Megalodon: Largest Shark that Ever Lived

A Summative Evaluation

Prepared by Ellen Giusti

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Introduction

Megalodon: Largest Shark That Ever Lived opened to the public on June 16, 2007 at the Florida Museum of Natural History (FLMNH) on the campus of the University of Florida, Gainesville, and will remain on view through the remaining months of 2007. The 5000-square-foot exhibition was designed and developed in-house. It received support from a grant by the National Science Foundation.

FLMNH scientists have a long history of and commitment to the study of shark evolution and conservation. The museum received a gift of shark fossil specimens and models, inspiring curators and administrators to create an exhibition to educate the public about extinct and modern sharks.

This summative evaluation was undertaken to investigate whether exhibition visitors come away with an understanding of the exhibition's main premise: **Megalodon, a dominant marine predator for 15 million years before vanishing 2 million years ago, provides lessons for shark conservation today**. In addition, exhibition developers want to learn whether visitors gain familiarity with the following exhibition subthemes:

- What do fossil shark teeth and backbones tell us?
- What did megalodon eat and how much?
- When and where did megalodon live?
- Was megalodon closely related to modern sharks?
- Why did megalodon become extinct?
- Are modern sharks in danger of extinction?

Do visitors learn things they did not know before? In addition to cognitive goals, exhibition developers had affective goals for the exhibition:

- Exhibition planners hoped visitors would come away believing that it is important to preserve and protect sharks.
- They hoped the exhibition experience would make people less afraid of sharks than before their visit.

And finally, to understand the relationship between megalodon and modern sharks, visitors should learn something about the overarching topic of the exhibition, evolution, and how scientific research can help us understand it.

- Visitors should come away with an understanding of geologic time, eradicating misconceptions such as megalodon lived at the same time as dinosaurs or humans.
- How did the broad concept of evolution figure into the visitor experience? Hopefully, visitors will see shark evolution in the context of evolution in general.
- Visitors should leave with a greater understanding of the process of science – how scientists study the fossil record and that it is an ongoing process.

Last, the evaluation looks at visitors' most memorable exhibition-related experiences and what they think would make *Megalodon* better.

Method

In collaboration with curator, exhibition developer and FLMNH staff, the evaluator developed a comprehensive interview protocol to investigate the exhibition's impact on visitors. FLMNH's questions (see above) were addressed, as was basic demographic visitor data. The interview consisted of open-ended and short answer questions (see appendix). Data were entered into an Excel spreadsheet by the interviewers, then coded and analyzed by the evaluator.

Data collectors were instructed to intercept and interview *Megalodon* visitors at random. The sample was supposed to be stratified to include 50% children; however, due to conditions beyond the evaluator's control, fewer than 20% of the sample were under 18 years of age.

Overall, 101 visitors were interviewed, 56 females and 45 males (see appendix for demographic data). Data was collected on weekdays and on weekends, in proportion to the July 2006 visitation pattern (60% and 40% respectively). Since the sample consists of just over 100, tables include only 1 column of figures because frequency and percent are about equal when N=101. The report employs statistical analysis to quantify the exhibition's impact on visitors. Correlations and chi-square tests were performed on all the data to ascertain whether significant differences exist based on age or gender. None were found. However, trends suggesting such differences are reported where relevant. The report makes use of extensive quotes from the interviews to add richness to the data.

Findings

Megalodon *Visitor Characteristics*

Do *Megalodon* visitors have more than a passing interest in sharks in general, or giant, prehistoric sharks in particular? More than 4 in 10 visitors (42) said they had a special interest in megalodon or sharks; however, without data from the overall population for comparison, it is impossible to say that *Megalodon* visitors have greater interest than others in the species. Furthermore, only half the visitors who said they had a special interest in sharks came to FLMNH particularly to see the megalodon exhibition.

More than half the males but only one-third of the female respondents said they had a special interest in sharks or megalodon. Among the 17 children (17 and younger) 71% said they had a special interest in sharks.

What exactly interests these people? This open-ended question was grouped into categories illustrated in table 1.

Table 1. Visitors' Special Interest in Sharks

What is your special interest in them?	Frequency	% (N=42)
Just like them, curious about sharks	17	40
Interested in size, megalodon the biggest shark	8	19
Shark teeth	7	16
Interested in fossils, prehistoric life	5	12
Predatory, dangerous	4	9
Respondents' children are interested	3	7
Other	3	7

As table 1 suggests, aside from the teeth collectors, most of the visitors with a special interest in sharks could not really express why they had this interest. Bigness and danger were noted and interest in prehistoric life. But the most frequent response category amounted to "because they're cool."

Sharks are cool

I always liked sharks; I watch Discovery Channel specials on them. M 18-24)

Been around sharks a lot and just like them. (M 65+)

I'm passionate about sharks in general. I have been since early childhood. (M 25-34)

They're amazing creatures. (M 18-24)

I think sharks are very interesting and powerful. (M 18-24)

Size matters

I'm fascinated by size of megalodon. (M 45-54)

I'm interested in their different sizes. (F 11 <)

I like to study sharks in general but I'm most interested in their size. (F 11)

Size and teeth

I like the size range and the teeth. (M 11 <)

I like to learn how they got so big or how people find teeth. (F 11<)

Fossils and prehistoric life

I'm also interested in fossils. (F 18-24)

I'm interested in prehistoric life. (F 25-34)

I'm mostly interested in prehistoric sharks: They're neat to look at and see how sharks have evolved. (F 18-24)

Predatory, dangerous

...because they are big, dangerous, and have sharp teeth. (F 12-17)

I have both fascination and fear of sharks. (M 18-24)

I'm interested in their amazing predatory skills. (M 18-24)

Specific interest

I'm fascinated because sharks are at the top of the food chain and megalodon is the biggest. (M 35-44)

I am interested in the way they lived and how they survived in the ocean. (F 35-44)

Findings Re: Exhibition's Cognitive Goals

The Big Idea

The exhibition team characterized the exhibition's main message as: "Megalodon, a dominant marine predator for 15 million years before vanishing two million years ago, provides lessons for shark conservation today."

We asked visitors, "What would you say to a friend who asked you, 'What's the exhibition about?'" The Big Idea contains a number of aspects: megalodon was "dominant" and therefore probably large; it was a predator; it is extinct; megalodon has an evolutionary relationship to modern sharks; sharks today might be in danger of extinction. All these aspects of the Big Idea came across to visitors, though not every one to every visitor: some of them mentioned only one aspect, but a number of respondents mentioned more than one. Table 2 illustrates the categories and visitors' responses to the question, what was the exhibition's main idea. Following the table, selected quotes from the interviews convey what visitors actually said.

Table 2. Visitors' Perception of the Big Idea

Main Idea	**Frequency/%***
Size, big sharks	32
Sharks/megalodon (in general)	24
Comparison of extinct and modern sharks	18
Evolution of megalodon and sharks	16
Ancient, prehistoric creatures	14
Extinction, extinct creatures	8
Megalodon behavior, predation	6
Shark/megalodon teeth	3
Other	1

*Percents add up to > than 100 due to multiple responses.

Quotes illustrating multiple aspects of the Big Idea

[It's about] different sharks, prehistoric animals, and conservation of ocean life. (F 35-44)

How megalodon evolved, its size, sharks' teeth, and how much it ate. (F 11 and <)

Megalodon shark and extinct animals, and how insignificant man is in time. (F 55-64)

How these types of creatures survived, extinction, and the cycle of life. If we learn to respect megalodon, maybe we can protect other sharks from extinction. (F 25-34)

Extinction, ancient creatures

[The main idea is] different types of extinct sharks. (F 45-54)

[It's about] megalodon and different types of sharks. It teaches about extinction. (F 45-54)

...megalodon shark and ancient sharks. (F 10)

Size, really big shark

...a 60-foot-long shark, and other sharks. (F 12-17)

...different size sharks and the largest one they've found yet. (M 18-24)

Megalodon behavior, predation

...sharks and how they lived. (M 12-17)

...a complete and periodic look into one of the most awesome predators to have ever lived. (M 18-24)

Evolution and relationship to modern sharks

The prehistoric sharks and evolution of modern sharks. (M 18-24)

...the biggest shark that ever lived and development of sharks throughout history. (M 35-44)

Shark teeth

It's about teeth mostly. (M 55-64)

...sharks and different sharks' teeth. (F 25-34)

The comment coded as "Other" was a criticism of the exhibition's tone: "A lot of speculation" and "one-sided" interpretation about the causes of extinction (M 25-34).

Visitors' Interest in Exhibition Themes

Megalodon was designed in thematic units. We asked visitors how interested they were in six of the exhibition's themes that were displayed in distinct areas (table 3 illustrates the responses):

- What we can learn from shark teeth and backbones
- What megalodon ate and how much
- When and where megalodon lived
- How closely megalodon is related to modern sharks
- Why megalodon became extinct
- Modern sharks are in danger of extinction

Table 3. Visitors' Interest Level in Exhibition Themes

I was…	Very interested	Somewhat interested	Not very interested	Not at all interested	Didn't see
What we learn from fossil shark teeth and backbones	38	54	5	1	3
What megalodon ate and how much	55	37	3	1	5
When and where megalodon lived	51	39	4	1	6
How closely megalodon is related to modern sharks	45	41	9		6
Why megalodon became extinct	57	27	3	2	12
Modern sharks are in danger of extinction	52	29	9	2	9

The data indicate that the vast majority of visitors found all six topics either "very" or "somewhat interesting." Collapsing the data into 2 columns—interested and not interested/didn't see (table 4)—we find something puzzling: the two topics with the highest negative scores, Why megalodon became extinct (17) and Modern sharks are in danger of extinction (20), were rated "very interesting" by more than half the respondents (52 and 57, respectively) and Why megalodon became extinct was rated "very interesting" by more respondents than any other topic.

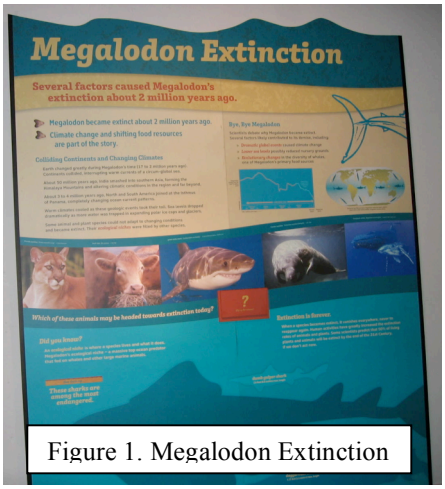

Figure 1. Megalodon Extinction

Although differences in children's and adults' responses were not statistically significant, 71% of the children and 54% of the adults said they were "very interested" in the theme, Why megalodon became extinct, and more than half the adults but only one-third of the children said they were "very interested" in When and where megalodon lived and Modern sharks are in danger of extinction. Similarly, there were no statistically significant differences between male and female responses; however a few comparisons stood out. Overall, female respondents said they were "very interested" in the topics more frequently than did male respondents. The greatest variation was in response to the theme, What megalodon eats, where 64% of females but only 42% of male respondents said they were "very interested," and How closely megalodon is related to modern sharks, where 53% of females and 33% of male respondents were "very interested."

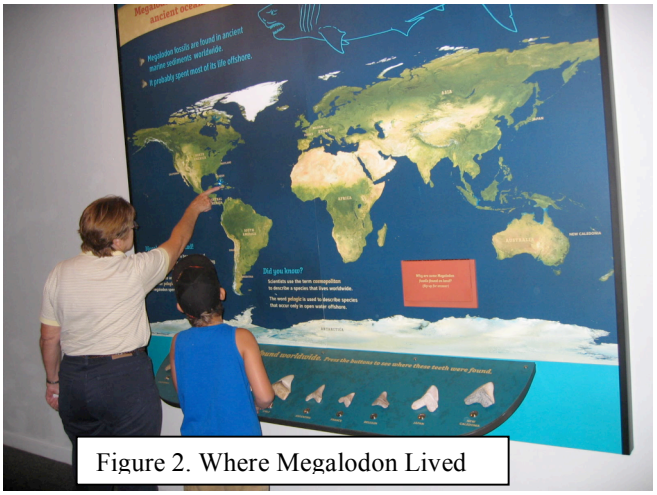

Figure 2. Where Megalodon Lived

Table 4. Interest in Exhibition Themes: Collapsed Categories

I was…	**Very interested Somewhat interested**	**Not very interested Not at all interested Didn't see**
What we learn from fossil shark teeth and backbones	92	9
What megalodon eats and how much	92	9
When and where megalodon lived	90	11
How closely megalodon is related to modern sharks	86	15
Why megalodon became extinct	84	17
Modern sharks are in danger of extinction	81	20

Another puzzling finding: What we learn from fossil shark teeth and backbones was not rated "very interesting" by a high percentage of respondents, but shark teeth and the shark tooth ID center was the second most frequently cited part of the exhibition respondents liked best (see below).

Understanding of Geologic Time

To assess visitors' understanding of geologic time *as expressed in the exhibition*, we asked them to tell us which of the following creatures came first, which came second and which third: humans, dinosaurs, megalodon. We hoped that saying "according to the exhibition" would avoid issues of creationism vs. evolution.

Virtually everyone knew that humans should be in the third (or last) position. Visitors were split almost equally about whether dinosaurs or megalodon came first or second: 54 said megalodon came before dinosaurs and 47 said dinosaurs evolved before megalodon.

Evolution and the Scientific Process

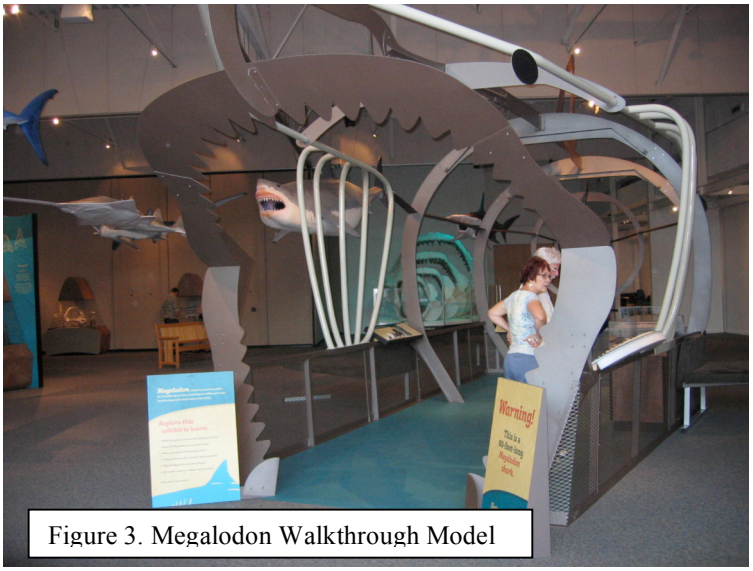

Figure 3. Megalodon Walkthrough Model

Findings suggest that visitors have a far better understanding of and appreciation for ecology than evolution: visitors are much more likely to come away from *Megalodon* saying that sharks should be protected because they have an important role in the ecosystem than because of their role in evolution and scientific knowledge.

Visitors' questions for the scientists who worked on the exhibition demonstrate their respect for and interest in scientific research (see Visitors' Questions, beginning on page 19).

Findings Re: Exhibition's Affective Goals

Visitors' Favorites

We asked visitors what part of *Megalodon* they liked best, allowing them to answer in their own words. Several people mentioned more than one part of the exhibition. Table 5 illustrates their choices.

Table 5. Visitors' Favorites

Part of the exhibition visitors liked best	Frequency/%
Megalodon jaws	31
Teeth, Tooth ID Center	23
Megalodon walkthrough model	20
How much megalodon ate, tuna cans display	9
Ancient sharks, fossils, extinction information	8
Models, specimens	7
Other	9

The top-rated part of the exhibition was the row of increasingly gigantic megalodon jaws, the largest big enough for an adult to stand in. The series of megalodon jaws and the walkthrough model highlight megalodon's enormous size (several visitors repeated the label information, "60 feet long"). While size was the number 1 reason visitors gave for their selections—almost half the sample cited size—more females than males referred to size when explaining their choices (56% of female respondents and 42% of males said their favorite part of the exhibition focused on size or comparative sizes). Selected comments follow table 6.

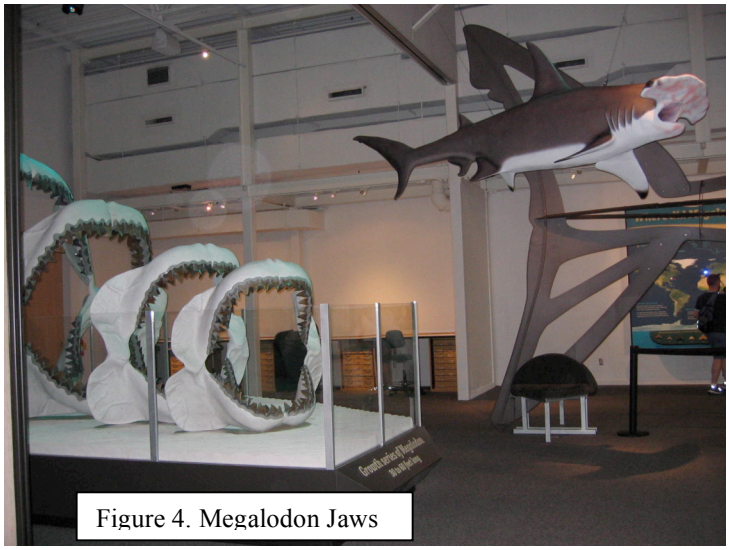

Figure 4. Megalodon Jaws

Table 6. Reasons for Choice

Why did you like that best?	Frequency/%
Interested in size, variation, comparisons	48
Sharks are interesting, amusing, fascinating, cool	17
Specimens show what animals looked like, more than just skeletons	7
Impressive	7
Collector, learn about collecting sharks' teeth	4
Interactive	4
Other	12

Megalodon model, jaws, specimens

The models help put the size into perspective. (F 12-17)

I'm a very visual learner and the sculpture gave perspective. (F 25-34)

It was interesting to see how big their mouths were. (M 18-24)

I thought the 30-foot shark was long enough, then you see it progress to 60 feet long. (F 18-24)

I was impressed by the size of the jaws and interested in the comparison between them. (F 45-54)

Teeth

I collect teeth. (F 55-64)

I like it because you can still find those types of teeth. (F 55-64)

I liked that it showed local areas where you could find teeth in central Florida. (M 55-64)

Cool to see the different teeth and where they came from. (F 12-17)

Interesting to see all the teeth and where they were found and how old they were. (F 25-34)

Interesting to see how sharks looked millions of years ago, and to see the variation in sharks' teeth. (F 18-24)

Other shark species models

My uncle had a model of a sawfish and I had never seen another model or real sawfish until today. (M 65 >)

In the ichthyology specimens you can to see color, texture, size, etc. that you don't ever see with skeletons. (M 45-54)

It gives people a sense of what actual sharks look like outside the theater. (M 25-34)

I didn't realize the amount of variation in sharks. (F 45-54)

How much they ate

Some concrete points for children. [The tuna cans were] very effective in getting the point across of how much they ate. (F 35-44)

[The tuna fish cans display] compares how much we eat vs. how much sharks eat. [F 35-44)

I was fascinated that they could eat whales. (M 45-54)

Very impressive. That's a lot of food! (F 11)

Figure 5. What and How Much Did Megalodon Eat?

Interactive

[Interactives] are great for kids. (F 35-44)

The tooth interactive where you could approximate the size of the shark based on the size of the tooth was fascinating. (F 45-54)

Other comments

Interesting to know that it lived all over the world, not just in one spot. (M 11 <)

I got the idea that they could have swallowed you whole. (M 55-64)

They presented the information like a history lesson. (F 55-64)

I like to show my children real objects from the past. (F 25-34)

It's neat to think that even ancient people saw the importance of megalodon teeth. (M 35-44)

Visitors' Feelings about Sharks

Although visitors expressed positive feelings about the exhibition, *Megalodon* did not succeed in making visitors feel less afraid of sharks. Interviewers asked visitors, "How did the exhibition make you feel about sharks?" and checked their responses on a precoded list: Sharks should be protected because they are good for the environment; Less afraid of sharks than I was before; Interested in learning more about them. Responses that did not fit those categories were marked "Other" and were written down by the interviewer.

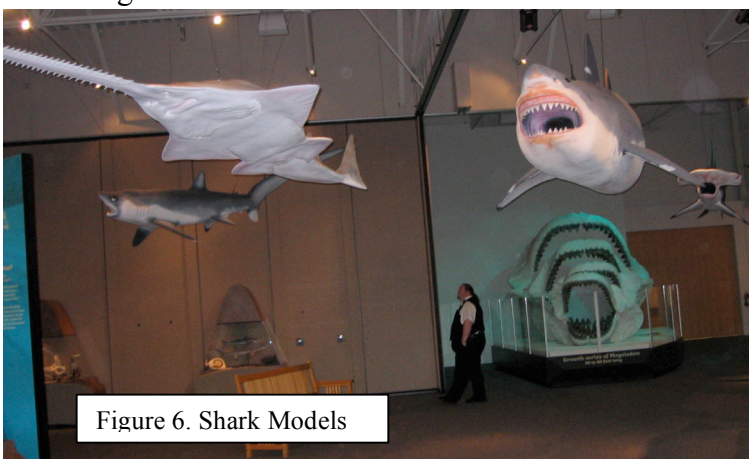

Figure 6. Shark Models

Only one person said he was less afraid of sharks than before (M 18-24) and 8 respondents said they were more afraid of sharks than they were before. Some 30 people said they felt about the same about sharks as they did before coming to the exhibition. More than 1 in 3 respondents (35 people) said the exhibition made them interested in learning more about sharks. Table 7 illustrates the response categories, followed by selected comments.

Table 7. Visitors' feelings about sharks

How did the exhibition make you feel about sharks?	Frequency/%
Interested in learning more about them	35
About the same as before	30
More afraid than before	8
Have more respect, appreciate them more now	7
Sharks should be protected	6
More knowledgeable, educated about sharks	5
Less afraid of sharks than I was before	1
Other	9

Feelings

I feel somewhat more educated. (M 55-64)
Sharks are misunderstood animals and are not as vicious as people think. (F 11)
I appreciate them more because of the possibility of extinction. (F 11 <)
I have great respect for them. (M 65 >)
They're still pretty creepy and scary but fascinating. (F 35-44)
I still don't want to go swimming. (F 25-34)
I love them more. (F 12-17)

Conservation

The vast majority of visitors (86%) said they could think of at least one reason sharks should be protected and a few people provided more than one reason. By far the most frequent reason visitors gave for protecting sharks is their role in the ecosystem, particularly when combined with the companion reason, they are "part of the food chain." Several people cited sharks' role in the ecosystem saying, "they clean up the ocean." It's the "right thing to do" relates to visitors' almost spiritual sense of humanity's responsibility to be good stewards of the planet. The following selected comments illustrate visitors' thinking.

Their reasons were categorized, as Table 8 indicates.

Table 8. Shark Conservation

Reasons sharks should be protected	**Frequency/%**
Role in the ecosystem, part of cycle of life	27
All species should be protected, the "right thing to do"	22
Part of the food chain	15
They will go extinct, they will be gone forever	12
For science, evolution, to understand evolution, history	7
They clean the ocean	5
Research about cancer	2
They're cool, amazing, interesting	2
Other	3

Role in the ecosystem

They preserve the balance of nature. (F 65 >)

They are an important part of the marine ecosystem. (F 18-24)

... because of the effect an absence of sharks would have on reefs. (F 25-34)

Nothing should be wiped out, it messes up everything. (M 55-64)

...because they eat fish that might overpopulate the ocean. (F 12-17)

It's the right thing

Every animal has a reason to be here and should be protected. (F 45-54)

Because they are animals and they are here for a reason. (F 18-24)

They are part of the world, God's creatures. (F 55-64)

Food chain

Because they are part of the food chain and need to be there. (F 45-54)

Because they are amazing creatures and they're at the top of the food chain. (M 18-24)

Part of the food chain; it affects us all. (M 45-54)

If not, they may go extinct

Because they can be overfished and can become extinct. (M 65 >)

It's sad to think of something so great going extinct. (F 25-34)

Because they're becoming extinct and they've been around for years and should be around for many more. (F 45-54)

Because they're our history and extinction is forever. (F 65 >)

For science, to study evolution

Save them for future generations, to understand how they evolved. (F 25-34)

Because they have been around for such a long time and we still have a lot to learn about them. (M 18-24)

The following reason for shark conservation is a common misconception, according to http://www.elasmo-research.org/: "Also essential for medical studies because they don't get cancer" (F 55-64) and (M 25-34)

Exhibition Critiques

Some 20 visitors shared their ideas for improving the exhibition. The most frequently cited suggestion was to enclose the megalodon model to make it more realistic and give a better sense of its size (only 5 visitors); however, one respondent thought the model felt too closed in as it was. The megalodon model was one of visitors' top three exhibition highlights; suggestions to enclose it are interesting but impractical and definitely a minority view. Three people had a negative reaction to Megalomania (though one visitor selected that part of the exhibition as her favorite). Table 9 illustrates improvement categories, with selected comments following.

Table 9. Suggested Improvements

How the exhibition could be improved	Frequency/%
Enclose megalodon model	5
Content: more balanced, better explanations, less advocacy	3
More hands-on exhibits, interactives	3
Other exhibit-related critiques	9

Megalodon model

[I didn't like the] setup of sculpture, it looked too closed in. (M 25-34)

The jaw leading into the walkthrough model could be more scary/realistic, and it could have more realistic ribs. (M 35-44)

I would have liked to have the shark enclosed instead of open, so that people could see what the outside would have looked like. (F 25-34)

Cover the megalodon model so you can feel like you're inside and get a better sense of its size. (F 45-54)

Content critique

It was kid intensive, it insulted me. (F 18-24)

It should tell speculations from both sides (like the arguments for megalodon extinction). (M 25-34)

Unsure how to identify megalodon teeth compared to modern sharks (thinks it could be explained better). (F 45-54)

Too much emphasis on teeth; should be more on biology. (M 65 >)

Design critique

Shark promenade: If you are taking pictures from front to back, there's a pole in the way. It also needs a backdrop. M 45-54)

Add better lighting and maybe some music. (F 18-24)

You should have sharkskin out for kids to feel. (F 25-34)

I expected to see the real relics. (F 45-54),

Megalomania

I didn't like Megalomania. I feel it didn't fit with the rest of the exhibit. (M 45-54)

I didn't understand the red, white, and blue flag painted tooth. (F 45-54)

Anything Missing?

There were only 17 comments regarding something missing that visitors had expected to see in the exhibition (table 10).

Table 10. Visitors' Expectations Unmet

What was missing?	Frequency/%
Live fish	5
Actual replica of megalodon instead of metal model	5
More real stuff, expected real megalodon skeleton	3
Behavior of sharks, videos	2
More for kids	2

Some 5 people said they had expected to see live fish. There was a traveling shark exhibition some time ago that included live shark egg cases that hatched during the life of the exhibition. They had to be replenished as the show traveled, and live animals require a good deal of maintenance, which can be expensive. Notwithstanding, living elements are always powerful and compelling additions to museum exhibitions.

Two people expected more for children, but the same number or more said they liked the exhibition because it is child-friendly.

Visitors' Questions

We asked visitors what questions they would ask the scientists who worked on the exhibition. There were a total of 54 substantive questions, most of them relating to science and research. This finding indicates that the exhibition inspired real interest in scientific

research, particularly as it relates to fossils. This is particularly noteworthy because most of the children asked questions that showed genuine curiosity and interest in the science. Though not all are included, the large number of quotes below indicates the depth and breadth of visitors' exhibition-inspired questions.

Fossil discovery (10 questions)

Where did they find all the bones for megalodon? (F 11)

How did megalodon become extinct and who discovered it? (M 18-24)

Have they found other bones from megalodon? (M 11)

Any evidence of a full skeleton anywhere? (M 18-24)

What is the largest intact fossil shark ever found? (F 35-44)

What is the significance of the whorly (sp?) shark fossil? (M 25-34)

How and when did they find the first megalodon fossil? How did they establish their size and what they ate? (F 35-44)

Teeth (9 questions)

When was Florida under water [covered] with sea water? I find many shark teeth in fresh water. (F 55-64)

How did you find all the teeth? (F 7, F 12-17)

Are the teeth mostly real or mostly models? (M 55-64)

What other uses of the teeth are there? (M 25-34)

What is the most rare shark tooth you've seen? (M 35-44)

What was your first reaction when you found your first tooth? (M 11 <)

How much are megalodon teeth worth? (M 18-24)

Scientists' motivation (6 questions)

Why did you want to do a project on megalodon? (F 45-54)

How did you start researching megalodon? Did you ever spend time with sharks? What is your favorite shark? (F 18-24)

Why did you choose to work on this topic? (F 45-54)

How long have you been studying megalodon? Are there more artifacts? (M 18-24)

Research methods (5 questions)

How did you use research to answer your questions, and what types of research methods did you use? (M 25-34)

How do you date how old the teeth were? (F10)

How did you get measurements for megalodon? (F 18-24)

How did you find out all your information, and how long did it take you to get it? (M 12-17)

More about megalodon (6 questions)

How many megalodon were there that actually got as big as the model? (M 35-44)

How many megalodon were there in the seas? (F 35-44)

About how many megalodon were alive at the same time? (F 15)

How fast could megalodon swim? (M 18-24)

How deep did megalodon go in the ocean? (F 65 >)

Exhibit development (5 questions)

How did you put the exhibit together? (F 8)

How did you get all the stuff for the exhibit and what will you do with it when you're done? (M 8)

How did you build the shark? How did you make the models? (M 35-44)

Shark extinction (5 questions)

What all can we do to prevent shark extinction? (F 25-34)

Why do you personally think megalodon became extinct? (M 18-24)

How serious is it that modern sharks are becoming extinct? (M 35-44)

How many extinct sharks were there? (M 11 <)

Evolution (2 questions)

How much did the scientists learn? How did this further their knowledge of evolution? How much more do they hope to learn? (M 45-54)

How do you know that the shark came before man? (F 45-54)

Other (6 questions)

Have people seen a real megalodon? (M 9)

Do you think that there might be some [megalodons] still alive that we haven't seen? (M 45-54)

Could we go with the scientists on a dig? (F 55-64)

Would you put real live sharks in the exhibit? (F 11 <)

Who created the jewelry? (F 35-44)

Anything Else FLMNH Should Know

Thirty-one (31) visitors volunteered that the exhibition was great; for example, "Beautiful. I liked the shark tooth cases and the wave design at the top of the walls. I wasn't going to go in because I don't have an interest in sharks, but it was so beautiful so I went in." Two more said the museum was wonderful: "Glad to have the museum in Gainesville." Two visitors said *Megalodon* was great for kids: "Glad to have it here for several months so I can bring my other grandkids."

Two people said the museum should not charge admission.

One visitor said she was glad the exhibition was open and accessible to the handicapped.

Figure 7. Megalomania

Discussion and Implications

Sharks and their relatives, both prehistoric and modern, hold a fascination for many people. Florida is a locus of shark activity and research; hence it is not surprising that many FLMNH visitors are particularly interested in these creatures. While many visitors claim special interest in the subject matter, such as those who collect shark teeth, only about half of those who said they had a special interest in sharks or megalodon came to FLMNH particularly to see *Megalodon.*

Virtually all visitors come away from *Megalodon* understanding one or more aspects of the exhibition's Big Idea, "Megalodon, a dominant marine predator for 15 million years before vanishing two million years ago, provides lessons for shark conservation today." The most frequently cited aspect was megalodon's dominance in terms of its size. Visitors found this attribute vividly portrayed in the huge sculptural model, the series of megalodon jaws and the stacks of tuna cans—a megameal. A number of visitors understood that the exhibition was about extinction and its partner, evolution.

Visitors gain an understanding of megalodon's relationship to modern sharks, citing the exhibition's comparisons of extinct and modern sharks. Visitors understand that megalodon is an extinct species and many of them grasp that modern sharks are threatened with the same fate. Most respondents were able to express why it is important to protect sharks. The most frequently cited reason was to maintain balance in the ecosystem. A number of visitors had questions about shark extinction and what could be done to prevent it.

While the exhibition may have conveyed the importance of shark conservation, it did not make visitors less afraid of sharks. Although unintentional, *Megalodon* communicates "shock and awe" in its depiction of ancient and modern sharks, inspiring fascination similar to what moviegoers experienced in the film, "Jaws." The majority of visitors said they felt about the same about sharks as they did before seeing the exhibition; nonetheless, visitors come away with a greater respect for sharks and interest in learning more about them.

The questions visitors posed to hypothetical scientists reveal great curiosity about scientific research and the scientists themselves. Why do scientists choose to study this topic? What was his/her motivation? And what types of research methods are used to learn about fossils? How do you find them and what do fossils tell you about when the extinct animals lived, where they lived, what they ate and how fast or deep they swam? Visitors even expressed the desire to accompany scientists on expeditions.

The popularity of the shark tooth identification center is testament to visitors' interest in real specimens and real scientific discovery. Visitors' suggestion of additional hands-on items, such as sharkskin so that children can feel its unique properties, might be worth adopting.

The interest in living specimens reflects what other natural history museums have found: live specimens draw visitors to exhibitions. Living creatures are difficult and expensive to maintain, so that the cost/benefit ratio in terms of expanded audiences needs to be carefully weighed.

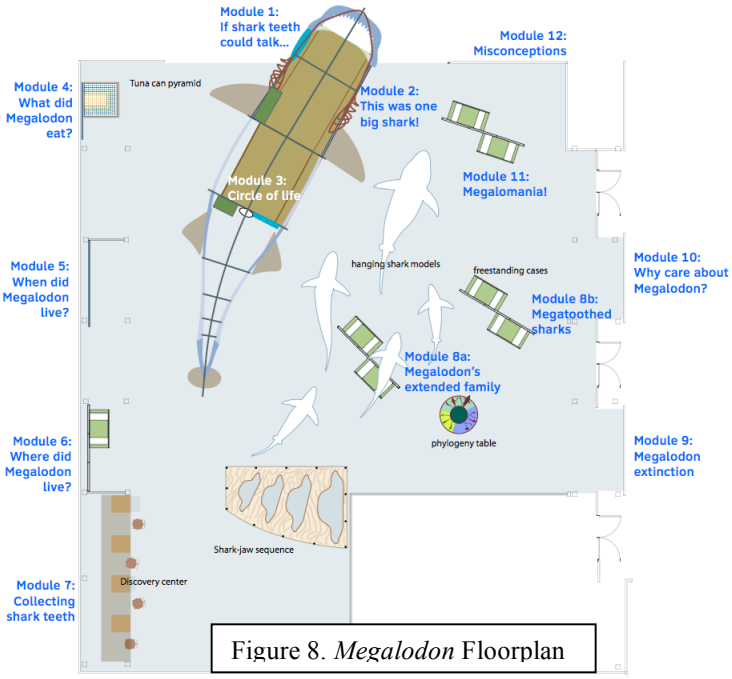

Figure 8. *Megalodon* Floorplan

Appendix A. Demographic Data

Table 11. Gender (N=101)

	Frequency/%
Female	56
Male	45

Table 12. Age (N=101)

Age Groups	Frequency/%
11 and younger	12
12-17 years	5
18-24 years	20
25-34 years	17
35-44 years	15
45-54 years	13
55-64 years	10
65 and older	9

Table 13. Ethnicity (N=101)

Ethnicity	Frequency/%
Caucasian/White	83
African American	7
Hispanic/Latino	9
Multiple	2

Table 14. Residence (N=101)

Residence	Frequency/%
Within driving distance to Gainesville	88
Other Southeast	6
Other USA	6
International	1

Appendix B. Interview Instrument

Megalodon: Largest Shark that Ever Lived: **Summative Evaluation Interview**

*Interviewer:*_____ *Date:*_____ *Day:*_____ *Time:*_____ *Survey #:*_____

1. Is this your first visit to the Florida Museum of Natural History? No___ Yes___

1a. Is this your first visit to the *Megalodon* exhibition? No___ Yes___

1b. Did you come to the museum today specifically to see *Megalodon?* No___ Yes___

1c. How did you first hear about the *Megalodon* exhibition? (*Do not read. Check closest answer below)*

__Saw an advertisement: Where? _____

__When I came to the museum today __Recommended by friend or family

__Newspaper story __Other: _____

2. Do you have a special interest in *Megalodon* or sharks in general? No___ Yes___

If yes, what is it?

3. What would you say to a friend who asked you, "What's the exhibition about"?

4. Please tell me how interested you were in the exhibit topics I read you: Were you **very interested, somewhat interested, not very interested or not at all interested?**

I was…	**Very interested**	**Somewhat interested**	**Not very interested**	**Not at all interested**	**Didn't see**
What we learn from fossil shark teeth and backbones					
What megalodon eats and how much					
When and where megalodon lived					
How closely megalodon is related to modern sharks					
Why megalodon became extinct					
Modern sharks are in danger of extinction.					

5. How did the exhibition make you feel about sharks? (*Do not read. Check best answer or write in.)*

__ Sharks should be protected because they are good for the environment.

__ Less afraid of sharks than I was before.

__ Interested in learning more about them.

__ Other:

6. Can you think of a reason sharks should be protected? __No __Yes.

6a. *If yes,* what is it?

7. According to the exhibition, which of the following 3 creatures was alive on Earth 1st, which came 2nd and which was 3rd? If you think 2 or more creatures lived at the same time, use the same number.

__ Humans __ Dinosaurs __ *Megalodons*

8. What part of the exhibition did you like best?

8a. Why did you like that?

9. Was there anything in the exhibition that you did not like or could be improved before *Megalodon* travels to other museums? __No __Yes.

9a. *If yes,* what is it?

10. Was there anything you expected to see in the exhibition that wasn't there? __No __Yes. *If yes,*

10a. What was missing?

11. If the scientists who worked on the exhibition were here, what questions would you like to ask them?

12. Is there anything else you would like us to know?

Demographic Information (anonymous) Survey #:_____

Now a little about you so we can know our visitors better:
Give this sheet and pencil or pen to respondent and ask them to complete it themselves

Gender: __ Male __ Female

Age Group:

__ 11and younger, exact age
__ 12-17, exact age
__ 18-24
__ 25-34
__ 35-44
__ 45-54
__ 55-64
__ 65 and older

Ethnicity:

__ Caucasian/White
__ African American
__ Hispanic/Latino
__ Other _____
__ Asian/Pac. Islander
__ Native Am/Alaska native
__ Multiple

Residence:

___ Within driving distance to Gainesville

___ Other Southeast (please specify): _____

___ Other USA (please specify): _____

___ International (please specify): _____

Thank you very much for your time and your ideas.