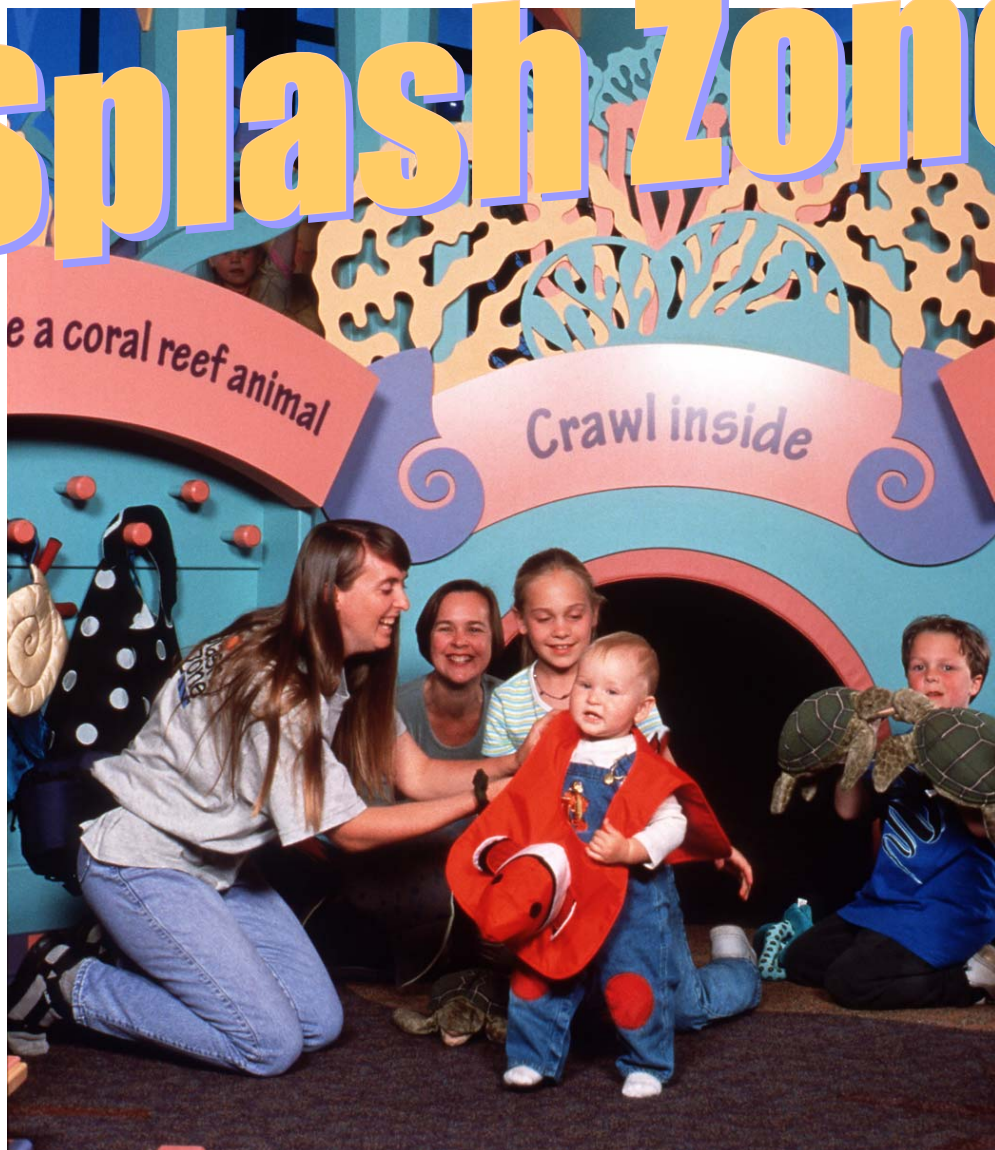


---

**Family Experience of**

# **Splash Zone**



**prepared for the**

**Monterey Bay Aquarium**

**by**

**People, Places & Design Research**

---

**Family Experience of  
*Splash Zone*  
at the Monterey Bay Aquarium**

CONTENTS

<b>Executive Summary</b>	1
<b>A. Who's Coming to this Exhibition?</b>	5
1. Prior awareness and the decision to visit MBA	
2. Who is seeing the exhibition?	
3. Which families are returning?	
<b>B. Reactions to <i>Splash Zone</i>, among adults and children</b>	14
1. Overall ratings	
2. Highlights and disappointments	
3. Ratings of selected exhibits	
4. Visitors' reactions to specific issues	
<b>C. Use of the Exhibition</b>	31
1. Total time spent	
2. Reported use of some selected exhibits	
3. Observed use of exhibits during a 10 minute period	
<b>D. Family Learning Behaviors</b>	38
1. Overall summary of observed behaviors	
2. Family interaction at specific exhibits	
3. Family experiences on future visits	
<b>E. Educational Value &amp; Caring about Nature</b>	48
1. Visitors' perceptions of educational value	
2. Inspiring children to care about nature	
<b>F. Characteristics of the Samples</b>	67
<b>APPENDIX</b>	
Samples of behaviors and conversations recorded at specific exhibits	70

prepared by  
**People, Places & Design Research**  
Northampton, Massachusetts

March, 2002

## Executive Summary

This exhibition was created to attract and appeal to families with children based on a major strategic planning effort targeting a specific audience. Summative evaluation was commissioned to reflect on the original goals for the exhibition as well as to inform future decisions regarding institutional and exhibition planning for family audiences.

Several complementary research methods were used to address a variety of questions about family experiences in *Splash Zone*: two methods of exit interviews (281 “family interviews” where parents were asked most of the questions, and 55 “interviews with children” where the focus was on 7 to 9 year olds), observations of children’s behavior in the exhibition (169 children for about 10-minutes each), and finally, data were analyzed from the aquarium’s monthly exit surveys to provide a context for understanding the appeal of *Splash Zone*.

### Summary of Findings

Families with children are being well-served by *Splash Zone*. This exhibition is very popular, intensely used, and provides educational benefits for families; it exceeds its goals by also being a popular experience for adults without children. Key findings are:

- ***Splash Zone is attracting family audiences:*** almost one-third (31%) of family visitors to the aquarium said that *Splash Zone* was a factor in their decision to come here (the proportion of people who came with a specific intention of seeing *Splash Zone* increased from 12% in 2000 to 18% in 2001). And whether they knew about it in advance or not, most families see *Splash Zone* during their visit, so it is attracting them while they are in the building.
- ***Parents and children rate this exhibition very highly:*** High ratings were given by approximately two-thirds of families (69% parents, 66% to 78% ratings by 7-9 year old children). The highest ratings (82% excellent, equivalent to the highest-ever ratings for Planet of the Jellies and Outer Bay Waters) were given by frequent repeat families—parents who have been to the aquarium eight or more times.
- ***It’s an educational experience:*** Most parents (77%) think that their family’s experience in *Splash Zone* was equally about fun and education. Interviews with children revealed several themes about their educational experience, e.g.,: information about penguins and other animals, how it feels to touch animals, and seeing creatures you don’t usually see. Many parents (83%) believe that *Splash Zone* helps their children to care about nature.
- ***Splash Zone is facilitating family interaction:*** Parents and children are sharing experiences in many ways: showing things to each other, talking about what they’re seeing, playing together, and having fun together. Also, parents indicated strong future interest in “things that two or more people can do together.” “Family learning behaviors” are a subset of family interactions. Detailed observations of children (in both the 4-6 age range and the 7-9 age range) indicated that virtually all families are engaging in some type of family learning behavior in this exhibition. Such behaviors, with educational content either expressed or inferred, seem to occur all around the exhibition, whether at traditional tanks-with-labels or at play areas such as Coral Reef Play or Waterplay.

## Interpretation of Findings

This section provides an introduction to the evaluation, expanding on the rationale, research methods and main findings. The exhibition planning process for *Splash Zone* was guided by two phases of visitor research (a “front end” study by Randi Korn & Associates, and formative evaluation studies directed by Minda Borun), and this summative evaluation sought to continue that process—reflecting on the original goals for the exhibition as well as informing future decisions regarding institutional and exhibition planning for family audiences.

The principal issues to be addressed in this evaluation were:

- Is *Splash Zone* attracting family visitors and meeting their expectations?
- Is this exhibition facilitating family interaction and family learning?

Pursuing the sub-questions and answers to these issues, the intent was to generate reliable information about family experiences that could not only inform the aquarium about the outcomes of this innovative experiment, but also inform future steps in this direction (such as potential redesign or adaptation of parts of the exhibition).

### Research Method

This summative evaluation used several complementary research methods in a plan designed to address a variety of questions about family experiences here. Focusing on families in the exhibition, two methods of exit interviews were implemented as people were leaving the exhibition space (281 “parent interviews” where parents were asked most of the questions, and 55 “interviews with children” where the focus was on 7 to 9 year olds). These interviews explored questions about families’ enjoyment of the experience, their reactions to a selection of specific exhibits (using a photo board) including reports of their family interactions, and among other issues, their preferences for characteristics of experiences to be included in future exhibitions. In addition, observations of children’s behavior were conducted to describe the character and extent of family interactions in *Splash Zone* (169 children for approximately a 10-minute period each, half in the 4-6 age range, and half in the 7-9 age range). Such observations were designed to find out what kinds of family interactions were occurring in the exhibition, and where they were more likely to be taking place.

In addition to the research methods specifically designed and implemented for this evaluation, data were examined from the aquarium’s regular exit surveys to provide a context for understanding the appeal of *Splash Zone*. For most of 2000 and 2001, questions had been asked about whether visitors (adults or families) had visited this exhibition, and whether it had been a factor in their decision to visit the aquarium.

### Summary of Findings

The aquarium’s newest target audience—families with children—is being well-served by *Splash Zone*. This exhibition is very popular, intensely used, and provides educational benefits for families; it exceeds its goals by also being a popular experience for adults without children. Highlights of the findings of this evaluation are summarized in response to key exhibition planning issues:

***Is Splash Zone attracting family audiences?***

Yes, definitely: In 2001—a year after this exhibition opened—almost one-third (31%) of family visitors to the aquarium said that *Splash Zone* was a factor in their decision to come here (the proportions were even higher among some segments, such as repeat family visitors from within California). And whether they knew about it or not, most families see *Splash Zone* during their visit, so it is attracting them while they are in the building.

Typically, successful new exhibitions create a burst of attendance in the short term followed by a decline in attendance, and that kind of pattern is slightly evident here too: in 2000, 78% of aquarium visitors saw *Splash Zone*, and in 2001<sup>1</sup> the proportion declined to 70%. However, there is a remarkable second pattern underlying that primary one: the proportion of people who are coming with a specific intention of seeing *Splash Zone* is increasing (12% in 2000, 18% in 2001). Analysis of this secondary pattern indicates that there is a segment of regional family visitors who are so attracted to *Splash Zone* that they are coming to use it repeatedly.

***Is Splash Zone satisfying family audiences?***

Yes, definitely: In the summer of 2001, parents and children rated this exhibition very highly (about two-thirds gave it excellent ratings: 9 or 10 on a 10-point scale)—higher than any exhibition other than “Planet of the Jellies.” The highest ratings (82% excellent, equivalent to the highest-ever ratings for “Planet of the Jellies” and “Outer Bay Waters”) were given by frequent repeat visitors, parents who have been to the aquarium eight or more times.

A particular concern has been whether *Splash Zone* is perceived to be primarily for younger children (or predominantly used by younger children,<sup>2</sup> and therefore giving an impression of it being for that audience). The data from this analysis suggest two conclusions: (1) families with younger children are very attracted to *Splash Zone* and are having a great time here; and (2) families with school-age children are just as likely to be visiting *Splash Zone* and those children are also enjoying the experience. When these two conclusions are considered together, there is no cause for concern; it is important to recognize the potential for misinterpreting the strong appeal to younger children—it does not exclude older children from a satisfying and educational experience.

***Is this exhibition facilitating family interaction?***

Yes, definitely: Family interaction may be occurring to a similar extent at other aquarium exhibits, but it is certainly happening here. Parents and children are calling each other to share the experience of seeing something, they are playing together, talking, directing, and explaining. Asked about their interest in experiences on their next visit, parents indicate strong interest in “things that two or more people can do together” (highest of four choices that included craft activities, kid-oriented play activities, and more videos about animals in nature; equally high among parents of older or younger children).

---

<sup>1</sup> Most references to 2001 data from the aquarium’s exit surveys pertain to the period from January to August, so that the anomaly of the attendance pattern after September 11 is not a factor in interpreting the findings.

<sup>2</sup> In this report, the term ‘younger children’ refers to children up to six years old (the younger half of the target age range was 4 to 6) and the term ‘older children’ refers to children age 7 and above (mostly referring to children in the older half of the target age range, 7 to 9, and specifically not intended to refer to high school students or other teens). These definitions have to be interpreted flexibly, however, because families come with children of various ages, sometimes younger and older children, sometimes children in the target age range as well as children who are even younger or even older.

‘Family learning behaviors’ are a subset of family interactions. Detailed observations of children (in both the 4-6 age range and the 7-9 age range) indicate that virtually all families are engaging in some type of family learning behavior in this exhibition. The most frequently observed behaviors were hands-on participation,<sup>3</sup> body play (e.g., imitating animal movements), and directing attention to or explaining exhibits. These behaviors, with educational content either expressed or inferred, seem to occur all around the exhibition, whether at traditional tanks-with-labels or at play areas such as Coral Reef Play or the Waterplay activities in the rocky shores area.

***Is there other evidence for educational value here?***

Yes, definitely. Most parents (77%) think that their family’s experience in *Splash Zone* was equally about fun and education (this rises to 93% among families who had seen the exhibition at least once before). The fun-educational experience becomes even more prominent with older children (fewer parents with older children saying that the experience was just about having fun). Interviews with children revealed several themes about their educational experience (what they found out that was surprising, interesting or new) including: information about penguins and other animals, how they feel to touch, and seeing creatures you don’t usually get to see.

Many parents also believe that *Splash Zone* helps their children to care about nature. In a general way, 83% of parents interviewed agreed that “*Splash Zone* helps kids care more about nature;” analysis of this and related findings suggests that conscious reference to caring about nature is more evident with older children than very young children. The character of caring about nature varies with each exhibit, but in parents’ views there is just as much enhancement of this attitude at the tidal Waterplay area as there is at the eels exhibit or at Crowded Coral Reefs (each of these exhibits was cited by 42%-45% of parents). Parents’ definitions of their children’s caring about nature was expressed in a variety of themes, such as: becoming familiar with animals and seeing them live, respecting animals, learning that sea life is fragile and needs protection, hands-on activities help children learn by doing, seeing how waves affect fish, and seeing animals in their habitat.

---

<sup>3</sup> The hands-on participation was not just children alone; twice as often, adults were involved with their children, whether that meant physically engaged or otherwise participating with them.

## A. Who's coming to this exhibition?

This section presents information about the audience for *Splash Zone*—including the proportions of adult visitor groups and families who are seeing the exhibition, who was aware of it before arriving, and a pattern of repeat visits to this exhibition.

[These data come from the aquarium's monthly exit survey, as well as from interviews with parents and children as they were leaving *Splash Zone*.]

- Although designed for families, this exhibition is being seen by nearly the same proportion of adult visitor groups (64%) as the proportion of families who see it (76%).
- Among the families seeing *Splash Zone* in summer of 2001, there was relatively high awareness of this exhibition before arriving, which was strongly correlated with repeat attendance (34% had already seen it, an additional 21% knew about it but hadn't seen it).
- *Splash Zone* was a factor in deciding to visit the aquarium among a variety of families—but especially among families with preschoolers and local families.
- While visiting the aquarium, families with preschool children and families with school age children were almost equally likely to visit *Splash Zone*.

**FAMILY INTERVIEWS**

**A.1. Prior awareness and the decision to visit MBA**

OVERVIEW: Families visiting in summer 2001 (over a year since *Splash Zone* opened) had relatively high awareness of this exhibition (55% knew of it; 34% had already seen it). Prior awareness was highest among families living more locally (Monterey/SF Bay). Visitors' awareness of new/special exhibitions and their motivations to visit are important issues that have been investigated in many previous exhibit evaluations. As a comparison, the proportion of families who had heard about *Mating Games* (a special exhibition geared toward families with children) was significantly lower (30%).

***Heard of Splash Zone before arriving?***

(Family interview/parent, Form B)

	<u>Splash Zone</u> Families		<u>Mating Games</u> Families
aware, seen it before	34%		
aware, hadn't seen it	21%	aware =	30%
no, unaware	45%		

Awareness analyzed by prior MBA experience

	<u>1<sup>st</sup>-time</u> Families	<u>Repeat</u> Families
**		
aware, seen it before	0	47%
aware, hadn't seen it	30%	18%
no, unaware	70%	35%

Awareness analyzed by residence:

	<u>Monterey/</u> <u>SF Bay</u>	<u>Other</u> <u>Calif</u>	<u>Out-of</u> <u>State</u>
**			
aware, seen it before	54%	24%	17%
aware, hadn't seen it	17%	24%	25%
no, unaware	30%	52%	58%

Awareness among California families analyzed by age group:

	<u>with</u> <u>Preschooler</u>	<u>School-age</u> <u>Only</u>	
aware, seen it before	40%	43%	
aware, hadn't seen it	26%	10%	
no, unaware	34%	48%	(not a significant difference)

About statistical significance in the data tables of this report:  
 \*\* = indicates a statistically significant difference (p<.05) between two or more columns of figures. For example, on this page there are different levels of awareness among first-time and repeat family visitors, and differences between the three residence categories.  
 ++ = indicates a difference that is not quite statistically significant (p<.10), but that may have some intuitive value in interpreting the pattern of results.



**FAMILY INTERVIEWS**

**The decision to visit (continued)**

OVERVIEW: About one-quarter of the families who visited *Splash Zone* said that this exhibition was a factor in their decision to visit the aquarium (that translates into approximately 18% of all family visitors, since about 70% of families see *Splash Zone*). Again, families living in the Monterey/SF Bay region and those with preschoolers were most likely to be motivated by this exhibition. As a comparison, the proportion of families who said *Mating Games* was a factor in their decision to visit was only 9%.

***Was Splash Zone a factor in your decision to visit?***

(Family interviews/parent, Form B)

	<i>Splash Zone</i> <u>Families</u>	<i>Mating Games</i> <u>Families</u>
yes, a factor	26%	9%
aware but not a factor	29%	21%
no, unaware	45%	70%

Factor in decision analyzed by prior MBA experience

	1 <sup>st</sup> -time <u>Families</u>	Repeat <u>Families</u>
**		
yes, a factor	17%	28%
aware but not a factor	13%	37%
no, unaware	70%	35%

Factor in decision analyzed by residence:

	Monterey/ <u>SF Bay</u>	Other <u>Calif</u>	Out-of <u>State</u>
**			
yes, a factor	37%	24%	11%
aware but not a factor	33%	24%	31%
no, unaware	30%	52%	58%

Factor in decision among California families

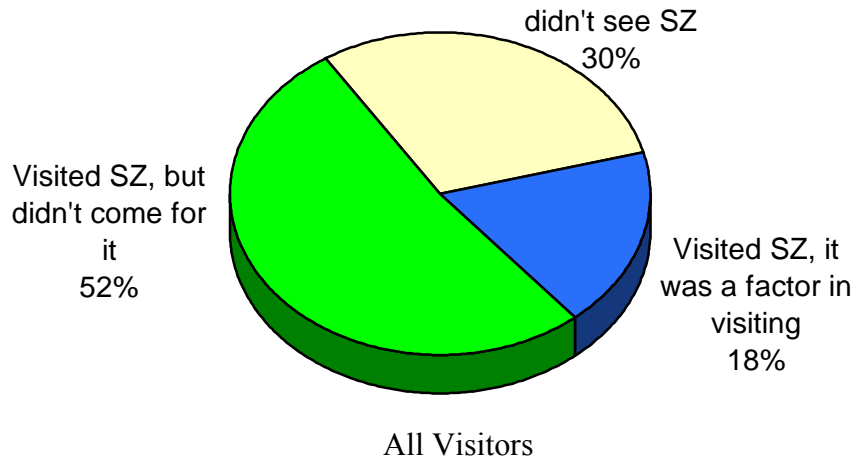
analyzed by age group:

	With <u>Preschooler</u>	School-age <u>Only</u>
**		
yes, a factor	40%	18%
aware but not a factor	26%	34%
no, unaware	34%	48%

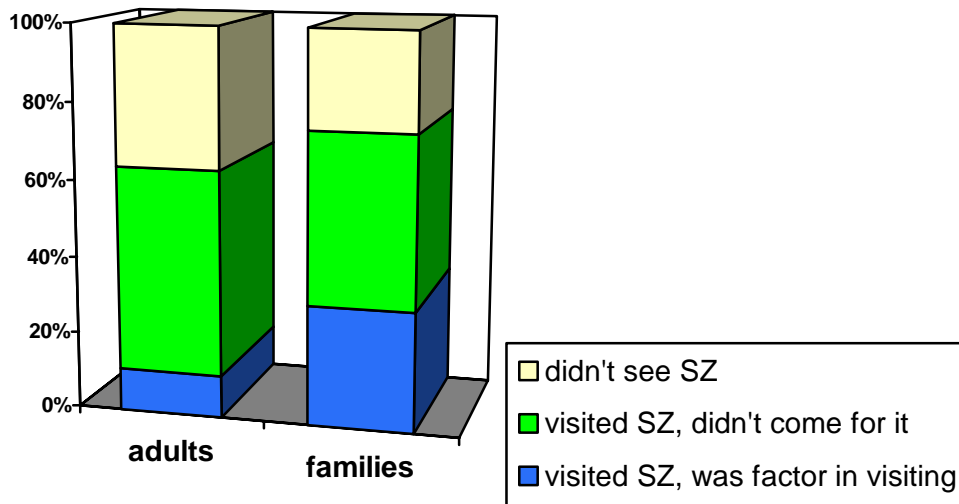
MBA EXIT SURVEYS

**The decision to visit (continued)**

Among all visitors to the aquarium (adults and families) in 2001 (January-August), about two-thirds (70%) of the visitor groups visited *Splash Zone*. An overall average of 18% (31% for families with children, 11% for adults without children) said *Splash Zone* was a factor in their decision to visit the aquarium; about half of the aquarium's visitors saw this exhibition but had not come specifically for it.



Although significantly more families were likely to come to the aquarium because of *Splash Zone*, the pattern of seeing it or not seeing it among adults is similar to the pattern among families (many adults see this exhibition).

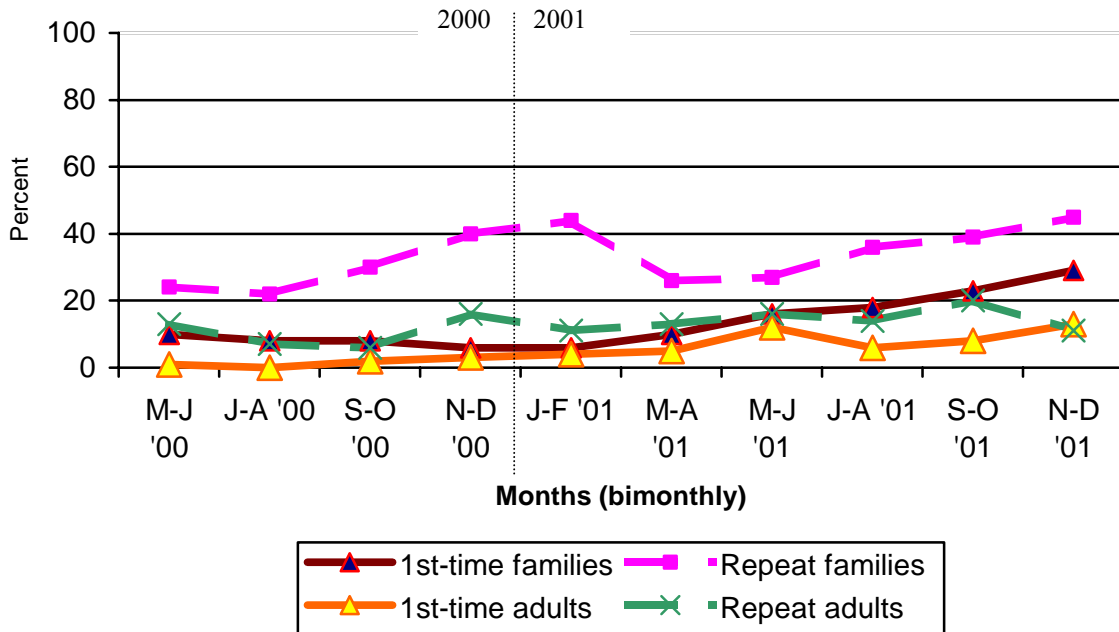


MBA EXIT SURVEYS

**The decision to visit (continued)**

OVERVIEW: Based on the MBA monthly exit surveys, there is a clear pattern of *Splash Zone* motivating visits among repeat families (more so than first-time families or adult-only groups), and this influence is highest in winter months. Additionally, these data corroborate the finding that families with young children are most likely to consider *Splash Zone* in their decision making. Note that the MBA exit survey data and the interview results are very consistent.

***Splash Zone* is motivating visits among repeat families, especially in winter months**



**Factor in decision analyzed by year:**

	<u>2000</u>	<u>2001</u>
overall	12%	18%
Families:		
repeat families	22%	31%
first-time families	8%	17%
Adults:		
repeat adults	6%	11%
first-time adults	2%	9%

**Analyzed by age of children in the group (July & August 2001 only)**

	** <u>All children age 6 or less</u>	<u>Mixed ages</u>	<u>All children age 7 or more</u>	<u>Teens Only</u>
was a factor motivating visit	39%	44%	20%	11%

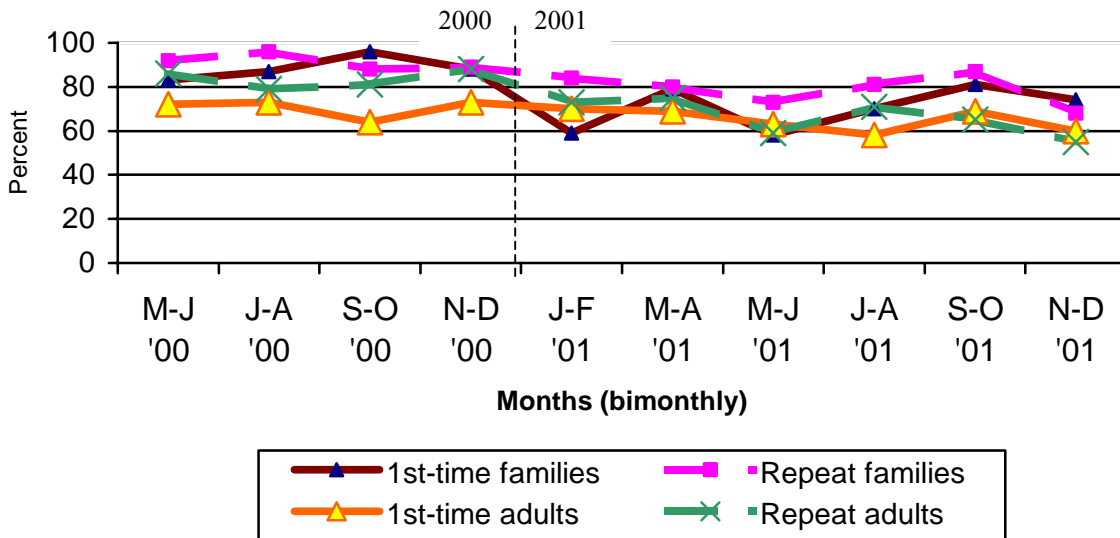
MBA EXIT SURVEYS

**A.2. Who is seeing *Splash Zone*?**

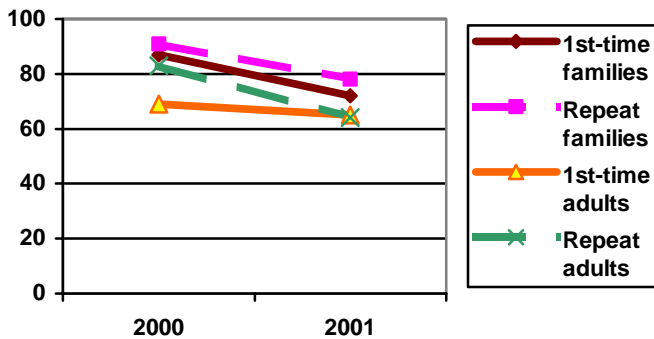
OVERVIEW: The majority of adult and family visitors see *Splash Zone*. Based on MBA exit survey data, the proportion of visitors who saw *Splash Zone* in 2001 (70%) declined somewhat compared to the proportion during 2000 (78%). During both years, families with children have been slightly more likely to visit SZ compared to adult-only groups. In the first year (2000) repeat visitors were more likely than first-time visitors to see the exhibition. However, this difference disappeared in 2001, due to a decline in the proportion of repeat visitors who were seeing it (perhaps because they saw it already). This decline was noticeable among both repeat family and repeat adult groups, although slightly more pronounced among adults.

**Over time, minor variations in the proportions of different audiences who visited *Splash Zone***

(Note that there are limitations with looking at proportions; actual attendance figures could show a different pattern)



**Proportions visiting *Splash Zone* by year have declined since opening (for 3 of 4 visitor segments)**

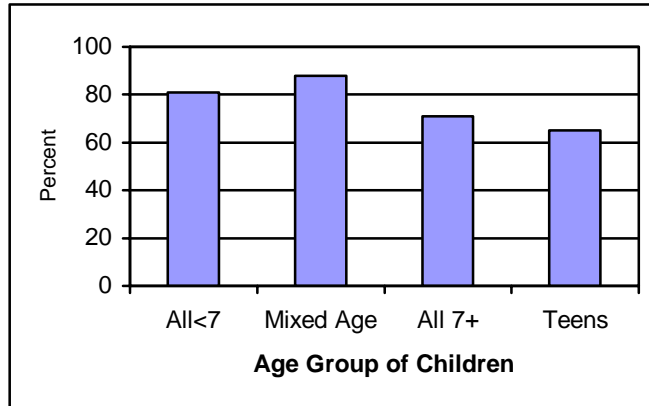


Range in 2000: 69-91%  
 Range in 2001: 64-78%

15% decline among 1<sup>st</sup>-time families  
 13% decline among repeat families  
 19% decline among repeat adult-only groups  
 4% decline among first-time adult groups

**Most families visit *Splash Zone*, regardless of the ages of kids in the group (not a significant difference in summer 2001)**

MBA EXIT SURVEYS



Average proportion of families visiting *Splash Zone* = 70%

**Who is seeing *Splash Zone*? (continued)**

OVERVIEW: Compared to the samples of families interviewed in two previous studies of special exhibitions (*Mysteries of the Deep* and *Mating Games*), summative evaluation data suggests a modest increase in the proportion of local families (up by 5-8%), frequent visitors (up by 7%), and members (up by 5-10%) who are seeing *Splash Zone*. Based on MBA Exit data (presented in Section A4), it looks like this pattern of results reflects a small shift in the overall composition of the audience (not just a matter of who is seeing the special exhibitions).

*Sample of families interviewed*

	Splash <u>Zone</u> summer (n=281)	Mysteries <u>of Deep</u> summer portion (n=113)	Mating <u>Games</u> summer (n=110)
<u>Number of times at MBA:</u>			
first-time	36%	41%	26%
1-2 previous visits		20%	27%
3-7 previous visits	not	22%	23%
8+ previous visits	asked	17%	24%
members	7%	12%	17%
<u>Residence:</u>			
Monterey County	8%	5%	13%
SF Bay area	26%	19%	26%
other Calif.	44%	35%	32%
out-of-state	22%	41%	29%

FAMILY INTERVIEWS
----------------------

**A.3. Which families are returning?**

OVERVIEW: Based on interviews with families leaving the exhibition, about one-third (36%) of these families had seen *Splash Zone* on a previous visit. Compared to repeat visitors who have not seen it before, the returning families are more apt to be frequent visitors and to live in Monterey County.

<i>Seen Splash Zone before?</i> (Family interviews, forms A+B)	Overall <u>Sample</u> (n=281)	Seen SZ <u>before</u> (n=102)	Been MBA <u>not SZ</u> (n=107)	1 <sup>st</sup> -time <u>at MBA</u> (n=72)
<u>Number of times at MBA:</u>		**		
first-time	26%	0	0	100%
1-2 previous visits	27%	24%	49%	0
3-7 previous visits	23%	27%	36%	0
8+ previous visits	24%	50%	15%	0
members	17%	37%	10%	0
<u>Residence:</u>		**		
Monterey County	13%	26%	6%	4%
SF Bay area	26%	37%	29%	7%
other Calif.	32%	24%	36%	40%
out-of-state	29%	14%	30%	49%
<u>Ages of children:</u>				
any preschoolers in group	52%	50%	57%	46%
school-age children only (6-17)	48%	50%	43%	54%
<u>Gender of adult interviewed:</u>		++		
female	67%	71%	72%	57%
male	33%	39%	38%	43%
<u>Residence (read as row percents)<sup>4</sup></u>				
among Monterey County		74%	17%	9%
among SF Bay residents		51%	42%	7%
among other CA residents		26%	42%	32%
among out-of-state		17%	40%	43%

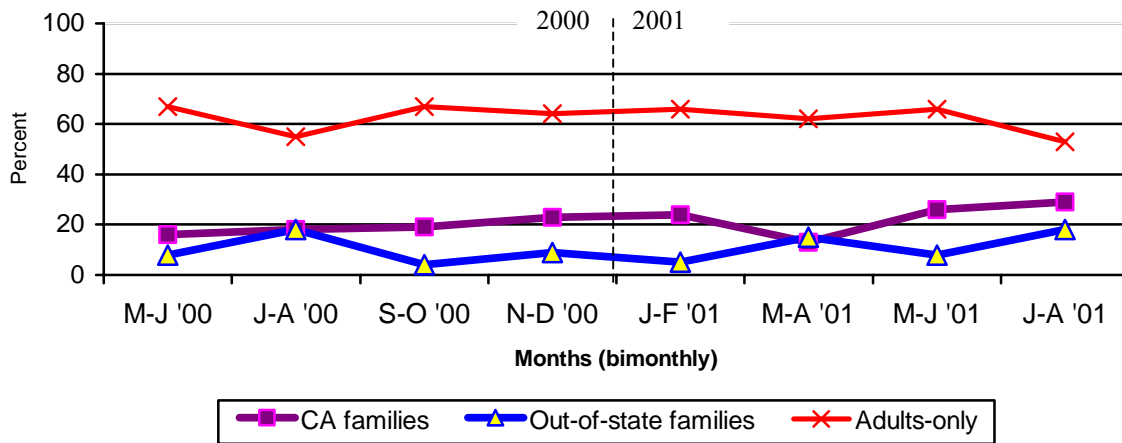
<sup>4</sup> Percentages in tables can be calculated either as a proportion of the column or of the row, but not both simultaneously. In almost all tables in this report, we have used percentages of *column* headings (e.g., 26% of the people who have seen *Splash Zone* before are Monterey County residents). To show the full picture, however (because of the issue about frequent repeat visitors to SZ), the percentages in the box present the alternate calculation: *row* percents (74% of visitors who live in Monterey County have seen SZ before)—a strong indication of people visiting repeatedly within the same year, approximately; the 51% of visitors from SF Bay area also indicates good repeatability among those families.

### A.4. Has the family audience at MBA increased due to *Splash Zone*?

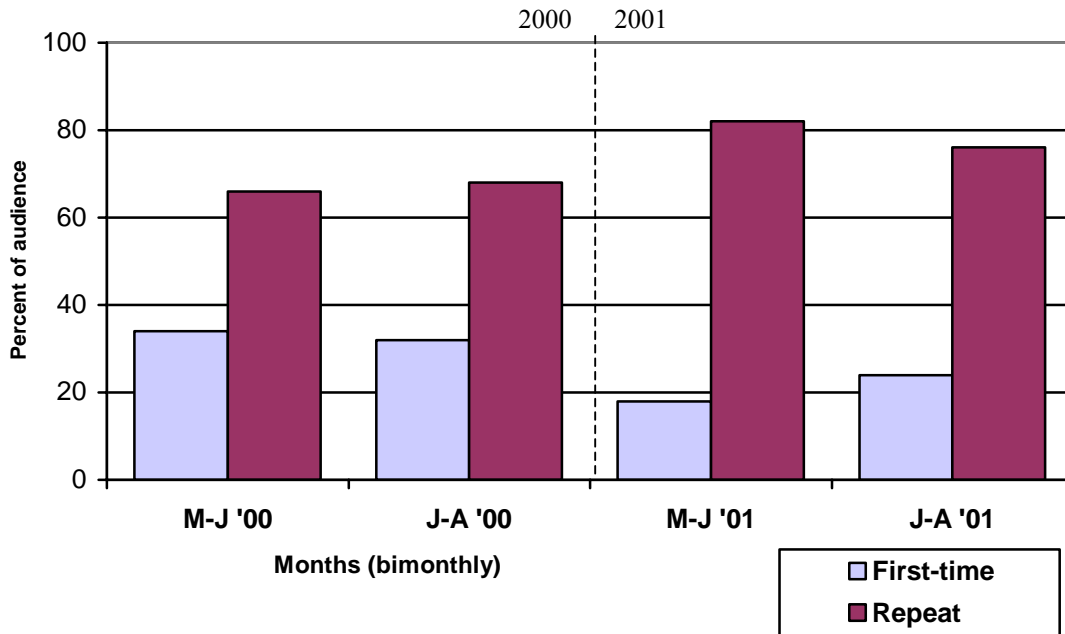
OVERVIEW: MBA Exit data show mixed results in documenting the increased repeat visits among families. From year 2000 to 2001, the overall difference is not significant, but comparing only the spring and summer seasons, there has been a 10% increase in the proportion of California families in the audience from 2000 to 2001. It looks like this increase could be due to repeat visits.

#### MBA EXIT SURVEYS

**MBA audience segments show some seasonal variations over time and a small gradual increase in the California family audience from May 2000 to August 2001.**



**Among California families, there has been an increase in the proportion of repeat visitors.**



## **B. Reactions to *Splash Zone*, among adults and children**

This section focuses on visitors' perceptions of the quality of their experience—including overall ratings, highlights and disappointments, reasons why they liked certain exhibits, and other opinions.

[The data come from the aquarium's monthly exit survey, as well as from interviews with parents and children as they were leaving *Splash Zone*.]

- Parents and children have a strong appreciation for *Splash Zone*. Their ratings indicate an enjoyable experience that exceeds expectations.
- The highest ratings were received from frequent repeat visitors (8+ MBA visits). Also, children in the target age range (e.g., 7-9 yrs.) rated the exhibition better compared with older children (age 10+).
- Children are clearly excited about the animals, about the opportunities for play and having fun while learning: *It has a lot of interesting things and you can learn a lot and get to touch stuff; or I liked looking at all the different animals, seeing what they do.*
- Among the many highlights, penguins, Waterplay, hands-on activities, touching creatures and seeing the variety of animals were especially mentioned by children and adults.
- The principal disappointments were that the exhibition was crowded and that people wanted more of it.



**EXIT SURVEYS &  
INTERVIEWS**

**B.1. Overall ratings**

OVERVIEW: *Splash Zone* was rated highly by two-thirds of the parents and children interviewed. These ratings are higher than for previous special exhibitions (e.g., *Mating Games*, *Deadly Beauties*, *Mysteries of the Deep*).” This exhibition was rated most highly by frequent repeat visitors (with children); typically it is these visitors who most value the new or temporary exhibitions. Otherwise, *Splash Zone* had broad appeal for families, with similar ratings among men and women, among people with different environmental attitudes, among people who have seen the exhibition before and those who haven’t, and among parents with various ages of children.

MBA exit surveys provide additional information about the role of this exhibition within the context of the entire Aquarium visit. In summer, these ratings (via anonymous questionnaire) were lower than the ratings given in person-to-person interviews immediately after seeing *Splash Zone*. Adult-only groups in particular gave significantly lower ratings (41% ‘high’) compared to the families (56% ‘high’). The graph on the next page shows a consistent trend over time of differences between adults and families, although the difference is most pronounced in summer when the adult ratings are lowest, probably a reaction to the crowds.

<i>Ratings of exhibition</i>	<i>MBA Exit</i> (summer)		<i>Family interviews</i> (summer)			<i>Child interviews</i>
	Adults <u>Only</u> (n=106)	Group <u>w/ kids</u> (n=135)	<u>Parents</u> (n=281)	Child <u>7-9</u> (n=45)	Child <u>10+</u> (n=45)	Children <u>age 7-9</u> (n=55)
	<i>on a scale of 1 to 10:</i>		<i>scale of 1 to 10:</i>			<i>using words:</i>
High (9-10)	39%	57%	69%	78%	60%	66% great
Medium (7-8)	42%	33%	27%	16%	38%	22% good
Low (1-6)	19%	10%	4%	6%	2%	13% okay

**Who gave high ratings?**

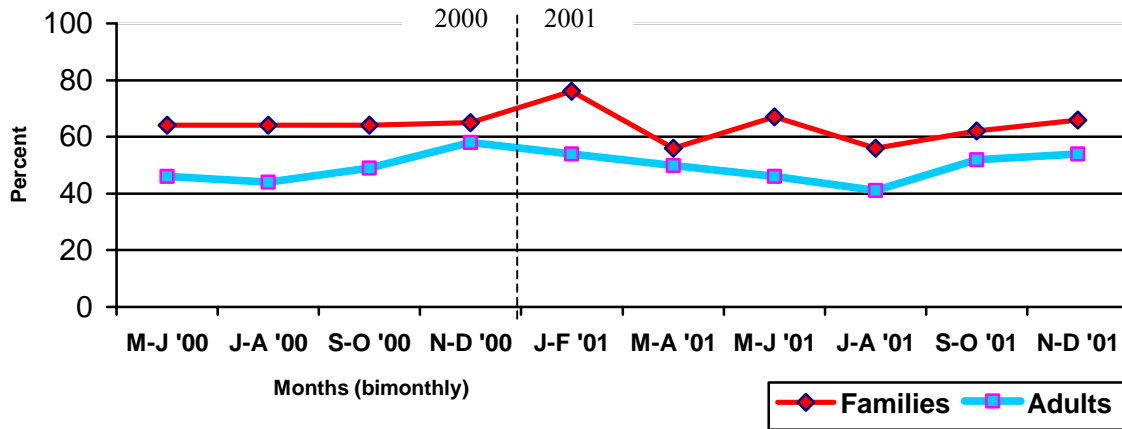
(Family interviews/parents)

- \*\* **82%** of frequent repeat visitors (8+ visits to MBA)
- 68% of less frequent repeat visitors (3-7 previous visits)
- 66% of infrequent visitors (1-2 visits)
- 60% of first-time visitors

<< more analyses on the next page >>

**Adult-only groups gave lower ratings than families, especially during May through August**

MBA EXIT SURVEYS



Overall high ratings for 2001: families = 63%; adults = 49%

**Ratings (continued)**

CHILD INTERVIEWS

*Why was it \_\_\_\_?*

Great	Good/Ok	
33%	3%	fun, cool, really like it
13%	3%	penguins
11%	2%	seeing fish, animals in general
8%	2%	touching animals
5%	0	specific creatures (e.g., eels, sharks)
3%	3%	lots of activities, hands-on, playing
3%	2%	specific games, interactives
3%	0	learning, educational
2%	3%	Waterplay
2%	3%	crawl through
2%	5%	coral play area
0	3%	seen it before
0	3%	it's ok but not that much fun
0	2%	want to see more stuff/animals
3%	2%	other
2%	5%	don't know, blank

**Sample answers from children: why it was 'great'**

*Lot to play in*

*Cause it's fun*

*You get to play with other people, little fishes in water, play in the tidal wave*

*It has a lot of interesting things and you can learn a lot and get to touch stuff*

*Sharks, they swim fast*

*Penguins are my favorite animals*

*It's fun, the penguins*

*I liked looking at all the different animals, seeing what they do*

*It was fun, touching things and looking at them*

**Sample answers from children: why it was 'good/ok'**

*Costumes, turtles*

*Had fun*

*Fun—Coral Play, Waterplay was fun, eating game*

*Don't know, penguins weren't swimming*

*I wish there were more things, more fish and stuff*

*Because I've seen it before, it was a little boring*

*Slides, crawl through and see animals*

FAMILY  
 INTERVIEWS/CHILDREN

## B.2. Highlights and disappointments

OVERVIEW: For children, the penguins are clearly the highlight of this exhibition. Other highlights are the Waterplay, the touch pool, and seeing live animals (sharks, eels, fish, etc.) Waterplay was mentioned more frequently by 7-9 year olds than it was by the older kids.

### *What did you like the most about this exhibit?*

[asking KIDS during family interviews; form A]  
 (there were not enough 4-6 year olds answering this question to provide reliable analysis)

	<u>7-9 yr olds</u> (n=48)	<u>10 yrs old +</u> (n=46)
Penguins	42%	52%
Waterplay, waves, tide pool	21%	13%
Touching/petting animals, touch pool	13%	11%
Other animals (e.g., seahorses, clams)	10%	9%
Sharks	8%	2%
Coral reef play area	6%	0
Eels	6%	4%
Crawl thru tunnel	4%	9%
Fish, animals in general	4%	2%
Other	4%	2%
Blank	2%	4%

### Sample comments:

*Penguins—I just like every single bit of it.* [age 7-9 yrs]

*Liked the fact that you can touch the creature, picking up creatures.* [age 10+ yrs]

*Sharks, Waterplay.* [age 7-9 yrs]

*Petting the animals.* [age 7-9 yrs]

*Hands-on looking at sea stars.* [age 10+ yrs]

*Slide and puppets, water jets, eels.* [age 4-6 yrs]

*Touching live stuff.* [age 10+ yrs]

*Moray Eels and magnifying animals—get close.* [age 7-9 yrs]

*Leafy Sea Dragon.* [age 7-9 yrs]

*Story telling.* [age 4-6 yrs]

*Tide pool.* [age 4-6 yrs]

*Talking penguins.* [age 10+ yrs]

*The fizzle fish.* [age 7-9 yrs]

<b>FAMILY INTERVIEWS</b>
------------------------------

**Highlights (continued)**

OVERVIEW: For parents, the penguins are also the main highlight, followed by Waterplay and the hands-on activities in general. Parents with any young children (under 7) liked the baby/toddler area, while those with mixed ages of children (both under and over 7) liked the Coral Reef Play area and Coral Crawl. Parents also liked that it's child friendly, the children can touch animals, and it's visually appealing.

***Tell me 2 things you liked most.***

[Family interviews/parents]

	<i>ages of children in the group</i>		
	<u>Under 7</u> (n=44)	<u>Mixed</u> (n=38)	<u>All 7+</u> (n=60)
Penguins	55%	45%	52%
Water area, water activities, waves	30%	26%	12%
Hands-on (in general)	18%	32%	23%
Baby/toddler area	16%	13%	2%
Child friendly, good for kids, able to play	14%	3%	12%
Touching animals, touch pool	9%	13%	7%
Eels	9%	5%	12%
Colorful, attractive, visually engaging	7%	11%	13%
Leafy sea dragon	7%	3%	2%
Coral reef section	5%	5%	7%
Other fish (e.g. jawfish, anemones)	5%	11%	8%
Coral reef play area, costumes	7%	13%	2%
Coral Crawl, tunnel	7%	11%	2%
Staff, guides: helpful & friendly	0	5%	3%
Layout/design of the exhibition	0	3%	5%
Educational, descriptive labels, info	0	0	8%
Other	2%	3%	8%

**Sample comments:**

*Baby area because very stimulating environment, crawls (tunnel), lets children view fish on their level*

*Waterplay—kids liked best, Coral Reef play*

*Eels, penguins*

*Toddler area, hands-on exhibits*

*Penguins, the fish tanks at Coral Reefs*

*Costumes, wave-making, squirting anemones*

*The music environment ambience, the way it's set up*

*The info given so children can play while they learn*

*An opportunity to learn with my grandchildren, it's a hands-on learning experience, fun too*

*The live penguins, the whole look of the exhibit, it's fun*

*Crowded Coral Reef—colorful; all the hands-on displays for the kids*

*The play area for the little kids, penguins*

*Stuff is made on child level, being able to spend time with daughters, let them be kids*

*Being able to relax while the kids play*

<p><b>FAMILY INTERVIEWS</b></p>
-------------------------------------

**Highlights and disappointments (continued)**

OVERVIEW: Crowding was the primary disappointment (mentioned by 21% of families who visited in summer). Some people also wished it were bigger or had more activities/exhibits.

***Name something that you didn't like or that was disappointing?***

(Family interviews/parents; form B)

Crowded, busy	21%
Too small, need more space	6%
More activities, hands-on, expand exhibition	6%
Problem with age level of exhibits	4%
Penguins section	4%
Baby strollers	2%
Need more staff/supervision	2%
Quality of exhibits/interactives	1%
Problems with other specific sections	1%
Other	4%
Blank, nothing	52%

**Sample comments:**

*You can't take the crowd away—that would be my only complaint*

*Nothing—everything's okay*

*Larger size, more room to do activities*

*Too much like Disneyland*

*Larger penguin exhibit*

*Very crowded, small area, too many people, too many strollers*

*Games don't work always*

*Supervisors should be better about watching little kids—not have big kids in play area*

*Coral Cove only for ages 3 and up, lack of seating*

*Would like more live stuff*

*More hands-on things to do*

*Too many people—you can't help that*

*You couldn't touch the penguins*

*Better control of age groups*

**B.3. Reactions to selected exhibits**

FAMILY  
INTERVIEWS

DESCRIPTION OF EXHIBITS:

- Crowded Coral Reefs**—the first exhibit, filled with living corals and brightly colored fish
- Moray Eel tank**—an exhibit with eels peeking out of the coral caves and an adjacent interactive with toy eels
- Crunch, Nibble**—an interactive with plates about how different coral reef animals eat
- Coral Play**—a play area with slide, dress-ups, ride-on animals
- Coral Cove**—an area specifically for infants and toddlers
- Waterplay**—an area with waves, where you play with water and plastic toys (fish & sea stars)

OVERVIEW: Families were shown photos of six selected exhibits and asked a series of questions about them in order to explore possible differences between families with young children and those with older children in their preferences for certain types of experiences. These six exhibits represent some of the different kinds of experiences offered in (e.g. live animals, hands-on elements, etc.). Parents were asked to rate these six exhibit areas. Clearly the Waterplay area is a big hit—69% said it was ‘great’ and 75% felt it was one of the most important areas to keep in the exhibition (if *Splash Zone* were redesigned). People also gave moderately high ratings to three of the other five exhibits we asked about (58-60% ‘great’).

**Refer to these pictures of the exhibit and give your reaction to each place where you stopped:** (Family interviews/parents; form A)

<b>Among those who stopped:</b> (ranked in order of stopping)	<u>Great</u>	<u>Good</u>	<u>OK</u>	<u>Didn't Like</u>	<u>% who Stopped</u>
Crowded Coral Reef	58%	39%	2%	0	94%
Waterplay (waves, dams)	69%	25%	6%	<1%	86%
Moray Eels	60%	34%	6%	1%	86%
Coral Reef Play	58%	33%	9%	0	61%
Crunch Nibble Gulp Bite	36%	38%	22%	4%	54%
Coral Cove	47%	43%	8%	2%	38%

**If this exhibit were redesigned, which two of these would be most important to keep?**

(Family interviews/ parents; form A)

<u>Percent who said KEEP:</u>	<u>Among those who stopped</u>	<u>Restated as % of full sample</u>
Crowded Coral Reef	42%	40%
Waterplay (waves, dams)	75%	64%
Moray Eels	53%	45%
Coral Reef Play	48%	29%
Crunch Nibble Gulp Bite	12%	7%
Coral Cove	33%	12%

<b>FAMILY INTERVIEWS</b>
------------------------------

**Additional analyses of reactions to selected exhibits**

OVERVIEW: Families with children of different ages gave similar ratings to these six exhibits. However, there is a pattern indicating that the live animals exhibits (e.g., Crowded Coral Reef and Moray Eels) are more “important to keep” among families with only older children. The play areas (e.g., Waterplay, Coral Reef Play) appear to be more important to families with younger children, although the differences across age groups are not statistically significant.

<b><u>RATINGS analyzed by age of children:</u></b> (among those who stopped)		Only kids <u>under 7</u>	Mixed <u>ages</u>	Only kids <u>7-12</u>
		<i>% who said ‘Great’</i>		
Crowded Coral Reef	++	69%	44%	60%
Waterplay		78%	68%	61%
Moray Eels		53%	60%	63%
Coral Reef Play		70%	48%	57%
Crunch Nibble Gulp Bite		44%	32%	30%
Coral Cove		numbers are too small for reliable analysis		

**IMPORTANCE analyzed by age of kids:**

*If this exhibit were redesigned, which two of these would be most important to keep?*

(among those who stopped)		Only kids <u>under 7</u>	Mixed <u>ages</u>	Only kids <u>7-12</u>
		<i>% who said ‘Keep’</i>		
Crowded Coral Reef	**	34%	31%	56%
Waterplay		81%	68%	67%
Moray Eels	**	33%	46%	61%
Coral Reef Play		49%	41%	32%
Crunch Nibble Gulp Bite		numbers are too small for reliable analysis		
Coral Cove		numbers are too small for reliable analysis		



<p><b>FAMILY INTERVIEWS</b></p>
-------------------------------------

**Reactions to specific exhibits (continued)**

OVERVIEW: Visitors were also asked why it would be important to keep certain exhibits. Crowded Coral Reef is appreciated primarily for the visual appeal (color, beauty).

**Why keep that exhibit?—Crowded Coral Reef** (among 132 who stopped here)

Beautiful, colorful, eye-catching, visual	19%
Tropical fish, seeing fish & animals	7%
General positive: really liked it, kids enjoyed it	6%
Interesting, educational	4%
Hands-on, active	3%
Close look at fish/animals	2%
Other	5%
Blank	1%
stopped here, didn't select as "most important to keep"	58%

**Sample of answers:**

*Because of the fish and how they're so colorful*

*Stunning in its beauty*

*They (the kids) liked it*

*Great entry*

*Prettiest*

*All the color and it's very attractive to adults and children*

*Closer look at fish you don't see elsewhere*

*Habitat, something to see, hands-on*

*Colorful fish*

*Beautiful*

*Coral area hard to keep, impressed with husbandry*

*Kids loved it, so beautiful*

*Coral reef entrance is colorful & informative*

*I like tropical fish*

*Colorful, good picture place*

*To see the animals*

*Like the pretty fish*

*Colorful, beautiful*

*Live fish and colorful*

*Really like this tank of fish*

*Tropical fish much brighter, eye catching*

*Shows variety of sea life, it's beautiful*

*They are fading away, need to be protected*

*Tropical fish from other areas*

*Up close, can see coral inhabitants*

*The tropical fish*

*Tropical, my favorite*

*Coral reef tank is a good entrance*

*Shows the big picture*

<p><b>FAMILY INTERVIEWS</b></p>
-------------------------------------

**Reactions to specific exhibits (continued)**

OVERVIEW: Waterplay is appreciated because it's hands-on, kids love to play in water, and it's fun. There are three areas within the Waterplay exhibit: "Darting and Cruising" where you can swim toy fish; "Waves" where you can make waves with dams; and "Tide Pool Homes" where you can make tide pools with rock-shaped panels.

**Why keep that exhibit? — Waterplay (among 121 who stopped here)**

Hands-on, interactive	31%
Playing, playing with water	17%
Fun, enjoyable	16%
Educational, learn about tides and waves	8%
Interesting	3%
General positive: really liked it, kids enjoyed it	3%
Other	2%
Blank	2%
stopped here, didn't select as "most important to keep"	25%

**Sample of answers:**

*Oceanic current basically and how the tides work*  
*Shows them about tides and waves besides playing*  
*Kids enjoy it, play in water, kids could feel what waves feel like*  
*Important that kids can really get in there to get hands wet*  
*It shows how animals are protected when waves come*  
*Kids enjoy the hands-on*  
*Different aspects, patterns that fish do, tidal pool, overall good*  
*Hands-on*  
*Waterplay maze was fun and cool crashing waves*  
*Kids had most fun there*  
*Hands-on experience*  
*Interactive*  
*Kids can change it, hands-on*  
*Waterplay is hands-on and fun to get wet*  
*The kids like getting wet*  
*Hands-on, interesting*  
*Kids like the Waterplay*  
*Hands-on play and learning*  
*Hands-on teaches respect for animals*  
*Hands-on portion important*  
*Hands-on -- need to keep it*  
*It's a big hands-on exhibit, a lot to do*  
*Hands-on kids can see and play at same time*  
*Fun, hands-on taught how animals live*  
*I saw the kids playing and learning a lot about water*  
*Hands-on learning areas, open-ended*

<p><b>FAMILY INTERVIEWS</b></p>
-------------------------------------

**Reactions to specific exhibits (continued)**

OVERVIEW: The eels are interesting and cool, and some visitors have not seen them before.

**Why keep that exhibit? —Moray Eels** (among 122 who stopped here)

Interesting, cool, alluring	18%
See eels (e.g. never seen before)	7%
General positive: really liked it, kids enjoyed it	7%
Can see eels up close	6%
Fun, active, playing, hands-on	4%
Educational, informative	3%
Like the fish, beautiful	2%
Visually attractive	2%
Other	6%
Blank	2%
stopped here, didn't select as "most important to keep"	47%

**Sample of answers:**

*Most educational parts*

*Playing with eels was really cool and seeing the real ones*

*See all different kinds of eels in a small environment*

*Most interesting to the kids*

*Eels are intriguing*

*Cool, interesting*

*Interesting, see eels in holes*

*Eels are cool*

*So outrageous to see so many eels so close*

*Eels are alluring*

*Kids learn something*

*Up close to them*

*Kids enjoyed*

*Interesting to look at*

*More active*

*Moray eels are very interesting*

*Most people don't know about eels and what they are*

*I just like them*

*You don't see them that often displayed well*

*Interesting, seen a lot of fish but never eels*

*Shows diversity of the species, very up front and close*

*They are spooky and don't get to see them very often*

*Fascinating, can see up close*

*You don't get to see them, they are usually hidden*

*Eels fun to try to find*

*Eels are creepy and kids like creepy*

*We have never seen eels before*

*They're really interesting to watch*

<p><b>FAMILY INTERVIEWS</b></p>
-------------------------------------

**Reactions to specific exhibits (continued)**

OVERVIEW: Parents appreciated Coral Reef Play because kids can play actively and “burn off energy.”

**Why keep that exhibit? —Coral Reef Play** (among 86 who stopped here)

Kids can run/play, use their energy	21%
Fun	6%
Specific part of Coral Reef Play (e.g. dress up)	5%
Hands-on, interactive	5%
General positive: really liked it, kids enjoyed it	5%
Engaging, educational	3%
Other	5%
stopped here, didn't select as “most important to keep”	52%

**Actual answers:**

*Because it holds children's interest*

*Depends on age of kids, interaction w/other children is good*

*Kids like to play there*

*Because they needed time to run, time for a break*

*Someplace to vent some energy*

*Kids have a chance to play*

*Variety for all ages*

*Best time for the kids*

*Keeps her active and busy*

*Kids had most fun there*

*Hands-on experience*

*Great for little kids--they can't get away*

*Great place for storytelling*

*Dress up area is fun to goof around in*

*Children spent time there*

*Child able to go in and out play area*

*Play area*

*The kids get to play and dress up*

*Fun for the kids*

*Interesting and fun*

*Gives them something to do for the kids*

*Having good fun*

*Because playhouse*

*They can crawl and play*

*Play area crawl*

*Can interact & play, get the wiggles out, crawl thru & play*

*Young children often ignored, need more of it*

*Play area--could stay all day*

*Kids want to come back, give them a break to play*

*Kids enjoy and are enthusiastic*

FAMILY INTERVIEWS
----------------------

**Reactions to specific exhibits (continued)**

OVERVIEW: Due to the small number of people who were asked about Crunch Nibble Gulp, quantitative analysis was not attempted. However, most of the answers are about children learning.

***Why keep that exhibit? —Crunch Nibble Gulp Bite***

**Actual answers:**

*Educational*

*Kids learn what they eat*

*Crunch Nibble was fun to guess (interactive)*

*Learning stuff*

*Crunch Nibble helped kids learn about what fish eat*

*Crunch game good to learn about fish*

*There should be more interactive things*

FAMILY INTERVIEWS
----------------------

**Reactions to specific exhibits (continued)**

OVERVIEW: Due to the small number of people who were asked about Coral Cove, quantitative analysis was not attempted. The parents expressed appreciation for an area geared specifically to toddlers and felt that the activities were fun.

***Why keep that exhibit? —Coral Cove***

**Actual answers:**

*A neat experience*

*Small kids have their own space*

*Toddler area essential for young kids--something for all ages*

*Great for little kids--they can't get away*

*Good for little kids*

*Toddler area will attract families*

*Fun for little kids*

*Kids get chance to play*

*Gives them something to do for the kids*

*Toddlers can burn off energy*

*Kids love it and enjoy it*

*Toddler area and Waterplay more for kids*

*Not very often you find things in museums for babies, kids love water*

*It's the only place where toddlers can play safely*

<p>FAMILY INTERVIEWS</p>
------------------------------

#### B.4. Visitors' reactions to specific issues

OVERVIEW: This section addresses some additional issues raised by aquarium staff, for example, is *Splash Zone* perceived differently than other parts of the aquarium? do people perceive it as “just for young kids?” is it appreciated primarily for the penguins? Most parents (61%) agree that children have more fun at *Splash Zone* than in the rest of the Aquarium. People who have seen the exhibition before are most likely to feel that it provides extra fun for their children. The vast majority of families (84%) would not want to give up the other live animals for the sake of a larger penguin exhibit. Only one-third of the families believe that *Splash Zone* is for preschool more so than school-aged children (no difference by age category of children in the group).

This last point is especially important, as *Splash Zone* may be viewed by some as only for “younger children.” There is evidence that both younger and older children enjoy *Splash Zone* equally:

- among California families interviewed, 40% of those with at least one preschool-age child said *Splash Zone* was a factor in deciding to visit, vs. 18% of those who came with only school-age children. However, the age of the children did not significantly affect whether they visited *Splash Zone* once they were at the aquarium. Those with only school-age children were only slightly less likely to visit *Splash Zone* during their visit as those with at least one preschool-age child;
- also, families with younger children tended to stay longer in the exhibition, and the observations indicate that younger children are more likely to be using some exhibits repeatedly. However, ratings by parents of older children were similar (not significantly different) to ratings by families with younger children;
- lastly, parents of younger children were more likely to agree that “Children have more fun at *Splash Zone* than in the rest of the aquarium”—but the relationship between age and agreeing with this statement was not linearly related (see next page). In other words, as the ages of the children decreased, parents were not necessarily more likely to agree with this statement. This implies that parents were agreeing with the statement as it relates to both older and younger children.

***For each of these statements, tell me if you agree or disagree:*** (parent interviews; form A)

	<u>Agree</u>	<u>Disagree</u>	<u>No Opinion</u>
This exhibit is for preschool children more so than for school-aged kids or adults	33%	67%	0
Children have more fun at <i>Splash Zone</i> than in the rest of the Aquarium	61%	33%	6%
This exhibit would be better with more penguins instead of the other live animals	13%	84%	3%

**Analyzed by age of children in the family:**

		Preschool <u>Only</u>	Presch & older	All <u>School-age</u>
(parents' answers)		% who said 'Agree'		
This exhibit is for preschool children . . .		30%	27%	38%
Children have more fun at <i>Splash Zone</i> . . .	++	78%	52%	67%
The exhibit would be better with more penguins . . .	**	3%	7%	21%

**Analyzed by prior experience at MBA:**

		Seen SZ <u>Before</u>	Been MBA <u>Not SZ</u>	1 <sup>st</sup> -time <u>at MBA</u>
		% who said 'Agree'		
This exhibit is for preschool children . . .		32%	29%	42%
Children have more fun at <i>Splash Zone</i> . . .	**	78%	53%	64%
The exhibit would be better with more penguins . . .		14%	11%	14%



### C. Use of the exhibition

This section presents data about patterns of use of *Splash Zone*—how long people stay, who stops at selected exhibits, and observing where children go and what they stop at during 10-minute samples of behavior. The purpose of the observations was primarily to gather information about family learning behaviors—addressing the question: is ‘family learning’ occurring here?. These data on stopping and time spent serve as a context child/family behavior, but they do not accurately represent overall use of specific exhibits (see section C.3 for a more complete explanation of the observational data).

[The data come from interviews with parents as well as from observations of children’s behavior.]

- On average, families report that they spend about half an hour in *Splash Zone*—although 19% say they spent an hour or more, and half of the families with only older children say they spent 20 minutes or less.
- Families with younger children (4-6 yrs.) and families with school age children (7-9 yrs.) indicated extensive use of the various exhibits. Almost all families (80% or more) stopped at the exhibits in the entry path, from Crowded Coral Reefs to Eels, as well as at the Waterplay areas on the Rocky Shores side of the exhibition.
- It is not necessary to spend a lot of time at an exhibit to enjoy it. However, it is clear that children do enjoy the places where they spend considerable time—e.g., the Waterplay areas (mean time of 3½ minutes), and the Penguins (1½ minutes), and the Coral Reef Play (2½ minutes).

<b>FAMILY INTERVIEWS</b>
------------------------------

### C.1. Total time spent

OVERVIEW: We asked parents to estimate how much time they spent in the exhibition. Families reported spending an average of 25-30 minutes in *Splash Zone* (with a range from 5 to 120 minutes). Families with young children (all under seven) said they spent the longest; half of the families with only older children (all age 7+) reported spending 20 minutes or less here.<sup>5</sup> There was no difference between first-time and repeat visitors in the amount of time spent in this exhibition.

<b><i>Estimated time spent:</i></b> (parent interviews; forms A+B)	Families <u>Overall</u>		Kids <u>under 7</u>	Mixed <u>ages</u>	Kids <u>7-12</u>
5-20 minutes	35%	**	20%	28%	51%
21-59 minutes	46%		48%	53%	40%
60 minutes or longer	19%		32%	19%	8%

<b><u>Time spent analyzed by prior experience at MBA:</u></b>	Seen SZ <u>before</u>	Been MBA <u>Not SZ</u>	1 <sup>st</sup> -time <u>at MBA</u>
5-20 minutes	32%	35%	40%
25-45 minutes	42%	50%	44%
60 minutes or longer	26%	15%	15%

---

<sup>5</sup> Based on MBA exit survey data for July and August 2001, families with children tend to spend longer in the Aquarium compared to adult-only groups (2.98 hours vs. 2.55 hours), but there is not a significant difference between families with young vs. older children. Interpretation: families with young children are spending proportionately more time in *Splash Zone* while families with school-age children are spending proportionately more time elsewhere in the aquarium.

## C.2. Reported use of some selected exhibits

<b>FAMILY &amp; CHILD INTERVIEWS</b>
------------------------------------------

OVERVIEW: When leaving the exhibition, parents and children were shown photos of six exhibits and were asked to recall if they stopped there. The three most used exhibits (81%-91% stopped there) were Crowded Coral Reef, Waterplay and Eels. Coral Cove was the least frequently used, because it is designed specifically for toddlers (33% of family groups stopped).

### *Did you actually stop here?*

	<i>Exit Interviews</i>	
	<u>Parents</u> (n=281)	<u>Children 7-9</u> (n=55)
	% saying they stopped	
Crowded Coral Reef	91%	71%
Waterplay	82%	71%
Eels	81%	76%
Coral Reef Play	59%	51%
Crunch Nibble Gulp Bite	48%	42%
Coral Cove	33%	24%
none of these	1%	0

FAMILY INTERVIEWS
----------------------

**C.2b. Additional analyses of STOPPING**

OVERVIEW: Four of these six exhibits appealed equally to children of all ages, while two of them were more likely to be used by families with young children (Coral Reef Play and Coral Cove). There were no significant differences between people who had seen *Splash Zone* before and those who hadn't, indicating that these exhibits are repeatable experiences.

<b><u>Analysis by age of children</u></b>		Only kids <u>under 7</u>	Mixed <u>ages</u>	Only kids <u>7-12</u>
Crowded Coral Reef		87%	91%	95%
Waterplay		84%	89%	78%
Eels		78%	86%	81%
Coral Reef Play	**	72%	78%	38%
Crunch Nibble Gulp Bite		44%	54%	50%
Coral Cove	**	50%	40%	14%

<b><u>Analysis by prior MBA experience</u></b>		Seen SZ <u>before</u>	Been MBA <u>Not SZ</u>	1 <sup>st</sup> -time <u>at MBA</u>
Crowded Coral Reef		94%	87%	94%
Waterplay		81%	85%	78%
Eels		83%	76%	86%
Coral Reef Play		64%	59%	53%
Crunch Nibble Gulp Bite		54%	43%	47%
Coral Cove		36%	31%	31%

<p><b>FAMILY INTERVIEWS</b></p>
-------------------------------------

**C.2c. Interaction with staff:**

OVERVIEW: More than half of the visitors said they used the Touch Pool interacting with a guide or alone, and about one-quarter reported talking with other staff in the exhibit (no significant variations among different segments of the audience). We assume that most families who used the touch pool interacted with a guide there because of the intimate design and limited independent visitor access.

***Interacted with staff at SZ?***

yes, at Touch Pool	56%
yes, with any other staff in exhibition	<u>23%</u>
proportion who talked with any staff	66%

(no data about the proportion of families who used the Touch Pool; the point of this was to investigate interactions with staff)

*What did you talk about?* (with “other staff”)

Penguins	n = 13
Touch Pool	n = 4
Coral Reef Play	n = 3
Coral Reef show	n = 2
Eels	n = 2
Waterplay	n = 2
Other	n = 7

**Actual comments (aside from “penguins”):**

*Touch Pool*

*Puppet show at Coral Reef*

*Infant Toddler area*

*Urchins*

*Fish eats shellfish*

*Coral Reef Play*

*Tide Pools*

*The song with the guy with the hair*

*Guide very good with kids, told them to touch gently*

*Showed who lives in the Rocky Shore*

*Moray Eels*

*Waterplay*

*The dress-up area*

*Starfish*

*What’s in the bucket?*

*At the castle*

### C.3. Observed use of exhibits during a 10-minute period

#### C.3a. Stopping

OVERVIEW: Children were observed for 10-12 minutes either in the first half of the exhibition (Coral Reef area) or in the second half (Rocky Shore area). A time limit was imposed in order to obtain a *diverse sampling* of behavior at a variety of exhibits, rather than sampling extended periods of time at the most popular exhibits. In the first half of the exhibition, Coral Crawl was the most-used exhibit, followed by Sharks, Eels and Crowded Coral Reef. Most of these percentages are probably under-representing actual usage patterns because these reflect only a 10-minute sample of use, and the observations didn't always begin as soon as the children entered the exhibition.

In the second half, the 2<sup>nd</sup> Waterplay area (waves, jets & tide pools) is most used, followed by Waterplay (twiddlefish) and penguins. (The percentages who stopped at Penguins and Touch Pool may be lower than actual because these areas are at the end of the exhibition). Children were observed to be stopping *more than once* at many of the exhibits, especially Waterplay and the Penguin exhibit (the figures for repeat use within the same 10 minutes are shown in parentheses next to the overall proportion who stopped).

#### Observations starting in

##### 1<sup>st</sup> half of exhibition:

(during 10-minute observation)

	Overall Sample	Kids age 4-6	Kids age 7-9
Crowded Coral Reef	64% (0)	65%	63%
Jawfish	45% (0)	49%	42%
Sharks	69% (7%)	60%	77%
Crunch Nibble Gulp Bite	44% (4%)	37%	52%
Eels	66% (6%)	38%	66%
Giant Clam	33% (4%)	35%	30%
Coral Crawl	77% (8%)	74% (16%)	79% (0)
Leafy Sea Dragons	17% (0)	14%	21%
Coral Reef Play	46% (5%)	56% ++	37%
Coral Cove	15% (0)	19%	12%

#### Observations starting in

##### 2<sup>nd</sup> half of exhibition:

(during 10-minute observation)

	Overall Sample	Kids age 4-6	Kids age 7-9
Waterplay (twiddlefish)	60% (11%)	66%	55%
Waterplay 2 (dams, waves)	80% (29%)	78%	81%
Clingfish	28% (1%)	21% ++	36%
Anemones	11% (0)	12%	10%
“Risks on the Rocky Shores” game	20% (0)	15%	26%
Porcelain Crabs	22% (0)	24%	19%
Penguin Talk interactive	29% (4%)	34%	24%
Penguin Photo opportunity	25% (0)	29%	21%
Penguin exhibit & alcove	59% (20%)	63%	55%
Touch Pool	30% (1%)	34%	26%

## OBSERVATIONS

**C.3b. Time spent at specific exhibits**

OVERVIEW: Time data (means and medians) are presented for the eight exhibits where at least 50 children were observed. For some exhibits these times are under-estimates of actual usage, because the observations were discontinued after 12 minutes, even if children were still using the exhibit.<sup>6</sup> Times are presented only to add to the context for interpreting other results. Children spent the most time at Coral Reef Play and Waterplay (waves, jets & tide pools). There was only one significant difference between the age groups—older kids spent longer at sharks—and a few other differences are outlined below.

<i>Seconds spent in:</i>	Overall		<u>Mean time</u> age 4-6	<u>Mean time</u> age 7-9
	<u>Median</u>	<u>Mean</u>		
Crowded Coral Reef	45 secs	53 secs	56 secs	49 secs
Sharks	30	37	29	** 43
Eels	43	57	50	63
Coral Crawl	46	58	65	50
Coral Reef Play	125	148	138	164
Waterplay (twiddlefish)	50	71	82	++ 58
Waterplay (waves, jets & tide pools)	130	170	163	176
Penguin exhibit & alcove (not during shows)	60	98	105	91

Additional analyses:

- \*\* Groups with two or more children spent longer at Coral Crawl than groups with only one child (62% spent at least 45 seconds vs. 30% of single children).
- \*\* Girls spent longer at the eel exhibit compared to boys (64% spent at least 45 seconds vs. 29% of boys). This may be related to the higher participation of adults with girls (see “doing things together” in the next section).

---

<sup>6</sup> For example, at the penguin tank 9% of the observations were cut off while children were still there, at Waterplay 15%, and at Coral Reef Play it was 34%.

## D. Family Learning Behaviors

*Splash Zone* was designed to facilitate family interaction and the informal learning that comes with such interaction. Using detailed observations of children's behavior,<sup>7</sup> this section presents data about various types of family learning and where it takes place.

[The data come from observations of children's behavior, as well as interviews with parents and interviews with children.]

- Within randomly selected 10-minute periods of observing any child (4-6 or 7-9 yrs) in this exhibition, multiple examples of family learning behavior were usually witnessed. Such examples often included showing things to each other (pointing, calling someone over), doing things together, and talking about an exhibit (explaining/directing, etc.).
- Among exhibits that were frequently used, family learning behaviors were occurring everywhere, although the character of such interactions was different—e.g., lots of adult-&-child hands-on behavior at Waterplay and eels; the most talking at Crowded Coral Reefs.
- Adult-child conversations occurred at many exhibits. With these as well as other examples of family behaviors, analysis of observational data reveals a variety of interesting patterns—such as: ‘directing/explaining’ is associated with 4-6 yr. olds more so than 7-9 yr. olds, and this form of conversation decreases with more children in the group.

---

<sup>7</sup> Observations were recorded using a modified version of the PISEC behavior coding sheet (borrowed from *Family Learning in Museums: The PISEC Perspective*; Philadelphia/Camden Informal Science Education Collaborative, 1998, p.61). Family learning behaviors include parents reading aloud to children, directing children's attention, talking about exhibits, and participating in hands-on activities.



**D.1. Overall summary of observed behaviors****OBSERVATIONS**

OVERVIEW: During the 10-minute observation, all children engaged in one or more interactions (playing, talking, etc.) with family members. The most frequently recorded behaviors in *Splash Zone* were hands-on participation, body play<sup>8</sup>, explaining and directing attention to the exhibits. The majority of adults were participating in hands-on activities with their children. Adult participation decreased as the number of children in the group increased.

OVERALL SUMMARY

	Occurrence in 10 min period	
called someone over	50%	
pointed at animal/exhibit	59%	
hands-on activity	98%	(33% child only; 65% child & adult together)
body play	68%	(50% child only; 18% child & adult together)
directed/explored	64%	
other talking	54%	
read labels (adults)	34%	

- \*\* Pointing occurred more often when there were only one or two children in the group (64%) compared to when there were 3 or more children (43%).
- ++ There was more directing involving the 4-6 year olds (70%) compared to the 7-9 year olds (58%). [Although age and number of kids are correlated, this effect is independent from the result below.]
- ++ Directing decreases as the number of children increases (76% with one child , 63% with 2 kids, 52% with 3+ kids).
- \*\* Adults with girls did more reading than adults with boys (43% vs. 26%).
- \*\* Adults with one child did more reading than adults with 2 or more children (47% with one child vs. 29% with 2+ kids).

---

<sup>8</sup> Body play is the term used for activities such as climbing, sliding, crawling, trying on animal costumes, imitating animal movements.

## D.2. Family interaction at specific exhibits

### OBSERVATIONS

OVERVIEW: This section explores the kinds of family interactions that took place at some of the different exhibits, starting with a list of actual quotes and behaviors of visitors. Note that some of the exhibits have fewer observations compared to others (due to lower usage). Analyses of the separate “learning behaviors” (reading, hands-on participation and talking) are presented in subsequent sub-sections.

*(See Appendix for samples of behaviors and conversations recorded at specific exhibits)*

### D.2a. Calling someone and pointing at exhibits

OVERVIEW: Although ‘calling’ and ‘pointing’ may not be considered “learning indicators” (PISEC, 1998, p.18), they are included here as examples of family interaction. Reliable data were obtained for the 8 most used exhibits (where at least 50 children stopped). The Penguin exhibit/alcove had the highest frequency of pointing and calling someone over, followed by Crowded Coral Reef.

#### General behaviors

(Among those who stopped)	<u>Called Someone</u>	<u>Pointed at exhibit</u>
Crowded Coral Reef	18%	42%
Sharks	11%	29%
Eels	17%	28%
Coral Crawl	19%	14%
Coral Reef Play	14%	8%
Waterplay (twiddlefish)	8%	8%
Waterplay (waves, jets & tide pools)	8%	9%
Penguin exhibit & alcove	23%	34%

### D.2b. Reading (observed and reported)

OVERVIEW: Based on parental self-report, reading occurred more frequently at three of the six exhibits (asked about using photos): Moray Eels (with live animals), Crowded Coral Reef (with live animals), and Crunch Nibble (interactive), with 70-77% saying they read something. Results from the observational study show significantly lower levels of reading among accompanying adults. It could be that reading is difficult to observe accurately, or that adults are over-reporting the amount of reading in this exhibition. However, there is higher consistency between children’s self-reported and observed reading.

<u>READING</u> (among those who stopped)	Parents <u>Reported</u> (n=53 to 122)	Parents <u>Observed</u> (n=50 to 107)	Child (7-9) <u>Reported</u> (n=28 to 42)	Child (4-9) <u>Observed</u> (n=50 to 107)
Crowded Coral Reef	70%	32%	18%	11%
Waterplay (waves, jets, tide pools)	51%	11%	8%	5%
Eels	77%	10%	21%	12%
Coral Reef Play	45%	0	7%	0
Crunch Nibble Gulp	72%	numbers too small for reliable analysis		
Coral Cove	53%	numbers too small for reliable analysis		
none of these	19%	66%	66%	73%

Reading (Among those who stopped)	(OBSERVED)			
	<i>Read Silently</i>		<i>Read Aloud</i>	
	<u>Child</u>	<u>Adult</u>	<u>Child</u>	<u>Adult</u>
Crowded Coral Reef	7%	18%	4%	14%
Sharks	6%	6%	2%	6%
Eels	7%	2%	5%	8%
Coral Crawl	1%	0	0	0
Coral Reef Play	0	0	0	0
Waterplay (twiddlefish)	11%	7%	1%	1%
Waterplay (waves, jets & tide pools)	5%	11%	0	0
Penguin exhibit & alcove	5%	0	2%	3%

HOW TO READ THIS TABLE: 7% of the children observed at CCR appeared to be reading silently, while 18% of the time that a child was observed at CCR, an accompanying adult was observed to be reading silently.

FAMILY  
INTERVIEWS

**Additional analyses of READING**

OVERVIEW: Crowded Coral Reef was the only exhibit where there were significant differences in reading among some segments of visitors. Groups with older children (ages 7 and over only) were more likely to report reading the explanations here. Also, more reading was reported by visitors who consider themselves to be ‘active’ in environmental concerns, as well as by those who are only ‘somewhat interested’ in environmental issues, compared to the mainstream segment of ‘very interested but not active’ visitors.

<u>Analysis of reading by age of children</u> (among those who stopped)		Only kids <u>under 7</u>	Mixed <u>ages</u>	Only kids <u>7-12</u>
Crowded Coral Reef	++	60%	66%	77%
Waterplay (waves, jets & tide pools)		51%	50%	50%
Eels		60%	75%	76%
Coral Reef Play		number too small for reliable analysis		
Crunch Nibble Gulp Bite		number too small for reliable analysis		
Coral Cove		number too small for reliable analysis		

<u>Analysis of reading by environmental attitude</u> (among those who stopped)		<u>Active</u>	Very <u>Interested</u>	Somewhat <u>Interested</u>
Crowded Coral Reef	**	76%	56%	83%
Waterplay (waves, jets & tide pools)		58%	44%	52%
Eels		70%	70%	70%
Coral Reef Play		number too small for reliable analysis		
Crunch Nibble Gulp Bite		number too small for reliable analysis		
Coral Cove		number too small for reliable analysis		

OBSERVATIONS

**Additional analyses of observed reading**

- \*\* Adults with girls did more reading than adults with boys (43% vs. 26%).
- \*\* Adults with one child did more reading than adults with 2 or more children (47% with one child vs. 29% with 2+ kids).

## OBSERVATIONS

**D.2c. Doing things together (reported and observed)**

OVERVIEW: Families engaged in hands-on activities at each of the eight exhibits (where at least 50 children stopped). The two Waterplay areas had the highest hands-on participation (>90%), followed by Sharks and Eels (68%-69%). Adults were most likely to do the activities with children at Waterplay and Eels (35%-39%).

## hands-on activities

*10-minute observation*

(Among those who stopped)

% who participated at each exhibit:	<u>Kids</u> <u>Only</u>		<u>Adults</u> <u>&amp; kids</u>		<u>Total</u>
Crowded Coral Reef	26%	+	18%	=	44%
Sharks	48%	+	21%	=	69%
Eels	33%	+	35%	=	68%
Coral Crawl	7%	+	6%	=	13%
Coral Reef Play	22%	+	8%	=	30%
Waterplay (twiddlefish)	55%	+	36%	=	91%
Waterplay (waves, jets & tide pools)	54%	+	39%	=	93%
Penguin exhibit & alcove	11%	+	5%	=	16%

**Doing things together—observed**

OVERVIEW: Children engaged in “body play” most frequently at Coral Crawl and Coral Reef Play (62%-80%). Adults were most likely to participate in such play at Coral Crawl (24%).

There is a pattern of higher adult participation with the younger age group (4-6 year olds). There is also an intriguing gender difference—parents with girls were more likely than parents with boys to do the Eel activity.

## body play

*10-minute observation*

(Among those who stopped)

% who participated at each exhibit:	<u>Kids</u> <u>Only</u>		<u>Adults</u> <u>&amp; kids</u>		<u>Total</u>
Crowded Coral Reef	2%	+	0%	=	2%
Sharks	0%	+	0	=	0
Eels	3%	+	2%	=	5%
Coral Crawl	62%	+	24%	=	86%
Coral Reef Play	80%	+	12%	=	92%
Waterplay (twiddlefish)	0%	+	1%	=	2%
Waterplay (waves, jets & tide pools)	7%	+	0	=	7%
Penguin exhibit & alcove	26%	+	2%	=	28%

Additional analyses

- \*\* Overall, parents with 4-6 year olds participated in more body play (25%) compared to parents of 7-9 year olds (11%). This effect is especially noticeable at Coral Crawl (35% participation by parents of the younger group vs. 11% by parents of older kids).
- \*\* Adults are more likely to do hands-on activities with younger kids at Twiddlefish compared to with older kids (53% vs. 23%).
- \*\* Adults are more likely to do the hands-on activity at the Eel exhibit with girls (67% adult participation with girls vs. only 24% with boys).

**Doing things together**

OVERVIEW: Family and child interviews included a question, “did you do anything together here?” asked about the six exhibits on the photo-board. Parents were most likely to *report* doing something together at Crunch Nibble, Waterplay, and Eels (59-66%), although the other three exhibits were not far behind (45-53%). Children also *reported* doing something together at Eels (50%), but their reports about the other exhibits were much lower than the parental estimates (23%-36%). Adults may include talking (naming fish, explaining how to do an activity etc.) in the category of “doing together” while children may be more literal in their interpretation of “doing” to include only physical behavior. Adults may also be more influenced by the tendency to “please the interviewer.” Almost 40% of the adults and children were *observed* to be doing something together (based on hands-on and/or body play activities) at Waterplay and Eels.

<u>DOING TOGETHER</u> (among those who stopped)	Parents <u>Reported</u> (n= 53 to 122)	Kids 7-9 <u>Reported</u> (n=28 to 42)	Kids 4-9 <u>Observed</u> (n=50 to 107)
Crowded Coral Reef	45%	28%	18%
Waterplay (waves, jets & tide pools)	64%	23%	39%
Eels	59%	50%	37%
Coral Reef Play	48%	36%	20%
Crunch Nibble Gulp	66%	number too small for reliable analysis	
Coral Cove	53%	number too small for reliable analysis	
none of these	15%	42%	n/a

**FAMILY  
INTERVIEWS**
**Additional analyses of doing something TOGETHER**

OVERVIEW: Parents with children under seven reported slightly higher levels of family interaction at the Waterplay area compared to those with older children. Repeat family groups also reported slightly higher levels of interaction in this area compared to first-time visitors. There was not a sufficient number of people in each of the three age categories who had stopped at the other three exhibits to determine whether this pattern is consistent for other animal exhibits or activity areas.

<b><u>Analysis by age of children:</u></b> (among those who stopped)		Only kids <u>under 7</u>	Mixed <u>ages</u>	Only kids <u>7-12</u>
Crowded Coral Reef		40%	54%	43%
Waterplay (waves, jets & tide pools)	++	69%	72%	50%
Eels		47%	62%	64%
Coral Reef Play		numbers are too small for reliable analysis		
Crunch Nibble Gulp Bite		numbers are too small for reliable analysis		
Coral Cove		numbers are too small for reliable analysis		

<b><u>Analysis by prior MBA experience:</u></b> (among those who stopped)		Seen SZ <u>before</u>	Been MBA <u>Not SZ</u>	1 <sup>st</sup> -time <u>at MBA</u>
Crowded Coral Reef		41%	47%	47%
Waterplay (waves, jets & tide pools)	++	74%	64%	47%
Eels		57%	56%	62%
Coral Reef Play		numbers are too small for reliable analysis		
Crunch Nibble Gulp Bite		numbers are too small for reliable analysis		
Coral Cove		numbers are too small for reliable analysis		

**D.2d. Family conversations****OBSERVATIONS**

OVERVIEW: Conversations occurred at all eight of the exhibits where at least 50 children were observed, with the highest occurrence at two (of the four) live animal exhibits—Crowded Coral Reef (54%) and Eels (45%). Talking was less evident at the other exhibits (21%-35%). There was slightly more directing with the younger age group (4-6 year olds) and when there was only one child in the group (the one being observed).

## Conversation—observed

(Among those who stopped)	<u>Directing/ Explaining</u>	<u>Other Talking</u>	<u>Total who had Conversations</u>
Crowded Coral Reef	32%	28%	54%
Sharks	16%	18%	32%
Eels	28%	18%	45%
Coral Crawl	13%	11%	21%
Coral Reef Play	16%	16%	28%
Waterplay (twiddlefish)	18%	14%	29%
Waterplay (waves, jets & tide pools)	23%	18%	35%
Penguin exhibit & alcove	13%	21%	32%

- ++ There was more directing involving the 4-6 year olds (70%) compared to the 7-9 year olds (58%). [Although age and number of kids are correlated, this effect is independent from the result below.]
- ++ Directing decreases as the number of children increases (76% with one child , 63% with 2 kids, 52% with 3+ kids).



<b>FAMILY INTERVIEWS</b>
------------------------------

### D.3. Family experiences on future visits

OVERVIEW: Families were asked about their preferences for possible future activities in *Splash Zone* (some of the possible activities are more interactive, some are more solitary). The top preference was for ‘things that two or more people can do together,’ followed by ‘a craft activity area.’ However, there were differences depending on the ages of children in the group. For families with any children under 7, these two ideas were strongly preferred, but among groups with children age 7 or older, ‘more videos about nature’ was the second choice.

***When you visit next time, which of these would you prefer? (1<sup>st</sup> & 2<sup>nd</sup> choice)***

(Family interviews/ parents; form B)

	<u>First Choice</u>	<u>Second Choice</u>	<u>Total Chosen</u>
Things that 2 or more people can do together	47%	24%	71%
A craft activity area for kids to draw or make things related to marine life	26%	29%	55%
More kid-oriented play activities like crawling, sliding, testing your strength	12%	26%	38%
More opportunities to watch videos about animals in nature	14%	19%	33%

**Analyzed by age group of children:**

	<u>Under 7</u>	<u>Mixed</u>	<u>All 7+</u>
	<i>% who chose item 1<sup>st</sup> or 2<sup>nd</sup></i>		
Things that 2 or more people can do together	67%	73%	73%
A craft activity area for kids to draw or make things related to marine life	** 61%	70%	39%
More kid-oriented play activities like crawling, sliding, testing your strength	** 54%	28%	35%
More opportunities to watch videos about animals in nature	** 16%	25%	52%

## E. Educational Value and Caring about Nature

This section of the evaluation focuses on the perceptions of *Splash Zone* as an educational experience. This issue was pursued in two ways: first, in general questions asked of parents (such as whether their experience as a family was any different here compared to the rest of the aquarium, and if so, how), and secondly, there was a particular focus on whether and how this experience helps children care about nature.

[The data come from interviews with parents and interviews with children.]

- Most parents think that *Splash Zone* is fun and educational; this is particularly true for families who are experiencing the exhibition more than once. Many children cited interesting things they had found out about penguins, eels, and other creatures.
- Many parents believe that *Splash Zone* helps their children care about nature, because it helps them to understand and appreciate marine life, children can learn through hands-on experiences, and it communicates the importance of being gentle and not harming animals.
- Among six exhibits shown on a photo-board, both children and parents most frequently selected those with live animals as helping children to care about nature (Crowded Coral Reef, and Eels).
- Although eels are not cute and cuddly (like penguins), 64% of the children thought they were “great” and had appreciative words for them.

**E.1. Visitors' perceptions of educational value**FAMILY  
INTERVIEWS

OVERVIEW: Most families (77%) thought that *Splash Zone* was fun as well as educational. The proportion who said it was primarily fun (20%) is similar to the proportion who said the Outer Bay Wing (1996 study) was primarily educational (21%), indicating a definite shift toward the perception of fun in *Splash Zone*. The educational nature of the experience becomes more prominent with older children in the group.

***Was your experience in Splash Zone primarily about having fun, primarily educational, or both of these equally?*** (Family interviews/parents; form B)

	SZ <u>Families</u>	OBW <u>Families</u>
primarily having fun	20%	7%
primarily educational	3%	21%
both of these equally	77%	72%

**Analyzed by prior MBA experience**

	Seen SZ <u>Before</u>	Been MBA <u>Not SZ</u>	1 <sup>st</sup> time <u>at MBA</u>
primarily having fun	** 7%	28%	24%
primarily educational	0	0	10%
both of these equally	93%	72%	66%

**Analyzed by age of children in group:**

	++	<u>Under 7</u>	<u>Mixed</u>	<u>All 7+</u>
primarily having fun		29%	20%	11%
primarily educational		2%	0	6%
both of these equally		69%	80%	83%

**Visitors' perceptions of educational value (continued)**FAMILY  
INTERVIEWS

OVERVIEW: Parents with children age six and younger tended to name parts of the exhibition as being educational, but didn't cite much specific content that their children learned. Parents with children all aged seven and up were most likely to say that their children found out something, especially about penguins. It could be that parents of younger children were focusing more on 'educational experiences' and the parents of older children were thinking more about 'acquiring knowledge.'

***What part was educational?******What do you think your kids found out that was new or interesting?***

(Family interviews/ parents; form B)	<u>Under 7</u> (n=43)	<u>Mixed</u> (n=40)	<u>All7+</u> (n=53)
named specific sections but no info cited	51%	50%	25%
learned something re: penguins	7%	10%	34%
other specific information	7%	13%	11%
learned something re: waves/water life	5%	3%	6%
learned something re: eels	2%	3%	6%
learned something re: coral reef	0	0	4%
learned something re: caring for nature	0	3%	6%
non-educational, general answer	30%	20%	19%
blank	0%	3%	0%

**Sample answers of parents:**

*The water ways part*

*Hands-on activities, definitely the water area where the kids could splash*

*Touching the animals*

*Learning about the food they eat*

*Making waves and penguins*

*All of it is educational, you can't help but learn, the staff were great*

*How hermit crabs moved from one shell to another*

*Being environmentally conscious—watching where your trash goes –mentioned at penguins*

*That the eels' teeth get cleaned by the shrimp and it doesn't get eaten*

*To respect the ocean critters*

*Introduced to star fish and anemones*

*Penguins can live in hot areas and salt water*

*Leafy sea dragon*

*A lot of it was just to see color of the fish*

*They played with everything , they enjoyed the live animals*

CHILD INTERVIEWS
---------------------

**Visitors' perceptions of educational value (continued)**

OVERVIEW: Two-thirds of children (age 7-9) were able to cite something they had learned in this exhibition that was interesting. They mentioned learning about specific animals, especially penguins, eels and sharks. Children also saw some creatures they hadn't seen before, and found out how some animals feel to touch.

***Tell me something you found out that was surprising (or interesting or new):*** (children)

18%	learned something about other specific animals (clingfish, sharks, etc.)
14%	learned something about penguins
12%	how they feel to touch (e.g., starfish, hermit crabs)
12%	seeing creatures you don't usually see (e.g., seahorse, etc.)
8%	learned something about eels
8%	other answers
33%	nothing, don't know

**Sample answers from children about penguins:**

*Penguin talk*

*Penguins, they don't breathe underwater*

*Penguin who lost his feathers*

*What penguins eat*

*How they move and swim*

**Sample answers from children about specific animals:**

*Sharks are interesting*

*The clam shell*

*Some fishes over there get to hang [clingfish]*

*Lady said chiton was a kind of snail*

**Sample answers from children about how they feel to touch:**

*Starfish curl their legs when you turn them over, to grab on to something*

*Touching a hermit crab, it was new to me*

*Pet animals, the starfish, how they felt hard, some are pokey and rocky*

*There were crabs you can touch*

**Sample answers from children about seeing creatures you don't usually see:**

*Pretty fishes, never saw before*

*All the wildlife that you could find in nature but they're hard to see because they are hiding*

*I saw a tiny seahorse*

*There are all the different kinds of fish*

<p><b>FAMILY INTERVIEWS</b></p>
-------------------------------------

**Perceptions of educational value (continued)**

OVERVIEW: About half of the families interviewed felt that their experience in *Splash Zone* was different than in the rest of the Aquarium. Parents with young children (all six and under) were most likely to feel this way (68%). These parents were particularly impressed by the hands-on activities and being able to do things together as a family. Parents of older kids (all seven and up) felt it was a safe, child-friendly place to let the kids play.

***Was your experience as a family any different in Splash Zone than in the rest of the Aquarium?*** (Family interviews/parents; form A)

	Overall Sample		Ages of children		
			Under 7	Mixed	All 7+
yes	56%	**	68%	59%	45%
no	44%		32%	41%	55%

(if yes) ***How?***

Activities, interactive, hands-on	25%	16%	5%
Can do things together as family	14%	11%	3%
More fun—for us, for kids	11%	3%	13%
Kid friendly, safe place to play	5%	11%	22%
Educational, learning experience	5%	3%	2%
The look and general feel of the exhibition	5%	0	5%
On a level that kids can understand	2%	13%	0
Other	2%	8%	3%
Blank	2%	0	2%

**Sample comments:**

*A little more relaxing, not as serious*

*Maybe a little bit more lively*

*Kids move into it, hands-on*

*More play rather than educational*

*We stayed together as a family and we all played like kids*

*Our daughter enjoyed this much more, could do—not just look*

*Fun, we all enjoyed it*

*Kids more involved*

*Lower level of info so children can understand better*

*We all stayed together*

*More stuff to do, hands-on things*

*I sat and the kids played in Splash Zone, but as educational*

*Age level things we can do together*

*More professional, more specialized for kids*

*Easier to keep track of kids in this contained area*

*More interactive*

*Kids more engaged*

FAMILY  
INTERVIEWS

**E.2. Teaching children to care about nature**

OVERVIEW: Many parents believe that *Splash Zone* helps their children to care about nature. (It’s likely that this is true for their experience of the whole aquarium too, but there is no data about that context.) This issue was investigated in two ways: first, exploring overall perceptions by asking parents to describe how this exhibition facilitates caring for nature (see data on this page and comments on the next four pages); and secondly, using specific exhibits to help focus their comments (see the following pages). These two approaches establish an upper and lower range about this issue: in the general question, parents were implicitly encouraged to favor caring for nature (when asking them to agree or disagree, 82% agreed), whereas in the questions about specific exhibits they had to think about this in ways that clearly applied to their experiences at an exhibit (25% to 45% of the people who stopped at three exhibits thought that they prompted caring for nature). The audience most inclined to perceive such caring were families with school-age children who were seeing the exhibition for the first time.

The principal dimensions of the ways that ‘caring for nature’ is perceived by parents are represented in three broad categories of comments: ● that this exhibition is educational, teaches their children, helps them to understand; ● that children learn and appreciate through direct hands-on experiences; and ● that it communicates a spirit of being gentle, caring, how to help and not harm animals.

*Do you agree, disagree, or have no opinion about—*

*Splash Zone helps kids care more about nature.* (Family interviews/parents; form A)

(this statement was read in a series of statements)

	Overall Sample	Age of children			Seen SZ before?	
		Under 7	Mixed	All 7+	Yes	No
agree	83%	** 77%	87%	93%	75%	** 87%
disagree	14%	32%	14%	7%		
no opinion	3%					

(no differences by environmental orientation—active vs. interested vs. unconcerned)

(if agree) *In what way? (does Splash Zone help kids care about nature?)*

	Under 7	Mixed	All 7+
Hands-on, can touch it	16%	29%	17%
Teaches them, educational, understanding	7%	24%	27%
Animals need protection, being gentle, not harm	16%	16%	15%
Awareness, exposure	14%	8%	8%
See live animals up close	9%	8%	10%
See animals in their environment	9%	3%	5%
Explanation from staff, volunteers	2%	8%	5%
Other	9%	3%	5%
Blank	0	3%	2%

Sample answers for each of the above categories appear on the next page

***In what way?*** (does *Splash Zone* help kids care more about nature)

Hands-on, learning by touching

*Anytime they can touch and feel and be a part of it*

*Because they get to experience them first hand*

*Because it allows them to contact them*

*Being able to experience the animals first hand gives them better respect*

*Just the hands-on, they can relate better*

*Play and recreate—tactile component*

*Hands-on makes things familiar and more apt to take care*

*Makes nature alive, they can touch it*

*Kids get hands-on idea, experience of environment*

*Hands-on experiences*

*Develop appreciation, living through hands-on activities, seeing animals close*

*Lots, education, hands-on*

*Interaction and understanding*

*More hands-on for kids*

*Hands-on learning from instructions*

*Hands-on*

*It gives them more hands-on, teaches them to care about animals*

*Get more hands-on experience, visually appealing, leads to conservation later in life*

*Hands-on, you learn about things and how we affect them*

*Live experience, can touch*

*When they see them and can touch them, they learn to love them*

*They get the hands-on*

*Because kids can touch things*

*Seeing, feeling, touching*

*Touch pool helps make a connection to nature*

*Kids can experience it, touch it*

*If they read the information and interact with the stuff*

It's educational, teaches them, understanding

*Providing stimulating teaching tools to grab their attention*

*Teaches them what they live on and stuff like that*

*Makes them understand it a little more*

*Just teaching them—education*

*Helps them learn more about nature*

*There are things they learn about*

*Helps them understand nature*

*See animals and videos to learn about them*

*Makes them understand*

*Get more educated about them*

*Learn how they live*

*Educate you*

*Lots, education, hands-on*

*Interaction and understanding*



***In what way?*** (does *Splash Zone* help kids care more about nature)

educational (continued)

*Learn what they eat*

*The way it's presented it gives them a greater understanding*

*They learn about the animals*

*Learning and having fun*

*It teaches them and helps them to understand*

*Teaches them about the penguins and other fish, makes them more aware*

*It teaches them the principles of nature*

*You learn about things and how we affect them*

*Makes it easy for them to understand nature*

*Teaches them about animals and environment*

*Kids can stop and learn how animals live*

*You can't help but learn from the stuff here*

Being gentle, taking care, how to not harm animals

*Understand how fragile they are*

*First of all when picking up animals to be gentle*

*Shows kids how people can harm animals*

*Shows kids to be gentle with animals*

*Learning about creatures and how delicate they really are*

*They learn how to take care of the animals, don't touch*

*Tide pools help kids understand about being gentle, not just empty water*

*Teaches kids to be kinder to nature, guides talking to us*

*Shows them how to be more gentle*

*Shows animals and maybe by seeing them they will care*

*It shows if you keep environment clean it will turn out good and be a happy place*

*It gives them more hands-on, teaches them to care about animals*

*Anything that makes kids aware, the more they understand the less they destroy*

*You get to see all forms of life and can watch out for them, take care*

*It makes them aware of animals that live in water, have to take care of water*

*It teaches them to respect live things*

*They can see what people can do to help animals*

*While playing they learn how to protect the fish*

*They can see how some people kill everything in the ocean*

*We must protect the animals*

*All the stuff tells how we can help the animals and what's bad for them*

***In what way?*** (does *Splash Zone* help kids care more about nature)

General awareness, exposure

*The more you know at an early age the more you care—exposure, I guess*

*Just awareness*

*Expose kids to animals, fish, water*

*Broader awareness about nature*

*Awareness*

*Makes them interested in their sea world life*

*More exposed to nature*

*Exposing them to nature*

*Teaches them about the penguins and other fish, makes them more aware*

*It makes them more aware of and conscious of what's around them*

*Exposure is education*

*Now you realize there is more of nature out there that not aware of before*

*It shows them all the fish that are below the water*

Seeing live animals up close

*See them up close, participate closer*

*Just exposing them to live animals instead of in a book, something real*

*Because they can see the live animals*

*I think when they see things up close they care more and remember longer*

*Get to see them up close and learn a little, appreciate their uniqueness*

*See animals and videos to learn about them*

*Helps them respect and understand nature by seeing up close*

*Develop appreciation, living things through hands-on activities, seeing animals close*

*Gets them in the animals*

*Got to see it first hand*

*Shows animals and maybe by seeing them they will care*

*They see things live up close and personal, they learn about animals and oceans*

*They get to see them up front*

Seeing animals in their environment

*Since you get to see how they live you have more sympathy for them*

*They recognize things and see them in their natural environment*

*Gives them a better idea to see their environment*

*Kids get hands-on idea, experience of environment*

*Learn about what happens to animals in their environment*

*They feel like they are in the environment*

*The penguin show helps kids learn to take care of environment*

*Seeing animals in own environment*

***In what way?*** (does *Splash Zone* help kids care more about nature)

Explanations from staff, volunteers

*From guides talking to us*

*Raises consciousness—signs, interacting with staff*

*Person at the play dress up area talked with the children*

*They learned a lot from talking to a red jacket person with the live animals*

*The volunteers are great with the kids, answering questions*

*Volunteer told us how the reefs are being destroyed for money*

*Asking questions from the workers and getting answers right away*

Other

*Probably stimulating their interest*

*More engaged (seeing more)*

*Tide pool*

*They should have more animals to learn about sea creatures*

*I don't know if they understand*

*Yes, the hermit crab game taught my kids about not taking animals home*

*Mine are too young yet, we will be back next year, ask me then*

FAMILY & CHILD INTERVIEWS

**Teaching children to care about nature (continued)**

OVERVIEW: This second approach to exploring families’ perceptions of caring for nature used a photo board (representing activity areas and live animal exhibits) to prompt discussion about specific exhibits. Of the six photos presented, there was a sufficient number of people who were asked about three of the exhibits so that their results could be analyzed reliably.

Three findings emerge from this approach:

- first, that one-quarter to one-half of the parents (25 to 45%) thought that these exhibits help children care about nature (64% overall pointed to at least one exhibit that fit this idea);
- secondly, families with school age children are more likely to associate this concept with their experience at the aquarium;
- and thirdly, their descriptions about caring for nature, and the character of the experience prompted by these exhibits, varies with each exhibit (the concept of caring is different at the Coral Reef tank vs. the Eel tank vs. the tide pool Waterplay exhibit).

***Referring to these pictures of the exhibit, which of these helps kids care about nature?***  
(Family interviews/parents, also child interviews)

Among those who *stopped* at each exhibit:

*Analysis by age of children in group*

	<u>Parents</u>	<u>Kids (7-9)</u>	<u>Under 7</u>	<u>Mixed</u>	<u>All 7+</u>
Crowded Coral Reef	45%	59%	34%	46%	54%
Waterplay	42%	8%	34%	47%	43%
Moray Eels	44%	41%	** 20%	44%	50%
Coral Reef Play	25%	0	← n’s are too small for reliable analysis		
Crunch Nibble	34%	39%	← n’s are too small for reliable analysis		
Coral Cove	32%	8%	← n’s are too small for reliable analysis		

**Analyzed by environmental orientation:**

(parent interviews)

	<u>Active</u>	<u>Interested</u>	<u>Unconcerned</u>
Crowded Coral Reef	42%	44%	50%
Waterplay	31%	43%	48%
Moray Eels	++ 48%	42%	22%
Coral Reef Play	n’s are too small for reliable analysis		
Crunch Nibble	n’s are too small for reliable analysis		
Coral Cove	n’s are too small for reliable analysis		

**Teaching children to care about nature (continued)*****Why does [specific exhibit] help kids care about nature?***

[this question was applied to specific exhibits at the discretion of interviewers, yielding a sufficient number of comments on three of the six exhibits.]

**Crowded Coral Reef** [see examples of specific quotes from parents below]

- 17% shows fragility, sea life needs protection
- 10% shows life in the sea, variety of fish, what's in the water
- 6% it teaches, explains, promotes understanding
- 4% it's colorful, attractive
- 2% seeing the animals
- 5% other

**Eel tank and interactive**

- 10% respecting animals
- 8% see how eels live (e.g., in holes)
- 8% learning about animals, understanding them
- 6% seeing animals
- 4% hands-on, pulling eels out of their holes
- 5% other

**Waterplay: Tide Pool**

- 11% learn about/understand tide pools, how to protect them
- 11% learn about waves, how they affect the fish
- 10% hands-on, learn by doing, by getting wet
- 5% animals in their habitat
- 1% other

**Sample answers from parents about how these exhibits help children care about nature:****CROWDED CORAL REEFS****Shows fragility, sea life needs protection**

- By realizing how many creatures are in the water and what one does affects them*
- Teaches the frailty of nature and how to preserve it*
- How to take care of the coral reefs*
- How fragile their lives are*
- By seeing how precious it is*
- They learned what live in the ocean and need protection*
- How important it is to keep the water clean*
- What you can do to help the fish stay alive*
- Shows how fragile fish are*
- They see that humans are killing the ocean's animals and fish*
- The reefs are being destroyed*
- It shows what is being lost*
- Beautiful fish are being killed by destroying their homes*
- Learn how fragile everything is*
- Helps kids be more aware of what's in the ocean and that it needs our protection*

**Sample answers from parents about how these exhibits help children care about nature:**

**CROWDED CORAL REEF (continued)**

Shows life in the sea, variety of fish, what's in the water

*Looking at the different plant and animal life*  
*Uniqueness of sea life—things you don't see daily*  
*The variety of sea life and the interaction of the different species*  
*All the different fish*  
*It shows all the fish life on a reef*  
*Shows life in the sea and how it survives*  
*Shows fish aren't just at a pet store*  
*We see what's under the water in the lakes and rivers*  
*It shows how many animals live in the rocks*  
*What's inside, telling territorial stuff*

It teaches, explains, promotes understanding

*Explains it more*  
*Kids learn more about animals in coral reefs*  
*By learning about them and understanding*  
*It teaches them about them*  
*Better understanding of the sea*  
*See how every animal has a place*  
*Learn about new things and how they interact*

It's colorful, attractive

*The beauty of it, seeing how pretty it is*  
*Colorful, attractive*  
*More colorful, attractive to kids, music helps*  
*Because they are colorful*

Seeing the animals

*The kids can see the organisms living together*  
*It has live animals, don't get to see them*  
*It gets them used to see fish, how colorful, want to protect them*

Other

*They were in area over it, don't get to see these everyday*  
*Coral reefs, more than just rocks*  
*I did the learning, child too young*  
*Discussed crowding at coral reefs*  
*Kids were more interested, stayed at this part much longer*

**Sample answers from parents about how these exhibits help children care about nature:  
EEL TANK AND INTERACTIVE**

Respecting animals

*Understanding an ecosystem*

*By realizing how many creatures are in the water and what one does effects them*

*Kids can see, they need to take care of water so the eels can be healthy*

*Make you want to preserve them*

*Learn respect for other creatures*

*How they are dependent on each other, how we need to protect them*

*Seeing how amazing and precious*

*Beautiful, the more they see it the more they will love*

*What you can do to help the fish stay alive*

*Finding out about different species and how they can be affected by oceans*

*Respecting animals*

See how eels live (e.g., in holes)

*The life of animals and how they live*

*How they got to see how the eels live and if they didn't*

*Learn that what animals are there, just how they live*

*Shows them how they live*

*How they live in the holes and how long they are*

*How eels live in the holes*

*Eels don't eat shrimp*

*Eels live together in rocks*

Learning about animals, understanding them

*Something very engaging about watching them share those little spaces*

*I think just understanding there are real living things and not just water*

*Talk about the eels, you can inform them about eels*

*Helps them understand about them*

*Some animals live together without eating each other (the shrimp)*

*The jawfish dig tunnels in the rock*

*See what's going on, from bird's eye, not like when you're fishing*

*Finding out about different species and how they can be affected by oceans*

Seeing animals

*Looking at the different plant and animal life*

*The fact that it's there—unique creatures*

*Viewing through glass—exciting*

*Kids can see, they need to take care of water so the eels can be healthy*

*More interesting to look*

*See animals you don't normally see*

**Sample answers from parents about how these exhibits help children care about nature:  
EELS (continued)**

Hands-on, pulling eels out of their holes

*Could pull out the eels*

*She loved the way they were in the holes getting to pull the eels out of holes*

*Able to pull eels out and see how long they are*

*Can play with eels, pull them out, feeling what they're like*

Other

*Because of color combo, natural tones*

*Ours too scared to look*

*Just nice*

**TIDE POOL WATERPLAY AREA**

Learn about/understand tide pools, how to protect them

*Helps understand tide pools, she likes to play in them at home*

*Kids learn about protecting tide pools*

*Kids learn where and how they live, understanding leads to caring*

*Give kids close up view of marine environment and what it's like to exist in ocean,  
appreciate life*

*Learn to take care of nature*

*Not to throw trash in water*

*How the tide flows*

*They learn about the water and tide pool*

*They see the animals need protection*

*How the tides work*

*They got to see how tide pools work, it was a hands-on experience*

*Recognize problems other species have, makes it seem more real*

Learn about waves, how they affect the fish

*Learned some of the movements of fish—move in different ways and how waves effect  
animals there*

*Makes waves and flush things away*

*We talked about the waves*

*Learn how to affect streams*

*Seeing how kids react to different water situations—what happens to the fish*

*Shows how water works and how important*

*They see how the wave works, how fish move*

*Swimming in waves*

*It shows how fish are designed to swim differently*

*The animals can swim up the water thru the maze*

*Knowing how waves affect sea life*

*Learn how things go, how a wave moves*



## TIDE POOL WATERPLAY AREA (continued)

### Hands-on, learn by doing, by getting wet

*Being able to put their hands on, feel it*

*Learn by doing/getting wet*

*Anything that was hands-on*

*Educational and hands-on*

*They got to see how tide pools work, it was a hands-on experience*

*Cause it's hands-on -- better than looking and reading*

*Hands-on, learn better doing things with an adult, helps make them care*

*Interaction*

*By getting into it and wet, kids can feel like they're there—that makes them care*

### Animals in their habitat

*You can see the kind of animals that live there and their habitats*

*Kids learn where and how they live, understanding leads to caring*

*Give kids close up view of marine environment and what it's like to exist in ocean*

*See them in natural setting*

*Shows them the system*

### CRUNCH, NIBBLE [sample too small for open-ended coding]

*By telling what kinds of food they eat*

*Teaches you something, you find out something about them so you care more*

*Things that fishes eat*

*About how they eat*

*What they eat*

*What each fish eats*

*More game-like*

*What's in the plates*

*Helps kids learn about fish which then helps them care*

### CORAL REEF PLAY [sample too small for open-ended coding]

*The coral reef puppet show taught kids to care for coral*

*They experience what it's like to be a creature there*

*Learned the names of sea animals*

*Animals have parts to protect themselves*

*The counselor talking to the kids*

*It shows how fish live in rivers*

*Pretend play is good for kids, helps them make a connection*

*The puppet show/coral reef show*

*The coral reef show had good messages*

### CORAL COVE [sample too small for open-ended coding]

*Kids playing in water helps them learn about animals*

*Wave action, how it works*

*About pollution*

*Lots of pictures to see and have fun*

CHILD INTERVIEWS

**Sample answers from children about how these exhibits help them care about nature:**

***In what way does Crowded Coral Reef help you care about nature?*** (59% said it helped)

*Because the fish are happy*

*Pretty fishes made you want to save it*

*Because when I look at them they look scared*

*You get to learn about different animals; once you've grown up you can decide if you want a job caring about animals*

*All the fish and animals inside*

*Seeing and learning about them*

*To look at all the different kinds of things getting along*

*They're real live animals and you get to see them*

*Because they have clean water*

*There's fish swimming around, I don't want to kill them or anything*

***In what way does Moray Eels help you care about nature?*** (41% said it helped)

*Never seen an eel, thought they were things that attack and kill you*

*You have to feed them, take care of them, give them medicine*

*Because it has different animals*

*They are cool and if they die out the ocean wouldn't be so cool*

*Makes me want to take care of your animals better*

*They have lives sort of like people*

*They're interesting to look at, if there weren't any there would be nothing to look at*

*I liked how pretty they were, how they move*

*How they lived*

***In what way does Crunch Nibble help you care about nature?*** (39% said it helped)

*Tells you what types of foods they need to eat*

*To help feed animals*

*Because if people fish they would kill the fish and there wouldn't be any more fish*

*Shows food chain, what they eat, that they choose what they eat, they have natural food*

*Helps with feeding fish, you wouldn't know what's right to feed them*

***In what way does Waterplay help you care about nature?*** (8% said it helped)

*I liked it and I like nature, I already care about nature*

*It tells how reefs can protect animals, if a wave came it would show how animals would swim away, or go into reef*

CHILD INTERVIEWS
---------------------

**Teaching children to care about nature (continued)**

OVERVIEW: Children were asked a series of questions about their feelings about eels—not a cute, cuddly creature. Eels are perceived much like sharks—many children think they are cool, but some definitely don't like them because they are “mean” or “ugly.” Children came up with a variety of reasons why people might care about eels, including “the way they look and move,” “they are a part of nature,” “I like them,” and “if we don't care they might die.”

***How much do you like these animals on a scale of 1 to 10?***

(child interviews, age 7-9)

	<u>Sharks</u>	<u>Penguins</u>	<u>Starfish</u>	<u>Eels</u>
they're great (9-10)	59%	74%	57%	64%
medium (7-8)	8%	14%	23%	12%
don't like them too much (1-6)	33%	12%	20%	24%

***Why did you say that number for eels?*** [follow-up questions only about eels]

<u>rating of 9-10</u>	<u>rating of &lt;=8</u>	
14%	2%	they're cool
13%	2%	just like them, like to look at them
13%	0	the way they swim, move, squiggle
13%	0	they live in holes, share holes, the way they pop out of holes
10%	2%	the colors, size
6%	0	how they eat, the way they open their mouths
3%	3%	negative: not moving, hiding, couldn't see them, boring
0	13%	don't like them, they shock you, ugly, scary
0	8%	they're ok but not my favorite
3%	0	other answer
0	5%	blank, don't know

**Sample of answers;***Like them* (10 rating)*Because they were cool, very cool, because they slithered* (10)*They come out of holes* (9)*Cause I like eels, they're different colors and how they move, also how they get holes* (10)*They swirl around* (10)*I like them a little* (9)*They're long and they're cool, I just like them* (10)*They kinda look cool, they look nice* (10)*It looks funny* (10)*Didn't get to see them, but I do think they're pretty* (6)*I think they're cool but a little bit scary* (5)*I don't like them a lot, I like the fish but not the eels* (8)*I don't really like eels, I don't like ugly creatures* (1)*Cause I don't like them, they shock sometimes, never shocked me yet though* (4)

**Teaching children to care about nature (continued)**CHILD  
INTERVIEWS***Why would people care about eels?***

24%	they way they look and move, pretty, weird-looking
16%	they are animals, a part of nature
9%	they're cool, neat, I like them
9%	if we don't care for them they might die
7%	if you aren't nice to them they might shock you
7%	some people don't like them, try to hurt them
5%	they're useful (keep balance in ocean, scare sharks away)
4%	other
29%	blank, don't know

**Sample answers**

*If nobody cared, they'd all die and then people would care about them*

*They might like the way eels swallow things, they might like what I liked, how they're shaped*

*They're part of nature*

*If you punched one, it would shock you*

*They're fun*

*Because they're in danger*

*How pretty they are*

*Because they're animals and animals are kinda like people—they eat, have their own homes*

*They're predators, keep the balance*

*They're shiny and squishy*

*Some people like them and some people don't like them and try to catch them and kill them*

## F. Characteristics of the Sample

With any exhibit evaluation, it is important to know the context of who was interviewed or observed in order to better interpret the results. For *Splash Zone*, the principal interview study focused on families visiting with children (adult visitor groups were not interviewed, but their use and ratings of *Splash Zone* were solicited in the aquarium's monthly exit survey).

Visitor characteristics are compared for these three research methods:

1. Interviews with families—sample size: 281 (the interviews focused mostly on parents, but there were a couple of questions where children's opinions were recorded)
2. Interviews with school-age children, age 7 to 9 years—sample size: 55
3. Observations of randomly selected children (approximately half in the 4-6 age group, and half in the 7-9 age group)—sample size: 169.

The sample of families was sufficiently diverse for analysis—ranging from local families who had seen *Splash Zone* before, to out-of-state families who were visiting the aquarium for the first time.

## F. Characteristics of the Samples

OVERVIEW: The three different methods used for this study included a sample of 281 interviews with parents, 55 interviews with 7-9 year old children, and 169 observations of children between the ages of 4 and 9. Two forms were used for parent interviews, but there were no significant differences in visitor characteristics between form A and form B. The data collection process spanned three seasons—July 2001 through January 2002. The summer sample of families (parent interviews) consists mostly of repeat visitors (74%), coming from all over (the local region, the state, and other states). Interviews with children were conducted in winter, a more familiar, local audience (35% members; 35% Monterey County residents).

	<u>Family Interviews</u> (n=281)	<u>Child Interviews</u> (n=55)	<u>Observations</u> (n=169)
<u>Prior experience with MBA:</u>			
1 <sup>st</sup> -time visitor	26%	17%	
repeat visitor: 1-2 times before	29%	28%	not known
repeat visitor: 3-7 times before	25%	25%	
repeat visitor: 8+ times before	20%	30%	
members	17%	35%	
repeat: seen <i>Splash Zone</i> before	36%	47%	
<u>Residence:</u>			
Monterey County	13%	35%	
San Francisco Bay area	26%	29%	not known
other California	32%	31%	
out-of-state	29%	4%	
<u>Group size:</u>			
two	6%	2%	19%
three	25%	23%	26%
four	34%	38%	30%
five	16%	15%	13%
six or more	19%	23%	12%
<u>Number of children in group:</u>			
one	30%	23%	32%
two	43%	44%	49%
three	14%	21%	10%
four	10%	10%	6%
five or more	3%	2%	3%

**Characteristics of the samples (continued)**

	<u>Family Interviews</u> (n=281)	<u>Child Interviews</u> (n=55)	<u>Observations</u> (n=169)
<u>Ages of children in group:</u>			
group includes any preschoolers	52%	33%	unknown
any school-aged kids (6-12)	74%	100%	
any teens (13-17)	5%	4%	
all children are 6 or under	32%	0	
mixture of under 7 and 7+	29%	33% <sup>9</sup>	
all children are 7 or older	40%	67%	
<u>Age of adults:</u>			
20's	8%	not asked	unknown
30's	51%		
40's	33%		
50's	4%		
60+	4%		
<u>Gender of person interviewed/observed:</u>			
female	67%	40%	49%
male	33%	60%	51%
<u>Environmental orientation:</u>			
active in environmental concerns	25%	29%	unknown
very interested but not active	50%	60%	
somewhat interested	21%	6%	
not very concerned w/ envir. issues	4%	4%	
<u>Day of the week:</u>			
weekdays	54%	54%	59%
weekends	46%	46%	41%
<u>Season of data collection:</u>			
summer (July-August)	100%	0	
fall (Oct-Nov)	0	0	50%
winter (Dec-Jan)	0	100%	50%

<sup>9</sup> All interviews with children were conducted with 7-9 year olds. One-third of these children were accompanied in the family by children under age 7.

## **APPENDIX: Samples of behaviors and conversations recorded at specific exhibits**

(non-italics indicates actions, recorded primarily at exhibits where there were several possible activities [at exhibits such as Sharks and Jawfish, observers rarely described the behaviors because the character of the behavior was evident from the coding categories, e.g., hands-on activity at Sharks meant touching the samples of skin, so there was no reason to describe the action]; italics indicates quotes of visitors talking about animals and activities—observers mostly focused on recording these examples)

### CROWDED CORAL REEF:

Mom took a picture

Adult & child picked up a dive card, then put it back after this exhibit

Child moving to music

(C)-*What's this?* (A)-*Disc coral*

(C)-*Come feel this*

(C)-*Look at those guys* (A)-*Those are called yellow tang* (C)-*What's that one called?*

(A)-*Don't know*

(A)-*This is brain coral* (C)-*That's brain coral?* (A)-*Coral stings when you touch it*

(A)-*These fish that live in the coral reef have very bright colors. This is one kind of coral, this is another kind*

(C)-*Look, a coral*

(A)-*The black & white ones are banded angelfish.* (C)-*What are the little ones?*

(A reads signs)-*They're clam shell fish*

(A)-*It's a yellow tang, I like that one*

(C)-*Are these real fish?* (A)-*yes*

(A)-*A-square spot!* (C)-*They are so bright*

(A)-*This is brain coral, touch it*

(A)-*Which ones are the stag horn? Show me*

### JAWFISH

Child feeling rockwork at side of tank (the only specific example of an action recorded here)

(A)-*What's that red stuff?* (C)-*Why doesn't he come all the way out?* (A)-*I don't know*

(A)-*Oh look at the jawfish; looks like he has a mouth full of eggs* (C)-*Look at that guy there*

(A)-*What's in its mouth? Very strange*

(C)-*What's he doing?* (A)-*He's just hanging out with his mouth full of sand*

(A)-*Jawfish* (C)-*What are they?*

(C)-*Mommy, get over here, he's holding eggs in his mouth, imagine how hard it is*

(C)-*Look at the one back there* (A)-*Does that one have eggs in its mouth?*

(C)-*What's in its mouth?* (Teen)-*Look there's one mouth brooding*

### **Behaviors and conversations at specific exhibits (continued)**

#### SHARKS

Adult and child feel the shark's skin (descriptive examples of behavior were rarely recorded by observers, because such behaviors were obvious from the coding categories)

(C)-*Whoa, sharks! That's a great white shark*

(C)-*There's one of the wobble guys, there are more over there & that's a bamboo shark*



- (A)-*But why is he way over there?*  
(C)-*Look at that shark, daddy*  
(C)-*What's that? (A)-Look at the magnifying glass, look at the shark*  
(C)-*I want to see more*  
(A)-*See their eyes?*  
(C)-*They are so rough*  
(A)-*Black tipped reef shark, see him?*  
(C)-*Look you can touch*

CRUNCH NIBBLE INTERACTIVE

Adult watched briefly

Mom took a picture

(A)-*What gulps food?*

(A)-*Try it again*

(A)-*What do you think that fish eats? (C)-I did it (A)-Would a shark eat pizza? Of course not! (C)-Why won't it eat that?*

(A)-*Try this one (C)-Yeah! (A)-Crunch*

(C)-*It eats pizza (A)-Yummy (C)-Do the next one*

(A)-*Put the plates on them*

(C)-*Match the fish to the plate...Let's do this one*

(A)-*Watch, watch the shark. What do you think?*

(C)-*Fish I know sharks eat fish, yummy!*

(A)-*Can you read it? (C)-Yes (A)-You gotta read the whole thing (C)-I want to do one more*

### **Behaviors and conversations at specific exhibits (continued)**

#### EELS

Child pulled eel, then Dad pulled son along

Mom pulled eel and tried to scare kids

Dad scared them with eels

Child pulled eel, Mom took picture

(A)-*Let's look at the real eels That's not the same species (C)-Show the moray eels-that one*

(A)-*All different holes*

(A)-*That's what they look like*

(A)-*In and out they go*

(A)-*Look there's two in there (C)-Look there's three in there*

(A)-*Check out a real one (A)-They're so colorful*

(C)-*They're cute (A)-Yeah, but look at this mouth, look at the top, those are teeth, they're sharp*

(A)-*Look how long that is*

(C)-*He's trying to climb up, it's got my finger*

(A)-*How do you know that tail don't belong to that head?*

(A)-*That one's poking its head out (C)-Look at that one (A)-Look at that cleaner shrimp*

(C)-*Danny, it's got my hand!*

CORAL CRAWL (nearly all children crawled; no other specific behaviors were recorded here)

(A)-*Look at the fish (C)-Where's that one (A)-We'll see it*

(A)-*Crawl through there, hurry up!*

(C)-*I want to go in again (A)-We have to go see something else (C)-One more time ok?*

(C)-*This is like the best place ever!*

(C)-*Can we go in there?*

(C)-*Mommy, you have to see this*

(A)-*What did you see?*

(C)-*This guy is pretty neat (A)-Oh yeah! (crawls in with child)*

(C)-*There's something really cool in here*

#### LEAFY SEA DRAGONS

Child reading book

Child writing answers on a sheet

(A)-*These are a kind of seahorse, they look kind of like plants but they're alive, aren't they beautiful*

**Behaviors and conversations at specific exhibits (continued)**CORAL REEF PLAY

Child went on slide, horse, crawl  
 Child did dress-up and slides, took a dress-up picture  
 Dad dressed her up with clownfish outfit, child slides, playing with other kids  
 Child did slide, cave, dress-up, horse  
 Dress-up, seahorse, crawling around  
 Child put on dress octopus. Both adults standing together watching them play  
 Slide, puppet, costume  
 Crawled inside tunnel under slide  
 Mom crawls into cave and talks to child  
 Child interested, talking w/staff member about animals on exhibit & costumes of them.  
 Mom reminded child they had to be somewhere  
 Adult asked child to pick up costumes  
 (A)-*They're too rough over there*  
 (C-to brother)-*Don't ride backwards* (A)-*Hector let's go* (C)-*Can I play in the slide?*  
 (A)-*Look at you, you're an octopus*  
 (C)-*I'm on a seahorse, let's walk down the slide*  
 (C)-*Dad, can I take off my shoes?* (he nods)  
 (C)-*Crawl into the cave so you can hear me*

CORAL COVE

Child putting hands in water  
 Child put on apron, sat down on bench for a bit  
 Mom took picture  
 Child wandered around (less than 10 seconds)  
 Dad took off shoes, child jumping off things  
 Child pushing water back for younger kids  
 Child played on waterbed, wrestling & jumping with kids. Adult sat down  
 (C)-*This is fun* (A)-*Sarah, look at me, you have to be very careful because you're bigger than they are* (C)-*What's in there?* (A)-*Water*  
 (A)-*Honey, you're too big to jump on there* (water bed) *You want to play in there?* (Coral Reef Play)

WATERPLAY - TWIDDLE FISH

Child put apron on, got one for Dad  
 Adult takes photo  
 Mom puts apron on child, rolls up sleeves  
 Child swims fish against the current  
 Adult tending younger sister  
 Mother helped put aprons on younger ones  
 (A)-*Help swim, all that work*  
 (A)-*You're supposed to make it go along lines there, here can I do it?* (does it with child holding too/blue shark zig zag)  
 (C)-*I'm gonna eat you*

(A) *Ok, move it around in the water, when you're done with fish you have to put it back*

**Behaviors and conversations at specific exhibits (continued)**

TWIDDLE FISH (continued)

(A)-*Get one of the sharks now*

(C)-*What do you do?* (A)-*Just a minute*

(A)-*Hold it like this, twist it*

(C)-*Right there* (points to instructions) *Hey this is fun, I know how you do this*

(A)-*Don't get all wet* (C)-*What do we do with these?*

WATERPLAY—WAVES, JETS & TIDE POOLS

Child did water jet, played with fish in water

Parent puts apron on

Adult photographing kids. Child looking at waves above

Mom drags daughter to next exhibit

Child puts hand in water

Child & adult mostly playing separately. Adult brings fish from dam area

Child put stars in front of dam, laughing

Child making fish swim

Child called over other child

Child brought twiddle fish over to waves

Child & adult do jet spray, lifting gate

Dad mostly busy looking at neighbor exhibits

Child playing in water. Dad pointed him towards water jet and put anemones in front of water jet

Child did water jet, played with anemones. Child put apron on. Mom took picture

Child throwing toy sea stars and sticking them to graphics

(A)-*That one (water cannon) looks like it really works*

(A)-*Wait until the water comes, then open*

(A)-*Pull it up, pull it up*

(A)-*See how they move there in the water*

(A)-*The wave comes in here, then gets stopped or goes through* (closes, opens the dam)

(A)-*See how it works? Point it at (unattached anemone) see? It gets pushed around* (sticks anemone to surface) *Now shoot it*

(C)-*Zach, come over here, you have to try to blow the fish around*

(C)-*This is fun, mommy*

(C)-*Dad, did you try this?*

(C)-*Mom, look, see there's another dam over there, the waves come in up there. Dad, will you play with me?*

(C)-*Let's squirt em all, get them! Open it up! Here's a fish. That's because they stick* (about anemone)

(A)-*Watch, watch, lift that handle (the dam)*

(C-to another kid) *Let's keep this dam closed for a while. Why are you tossing all the fish in there?*

(A)-*Want a wave? (holding dam) Whee, when it's blocked off like this it makes a little tide pool which is where they live*

### **Behaviors and conversations at specific exhibits (continued)**

#### CLINGFISH

Adult explains & points

Child pushing button (didn't work)

Child pushes button

(A)-*Ok there it goes (C)-What happens if water goes all the way down here & the fish are up there? (A)-There's one holding on*

(A)-*Push the button*

(A)-*Watch what it does, the water drops and they stick, wait till it fills up*

(A)-*The water goes down here*

#### RISKS ON THE ROCKY SHORES GAME

Child looked briefly with other kids

Child playing game, kind of. Mostly just moving the parts

Child & adult played hermit crab game

(A)-*Here Jackson, I'll help you (spins for him, mostly talks about instructions not much else)*

(C)-*Mom, play the crab game, I want to play the crab game*

(C)-*Play this with me. (dad does not respond, still on phone)*

(A)-*Let's go*

#### PENGUINS - TALK INTERACTIVE

Adult goes to video

Mom takes a picture

(A)-*It says hello, it says I'm happy, go away*

(A)-*Outside they have birds*

(C)-*This means hello, go away*

#### PENGUIN FAMILY PHOTO OP

Child made penguin noises, squawked

Child stuck head into penguin face, Mom took picture

Child sat in egg

Child put head in face and sat in egg

Adult got child to look through

(A)-*Put your hand through there (C)-Nana-look, I'm this little one*

(C)-*Take a picture of me (A)-Put your head way in there (C)-I want to see what you look like, stick your head in*

(C)-*Mom, look (when in egg)*

**Behaviors and conversations at specific exhibits (continued)**PENGUINS EXHIBIT & VIEWING ALCOVE

Child waiting to crawl into lower peek hole

Child calls adult over

Child crawled in peek hole

Child does flappers

Child opening all the flip doors. Adult closing flip doors behind him

Child put paper towel on tank and had penguin follow it. Then climbed on rocks in front of tank

Child took picture of penguin

Child touching window/following penguin

Child climbing on rocks, interacting with penguins

Child interacting with penguins

Adult stands at entrance

Child does flappers

Child played with penguins

(C)-*His name is Mason. (A)-This one's walking*

(A)-*They're playful aren't they? They want out of there. I bet if they're real playful they climb up on the rock*

(C)-*Hi, Caroo, Caroo! Bye Caroo Caroo (read name)*

(A)-*They don't eat pizza or carrots. He's about your height (C)-He's following my hand*

(A)-*Want to come see stuff in touch pool?*

(A)-*That guy's Lambert, this guy's Dyer, Tranya's back there*

(A)-*Looks like they're all drying off after their afternoon swim (C)-How do they swim? (no answer-did he hear her?)*

(A)-*There're the penguins, let's have a look*

(A)-*Come here I want to take a picture. See how they sit together, they love each other*

(C)-*Take another picture*

(C)-*You can even go in there & see the penguins (A)-Look at Ray (C)-Come in here*

(A)-*That's made for little ones*

(C)-*Look at that penguin without feathers*

(A)-*You can see them in here*

TOUCH POOL

Adult and child touched plastic anemones

(A)-*Play w/hermit crabs, look at that big one (C)-I'll get them to fight (A)-Look this one's hiding, he's coming to get you*

(A)-*Look at how that animal holds on (C)-What's this? (Guide)-a hermit crab*

(A)-*Put your hand like that (in water). Child shook head no*

(A)-*Go ahead, touch it*

(A)-*Want to hold it? Do you know what it feels like on the bottom? Like a dry sponge, I promise*

(C)-*Look at the limpet and crab*