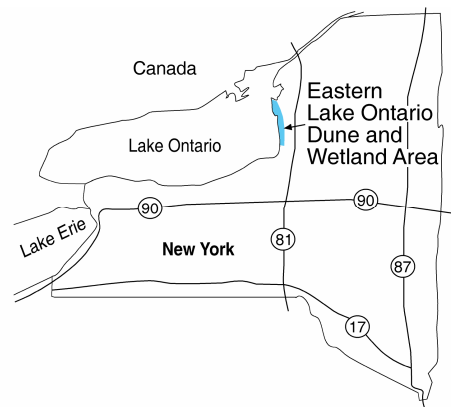


Eastern Lake Ontario Beach User Survey – 2003/2004.

Introduction

The eastern shore of Lake Ontario is a Biodiversity Investment Area that features a 17-mile long barrier beach of Great Lakes dunes and a globally significant complex of pond, marshes, and fens that harbors numerous rare and endangered plant and animal species (Figure 1). Of the 17 miles of beach that constitute the shore, more than eight miles are in protected ownership of New York State, The Nature Conservancy, and Oswego County. This area has always posed a management challenge because the sandy beaches are a natural magnet for thousands of summer visitors who help sustain a lively tourism economy in the area.



Because this area is a natural magnet for thousands of summer visitors, a dune steward program was established to abate the continued threat of overuse or misuse of this fragile and highly vulnerable system. To more effectively protect this unique ecosystem and manage the users, an evaluation of the current dune steward program and accompanying management was conducted during the summers of 2003 and 2004. One aspect of this evaluation was the design, implementation, and analysis of a beach user survey. This report summarizes the results of this survey.

The objectives of this study were as follows:

1. To identify key demographic features of visitors to the ELODWA .
2. To identify how visitors perceive habitat protection efforts in the ELODWA sites.
3. To determine whether ongoing education efforts are effective.

Methods

During the summers of 2003 and 2004, 359 beach users were surveyed at the following ELODWA sites (Figure 2): Deer Creek Wildlife Management Area (WMA), Sandy Pond Beach Natural Area, Lakeview Marsh WMA/Southwick Beach State Park, and Black Pond WMA/EI Dorado Nature Preserve. Eastern Lake Ontario Dune Stewards surveyed visitors during daylight hours (typically between 11 am and 5 pm) from May through August.

The survey design was based upon a previous ELODWA beach user survey conducted in 1997 during which 93 visitors were surveyed at all sites except Deer Creek WMA. Some of the 1997 questions were modified to better answer specific questions during 2003/2004.

Survey questions focused on the visitor's general demographic information; their awareness of dune conservation efforts; their understanding of the natural history of the dune and wetland area; their use of educational brochures and signage; the facilities most used (trails, campsites, observation towers, boat launches, etc.), and their understanding of the uniqueness and fragileness of the dune and wetland ecosystem. Surveys results were tabulated and evaluated by the dune steward program coordinator. See Appendix A for a sample survey.

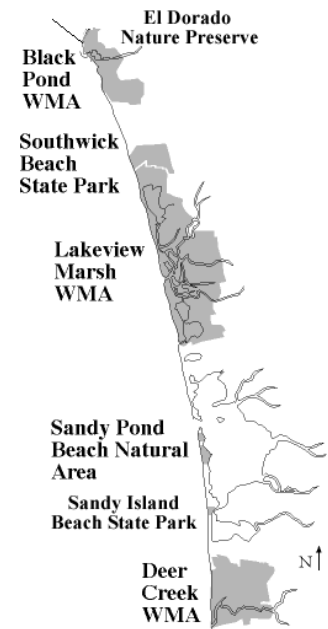


Figure 2. Map of the ELODWA visitor survey study sites.

Results and Discussion

The charts on the following pages depict the results.

ELODWA Survey results – survey answers from all sites combined

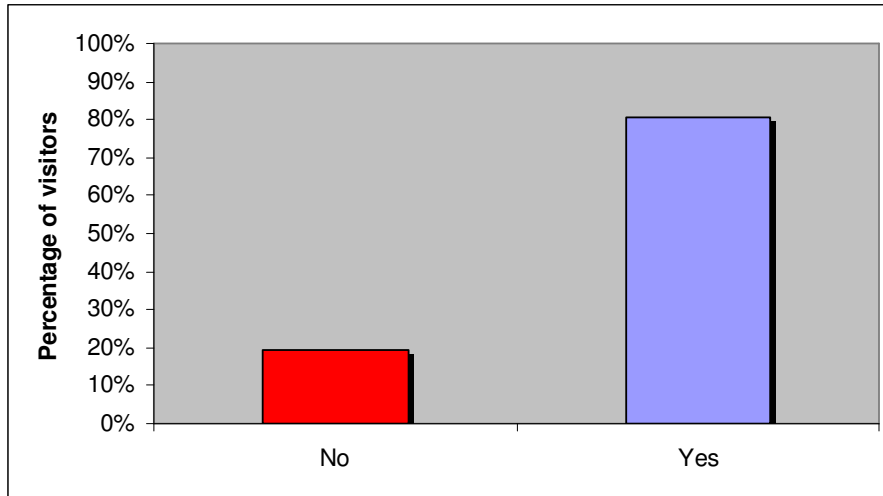


Figure 3
Percent of visitors who have visited the ELODWA during previous years.

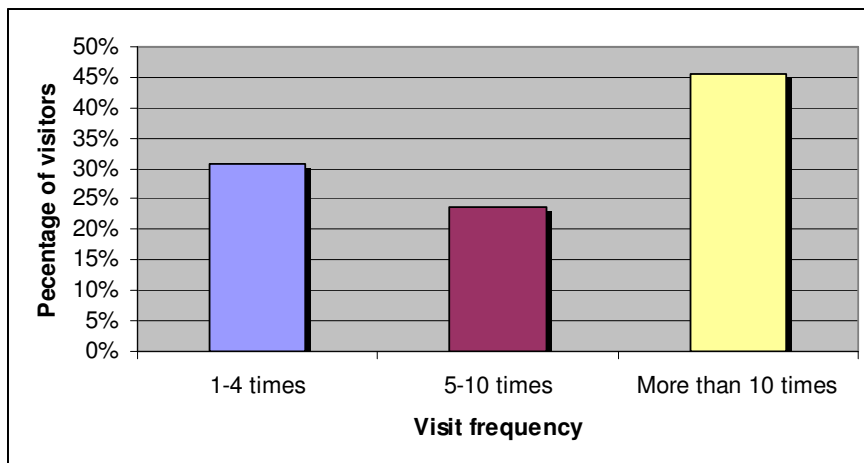


Figure 4
Frequency of yearly visits to ELODWA.

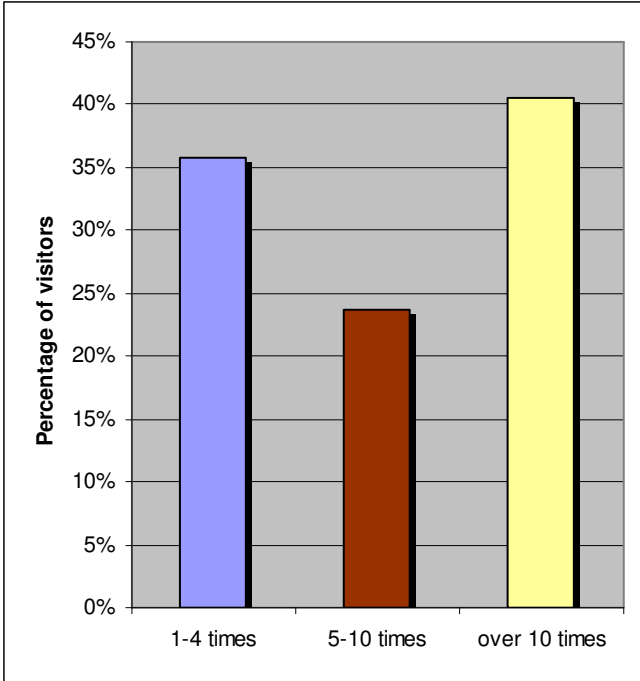


Figure 5
Frequency of *summer* visits to ELODWA.

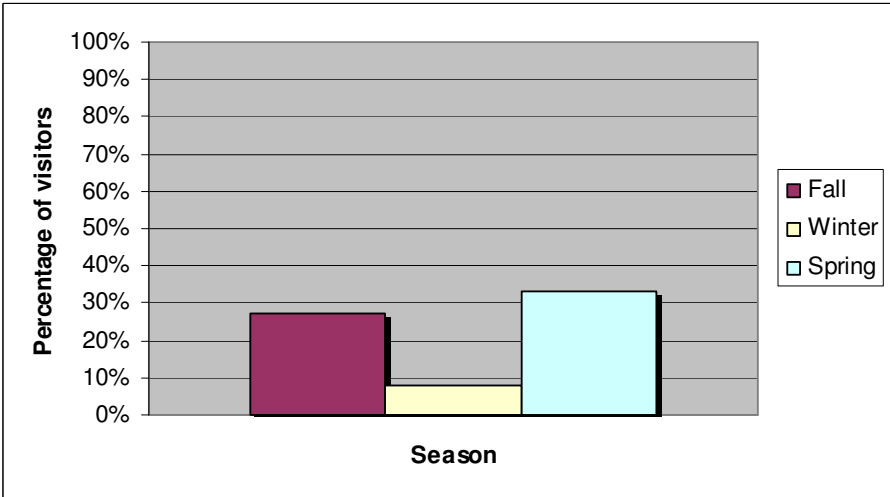


Figure 6
Percent of *summer* visitors who visit at other times of the year.

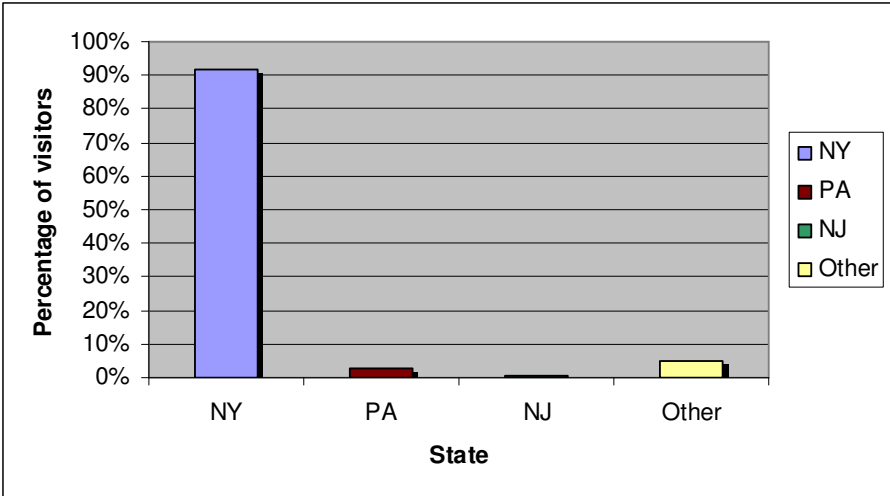


Figure 7a
State of residence of surveyed visitors

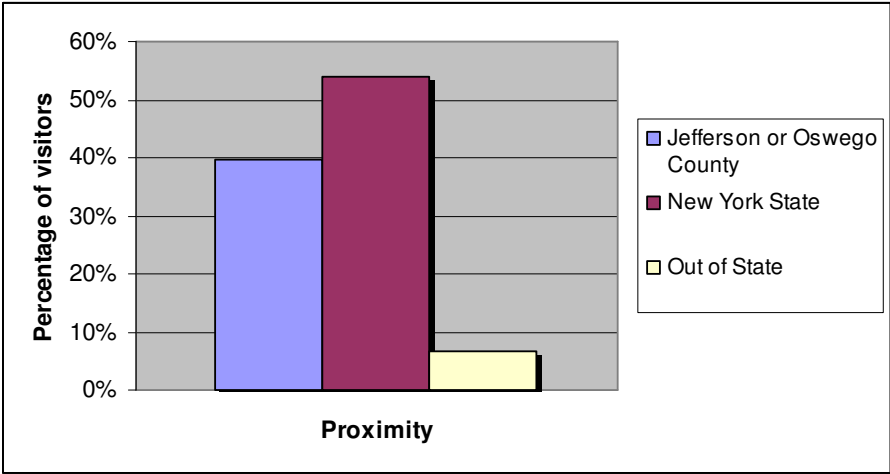


Figure 7b
Proximity of visitor's place of residency to ELOWDA sites.

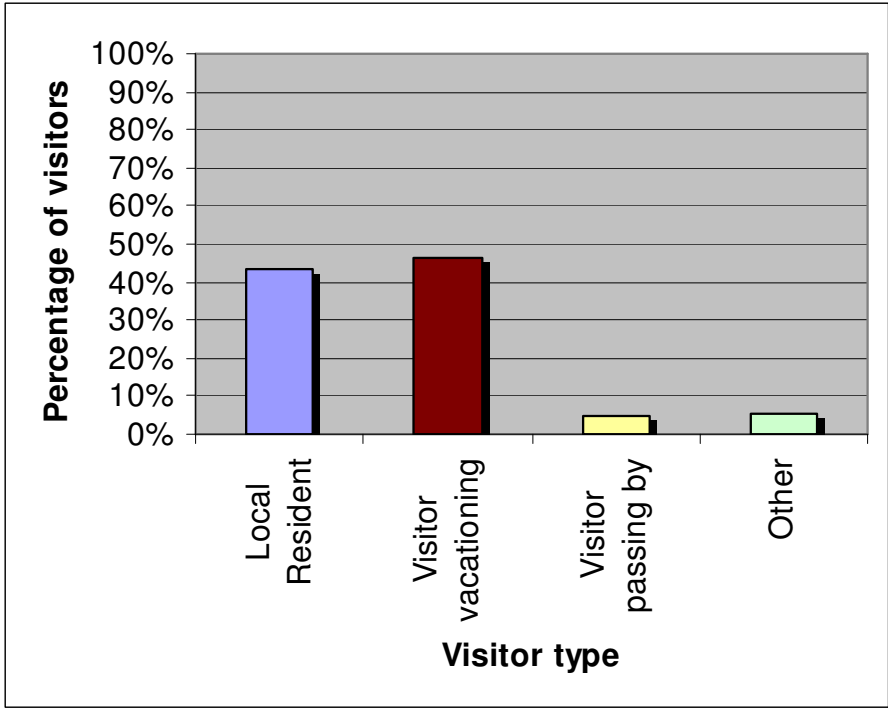


Figure 8
Type of visitor.

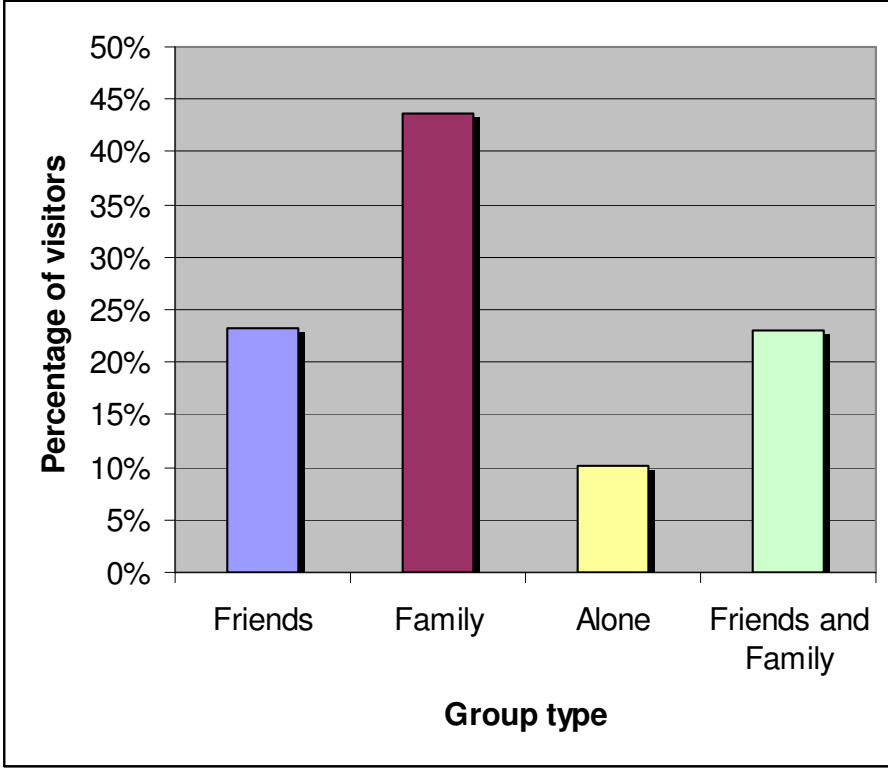


Figure 9
Visitor group classes.

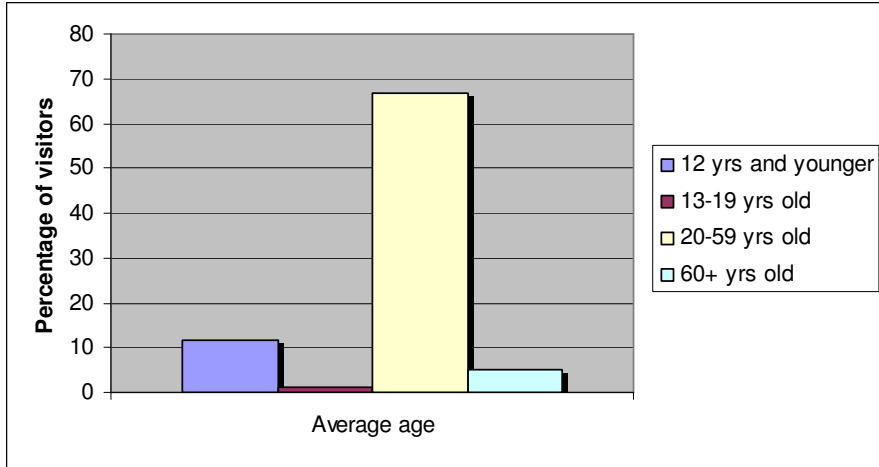


Figure 10
Average age of visitors to ELODWA.

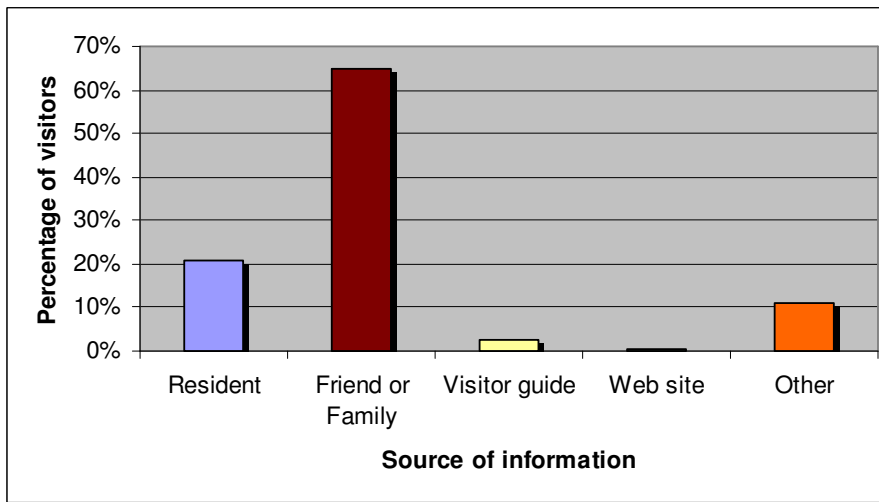


Figure 11
Source of information visitors used to locate ELODWA.

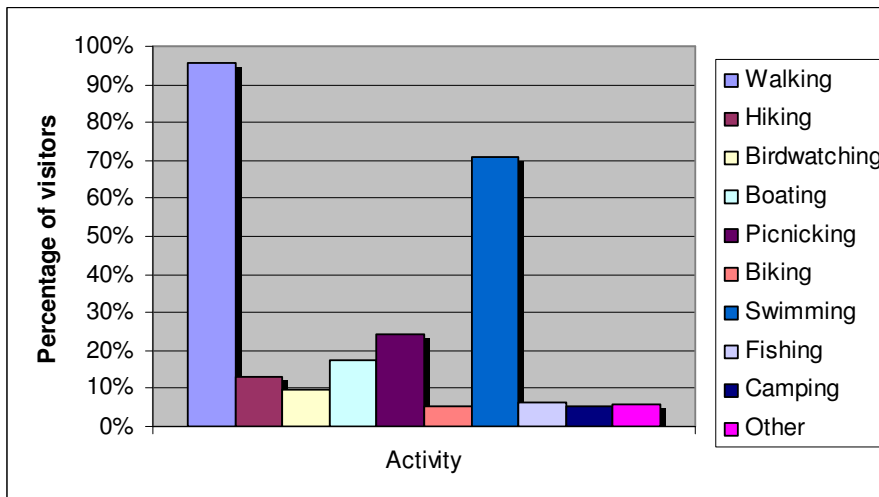


Figure 12
Type of activity visitors participated in while visiting the ELODWA.

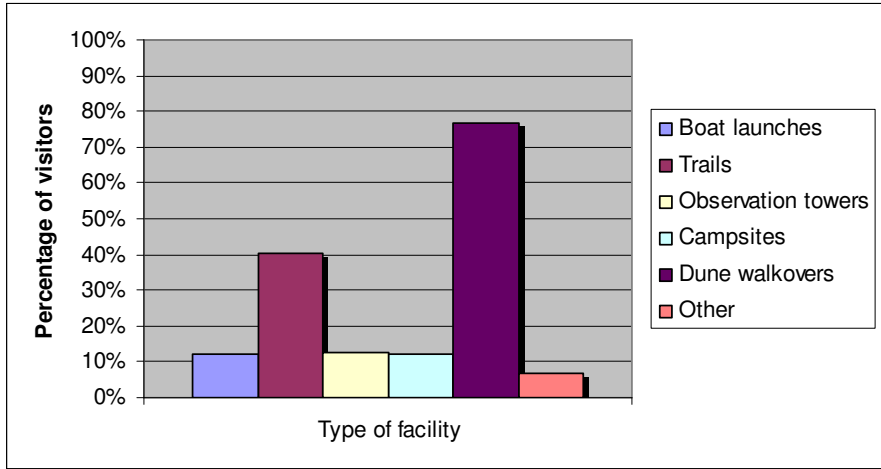


Figure 13
Type of facilities used by visitors.

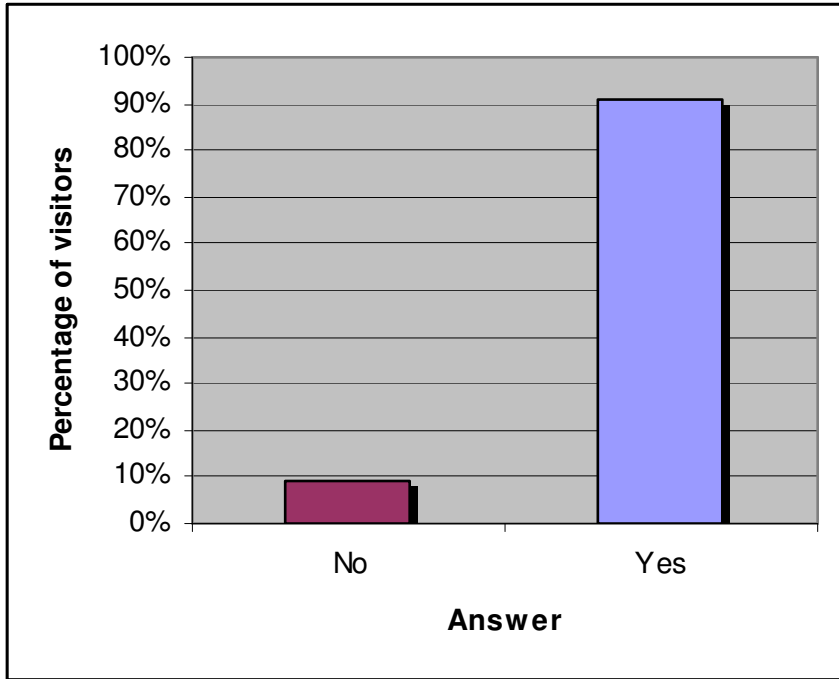


Figure 14a
Percent of visitors who had seen small, dune related signs along the beach.

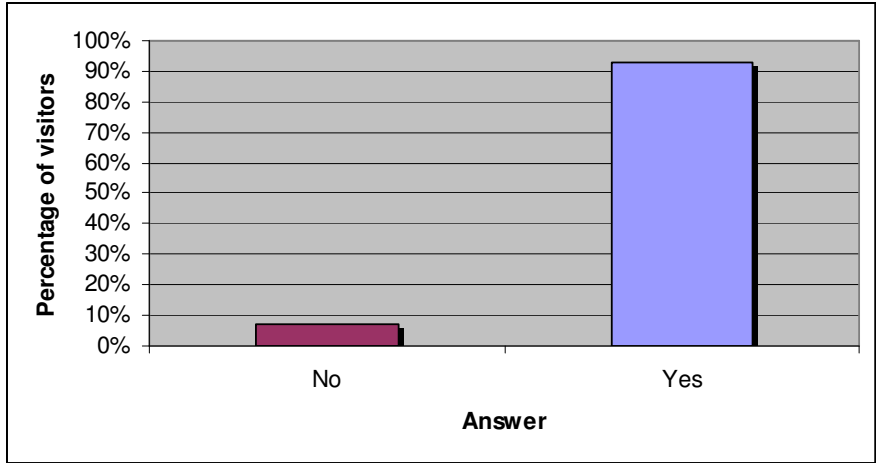


Figure 14b
Percent of visitors that said the signs made them want to stay out of the dunes.

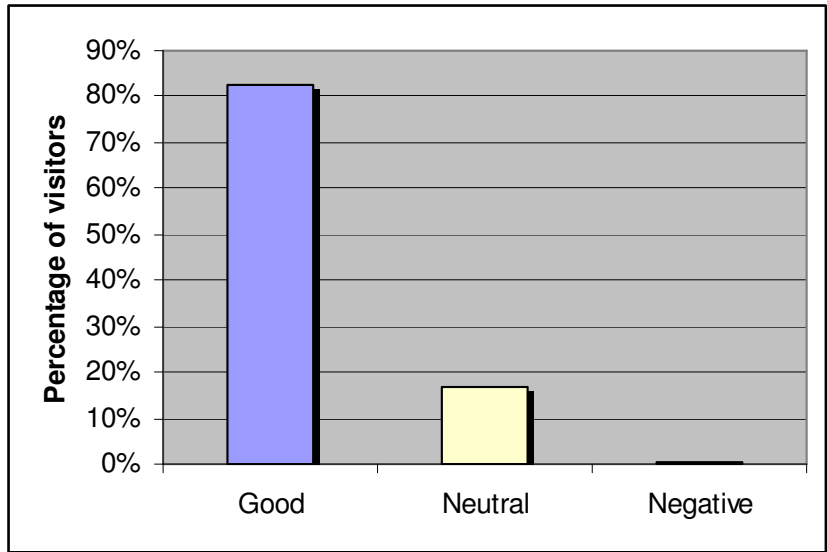


Figure 14c
Reaction of visitors to signs.

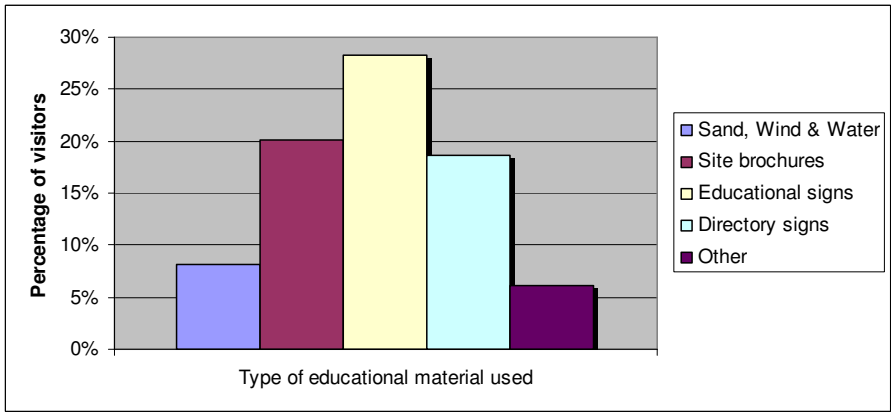


Figure 15
Type of educational materials used by visitors.

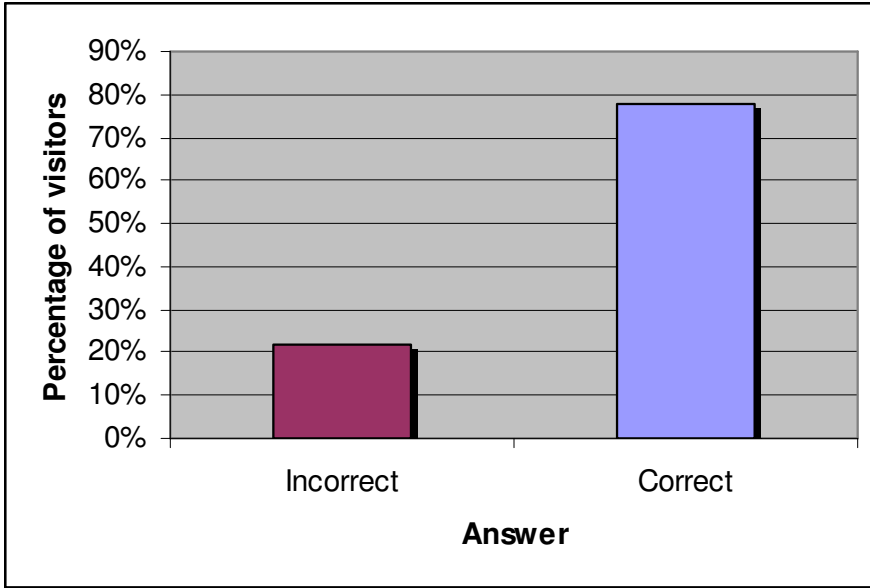


Figure 16
Percent of visitors who answered correctly and incorrectly when asked why it is important that beach grass and other plants grow on the sand dunes.

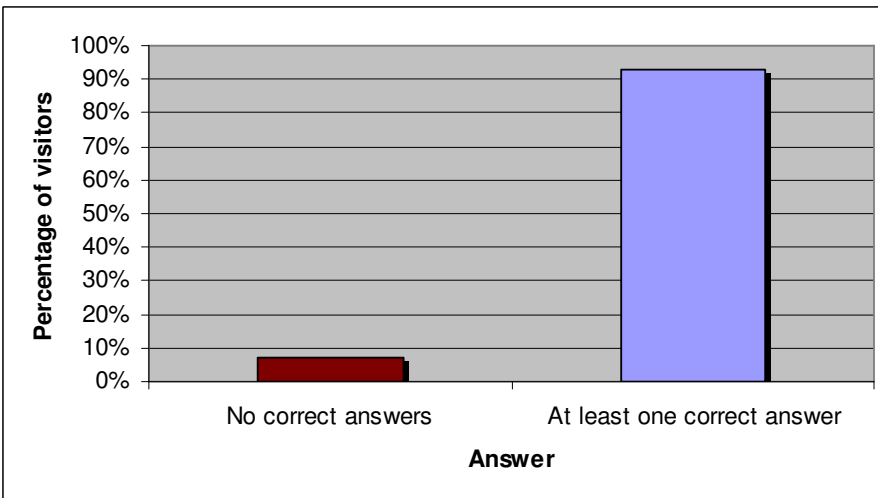


Figure 17
Percent of visitors who could give either no answer or at least one correct answer when asked to list two activities that people do that cause dune erosion.

Survey results – Responses separated by site and compared.

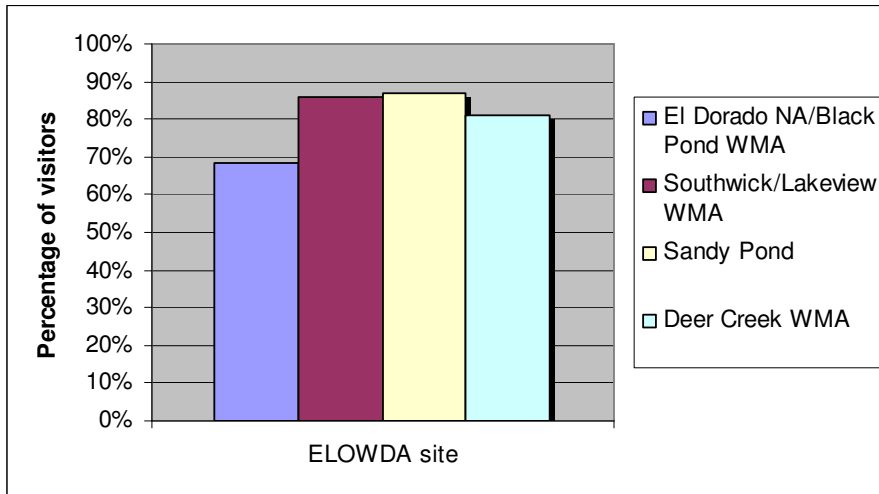


Figure 18
Percent of visitors who have visited each ELOWDA site during previous years.

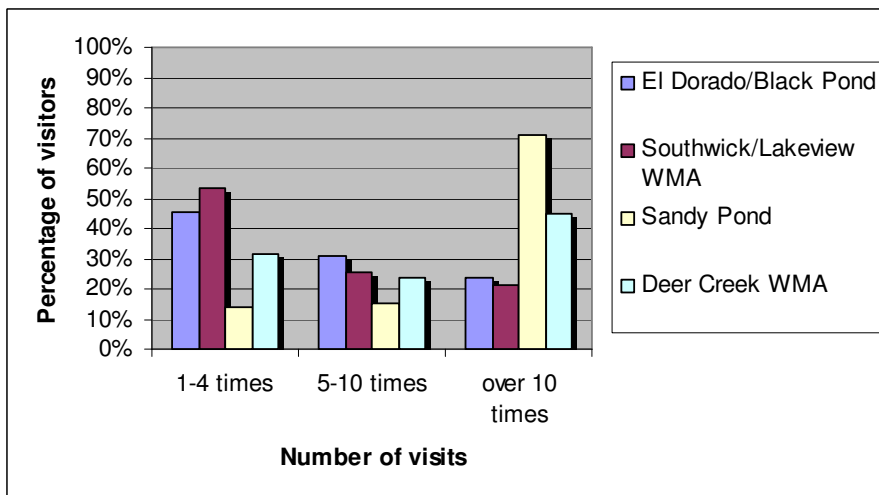


Figure 19
Frequency of *summer* visits to each ELOWDA site.

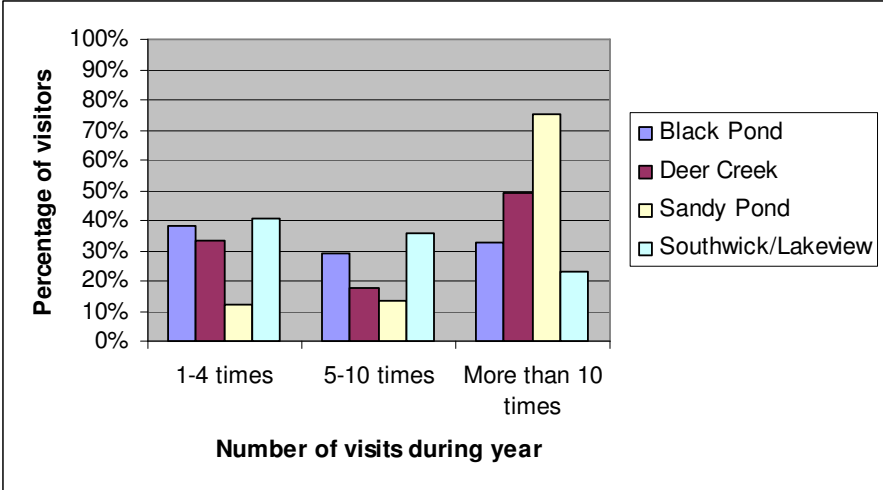


Figure 20
Frequency of visits to ELODWA sites throughout the year.

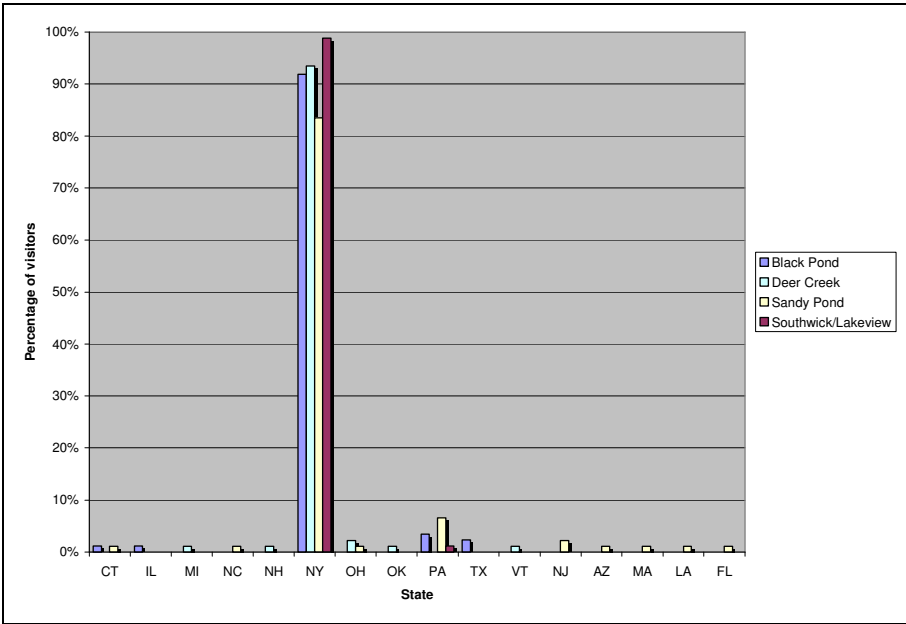


Figure 21a
State of residency of visitors to each ELODWA site.

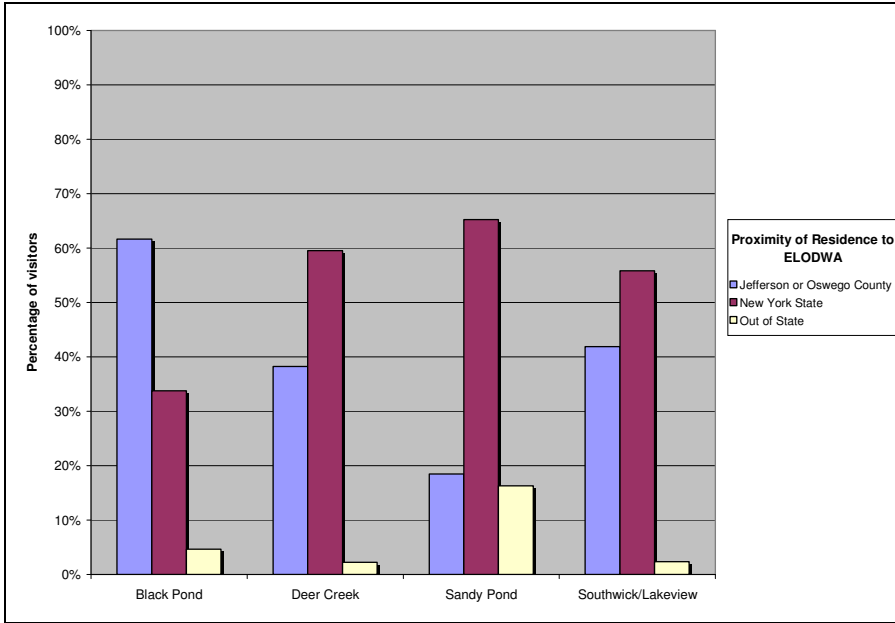


Figure 21b
Proximity of
visitor's place of
residency to
ELODWA sites.

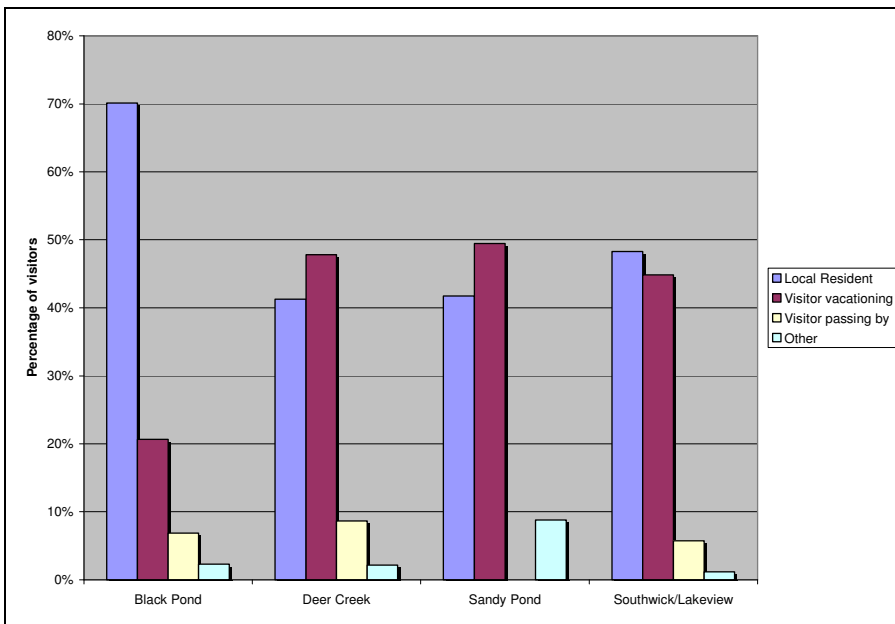


Figure 22
Types of visitor at
each site.

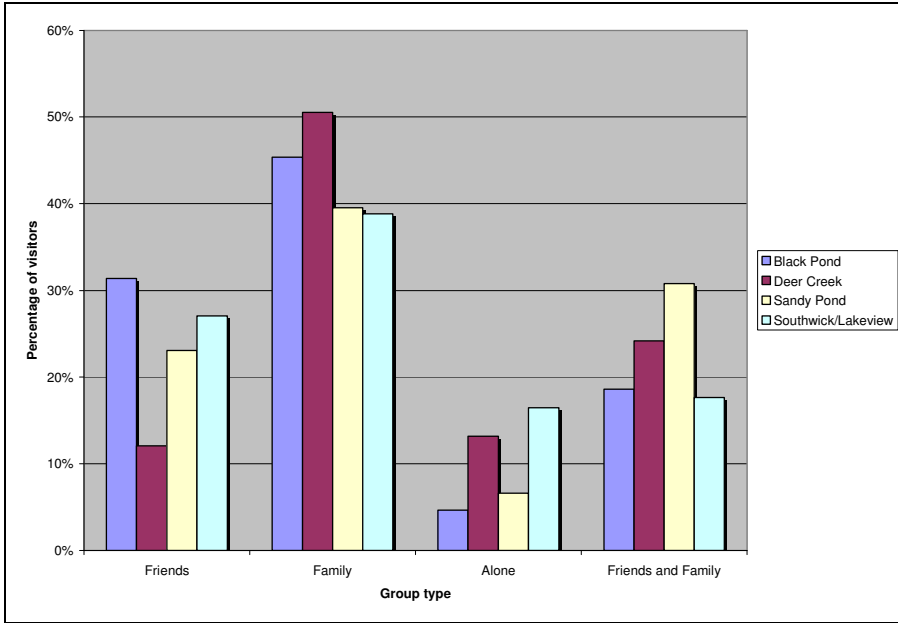


Figure 23
Visitor group type
at each site.

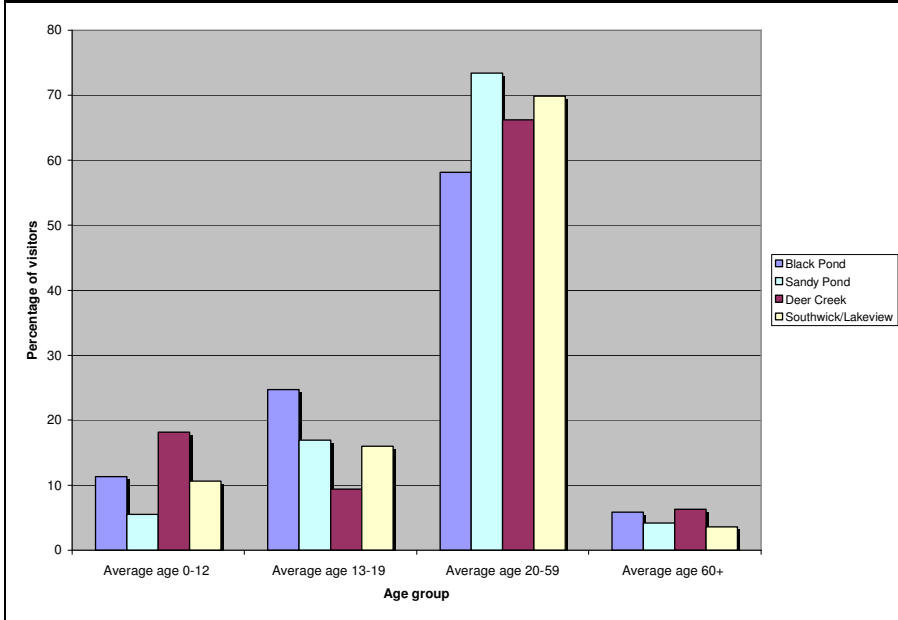


Figure 24
Average age of
visitors at each
site.

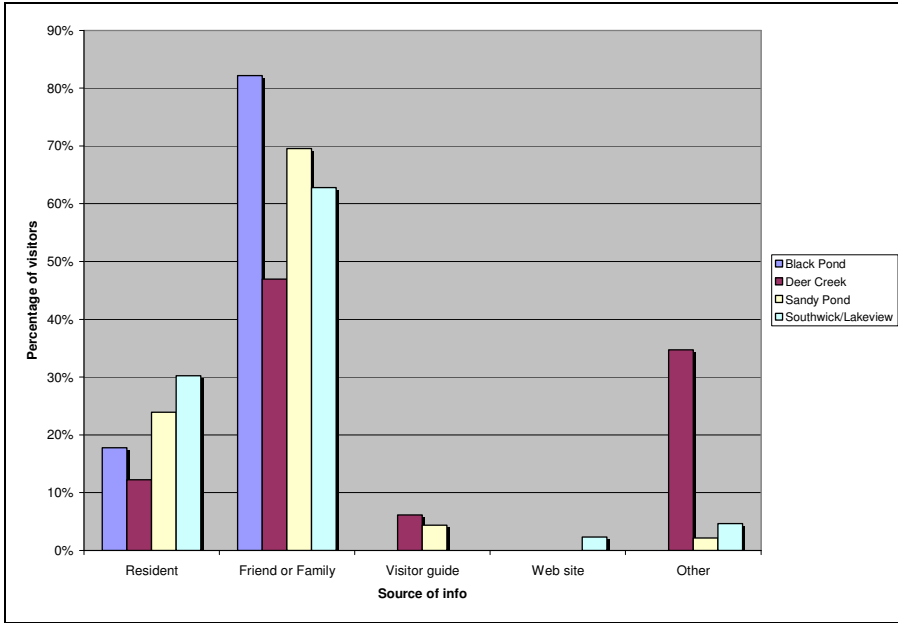


Figure 25
Initial source of information about each site

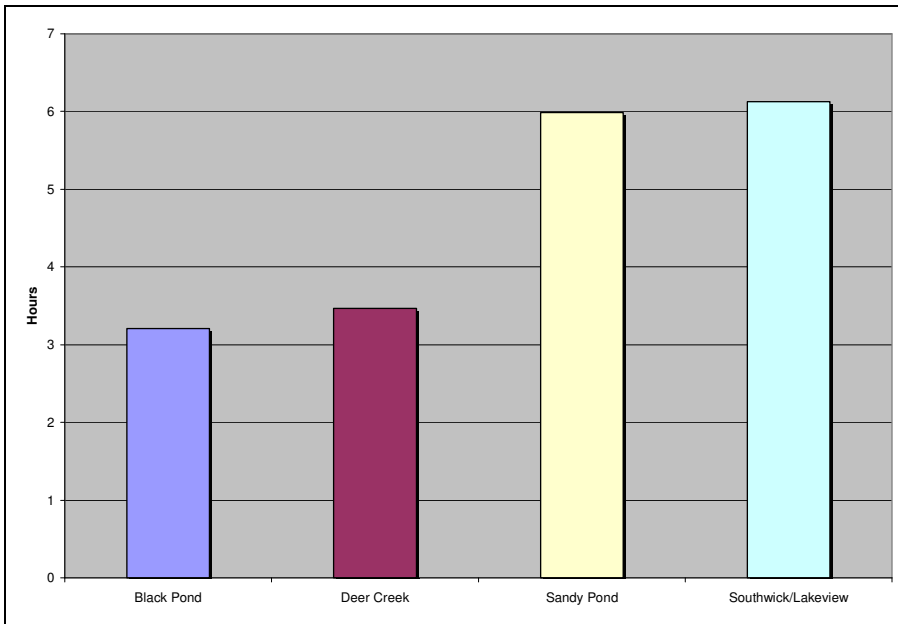


Figure 26
Average number of hours spent by visitors at each site.

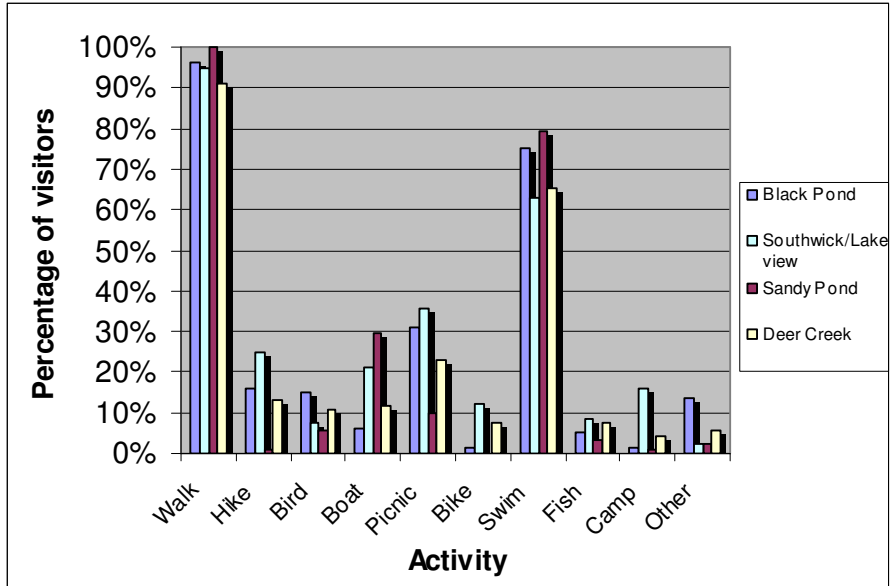


Figure 27
Type of activity visitors participate in at each site.

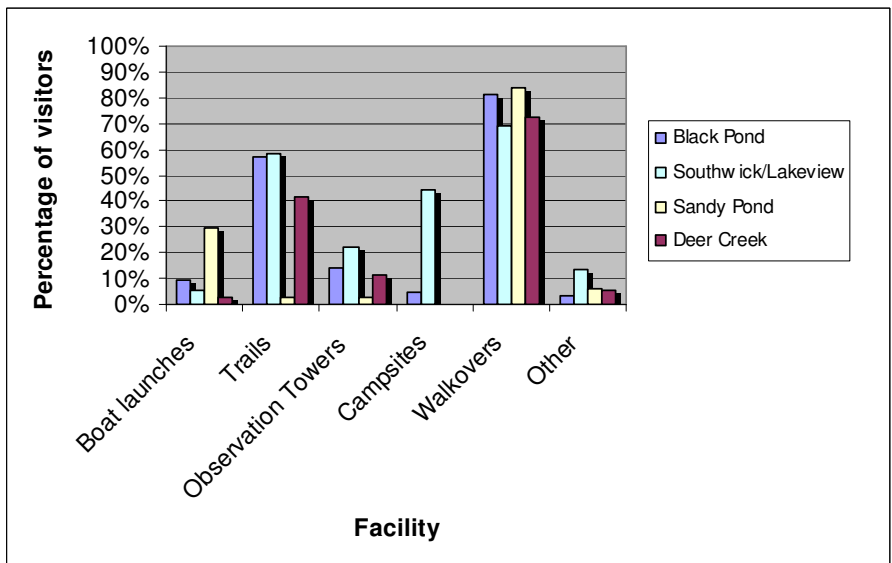


Figure 28
Type of facilities visitors used at each site.

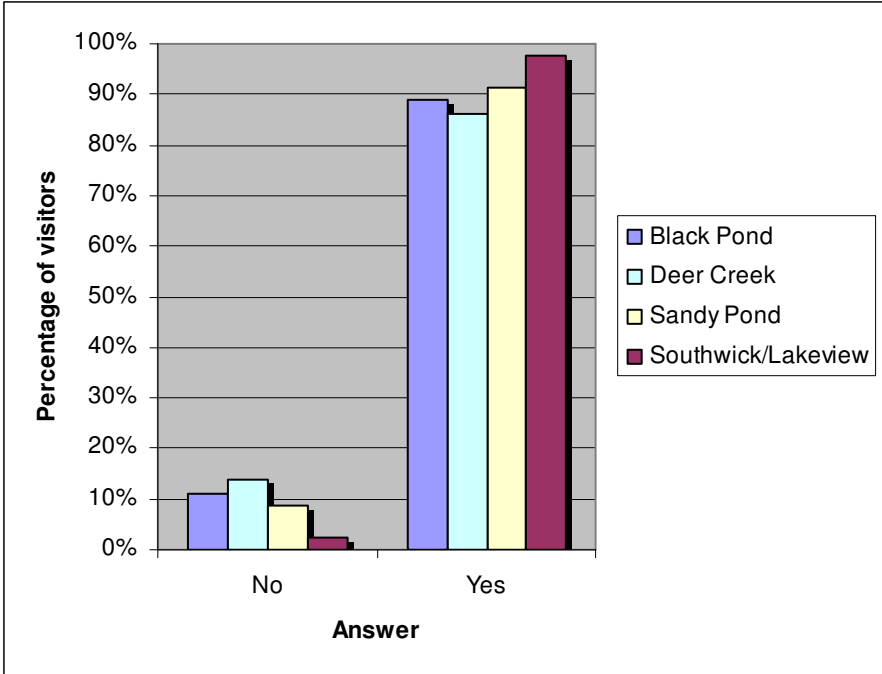


Figure 29
Percent of visitors who said they saw small dune related signs at each site.

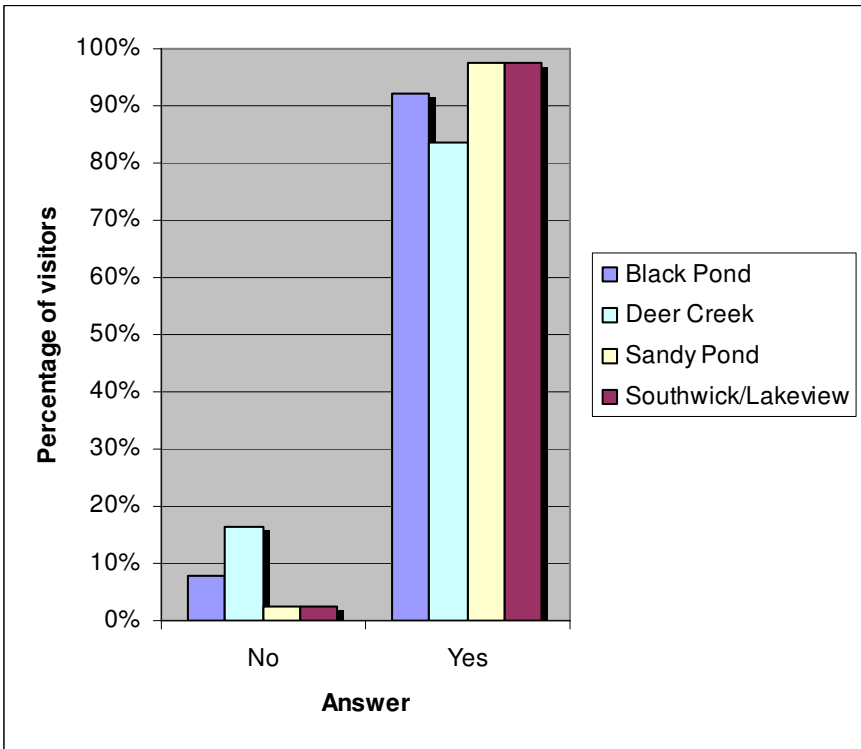


Figure 29b
Percent of visitors at each site that said the signs made them want to stay out of the dunes.

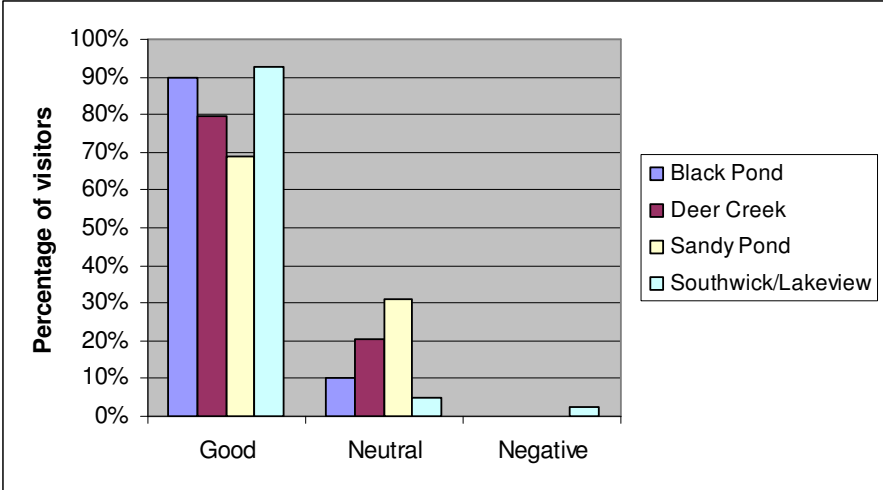


Figure 29c
Reaction of visitors to signs at each site.

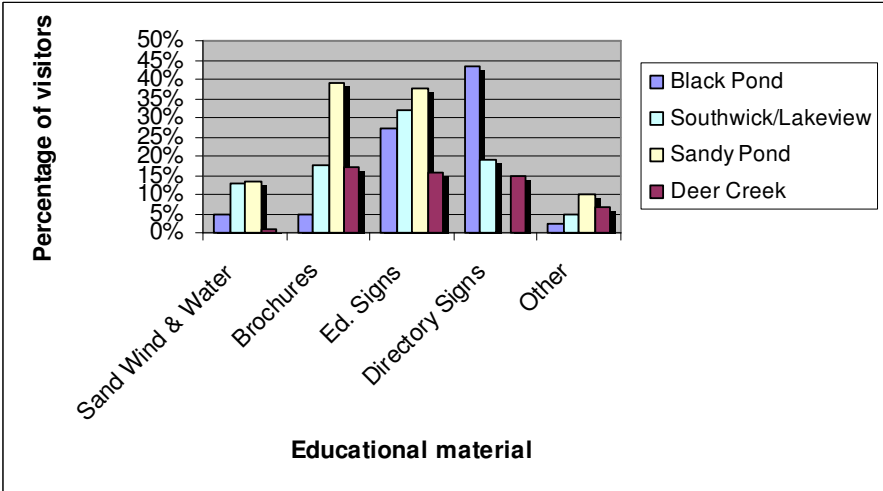


Figure 30
Type of educational materials used by visitors at each site.

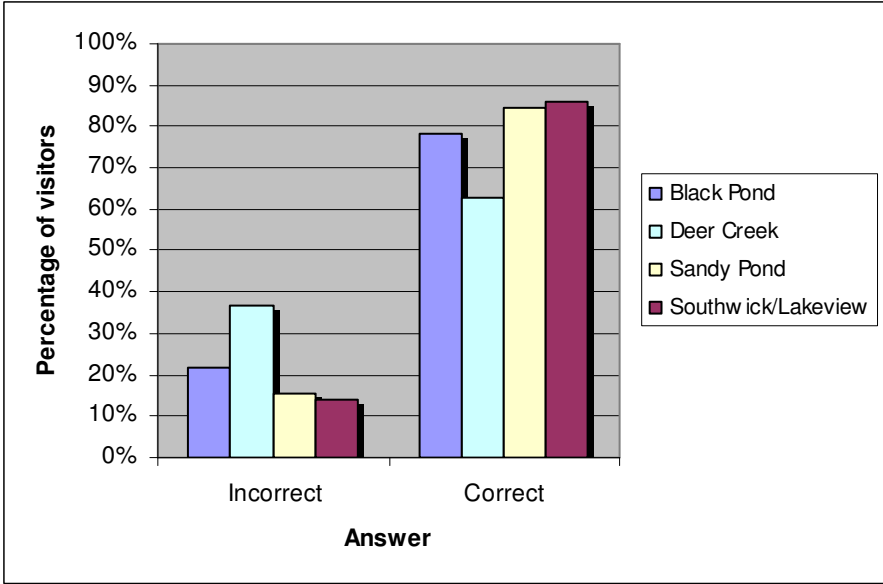


Figure 31
Percent of visitors at each site who answered correctly and incorrectly when asked why it is important that beach grass and other plants grow on the sand dunes.

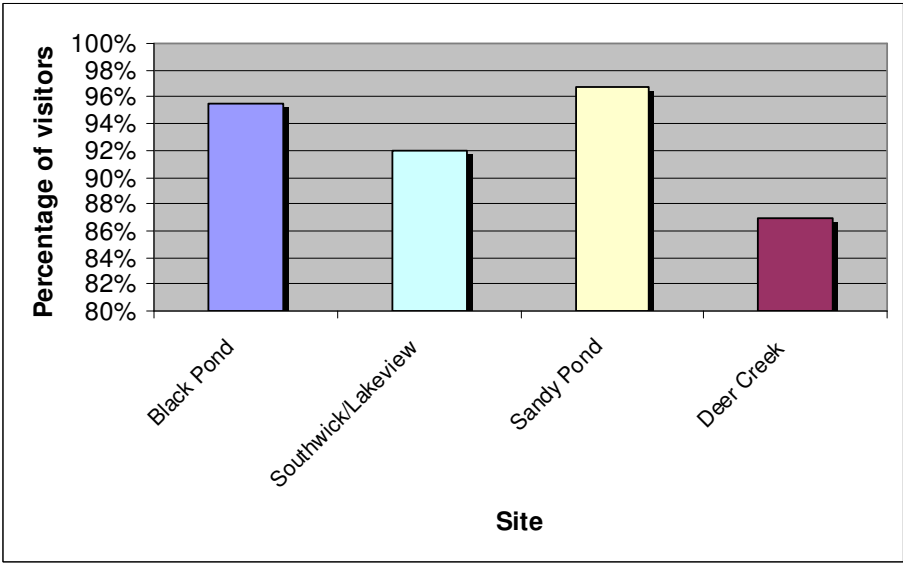


Figure 32
Percent of visitors at each site who could give at least one correct answer when asked to list two activities that people do that cause dune erosion.

Survey answers from all sites combined.

Overall, demographic results were not surprising, and generally supported the thoughts of ELODWA managers, NY Sea Grant, The Ontario Dune Coalition members and past dune stewards. Visitors have generally visited the ELODWA sites during previous years and visit more than 10 times per year, mainly during the summer months (Figures 3-6). The overwhelming majority of visitors are from New York State with few out of state visitors (Figures 7a & 7b). Visitors are usually vacationing or local residents and visit either with their family or with friends and family (Figures 8 & 9). Most visitors are between the ages of 20 & 59 (Figure 10) and found out about the ELODWA from a friend or family member (Figure 11). This is to be expected due to the lack of signs along Route 3 and the lack of advertising about the area. On average, visitors spent a little over 5 hours per visit to the ELODWA sites.

This survey also tried to ascertain the types of activities and facilities visitors are using during their visits to the ELODWA. The most popular activities are walking and swimming, as expected (Figure 12). Surprisingly boating was not reported as a very common activity. This may be because boaters spend a lot of time on their boats and may not have been accessible to the stewards giving the surveys. Additionally, lack of boat use at Deer Creek WMA and Black Pond WMA/EI Dorado Nature Preserve (NP) is relatively low. It is very encouraging to find that many visitors are using the dune walkovers (Figure 13). Dune walkovers are available at all ELODWA sites and the encouragement of their use has been a large part of the education effort in these areas. Lack of use of other facilities (boat launches, trails, observation towers, etc) may be due to a lack of the facilities at some of the sites. For instance, camping is only legal at Southwick Beach State Park (SP) and is not permitted on the beaches and dunes of the other sites.

Educational efforts along the shore have been ongoing for many years with a variety of methods used, including signage, informational kiosks, brochures, one-on-one education, and group education opportunities (i.e., guided nature walks). Survey results show that a large majority of visitors have seen small, dune related signs along the beaches and that the signs are effective in encouraging visitors to stay out of the dunes or away from poison ivy (Figures 14 a & b). These signs are well accepted by visitors (Figure 14c). Educational signs were used by approximately 27% of visitors, while other educational materials were much less likely to be used (Figure 15).

In order to identify if the message of “stay off the dunes to prevent dune erosion” was actually reaching visitors, several fill-in-the-blank type questions were included in the survey. An overwhelming majority of the visitors understood why it is important that beach grass and other vegetation grow on the dunes (Figure 16). Most visitors were also able to give at least one correct answer when asked how to provide two activities that people participate in that cause dune erosion (Figure 17).

Survey results – responses separated by site and compared to each other.

In order to make specific and better educational and management decisions at each ELODWA site, survey answers were also analyzed separately by site. The demographic results confirmed anecdotal information from dune stewards and site managers. Black Pond WMA/EI Dorado NP had the least percentage of returning visitors as expected, due to the relatively new access to the site (Figure 18). Sandy Pond Beach Natural Area (NA) had the most frequent visitors with Southwick Beach SP/Lakeview WMA having the least (Figure 19). Sandy Pond Beach NA generally has visitors who own cottages around the Sandy Pond Area and spend a lot of their summer in the area, while Southwick Beach SP/Lakeview WMA has visitors who are visiting the State Park either for a day visit or for camping. Sandy Pond Beach NA visitors are also much more likely to visit during the other seasons, once again probably mainly due to their cottage ownership (Figure 20).

As noted above, the overwhelming majority of visitors are from New York State, with Sandy Pond Beach NA having the majority of visitors from other states (Figure 21a). Sandy Pond also had the least percentage of visitors from Jefferson or Oswego County (the counties in which the ELODWA sites are located), while Black Pond WMA/EI Dorado NP had the most visitors from Oswego and Jefferson counties and the least from other parts of New York (Figure 21b). These results are as expected due to the preponderance of cottage owners around Sandy Pond. Additionally, Black Pond WMA/EI Dorado NP is the only ELODWA site without public or private camping facilities (i.e. Southwick Beach State Park or Brennan Beach Resort) adjacent to the site. There are few cottages directly adjacent to EI Dorado NP, and the access trail to this area from the cottages is approximately 1 mile in length along a primitive trail. These results were also confirmed by the type of visitor found at each site (Figure 22). The majority of visitors to Black Pond WMA/EI Dorado NP were local residents (residents from nearby communities) while Deer Creek WMA and Sandy Pond NA visitors described themselves as vacationers. Southwick SP/Lakeview WMA visitors were generally split between local residents and vacationers. The presence of the campground (vacationing visitors) and a lifeguarded beach, which gives a greater comfort level to visitors with children, easily explain this. As noted above, most visitors came to the sites with friends and family. Black Pond WMA/EI Dorado NP showed the greatest amount of visitors that came just with their friends (Figure 23). This correlates with the average age data. Black Pond WMA/EI Dorado NP had the greatest percentage of visitors in the 13-19 age group – the group that would typically visit only with their friends (Figure 24).

Friends or family was the source of information about each ELODWA site for the greatest percentage of visitors at each site (Figure 25). Visitors to Deer Creek WMA also mentioned Brennan Beach as their second most common way to learn about ELOWDA. On average, visitors to Sandy Pond Beach NA and Southwick

Beach SP/Lakeview WMA spent the most amount of time on the beach each visit, over 5 hours (Figure 26).

Visitor activities at each site were not noticeably different between the sites. Exceptions are the greater percentage of boaters at Sandy Pond NA and the greater percentage of campers at Southwick SP/Lakeview WMA (Figure 27). These exceptions are expected due to the limited access to Sandy Pond NA, except by boats and the availability of campsites at Southwick Beach SP. Facilities used at each site were also not surprising. Boat launch use at Sandy Pond NA was the greatest due to the preponderance of boaters using this beach while campsite use at Southwick Beach SP/Lakeview WMA was the greatest at any site due to the presence of State Park camping facilities (Figure 28). The lack of campsite use at Deer Creek WMA may be due to visitors specifically noting that they do not camp at Deer Creek WMA, but many of the visitors do camp (although they may not consider it camping) at Brennan Beach Resort.

As noted previously, educational efforts have been very successful at the ELODWA sites. At all sites, greater than 85% of visitors had seen small dune related signs, greater than 80% at each site said the signs made them want to stay out of the dunes, and only two people at Southwick SP/Lakeview WMA had a negative reaction to the signs (Figure 29). Sandy Pond Beach NA visitors used all educational materials more than the other site visitors, with the exception of directional signs that are not available at the site. Deer Creek WMA visitors used educational materials the least (Figure 30).

The message of “stay off the dunes to prevent dune erosion” is the most effective at Southwick SP/Lakeview WMA and Sandy Pond NA and noticeably least effective at Deer Creek WMA. Greater than 35% of visitors at Deer Creek WMA answered incorrectly when asked why it is important that beach grass and other plants grow on the sand dunes, while less than 25% of visitors at other sites answered incorrectly (Figure 31). Most visitors (greater than 90%) were also able to give at least one correct answer when asked how to provide two activities that people participate in that cause dune erosion except at Deer Creek WMA, where less than 88% could give at least one correct answer (Figure 32). Deer Creek WMA will receive extra educational effort in upcoming years to help visitors better understand the dune ecosystem.

Recommendations

Demographic results confirm the past suspicions of site managers and others involved in the management and conservation of the ELODWA. The results of this survey indicate that overall, education efforts along the ELODWA have been effective.

When management and education decisions are discussed in the future, the following recommendations are suggested:

- This demographic data should be used when producing future educational materials to better suit the age of the audience. For example, the majority of dune visitors are between 20 and 59 years old. Brochures should be written for that age group's level of understanding. Separate publications could be written for the younger age groups.
- The survey results indicate that the population visiting the ELODWA sites is generally local. This can be an asset to general education efforts because this indicates that local dune education efforts during the fall, winter, and spring seasons may increase the summer users understanding of the ecosystem.
- There have been discussions throughout the years as to whether the ELODWA should be better promoted outside of the immediate area. These discussions should continue with possible input being solicited from surrounding communities and the scientific community.
- Educational efforts at Deer Creek WMA should be increased. Because many visitors to this site are from Brennan Beach resort, efforts should be continued to offer dune education programs at or near the resort. In addition, an educational packet for visitors to Brennan Beach should be considered.
- Educational signs and small dune signs are seen and effective with most visitors. Increased sign usage at Deer Creek WMA, the area with the fewest percentage of visitors aware of the signs, could help with the educational effort at this site.
- Greater distribution of educational brochures and booklets is needed. The dune steward program will include this as a primary objective during the upcoming summer seasons, especially at Deer Creek WMA.
- Similar surveys should be conducted every 3-5 years and compared with previous surveys.

Conclusion

Educational efforts along the ELODWA continue to be successful and well received by visitors; however, increased efforts are needed to make information more readily available to visitors. The dune steward program is the perfect vehicle for this recommendation and will increase their efforts on the measure in upcoming seasons. The Ontario Dune Coalition continues to be an effective

method for discussion of dune management issues and should continue its proactive role.

Acknowledgments

Special thanks to Dr. Diane Kuehn, Assistant Professor at SUNY-ESF, for the design of the survey and consultation on the compilation of the results. Thanks also to the many dune stewards who interviewed beach visitors; the visitors that took the time to answer the survey questions; and to the New York Great Lakes Protection Fund for funding this project.

Appendix A - Visitor Questionnaire for the Eastern Lake Ontario Dune and Wetland Area (ELODWA)

1. Which area are you are visiting right now? (Check one answer.)

- a. Deer Creek Wildlife Management Area
- b. Sandy Pond Beach Natural Area
- c. Eldorado Beach Preserve
- d. Lakeview Marsh Wildlife Management Area
- e. Southwick Beach State Park
- f. Black Pond Wildlife Management Area

2a. Approximately how many times will you be visiting the ELODWA *this summer*? (Check one answer.)

- a. 1 to 4 times
- b. 5 to 10 times
- c. Over 10 times

2b. Approximately how many times will you be visiting the ELODWA *this year*? (Check one answer.)

- a. 1 to 4 times
- b. 5 to 10 times
- c. Over 10 times

3. During what seasons this year will you be visiting the ELODWA? (Check all that apply.)

- a. Winter (January, February, March)
- b. Spring (April, May, June)
- c. Summer (July, August, September)
- d. Fall (October, November, December)

4. Have you visited the Eastern Lake Ontario Dune Area in a previous year? Yes No

5. Where are you from? (Provide the city and state.) _____

6. Approximately how many hours will you spend in this area *today*? (Write in the number of hours.)
_____ hours

7. What time of day will you *primarily* be visiting this area *today*? (Check the one answer that *best* applies.)

- a. Primarily morning (till noon)
- b. Primarily afternoon (noon to 4 PM)
- c. Primarily evening (after 4 PM)
- d. All or most of the day

8. How does the weather affect your decisions to visit outdoor areas like this one? (Circle one answer.)

- a. Does not affect it.
- b. Somewhat affects it.
- c. Greatly affects it.

9. Which of the following are you? (Check one answer only.)

- a. A local resident
- b. A visitor vacationing in this area
- c. A visitor passing through this area
- d. Other, specify: _____

10. Who are you here with? (Check all that apply.)

- a. Friends
- b. Family
- c. By myself
- d. Club or organization
- e. Other, specify: _____

11. a. How many people are in your group *including yourself*? (Provide the number.) _____

b. How many of them are in each of the following age categories? (Write in the number.)
_____ 0 to 12 years old _____ 13 to 19 years _____ 20 to 59 years _____ 60+ years

12. How did you *first* find out about this area? (Check one answer only.)

- a. From living in the area (resident) d. From a web site
b. From a friend or family member e. Other, specify: _____
c. From a visitor guidebook

13. What activities are you doing while in this area *today*? (Check all that apply and indicate the percentage of time that you spent on each activity *today*. NOTE: Percentages should total 100%.)

<u>Activities</u>	<u>Percentage of time spent on activity</u>
a. <input type="checkbox"/> Walking or relaxing on the beach	_____ %
b. <input type="checkbox"/> Hiking on trails	_____ %
c. <input type="checkbox"/> Bird watching	_____ %
d. <input type="checkbox"/> Boating	_____ %
e. <input type="checkbox"/> Picnicking	_____ %
f. <input type="checkbox"/> Biking	_____ %
g. <input type="checkbox"/> Swimming	_____ %
h. <input type="checkbox"/> Fishing	_____ %
i. <input type="checkbox"/> Camping	_____ %
j. <input type="checkbox"/> Other, specify: _____	_____ %
TOTAL = 100%	

14. a. Have you seen the small signs posted along the beach? Yes No (Go to #15.)

b. Have they influenced your decisions about how to use the dunes? Yes No

c. How do you feel about having the signs posted on the beach? (Check one answer.)

- a. Good or signs are needed b. Neutral c. Negative

15. What other types of educational materials did you use while visiting this area?

(Check all that apply.)

- a. "Sand, wind, and water" guidebook d. Directory signs at parking areas
b. Brochure for this area e. Other, specify: _____
c. Educational signs along walkovers f. None

16. What types of facilities have you used while in the area? (Check all that apply.)

- a. Boat launches d. Campsites
b. Trails e. Wooden dune walkovers
c. Observation towers f. Other, specify: _____

17. Why is it important that beach grass and other plants grow on the sand dunes?

18. Can you list two activities that people do that cause erosion of the sand dunes?

1. _____
2. _____

Thank you for taking the time to complete this survey!