

Sharks: Myth and Mystery

Summative Evaluation

2006



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Contents

List of Tables.....	3
Executive Summary.....	5
Timing and Tracking Observations.....	9
Exit Interviews.....	19
Web Surveys.....	37
Appendix A: Background on Timing and Tracking Expectations.....	53
Appendix B: Timing and Tracking Form.....	54
Appendix C: Percentage of Visitors Attending to Each Exhibit.....	55
Appendix D: Average Time Spent by Visitors Attending to Each Exhibit.....	56
Appendix E: List of Exhibits by Type.....	57
Appendix F: Effects of Crowding on Visitor Behavior.....	59
Appendix G: On-Site Interview Form.....	62
Appendix H: Web Survey Contact Card.....	64
Appendix I: Web Survey Form.....	65

Tables

Timing and Tracking Observations

Table 1. Gender of Visitors by Season.....	10
Table 2. Age of Visitors by Season.....	10
Table 3. Group Composition by Season.....	11
Table 4. Timing and Tracking Data From <i>Sharks</i> Compared to Other Exhibitions.....	11
Table 5. Summary of Visitor Behavior in <i>Sharks</i>	11
Table 6. Percentage of Visitors Attending to Each Exhibit.....	12
Table 7. Average Time Spent by Visitors Attending to Each Exhibit.....	13
Table 8. Visitor Behavior by Type of Exhibit.....	14
Table 9. Percentage of Total Time Spent by Visitors Based on Type of Exhibit.....	15
Table 10. Visitor Behavior at Animal Tanks in <i>Sharks</i> Compared to Other Exhibitions.....	16
Table 11. Visitor Behavior of Adults in Groups With Children Compared to Adult-Only Groups.....	17
Table 12. Percentage of Total Time Spent by Visitors at Interactive Exhibits Based on Daily Aquarium Attendance Levels.....	18
Table 13. Percentage of Total Time at Conservation Panels by Daily Aquarium Attendance Levels.....	18

Exit Interviews

Table 14. Demographics of Interviewees by Season.....	20
Table 15. <i>Sharks</i> Exit Interview Respondents Compared With Monthly Exit Survey Respondents.....	21
Table 16. Repeat Visitation to <i>Sharks</i>	22
Table 17. Visitors' Overall Ratings.....	23
Table 18. Visitors' Suggestions for Improving the Exhibition.....	24
Table 19. Visitor Learning.....	26
Table 20. Aspects of <i>Sharks</i> Visitors Enjoyed Most.....	29
Table 21. Why Visitors Most Enjoyed an Aspect of <i>Sharks</i>	30
Table 22. Percentage of Visitors Who Could Recall Conservation Content Immediately After Their Visit.....	32
Table 23. Visitors' Memories of Conservation Content Immediately After Their Visit.....	32
Table 24. Contribution of Cultural Exhibits to Visitors' Experience.....	33
Table 25. How Cultural Exhibits Enhanced or Detracted From Visitors' Experience.....	34

Tables (contd.)

Web Surveys

Table 26. Classification of Post-Visit Contact.....	38
Table 27. Demographics of Web Sample Compared to Interview Sample.....	40
Table 28. Visitors' Recollection of Visiting <i>Sharks</i>	41
Table 29. Repeat Visitation to <i>Sharks</i> After Visitors Were Recruited for the Web Survey.....	41
Table 30. Frequency of Visitors Who Talked About the Exhibition After Their Visit.....	42
Table 31. Topics of Conversation Related to the Exhibition.....	43
Table 32. Percentage of Visitors Who Were Reminded of the Exhibition After Their Visit.....	45
Table 33. What Reminded Visitors of the Exhibition After Their Visit.....	45
Table 34. Visitors' Most Vivid Memory of the Exhibition.....	47
Table 35. Percentage of Visitors Remembering Conservation Content Four Months After Their Visit.....	49
Table 36. Visitors' Recollections of Conservation Content Four Months After Their Visit.....	50
Table 37. Visitors' On-Site and Post-Visit Recollections of Conservation Content.....	51
Table 38. Visitors' Recollections of Conservation Content Immediately After Their Visit and Four Months Later.....	52

Appendix F: Effects of Crowding on Visitor Behavior

Table F1. Total Time in <i>Sharks</i> by Attendance.....	59
Table F2. Total Time at Exhibits by Attendance (Includes Tanks).....	59
Table F3. Total Number of Exhibits Attended to by Attendance (Includes Tanks).....	59
Table F4. Percentage of Total Time Spent at Animal Tanks by Attendance.....	59
Table F5. Percentage of Total Time Spent at Non-Living Exhibits by Attendance.....	60
Table F6. Percentage of Total Time Spent at Interactive Exhibits by Attendance.....	60
Table F7. Percentage of Total Time Spent at Cultural Exhibits With Video by Attendance.....	60
Table F8. Percentage of Total Time Spent at Cultural Exhibits Without Video by Attendance.....	60
Table F9. Percentage of Total Time Spent at Conservation Panels by Attendance.....	61
Table F10. Percentage of Total Time Spent at Spanish Panels by Attendance.....	61
Table F11. Percentage of Total Time Spent at Introductory Elements by Attendance.....	61

Executive Summary

Overview

The aquarium's Exhibitions Division conducted a summative evaluation of *Sharks: Myth and Mystery* to examine visitors' responses to the exhibition as a whole (such as satisfaction ratings, total time spent and the types of conservation messages they remembered seeing). These responses were gathered immediately after visitors saw the exhibition and, for some people, again several months after their visit. This comparison between short-term and long-term responses helped us better gauge the overall impact of *Sharks*.

Purpose of the Study

The purpose of this evaluation was to:

- collect data (such as satisfaction ratings and total time spent) that can be used to compare this exhibition with other aquarium exhibitions;
- assess visitors' use of and reaction to selected exhibits as well as the overall experience;
- experiment with using a web survey to assess visitors' recollections of the exhibition several months after seeing it.

Research Questions

1. How are visitors using the exhibition? Where are they stopping? For how long?
2. What are visitors' general impressions after seeing the exhibition? Did it meet their expectations?
3. Which aspects of the exhibition do visitors find most appealing or satisfying over the short term?
4. Which aspects of the exhibition do visitors find most memorable over the long term?
5. Do visitors seek out information or experiences in their day-to-day lives that relate to something they experienced in the exhibition (e.g., reading a book or magazine article about sharks, watching a television documentary, telling a friend or relative about their visit, researching a culture they encountered in the exhibition)?

Methods

We used multiple research methods to examine how visitors are using and reacting to *Sharks*, including:

Method	Sample Size	Description
Timing and tracking observations	155 visitors	Unobtrusive observations of what visitors attended to and for how long
Exit interviews	357 visitors	Structured interviews using forced-choice and open-ended questions
Web surveys	314 visitors	Web surveys completed four months after visitors saw the exhibition

Main Findings

This section specifically addresses the five main research questions.

1. How are visitors using the exhibition? Where are they stopping? For how long? ¹

On average, visitors spent 13 minutes in *Sharks* and attended to 44% of the exhibits. They moved more slowly through *Sharks* than they did through *Jellies: Living Art*. However, they moved at almost an identical rate when compared to visitors who were observed in similar-sized exhibitions at other museums, zoos and aquariums across the nation (Serrell, 1998).

Overall, the most attended exhibits in *Sharks* were the animal tanks, although the Mother Stingray Object Theater was the most attended exhibit. The longest average stay times occurred at the Shark and Ray Touch Pool and at the Oceanic Sharks and Rays Tank, at 93 seconds and 77 seconds, respectively. These were the only exhibits with an average stay time of more than one minute. As a whole, the animal tanks yielded visitor behavior patterns that were similar to those observed in *Jellies: Living Art*. (See Appendices C and D for detailed behavioral information on *Sharks*.)

2. What are visitors' general impressions after seeing the exhibition? Did it meet their expectations?

The large majority of visitors (89%) rated *Sharks* as excellent or good, with 42% giving the exhibition an excellent rating (a 9 or 10 on a 10-point scale). These ratings are similar to other temporary exhibitions we've studied at the aquarium, except for our highest-rated exhibition, *Jellies: Living Art*, in which 71% of visitors gave that exhibition an excellent rating. In general, visitors were impressed by the diversity of sharks on display. Those who gave the exhibition a favorable rating said the non-living exhibits, and particularly the cultural information, enhanced their experience. When asked what would have made the exhibition better, more than one-quarter of visitors (27%) couldn't think of anything that would improve it. The main suggestions for improving the exhibition were having larger and/or more sharks and reducing crowding.

3. Which aspects of the exhibition do visitors find most appealing or satisfying over the short term?

Of the different types of exhibits in *Sharks*, visitors enjoyed the live animals and the videos the most, followed by the cultural information and the interactives. Visitors said they enjoyed the videos because they found them to be personally relevant, fun or interesting. They enjoyed the cultural information because it helped them learn about other cultures and their connection to sharks or rays. Visitors said they enjoyed the interactives because these exhibits were hands-on, because they were fun or because their children enjoyed them. In general, visitors said the cultural exhibits enhanced their experience in the exhibition because they were informative, because they helped them learn about and understand other cultures and because they provided a context for what visitors were seeing.

¹ This report uses "attending to" rather than "stopping at" to describe the time visitors spend at various exhibits. "Attending to" is when visitors spend two or more seconds looking at or interacting with an exhibit, regardless of whether they are physically stopped at that exhibit. "Attending to" incorporates the time someone is looking at an exhibit while walking past, whereas the more traditional "stopping at" measure doesn't. Not counting this additional time is especially problematic at large tanks and exhibits, where visitors can attend to an exhibit for a long period of time while strolling past. Additionally, some exhibits or labels are designed to provide an overview by glancing at a title and/or subtitle, which can be done without physically stopping. Therefore, we feel that "attending to" provides a more comprehensive and accurate measure of visitor attention.

4. Which aspects of the exhibition do visitors find most memorable over the long term?

Four months after visiting, nearly everyone surveyed (98%) remembered seeing *Sharks*. Visitors' most vivid memories were of the animals, which was not surprising considering that the living species are usually the most popular part of an exhibition. More surprising was the fact that visitors also had vivid memories of the content presented in the exhibition, particularly the cultural content. In addition, a little more than one in 10 visitors recalled watching the cultural videos. As expected, there was some source confusion, with some visitors recalling an exhibit outside of *Sharks*. This confusion became particularly prevalent when the white shark was added to the nearby Outer Bay exhibition.

When prompted, many visitors were also able to recall some conservation content, both immediately after viewing the exhibition and four months later. Not surprisingly, when comparing memories immediately after visiting to memories four months later, there were differences in the kinds of conservation content visitors recalled. Immediately after visiting, people were more likely to mention specific exhibits or content, while four months later their memories were more general. For example, comments immediately after the visit were more likely to include things like the "parking meter display," or that "cultures are working to protect sharks from oil spills." Four months later, visitors were more likely to recall general concepts, like the effects of the fishing industry on shark populations, the decrease in shark populations or that sharks are an important part of the ecosystem.

5. Do visitors seek out information or experiences in their day-to-day lives that relate to something they experienced in the exhibition (e.g., reading a book or magazine article about sharks, watching a television documentary, telling a friend or relative about their visit, researching a culture they encountered in the exhibition)?

It was difficult to determine whether visitors sought out shark-related experiences after their visit. However, the exhibition certainly stayed with them for several months. For example, more than one-third of visitors (37%) were able to cite a specific occurrence in their day-to-day lives that had reminded them of the exhibition. Of this group, almost two-thirds mentioned seeing something about sharks in the media, such as television shows, movies or newspaper articles. In addition, one in five visitors said they were reminded of the exhibition because of a conversation they'd had with another person about their visit to the aquarium.

In a separate question focusing specifically on conversations, we asked visitors if they'd spoken to friends or family members about the exhibition since visiting. The majority of visitors (59%) said they had spoken to someone else about the exhibition. Most of these visitors remembered giving the exhibition positive reviews, such as saying it was well done or recommending it to others. They also specifically mentioned the information, in particular the cultural information, saying how informative it was, or that they had enjoyed the wide variety of sharks displayed.

Timing and Tracking Observations

Purpose of the Study

The purpose of including timing and tracking observations in a summative evaluation is to provide a detailed picture of how visitors are using an exhibition. This level of detail can only be provided through direct observation of visitors as they're moving through an exhibition. The observations were intended to answer the following questions: How are visitors using the exhibition? Where are they stopping? And for how long?

Method

A total of 155 visitors were unobtrusively observed during their visit to *Sharks: Myth and Mystery*. Half of the observations were conducted during summer (June), when the aquarium attracts more first-time visitors and crowding is more common. The remaining observations were conducted in fall (September, post-Labor Day), when the aquarium attracts more repeat visitors and crowding is less common.

Visitors were randomly selected for observation as they entered the exhibition. Data collectors noted which exhibits visitors attended to and in what order, and how long they attended to each exhibit.² They also noted the length of time visitors spent in the entire exhibition. Only adults (those 18 and over) were included in the sample. However, since visitors in a timing and tracking study are not interviewed, only selected demographics can be gathered about them. In this study, observers recorded visitors' gender, their estimated age in five-year increments and whether they were visiting with anyone who appeared to be under the age of 18.

Main Findings

1. How are visitors using the exhibition? Where are they stopping? For how long?

On average, visitors spent 13 minutes in *Sharks* and attended to 44% of the exhibits. They moved more slowly through *Sharks* than they did through *Jellies: Living Art*. However, they moved at almost an identical rate when compared to visitors who were observed in similar-sized exhibitions in other museums, zoos and aquariums across the nation (Serrell, 1998).³

Overall, the most attended exhibits in *Sharks* were the animal tanks, although the Mother Stingray Object Theater was the most attended exhibit. The longest average stay times occurred at the Shark and Ray Touch Pool and at the Oceanic Sharks and Rays Tank, at 93 seconds and 77 seconds, respectively. These were the only exhibits with an average stay time of more than one minute. As a whole, the animal tanks yielded visitor behavior patterns that were similar to those observed in *Jellies: Living Art*. (See Appendices C and D for detailed behavioral information in *Sharks*.)

The type of exhibit significantly affected both the percentage of visitors attending to it and the amount of time people spent there. As is typical, animal tanks were the most attended type of exhibit, followed by cultural exhibits with videos, interactives, and cultural exhibits without videos. In addition, interactives

² This report uses "attending to" rather than "stopping at" to describe the time visitors spend at various exhibits. "Attending to" is when visitors spend two or more seconds looking at or interacting with an exhibit, regardless of whether they are physically stopped at that exhibit. "Attending to" incorporates the time someone is looking at an exhibit while walking past, whereas the more traditional "stopping at" measure doesn't. Not counting this additional time is especially problematic at large tanks and exhibits, where visitors can attend to an exhibit for a long period of time while strolling past. Additionally, some exhibits or labels are designed to provide an overview by glancing at a title and/or subtitle, which can be done without physically stopping. Therefore, we feel that "attending to" provides a more comprehensive and accurate measure of visitor attention.

³ Serrell, B. (1998). *Paying Attention: Visitors and Museum Exhibits*. Washington, DC: American Association of Museums.

had the longest average stay times, followed closely by animal tanks. The next longest average stay times were for cultural exhibits with videos and cultural exhibits without videos.

As might be expected, stand-alone graphic panels (including the conservation panels, intro panels and the Spanish panels) had the lowest average stay times. However, to encourage visitors to attend to the conservation panels, the exhibit team added three-dimensional objects to these panels. As a result, the conservation panels had a higher average stay time than stand-alone graphic panels in other exhibitions we've studied.

There were also some differences in how visitors behaved in the exhibition based on whether they were visiting with or without children. Visitors with children spent slightly more time in the exhibition and stayed longer at some exhibits compared to visitors in adult-only groups. However, visitors in adult-only groups attended to more exhibits and spent a higher percentage of their time attending to the exhibits.

2. What was the visitor profile for the timing and tracking sample?

There were no statistically significant differences in the gender or age of visitors observed during summer and fall. However, there was a statistically significant difference in whether those observed were visiting with children. During summer, 53% of visitors were visiting with children, while during fall, only 35% were visiting with children.

Table 1. Gender of Visitors by Season

Gender	Summer	Fall	Total
Male	47%	47%	47%
Female	53%	53%	53%
Total	100%	100%	100%

Statistically significant difference between summer and fall? No

Table 2. Age of Visitors by Season

Estimated Age	Summer	Fall	Total
20	4%	8%	6%
25	7%	15%	11%
30	10%	19%	15%
35	14%	16%	15%
40	20%	16%	18%
45	10%	9%	10%
50	12%	3%	7%
55	4%	5%	5%
60	9%	5%	7%
65	4%	4%	4%
70	5%	0%	3%
75	1%	0%	1%
Total	100%	100%	100%

Statistically significant difference between summer and fall? No

Table 3. Group Composition by Season

Group Composition	Summer	Fall	Total
Children present	53%	35%	44%
Adults only	47%	65%	56%
Total	100%	100%	100%

Statistically significant difference between summer and fall? **Yes**

3. How do timing and tracking data for Sharks compare to similar data from other exhibitions?

Timing and tracking data for *Sharks* were compared with data from other aquarium exhibitions for which we have whole-exhibition timing and tracking data. They were also compared with data collected from similar-sized exhibitions at museums, zoos and aquariums around the country (Serrell, 1998). (See Appendix A for background on expectations for total time spent in exhibitions.)

Table 4. Timing and Tracking Data From Sharks Compared to Other Exhibitions

Exhibition	Square Feet	Average Total Time	Sweep Rate Index (SRI)	Number of Exhibits	Median % of Exhibits Attended To
<i>Sharks: Myth and Mystery</i>	4,609	12.9	357	43	44.2
<i>Jellies: Living Art</i>	4,650	9.5	490	42	34.0
Vanishing Wildlife	1,702	5.7	299	16	22.0
Nearshore (1 st Floor)	10,350	28.3	366	70	25.7
National Study (Serrell)	3,000 to 6,000	15.9	337	39 (avg.)	36.3

4. How do visitors behave in Sharks?

This section presents both mean and median measures. However, the mean is used exclusively throughout the rest of the report since the distributions are normal enough to warrant using means instead of medians.

Mean—the "average" number. This measure can be influenced by outliers (really high or really low numbers) since each number exerts the same influence over the calculated mean.

Median—the number at which 50% of the sample is higher than that number, and 50% is lower. This measure reduces the influence of outliers (really high or really low numbers).

Table 5. Summary of Visitor Behavior in Sharks

Measure	Lowest	Highest	Mean	Median
Number of exhibits attended to (out of 43)	1	33	19	19
Percent of exhibits attended to	2	77	43	44
Time spent in exhibition (min:sec)	00:30	36:26	12:51	11:51
Percent of total time at exhibits	25	99	77	79.4

5. What percentage of visitors attended to each exhibit?

Table 6. Percentage of Visitors Attending to Each Exhibit
(See Appendix C for a visual representation of these data.)

Exhibit	Percent Attending
Mother Stingray Object Theater	91
Oceanic Sharks and Rays Tank	90
Coral Reef Tank	88
River Rays Tank	88
Sharks and Rays Touch Pool	87
Tropical Rays Tank	77
Hula Video	76
Small Reef Tank	74
Coastal Rays Tank	74
Mask Try-On Interactive	70
Humor Wall and Video	70
Jaws Wall and Video	64
Haida Masks and Video	63
Western Myths Display Case and Video	58
Shark Pups Tank	55
Australian Bark Paintings	54
Catsharks Tank	52
Conclusion Video	51
Mayan Rubbings Interactive	47
Bidjogo Display Case and Video	43
Amazon Canoe Interactive	41
Manta Ray Photos	40
Conservation Panel #1—Pacific Islands	36
Shark Egg Cases Tank	36
Title Wall	33
Conservation Panel #4—Africa	32
Ijo Display Case	31
Conservation Panel #3—Pacific Northwest	28
Intro Panel	25
Conservation Panel #7—Western Myths	24
Craft Room	24
Kuna Textiles	23
Conservation Panel #2—Amazon	19
Conservation Panel #6—Central America	16
Conservation Panel #5—Australia	14
Spanish Panel #6—Central America	10
Spanish Panel #3—Pacific Northwest	10
Spanish Panel #2—Amazon	8
Spanish Panel #5—Australia	7
Tropical Rays Pop-Up Window	7
Spanish Panel #1—Pacific Islands	5
Spanish Panel #7—Western Myths	3
Spanish Panel #4—Africa	0

6. What is the average time spent at each exhibit?

Table 7. Average Time Spent by Visitors Attending to Each Exhibit
(See Appendix D for a visual representation of these data.)

Exhibit	Average Time (sec.)
Sharks and Rays Touch Pool	93
Oceanic Sharks and Rays Tank	77
Coral Reef Tank	58
Tropical Rays Pop-Up Window	55
Tropical Rays Tank	48
River Rays Tank	45
Mother Stingray Object Theater	43
Craft Room	41
Catsharks Tank	39
Mayan Rubbings Interactive	39
Small Reef Tank	36
Coastal Rays Tank	35
Humor Wall and Video	29
Hula Video	28
Jaws Wall and Video	28
Amazon Canoe Interactive	25
Western Myths Display Case and Video	22
Shark Egg Cases Tank	22
Bidjogo Display Case and Video	22
Mask Try-On Interactive	21
Shark Pups Tank	21
Australian Bark Paintings	19
Manta Ray Photos	18
Kuna Textiles	15
Ijo Display Case	15
Conclusion Video	15
Conservation Panel #7—Western Myths	14
Haida Masks and Video	14
Conservation Panel #4—Africa	12
Conservation Panel #5—Australia	12
Conservation Panel #2—Amazon	10
Conservation Panel #3—Pacific Northwest	10
Spanish Panel #1—Pacific Islands	9
Conservation Panel #6—Central America	8
Conservation Panel #1—Pacific Islands	8
Title Wall	6
Spanish Panel #2—Amazon	5
Intro Panel	5
Spanish Panel #3—Pacific Northwest	5
Spanish Panel #7—Western Myths	4
Spanish Panel #6—Central America	3
Spanish Panel #5—Australia	2
Spanish Panel #4—Africa	0

7. Are there differences in visitor behavior by type of exhibit?

Table 8 presents a comparison of visitor behavior at the seven types of exhibits in *Sharks*. “Average Percent Attending” represents the average percentage of people who looked at or interacted with an exhibit for two or more seconds. Therefore, if an exhibit was an animal tank, then an average of 71% of visitors would be expected to attend to it. The same principle applies to “Average Time.” If an exhibit was an animal tank, visitors who attended to it would be expected to do so for an average of 42 seconds. “Number of Exhibits” refers to the number of exhibits in the exhibition that were grouped into a particular category.

The type of exhibit significantly affected both the percentage of visitors who attended to an exhibit as well as the amount of time people attended to it. As is typical of aquarium exhibitions, animal tanks were the most attended to, with an average of 71% of visitors attending to them. The next most attended type of exhibit were cultural exhibits with videos (64%), followed by interactives (46%) and cultural exhibits without videos (37%).

As is typical, visitors attended to stand-alone graphic panels less frequently than they did to other types of exhibits, although the introductory elements (29%) and conservation panels (24%) in *Sharks* were more frequently attended to than is typically seen with stand-alone panels.

In terms of stay time, interactives had the highest average stay time (45 seconds), followed closely by animal tanks (42 seconds). The cultural exhibits followed, with those that included videos having a slightly longer average stay time (25 seconds) compared to those without videos (20 seconds).

(See Appendix E for a list of the exhibits and how they were classified.)

Table 8. Visitor Behavior by Type of Exhibit

Type of Exhibit	Average Percent Attending	Average Time Spent (sec.)	Number of Exhibits
Animal tank	71	42	9
Cultural exhibit with video	64	25	8
Interactive exhibit/Touch pool	46	45	6
Cultural exhibit without video	37	20	4
Title wall/intro panel	29	6	2
Conservation panel	24	11	7
Spanish panel	6	4	7

Statistically significant?

Yes

Yes

Note: Type of exhibit DOES affect the percentage of visitors attending to an exhibit.

Note: Type of exhibit DOES affect the average time visitors spend at an exhibit.

8. What percentage of total time do visitors spend at different types of exhibits?

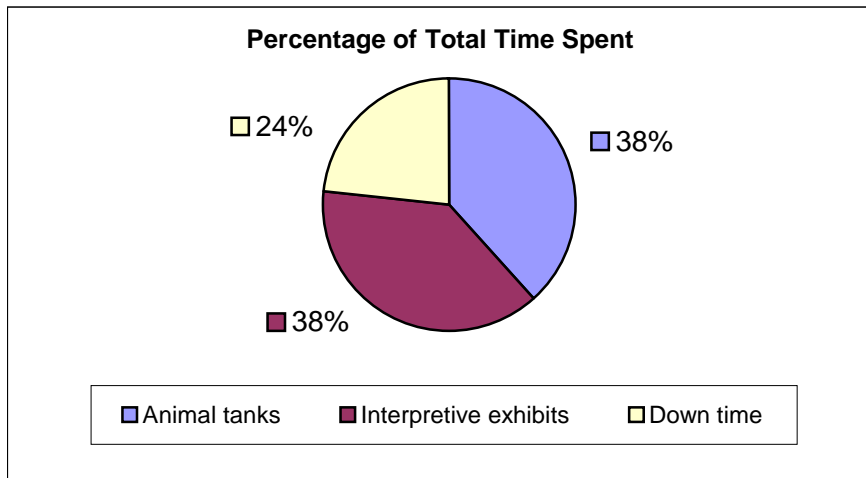
On average, visitors spent more than three-quarters (76%) of their time attending to the exhibits. They spent the rest of their time (24%) in other ways, such as walking from one exhibit to the next, chatting with other people, etc. Not surprisingly, visitors spent the largest percentage of time at animal tanks (38%), followed by cultural exhibits with videos (16%) and interactives (16%). Adding a video to a cultural exhibit significantly increased the amount of time visitors spent there, since on average visitors spent only 3% of their time at cultural exhibits without videos compared to 16% at cultural exhibits with videos. Visitors spent the least amount of time at stand-alone graphic panels: an average of 3% at conservation panels and an average of less than 1% at Spanish panels.

Table 9. Percentage of Total Time Spent by Visitors Based on Type of Exhibit

(See Appendix E for a list of the exhibits and how they were classified.)

Type of Exhibit	Percent of Total Time Spent
Animal tank	38
Interpretive exhibit	38
Cultural exhibit with video	16
Interactive exhibit/touch pool	16
Cultural exhibit without video	3
Conservation panel	2
Title wall/intro panel	1
Spanish panel	< 1
Down time ⁴	24

Figure 1. Percentage of Total Time Spent by Visitors in General



⁴ Down time in the exhibition is the percentage of time visitors spent engaged in other behaviors besides attending to the exhibits (i.e., moving between exhibits, looking at a map, having conversations, sitting down, etc.).

9. Are there similar behavior patterns at animal tanks across different aquarium exhibitions?⁵

In comparing visitor behavior at animal tanks in three different aquarium exhibitions, the two temporary exhibitions resulted in more similar behavior patterns than the permanent Nearshore exhibition (which was renamed Ocean’s Edge in 2005). This may reflect the large number of tanks in Ocean’s Edge, and especially the large number of small tanks. In addition, the percentage of visitors attending to the animal tanks in *Sharks* and *Jellies* is essentially the same, and the range for individual tanks is similar as well. However, on average, visitors stayed slightly longer at the animal tanks in *Sharks* than at the animal tanks in *Jellies*.

Table 10. Visitor Behavior at Animal Tanks in *Sharks* Compared to Other Exhibitions

Exhibition	Average Percent Attending	Range Percent Attending	Average Time (sec.)	Number of Animal Tanks
<i>Sharks: Myth and Mystery</i> tanks	71	36 to 90	42	9
<i>Jellies: Living Art</i> tanks	67	43 to 90	36	10
Nearshore Exhibition (renamed Ocean’s Edge in 2005)	32	1 to 80	53	61

⁵ Different criteria were used to track visitors in the various studies. In the evaluation of the Nearshore exhibition, only those visitors who physically stopped at an exhibit were considered to be “attending to” that exhibit, while in the *Sharks* and *Jellies* evaluations, visitors who directed their attention toward an exhibit for two or more seconds were considered to be “attending to” that exhibit. Since the Nearshore study included only those visitors who stopped, it may have overestimated the time visitors spent attending to an exhibit because the study didn’t include those who glanced at the panel as they walked by, which would have reduced the average time spent.

10. Do adults visiting with children behave differently than adults visiting without children?

Visitors with children spent significantly more time in *Sharks*, about 1:48 longer than visitors without children. Visitors with children also spent significantly more time at four particular exhibits, three of which were interactives: Shark and Ray Touch Pool (+37 sec.), Mayan Rubbings Interactive (+37 sec.), Mask Try-On (+13 sec.), and the Mother Stingray Object Theater (+7 sec.). The total time for these four exhibits is 1:34, accounting for most of the difference mentioned above.

Visitors in adult-only groups attended to a slightly higher number and percentage of exhibits compared to visitors with children. They also spent a larger percentage of their total time attending to exhibits. These results are not surprising considering the amount of time an adult visiting with children will devote to interacting with them. However, this should not imply that these visitors are devoting less overall attention to the exhibition, since some of this interaction time is likely spent discussing the exhibition.

Overall, visitors with children spent a larger percentage of their time at interactives compared to visitors in adult-only groups. Instead, visitors in adult-only groups spent a higher percentage of their time at cultural exhibits, conservation panels and introductory elements. However, there was no difference between the groups in the percentage of time they spent at animal tanks.

Table 11. Visitor Behavior of Adults in Groups With Children Compared to Adult-Only Groups

Measure	Children in Group		Adult-Only Group		Statistically Significant Difference?
	Mean	Median	Mean	Median	
Number of exhibits attended to (out of 43)	17	17	20	21	Yes
Percent of exhibits attended to	40	40	45	49	Yes
Time in exhibition (min:sec)	13:53	13:54	12:05	11:06	No
Percent of total time attending to exhibits	74	77	78	82	Yes
Percent of total time spent at:					
Animal tank	36	36	40	37	No
Interactive exhibit/Touch pool	20	18	13	10	Yes
Cultural exhibit with video	14	13	18	15	Yes
Cultural exhibit without video	2	1	3	2	Yes
Conservation panel	1	1	3	2	Yes
Title wall/intro panel	1	<1	1	<1	No
Spanish panel	<1	<1	<1	<1	No

11. Did crowding affect visitor behavior in the exhibition?

During peak visitation periods, some parts of the aquarium, especially temporary exhibitions, can become very crowded, which may influence visitors' experience. Since data from this study were collected in summer and fall, it might seem obvious to compare these two seasons to determine if crowding affected visitor behavior. However, total aquarium attendance varied substantially during each season: for example, some weekend days in fall experienced higher attendance than some weekdays during summer. As a result, this study examined differences in visitor behavior based on the total aquarium attendance for each day that data were collected, regardless of the season.

During data collection, total aquarium attendance ranged from 2,645 to 9,838 visitors. Meanwhile, 30% of the days had a range of 2,500 to 4,999; 41% a range of 5,000 to 5,999; and 30% had a range of 6,000 to 9,900. Although there were some observable trends, total aquarium attendance didn't yield statistically significant differences in visitor behavior for the following variables: total time in the exhibition, total number of exhibits attended to, percent of exhibits attended to, total time at exhibits, or percentage of time spent at exhibits. (See Appendix F for the results of these other analyses.)

However, there were two variables where attendance did affect visitor behavior: the percentage of time spent at interactive exhibits and the percentage of time spent at conservation panels. Percentage of total time at interactives or hands-on elements was similar for the first two attendance categories, but when attendance reached 6,000 or more, visitors spent less time at these exhibits. This isn't surprising considering that interactive exhibits typically accommodate only a handful of visitors compared to other types of exhibits. Interestingly, attendance had a similar effect on the stand-alone conservation panels and introductory elements. While the percentage of time visitors spent at these panels was low for most visitors, it was even lower when total attendance reached 6,000 or more visitors. Perhaps the size of these panels made it difficult for visitors to read them when there were a lot of people in the exhibition.

Table 12. Percentage of Total Time Spent by Visitors at Interactive Exhibits Based on Daily Aquarium Attendance Levels

Aquarium Attendance	Mean	Standard Deviation
2,500 to 4,999	18%	14.2%
5,000 to 5,999	19%	14.4%
6,000 to 9,900	12%	9.3%

Statistically significant difference? **Yes**

Table 13. Percentage of Total Time at Conservation Panels by Daily Aquarium Attendance Level

Aquarium Attendance	Mean	Standard Deviation
2,500 to 4,999	3%	3.2%
5,000 to 5,999	2%	3.0%
6,000 to 9,900	1%	1.3%

Statistically significant difference? **Yes**

Exit Interviews

Purpose of the Study

The exit interviews were conducted to measure the short-term impact⁶ of a visit to *Sharks: Myth and Mystery*. There were three main research questions the interviews needed to answer: What are visitors' general impressions after seeing the exhibition? Did it meet their expectations? Which aspects of the exhibition do visitors find most appealing or satisfying over the short term?

Method

In 2004, 357 randomly selected adult visitors were interviewed about their experience in *Sharks*. Visitors were approached as they were leaving the exhibition and asked if they would be willing to answer some questions about the exhibition. If they consented, an interviewer recorded their answers on an interview form. To control for seasonal differences, data were collected in both summer and fall. Of the 357 interviews, 178 were conducted in the summer (July/August) and 177 were conducted in the fall (October/November).

Main Findings

1. *What are visitors' general impressions after seeing the exhibition? Did it meet their expectations?*

The large majority of visitors (89%) rated *Sharks* as excellent or good, with 42% giving it an excellent rating (a 9 or 10 on a 10-point scale). These ratings are similar to other temporary exhibitions we've studied at the aquarium, but lower than those received for *Jellies*. In general, visitors were impressed by the diversity and variety of sharks on display. Those who gave the exhibition a favorable rating said the non-living exhibits, and particularly the cultural information, enhanced their experience. When asked what would make the exhibition even better, more than one-quarter of visitors (27%) couldn't think of anything that would improve it. The main suggestions for improving the exhibition were having larger and/or more sharks and reducing crowding.

2. *Which aspects of the exhibition do visitors find most appealing or satisfying over the short term?*

Of the different types of exhibits in *Sharks*, visitors enjoyed the live animals, videos, cultural information, and art and artifacts the most. They enjoyed the videos because they were personally relevant, fun and interesting. The cultural information was enjoyable because it helped them learn about other cultures and their connection to sharks or rays. The interactives were popular with visitors because their kids enjoyed them, they were fun or because visitors liked the hands-on aspect. In general, the non-living exhibits enhanced visitors' experience because they were informative, helped visitors learn about and understand other cultures and because they provided a context for what visitors were seeing.

⁶ The exit interviews specifically addressed visitors' "short-term" recollections because they were conducted immediately after visitors exited the exhibition. In contrast, the web surveys addressed visitors' "long-term" recollections, since they were conducted a few months after visitors had seen the exhibition.

3. Were there seasonal differences between the samples?

There were two significant seasonal differences in the demographics of the interviewees. Summer visitors were much more likely to be visiting with children (65%) than fall visitors (35%). In addition, visitors with children were more likely to find the interactives enjoyable.

There were also more first-time visitors to *Sharks* in summer (93%) compared to fall (88%). However, in the summer, 73% of members were visiting *Sharks* for the first time, while in the fall only 58% of members were visiting for the first time. The exhibition had also been open for a few more months when the fall data were collected, increasing the likelihood that visitors, especially local members, had already visited.

Table 14. Demographics of Interviewees by Season

Visitor Type	July/August 2004 Sharks Interviews	Oct./Nov. 2004 Sharks Interviews	Statistically Significant Difference?
First-time visitors	39%	32%	No
First visit to <i>Sharks</i>	93%	88%	Yes
Members	20%	16%	No
Males/females	45% / 55%	39% / 61%	No
Visiting with children	65%	35%	Yes
Visitor origin:			No
California	65%	64%	
Other U.S. state	26%	26%	
International	9%	11%	
Age:			No
Under 21	3%	2%	
21 to 24	4%	5%	
25 to 34	19%	26%	
35 to 44	31%	27%	
45 to 54	27%	22%	
55 to 64	12%	13%	
65 and older	4%	5%	

4. Were there differences between interviewees and aquarium visitors in general?

To determine whether the sample of visitors who were interviewed represented aquarium visitors in general, demographic data from the *Sharks* interviews were compared to demographic data from the aquarium’s monthly exit surveys. Since the *Sharks* interviews were conducted in July, August, October and November of 2004, a comparison was made to monthly exit survey data for the same period.

There was only one statistically significant difference between the two samples. In the *Sharks* interviews there was a slight oversampling of families compared to the monthly exit surveys. Otherwise, those interviewed for *Sharks* represented general aquarium visitors. This wasn’t surprising, since the 2004 exit surveys found that the large majority of aquarium visitors (81%) saw *Sharks* during their visit.

Analyses were run to see whether the slight oversampling of family groups in the *Sharks* interviews could influence the results. The only item that differed based on group type was which type of exhibit element visitors enjoyed the most. Those visiting with children were more than twice as likely to mention interactives (25%) as the most enjoyable exhibit element compared to adult-only groups (10%).

Table 15. *Sharks* Exit Interview Respondents Compared With Monthly Exit Survey Respondents

Visitor Type	July/Aug./Oct./Nov. 2004 <i>Sharks</i> Interviews	July/Aug./Oct./Nov. 2004 Exit Surveys	Statistically Significant Difference?
First-time visitors	36%	42%	No
Members	18%	15%	No
Males/females	46% / 54%	43% / 56%	No
Visiting with children	50%	40%	Yes
Visitor origin:			No
California	61%	64%	
Other U.S. state	29%	28%	
International	10%	9%	
Age:			
Under 21	3%	5%	
21 to 24	5%	8%	
25 to 34	21%	24%	
35 to 44	26%	26%	
45 to 54	28%	20%	
55 to 64	12%	14%	
65 and older	5%	3%	

5. Had visitors been to the aquarium or the Sharks exhibition previously?

Of those interviewed, almost three-quarters (64%) had been to the aquarium previously, and 9% of all visitors had seen *Sharks* before their visit that day. Of those who had seen *Sharks* previously, 40% had seen it once, 43% had seen it between two and three times, 10% had seen it four to five times and 7% had seen the exhibition six to 10 times. The exhibition had only been open for a few months when these visitors were interviewed, so most visitors were seeing it for the first time.

Table 16. Repeat Visitation to *Sharks*

Is this your first visit to the aquarium?

Yes 36% (127 out of 356)
 No 64% (229 out of 356)



If No: Is this your first visit to the *Sharks: Myth and Mystery* exhibit?

No 86% (196 out of 227)
 Yes 14% (31 out of 227)



NOTE: 8.7% (31 out of 356) of all visitors had previously visited *Sharks: Myth and Mystery*.

How many times have you been to this exhibit before today?

<u>Frequency</u>	<u>Seen SMM Before Today</u>	<u>All Visitors</u>
Never	-----	91%
Once	40% (12 out of 30)	3%
2 to 3 times	43% (13 out of 30)	3%
4 to 5 times	10% (3 out of 30)	1%
6 to 10 times	7% (2 out of 30)	1%

6. How did visitors rate Sharks?

The large majority of visitors (89%) rated *Sharks* as excellent or good, with 42% giving it an “excellent” rating (a 9 or 10 on a 10-point scale). These ratings were similar to other temporary exhibitions we’ve studied at the aquarium, but lower than for *Jellies*.⁷ There was a statistically significant difference in ratings between seasons: fall visitors rated the exhibition higher (48% Excellent) than summer visitors (36% Excellent). Members also rated the exhibition higher (47% Excellent) compared to non-members (41%). We have seen these two trends in other temporary exhibitions as well.

When asked what would improve the exhibition, more than one-quarter of visitors (27%) said they couldn’t think of anything that would improve it. Another 17% said having more sharks, 9% said larger sharks and 2% said they wanted both more and larger sharks. Another 8% said it would be better if it weren’t as crowded. In addition, visitors from different seasons differed significantly in their opinions about crowding. While 15% of summer visitors mentioned crowding, only 2% of fall visitors mentioned it.

Table 17. Visitors’ Overall Ratings

Rating	Frequency	Percent	Cumulative Percent
Excellent (9 to 10)	148	41.8	41.8
Good (7 to 8)	168	47.5	89.3
Fair (4 to 6)	35	9.9	99.2
Poor (1 to 3)	3	.8	100.0
Total	354	100.0	

⁷ Visitors who participated in the aquarium’s monthly exit surveys rated *Sharks* slightly higher (54% Excellent) for the same period compared to visitors who participated in the summative evaluation (42% Excellent). However, the two samples exhibited the same pattern in terms of seasonal differences. For example, exit survey ratings for fall were 9% higher than for summer ratings, while summative evaluation ratings for fall were 8% higher than for summer ratings. This follows a pattern we’ve seen in the past, with visitors rating an exhibition slightly lower after having just seen it (via a summative evaluation) compared to having completed their visit (via monthly exit surveys).

Table 18. Visitors' Suggestions for Improving the Exhibition

Note: Visitors sometimes gave more than one response, so total responses exceed 100%.

Can you tell me something that would make it [the exhibition] even better?	Frequency	Percent
Comments about animals	137	38.4
More sharks, more varieties	62	17.4
Larger sharks	32	9.0
More shark tanks	14	3.9
More animals, fewer non-living displays	10	2.8
More AND larger sharks	8	2.2
Have a white shark (summer sample)	6	1.7
See sharks feeding or eating	5	1.4
Comments about tanks	40	11.2
Bigger tanks, or a tunnel tank	21	5.9
Better viewing for tanks, larger windows	15	4.2
More pop-up windows	4	1.1
Comments about interpretation	23	6.4
More information about sharks	13	3.6
Less cultural info, artifacts	6	1.7
Information about the white shark	4	1.1
Comments about interactive exhibits	20	5.6
More interactives	10	2.8
Improve touch area	10	2.8
Other comments	78	21.9
Less crowded, improve traffic flow	30	8.4
Offer more for kids	11	3.1
Make exhibit larger	9	2.5
Miscellaneous comments	28	7.8
Nothing, can't think of anything	97	27.2
Total visitors	357	

Miscellaneous comments included the following:

- Too noisy.
- Some kind of a comprehensive overview to read at your own pace—a pamphlet.
- Tour guide.
- Paper towels not used because of environment.
- A design that's ancient, before dinosaurs/human beings e.g., prehistoric shark.
- Too overwhelming.
- Concerned that rays being fed the same way they are in the wild.
- Fewer rays.
- Having some piranhas.
- More information about depleting population; more info about sharks being misunderstood.
- More seating where films are.
- Longer movie clips.

- More light.
- Feature more questions people didn't know the answers to.
- More interaction with live animals.
- Fewer still diorama exhibits.
- Focus more on adult enjoyment; it felt very kid-oriented.
- Get closer to the sharks.
- Make bubble window adult accessible.
- If the percentage of sharks and rays were reversed.
- Velvet rope away from small egg holes so people can see it better.
- Hard to match pictures with actual sharks.
- English translation for Spanish signs.
- More info about why the different cultures view sharks so differently.
- More specific info on locations (Mayan, Central America).
- Very well explained; more cooperation from fishermen.
- Put in dolphins.



7. What did visitors learn in the exhibition?

When asked to complete a sentence about the exhibition starting with “I never realized that ...” the majority of visitors (63%) mentioned something about the live animals. In addition, almost one in five visitors (19%) mentioned something about the cultural content; a little more than one in 10 visitors (12%) said they were already aware of the information; and one in 20 (5%) specifically mentioned conservation content. Of the comments related to the live animals, visitors were most likely to say that they were previously unaware of the variety of sharks, or that some sharks laid egg cases. First-time visitors to *Sharks* were much more likely to say they never realized there was such a variety of sharks (22%) compared to repeat visitors to the exhibition (7%).

Table 19. Visitor Learning

Note: Visitors sometimes gave more than one response, so total responses exceed 100%.

Please complete the following sentence about the <i>Sharks: Myth and Mystery</i> exhibit: “I never realized that....”	Frequency	Percent
Comments about sharks or rays	221	62.6
Variety of sharks and rays	73	20.7
Facts about sharks and rays	38	10.8
Sharks have egg cases	24	6.8
Freshwater rays existed	16	4.5
Sharks are so docile; not like the myth	14	4.0
Rays and sharks are related	10	2.8
Rays felt so soft	9	2.6
Some sharks are so little	9	2.6
Rays were so colorful	9	2.6
Hammerhead shark had eyes on side of head	7	2.0
Difference between ray and skate	5	1.4
That a specific species existed	4	1.1
Shark skin felt rough	3	.8
Comments about cultures	68	19.3
Sharks in so many cultures; myths	49	13.9
Mention specific culture; myth	16	4.5
<i>Saturday Night Live</i> had shark skit	3	.8
Comments about conservation	18	5.1
Sharks endangered	15	4.3
People are conserving sharks	3	.8
Don't know, knew it all before	43	12.2
Miscellaneous comments	15	4.3
Total visitors	353	

Miscellaneous comments included the following:

- It would be so fun.
- Most things I didn't know before.
- There were fish that were swimming flat.
- Liked all the information about sharks.
- The texture of the eggs was so hard.
- How much sea life there is.
- How much history and art [there is].
- Sharks could be so dangerous.
- You could know so little after walking out of a shark exhibit—not due to the aquarium.
- You could combine such a great biological and cultural exhibit like this one.
- Sharks can be this fun to watch.
- This was here, the shark exhibit; I knew so much about sharks.



8. Which part of the exhibition did visitors enjoy the most, and why?

Previous aquarium surveys have shown that visitors to the aquarium's temporary exhibitions typically enjoy viewing the animal displays more than any other experience in the exhibition. Therefore, in this survey, we specifically asked visitors to identify other aspects of the exhibition they liked in addition to the live animals. The largest percentage of visitors said they enjoyed the cultural videos (29%), followed by the information (22%) and artwork and artifacts (18%). These were followed by miscellaneous exhibit elements (11%), a specific culture that was represented (10%) and interactives (9%). Of all visitors, 8% said they just enjoyed the animals and another 7% said they couldn't think of anything specific they enjoyed.

Visitors gave a variety of explanations about why they enjoyed a particular aspect of the exhibition. Regardless of what they found enjoyable, the two most popular reasons were because they found something personally relevant (14%) or because they had an opportunity to learn about other cultures (12%). Other reasons focused on the fact that something was fun (8%), aesthetically pleasing (8%), interesting (7%), the kids liked it (7%), educational (6%) or that people weren't previously aware of the connection between certain cultures and sharks (6%).

Compared to visitors without children, visitors with children were more than twice as likely to say they enjoyed the interactive exhibits, with 5% of visitors without children mentioning interactives compared to 13% of visitors with children. Members were more likely to enjoy the art and artifacts (35%) compared to non-members (14%). Non-members were more likely to say they just liked the animals (9%, compared to 3% of members); to say they liked a specific culture (12%, compared to 3% of members); or to say they didn't know what they enjoyed the most (8%, compared to 0% of members). Gender also affected which part of the exhibition visitors enjoyed the most. One-third of men (33%) compared to one-quarter of women (25%) enjoyed the cultural videos the most. Conversely, 22% of women said they enjoyed the art and artifacts the most compared to 13% of men.

In comparing why visitors enjoyed certain areas the most, the main reasons people enjoyed each category were as follows (in order from highest to lowest percentage):

Cultural videos (29%): personally relevant, fun, interesting

Information (22%): learn about other cultures, educational, didn't know there was a connection between a certain culture and sharks

Art and artifacts (18%): aesthetically pleasing, personally relevant, interesting, learn about other cultures

Misc. exhibits (11%): humorous, personally relevant, aesthetically pleasing

Specific culture (10%): personally relevant, didn't know there was a connection between a certain culture and sharks, interesting, learn about other cultures

Interactives (9%): because of kids, fun, like the interactives

Table 20. Aspects of Sharks Visitors Enjoyed Most

Note: Visitors sometimes gave more than one response, so total responses exceed 100%.

Besides the living animals, which part of <i>Sharks: Myth and Mystery</i> did you enjoy the most?	Frequency	Percent
Cultural videos	101	28.7
<i>Saturday Night Live</i> video	25	7.1
Videos in general	20	5.7
Mother Stingray video	19	5.4
Hawaii, hula video	13	3.7
Other videos	9	2.6
<i>Jaws</i> video	8	2.0
Dancing (as seen in a video)	7	2.0
Information	78	22.2
Cultural information, myths	64	18.2
Information, text	14	4.0
Art and artifacts	64	18.2
Masks	32	9.1
Artwork	25	7.1
Artifacts	7	2.0
Exhibit elements	38	10.8
Displays, scenery	11	3.1
Cartoons	11	3.1
Photographs	6	1.7
Sound, music	4	1.1
Tank appearance	6	1.7
Specific culture	35	9.9
Africa	9	2.6
Amazon	8	2.3
Western myths, popular culture	8	2.3
Northwest	7	2.0
Australia	3	0.9
Interactive elements	32	9.1
Craft room	11	3.1
Interactives, hands-on elements	10	2.8
Touch pool	9	2.6
Mask try-on	2	0.6
Nothing, I just like the animals	28	8.0
Don't know, no answer	23	6.5
Miscellaneous comments	18	5.1
Total visitors	352	

Miscellaneous comments included the following:

- People at touch tank.
- Watching the children interact.
- Seeing how the baby [shark] was inside the case.
- Coral and blacktip and whitetip reef sharks.
- The Mayan exhibit.
- The shark [parking] meter.
- Shark eggs.
- Hard to tell; enjoyed it all.
- Watching the kids.
- Kids' educational items.
- Conservation information.
- Baby sharks in eggs.
- The stingrays.
- Sea of Cortez.
- The glass works jellyfish.
- Feedings.
- The habitat; the way they [the animals] feed themselves.

Table 21. Why Visitors Most Enjoyed an Aspect of Sharks

Note: Visitors sometimes gave more than one response, so total responses exceed 100%.

Why did you enjoy that part the most?	Frequency	Percent
Personal relevance; memories	41	13.5
Learn about other cultures; their perspectives	37	12.2
Fun; enjoyable	23	7.6
Aesthetically pleasing; colorful	23	7.6
Interesting	20	6.6
Because we're visiting with kids	20	6.6
Educational; informative	19	6.3
Weren't aware of the connection between sharks and culture(s)	18	5.9
Humorous; funny	15	5.0
Just different; never seen it before	15	5.0
Like myths; stories	15	5.0
Didn't know that	11	3.6
Hands-on; interactive	9	3.0
Immersive; it's like being there	7	2.3
Cool; neat	6	2.0
You can touch the rays or sharks	5	1.7
Complements the living animals	5	1.7
Talked about conservation	4	1.3
Sets the mood	3	1.0
It's strange we're so afraid of them	3	1.0
Variety	3	1.0
Miscellaneous comments	29	9.6
Total visitors	303	

Miscellaneous comments included the following:

- We just kind of walked through and looked at the fish.
- Made me think about sharks and the [USS] *Indianapolis*.
- On your own time.
- They were helpful.
- Mystical.
- I don't know.
- The different environments sharks are in.
- Good filming.
- It's the best thing in the aquarium.
- Well done.
- I like that kind of stuff.
- Shows that animals are well cared for.
- I like to donate money.
- That's what I came to see.
- Caught my eye.
- Amazing to see.
- Can't separate any particular part.
- Cute.
- Well presented.
- Creatively portrayed.
- Focus on the natural and incorporated into their own experiences.
- It would be nice to have one at home.
- Performers and the way they acted out a story with their dance.
- Nice to be able to ask questions and willing to talk.
- I liked the effects.
- I was interested more in the sharks than the legends.
- Amazing to see the diver interact with animals.
- Because of the art.
- Because it was peaceful.

9. *What did visitors remember about the conservation content in the exhibition?*

Almost two-thirds of visitors (64%) said they remembered seeing or hearing something about conservation in the exhibition, and over half of visitors (57%) could recall something specific, although what they recalled varied. The majority of their comments (66%) were related to four main categories: shark products/seafood (32%); shark conservation efforts (18%); shark fishing (13%); and the status of shark populations (4%). In addition, 25% of visitors recalled specific exhibit elements (e.g., the parking meter/donations exhibit).

Females were more likely to say they remembered seeing something about conservation (70%) than males (56%). Repeat visitors were more likely to recall seeing something about seafood choices (15%) than first-time visitors (8%). In addition, first-time visitors were more likely to say they couldn't recall anything specific (15% of first-time visitors compared to 8% of repeat visitors) or to give a general answer, for example, that they saw something about conservation "in the labels" (8% of first-time visitors compared to 1% of repeat visitors).

Table 22. Percentage of Visitors Who Could Recall Conservation Content Immediately After Their Visit

Do you remember seeing or hearing anything in <i>Sharks: Myth and Mystery</i> about conservation?	Frequency	Percent
Yes	226	63.5
No	130	36.5
Total	356	100.0

Table 23. Visitors' Memories of Conservation Content Immediately After Their Visit

Note: Visitors sometimes gave more than one response, so total responses exceed 100%.

What did it say about conservation?	Frequency	Percent
Shark products/seafood	73	31.9
Don't use shark products, cartilage	33	14.4
Seafood choices	28	12.2
Don't eat shark-fin soup	12	5.2
Exhibit elements	57	24.9
Parking meter, donations exhibit	29	12.7
Oil drilling and spills	16	7.0
The labels (in general)	7	3.1
Saw it in videos	5	2.1
Shark conservation efforts	41	17.9
Cultures are working to conserve sharks	22	9.6
Protecting their habitats, shark sanctuary	14	6.1
Don't pollute or put garbage in sea	5	2.2
Shark fishing	29	12.7
Overfishing; should fish in certain ways	20	8.7
Catch and release when fishing	9	3.9
Status of shark populations	9	3.9
Sharks are endangered, need to be protected	7	3.1
Decrease in shark populations	2	0.9
All sharks aren't dangerous	3	1.3
Other	48	21
Nothing in particular; can't recall	24	10.5
Paper Towels = Trees	2	0.9
Miscellaneous comments	22	9.6
Total visitors	229	

Miscellaneous comments included the following:

- The tuna or dolphins.
- The video about harvesting fish.
- Saving the tunas; recycling.
- Put nets out to keep sharks out.
- Shark.
- Fishing nets [and] how turtles escape.
- At end.
- So many people, I didn't see.
- Sharks caught in nets.
- Too packed to see.
- The tuna capture.
- Didn't take the time because of kids.
- Through Greenpeace.
- Recycling paper.

10. Did the non-living exhibits enhance visitors' experience?

Almost two-thirds of visitors (63%) to *Sharks* said the non-living exhibits enhanced their experience in the exhibition. The main reasons given were: the material is informative, it helps you learn about other cultures, it adds context to understanding the animals, it makes the visit more interesting, and you learn more about sharks. For a little less than one-third of visitors (31%) the non-living elements didn't make much of a difference, and it detracted from the experience for only 6% of visitors. This 6% said it detracted because they're only here to see the animals, it was too much information, or "that kind of interpretation" belongs in a museum.

Repeat visitors to *Sharks* were the group most likely to say the exhibits enhanced their experience (74%) compared to visitors who were seeing the exhibition for the first time (62%). Repeat visitors were more likely to say the exhibits enhanced their experience (68%) compared to first-time visitors (56%). First-time visitors were less likely to come up with specific reasons for why it enhanced their visit, with more of them giving general answers such as educational or informative (41%, compared to 24% for repeat visitors). Repeat visitors were more likely to give specific reasons for why the exhibit elements enhanced their visit, such as showing the relationships between sharks and humans (6% of repeat visitors compared to 1% of first-time visitors) or learning about other cultures (15% of repeat visitors compared to 7% of first-time visitors).

Table 24. Contribution of Cultural Exhibits to Visitors' Experience

There is a lot of material in this exhibit besides the live animals. Did this material enhance your experience, detract from your experience, or not make much of a difference to you?	Frequency	Percent	Cumulative Percent
Enhanced	223	63.4	63.4
Detracted	21	6.0	69.3
Didn't make a difference	108	30.7	
Total	352	100.0	100.0

Note: There was no follow-up question when visitors said the cultural exhibits "didn't make a difference."

Table 25. How Cultural Exhibits Enhanced or Detracted From Visitors' Experience

Note: Visitors sometimes gave more than one response, so total responses exceed 100%.

Visitor Response	Frequency	Percent
Enhanced	223	63.4
Makes it more informative, educational	71	32.1
Learn about other cultures, differences	32	14.5
Adds context, background	25	11.3
Learn more about sharks	16	7.2
Makes it more interesting	15	6.8
,More things to look at	12	5.4
Shows relationship between sharks and humans	10	4.5
Learn more than just looking at animals in tanks	9	4.1
Multisensory	7	3.2
Learn about myths, legends	7	3.2
It's good for kids	7	3.2
Saw how other cultures revered the shark	6	2.7
Talks about conservation	5	2.3
Looked more natural; felt like you're there	4	1.8
More enjoyable, fun	4	1.8
Well-designed	3	1.4
Seeing the art	2	.9
Miscellaneous comments	9	4.1
Didn't make a difference	108	30.7
Detracted	21	6.0
Just wanted to see animals	10	47.6
Too much information	4	19.0
Miscellaneous comments	4	19.0
Belongs in a museum	3	14.3

Miscellaneous comments from visitors who said the cultural exhibits enhanced their experience included the following:

- Had movies and informational pictures.
- Different concepts and each type of thing.
- The interactive materials.
- Unexpected to have that coverage and I wasn't expecting it.
- Shows there's more than just sharks swimming in the ocean.
- Something for everyone.
- Liked pushing buttons.
- A reminder.
- Relaxing and peaceful.

Miscellaneous comments from visitors who said the cultural exhibits detracted from their experience included the following:

- Made it [the exhibition] seem fluffed up.
- I thought it was filler; there were probably some budget constraints.
- As a third-grade teacher, I thought the info will not interest my students.
- It took away from my experience.



Web Surveys

Purpose of the Study

The purpose of the web surveys was to determine what visitors could recall about their experience in *Sharks* several months after seeing the exhibition, and whether they had talked about or acted on anything they saw. There were four main research questions the web surveys needed to answer:

1. Which aspects of the visit were most memorable?
2. Since visiting, had visitors made any connections between the exhibition and their day-to-day lives?
3. How had visitors communicated with friends or family about their experiences in the exhibition?
4. Did visitors remember seeing any conservation content in the exhibition, and could they recall any specific examples?

Method

In 2004, e-mail addresses were collected from a total of 596 visitors who were leaving *Sharks*. To control for seasonal differences, e-mail addresses were collected in the summer and fall. Of the 596 e-mail addresses obtained, 305 were collected in summer (July/August) and 291 were collected in fall (October/November). Some of these e-mail addresses were collected during the on-site interviews described earlier ($n=252$), while the rest ($n=346$) were collected during separate interviews in which interviewers gathered only demographic information. Since response rates for web surveys can be low, the demographics-only sample ensured that we would have enough e-mail addresses to end up with a large enough sample for useful analysis and comparison on different variables. A previous web survey with a response rate of 40% allowed us to estimate that, with 600 e-mails sent, we would probably receive almost 250 completed surveys.

In order to be eligible to participate in the web survey, visitors had to meet the following criteria:

1. Agree to be interviewed about the exhibition.
2. Have a valid e-mail address.
3. Agree to give the data collector their e-mail address to participate.

Main Findings

1. Which aspects of the visit were most memorable?

Four months after visiting, nearly everyone surveyed (98%) remembered seeing *Sharks*. Visitors' most vivid memories of the exhibition centered on the animals, which was not surprising considering that the living species are usually the most popular part of an exhibition. More surprising was the fact that visitors had vivid memories of the information presented in the exhibition, particularly the cultural information. In addition, a little more than one in 10 visitors mentioned the videos. As expected, there was some source confusion, with some visitors recalling an exhibit element outside of *Sharks*. This confusion became particularly prevalent when the white shark was added to the nearby Outer Bay exhibition.

2. *Since visiting, had visitors made any connections between the exhibition and their day-to-day lives?*

More than one-third of visitors (37%) said something had reminded them of *Sharks* since their last visit. Of this group, more than two-thirds mentioned seeing something about sharks in the media, such as television shows, movies and newspaper articles. In addition, one in five visitors said they were reminded of the exhibition because of a conversation they'd had with another person about their visit to the aquarium.

3. *What had visitors told friends or family about the exhibition?*

The majority of visitors (59%) said they'd talked to someone about the exhibition since visiting. These visitors had mostly positive reviews of the exhibition, such as saying the exhibits were "well done," that the exhibition was "great," and that they had enjoyed their experience and others should see it. Visitors also mentioned something about the cultural information, that the exhibition was informative, or that there were a wide variety of sharks displayed. Only 3% of visitors gave the exhibition a negative review, saying they were disappointed it didn't display more and/or larger sharks.

4. *Did visitors remember seeing any conservation content in the exhibition, and could they recall any specific examples?*

Just over half (52%) of visitors remembered seeing or hearing conservation content in the exhibition. Of those who could recall something, almost nine out of 10 visitors (85%) recalled something specific. The majority of their comments (78%) were related to four main categories: shark products/seafood (36%); shark fishing (19%); the status of shark populations (16%); and shark conservation efforts (7%).

5. *How many people filled out the web survey?*

To participate in the web survey, 857 visitors who were exiting the exhibition were asked a series of questions to gauge their ability and willingness to take part in the study. First, visitors were asked if they would be willing to be contacted in a few months, and more than three-quarters (77%) of them said "yes." Of these visitors, 7% didn't provide their e-mail addresses, while 10% gave an address that turned out to be invalid. Overall, the web survey was successfully delivered to the remaining 60% of visitors (n=517) who were approached, and their response rate for filling out the survey was 61% (n=314).

Table 26. Classification of Post-Visit Contact

Visitor Characteristics	Frequency	Percent	Cumulative Percent
Declined to participate	199	23.2	23.2
Agreed to participate, but no e-mail given	60	7.0	30.2
Agreed to participate, but e-mail invalid	81	9.5	39.7
Agreed to participate, e-mail valid, but didn't fill out survey	203	23.7	63.4
Agreed to participate, filled out survey	314	36.6	100.0
Total	857	100.0	

6. How did the sample recruited for the web survey compare to the other samples?

Prior to the study, we were concerned that certain types of people would be more likely to respond to a web survey and, thus, the results from these surveys wouldn't be representative of aquarium visitors overall. The most obvious limitation of web surveys is that to respond, a person must have access to the Internet. However, previous research at the aquarium has shown that more than 90% of visitors have regular access to the Internet, so this proved not to be an issue. Additionally, it's possible that certain types of people would be more likely to fill out a web survey because they are more comfortable with the Internet, have more free time to complete surveys or are influenced by some other related factor.

Therefore, a series of analyses was conducted to determine whether the sample of visitors included in the web survey was representative of visitors to the aquarium and to *Sharks*. The following three groups were compared:

- Group #1: *Sharks* summative study, interview only ⁸
- Group #2: *Sharks* summative study, interview and web survey
- Group #3: Monthly aquarium exit survey ⁹

First, Group #1 was compared to each of the other two groups so we could determine whether those visitors who filled out the web survey were similar to visitors who didn't fill out the web survey (Group #2). Additionally, we compared Group #1 to a sample representing all aquarium visitors (Group #3). Looking at Group #3 on its own was important because, even though most aquarium visitors see *Sharks* (82%), this group may differ slightly from aquarium visitors overall.

As it turned out, there were no statistically significant differences between visitors who participated in the web survey and those who participated in the interview when compared on the following variables: membership, previous visitation, gender, visiting with children, age or visitor origin. Therefore, certain types of visitors to *Sharks* were no more or less likely to fill out the web survey.

However, several differences between the three groups emerged when they were compared to each other. Web survey respondents were more likely to be repeat visitors and members than respondents in the interview-only and exit survey groups. In addition, those visitors who took part in the *Sharks* summative study were more likely to be visiting with children than those who participated in the exit survey. Interestingly, visitors in the exit survey group were slightly younger (34 and under) than visitors in the *Sharks* summative study, especially when compared to the web respondents. However, there were no statistically significant differences in the three groups in terms of gender or visitor origin (i.e., California, other U.S. state, international).

⁸ Most people in the interview-only group were eligible to fill out a web survey, but they either didn't complete the web survey, didn't have an e-mail address or didn't provide their e-mail address.

⁹ Since the web survey participants were intercepted in July, August, October and November of 2004, the comparison made to monthly exit survey demographics was for the same time period.

Table 27. Demographics of Web Sample Compared to Interview Sample

Visitor Characteristics	Sharks Interview Only	Sharks Interview and Web Survey	Monthly Exit Survey	Statistically Significant Difference?
Sample size	n = 541	n = 314	n = 795	
First-time visitors	38%	33%	42%	Yes
Members	19%	21%	15%	Yes
Males/females	43% / 57%	40% / 60%	43% / 57%	No
Visiting with children	52%	55%	40%	Yes
Visitor origin:				No
California	65%	64%	64%	
Other U.S. state	26%	26%	28%	
International	10%	9%	8%	
Age:				Yes
Under 21	3%	2%	5%	
21 to 24	6%	3%	8%	
25 to 34	22%	24%	24%	
35 to 44	28%	31%	26%	
45 to 54	24%	26%	20%	
55 to 64	13%	12%	14%	
65 and older	6%	4%	3%	

7. Do visitors remember seeing Sharks several months after their visit?

Since the web survey was administered four months after visitors were first recruited, the first question on the survey asked if they specifically remembered visiting the exhibition. Fortunately, almost all visitors (98%) said they did.

Table 28. Visitors’ Recollection of Visiting Sharks

Do you remember visiting the <i>Sharks: Myth and Mystery</i> exhibit?	Frequency	Percent
Yes	307	97.8
No	7	2.2
Total	314	100.0

If respondents answered “no,” they were directed to a page that had the following prompt, which they had to read before continuing with the survey:

Prompt: “It was the exhibit that showed how different cultures around the world celebrate sharks and rays through myths and legends. It featured live sharks and rays, as well as storytelling, artwork and performances.”

After viewing this prompt, only a handful of visitors (2%) said they still didn’t remember visiting the exhibition.

8. Had people visited the exhibition since we talked to them?

A little more than one out of 10 visitors (14%) had visited *Sharks* in the four months since we asked them for their e-mail address. Visiting the exhibition more than once had a statistically significant effect on one of the post-visit behaviors. Those who had visited the exhibition since giving their e-mail address were more likely to say they had talked to someone about the exhibition (75%) than did those who had not made a second visit (56%). However, two-thirds (68%) of those who had visited again were aquarium members.

Table 29. Repeat Visitation to *Sharks* After Visitors Were Recruited for the Web Survey

Have you visited the <i>Sharks: Myth and Mystery</i> exhibit since we talked to you?	Frequency	Percent
Yes	45	14.3
No	270	85.7
Total	315	100.0

9. Had people talked to others about the exhibition since visiting?

The majority of visitors (59%) said they'd talked to someone about *Sharks* since visiting. However, the most frequent topic of conversation was the aquarium's white shark, which was being exhibited in a different part of the aquarium. Given the publicity surrounding the white shark, it's not surprising that some visitors confused the two exhibits, since the web survey occurred four months after people had last visited. Additionally, the attention given to the white shark, as well as the title of the exhibition, may have contributed to visitors' confusion.

Aside from comments about the white shark, visitors were most likely to recall saying something positive about the exhibition, such as "it was great" or that the exhibits were "well done." They also recalled saying they enjoyed the exhibition and would recommend that others see it. In addition, visitors mentioned the information about various cultures, that the exhibition was informative, or that there were a wide variety of sharks displayed. Conservation-related information came up in the discussion for 3% of visitors who had spoken about the exhibition. (See subsequent sections for visitor recall of specific conservation content in the exhibition.) Only 3% of visitors mentioned something negative about the exhibition, in particular being disappointed there were not more and/or larger sharks on display.

Table 30. Frequency of Visitors Who Talked About the Exhibition After Their Visit

Have you talked to anyone about the <i>Sharks: Myth and Mystery</i> exhibit since you saw it four months ago?	Frequency	Percent
Yes	181	59.0
No	126	41.0
Total	307	100.0

Table 31. Topics of Conversation Related to the Exhibition

Note: Visitors sometimes gave more than one response, so total responses exceed 100%.

If yes, what did you talk about?	Frequency	Percent
Great white shark on exhibit (in Outer Bay, not <i>Sharks</i>)	32	18.0
Well planned, exhibits were well done	25	14.0
Great exhibition, cool, neat	22	12.4
Recommended people go see it	21	11.8
Enjoyed it, it was interesting	21	11.8
Cultural aspect, other cultures	18	10.1
Informative, learned something	17	9.6
Variety of sharks	14	7.9
Kids loved the sharks	7	3.9
How good the aquarium was	7	3.9
Somewhat disappointed	6	3.4
Very interactive, hands-on, touch area	5	2.8
Conservation-related discussion	5	2.8
Talked to kids, grandkids about it	4	2.3
Seeing sharks, especially up close	4	2.3
Talked about it in class	4	2.3
Fun	4	2.3
Humor	2	1.1
Miscellaneous comments	13	7.3
Total visitors	178	

Miscellaneous comments included the following:

- How the sharks all coexist.
- We talked about the big aquarium where you can see the tuna fish and hammerhead sharks.
- We talked about the fact that sharks can lay eggs or they can have live young.
- The people on site were a real plus because they could answer questions as you had them. I tend to forget my questions after I leave. I have lots of senior moments, I guess.
- The film we saw in the theatre.
- Nice area for kids to walk around.
- How politically correct the exhibit is.
- I sketched pictures of the animals exhibited throughout the aquarium so I shared those drawings and mentioned the habitat reconstruction in the shark tanks.
- The optics in the slanted tank. I caught my mother in law by saying as we approached, "Now here is the most unique tank, it's the 'dry' tank where you can reach in and touch the sharks." She bought it and looked really surprised as she said, "How do they do that?" Then I felt bad, really bad. But since then, I've been telling the story at work, and people agree how lifelike that one is from their experiences.
- I talked about how beautiful the sharks were. Other positive comments.
- A few of the exhibits (great white, art ...).

Sharks: Myth and Mystery Summative Evaluation

- Family.
- I said that I liked the little sharks in the *Sharks: Myth and Mystery* display more than the great white because of all their color variations. If I had had more time I would have made it back to the *Sharks: Myth and Mystery* exhibit.



10. Were visitors reminded of the exhibition since their visit?

More than one-third of visitors (37%) said something since their visit had reminded them of *Sharks*. Of this group, more than two-thirds (69%) said they'd seen something in the mass media (i.e., television, movies, newspaper, etc.), while almost one-quarter (23%) said the exhibition came up during a discussion with another person about their visit to the aquarium. With the number of shows about sharks on television, and the presence of sharks in the news, it's not surprising that the media served as the greatest reminder of the exhibition.

Table 32. Percentage of Visitors Who Were Reminded of the Exhibition After Their Visit

Have there been instances in your day-to-day life that reminded you of the exhibit?	Frequency	Percent
Yes	114	37.3
No	192	62.7
Total	306	100.0

Table 33. What Reminded Visitors of the Exhibition After Their Visit

Note: Visitors sometimes gave more than one response, so total responses exceed 100%.

What was it exactly that reminded you of the exhibit?	Frequency	Percent
Mass media	77	69.4
Documentaries on sharks, rays	17	15.3
Mention of great white (T.V., newspaper)	13	11.7
Discovery Channel; Shark Week	12	10.8
T.V. news story on sharks	10	9.0
T.V. show or movie (other)	8	7.2
<i>Jaws</i> movie	6	5.4
<i>Open Waters</i> movie	4	3.6
Saw <i>Saturday Night Live</i>	3	2.7
<i>Shark Tale</i> movie	2	1.8
Newspaper story on sharks	2	1.8
Talking to others	26	23.4
Talking about the visit	10	9.0
Talking to my kids	10	9.0
Talking with others about sharks	4	3.6
Talking in class	2	1.8
Day-to-day activities	18	16.2
Visiting another aquarium	7	6.3
Walking by ocean, beach	4	3.6
Eating seafood	3	2.7
While surfing, scuba diving	2	1.8
Shark hat craft (ran across it again)	2	1.8
Miscellaneous comments	16	14.4
Total	111	

Miscellaneous comments included the following:

- Many articles in magazines.
- Something about statistics in the paper reminded me of the coconut vs. shark attack display. The masks, dancing, several times when seeing masks or African artwork.
- I overheard people talking about how good shark-fin soup was. I wanted to take them and show them the film that I saw there so that they would understand the impact a few minutes of pleasure had on these creatures.
- Working on a project in Monterey where we're trying to incorporate some of the well-known references of the region.
- Not sure.
- I saw a picture of a shark on someone's window while I was driving on the highway (one of those pictures on the window...you know what I'm talking about right?).
- School field trip.
- The number of shark species.
- My daughter doing research on sharks for school.
- Remembering the diversity of life on earth, and that we are a part of it.
- I've read about the great white in the *San Jose Mercury News*. People at work talk about that. Also, my daughter took a field trip with school, and she wanted to be sure to start at the shark exhibit.
- Remembering family trips and making plans to go again.
- When I look at the zebra shark post card I bought. When I think I should take a friend to see the exhibit.
- When a teaching colleague was looking for an educational field trip for her 7th grade.
- Some references to sharks.
- Also in my reading of a book called *Mommy, I'm Scared*.

11. How did visitors describe their most vivid memory of the exhibition?

It's not surprising that visitors' most vivid memories of *Sharks* focused on the animals. However, the information, especially the cultural information, was also well remembered. In recalling the animals, most visitors gave general answers, mentioning "sharks" or "the animals," or talking about the variety of sharks they'd seen. The most frequently mentioned species was the hammerhead shark, which 4% of visitors mentioned by name. In addition, nearly one in five visitors said the information in the exhibition was most memorable, with the majority mentioning the cultural information. Almost one in five visitors mentioned the videos, and more than one in 10 visitors mentioned either "the exhibits" in general or recalled a specific exhibit.

Some visitors recalled seeing a feature that wasn't included in the exhibition (16%), while others couldn't recall anything specific (8%). These responses aren't surprising, considering that visitors were filling out the survey four months after their visit. For example, more than one out of 10 visitors recalled seeing the white shark, even though this animal was exhibited in the Outer Bay exhibit and not in *Sharks*. However, the fact that almost four out of five visitors (76%) could recall something specific from the exhibition was an unexpected result, which helped to underscore the impact this exhibition had on visitors.

Table 34. Visitors' Most Vivid Memory of the Exhibition

Note: Visitors sometimes gave more than one response, so total responses exceed 100%.

Please describe your most vivid memory of <i>Sharks: Myth and Mystery</i> .	Frequency	Percent
Animals	64	25.6
The animals, sharks, rays	26	10.4
Variety of sharks	17	6.8
Hammerhead sharks	11	4.4
Seeing sharks up close	5	2.0
Egg cases	5	2.0
Information	45	18.0
Cultural information, myths	27	10.8
Sharks are misunderstood, not that aggressive	6	2.4
Specific conservation message in exhibition	5	2.0
Amount of information about sharks	5	2.0
How widespread sharks are in the world	2	0.8
Cultural videos	39	15.6
Mother Stingray video	12	4.8
<i>Saturday Night Live</i> video, Land Shark	9	3.6
Videos in general	8	3.2
Hawaii, hula video	7	2.8
<i>Jaws</i> video	3	1.2
Exhibit elements	34	14.8
The exhibit displays	13	6.4
Touch pool	9	3.6
Pop-up window	7	2.8
Atmosphere, lighting, sound, music	3	1.2
Mask try-on	2	0.8
Art and artifacts	16	6.4
Ornamental masks	8	3.2
Other art or artifact	8	3.2
Interacting with others	15	6.0
Watching my kids, grandkids	11	4.4
Staff were helpful, friendly	4	1.6
Not enough sharks; no white shark	8	3.2
Inuit; Pacific Northwest	7	2.8
Misremembered	39	15.6
Misremembered, mentioned white shark	32	12.8
Misremembered, mentioned another part of aquarium	7	2.8
Can't remember anything specific	19	7.6
Miscellaneous comments	18	7.2
Total visitors	250	

Miscellaneous comments included the following:

- Noticing the interest of all the people for conservation.
- Their many, many teeth.
- My most vivid memory was the audience wanting to string up the people that didn't know how to work their cameras and let a flash go off. Other than that I liked the large tank with the swimming sharks.
- The craft.
- Pictures of the sharks.
- Boring.
- The dances and stories associated with them.
- It was quite beautiful. The only thing I did not like was the amount of people. Very hard to see anything when there's too many people.
- And also very vivid is the memory of the American myth of the great white video as you are leaving the exhibit.
- The video on sharks. I did not find the myth part so interesting. Perhaps if there was a docent to point out some interesting features.
- Watching the feeding.
- Sorry, but I can't think of anything specific. I remember coming away with the image that these creatures needed to be protected. And I remember thinking how much the artwork complemented the exhibit.
- Being surveyed afterward.
- Seeing one particular shark in a very small tank and wondering if this environment was good for him/her.
- Having the room for the children to make shark hats was very cool.
- The shark displays suspended from the ceiling in the museum.
- The photos of the divers who follow sharks. Stingray City in Grand Cayman to be exact because I've been there.
- Dark.

12. Did people remember seeing conservation content four months after their visit?

Just over half (52%) of visitors remembered seeing or hearing conservation content in the exhibition. Of those who could recall something, almost nine out of 10 visitors (85%) recalled something specific. The majority of their comments (78%) were related to four main categories: shark products/seafood (36%); shark fishing (19%); the status of shark populations (16%); and shark conservation efforts (7%).

In addition, 4% of those visitors who could recall something mentioned that all sharks aren't dangerous, while another 4% mentioned specific exhibit elements (e.g., the parking meter/donations exhibit).

Table 35. Percentage of Visitors Remembering Conservation Content Four Months After Their Visit

Do you remember seeing or hearing anything about conservation in the exhibit?	Frequency	Percent
Yes	145	52.0
No	134	48.0
Total	279	100.0

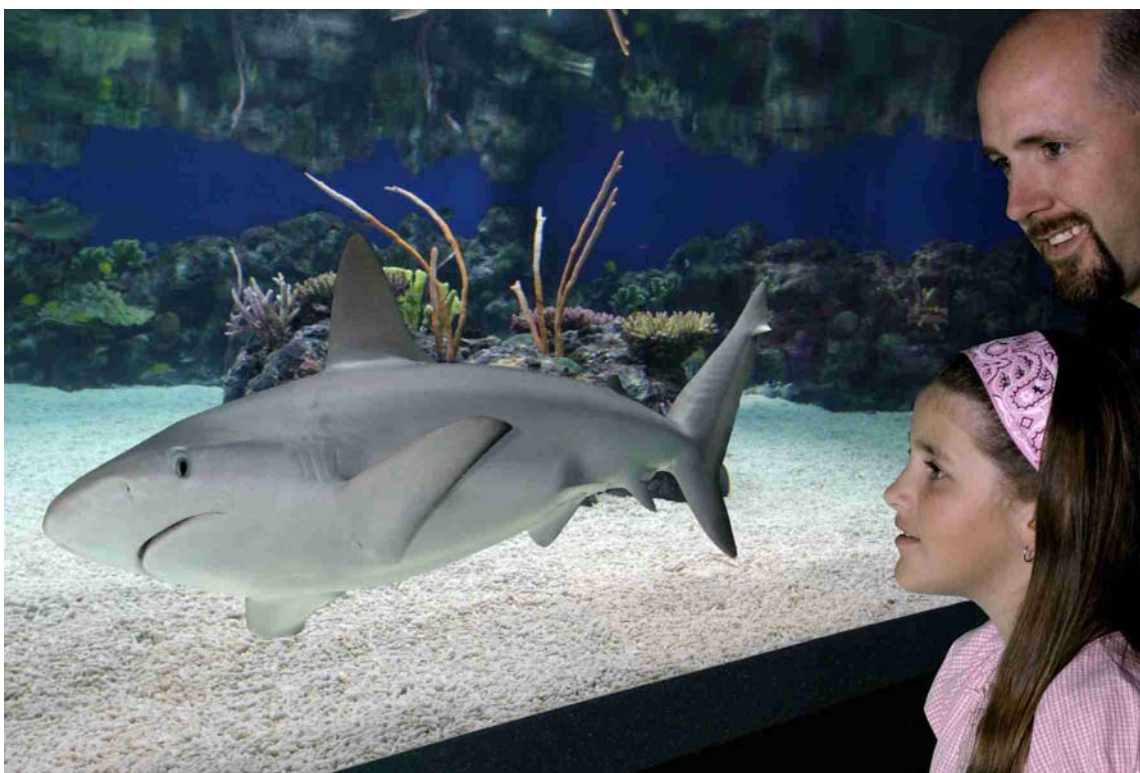


Table 36. Visitors’ Recollections of Conservation Content Four Months After Their Visit

Note: Visitors sometimes gave more than one response, so total responses exceed 100%.

What in particular do you remember seeing about conservation?	Frequency	Percent
Shark products/seafood	50	36.2
Don't use shark products, cartilage	17	12.3
Seafood choices	17	12.3
Don't eat shark-fin soup	16	11.6
Shark fishing	26	18.8
Should fish in certain ways; overfishing	16	11.6
Effect of fishing industry on shark populations	10	7.2
Status of shark populations	22	15.9
Sharks are endangered, need to be protected	8	5.8
Sharks are important, part of ecosystem	7	5.1
Decrease in shark populations	7	5.1
Shark conservation efforts	10	7.3
Don't pollute or put garbage in sea	5	3.6
Protecting their habitats; shark sanctuaries	3	2.2
Cultures are working to conserve sharks	2	1.4
All sharks aren't dangerous	6	4.4
Exhibit elements	5	3.6
Parking meter, donations exhibit	2	1.4
Oil drilling, spills	1	0.7
The labels (in general)	1	0.7
Saw it in videos	1	0.7
Other	41	29.7
There was a lot presented (nothing specific mentioned)	3	3.2
Misremembered, in other exhibition	7	5.1
Nothing in particular, can't recall	20	14.5
Miscellaneous comments	11	8.0
Total visitors	138	

Miscellaneous comments included the following:

- Not supporting certain industries that destroy shark populations.
- Only how they are hunted and what we use them for.
- At the exit there was a docent talking about it. As someone particularly concerned with conservation I was a bit disappointed that there wasn't more of a focus on the decline of shark populations and the need for conservation. In particular, I didn't see anything in the exhibit that really highlighted the importance of sharks in the ocean food chain.
- There was a stand outside the exhibit with lots of information and statistics.
- Mainly in the kids' section. Little pop-up window things. Also outside a booth with information.
- Bad Man, Bad Man! Stay off ocean. Go back to land and eat tofu.
- I believe the entire Monterey Bay Aquarium promotes conservation.
- I did however remember info in a different exhibit regarding plastic bags and the dangers to sea life and have since stopped using them and instead use paper.

- There was a lost young boy who could not find his parents. I helped find someone to help him.
- The children were really interested and impressed with the exhibit. They were fascinated.
- Feeling guilty about eating spicy tuna hand rolls!

13. How did visitors' memories for conservation content change from immediately after to four months after their visit?

Some visitors answered the question about conservation both immediately upon leaving the exhibition (during the exit survey) and four months later (in the web survey). Of the 105 visitors who answered both questions, nearly three-quarters (73%) said they recalled seeing something about conservation upon leaving the exhibition. In tracking these visitors four months later, 71% could still recall having seen something about conservation, while 29% couldn't. In contrast, another 7% couldn't recall seeing anything about conservation upon exiting, but did recall having seen something four months later. However, their recollections tended to be very general and didn't appear to be based on what they actually saw in the exhibition.

Not surprisingly, when comparing visitors' recollections immediately after visiting to their recollections four months later, there were differences in the kinds of conservation content visitors recalled. Immediately after visiting, people were more likely to mention specific conservation exhibits or content, while four months later their memories were more general.

For example, comments immediately after the visit were more likely to include things like the parking meter exhibit; that cultures are working to protect sharks; or oil spills. Four months later, visitors were more likely to recall general concepts, like the effect of the fishing industry on shark populations, the decrease in shark populations and that sharks are an important part of the ecosystem. This difference is certainly not unexpected.

However, there was one exception to the finding that visitors' memories of conservation content were more general four months after the visit. Four months later, visitors were more likely to remember something about not eating shark-fin soup, a specific topic. Two possible explanations for this finding are that visitors had this topic reinforced in their minds because they saw information about it in other areas of the aquarium besides *Sharks*, or that the topic of shark finning was simply more memorable than other topics or issues.

Table 37. Visitors' On-Site and Post-Visit Recollections of Conservation Content

Do visitors remember seeing conservation content in <i>Sharks</i> ?		Frequency	Percent
On-Site Interview	Web Survey		
Yes	Yes	55	52.4
No	No	21	20.0
Yes	No	22	21.0
No	Yes	7.0	6.7
Total		105	100.0

Table 38. Visitors' Recollections of Conservation Content Immediately After Their Visit and Four Months Later

Visitor Recollections	Immediately After Visit (n = 229)	Four Months Later (n = 138)	Post-Visit Difference
	Percent	Percent	Percent
Post-Visit Gain			
Effect of fishing on shark populations	0.0	7.2	+ 7.2
Don't eat shark-fin soup	5.2	11.6	+ 6.4
Decrease in shark populations	0.9	7.1	+ 6.2
Sharks are important, part of ecosystem	0.9	7.1	+ 6.2
Nothing in particular; can't recall	10.5	14.5	+ 4.0
All sharks aren't dangerous	1.3	4.4	+ 3.1
Should fish in certain ways	8.7	11.6	+ 2.9
There was a lot (nothing specific mentioned)	0.4	3.2	+ 2.8
Sharks are endangered, need to be protected	3.1	5.8	+ 2.7
Misremembered, in other exhibition	0.9	3.6	+ 2.7
Don't pollute or put garbage in sea	2.2	3.6	+ 1.4
Miscellaneous comments	9.6	10.0	+ 0.4
Post-Visit Loss			
Parking meter, donations exhibit	11.8	1.4	- 10.4
Cultures working to conserve sharks	7.9	0.7	- 7.2
Oil drilling, spills	7.0	0.7	- 6.3
Seafood choices	12.3	7.1	- 5.2
Protecting shark habitats, sanctuaries	6.1	2.2	- 3.9
Catch and release when fishing	3.9	0.0	- 3.9
The labels (in general)	3.1	0.7	- 2.4
Don't use shark products, cartilage	14.4	12.3	- 2.1
Saw it in the videos	2.1	0.7	- 1.4
Paper Towels = Trees	0.9	0.0	- 0.9
Total	100.0	100.0	

Appendix A
Background on Timing and Tracking Expectations

One of the most difficult parts about interpreting results from timing and tracking studies is defining what a "normal" amount of time spent or a "typical" percentage of stops should be. This section provides some context by comparing data from this study with data from a meta-analysis that focused on a variety of exhibitions nationwide.

The following statements come from the book *Paying Attention: Visitors and Museum Exhibitions* (p. IX). The results are a compilation of timing and tracking studies conducted in 110 museum exhibitions.

In 80% of the exhibitions, the average total visit time was less than 20 minutes regardless of the size or topic of the exhibition.

Frequency distributions of time spent in exhibitions showed that most visitors spend relatively little time and fewer visitors spend longer times.

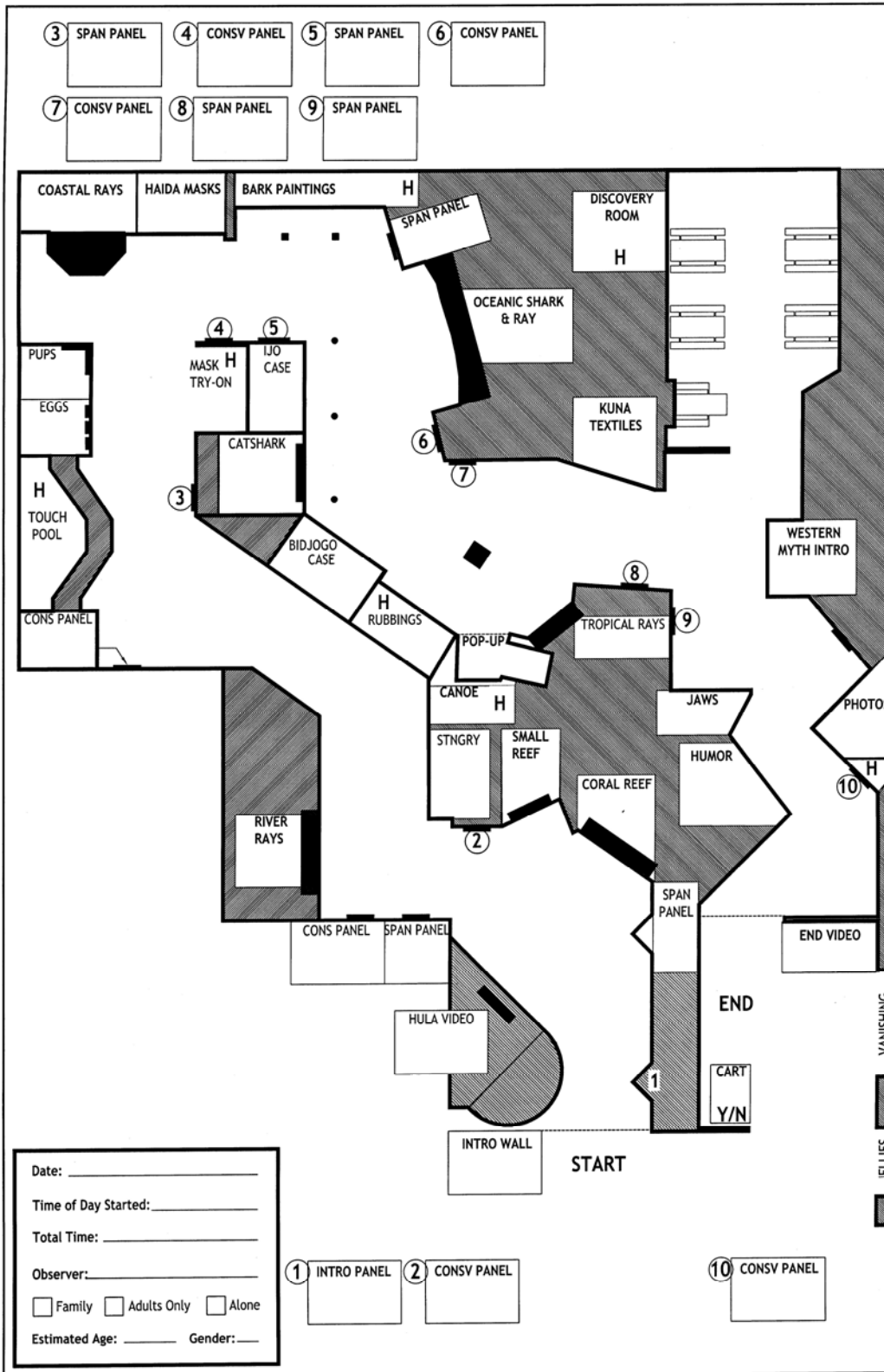
Visitors typically stopped at about one-third of the exhibition elements.

In general, the amount of time visitors spent in an exhibition was directly and positively related to the number of elements at which they stopped.

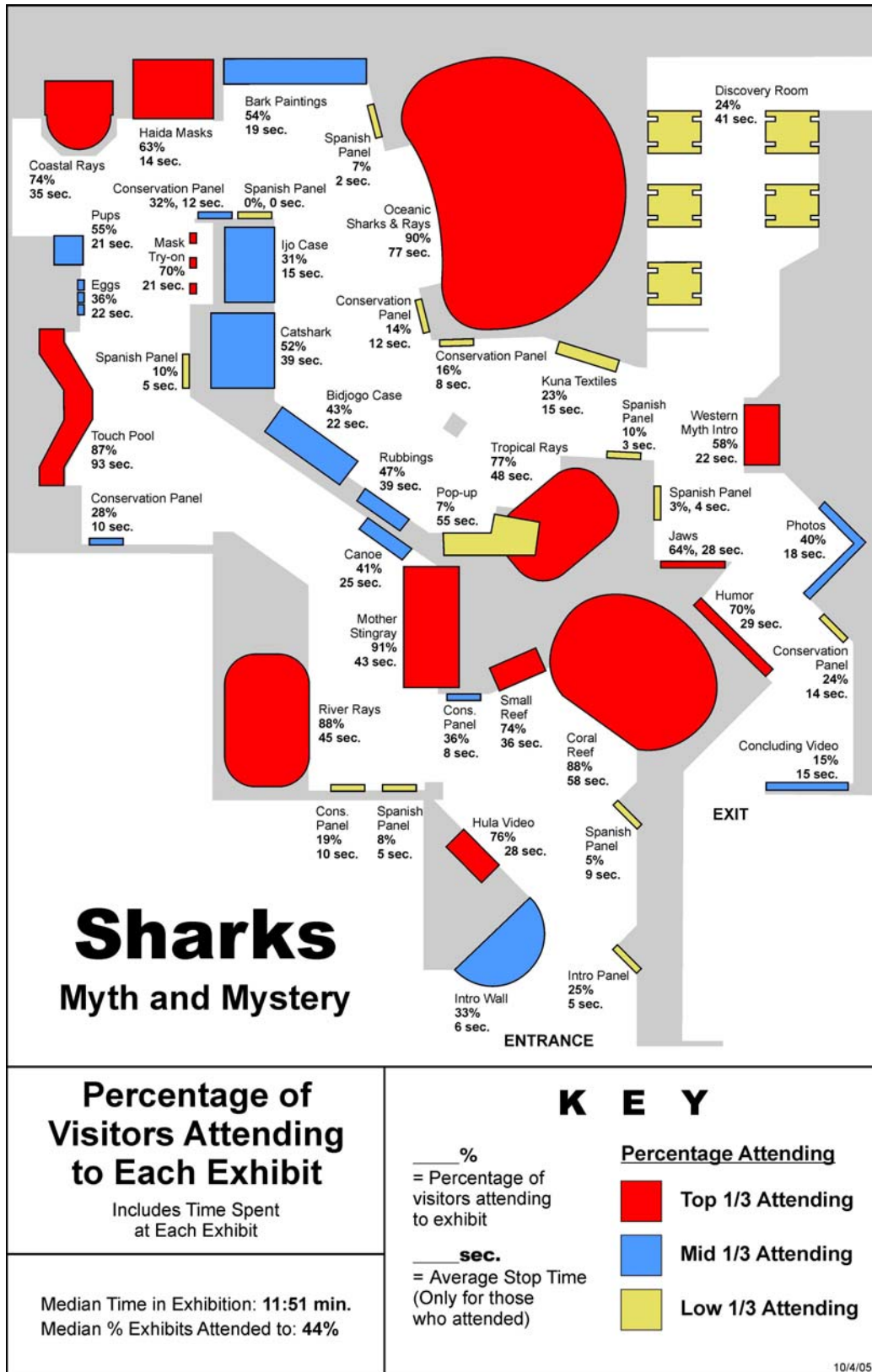
Comparisons across groups of exhibitions suggest that time spent and stops made differed among three subgroups (large exhibitions, old or pre-renovation exhibitions, and diorama-like exhibitions), but did not differ significantly among exhibition topics or types of museums.

Among the 110 exhibitions in this study, exceptionally thoroughly used exhibitions were uncommon. These included exhibitions that charged a fee, were newly opened, contained elements that were extremely captivating, or attracted an audience that was apparently very intentional about being thorough.

Appendix B
Timing and Tracking Form



Appendix C
Percentage of Visitors Attending to Each Exhibit



10/4/05

Appendix E
Exhibits by Type

<u>Exhibit Type</u>	<u>Exhibit</u>
Animal tank (9)	Coral Reef Tank Small Reef Tank River Rays Tank Shark Egg Cases Tank Shark Pups Tank Coastal Rays Tank Oceanic Sharks and Rays Tank Catsharks Tank Tropical Rays Tank
Interactive exhibit (6)	Amazon Canoe Interactive Sharks and Rays Touch Pool Mask Try-On Interactive Mayan Rubbings Interactive Tropical Rays Pop-Up Window Craft Room
Cultural exhibit without video (4)	Australian Bark Paintings Ijo Display Case Kuna Textiles Manta Ray Photos
Cultural exhibit with video (8)	Hula Video Mother Stingray Object Theater Haida Masks and Video Bidjogo Display Case and Video Western Myths Display Case and Video Jaws Wall and Video Humor Wall and Video Conclusion Video
Title wall and intro panel (2)	Title Wall Intro Panel
Conservation panel (7)	Conservation Panel #1—Pacific Islands Conservation Panel #2—Amazon Conservation Panel #3—Pacific Northwest Conservation Panel #4—Africa Conservation Panel #5—Australia Conservation Panel #6—Central America Conservation Panel #7—Western Myths

Spanish panel (7)

- Spanish Panel #1—Pacific Islands
- Spanish Panel #2—Amazon
- Spanish Panel #3—Pacific Northwest
- Spanish Panel #4—Africa
- Spanish Panel #5—Australia
- Spanish Panel #6—Central America
- Spanish Panel #7—Western Myths

Appendix F
Effects of Crowding on Visitor Behavior

Table F1. Total Time in *Sharks* by Attendance

Attendance	Average Time	Standard Deviation
2,500 to 4,999	12:27	6:29
5,000 to 5,999	13:56	6:45
6,000 to 9,900	11:49	7:05

Statistically significant difference? No

Table F2. Total Time at Exhibits by Attendance (Includes Tanks)

Attendance	Average Time	Standard Deviation
2,500 to 4,999	10:20	6:03
5,000 to 5,999	10:56	5:57
6,000 to 9,900	9:09	6:27

Statistically significant difference? No

Table F3. Total Number of Exhibits Attended to by Attendance (Includes Tanks)

Attendance	Number of Exhibits	Standard Deviation
2,500 to 4,999	20	6.4
5,000 to 5,999	18	7.6
6,000 to 9,900	18	6.8

Statistically significant difference? No

Table F4. Percentage of Total Time Spent at Animal Tanks by Attendance

Attendance	Mean	Standard Deviation
2,500 to 4,999	40%	15.0%
5,000 to 5,999	35%	16.2%
6,000 to 9,900	41%	20.1%

Statistically significant difference? No

Table F5. Percentage of Total Time Spent at Non-Living Exhibits by Attendance

Attendance	Mean	Standard Deviation
2,500 to 4,999	40%	14.4%
5,000 to 5,999	41%	17.0%
6,000 to 9,900	31%	16.5%

Statistically significant difference? **Yes**

Table F6. Percentage of Total Time Spent at Interactive Exhibits by Attendance

Attendance	Mean	Standard Deviation
2,500 to 4,999	18%	14.2%
5,000 to 5,999	19%	14.4%
6,000 to 9,900	12%	9.3%

Statistically significant difference? **Yes**

Table F7. Percentage of Total Time Spent at Cultural Exhibits With Video by Attendance

Attendance	Mean	Standard Deviation
2,500 to 4,999	16%	11.5%
5,000 to 5,999	16%	11.3%
6,000 to 9,900	15%	11.6%

Statistically significant difference? **No**

Table F8. Percentage of Total Time Spent at Cultural Exhibits Without Video by Attendance

Attendance	Mean	Standard Deviation
2,500 to 4,999	2%	3.4%
5,000 to 5,999	3%	4.1%
6,000 to 9,900	3%	3.2%

Statistically significant difference? **No**

Table F9. Percentage of Total Time Spent at Conservation Panels by Attendance

Attendance	Mean	Standard Deviation
2,500 to 4,999	3%	3.2%
5,000 to 5,999	2%	3.0%
6,000 to 9,900	1%	1.3%

Statistically significant difference? **Yes**

Table F10. Percentage of Total Time Spent at Spanish Panels by Attendance

Attendance	Mean	Standard Deviation
2,500 to 4,999	<1%	0.2%
5,000 to 5,999	<1%	0.8%
6,000 to 9,900	<1%	0.3%

Statistically significant difference? No

Table F11. Percentage of Total Time Spent at Introductory Elements by Attendance

Attendance	Mean	Standard Deviation
2,500 to 4,999	1%	3.0%
5,000 to 5,999	1%	2.2%
6,000 to 9,900	1%	1.4%

Statistically significant difference? No

Appendix G
On-Site Interview Form

NOTE: Original interview form was on legal-sized paper (8 ½ X 14), so formatting is not exact.

Date: _____

Interviewer: _____

Hello! We're trying to get some feedback about the *Sharks: Myth and Mystery* exhibit. Do you have just a few minutes to answer some questions? It would really help us out.

1. On a scale from 1 to 10, where 1 is poor and 10 is excellent, how would you rate the *Sharks: Myth and Mystery* exhibit? _____

1a. Can you tell me something that would make it even better? _____

2. Please complete the following sentence about the *Sharks: Myth and Mystery* exhibit:
"I never realized that..."

3. Besides the living animals, which part of *Sharks: Myth and Mystery* did you enjoy the most?

3a. Why did you enjoy that part the most? _____

4. Do you remember seeing or hearing anything about conservation in *Sharks: Myth and Mystery*? Yes No

[If Yes,] 4a. What in particular do you remember seeing about conservation?

5. There is a lot of material in this exhibit besides the live animals. Did this material enhance your experience, detract from your experience, or not make much of a difference to you?

Enhance

Detract

No difference

[If Enhance or Detract] In what way did it [enhance / detract from] your experience?

NOW JUST A FEW QUESTIONS ABOUT YOU....

6. Is this your first visit to the aquarium? Yes No **[If Yes, skip to Q7]**

6a. Is this your first visit to the *Sharks: Myth and Mystery* exhibit? Yes No **[If Yes, skip to Q7]**

6b. How many times have you been to this exhibit before today? _____

7. Are you a member of the aquarium? Yes No

8. What year were you born? _____
9. How many adults, including yourself, are in your group? _____
10. How many children under 18? _____
11. What is your zip code (or country of origin)? _____
12. [Interviewer Records] Gender: Male Female
-

To further improve the *Sharks* exhibit we will be contacting people a few months from now. May we contact you in a couple of months and ask you a few questions about your experience here today?

No (Refusal)

If No – Thank you very much for your time. Here is a small gift to thank you for your time!

If Yes – Continue below.

1. What is your first name: _____

2. What is your e-mail address (we will only use this to contact you about this study):

- No e-mail
 Don't want to give e-mail *DO NOT READ THESE OPTIONS*
 Can't remember my e-mail

2a. If you don't have e-mail, we can mail the survey to you. What is your address?

- Prefer not to give my address (Refusal)

Thank you for your time!

Appendix H
Web Survey Contact Card

Date: _____

Interviewer: _____

Hello! We're trying to get some feedback about the *Sharks: Myth and Mystery* exhibit. Do you have just a few minutes to answer some questions? It would really help us out.

1. Is this your first visit to the aquarium? Yes No **[If Yes, skip to Q2]**

1a. Is this your first visit to the *Sharks: Myth and Mystery* exhibit? Yes No **[If Yes, skip to Q2]**

1b. How many times have you been to this exhibit before today? _____

2. Are you a member of the aquarium? Yes No

3. What year were you born? _____

4. How many adults, including yourself, are in your group? _____

5. How many children under 18? _____

6. What is your zip code (or country of origin)? _____

7. **[Interviewer Records]** Gender: Male Female

To further improve the *Sharks* exhibit we will be contacting people a few months from now. May we contact you in a couple of months and ask you a few questions about your experience here today?

No (Refusal)

If No – Thank you very much for your time. Here is a small gift to thank you for your time!

If Yes – Continue below.

1. What is your first name: _____

2. What is your e-mail address (we will only use this to contact you about this study):

No e-mail

Don't want to give e-mail

DO NOT READ THESE OPTIONS

Can't remember my e-mail

2a. If you don't have e-mail, we can mail the survey to you. What is your address?

Prefer not to give my address (Refusal)

Thank you for your time!

Appendix I
Web Survey Form

Monterey Bay Aquarium Survey

NOTE: The questions below were included on a multi-page web survey. Special software was used to create the survey and since the items appeared on different pages the survey in its original format could not be included.

----- Start of Web Survey -----

Four months ago, while visiting the Monterey Bay Aquarium, we talked to you outside an exhibit called *Sharks: Myth and Mystery*.

1. Do you remember visiting the *Sharks: Myth and Mystery* exhibit? [Yes/No]

----- New Page -----

1a. If no to Question 1, It was the exhibit that showed how different cultures around the world celebrate sharks and rays through myths and legends. It featured live sharks and rays, as well as storytelling, artwork and performances.

----- New Page -----

2. If yes to Question 1, Have you visited the *Sharks: Myth and Mystery* exhibit since we talked to you? [Yes/No]

----- New Page -----

Please answer these questions in as much detail as possible.

3. Have you talked to anyone about the *Sharks: Myth and Mystery* exhibit since you saw it four months ago? [Yes/No]

4. If you answered yes to Question 3, what did you talk about? [Open-ended]

5. Have there been any instances in your day-to-day life that reminded you of the exhibit (e.g., a television show you saw or a conversation you overheard)? [Yes/No]

6. If you answered yes to Question 5, what was it exactly that reminded you of the exhibit? [Open-ended]

----- New Page -----

This section asks about your visit to the exhibit. Please answer these questions in as much detail as possible.

7. Please describe your most vivid memory of *Sharks: Myth and Mystery*. [Open-ended]

8. Do you remember seeing or hearing anything about conservation in the exhibit? [Yes/No]

9. If you answered yes to Question 8, what in particular do you remember seeing about conservation? [Open-ended]

----- *New Page* -----

You're done!

As an immediate thank you, you can copy and paste the following website link to download free electronic wallpaper of the white shark at the aquarium: [web link included here for survey participants].

Your name will also be entered into a random drawing for one of two prizes. If your name is selected you will be contacted by e-mail within four weeks of the survey deadline.

If you have any questions or comments, please feel free to contact me at syalowitz@mbayaq.org.

Thanks so much for your time,

Steven Yalowitz
Monterey Bay Aquarium

----- *End of Web Survey* -----