the FWS principle investigators for this survey, Ms. Rebecca Halbe from the National Wildlife Refuge System staff and Ms. Karen Malkin from Planning and Evaluation staff, conducted an extensive initial review that encompassed: (1) the Service's recent experience with visitor surveys, including the 2001 American Consumer Satisfaction Index (ACSI); (2) input from refuge field and regional level managers and staff; (3) OMB guidance on data collection and the use of surveys and questionnaires; (4) consultations with counterparts working on satisfaction surveys in the Department of the Interior (DOI), Bureau of Land Management (BLM), the National Park Service (NPS), Census Bureau, the Government Accounting Office (GAO), and the Environmental Protection Agency (EPA); (5) consultations with survey experts from universities and nongovernmental organizations; and (6) consultations with survey experts from Management Systems International (MSI) and Federal Management Partners (FMP), firms under contract to FWS provide technical assistance in survey design, survey administration and data management and analysis.

Informed by these efforts, FWS developed a standardized, self-administered, written survey form. The survey includes 31 base questions, four of which have a brief series of sub-questions (the full survey is included as Appendix G). All but one of the questions is close-ended. Most of the survey questions are structured as either bivariate (yes/no), categorical, or Likert scale (5 point continuum). Three questions require numeric answers (interval level data).

The survey was pre-tested at a refuge and pretest respondents judged the survey to be clearly articulated, relevant to their primary concerns and interests, and not unreasonably lengthy or burdensome. A Spanish language version of the survey was produced and disseminated with the English version surveys.

Sampling Approach

FWS established a set of criteria to use in defining the refuge survey population, i.e., to identify the pool of the refuges from which a survey sample (first tier) would be drawn. To be included in the survey population, refuges had to have (1) visitor centers, (2) environmental education programs, and (3) annual visitation of over 75,000 people. To be included in the survey population, refuges also had to have full-time staff or volunteers, i.e., the people necessary to distribute and supervise the survey. At the time of the survey, 61 of the 535 national wildlife refuges in the system appeared to meet these criteria. Focusing on its survey objectives, FWS

selected a purposive survey sample - the 50 highest visitation sites from the population of 61 refuges. Visitation at these 50 refuges exceeded 22.5 million people in FY 2001, roughly 58% of total visitation to all 535 refuges. Looking one step further, only 45 of the 50 refuges actually participated in the survey – 43 of which are represented in the final aggregate data file which was used for the analysis presented in this report (additional explanation regarding participation is provided in the response rate discussion included in the following section of this report)⁴. The 43 refuges captured by the data file – and by the related analyses presented in this report – represent roughly 45% of total FY 2001 visitation. Of note, 26 of the 43 “data file refuges” are fee demonstration sites.

As noted above, the identification of a relatively small survey population, and the selection of a purposive sample from that population, were decisions driven by practical considerations and/or the objectives of the survey. It is nonetheless important to note that by defining these criteria, the generalizations that can be drawn from the analysis of survey data are somewhat limited. More specifically, findings from the survey cannot be generalized to the full population of 535 wildlife refuges. Findings can be generalized with confidence to the survey population of 61 refuges (list attached as Appendix I).

The second tier of sampling focused on the selection of individual respondents. The population of interest for the survey was adults 18 years of age or older who visited a refuge being surveyed during the time period of the study. This population excludes (by necessity) those who visited any refuge in a clandestine manner, those who entered and/or exited through non-monitored or uncounted access points, and those who visited any target refuge outside of the time period of the study.

Sampling of refuge visitors proceeded as follows: for those refuges that were expecting more than 50 visitors during a given four hour survey day (for additional details on survey administration, refer to the following section), the FWS survey administrator was instructed to approach every third individual or group returning from the refuge usage area or departing the visitor center. In the case of refuges expecting fewer than 50 visitors during a four hour survey day, survey administrators were instructed to approach each/every group or individual. The objective of this sampling approach was to make contact with a total of 143 possible survey respondents in each target refuge. With an anticipated response rate of 70%, this would allow for 100 completed surveys for each of the sample refuges. The objective of 143 contacts was not realistic for the majority of surveyed refuges during this survey period (principal reasons include poor weather, limited availability of staff, and expected low season visitation – for additional details refer to Appendix C). In fact, only 11 refuges made contact with at least 143 potential survey respondents.

⁴ As noted above, the data file that was used to conduct the aggregate analyses presented in this report reflects the survey results from 43 refuges. However, the data file provided to FWS as a deliverable of this project includes data from all 45 refuges that participated in the survey. The two additional refuges are Laguna Atascosa (5 completed surveys) and Upper Mississippi River (6 completed surveys).

Administration of the Survey

Following notification of the refuges that were selected as survey sites, 150 English language questionnaires, and an appropriate number of Spanish language questionnaires were mailed to each site (related materials such as log sheets and instructions were also sent at this time). Each refuge in the survey sample was asked to assign two volunteers or staff members to administer the survey (Refuge Surveyors). These individuals received detailed instructions (see Appendix F) in an effort to ensure the survey was administered consistently across each refuge in the sample.

All refuges in the survey sample were assigned (at random) a 3-week timeframe during which to administer the survey. Refuges were given instructions for selecting a minimum of 4 particular survey days/times. For each of these four survey periods, 35 or 36 contacts were to be made. During the scheduled survey days, the FWS Refuge Surveyors approached potential respondents based on the sampling approach outlined above. The Surveyors were instructed to approach individuals aged 18 or older or the adult members of groups to ask if they would participate in the survey [note: a bus or organized tour group does not represent one group; rather, each organized tour may include many “personal groups” (family, friends)]. Once respondents completed the survey, the completed survey was placed in a locked/sealed collection box (respondents were offered the chance to place their surveys in the box themselves).

The Refuge Surveyors kept a record of all contacts made during each survey period (including refusals), using a standard “log sheet” (see Appendix H)

Data Management and Processing

Upon completion of survey administration at the target refuges, the Refuge Surveyors for each respective refuge gathered the completed surveys from the collection boxes and mailed them in provided FEDEX mailers to MSI. Refuges were instructed to allow only Surveyors to handle the surveys and were additionally asked to not review any of the completed surveys prior to sending them to MSI.

MSI forwarded the completed surveys to a firm specializing in data entry - Systems, Analyses, Instrumentation, Development, Inc. (S.A.I.D.) - which processed the surveys as they were received. Trained data processors at S.A.I.D. hand entered (as opposed to scanning) the response data from the surveys. Quality control standards were implemented by S.A.I.D., including (a) a run of frequencies for each of the survey questions to check for any response values which were outside of defined response values (miscoding) or which, taken as a whole, looked inappropriate, and (b) checks of randomly selected surveys against the data entered in the survey data file.

S.A.I.D delivered the final data file to MSI/FMP on September 18, 2002.

Data Analysis

MSI and FMP analysts met with the principle investigators from FWS on September 10 to discuss analytic approaches and priorities. The principle investigators outlined a number of important analytic questions, but the primary focus outlined was clearly visitor satisfaction and

visitor demographics. This analytic focus is consistent with the Service's relevant GPRA goal and with Department of the Interior strategic planning efforts. In addition to the September 10 meeting, there was on-going communication allowing the principle investigators to provide further guidance and clarification.

The analyses run on the survey data (presented in the following sections of this report) consist primarily of simple descriptive statistics (e.g., frequencies and central measures of tendency) and basic comparative analysis (contingency tables). In addition to running frequencies (for each survey question) and contingency tables for the aggregate data file, "refuge profiles" for each of the participating refuges were completed as part of the analysis. These profiles will allow refuge managers to see (and use) the refuge-specific data on visitor use and satisfaction.

The survey data were analyzed using the Statistics Package for Social Sciences (SPSS).

III. Analyses and Findings

Overall Response Rates

Fifty refuges were identified to participate in the visitor satisfaction survey. Forty-five of the fifty refuges administered and returned at least some number of completed surveys. Along with the surveys, each refuge was instructed to maintain a log sheet detailing the number of visitors asked to complete the survey and the number of visitors who actually did complete the survey. These log sheets were to be returned with the completed surveys. One of the forty-five participating refuges, the Upper Mississippi River National Wildlife and Fish Refuge (NW&FR), did not return a log sheet. As a result, the six completed surveys submitted by the Upper Mississippi River NW&FR were deleted from the response rate analysis, as well as from the aggregate analyses described in this report. A second refuge, the Laguna Atascosa NWR, returned its five completed surveys and log sheet too late to be included in the aggregate analyses. According to refuge log sheets from the remaining 43 participating refuges, FWS workers approached 4,121 individuals and asked them to complete the survey. Of those approached, 3,280 agreed to complete the survey for an overall response rate of 79.6%.⁵ This rate exceeds the OMB 70% threshold and is unusually high for such a survey.

Table 1. Overall Response Rate

People Approached	Surveys Completed	Response Rate
4,121	3280	79.6%

Refuge Response Rates

Forty-three refuges returned completed surveys to FWS (excluding Upper Mississippi River and Laguna Atascosa, as discussed above). The number of completed surveys for individual refuges ranged from 8 to 134 and response rates ran from 43.3% to 100%. Because of the high overall response rate, surveys from all of the 43 participating refuges are included in the aggregate analyses. However, caution should be used when reviewing data and analyses from individual refuges with either a low number of completed surveys (fewer than 30) or response rates below the OMB-defined target threshold of 70%.

Reasons offered by refuges for low numbers of completed surveys include the following:

- Heat and/or poor weather
- Traditional low visitation season (e.g., not hunting season)
- Low water levels creating poor fishing conditions
- Low numbers of staff
- Road construction

⁵ Response rates reported on log sheets are not in all cases consistent with the actual number of surveys returned. Some refuges returned more completed surveys than were reported on the log sheet, while for others the opposite is the case. By and large these inconsistencies are quite small – most frequently a difference of one or two records. However, in one case – Hobe Sound NWR – the difference is substantial and appears to be the result of Refuge Surveyors not understanding how to administer the survey. The figures in Table 1 and 2 for “People Approached” are drawn from the refuge log sheets, while the figures for “Surveys Completed” reflect the actual number of surveys received for data analysis. As noted, this second figure is not in all cases exactly consistent with log sheets.

The following table reports the number of surveys completed and response rates for each refuge. See Appendix C for more detailed information about low response and survey completion rates.

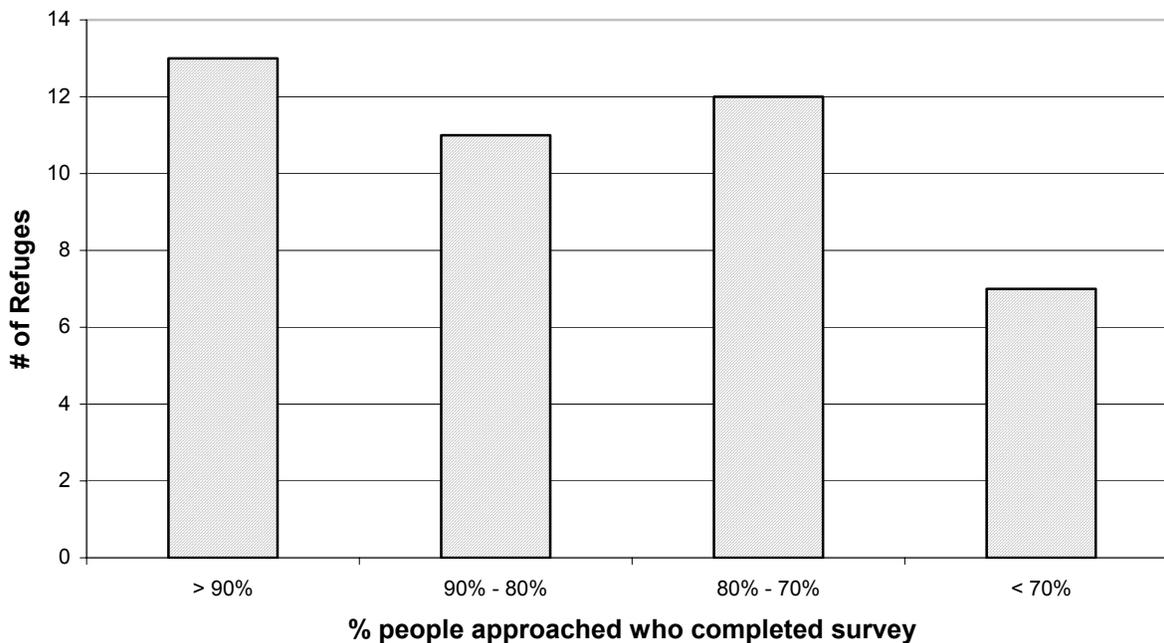
Table 2. Refuge Response Rates

Refuge	Region	People Approached	Surveys Completed	Response Rate
Kilauea Point	1	187	120	64.2%
Tule Lake	1	76	55	72.4%
Don Edwards San Francisco Bay	1	150	126	84.0%
Region 1 Subtotal		413	301	72.9%
Bosque Del Apache	2	68	53	77.9%
Hagerman	2	55	41	74.5%
Imperial	2	14	13	92.9%
Santa Ana	2	63	49	77.8%
Wichita Mountains	2	143	94	65.7%
Region 2 Subtotal		343	250	72.9%
Crab Orchard	3	110	87	79.1%
DeSoto	3	145	119	82.1%
Horicon	3	143	134	93.7%
Minnesota Valley ⁶	3	13	15	100%
Muscatatuck	3	130	109	83.8%
Neal Smith	3	121	118	97.5%
Squaw Creek	3	91	86	94.5%
Region 3 Subtotal		753	668	88.5%
Arthur R. Marshall Loxahatchee	4	149	117	78.5%
Cape Romain	4	119	109	91.6%
Cross Creeks	4	10	8	80.0%
Hobe Sound	4	120	62	51.7%
J.N. Ding Darling	4	97	42	43.3%
Mattamuskeet	4	24	24	100%
Merritt Island	4	116	102	87.9%
Okefenokee	4	66	44	66.7%
Pea Island	4	140	114	81.4%
Reelfoot	4	28	26	92.9%
St. Marks	4	143	112	78.3%
Santee	4	86	85	98.8%
South Arkansas Refuges Complex	4	123	93	75.6%
Tensas River	4	29	29	100%
Wheeler	4	107	95	88.8%
Region 4 Subtotal		1357	1062	78.3%
Bombay Hook	5	50	47	94.0%
Chesapeake Marshlands	5	42	40	95.2%
Chincoteague	5	122	120	98.4%
Edwin B. Forsythe	5	75	66	88.0%
Great Meadows	5	150	120	80.0%
John Heinz	5	60	48	80.0%
Monomoy	5	143	98	68.5%
Montezuma	5	78	50	64.1%
Parker River	5	143	110	76.9%
Patuxent Research Refuge	5	143	110	76.9%
Rhode Island Complex	5	111	89	80.2%
Region 5 Subtotal		1117	898	80.4%
National Bison Range	6	52	38	73.1%
Region 6 Subtotal		52	38	73.1%
Kenai	7	84	63	75.0%
Region 7 Subtotal		84	63	75.0%

⁶ The log sheets returned by the Minnesota Valley NWR indicated that 13 people were approached and asked to complete the survey, all of whom did. However, the Refuge returned 15 completed surveys. In follow-up discussions with Refuge Surveyors the following explanation was provided: poor weather (rain) during most, and perhaps all, of the four survey dates led to the decision by Refuge Surveyors to change the survey venue (it was moved to the bookstore at the Refuge). As a result of this change, and the related use of different staff people, it appears that 2 of the visitors approached were not listed on the log sheets.

Viewed in the aggregate, only six of the 43 refuges represented in the aggregate analysis had response rates below 70%, while for 13 refuges, response rates exceeded 90%.

Figure A: Response Rate Analysis



Quality/Enjoyment

Responses to survey questions about the quality of respondents' refuge experience and their satisfaction with the time spent at the refuge are reported in this section. This section is organized as follows:

- Interaction with employees/volunteers (Questions 9, 10a – 10e)
- Awareness of rules (Questions 12, 13a – 13d)
- General perceptions (Questions 14a – 14d)
- Overall satisfaction (Questions 20 & 21)
- Relationship between satisfaction and other survey responses (Questions 1, 5, 8, 10, 14, 15, 16, 17, 18, 23, 25, 26, 27 & 29)

Interaction with Employees/Volunteers

According to survey respondents' answers to Question 9, contact with refuge employees and volunteers was limited. About half of the respondents indicated that they did not have contact with refuge employees or volunteers at all, excluding the person administering the survey (Table 3). Another 21.7% indicated that they had only very brief contact with refuge staff.

Table 3⁷. Q9: Excluding the person who handed you this survey, did you see or talk with any National Wildlife Refuge employees or volunteers during this visit?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	1647	50.2	51.1	51.1
	Very briefly	711	21.7	22.1	73.2
	Several minutes or more	862	26.3	26.8	100.0
	Total	3220	98.2	100.0	
Missing	System	60	1.8		
Total		3280	100.0		

Participants responded very favorably when asked about the quality of their interaction with refuge employees and volunteers, including the person administering the survey. While the feedback from survey respondents regarding the knowledge of refuge staff (Questions 10a -10d, Tables 4 - 7) was very high, respondents were even more positive in their assessment of the overall courtesy of staff and volunteers (Question 10e, Table 8). Following is the percentage of respondents who indicated that they agreed or strongly agreed that refuge workers were courteous and answered questions about the refuge; the National Wildlife Refuge (NWR) system; fish, plants, wildlife, and habitat; and recreational opportunities.

Percent Positive: The percentage of participants who responded positively to each question (agreed or strongly agreed), excluding participants who indicated that the question was not applicable to them.

- Answered questions about this refuge (Question 10a): 92.7%
- Answered questions about the NWR system (Question 10b): 89.6%
- Answered questions about fish, wildlife, plants, and habitat (Question 10c): 89.7%
- Answered questions about recreational opportunities (Question 10d): 87.3%
- Answered questions courteously (Question 10e): 96.2%

⁷ To facilitate readers' use of the frequency tables presented throughout this report, the following example is provided to illustrate how to use/interpret cumulative percentages (the same example is included in footnote 2 above). An illustrative example: a given survey question has 4 possible responses (A thru D); 100 people are surveyed; 25 people answer with response A, 25 with response B and so on with responses C and D. In this example, the valid percent for response A is 25%. The cumulative percent, *through* response A, is also 25%. Continuing with the illustration, the valid percent for response B is 25%. The cumulative percentage, *through* response B is 50% (response A + response B = 50 respondents; 50 out of 100 total respondents = 50%). With 25 respondents answering C, the cumulative percentage *through* response C is 75%, and so on. Cumulative percentages help analysts and users of data to quickly identify important thresholds or "patterns" internal to a specific survey question.

Table 4. Q10a: Employees or volunteers answered my questions about this National Wildlife Refuge.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	56	1.7	1.8	1.8
	Disagree	16	.5	.5	2.3
	Neither agree nor disagree	117	3.6	3.7	5.9
	Agree	965	29.4	30.3	36.2
	Strongly agree	1429	43.6	44.8	81.0
	Not applicable	604	18.4	19.0	100.0
	Total	3187	97.2	100.0	
Missing	System	93	2.8		
Total		3280	100.0		

Table 5. Q10b: Employees or volunteers answered my questions about the National Wildlife Refuge System.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	48	1.5	1.5	1.5
	Disagree	13	.4	.4	1.9
	Neither agree nor disagree	155	4.7	4.9	6.9
	Agree	803	24.5	25.5	32.4
	Strongly agree	1055	32.2	33.6	66.0
	Not applicable	1069	32.6	34.0	100.0
	Total	3143	95.8	100.0	
Missing	System	137	4.2		
Total		3280	100.0		

Table 6. Q10c: Employees or volunteers answered my questions about fish, wildlife, plants and/or their habitats.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	41	1.3	1.3	1.3
	Disagree	17	.5	.5	1.8
	Neither agree nor disagree	164	5.0	5.2	7.1
	Agree	764	23.3	24.3	31.3
	Strongly agree	1158	35.3	36.8	68.1
	Not applicable	1004	30.6	31.9	100.0
	Total	3148	96.0	100.0	
Missing	System	132	4.0		
Total		3280	100.0		

Table 7. Q10d: Employees or volunteers answered my questions about recreational opportunities on this National Wildlife Refuge.

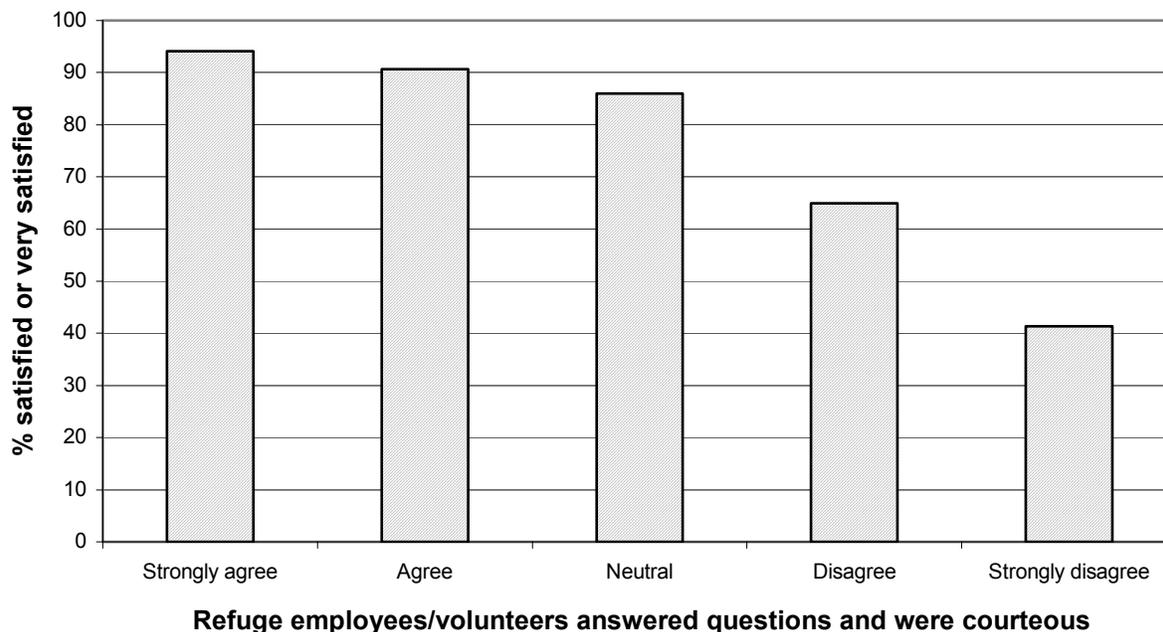
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	40	1.2	1.3	1.3
	Disagree	15	.5	.5	1.8
	Neither agree nor disagree	191	5.8	6.1	7.9
	Agree	707	21.6	22.6	30.4
	Strongly agree	984	30.0	31.4	61.8
	Not applicable	1195	36.4	38.2	100.0
	Total	3132	95.5	100.0	
Missing	System	148	4.5		
Total		3280	100.0		

Table 8. Q10e: Employees or volunteers were courteous

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	64	2.0	2.0	2.0
	Disagree	9	.3	.3	2.3
	Neither agree nor disagree	39	1.2	1.2	3.5
	Agree	630	19.2	19.7	23.2
	Strongly agree	2272	69.3	71.1	94.4
	Not applicable	180	5.5	5.6	100.0
	Total	3194	97.4	100.0	
Missing	System	86	2.6		
Total		3280	100.0		

The importance of staff and volunteer knowledge and courtesy is particularly apparent when considering visitor satisfaction. Though the discussion of visitor satisfaction is more fully discussed somewhat later in this report, it is instructive at this point to look at the relationship between staff and volunteer knowledge/courtesy and visitor satisfaction⁸. As Figure B clearly indicates, staff and volunteer knowledge/courtesy has a strong positive relationship to satisfaction, i.e., as visitors' perceptions of staff and volunteer knowledge and courtesy improve, so does their level of overall satisfaction regarding their refuge visit.

Figure B: Staff or Volunteer Knowledge/Courtesy and Visitor Satisfaction



Awareness of Rules

The majority of respondents indicated that they were aware of rules pertaining to the refuge (Question 12, Table 9)⁹. Questions 13a through 13d asked respondents to indicate if their knowledge of the rules and regulations came from signs, contact with an employee or volunteer, web site, and/or from printed material (Tables 10 – 13). Respondents indicated that signs

⁸ The stronger the statistical relationship between variables the greater level of confidence we have that the relationship is not due to chance. It is important to note, however, that statistical correlation does not necessarily define a causal relationship between variables.

⁹ Generally speaking, this is not the type of question that is used to determine a respondent's level of knowledge or awareness. Asking respondents to make an objective – and very generic – judgement about their own knowledge introduces substantial opportunity for respondent bias and undermines the validity of the resulting data. The best approach to use when making an assessment of knowledge is to ask the respondent questions that directly test his/her knowledge. However, this is a somewhat awkward approach to use in a visitor/customer satisfaction survey and, further, in this specific case, would be inconsistent with the structure of the survey instrument. FWS recognizes these issues, but included the question in this year's survey in an attempt to be consistent with a similar question/approach that is currently used by Bureau for Land Management and the Forest Service. FWS should explore alternative structures for this question for use in upcoming surveys.

(55.2%) and printed information (39.5%) were their primary source of information about refuge rules and regulations. A smaller portion of respondents noted that they learned about rules and regulations by talking with a refuge employee or volunteer (25.6%) or by using internet (4.1%). Percentages total more than 100% because respondents could indicate more than one source of information about rules and regulations.

Table 9. Q12: Are you aware of the rules and regulations that apply to this National Wildlife Refuge?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	2529	77.1	80.3	80.3
	No	622	19.0	19.7	100.0
	Total	3151	96.1	100.0	
Missing	System	129	3.9		
Total		3280	100.0		

Table 10. Q13a: How did you learn about the rules and regulations – signs?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	1810	55.2	100.0	100.0
	Missing	System	1470	44.8	
Total		3280	100.0		

Table 11. Q13b: How did you learn about the rules and regulations – refuge employee or volunteer?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	839	25.6	100.0	100.0
	Missing	System	2441	74.4	
Total		3280	100.0		

Table 12. Q13c: How did you learn about the rules and regulations – website?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	136	4.1	100.0	100.0
	Missing	System	3144	95.9	
Total		3280	100.0		

Table 13. Q13d: How did you learn about the rules and regulations – printed material?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	1297	39.5	100.0	100.0
Missing	System	1983	60.5		
Total		3280	100.0		

General Perceptions

In Question 14, respondents were asked about their general perceptions of the refuge including quality of conservation, level of law enforcement presence, maintenance of roads and parking lots, and ease of inquiry or complaint (Tables 14 – 17). Overall, general impressions of refuges were positive, especially regarding conservation efforts (92.9% positive) and maintenance of roads and parking lots (91.7% positive). However, only 72.6% of participants responded positively when asked if the law enforcement presence is sufficient to minimize crime¹⁰. Following is the percentage of positive responses to these questions.

Percent Positive: Percentage of respondents agreeing or strongly agreeing, excluding participants who indicated that the question is not applicable to them.

- Refuge does a good job of conservation (Question 14a): 92.9%
- Refuge provides sufficient law enforcement (Question 14b): 72.6%
- Roads/parking lots are well maintained (Question 14c): 91.7%
- Ease of inquiry and/or complaint (Question 14d): 84.1%

¹⁰ It is important to note that this survey question does not ask the respondent about his/her sense of personal safety while at the refuge. Respondents may have perceived a very low presence of law enforcement, yet still felt completely safe. Narrative data from this survey (Question 30 – see Appendix D) do indicate that a small number of visitors feel there should be better enforcement of refuge rules and regulations, but only a very small handful of people mentioned anything related to crime, per se. FWS should explore alternative structures for this question for use in upcoming surveys. Modifications to the question should aim to increase its “sensitivity,” e.g., to discern between crime/personal safety issues and violation of refuge regulations.

Table 14. Q14a: Overall, this National Wildlife Refuge does a good job of conserving fish, wildlife, plants and their habitats.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	53	1.6	1.7	1.7
	Disagree	20	.6	.6	2.3
	Neither agree nor disagree	136	4.1	4.3	6.7
	Agree	1203	36.7	38.4	45.1
	Strongly agree	1506	45.9	48.1	93.2
	Not applicable	213	6.5	6.8	100.0
	Total	3131	95.5	100.0	
Missing	System	149	4.5		
Total		3280	100.0		

Table 15. Q14b: This National Wildlife Refuge provides a sufficient law enforcement presence to minimize crime.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	50	1.5	1.6	1.6
	Disagree	114	3.5	3.7	5.3
	Neither agree nor disagree	512	15.6	16.6	21.9
	Agree	1012	30.9	32.8	54.7
	Strongly agree	781	23.8	25.3	80.1
	Not applicable	615	18.8	19.9	100.0
	Total	3084	94.0	100.0	
Missing	System	196	6.0		
Total		3280	100.0		

Table 16. Q14c: Roads/parking lots within this National Wildlife Refuge are well maintained.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	60	1.8	1.9	1.9
	Disagree	79	2.4	2.5	4.5
	Neither agree nor disagree	113	3.4	3.6	8.1
	Agree	1302	39.7	41.7	49.8
	Strongly agree	1489	45.4	47.7	97.5
	Not applicable	78	2.4	2.5	100.0
	Total	3121	95.2	100.0	
Missing	System	159	4.8		
Total		3280	100.0		

Table 17. Q14d: It is easy for me to make an inquiry or complaint about this National Wildlife Refuge.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	54	1.6	1.7	1.7
	Disagree	64	2.0	2.1	3.8
	Neither agree nor disagree	294	9.0	9.5	13.3
	Agree	1029	31.4	33.3	46.6
	Strongly agree	1144	34.9	37.0	83.7
	Not applicable	504	15.4	16.3	100.0
	Total	3089	94.2	100.0	
Missing	System	191	5.8		
Total		3280	100.0		

Overall Satisfaction

Overall respondents were very satisfied with their refuge experience (Questions 20 & 21). Eighty-nine percent indicated that they were likely to visit a refuge again (Table 18) and 90.2% indicated that they agreed or strongly agreed that they were satisfied with the quality of their recreational/educational experience at the refuge they visited (Table 19a).

One point worth noting is the relatively high number of missing values for Question 21 (overall satisfaction). Over 10 percent of the completed surveys did not provide an answer to Question 21, and for some refuges, the percentage of non-response was much higher (e.g., approximately 33% of the completed surveys from Monomoy NWR did not include responses to Q21). A review of the surveys that did not provide answers to Q21 indicates that over half of the surveys were left partially incomplete. With regards to otherwise completed surveys, there is no apparent rationale or pattern for the non-response to Q21.

Table 18. Q20: Do you plan to visit this National Wildlife Refuge or another unit of the National Wildlife Refuge System within the next 2 years?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, likely	2747	83.8	89.0	89.0
	No, unlikely	45	1.4	1.5	90.5
	Don't know	293	8.9	9.5	100.0
	Total	3085	94.1	100.0	
Missing	System	195	5.9		
Total		3280	100.0		

Table 19a. Q21: Considering my overall experiences with this National Wildlife Refuge, I am satisfied with the quality of the recreational/educational experience.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	60	1.8	2.0	2.0
	Disagree	26	.8	.9	2.9
	Neither agree nor disagree	71	2.2	2.4	5.3
	Agree	1065	32.5	36.2	41.5
	Strongly agree	1589	48.4	54.0	95.4
	Not applicable	134	4.1	4.6	100.0
	Total	2945	89.8	100.0	
Missing	System	335	10.2		
Total		3280	100.0		

A look at the satisfaction of visitors to individual refuges is provided in Table 19b. Satisfaction rates (defined as the % of survey respondents whose answer to Question 21 was either “agree” or “strongly agree”) for individual refuges ranged from a low of 75% to a high of 100%. A review of the satisfaction rates for individual refuges reveals no distinct patterns of satisfaction. With regard to regions, the refuges of each region reflect a range of satisfaction rates. Similarly, there is no obvious pattern related to the level of survey participation (i.e., response rates or number of completed surveys).¹¹

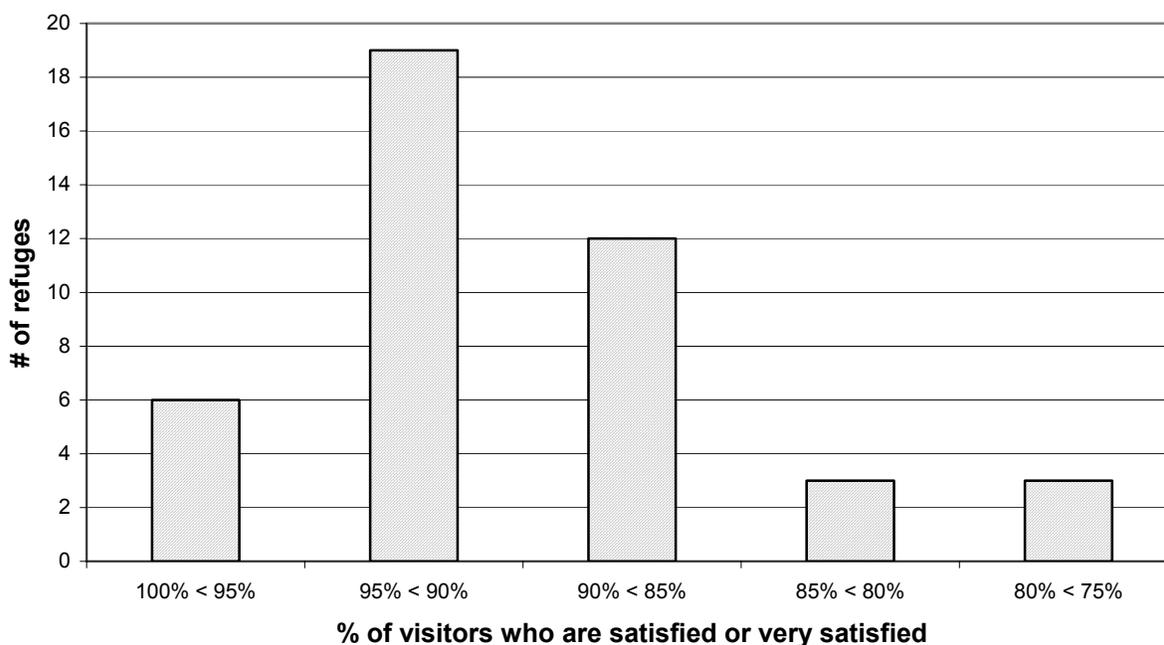
¹¹ The Service may wish to conduct additional analysis to determine if specific refuge characteristics are related to levels of visitor satisfaction. The analyses in this report take an in depth look at the relationship between a number of *visitor-specific* variables or characteristics and satisfaction, but do not look at a refuge-specific characteristics, e.g., types of facilities and services available, etc. (the survey was not intended to capture this information).

Table 19b. Q21, by individual refuge: Considering my overall experiences with this National Wildlife Refuge, I am satisfied with the quality of the recreational/educational experience.

Refuge	Satisfaction Rates (%)	Region	Surveys Completed (#)
Bombay Hook	100.0	5	47
Tensas River	96.4	4	29
Chincoteague	96.3	5	120
John Heinz	95.6	5	48
Monomoy	95.5	5	98
Okefenokee	95.1	4	44
Wheeler	94.3	4	95
National Bison Range	94.1	6	38
Bosque Del Apache	93.9	2	53
DeSoto	93.8	3	119
Neal Smith	93.6	3	118
Montezuma	93.5	5	50
Minnesota Valley	93.3	3	15
St. Marks	92.8	4	112
Horicon	92.5	3	134
Parker River	92.4	5	110
Kilauea Point	92.0	1	120
Imperial	91.6	2	13
Squaw Creek	91.3	3	86
Rhode Island Complex	91.2	5	89
Pea Island	90.7	4	114
Reelfoot	90.5	4	26
Arthur R. Marshall.Loxahatchee	90.3	4	117
Merritt Island	90.2	4	102
Mattamuskeet	90.0	4	24
Cape Romain	89.6	4	109
Edwin B. Forsythe	89.5	5	66
Santee	89.2	4	85
South Arkansas Refuges Complex	88.9	4	93
Santa Ana	88.6	2	49
Wichita Mountains	87.8	2	94
Muscatatuck	87.1	3	109
Patuxent Research Refuge	87.0	5	110
Great Meadows	86.9	5	120
Kenai	86.5	7	63
Don Edwards San Francisco Bay	85.3	1	126
J.N. Ding Darling	85.3	4	42
Tule Lake	84.0	1	55
Chesapeake Marshlands	83.8	5	40
Hagerman	81.0	2	41
Hobe Sound	79.0	4	62
Crab Orchard	76.3	3	87
Cross Creeks	75.0	4	8

Twenty-five refuges have satisfaction rates that exceed 90%, while only three refuges have satisfaction rates below 80 %.

Figure C: Visitor Satisfaction at Individual Refuges



Relationship between Satisfaction and Other Survey Responses

Contingency tables relating overall satisfaction (Question 21) to other survey questions were created and can be found in Appendix A. The following questions were examined in conjunction with Question 21 and the results are summarized below:

- ◆ “primary purpose” (Question 1),
- ◆ “previous visits to this NWR” (Question 5),
- ◆ “previous visits to other NWRs” (Question 8),
- ◆ “experience with refuge staff” (Question 10),
- ◆ “general perceptions” (Question 14),
- ◆ “services and/or facilities used” (Question 15),
- ◆ “adequacy of opportunities” (Question 16),
- ◆ “requires special assistance” (Question 17),
- ◆ “appropriateness of fee” (Question 18),
- ◆ “age” (Question 23),
- ◆ “Hispanic/Latino” (Question 25),
- ◆ “race” (Question 26),
- ◆ “gender” (Question 27),
- ◆ and “primary language” (Question 29).

Question 1: Primary purpose

Percentages of respondents who agreed or strongly agreed that they were satisfied with their refuge experience were relatively high across all types of purpose. The percent of positive satisfaction responses (agreed or strongly agreed) ranged from 82.3% for drive through/incidental to 94.6% for environmental education. Other purposes that were linked to especially high satisfaction ratings include hunting¹² (92.6%) and wildlife/nature observation (92.7%).

Question 5: Previous visits to this refuge

A high level of satisfaction was expressed by respondents, almost regardless of the number of visits a respondent had made to the respective refuge. First time visitors did indicate levels of satisfaction that were somewhat below the satisfaction of repeat visitors (86.5 percent and approximately 91%, respectively). This difference may be explained by the relatively large proportion of first time visitors who provided an answer of “not applicable” (9% versus 4.4% for the next highest group). It is not clear why so many first time visitors provided an answer of N/A.

The question of first time visitors is potentially very interesting. It is reasonable to assume that repeat visitors find merit in the refuge they are visiting or else they would likely not continue to return. As such, we can/should expect repeat visitors to express substantial levels of satisfaction with regard to their refuge visits. The same expectations cannot be held for first time visitors. In a sense, they are more of a blank canvas and their assessment of refuge facilities and services is not biased by prior experience. The slightly lower satisfaction numbers for first time visitors may reflect a more “objective” (or at least less experienced) view of the refuge, or they may simply indicate that first time visitors are less able or willing (note the comparatively high number of N/A responses) to make a judgement about their satisfaction following their first visit.

Question 8: Previous visits to other refuges

The relationship between visitor satisfaction and prior visitation to other refuges is consistent with the pattern described above under Q5, with one interesting exception. Similar to Q5, levels of satisfaction are very high, both for individuals who had visited other refuges and for those who had not. Visitors who had not visited another refuge in the past 12 months, expressed a slightly lower level of satisfaction than most of the respondents who had visited other refuges. The interesting finding in these data is that respondents who have visited more than 12 other refuges (N=58) expressed a markedly (82.7%) lower level of satisfaction regarding the visit that was the focus of the survey. Again, survey data do not allow for an explanation of this finding.

¹² It is unclear why any respondents identified hunting as their primary purpose in visiting a refuge, given that no hunting was allowed on any refuges during the survey period. Only a very small number of respondents (60) did actually list hunting as their primary purpose for visiting. Interestingly, of the 60 respondents who did list hunting as the primary purpose of their visit, 55 indicated they were aware of the rules and regulations of the refuge (Q12). A further review of survey data, including the narrative data from Q30, does not provide any insight into this issue. This may simply be a result of respondents not understanding the question (e.g., they may have believed the question was asking for their *usual* purpose in visiting a refuge). It may, of course, also reflect respondents' unwillingness to follow refuge regulations.

Question 10: Experience with refuge staff

The relationship between visitors' interaction with refuge staff and visitor satisfaction is direct and positive, i.e., the more positive the interaction the higher the level of satisfaction (it is important to remember that correlation between these variables does not necessarily imply a causal relationship). This relationship is evident across all types of interaction, from questions about refuge programs, to questions related to wildlife and habitats.

Question 14: General perceptions

Respondents who have a positive view of refuge services and facilities tend to have high levels of overall satisfaction regarding their experiences while visiting a refuge. The survey data for each of the Q14 sub-questions (and also for those of Question 16) provide good evidence of the "durability" of visitor satisfaction. That is, even respondents who are critical of specific refuge services and facilities remain satisfied, overall, regarding their experience while visiting a refuge. For example, over 84% of the respondents who disagreed that a given refuge provided a sufficient law enforcement presence, nonetheless expressed high levels of satisfaction regarding their refuge visit. Similarly, nearly 80% of respondents who did not agree that it was easy to make an inquiry or complaint at the refuge they were visiting, still indicated a high level of satisfaction. The "durability" of satisfaction did not hold for those respondents who "strongly disagree" with the sub-questions of Q14.

Question 15: Use of refuge facilities and services

The data relating satisfaction to the type of activity the visitors participated in while at a refuge was remarkable in its consistency. The sub-questions to Q15 cover fourteen specific activities (or "uses" of refuge facilities and services) that visitors are likely to engage in during visits to a refuge (not including the "other" category). Over 90% of visitors engaged in 12 of these activities expressed satisfaction with their visit to the refuge. The only two areas that did not surpass the 90% threshold were fishing (89.6%) and hunting (89.2%). Satisfaction levels for both of these activities are clearly very close to 90%, in spite of the fact that (a) drought conditions at a number of refuges impacted negatively on fishing, and (b) it was not hunting season at any of the refuges during the survey period. These findings strongly indicate that there are no systemic "areas of weakness" in terms of the activities offered at or supported by national wildlife refuges.

Question 16: Adequacy of opportunities

Survey participants who gave positive responses regarding the opportunity to observe nature, obtain information, use trails, and hunt or fish also gave more positive responses regarding their overall satisfaction. Similar to Q14, the response data for the sub-questions under Q16 offer additional evidence of the durability of visitor satisfaction. For example, of those respondents who disagreed that they had an adequate opportunity to obtain useful information about wildlife and its habitats, nearly 74% expressed satisfaction regarding their refuge visit. This situation holds for each of the sub-questions under Q16, though to a lesser extent for Q16a (observe/photograph nature). Also similar to Q14, satisfaction declines very substantially for those visitors who "strongly disagree" with the Q16 questions.

Question 17: Requires special assistance

A slightly smaller percentage of visitors requiring special assistance indicated they were satisfied with their refuge visit than did those visitors who did not require assistance (87.4% and 90.4%, respectively). This small difference in the proportion of visitors expressing satisfaction indicates that there is not a substantial system-wide problem in terms of the satisfaction of disabled refuge visitors. This conclusion is supported by the narrative data provided by Question 30. Only two responses to Q30 included complaints regarding limited access for a disabled visitor. It is important to note that while the satisfaction of disabled visitors is not a systemic issue, it may be an issue for individual refuges.

Question 18: Appropriateness of fee

Respondents who indicated that the fee charged was far too low, too low, or appropriate reported higher levels of overall satisfaction than respondents who indicated that the fee was too high or far too high. Two interesting points emerge from a closer look at the data. First, the vast majority of respondents who answered both Q21 and Q18 – i.e., those who paid a fee – indicated that the fee was “about right” (83.2%). Fewer than 6% of respondents felt the fee they paid was too high, contrasted with 11% who felt it was too low. Second, the level of satisfaction of respondents who paid a fee and felt it was about right or too low, was consistent with the satisfaction expressed by participants who reported that the question was not applicable to them, likely from refuges without a fee. That is, the payment of a fee does not appear to have had any impact on visitor satisfaction, except for a very small minority of refuge visitors (less than 1% of respondents both felt the fee was too high and expressed low levels of overall satisfaction).

Question 23: Age

In general, survey participants indicated consistent levels of satisfaction regardless of age with about 90.0% of participants in each age bracket indicating that they agreed or strongly agreed that they were satisfied with their refuge experience. Positive responses were slightly lower for the over 71 age group, with only 85.3% of respondents indicating that they agreed or strongly agreed that they were satisfied with their visit to the refuge.

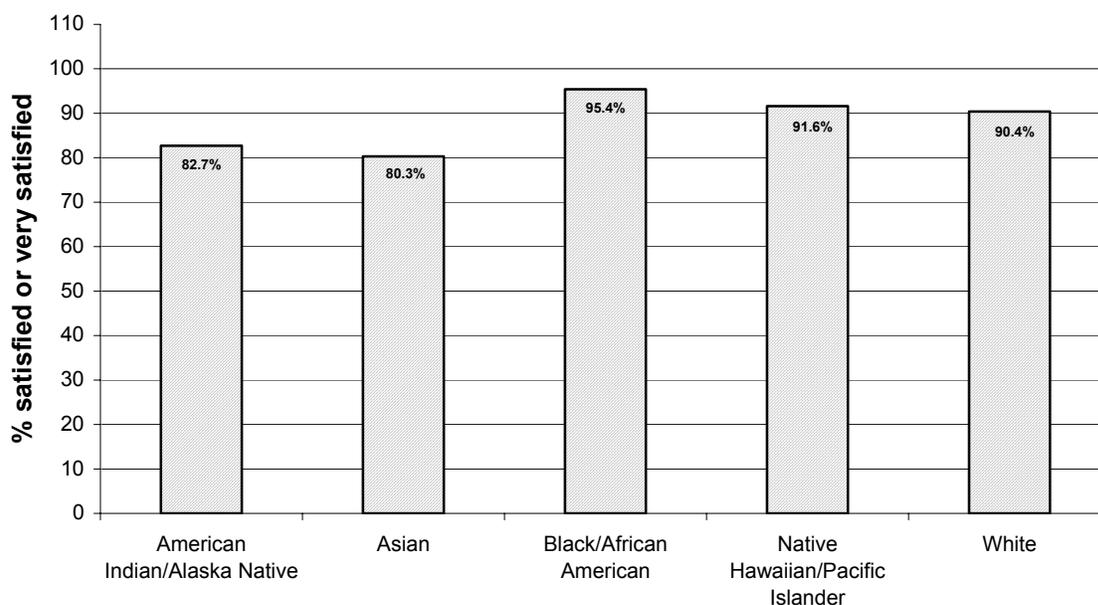
Question 25: Hispanic or Latino/Latina

A slightly smaller percentage of visitors identifying themselves as Hispanic indicated they were satisfied with their refuge visit than did those visitors who did not identify themselves as Hispanic (87.0% and 90.5%, respectively). This small difference in the proportion of visitors expressing satisfaction indicates that there is not a substantial system-wide problem in terms of the satisfaction of Hispanic refuge visitors. Perhaps the more interesting and important question relates to the number of Hispanic visitors the refuge system is attracting. If fewer than 100 survey respondents identified themselves as Hispanic, and if we make a small leap of faith to say that survey respondents are largely representative of refuge visitors, then we see that 3% of visitors are Hispanic (or, more correctly, identify themselves as Hispanic). This is a percentage that is substantially smaller than the percentage of Hispanics in the overall U.S population, though it may reflect the demographics around the refuges participating in this survey (see recommendations in the discussion of respondent background section of this report).

Question 26: Race

Though overall levels of satisfaction for all racial groups is high (measured by the % of respondents who agree or strongly agree with Q21), the % of satisfied respondents who have identified themselves as either Asian or American Indian/Alaska Native is considerably lower than is the case for respondents who identified themselves as White, Black/African American, or Native Hawaiian/Pacific Islander. These two groups also have a lower level of satisfaction than do respondents who have identified themselves as Hispanic (Q25), though the difference is somewhat smaller. It should be pointed out that the total number of respondents who identified themselves as Hawaiian/Pacific Islander, and who provided a response on overall satisfaction (Q21), is very small (only 12). Therefore, it is not possible to draw any conclusions about overall satisfaction of this population group. If racial affiliations are grouped into “White” and “Non-white” categories, overall satisfaction for the former is 90.4% and for the latter is 86.3% (exclusive of respondents who identify themselves as Hispanic – Q25; the figure is 86.5% when Hispanics are included). There are no data from this survey – including the narrative data from Q30 – that provide an explanation for these differences.

Figure D: Race and Visitor Satisfaction



Question 27: Gender

Males responding to the survey indicated that they were slightly more satisfied with their refuge visit than females. Of male respondents, 91.6% indicated that they agreed or strongly agreed that they were satisfied. Of female respondents, 88.8% indicated that they agreed or strongly agreed that they were satisfied.

Question 29: Primary language

The vast majority of survey respondents identified English as their primary language (97.1% or nearly 3,000 respondents). Because such a small number of respondents identified an alternate

primary language – Spanish was the next highest with 29 respondents¹³ (less than 1%) – it is difficult to draw any conclusions about the relationship between language and satisfaction. A look at the data from Spanish speakers offers a useful illustration. Twenty-four of the respondents who identified themselves as Spanish speakers also provided a response to Q21 on satisfaction. Only 75% of the 24 respondents indicated that they were satisfied with their visit to the given refuge. This is a level of satisfaction that is substantially below the level of satisfaction that is evident for every other sub-population for which the survey allows analysis. However, with such a small number of respondents – only 24 – we cannot, with any confidence, draw conclusions about satisfaction for this group. In short, there are insufficient data to draw any conclusions about the link between language and satisfaction¹⁴.

Conclusions and Recommendations

As the findings above outline, several conclusions can be drawn regarding the quality of respondents' experiences during their visits to refuges, and more generally, about their overall satisfaction regarding their refuge visits.

Conclusions and Summary Findings

1) The most important and most evident conclusion to take away from the survey data is that refuge visitors have a high level of satisfaction¹⁵. Importantly, this high level of satisfaction is felt consistently across all types of visitors. As discussed above, and as highlighted by the contingency tables tracking visitor satisfaction (Appendix A), every sub-population of visitor exhibits a remarkably consistent level of satisfaction. Whether considering a respondent's primary purpose in visiting a refuge, or whether a visitor required special assistance, or whether a respondent was making their first or their fifth visit to the refuge – and on and on – the level of visitor satisfaction for these sub-populations is always close to the aggregate satisfaction figure of 90.2%.

The lack of any evident pattern of dissatisfaction across refuges in the survey population is a critical finding. It is a finding which supports a conclusion closely related to the principle conclusion of high and consistent satisfaction – namely, that no fundamental, system-wide issues or problems are evident in the survey population of refuges. An important corollary – perhaps caveat – is that these conclusions can be applied only to high visitation refuges (the survey population) during the summer season. Due to the (reasonable) limitations of both the survey

¹³ Though 29 respondents identified Spanish as their primary language, only 17 Spanish language version surveys were completed and returned. Presumably, 12 survey respondents who use Spanish as a first language were also competent/fluent in English and thus completed English version survey.

¹⁴ Interestingly, the proportion of respondents who identified themselves as Hispanic (Q25) and who were satisfied with their refuge experience differed substantially from the proportion of Spanish speakers who were satisfied (87% versus 75%). It may not be reasonable to assume that satisfaction levels of these two groups should run in parallel, i.e., that Hispanics use Spanish as their primary language. But if this is the case, the gap in the satisfaction levels between Spanish speakers and Hispanics likely points to the fact that there is an insufficient number of "Spanish speaking observations" under Q29 to provide an accurate picture to satisfaction for that population group.

¹⁵ It is critical to remember that these survey findings reflect satisfaction of visitors to "high visitation" refuges during the summer season. The findings cannot speak to visitor satisfaction levels during other seasons or as relates to refuges outside of the survey population. This is, of course, true for all findings presented in this report.

instrument and the survey process, broader generalizations cannot be made. Similarly, as the survey instrument aims primarily to measure visitor satisfaction (within the context of related issues such as access and fees) it does not currently facilitate the collection of detailed information on visitors' specific concerns.

2) In addition to high and consistent levels of satisfaction, it is interesting to look at what might be called the “durability” of satisfaction. Durability, in this sense, refers to the notion that visitors may have specific experiences during their respective visits of which they are critical, yet their overall level of satisfaction remains high. The contingency tables in Appendix A, which relate visitor satisfaction (Q21) to visitors' perceptions of refuge services/facilities (Q14), provide good evidence of durability. For example, and as outlined in the previous section, fully 79.6 % of those respondents who disagreed with the Q14D statement, “It is easy to make an inquiry or complaint...” still expressed satisfaction regarding their overall experience during their refuge visit. Similarly, 75% of those respondents who disagreed that roads and parking lots are well-maintained, nonetheless expressed a high level satisfaction about their refuge visit.

3) As noted above, there do not appear to be any fundamental areas of concern related to visitor satisfaction that affect the overall refuge survey population. However, there is evidence that one or two issues/areas require further inquiry. One of these issues is law enforcement. As compared to other refuge services and facilities, survey respondents were substantially less likely to view law enforcement as satisfactory - 72.6 % versus between 84.1% and 92.9% for other refuge services/facilities (percent figure calculations do not include “N/A” responses). Interestingly, the narrative data from Q30 are not completely consistent with these data. Only three of the 1200 narrative responses to Q30 discuss crime, per se. Substantially more Q30 responses express concern generally about “law enforcement,” as well as about the enforcement of refuge rules and regulations. Also of interest, visitors' perceptions of law enforcement do not appear to substantially impact their overall satisfaction with regard to their refuge visit. Given these somewhat inconsistent data, and the importance of law enforcement to visitation, this is a question which calls for further investigation.

The issue of race is a second area which calls for additional examination. A smaller portion of “Non-whites” express satisfaction with regard to their refuge visits than do Whites (86.3% for the former and 90.4% for the latter). The difference in satisfaction levels between these two groups is not huge, but the weight of the issue increases the justification for taking a closer look. Additionally, two of the Non-white groups – Asians and American Indian/Alaska Native - express even lower levels of satisfaction (80.3% and 82.7%, respectively). There are no survey data, including narrative data from Q30, which help to explain these findings.

Recommendations

- 1) Based on the information from this survey, identify improvements aimed at increasing visitor satisfaction on a *refuge-by-refuge basis*. Given the lack of any patterns of dissatisfaction across the population of survey respondents, efforts to improve services and facilities should be based primarily on refuge-specific circumstances. Refuges should review the data from this survey (including the narrative responses to Q30) as one step in defining areas for improvement.

- 2) Conduct targeted aggregate level analysis that focuses on those groups of refuges with either comparatively high or low satisfaction rates. This type of examination may identify particular patterns related to visitor characteristics or refuge resources and facilities that are aligned with high or low levels of satisfaction.
- 3) Examine further the issues of law enforcement and race with regard to the satisfaction of refuge visitors. Additional analyses and data collection may indicate that these are largely refuge-specific issues or may confirm that they represent systemic concerns. Exploration of these issues could involve targeted evaluative activities, such as focus groups, or individual or group interviews.
- 4) In order to provide a better context for understanding both aggregate and refuge-specific satisfaction rates, the service should consider benchmarking the satisfaction levels of refuge visitors against similar satisfaction ratings of users of other natural resource and land use agencies and organizations. At this juncture, a direct comparison is likely not possible, due to differences across organizations in data collection methods, the design of survey instruments, the definition of “satisfaction,” and so forth. Nonetheless, benchmarking the satisfaction of refuge visitors with users of similar organizations will provide a better understanding of the level and implications of the satisfaction of refuge visitors. Possible benchmark agencies include the National Park Service, Bureau of Land Management, various state agencies, and perhaps even counterpart organizations in other countries such as Canada or Australia.
- 5) Consider modifications to this current survey, either in terms of the survey instrument or survey administration. With regard to the survey instrument, the Service may want to add a small number of questions, while maintaining the base survey, which ask respondents to focus specifically on any concerns they might have (e.g., Do you have any specific concerns about this refuge? What are they? How important is each concern to you?). Any such modifications would recognize the likelihood that visitors can be satisfied and still have legitimate and important concerns about specific refuge operations or circumstances. In terms of survey administration, changes could focus on looking at visitor satisfaction during different seasons, or across different types or sizes of refuge, as well as on ensuring that respondents complete the survey at the conclusion of their visit to the refuge (rather than at the beginning or mid-stream). Such modifications would allow the Service to increase its understanding of both visitor satisfaction (across seasons and refuges of all types and sizes) and visitor concerns (through more targeted questions).

Access

Questions regarding access to refuges are reported in this section. This section is organized as follows:

- Maps/signs (Question 2)
 - Length of travel (Question 3)
 - Refuge knowledge (Question 7)
-

- Refuge information (Questions 11a – 11d)
- Adequacy of opportunities (Question 16)
- Need for special assistance (Question 17)

Maps/Signs

Respondents were positive in their evaluations of refuge maps and signs, with 84.6% of respondents (excluding those who indicated that the question was not applicable to them) indicating that maps and signs made it easy to find the NWR (Question 2, Table 20). Though only 8.5% of respondents (excluding N/A responses) indicated that signs were not helpful in finding the refuge, this is an issue that was raised with some frequency in the narrative responses to Q30. As might be expected, this appears to be a refuge-specific issue. For example, 21 respondents from Great Meadows NWR, and 14 respondents from Horicon NWR, responded that they disagreed or strongly disagreed with Q2 (i.e., that maps and signs made it easy to find the refuge).

Table 20. Q2: Maps and/or signs made it easy for me to find the National Wildlife Refuge.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	124	3.8	3.9	3.9
	Disagree	116	3.5	3.7	7.6
	Neither agree nor disagree	191	5.8	6.1	13.7
	Agree	1281	39.1	40.7	54.3
	Strongly agree	1087	33.1	34.5	88.8
	Not applicable	352	10.7	11.2	100.0
	Total	3151	96.1	100.0	
Missing	System	129	3.9		
Total		3280	100.0		

Length of Travel

There was substantial variation in the distances traveled by respondents to get to the NWR they were visiting (Q3). The mean distance traveled was 313.6 miles, though this figure is inflated by an extreme outlier (a response of 47,000 miles). Discounting for this outlier, the mean drops to 298.5 miles. In any event, the mean is misleading in this case - due to a relatively small number of responses of high value, the mean skews the picture of the “average” distance traveled. The median, which is 32 miles, gives a much better sense of the typical distance visitors traveled to get to the refuge they visited (a median of 32 means that half the distances traveled indicated by respondents were below 32 and half were above). This is an important finding to clarify, because it helps refuge managers to know where most of their visitors come from and allows them to adjust refuge facilities and services accordingly (e.g., knowing that most visitors are “local” may help refuge managers to appropriately address language or cultural requirements).

Refuge Knowledge

In Question 7, respondents reported by what means they learned about the NWR that they were visiting. Respondents indicated that the most frequent ways of learning about the NWR that they were visiting included word of mouth (48.3%), highway signage (24.6%) and other sources (23.9%).¹⁶ Less frequent ways of learning about the NWR included FWS website (5.5%), a different website (2.9%), media communication (11.5%), FWS printed information (9.2%), and maps (13.7%). These findings highlight the importance of highway signage, not only to improve access through the provision of directions, but also as a means of attracting visitors. This makes even more important the placement and maintenance of good highway signage. A second point of interest related to the question of “refuge knowledge” emerged from the narrative data of Q30. Though raised by relatively few visitors, the point was made that refuges could do a better job of publicizing refuge programs, events or just standard facilities/services through local newspapers or community newsletters (described by a few respondents as “better outreach”). Tables 21 through 28 present the survey data for Question 7. Percentage totals exceed 100% because respondents could indicate multiple sources of information.

Table 21. Q7a: How did you learn about this National Wildlife Refuge - FWS website?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	182	5.5	100.0	100.0
Missing System	3098	94.5		
Total	3280	100.0		

Table 22. Q7b: How did you learn about this National Wildlife Refuge – other website?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	95	2.9	100.0	100.0
Missing System	3185	97.1		
Total	3280	100.0		

Table 23. Q7c: How did you learn about this National Wildlife Refuge – word of mouth?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	1585	48.3	100.0	100.0
Missing System	1695	51.7		
Total	3280	100.0		

¹⁶ The most prevalent “other” source noted by respondents was travel or tour guides, including, birding guides, AAA guides.

Table 24. Q7d: How did you learn about this National Wildlife Refuge - media communication?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	378	11.5	100.0	100.0
Missing System	2902	88.5		
Total	3280	100.0		

Table 25. Q7e: How did you learn about this National Wildlife Refuge - FWS printed information?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	301	9.2	100.0	100.0
Missing System	2979	90.8		
Total	3280	100.0		

Table 26. Q7f: How did you learn about this National Wildlife Refuge - highway sign?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	807	24.6	100.0	100.0
Missing System	2473	75.4		
Total	3280	100.0		

Table 27. Q7g: How did you learn about this National Wildlife Refuge - map (other than FWS map)?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	448	13.7	100.0	100.0
Missing System	2832	86.3		
Total	3280	100.0		

Table 28. Q7h: How did you learn about this National Wildlife Refuge - other source

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	785	23.9	100.0	100.0
Missing System	2495	76.1		
Total	3280	100.0		

Refuge Information

Respondents provided feedback regarding the accessibility of information during their visit in Question 11. Respondents were positive regarding the availability of NWR-specific printed information; NWR system information; information about plants, fish, wildlife and habitat; and the ease of understanding information on signs (Tables 29 – 32). Positive responses regarding access to information, defined in terms of the percentage of positive responses, ranged from 85.0% (refuge system information was easy to find) to 93.8% (signs were easy to understand). Similar to many of the findings outlined in this report, there were specific refuges at which information was not as readily available as indicated by these overall figures. The full set of percentage of positive responses for each Q11 question is reported below.

Percent Positive: Percentage of respondents who agreed or strongly agreed, excluding respondents who indicated that the question was not applicable to them.

- Refuge-specific printed information was easy to find (Question 11a): 89.3%
- Information about the refuge system in general was easy to find (Question 11b): 85.0%
- Printed information about fish, wildlife, plant, and/or habitat issues was easy to find (Question 11c): 86.4%
- Signs were easy to understand (Question 11d): 93.8%

Table 29. Q11a: Printed information about *this* National Wildlife Refuge was easy to find.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	54	1.6	1.7	1.7
	Disagree	75	2.3	2.4	4.1
	Neither agree nor disagree	168	5.1	5.4	9.5
	Agree	1217	37.1	39.0	48.6
	Strongly agree	1274	38.8	40.9	89.4
	Not applicable	330	10.1	10.6	100.0
	Total	3118	95.1	100.0	
Missing	System	162	4.9		
Total		3280	100.0		

Table 30. Q11b: Printed information about the National Wildlife Refuge System was easy to find.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	53	1.6	1.7	1.7
	Disagree	89	2.7	2.9	4.6
	Neither agree nor disagree	245	7.5	8.0	12.6
	Agree	1122	34.2	36.5	49.0
	Strongly agree	1073	32.7	34.9	83.9
	Not applicable	496	15.1	16.1	100.0
	Total	3078	93.8	100.0	
Missing	System	202	6.2		
Total		3280	100.0		

Table 31. Q11c: Printed information about fish, wildlife, plant and/or habitat issues was easy to find.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	52	1.6	1.7	1.7
	Disagree	74	2.3	2.4	4.1
	Neither agree nor disagree	227	6.9	7.4	11.5
	Agree	1098	33.5	35.9	47.4
	Strongly agree	1154	35.2	37.7	85.2
	Not applicable	453	13.8	14.8	100.0
	Total	3058	93.2	100.0	
Missing	System	222	6.8		
Total		3280	100.0		

Table 32. Q11d: Signs were easy to understand

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	52	1.6	1.7	1.7
	Disagree	43	1.3	1.4	3.1
	Neither agree nor disagree	88	2.7	2.8	5.9
	Agree	1207	36.8	39.0	44.9
	Strongly agree	1567	47.8	50.7	95.6
	Not applicable	136	4.1	4.4	100.0
	Total	3093	94.3	100.0	
Missing	System	187	5.7		
Total		3280	100.0		

Adequacy of Opportunities

In their response to Question 16, visitors indicated their level of satisfaction with the opportunities at refuges for participating in various activities, including observation, obtaining information, using trails, and hunting or fishing (Tables 33 – 36). With the exception of hunting and fishing (74.6% percent positive response), respondents were very positive about the adequacy of opportunities at refuges, with percentages of positive responses ranging from 90.2% (obtain information) to 94.1% (observe and/or photograph). Data collected through this survey cannot explain the markedly lower number for hunting and fishing. However, a substantial part of the explanation almost certainly derives from two factors: (a) the survey was administered outside of any hunting season and (b) a number of refuges that offer fishing were suffering through drought – and therefore, bad fishing - conditions.

Percent Positive: Percentage of respondents who indicated they agree or strongly agree, excluding those who indicated the question was not applicable to them.

- Adequate opportunity to observe and/or photograph fish, wildlife, plants, and their habitats (Question 16a): 94.1%
- Adequate opportunity to obtain information about fish, wildlife, plants, and their habitats (Question 16b): 90.2%
- Adequate opportunity to use trails (Question 16c): 91.6%
- Adequate opportunity to hunt and/or fish (Question 16d): 74.6%

Table 33. Q16a: This Refuge provides adequate opportunity to observe and/or photograph fish, wildlife, plants and their habitats.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	43	1.3	1.4	1.4
	Disagree	28	.9	.9	2.3
	Neither agree nor disagree	96	2.9	3.1	5.4
	Agree	1168	35.6	37.9	43.3
	Strongly agree	1513	46.1	49.0	92.3
	Not applicable	237	7.2	7.7	100.0
	Total	3085	94.1	100.0	
Missing	System	195	5.9		
Total		3280	100.0		

Table 34. Q16b: This Refuge provides adequate opportunity to obtain useful information about fish, wildlife, plants and their habitats.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	48	1.5	1.6	1.6
	Disagree	41	1.3	1.3	2.9
	Neither agree nor disagree	184	5.6	6.0	8.9
	Agree	1189	36.3	38.9	47.8
	Strongly agree	1317	40.2	43.1	90.9
	Not applicable	278	8.5	9.1	100.0
	Total	3057	93.2	100.0	
Missing	System	223	6.8		
Total		3280	100.0		

Table 35. Q16c: This Refuge provides adequate opportunity to use the trails.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	52	1.6	1.7	1.7
	Disagree	33	1.0	1.1	2.8
	Neither agree nor disagree	136	4.1	4.5	7.3
	Agree	1022	31.2	33.6	40.8
	Strongly agree	1390	42.4	45.6	86.5
	Not applicable	412	12.6	13.5	100.0
	Total	3045	92.8	100.0	
Missing	System	235	7.2		
Total		3280	100.0		

Table 36. Q16d: This Refuge provides adequate opportunity to hunt or fish.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	76	2.3	2.5	2.5
	Disagree	36	1.1	1.2	3.7
	Neither agree nor disagree	265	8.1	8.8	12.6
	Agree	521	15.9	17.4	30.0
	Strongly agree	585	17.8	19.5	49.5
	Not applicable	1512	46.1	50.5	100.0
	Total	2995	91.3	100.0	
Missing	System	285	8.7		
Total		3280	100.0		

Special Assistance

Just over three percent of respondents indicated a need for special assistance or mobility aids (Table 37). This survey does not specifically ask whether respondents who needed special assistance felt that those needs somehow limited their ability to pursue specific activities or to otherwise enjoy their refuge visit. However, by looking at the relationship of Q17 data to both Q16 (adequacy of opportunities) and Q21 (overall satisfaction), it is possible to frame a fairly credible answer to this question. With regard to the “adequacy of opportunity” provided to visitors by refuges, there are only small differences between the responses provided by visitors requiring special assistance and the responses from those who did not. The only exception to this – and it is a small exception – relates to the use of trails. Discounting all “Not Applicable” responses, 87.9% of respondents requiring special assistance indicated that their opportunity to use trails was at least adequate. This compared to 91.7% for respondents who did not need special assistance. For all other activities identified under Q16, these two groups of respondents provided very similar responses.

With regard to overall satisfaction, and as discussed earlier in this report, over 87% of respondents who indicated the need for special assistance expressed satisfaction regarding their refuge visit. Taken with the discussion in the preceding paragraph, it is reasonable to conclude that the requirement for special assistance did not substantially reduce visitors’ access to refuge facilities and services, nor limit visitors’ overall satisfaction. This conclusion is further reinforced by narrative data from Q30. Only two respondents (out of 108) indicated their access to refuge functions, activities and/or facilities was limited due their requirement for special assistance (in both cases, the respondents were wheelchair users).

One other point worth noting here is the concentration of visits by “disabled” visitors at a comparatively small number of specific refuges. Though respondents from as many as 35 refuges indicated they required special assistance, 10 refuges accounted for 56% of all such responses. This is an important finding because the aggregate data presented here may, in fact, better reflect the situation at a small group of refuges than it does the larger refuge survey population. This is an area for further exploration.

Table 37. Q17: Did you require special assistance or mobility aids to access any part of the National Wildlife Refuge?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	108	3.3	3.4	3.4
	No	3037	92.6	96.6	100.0
	Total	3145	95.9	100.0	
Missing	System	135	4.1		
Total		3280	100.0		

Conclusions and Recommendations

Conclusions

The survey data for access-related questions supports several conclusions.

- 1) To a large extent, refuges do an excellent job of facilitating access by visitors. This conclusion holds with respect to three elements of access: (a) getting visitors to the refuge site; (b) getting refuge-relevant information “into visitors’ hands” (whether it be about programs offered or about the natural resources of the refuge, etc.); and (c) allowing visitors access to a wide range of refuge lands and facilities.
- 2) Highway signage plays a dual role and is therefore particularly important. Not only is good signage critical in helping would-be visitors find a refuge, it also serves as a principal means for attracting visitors to refuges. Nearly 25% of respondents indicated highway signs as the means by which they learned about the refuge they were visiting (word of mouth was the only means cited by more respondents – 48.3%).
- 3) Only a small number of refuge visitors require special assistance or mobility aids. This group of visitors indicates levels of satisfaction that are consistent with the aggregate level of satisfaction of all survey respondents.

Recommendations

- 1) Maintain existing efforts aimed at facilitating access to refuges and refuge resources by visitors, including those visitors who require special assistance.
- 2) Consider increasing efforts to provide highly visible highway signage that covers all highway access routes to refuges. This recommendation is particularly relevant to those (few) refuges whose visitors identified poor or inadequate highway signs as an issue (Q30 narrative data). However, given the role of highway signs in attracting refuge visitors, the Service should consider applying this recommendation more broadly.

Fair Value

Survey items pertaining to the appropriateness of the fee paid (if one was charged) and the value of the recreation opportunities and services in exchange for the fee are reported in this section. This section is organized as follows.

- Appropriateness of fee (Question 18)
- Value of recreation opportunities and services (Question 19)

Appropriateness of Fee

Overall respondents were positive about the fees charged (Question 18, Table 38). Excluding those who indicated that the question was not applicable to them, 10.8% indicated that the fee charged was too low or far too low, 82.8% indicated that it was about right, and only 6.5% indicated that it was too high or far too high. In addition, as outlined in the *Quality/Enjoyment* section of this report, fees did not seem to be a factor affecting visitors satisfaction. For example, more than 70% of those respondents who felt the fee was too high – and over 60% of those who felt it was far too high – still expressed satisfaction with regard to their refuge visit. Further, the overall satisfaction of respondents who were not subject to a fee is very consistent with the satisfaction of those who were, adding support to the conclusion that fees are not a factor affecting the satisfaction of refuge visitors.

Table 38. Q18: If you or a member of your group paid a fee or used a pass to enter this National Wildlife Refuge, in your opinion, how appropriate was the fee?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Far too low	30	.9	1.0	1.0
	Too low	103	3.1	3.3	4.3
	About right	1022	31.2	33.2	37.5
	Too high	60	1.8	2.0	39.5
	Far too high	20	.6	.7	40.1
	Not applicable	1841	56.1	59.9	100.0
	Total	3076	93.8	100.0	
Missing	System	204	6.2		
Total		3280	100.0		

Value of Recreation Opportunities and Services

Survey respondents were also positive about the value of the recreation opportunities and services provided by refuges (Question 19). Excluding those who indicated the question was not applicable to them, 89.1% of respondents indicated that they agreed or strongly agreed that the value of the recreation opportunities and services received was at least equal to the fee paid (Table 39).

Table 39. Q19: The value of the recreation opportunities and services I experienced was at least equal to the fee I paid.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly disagree	32	1.0	1.1	1.1
Disagree	27	.8	.9	2.0
Neither agree nor disagree	99	3.0	3.3	5.3
Agree	545	16.6	18.4	23.7
Strongly agree	741	22.6	25.0	48.7
Not applicable	1519	46.3	51.3	100.0
Total	2963	90.3	100.0	
Missing System	317	9.7		
Total	3280	100.0		

Conclusions and Recommendations

Conclusions

The fees charged by refuges are set at an appropriate level. Only a very small minority of refuge visitors feel fees are too high, and the majority of these visitors nonetheless indicate that they are satisfied with their refuge visit. Broadening this point somewhat, fees appear to have very little impact on a visitor's level of satisfaction.

Recommendations

To the extent that doing so would support programs and services, the Service should consider expanding the number of refuges that charge fees. Most visitors to refuges that charge fees indicated in their survey responses that fees are set at an appropriate level. This would argue against increasing fees at those refuges. However, survey data also clearly indicate that fees (at least at their current level) have little impact on visitor satisfaction, indicating room for expanding the number of refuges collecting fees.

Purpose/Use

Questions regarding visitors' purpose in visiting the refuge and use of facilities and recreational opportunities are reported in this section. This section is organized as follows:

- Primary purpose (Question 1)
- Use of facilities and recreation/educational opportunities (Question 15)
- Relationship between primary purpose (Question 1) and use (Question 15)

Primary Purpose

For survey Question 1, respondents indicated their primary purpose in visiting the refuge. Participants were most likely to indicate that their purpose in visiting a refuge was to observe wildlife/nature (35.8%) or for vacation/relaxation (25.5%)¹⁷. Less than ten percent of survey participants indicated that their primary purpose in visiting the refuge was hunting, fishing, environmental education, drive through or incidental, hiking, or other (Table 40¹⁸). Recognizing that the response category “vacation/relaxation” is different in kind from the other available responses to Q1 (see footnote below), the predominance of wildlife/nature observation as a primary purpose for visitation is noteworthy. This finding is relevant in that it should help managers to focus more directly on the principle issues and questions that affect the satisfaction of the largest number of refuge visitors.

Table 40. Q1: Why did you visit this National Wildlife Refuge? Please check only your primary purpose.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hunting	60	1.8	2.3	2.3
	Fishing	171	5.2	6.6	8.9
	Wildlife/nature observation	929	28.3	35.8	44.7
	Environmental education	222	6.8	8.6	53.2
	Drive through/incidental	129	3.9	5.0	58.2
	Vacation/relaxation	662	20.2	25.5	83.7
	Hiking	160	4.9	6.2	89.9
	Other	263	8.0	10.1	100.0
	Total	2596	79.1	100.0	
Missing	System	684	20.9		
Total		3280	100.0		

Use of Facilities and Recreational/Educational Opportunities

For Question 15, respondents indicated the facilities they used and recreational or educational activities they engaged in while visiting the refuge. Respondents chose as many options as applied (Tables 41 – 55). They were most likely to indicate that they participated in wildlife

¹⁷ The response category “vacation/relaxation” is different in kind from the other available response categories. The categories other than “vacation/relaxation” focus on specific activities/uses of the refuge in question.

“Vacation/relaxation” is a generic category that could easily exist in tandem with any of the primary uses of the refuge identified by the other response categories. It is unclear how this has affected the overall response data for this question, though the proportion of responses to the “refuge use” categories would likely remain largely unchanged, even in the absence of the “vacation/relaxation” response category.

¹⁸ As presented in Table 41, there are a very high number of missing values for this question. The majority of these missing values are due to respondents providing more than one answer to the question – they were to identify only their primary purpose (i.e., one answer). All surveys providing multiple answers to Q1 were defined as “missing” for Q1.

observation (45.6%) and/or an automobile tour (34.5%), or used the visitor center (59.8%) and/or a hiking trail (33.3%). Twenty percent or fewer respondents indicated that they used a bike trail, boat launch, canoe or kayak, fishing area, guided tour or interpretive trail, hunting area, picnic area, or other refuge facility. Interestingly, the range of refuge facilities used or activities pursued by refuge visitors is substantially broader than might have been assumed by looking at Q1. Looking at response from these two questions in tandem, it is clear that while refuge visitors may well pursue their primary purpose in visiting a refuge, they will likely also engaged in additional, perhaps related, activities.

Similar to Q1, the data on refuge use can help substantially in focusing efforts to address visitor satisfaction. In fact, this is probably more the case for these Q15 data than for Q1 data (because Q15 asks, what did you actually do, whereas Q1 asks, what did you intend to do). Looking at these “refuge use data” within the context of satisfaction data provides further understanding and focus for efforts to improve visitor satisfaction (refer to the *Quality/Enjoyment* section of this report).

Table 41. Q15a: During today’s visit at this National Wildlife Refuge, which of the following did you use – auto tour?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	1132	34.5	100.0	100.0
Missing System	2148	65.5		
Total	3280	100.0		

Table 42. Q15b: During today’s visit at this National Wildlife Refuge, which of the following did you use – bike trail?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	196	6.0	100.0	100.0
Missing System	3084	94.0		
Total	3280	100.0		

Table 43. Q15c: During *today's* visit at this National Wildlife Refuge, which of the following did you use – boat launch?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	203	6.2	100.0	100.0
Missing System	3077	93.8		
Total	3280	100.0		

Table 44. Q15d: During *today's* visit at this National Wildlife Refuge, which of the following did you use – canoe/kayak?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	43	1.3	100.0	100.0
Missing System	3237	98.7		
Total	3280	100.0		

Table 45. Q15e: During *today's* visit at this National Wildlife Refuge, which of the following did you use – environmental education?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	611	18.6	100.0	100.0
Missing System	2669	81.4		
Total	3280	100.0		

Table 46. Q15f: During *today's* visit at this National Wildlife Refuge, which of the following did you use – fishing area?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	279	8.5	100.0	100.0
Missing System	3001	91.5		
Total	3280	100.0		

Table 47. Q15g: During *today's* visit at this National Wildlife Refuge, which of the following did you use – guided tour/interpretive trail?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	309	9.4	100.0	100.0
Missing System	2971	90.6		
Total	3280	100.0		

Table 48. Q15h: During *today's* visit at this National Wildlife Refuge, which of the following did you use – hiking trail?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	1093	33.3	100.0	100.0
Missing System	2187	66.7		
Total	3280	100.0		

Table 49. Q15i: During *today's* visit at this National Wildlife Refuge, which of the following did you use – hunting area

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	48	1.5	100.0	100.0
Missing System	3232	98.5		
Total	3280	100.0		

Table 50. Q15j: During *today's* visit at this National Wildlife Refuge, which of the following did you use – photography?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	676	20.6	100.0	100.0
Missing System	2604	79.4		
Total	3280	100.0		