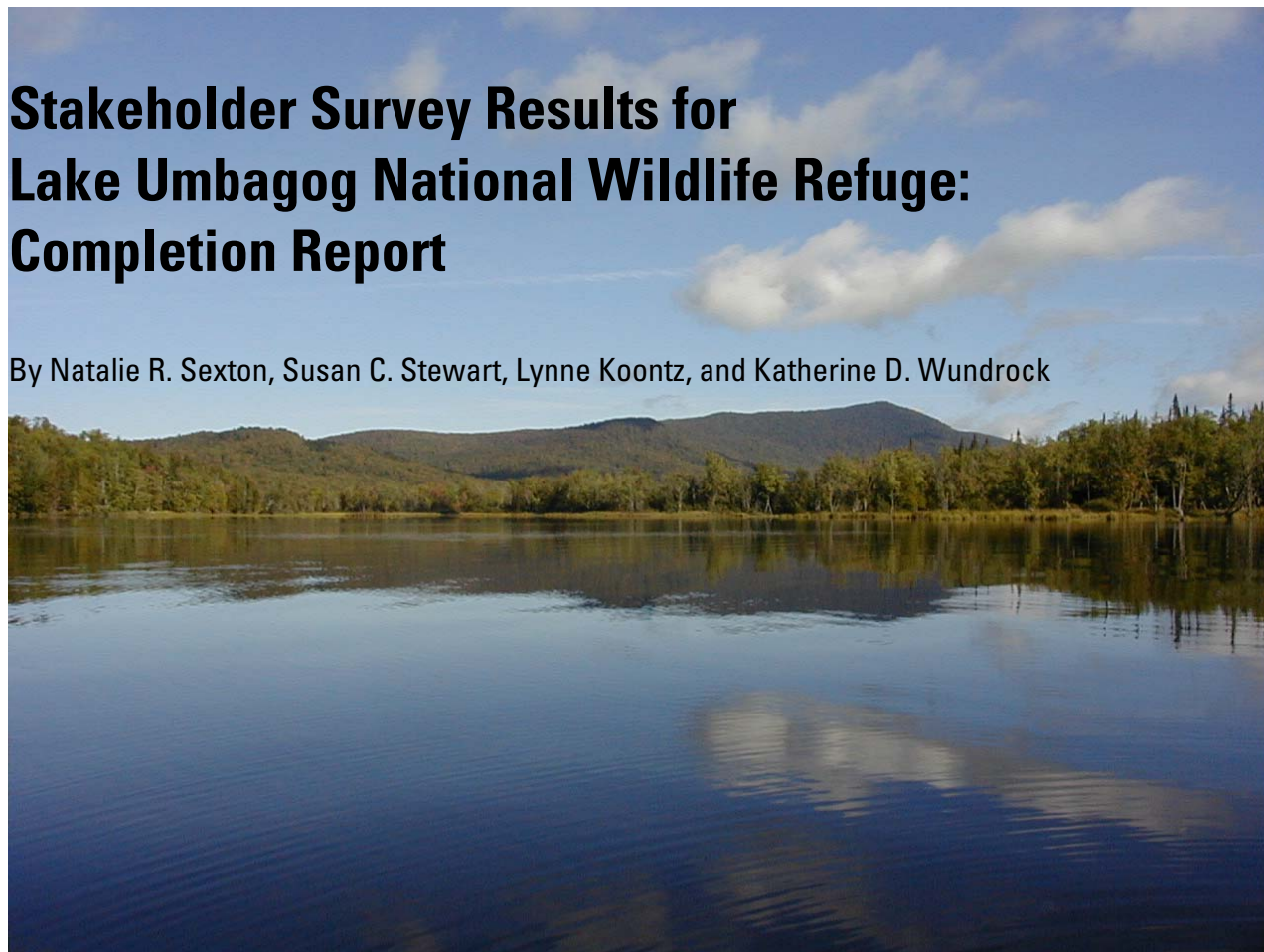




Fort Collins Science Center

Stakeholder Survey Results for Lake Umbagog National Wildlife Refuge: Completion Report

By Natalie R. Sexton, Susan C. Stewart, Lynne Koontz, and Katherine D. Wundrock



Open-File Report 2005-1378

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Suggested citation:

Sexton, N.R., Stewart, S.C., Koontz, L., and Wundrock, K.D., 2005, Stakeholder survey results for Lake Umbagog National Wildlife Refuge: Completion report: U.S. Geological Survey, Biological Resources Discipline, Open-File Report 2005-1378, 111 p.

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Acknowledgments

This study was commissioned by the U.S. Fish and Wildlife Service Northeast Regional Office. The study design and survey instrument were developed collaboratively with staff from Lake Umbagog National Wildlife Refuge, the Northeast Regional Office, and U.S. Geological Survey researchers of the Fort Collins Science Center/Policy Analysis and Science Assistance Branch. We would also like to acknowledge the Maine Department of Inland Fisheries and Wildlife; the State of New Hampshire Fish and Game Department; and the State of New Hampshire Department of Resources and Economic Development, Division of Parks and Recreation, for their review and input on the survey instrument and results from this study.

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Introduction

The National Wildlife Refuge System, managed by the U.S. Fish and Wildlife Service (FWS), is the largest system of lands in the world dedicated to the conservation of wildlife. There are over 545 Refuges nationwide, encompassing 95 million acres. The mission of the National Wildlife Refuge System is to “administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.” Part of achieving this mission is the goal of fostering “...an understanding and instill appreciation of fish, wildlife, and plants, and their conservation, by providing the public with safe, high-quality, and compatible wildlife-dependent public use.” Such use includes hunting, fishing, wildlife observation and photography, and environmental education and interpretation. About 98% of the system is open to the public, attracting more than 40 million visitors annually. More than 25 million people per year visit refuges to observe and photograph wildlife, 7 million to hunt and fish and more than half a million to participate in educational programs (The Citizen’s Wildlife Refuge Planning Handbook).

The National Wildlife Refuge Improvement Act of 1997 (Public Law 105-57, USC668dd) is the guiding legislation for the management of these lands. The law identifies the above six wildlife-dependent recreational uses that should be given priority and provides a process for ensuring that these and other activities do not conflict with the management purpose and goals of the Refuge. The Act also requires the FWS to develop a comprehensive conservation plan (CCP) for every Refuge by the year 2012. A Refuge CCP outlines goals, objectives, and management strategies for the Refuge for the next 15 years. It provides a vision and describes desired future conditions for the Refuge. These goals and objectives have focused largely on habitat and wildlife management. Increasingly, however, Refuges are including visitor services goals and objectives in their CCPs to ensure that visitor appreciation and support for fish and wildlife conservation is a part of the Refuge’s long-term plan.

Regardless of specific CCP goals and objectives, the National Environmental Policy Act (NEPA; Public Law 91-190:852-859.42, U.S.C. and as Amended (P.L. 94-52 and P.L. 94-83) 42 U.S.C. 4321-4347) mandates that the CCP for each refuge must contain an analysis of social and economic conditions (the affected environment) and evaluate social and economic results from likely management scenarios. In addition, public review and comment on alternatives for future management is required. There are many reasons to obtain public input besides legal mandates, however. Doing so can provide baseline data on public/visitor use, experience, preferences, and expectations. It can also provide managers with a better understanding of public acceptability of alternatives/future changes that may be proposed in the CCP. This public participation process also facilitates the engagement of a variety of stakeholders in the refuge planning process.

There is some evidence that planning processes that include a broad array of stakeholders produce more comprehensive plans that are more likely to be implemented (Burby, 2003). The challenge is structuring public involvement in ways that are meaningful and productive for agencies and the public.

Studies of public involvement processes in environmental decision making have shown that participants evaluate these processes in terms of both process and outcome. Thus, stakeholders seek qualities such as accessibility and the quality of deliberation (process components), and the extent to which their participation is satisfying (outcome) (Halvorsen, 2003). An accessible process is one that provides a comfortable and convenient setting and is respectful of participants' time. Deliberative processes include open discussion and a forum for respectful exchange of opinions; a deliberative process provides opportunities for learning. Finally, a satisfying process demonstrates that decision makers take public input seriously, and the results of citizen input are reflected in the final decision. Other process-focused measures of success in public involvement include the presence of learning opportunities, the development of relationships among group members, and a sense of efficacy (McCool and Guthrie, 2001).

Carr and Halvorsen (2001) drew on criteria proposed by Poisner (1996) to evaluate the effectiveness of public participation in environmental decision making. One interesting finding of their research was that local participants in land-use decisions were not representative of the community. Women, young people, and those with lower income and education levels participated at a lower rate than their distribution in the community. The lesson is that public managers and planners must make special efforts to promote participation by a broad range of stakeholders.

In the CCP process, the public meeting is the forum primarily used to collect citizen input. This is especially problematic for visitors to a Refuge. Attendance at public meetings is often inconvenient or impossible for occasional visitors to Refuges who frequently live long distances from the relevant FWS offices. In addition, those visitors who most often attend meetings of this type may represent a vocal minority group that is usually not representative of the full range of visitors to a given Refuge. Also, the type of scientific baseline data that can be collected through this forum is limited.

Another tool that can be used to collect baseline information and input is a visitor, community, or stakeholder survey. Conducting a survey is one way that the CCP planning team can reach out to the public and collect baseline data in support of their CCP. It is an effective supplement to a public meeting when detailed information on visitors or stakeholders is needed. Survey research applied to Refuge planning can help managers characterize current visitor services and experiences. It can also help managers understand how current and proposed management activities affect individuals in terms of their preference for services and experiences and project potential changes in visitation patterns. Finally, high-quality public involvement processes may increase trust in government (Burby, 2003) and provide satisfaction in terms of both process and outcome.

Study Objectives

Lake Umbagog is a newly established Refuge (in 1993) with an increasing visitation. Current visitation numbers are around 55,000 visits/year. Though limited visitor services are currently offered, additional services will be proposed in the CCP. The purpose of this survey is to assess interested publics' and stakeholders' satisfaction with existing visitor conditions and experiences on the Refuge and the preferences for proposed changes to the Refuge affecting visitation. An additional purpose is to gauge customers' understanding and knowledge regarding the Refuge so that future communications with stakeholders regarding proposed changes can be most effective.

Methods

In order to develop a survey that reflected the policy-relevant public use management issues to be addressed in the CCP planning process, we met with Refuge staff in October of 2003. Detailed discussions were held with FWS Refuge and Regional office planning personnel. The purpose of the site visit was to better understand the Refuge and the planning process so that we could design a survey that was best-suited to obtain the information necessary to inform the CCP process. A second purpose of the site visit was to identify the stakeholder group to be sampled.

Based on these discussions, we developed a preliminary survey instrument. The survey instrument was reviewed by FWS personnel, and their comments and suggestions were incorporated. The survey instrument was then peer reviewed and pre-tested for readability, clarity, and conciseness before being sent through the Office of Management and Budget (OMB) for information collection approval. Comments were reviewed and suggestions were incorporated when appropriate. The survey was approved by the DOI Generic Clearance for Customer Satisfaction Surveys for OMB (OMB Control #1040-0001).

Population Sampled

As part of the initial CCP scoping process in 2002, the Refuge broadly distributed an “issues workbook” to individuals in the local community and surrounding area. In addition, the FWS held a series of public scoping meetings. The purpose of the workbook and scoping meetings was to obtain input from as broad a group as possible and identify issues of concern regarding Refuge planning. Over 1,000 individuals were sent the workbook and/or attended the public meetings.

The sample of “stakeholders” for this survey were the 214 individuals who had either completed the workbook or attended one of the scoping meetings. We sent the survey via mail to this group of 214 stakeholders, following a step-by-step procedure for mail-out surveys based on the Total Design Method (Dillman, 2000). This is a dependable process for survey sampling that maximizes the quality and quantity of responses for mail and telephone surveys. Specifically, we followed these steps in implementing the survey in the fall and early winter of 2004:

1. We sent a survey package to respondents that included the survey, a postage-paid return envelope, a cover letter explaining the study, and an incentive (National Wildlife Refuge blue goose lapel pin).
2. Over the course of the following seven weeks, we sent one reminder postcard and two more survey packages to those who had not responded.

The data were analyzed using SPSS 13.0. Descriptive statistics were run first, followed by parametric and non-parametric statistical tests and cross tabulations.

Results

Appendix A of this report includes the survey instrument. Appendix B includes the summary data for all of the questions in the survey, in the order that they appear in the survey. For the most part, that information is not repeated in the body of the report, which focuses on the meaning of more in-depth analyses of the survey data. It may be useful to reference these Appendices in conjunction with the report.

Response Rate

A total of 169 stakeholders responded to the survey for a response rate of 79% (Table 1). This response rate and resulting confidence interval of ± 3.5 exceed professional standards for this type of research.

Table 1. Response rate for Lake Umbagog stakeholder survey.

Response Rate	
Surveys distributed	214
Respondents	169
Response rate (%)	79
Confidence interval (\pm) ¹	3.5

¹The confidence interval is the plus-or-minus error figure related to the sample size and population size and is associated with the results. For example, for a $\pm 5\%$ margin of error, if 55% of the sample chooses an answer, you can be "sure" that if you had asked the question of the entire relevant population, between 50% (55-5) and 60% (55+5) would have chosen that answer.

Stakeholder Profile

About half of the respondents are local residents, either from Coos County, New Hampshire or Oxford County, Maine. Of those local respondents, about 83% ($n = 67$) are year-round residents and 17% ($n = 14$) are part-time residents in the spring and summer. Local residents surveyed have lived in the area (Coos County or Oxford County) on average for about 29 years; approximately two-thirds indicated that their families had lived there for at least three generations (Table 2). Whether a respondent lives in the area and if so, their length of residence in the area was found to be an important driver of other issues such as knowledge and management preferences, which will be covered later in this report. Throughout the report, local and nonlocal respondent differences are noted where significant.

Table 2. Demographics of local resident stakeholders.

Demographic	
Years lived in local area (Coos, NH or Oxford, ME) (O)	29
Generations that lived in local area (O)	≥ 3
Full-time resident ($n = 67$)	83%
Part-time resident ($n = 8$)	17%

The majority of stakeholders surveyed are male, with an average age of 56 (Table 3). Employment rates differ between local and nonlocal respondents, with $\sim 66\%$ of local respondents and nearly 80% of nonlocal respondents indicating that they work. Consequently, there are also differences in retirement rates, with a higher percentage of retirees locally (35%, versus 20% for nonlocals). More nonlocal respondents hold advanced degrees (61%) as compared to local respondents, who are more likely to hold college degrees (33%).

Table 3. Demographics of Lake Umbagog NWR stakeholders.

Demographics	Nonlocal respondents	Local respondents ¹
Male	72%	59%
Female	28%	41%
Average age	53	58
Worked full or part time ²	79%	64%
Retired ³	20%	35%
Highest education level ⁴	Advanced degree	College degree
Median household income	\$50,000-74,999	\$75,000-99,999

¹Respondents indicating they resided in either Coos County, NH or Oxford County, ME.

²Employment: statistically significant differences between local and nonlocal residents ($\chi^2 = 4.39$, $p = .04$, $\phi = -.17$).

³Retirement: statistically significant differences between local and nonlocal residents ($\chi^2 = 4.56$, $p = .03$, $\phi = .174$).

⁴Highest education: statistically significant differences between local and nonlocal residents ($\chi^2 = 19.96$, $p = .001$, Cramer's $V^1 = .36$).

Stakeholder Experience at the Refuge

We asked stakeholders a series of questions related to their experience while visiting the Refuge. These questions were targeted at three areas:

- defining their trip(s) to the Refuge,
- understanding the importance of activities to their decision to visit the Refuge and the locations where they participate in those activities, and
- understanding stakeholders' attachment to the Refuge and the importance of the Refuge as a place.

Trip to Refuge

Most respondents have visited Lake Umbagog National Wildlife Refuge (NWR) in the past five years (89%, $n = 150$) at a rate of about 10 times per year. Most have been visiting the Refuge for about 18 years. When they visit the Refuge, stakeholders are staying about 6 hours. For those spending the night, the median number of nights is 2. The average number of nights spent on the Refuge is 13, however there is high variability in response to this question ($SD = 45.82$), so the median is a more accurate measure. The variability is likely due to the respondents who own camps on the Refuge who stay overnight many days of the year.

For the 11% ($n = 18$) who have not visited the Refuge in the past 5 years, we asked what would encourage them to visit. Most responses relate to lack of free time or other personal circumstances (verbatim responses are available in the Appendix).

Importance of Activity

We asked stakeholders the importance of specific priority public-use activities as identified by the Refuge Improvement Act—wildlife observation, photography, hunting, fishing, and interpretation, and environmental education—and other compatible activities available at the Refuge. We also asked respondents about two motivations for visiting the refuge: “experiencing a

¹ Cramer's V is a measure of the degree of association between two nominal categorical variables.

serene environment” and “being in natural and undeveloped lands.” Certainly, the argument can be made that an activity such as wildlife observation can also be a motivation for other activities (such as hunting or photography). Consequently, it is best not to interpret these “importance of activity” ratings as implying that some activities are more important than others, but that some activities are more important to a larger number of respondents than others.

Many of the activities that the Refuge is well-known for are important to a large majority of stakeholders (e.g., viewing water birds and forest birds, paddling, viewing moose, being in a serene undeveloped environment, and wildlife photography; Fig. 1). Other activities, such as hunting, snowmobiling, biking, and ice fishing, are important to a much smaller group of respondents.

In addition, some statistical differences occur between local and nonlocal residents regarding importance of activities (Fig. 2). More nonlocal residents find viewing water birds important as compared to local residents ($\chi^2 = 4.47$, $p = .03$, $\phi = -.17^2$). More local residents rated the following activities as more important than nonlocal residents: hunting deer ($\chi^2 = 8.22$, $p = .02$, $\phi = .24$); boat fishing ($\chi^2 = 6.42$, $p = .04$, $\phi = .21$); motor boating ($\chi^2 = 7.10$, $p = .03$, $\phi = .22$); snowmobiling ($\chi^2 = 14.83$, $p = .001$, $\phi = .32$).

We ran a factor analysis³ of the list of activities to develop groups of activities that could be used in other analyses regarding agreement with management options and knowledge of the Refuge (Table 4). It should be noted that the importance of consumptive and motorized activities were highly correlated ($r = .68$), meaning that respondents rated the importance of those two categories of activities statistically similarly, and therefore were factored as one activity group. (This is not to say that motorized and consumptive *user groups* should be lumped in discussions regarding their broader values or attitudes.) We will refer to these categories below in later sections of the report.

Table 4. Activity groups created for additional analysis.

Activity group	Activities Included	Cronbach's α^1
Communing activities	Experiencing a serene environment, being in natural undeveloped lands	.53
Wildlife observation	Viewing waterbirds, viewing moose, viewing forest birds	.76
Nonconsumptive/Nonmotorized use	Biking, hiking, paddling, cross-country skiing, snowshoeing, photography, camping	.65
Education	Learning from staff, environmental education	.76
Consumptive/Motorized use	Hunting, trapping, fishing, snowmobiling, motorboating	.93

¹ Cronbach's alpha (α) is the common test of whether items are sufficiently interrelated to justify their combination in an index.

² The phi coefficient (ϕ) is a measure of the degree of association between two binary variables (in this case, “important” and “not important” by “local” and “nonlocal” respondent).

³ Factor analysis is “a statistical test that explores relationships among data. The test explores which variables in a data set are most related to each other. In a carefully constructed survey, for example, factor analysis can yield information on patterns of responses, not simply data on a single response. Larger tendencies may then be interpreted, indicating behavior trends rather than simply responses to specific questions.” Taken from Colorado State University, *Glossary of Key Terms Used in the Research Guides*, <http://writing.colostate.edu/references/research/glossary/>

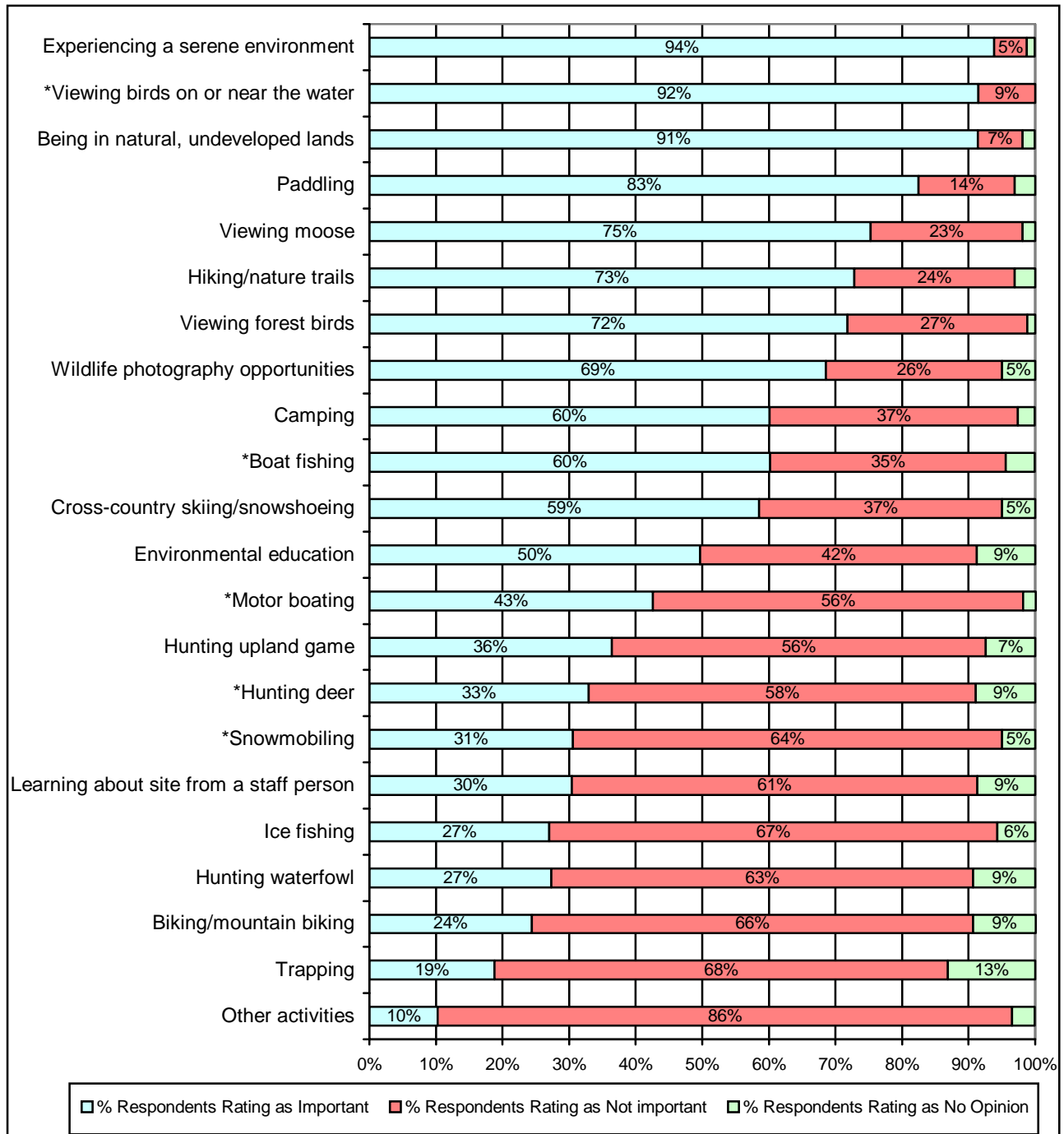


Figure 1. Importance of activities respondents participate in while visiting Lake Umbagog NWR. Activities with asterisks indicate statistical differences between local and nonlocal resident ratings of importance. (Values less than 5% are not shown.)

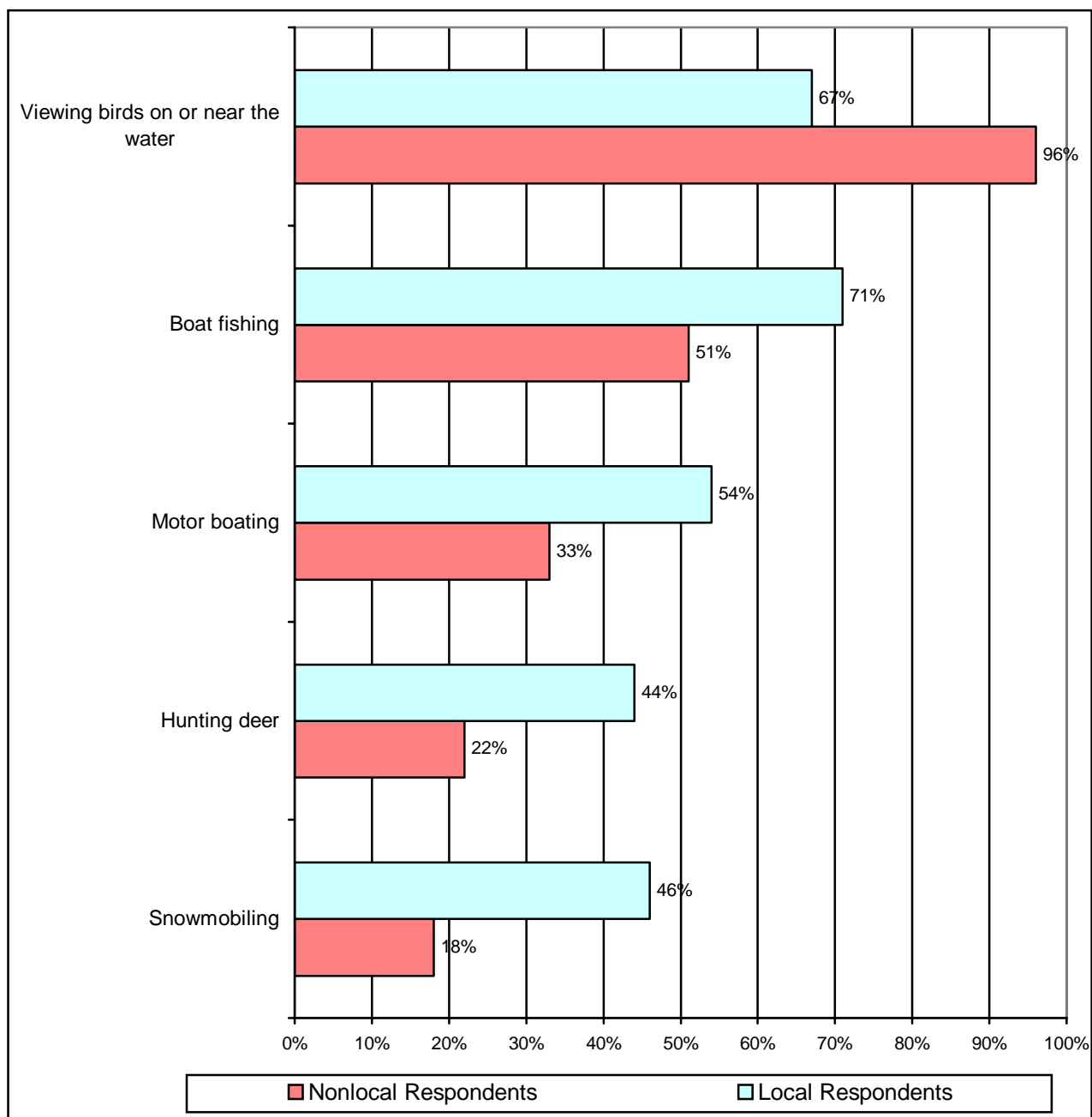


Figure 2. Comparison of importance of activities by local respondents (those residing in Coos County, New Hampshire or Oxford County, Maine) and nonlocal respondents for those activities where statistical differences exist. Percentages represent respondents who indicated that the activity was “important” or “very important.”

Location of Activity

In addition to the importance of the activity, we asked respondents the general location where they usually participate in each activity. The following locations were given as choices (a map insert was provided for reference) (Fig. 3):

- Umbagog Lake
- On or near the Magalloway/Androscoggin Rivers
- On or near the Dead Cambridge/Rapid Rivers
- Uplands in New Hampshire
- Uplands in Maine

Table 5 shows the location for those activities rated as “important” (those receiving a mean importance score of >2.5 , indicating they are moderately or very important). The majority of stakeholders ($\geq 65\%$) are participating in most of the important activities on Umbagog Lake and along the Magalloway and Androscoggin Rivers. Overall, fewer respondents are participating in important activities in the other locations. The one exception to this is that a majority of respondents also reported hiking on trails in the uplands of New Hampshire.

Importance of the Refuge as a Place

With a shift from utilitarian management to an ecosystem or landscape approach to public land management, there has been an effort to understand the emotional and symbolic meanings associated with natural places or landscapes and the attachments people form with these places (Williams and Stewart, 1998). This attachment or meaning may be personal or shared publicly. Williams identifies two dimensions of place attachment, “place dependence” and “place identity” (Williams and others, 1992; Jorgensen and Stedman, 2001). In addition to these two dimensions, we are testing a third dimension called “place tradition”—the importance of place to family tradition or heritage. All three aspects of place attachment were tested in this survey.

For the most part, stakeholders agree that the Refuge is a meaningful place, with most statements receiving mean scores of 3.4 or greater on a scale of 1 to 5, indicating mild to strong agreement (Table 6). They have the most agreement with statements measuring identity, or *what the Refuge symbolizes* to them ($O = 3.95$, indicating mild agreement). They also agree, though a little less strongly, that the Refuge is an important place for *tradition and heritage* ($O = 3.75$, indicating mild agreement). However, respondents feel the Refuge is particularly important for future generations ($O = 4.72$). Regarding the Refuge as a place stakeholders *depend on* for their activities, stakeholders are uncertain or neutral ($O = 3.34$). However, they do agree that the area is the best place for what they like to do ($O = 3.85$). Finally, though not a measure of place attachment, stakeholders strongly agree that because of their experiences at the Refuge they will definitely come back ($O = 4.57$).

Overall, it appears that, although stakeholders are not solely dependent on the Refuge for the activities they like to do at the Refuge, the Refuge is still the preferred place for doing those activities. It is especially important to stakeholders as a place with meaning to family heritage, particularly for future generations.

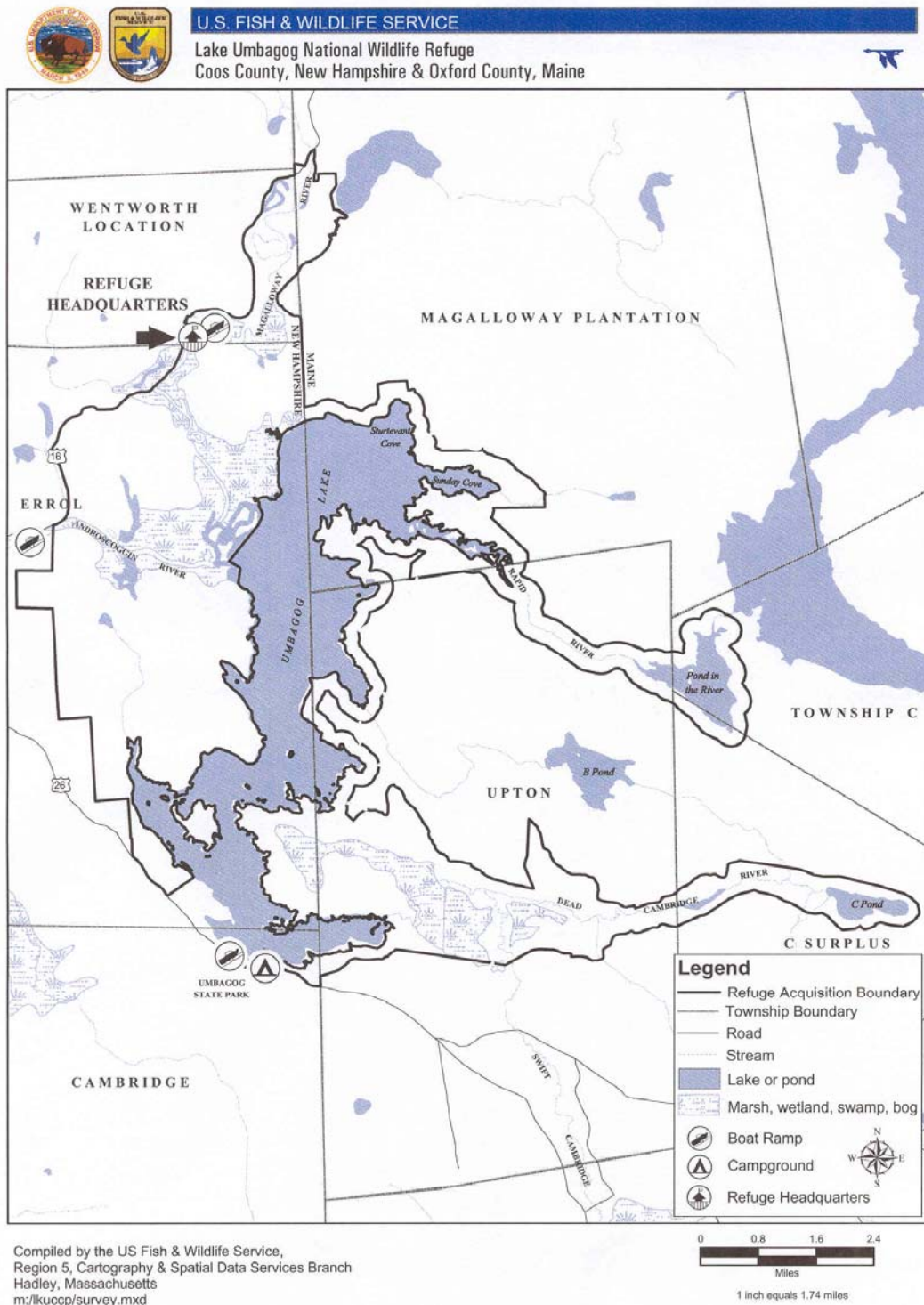


Figure 3. Map insert used by respondents to identify which location they participate in activities on and around the Refuge.

Table 5. Location where respondents participate in Lake Umbagog NWR activities rated as important. (Percentage of respondents identifying each location is presented.)

Activity	Location ¹				
	Umbagog Lake	Magalloway/ Androscoggin Rivers	Dead Cambridge/ Rapid Rivers	Uplands in New Hampshire	Uplands in Maine
	%	%	%	%	%
Experiencing a serene environment	82	75	61	50	44
Viewing loons, ducks, eagles, osprey, and other birds	84	77	40	21	19
Being in natural, undeveloped lands	80	75	57	52	45
Paddling	90	82	44	8	10
Viewing moose	71	75	45	53	37
Viewing forest birds	52	56	29	56	36
Hiking/nature trails	33	35	30	68	47
Wildlife photography opportunities	88	80	59	57	51
Camping	78	49	34	42	32
Boat fishing	98	66	43	8	8
Cross country skiing or snowshoeing	53	30	22	60	46
Environmental education programs	78	67	44	48	35

¹Numbers do not add to 100 across because more than one location could be selected.

Stakeholder Communication and Participation

In communicating with the public, it is important to understand how individuals participate in natural resource decision making and ways in which they commonly obtain information on these topics. In an effort to better understand these issues, we asked respondents about their participation in natural resource issues and the sources of information they rely on to learn about Lake Umbagog NWR.

Communication

Both local and nonlocal stakeholders get much of their news and information about the Refuge from staff at the Refuge, followed by friends, neighbors, or work colleagues (Fig. 4). There are, however, some meaningful differences between these two groups regarding other sources they are relying on for information about the Refuge. Nonlocal resident respondents rely more heavily on recreation or environmental groups ($\chi^2 = 6.43$, $p = .01$, $\phi = -.20$) and the Internet ($\chi^2 = 9.40$, $p = .002$, $\phi = -.24$) than do local respondents. Local respondents rely more heavily on newspapers ($\chi^2 = 38.02$, $p < .001$, $\phi = .49$), local town officials ($\chi^2 = 4.58$, $p = .03$, $\phi = .17$), and local newsletters ($\chi^2 = 5.58$, $p = .02$, $\phi = .19$). These differences appear to be directly related to the proximity to the Refuge and the means used to communicate about local issues. Regarding newspaper use, the Berlin papers are the most used.

Possibly related to the high use of Refuge staff as a source of information, about 60% of respondents agreed that they are comfortable with the level of information available regarding the Refuge and its management. Regarding receiving information from the Refuge, most respondents indicated they would like to receive results from this study (86%) and information about future Refuge planning activities (83%). Fewer respondents were interested in information about the Refuge Friends group (35%) or volunteer opportunities (29%).

Table 6. Stakeholder agreement with place attachment statements regarding Lake Umbagog NWR. (Responses were coded on a Likert-type scale from 1 (strongly disagree) to 5 (strongly agree) ($n = 128$).

Statement	Agreement score (O)	Strongly/Mildly agree (%)	Strongly/Mildly disagree (%)	Unsure (%)
Place heritage	3.75			
It is important to me that my children and my grandchildren will be able to visit the Refuge.	4.72	94	3	4
Coming to places like this Refuge is an important part of my family tradition.	4.07	78	16	6
The Refuge provides me a sense of connection to past and future generations.	3.74	63	16	21
This place is special because it is where my family and I spend time.	3.71	64	27	9
This place is special because it is where my friends and I spend time.	3.39	57	32	11
Coming to places like this Refuge was an important part of my childhood.	2.95	48	45	7
Place identity	3.95			
I am very attached to the Refuge.	4.20	82	10	7
This Refuge means a lot to me.	4.09	78	11	11
I feel this Refuge is a part of me.	3.83	65	19	16
I identify strongly with the Refuge.	3.69	61	23	16
Place dependence	3.34			
This area is the best place for what I like to do.	3.85	69	18	13
Doing what I do at this Refuge is more important to me than doing it in any other place.	3.20	47	36	16
I get more satisfaction out of visiting this place than visiting any other.	3.16	45	36	13
I wouldn't substitute any other place for doing what I do here.	3.10	46	39	16
No other place can compare to this area.	3.43	57	30	13
Because of my experience at the Refuge, I will definitely come back.	4.57	90	3	7

Participation

Respondents have been quite participatory in natural resource or environmental decision-making activities within the last five years. About half of the respondents indicated that they had participated in two-thirds of the activities listed (Table 7). The largest percentage of respondents indicated that they had attended a public hearing or meeting (87%), followed by joining a special interest group (67%). Since respondents were chosen to participate in the survey in part because of their attendance at a public scoping meeting, the large percentage of respondents indicating they had participated in a public hearing or meeting is not surprising. In addition, we created an index of total participation for each respondent. Scores ranged from 0 (participation in no activities) to 6 (participation in all activities). On average, stakeholders participated in three natural resource or environmental activities. Between local and nonlocal respondents, there were some statistical differences in participation. More local respondents had attended a public hearing or meeting ($\chi^2 = 12.21, p \leq .001, \phi = .29$) and more nonlocal respondents had contacted state or federal agencies ($\chi^2 = 4.31, p = .04, \phi = .17$).

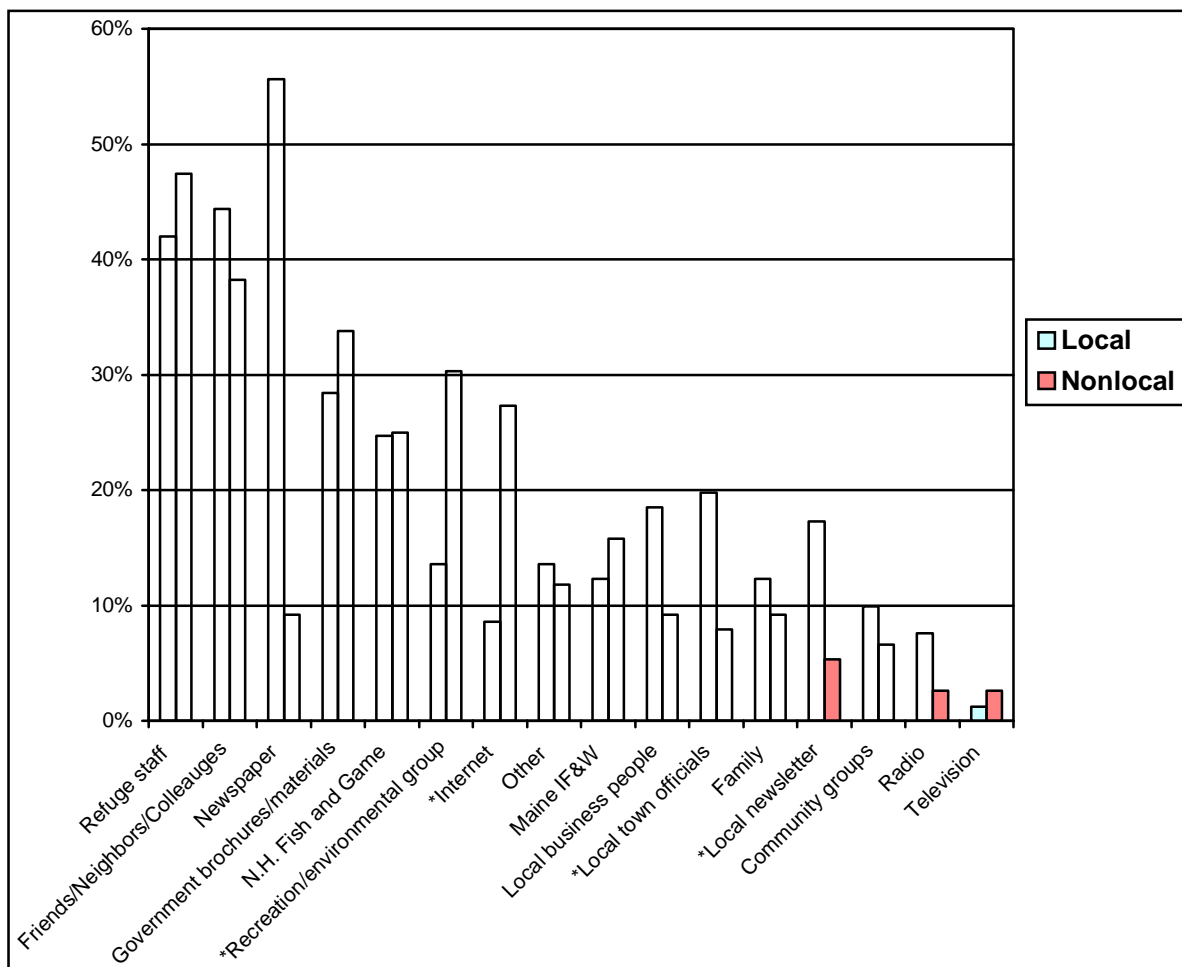


Figure 4. Sources from which stakeholders get news and information about Lake Umbagog NWR. An asterisk (*) indicates information sources showing statistical differences between local and nonlocal resident respondents.

Table 7. Participation in natural resource decision making ($n = 157$).

Activity	Participation (%)
Attended a public hearing or meeting	87
Joined a special interest group	67
Contacted or wrote a state or federal agency	55
Contacted or wrote a U.S. Senator, member of Congress, or State Legislator	48
Signed a petition	38
Wrote a letter to the editor of a newspaper	18

Community/Refuge Relations

We asked stakeholders a series of questions regarding the relationship of the Refuge with the local community. Specifically, they were asked about:

- their trust of the Refuge and the U.S. Fish and Wildlife Service (USFWS),
- the benefits and impacts the Refuge attributes to the local community, and
- the Refuge's effect on the local economy and character of the area.

Trust in the Refuge and U.S. Fish and Wildlife Service

Respondents were asked to rate their agreement with three statements related to trust in the agency and the Refuge (Fig. 5). The mean scores for these statements were slightly above the neutral mark, indicating mild agreement. These answers give an indication that stakeholders are not distrustful of Refuge staff and USFWS, however they are not overly trustful. Interestingly, nonlocal respondents are more uncertain than are locals regarding the Refuge staff doing what is right for the Refuge ($\chi^2 = 6.36$, $p = .04$, Cramer's $V = .21$) and decisions made by the FWS ($\chi^2 = 9.52$, $p = .009$, Cramer's $V = .25$). This is an important consideration when interacting with the local community and other stakeholders in the CCP process.

Perceptions Regarding Refuge Benefits and Impacts to the Local Community

Benefits

Eighty-one percent of respondents ($n = 139$) answered the open-ended question that asked, "Please tell us what you see as the biggest benefit to the local community from Lake Umbagog National Wildlife Refuge." *The responses to this question are qualitative and should be interpreted as such; however they can inform the quantitative results of this study and provide anecdotal insight.* The verbatim responses are available in Appendix B.

Many respondents commend the preservation of flora and fauna and value the fact that this land will remain undeveloped. Respondents believe the Refuge contributes to a high standard of living through the revenue from visitors. They feel the Refuge has provided a positive economic impact and has expanded the recreation-based economy, particularly for local businesses and outfitters. Respondents believe that by providing the opportunity for ecotourism, jobs are created in the community and activities are available for all four seasons; a common interest to stakeholders. Representative quotes from respondents include:

"Local people utilize the area, plus it draws tourists, plus it is keeping a beautiful lake pristine and undeveloped,"

"For a small community like Errol it will bring in tourist (local & long distance) dollars, plus preserve a piece of the natural world."

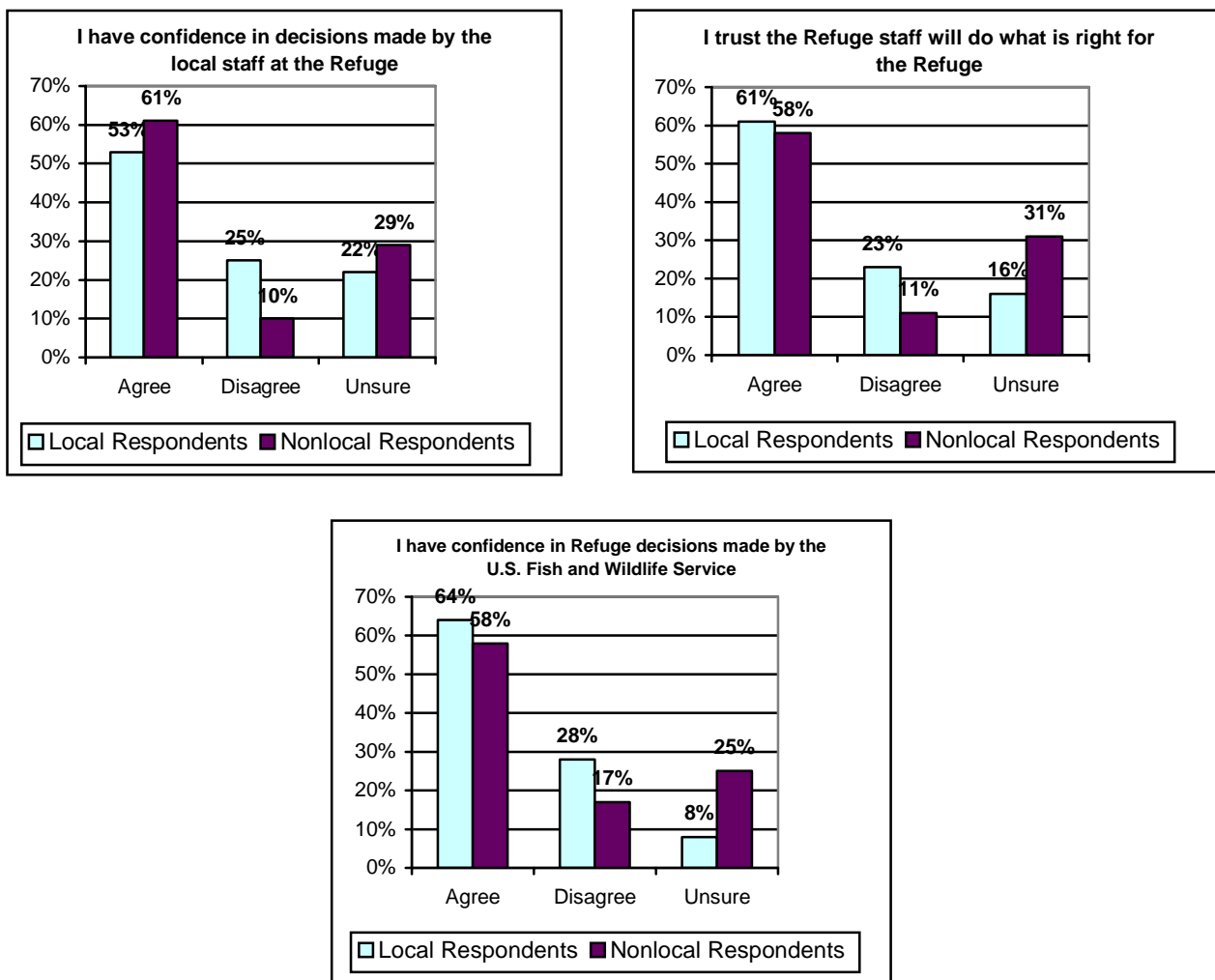


Figure 5. Respondent agreement (%) with statements related to confidence/trust in Refuge staff and the U.S. Fish and Wildlife Service. Responses were coded on a Likert-type scale from 1 (strongly disagree) to 5 (strongly agree), with “Unsure” being the mid-point.

Along these lines, 80% of respondents agreed with the statement, “The Refuge contributes to the local economy” (O = 4.2 on a scale of 1 to 5, where 1 = strongly disagree and 5 = strongly agree).

Many respondents commented on the benefit of keeping the surrounding land undeveloped and available for public use by maintaining a balance in the way local lands are utilized.

“...a stable and long term ability to manage the natural resources and recreational opportunities.”

“I want to say the tourist dollars, but the biggest benefit is that the preserve will be here for future generations.”

“It will keep the surrounding land undeveloped and available for public use.”

Similarly, nearly 90% of respondents agreed that “The Refuge is an important part of the character of the area” (O = 4.4).

Impacts

Close to half (44%, $n = 77$) of the respondents provided a written opinion to the open-ended question that asked, “Do you see any negative impacts to the local community from Lake Umbagog National Wildlife Refuge?” *The responses to this question are qualitative and should be interpreted as such; however they can inform the quantitative results of this study and provide anecdotal insight.* The verbatim responses are available in Appendix B.

A general theme extracted from this group of responses is: more people and use equals less wilderness.

“If tourism causes too much development and the type of use of the area is not carefully controlled, the area will lose its biodiversity and beauty.”

Along those lines, some expressed apprehension about increasing visitor impact on the Refuge.

“Increasing tourist use of the lake without understanding the impact on the wildlife and waterfowl.”

“Increase in visitor use could lead to pollution, trash, loss of small town rural identity.”

There is a sense of unwanted publicity and the threat of over-exploitation. Related to these impacts, respondents mentioned lack of some services at the Refuge (restrooms, campsites, and environmental education) having a negative impact on the community at large. Also mentioned was a desire to limit the number of large boats on the lake and allow anglers to regain access to the river.

Many individuals commented on the negative effects of growth to the area in general. Respondents repeated their concern for the increasing tax burden and the erosion of the future tax base.

“It seems as though visitors are multiplying, traffic is increasing, condominium and vacation home development is prominent, land values are escalating and property taxes are on the rise.”

Some are concerned that the character of the landscape has changed since the Refuge was established. A primary concern is increasing federal rules and regulations and too many restrictions on local use. Other stakeholders feel that, due to land acquisitions, the Refuge has taken too much land out of the forest-based economy and away from local land and business owners. They appear wary that federal management threatens to change traditional use by locals.

“There is a sense that the government: insensitive, large, not indigenous, is taking too firm of a grip on the region.”

“There is an inability of a large bureaucracy to make decisions about the Refuge at the community level with partners.”

Stakeholder Preferences for Refuge Management

In an effort to better understand stakeholder preferences for various potential management options, we asked respondents a series of questions about options. These included:

- the desirability of certain services to be offered at the Refuge, and the general location at which they would prefer seeing each of those services;
- how certain existing features should be managed to maximize visitors' experience at the Refuge;
- specific activities or services that should be allowed and should not be allowed at the Refuge; and
- agreement with management tradeoffs.

Desirability and Preferred Management of Visitor Services

Because the Refuge was established fairly recently, many compatible visitor/public use services are not currently offered. Refuge staff were interested in learning what stakeholders would like to see offered in the future and the preferred locations for those offerings.

Potential services rated as important by a majority ($\geq 65\%$ of respondents) include environmental education; opportunities for wildlife observation; provision of nonmotorized trails; information on hiking, birdwatching, or wildlife photography; and opportunities for volunteering (Fig. 6). Three-quarters of the services listed were ranked as moderately or very desirable by about half of the stakeholders surveyed. Services related to hunting and fishing were rated as desirable by fewer respondents.

Regarding local and nonlocal differences, only two services showed statistical differences in desirability (Fig. 7). Nonlocals are more interested in having information on birdwatching, hiking, or wildlife photography than are locals ($\chi^2 = 7.51$, $p = .02$, Cramer's $V = .22$). They are also more supportive of user fees for services provided than are locals ($\chi^2 = 13.52$, $p = .001$, Cramer's $V = .30$).

When asked where they would like to see services provided, for nearly all the desirable services, the majority of stakeholders ($\geq 65\%$) indicated both Umbagog Lake and the Magalloway/Androscoggin Rivers. Table 8 shows the preferred location for the most desired services (those receiving a mean desirability score of >2.5 , indicating they are moderately or very important). Fewer respondents prefer to see desired services offered at the other locations. The only exceptions to this are preferences for nonmotorized trails in the uplands in New Hampshire and wildlife viewing opportunities along the Dead Cambridge/Rapid Rivers.

Stakeholders were also asked how features or services should be managed to maximize Refuge experience (Table 9). This question ties very closely to the "desirability of services" question summarized above and is meant to further refine the results of that question. Specifically, for a number of services respondents were asked if the service should be minimized, left as is, or increased.

Using the majority rule ($\geq 65\%$), stakeholders feel the following services or features should be *left as is*:

- camp sites;
- boat ramps;
- fishing access to lake, river or shorelines; and
- visitor numbers.

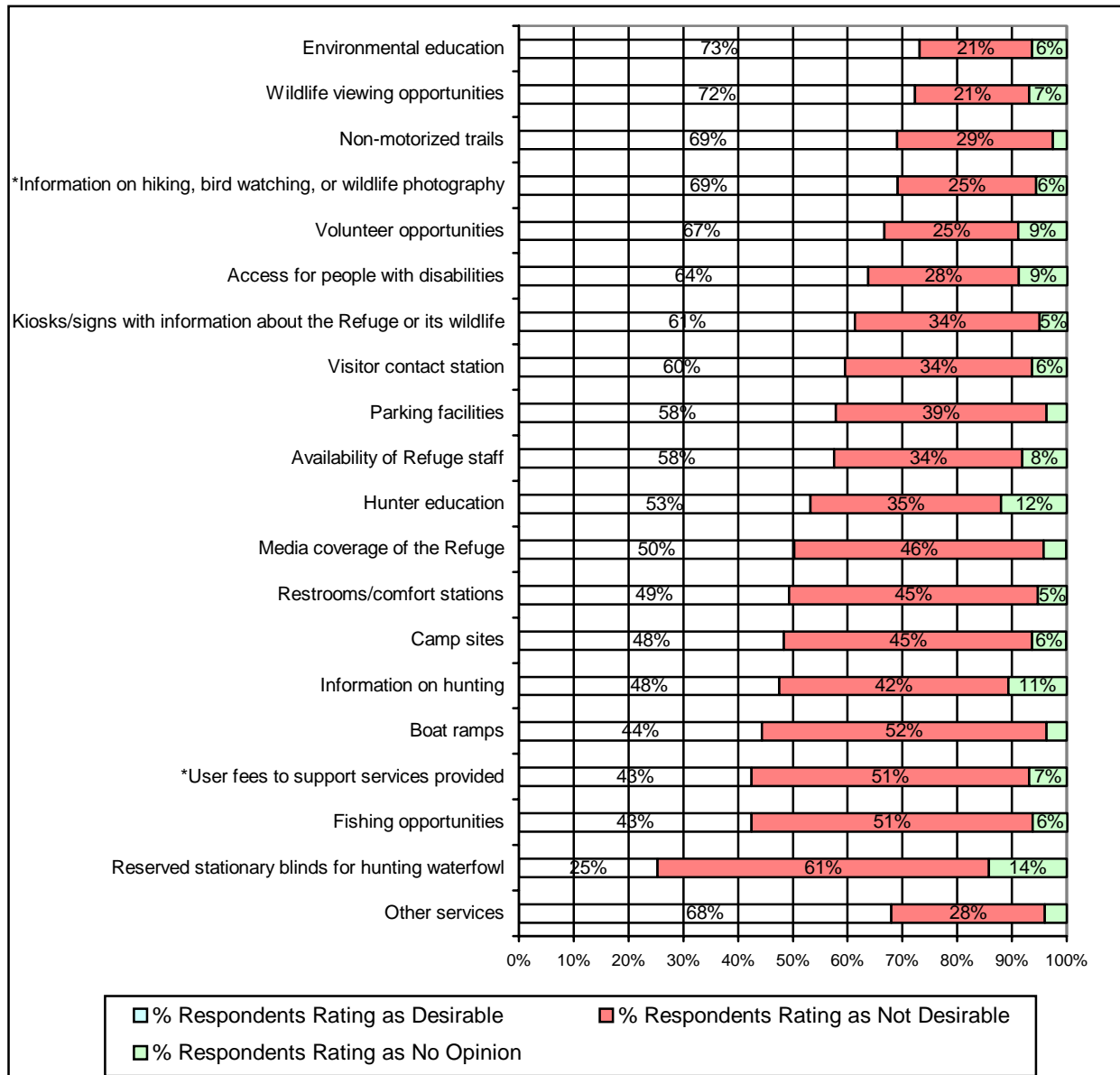


Figure 6. Desirability of public use/visitor services being offered at Lake Umbagog NWR. Services with asterisks indicate statistical differences between local and nonlocal resident ratings of importance. (Values less than 5% are not shown.)

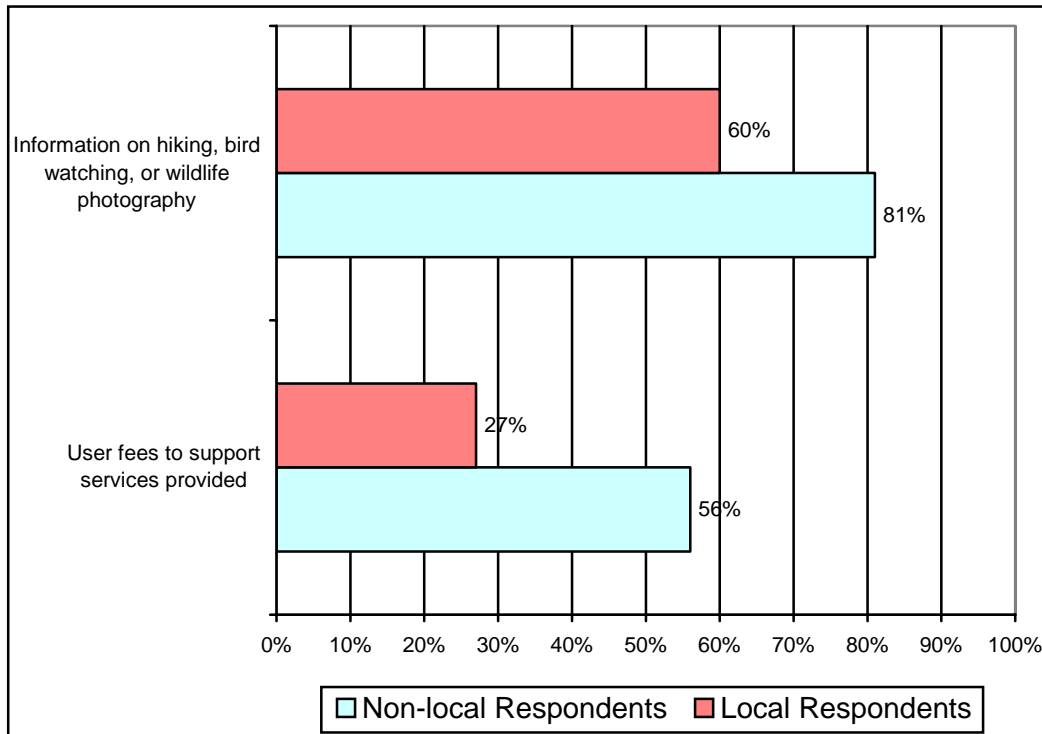


Figure 7. Comparison of desirability of services by local respondents (those residing in Coos County, New Hampshire or Oxford County, Maine) and nonlocal respondents for those services where statistical differences exist.

Differences occurred between local and nonlocal resident respondents regarding fishing access and boat ramps. Though more than 50% of both groups say these features should be “left as is,” about a quarter of nonlocal respondents feel boat ramps and fishing access should be decreased, as compared to <10% for local respondents (fishing access: $\chi^2 = 10.94$, $p = .004$, Cramer’s $V = .27$; boat ramps: $\chi^2 = 8.63$, $p = .01$, Cramer’s $V = .24$).

Preferences for other services or features were less clear-cut. Respondents were divided on whether the following services or features should be left as is or increased:

- wildlife observation/photography facilities;
- interpretive exhibits;
- brochures/publications;
- restrooms/comfort stations;
- hiking trails;
- environmental education programs and activities; and
- naturalness (restore more natural conditions).

Regarding naturalness, there were also differences in opinion between local and nonlocal resident respondents, with nonlocals much more supportive of restoring more natural conditions (60% for nonlocals vs. 37% for locals; $\chi^2 = 8.05$, $p = .02$, Cramer’s $V = .23$).

There was even less consensus for the following activities, as responses were divided among all three options (decrease, increase, and leave as is):

- information signs,
- hunting areas (though most—53%—want them left as is), and
- visitor impacts on wildlife (though nearly a majority—47%—want impacts decreased).

Table 8. Percent of respondents rating a given location as a “preferred” location for services rated as desirable.

	Location (% respondents choosing each location) ¹				
	Umbagog Lake	Magalloway/ Androscoggin Rivers	Dead Cambridge/ Rapid Rivers	Uplands in New Hampshire	Uplands in Maine
Public use/Visitor service					
Wildlife viewing opportunities	94	84	65	59	53
Environmental education	84	69	41	46	40
Information on hiking, bird watching, or wildlife photography	82	67	45	40	41
Non-motorized trails	42	56	48	76	63
Access for people with disabilities	87	69	34	31	25
Kiosks or signs with information about the Refuge or its wildlife	84	73	46	42	42
Availability of Refuge staff	81	65	32	26	23
Visitor contact station	66	59	15	18	15
Hunter education	79	71	54	52	46
Parking facilities	73	73	35	29	24
Camp sites	90	44	29	37	31
Restrooms/Comfort stations	71	71	41	32	21
Information on hunting	82	70	43	57	53

¹Numbers do not add to 100 across because more than one location could be selected.

Management Tradeoffs

The management tradeoffs are a measure of stakeholders’ agreement with specific management options, each of which encompasses the benefit and drawback associated with implementing it. These tradeoff statements were developed collaboratively with Refuge staff, based on the issues identified during the CCP process (at the time the survey was developed). The four issues identified were:

- refuge expansion/acquisition,
- habitat management (in particular forest management practices on the Refuge),
- providing public use, and
- balancing public use and wildlife disturbance.

Stakeholders were asked to rate (using a 5-point scale) whether they agreed or disagreed with a series of statements regarding these management issues. We conducted a series of analyses to better understand acceptability by stakeholders and to identify driving factors and relationships regarding stakeholder agreement (or disagreement) with these potential management options. Below is some necessary explanation of those analyses, followed by results for each category of management option.

Table 9. Stakeholder preferences for management of services at Lake Umbagog NWR.

Feature	Less (%)	Leave as is (%)	More (%)
Visitor numbers ¹	11	71	18
Camping sites	12	69	19
*Boat ramps	17	66	17
*Fishing access to lake, river, or shorelines	14	65	21
Provision of parking areas/access points	9	64	27
Visibility and availability of Refuge staff	8	60	32
Wildlife observation/ photography facilities	5	54	41
Interpretive exhibits	5	53	42
Hunting areas	26	53	22
Brochures/ Publications	4	51	45
Restrooms/Comfort stations	6	48	47
Hiking trails	6	43	51
*Naturalness ²	48	42	10
Environmental education programs/activities	6	37	57
Information signs	34	37	30
Visitor impacts on wildlife ³	47	25	28

* Services or features with asterisks indicate statistical differences between preferences of local and nonlocal respondents.

¹This statement was worded, “restrict visitation to the Refuge,” (listed under “Less” in the table)/“encourage more visitation to the Refuge” (listed under “More” in the table).

²This statement was worded, “restore more natural conditions” (listed under “More” in table)/“allow more landscape alterations” (listed under “Less” in table).

³This statement was worded: “restrict *any* visitor behavior that *may* negatively impact wildlife (listed under “Less” in table)/“restrict *only* visitor behavior that is *known* to have negative impacts to wildlife” (listed under “More” in table).

In an attempt to identify practical differences in agreement with these different management options, we used the “potential for conflict index” (PCI; Manfredo, Vaske, and Teel, 2003). The PCI shows central tendency, dispersion, and form simultaneously, and thus presents a concise indication of potential conflict for the management issue in question. The PCI is the ratio of scoring on either side of a neutral point. This analysis assumes that the greatest conflict would occur when responses are distributed between two extreme values on a scale (in this case, 50% strongly disagreeing and 50% strongly agreeing). This scenario would produce a PCI value of 1. If all responses were on one side of the neutral point (for example 100% agreeing), a PCI value of 0 would result. Graphically, a larger bubble represents a higher potential for conflict. In addition, the graph shows the distribution of the means (i.e., where they fall on the agreement scale).

The next step was to run correlations and multivariate regression models to identify relationships and any factors affecting stakeholder agreement with these options. To do this, we placed the options into four categories (based on a factor analysis).

These are the same four categories identified initially (above), with one modification (forest management):

- refuge expansion/acquisition (Cronbach's $\alpha = .92$);
- forest management practices on the Refuge (all habitat management options except managing wetlands) (Cronbach's $\alpha = .71$);
- providing public use (Cronbach's $\alpha = .62$); and
- balancing public use and wildlife disturbance (Cronbach's $\alpha = .84$).

We hypothesized that the following factors may be affecting agreement with these management option categories:

- information sources (the number of sources each respondent used to obtain information about the Refuge and its management);
- participation in natural resource decision-making (total number of actions taken);
- residency (whether a respondent lived in Coos County or Oxford County or not);
- importance of activity type (Fig 1);
- number of years visiting the Refuge; and
- knowledge of Refuge issues (total number of correct answers on knowledge questions).

These variables were used to run a multivariate regression to identify driving factors of stakeholder agreement with these options. Results for each option category are presented below.

Refuge Acquisition/Expansion

There appears to be high agreement and low potential for conflict with potential management options relating to Refuge acquisition and expansion (Figs. 8 and 9). Mean scores for these options were among the highest and all options appear to be acceptable to stakeholders.

Although differences in opinion regarding refuge acquisition appear to be minimal, certain factors appear to be influencing these differences (Tables 10 and 11). These include importance of activity type and residency. Specifically, respondents who rated consumptive/motorized activities as important are less likely to agree with these options. Local residents also are less likely to agree. Respondents who find environmental education, wildlife observation, and communing activities important are more likely to agree with these options.

Habitat Management/Forest Management Practices on the Refuge

There appears to be high agreement and low potential for conflict with potential management options relating to habitat management on the Refuge, including Refuge forest management practices (Figs. 10 and 11). Mean scores for these options were among the highest and PCI values among the lowest. Because differences were so minimal, the regression model was not significant, indicating there are no variables that are predicting or driving agreement with this management category. However, three variables are correlated with agreement with forest management practices (Table 12), showing that some relationships exist. Respondents who find consumptive/motorized activities important are less likely to agree with the forest management options, as are those who have lived in the area longer. On the other hand, the more respondents have been involved in natural resource decision making, the more likely they are to agree with these options.

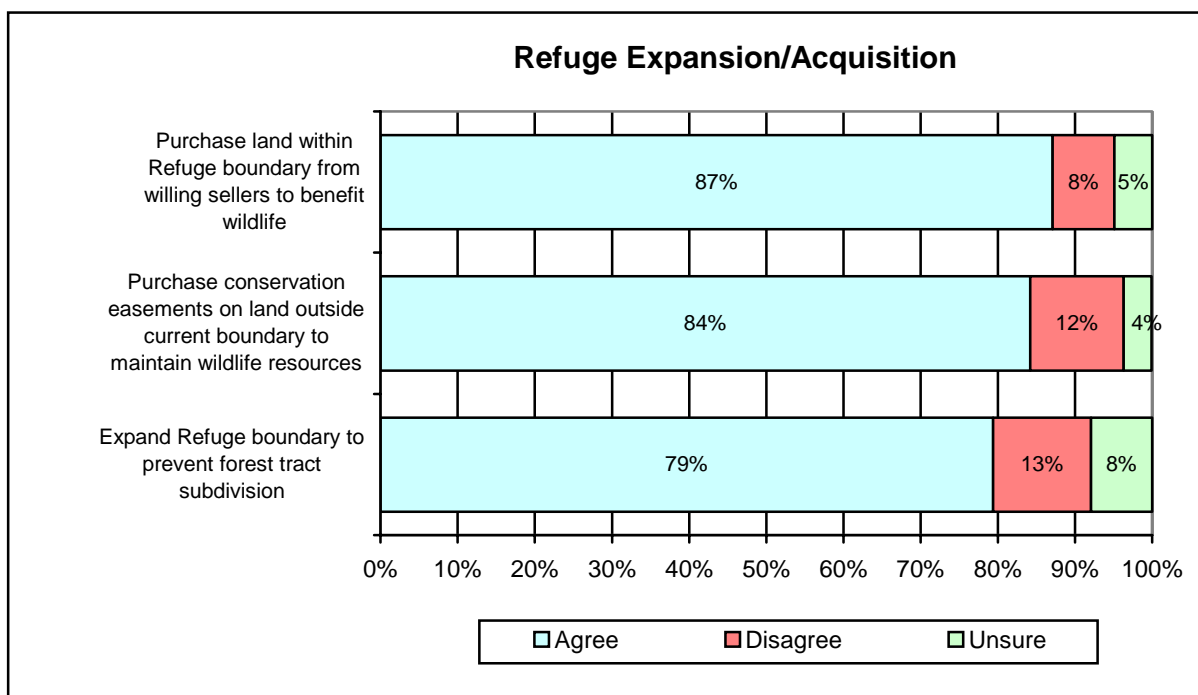


Figure 8. Stakeholder agreement with management tradeoff statements regarding *Refuge expansion/acquisition*.

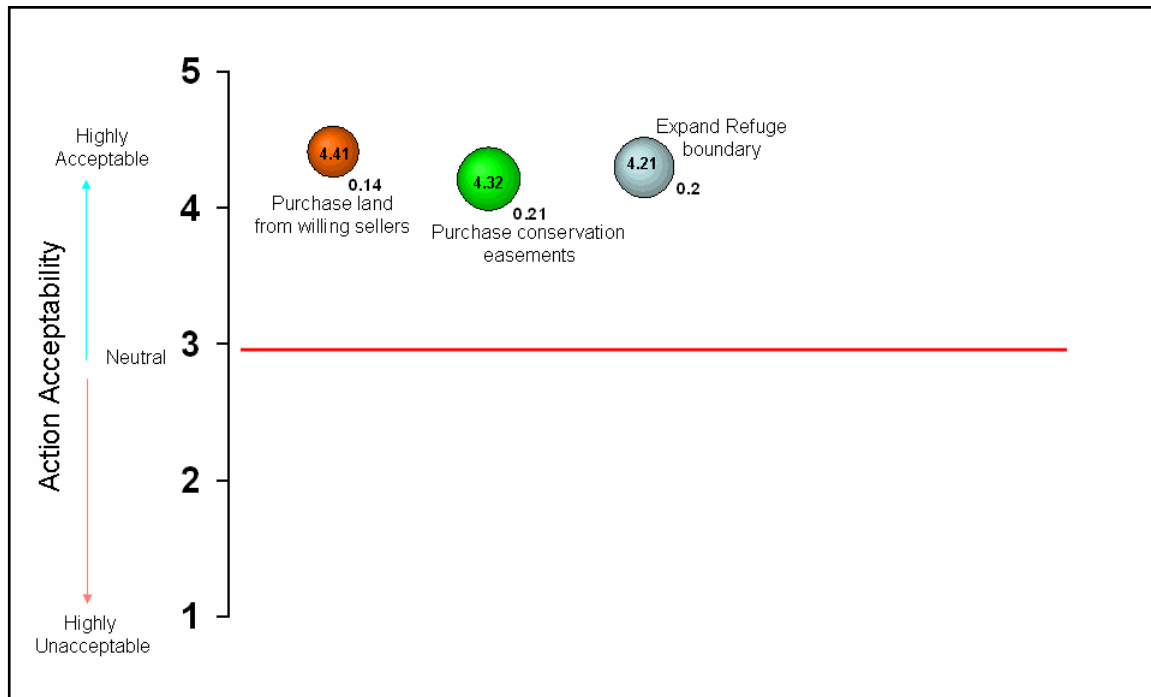


Figure 9. “Potential for Conflict Index” graph for *Refuge acquisition/expansion* management tradeoff statements. Numbers in the bubbles are mean agreement scores. Numbers outside the bubbles are PCI scores, where 0 indicates no conflict and 1 indicates maximum potential for conflict.

Table 10. Variables correlated with *Refuge acquisition/expansion* management options.

Significant variables	<i>r</i>	<i>p</i>
Importance of consumptive/motorized activities	-.38 ¹	< .001
Importance of environmental education activities	.25	.005
Importance of wildlife observation activities	.26	.003
Importance of communing activities	.33	<.001
Residency	-.26	.003

¹A negative number indicates a negative relationship with the independent variable (e.g., those who find consumptive activities important are *less likely* to support Refuge acquisition/expansion actions).

Table 11. Significant variables in regression model for agreement with Refuge acquisition/expansion management options ($r^2 = .28$; $F = 3.826$, $p = .000$).

Significant variables	β	<i>p</i>
Importance of consumptive/motorized activities	-.27	.006
Residency	-.20	.006

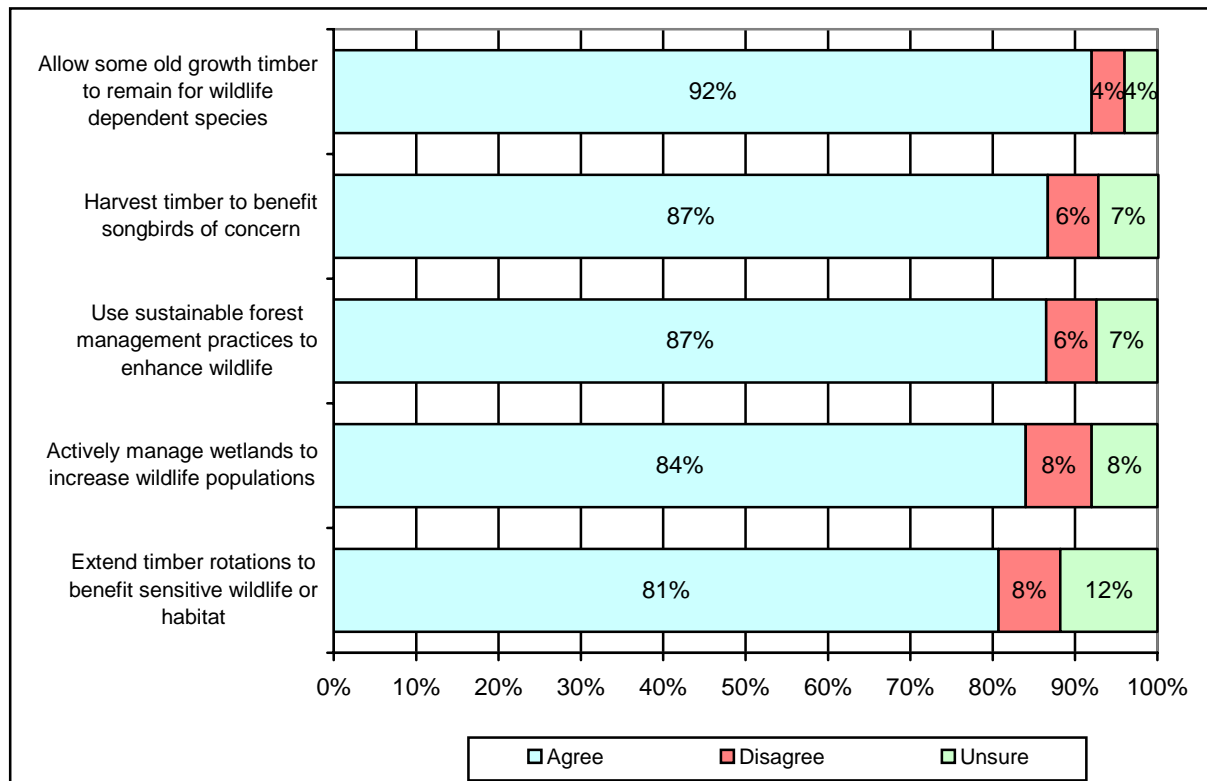


Figure 10. Stakeholder agreement with management tradeoff statements regarding *habitat management*.

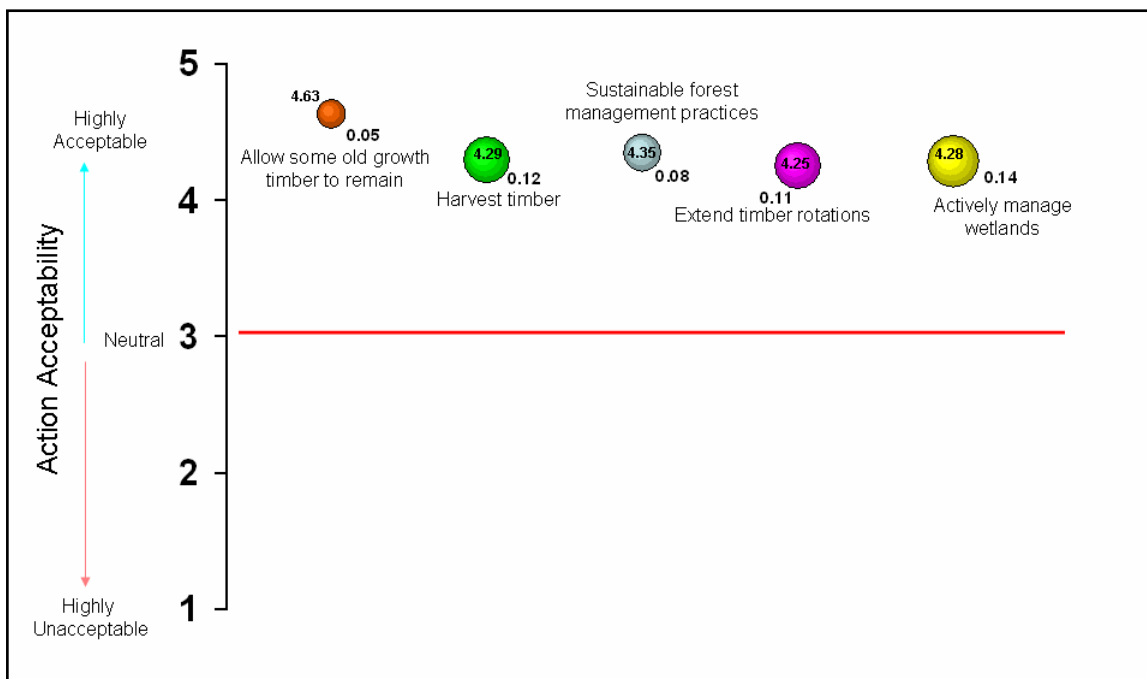


Figure 11. “Potential for Conflict Index” graph for *habitat management* tradeoff statements. Numbers in the bubbles are the mean agreement scores. Numbers outside the bubbles are the PCI scores, where 0 indicates no conflict and 1 indicates maximum potential for conflict.

Table 12. Variables correlated with *forest management practices* on the Refuge.

Significant variables	<i>r</i>	<i>p</i>
Importance of consumptive/motorized activities	-.18	< .03
Participation in natural resource decision making	.24	.006
Length of time living in the local area	-.33	.003

Public Use

There appears to be high agreement and low potential for conflict with the public use management options (Figs. 12 and 13). As differences were so minimal, the regression model was not significant, indicating that no variables are predicting or driving agreement with this management category. However, four variables are correlated with agreement with public use management options (Table 13), showing that some relationships exist. Respondents who find nonmotorized activities, environmental education activities, and wildlife observation activities important are more likely to agree with these management options. Local residents are less likely to agree with these management options.

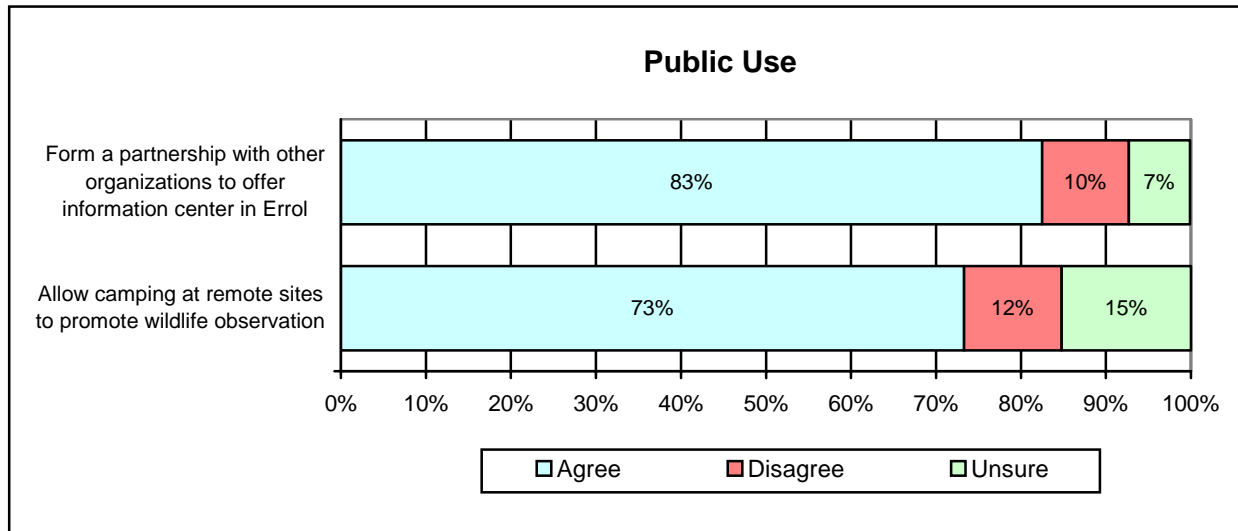


Figure 12. Stakeholder agreement with management tradeoff statements regarding *public use*.

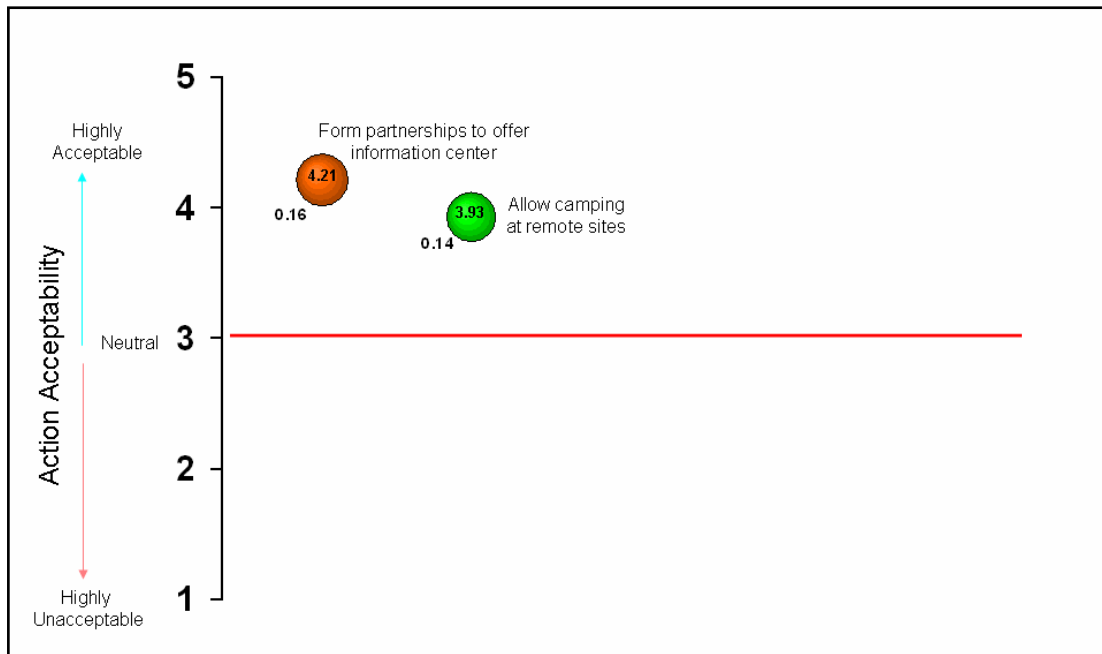


Figure 13. "Potential for Conflict Index" graph for *public use* management tradeoff statements. Numbers in the bubbles are the mean agreement scores. Numbers outside the bubbles are the PCI scores, where 0 indicates no conflict and 1 indicates maximum potential for conflict.

Table 13. Variables correlated with *public use*.

Significant variables	<i>r</i>	<i>p</i>
Importance of nonmotorized activities	.21	.01
Importance of environmental education activities	.21	.02
Importance of wildlife observation activities	.28	.002
Residency	-.18	.03

Balancing Public Use and Wildlife Disturbance

There appears to be fairly high agreement and fairly low potential for conflict with potential management options relating to balancing public use and wildlife disturbance (Figs. 14 and 15). However, variability is greater across options in this group. The statement receiving the highest agreement rating and the lowest PCI score of all of the management statements was the banning of lead tackle to protect waterbirds. Other options in this category, however, received the lowest agreement (though still >60% agreeing). The option "...decrease water levels...to provide food for migratory waterfowl...even if navigational hazards...increase" received the highest PCI score and lowest mean score. These numbers still indicate low potential for conflict, but relative to the other options, may be more contentious. More stakeholders were uncertain of their opinion regarding these tradeoffs as well.

Some factors appear to be influencing the differences for this category of management options (Tables 14 and 15). These include importance of activity type, residency, and length of time lived in the local area. Specifically, respondents who rated consumptive/motorized activities as important are *less likely* to agree with these options. Local residents and those who have lived in the area longer are also *less likely* to agree. Respondents who find nonmotorized activities, environmental education activities, wildlife observation activities, and communing activities important are more likely to agree with these options.

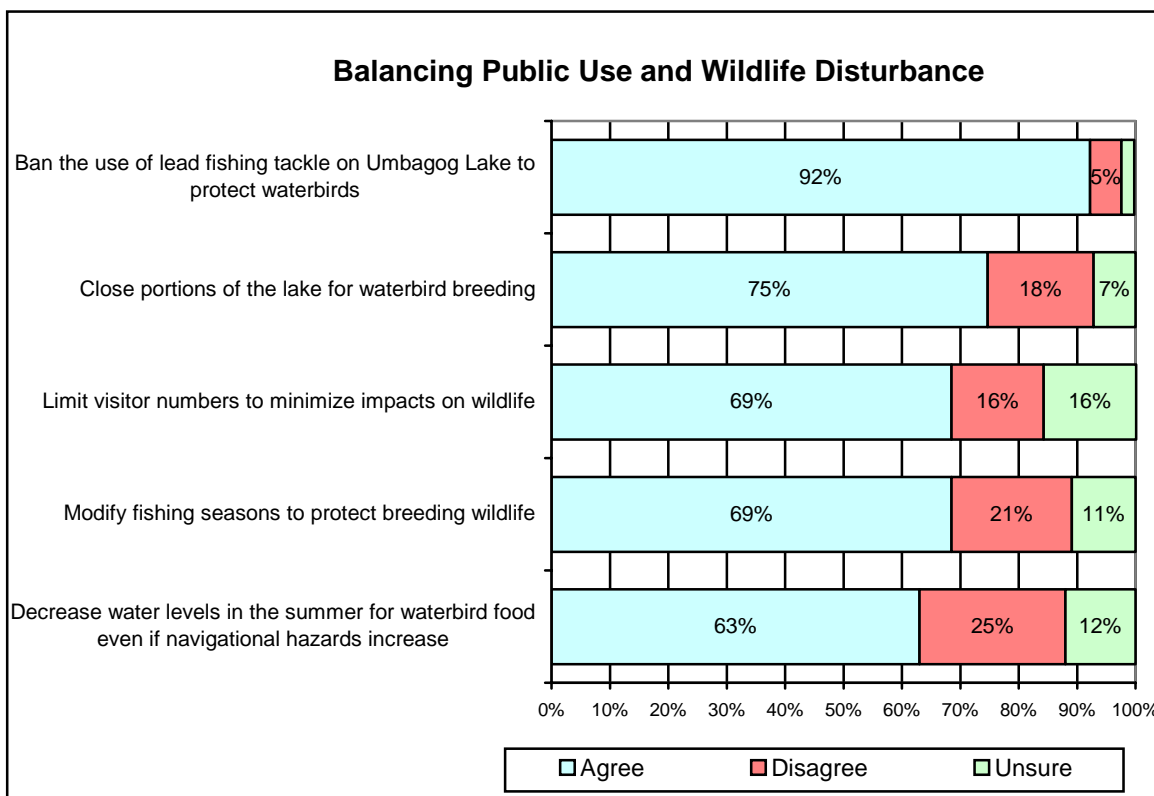


Figure 14. Stakeholder agreement with management tradeoff statements regarding *balancing public use and wildlife disturbance*.

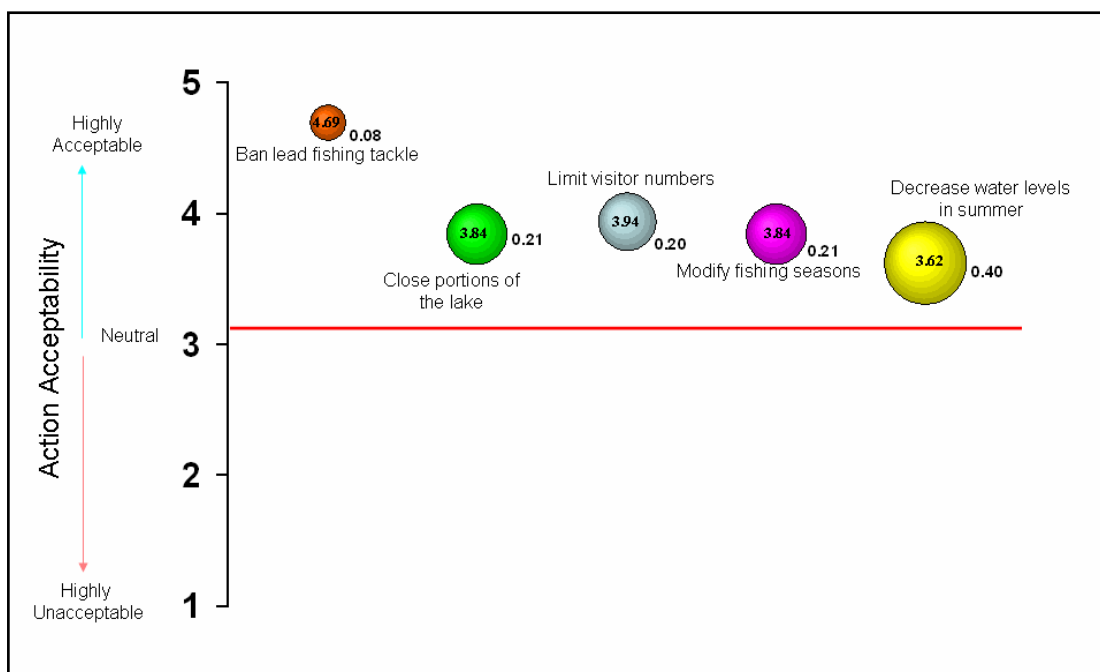


Figure 15. “Potential for Conflict Index” graph for *balancing public use and wildlife disturbance* management tradeoff statements. Numbers in the bubbles are the mean agreement scores. Numbers outside the bubbles are the PCI scores, where 0 indicates no

Table 14. Variables correlated with *balancing public use and wildlife disturbance*.

Significant variables	<i>r</i>	<i>p</i>
Importance of consumptive/motorized activities	-.56	< .001
Importance of nonmotorized activities	.21	.02
Importance of environmental education activities	.19	.02
Importance of wildlife observation activities	.39	< .001
Importance of communing activities	.25	< .005
Residency	-.24	.006
Length of time living in the local area	-.31	.006

Table 15. Significant variables in regression model for agreement with options regarding balancing public use and wildlife disturbance ($r^2 = .45$; $F = 8.178$, $p = .000$).

Significant variable	β	<i>p</i>
Importance of consumptive/motorized activities	-.49	< .001

Stakeholder Knowledge of Refuge Issues

An important component of this survey was to better understand stakeholder knowledge of Refuge issues. There was a perception by the Refuge and planning staff that stakeholders did not clearly understand the important management objectives and potential future changes in management that were likely to be put forward in the draft CCP. We wanted to test this hypothesis and determine factors that may be affecting stakeholder knowledge. We also wanted to determine stakeholders' self-assessed knowledge.

We first asked stakeholders to rate their knowledge of Lake Umbagog NWR and its management. Further questioning was designed to test respondent knowledge about four previously identified themes:

- Refuge and surrounding land ownership patterns, or whether people realized where they were when they were on the Refuge,
- the purpose of Lake Umbagog NWR,
- water-level management, and
- the Refuge's land acquisition procedures.

For each category, we asked stakeholders two multiple-choice questions and two true/false questions. Though we strove for consistency in the construction of these questions, it should be noted that they did vary in difficulty and in complexity. As a result, within each of the categories mentioned above, knowledge levels varied.

Overall, stakeholder knowledge about Refuge issues is above average (>50%), but relatively low (if evaluating scores like one would for an academic test). The average percent of correct responses on all of the knowledge questions was 62%, ranging from 63-68% for each category (Table 16).

Most respondents said they know some or a fair amount about the Refuge. Only 13% ($n = 22$) indicated that they felt they know a great deal. Respondents' knowledge was correlated with their assessment of their knowledge ($r = .22$, $p = .005$), indicating that their self-assessment and their actual knowledge are similar. Stakeholder knowledge is similar across categories of knowledge, with correct answers in each category averaging about 65%.

Again, certain factors appear to be influencing stakeholders' level of knowledge on Refuge issues. (Table 17). These include importance of activity type, participation in natural resource decision making, and length of time lived in the local area. Specifically, those stakeholders who rate wildlife observation activities as important scored higher on the knowledge questions. This same holds true for those who have been involved in natural resource decision making actions (increased scores with increased total number of natural resource participation scores). A negative relationship exists for length of residency, with fewer correct answers with increased number of years a respondent has lived in the area.

Table 16. Correct responses to knowledge questions about Lake Umbagog NWR.

Question	Respondents choosing correct answer (%)	Correct answers in category (%)
Land ownership patterns		65
Nonfederal ownership of conservation lands and easements around Umbagog Lake includes <i>The Society for Protection of New Hampshire Forests, State of New Hampshire, and State of Maine</i> .	90	
Timber companies that own land adjacent to the Refuge are <i>Yankee Forest Management, Plum Creek, Bay Root, and Dillon</i> . ¹	50	
When camping at a remote campsite on Umbagog Lake, you may be camping on the Refuge.— <i>True</i>	92	
Approximately three quarters of the land within the Lake Umbagog Refuge boundary is privately owned.— <i>False</i>	58	
Land acquisition procedures		65
The land acquisition procedures for U.S. Fish and Wildlife Service Refuges include <i>purchasing at market value from willing sellers, purchasing conservation easements, and land exchanges</i> .	90	
The total acreage of Lake Umbagog NWR is now <i>17,500 acres</i> . ²	48	
The Refuge may expand its current boundary without a formal public review.— <i>False</i>	65	
The Refuge makes annual Refuge revenue-sharing payments to the local community in lieu of property taxes.— <i>True</i>	79	
Refuge purpose		68
The reason the Refuge was originally established was for <i>wetlands, Black Duck/waterfowl, and eagles</i> . ³	79	
The primary purpose of the National Wildlife Refuge System is <i>wildlife first</i> . ⁴	63	
The Refuge has been established for 12 years.— <i>True</i>	88	
The Refuge is supposed to provide for wildlife conservation and public recreation equally. — <i>False</i>	52	
Water-level management		63
Water level management on Umbagog Lake is for <i>electricity and benefiting wildlife</i> . ⁵	64	
The Errol Dam impounds the <i>Androscoggin and Magalloway Rivers</i> . ⁶	63	
Union Water Power currently owns the Errol Dam.— <i>False</i>	44	
The Federal Energy Regulatory Commission (FERC) permits lake water level management on Umbagog Lake.— <i>True</i>	34	

¹The second most frequently chosen answer was Mead and Crown Vantage (39%).

²The second most frequently chosen answer was 25,500 acres (24%).

³The second most frequently chosen answer was wetlands only (13%).

⁴The second most frequently chosen answer was multiple use (31%).

⁵The second most frequently chosen answers were electricity only (17%) and flood control only (13%).

⁶The second most frequently chosen answer was the Androscoggin River only (31%).

Table 17. Variables correlated with number of correct answers on knowledge questions.

Significant variables	<i>r</i>	<i>p</i>
Importance of wildlife observation activities	.19	.02
Participation in natural resource decision making	.31	< .001
Length of time living in the local area	-.30	.008

Summary and Discussion of Key Findings

Stakeholder Profile

About half of respondents are local residents, with most of them living in the area full time. Local residents surveyed have lived in the area (Coos County or Oxford County) on average for about 29 years, with many of their families living there for at least three generations. There appears to be a relationship between stakeholder residency (and length of residency) and their agreement with management options and knowledge of Refuge facts. Most stakeholders have a long history of visiting the Refuge, with around 10 visits/year for the past 20 years. Understanding the profile of stakeholders involved in a public participatory process can be informative in communications with those stakeholders.

Stakeholder Experience at the Refuge

Not surprisingly, many of the activities that the Refuge is well-known for are important to a large majority of stakeholders. Activities such as viewing water and forest birds, paddling, viewing moose, and being in a serene environment that is undeveloped are important. More specialized activities, such as hunting, snowmobiling, and ice fishing are important to a much smaller group of stakeholders. Local respondents find many of those specialized activities (boat fishing, motor boating, snowmobiling, and deer hunting) more important than do nonlocal respondents.

Stakeholders are participating in the activities they find most important on Umbagog Lake and along the Magalloway and Androscoggin Rivers. Very few people are participating in important activities in the other locations.

Overall, stakeholders agree that the Refuge is a meaningful place. They identify with the Refuge for what it symbolizes to them and they agree that it is an important place for future generations. They do not appear solely dependent on the Refuge for the activities in which they participate. However, they do appear to recognize the importance of the experiences they have at the Refuge and those experiences bring them back time and again.

Stakeholder Communication and Participation

Stakeholders have been quite participatory in natural resource or environmental decision-making activities within the last 5 years. Given the nature of the sample (i.e., those who attended a public meeting or completed the scoping workbook), this is not surprising. About 85% of respondents are interested in results from this study and information about future Refuge planning activities, indicating their desire to communicate and be involved.

Stakeholders sampled appear to have some level of trust of the Refuge or the USFWS, however it is not overwhelming. Though greater than 50% of all stakeholders indicate they trust both the Refuge staff and the U.S. Fish and Wildlife Service, >25% of nonlocal stakeholders are unsure. This information is important as the Refuge continues to interact with stakeholders and improve relationships throughout the CCP process.

Interestingly, while their trust in the Refuge is not overwhelming, Refuge staff are the source used by almost half of respondents for information about the Refuge, followed by friends, neighbors, and colleagues. It appears stakeholders are relying heavily on the information provided by the Refuge.

Beyond the Refuge and friends and neighbors, local and nonlocal stakeholders use different sources of information to learn about the Refuge. Nonlocal residents rely more heavily on information from recreation or environmental groups and the Internet, while local residents rely more on newspapers (particularly the Berlin, New Hampshire papers), local newsletters, and local town officials. These differences are likely due to proximity to the Refuge and the availability of local communications on local issues.

Community/Refuge Relations

Based on qualitative responses, stakeholders appear to see the value (both economically and from a quality-of-life perspective) the Refuge provides to the local community. They feel the Refuge is providing an important function in protecting valued resources. They also see some negative impacts to the local community. These include issues related to promoting rapid growth and tourism in the area that exceeds capacity or community desires. However, these comments appear more directed at growth of the area and less the sole responsibility of the Refuge itself, though stakeholders do seem to feel the Refuge has an important role to play in addressing this issue.

Stakeholder Preferences for Refuge Management

Visitor Services and Features

Potential services rated as important by the majority ($\geq 65\%$ of respondents) include environmental education; opportunities for wildlife observation; provision of nonmotorized trails; information on hiking, birdwatching, or wildlife photography; and opportunities for volunteering. Services related to hunting and fishing were rated as desirable by fewer respondents. Nonlocal stakeholders are more supportive of user fees and the provision of Refuge information (on hiking, birdwatching, and photography) than are local stakeholders. Both groups of stakeholders would prefer most of the desired services near Umbagog Lake and along the Magalloway and Androscoggin Rivers.

Regarding how services should be managed, stakeholders appear to be in agreement that the following services be *left as is*: camp sites, boat ramps, fishing access, and visitor numbers. However, more nonlocal respondents than locals feel that boat ramps and fishing access should be decreased ($\sim 25\%$ vs. $<10\%$).

As a group, stakeholders are split (almost 50/50) on whether to increase or leave the following services “as is:”

- wildlife observation/photography facilities,
- interpretive exhibits,
- brochures/publications,
- restrooms,
- hiking trails,
- environmental education programs and activities, and
- naturalness (restore more natural conditions).

However, nonlocal respondents appear more supportive of restoring more natural conditions than local respondents.

Stakeholders are even more split on the management of signs, hunting areas, and visitor impacts on wildlife with equivalent proportions in all three categories (decrease, leave as is, and increase).

Management Tradeoffs

Overall, stakeholders are supportive of management tradeoffs related to Refuge expansion/acquisition, habitat management (in particular forest management practices on the Refuge), public use, and balancing public use and wildlife disturbance. There also appears to be low potential for conflict with most of these management options.

Some factors appear to be influencing support for these options. Importance of activity type, participation in natural resource decision making, residency (local vs. nonlocal resident), and length of time a respondent has lived in the local area are related (in different combinations for each category of management option) to the agreement with these options.

Though no single set of factors appears to significantly drive the small differences in agreement that exist for these management options, some relationships in the data that may be useful in targeting groups of stakeholders who are less supportive of these management options. As options are proposed in the CCP, it will be helpful to know where opposition may occur as the public participation process continues. Likewise, as alternatives are implemented, it will be important to recognize potential resistance. Because, even though the development of a CCP is a public process, it is unlikely that all stakeholders will be in agreement with all management actions.

Stakeholder Knowledge of Refuge Issues

Stakeholders' knowledge of selected questions regarding Refuge issues is fairly low. However, when asked, most said they knew some or a fair amount about the Refuge and its management. Correct answers averaged approximately 65% for each of the knowledge categories: Refuge and surrounding land ownership patterns; the purpose of Lake Umbagog NWR; water-level management; and the Refuge's land acquisition procedures.

Stakeholders' knowledge level on these questions seems to be influenced by the importance of wildlife observation activities, participation in natural resource decision making, and length of residency in the local area. As with the management tradeoff results, though, there is not one set of factors that are overwhelmingly driving the differences in scores on these knowledge questions, some relationships in the data may be useful in targeting groups of stakeholders who are less familiar with factual knowledge concerning Refuge issues. Simply providing information or facts about an issue does not necessarily change attitudes, providing the public with accurate and understandable information when working through a planning process is important for effective communication and informed discussion of CCP alternatives.

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Appendix A
Lake Umbagog National Wildlife Refuge
Survey Instrument

Lake Umbagog National Wildlife Refuge Stakeholder Survey



SECTION 1. Please tell us about your experiences at Lake Umbagog National Wildlife Refuge.

1. Have you visited Lake Umbagog National Wildlife Refuge in the past 5 years?

☐ No → If no, what would encourage you to visit? _____

IF NO, PLEASE SKIP NOW TO QUESTION 7 ON THE NEXT PAGE.

☐ Yes

2. About how many years have you been visiting Lake Umbagog National Wildlife Refuge?

I have been visiting the Refuge for _____ years.

3. On average, how many times per year do you visit Lake Umbagog National Wildlife Refuge?

I visit the Refuge _____ times per year.

4. When you visit the Refuge, what is the average length of your stay?

_____ # of hours OR _____ # of nights.

5. Are there activities or services that you think **should be** allowed at Lake Umbagog National Wildlife Refuge that are currently not allowed?

☐ No ☐ Yes → If yes, please list these activities below.

6. Are there activities or services that you think **should not be** allowed at Lake Umbagog National Wildlife Refuge that are currently allowed?

☐ No ☐ Yes → If yes, please list these activities below.

Cover photo by Ian Drew, Moonrise over Magalloway River



7. For each activity listed in the middle column, please tell us **how important** that activity is to you when visiting Lake Umbagog National Wildlife Refuge (numbers on left). Then, tell us **the general location** where you usually participate in each activity (numbers on right).

Importance <i>(Please circle only one.)</i>						Location <i>(See map insert; please circle all that apply.)</i>				
Not at all Important	Somewhat Important	Moderately Important	Very Important	No Opinion		Umbagog Lake	On or near the Magalloway/Androscoggin Rivers	On or near the Dead Cambridge/Rapid Rivers	Uplands in New Hampshire	Uplands in Maine
1	2	3	4	5	Viewing loons, ducks, eagles, osprey and other birds on or near the water	1	2	3	4	5
1	2	3	4	5	Viewing forest birds (songbirds)	1	2	3	4	5
1	2	3	4	5	Viewing moose	1	2	3	4	5
1	2	3	4	5	Experiencing a serene environment	1	2	3	4	5
1	2	3	4	5	Being in natural, undeveloped lands	1	2	3	4	5
1	2	3	4	5	Learning about the site from a staff person	1	2	3	4	5
1	2	3	4	5	Hunting deer	1	2	3	4	5
1	2	3	4	5	Hunting upland game	1	2	3	4	5
1	2	3	4	5	Hunting waterfowl	1	2	3	4	5
1	2	3	4	5	Boat fishing	1	2	3	4	5
1	2	3	4	5	Ice fishing	1	2	3	4	5
1	2	3	4	5	Hiking/nature trails	1	2	3	4	5
1	2	3	4	5	Paddling (canoeing or kayaking)	1	2	3	4	5
1	2	3	4	5	Biking/mountain biking	1	2	3	4	5
1	2	3	4	5	Cross country skiing or snowshoeing	1	2	3	4	5
1	2	3	4	5	Environmental education programs	1	2	3	4	5
1	2	3	4	5	Wildlife photography opportunities	1	2	3	4	5
1	2	3	4	5	Motorboating	1	2	3	4	5
1	2	3	4	5	Snowmobiling	1	2	3	4	5
1	2	3	4	5	Camping	1	2	3	4	5
1	2	3	4	5	Trapping	1	2	3	4	5
1	2	3	4	5	Other activities <i>(Please list)</i> _____	1	2	3	4	5

8. From the list of activities in Question 7 (above), what is your **primary reason** for visiting Lake Umbagog National Wildlife Refuge on a typical visit? *Please write the one activity from above in the blank provided.*

SECTION 2. Please tell us about the importance of the Refuge to you and the local community.

1. Please indicate the extent to which each statement below describes your general feelings about Lake Umbagog National Wildlife Refuge. *Please circle the number that best describes how you feel about each statement.*

Statements	Strongly Disagree	Mildly Disagree	Unsure	Mildly Agree	Strongly Agree
It is important to me that my children and my children's children will be able to visit the Refuge.	1	2	3	4	5
I am very attached to the Refuge.	1	2	3	4	5
Coming to places like this Refuge is an important part of my family tradition.	1	2	3	4	5
This area is the best place for what I like to do.	1	2	3	4	5
Because of my experiences at this Refuge I will definitely come back.	1	2	3	4	5
I feel this Refuge is a part of me.	1	2	3	4	5
This place is special because it is where my family and I spend time.	1	2	3	4	5
Everything considered, I trust the Refuge staff will do what is right for the Refuge.	1	2	3	4	5
I get more satisfaction out of visiting this place than visiting any other.	1	2	3	4	5
This Refuge means a lot to me.	1	2	3	4	5
Doing what I do at this Refuge is more important to me than doing it in any other place.	1	2	3	4	5
I have confidence in decisions made by the local staff at the Refuge.	1	2	3	4	5
The Refuge provides me a sense of connection to past and future generations.	1	2	3	4	5
No other place can compare to this area.	1	2	3	4	5
I identify strongly with the Refuge.	1	2	3	4	5
Coming to places like this Refuge was an important part of my childhood.	1	2	3	4	5
I wouldn't substitute any other place for doing what I do here.	1	2	3	4	5
This place is special because it is where my friends and I spend time.	1	2	3	4	5
In general, I have confidence in the decisions that the U.S. Fish and Wildlife Service makes about managing this Refuge.	1	2	3	4	5
The Refuge contributes to the local economy.	1	2	3	4	5
The Refuge is an important part of the character of the area.	1	2	3	4	5
I feel comfortable with the level of information available regarding the Refuge and its management.	1	2	3	4	5

2. Please tell us what you see as the biggest benefit to the local community from Lake Umbagog National Wildlife Refuge. *Please write your response below.*

3. Do you see any negative impacts to the local community from Lake Umbagog National Wildlife Refuge?

☐ No ☐ Yes → If yes, please write response below.

SECTION 3. Please tell us about your understanding of the Refuge and its mission.

In order to communicate effectively with local community members and others with an interest in Refuge activities, it is important that we understand what is commonly known about the Refuge and how people interact in their community on Refuge-related issues.

1. Where do you get most of your news and information about Lake Umbagog National Wildlife Refuge?
Please check all that apply.

- | | |
|--|---|
| <input type="checkbox"/> Radio | <input type="checkbox"/> Television |
| <input type="checkbox"/> Newspaper (<i>please specify which you read most</i>) _____ | <input type="checkbox"/> Internet/websites/email |
| <input type="checkbox"/> Family | <input type="checkbox"/> Local town officials |
| <input type="checkbox"/> Friends/Neighbors/Work colleagues | <input type="checkbox"/> Community groups |
| <input type="checkbox"/> Refuge staff | <input type="checkbox"/> Local newsletter |
| <input type="checkbox"/> Recreation/Environmental group | <input type="checkbox"/> Government brochures and other printed materials |
| <input type="checkbox"/> Maine Department of Inland Fisheries and Wildlife | <input type="checkbox"/> Local business people |
| <input type="checkbox"/> New Hampshire Fish and Game Department | <input type="checkbox"/> Other (<i>please specify</i>) _____ |

2. From the list of information sources in Question 1 (above), please state which single source you rely on most. *Please write the **one source** from above.* _____
3. We would like to understand how community members participate in local or regional natural resource or environmental issues. Please indicate which of the activities you have participated in within the last 5 years related to environmental or natural resource issues. *Please check all that apply.*

- ☐ Attended a public hearing or meeting
- ☐ Contacted or wrote a state/federal agency
- ☐ Contacted or wrote a U.S. senator, member of Congress, or State Legislator
- ☐ Wrote a letter to the editor of a newspaper
- ☐ Signed a petition
- ☐ Joined a special interest group (such as an environmental, sportsman's, animal rights, agriculture, or resource use organization)

4. In general, how much do you feel you know about Lake Umbagog National Wildlife Refuge and its management?

- ☐ Nothing at all ☐ Very little ☐ Some ☐ A fair amount ☐ A great deal



5. For each question or statement below, please check the one box that you feel most accurately represents the correct response.

a. Which of the following timber companies own land adjacent to the Refuge?

- ☐ Yankee Forest Management and Plum Creek
☐ Mead and Crown Vantage
☐ Bay Root and Dillon
☐ Yankee Forest Management, Plum Creek, Bay Root, and Dillon

b. The reason the Refuge was originally established was for:

- ☐ Wetlands
☐ Black duck/waterfowl
☐ Eagles
☐ All of the above

c. Water level management on Umbagog Lake is for:

- ☐ Electricity and benefiting wildlife
☐ Benefiting wildlife
☐ Flood control
☐ Electricity

d. The land acquisition procedures for U.S. Fish and Wildlife Service Refuges include:

- ☐ Purchase at market value from willing sellers
☐ Purchase conservation easements
☐ Land exchange
☐ All of the above

e. The Errol Dam impounds which bodies of water?

- ☐ Androscoggin River
☐ Magalloway River
☐ Swift Cambridge River
☐ Androscoggin and Magalloway Rivers

f. The primary purpose of the National Wildlife Refuge System is:

- ☐ Wildlife first
☐ Multiple use
☐ To provide outdoor recreation
☐ Education

g. Nonfederal ownership of conservation lands and easements around Umbagog Lake includes:

- ☐ The Society for Protection of New Hampshire Forests
☐ State of New Hampshire
☐ State of Maine
☐ All of the above

h. The total acreage of Lake Umbagog National Wildlife Refuge is now:

- ☐ 9,500 acres
☐ 17,500 acres
☐ 25,500 acres
☐ 57,500 acres

6. Please indicate whether you think each of the following statements is True or False by checking the appropriate box.

	True	False
Approximately three quarters of the land within the Lake Umbagog Refuge boundary is privately owned.	<input type="checkbox"/>	<input type="checkbox"/>
The Refuge has been established for 12 years.	<input type="checkbox"/>	<input type="checkbox"/>
When camping at a remote campsite on Umbagog Lake, you may be camping on the Refuge.	<input type="checkbox"/>	<input type="checkbox"/>
The Refuge is supposed to provide for wildlife conservation and public recreation equally.	<input type="checkbox"/>	<input type="checkbox"/>
The Federal Energy Regulatory Commission (FERC) permits lake water level management on Umbagog Lake.	<input type="checkbox"/>	<input type="checkbox"/>
Union Water Power currently owns the Errol Dam.	<input type="checkbox"/>	<input type="checkbox"/>
The Refuge may expand its current boundary without a formal public review.	<input type="checkbox"/>	<input type="checkbox"/>
The Refuge makes annual Refuge revenue-sharing payments to the local community in lieu of property taxes.	<input type="checkbox"/>	<input type="checkbox"/>

SECTION 4. Please tell us your opinions about the Refuge and its management.

1. This question has two parts. **First** rate **your desire** to see the following services offered at Lake Umbagog National Wildlife Refuge (numbers on left). **Then** tell us **the general location** you would prefer seeing each service offered (numbers on right).

Desirability (Please circle only one.)						Location (See map insert; please circle all that apply.)				
Not at all Desirable	Somewhat Desirable	Moderately Desirable	Very Desirable	No Opinion		Umbagog Lake	On or near the Magalloway/Androscoggin Rivers	On or near the Dead Cambridge/Rapid Rivers	Uplands in New Hampshire	Uplands in Maine
1	2	3	4	5	Camp sites	1	2	3	4	5
1	2	3	4	5	Nonmotorized trails	1	2	3	4	5
1	2	3	4	5	Restrooms/Comfort stations	1	2	3	4	5
1	2	3	4	5	Environmental education	1	2	3	4	5
1	2	3	4	5	Access for people with disabilities	1	2	3	4	5
1	2	3	4	5	Parking facilities	1	2	3	4	5
1	2	3	4	5	Visitor contact station	1	2	3	4	5
1	2	3	4	5	Wildlife viewing opportunities	1	2	3	4	5
1	2	3	4	5	User fees to support services provided	1	2	3	4	5
1	2	3	4	5	Availability of Refuge staff	1	2	3	4	5
1	2	3	4	5	Availability of information on hiking, bird watching, or wildlife photography	1	2	3	4	5
1	2	3	4	5	Availability of information on hunting	1	2	3	4	5
1	2	3	4	5	Kiosks or signs with information about the Refuge or its wildlife	1	2	3	4	5
1	2	3	4	5	Hunter education (e.g., safety, waterfowl ID, ethics)	1	2	3	4	5
1	2	3	4	5	Boat ramps	1	2	3	Not applicable	
1	2	3	4	5	Reserved stationary blinds for hunting waterfowl	1	2	3	Not applicable	
1	2	3	4	5	Fishing opportunities (e.g., piers, parking areas)	1	2	3	Not applicable	
1	2	3	4	5	Volunteer opportunities	-----Not applicable-----				
1	2	3	4	5	Media coverage of the Refuge	-----Not applicable-----				
1	2	3	4	5	Other activities (Please list) _____	1	2	3	4	5

2. Please indicate how you feel the features listed below should be managed to maximize your experience at Lake Umbagog National Wildlife Refuge. *Please check one answer for each feature.*

Naturalness	<input type="checkbox"/> restore more natural conditions	<input type="checkbox"/> leave as is	<input type="checkbox"/> allow more landscape alterations
Information services	<input type="checkbox"/> Refuge staff less visible and available	<input type="checkbox"/> leave as is	<input type="checkbox"/> Refuge staff more visible and available
Hiking trails	<input type="checkbox"/> provide fewer trails	<input type="checkbox"/> leave as is	<input type="checkbox"/> provide more trails
Information signs	<input type="checkbox"/> limit the number of signs	<input type="checkbox"/> leave as is	<input type="checkbox"/> provide more signs
Environmental education opportunities	<input type="checkbox"/> reduce programs and activities	<input type="checkbox"/> leave as is	<input type="checkbox"/> provide more programs and activities
Brochures/Publications	<input type="checkbox"/> provide fewer brochures/publications about Refuge resources, activities, and regulations	<input type="checkbox"/> leave as is	<input type="checkbox"/> provide more brochures/publications about Refuge resources, activities, and regulations
Interpretive exhibits	<input type="checkbox"/> provide fewer interpretive exhibits	<input type="checkbox"/> leave as is	<input type="checkbox"/> provide more interpretive exhibits
Hunting	<input type="checkbox"/> provide fewer hunting areas	<input type="checkbox"/> leave as is	<input type="checkbox"/> provide more hunting areas
Fishing	<input type="checkbox"/> restrict access to lake, river, or shorelines	<input type="checkbox"/> leave as is	<input type="checkbox"/> provide more access to lake, river, or shorelines
Boat ramps	<input type="checkbox"/> provide fewer boat ramps	<input type="checkbox"/> leave as is	<input type="checkbox"/> provide more boat ramps
Wildlife observation/photography opportunities	<input type="checkbox"/> provide fewer facilities (such as viewing blinds and walkways)	<input type="checkbox"/> leave as is	<input type="checkbox"/> provide more facilities (such as viewing blinds and walkways)
Access to Refuge	<input type="checkbox"/> provide fewer parking areas and access points	<input type="checkbox"/> leave as is	<input type="checkbox"/> provide more parking areas and access points
Camping opportunities	<input type="checkbox"/> provide fewer camping sites	<input type="checkbox"/> leave as is	<input type="checkbox"/> provide more camping sites
Restrooms/Comfort stations	<input type="checkbox"/> provide fewer facilities along rivers and parking areas	<input type="checkbox"/> leave as is	<input type="checkbox"/> provide more facilities along rivers and parking areas
Visitor numbers	<input type="checkbox"/> restrict visitation to Refuge	<input type="checkbox"/> leave as is	<input type="checkbox"/> encourage more visitation to Refuge
Visitor impacts on wildlife	<input type="checkbox"/> restrict any visitor behavior that <i>may</i> negatively impact wildlife	<input type="checkbox"/> leave as is	<input type="checkbox"/> restrict <i>only</i> visitor behavior that is <i>known</i> to have negative impacts to wildlife

3. Lake Umbagog National Wildlife Refuge contains some of the largest wetland systems in the Northeast. These wetlands, along with the lake, rivers and surrounding uplands provide a great diversity of habitats and wildlife. These lands have historically been managed intensively for forest products, and are now managed for wildlife. Over the next 15 years, management actions will occur on the Refuge to improve conditions for wildlife. These potential management actions could range from water management to forestry and management of public use. *Please read each statement below and circle the number that best represents your level of agreement.*

Management Issues	Strongly Disagree	Mildly Disagree	Unsure	Mildly Agree	Strongly Agree
It is acceptable to use sustainable forest management practices to enhance the wildlife resources on the Refuge.	1	2	3	4	5
It is acceptable to actively manage wetlands in order to increase populations of key wildlife species.	1	2	3	4	5
It is acceptable to extend timber rotations on the Refuge to benefit sensitive wildlife or habitat resources.	1	2	3	4	5
It is acceptable to close portions of the lake for part of the season to allow loons and other wildlife to produce young.	1	2	3	4	5
It is acceptable to modify fishing seasons on Umbagog Lake to protect breeding wildlife.	1	2	3	4	5
It is acceptable to ban the use of lead fishing tackle on Umbagog Lake to protect waterbirds like loons from lead poisoning.	1	2	3	4	5
It is acceptable to harvest timber to benefit songbirds of conservation concern.	1	2	3	4	5
It is acceptable to decrease lake water levels in the summer to provide food for migratory waterfowl and shorebirds even if navigational hazards on the lake increase.	1	2	3	4	5
It is acceptable to purchase land within the Refuge boundary from willing sellers at market value for the benefit of wildlife.	1	2	3	4	5
It is acceptable for the Refuge to expand its boundary if it means further subdivision of large forested tracts is prevented.	1	2	3	4	5
It is acceptable for the Refuge to purchase conservation easements on land outside the current boundary to maintain the area's wildlife resources.	1	2	3	4	5
It is acceptable to allow some old growth stands of timber to remain if it means wildlife that depend on these stands benefit.	1	2	3	4	5
It is acceptable to allow camping at remote campsites on the Refuge in order to promote wildlife observation.	1	2	3	4	5
It is acceptable to limit the number of people visiting the Refuge if it means the impact on wildlife is minimized.	1	2	3	4	5
It is acceptable for the Refuge to form a partnership with other private and public organizations to offer an information center in Errol, New Hampshire.	1	2	3	4	5

SECTION 5. Please tell us something about yourself.

These last few questions will help us in evaluating how well our sample represents local community members and others with an interest in Refuge activities. These questions are necessary to ensure the results are statistically valid. Know that your answers will not be associated with you individually in any way.

1. Are you a resident of Coos County, New Hampshire or Oxford County, Maine?

☐ No → IF NO, PLEASE GO NOW TO QUESTION 4

☐ Yes → If yes, are you a:

☐ Year-round resident

☐ Part-time resident → ☐ If part-time resident, what time of year do you live in Coos County, New Hampshire or Oxford County, Maine?

☐ Spring ☐ Summer ☐ Fall ☐ Winter

2. How long have you lived in Coos County, New Hampshire or Oxford County, Maine?

_____ years

3. How many generations has your family lived in Coos County, New Hampshire or Oxford County, Maine?

_____ generations

4. Are you? ☐ Male ☐ Female

5. In what year were you born? _____ (YYYY)

6. Are you employed? ☐ Yes → *(Please check one)* ☐ Full time ☐ Part time

☐ No → Are you retired? ☐ Yes ☐ No

7. What is your highest year of formal schooling? *Please circle one.*

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
(elementary)						(jr. high or middle)			(high school)			(college or technical school)				(graduate or professional school)			

8. How many members are in your household? _____ persons

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

☐ less than \$10,000

☐ \$25,000-\$34,999

☐ \$75,000-\$99,999

☐ \$10,000-\$14,999

☐ \$35,000-\$49,999

☐ \$100,000-\$149,999

☐ \$15,000-\$24,999

☐ \$50,000-\$74,999

☐ over \$150,000

10. Would you like to receive information on any of the following?

☐ Refuge Friends Group

☐ Refuge volunteer opportunities

☐ Results from this study

☐ Information about future Refuge planning activities

Thank you for completing the survey. There is space for any additional comments you may have on the next page.

Comments?

Please write any additional comments about Lake Umbagog National Wildlife Refuge below.

PAPERWORK REDUCTION ACT STATEMENT: A Federal agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. Public burden for the collection of this information is estimated to average 15 minutes per response. Comments regarding this collection of information should be directed to: Desk Officer for the Interior Department, Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503; and the Bureau Clearance Officer, U.S. Geological Survey, 208 National Center, Reston, Virginia 20192.

OMB Control Number: 1040-0001, expires January 31, 2005

Appendix B

Lake Umbagog National Wildlife Refuge Frequency Report

This appendix contains the information obtained from frequency counts of the raw data from the Lake Umbagog National Wildlife Refuge visitor survey. The order of the tables follows that of the questions in the survey section by section. Summaries of the open-ended questions contained in the survey and comments that were included by some respondents at the end of the survey, as well as the verbatim answers and comments, are provided following the frequency report.

Section 1

Questions 1-3

Table 1. Recent visitation to Lake Umbagog NWR.

Visited Refuge in last 5 years	%
Yes	89
No	11

n = 169

Table 2. Visitation patterns to Lake Umbagog NWR.

Years spent visiting the Refuge ¹	%	Number of visits per year to the Refuge ²	%
Less than 5	11	1	22
6-10	33	2	23
11-15	17	3	6
16-20	9	4	4
21-30	9	5	4
31-40	8	6-10	16
41-50	5	11-20	11
> 50	4	21-30	9
		> 30	5

¹ *n* = 139

² *n* = 137

A summary of and verbatim comments in response to this question is provided starting on p. B-32.

Question 4

Table 3. Time spent at Lake Umbagog NWR.

Number of hours spent at the Refuge when visiting ¹	%	Number of nights spent at the Refuge when visiting ²	%
1	6	1	8
2	13	2	44
3	7	3	19
4	20	4	10
5	7	5	2
6	7	6	2
7	3	7	3
8	19	>7	13
9	1		
10	3		
12	1		
24	3		
28	1		
Mean hours spent	6	Mean nights spent	12

¹ n = 69

² n = 63

Questions 5 & 6

A summary of and verbatim comments in response to these questions is provided starting on p. B-32.

Question 7

Table 4. Importance of activities when respondents visit Lake Umbagog NWR; collapsed.¹

Activity	Importance (%)			<i>n</i>
	Moderately important/ Very important	Not important /Somewhat important	No opinion	
Experiencing a serene environment	94	5	1	160
Viewing loons ducks, eagles, osprey, and other birds on or near the water	92	9	---	164
Being in natural, undeveloped lands	91	7	2	160
Paddling	83	14	3	155
Viewing moose	75	23	2	155
Hiking/nature trails	73	24	3	157
Viewing forest birds	72	27	1	161
Wildlife photography opportunities	69	26	5	151
Camping	60	37	3	154
Boat fishing	60	35	4	154
Cross country skiing or snowshoeing	59	37	5	151
Environmental education programs	50	42	9	145
Motor boating	43	56	2	159
Hunting upland game	36	56	7	150
Hunting deer	33	58	9	144
Snowmobiling	31	64	5	152
Learning about the site from a staff person	30	61	9	147
Ice fishing	27	68	6	150
Hunting waterfowl	27	63	9	146
Biking/mountain biking	24	66	9	145
Trapping	19	68	13	139
Other activities	86	10	3	28

¹ The results from this question are presented in collapsed form for a more meaningful summary. “Very important” and “moderately important” responses are coded as “important;” “somewhat important” and “not important” responses are coded as “not important.”

Table 5. Mean importance scores and standard deviations for Lake Umbagog NWR activities.

Activity	Q	SD
Experiencing a serene environment	3.79	.61
Viewing loons ducks, eagles, osprey, and other birds on or near the water	3.69	.68
Being in natural, undeveloped lands	3.69	.66
Paddling	3.47	.88
Viewing moose	3.28	.93
Hiking/nature trails	3.10	.95
Viewing forest birds	3.12	1.02
Wildlife photography opportunities	3.06	1.03
Camping	2.79	1.15
Boat fishing	2.78	1.27
Cross country skiing or snowshoeing	2.69	1.06
Environmental education programs	2.61	1.17
Motor boating	2.30	1.24
Hunting upland game	2.14	1.34
Hunting deer	2.11	1.36
Snowmobiling	1.95	1.27
Learning about the site from a staff person	2.10	1.00
Ice fishing	1.94	1.20
Hunting waterfowl	1.94	1.25
Biking/mountain biking	1.89	1.05
Trapping	1.63	1.11
Other activities	3.61	.88

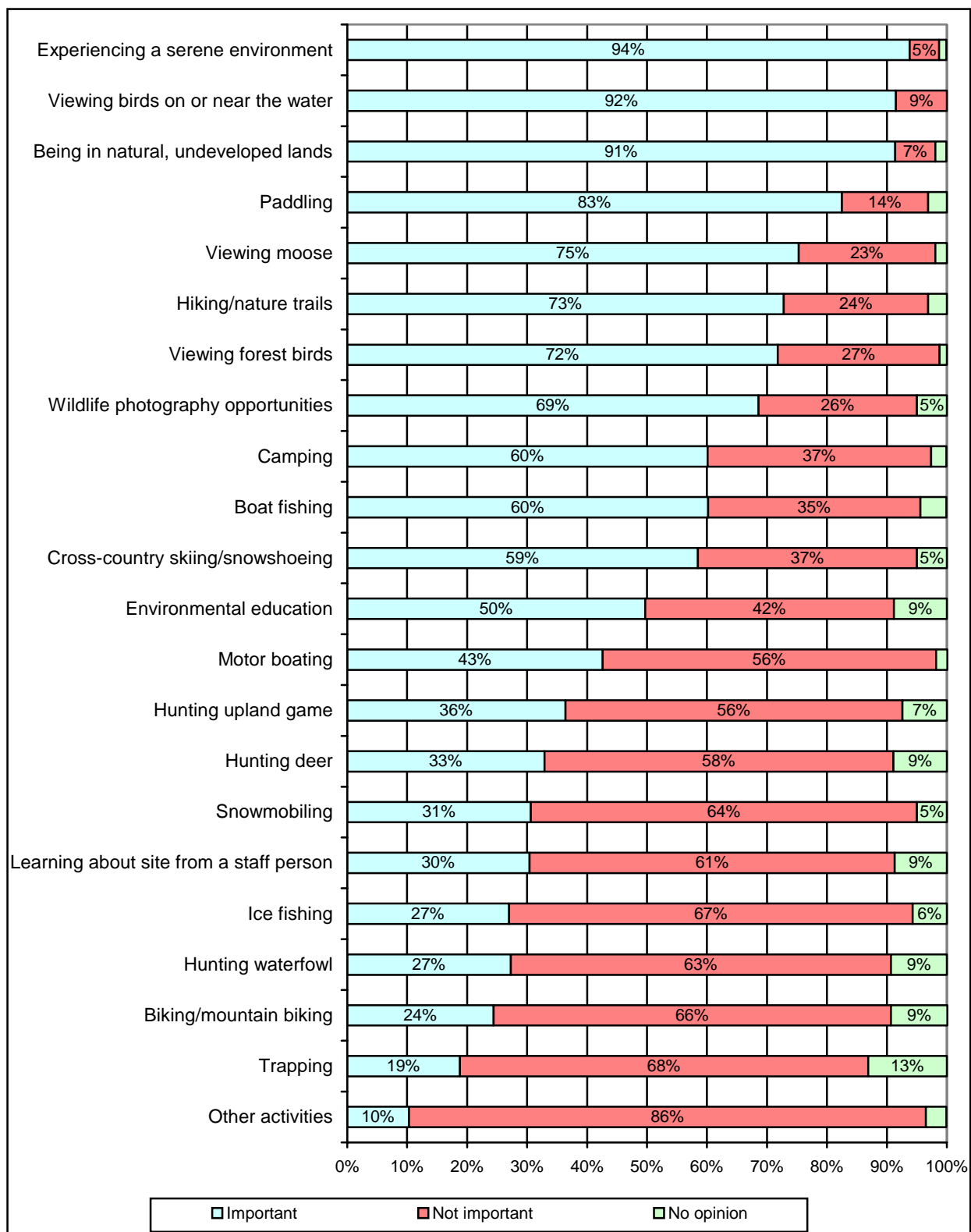


Figure 1. Importance of activities when respondents visit Lake Umbagog NWR, collapsed. (The results from this question are presented in collapsed form for a more meaningful summary. “Very important” and “moderately important” responses are coded as “important;” “somewhat important” and “not important” responses are coded as “not important.”). Values less than 5% are not shown

Table 6. Importance of activities to respondents when visiting Lake Umbagog NWR.

Activity	Importance (%)					<i>n</i>
	Very Important	Moderately important	Somewhat important	Not at all important	No opinion	
Experiencing a serene environment	86	8	3	3	1	160
Viewing loons ducks, eagles, osprey, and other birds on or near the water	80	12	7	2	---	164
Being in natural, undeveloped lands	77	14	5	2	2	160
Paddling	66	17	9	5	3	155
Viewing moose	56	20	18	4	2	155
Viewing forest birds	49	23	18	9	1	161
Wildlife photography opportunities	44	25	16	10	5	151
Hiking/nature trails	41	32	17	7	3	157
Boat fishing	41	19	9	27	4	154
Camping	36	23	18	20	3	154
Environmental education programs	28	21	19	23	9	145
Hunting deer	27	6	6	52	9	144
Hunting upland game	26	11	5	51	7	150
Cross country skiing or snowshoeing	25	33	18	18	5	151
Motor boating	25	17	16	40	2	159
Snowmobiling	21	10	7	58	5	152
Hunting waterfowl	20	8	9	54	9	146
Ice fishing	18	9	15	52	6	150
Trapping	12	7	4	64	13	139
Biking/mountain biking	11	14	21	45	9	145
Learning about the site from a staff person	10	21	29	32	9	147
Other activities	76	10	3	7	3	28

Table 7. Other activities respondents listed as important when visiting Lake Umbagog NWR.

Activity	<i>n</i>
Fishing (not boat or ice)	3
Fly fishing	3
Sailing/wind surfing	3
Canoe camping	2
Dog sledding	2
Enjoying with younger generation	2
Fish and wildlife research or internship	2
ATV	1
Controlled mining of diatomaceous earth	1
Diving/underwater photography	1
Food gathering	1
Helping with monitoring species	1
Hunting with dogs	1
Protecting wildlife	1
Rocking on my porch	1
Seaplane access	1
Shed antler hunting	1
Studying geography of region	1
Subsistence hunting	1
Sunsets/sunrises	1
Timber harvesting on selected sites	1
Tracking	1
Volunteer for H.S.N.H.	1

Table 8. Locations in which stakeholders participated in activities at Lake Umbagog NWR.

Activity	Location (%)					<i>n</i>
	Umbagog Lake	Magalloway/ Androscoggin Rivers	Dead Cambridge/ Rapid Rivers	Uplands in New Hampshire	Uplands in Maine	
Experiencing a serene environment	82	75	61	50	44	132
Viewing loons ducks, eagles, osprey, and other birds on or near the water	84	77	40	21	19	141
Being in natural, undeveloped lands	80	75	57	52	45	122
Paddling	90	82	44	8	10	112
Viewing moose	71	75	45	53	37	102
Viewing forest birds	52	56	29	56	36	150
Wildlife photography opportunities	88	80	59	57	51	86
Hiking/nature trails	33	35	30	68	47	95
Boat fishing	98	66	43	8	8	86
Camping	78	49	34	42	32	74
Environmental education programs	78	67	44	48	35	46
Hunting deer	27	38	38	62	49	45
Hunting upland game	18	33	28	59	65	51
Cross country skiing or snowshoeing	53	30	22	60	46	74
Motor boating	95	66	22	7	10	58
Snowmobiling	84	49	38	60	60	45
Hunting waterfowl	80	64	36	10	26	39
Ice fishing	94	28	22	6	8	36
Trapping	71	79	58	54	63	24
Biking/mountain biking	33	20	17	67	50	30
Learning about the site from a staff person	69	53	22	22	11	36
Other activities	65	35	45	35	30	20

Table 9. Primary reason for visiting Lake Umbagog NWR.

Activity	<i>n</i>
Being in natural, undeveloped lands	17
Paddling (canoeing/kayaking)	17
Experiencing a serene environment	16
Viewing wildlife	12
Bird watching	9
Viewing water birds	9
Live/vacation there	8
Camping	7
Fishing	6
Hunting waterfowl	6
Motor boating	6
Boat fishing	5
Enjoying environment	5
Employment/internship/Warden Service Supervisor	3
Hunting/fishing/trapping	3
Photography	3
Snowmobiling/cross-country skiing	3
Deer hunting	2
Guiding canoe and dogsled trips	2
Boating	1
Environmental education	1
Environmental studies for FERC hydro projects	1
Help with monitoring	1
Hiking/nature trails	1
Write outdoor column and books	1

Section 2

Question 1

Table 10. Mean ratings for stakeholders' feelings about Lake Umbagog NWR.

Statement ¹	<u>Q</u>	<u>SD</u>
Place heritage		
It is important to me that my children and my grandchildren will be able to visit the Refuge.	4.72	.74
Coming to places like this Refuge is an important part of my family tradition.	4.07	1.26
The Refuge provides me a sense of connection to past and future generations.	3.74	1.26
This place is special because it is where my family and I spend time.	3.71	1.43
This place is special because it is where my friends and I spend time.	3.39	1.41
Coming to places like this Refuge was an important part of my childhood.	2.95	1.64
Place identity		
I am very attached to the Refuge.	4.20	1.10
This Refuge means a lot to me.	4.09	1.15
I feel this Refuge is a part of me.	3.83	1.33
I identify strongly with the Refuge.	3.69	1.29
Place dependence		
This are is the best place for what I like to do.	3.85	1.23
Doing what I do at this Refuge is more important to me than doing it in any other place.	3.20	1.38
I get more satisfaction out of visiting this place than visiting any other.	3.16	1.34
I wouldn't substitute any other place for doing what I do here.	3.10	1.46
No other place can compare to this area.	3.43	1.47
Trust		
Everything considered, I trust the Refuge staff will do what is right for the Refuge.	3.63	1.15
In general, I have confidence in the decisions that the U.S. Fish and Wildlife Service makes about managing this Refuge.	3.56	1.14
I have confidence in decision made by the local staff at the Refuge.	3.55	1.13
Because of my experiences at the Refuge I will definitely come back.	4.57	.85

n = 128

¹ Responses were coded on a Likert-type scale from 1 (strongly disagree) to 5 (strongly agree).

Table 11. Percent of respondents who agreed or disagreed with statements about their feelings towards Lake Umbagog NWR.

Statement	Strongly/ Mildly agree (%)	Strongly/ Mildly disagree (%)	Unsure (%)	<i>n</i>
Place heritage				
It is important to me that my children and my grandchildren will be able to visit the Refuge.	94	3	4	159
Coming to places like this Refuge is an important part of my family tradition.	78	16	6	157
The Refuge provides me a sense of connection to past and future generations.	63	16	21	158
This place is special because it is where my family and I spend time.	64	27	9	156
This place is special because it is where my friends and I spend time.	57	32	11	155
Coming to places like this Refuge was an important part of my childhood.	48	45	7	152
Place identity				
I am very attached to the Refuge.	82	10	7	162
This Refuge means a lot to me.	78	11	11	160
I feel this Refuge is a part of me.	65	19	16	160
I identify strongly with the Refuge.	61	23	16	154
Place dependence				
This is the best place for what I like to do.	69	18	13	157
Doing what I do at this Refuge is more important to me than doing it in any other place.	47	36	16	156
I get more satisfaction out of visiting this place than visiting any other.	45	36	13	160
I wouldn't substitute any other place for doing what I do here.	46	39	16	158
No other place can compare to this area.	57	30	13	158
Trust				
Everything considered, I trust the Refuge staff will do what is right for the Refuge.	61	17	24	158
In general, I have confidence in the decisions that the U.S. Fish and Wildlife Service makes about managing this Refuge.	61	23	16	161
I have confidence in decisions made by the local staff at the Refuge.	57	17	26	158
Because of my experiences at the Refuge I will definitely come back.	90	3	7	159

Table 12. Percent of respondents who agreed or disagreed with statements regarding Lake Umbagog NWR.

Statement	Strongly/ Mildly agree (%)	Strongly/ Mildly disagree (%)	Unsure (%)	<i>n</i>
The Refuge us an important part of the character of the area	88%	6%	6%	159
The Refuge contributes to the local economy	80	8	12	159
I feel comfortable with the level of information available regarding the Refuge and its management	59	15	27	155

Questions 2 & 3

Summaries and verbatim comments of these questions are available at the end of the appendix, starting on p. B-35.

Section 3

Question 1

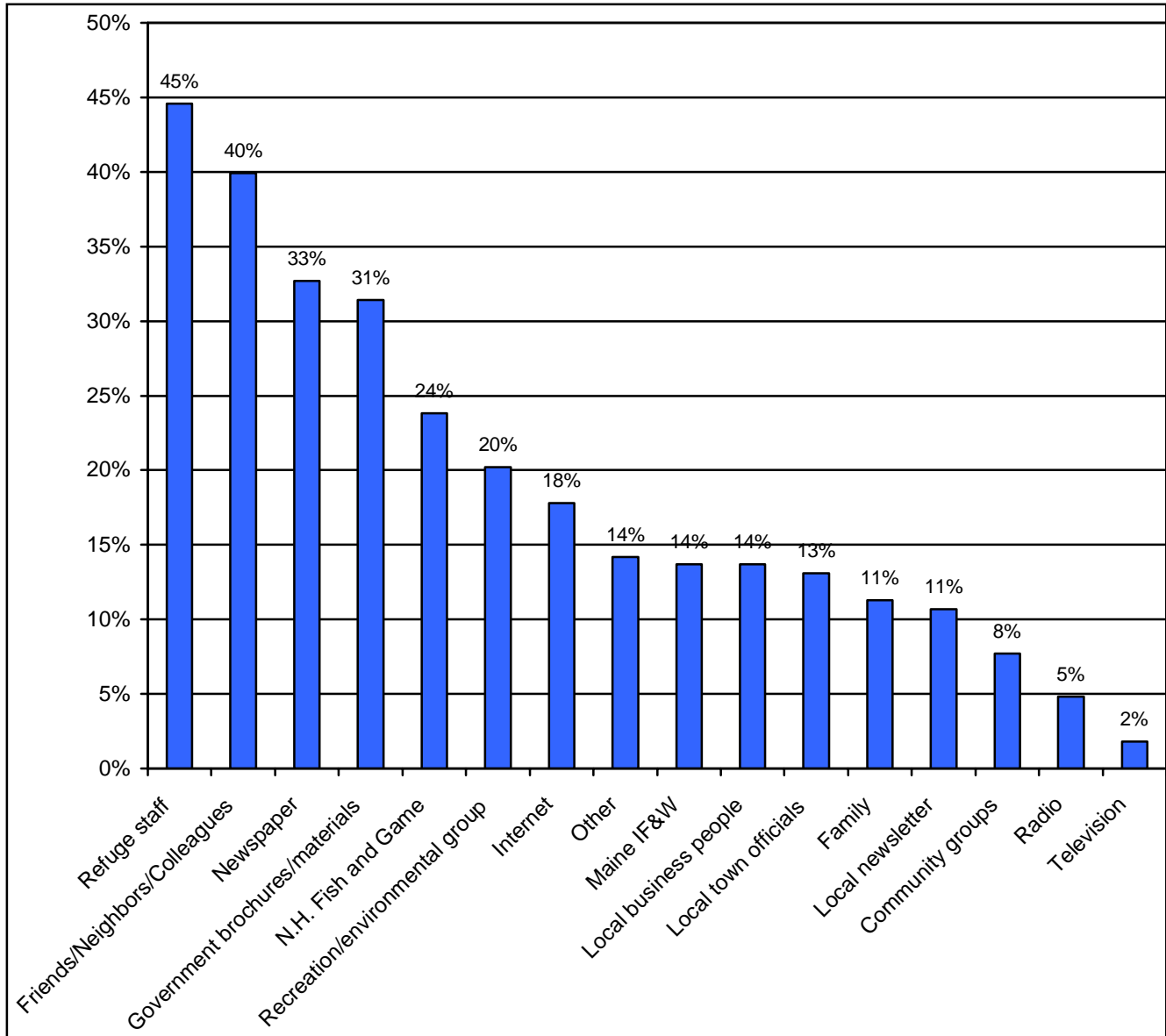


Figure 2. Sources from which stakeholders get news and information about Lake Umbagog NWR.

Table 13. Other sources from which stakeholders get news and information about Lake Umbagog NWR.

Source	<i>n</i>
New Hampshire Audubon Society	8
Being there/camping there	5
Local programs/presentations about the environment	2
Androscoggin River conservation group	1
Live nearby	1
Native American tribe members	1
Presence in Errol town activities	1
Society for the Protection of New Hampshire Forests	1
Umbagog Land Renters	1

Table 14. Newspaper respondents read most.

Newspaper	<i>n</i>
Berlin Daily Sun	14
Berlin Reporter	14
Manchester Union Leader	7
Lewiston Sun Journal	6
Colebrook News and Sentinel	6
Berlin papers	5
Coos County Democrat	4
Bethel Citizen	3
Portland Press Herald	2
Boston Globe	2
Bethel	2
The Berlin Citizen	1
Colebrook Chronicle	1
Kennebec Journal	1
Littleton Courier	1
Manchester	1
Portland	1
Waterville Sentinel	1

Question 2

Table 15. Sources relied on for information about Lake Umbagog NWR

Source	<i>n</i>
Refuge/Refuge staff	39
Newspaper/local newspaper	24
Friends/neighbors/work colleagues	14
Internet	13
Audubon Society (National or New Hampshire)	9
New Hampshire Fish and Game Dept.	9
Friends	8
Government brochures	7
Family	5
Recreation/environmental groups	4
Local business people	3
Local officials	3
Maine Dept. of Inland Fisheries and Wildlife	3
Mahoosue Land Trust	2
Newsletters/mail	2
Appalachian Mountain Club	1
Community groups	1
Errol Wildlife Festival	1
Historical Society of New Hampshire	1
Local programs about the environment	1
Personal observation	1
Road Association meeting	1
Society for the Protection of New Hampshire Forests	1
Television	1

Question 3

Table 16. Participation in natural resource decision making.

Activity	Participation (%)
Attended a public hearing or meeting	87
Joined a special interest group	67
Contacted or wrote a state or federal agency	55
Contacted or wrote a U.S. Senator or State Legislator	48
Signed a petition	38
Wrote a letter to the editor of a newspaper	18

n = 157

Questions 4-6

Table 17. Percent correct answers to multiple-choice questions about Lake Umbagog NWR.

Question	% correct
Refuge ownership patterns	
Nonfederal ownership of conservation lands and easements around Umbagog Lake includes The Society for Protection of New Hampshire Forests, State of New Hampshire, and State of Maine.	90
Timber companies that own land adjacent to the Refuge are Yankee Forest Management, Plum Creek, Bay Root, and Dillon. ¹	50
When camping at a remote campsite on Umbagog Lake, you may be camping on the Refuge. (T)	92
Approximately three quarters of the land within the Lake Umbagog Refuge boundary is privately owned. (F)	58
Service acquisition policy	
The land acquisition procedures for U.S. Fish and Wildlife Service Refuges include purchasing at market value from willing sellers, purchasing conservation easements, and land exchanges.	90
The total acreage of Lake Umbagog NWR is now 17,500 acres. ²	48
The Refuge may expand its current boundary without a formal public review. (F)	65
The Refuge makes annual Refuge revenue-sharing payments to the local community in lieu of property taxes. (T)	79
Refuge purpose	
The reason the Refuge was originally established was for wetlands, Black Duck/waterfowl, and eagles. ³	79
The primary purpose of the National Wildlife Refuge System is wildlife first. ⁴	63
The Refuge has been established for 12 years. (T)	88
The Refuge is supposed to provide for wildlife conservation and public recreation equally. (F)	52
Lake level management	
Water level management on Umbagog Lake is for electricity and benefiting wildlife. ⁵	64
The Errol Dam impounds the Androscoggin and Magalloway Rivers. ⁶	63
Union Water Power currently owns the Errol Dam. (F)	44
The Federal Energy Regulatory Commission (FERC) permits lake water-level management on Umbagog Lake. (T)	34

¹ The second most often chosen answer was Mead and Crown Vantage (39%).

² The second most often chosen answer was 25,500 acres (24%).

³ The second most often chosen answer was wetlands (13%).

⁴ The second most often chosen answer was multiple use (31%).

⁵ The second most often chosen answers were electricity only (17%) and flood control (13%).

⁶ The second most often chosen answer was the Androscoggin River (31%).

Section 4

Question 1

Table 18. Desirability of services at Lake Umbagog NWR, collapsed.¹

Service	Desirability (%)			<i>n</i>
	Moderately / Very desirable	Somewhat/ Not at all desirable	No opinion	
Environmental education	73	21	6	160
Wildlife viewing opportunities	72	21	7	159
Non-motorized trails	69	29	3	158
Information on hiking, bird watching, or wildlife photography	69	25	6	162
Volunteer opportunities	67	25	4	145
Access for people with disabilities	64	28	9	160
Kiosks or signs with information about the Refuge or its wildlife	61	34	5	160
Visitor contact station	60	32	6	158
Parking facilities	58	39	4	161
Availability of Refuge staff	58	34	8	160
Hunter education	53	35	12	158
Media coverage of the Refuge	50	46	4	145
Restrooms/Comfort stations	49	45	5	152
Camp sites	48	45	6	161
Information on hunting	48	42	11	161
Boat ramps	44	52	4	162
User fees to support services provided	43	51	7	160
Fishing opportunities	43	51	9	147
Reserved stationary blinds for hunting waterfowl	25	61	14	162
Other services	68	28	4	25

¹ The results from this question are presented in collapsed form for a more meaningful summary. “Very important” and “moderately important” responses are coded as “important;” “somewhat important” and “not important” responses are coded as “not important.”

Table 19. Mean desirability of services that could be offered at Lake Umbagog NWR.

Service ¹	<u>Q</u>	<u>SD</u>
Environmental education	3.18	.97
Wildlife viewing opportunities	3.34	.98
Non-motorized trails	3.07	1.05
Information on hiking, bird watching, or wildlife photography	3.09	1.00
Volunteer opportunities	3.11	.96
Access for people with disabilities	3.01	.92
Kiosks or signs with information about the Refuge or its wildlife	2.85	1.13
Visitor contact station	2.82	1.11
Parking facilities	2.70	1.05
Availability of Refuge staff	2.83	1.04
Hunter education	2.81	1.12
Media coverage of the Refuge	2.49	1.18
Restrooms/Comfort stations	2.59	1.10
Camp sites	2.65	1.07
Information on hunting	2.58	1.24
Boat ramps	2.42	1.18
User fees to support services provided	2.29	1.25
Fishing opportunities	2.31	1.16
Reserved stationary blinds for hunting waterfowl	1.99	1.17
Other services		

¹ Responses were coded on a scale from 1 (not at all desirable) to 5 (very desirable).

Table 20. Other desired activities/services on Lake Umbagog NWR.

Service	<i>n</i>
ATV trails/use	4
Timber management	3
Horsepower/speed limits on watercraft	2
Trapping permits	2
Allowing Penobscott, Abnau, Passamaquoddy and their relations to live a pre European contact traditional Native American way of life on the refuge	1
Boat fees for use of lake/river	1
Canoe/kayak safety course	1
Cleaning areas	1
Community involvement with Refuge and staff	1
Concession opportunity	1
Geology education	1
Guided tours by trail and boat	1
Higher quality camping experience	1
Ice fishing—no boat rentals	1
Land seaplanes on lake	1
Management of commercial outfitters/camps that use refuge	1
Photography education	1
Picnic areas	1
Prospecting for gold	1
Signage on road to Potter Farm properties (for regulatory purposes)	1
Snowmobile activities	1
Waterfowl hunting without blinds	1

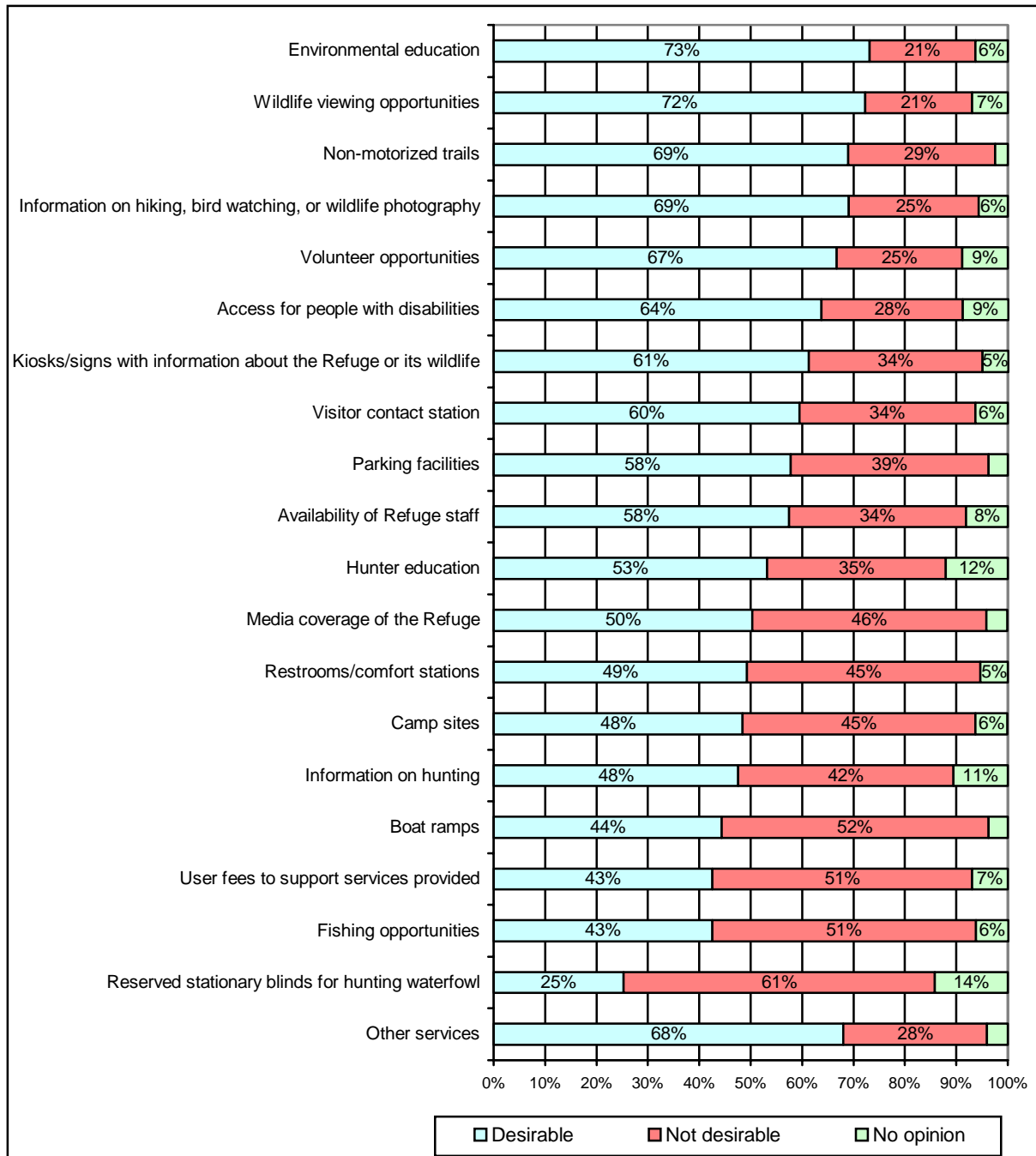


Figure 3. Desirability of services at Lake Umbagog NWR, collapsed. (The results from this question are presented in collapsed form for a more meaningful summary. “Very important” and “moderately important” responses are coded as “important;” “somewhat important” and “not important” responses are coded as “not important.”) Values less than 5% are not shown.

Table 21. Desirability of services at Lake Umbagog NWR.

Service	Desirability (%)					<i>n</i>
	Very desirable	Moderately desirable	Somewhat desirable	Not at all desirable	No opinion	
Wildlife viewing opportunities	60	13	15	6	7	159
Non-motorized trails	48	22	18	10	3	158
Environmental education	45	28	13	8	6	160
Information on hiking, bird watching, or wildlife photography	43	27	17	9	6	162
Volunteer opportunities	41	26	18	6	4	145
Kiosks or signs with information about the Refuge or its wildlife	36	25	16	18	5	160
Access for people with disabilities	34	30	23	5	9	160
Visitor contact station	34	25	18	16	6	158
Hunter education	34	20	20	15	12	158
Availability of Refuge staff	31	27	23	12	8	160
Information on hunting	30	17	16	26	11	161
Camp sites	28	21	30	15	6	161
Parking facilities	27	31	23	16	4	161
Media coverage of the Refuge	26	24	18	28	4	145
Restrooms/Comfort stations	26	23	26	19	5	152
Boat ramps	25	19	22	29	4	162
User fees to support services provided	24	19	11	39	7	160
Fishing opportunities	20	23	19	33	9	147
Reserved stationary blinds for hunting waterfowl	16	9	18	43	14	162
Other services	68	---	---	28	4	25

Table 22. Preferred location of services ranked as moderately or very desirable.

Service	Location (%)					<i>n</i>
	Umbagog Lake	Magalloway/ Androscoggin Rivers	Dead Cambridge/ Rapid Rivers	Uplands in New Hampshire	Uplands in Maine	
Wildlife viewing opportunities	94	84	65	59	53	92
Non-motorized trails	42	56	48	76	63	91
Environmental education	84	69	41	46	40	88
Information on hiking, bird watching, or wildlife photography	82	67	45	40	41	85
Kiosks or signs with information about the Refuge or its wildlife	84	73	46	42	42	79
Access for people with disabilities	87	69	34	31	25	77
Visitor contact station	66	59	15	18	15	76
Hunter education	79	71	54	52	46	63
Availability of Refuge staff	81	65	32	26	23	74
Information on hunting	82	70	43	57	53	60
Camp sites	90	44	29	37	31	68
Parking facilities	73	73	35	29	24	75
Restrooms/Comfort stations	71	71	41	32	21	56
Boat ramps	91	73	31	N/A	N/A	55
User fees to support services provided	88	70	50	44	38	50
Fishing opportunities	98	74	46	N/A	N/A	46
Reserved stationary blinds for hunting waterfowl	93	79	52	N/A	N/A	29

Question 2

Table 23. Percent of response to levels of management of features at Lake Umbagog NWR.

Feature		More features (%)	Leave as is (%)	Fewer features (%)	<i>n</i>
Environmental education opportunities	Provide more programs and activities	57			161
	Leave as is		37		
	Reduce programs and activities			6	
					160
Hiking trails	Provide more trails	51			
	Leave as is		43		
	Provide less trails			6	
Restrooms/ comfort stations	Provide more facilities along rivers and parking areas	47			159
	Leave as is		48		
	Provide fewer facilities along rivers and parking areas			6	
					160
Brochures/ Publications	Provide more brochures/publications	45			
	Leave as is		51		
	Provide fewer brochures/publications			4	
Interpretive exhibits	Provide more interpretive exhibits	42			158
	Leave as is		53		
	Provide less interpretive exhibits			5	
					160
Wildlife observation/ photography opportunities	Provide more viewing/photography facilities	41			
	Leave as is		54		
	Provide fewer viewing/photography facilities			5	
Information services	Refuge staff more visible and available	32			161
	Leave as is		60		
	Refuge staff less visible and available			8	
					161
Information signs	Provide more signs	30			
	Leave as is		37		
	Limit the number of signs			34	

Table 23. Continued

Feature		More features (%)	Leave as is (%)	Fewer features (%)	<i>n</i>
Visitor impacts on wildlife	Restrict only behavior known to have negative impacts on wildlife	28			162
	Leave as is		25		
	Restrict any behavior that may negatively impact wildlife			47	
					161
Access to Refuge	Provide more parking areas and access points	27			
	Leave as is		64		
	Provide fewer parking areas and access points			9	
Hunting	Provide more hunting areas	22			161
	Leave as is		53		
	Provide less hunting areas			26	
					161
Fishing	Provide more access to lake, river, or shoreline	21			
	Leave as is		65		
	Restrict access to lake, river, or shoreline			14	
Camping opportunities	Provide more camping sites	19			161
	Leave as is		69		
	Provide fewer camping sites			12	
					162
Visitor numbers	Encourage more visitation to Refuge	18			
	Leave as is		71		
	Restrict visitation to Refuge			11	
Boat ramps	Provide more boat ramps	17			163
	Leave as is		66		
	Provide fewer boat ramps			17	
					162
Naturalness	Allow more landscape alterations	10			
	Leave as is		42		
	Restore more natural conditions			48	

Question 3

Table 24. Percent of respondents' agreement with land management options at Lake Umbagog NWR.

Issue	Strongly agree (%)	Mildly agree (%)	Unsure (%)	Mildly disagree (%)	Strongly disagree (%)	<i>n</i>
It is acceptable...						
Refuge expansion/acquisition						
to purchase land within the Refuge boundary from willing sellers at market value for the benefit of wildlife.	69%	18%	5%	1%	7%	163
for the Refuge to purchase conservation easements on land outside the current boundary to maintain the area's wildlife resources.	67	17	4	3	9	165
for the Refuge to expand its boundary if it means further subdivision of large forested tracts is prevented.	64	15	8	3	10	165
Habitat management						
to allow some old growth stands of timber to remain if it means wildlife that depend on these stands benefit.	77	15	4	2	2	163
to harvest timber to benefit songbirds of conservation concern.	53	33	7	---	6	165
to use sustainable forest management practices to enhance the wildlife resources on the Refuge.	57	29	7	3	3	163
to actively manage wetlands in order to increase populations of key wildlife species.	59	25	8	2	6	162
to extend timber rotations on the Refuge to benefit sensitive wildlife or habitat resources.	56	25	12	3	4	161

Table 24. Continued

Issue	Strongly agree (%)	Mildly agree (%)	Unsure (%)	Mildly disagree (%)	Strongly disagree (%)	<i>n</i>
Public use						
for the Refuge to form a partnership with other private and public organizations to offer an information center in Errol, New Hampshire.	58	25	7	3	7	166
to allow camping at remote campsites on the Refuge in order to promote wildlife observation.	36	37	15	7	5	165
Balancing public use and wildlife disturbance						
to ban the use of lead fishing tackle on Umbagog Lake to protect waterbirds like loons from lead poisoning.	86	6	2	2	4	166
to close portions of the lake for part of the season to allow loons and other wildlife to produce young.	61	13	7	7	11	166
to limit the number of people visiting the Refuge if it means the impact on wildlife is minimized.	47	22	16	9	7	165
to modify fishing seasons on Umbagog Lake to protect breeding wildlife.	50	18	11	8	13	165
to decrease lake water levels in the summer to provide food for migratory waterfowl and shorebirds even if navigational hazards on the lake increase.	43	21	12	7	18	166

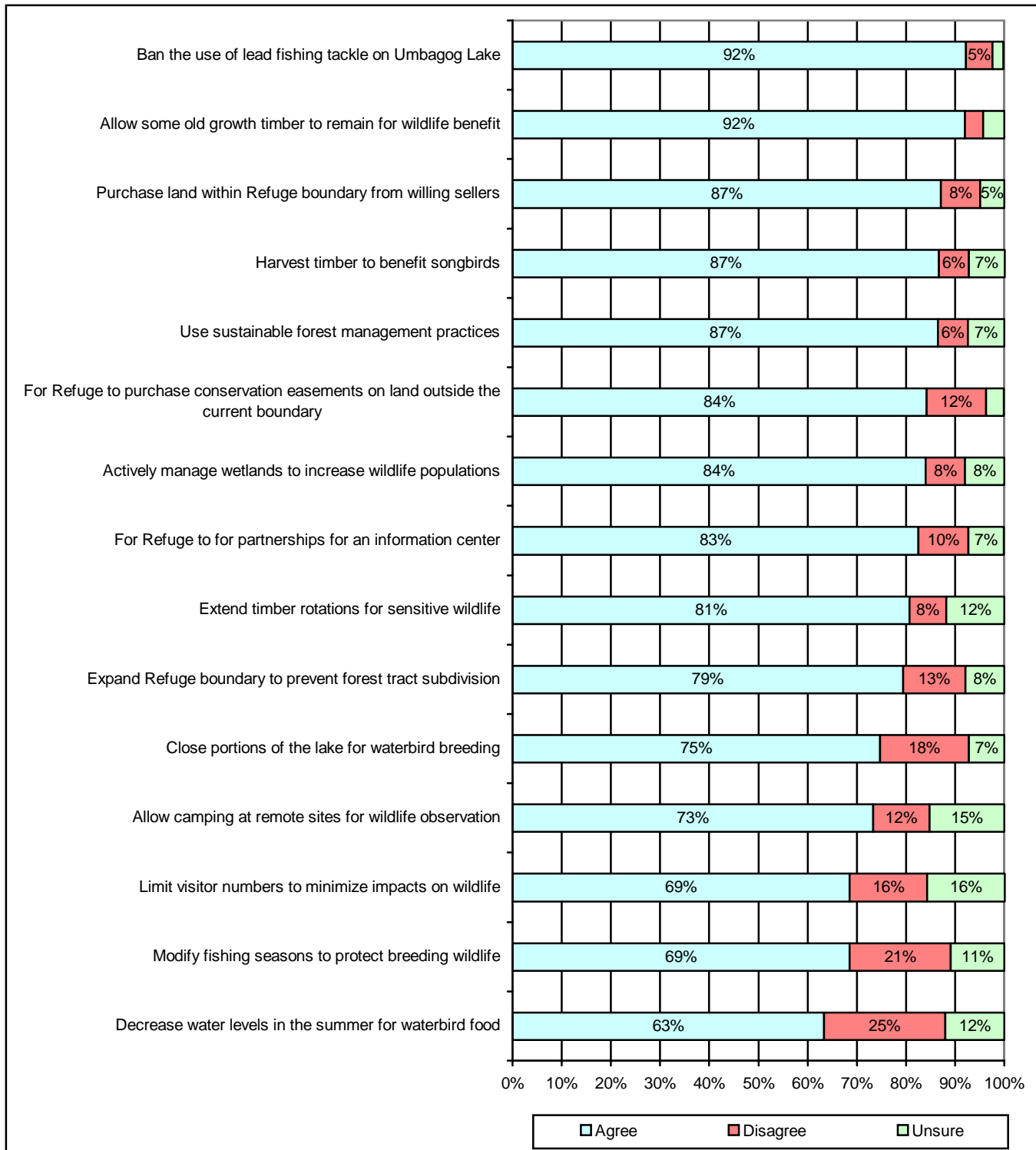


Figure 4. Level of agreement/disagreement (in %) with land management options at Lake Umbagog NWR. (Values less than 5% are not shown.)

Section 5

Questions 1-3

Table 25. Residency in Coos Co., NH or Oxford Co., ME.

Resident	%
Yes	52
No	48

n = 161

Table 26. Type and time of residency in Coos Co., NH or Oxford Co., ME.

Time of residency	<i>n</i>
Year-round	68
Part-time	15
Spring	2
Summer	8
Fall	0
Winter	0

Table 27. Amount of time respondents have lived around Lake Umbagog NWR.

Years lived in Coos Co., NH or Oxford Co., ME ¹	<i>n</i>	Generations family lived in Coos Co., NH or Oxford Co., ME ²	<i>n</i>
0-10	18	0	7
11-20	17	1	23
21-30	12	2	14
31-40	14	3	13
41-50	12	4	10
> 50	10	5	9
		> 5	2

¹*n* = 83

²*n* = 78

Questions 4-10

Table 28. Sex of respondents

Gender	% respondents
Male	66
Female	34

n = 165

Table 29. Percentage of respondents by age category.

Age category	% respondents
18-24	1
25-34	6
35-44	10
45-54	32
55-64	23
65-74	16
75-84	10
85 and above	1

n = 159

Table 30. Level of education of respondents.

Level of education	% respondents
Less than high school	2
High school	9
Some college	15
College	19
Advanced degree	46

Table 31. Income of Lake Umbagog NWR stakeholders.

Income	% respondents
Less than \$10,000	3
\$10,000 to \$14,999	1
\$15,000 to \$24,999	4
\$25,000 to \$34,999	9
\$35,000 to \$49,999	12
\$50,000 to \$74,999	26
\$75,000 to \$99,999	23
\$100,000 to \$149,999	13
Over \$150,000	9

n = 141

Question 10

Table 32. Percent of respondents indicating they would like further information

Information about:	Yes (%)
Results from this study	86
Information about future Refuge planning activities	83
Refuge Friends Group	35
Refuge volunteer opportunities	29

n = 132

Lake Umbagog National Wildlife Refuge Stakeholder Survey Summary and Comments from Open-Ended Questions

Lake Umbagog stakeholders who participated in the survey were asked a number of open-ended questions in order to invite self-expression and elaborate on their opinion and/or experience at the Refuge. This technique is used not only to discover uncommon responses but to uncover frequent opinions to make managers more aware of possible reoccurring concerns. This type of question encourages information that otherwise would not be asked and can be used as a tool to elicit detailed responses. Five open-ended questions were asked throughout the survey to further assess: 1) what would encourage an individual to visit the Refuge, 2) what activities *not* currently allowed *should* be allowed at the Refuge, 3) what activities that *are* currently allowed at the Refuge should *not* be allowed, 4) the biggest benefit the Refuge provides to the community, and .5) whether the Refuge has negatively impacted the local community. All responses are taken into account and are summarized below. Verbatim comments from respondents follow this summary.

Section 1

Question 1, Encouraging Visitation

The first open-ended question directed toward the stakeholders of Lake Umbagog National Wildlife Refuge addresses individuals who have not visited the Refuge in the past five years and asks these people to elaborate on what would encourage them to visit. Thirteen (7%) respondents answered this question and offered a wide range of responses. The most frequent responses to what would encourage them to visit the Refuge were related to personal circumstances. Several individuals stated the availability of more free time would help, while one felt advancing age was making it difficult to get to the Refuge. One respondent mentioned the price of gas going down, while another implied that other “great places” are diverting. Two stakeholders desire an absence of hunting and trapping inside the Refuge. Three people indicate they would tend to visit the Refuge if there was more publicity about what the Refuge has to offer or if they had a “camp” within the Refuge boundary.

Question 5, Activities that *should* be allowed at Lake Umbagog NWR

Of the Lake Umbagog stakeholders surveyed, 30 individuals (18%) responded to the question, “Are there activities or services that you think *should* be allowed at Lake Umbagog National Wildlife Refuge that are not currently allowed?” Various people suggested group educational programs for the public, including children, on topics such as canoeing, fishing, hunting, compass/map reading, and conservation. Several people recommended continuing private ownership of “camps” and allowing existing camp owners to buy their lots. In addition to maintaining “camps,” stakeholders suggested *non-motorized sports* such as swimming, picnicking, hunting, trapping, hiking, fishing, and canoeing; and *motorized sports* including

snowmobiling, ATVing, boating and the landing and taking off of seaplanes. A few respondents admit they are not aware of what is or is not allowed, but feel that activities that were allowed before the Refuge was established should remain as long as there is not destruction of property and wildlife. This includes reopening areas that are now restricted for berry picking and/or picnicking.

Question 6, Activities that should *not* be allowed at Lake Umbagog NWR

Stakeholders were then asked, “Are there activities or services that you think *should not be* allowed at Lake Umbagog National Wildlife Refuge that are currently allowed?” Seventy-four respondents (43%) replied and provided an array of suggestions. Table 33 summarizes the most common responses. The most frequent reply and overall theme is motorized transportation, which includes activities such as motorboats, jet skis, ATV’s and snowmobiles. There is considerable concern for controlling access to these types of motorized recreational activities on the Refuge. Some respondents feel “boat traffic should be relocated to protect wildlife,” including tour boats that respondents believe are infringing on the freedom of wildlife to move about without restrictions. Others would prefer limitations to boat access on Lake Umbagog and recommend restrictions targeting overuse, horsepower, size, speed, noise, and overnight use/parking. ATV’s and snowmobiles also were questioned. Some respondents suggest these forms of motorized recreation frighten away wildlife and ruin soil and groundcover and therefore should be restricted. Thirteen percent of respondents to this question suggest that hunting and trapping not be allowed on the Refuge. Additional activities some respondents believe should be controlled include access to bird nesting sites, camping, parties, water skiing, tubing, canoeing, and bicycle travel.

Table 33. Activities that should not be allowed at Lake Umbagog NWR.

Activity	<i>n</i>
Motorboats	32
Jet Skis	30
ATV’s	11
Hunting/Trapping	10
Snowmobiles	5

Section 2

Question 2, Biggest benefit to the community

To uncover the importance of the Refuge to the respondent and the local community, participants were asked what they see as the biggest benefit to the community from Lake Umbagog National Wildlife Refuge. For this question, 81% of the respondents provided a written response. Many respondents commend the preservation of flora and fauna and value the fact that this land will remain undeveloped. One respondent said that the biggest benefit the Refuge has given to the community is the “quality of life and legacy for children and grandchildren.” According to the responses, locals believe the Refuge contributes to a high standard of living through the experience the Refuge provides and because of the revenue from visitors. They feel the Refuge has had a positive economic impact and has expanded the

recreation-based economy. Respondents commented that the biggest impact was to the local businesses and outfitters who reap economic benefits. “Local people utilize the area, plus it draws tourists, plus it is keeping a beautiful lake pristine and undeveloped,” summarized one respondent to the survey. Many of the participants commented on the benefit of keeping the surrounding land undeveloped and available for public use by maintaining a balance in the way local lands are utilized. This balance includes maintaining “a stable and long term ability to manage the natural resources and recreational opportunities.” Some respondents commented on the value of particular recreational activities, particularly snowmobiling, camping, bird watching, wildlife viewing, hunting, canoeing, and boating. “The Refuge brings a balance of people’s interests,” a respondent added. By providing the opportunity for ecotourism, jobs are created in the community and activities are available for all four seasons, a common interest to stakeholders. The land remains protected and undeveloped, which in return draws vacationers, hunters and anglers, and recreationists to the area and proves to be an immense benefit to the community.

Question 3, Negative impacts to the community

Respondents were asked to comment on any negative impacts they see to the community from Lake Umbagog National Wildlife Refuge. Approximately 44% of the participants provided a written opinion. A general theme extracted from this group of responses is, more people and usage equals less wilderness. “If tourism causes too much development and the type of use of the area is not carefully controlled, the area will lose its biodiversity and beauty,” a participant wrote. This question also prompted replies indicating the following: it seems as though visitors are multiplying, traffic is increasing, condominium and vacation home development is prominent, land values are escalating, and property taxes are on the rise. The issue of taxes is often repeated and the respondents comment on the tax burden which they feel is falling on local taxpayers and the concern for the possible erosion of the future tax base. Still others are apprehensive about increasing visitor impact on the Refuge since more people are encouraged to visit the area. As one person replied, “...increase in visitor use could lead to pollution, trash, loss of small town rural identity.” There is a sense of unwanted publicity and the threat of over-exploitation. Some claim they are observing “increasing tourist use of the lake without understanding the impact on the wildlife and waterfowl.” There is a concern that the character of the landscape is changing since Lake Umbagog became a part of the Refuge system. A primary concern is increasing federal rules and regulations and too many restrictions on local use. “There is a sense that the government (insensitive, large, not indigenous) is taking too firm of a grip on the region,” responds one stakeholder. Other stakeholders feel that due to land acquisitions, the Refuge has taken too much land out of the forest-based economy and away from local land and business owners. They are wary that federal management threatens to change traditional use by locals. “There is an inability of a large bureaucracy to make decisions about the refuge at the community level with partners,” says one respondent. Participants displayed a concern for an array of Refuge components—e.g., the lack of restrooms, campsites, and education, all contributing negative impacts to the local community. Lastly, they address the issues of fishing and boating by suggesting limiting the number of large boats on the lake and allowing anglers to regain access to the river.

Comments at End of Survey

Lastly, respondents were given an opportunity to include comments and provide insight on their experience with the Refuge at the end of the survey. A variety of comments were received and ranged considerably; some replies offered concrete thoughts, other responses referred to the survey itself, and many more detailed individual and personal experiences. The most frequent responses involved wildlife, the Refuge's agenda, land acquisitions, tourism, and camps; however, these issues represent a fraction of the thoughts and concerns addressed in this section of the survey. The most consistent concern was wildlife. As one individual noted, "The Refuge is of vital importance to maintaining a sense of wilderness in northern New Hampshire, and provides a unique opportunity for those who visit. [It is of] vital importance to the many species that are fortunate to call it home in an increasingly fragmented northern forest." Other respondents elaborate on what they describe as the single most important priority in managing a wildlife refuge: managing it for the benefit of the species. For this reason, a select set of individuals believe limitations should be placed on visitor access.. "Management of the Lake Umbagog National Wildlife Refuge should be geared toward a moderate amount of human recreation and a large amount of preservation of the lands and the wildlife. Recreational activities always take a back seat to ensuring the health and welfare of the Refuge and its inhabitants," another concurs. Based upon the total responses received, protecting and respecting wildlife is the most prevalent concern of stakeholders.

The second most populated categorization of comments was what we labeled "Refuge agenda," which includes suggestions and expectations for Refuge management, ideas for improvement, and an interest in plans, programs, and implementation for future advancement. This type of response is an indication that stakeholders have an interest in the professional approach to natural resource management. As one individual commented, "Striking a balance between keeping the area remote and untouched yet available for public access and use is the most critical issue that Refuge management must address. Education and communication is key. Any changes or improvements must be thoroughly explored and implemented gradually to minimize impact to sensitive wildlife..." Still others are more or less concerned about the possibility of expansion and restrictions to be imposed on the Refuge. "Proceed slowly, carefully, transparently, and with full community support," one individual recommends. Some members of the community simply would like to become more familiar with the Refuge's "true agenda," to improve their understanding of the short- and long-range goals, whereas other stakeholders make recommendations such as hiring an outdoor recreation planner, promoting and improving sanitation in and around the Refuge, imposing fees for outfitters and campers, and minimizing bass reproduction, to name a few.

Land acquisition and tourism are themes that also were highly recognized by the respondents. Each of these topics received the same amount of commentary with approximately 20% of the individuals who provided written comments elaborating on these subjects. "I think the refuge is large enough. It has attracted a lot more visitors to the area, which in turn affects the wildlife and serenity. I don't want to see it expand any further," replied an individual who addressed both issues. Regarding tourism, some suggest that visitors become better informed on behaviors that are and are not allowed on the Refuge; specific issues of concern include camping, fires, and damage to land and wildlife. Some stakeholders advocate for lesser promotion of the

Refuge in order for this wildlife sanctuary to remain remote and undisturbed, while still others would like to see ecotourism aggressively promoted in New Hampshire to draw more visitors to the area. Recurring themes and/or concerns were overcrowding and conflicts of interest in activity preferences and recreation at Lake Umbagog National Wildlife Refuge.

Responses to land acquisition ignite several different viewpoints. Stakeholders suggest they are satisfied now that the area is being protected from further development and wish to have additional lands preserved; on the contrary, others suggest that the government should stop the practice of acquiring land and buying camps by allowing long leases and/or permitting camp owners to buy their camps. One individual suggests, “In my opinion the Refuge is buying private camps around the lake which it really has no use for. These should remain available to the public to purchase. In general these camps are small lots and are of no significant use to the refuge system.” While some respondents are pleased with the idea of acquiring more land for the Refuge, others question how much government ownership is necessary. It was not uncommon for individuals who commented on land acquisition to also comment on camps, both of which were ranked within the top five categories that received the most attention. To improve camps, it is suggested that consideration should be given to reducing the number of camps and increasing the quality; therefore, an abundance of people will not be drawn into the area, which some believe would be “detrimental to the Refuge.” Respondents who provided commentary on the topic of camps often related it to a personal experience.

Additional comments were directed toward issues such as forest/timber management, public involvement, water level management, the tax base, public access, motorized vehicles, and government intervention. Of course each stakeholder has different priorities and preferences: some individuals speak well of the Refuge and the surrounding area in its present condition, while others are certain changes can be implemented to make their experience at Lake Umbagog National Wildlife Refuge more enjoyable. In that spirit, respondents offered specific suggestions and enhancements for change. For example, stakeholders suggest making improvements such as restricting public access to parts of the Refuge, offering localized public outreach, implementing programs to ensure growth in areas other than physical size, extending parking facilities, focusing on non-motorized recreation, and educating stakeholders on the goals and motives of the federal government. While some individuals believe improvements are necessary, other stakeholders are content with the present state of the Refuge and are gracious for “a job well done,” as one respondent praises. Others commend previous efforts such as continuing participation in sustainable forest management practices, protecting water resources and wildlife, and continuing traditional uses of the land.

Verbatim Comments on Open-ended Questions

Section 1

Question 1, If you have not visited Lake Umbagog National Wildlife Refuge in the past 5 years, what would encourage you to visit?

- Free time
- Have a camp within the "boundaries" of refuge
- I am getting old it's hard for me to get there & I don't believe much has changed in 60 years
- I don't need encouragement. Recent years have just made it difficult to get there.
- I wasn't aware your organization existed.
- More free time
- More upland bird hunting opportunities and bow hunting (deer) opportunities-more vacation time from work!!
- Not having to drive past so many other great places to get there (Residence in Farmington, ME area).
- Providing actual sanctuary and refuge for wildlife where they are not killed for fun and "sport".
- Publicity about what the Refuge has to offer
- The price of gas to go down
- The scenery, the lake and the wildlife
- Wildlife viewing opportunities and the absence of hunting/trapping.

Section 1

Question 5, Are there activities or services that you think *should be* allowed at Lake Umbagog National Wildlife Refuge that are currently allowed?

- A sign at #26, & #16 across from Eames Garage. Sign detail at Comment One.
- All forms of legal hunting according to state established season dates
- Allow existing camp owners to buy their lots.
- Bow hunting-substance hunting for the Penobscoot, Abenauai, Passamaguooot and Micmac, American Indians
- Canoe access, one night only, overnight camp sites. 1st come, 1st served to serve canoe tourism. Keep the "Diamond" launch area open on Androscoggin.
- Canoe camping
- Children's courses (free for locals)- canoeing, fishing, hunting, compass reading, conservation, etc.
- Continued private ownership of camps
- Do not have an opinion
- Dogs under control
- Don't know what is or not allowed. People should be allowed in, for all seasons, as long as there is no destruction of property and wildlife.
- Eventually, small group educational programs for the public. I applaud your intern programs
- Hiking trails for day hiking. Also, portage trails for canoes. Interpretative nature trails & wildlife viewing blinds.
- How to use a compass and read a map
- Human powered recreation, hunting, fishing, camping
- Hunting/fishing(I do neither), floatplanes, sailing. I would not object to controlled harvesting of long logs- from the lake.
- Issue trapping permits for refuge land.
- Limit size of motorboats to 15 horse motors-have minimum # of snowmobile & 4 wheeler trails. Minimize the opportunity for motorized recreation.
- More "port-a-potties"
- More access for snowmobile trails
- None
- None that I know of-my experience is limited
- Not sure what is allowed & what is not allowed. Activities that were allowed before refuge started as promised at informational meeting. Activities that should be allowed: landing & taking off with seaplanes, hunting, trapping, hiking, fishing and motor vehicles on lumber roads
- Not sure what is/is not allowed at this time
- Public swimming area
- There are areas that are now restricted on the lake that used to be open for berrying or picnicking
- Traditional hunting, trapping, access within the FERC hydro boundary up to elev. 1247
- Vegetation manipulation
- Wave boating fishing

Section 1

Question 6, Are there activities or services that you think *should not be* allowed at Lake Umbagog National Wildlife Refuge that are currently allowed?

- (1)Control access to bird nesting areas by canoe-kayak-or any other craft which can disturb nests (2)Limit powerboating
- (1)Motorboats (2)Snowmobiles
- Off road-ATV's-don't know if it's allowed. Against.
- Activities which would harm the refuge-mining the lake, dumping of any kind, harmful plants on boats coming to the lake, also we need a fire protection plan like mutual aid, pump stations for water, etc.
- Are jet skis allowed? Should not be.
- ATV & bicycle travel
- ATV's & offroad vehicles
- ATV's-limit snowmobiles to corridors
- Big game hunting on Potter Farm property(no high power rifles used in close proximity to camps)
- Boat traffic should be relocated to protect wildlife
- Boats over 100 HP on the lake
- Boats with more than 15 HP should not be allowed
- Camping on refuge property
- Concern about the speed of some motorboats.
- Excessive noise from engines-boat, jet ski, etc. Excessive boat speed Camping at other than designated camp sites
- Firearms, sport hunting
- Guided groups of tourists in powerboats getting too close to moose.
- Hunting & target shooting
- Hunting, atv's
- Hunting, trapping
- I am ignorant of all the services available
- I don't like the "jet skis" on lake
- I think the refuge should be able to control and manage the refuge lands as they see fit. FPL Energy and the refuge need to sort out the questions of overlapping jurisdiction along the shore.
- If possible please develop a phase out of two cycle motors and snowmobiles used by the public. Set a target date sometime in the future where 4 cycle and environmentally friendly engines would be used.
- If this is a refuge for wildlife then hunting, fishing and trapping should not be allowed.
- Jet boats
- Jet boats & skis(pollute water/scare wildlife) ATV's(ruin soil & ground cover)
- Jet ski
- Jet ski boats
- Jet skiing
- Jet skis
- Jet skis
- Jet skis
- jet skis
- Jet skis(if currently permitted)
- jet skis, big and fast motorboats, overnight use of lake by boaters
- Jet skis, high powerboating, water skiing
- Jet skis, high speed/high power motorboats

- Jet skis, large power boats
- Jet skis/personal watercraft, water skiing & tubing should be limited or banned! Boom boxes should be banned from campsites & boats!
- Jet skis/personal watercraft/ATVs
- Jet skis; not sure if they are allowed but they should not be
- Jet skis; overnite use/parking of boaters
- Jet skis-high speed motorboats
- Jet skis-phase out 2 cycle engines-limit horsepower of boats so high speed jet boats are not allowable
- Large groups of boats led by commercial operators without sufficient education regarding flushing wildlife.
- Large tourism boats. Keep motorboat access to a minimum.(I know it can't be done, but I'd like to see no motorized craft, except law enforcement)
- Less people-wildlife did much better before all this advertisement about the area
- Loud power boats. Boat speeds should be restricted(not too fast). Jet skis. Camping should be only at allowed campsites.
- Management of exotic species ie small mouth bass
- Motorboat & jet ski access
- Motorboat, jet skis, ATV's(motorized recreation)
- Motorboats for recreational use. ATV use. Residential uses. Bear baiting. Trapping.
- Motorboats over a certain horsepower
- Motorized devices including motorboats, four wheelers, snowmobiles, etc.
- No boats with motors in back waters, especially when there are unfledged duck broods
- No hunting of any kind. I guess fishing is ok
- No jet boats, jet skis, all boats
- No jet skis ever anywhere on the lake or rivers. Never have a bass competition, or encourage more traffic on the lake.
- No jet skis, no more than 60 hp on boats.
- Noisy parties typical of some city people in the woods.
- None This is public land for all critters to use
- Not sure what is/is not allowed at this time
- Outboard motors or other engines over 5 HP
- Personal watercraft
- Personal watercraft if they are allowed now
- Personal watercraft(Sea-Doos)
- Recognizing your limited ability(or authority)to control, jet ski and jet type speedboats should not be allowed on the lake; groups in boats hanging out together & just floating together-sort of partying on the lake. Seemed a new thing(a few times)this past summer. Also-we do need to talk about the Potter Farm property(from the gate to the lake)being accessed by the public and hunters.
- Restrictions on fishing derbies or tournaments; motor size restrictions on watercraft
- See above
- Snowmobiling
- Tenting, ATVs, water jet boats, high horsepower engine boats

- The Umbagog Lake region is a special place but I don't think that outright gov. ownership was the best way to preserve it. So it is hard for me to answer many of these questions because they speak directly to the refuge which has a different identity from the Umbagog we grew up knowing. I don't go to that area because it is the refuge. I go because it is Umbagog and because of what is there-flora, fauna and the inhabitants.
- Too many canoes.
- Trapping, hunting, fishing
- Unrestricted use of sensitive wetland wildlife habitats by boaters, canoeists & kayakers-especially during waterfowl breeding, nesting, brooding, moulting & migration seasons

Section 2

Question 2, Please tell us what you see as the biggest benefit to the local community from Lake Umbagog National Wildlife Refuge.

- Expanded recreation-based economy.
(2) Preserves the community's natural habitat legacy.
- A last place for the natural order for the American continent
- A natural recreation/wildlife preservation area. Economic impact is positive.
- A preservation of the wilderness and wildlife for this area-which is the character of the area
- A stable and long term ability to manage the natural resources and recreational opportunities
- Activities support the local economy and community.
- Adds to local businesses and outfitters
- Allowing everyone who wants to have access to the natural environment
- Allowing snowmobile access during winter months
- Appreciation of the beauty, the animals and the four season activities
- As a destination for vacationers and sportsmen, it brings customers to local businesses
- As an advocate and means of protection from the overdevelopment that has ruined other areas in NH & ME.
- As I am not part of the local community I don't have a good answer to this
- Available education resource; recreational benefits as well
- Brings in visitors/helps the economy. Need better advertising-I didn't know you exist. Refuge is very important.
- Brings more people to the area
- Community information
- Conservation of wild habitat for hunting and fishing by generations to come
- Conserving this special place for residents and visitors
- Contributes to high standard of living through experience and revenue from visitors
- Difficult to define & measure in purely economic terms-heritage, the Northern Forest, headwaters of the Androscoggin.
- Dollars related to outfitters, convenience stores, camping related.
- Draws visitors who use local services
- Eco tourism
- Economic
- Economic vitality to local businesses
- Economics
- Economic-wildlife/wildland
- Recreationists
- Economy
- Economy
- Economy
- Eco-tourism
- Eco-tourism
- Ecotourism
- Ecotourism
- Education about proper management of wildlife and wildlife habitat

- Environmental tourism & environmental education coupled with benefit to area's bioregion
- Fishing & boating activities
- For a small community like Errol it will bring in tourist(local & long distance)dollars, plus preserve a piece of the natural world
- General advertisement to add local community
- Haven't seen any benefit since USFWS took over area
- Helps town of Errol
- I do not see anything that has changed since you have bought the land around Umbagog
- I want to say the tourist dollars, but the biggest benefit is that the preserve will be here for future generations
- Improved quality of life
- Increased revenue from tourists.
- Induces those city people to learn about the area, wildlife, nature.
- Is a key role in a developing ecological/recreational protected corridor in the upper Aeclo watershed
- It beats wall to wall condos any day
- It brings business to the local stores and ensures that the land will remain undeveloped.
- It brings certain types of people into the area who respects nature.
- It brings in people from across the country to the local communities
- It brings people from out of state who spend money in local restaurants and stores
- It is an attempt to preserve the natural beauty of an area that would possibly be utilized for other purposes and possibly destruction by the lumbering monopoly.
- It is an example of the overall good which can be derived from the presence of a federally managed resource
- It is bringing visitors who are discovering the Androscoggin Valley who may not have done so for a few more years
- It provides a wonderful area to experience the wild, a relatively undeveloped lake, and all its wildlife.
- It will keep the area wild and a boost to the local economy bringing people to the refuge
- It will keep the surrounding land undeveloped and available for public use
- It's a beautiful unspoiled and generally uncrowded place with appeal to visitors to our home
- It's left in it's natural state & allow hunting, fishing, trapping & use of recreational vehicles
- Jobs
- Jobs for people who need work
- Keeping it undeveloped
- Keeping land free from development
- Keeping much of the lake protected from development that would discourage wildlife and change look
- Lack of development
- Lack of new construction
- Land permanently protected from development and open to public use.
- Land preservation
- Local people utilize the area, plus it draws tourists, plus it is keeping a beautiful lake pristine and undeveloped.
- Maintaining a balance in the way local lands are used

- Maintaining a pristine location that will benefit the community w/ summer residents and tourists.
- Maintains traditional use of this beautiful country.
- Managed care of the forest, lake & wildlife to preserve the area. This should have a positive impact on local economy
- Management of natural resources
- Moose & loon watching opportunities, food/lodging expenses of visitors
- More commerce
- Name recognition and a high degree of cash flow into businesses as it grows.
- None-more & more people
- Not sure-probably tourism dollars
- Open land
- Open space
- Opportunity for serene recreation in a wild environment
- People coming from other places to visit the refuge spend \$ on food & lodging in the Errol area
- People visiting the area and buying goods & services
- Preservation
- Preservation of a resource; development/destruction of habitat kills species not fishermen & hunters
- Preservation of a unique lake & upland ecosystem
- Preservation of its environment from development and preservation of its wildlife & its great potential as a visitors attraction
- Preservation of natural areas
- Preservation of unique environment
- Preservation of wetland environment
- Preserved wild space "In wilderness is the preservation of the world"
- Preserves character of the area. Supports local businesses.
- Preserving and protecting the Refuge so that tourists and vacationers will continue to be attracted to the area and support community businesses and concerns
- Preserving outdoor opportunities
- Preventing development
- Properly managed wildlife habitat and populations
- Protecting land/shoreline from development
- Protecting the area
- Protecting the wildlands from development and ensuring habitat for wildlife and recreation for locals and visitors
- Protection, preservation of land around Lake Umbagog
- Protects environment
- Providing habitat for wildlife-which brings in visitors
- Quality of life and legacy for children/grandchildren
- Reducing slowing development
- Retail-gas, restaurants, groceries, sporting goods, camps
- Saves land for traditional uses
- Short term visitor use
- Some tourism from sportsmen and nature lovers can add to the desire to protect the environment
- Supports the local economy
- The benefits from ecotourism, snowmobiling, outdoor recreation.

- The bigger benefit is that it has preserved an area that embodies the past & present
- The fact that L.U. N.W.R. is a large tract of undeveloped land with the ability to attract outdoor enthusiasts to the area
- The impact of tourist dollars to the local economy
- The local economy seems to be stronger. At our usual campground, Clear Stream, the owners seem to value our survey work & welcome ASNH staff also.
- The potential for education of the local children
- The presence of the refuge has kept Umbagog shorelines from being sold off & developed, & therefore the community intact.
- The refuge brings a balance of people's interests (fishing, bird-watching, canoeing, etc.) And so it enriches the community with diverse visitors.
- The refuge is a place for wildlife to flourish, and for people to immerse themselves in a peaceful environment
- The refuge is doing a great job at preserving a natural resource for the public. Protecting these areas from development is important.
- The refuge preserves a special place for solitude and traditional recreation which is a very important, even rare, element of eco-tourism. Tourism is a key industry for these communities.
- The refuge will keep Umbagog Lake area what it is today-a serene environment-undeveloped
- The refuge will prohibit over-development of the lake by condos etc. which we were told was the primary purpose of the refuge.
- There is some economic benefit but the biggest plus is it limits the local sale of real estate to reasonable limits. We need more open space!!!
- They can avail themselves with nearly unlimited research resources to base their mgmt. decisions. This should help to maintain the delicate balance between availability to many and preserve for the future.
- Ties up a lot of shoreline from development/camps. Preserves the area for wildlife.
- Tourism
- Tourism
- Tourism
- Tourism, recreation, preservation of the natural beauty of the region
- Tourism/economic
- Tourist dollars
- Tourist dollars
- Tourists
- Tourists add to the economy of the community
- Tourists bring money and provide jobs
- Tourists.
- Unique recreational resource
- Unsure-people love the lake not the refuge-many do not know the refuge exits
- Usage of the river for pleasure boating(and lake)
- Visitor spending on food and lodging
- We get a chance to see our Federal tax dollars at work locally
- Wildlife habitat protection and outdoor recreation

Section 2

Question 3, Do you see any negative impacts to the local community from Lake Umbagog National Wildlife Refuge?

- 1. Increase in visitor impact. 2. Control of large area has potential if not wisely used (Above statements are not contradictory)
- 1. It encourages too many people to visit the area 2. It takes control of the area from the residents and taxpayers.
- Acceptance of outsiders
- Access is being restricted to fishermen along the river!
- Becoming too asiraltive (??)-too many big boats on lake
- Brings more people to an area!! But I daresay-many disagree
- Change in character of the landscape
- Commercial operators need more education regarding avoiding flushing wildlife, so that we can all continue to enjoy wildlife viewing.
- Condo and vacation home development
- Conflicts between locals hunting and/or fishing w/kayakers and canoers that do not like these sports. Also, no timber harvests on uplands. Local labor depends on this.
- Continuous removal of taxed property-need to contribute in lieu of taxes
- Decrease in timber tax-more than made up for by positive impacts
- Draws more people
- Draws more tourists; federal management threatens to change traditional use by locals.
- Future taxes (lack of)
- I can't say that I'm overly enthused about the refuge's negative stance against the shorefront landowner.
- If the tourism causes too much development and the type of use of the area is not carefully controlled, the area will lose its biodiversity & beauty.
- If you buy up all land in & around waterways. People will not come to the area for any length of time to spend their time & money. People in the North/Booty need to be able to support themselves. It is becoming very difficult for people to live here & bring up a family
- I'm only a visitor once a year!
- Inability of large bureaucracy (Hadley-Washington) to make decisions about the refuge at the community level with partners
- Increase in visitor use could lead to pollution, trash, loss of small town rural identity.
- Increased development, rising land values therefore rising property taxes.
- Increased exposure to many tourists, government purchases left abandoned, lower tax base
- Increased tourist use of the lake without understanding the impact on the wildlife: waterfowl
- Increased traffic
- Increased traffic
- It has created an increase in the number of people using the natural resource of the area

- Land taken out of the local forest-based economy. Federal rules & regulations
- Less tax base Loss of Errol's tax base and of area lands. I hope it will always be open to citizens for most all forms of recreation and not just for environmentalists.
- Loss of tax base
- Many more people know of the area and increase in number of visitors and usage. This is both bad and good.
- More people drawn to the area
- More people! Some weekend camping on permitted campsites were outrageous
- More traffic
- More visitors mean less wilderness
- Much more traffic, on and off the lake.
- My taxes have gone up 300% in 5 years because of valuable tax lands acquired by the refuge & it appears it will be up 12% more this year (December 1st).
- Need rest rooms for weekend camping & canoeing
- Not enough contact (PR) with local community. Too much interest in buying land. Not enough educational services
- Not if people respect the refuge & clean up after themselves.
- Only when locals feel some of their traditional activities are now prohibited.
- Payments in lieu of taxes do not make up for loss of timber taxes if the land was actively managed as a renewable resource. Loss of back roads because they are not maintained like they were with the timber companies. Brings rude, uninformed people to the area.
- Perhaps limiting the number of vacationers who would want to build a cottage around the lake. But, to me, that's why the region will remain remote and untouched.
- Perhaps short-term loss of taxes. Long-term, none.
- Perpetuating a culture of violence against animals and wildlife as "sport" and recreation.
- Possible erosion of future tax base
- Possibly an increase in the number of visitors through the advertising of wildlife refuges in USA.
- Publicity of eagles and other wildlife has greatly increased on the lake and rivers-local people who have spent their lives in the area are upset
- Publicity seems to be attracting tourists, development in Errol area generally
- Publicity/Errol is growing!
- Purchasing taxable residential property in the local community-reduces tax base & population for a small town.
- Remove the time limit and restrictions on camp lot leases, or allow us to buy our lots. Camp owners were originally told present camps were fine and we had been good stewards of the land.
- Several groups trying to lock up places of this type
- Smog & noise from snowmobiles
- Some people not being able to pass on leases to their children.
- Sometimes people from out of state leave residue that don't belong
- Takes property off the tax rolls. When a large tract is purchased, having the tax burden fall on the local tax payers.
- Takes some \$ out of the tax base, or perceived increase in the tax base due to future development

- The loss of a few of the traditional campsites i.e. Pulpit Rock
- The refuge buying too much land. Buying camps and driving up the local taxes
- The refuge has bought property that it does not need to maintain the original reason for starting the refuge
- The tax base. I am not sure the compensation is equitable.
- The unorganized towns have to pick the taxes that were paid to those areas. The house should be destroyed or sold and moved.
- There is the sense that the government.(insensitive, large, not indigenous) is taking too firm a grip on the region
- Threat of over-exploitation of natural resources by unregulated eco-tourism/recreation
- Too many people spoil experience
- Too many people!
- Too many people. Becoming a Coney Island or Disneyland.
- Too many restrictions on local use & why 6 SUV's for such a small staff! Also 4 boats
- Too much land acquisition away from the lake and its marshes for which the refuge was originally intended for
- Tourists-too many tourists and too much development have a negative impact on the quality of life
- Use restrictions
- Yes-much more traffic & activity

Verbatim Comments at End of Survey (Categorized by Topic)

Though some comments address multiple topics, they appear only once, under the topic they most closely address.

Activity Preferences

- I would like to be able to **fish** Rapid River without walking 10 miles. Provide additional **parking**. Thank you for the chance to fill out this survey. I feel the staff is doing a great job with the Refuge. I also think that the fishing should be allowed on the lake along with **hunting, trapping**, and all other outside activities. This has been a traditional use and when you try to stop these activities you alienate a lot of people. The anti-hunting, fishing, bear hunting, will want to restrict people's use of the Refuge. Please continue to stand fast and not allow this to happen. Thanks again for a job well done.
- There are very few places left in NH that offers **paddlers** a remote setting. As a NH native, it is important to set aside at least one large body of water that is preferably free of any development. The state of Maine is well ahead of NH in this regard. Lake Umbagog, the Magalloway, and Androscoggin, and Rapid River water sheds should all be protected. With respect to motorboats, NH and the National Wildlife Service [sic] are way too late. It is a pity to hear/see motors on these bodies of water. Why can't there be one large lake in NH that only allows paddlers and a near wilderness setting? In addition, **eco-tourism should be promoted** in northern NH. This could help the local economy. Locals, in my view, don't really understand what they are sitting on.
- I feel that the Refuge should try to **protect as much land** in the Androscoggin Valley as it can. Also, the **recreation on these lands should be limited** to more traditional means such as remote **camping, canoeing, ice-fishing, waterfowl hunting, upland bird hunting, deer, moose, and turkey hunting**. I feel these things should always be allowed, as it is a part of local heritage, just as much as it is to **protect these lands**. I do think **restricting public access to parts of the Refuge** is very important, as it keeps the remote feel to these areas. There is nothing worse than seeing some of our most beautiful remote areas being discovered by a bunch of four-wheelers or pick-ups driving right to them. I also feel that more **public outreach** from the Refuge should be made locally rather than from farther away places. You folks are doing well at this, try to keep it this way. Please **do not ever, shut off hunting or fishing** on these lands. It is a very important part of our local heritage.

Camps

- No objections to polite campers, more **people will be detrimental to the Refuge**. The paper companies were fairly good stewards for 140 or so years. That, of course, has become some-what _____ in the past two decades. Obviously some species benefit from forest products extraction (logging) and others. I hope the Refuge will seek a balance. Best of luck!
- The existing wilderness/remote campsites **need better management especially sanitation**. Consideration should be given to **reducing the number and increasing the**

spacing between sites. A **higher-end, tented camp experience with limited services** might be a good revenue source for the Refuge and provide for better environmental education opportunities for visitors to these facilities. The model would be similar to Stanley Selengut Maho Bay or Serenity on St. John U.S.V.I

- I, at one time, owned a camp at the northern end of Lake Umbagog just to the west of Sturtevant Cove. From 1959-1996 and then sold it to a nephew. I had become widowed and found it difficult to maintain it. Since that time many changes have taken place, especially since the establishment of the Refuge, though I've tried to follow developments, I'm afraid I don't very well. What I'm trying to say is that I don't feel qualified to comment presently and leave it up to those who use the area regularly. Our own use of the Lake was mainly as a place of rest - a getaway. We did very little boating, fishing and no hunting. We enjoyed the quiet beauty of the place and spent all the spare time we could there. The place is so wonderful, I'm sure you will have many difficult decisions to make in managing to give a little bit of it to the many who want to use it.
- My father-in-law built camp in 1935, bought with this brother. They had tented out on Rapid River - Cory Road hunting - they started the so called "Cedar Stump Camp Site". They, with their mother and father tented at the turn of the century 1900. They used to row the length of the lake. We have left in our wills that the property be left in the hands of direct decedents of the _____ family.
- When the Refuge first opened, all camp owners on leased land were given a 50 year lease period. **What harm would it be if at the end of the 50 years if the camp is still owned by a descendent of the original builders/owners?** I.e. Son, daughter, grandchild, great-grandchild and so-on. To keep the lease going so our children and their children's children can continue to enjoy God's country as we have for so many years. Thank you. P.S. Sorry I took so long to respond. I was at camp for the month of October.

Environmental Contaminants

- I didn't feel I could answer many of the questions - I'm not all that knowledgeable about the Refuge but would like to be: I am aware that **mercury levels are very high in the lake** and eagles in and around the Refuge - the whole north county in fact. Will the Refuge be open about this issue and promote elevation on this and other environmental contaminant issues?

Fees

- I would like to make sure that the **camping fees** that are charged to camp in the Refuge by the State of NH actually at least in **part go to help the Refuge**. Also, **outfitters who use the Refuge should contribute financially** to the Refuge, either through a **permit system**, or by a fee per head. It only seems fair. Many outfitters/groups use the Refuge, this use should be tracked, so it can be managed if need be.

Forest/Timber Management

- I was born in Errol, raised in Berlin, now live in Bethol, and probably will retire in Errol. I'm up in Errol 2 weekends a month, and visit Umbagog frequently. I'm also **dependant**

on the timber industry to feed my family. The Refuge's participation in sustainable forest management practices is greatly appreciated. After doing the alleged 15 minutes survey, I guess I need to become more educated on the Refuge as it will be a key player in our Northwood's future.

- **Given the intensity of timber harvesting on surrounding private lands, the Refuge should put a high priority on the designation of a significant ecological reserve/natural area that includes both wetlands and upland forest.** This area would allow for the restoration of late-success forest habitat that is in very short supply on commercial/timber lands.

Government Intervention

- I consider myself to be a supporter of the Umbagog NWR. I make a special effort to stay informed about activities and planning for the Refuge. I have frequent contact with members of the Refuge staff and take every opportunity to make my opinions known. While I trust that people will try and "do the right thing" it is not always clear what "the right thing" may be in all circumstances. I see the **main benefit of the Refuge as one of preservation** with some minor opportunities for improvements. One always remains wary of large governmental bureaucracies with potential for massive funding and influence from a diverse set of special interest groups. The government moves as slow as a snail, but the final result can be dramatic, either for good or bad. So far, I count the Refuge as a good thing.
- The Umbagog Lake region is a special place but **I don't think that outright government ownership was the best way to preserve it.** So it is hard for me to answer many of these questions because they speak directly to "the Refuge" which has a different identity from the Umbagog we grew up knowing. I don't go to that area because it is the Refuge I go because it is Umbagog and because of what is there....flora...fauna...and the inhabitants. I identify strongly with the place not the "Refuge" and its history. **Parking is too limited;** again still plenty of room available. **Provide more facilities** along lake. It is **acceptable to extend timber rotations on the Refuge** to benefit sensitive wildlife or habitat resources only if scientifically proven to do so. It is **acceptable to purchase land within the Refuge, but not camps.** Any human activity disturbs wildlife. It is **acceptable to modify fishing seasons** as long as it is reasonable, effective and not capricious. I am **in favor of preserving the open space** and experience at Umbagog. Especially those traditional uses. Umbagog is protected and well so but **how much government ownership is necessary**, and when does it stop? **Government has a problem with getting too big** in everything it does and can be less effective than the private sector in the management of its assets. It is time to **start implementing programs** and growing the Refuge's positive impact on the region instead of growing just the physical size. Remember, people are a very important part of the character, tradition and destiny of this region, don't drive the natives out. You are in danger of destroying cultural heritage under the bounce [sic] of wildlife conservation while they can co-exist. Don't love Umbagog to death.

- The **government should stop the practice of buying up private camps** on the water. Land only should be purchased to become part of the Refuge.

Land Acquisitions

- As a camp owner on the Magalloway River, **I am concerned about the increasing camp acquisitions and the impact on the increasing tax base.** I do not feel the Refuge is doing its share, and is squeezing local camp owners out of their property. I don't feel the land acquired by the Refuge is adequately maintained relative to other camps in the area. Thank you.
- USFWS purchased the land/easements to prohibit overdevelopment. That's great. It's done...now leave it alone. If you were trying to save the area, leave it the way you found it. **Don't replace private development with USFWS development. USFWS should not overdevelop the Refuge.** The Refuge was developed to protect the area from overdevelopment, as has occurred at lakes in southern NH. That has been accomplished. If the goal is to save it the way it was before USFWS (as we were told), leave it alone. The area was just fine before USFWS. Now that it is protected, USFWS shouldn't need to "improve" it with development of their own. Remove the time limit on the lease for lots with existing camps, and/or allow existing camp owners to buy their lots. When USFWS was first "selling" the idea of a Refuge, we were told that the existing camps were not a problem and that we (camp owners) had been good stewards of the area/environment. The time limits imposed on our leases inhibits our ability to pass the camp along to our children/grandchildren and severely reduces the value of the camp.
- **Buy more land. Build a nature center** at Potter Farm.
- Overall, there are problems with the test validity and reliability in the survey design. I am particularly concerned with the possibilities of expansion and restrictions of the Refuge area. Since its inception the Refuge has **brought many tourists** to the area, in affect **causing more disruption** of the wetlands, wildlife and tranquility. Land purchases, especially of small camps have not been cleaned. Large equipment (construction backhoes, trucks, etc. are stored in unsightly ways. **Taxes for those camp owners, who have not sold the Refuge, have increased significantly.** Many feel pressured, concerned with the inability to pay future tax increases.
- In my opinion the Refuge is buying private **camps** around the lake which it really has no use for. These **should remain available to the public to purchase.** In general these camps are small lots and are of no significant use to the Refuge system. Example: Year round camp on the lake in front of Refuge managers home was purchased by the Refuge. Who do you think benefited? **Buy land for waterfowl and wetland protection only.**
- I have been **pleased with the development and management of LUNWR** so far. **If it had not been established surely more shorefront development would have taken place.** As a full time **professional guide, who uses Umbagog frequently it is critical to the survival of our business that we continue to have access** for the activities we guide. Thanks for asking for my opinion and keep up the good work.

- As a biologist working on the FERC hydro project most of these questions are not applicable. I do not have a good feel on visitation. This is best handled by the Refuge staff on site. There is serious jurisdiction and boundary issues between FERC and the Refuge which must be resolved before the CCP can be moved forward. Lake wetlands are up to FERC, MDIFW, NF&G. The Refuge is a great place and I am glad it exists. **There are numerous unclarified issues regarding Refuge boundaries and control,** FERC hydro boundaries and responsibilities, of the licensee, FPL Energy, and the states control of the public waters of Umbagog Lake. There are great people from each group trying to work together on common issues and we all keep running into this huge question of who does what where. I'm looking forward to getting this resolved. Please keep FPL Energy informed during this CCP process. Thank you. Your project maps show you own and control lands owned by FPL Energy.
- **Conserve additional lands** along the lakes, rivers, and adjacent uplands now, while you can.

Miscellaneous

- Our property abuts the Refuge.
- Thank you for soliciting my input!
- I do not like visitors depositing their feces on my property adjoining the Refuge!
- Since I seldom visit the Refuge I'm not comfortable imposing my wishes on regular visitors.
- Keep up the good work! We hope to spend more time in the area in the coming year. Keep us informed. Thank you!
- In 2003 moved to Southern MA. Have not visited since - visits in future will be less frequent.
- I waive any concern for confidentiality. I am answering this individually because my mother felt that it was more important that I provide my input.

Motorized Vehicles

- It may not be possible **but I would like to see the Refuge closed to all motorized transport: boats, snowmobiles, etc.** It's a wonderful place to spend quiet time in a natural surrounding. **Wildlife habitat/protection and non-motorized recreation should be the focus.**
- **Permit the use of ATV's** on Mtn. Ponds and Potter Farm. I often see the machines on these roads but they are posted as permitted, this would only legalize what is already happening. These roads are now part of the states snowmobile trail system. Thank you.

- I believe **jet skis should be banned** entirely. I also believe a size **and horse power limit** should be implemented. Say no greater than 25 feet in length and 100 horse power.

Native American Access

- Please **offer the Native American Nations of New England guardianship of a section** of their choosing. Allow Native American and their relations to live on the Refuge free of any outside threats. Allow the Native American people and their relations to live the way they did before they were murdered, cast out of their own lands and forced to live the rule of a civilization not of their own design.

Personal Experience

- I write outdoor columns and books. I will write article in my column. I know the area from over 20 years experience. When camping in woods, teach those city people to dig a temporary "latrine." Teach those city people how to bury defecation and toilet paper! Damn fools look for a toilet out in wilderness. **Teach visitors how to walk silently, wear inconspicuous clothing, and whisper instead of talking or shouting!**
- I really can't answer this, don't know enough. My experience with the Refuge has been limited. There are so many beautiful places in this area, but each one was pleasant and memorable in its own way. I have enjoyed Paul Casey's enthusiasm and creative management of limited resources. Thanks!
- Long before it became a Refuge my family frequented the area to camp, hunt, boat, and picnic so I grew up enjoying the lake and the Dead Cambridge with all the wildlife at that time. To keep it natural and leave it to the wild creatures is my fondest wish. My husband and I are now too old to camp and canoe there, but we want future generations to have a chance to enjoy the wild creature, a Refuge encourages.
- In the year 2003 I celebrated my 80th birthday with friends on a day-trip in canoes in recognition of the establishment of the first national wildlife Refuge (in that year 100 years old).
- Dear Paul Casey, I look over this book of questions and I am a poor one to answer most of these. I haven't been in this area for sometime to spend much time. So what you have in this area is good for most. I have lived here all my life or in close towns. I have hunted, fished, trapped, canoed, and boated in the Umbagog area for many years, but that was many years ago, or even down by the river and lake for many years. I have seen when it was wild. This is why **I cannot see where your people have improved anything by buying it** have improved it or will ever as far as wildlife goes. These wetlands have been here since time and I don't believe its going to change. On the higher ground it has all been logged because the Co. keeps cutting rights and some of it has been logged since you folks took over, so hard to timber for the animals to live and cut too. If you bought all the houses and buildings, farm land so no one else good buy or they are no good for you. There are a lot of people out there who would have bought those places or keep them owned and raised some food or more people in the town. Thank you for sending questionnaire. Hope you can read.

- Hi Paul, I really have very little knowledge of the Refuge - our role as the Bureau of Parks and Lands is to offer our planning experience, but I do not have enough knowledge of the Refuge itself to give you an honest survey. We hope to get a tour at some point, and otherwise look forward to learning more about Umbagog reunions.

Public Access

- Visited long before it was a Refuge. Please **do not make public access to the Refuge super easy** like some other federal agencies have done. The more people on the Refuge **equals the fewer wildlife** species will exist on the Refuge and you are managing a wildlife Refuge. Limit access to basically your needs and allow us to visit the Refuge as it is. We do appreciate your hospitality at Refuge HQ's. You have a very courteous staff that is very helpful. Thanks for the opportunity to respond.
- My primary **interests include hiking, camping and kayaking**. I would like to **see more access points for these activities**. While I do not **hunt or fish**, I believe that these activities should **continue to be allowed** and properly managed. I **support continued acquisition of property for the benefit of wildlife** and for some public access. However, I believe that public funds should be spent wisely and that efforts to acquire property should primarily be focused on current non-residential property. More land can be purchased with available funds if homes are not purchased. Also, small towns will not be negatively affected. Thank you.
- My family has owned property on Lake Umbagog since 1940. All family members have enjoyed responsible use of the lake. I **support conservation and promotion of wildlife and protection of open space**. I believe **access should be limited by carrying capacity of the lake**. I.e. camp sites. I would be offended if my ability to access the lake was limited by regulation. I have no problem with limiting **personal water craft**.
- I'm of two minds on this (access to the Refuge). My wife and I would **like more access**, but we **don't want to negatively impact wildlife**. 1) If you have parking, you must **provide toilets**. We (husband and wife) have worked for NPS and USFS. If you don't provide toilets, people will crap all over the place. 2) I would like to see co-op agreement between NACTC-Berlin and the Refuge. Either **field courses or internships**. 3) **Environmental education - partner with K-12 schools** to instill conservation values in the next generation. 4) **Adult environmental education - weekend naturalist programs**. 5) Does the Refuge have an active species monitoring/eradication program? 6) **Ban motorboats and snowmobiles**. Keep up the good work.
- I am **glad Umbagog and the surrounding area is being protected from further development**. I have seen a lot more development pressure on the area since I was a child. Also our business depends upon having access to undeveloped backcountry. Thank you for asking my opinion about UNWR.

Public Involvement

- Proceed slowly, carefully, transparently, and with full community support if you propose to expand the Refuge boundary.

Refuge Agenda

- Added response to 1.1: Land: We routinely snowmobile through legal groomed trails. Water only: One time, six years ago, we went out on a boat with friends. Hopefully we can go more when we retire... Added response to 3.4: Most people **do not know the actual agenda of the Refuge and their long range goals** and how they might affect the town. Comment: People in general are unsure of the **motives of federal/governmental groups** such as you. There seems to be a "look out for me" attitude of groups," don't let them know our "true agendas." They might hurt the town in the long run. I.e. Loss of Errol's tax base and loss of private lands. There have been instances where the town or federal government went into partnerships (quietly) with other environmental groups (Sierra Club) and land uses changed drastically, not always to the likes of the local towns. You must **continue to involve town citizens** on your board so they can evolve with you and there are no surprises down the road. Do we currently have involvement of local town citizens (non-Refuge employees) on your board and at your meetings? We have recently returned from a three month tour of the U.S. and many of our national parks and attractions. In the scheme of life, Umbagog is very small but unique. They all should be as open as possible to all people, four seasons. We have visited Yellowstone in the winter by snowmobile when it is majestic with snow and now in summer when it is filled with wildlife. Both must be seen by all. Umbagog must remain open, all four seasons and be viewed by foot and snowmobile; otherwise we have lost the meaning of what life really is "for all." **We must not have a polarized state where we have to exclude some groups and only benefit others.** The wildlife will continue to propagate if we do not kill them over abundantly.
- Refuge Manager Paul Casey does an excellent job. Refuge needs an outdoor recreation planner.
- The wildlife **Refuge has had a very positive impact on the Lake Umbagog area.** The **protection of water, wildlife, and forests** will continue to improve the desirability of the area for future generations. Paul Casey and his fellow employees are doing a fine job to protect the integrity of the area. I believe the economy of the surrounding towns improved considerably. Although the northward migration of people from lower states will also have an effect on the topography. I feel the Refuge will be the only saving grace for the area. I am **strongly in favor of the wildlife Refuge's mission.**
- USFWS Center and Information five miles. Hours Monday - Friday 8:00am - 4:00pm Saturday and Sunday (in season) 8:00am - 4:00pm. 7) As I live remote and on water, I have more available to me than the Refuge can offer. I live with wildlife! 2.1) It must be kept in mind that I live here among the wildlife. 3.6) To my knowledge the Refuge was established on paper in 1990. Source "Echoes." I was lead to believe that Great lakes purchased the dam. I am ignorant of boundary regulations. 4.2-3) The management is best suited to make determinations in these areas from existing experience. 3) I am

ignorant of any interest of the Refuge in true forestry management! Or harvesting! What happened to the questionnaire of two years ago? As the original Refuge plan (Echoes) established a total of 1,600 acres in 1990 who, when, where was the huge boundary established?

- This is a beautiful pristine lake with all forms of wildlife before the Refuge of 12 years ago. Timber well managed, wildlife abound. Now all we have is more people and more intrusion on their turf. **No more advertisement** of the area is needed. Stop already! **More people = less wildlife.**
- I would like the Refuge **staff to be more visible** and available only if staff is going to be helpful. Facilitator, help keep the area clean. Every time you have chosen to close an area - we have lost chicks. You should put more time and research into this before closing off areas. There has been too much pressure put upon the elderly and the unknowing too much lying and convincing people that they are doing the right thing by selling to the Refuge. What I find truly disturbing is the **distrust between the locals and the Refuge personnel**. People feel they have been lied to and they do not feel they can trust the current management. People should be working together instead we have the Refuge working to do what they want, when they want it at the expense of the people that are trying to live in that area. "Extortion" is a word that comes to mind when I think of Refuge management. It is used time and time again to get the results they want. I would like to see more harmony and community spirit between the people in the North County and Refuge Management, and that can happen only with trust and accountability.
- Dear Paul Casey, I consider it a privilege to own land in Errol so close to such an important wetland conservation area. I'll do what I can to help ensure that my children and future generations can use and enjoy the Refuge in the same way that my wife and I can. Striking a **balance between keeping the area remote and untouched yet available for public access** and use is the most critical issue that the Refuge management must address. **Education and communication** is key. Any changes or improvements must be thoroughly explored and implemented gradually to minimize impact to sensitive wildlife, both animals and fauna. I trust the Refuge staff and the Department of the Interior to carry out the management mission in a responsible manner.
- It is important to **continue the traditional** uses of this land and surrounding lands for future generations. **Hunting, fishing, trapping, timbering, and wildlife viewing.**
- The **Refuge is overstaffed** and their **public relations locally are not good.**
- My **concern is increasing impact** on the area. **Environmental education programs: yes. Promotion of Umbagog in the media: no.**
- All desirable but should be limited to current Visitors Center on Route 16 or to a new Visitors Center near boat launch (existing) on Route 26 or in Errol. My **concerns include:** The **drop in the loon population** over the last three years: the **introduction** (last 15 years) of **bass** to Lake Umbagog and **the impact this has had on the ecosystem**

as a whole; and the **smaller number of tiny fish** one used to see in the shallow areas of the Lake during the summer and fall. Fish and Wildlife should continue to work on Union Power to **manage the fluctuations in the Lake level** to minimize the impact on the loon population and other wildlife. The **new Refuge Visitor's Center and Administrative Offices should be on Route 16 or on Route 26**, in order to be accessible to the largest number of visitors and minimize the impact on the Refuge, and if at all possible, be located in Errol to involve the downtown area and community as a whole. **Increased trash** in the water, along the shoreline and along roadways is also a concern.

- Should be placed at existing Visitor Center at Brown Owl on Route 16, all somewhat desirable. (Section 4.) In recent years I've noticed **increased pollution** in Lake Umbagog and along access roads. I have seen oil slicks along the shore, cans and plastic trash in the water, and paper trash along the road. I'm **concerned about the reduced number of loons** on the lake. Why? I'm bothered by fishermen "parking" by our dock and shoreline, so close we can hear them talking, and staying there for hours. I would like to see the **Refuge staff have maybe annual contact with landowners** along the lake. I would like camp owners to be encouraged to keep their properties "natural" by information about native plant landscaping and encouraged to keep the animals wild by, for example, not feeding ducks and geese at the shore! I believe being in a Refuge should be looked at the same as being in a library. Users should be quiet so others can enjoy their time there, **users should be respectful of their surroundings**, and users should not be rambunctious so as to interfere with the serenity of the place. (You can tell I **don't like loud powerboats and jet skis** that disturb other users and the wildlife with noise and huge wakes). I support the Refuge and staff and would like to know more about the work the staff does.
- **Educational center needs to be local** at the Potter Farm and in downtown Errol to stimulate the local economy. Boat traffic and education walks etc. should be focused at the southern end of the Lake area. **Better relationships** with State of NH park and campsites need to be established. Paul Casey and staff do a great job!
- The only way wilderness areas can be enjoyed by many and preserved for future generations, is to **actively manage the resource** with caring professionals. These professionals must be fair and open minded people with broad based education and experience. They must be paid salaries that correlate with their education and experience and often career development. We cannot attract and retain the best persons for the job if job satisfaction, career growth, and fair wages aren't offered. This is a difficult and demanding task that requires intensive management and dedicated employees and volunteers to balance these seemingly diverse objectives (i.e. open too many and protected for the future). Thank you for the opportunity to provide an input.

Species Introduction

- **The invasion of bass** into Rapid River waters is truly a **national tragedy**. Any form of active management to promote this exotic species in Umbagog Lake or the rest of the Refuge is totally UNACCEPTABLE. Maine is prepared to implement measures

designed to minimize bass production in the lake both NH has not yet been willing to agree. It is time for the USFWS to step in and: 1) **Eliminate bass tournaments** in these waters. Do this any way possible including implementation of horse-power limits on boats; 2) **Manage water levels** of the lake to minimize successful spawning of exotic fish species...even if this means sacrificing other species as a byproduct (spring draw-downs to kill fish eggs in nests); 3) Do everything possible (and then some) to **reduce/eliminate bass populations**. Think outside the box and come up with aggressive approaches to **protect against eco-terrorism**: Implement catch and kill requirements with fines for catch and release of bass, aggressive monitoring of all boat launches including locked gates at night, prohibition of winter angling...no motor vehicles (including atvs and snow sleds or whatever will come next) allowed within 1 mile of the lake, enable commercial harvest for exotic species. Bass could make great cat food....a fundraising strategy for the Refuge and a new resource for the local economy - canned cat food to protect the native fisheries! When the commercial fishing community is turned loose on any fishery, they will run it into the ground. It's done on multiple species in the Gulf of Maine, North Atlantic and elsewhere. If given the chance they would do the same on small water like Umbagog. There is little question that **introduction of exotic species is the greatest short term threat** to this National Wildlife Refuge. It's time to take aggressive steps to prevent further introduction. Bail bucket biologists are ecological terrorists. Invoke homeland security and protect this Refuge!!

Survey

- This is one of the most **poorly written and organized questionnaires** I've ever seen. Consequently all results will be suspect. Too bad, as I'm highly trained in statistics etc. and would have gladly helped. Your map is not clear as to where the areas are. Terminology used here is not found on map. Makes it impossible to respond.
- Your **survey questions don't seem to allow for an overall view of the management of this Refuge**, and focus at times on extraneous issues that can only inform you about how long I've lived in the area and worked there before moving West. Since I am not a resident at the moment, I'm not to answer how long I lived in Coos and Oxford counties. It is esoteric, given all the swaps of late, and generates little of value to discern my knowledge of the place, the creation of the Refuge, and Refuge management. Fact is, I was part of the effort to create the Refuge, and had spent a lot of time there for a lot of years prior to its creation. I have some insights about the promises made and the general theme for that creation, but many of your **individual questions seem to me so fractionate, narrow, and leading that they obscure the bigger picture**. Section 3, Question 5e is another case in point. Who wrote this anyway? Does the author know the Refuge at all? Errol Dam is located on the Androscoggin, but it impounds the waters and parts of the channels of the Androscoggin, the Magalloway, the Swift Cambridge, and the Rapid. There is no single correct answer there; all these river flowages are part of the reservoir impounded by Errol Dam. Distrust of the survey and its interpretation builds. In Section 4, my desires for certain particular services vary from place to place and depending upon definition, a magnitude and impact of such services. My single reactions to complex systems might readily be misinterpreted to justify exactly what I don't want. I worked hard to see the Refuge established, and I've tried hard to work with some of the

Refuge personnel since its creation. It does appear to me that the Refuge is drifting from its original purpose, as understood by the locals at least, and I don't see how this survey will help much, except for provide statistical backup for some management decisions. You might tell me this is the typical FWS survey. I'm not comfortable with it as a reflection of what I believe and prefer. This is the second longest survey I've filled out and commented upon, and I'm not going to take the time after all this to write a long essay that won't fit into your stat boxes anyway. Thanks for trying. Good luck. I'm still on the side of those attempting to conserve Umbagog Lake and its environs.

- Excellent use of tax money, unique to western Maine.
- Please, next time if you contact us, address us "Mr. and Mrs." not "Mrs." Thanks.
- You may not want to count this survey because I am a retired wildlife biologist with a Master of Wildlife Management degree who incidentally conducted a survey of NH waterfowl in the years of 1949-51 and visited the Umbagog area, generally using a canoe, frequently.
- This form took too long to fill out. You would get more responses if you didn't ask the same question 10 different ways.
- Please delete private land from your map!
- Information about the Refuge is available but has to be sought out. Section 2: Same two ideas repeated (statistical consistency check) economic employment, local vendors, services, day trips to Refuge, kayak, etc. Section 3: Lots of info available. Lots of misinformation in local area. Too many double blind dummy questions! Did I pass or am I in denial? Seriously, thanks for asking.
- Stop development on Lake Umbagog. This survey is geared to generate only the answers the Refuge wishes to receive. **Very biased.**
- I have no idea, this **survey is ridiculously long**, and I give up.

Taxes

- I think the **government should pay some taxes so residents do not have to pay all.**

Tourism

- I have mixed emotions about the Refuge and its growth. **I like the idea that the land cannot be developed**, but **I worry that government will restrict activities** that we have enjoyed for many years. Because the government publicizes the Refuge system we get so many more people it's not the same place it was 20 or 30 years ago. With **increased numbers of people** visiting the management will start to restrict access (like with duck blinds and the island in Sunday cove for picnics, etc.). Also, **payments in lieu of taxes do not keep up with taxes we lose for shorefront property or lack of timber tax revenue because the Refuge has not cut timber.** My last observation - the national

parks system and the Refuge system are always complaining that their budgets aren't big enough to run the parks and make improvements etc. But they always seem to have enough money to buy more land.

- Now I am aware of its existence I will be a visitor to the Refuge. Need to **let more people know about this Refuge. More advertising or brochures** at all rest stops?
- Over the 15-20 years I have been visiting Umbagog, I **value its lack of development and many opportunities to view wildlife**. It is the most pristine example of this in New Hampshire. So for me, **less development of the area** is best for me. Yet over the last five years in particular, the town has grown and more services are available to the visitor. Also, I note growing business of concessionaires that use the Androscoggin River and Lake Umbagog. I believe it is critical to **educate the concessionaires** about "wildlife ethics." I really, perhaps the Refuge could require them to register and complete a "wildlife ethics" education component, much like hunter safety courses are required before a hunting license is issued. This maybe reaching, but a certification from the NWR would add to the credentials of the concessionaires and would help pass on the ethics component I fear that without such an effort wildlife will become scarcer and that we will fail at what we sought to protect and enhance.
- I'm a summer resident and do not have a chance to participate in issues. I may seem to be in conflict with answers on previous page. I **don't want to see Umbagog and areas become overcrowded**. Being a summer/fall resident on Lake Umbagog I am not as informed or involved in the wildlife Refuge or center (as I should be). Therefore some of my answers may not seem complete or may be conflicting. I am "selfishly" interested in protecting the area and not seeing too much growth in people users. The area is a gem.
- I think the Refuge is large enough. It has attracted a lot more visitors to the area, which in turn affects the wildlife and serenity. I **don't want to see it expand** any further.
- We already have enough camp sites. **Have a visitor contact station** before getting into boat. Please send shorter surveys in the future. I'm exhausted. What we really want is to have this **area remain as natural and peaceful** as possible - it is such a wonderfully unique place. Having less **powerful motor boats, no jet skis**, people who visit learn and take care of the environment there so that we can all enjoy this pure, peaceful place with little car access and no electric wires to mark the landscape. Let's allow it to be one of the special steps back in time and one that supports a variety of wildlife. There **are too many websites encouraging too many people** who do not value peace and quiet to come there. It's not that we don't want to share it but we don't like to see the outdoor outfitters working there exploiting the Refuge and its surroundings.

Water Level Management

- **USGS gauges are very helpful to recreational boaters**. Maintain the ones we have and add new ones to surrounding waters.

- **Lake markers** are few, there is a rock pile just under the surface inside Sunday Cove entrance on north side extending 1/2 way into cove Squam and Winnepesaukee). It would also be great if there were a **joint northern New England fishing license available** or at least if the NH license was good up to Middle Dam and the Maine license good down to Errol Dam.
- Informing visitors what they can and cannot do at the Potter Farm including private properties. **Increase signage** on road to Potter Farm properties. It is **not acceptable to decrease lake water**. Too dangerous. **Hazards are not marked**. We've rescued many people off this lake in 38 years. I am a property owner on Lake Umbagog. I strongly support managed visitor usage of the Refuge provided that proper signage is created and maintained and staff/visitor centers are developed. Lack of information signage on Potter Farm Road is extremely problematic to the remaining land owners around the Potter Farm. We are not only concerned about intrusion of our own properties but are very concerned about camping, fires, and damage to land and wildlife around the Potter Farm. After 12 years there is still little to no informational signage with "Rules of the Refuge. Please make this a priority. I truly believe people will do the right thing if they are given the rules. Maintenance of the "3 pipe culvert" to ensure road accesses to our properties is also a main concern. This is on Potter Farm Road you now own that road.
- Water level management on Umbagog Lake is for: water flow control for industry on the Androscoggin. 1) **Preserve as much land as possible** on the Rapid River. Treat it as a wilderness area. 2) Try to **restore the Rapid River to a trout and salmon river**. **Bass are becoming predominant**.

Wildlife

- Eagles eat loons.
- Thank you for the opportunity to comment. Please keep up the great and important work. The Refuge is of vital importance to maintaining a sense of wildness in northern New Hampshire, and provides a unique opportunity for those who visit. Of course, it is also of **vital importance to the many species** that are fortunate to call it home, in an increasingly fragmented northern forest.
- Why are loons still being protected? They need to be taken off the endangered list. Every lake or pond I have visited lately has a number of loons on them. It's time to devote time and money on other more important matters.
- It is my strong opinion **that wildlife protection be the single most important priority of Refuge management**. **Human access to nesting areas must be controlled**. **Water draw down must be to protect waterfowl, areas, before electricity demands**. Electricity must be a secondary consideration.
- Management of the Lake Umbagog National Wildlife Refuge should be geared toward a **moderate amount of human recreation and a large amount of preservation of the lands and the wildlife**. Recreational activities always take a back seat to ensuring the health and welfare of the Refuge and its inhabitants.

- To be truly a Refuge, instead of in name only, **animals and other wildlife should be protected** and respected. **It is unfortunate that pressures from sportsmen's groups and others have had such a great influence**, forcing the issues of hunting in the "Refuge." Their cries of, "it's our heritage," should be answered by "It's our legacy"...
- In New England there are known obligate old growth vertebrates. If you want to have old growth, protect it because of its importance as an ecosystem not because wildlife needs it.
- I am **strongly opposed to hunting and trapping** on National Wildlife Refuges. Refuges should be maintained as true sanctuaries as they were originally intended when they were established over 100 years ago.