



Impact Planning, Evaluation & Audience Research

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Summative Evaluation

Hot Pink Flamingos: Stories of Hope in a Changing Sea

**Prepared for the
Monterey Bay Aquarium
Monterey, CA**

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INTRODUCTION

The Monterey Bay Aquarium (the Aquarium) contracted Randi Korn & Associates, Inc. (RK&A) to evaluate *Hot Pink Flamingos: Stories of Hope in a Changing Sea*, an exhibition that explores how climate change is affecting ocean life and recommends small changes we all can make in our personal lives to help the oceans as well as big changes we can make together to solve the climate crisis. The evaluation documents the impact and effectiveness of the exhibition against the Aquarium's goals and objectives.

Specifically, the evaluation explores:

- ◆ How thoroughly visitors use the exhibition, including total time spent in the exhibition and at individual exhibits, total number of exhibits attended to and individual exhibits attended to and exhibit behaviors;
- ◆ Visitors' interactions in the exhibition;
- ◆ Visitors' responses to the exhibition;
- ◆ What ideas or take-home messages visitors come away with;
- ◆ What ideas or messages about climate change visitors come away with; and
- ◆ What visitors think about the Aquarium's approach to interpreting climate change and advocating its solutions.

METHODOLOGY AND DATA ANALYSIS

RK&A conducted timing and tracking observations and interviews. All data were collected in October 2010 at the Monterey Bay Aquarium. Data were collected on Thursdays, Fridays, Saturdays and Sundays.

TIMING AND TRACKING OBSERVATIONS

Timing and tracking observations provide an objective and quantitative account of how visitors behave and react to exhibition components. Observational data indicate how much time visitors spend in the exhibition and the range of visitor behaviors. The timing and tracking form was developed by Aquarium staff.

Trained data collectors observed 120 visitors to the exhibition. Data collectors observed eligible visitors (visitors 18 years and older) selected using a continuous random sampling method. In accordance with this method, the data collector imagined a line at the entrance to *Hot Pink Flamingos* and selected the first eligible visitor to cross this imaginary line. Once the visitor crossed the imaginary line, the data collector started her stopwatch and followed the selected visitor through the exhibition, recording the exhibits used, noting interactions and logging total time spent in the exhibition (see Appendix C for the timing and tracking form). When the visitor completed his or her visit, the data collector returned to the entrance to await the next eligible visitor to cross the imaginary line.

Timing and tracking observation data are quantitative and were analyzed using SPSS 12.0.1 for Windows, a statistical package for personal computers. Analyses include descriptive and inferential

methods. Statistical tests employed a 0.05 level of significance to preclude findings of little practical significance.¹ All statistical analyses run are listed in Appendix G.

Frequency distributions were calculated for all variables. Summary statistics were also calculated for time variables. Summary statistics include the range, median (50th percentile, the data point at which half the responses fall above and half fall below)², mean (average) and standard deviation (spread of scores: “±” in tables).

To examine the relationship between two categorical variables, cross-tabulation tables were computed to show the joint frequency distribution of the variables, and the chi-square statistic (X^2) was used to test the significance of the relationship. For example, “stop at exhibit” was tested against “group composition” to determine whether exhibit stops were related to the visitor group.

To test for differences in the medians of two or more groups, the nonparametric Kruskal-Wallis (K-W) test was performed.³ For example, “total time in the exhibition” was compared by “group composition” to determine whether time spent in the exhibition was related to the visitor group.

IN-DEPTH INTERVIEWS

In-depth interviews encourage and motivate visitors to describe their experiences, express their opinions and feelings and share with the interviewer the meaning they constructed from an experience. In-depth interviews produce data rich in information because interviewees talk about personal experiences.

Trained data collectors conducted interviews with 77 visitor groups, comprised of 129 visitors to *Hot Pink Flamingos*. Trained data collectors intercepted visitors exiting the exhibition using a continuous random sampling method. In keeping with this method, data collectors intercepted adult visitors (18 years or older) upon exiting the exhibition and asked them to participate in the interview. If the visitor declined, the data collector logged the visitor’s gender, estimated age, description of the visit group and reason for refusal. If the visitor agreed, the interview was conducted using an interview guide (see Appendix E).

All interviews were audio recorded and transcribed to facilitate analysis. Data were analyzed qualitatively. That is, the evaluator studied the transcripts for meaningful patterns and, as patterns and trends emerged, grouped similar responses.

¹ When the level of significance is set to $p = 0.05$, any finding that exists at a probability (p -value) ≤ 0.05 is “significant.” When a finding (such as a relationship between two variables) has a p -value of 0.05, there is a 95 percent probability that the finding exists; that is, in 95 out of 100 cases, the finding is correct. Conversely, there is a five percent probability that the finding wouldn’t exist; in other words, in five out of 100 cases, the finding appears by chance.

² Medians rather than means are reported in the timing and tracking section of this document because, as is typical, the number of exhibits used and the time spent by visitors were distributed unevenly across the range. For example, whereas most visitors spent a short to moderate time in the exhibition, a few spent an unusually long time. When the distribution of scores is extremely asymmetrical (i.e., “lopsided”), the mean is affected by the extreme scores and, consequently, falls further away from the distribution’s central area. In such cases, the median is a better indicator of the distribution’s central area because it’s not sensitive to the values of scores above and below it—only to the number of such scores.

³ The Kruskal-Wallis (K-W) test is a nonparametric statistical method for testing the equality of population medians of two or more groups. Nonparametric statistical methods don’t assume that the underlying distribution of a variable is “normal” with a symmetric bell shape, so they’re appropriate for testing variables with asymmetric distributions such as “total time in the exhibition.” The K-W test is analogous to a One-Way Analysis of Variance, with the scores replaced by their ranks. The K-W test statistic H has approximately a chi-square distribution.

REPORTING METHOD

Quantitative data are reported in tables. Percentages within tables may not always equal 100 owing to rounding. Findings within each topic are presented in descending order, starting with the most-frequently occurring.

Qualitative data are presented in narrative; trends and themes are presented from most- to least-frequently occurring. Exemplary quotations are presented to elucidate the trends. The visitor group is identified in brackets following the quotation, with interviewees' gender, age and group description. If there is more than one speaker in the quotation, the first speaker is identified by one asterisk (*), the second speaker by two asterisks (**), the third speaker by three asterisks (***) and so on.

EXHIBITION OVERVIEW

Hot Pink Flamingos is a special exhibition at the Monterey Bay Aquarium that opened in spring 2010 and closes in fall 2011 (see Figure 1). The Monterey Bay Aquarium website says of the exhibition, “Amazing animals will capture your heart in our new 7,000-foot special exhibition (5,092 sq. ft. of public space). Take a trip through our galleries—and across the globe—and discover how climate change is affecting ocean life. Along the way, you'll meet people and communities who are reducing their carbon pollution, and learn about the small changes we can all make to help the oceans.” (Monterey Bay Aquarium, 2010).

FIGURE 1
PHOTO OF TITLE WALL



Hot Pink Flamingos is the first of a suite of Aquarium programs and exhibitions interpreting and raising awareness about climate change. The exhibition goals include:

- (1) Telling stories about climate change and the ocean;
- (2) Identifying specific actions to address climate change;
- (3) Responding to visitors' understanding of and relationship to climate change; and
- (4) Communicating that there's hope for the climate crisis—people can make a difference by working together and taking action.

The exhibition is displayed on the ground floor of the Aquarium, adjacent to *The Secret Lives of Seahorses* and *Vanishing Wildlife* exhibitions. The exhibition contains live animal displays (flamingos, corals and coral reef fishes, spotted jellies, sea turtles and penguins), various interactives (high- and low-engagement⁴), videos, posters, panels and explanatory text.

⁴ High-engagement interactives require relatively high commitment and attention to the exhibit, such as polls and talkback interactives. Low-engagement interactives require relatively low commitment and attention to the exhibit, such as flip panels, videos or text that are initiated by touch.

SUMMARY AND DISCUSSION OF SELECT FINDINGS: TIMING AND TRACKING OBSERVATIONS

INTRODUCTION

The following section discusses findings of practical significance to the Aquarium. See the following section for a more thorough presentation of timing and tracking findings. The number listed in parentheses that follows an exhibit title indicates the location of that exhibit on the exhibition floor plan (see Appendix A).

SELECT FINDINGS

OVERALL EXHIBITION ATTENDANCE

Of the 42 exhibits identified for the timing and tracking form, the median number of exhibits attended is 13 exhibits. This is a smaller percentage of exhibits attended than at other special exhibitions at the Aquarium.

TIME SPENT IN THE EXHIBITION

The median time spent in the exhibition is 12 minutes; this is comparable to time spent in other Aquarium special exhibitions. Interestingly, in contrast to the Aquarium's expectations, visitors with children are spending more time in the exhibition than those in adult-only groups (approximately 15 minutes versus 10 minutes).

ANIMAL EXHIBITS

As anticipated, live animal exhibits were most attended; all visitors attended at least one animal exhibit, and almost two-thirds of visitors attended all five of the live animal exhibits. The flamingos were the most attended animal exhibit, while the spotted jellies were the least attended. This is noteworthy since Aquarium staff members observed jellies to be among their more popular animals, and thus, we may hypothesize that the location or size of the jellies' tank may have factored into visitors' attendance.

ARCTIC VIDEO

Arctic Video (#14) is one of the most attended exhibits (67 percent of visitors attended), although visitors spent relatively little time at the exhibit (median time = 21 seconds). That is, while an attractive exhibit, it's less successful at holding visitors' attention. Anecdotal information suggests that the content of the video is in contrast to some visitors' expectations for their Aquarium experience. Specifically, the video focuses on how climate change has affected Shishmaref villagers, including that climate change has reduced various animal populations, which has made hunting difficult; the paradox for some visitors is that the animals are still being killed whether it be by climate change or by humans.

FAITH AND ACTION PANELS AND AUTOMATA

Like Arctic Video, the Faith and Action Panels/Automata Figure (#22) is one of the most attended exhibits (59 percent of visitors attended), although visitors spent little time at the exhibit (median time = eight seconds). Considering visitors' behaviors at the exhibit (71 visitors attended the exhibit, 57 viewed the automata, and 40 looked at the panel), we may hypothesize that while the automata was highly attractive, the content or display of the content didn't hold visitors' attention.

WORLD OF CHANGE AREA

World of Change Area (#31) was moderately attended (34 percent). However, it had the seventh highest median time for individual exhibits—considerable since the six highest median times were for animal exhibits. This indicates that the content of the exhibit was highly engaging for a select portion of visitors.

SPEAK UP SENATOR E-CARD

Speak Up Senator E-Card (#41) didn't perform as well as Aquarium staff had anticipated (12 percent of visitors attended the exhibit and the median time spent was 10 seconds). Potentially, the exhibit's location caused it to compete for attention with Do One More Thing Interactive (#42)—an exhibit with relatively high attendance (48 percent of visitors attended). It's also plausible that visitors skipped the exhibit because they perceived it as political; interview data indicated that visitors responded unfavorably to the politicization of climate change.

DO ONE MORE THING INTERACTIVE

Do One More Thing Interactive (#42) was the most attended high-engagement interactive; however, less than one-fifth of the visitors who attended the exhibit started using the interactive and fewer completed the interactive. Additionally, we found that visitors with children spend significantly more time at the exhibit than visitors in adult-only groups. Thus, it seems that this exhibit appeals much more to children than adults; that, or when the exhibit is crowded, adults tend to stand back and allow children to use the exhibit.

PRINCIPAL FINDINGS: TIMING AND TRACKING OBSERVATIONS

INTRODUCTION

Observation data for *Hot Pink Flamingos* were collected at the Monterey Bay Aquarium during two weeks in October 2010. Trained data collectors conducted 120 timing and tracking observations of adult visitors to the exhibition. Observations were conducted during weekdays (47 percent) and weekend days (53 percent) (see Table 1).

TABLE 1
DATA COLLECTION CONDITIONS

DAY OF THE WEEK (<i>n</i> = 118)	%
Weekend day	53.4
Weekday	46.6

DESCRIPTION OF VISITORS

As shown in Table 2, slightly more than one-half of observed visitors were male (53 percent). More than one-half of observed visitors were visiting the exhibition in adult-only groups (54 percent), while almost one-half were visiting in groups of adults and children (42 percent)⁵—the majority of these visitors were with at least one child between ages 0 and 8 (76 percent).

TABLE 2
DEMOGRAPHIC CHARACTERISTICS OF OBSERVED VISITORS

GENDER (<i>n</i> = 120)	%
Male	52.5
Female	47.5
GROUP COMPOSITION (<i>n</i> = 120)	%
Adults only	54.2
Adults and children	41.7
Alone	4.2
AGE OF CHILDREN IN VISIT GROUP (<i>n</i> = 50)	%
0-8 years	76.0
9-12 years	24.0
13-17 years	10.0

⁵ For this study, any visitor under 18 is considered a child.

VISITATION TO THE OVERALL EXHIBITION

This section describes the number of exhibits visitors attended in the exhibition as well as the time spent in the exhibition. Additionally, RK&A tested these findings by the gender and group composition (with or without children) to explore differences by these factors.

NUMBER OF EXHIBITS ATTENDED

In the exhibition, the Aquarium identified 42 distinct exhibits or exhibit components.⁶ For this evaluation, “attending an exhibit” means that a visitor looked at or interacted with an exhibit for two seconds or longer, regardless of whether he or she physically stopped at that exhibit.⁷

As shown in Table 3, visitors attended between one and 31 of the 42 available exhibits. The median number of exhibits attended was 13 (31 percent of the available exhibits/exhibit components). Almost one-half of visitors attended between 11 and 15 exhibits (44 percent).

TABLE 3
TOTAL NUMBER OF EXHIBITS ATTENDED

TOTAL NUMBER OF EXHIBITS ATTENDED (<i>n</i> = 120)	% OF VISITORS
1-5	6.7
6-10	19.2
11-15	44.2
16-20	16.7
21 or more	13.3
SUMMARY STATISTICS (<i>n</i> = 120)	NUMBER OF EXHIBITS ATTENDED
Range	1 to 31
Median number	13
Mean number	13.5
Standard deviation (\pm)	5.68

SIGNIFICANT RELATIONSHIPS

When number of exhibits attended was compared by gender and group composition, no significant relationships emerged.

⁶ In this report, we use the word “exhibit” to identify *observable* subsections in the exhibition identified by the Aquarium and RK&A, which sometimes equates to exhibits or parts of an exhibit. Thus, sometimes live animal exhibits have been identified as three separate exhibits since the exhibits cover large areas of the exhibition.

⁷ The Aquarium uses “attending to” rather than “stopping at” to describe visitors’ engagement with exhibits. “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.

TIME SPENT IN THE EXHIBITION

Using a stopwatch, data collectors documented the amount of time visitors spent in the entire exhibition. Time spent in the exhibition ranged from about 41 seconds to almost 40 minutes, with a median time of approximately 12 minutes (see Table 4).

TABLE 4
TOTAL TIME SPENT IN THE EXHIBITION

TOTAL TIME SPENT IN THE EXHIBITION (<i>n</i> = 120)	% OF VISITORS
Less than 5 minutes	15.8
5-10	27.5
10-15	20.0
15-20	19.2
More than 20	17.5
SUMMARY STATISTICS (<i>n</i> = 120)	TIME (MIN:SEC)
Range	:41 to 39:33
Median time	12:08
Mean time	13:15
Standard deviation (\pm)	8:20

SIGNIFICANT RELATIONSHIPS

When time spent in the exhibition was compared by gender and group composition, one significant relationship emerged:

- ♦ Visitors with children are spending more time in the exhibition than are visitors without children (median time = 15 minutes 7 seconds versus median time = 9 minutes 56 seconds) (see Table 4a).

TABLE 4a
TIME SPENT IN THE EXHIBITION BY GROUP COMPOSITION

TIME SPENT	<i>n</i>	GROUP COMPOSITION		
		CHILDREN (ADULTS AND CHILDREN)	NO CHILDREN (ALONE OR ADULTS ONLY)	TOTAL
		MEDIAN TIME (MIN:SEC)	MEDIAN TIME (MIN:SEC)	MEDIAN TIME (MIN:SEC)
Time spent in the exhibition ¹	120	15:07	9:56	12:08

¹ $\chi^2 = 5.300$; $df = 1$; $p = .021$ (Kruskal-Wallis test)

VISITATION TO INDIVIDUAL EXHIBITS⁸

This section describes the percentage of visitors who attend to individual exhibits as well as the time spent at individual exhibits. Additionally, RK&A tested these findings by the gender and group composition (with or without children) to explore any differences by these factors.⁹

INDIVIDUAL EXHIBITS ATTENDED

RK&A calculated the percentage of visitors who attended each of the 42 exhibits (see Table 5, next page). The most attended exhibits all featured live animals: the right window of the Flamingos exhibit (#5) (88 percent of visitors), the Coral Reef exhibit (#16) (85 percent), the main window of the Sea Turtles exhibit (#26) (84 percent), the right window of the Penguins exhibit (#32) (80 percent), and the Spotted Jellies exhibit (#24) (71 percent). Other exhibits attended by more than one-half of visitors are Arctic Video (#14) (67 percent), Faith and Action Panels/Automata Figure (#22) (59 percent), the left window of the Penguins exhibit (#34) (55 percent), and the left window of the Flamingos exhibit (#6) (52 percent).

The least attended exhibits are posters, including Simmering Seas Poster (#23) (2 percent of visitors) and Make Change Poster (#37) (3 percent). Other less attended exhibits featured posters or text panels: the Coral Graveyard right-hand panels (#19) (6 percent), Hope Electrified panel (#7) (7 percent), Climate Change Hits Home Panel (#25) (8 percent), and Coral Graveyard left-hand panels (#17) (8 percent).

⁸ Again, we use the word “exhibit” to identify the 42 *observable* elements or sections of the exhibition identified by the Aquarium and RK&A. Thus, sometimes certain exhibits, like live animal exhibits, have been identified as two or more separate exhibits since they cover large areas of the exhibition. In most of this section, data are reported on the 42 observable sections of the exhibition; the one exception is the reporting dedicated to live animal exhibits. For further analysis of other exhibits divided for observation purposes, please refer to Appendix G.

⁹ Whether a feeding was occurring during a visitors’ attendance wasn’t tested because the feedings were infrequent.

TABLE 5**PERCENTAGE OF VISITORS WHO ATTENDED INDIVIDUAL EXHIBITS**

EXHIBIT # AND TITLE	% OF VISITORS WHO ATTENDED
5. Flamingos: Right window	88.3
16. Coral Reef	85.0
26. Sea Turtles: Main window	84.2
32. Penguins: Right window	80.0
24. Spotted Jellies	70.8
14. Arctic Video	66.7
22. Faith and Action Panels and Automata	59.2
34. Penguins: Left window	55.0
6. Flamingos: Left window	51.7
42. Do One More Thing Interactive	48.3
9. Hope Electrified: Right-hand panels + cow	46.7
21. Share Your Stories Talkback	35.8
31. World of Change Area	34.2
2. Carbon Pollution Area	32.5
35. Penguin Sculpture	32.5
18. Coral Graveyard: Video	31.7
28. Turtle Eggs	30.8
27. Sea Turtles: End window	27.5
38. Hero at Home: Laundry area	26.7
36. Penguins: End window	25.8
39. Hero at Home: Stove + Microwave	25.8
11. Posters: Respect Nature, Cheeseburger, Food Makes a Difference	24.2
40. Hero at Home: Bulletin board + Refrigerator	23.3
12. Iceless Arctic Poster	22.5
30. Hope Taking Root Panels	22.5
3. Under Water Poster	20.0
8. Hope Electrified: Center panels	19.2
10. Opinion Poll	18.3
13. Arctic Panel	17.5
20. Posters: Change, Oh Please Do, Climate Change	17.5
1. Flamingo Poster: Inside title wall	16.7
4. Emotional Climate Poll	16.7
15. Acid Ocean Poster	14.2
33. Posters: Grandparents, You Are No Exception, Eat	14.2
29. Make A Wish Talkback	13.3
41. Speak Up Senator E-Card	11.7
17. Coral Graveyard: Left-hand panels	7.5
25. Climate Change Hits Home Panel	7.5
7. Hope Electrified: Left-hand panels	6.7
19. Coral Graveyard: Right-hand panels	5.8
37. Make Change Poster	2.5
23. Simmering Seas Poster	1.7

SIGNIFICANT RELATIONSHIPS

For exhibits attended by more than 20 visitors, RK&A tested whether gender and group composition factored into visitation. There are several significant findings:

- ◆ Females are more likely than are males to attend the right-hand window of the Flamingos exhibit (#5)¹ (95 percent versus 83 percent), the Coral Reef exhibit (#16) (93 percent versus 78 percent), and the end window of the Sea Turtles exhibit (#27) (39 percent versus 18 percent) (see Table 5a).
- ◆ Visitors with children are more likely than are those without children to attend to the cow in Hope Electrified (#9) (58 percent versus 39 percent), while visitors without children are more likely than are visitors with children to attend the Iceless Arctic Poster (#12) (30 percent versus 12 percent) (see Table 5b).

TABLE 5a

PERCENTAGE OF VISITORS WHO ATTENDED INDIVIDUAL EXHIBITS BY GENDER

EXHIBIT	n	GENDER		
		MALE	FEMALE	TOTAL
		%	%	%
5. Flamingos: right main window ¹	106	82.5	94.7	88.3
16. Coral Reef ²	102	77.8	93.0	85.0
27. Sea Turtles: end window ³	33	17.5	38.6	27.5

¹ $\chi^2 = 4.320$; $df = 1$; $p = .038$ (Chi-square)

² $\chi^2 = 5.426$; $df = 1$; $p = .020$ (Chi-square)

³ $\chi^2 = 6.705$; $df = 1$; $p = .010$ (Chi-square)

TABLE 5b

PERCENTAGE OF VISITORS WHO ATTENDED INDIVIDUAL EXHIBITS BY GROUP COMPOSITION

EXHIBIT	n	GROUP COMPOSITION		
		CHILDREN (ADULTS AND CHILDREN)	NO CHILDREN (ALONE OR ADULTS ONLY)	TOTAL
		%	%	%
9. Hope Electrified: right series ¹	56	58.0	38.6	46.7
12. Iceless Arctic Poster ²	27	12.0	30.0	22.5

¹ $\chi^2 = 4.423$; $df = 1$; $p = .035$ (Chi-square)

² $\chi^2 = 5.419$; $df = 1$; $p = .020$ (Chi-square)

TIME SPENT AT INDIVIDUAL EXHIBITS

See Table 6 (next page) for the amount of time visitors spent at each exhibit. Visitors spent the most time at exhibits that featured live animals: the main window of the Sea Turtles exhibit (#26) (median time = 49 seconds), the Coral Reef exhibit (#16) (median time = 47 seconds), and the right window of the Flamingos exhibit (#5) (median time = 44 seconds).

Visitors spent the least time at posters: Make Change Poster (#37) (median time = 3 seconds), the Flamingo Poster on the inside of the title wall (#1) (median time = 4 seconds), Iceless Arctic Poster (#12) (median time = 4 seconds), and Simmering Seas Poster (#23) (median time = 4 seconds).

Notice that the percentage of visitors who attend specific exhibits doesn't correlate to the time spent at individual exhibits. That is, while a large percentage of visitors attended Arctic Video (#14) (67 percent) and Faith and Action Panels/Automata (#22) (59 percent), visitors didn't spend significant amounts of time at these exhibits (21 seconds and 8 seconds, respectively).

TABLE 6**TIME SPENT AT INDIVIDUAL EXHIBITS**

EXHIBIT # AND TITLE	NUMBER OF VISITORS WHO STOPPED	MEDIAN TIME (MIN:SEC)
26. Sea Turtles: Main window	101	:49
16. Coral Reef	102	:47
5. Flamingos: Right-hand window	106	:44
6. Flamingos: Left-hand window	62	:38
32. Penguins: Right-hand window	96	:35
34. Penguins: Left-hand window	66	:30
31. World of Change Area	41	:29
36. Penguins: End window	31	:28
24. Spotted Jellies	85	:27
10. Opinion Poll	22	:26
39. Hero at Home: Stove + Microwave	31	:26
27. Sea Turtles: End window	33	:24
35. Penguin Sculpture	39	:24
14. Arctic Video	80	:21
9. Hope Electrified: Right-hand panels + cow	56	:20
30. Hope Taking Root Panels	27	:19
38. Hero at Home: Laundry area	32	:19
13. Arctic Panel	21	:18
18. Coral Graveyard: Video	38	:18
21. Share Your Stories Talkback	43	:18
40. Hero at Home: Bulletin board + Refrigerator	28	:18
28. Turtle Eggs	37	:16
42. Do One More Thing Interactive	58	:15
8. Hope Electrified: Center panels	23	:14
25. Climate Change Hits Home Panel	9	:14
29. Make A Wish Talkback	16	:14
19. Coral Graveyard: Right-hand panels	7	:13
2. Carbon Pollution Area	39	:12
41. Speak Up Senator E-Card	14	:10
3. Under Water Poster	24	:09
4. Emotional Climate Poll	20	:08
22. Faith and Action Panels and Automata	71	:08
17. Coral Graveyard: Left-hand panels	9	:07
20. Posters: Change, Oh Please Do, Climate Change	21	:07
33. Posters: Grandparents, You Are No Exception, Eat	17	:07
7. Hope Electrified: Left-hand panels	8	:06
15. Acid Ocean Poster	17	:06
11. Posters: Respect Nature, Cheeseburger, Food Makes a Difference	29	:05
1. Flamingo Poster: Inside title wall	20	:04
12. Iceless Arctic Poster	27	:04
23. Simmering Seas Poster	2	:04
37. Make Change Poster	3	:03

SIGNIFICANT RELATIONSHIPS

For exhibits attended by more than 20 visitors, RK&A tested whether gender and group composition factored into time spent at individual exhibits. There are several significant findings:

- ◆ Females are spending more time than are males at the left-hand window of the Penguins exhibit (#34) (median time = 45 seconds versus 17 seconds), while males are spending more time than females at the end window of the Penguins exhibit (#36) (median time = 55 seconds versus 17 seconds) (see Table 6a).
- ◆ Visitors with children are spending more time than are visitors without children at the main window of the Sea Turtles exhibit (#26) (median time = 1 minute 7 seconds versus 40 seconds), Share Your Stories Talkback (#21) (median time = 33 seconds versus 15 seconds), and Do One More Thing Interactive (#42) (median time = 1 minute 36 seconds versus 11 seconds) (see Table 6b).

TABLE 6a
TIME SPENT AT INDIVIDUAL EXHIBITS BY GENDER

EXHIBIT	n	GENDER		
		MALE	FEMALE	TOTAL
		MEDIAN TIME (MIN:SEC)	MEDIAN TIME (MIN:SEC)	MEDIAN TIME (MIN:SEC)
34. Penguins: left main window ¹	66	:17	:45	:30
36. Penguins: far end window ²	31	:55	:17	:28

¹ $\chi^2 = 7.685$; $df = 1$; $p = .006$ (Kruskal-Wallis test)

² $\chi^2 = 5.263$; $df = 1$; $p = .022$ (Kruskal-Wallis test)

TABLE 6b
TIME SPENT AT INDIVIDUAL EXHIBITS BY GROUP COMPOSITION

EXHIBIT	n	GROUP COMPOSITION		
		CHILDREN (ADULTS AND CHILDREN)	NO CHILDREN (ALONE OR ADULTS ONLY)	TOTAL
		MEDIAN TIME (MIN:SEC)	MEDIAN TIME (MIN:SEC)	MEDIAN TIME (MIN:SEC)
26. Sea Turtles: main window ¹	101	1:07	:40	:49
21. Share Your Stories Talkback ²	43	:33	:15	:18
42. Do One More Thing Interactive ³	58	1:36	:11	:15

¹ $\chi^2 = 8.991$; $df = 1$; $p = .003$ (Kruskal-Wallis test)

² $\chi^2 = 5.078$; $df = 1$; $p = .024$ (Kruskal-Wallis test)

³ $\chi^2 = 12.737$; $df = 1$; $p = .000$ (Kruskal-Wallis test)

LIVE ANIMAL EXHIBITS

There were five live animal exhibits: flamingos, corals and coral reef fishes, spotted jellies, sea turtles and penguins. For the purposes of observations, these exhibits were sometimes divided into two or three exhibits. In this section, we've combined the individual exhibits that make up the five live animal exhibits in order to obtain a more thorough understanding of visitation to these exhibits.

NUMBER OF ANIMAL EXHIBITS ATTENDED

All observed visitors attended to at least one animal exhibit (see Table 7). Almost two-thirds of visitors attended all five live animal exhibits and almost one-quarter attended four animal exhibits.

TABLE 7
NUMBER OF ANIMAL EXHIBITS ATTENDED

NUMBER OF EXHIBITS	% OF VISITORS (n = 120)
None	0.0
1	7.5
2	0.0
3	7.5
4	22.5
5	62.5

PERCENTAGE OF VISITORS WHO ATTENDED ANIMAL EXHIBITS

The flamingos exhibit is the most attended animal exhibit (97 percent attended); while the spotted jellies is the least attended exhibit (71 percent attended) (see Table 8).

TABLE 8
PERCENTAGE OF VISITORS WHO ATTENDED ANIMAL EXHIBITS

EXHIBIT	% OF VISITORS WHO ATTENDED
Flamingos	97.5
Sea Turtles	90.0
Penguins	89.2
Corals and Coral Reef Fishes	85.0
Spotted Jellies	70.8

TIME SPENT AT ANIMAL EXHIBITS

Of the animal exhibits, visitors spent the most time at the penguins exhibit (median time = 1 minute 13 seconds) and the least time at the spotted jellies (median time = 27 seconds) (see Table 9).

TABLE 9
TIME SPENT AT ANIMAL EXHIBITS

EXHIBIT	NUMBER OF VISITORS WHO ATTENDED	MEDIAN TIME (MIN:SEC)
Penguins	107	1:13
Flamingos	117	1:07
Sea Turtles	108	:55
Corals and Coral Reef Fishes	102	:47
Spotted Jellies	85	:27

VISITOR BEHAVIORS

There were six behaviors tracked that were applicable at five or more exhibits. These behaviors are:

LOOK AT POSTER¹⁰ – to look at a poster for two seconds or longer, more than a passing glance.

LOOK AT PANEL OR BEZEL¹¹ – to look at a panel or bezel for two seconds or longer, more than a passing glance.

WATCH ANIMALS¹² – to watch live animals for two seconds or longer, more than a passing glance.

WATCH VIDEO¹³ – to watch a video for two seconds or longer, more than a passing glance.

USE HIGH-ENGAGEMENT INTERACTIVE¹⁴ – to use a high-engagement exhibit appropriately, also referred to as a “talkback” exhibit; these exhibits solicit visitors’ opinions, reflections or action (e.g., respond to poll, e-mail politician, make a pledge) (see Figure 2).

USE LOW-ENGAGEMENT INTERACTIVE¹⁵ – to use a low-engagement exhibition appropriately; these exhibits engage visitors at a primarily sensory level (e.g., touch display, flip panels for information).

The following section describes the percentage of visitors to exhibit these behaviors at least once in the exhibition. RK&A tested these findings by the gender and group composition (with or without children) to explore any differences by these factors.¹⁶

For a complete list of behavior frequencies by exhibit (including behaviors other than these six that were tracked but not reported above), see Appendix F.

BEHAVIORS EXHIBITED

RK&A calculated the percentage of visitors to engage in each of the six behaviors described above. All visitors watched animals in the exhibition at least once in the exhibition (Table 10). Other frequent behaviors are look at panel or bezel (92 percent of visitors), watch video (75 percent) and look at poster (68 percent). Using an interactive is the least frequent behavior (37 percent of visitors used low-engagement interactives and 16 percent of visitors used high-engagement interactives). However, using an interactive could only occur in a few instances (i.e., at six high-engagement interactives and at six low-engagement interactives).

TABLE 10
PERCENTAGE OF VISITORS WHO EXHIBITED SPECIFIC BEHAVIORS

¹⁰ “Look at poster” is applicable at 11 exhibits: 1, 3, 11, 12, 15, 20, 23, 32, 33, 37 and 42. However, at exhibit 32, “look at poster” was combined with “look at bezel” since it was impossible to determine whether a visitor was looking at the poster or bezel.

¹¹ “Look at panel or bezel” is applicable at 27 exhibits: 2, 4, 5, 6, 7, 8, 9, 13, 16, 17, 19, 21, 22, 24, 25, 26, 27, 28, 29, 30, 31, 34, 35, 38, 39, 40 and 41. At two exhibits, “look at panel/bezel” was combined with “watch video” since it was impossible to determine whether a visitor was looking at the panel/bezel or the video.

¹² “Watch animals” is applicable at 10 exhibits: 3, 5, 6, 16, 24, 26, 27, 32, 34 and 36.

¹³ “Watch video” is applicable at eight exhibits: 2, 14, 18, 27, 34, 38, 39 and 40. At two exhibits, “watch video” was combined with “look at panel/bezel” since it was impossible to determine whether a visitor was looking at the panel/bezel or the video.

¹⁴ “Use high-engagement interactive” is applicable at six exhibits: 4, 10, 21, 29, 41 and 42.

¹⁵ “Use low-engagement interactive” is applicable at six exhibits: 6, 28, 31, 38, 39 and 40.

¹⁶ Whether a feeding was occurring during a visitors’ attendance wasn’t tested because the feedings were infrequent.

BEHAVIOR	% OF VISITORS (n = 120)
Watch animals (applicable at 10 exhibits)	100.0
Look at panel or bezel (applicable at 27 exhibits)	91.7
Watch video (applicable at 6 exhibits) ¹	75.0
Look at poster (applicable at 10 exhibits)	66.7
Use low-engagement interactive (applicable at 6 exhibits)	36.7
Use high-engagement interactive (applicable at 6 exhibits)	15.8

¹ Videos at exhibits 27 and 34 were removed because the videos were combined with the bezels.

² The poster at exhibit 32 was removed because the poster was combined with the bezel.

SIGNIFICANT RELATIONSHIPS

RK&A tested whether gender and group composition factored into whether visitors exhibited the six behaviors described above. There is one significant finding:

- ♦ Visitors without children are more likely than are visitors with children to use high-engagement interactives (26 percent versus 9) (see Table 10a).

TABLE 10a

PERCENTAGE OF VISITORS WHO EXHIBITED SPECIFIC BEHAVIORS BY GROUP COMPOSITION

BEHAVIOR	n	GROUP COMPOSITION		
		CHILDREN (ADULTS AND CHILDREN)	NO CHILDREN (ALONE OR ADULTS ONLY)	TOTAL
		% OF VISITORS	% OF VISITORS	% OF VISITORS
Use high-engagement interactive ¹	19	8.6	26.0	15.8

¹ $\chi^2 = 6.648$; $df = 1$; $p = .010$ (Chi-square)

BEHAVIORS AT HIGH-ENGAGEMENT EXHIBITS

RK&A explored visitors’ behaviors at the six high-engagement interactives—which include polls, talkback stations and other touch screen stations. See Figure 2 for images of the exhibits; findings by exhibit follow.¹⁷

**FIGURE 2
PHOTOS OF HIGH-ENGAGEMENT INTERACTIVES**

EMOTIONAL CLIMATE POLL (#4)	OPINION POLL (#10)	SHARE YOUR STORIES TALKBACK (#21)
		
MAKE A WISH TALKBACK (#29)	SPEAK UP SENATOR E-CARD (#41)	DO ONE MORE THING INTERACTIVE (#42)
		

¹⁷ Behaviors exhibited at the six high-engagement interactives weren’t tested by gender and group composition since the sample of visitors at each exhibit was relatively small.

EMOTIONAL CLIMATE POLL

At the Emotional Climate Poll (#4), the most frequent behavior is “look at panel” (75 percent of the visitors who attended the exhibit did so) (Table 11). Additionally, 30 percent of the visitors who attended the exhibit started the interactive, while 20 percent completed the interactive (responded to the poll) and 15 percent stayed for the poll results. During the observation period, none of the visitors observed at this exhibit encountered an Aquarium guide or staff member.

TABLE 11
BEHAVIORS EXHIBITED AT EMOTIONAL CLIMATE POLL (#4)

BEHAVIOR	% OF VISITORS (n = 20)
Look at panel	75.0
Start interactive ¹	30.0
Talk with another visitor	25.0
Complete interactive	20.0
Stay for poll results ²	15.0

¹Called “touch interactive” on timing and tracking form.

²Called “stay for % all visitors” on timing and tracking form.

OPINION POLL

At the Opinion Poll (#10), the most frequent behavior is “look at panel” (96 percent of the visitors who attended the exhibit did so) (Table 12). Additionally, 59 percent of the visitors who attended the exhibit started the interactive, while 27 percent completed the interactive (responded to the poll) and 18 percent stayed for the poll results. During the observation period, none of the visitors observed at this exhibit encountered an Aquarium guide or staff member.

TABLE 12
BEHAVIORS EXHIBITED AT OPINION POLL (#10)

BEHAVIOR	% OF VISITORS (n = 22)
Look at panel	95.5
Start interactive	59.1
Complete interactive	27.3
Stay for poll results ¹	18.2
Talk with another visitor	9.1

¹Called “touch interactive” on timing and tracking form.

²Called “stay for % all visitors” on timing and tracking form.

SHARE YOUR STORIES TALKBACK

At the Share Your Stories Talkback (#21), the most frequent behavior is “look at panel” (95 percent of visitors who attended the exhibit did so) (Table 13). Additionally, while 65 percent of the visitors who attended the exhibit read the posted cards, seven percent started the interactive (wrote a card) and five percent completed the interactive (posted their card). During the observation period, none of the visitors observed at this exhibit encountered an Aquarium guide or staff member.

TABLE 13
BEHAVIORS EXHIBITED AT “SHARE YOUR STORIES TALKBACK (#21)”

BEHAVIOR	% OF VISITORS (n = 43)
Look at panel	95.3
Read posted cards	65.1
Talk with another visitor	34.9
Start interactive	7.0
Complete interactive	4.7
Recycle cards	2.3

MAKE A WISH TALKBACK

At the Make A Wish Talkback (#29), the most frequent behavior is “look at panel” (81 percent of visitors who attended the exhibit did so) (see Table 14). Additionally, while 69 percent of the visitors who attended the exhibit read the posted cards, 25 percent started the interactive (wrote a card), and all of these visitors (25 percent) completed the interactive (posted their card). During the observation period, none of the visitors observed at this exhibit encountered an Aquarium guide or staff member.

TABLE 14
BEHAVIORS EXHIBITED AT “MAKE A WISH TALKBACK (#29)”

BEHAVIOR	% OF VISITORS (n = 16)
Look at panel	81.3
Read posted cards	68.8
Talk with another visitor	50.0
Start interactive ¹	25.0
Complete interactive	25.0
Recycle cards	0.0

SPEAK UP

At the Speak Up Senator E-Card (#41), the most frequent behavior is “look at panel” (86 percent of the visitors who attended the exhibit did so) (Table 15). Additionally, 21 percent of the visitors who attended the exhibit started the interactive, and all of these visitors (21 percent) completed the interactive (send an e-card). During the observation period, none of the visitors observed at this exhibit encountered an Aquarium guide or staff member.

TABLE 15
BEHAVIORS EXHIBITED AT “SPEAK UP SENATOR E-CARD (#41)”

BEHAVIOR	% OF VISITORS (<i>n</i> = 14)
Look at panel	85.7
Start interactive ¹	21.4
Complete interactive	21.4
Talk with another visitor	21.4

¹Called “touch interactive” on timing and tracking form.

DO ONE MORE THING INTERACTIVE

At the Do One More Thing Interactive (#42), the most frequent behavior is “watch interactive” (95 percent of the visitors who attended the exhibit did so) (Table 16). Additionally, 19 percent of the visitors who attended the exhibit started the interactive, while 12 percent completed the interactive (chose a pledge and posted it) and seven percent provided their e-mail address. During the observation period, none of the visitors observed at this exhibit encountered an Aquarium guide or staff member.

TABLE 16
BEHAVIORS EXHIBITED AT “DO ONE MORE THING INTERACTIVE (#42)”

BEHAVIOR	% OF VISITORS (<i>n</i> = 58)
Watch interactive	94.8
Talk with another visitor	24.1
Start interactive	19.0
Look at poster	12.1
Complete interactive	12.1
Give e-mail address	6.9

SUMMARY OF BEHAVIORS AT HIGH-ENGAGEMENT EXHIBITS

The Do One More Thing Interactive (#42) was the most attended high-engagement exhibit, while the Speak Up Senator E-Card (#41) was the least attended high-engagement exhibit (Table 17).

Most of the visitors who attended the high-engagement exhibits looked at the panels. The greatest percentage of visitors looked at panels at the Opinion Poll (#10) (95 percent), the Share Your Stories Talkback (#21) (95 percent), and the Do One More Thing Interactive (#42) (94 percent).

In general, few visitors touched or started using the interactives at the high-engagement exhibits. While 59 percent of the visitors who attended the Opinion Poll (#10) started the interactive, 30 percent (or fewer) of visitors started the interactives at the other high-engagement exhibits. Further, for just two exhibits—the Make a Wish Talkback (#29) and the Speak Up Senator E-Card (#41)—all of the visitors who started the interactive completed it. Twenty-seven percent (or fewer) of visitors completed interactives at each of the high-engagement exhibits.

One-half of visitors (or fewer) talked with other visitors at the high-engagement exhibits. Most conversation took place at the Make a Wish Talkback (#29) (50 percent), while the least conversation happened at the Opinion Poll (#10) (9 percent).

TABLE 17

SUMMARY OF BEHAVIORS EXHIBITED AT HIGH-ENGAGEMENT INTERACTIVE EXHIBITS

HIGH-ENGAGEMENT INTERACTIVE	# OF VISITORS WHO VISITED THE EXHIBIT	BEHAVIORS				
		LOOK AT PANEL	START INTERACTIVE	COMPLETE INTERACTIVE	TALK WITH ANOTHER VISITOR	TALK WITH STAFF OR VOLUNTEER
		% (n)	% (n)	% (n)	% (n)	% (n)
4. Emotional Climate Poll	20	75.0 (15)	30.0 (6)	20.0 (4)	25.0 (5)	0.0 (0)
10. Opinion Poll	22	95.5 (21)	59.1 (13)	27.3 (6)	9.1 (2)	0.0 (0)
21. Share Your Stories Talkback	43	95.3 (41)	7.0 (3)	4.7 (2)	34.9 (15)	0.0 (0)
29. Make a Wish Talkback	16	81.3 (13)	25.0 (4)	25.0 (4)	50.0 (8)	0.0 (0)
41. Speak Up Senator E-Card	14	85.7 (12)	21.4 (3)	21.4 (3)	21.4 (3)	0.0 (0)
42. Do One More Thing Interactive	58	94.8 (7)	19.0 (11)	12.1 (7)	24.1 (14)	0.0 (0)

SUMMARY AND DISCUSSION OF SELECT FINDINGS: INTERVIEWS

INTRODUCTION

The following section discusses findings of practical significance to the Aquarium. See the following section for a more thorough presentation of interview findings.

SELECT FINDINGS

INITIAL RESPONSE TO THE EXHIBITION

Two-thirds of visitors expressed positive initial responses to the exhibition, with many of these visitors indicating the climate change message. The other one-third had neutral responses, with some providing lukewarm responses or noting that it was simply not as engaging as other exhibits.

CHILDREN'S EXPERIENCES

Overall, visitors with children (under 18 years) felt that the exhibition worked well for their children. However, visitors with children younger than 12 said that the climate change message was too advanced for their children. These visitors didn't fault the Aquarium, but tended to acknowledge that the exhibition wasn't designed specifically for their children.

HOW *HOT PINK FLAMINGOS* COMPARES WITH OTHER AQUARIUM EXHIBITIONS

The majority of visitors noticed differences in the exhibition's look and feel, tone or voice, or animal displays, although there was little consensus why. However, the greatest number of visitors conceded that the conservation or climate change message was much stronger in *Hot Pink Flamingos* than in other exhibitions (more than one-third of visitors), although interestingly, visitors' reactions to that were mixed: some talked about the conservation message in *Hot Pink Flamingos* as being more preachy, political, intense, "in-your-face" or negative than in other exhibitions, while a few said it was upbeat, a "call to action" or inspiring. Further, it's likely visitors' opinions of and feelings about climate change informed how they perceived *other* differences between *Hot Pink Flamingos* and other Aquarium exhibitions, such as the look and feel of the exhibition.

WHAT VISITORS THOUGHT THE EXHIBITION WAS TRYING TO SHOW OR TELL VISITORS

Unprompted, most visitors understood that the exhibition was about conservation and animals, but only one-third named climate change. Further, when asked specifically about climate change and the exhibition, many visitors said they didn't take away anything new from the exhibition but that the exhibition confirmed or reinforced their previous understanding of climate change. This may be because visitors didn't fully grasp that the exhibition was about climate change, and so when asked, visitors used the "didn't take away anything new" response as a fallback. However, it's also very likely that visitors weren't receptive to new climate change information, potentially because they feel well-enough informed about climate change, find the information about climate change highly controversial or felt turned-off by the perceived politics of the presentation. This is a frustrating finding given that Aquarium survey data show that Aquarium visitors and Americans don't know much about the connection between climate change and the oceans.

VISITORS' FEELINGS ABOUT CLIMATE CHANGE

Most reported that they felt the same about climate change after seeing *Hot Pink Flamingos*; of the others, some felt better, some felt worse and a few felt conflicted. Given this finding, along with previous findings, it seems that visitors have very strong opinions about climate change that aren't easily changed.

VISITORS' FEELINGS ABOUT THE AQUARIUM PRESENTING ISSUES ABOUT CLIMATE CHANGE AND ADVOCATING CLIMATE CHANGE BEHAVIORS

The majority of visitors think that it makes sense for the Aquarium to present the issue of climate change and advocate changes in behavior; the lukewarm responses to this question seem to indicate saturation with climate change among visitors. Thus, it indicates that the Aquarium faces some barriers to conveying new information and hope about climate change.

PRINCIPLE FINDINGS: INTERVIEWS

INTRODUCTION

Interview data for *Hot Pink Flamingos* were collected at the Aquarium during three weeks in October 2010. RK&A interviewed 77 visitor groups; the response rate is 63 percent. About one-third of the interviews were conducted during weekdays and about two-thirds were conducted on weekend days. The interview data are presented in narrative. The interviewer's remarks appear in parentheses and interviewee's gender and age are indicated in brackets.

DESCRIPTION OF VISITORS

The 77 visitor groups were comprised of 129 visitors. Slightly more than one-half of interviewees were female, and interviewees' median age¹⁸ was 37.¹⁹ Three-quarters of interviewees were visiting in an adult-only group²⁰; one-fifth were visiting in a group of adults and children, and most of these interviewees were visiting with at least one child eight years or younger. Most interviewees were visiting *Hot Pink Flamingos* for the first time, and a few attended a program in the auditorium.

GENERAL EXHIBITION EXPERIENCES

This section describes how visitors responded to open-ended questions about the exhibition, including their initial thoughts about the exhibition, favorite aspects, least favorite aspects and how the exhibition worked for children.

INITIAL THOUGHTS ABOUT THE EXHIBITION

More than two-thirds of interviewees provided positive initial responses to the exhibition. Almost one-half had general, positive remarks, such as they liked or enjoyed the exhibition. About one-quarter appreciated the environmental messages, with several mentioning climate change in particular (see the first quotation below). Further, a few of these interviewees said they liked learning about the things they could do at home to prevent climate change (see the second quotation).

Several visitors said they enjoyed seeing the animals; a few of these interviewees were pleased that the exhibition had more animals than just flamingos, while a few said they were pleasantly surprised to see flamingos at an aquarium, and others simply liked seeing live animals up-close. A few said the exhibition and habitats were visually attractive or well designed (see the third quotation).

(So overall, what did you think of that exhibition?) I like the fact that it's so informative about climate change. That's real important, and that help is needed; we need to contact all of our politicians. [female, 61, alone]

¹⁸ Age was calculated by subtracting the birth year that interviewees' provided from the year 2010.

¹⁹ RK&A found that visitors 55 years and older are slightly over-represented in the sample (24 percent of respondents versus nine percent of refusals are 55 years or older), and visitors between 18 and 34 years are under-represented (44 percent of respondents versus 57 percent of refusals are 18-34 years) ($\chi^2 = 7.259, p = .027$).

²⁰ RK&A found that adult-only groups are slightly over-represented in the sample (74 percent of respondents versus 58 percent of refusals are in adult-only groups), and groups of adults and children are under-represented (17 percent of respondents versus 32 percent of refusals are in adult-only groups) ($\chi^2 = 6.615, p = .037$).

(You just exited the *Hot Pink Flamingos* exhibit. What did you think of the exhibit overall?) I thought it was great. I definitely feel like eating a lot less beef now. Yeah, I think it sort of communicated the point very clearly that normal people can have an impact on climate change, so I thought that was fantastic. (What did you like most about the exhibit?) I think it was the way that it really communicated that one person or a small group can have a large impact. It doesn't have to be [actions] on a very wide scale, [but] something you personally can do. [female, 24, alone]

(So you just came out of *Hot Pink Flamingos*. What did you think overall?) Visually stunning impact.... It was nice to see not only the delicacy of the color, but the flamingos themselves just had such grace and naturalness and it was lovely—the environment they were in. You just had this sense of respect and awe. It was a beautiful exhibit. [male, 50, alone]

Almost one-third of interviewees had neutral responses to the exhibition—neither mostly positive nor negative. A few of these interviewees provided general, lukewarm responses, saying the exhibition was “okay” or not as engaging as other exhibitions at the Aquarium. A few others commented that the exhibition focused more on environmental issues or an “agenda” rather than on animals; these interviewees said they expected or would've liked to see more animals instead (see the first two quotations below). Other responses were idiosyncratic; for instance, a couple of interviewees were concerned about the habitats (e.g., too small or sterile), while a couple of interviewees thought the exhibition was slightly depressing, and one thought that it felt disjointed (see the third quotation).

(So you were just exiting the *Hot Pink Flamingos* exhibition. Overall, what did you think of that exhibition?) It was okay. It seemed like more environmental issues than flamingos.... We already do a pretty good amount to reduce our carbon footprint and do what we can, donate to charities, so I don't necessarily need that pushed on me coming to a museum. [male, 34, group of adults and children]

(Okay so you just came out of *Hot Pink Flamingos*—this exhibition here. What did you think overall?) The focus was more the agenda, I guess, than the exhibits of the animals and things, so I have mixed feelings about that. [female, 30, alone]

I know we really need to help our oceans, but it [the exhibition] felt depressing. And that was a little hard, although I want to help. The people who are here want to help. It's the people who aren't here that need to be here. *Yeah, walking into that one exhibit with the tree in one hand and then walking past the gravestones, that was hard. [male, 30; female, 56; group of adults and children]

One interviewee responded negatively to the exhibition; he thought the climate change message was too “heavy-handed” and felt “turned off.”

FAVORITE ASPECTS

When asked about their favorite part of the exhibition, many interviewees mentioned the animals. The majority named specific animals: flamingos were the most mentioned animal followed by penguins, turtles, coral fish, jellies, spoonbills and ibises. Interviewees liked the animals for a variety of reasons, although the majority said they enjoyed watching the animals (see the first quotation below). Additionally, a few said it was their first time seeing flamingos, and a few were happy to see birds in the Aquarium (see the second quotation). Further, one interviewee said that the animals encourage her to “make a difference” (see the third quotation).

(So what did you like most about the exhibition?) I like to see the animals themselves. You know, it doesn't need all this information.... I prefer just to see the animals. [male, 59; female, 62; adult-only group]

(And what did you like about it? Tell me a little bit more about it.) Well, we didn't know that [there] was an exhibit here, so it was neat, I guess. And, when you think of an aquarium, you don't necessarily think of penguins and flamingos, so it was a nice extra. [female, 34, group of adults and children]

(So what did you like most about this particular exhibition?) The penguins. They're adorable. They make you want to make a difference. [female, 61, alone]

Several interviewees said they appreciated the climate change aspects, and the majority of these interviewees said that climate change is an important topic to address. Further, a few specifically praised the exhibition for suggesting everyday things that people can do to prevent climate change (see the quotation below).

(So what did you like the most about this exhibition?) The practicability [of the exhibition]; [things] that you can easily introduce into your life to start saving energy.... You can start today. [male, 50, group of adults and children]

A few other responses were idiosyncratic and included interactives, videos, posters or “propaganda” posters and the habitats.

LEAST FAVORITE ASPECTS

Interviewees' least favorite aspects ranged widely. About one-third of interviewees didn't identify any negative aspects of the exhibition, often noting that this was their first visit to the Aquarium (see the quotation below).

(What did you like least?) I couldn't say what I liked least. I enjoyed seeing it all. It's all new to me. [male, 51, group of adults and children]

Several interviewees talked about the climate change message, some referring to it as the “educational part” or the part about “environmental issues.” A few interviewees said the message was too preachy, negative and political, or likened it to propaganda (see the first quotation). A few others said that they already knew about the climate change issues described (see the second and third quotations). Still one couple thought the message was not age-appropriate for the young children with them (see the fourth quotation).

(And what did you guys like the least?) *Honestly? Too much propaganda. **Yeah, too much propaganda; too much propaganda on the environment. [female, 41; male, 44; female, 48; group of adults and children]

(So what did you like the least?).... I went pretty quickly through the whole global warming issue because—we're from Oregon [and we're] Oregon Zoo members and Oregon Coast Aquarium members, so we have kind of seen all of that. It wasn't new. [female, 57; male, 63; adult-only group]

(And what did you like least about this exhibition?) For me, personally, [I like] the educational part [least] because I know all these things. That depends on the level of awareness from the visitors, so it's good to know for a lot of visitors, but [not for] me. [male, 23, adult-only group]

(What did you like least?) [It's] somewhat difficult to understand what is climate change, for children. (Okay, so it's difficult for children in your group?) Yeah. Maybe [there is a] more visual [way] to describe what is climate change. [male, 33; female, 33; group of adults and children]

Several interviewees said the habitats looked small, sterile or inhospitable. The majority of these interviewees mentioned the flamingo exhibit in particular (see the first quotation below). The sea turtles and penguin exhibits were also mentioned (see the second quotation).

(My next question would be what did you like least?) The flamingos being inside. (Inside.) Imprisoned more or less. There's no open sky and space, you know. [female, 66; male, 70; adult-only group]

(Was there anything you liked the least?) I feel sorry for the penguins. They seem to be pecking on the glass like they're trying to find the outer edge or whatever. [male, 58, adult-only group]

All other least favorite aspects were mentioned by three interviewees or fewer. A few interviewees each disliked the videos, said there should be more information on the animals, said the exhibition was dark or said that the parts of the exhibition felt disparate (see the quotations below). A couple of interviewees each said the exhibition was too crowded, there were too few animals, they couldn't see the animals up-close or the interactives weren't adult-oriented.

(And how about what did you like least?) It was just kind of dark, kind of tunnel-y. It would have been nice to have a little bit more light in there. I don't know if that was necessary for the flamingos, but it just felt kind of dark and closed in. It would have been nice to have more of an open feeling. [female, 53, group of adults and children]

(So what did you like least about it?) Yeah, I'm not sure the flamingos, sea turtles and the penguins come together. The story was about the changing of their environments, but it was really coarse to put those three animals together, to make that story work. [female, 22; female, 26; female, 50; adult-only group]

CHILDREN'S EXPERIENCES

One-fifth of interviewees were visiting the exhibition with children, and thus, they were asked about how the exhibition worked for children. All these interviewees said that the exhibition worked well for their children, and the majority said their children liked looking at the animals up-close (see the quotation below). A few comments were general, such as describing the exhibition as fun, interesting or interactive.

(So, what was the children's experience with this exhibition?) *I think they liked it. **Yeah, I think they enjoyed it. They like looking at all the exhibits. The turtles—they liked climbing under that little area for the kids; they climb underneath, they can look at, and he went inside there. [female, 41; male, 41; female, 48; group of adults and children]

Yet, while all visitors said the exhibition worked well for children, a few, all with children younger than 12 years, said the climate change message was too advanced for their children (see the first quotation below). Additionally, one couple said their child was too young for the interactives, and one said her child had difficulty seeing the animals (see the second quotation); both had children two to three years old. Another interviewee suggested that the exhibition be more interactive so as to better engage children.

(I want to hear your opinion on this—how do you think the exhibition worked for the adults and children in your group?) A lot of the messages involved conservation and endangered species; that went over the kids' heads.... But, the part where you choose what you are going to do to help conserve, like this last thing right here [Do One More Thing Interactive], was really effective, I thought. [female, 33, group of adults and children]

(So how would you say—what was your child's experience with this exhibit?) *I think he was interested in the animals; he was interested in the flamingos, and he was staring at the turtles. I think he's done. **He's getting pretty tired, but he was actually looking at all the educational exhibits because every single one had something flashing or moving and so.... *But, he can't even really comprehend that; he's not even two years yet. [female, 30; male, 35; group of adults and children]

HOW HOT PINK FLAMINGOS COMPARES TO OTHER AQUARIUM EXHIBITIONS

This section describes how visitors said the exhibition compares to other Aquarium exhibitions, focusing on their opinions of the exhibition's animal displays, look and feel, and tone or voice. Often visitors compared the exhibition to *Vanishing Wildlife*, *The Secret Lives of Seahorses* and *Sea Otters* specifically; a few also compared it to past exhibitions, such as *Sharks: Myth and Mystery*. A couple of visitors didn't respond because *Hot Pink Flamingos* was their first stop in the Aquarium.

ANIMAL DISPLAYS

Almost two-thirds of interviewees mentioned differences between the animal displays in *Hot Pink Flamingos* and those in the rest of the Aquarium. Several said the animals in *Hot Pink Flamingos* aren't traditional "aquarium" animals (e.g., flamingos), which interviewees both liked and disliked (see the first and second quotations below). A few said the animals in *Hot Pink Flamingos* aren't native to the area, which confused some visitors (see the third quotation). Additionally, several said the habitats in *Hot Pink Flamingos* were smaller and sparser than in other exhibitions, while a few said there were fewer animal exhibits in *Hot Pink Flamingos* (see the fourth quotation). A few responses were idiosyncratic.

(How do the animal displays in *Hot Pink Flamingos* compare to other exhibitions here at the Aquarium?) Well, I like the diversity. I think it gives a nice diversity to the Aquarium. I think it's a little bit challenging for the people because they [flamingos] are not mysterious, per se, and they're not very active but I think it just kind of shows there's a wonderful diversity with them—the greater ecosystem—and you wouldn't necessarily think of flamingos being [in] an aquarium setting. So, I think it kind of helps expand your horizons a little bit because you wouldn't automatically make that connection, but then once you visit the exhibit[ion], you can really see the inter-connectedness. [female, 53, group of adults and children]

(So how does *Hot Pink Flamingos* compare to other exhibitions here at the Monterey Bay Aquarium?) *Well, for me, it's not anything that I would have come here to see, the hot pink flamingos. **Yeah. *They were here, so we went to see them. **Right. *I'm much more interested in the marine mammals, the fish and the things like that. [female, 43; male, 52; adult-only group]

(How did the animal displays here compare with other exhibitions?) I mean, they're not—most of them aren't local, right? We don't have coral reefs right out here whereas much of the Aquarium is more local-based; there still were some, but it was more kind of earth-wide focus as opposed to this part of California-focused. [male, 27; female, 31; adult-only group]

(So how does *Hot Pink Flamingos* compare to other exhibitions here at the Monterey Bay Aquarium?) *I think the question of the habitat seemed a bit less developed than in other areas.... **The mangrove swamp, there's not actually a lot of vegetation there. [female, 59; male, 60; adult-only group]

More than one-third of interviewees didn't notice any differences between the animal displays in *Hot Pink Flamingos* and those in the rest of the Aquarium.

OVERALL LOOK AND FEEL

Many interviewees mentioned differences between the look and feel of *Hot Pink Flamingos* and other exhibitions at the Aquarium, although there was little consensus. About one-quarter said *Hot Pink Flamingos* had more information or seemed more educational than other Aquarium exhibitions (see the first quotation below). A few interviewees thought the exhibition was smaller than others, and a few thought it was more interactive. A few said the exhibition was more sparse and sterile than other Aquarium exhibitions, and a few said it was darker (see the second and third quotations). By contrast, a few thought the design of *Hot Pink Flamingos* was more open than other exhibitions, and a few said it was more colorful and vibrant (see the fourth and fifth quotations).

Well, I noticed there was much more in the way of education on pollution and that kind of thing, so it blended in with the hot pink flamingos or the penguins. Just a lot of messages were given in there. [male, 69; female, 70; adult-only group]

(And how does the overall look and feel of this exhibition compare with others at the aquarium?).... *I thought there were some dark areas that didn't need to be dark, now that I think about it. Like some areas seemed a little sparse. **There was more color contrast, but... (Do you mean dark in terms of the lighting in there?) *Yes. Oh, yeah lighting. Yes. [male, 27; female, 31; adult-only group]

*I don't know, just the flamingo parts seemed a little drab to me. (Seemed drab?) *Yeah. **I think upstairs was the coolest because everything was so bright so you constantly had something cool to go to. *Yeah, it's so dark. **So yeah, lighten it up a little bit. [female, 24; male, 27; adult-only group]

(So in terms of how this exhibition compares with the others here at the Aquarium, what would you say about the look and feel of *Hot Pink Flamingos*?) *It's definitely very vibrant. I like all the colors. That's cool. I think that's good also if you're going for the younger crowd ... because that really gets your attention; it's really good, and it's going to attract them to want to come there. ** It's a lot brighter—like she said—it's a lot brighter than everything else here and flows pretty well. [female, 20; female, 20; female, 20; adult-only group]

I think this one [*Hot Pink Flamingos*] is a lot more chipper, maybe more lighthearted. The seahorses are in a dark space. It was really soothing in there, but this is more lighthearted. [female, 30; male, 33; adult-only group]

Several didn't notice any differences between the look and feel of *Hot Pink Flamingos* and other exhibitions at the Aquarium.

tone or voice

Almost two-thirds of interviewees mentioned differences between the tone or voice of *Hot Pink Flamingos* and the tone and voice in the rest of the Aquarium. More than one-third said the conservation or climate change message was much stronger in *Hot Pink Flamingos* than in other exhibitions, although visitors' reactions to that were mixed; some talked about the conservation message in *Hot Pink Flamingos* as being more preachy, political, intense, "in-your-face" or negative than in other exhibitions, while a few said it was upbeat, a "call to action" or inspiring (see the quotations below). Several other responses were idiosyncratic.

(So is the tone or the voice or the feeling of the exhibition, of this specific one, different from or similar to the others in the Aquarium?) The only difference that I saw was the whole climate change aspect. And, if you're going to pitch climate change, I don't know if you pitch it with flamingos and penguins and polar bears and shrinking ice. I mean, certainly it could be a problem. I don't know if people want to be force-fed that because we're already berated with it in life everywhere. [male, 36, adult-only group]

(Is the tone or voice or feeling of the exhibition different from or similar to other exhibitions here at the Aquarium?) I think it's different, and I like it because, like I said, it's more engaging. The other ones [exhibitions] are a little bit more calm and serene, and it's almost emotional in the other areas. It's also emotional in there [*Hot Pink Flamingos*], but it's a little bit more upbeat, which is nice. [female, 21, adult-only group]

More than one-third of interviewees didn't notice any differences in the tone or voice of *Hot Pink Flamingos*, and a few compared the exhibition to *Vanishing Wildlife* or mentioned the Seafood Watch cards.

EXHIBITION MESSAGES

This section describes what general messages, thoughts and feelings visitors took away from the exhibition.

OVERALL MESSAGES CONVEYED

Interviewees were asked what they thought the exhibition was trying to show or tell visitors.²¹ Almost one-half of interviewees talked about environmental issues generally, but they didn't mention climate change. Several of these interviewees talked about conservation or specific conservation behaviors, such as finding other energy sources, limiting energy use, reducing pollution and being more "green" (see the first quotation below); the majority of these interviewees connected conservation to animals and their habitats, oceans or the planet in general (see the second quotation).

(So, what in your view what is the main message? What is *Hot Pink Flamingos* trying to tell visitors?) I guess its message is we need to be careful about the Earth—pollute less and find some other source of energy. The green message. [male, 35, alone]

(Now what do you think that the overall message is? What do you think *Hot Pink Flamingos* is trying to tell visitors?) That if you don't change your behavior to be more environmentally sustainable, you risk damaging a lot of interesting animals. [female, 24, alone]

More than one-third of interviewees talked about climate change specifically; these interviewees used the term "climate change" or "global warming." The majority of these interviewees didn't expound, but

²¹ Visitors were purposefully not prompted to talk about climate change.

several talked about the effects of climate change and global warming on animals and their habitats, sometimes vis-à-vis ocean level rising (see the quotation below).

(So in your view, what do you think *Hot Pink Flamingos* is trying to tell visitors? What is the message here?) Just that many of our animal populations are declining due to the warming climate of our Earth and the impact humans made to produce that. [male, 26; female, 38; female, 54; adult-only group]

Several interviewees mentioned messages that didn't relate to conservation or climate change. The majority of these interviewees talked about exhibiting animals and educating people about animals and their habitats (see the quotation below). A few interviewees said they weren't sure what the exhibition message was.

(So what do you think *Hot Pink Flamingos* is trying to show and tell visitors?) From what I saw, [it was trying to show] just kind of the habitat, how they live a little bit, and maybe the mannerisms [of the animals]. [male, 26, group of adults and children]

NEW THOUGHTS, FEELINGS OR INFORMATION

Interviewees were asked about any new thoughts, feelings or information that they took from the exhibition; interviewees were prompted to talk about climate change, if not mentioned. Many said they didn't take anything new from the exhibition. Some of these interviewees said they watch the Discovery Channel or other environmentally oriented programming, while others said the climate change messages presented in the exhibition are ubiquitous (see the first and second quotations).

(So what new information, thoughts or feelings did you take away from the exhibition?) *Anything new? I don't think anything really new. **I think it was just being kind of a refresher on different impacts that we have on the environment. I mean, I watch Discovery shows and stuff like that, so it's just repetitive of what I've seen before. [female, 36; male, 39; adult-only group]

(Okay. So what new information, thoughts or feelings did you take away from the exhibition?) I don't know that I took away anything new. Like I said, it's in the media and we're berated with climate change every day. And certainly not everybody pays attention. Somebody might come in here and change their lifestyle because they saw [the exhibition]. Personally, I already do everything that I can to not be wasteful. (Okay. So it wasn't new to you? Stuff you already know.) No. (Okay. Did you find out anything new about climate change in the ocean?) Not really. (Okay. What, if anything, did you find out about specific actions to address climate change in this exhibition?) Like I said, nothing really new. [male, 36, adult-only group]

Of the several interviewees who said they learned something new, all talked about climate change. A few said they didn't realize that ocean level rising is happening drastically, and a few others didn't realize that their eating habits could effect carbon pollution. A few interviewees indicated that the Aquarium helped them visualize the effects of climate change, which was new for them (see the quotation below). Other responses were idiosyncratic, but include realizations about coral, penguins, sea turtles, polar bears or the general inter-connectedness of all living things.

(Now what new information, thoughts or feelings did *Hot Pink Flamingos* bring to you?) *I think it's all stuff we've heard before, like ... you ride your bike to school or you unplug your utilities at home.... (So nothing new about the science, climate change, the oceans, and that sort of thing?) *The ocean level was the newest thing; having that visually on the tank of the flamingos, that was a reality check. It's less than a hundred years from now, and the water level's going

insane, so that was kind of cool, new information that you don't really—I mean you hear about global warming and what it's going to affect, but not actually visually seeing it. [female, 24; male, 27; adult-only group]

THOUGHTS AND FEELINGS ABOUT CLIMATE CHANGE

This section describes visitors' thoughts and feelings about climate change and how the exhibition affected these thoughts and feelings.

VISITORS' PREVIOUS THOUGHTS AND FEELINGS ABOUT CLIMATE CHANGE

Many interviewees indicated that they felt sufficiently knowledgeable about and aware of climate change issues; these interviewees often talked about climate change behaviors, such as using reusable bags and monitoring energy use, while some talked generally about the effects of climate change. Several interviewees felt relatively knowledgeable but indicated that climate change is a complex issue that's difficult to grasp.

Many interviewees indicated that climate change is an important issue; the majority of these interviewees talked about the human role in reducing climate change, such as by seeking alternative energy sources and advocating environmentally friendly behavior. However, several other interviewees were uncertain whether humans affect climate change; a couple of other interviewees said that humans don't affect climate change, arguing that the Earth is going through a natural, warming cycle (see the quotation below).

(So can you tell me about what you know or feel about climate change?) I believe climate change is inevitable because it's an ongoing thing through the centuries and centuries and whether or not man can reverse that with his efforts is to be seen. I don't know that man can vastly change the climate conditions. They're going to evolve naturally regardless of whether we burn a lot of oil or a little less oil, I think. That's my opinion. [male, 88, alone]

HOW THE EXHIBITION MESSAGES FIT WITH VISITORS' THOUGHTS AND FEELINGS ABOUT CLIMATE CHANGE

Many interviewees said the exhibition confirmed or reinforced their previous understanding of climate change. Several others indicated ways that the exhibition helped expand their understanding of climate change. A few said the exhibition helped them visualize the effects of climate change.

EFFECT ON VISITORS' FEELINGS ABOUT CLIMATE CHANGE

Visitors were asked to self-identify how they feel about climate change now in comparison to when they entered the exhibition. More than one-half of interviewees said they felt the same about climate change. The majority said they still feel that climate change is an important issue, while some didn't explain why they felt unchanged, and a few still felt uncertain about climate change (see the quotation below).

(Okay. So some people, some visitors after viewing this exhibition say they feel more hopeful about climate change, others feel discouraged and others said the exhibition didn't change their feelings. How are you feeling about climate change now in comparison to when you first walked into the exhibition?) *I'm unchanged. **I'm unchanged, but I always felt like we should be very careful about that, and I think the more people you can make aware of it [climate change], the more people will want to get on board. [female, 49; male, 71; adult-only group]

Slightly more than one-fifth of interviewees said they felt better about climate change after seeing the exhibition. The majority of these interviewees felt encouraged by the small actions anyone can take to

help prevent climate change (see the first and second quotations below); further, a couple of interviewees indicated the importance of suggesting practical actions (see the third quotation). Additionally, a few were encouraged by the number of visitors who would visit the exhibition and learn about climate change and climate change behaviors (see the fourth quotation).

(Some visitors have told us that they feel—after having viewed *Hot Pink Flamingos*—that they feel more hopeful, some have said that they feel discouraged, and some have said that they haven't changed.) That's definitely more hopeful.... Just like we talked about before, for example, one plate said that eating one less beef or dairy meal a day can reduce—or it's the same thing as driving 11,000 miles less? Or 1,100 miles less? I think something like that definitely makes me feel more hopeful because it makes me feel like one very small action I could take ... could drastically reduce my carbon footprint. [female, 24, alone]

It made me much more conscious of maybe how I can make a difference. It's always been them out there, somebody else's job because I didn't know enough. I'm knowing a few things. This is a nice little tool. (Okay. Great. The Seafood Watch guide?) Yeah. That's a nice little place to start, and I need to contact my congressman and tell him that I really think that we need to pay better attention, and maybe we need more windmills in Michigan [where I'm from]. [female, 61, alone]

(Oh, okay. How do the information and stories presented in this exhibition fit with what you already know and what you feel about climate change?) Oh, there wasn't any of that crazy you know—it wasn't crazy. It wasn't over the top or anything. There are some agencies out there that are ... telling us to stop taking showers and live in the forest. So it was nice that those are like feasible solutions in there. [female, 18, adult-only group]

(Some visitors have said after viewing *Hot Pink Flamingos* they feel more hopeful about climate change. Others feel discouraged. And others said the exhibition didn't change their feelings. How are you feeling about climate change now in comparison to when you entered the exhibition?) I'm feeling more hopeful because if lots of people see this exhibition and see how easy it is to introduce energy-saving measures into your daily life, then it could make a big impact. [male, 50, group of adults and children]

Slightly less than one-fifth of interviewees felt worse about climate change after seeing the exhibition. The majority indicated that climate change is inherently a depressing or discouraging topic because it's a complex challenge (see the quotation below). Additionally, a few interviewees said the exhibition made them feel that they aren't doing enough, while a few said the exhibition presented climate change in a scary or depressing way, such as showing the coral graveyard and the juggler (see the second quotation).

(Some of our visitors say that they feel more hopeful after seeing *Hot Pink Flamingos*, some have said that they feel discouraged, and some others have said they haven't felt a change. What would you say your experience has been?) Unfortunately, it's kind of a discouraging topic so I do tend to feel discouraged [when you] confront the magnitude of climate change, to be honest. I mean it has nothing to do with the exhibit; I think they tried to bring a positive spin on it.... I think what I'm trying to say is that I think there's an attempt to cause people to have a positive response to it—change of behavior, have a positive effect, and make a difference. At the same time ... it's a very large, multi-faceted problem. All these little things are great and people can do them, but you know some real fundamental changes need to happen in order to really combat climate change, so that sort of leaves me feeling a little discouraged. [female, 30; male, 35; group of adults and children]

(Some visitors have said that after viewing *Hot Pink Flamingos* they feel more hopeful about climate change. Others feel discouraged. And others said that the exhibition didn't change their feelings. How are you feeling now in comparison to when you first went into the exhibition?) I'm still feeling guilty. I feel like I'm not doing nearly enough. It's something you can pretty easily forget about on your day-to-day life. I'm just like, 'Oh, I'm going to work; I'm coming home; I've got to eat; I've got to go to bed.' And, you don't think of these larger issues, and you're not really doing anything to necessarily help the situation. You might not be making it worse, but you're not helping. It's kind of overwhelming. [male, 34; female, 34; adult-only group]

A few interviewees felt conflicted after leaving the exhibition. A couple of interviewees said they felt both better and worse, while one interviewee was unsure. Additionally, a couple of interviewees said they didn't engage with the climate change part of the exhibition (see the quotation below).

(So some visitors have said that after viewing *Hot Pink Flamingos* they feel more hopeful about climate change. Others say they feel discouraged, and others said the exhibition didn't change their feelings. How are you feeling now about climate change now in comparison to when you first walked into the exhibit?) To be perfectly honest, as soon as I saw the climate change section I just turned off. Not because I hate it or disagree with it. It was just that I'm here for a limited amount of time. I don't really want or need, in my opinion, to sort of see the same stuff presented again and again, when I know there's just so much to see. This is a great aquarium. [male, 58, adult-only group]

CLIMATE CHANGE AND THE AQUARIUM

This section describes how visitors feel about the Aquarium presenting climate change messages and advocating climate change behaviors.

ATTITUDES ABOUT PRESENTING CLIMATE CHANGE ISSUES IN THE AQUARIUM

When asked their opinion about presenting climate change issues in the Aquarium, many interviewees thought that it should be presented in the Aquarium, and the majority of these interviewees said that it makes sense for the Aquarium to present climate change. More than one-half of visitors assumed that educating the public about climate change and other environmental issues is part of the Aquarium's mission (see the first quotation below). Additionally, some indicated that it was important to impart climate change messages at the Aquarium since it attracts a wide range of visitors (see the second quotation). Some others said they weren't surprised to see climate change messages since it affects animals' well-being. Furthermore, several thought this message was extremely important for children, and several thought it was important to link climate change to animals because it shows an example of climate change or gives it a face (see the third quotation).

(So, do you think the Aquarium should be presenting exhibits and programs on climate change?) *Definitely. **Oh, yeah. (And why do you think that's a good thing here?) *Because this is the place where they're trying to sustain the oceans, sustain life. This is an important part of what drives the Monterey [Bay] Aquarium, I feel, so yes, it should be part of this. [female, 60; female, 63, adult-only group]

(Now do you think that the Aquarium should be presenting exhibitions on climate change?) Oh, absolutely. I think it would be irresponsible if they didn't because they have a really unique opportunity to present information to so many different types of people and families. So many people pass through the doors, and they're here with open minds; they're here to learn. So, I

think if they didn't take advantage of that, they would be missing a huge opportunity and people are here to have an experience that is not passive. They're here to take in information, so I think it's fantastic and essential. [female, 53, group of adults and children]

(Do you think the Aquarium should be presenting exhibits and programs about climate change?) *Definitely, definitely, because it's a unique way to illustrate what's being affected by climate change. **Yeah. For the young people. *It puts a face, sometimes a little furry face with whiskers, but it puts a face on what's going to happen. Yeah. [female, 43; male, 52; adult-only group]

Several interviewees agreed that climate change should be presented in the Aquarium given a few caveats. All of these interviewees thought that the climate change message should be softened in some way, often making direct comparisons to the way that climate change was presented in *Hot Pink Flamingos*. A few simply said it should be less predominant or better integrated with the other exhibits (see the first quotation below). A couple of visitors thought the climate change message should be less politically charged, and one interviewee thought that it would help to use less controversial terms (see the second quotation).

(So, do you think the Aquarium should be presenting exhibits and programs about climate change?) That's a good question. I think, as an organization, it probably does have a responsibility to—you know, part of its duty is to exhibit these animals in these environments so that we can preserve them. But, maybe not quite so forceful, and maybe interspersed more throughout the museum instead of 'bam'—all in your face at one point. [male, 34, group of adults and children]

(Do you think the Monterey Bay Aquarium should have exhibits on climate change?) I think they should have exhibits on ecology, and I don't like the term 'climate change,' personally. I think it's a political term, a buzzword. I think our climate has been changing since the inception of the Earth and that we're being very bold as human beings on the Earth to suggest that we affect the entire planet and the ecosystem on it. So, I think that we should be good stewards and sensitive to our environment and things, but I kind of resent having the political message. [female, 41; male, 44; female, 48; group of adults and children]

One interviewee said that climate change shouldn't be presented in the Aquarium, noting that they came solely to see the animals (see the quotation below).

(Do you think the Aquarium should be presenting exhibits and programs about climate change?) No. (No, okay. And, why not? Can you tell me a little bit more about that?) We're here to see the Aquarium, to see the wildlife.... And, I'm thinking global climate change isn't what I was looking for; I'd go back and look at *An Inconvenient Truth*. I came to see an aquarium. I came to see animals, whether it be penguins, flamingos or fish; that's what I came to see. [female, 71; male, 74; adult-only group]

ATTITUDES ABOUT ADVOCATING CLIMATE CHANGE BEHAVIORS

Interviewees were asked their opinions about the Aquarium advocating climate change behaviors, such as driving less, changing their eating habits or contacting senators. About two-thirds of interviewees thought that it makes sense for the Aquarium to make suggestions about climate change behaviors, providing all of the same reasons for why they thought the Aquarium should present climate change in general (see the first quotation below). Additionally, however, several interviewees argued that it was highly important to suggest climate change behaviors since everyone is responsible for making the environment healthier (see the second quotation). Some took a tough-love approach, noting that visitors may respond badly to the

Aquarium advocating behavior change because it requires visitors to reflect on and change their lifestyles, but they also said it was a necessary endeavor (see the third, fourth and fifth quotations).

(Some visitors said they're uncomfortable with the Aquarium advocating certain choices in *Hot Pink Flamingos* to address climate change, such as encouraging people to drive less or change their eating habits or contact their senators. What do you think about that?) *They've always done that and it's not anything unusual for them. **I mean, [the Aquarium] has the Seafood Watch guide every year with updates; this is just one more thing that they're telling people: 'Now you need to pay attention to this as well as this.' *Yeah, I think it does a great job of introducing choices that pretty much anyone could make, regardless of politics or anything like that, and then, just giving people more information so they can follow up in any other ways that they see fit. [female, 24, alone]

(So, some visitors have said that they feel uncomfortable with the Aquarium advocating certain choices in this exhibit. Certain choices to address climate change, such as encouraging people to drive less, changing their eating habits, or contacting senators. What do you think about that?) I disagree 100 percent. We live in a world where we're not passive; we are more interconnected. It's become more global in terms of nationalities and religions and everything, so we need to understand our relationship vis-à-vis everyone else—and by everyone else I mean everything above the water, below and everything.... And, you better be telling us what are big concerns or not going on in the environment and how it relates to the oceans and wildlife and then what we can do, because that's just learning. You want to leave your people walking away with strategies for implementation to change lives. So expose is one, behavior change is two. You should absolutely be doing advocacy that changes behavior that's in consonance with your scientific research. Fully support that. [male, 50, alone]

(Now some visitors have told us that they feel uncomfortable with the Aquarium advocating certain choices. Some of these are driving less, eating habits and contacting senators. What do you think of these suggestions the Aquarium has?) *I think they're necessary suggestions. I get that some people may be uncomfortable because it influences their own life, but tough. I mean, it is what it is. **I don't think there's anything wrong with making a suggestion. [male, 43; female, 43; adult-only group]

(So, some visitors have said they're uncomfortable with the Aquarium advocating certain choices in *Hot Pink Flamingos* to address climate change, such as encouraging people to drive less, or change their eating habits, or contact their senators. What do you think about that?) Screw those people. Who else is going to do it?... It seems like it's completely in tune with a place that shows the beauty of the marine world. And well, [if] you want to keep it this way, you've got to take some action. We're huge destroyers of the planet, and if we don't want to think about that, that's tough because we are [destroying the planet]. And obviously, a lot of people that come here are going to be people who don't think about this stuff ever, but that's just why it should be here because people aren't going to run into it in their day-to-day life. [male, 34; female, 34; adult-only group]

(Some visitors have said they're uncomfortable with the Aquarium advocating certain choices in *Hot Pink Flamingos* to address climate change such as encouraging people to drive less, change their eating habits or contact their senators. You sort of answered some of that, but what do you think about the Aquarium advocating those kinds of choices?) Change is always uncomfortable, at least initially. But you can look back on things we take for granted today. Years and years ago, those weren't considered popular mainstream things to do. You need to be patient. You need to continue to play that role for instigating change. [female, 48; male, 56; adult-only group]

Several interviewees had mixed feelings about the Aquarium advocating climate change behaviors. The majority of these interviewees thought that the Aquarium should broach the topic more subtly and in a less political way. Additionally, a few were concerned that some of the climate change behaviors suggested weren't applicable to the entire population (see the quotation below).

My guess is the people who are uncomfortable with [the Aquarium advocating climate change behaviors] are people who can't do that. I mean, the reality of the situation is that locally grown produce tends to be more for people who are more affluent—have the resources to go out and the time to do that. So, I can see how people might take offense to those kinds of requests. Is a little guilt a bad thing sometimes? Not really. But, I can see how, if you couldn't afford to do it or didn't have the time to do it, [advocating certain climate change behaviors] might be a bit offensive. But, that's the reality of the situation. Again, I think if it was maybe interspersed a little bit more throughout the Aquarium, it wouldn't be so much of a, 'you're a bad person for not being able to do these things' kind of scenario. [male, 34, group of adults and children]

A couple of interviewees didn't think that the Aquarium should advocate climate change behaviors. One interviewee said that scientists have disproved that human behavior affects climate change, arguing that climate change is a natural, cyclical occurrence. Another interviewee felt that it was inappropriate since some of the suggested behavior changes discriminated against the poor or those who live in rural areas (i.e., those who eat ground beef because it's a cheaper source of protein than chicken, or those who don't have access to public transit or live far from work).

EVALUATORS' REFLECTIONS ON THE INTERVIEWS

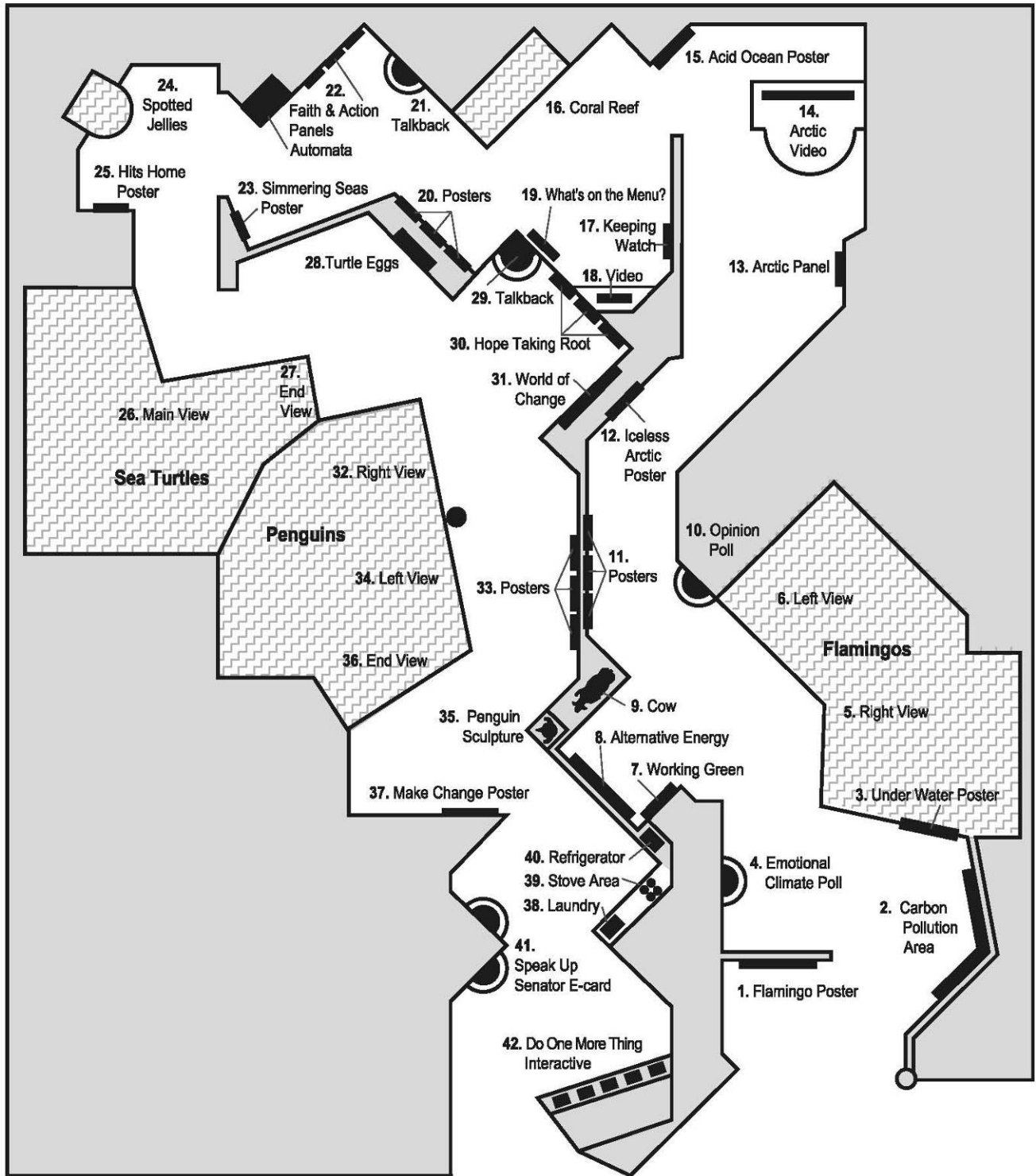
In analyzing the interviews, the evaluators found them to be surprisingly candid and reflective of the spectrum of visitors' reactions to climate change. For instance, a question that asked visitors how they feel about the Aquarium suggesting choices visitors can make to address climate change prompted one climate change enthusiast to rail against visitors who didn't agree with the Aquarium's stance (see the first quotation below). By contrast, a question about whether the Aquarium should present exhibits and programs about climate change prompted another visitor to turn the questions back on the Aquarium and, ultimately, argue that the existence of climate change is still too unknown (see the second quotation).

(So some of the visitors at the Aquarium have told us that they feel uncomfortable with this exhibition suggesting certain choices to people, like the suggestion to drive less, to change eating habits, and to contact senators. How do you feel about these suggestions?) Well those people can get diabetes and have heart attacks and die for all I care; I mean, I'm pretty heartless when it really comes down to it. Like, [expletive] 'em.... I think it's really close-minded not to be open to ... somebody saying, 'Hey, maybe you should drive your car less.' [female, 27; female, 27; adult-only group]

(Do you think the Aquarium should be presenting exhibits and programs about climate change?) I don't know. I mean, who's in charge of the Aquarium? What is their mission statement? Are they here in a political sense? Are they just here in an educational sense, which is what I would think? And a research sense, which is why I don't mind giving them 30 dollars? I don't know if that's my thing to answer. I mean, it is certainly educational. It's also still controversial. So..., (You're not sure?) I'm not sure that they should get into that realm ... because a lot of people don't agree. Scientists don't agree on whether or not we're causing climate change or it's a naturally occurring phenomenon. [male, 36, alone]

APPENDICES

APPENDIX A: HOT PINK FLAMINGOS EXHIBITION FLOOR PLAN



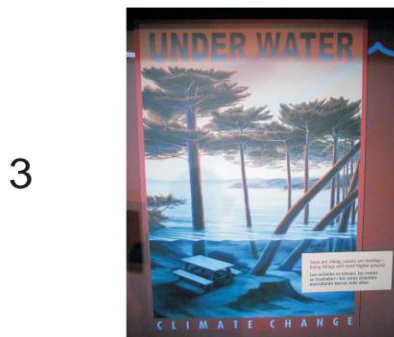
APPENDIX B: EXHIBIT ELEMENTS FOR TIMING AND TRACKING STUDY



Flamingo poster



Carbon Pollution Area



Under Water Poster



Emotional Climate Poll

5



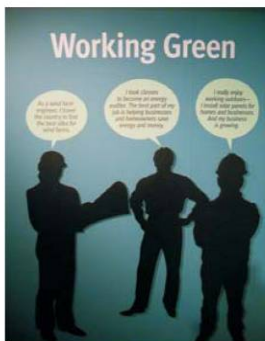
Flamingos/Right View

6



Flamingos/Left View

7



Hope Electrified/Working Green

8



Hope Electrified/Alternative Energy

9



Hope Electrified/Cow

10



Opinion Poll

11



Posters: Respect Nature
Cheeseburger
Food Makes a Difference

12



Iceless Arctic Poster

13



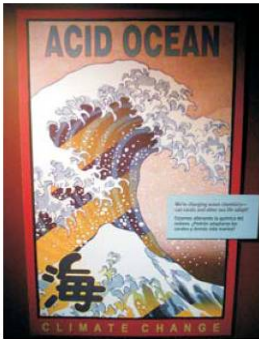
Arctic Panel

14



Arctic Video

15



Acid Ocean Poster

16



Coral Reef

17



Coral Graveyard/Keeping Watch

18



Coral Graveyard/Video

19



Coral Graveyard: What's on the Menu?

20



Posters: Bicycle
Change
Climate Change

21



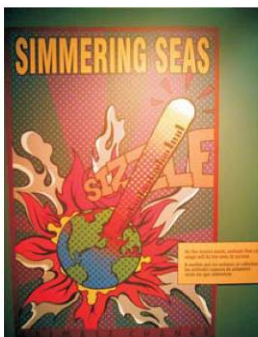
Share Your Stories Talkback

22



Faith and Action Panels/Automata

23



Simmering Seas Poster

24



Spotted Jellies

25



Climate Change Hits Home Panel

26



Sea Turtles/Main View

27



Sea Turtles/End View

28



Turtle Eggs

29



Make A Wish Talkback

30



Hope Taking Root Panels

31



World of Change Area

32



Penguins/Right View

33



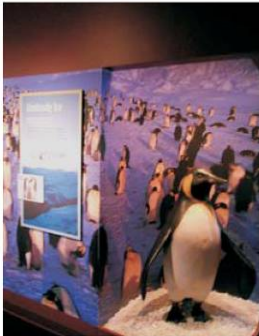
Posters: Grandparents
You Are No Exception
Eat

34



Penguins/Left View

37



Penguin Sculpture

36



Penguins/End View

35



Make Change Poster

38



Hero at Home/Laundry

39



Hero at Home/Stove Area

40



Hero at Home/Refrigerator

41



Speak Up Senator E-Card

42



Do One More Thing Interactive

APPENDIX C: TIMING AND TRACKING OBSERVATION FORM

Removed for proprietary purposes

APPENDIX D: TIMING AND TRACKING STATISTICS

DESCRIPTIVE STATISTICS

FREQUENCY DISTRIBUTION

Day of the week (weekday, weekend day)
Gender (male, female)
Group composition (alone, adults only, adults and children)
Age of children (0-8 yrs., 9-12 yrs., 13-17 yrs.)
Total number of exhibits attended in the exhibition
Total time spent in the exhibition
Individual exhibits attended
Overall behaviors (six behaviors applicable at five exhibits or more)
Behaviors at high-engagement interactives

SUMMARY STATISTICS

RANGE, MEDIAN, MEAN, AND STANDARD DEVIATION

Total time spent in the exhibition
Total number of exhibits attended in the exhibition
Time spent at individual exhibits

INFERENTIAL STATISTICS

CROSSTABS

Exhibits attended by 20 visitors or more		Gender (male/female)
Overall behaviors (six behaviors applicable at five exhibits or more)	by	Group composition (alone, adults only, adults and children)
		Age of children (0-8 yrs., 9-12 yrs., 13-17 yrs.)

INFERENTIAL STATISTICS

ANOVAS AND KRUSKAL-WALLIS TEST

Total number of exhibits attended		Gender (male, female)
Total time spent in the exhibition		Group composition (alone, adults only, adults and children)
Time spent at individual exhibits attended by 20 visitors or more	by	Age of children (0-8 yrs., 9-12 yrs., 13-17 yrs.)

APPENDIX E: INTERVIEW GUIDE

EXIT INTERVIEW GUIDE

Removed for proprietary purposes

APPENDIX F: VISITOR BEHAVIORS FOR EACH EXHIBIT

ID NO.	ELEMENT DESCRIPTION	# OF VISITORS WHO STOPPED	# OF VISITORS WHO DISPLAYED EACH BEHAVIOR
1	Flamingo Poster (inside wall)	20	look at poster = 18 talk with another visitor = 5 talk with staff or volunteer = 0
2	Carbon Pollution Area	39	look at panel = 10 watch video = 35 talk with another visitor = 5 talk with staff or volunteer = 0
3	Under Water Poster	24	look at poster = 12 watch animals = 13 talk with another visitor = 6 talk with staff or volunteer = 0
4	Emotional Climate Poll	20	look at panel (Wrapping our heads...) = 15 start interactive = 6 complete interactive (vote) = 4 stay for % all visitors = 3 talk with another visitor = 5 talk with staff or volunteer = 0
5	Flamingos right main window <input type="checkbox"/> feeding/enrichment = 3	106	watch animals = 102 look at bezel = 43 talk with another visitor = 67 talk with staff or volunteer = 1
6	Flamingos left main window <input type="checkbox"/> feeding/enrichment = 1	62	watch animals = 56 look at bezel = 38 touch sea level rise interactive = 12 talk with another visitor = 36 talk with staff or volunteer = 0
7	Hope Electrified left series (Working Green)	8	look at panel(s) = 7 talk with another visitor = 0 talk with staff or volunteer = 0
8	Hope Electrified middle series (alt. Energy) Zap poster	23	look at panel(s) = 20 talk with another visitor = 4 talk with staff or volunteer = 0
9	Hope Electrified right series (cow and bucket)	56	look at panel(s) = 32 look at cow/bucket = 54 touch cow/bucket = 11 take photo with cow = 5 talk with another visitor = 27 talk with staff or volunteer = 0
10	Opinion Poll	22	look at panel = 21 start interactive = 13 complete interactive (vote) = 6 stay for % all visitors = 4 talk with another visitor = 2 talk with staff or volunteer = 0
11	3 posters: Respect Nature Cheeseburger Food Makes a Difference	29	look at poster(s) = 24 talk with another visitor = 5 talk with staff or volunteer = 0
12	Iceless Arctic Poster	27	look at poster = 24 talk with another visitor = 2 talk with staff or volunteer = 0

ID NO.	ELEMENT DESCRIPTION	# OF VISITORS WHO STOPPED	# OF VISITORS WHO DISPLAYED EACH BEHAVIOR
13	Arctic Panel	21	look at panel(s) (Iceless Arctic or Melting Arctic) = 18 talk with another visitor = 3 talk with staff or volunteer = 0
14	Arctic Video (Shishmaref video)	80	watch video = 75 talk with another visitor = 22 talk with staff or volunteer = 0
15	Acid Ocean Poster	17	look at poster = 16 talk with another visitor = 4 talk with staff or volunteer = 0
16	Coral Reef □ feeding/enrichment =	102	watch animals = 95 look at panel (Changing Sea) or bezels = 14 talk with another visitor = 59 talk with staff or volunteer = 1
17	Coral Graveyard: left panels (Keeping Watch)	9	look at left panels (Keeping Watch) = 7 talk with another visitor = 1 talk with staff or volunteer = 0
18	Coral Graveyard: video	38	watch video = 33 talk with another visitor = 6 talk with staff or volunteer = 0
19	Coral Graveyard: right panels (What's on the Menu)	7	look at right panels (What's on the Menu) = 5 talk with another visitor = 2 talk with staff or volunteer = 1
20	3 posters: Change (bicycle) Oh Please Do Climate Change	21	look at poster(s) = 20 talk with another visitor = 4 talk with staff or volunteer = 0
21	Share Your Stories Talkback	43	look at panel (Beliefs and Choices) = 41 read posted cards = 28 start interactive (write card) = 3 complete interactive (post card) = 2 recycle card(s) = 1 talk with another visitor = 15 talk with staff or volunteer = 0
22	Faith and Action Panels and Automata	71	look at panel(s) = 40 view "juggler" (trees vs. factory figure) = 57 talk with another visitor = 13 talk with staff or volunteer = 0
23	Simmering Seas Poster (thermometer)	2	look at poster = 2 talk with another visitor = 0 talk with staff or volunteer = 0
24	Spotted Jellies	85	watch animals = 77 look at left panel (Spotted Jelly) = 12 talk with another visitor = 45 talk with staff or volunteer = 0
25	Climate Change Hits Home Panel	9	look at panel = 8 talk with another visitor = 2 talk with staff or volunteer = 0

ID NO.	ELEMENT DESCRIPTION	# OF VISITORS WHO STOPPED	# OF VISITORS WHO DISPLAYED EACH BEHAVIOR
26	Sea Turtles main window <input type="checkbox"/> feeding/enrichment = 7	101	watch animals = 92 look at panel (Simmering Seas, turtle) or bezel = 12 crawl into cave = 11 talk with another visitor = 67 talk with staff or volunteer = 0
27	Sea Turtles end window <input type="checkbox"/> feeding/enrichment = 0	33	watch animals = 31 look at panel (Warming World), bezel, or watch video = 14 talk with another visitor = 18 talk with staff or volunteer = 0
28	Turtle Eggs	37	look at panel(s) = 34 touch display = 17 talk with another visitor = 19 talk with staff or volunteer = 0
29	Make A Wish Talkback	16	look at left panel (Acting Locally) = 13 read posted cards = 11 start interactive (write card) = 4 complete interactive (post card) = 4 recycle card(s) = 0 talk with another visitor = 8 talk with staff or volunteer = 0
30	Hope Taking Root Panels	27	look at panel(s) (Boulder, Aquarium, Oakland, college) = 25 talk with another visitor = 7 talk with staff or volunteer = 0
31	World of Change Area	41	look at panel(s) (incl. poster Green Cities) = 29 look at diorama = 29 use flip panels (ignore spinning) = 17 talk with another visitor = 17 talk with staff or volunteer = 0
32	Penguins right main window <input type="checkbox"/> feeding/enrichment = 6	96	watch animals = 92 look at poster (Vanishing Feast) or bezel = 16 talk with another visitor = 56 talk with staff or volunteer = 1
33	3 posters: Grandparents You are no exception Eat	17	look at poster(s) = 12 talk with another visitor = 1 talk with staff or volunteer = 0
34	Penguins left main window <input type="checkbox"/> feeding/enrichment =	66	watch animals = 5 look at bezel or watch video = 60 talk with another visitor = 26 talk with staff or volunteer = 32
35	Penguin Sculpture	39	look at panel (Unsteady Ice) = 19 look at penguin = 33 touch penguin = 14 take photo with penguin = 24 talk with another visitor = 14 talk with staff or volunteer = 0
36	Penguins far end window <input type="checkbox"/> feeding/enrichment = 1	31	watch animals = 29 talk with another visitor = 10 talk with staff or volunteer = 1

ID NO.	ELEMENT DESCRIPTION	# OF VISITORS WHO STOPPED	# OF VISITORS WHO DISPLAYED EACH BEHAVIOR
37	Make Change Poster	3	look at poster = 2 talk with another visitor = 1 talk with staff or volunteer = 0
38	Hero at Home clothes washer + dryer	32	look at panel(s) = 26 touch interactives (power strip, dryer) = 9 watch video in cupboard or washer = 15 talk with another visitor = 7 talk with staff or volunteer = 0
39	Hero at Home stove + microwave	31	look at panel(s) = 26 touch interactives (any of 3 food plates) = 18 watch video in fry pan = 16 talk with another visitor = 12 talk with staff or volunteer = 0
40	Hero at Home bulletin board + refrigerator	28	look at panel(s) = 22 touch interactives (grocery bag or thermostat) = 9 watch video in fridge = 11 talk with another visitor = 8 talk with staff or volunteer = 0
41	Speak Up Senator E-Card (either station)	14	look at panel (Ask for Change) or poster (Act Now) = 12 start interactive = 3 complete interactive (send e-card) = 3 talk with another visitor = 3 talk with staff or volunteer = 0
42	Do One More Thing Interactive	58	look at poster (Working Together) = 7 watch interactive = 55 start interactive (any station) = 11 give email (optional step) = 4 complete video (choose pledge, post to screen) = 7 talk with another visitor = 14 talk with staff or volunteer = 0

Exhibition Total Time: _____

1. Gender: Male Female
2. Group composition: Alone Adults only Adults with children
3. Ages of children in party: 0-8 years 9-12 years 13-17 years
4. Date: _____ 5. Data collector: _____

APPENDIX G: ADDITIONAL ANALYSIS FOR EXHIBITS SEPARATED ON THE TIMING AND TRACKING FORM

HOPE ELECTRIFIED

For the purposes of observations, Hope Electrified was divided in three exhibits. When the three exhibits were combined:

- ◆ 54 percent of visitors attended Hope Electrified.
- ◆ The median time spent at Hope Electrified is 20 seconds.

CORAL GRAVEYARD

For the purposes of observations, Coral Graveyard was divided in three exhibits. When the three exhibits were combined:

- ◆ 34 percent of visitors attended Coral Graveyard.
- ◆ The median time spent at Coral Graveyard is 17 seconds.

HERO AT HOME

For the purposes of observations, Hero at Home was divided in three exhibits. When the three exhibits were combined:

- ◆ 41 percent of visitors attended Hero at Home.
- ◆ The median time spent at Hero at Home is 39 seconds.