

OCEAN VIEWS

**A Study of Visitors to the *Ocean Planet* Exhibition
at the National Museum of Natural History**

INSTITUTIONAL STUDIES



Smithsonian
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Ocean Views
A Study of Visitors to the *Ocean Planet* Exhibition
at the
National Museum of Natural History



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Abstract

This report presents the results of an assessment of the exhibition *Ocean Planet* at the National Museum of Natural History (NMNH) in Washington, D.C. The study was based on personal interviews with 978 visitors entering and exiting the exhibition and on observations of 246 visitors in the galleries. The study was conducted during August and October 1995.

The study results justified the curator's assumption that the audience would be fairly knowledgeable about the importance of oceans and the problems they face. The results also indicate, however, that the exhibition contents clearly affected the views of a number of visitors. This impact was focused on a few specific topics. Visitors left the exhibition more cognizant of the products that oceans provide, more aware of how human activities affect the health of the oceans, more willing to change their consumption patterns to help the oceans, and slightly less hopeful about the future of the oceans (especially young people).

We found that the exhibition reduced by one-third the small number of individuals who did not think that oceans affected their lives. The exhibition increased by over one-fourth (from 43% of visitors to 55% of visitors) the proportion of visitors who thought that the oceans affect their lives through its products. The exhibition more than doubled the percentage of visitors (from 13% to 28%) who characterized ocean problems as a consequence of "human actions." In addition, the tiny percentage of visitors who felt that oceans affect their lives through conservation issues rose from 3 percent to 10 percent. The exhibition nearly doubled the percentage of the audience that thought they could help the oceans by changing their consumption patterns (their proportion rose from 14% to 27%).

We believe that these effects can be attributed to specific exhibition components. The Johnson Sea-Link video stood out in the *Ocean Science* section. There are indications that it may have led some visitors to learn something new. The Product Pyramid in the *Sea Store* section was quite popular and may have played a role in increasing the proportion of visitors who saw ocean products as a way the oceans affect their lives, as well as in leading visitors to consider changes in their consumption patterns.

In particular, the Product Pyramid probably informed visitors about ocean products; the buoy panels influenced visitors emotionally, leading them to feel that human activities endangered oceans and that the future of oceans is in question. These two sections together contributed to the desire to change patterns of consumption.

Preface

The *Ocean Planet* Study at the National Museum of Natural History (NMNH) was undertaken by the Institutional Studies Office (ISO) at the request of the curator, Judith Gradwohl, Environmental Awareness Project. This report summarizes the results. Its purpose is to share with the museum community what we learned about visitors to the exhibition. The curator and her colleagues will use the data and observations as part of an effort to improve the visitors' experience in developing similar exhibitions. The study also increases our knowledge of the communication effectiveness of exhibitions.

The study reflects the work, support, and cooperation of numerous people over the past several years. Judith Gradwohl's commitment to scientific study of exhibitions is very much appreciated. ISO was involved in various phases of the exhibition, beginning with the drafting of a proposal to the National Science Foundation for exhibition support. She facilitated our work in conducting a background study in 1993, considered its results in developing the exhibition and worked with us to facilitate the present study. Several members of the Environmental Awareness Program staff assisted the study. Karen Lee served as exhibition staff liaison with ISO, coordinated survey development and scheduling, and participated in the Tracking Study. Beth Nalker worked on survey development. Ione Anderson, Kathleen Connolly and Leila Murphy assisted as interviewers and observers.

Professional interviewers and observers Nancy Clusen, Melinda Fancher, Sonia Friedman, Dagny Glover, Eric Green, Suzanne McFadden, Kathryn Moore, Betsy Mullins, Tricia Richardson, Holliday Ridge and Michelle Ruddick conducted interviews during the extremely busy summer visitation period and in the fall. All of them willingly gave time and energy to ensure accurate and timely data collection. The high participation rates (83%) reflect their dedication. We truly appreciate their efforts.

This report reflects the skills and expertise of the Institutional Studies Office staff. Elizabeth K. Ziebarth, Audrey E. Kindlon, and Jean M. Kalata skillfully managed the interviewing schedules, monitored the data collection, and developed the questionnaire and data collection methods with us. Jean also provided support with data preparation. Steve J Smith expertly oversaw all aspects of data processing, especially of the observation data, and the creation of analysis files. Steven S. Yalowitz, an ISO intern, conducted interviews and observations, helped with data preparation, and participated in the analysis and interpretation.

We would especially like to acknowledge the 978 visitors who took the time, in the midst of busy museum visits, to respond to our questions and offer comments. Without their participation, the study could not have been conducted.

Errors in interpretation are the responsibility of the authors.

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I. Introduction and Overall Discussion of Results

The Ocean Planet Study

The exhibition *Ocean Planet* was presented at the National Museum of Natural History (NMNH) from April 22, 1995 to April 30, 1996. The exhibition extended over about 6,000 square feet on the main floor of the museum, immediately off the rotunda that forms the Mall entrance.¹ In 1993, the exhibition curator, Judith Gradwohl, asked the Institutional Studies Office (ISO) to conduct a background study that would aid the exhibition team in determining exhibition goals.² Subsequently, ISO was also asked to conduct an assessment of the completed exhibition before it began its national tour.³

The assessment was conducted in two distinct phases, the first between August 16 and August 28 (Summer visitors) and the second between October 23 and November 5 (Autumn visitors). By dividing the research period into two parts, we sought to identify and account for differences between Summer and Autumn audiences.⁴ The study used three instruments: a survey of a representative sample of entering visitors, a survey of a representative sample of exiting visitors, and tracking of visitors within the exhibition, using a quota-sample method of selection.⁵

This report consists of three major sections. In the remainder of this section, Introduction and Overall Discussion of Results, we present the curatorial aims for the exhibition, briefly describe the exhibition, and summarize the key results of the study. In Section II we elaborate on each of these conclusions in turn, demonstrating how they are derived from the data of the study. Section III describes the demographic and visit characteristics of respondents. In Appendices we present tables that summarize the data, and describe the study methodology in detail.⁶

¹ Including the shop and Sea Theater, the total gallery was about 8,000 square feet.

² The 1993 study, as well as this material, is based on work supported by the National Science Foundation under Grant No. ESI-9254703. See Bickford, A. (1993). *Visitors and Ocean Issues: A Background Study for the National Museum of Natural History Ocean Planet Exhibition* (Report No. 93-7). Washington, DC: Smithsonian Institution. This report is available from ISO.

³ *Ocean Planet*, under the auspices of the Smithsonian Institution Traveling Exhibition Service (SITES), will be seen in several museums across the country between 1995 and 1999.

⁴ We know from a year-long study that NMNH audiences vary by season in a number of respects. See Bielick, S., Pekarik, A. J., & Doering, Z. D. (1995). *Beyond the Elephant: A Report Based on the 1994-1995 National Museum of Natural History Visitor Survey* (Report No. 95-6). Washington, DC: Smithsonian Institution.

⁵ A quota sample is not representative, but contains equal numbers of visitors with a given set of characteristics; in this case males, females, adults visiting with children, and children visiting with adults. The quota sample method is used to highlight any observed differences between visitors with these characteristics. For more on the methodology of this study, see Appendix C.

⁶ Appendix A contains the questionnaires used in the Entrance Survey and Exit Survey, Appendix B includes supporting tables, Appendix C is the study methodology, and Appendix D contains a description of the exhibition.

Aims of the Exhibition Planners

Following is the text of the formal statement written by the exhibition curator, describing the intentions of the exhibition's authors:

Goals Statement for *Ocean Planet*

Message of the exhibition:

All of our lives rely upon healthy oceans and our actions on land affect the health of the oceans.

Exhibition goals:

We originally thought we would be *exposing* visitors to the range of issues affecting the health of the oceans but after the initial 1993 visitor survey we decided that since most people had general knowledge about ocean conservation, we would *reinforce or validate* their general knowledge, and help them understand the wide range of issues that affect the health of the oceans. For example, in 1993 most people would respond to questions about the health of the oceans by mentioning pollution or oil pollution. We hoped that a visit to the exhibition would familiarize visitors with a variety of types of pollution as well as other threats.

We hoped that validation of ocean conservation issues would reinforce visitor interest and concern, making them more likely to make environmentally sound decisions or participate in ocean conservation activities if the opportunity arose. For example, after a visit to the exhibition visitors might be more likely to pay attention to news stories about the oceans or participate in conservation-related activities.

Educational messages in the exhibition:

Ocean Science: Oceans harbor diverse life forms. Ocean water is constantly on the move, and by moving heat and nutrients oceans have a profound effect on our lives. Ocean research is exciting, and fundamental discoveries are still being made. The oceans are vast.

Sea People: Many diverse people have lives and livelihoods that depend upon the oceans. Seafaring societies tend to have a strong sense of community. People who go to sea develop knowledge about navigation and fishing. Everyone who goes to sea faces high risk and uncertainty.

Sea Store: Healthy oceans are valuable. They provide many products we use in our daily lives, including a surprisingly wide range of products, pharmaceuticals, and seafood. Shipping is of great economic importance. The beauty and mesmerizing nature of the oceans provides aesthetic value. Oceans provide many forms of recreation.

Oceans in Peril: The health of the oceans is threatened by a wide variety of issues including many forms of pollution, overfishing, habitat alteration or destruction, and global issues (global change, population, and coastal development).

Ocean Heroes: There are many ways to help conserve the oceans and they're all helpful. The people featured are not ocean fanatics and they look a lot like museum visitors.

Reflections: The oceans are important to all of our lives and we can all help to conserve them.

Description of the Exhibition⁷

The exhibition, extending over about 6,000 square feet, is divided into five galleries. Visitors enter the first gallery by walking down a hallway resonating with ocean sounds. The exhibition opens in Gallery 1, *Ocean Science*, by immersing visitors in the remote reaches of the ocean planet. In addition to a sculpture that represents the oceans' biodiversity, the section includes an animated "fly-by." Photo panels with newspaper-style headlines and copy spotlight recent advances and late-breaking news. A life-sized model of the pilot's sphere of the Johnson Sea Link and a videotaped research expedition shows diving in a submersible. In addition, the bow of a ship hosts videos, objects, and photo panels focusing on contemporary research and satellite monitoring.

In Gallery 2, *Sea People*, a sea-album video presents a range of people whose lives and livelihoods take them to sea. Objects and photos describe customs of sharing the catch, and the roles of men and women among many cultures, fishing technology and the risk faced by everyone who goes to sea.

"Shoppers" in Gallery 3, *Sea Store*, can browse in many departments: seafood, pharmacy, products, recreation and tourism, and shipping. "Product information labels," with bar codes that can be read by hand-held bar-code readers, identify many likely and not-so-likely sea products.

The exhibition addresses world-wide threats in Gallery 4, *Oceans in Peril*. Panoramic color photomurals of threatened marine habitats remind visitors of what is at stake. Life-sized models of buoys, each focusing on a different hazard, explain the threats, illustrate its effects, and outline current responses, using graphics, objects, and hands-on activities. The topics include pollution, habitat alteration, fishing, and global change.

Gallery 5, *Reflections*, includes profiles of people helping the oceans, a sculpture of the ocean planet designed to encourage reflection, and panels addressing "What can you do?" to help ocean conservation.

⁷ See the floor plan on page 38 and Appendix D for a complete description of the exhibition.

Overview of Results

Confirmation of the Background Study Results. As pointed out by the curator in the statement of goals, the 1993 background study on ocean issues played a role in shaping her intentions for the exhibition. Among the key findings of the 1993 study were the following:

- Nearly all respondents felt that the health of the oceans affected their lives.
- Most respondents felt that they knew about many of the ocean problems to be addressed in the [planned] exhibition. Out of eleven topics described by the exhibition staff, respondents claimed to know about an average of six topics.
- Respondent awareness of ocean problems emphasized acute problems and ecological disasters over the chronic effects of land development, overfishing, and non-point-source pollution.
- Respondent views of ocean ecosystems stressed resource extraction and use.

The results of the present *Ocean Planet* study justified the curator's assumption that the audience would be fairly knowledgeable about the importance of oceans and the problems they face.

Result: Most visitors who entered Ocean Planet felt that oceans were important to their lives, especially because of the resources they provide, and visitors emphasized pollution as the central problem oceans face.

Communication of the Central Exhibition Message. The exhibition authors wished to communicate that "All of our lives rely upon healthy oceans and our actions on land affect the health of the oceans." The first half of this statement, "all of our lives rely upon healthy oceans," was an idea that most visitors brought with them. Entering visitors already knew that oceans affected their lives, and hence could be expected to realize that they relied on healthy oceans. Nonetheless, the study showed that the exhibition influenced those few individuals who entered not knowing how the oceans affected their lives.

The second half of the message, "our actions on land affect the health of the oceans," aimed to take the audience's expected awareness of ecological disasters (such as oil spills), and to extend it to a broader appreciation of the effects of human activity on the ocean environment. Here there were indications that the exhibition affected a substantial number of visitors in ways that the authors intended.

Result: The exhibition reduced by one-third the small number of individuals who did not think that oceans affected their lives. The exhibition increased by over one-fourth (from 43% of visitors to 55% of visitors) the proportion of visitors who

thought that the oceans affect their lives through its products. The exhibition more than doubled the percentage of visitors (from 13% to 28%) who characterized ocean problems as a consequence of "human actions." In addition, the tiny percentage of visitors who felt that oceans affect their lives through conservation issues rose from 3 percent to 10 percent.

Reinforcement of Visitor Interest and Concern. The exhibition authors wished to influence visitors to be "more likely to make environmentally sound decisions or participate in ocean conservation activities if the opportunity arose." Although it is very difficult to determine the effect of an exhibition on subsequent behavior, the study indicated that patterns of consumption were the area of visitors' future activity that was most likely to be affected by the experience of the exhibition.

Result: *The exhibition nearly doubled the percentage of the audience that thought they could help the oceans by changing their consumption patterns -- their proportion rose from 14 percent to 27 percent.*

Specific Educational Messages. Ocean Planet was divided into six main sections: *Ocean Science, Sea People, Sea Store, Oceans in Peril, Ocean Heroes, and Reflections.* These sections were not equally effective.

Results: *The Johnson Sea Link video stood out in Ocean Science. There are indications that it may have led some visitors to learn something new. The Product Pyramid in the Sea Store section was quite popular and may have played a role in increasing the proportion of visitors who saw ocean products as a way the oceans affect their lives, as well as in leading visitors to consider changes in their consumption patterns. The buoy panels in Oceans in Peril had a strong emotional impact on visitors, probably due to their graphic design. To a much lesser extent, visitors were also moved by the globe sculpture in Reflections. The study found no evidence that the Sea People and Ocean Heroes sections affected visitors' ideas or feelings about oceans.*

Other Messages. Aside from the stated intentions of the exhibition planners, the study found evidence of other exhibition effects. The most important of these was a shift in attitude towards the future of oceans in general.

Result: *Exhibition visitors left slightly less hopeful about the future of oceans than when they entered. This change in attitude was especially prominent in young people.*

Conclusion

The exhibition contents clearly modified the views of a number of visitors. Visitors left the exhibition more cognizant of the products that oceans provide, more aware of how human activities affect the health of the oceans, more willing to change their consumption patterns to help the oceans, and more pessimistic about the future of the oceans.

We believe that these effects can be attributed to specific exhibition components. In particular, the *Product Pyramid* probably informed visitors about ocean products, and the buoy panels influenced visitors emotionally, leading them to feel that human activities endangered oceans and that the future of oceans is in question. These two sections together contributed to the desire to change patterns of consumption.

II. Description of Results

This section provides a full elaboration of the results summarized in the introduction. They are discussed in the order that they appear in the previous section.

Confirmation of the Background Study Results

***Result:** Most visitors who entered Ocean Planet felt that oceans were important to their lives, especially because of the resources they provide, and visitors emphasized pollution as the central problem oceans face.*

Like the majority of Smithsonian audiences, visitors to *Ocean Planet* were highly educated (68% of adults⁸ interviewed in the summer and 79% of adults interviewed in the autumn had earned at least a Bachelor's degree), and were relatively experienced in visiting natural history museums (54% of all visitors had visited NMNH before, and 68% had visited another natural history museum at least once in the past year).⁹

Generally, these visitors were already aware of the complex issues facing the oceans before seeing the exhibition. Only seven percent of visitors entering the exhibition said they did not know how the oceans affected their lives. When entering visitors were asked about the problems oceans face, only one percent said they did not know, and when asked how they could help the oceans, 12 percent said they did not know, and six percent said they could not do anything.¹⁰ As one might expect, older visitors were less likely than younger visitors to say that they did not know how the oceans affected their lives.¹¹

When visitors were asked about how the oceans affect their lives, the most common response¹² was that oceans provide products and resources to be extracted (see Figure 1). More specifically, visitors said that oceans provide food (38% of all answers),

⁸ Age 25 and older.

⁹ A description of the audience is in Section III, the questionnaire used in the study is in Appendix A, supplementary tabulations are in Appendix B, and the methodology is described in Appendix C.

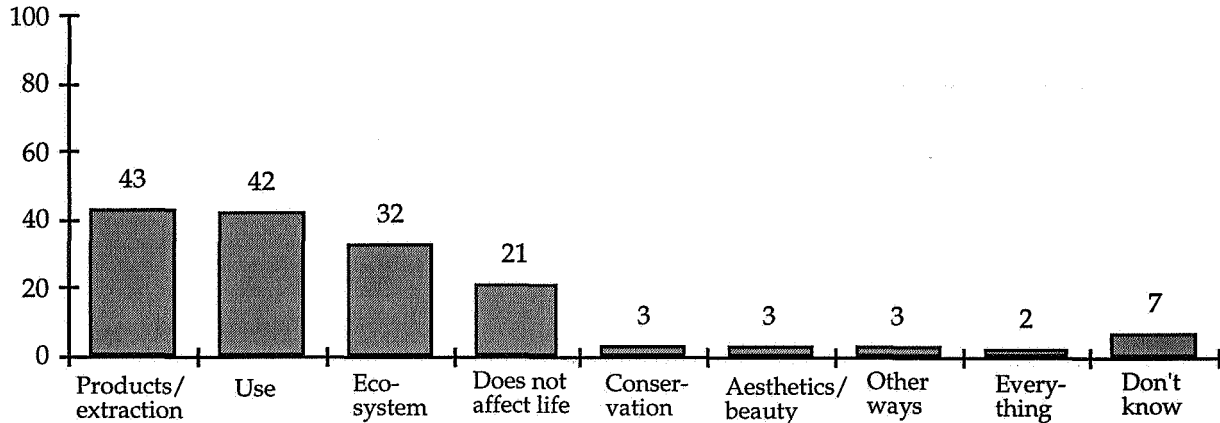
¹⁰ In the Exit Surveys, 6% of respondents did not know how the oceans affected their lives, and 1% did not know what problems oceans faced. When asked how they could help the oceans, 8% said they did not know, and 7% said they could not do anything.

¹¹ In the Entrance Survey sample 11% of all children, 8% of all teenagers, and 10% of visitors ages 20 to 34 answered "don't know," compared to only 3% of visitors ages 35 and over.

¹² Many visitors to *Ocean Planet* gave more than one answer to each of the open-ended items on the questionnaire, with some visitors making as many as seven separate statements in response to a particular question. The discussions of how oceans affect visitors' lives, what problems oceans face, and how visitors can help the oceans are based on the percentage of the total number of visitors who gave a particular response. Since each category of response is treated as a separate variable, the percentage values in each table and figure of this type will exceed 100% in total.

followed by visitors who said the oceans were a recreation site and source of entertainment (29%), visitors who mentioned the oceans' role in regulating weather and climate (17%), and visitors who said the oceans did not affect their lives (21%).¹³

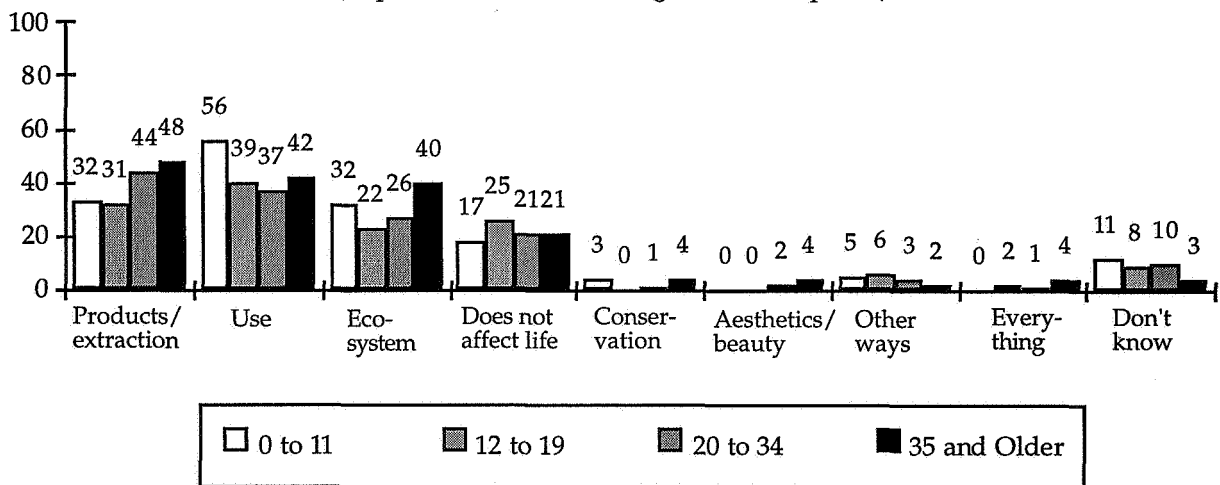
Figure 1
How Oceans Affect Visitors' Lives
 Entrance Survey only, All Visitors
 (In percent of visitors who gave each response)*



*See footnote 5, page 7.
 Source: Appendix B, Table 1.

Answers varied by the age of the visitor (see Figure 2). Adults (ages 20 and older) were more likely to mention products, while children (ages 11 and younger) were more likely to mention oceans as a site for recreation and entertainment ("Use" in Figure 2).

Figure 2
How Oceans Affect Visitors' Lives, by Age
 Entrance Survey only, All Visitors
 (In percent of visitors who gave each response)

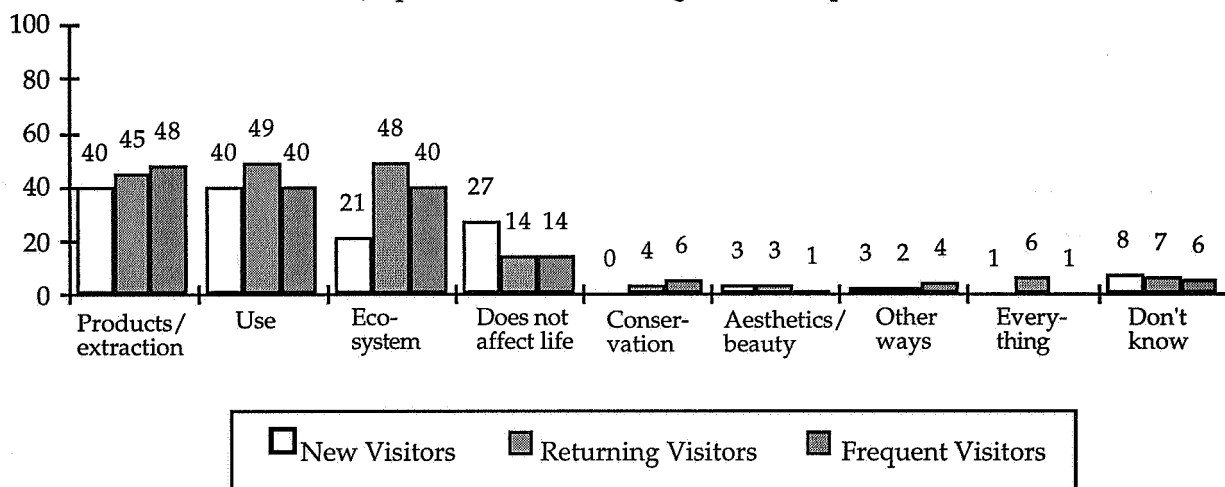


Source: Appendix B, Table 10.

¹³ See Appendix B, Table 1.

Responses also varied according to the level of an individual's experience with NMNH. We can divide all visitors into three types: New Visitors (who were making their first visit to NMNH), Returning Visitors (who had made between one and three visits in the past), and Frequent Visitors (who had made four or more visits in the past). The primary difference among the three types of visitors in the Entrance Survey is that New Visitors were nearly twice as likely to think that the oceans do not affect their lives, and only half as likely to cite the role of oceans in regulating weather, when compared to Returning Visitors and Frequent Visitors (Figure 3).

Figure 3
How Oceans Affect Visitors' Lives, by Visitor Type
 Entrance Survey only, All Visitors
 (In percent of visitors who gave each response)

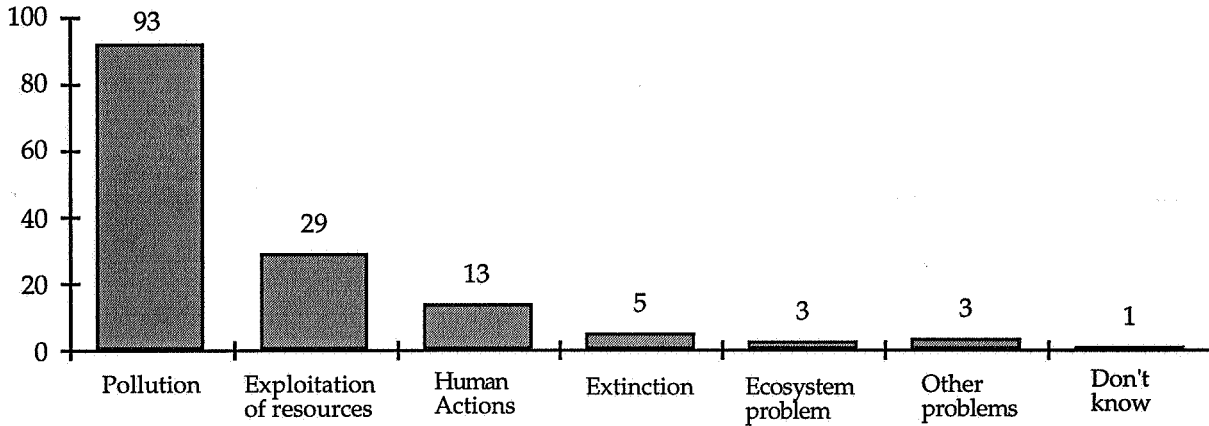


Source: Appendix B, Table 4.

This rather sharp difference highlights the range of background attitudes that visitors bring with them to the museum. It is reasonable to assume that Returning Visitors and Frequent Visitors, because they have attended the museum more often, are more likely than New Visitors to be sympathetic to the museum's overall viewpoint (which embraces the inter-relationship between people and natural systems) and, consequently, more sensitive to its messages, no matter what the exhibition. At the same time, it seems reasonable to hypothesize that the more often an individual attends NMNH, the more environmentally aware that person is likely to become.

Virtually all entering visitors stated that "pollution" is a problem affecting the oceans (93%, see Figure 4). When specific sources of pollution were mentioned they were predominantly solid waste, oil, or chemicals. The second largest category, exploitation of resources, was mentioned by more than one quarter (29%) of the visitors. Exploitation of resources primarily referred to fishing practices. The third largest category was visitors who described ocean problems as a consequence of "human actions" (13%). As categorized here, "human actions" covered a broad range of topics, from generic human action to atomic testing to tourism (see Appendix B, Table 2). The remaining four categories each were mentioned by five percent or less of all visitors.

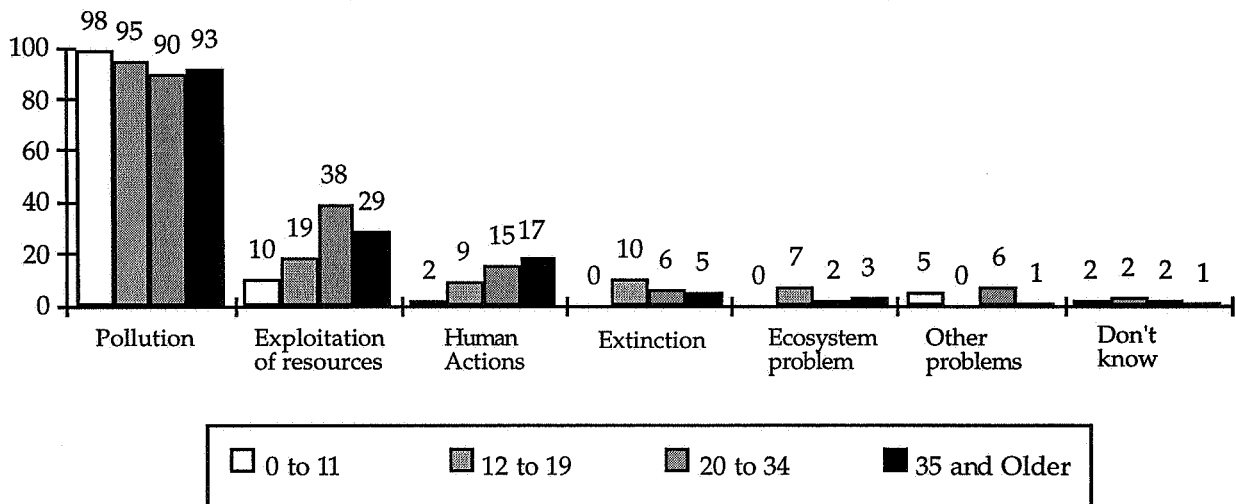
Figure 4
Classification of Ocean Problems
 Entrance Survey only, All Visitors
 (In percent of visitors who gave each response)



Source: Appendix B, Table 2.

Past exposure to the museum and its messages did not influence the problems that entering visitors identified. All three visitor types gave similar answers to this question. But, as Figure 5 demonstrates, several answers were influenced by age. In particular, the older a visitor was, the more likely that person was to identify human actions and attitudes in general as a problem for the oceans. Similarly, a higher proportion of older visitors than younger visitors saw the exploitation of resources as a problem for the oceans. Children and teenagers were also slightly more likely to cite pollution as a problem, compared to visitors over 19, and teens were more likely than other ages to mention extinction or ecosystem problems.

Figure 5
Classification of Ocean Problems, by Age
 Entrance Survey only, All Visitors
 (In percent of visitors who gave each response)



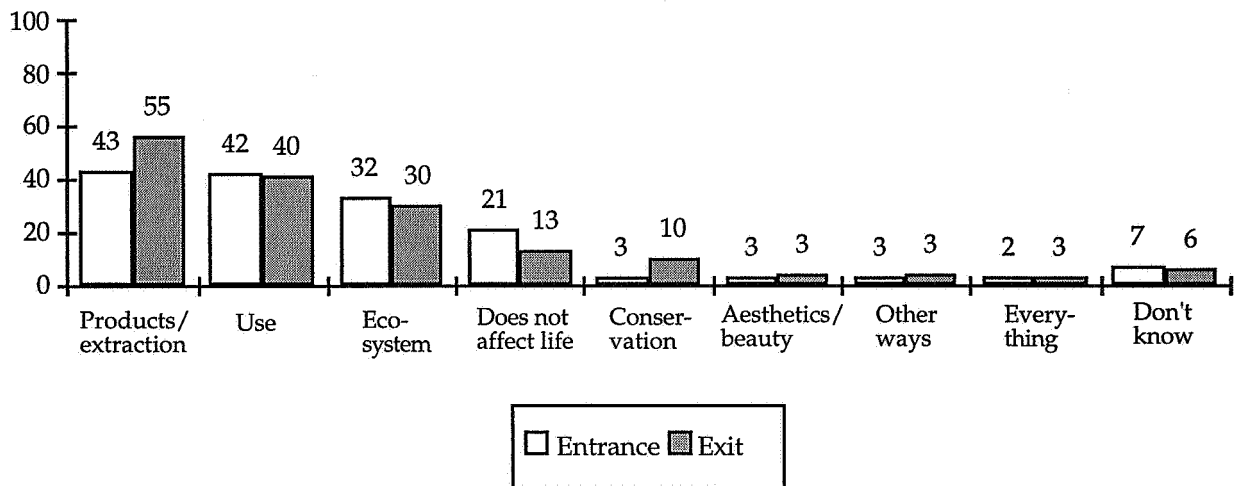
Source: Appendix B, Table 12.

Communication of the Central Exhibition Message

Result: *The exhibition reduced by one-third the small number of individuals who did not think that oceans affected their lives. The exhibition increased by over one-fourth (from 43% of visitors to 55% of visitors) the proportion of visitors who thought that the oceans affect their lives through its products. The exhibition more than doubled the percentage of visitors (from 13% to 28%) who characterized ocean problems as a consequence of "human actions." In addition, the tiny percentage of visitors who felt that oceans affect their lives through conservation issues rose from 3 percent to 10 percent.*

Although much of the information presented in *Ocean Planet* was not entirely new to most visitors, those who came without background knowledge clearly gained awareness from the exhibition. Between the Entrance and Exit Survey results there was a sharp decline in the proportion of visitors who said that the oceans did not affect their lives (from 21% in the Entrance Survey to 13% in the Exit Survey, a reduction of one-third). We can conclude that seeing the exhibition apparently helped to inform many of those who were otherwise unaware of the role of oceans in their lives.

Figure 6
How Oceans Affect Visitors' Lives, by Interview Location
 Entrance and Exit Surveys Separately, All Visitors
 (In percent of visitors who gave each response)

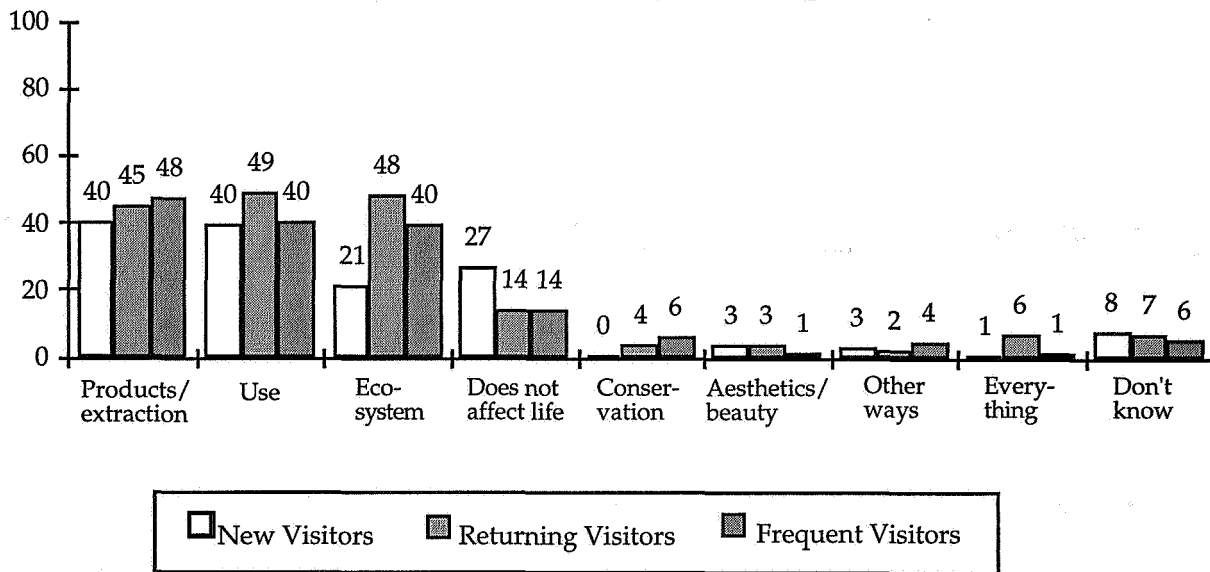


Source: Appendix B, Table 1.

Visitors seemed to have realized, in particular, that the oceans affect their lives through products and conservation issues. Figure 6 shows that a significantly larger percentage of visitors in the Exit Survey described the oceans as a source of products to be extracted (43% of visitors in the Entrance Survey mentioned products, versus 55% of visitors in the Exit Survey), or identified a link between the oceans and conservation issues (3% in the Entrance Survey, 10% in the Exit Survey). For visitors who mentioned specific conservation issues, the percentage who said that ocean pollution affected their lives increased the most (from 1% in the Entrance Survey to 7% in the Exit Survey) (see Appendix B, Table 1).

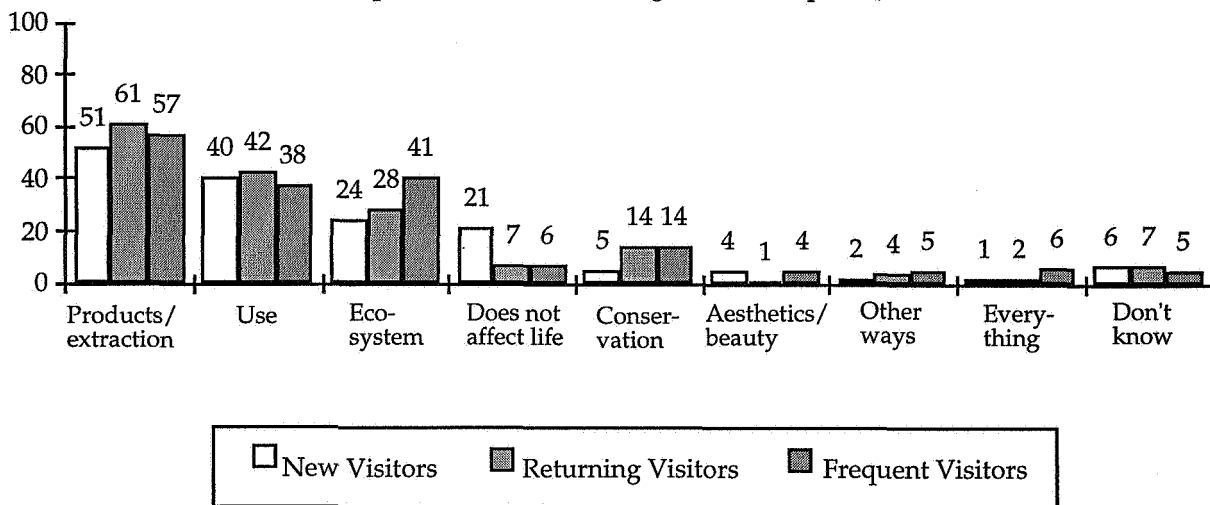
The exhibition's impact with respect to the question of how the oceans affect our lives was somewhat different depending on visitor type. All three visitor types increased their awareness of ocean products and were less likely to leave the exhibition thinking that oceans do not affect our lives. At the same time, compared to New Visitors, Returning Visitors and Frequent Visitors, (i.e., those who were more pre-disposed to think of the relationship between people and the environment), were more likely to cite a connection between conservation and the oceans. (Compare Figure 7 and Figure 8.)

Figure 7
How Oceans Affect Visitors' Lives, by Visitor Type
 Entrance Survey Only, All Visitors
 (In percent of visitors who gave each response)



Source: Appendix B, Table 4.

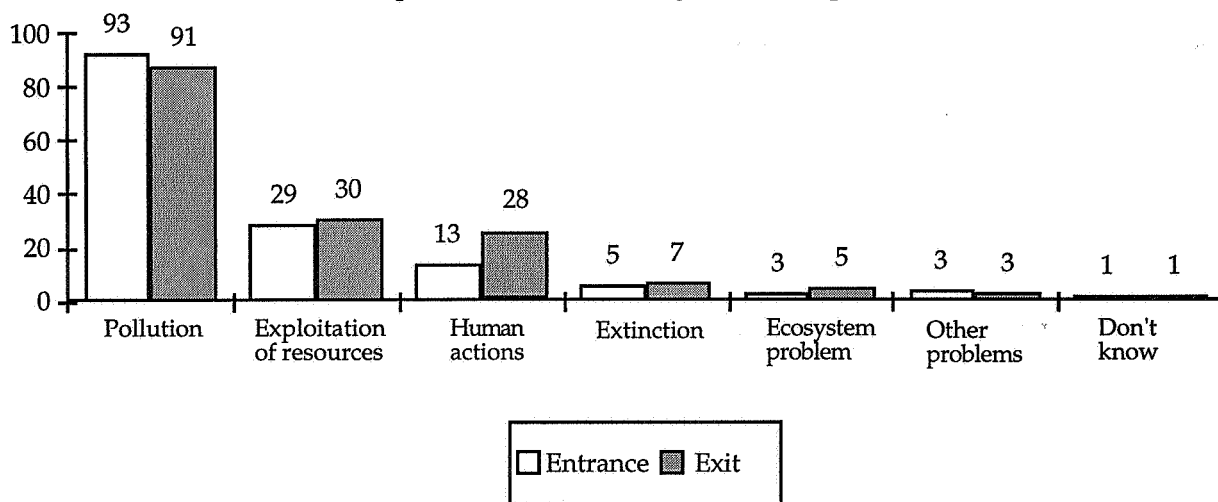
Figure 8
How Oceans Affect Visitors' Lives, by Visitor Type
 Exit Survey Only, All Visitors
 (In percent of visitors who gave each response)



Source: Appendix B, Table 5.

The exhibition clearly affected visitors' attitudes to the problems that oceans face. While all other categories changed little between the Entrance and Exit Surveys, the proportion of visitors who said ocean problems are the result of "human actions" more than doubled from one in eight visitors (13%) to over one in four visitors (28%). See Figure 9.

Figure 9
Classification of Ocean Problems, by Interview Location
 Entrance and Exit Surveys Separately, All Visitors
 (In percent of visitors who gave each response)



Source: Appendix B , Table 2.

Looking at the detailed answers in Appendix B, Table 2, we find that the largest difference is in the proportion of visitors who said that generic "human action" was the biggest problem oceans faced; 4 percent of visitors in the Entrance Survey and 11 percent of visitors in the Exit Survey mentioned this category.

The character of this response requires some interpretation. There is a sharp difference between the Entrance and Exit Surveys in the proportion of visitors who describe ocean problems as a product of contemporary social life. Instead of seeing ocean pollution and exploitation in a vacuum, more visitors in the Exit Survey are apparently placing these problems in a context that accentuates human responsibility for the situation. In the most general sense we could say that this shows that visitors were more strongly identifying the linkage between human activity and the health of the oceans as a result of their exhibition experience.

Reinforcement of Visitor Interest and Concern

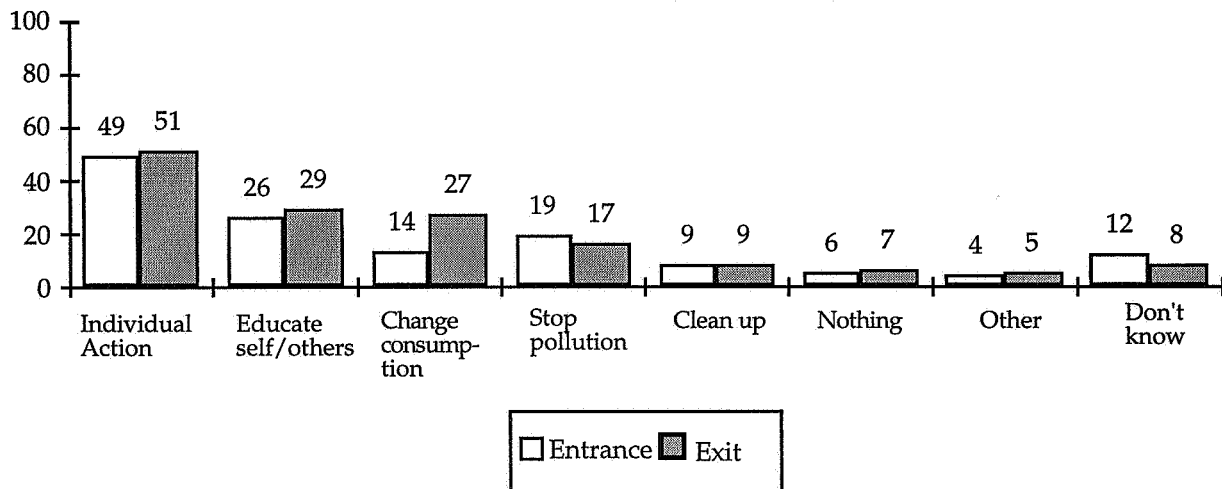
Result: The exhibition nearly doubled the percentage of the audience that thought they could help the oceans by changing their consumption patterns -- their proportion rose from 14 percent to 27 percent.

When entering visitors were asked to describe what they could do to help solve ocean problems, the most common response was a call to individual action, with nearly half of all visitors saying they could join or support an environmental organization, vote for pro-environment candidates, or undertake some other kind of environmental action (see Figure 10). More than one-quarter said they could educate themselves and others about the state of the oceans, and slightly less than one-fifth of all visitors said they could stop polluting by conserving natural resources, recycling, and working to save animal species. These three answers were basically unaffected by the experience of the exhibition.

Between the Entrance and Exit Surveys, however, the proportion of visitors who said they should change their consumption patterns to lessen their impact on the environment nearly doubled from one in seven (14%) to one in four visitors (27%).

This is completely consistent with the pattern of visitor knowledge discussed above; namely, visitors gained more specific information about ocean products at the same time that they were influenced to see ocean problems as resulting from "human actions." It follows from this that when asked how they could help the oceans, these visitors responded by suggesting ways to change their consumption patterns. (See Appendix B, Table 3 for a detailed breakdown of these responses.)

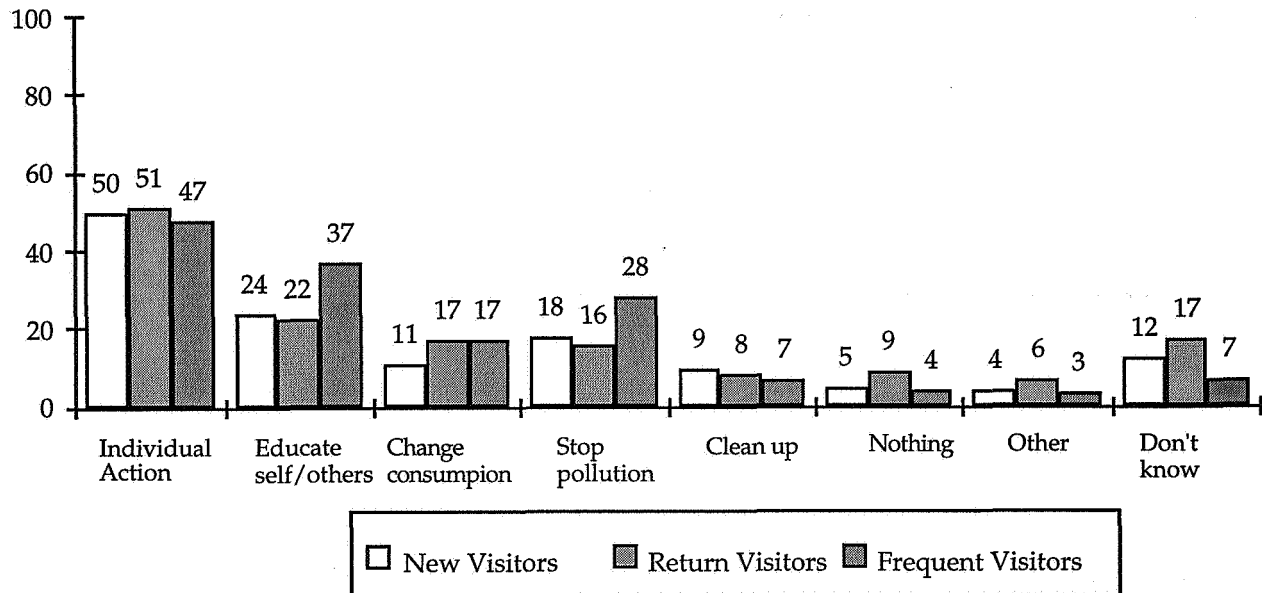
Figure 10
How Visitors Can Help Oceans, by Interview Location
 Entrance and Exit Surveys Separately, All Visitors
 (In percent of visitors who gave each response)



Source: Appendix B , Table 3.

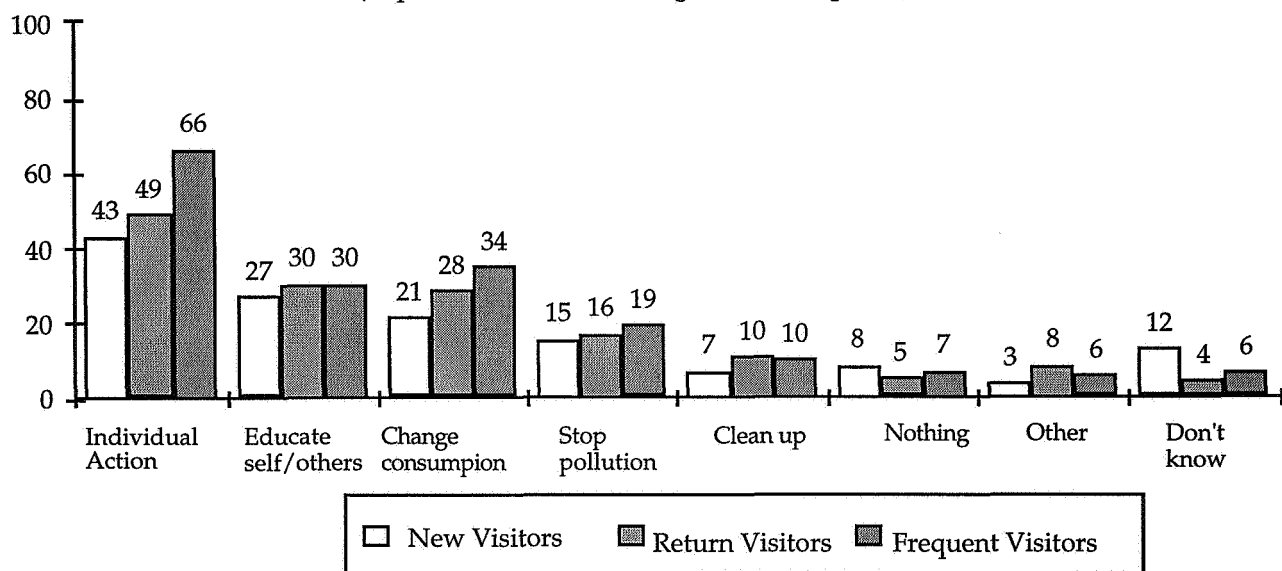
The exhibition influenced some types of visitors more than others to want to change their consumption patterns. The more frequently a visitor had come to NMNH in the past, the more likely that person was to favor a change in consumption, as can be seen by comparing Figures 11 and 12. In addition, Frequent Visitors were strongly influenced to undertake individual action and lost some of their enthusiasm for education and for ceasing to pollute.

Figure 11
How Visitors Can Help Oceans, by Visitor Type
 Entrance Survey Only, All Visitors
 (In percent of visitors who gave each response)



Source: Appendix B, Table 8.

Figure 12
How Visitors Can Help Oceans, by Visitor Type
 Exit Survey Only, All Visitors
 (In percent of visitors who gave each response)

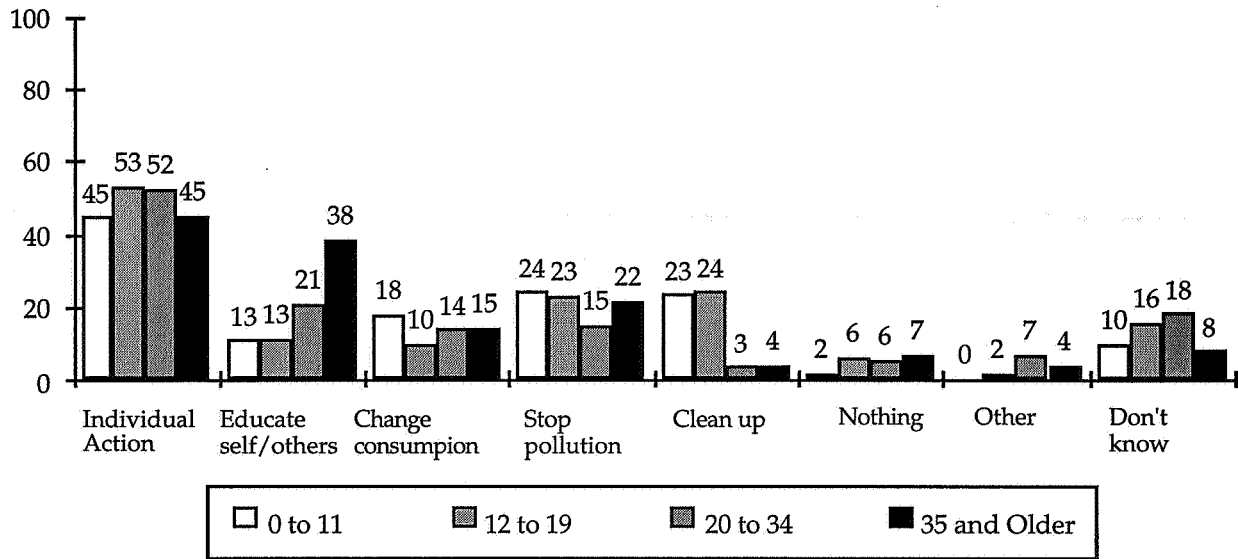


Source: Appendix B, Table 9.

Some age groups responded differently from others (compare Figures 13 and 14). When entering visitors were asked what they can do, children and teens were more likely to propose direct action, i.e., cleaning up the environment, than older visitors. Adults were more likely to say that further education was necessary to help the oceans. As a result of experiencing the exhibition, children were even more interested in cleaning up and less interested in education, while teens moved in the opposite direction, abandoning cleaning up and taking on education in nearly equal measure. All those ages 12 and older were influenced to want to change their consumption habits as a result of seeing the exhibition.

Figure 13

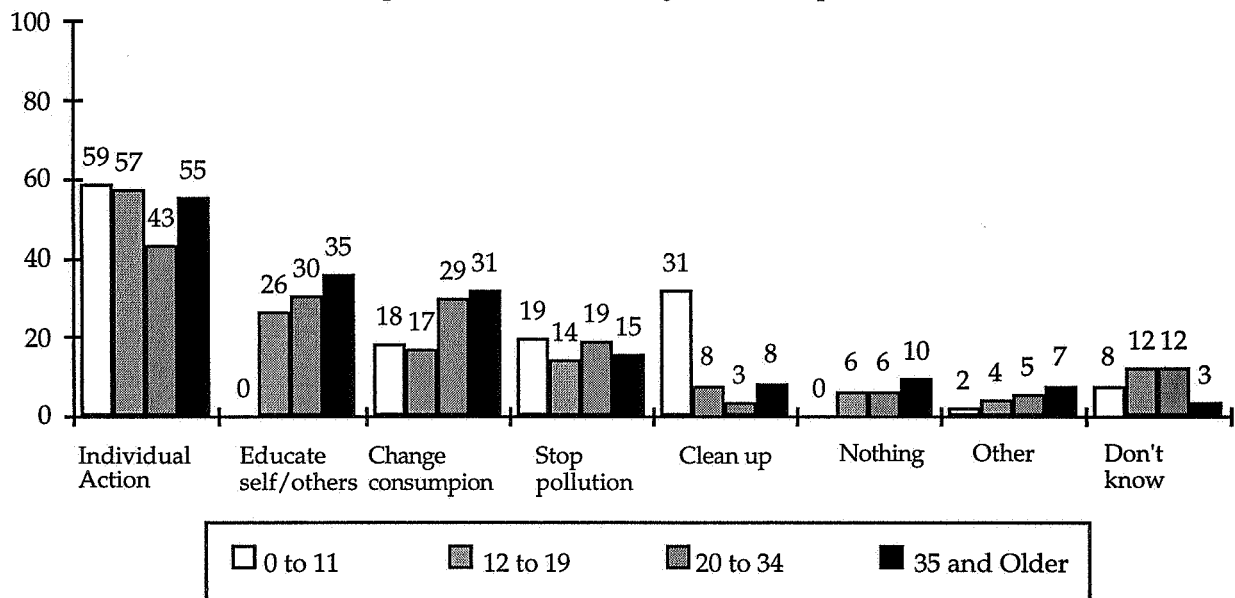
How Visitors Can Help the Oceans, by Age: Entrance Survey Only, All Visitors
(In percent of visitors who gave each response)



Source: Appendix B, Table 14.

Figure 14

How Visitors Can Help the Oceans, by Age: Exit Survey Only, All Visitors
(In percent of visitors who gave each response)



Source: Appendix B, Table 15.

Specific Educational Messages

***Results:** The Johnson Sea Link video stood out in "Ocean Science." There are indications that it may have led some visitors to learn something new. The Product Pyramid in the "Sea Store" section was quite popular and may have played a role in increasing the proportion of visitors who saw ocean products as a way the oceans affect their lives, as well as in leading visitors to consider changes in their consumption patterns. The buoy panels in "Oceans in Peril" had a strong emotional impact on visitors, probably due to their graphic design. To a much lesser extent, visitors were also moved by the globe sculpture in "Reflections." The study found no evidence that the "Sea People" and "Ocean Heroes" sections affected visitors' ideas or feelings about oceans.*

The *Ocean Planet* Entrance and Exit Surveys were supplemented by unobtrusive observations of visitor behavior. These observations enable us to suggest connections between what visitors did in the exhibition and how they were affected. Visitors were selected for tracking according to a quota protocol,¹⁴ and their stops (location and duration) were recorded from their entrance into the first room of the exhibition until they left the exhibition. A "stop" was recorded if it was at least three seconds in duration. In addition, a subset of tracked visitors were asked the questions on the Exit Survey as they left the exhibition.¹⁵

Regardless of the season, the 246 visitors we observed spent an average of 11 minutes (± 10 minutes) in the exhibition rooms.¹⁶ The median visit was 8 minutes.¹⁷ On average, 8 minutes (± 9 minutes) were spent viewing the exhibition and the remaining time was spent between stops. Visitors made an average of 11 stops (± 8 stops) during their visit. Approximately one-third (34%) of visitors returned to see a particular exhibition element more than once.

Generally, there were no differences in the pattern of visitor stops by season. Across both seasons the 246 tracked visitors made a total of 2,375 stops, 1181 (50%) in the summer and 1194 (50%) in the autumn. There were no significant differences by season in the number of stops made in each room of the exhibition (see Figure 15), or significant differences in the time visitors spent in each room.

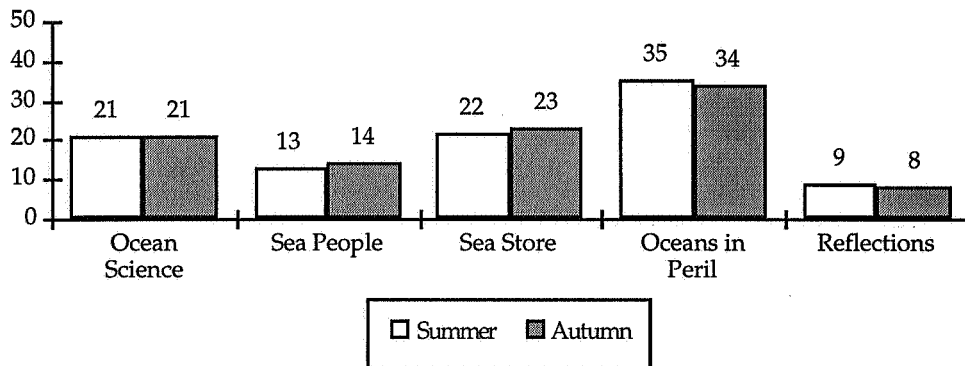
¹⁴ Approximately equal numbers of visitors in the following groups were selected: males, females, adults visiting with children, and children visiting with adults.

¹⁵ See Appendix C for a discussion of the methodology.

¹⁶ Since visitors were selected for observation according to a quota system, the tracking sample is not representative of the complete population of visitors. The average time spent at stops or in the exhibition as a whole, and the average number of stops made should be considered estimates only. There were no significant differences among the quota groups with respect to these averages.

¹⁷ More precisely, the median was 8.2 minutes. The middle 50% of visitors spent between 4.3 and 13.4 minutes.

Figure 15
Distribution of Visitor Stops by Season
 Tracking Study, All Observed Visitors
 (In Percent)



Source: Data on file, ISO.

Three exhibition components stood out as particularly important: the *Product Pyramid*, the *Johnson Sea-Link* dive video, and the buoy panels in the *Oceans in Peril* section. Two of these (the *Product Pyramid* and *Sea-Link* video) were especially popular stops; all three were identified by exiting visitors as the most interesting parts of the exhibition; and one of them (the buoy panels) was also identified as most moving.

The most common stop location was the *Product Pyramid* (10% of all stops, and stopped at by 92% of all visitors, see Tables 25 and 27).¹⁸ This was followed by the *Johnson Sea-Link* dive video and the *Sea Album* video (5% of all stops, and each stopped at by 48% of all observed visitors). The median stop at the *Product Pyramid* was 32 seconds, the median stop at the *Sea-Link* video was 50 seconds and the median stop at the *Sea Album* was 36 seconds.¹⁹ The *Product Pyramid* was a strong draw for visit groups that included adults and children and was particularly engaging to female children visiting with adults,²⁰ and the *Sea-Link* video was most attractive and interesting for males visiting alone and male children visiting with adults.²¹

¹⁸ The 10% is based on the overall number of discrete stops. The 92% is based on the total number of observed visitors (246).

¹⁹ The longest stops were made at the *Turning the Tide* computer station. Twenty-four stops (made by 10% of the observed visitors) were made at this station, and the median length of stop was 2 minutes and 19 seconds. The average length of stop was 3 minutes and 7 seconds. The second longest stops were made at the *Recent Discoveries* panel in the *Ocean Science* room. Visitors made 11 stops at this panel, for a median stop time of 1 minute and 25 seconds and an average stop time of 1 minute and 50 seconds.

²⁰ Twelve percent of all the stops made by male adults with children, 15% of all the stops made by male children with adults, 11% of all stops made by female children with adults, and 9% of all stops made by female adults with children were made at the *Product Pyramid*. All other quota groups made from 6 to 8% of their stops at this location. The median stop time for female children visiting with adults at the *Product Pyramid* was 1.2 minutes, compared to 0.7 minutes or less for all other quota groups.

²¹ Men visiting alone made 6% of all their stops and male children visiting with adults made 8% of their stops here. All other quota groups made 4 or 5% of their stops here. In addition, males visiting alone and male children visiting with adults had a median stop time of 1.8 minutes at this location. All other quota groups had a median stop time of 0.7 minutes or less.

We noted above that exiting visitors showed a much higher awareness of products derived from the oceans than entering visitors did. It seems reasonable to attribute this result to the effectiveness of the *Product Pyramid*, the most visited component in the exhibition, accounting for ten percent of all stops made by tracked visitors. The *Product Pyramid* was an interactive consisting of a bar-code reader and a computer monitor. Visitors scanned the bar-code of a common household product and the monitor revealed which of its ingredients were extracted from the ocean. The *Product Pyramid* was the primary source of information about ocean products in the *Sea Store*.

We also noted that exiting visitors were more aware of the impact of human actions on the ocean, especially with respect to pollution. The primary source for information about ocean problems was the set of twenty buoy panels in the *Oceans in Peril* section. These panels were an encyclopedic presentation of ocean problems, outlining the effects of everything from oil spills and solid waste dumping to fishing practices and tourism on the ocean ecosystem. Collectively, they accounted for 34 percent of all stops, although no single panel accounted for more than 3 percent of all stops (see Appendix B, Table 27). Overall, 73% of all observed visitors stopped at one or more of the buoy panels. The most popular buoy panel, the "Dams" panel, was stopped at by 29% of the visitors.

Overall, visitors spent more time at the *Product Pyramid* than they did at all of the buoy panels combined. The median length of stop at the *Product Pyramid* was 32 seconds, while the median length of stop at the buoy panels was 23 seconds. The buoy panel with the longest median stop time was the panel on *Overfishing*, (41 seconds). Just under 3 percent of all stops were made at this location.

The force of these two components, the *Product Pyramid* and the set of buoy panels, is confirmed independently by the answers visitors gave to the question of what was most interesting.²²

Visitors in the Exit Survey were asked which of the 65 exhibition elements they found most interesting, and why. Figure 16 shows the distribution of the exhibition sections mentioned by visitors as most interesting. Figure 16 contains four types of answers: mentions of a specific exhibition element contained in a specific exhibition area, mentions of a generic exhibition component (e.g., interactives), general comments about the exhibition, and comments that could not be categorized.

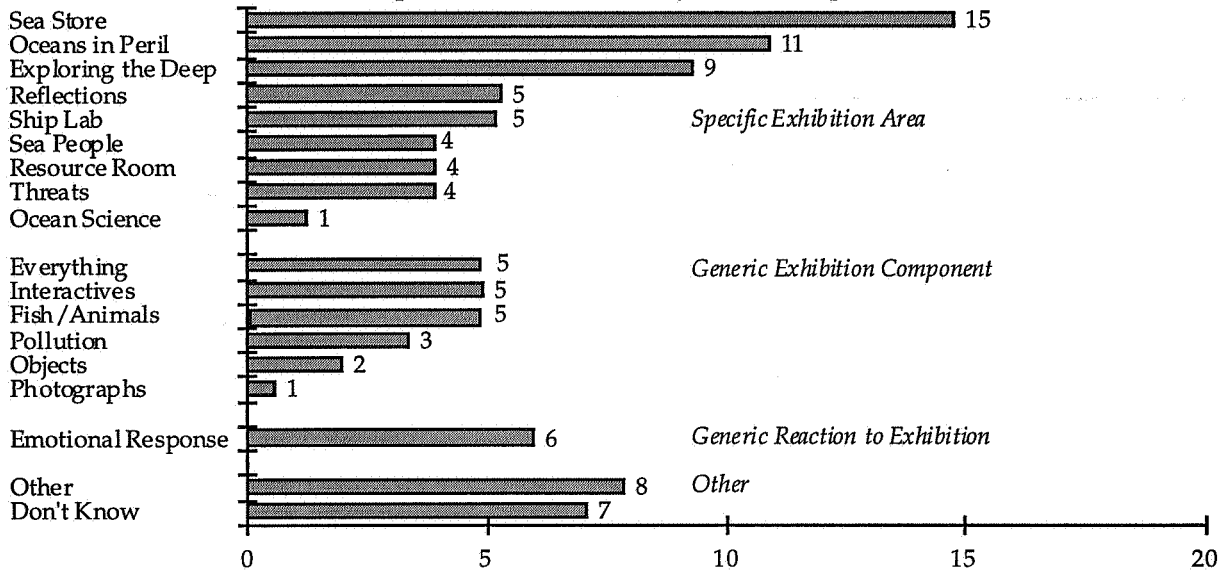
Exhibition elements in the *Sea Store* were mentioned by the largest proportion of visitors (15%), followed by the elements in the *Oceans in Peril* section (11%) and the *Exploring the Deep* section (9%).²³ Two-thirds (69%) of the visitors who mentioned the *Sea Store* said that the *Product Pyramid* was the most interesting part of the exhibition. For visitors who mentioned the *Oceans in Peril* section, 18 percent said the entire section was most

²² See Appendix B, Table 19.

²³ There were slight differences in the pattern of sections mentioned as most interesting by age. A higher percentage of children mentioned elements in the *Resource Room* (11% versus 7% of older visitors) and 10% of older visitors mentioned an element in the *Oceans in Peril* section, compared to 3% of children. Data on file, ISO.

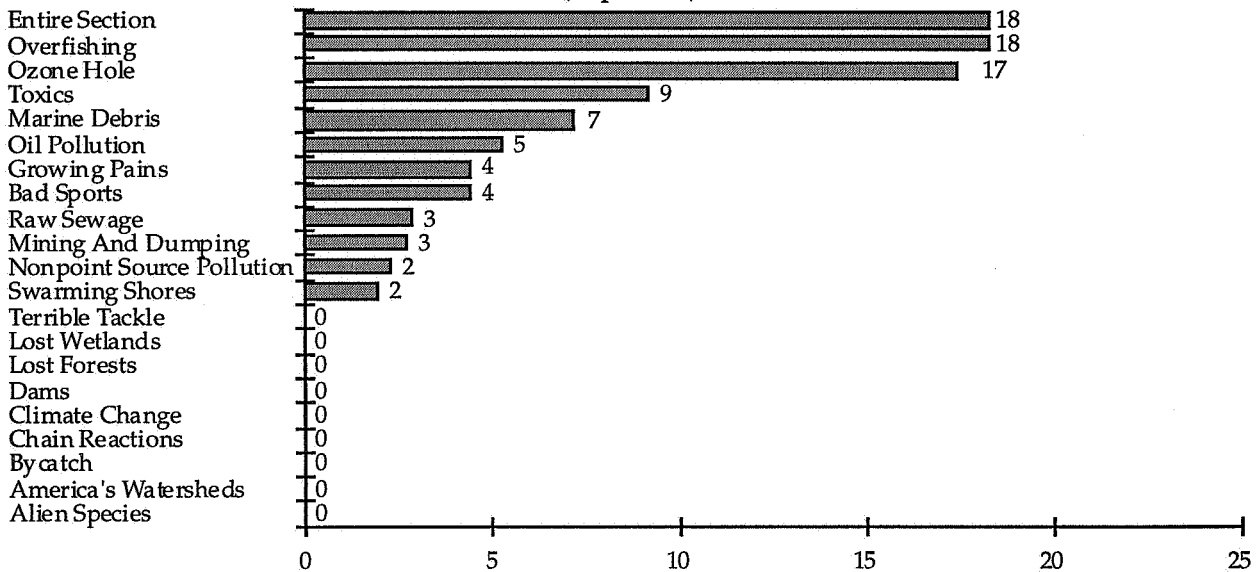
interesting, 18 percent said that the buoy panel on overfishing was most interesting, and 17 percent said that the panel on the ozone hole was most interesting. Nine of the 20 elements in this section were not mentioned by any visitor (see Figure 17).

Figure 16
What Visitors Found Most Interesting
 Exit Survey, All Visitors
 (In percent of visitors who gave each response)



Source: Appendix B, Table 19.

Figure 17
What Visitors Found Most Interesting in the Oceans In Peril Section
 Exit Survey, All Visitors
 (In percent)



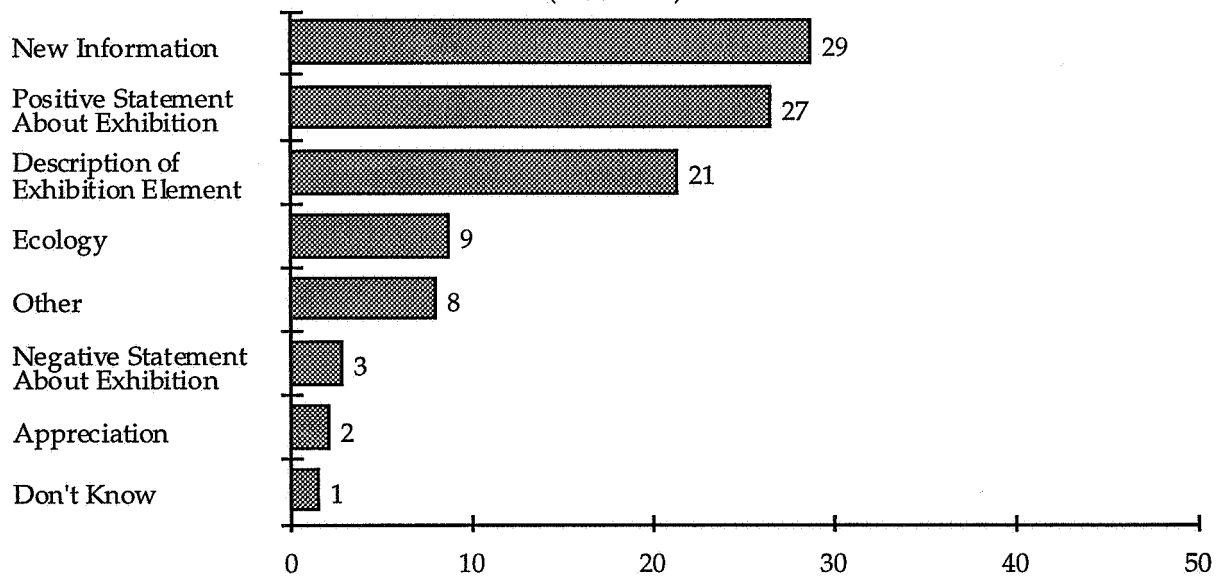
Source: Appendix B, Table 19.

Over three-quarters of visitors (76%) who mentioned the *Exploring the Deep* section found the *Johnson Sea-Link* diving video most interesting. The *Johnson Sea-Link* diving video, near the beginning of the exhibition, follows Smithsonian scientists on the Johnson Sea-Link submersible down to the bottom of the Caribbean Sea, demonstrating the diversity of life at depths of up to one mile below the surface.²⁴

Unlike the *Product Pyramid* and the buoy panels, the impact of the *Johnson Sea-Link* diving video on visitors is difficult to assess since none of our questions appear to have touched directly on the issues raised by this component of the exhibition. But a close look at the follow-up questions gives some clues.

When asked why a particular element was interesting, over one-quarter (29%) said it gave them new information about the oceans and a similar percentage (27%) made a positive statement about the exhibition as a whole (see Figure 18). Positive comments about the exhibition as a whole mentioned the educational value of the exhibition, how visitors liked seeing photographs of a variety of sea animals, and how interesting and "creative" the exhibition presentation was. One-fifth (21%) described the element they mentioned.

Figure 18
Visitor Descriptions of Most Interesting Element
 Exit Survey, All Visitors
 (in Percent)



Source: Appendix B, Table 20.

About one in eight visitors (13%) who made a positive remark about the exhibition mentioned the *Exploring the Deep* section as most interesting, followed by mentions of the *Oceans in Peril* (12%) and the *Reflections* (7%) sections. Nearly forty percent (37%) of the visitors who said

²⁴ The Sea-Link belongs to Harbor Branch Oceanographic Institution.

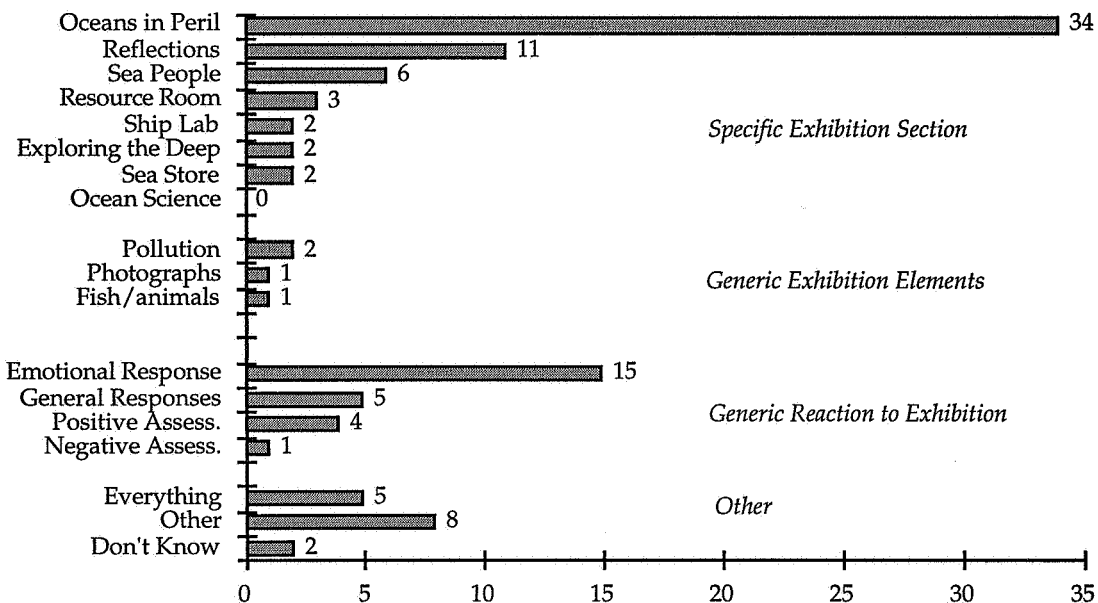
they learned something new mentioned the *Sea Store*, and another 14 percent mentioned the *Exploring the Deep* section. This suggests that the *Sea-Link* video may have been interesting in part because it told visitors something new.²⁵

When visitors mentioned that they received new information from an exhibit, however, relatively few said that the exhibit exposed them to something they hadn't thought about before. More visitors mentioned that they now knew more about a particular phenomenon, e.g., the El Niño current, the range of products taken from the ocean, etc., or about the oceans in general.

Exhibitions also have emotional effects. For visitors to *Ocean Planet*, there were definite differences between what they found interesting and what they found most moving.

One-third of all visitors (32%) said that nothing affected them emotionally. Figure 19 shows the distribution of the exhibition sections mentioned by the balance of visitors as having moved them. What is most striking about this figure is the prominence of the *Oceans in Peril* section. Over one-third of all respondents (34%) mentioned this section as having moved them.

Figure 19
What Visitors Found Most Emotional
 Exit Survey
 All Observed Visitors Except those who Answered "Nothing"*
 (In percent)



* One-third of all visitors (32%) said that nothing affected them emotionally.

Source: Appendix B , Table 19.

²⁵ Visitors who described an exhibition element mentioned the *Ship Lab*, the exhibition's interactives, and the *Exploring the Deep* section (13%, 13%, and 12%, respectively).

Of the elements in the *Oceans In Peril* section, the *Marine Debris* panel was mentioned in over one in three cases (32%, see Appendix B , Table 19).²⁶ Besides being the first buoy panel visitors encountered in the room, the primary image on the panel is a photograph of a sea lion caught in a discarded fishing net. The secondary materials on the panel address the problems of medical wastes and plastics washing up on beaches and the efforts of the United States Navy to recycle its shipboard waste. Along with its placement, this panel benefits from a sympathetic and visceral image of a helpless sea lion entangled in an abandoned fishing net. The theme of the panel is straightforward and immediate: trash dumped in the ocean negatively impacts all life.

The buoy panels worked very differently from both the *Product Pyramid* and the *Sea-Link* video. The *Product Pyramid* and the *Sea-Link* video seem to have expanded visitors' knowledge. They learned specific factual information that interested them and helped focus their awareness on what we obtain from the ocean and how useful it is. The particular communication technologies involved here -- interactive, hands-on stations, and video presentation -- held visitors' attention and kept them focused.

Visitors spent slightly less time with the buoy panels.²⁷ They probably picked up the messages of these buoys quickly and effortlessly. This is seen most clearly in the case of the *Marine Debris* buoy panel, which was the most emotionally powerful exhibition element. Eleven percent of the visitors in the Exit Survey who mentioned that something in the exhibition moved them, cited it as the most emotional part of the exhibition, although only one in four (24%) of the visitors included in the tracking study stopped there.²⁸ Many more visitors probably did not stop long enough at this panel to be recorded by the trackers. (Recall that a "stop" was recorded if it was at least three seconds in duration.) As a result of these impressions, visitors focused on what these panels were trying to say overall, namely that human actions have serious impact on the ocean environment, especially through pollution and overfishing.

Although visitors may not have picked up the kind of factual information or nuanced detail they got from the *Product Pyramid* or the diving video, they received much stronger emotional messages from the buoy images and titles. In this case the essential communication technology was strong graphic design combining photographs and text. It left a direct, visceral impact that people expressed both as an emotional response and as an increased awareness of the danger that people present to oceans.

²⁶ The *Sculpture Globe* in the *Reflections* section was mentioned by 10% of the visitors, most of whom said that it was beautiful. This element had no factual information directly associated with it.

²⁷ Median stop time for all observed stops in the *Oceans in Peril* section was 23 seconds, compared to 22 seconds for all stops in *Reflections*, 24 seconds for *Sea People*, 25 seconds for *Sea Store* and 27 seconds for *Ocean Science*.

²⁸ Recall that 32% of exiting visitors indicated that nothing moved them. Thus, this result represents 7% of all visitors (see Table 19). We can interpret this data in either of two ways. On the one hand we can say that this suggests that one-half of all the people who stopped at the *Marine Debris* panel found it the most interesting item in the exhibition. We could also say, on the other hand, that this suggests that many more people saw the *Marine Debris* panel but spent less than three seconds looking at it, and thus were not recorded as having stopped there. Either interpretation is complicated by the fact that the tracking sample was not representative and, as a result, we cannot be certain that 24% of all visitors (rather than 24% of observed visitors) stopped at the panel.

It is remarkable that these three elements were each so effective and that their impact is so consistent. No one of these communication methods -- the interactive, the video, or the graphics -- is inherently superior to another. This study suggests that they work in different ways and thus can produce very different results.

Other Messages

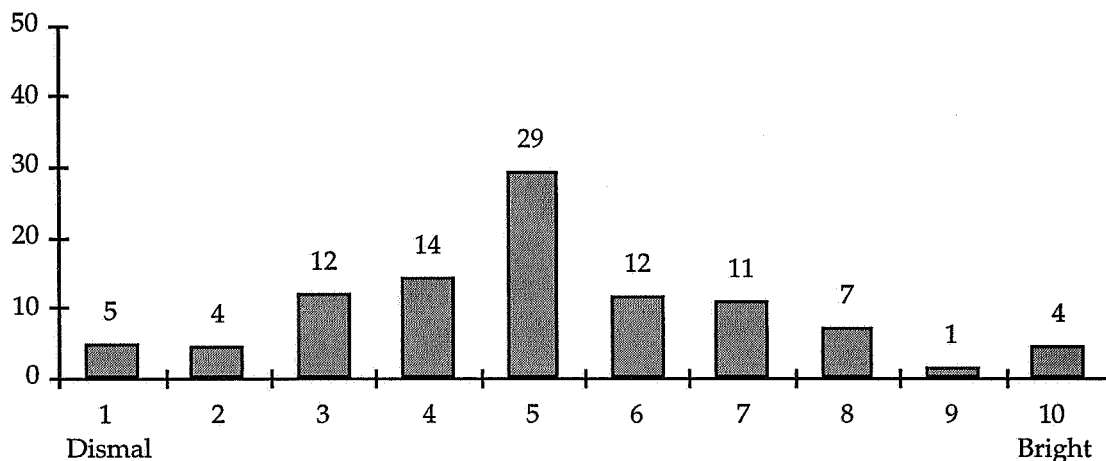
***Result:** Exhibition visitors left slightly less hopeful about the future of oceans than when they entered. This change in attitude was especially prominent in young people.*

As we have seen, visitors left the exhibition more aware and informed about the state of the oceans. To assess this awareness more fully, we asked visitors to rate the future of the oceans. The exhibition had a modest effect on visitors' rating of the oceans' future.

All visitors were asked to rate the future of the oceans on a ten-point scale, with 1 representing "Dismal" and 10 representing "Bright" (see Figure 20). In this scale, higher scores represent greater optimism about the oceans, while lower scores represent greater pessimism.

Overall, the answers to this question were neutral; for all visitors the average score was 5.1 (±2.0 points). The average score did not vary by season or visitor type (i.e., New Visitors, Returning Visitors and Frequent Visitors to NMNH all rated the future of the oceans at the same level), or by gender, race/ethnicity, or educational attainment. For visitors in the exit sample, the amount of time they reported spending in the exhibition did not significantly affect their rating score either.

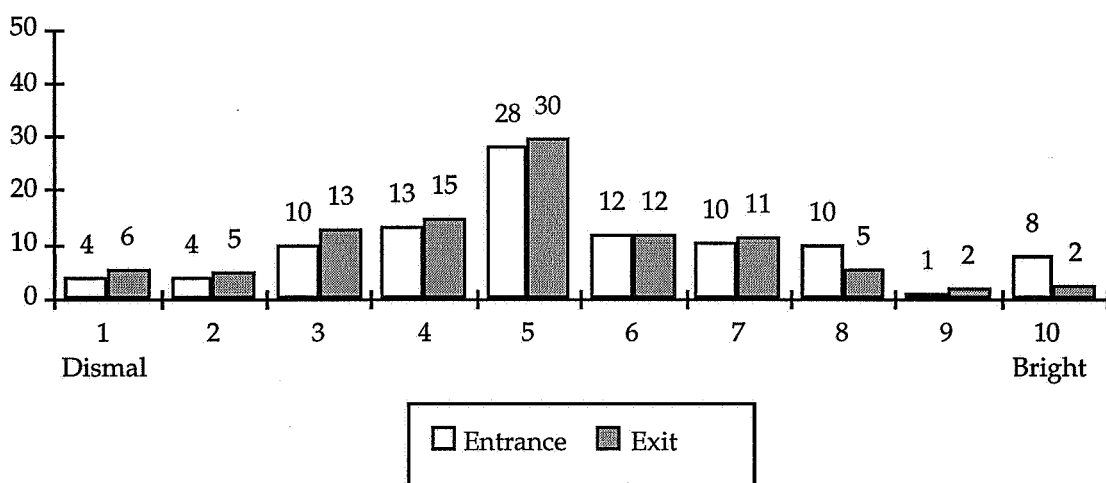
Figure 20
Visitor Rating of the Future of the Oceans
 Entrance and Exit Survey Combined, All Visitors
 (in Percent)



Source: Appendix B , Table 16.

Rating scores did vary by interview, with visitors in the Exit Survey rating the future of the oceans an average of 0.5 points lower than visitors in the Entrance Survey (the average score in the Entrance Survey was 5.4 versus 4.9 for the Exit Survey, see Figure 21). The greatest movement was at the top end of the scale. Scores also varied by the combination of season and interview group. In the Summer, exit ratings were 0.2 points lower than entrance ratings. In the Autumn, exit scores were 1.0 points lower than entrance scores.

Figure 21
Visitor Rating of the Future of the Oceans, by Interview Location
 Entrance Survey and Exit Survey, All Visitors
 (in Percent)

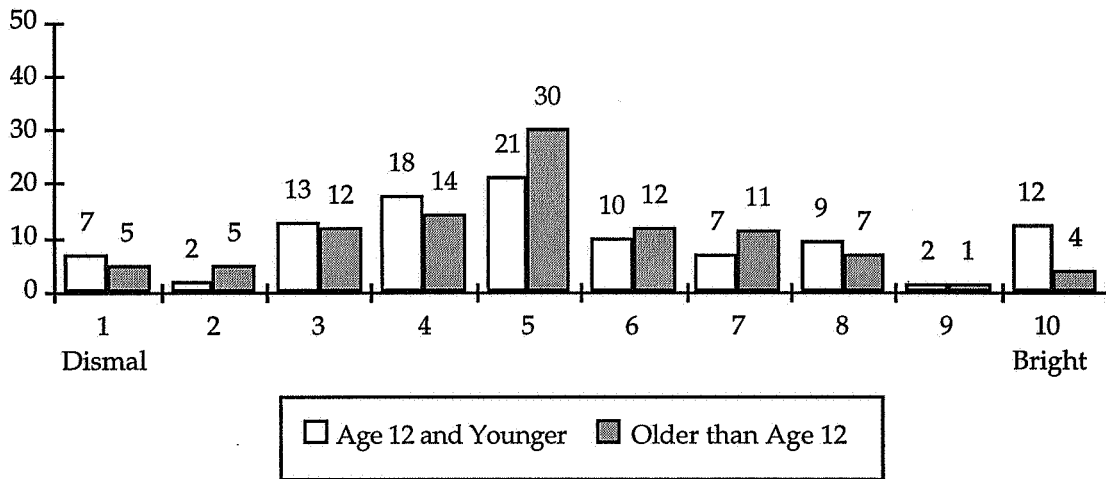


Source: Appendix B , Table 16.

Ratings also differed according to age. Children (visitors age 12 and younger) were somewhat more optimistic about the future of the oceans than older visitors (see Figure 22).²⁹ Overall, children scored 0.3 points higher than other visitors (an average of 5.4, versus 5.1 for older visitors). Changes in mean ratings across interview groups show that children's ratings were less hopeful after viewing the exhibition, compared to the ratings of older visitors. Between the Exit and Entrance Surveys children's ratings of the future of the oceans fell an average of 2.2 points (from 6.9 for the Entrance Survey to 4.7 for the Exit Survey), compared to an average decrease of 0.4 points for older visitors (from 5.3 to 4.9, see Figure 23).

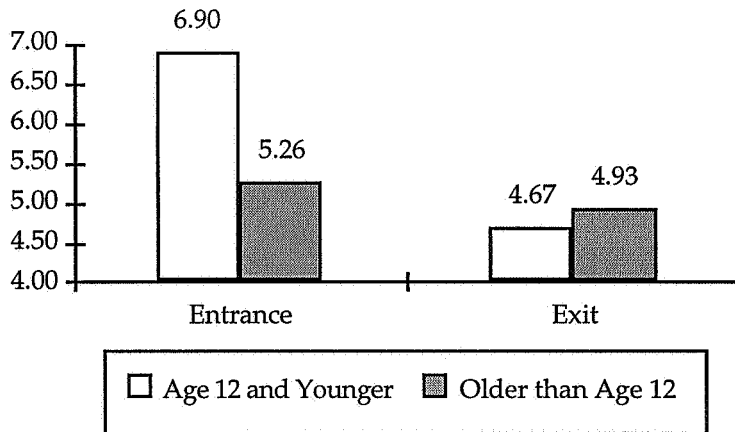
²⁹ This difference is independent of season and interview group; i.e., the differences persist in the different seasons and in both Entrance and Exit Surveys.

Figure 22
Visitor Rating of the Future of the Oceans, by Age
Entrance and Exit Surveys Combined, All Visitors
 (in Percent)



Source: Appendix B , Table 17.

Figure 23
Mean Visitor Rating of the Future of the Oceans, by Age and Interview Location
Entrance Survey and Exit Survey, All Visitors
 (in Mean Rating Score)



Source: Data on file, ISO.

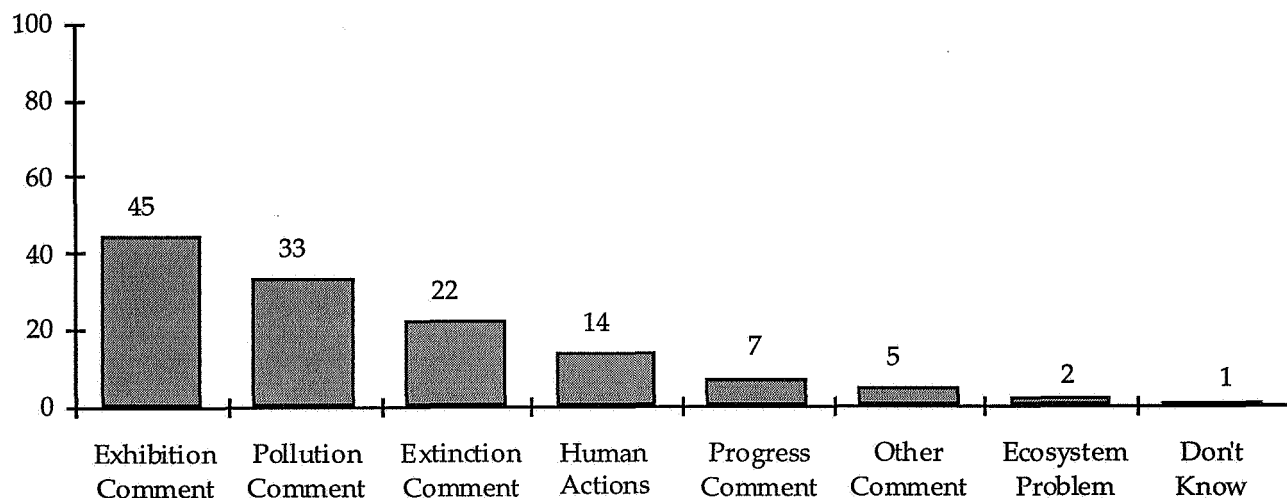
These results suggest that viewing the exhibition had a slight, but consistent, negative effect on visitors' rating of the future of the oceans. The group of visitors least likely to have prior knowledge of the state of the oceans, children, experienced the greatest decrease in their mean rating. This decrease is three times that of the decrease of older visitors. Clearly, the exhibition had an impact on younger visitors.

After asking visitors to rate the future of the oceans, we added a follow-up question: "Was there anything in particular you saw in the exhibition that emphasized that?" Three out of five visitors (61%) said that there was. The average rating given by those

who identified something in the exhibition (4.7) was significantly lower than those who could not identify anything in the exhibition (5.3). This result confirms that the exhibition influenced visitors to feel less hopeful about the future of the oceans.

As a further follow-up, we asked these visitors to identify what in the exhibition had emphasized the future of the oceans in their view. Figure 24 shows the distribution of responses.

Figure 24
Exhibition Contents that Emphasized the Future of Oceans
 Exit Survey Only, All Visitors
 (in Percent)



Source: Data on file, ISO.

Only the "human actions" response is directly related to the rating score. Visitors who said that human actions emphasized their rating assigned the future of oceans a significantly lower rating than those who cited other aspects of the exhibition (3.3 vs. 4.5). In addition, when we look at the items that especially interested or moved people in the exhibition, we find that those who found the buoy panels most moving were significantly more pessimistic about the oceans than those who did not find them most moving (4.3 vs. 5.0).

These attitudinal results are consistent with the overall impact of the buoy panels that catalogued the ways that human activities were endangering the oceans, especially through pollution. Visitors were no doubt aware that as population and industrialization increase, the problems oceans face become greater. This could easily lead to a less hopeful impression of the situation.

III. Ocean Planet: A Profile of the Visitors

In this section we present a brief portrait of the visitors to *Ocean Planet*, detailing their primary background attributes such as gender, age, level of education, familiarity with the museum, etc., and one of their visit characteristics, namely the social composition of the visit group.

Visitors to *Ocean Planet* were interviewed in summer and in autumn of 1995.³⁰ During those same months (but in the previous year) interviewers also intercepted visitors as they left NMNH as part of a year-long study of the museum's audience. As a result we can compare *Ocean Planet* visitors to the larger population of museum visitors to see whether or not they differed in any meaningful way.

Gender. Slightly more than half (53%) of the visitors to *Ocean Planet* were male, a normal gender ratio for the museum (over the course of the year nearly exactly the same percentage of visitors --52%-- were male). However, there were slightly more male visitors to *Ocean Planet* in autumn (57%) than to the museum as a whole during the same season (54%).

Age. Over half of *Ocean Planet* visitors (54%) were between the ages of 20 and 44. One-quarter were under 20, and almost one-quarter (22%) were 45 or older. The average age for exhibition visitors was 31 years (± 16.3 Years).

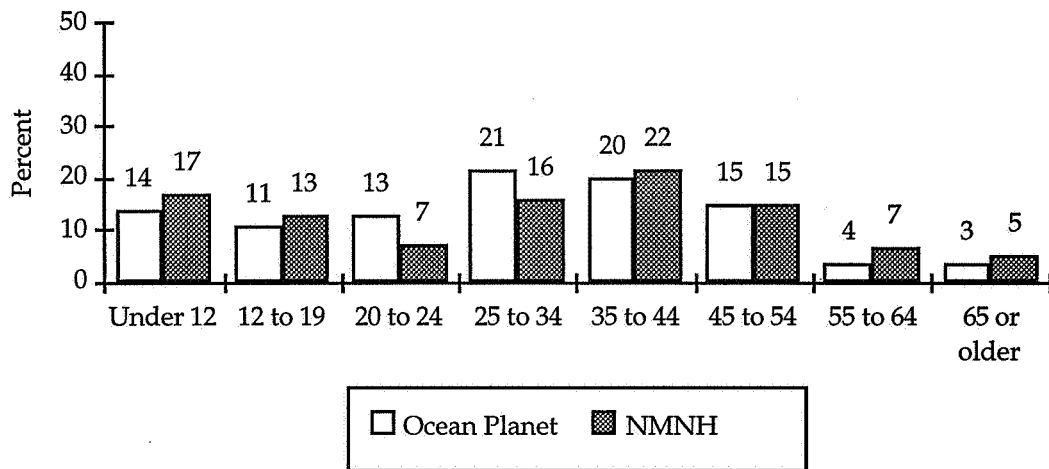
As shown in Figure 25, *Ocean Planet* visitors included a higher proportion of individuals in the 20 to 34 age-range than were found in the NMNH audience as a whole.³¹

We believe that the greater interest in the exhibition among people between the ages of 20 and 34 may reflect a higher awareness of and interest in environmental issues among this age group. We have not, however, been able to support this assertion with our data.

³⁰ The only statistically significant differences between visitors interviewed in summer and those interviewed in fall was in gender. Half (51%) of summer visitors to *Ocean Planet* but 57 percent of autumn respondents were male. The data are shown both by season and by total in the accompanying table (Appendix B, Table 23).

³¹ The same difference can be observed when the data is viewed by season, as shown in Appendix B, Table 23.

Figure 25
Ages of Visitors to *Ocean Planet* and to NMNH
 All Visitors
 (in Percent)



Source: Appendix B, Table 23.

Racial/Ethnic Identification. Almost four out of five visitors to *Ocean Planet* (78%) identified themselves as Caucasian or non-minority and the remaining 22 percent were members of a minority group (Asian/Pacific Islander, Latino or Hispanic, African-American, or Native American/Alaskan Native). If we consider only U.S. residents, the proportion of minority visitors is 17 percent.

The exhibition drew very slightly more minority visitors than the museum as a whole. During the summer and fall combined, 16 percent of NMNH visitors who are U.S. residents were minority group members.

Residence. As is usually the case with the Smithsonian audience, the majority of *Ocean Planet* visitors were from out of town. One person in five (20%) was from a Maryland or Virginia suburb of Washington and only just over three percent of the visitors were from D.C. itself.

Ocean Planet was especially attractive to foreign travelers visiting the Smithsonian in summer. The proportion of foreign visitors in *Ocean Planet* during that time (19%) was nearly twice their representation in the museum as a whole (10%).³² By contrast, U.S. residents traveling to Washington from outside the local area in summer were less interested in *Ocean Planet* (60%) than in NMNH overall (74%).

This result probably reflects the different aims of U.S. and foreign tourists to the Smithsonian. Many Americans are visiting the Mall, we believe, to re-experience the things that moved them in their youth when their own parents first brought them to Washington. Foreigners, on their other hand, may be looking for the kinds of

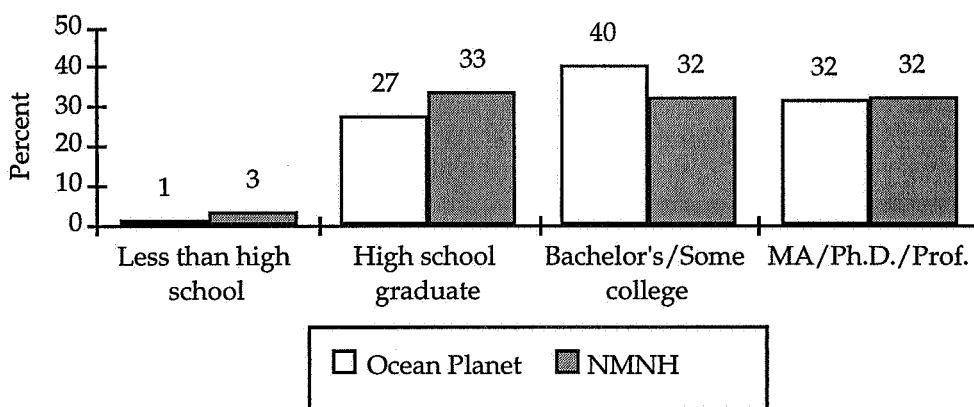
³² Five countries account for about one-third of the foreign visitors. Listed in decreasing order, they are the United Kingdom, Canada, Japan, Germany, and Korea.

experiences that they are not likely to find at museums in their own country, such as *Ocean Planet*.

Education. Visitors to the Smithsonian Institution museums typically have a high level of education. For those respondents at least 25 years old (the age at which most people have completed their formal education) almost three-quarters (72%) of the respondents reported having a Bachelor's degree or higher, with one-third (32%) having a Master's, Ph.D., or advanced degree. Nearly all visitors (99%) 25 years or older had graduated from high school.

As Figure 26 shows, *Ocean Planet* visitors had slightly higher levels of educational attainment than the overall NMNH audience. This difference is probably due in large part to the younger age of the *Ocean Planet* visitors, since older visitors tend to have lower levels of education.³³

Figure 26
Educational Attainment of Visitors to *Ocean Planet* and NMNH
 All Visitors Ages 25 or Older
 (in Percent)



Source: Appendix B, Table 23.

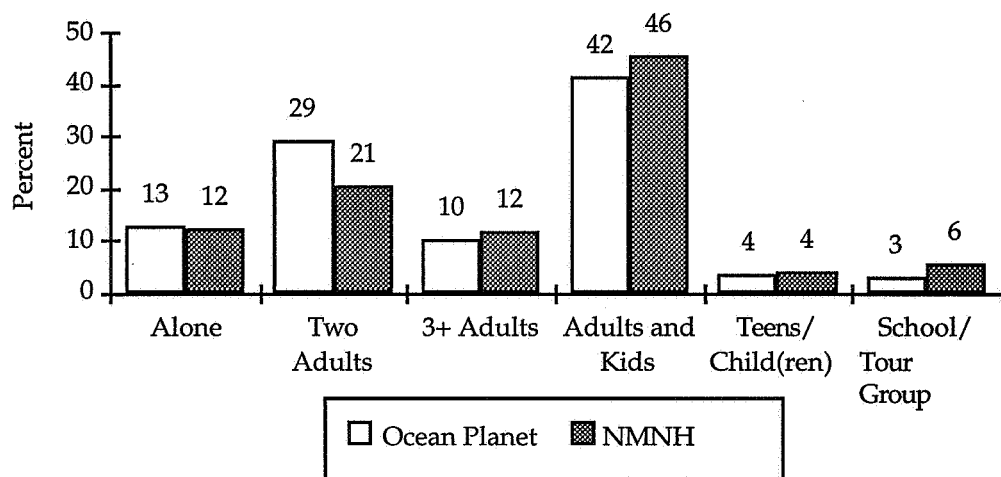
Occupation. When grouped by occupation, one-third (32%) of *Ocean Planet* visitors over the age of 18 reported professional occupations, such as architects, engineers, and teachers. Over one in four visitors (27%) were not in the labor force. This group includes students, housewives and the unemployed.

Group Composition Over two out of five *Ocean Planet* visitors (42%) were visiting the museum in groups that included both adults and children. Twenty-nine percent of visitors came with two adults; another 13 percent came alone.

³³ This hypothesis is supported by the fact that the difference is clearest in autumn, when older visitors are more numerous.

As shown in Figure 27, visitors who came to the museum in pairs were more drawn to *Ocean Planet* than to the museum overall. This difference was consistent for both summer and fall. The proportion of groups of adults with children was also lower at *Ocean Planet* than in the rest of the museum.

Figure 27
Social Composition of Visit Group in *Ocean Planet* and NMNH
 All Visitors
 (in Percent)



Source: Appendix B, Table 23.

This is an intriguing result. The special attractiveness of the exhibition to couples in both summer and autumn might reflect the desire of visitors (especially younger adults) to share an experience that they anticipate will reinforce their commitment to a social cause, such as the protection of the environment.

Visitor Type A very important factor in differentiating visitor behavior and opinions is the degree of an individual's familiarity with the institution. A New Visitor is at the museum for the first time, a Returning Visitor has previously visited NMNH one to three times and a Frequent Visitor is someone who has visited the museum four or more times. One-third (32%) of *Ocean Planet* visitors said they were New Visitors, one-half (53%) were Returning Visitors and fifteen percent were Frequent Visitors.

In this case familiarity with the museum seemed to have little bearing on the attractiveness of the exhibition to visitors. The proportions of New, Returning, and Frequent Visitors was relatively close to their representation in the overall NMNH audience. In autumn, however, Frequent Visitors were more drawn to *Ocean Planet*, (32% in *Ocean Planet* vs. 25% in NMNH). This is probably because autumn is a season when serious visitors can take advantage of the absence of summer crowds to visit special exhibitions in which they have an interest.

Appendix A.

Data Collection Forms: *Ocean Planet* Study

This appendix contains copies of the questionnaires used in the Entrance and Exit Surveys and the form used in the Tracking Study. A floor plan of the exhibition, showing the codes used in the Tracking Study, follows the Tracking Form.

Entrance and Exit Survey Materials

By Institutional Studies Office (ISO) convention, questions read to respondents are shown in **bold**. Response categories are not read to visitors. In some instances, interviewers circle a pre-printed response category. In others, they record the visitors comments verbatim. Finally, some questions require both circling a pre-printed response and recording a response. For example, a response of "Germany" to Q.1. **Where do you live?**, would require the interviewer to circle "1" (Foreign) as well as record "Germany" for subsequent coding in the office. From the perspective of the interviewee, all of the questions are open-ended.

All of the questions on the Entrance Survey are also on the Exit Survey and have the same question numbers. Additional questions on the Exit Survey are 7A, 9, 11 and 18.

Detailed interviewing instructions are available from ISO. Additional information about the content of the questionnaires are in Appendix C.

Tracking Survey Materials

The exhibition space was divided into five discrete areas from A (the orientation/entry area, *Ocean Planet*) to E (the *Resource Room*). Within a given area, each exhibition element was given a specific consecutive numeric code based on the communication medium, followed in some case by a letter based on content (see the code in the right-hand margin of the Tracking Survey Form).

When a visitor was selected for tracking, the observer recorded the demographic and administrative data on the bottom of the form. At each stop the visitor made, four items of data were recorded. A "stop" was recorded if it was at least three seconds in duration:

- (a) the location of the stop (expressed as a combination of the area and the element codes, e.g., a stop at the video display in the entry area is recorded as "A90"),
- (b) the time at the beginning of the stop.
- (c) the visitor's activity during the stop. The "Social Interaction Code" ("Soc. Int." on the Tracking Form) gives an indication of visitor and group activity and allows us to relate time stopped in front of an exhibition element to what the visitor was doing.
- (d) the time at the end of the stop.

Detailed instructions used by observers in the Tracking Study are available from the Institutional Studies Office.

ID # _____ 1-4/

Ocean Planet
Entrance Survey

COUNT: _____

Hello, my name is _____, and I would like to ask you a few questions about your visit today...

Q0. 1 SI Staff/Cont. : STOP - GO TO END
2 Ineligible: STOP - GO TO END 5/

+*Q1. Where do you live? 6/
1 Foreign _____
2 Other U.S. _____ 7-9/
3 DC
4 MD/VA Suburbs

+Q2. Is today your first visit to this
Natural History Museum?
00 Yes
No: How many times have you been
here before today? _____ 10-11/

Q3. In the past year, how many other natural
history museums, science centers or aquaria
have you visited?
00 None
_____ 12-13/

Q4. Did you hear about this Ocean Planet
exhibition before today?
1 No [GO TO Q.5] 14/
2 Yes -- Where? Anywhere else?
1 From friends/family 15/
1 Washington Post 16/
1 Other newspapers _____ 17-19/
1 Magazine _____ 20-22/
1 Other sources _____ 23-25/

Q4A. What did you hear about it?

_____ 26-27/

Q5. Do you or anyone in your immediate family
have a job in any way related to oceans?
1 No 28/
2 Yes, respondent
OCCUPATION: _____ 29-30/
3 Yes, other family member

Q6. Can you describe how, if at all, oceans affect
your daily life?

Children: What do oceans have to do with your life?
1 _____
_____ 31-32/
2 _____
_____ 33-34/
3 _____
_____ 35-36/

Q7. Using a scale from 1 to 10, where 1 means
"dismal" and 10 means "bright", how would you
rate the future of oceans? _____ 37-38/

[COLS 39-41 BLANK]

_____ 40-41/

Q8. What do you think are the most serious
problems affecting oceans? Anything else?

Children: Can you tell me some things that hurt
the oceans?
1. _____ 42-43/
2. _____ 44-45/
3. _____ 46-47/
4. _____ 48-49/

(Continued)

ID # _____ 1-4/

Ocean Planet
Exit Survey

COUNT: _____

Hello, my name is _____, and I would like to ask you a few questions about your visit today...

Q0.	1	SI Staff/Cont. : STOP - GO TO END	
	2	Ineligible: STOP - GO TO END	5/

- +*Q1. Where do you live? 6/
- 1 Foreign _____
 - 2 Other U.S. _____ 7-9/
 - 3 DC
 - 4 MD/VA Suburbs

- +Q2. Is today your first visit to this Natural History Museum?
- 00 Yes
 - No: How many times have you been here before today? _____ 10-11/

- Q3. In the past year, how many other natural history museums, science centers or aquaria have you visited?
- 00 None # _____ 12-13/

- Q4. Did you hear about this Ocean Planet exhibition before today?
- 1 No [GO TO Q.5] 14/
 - 2 Yes -- Where? Anywhere else?
 - 1 From friends/family 15/
 - 1 Washington Post 16/
 - 1 Other newspapers _____ 17-19/
 - 1 Magazine _____ 20-22/
 - 1 Other sources _____ 23-25/

Q4A. What did you hear about it?

_____ 26-27/

- Q5. Do you or anyone in your immediate family have a job in any way related to oceans?
- 1 No 28/
 - 2 Yes, respondent OCCUPATION: _____ 29-30/
 - 3 Yes, other family member

Q6. Can you describe how, if at all, oceans affect your daily life?

Children: What do oceans have to do with your life?

1 _____ 31-32/

2 _____ 33-34/

3 _____ 35-36/

Q7. Using a scale from 1 to 10, where 1 means "dismal" and 10 means "bright", how would you rate the future of oceans? _____ 37-38/

Q7A. Was there anything in particular you saw in the exhibition that emphasized that?

Probe: Anything that affected your rating?

1 Yes: What? 2 No 39/

_____ 40-41/

Q8. What do you think are the most serious problems affecting oceans? Anything else?

Children: Can you tell me some things that hurt the oceans?

1. _____ 42-43/

2. _____ 44-45/

3. _____ 46-47/

4. _____ 48-49/

(Continued)

Q9. What did you find most interesting in this exhibition?

Probe: What surprised you? What was most informative?

_____ 50-51/

Q9A. Why?

1 _____
_____ 52-53/

2 _____
_____ 54-55/

RECORD NUMBER _____ 56-57/

Q10. What do you think someone like you can do to help solve ocean problems? Anything else?

Children: What can someone do to help oceans?

1 _____ 58-59/

2 _____ 60-61/

3 _____ 62-63/

4 _____ 64-65/

Now a few questions about you:

Q11. About how long did you spend in the exhibition?

- 01 5 min. or less/walked through
- 02 6 - 10 min.
- 03 11 - 15 min.
- 04 16 - 20 min.
- Other (min.) _____ 66-67/

+*Q12. Who are you here with today?

- 1 School trip
 - 2 Tour group
 - 3 Adult w/child(ren)
 - 4 Adults w/ child(ren)
 - 5 One other adult
 - 6 Group of teens
 - 7 Several adults
 - 8 Child(ren)
 - 9 Alone
- 68/

Q13. What kind of work do you do?

_____ 69-70/
_____ 1 Retired 71/

+*Q14. What is your age? _____ 72-73/

Q15. What is the highest level of education you have completed?

- 1 Pre/grade sch. 5 Assoc./Jr. Coll
- 2 Some high sch. 6 Bachelor's Degree
- 3 HS graduate 7 Some graduate
- 4 Some college 8 MA/Ph.D./Profess. 74/

+*Q16. What is your cultural/racial/ethnic identity?

- 1 Afr Amer/Black 4 Hispanic/Latino
- 2 Asian/Pac. Is 5 Nat Amer./Ak Native
- 3 Caucasian/White 6 Other _____ 75/

+*Q17. Gender (CIRCLE)

- 1 Male 2 Female 76/

Q18. One FINAL question: Was there something that moved you in the exhibition?

Probe: Did anything strike you emotionally? What "grabbed" you?

Children: What did you really, really like in the exhibition?

Probe: What made you feel really good or really bad? What made you happy or sad?

_____ 77-78/

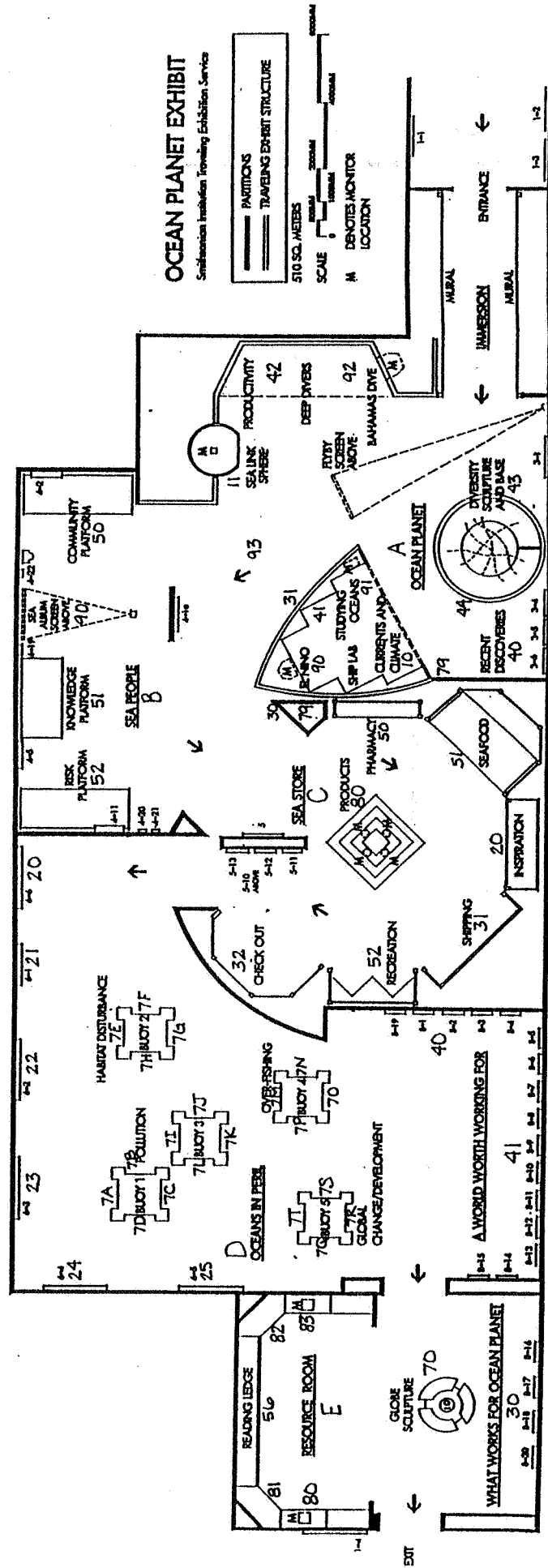
Administrative :	1	Exit	79/1
Status: 1	SI Cont./Staff	5	Interview: < 6 yrs.
2	Ineligible	6	Refusal: Lang
3	Interview: 12+	7	Refusal: Other
4	Interview: 6-12		80/
Shift: 1 2 3			81/
Segment: 1 2 3 4 5 6			82/
Session: _____			83-84/
Office only: WEIGHT: _____/_____			85-89/

TRACKING SURVEY FORM										Admin Box		
TRACKER _____										ID: _____		
START TIME: _____										Soc. _____		
										Soc. _____		
#	Start	Location	Stop	Int.	#	Start	Location	Stop	Int.	Gender	M	F
1					26					WhoW	Alone	2+ Adults
2					27						Adults & Kids (Adult)	
3					28						Adults & Kids (Kids)	
4					29					Session: _____		
5					30							
6					31					Location Code		
7					32					01 to 09	Objects & Texts	
8					33					10 to 19	Objects	
9					34					20 to 29	Photos	
10					35					30 to 39	Text	
11					36					40 to 49	Photos & Text	
12					37					50 to 59	Objects, Photos, Text	
13					38					60 to 69	Flip/slide Interactive	
14					39					70 to 79	Low-tech Interactive	
15					40					80 to 89	Computer Interactive	
16					41					90 to 99	Film/Video	
17					42							
18					43					Soc Int Key		
19					44					T	Together (doing it with	
20					45						another group member)	
21					46							
22					47					C	Calling something to	
23					48						the attention of another	
24					49						not at exhibit	
25					50					D	Distracted or	
Gender:											interrupted by	
Age:											a group member	
Group size:										P	Photographing	
Group Composition:										Q	Waiting to view/use	
Racial/Ethnic:										U	Using interactive	
END TIME: _____												



Ocean Planet Exhibition Floor Plan

TRAVELING EXHIBITION COMPONENTS
 As installed at the National Museum of
 Natural History, Smithsonian Institution



OCEAN PLANET EXHIBIT
 Smithsonian Institution Traveling Exhibition Service

PARTITIONS
 TRAVELING EXHIBIT STRUCTURE

SCALE 1" = 510 SQ. METERS

M DENOTES MONITOR LOCATION

Appendix B.

Supplementary Tables

Table 1
How Oceans Affect Visitors' Lives, by Interview Location
 All Visitors
 (In Percent of visitors who gave each response)

	Entrance	Exit	Total
<i>Products/Extraction</i>	43	55	51
Chemicals and Minerals	2	1	1
Economy and Resources	2	4	3
Food	38	46	43
Medicines	3	4	4
Occupation	2	4	3
Oil/Energy	1	1	1
Products, NEC*	1	13	9
<i>Use</i>	42	40	41
Education	1	1	1
Lifestyle	14	14	14
Recreation/Entertainment	29	27	28
Transportation	5	6	5
<i>Ecosystem</i>	32	30	31
Hydrologic System	7	7	7
Ecosystem, NEC*	6	5	5
Sea Life	5	3	4
Size of Oceans	1	0	0
Tides and Current	1	1	1
Weather and Climate	17	17	17
Oxygen	3	2	2
<i>Does Not Affect Life</i>	21	13	16
No, Geography	19	10	14
No, Other Reason	2	2	2
<i>Conservation</i>	3	10	7
Conservation of Ocean Life	1	3	2
Human Actions/Pollution	1	7	5
<i>Aesthetics/Beauty</i>	3	3	3
<i>Other</i>	3	3	3
<i>Everything</i>	2	3	3
<i>Don't Know</i>	7	6	6

*NEC = Not Elsewhere Classified.

Table 2
Classification of Ocean Problems, by Interview Location
 All Visitors
 (In Percent of visitors who gave each response)

	Entrance	Exit	Total
<i>Pollution</i>	93	91	91
Air Pollution/Atmospheric Changes	2	1	2
Chemical Pollution	16	22	20
Oil Pollution/Drilling	25	27	26
Sewage/Dumping	6	7	7
Solid Waste Pollution	27	30	29
Non-Point Source Pollution	1	4	2
General Pollution, NEC*	46	34	39
<i>Exploitation of Resources</i>	29	30	30
Fishing Practices	25	27	26
Overfishing	2	2	2
Overuse/Exploitation	4	3	3
<i>Human Actions</i>	13	28	23
Commercial Activities	1	3	2
Dangerous To Humans	0	0	0
Government Activities	0	1	1
Human Action	4	11	8
Human Ignorance	2	6	4
Industrial Activities	2	5	3
Ecosystem Destruction	1	1	1
Prediction Of Future	0	0	0
Overpopulation	1	4	3
Tourism	0	2	1
Development	0	1	1
Atomic Testing	2	0	1
Human Actions, NEC*	0	0	0
<i>Extinction</i>	5	7	6
Extinction Of Animal Species	3	3	3
Habitat Loss	2	3	3
Loss Of Biodiversity	0	1	1
<i>Ecosystem Problem</i>	3	5	4
Alien Species	0	0	0
Global Warming	2	2	2
Ozone Hole	0	3	2
<i>Other</i>	3	3	3
Other Problems	1	0	0
Positive Statement/Progress	2	2	2
<i>Don't Know</i>	1	1	1

*NEC = Not Elsewhere Classified.

Table 3
How Visitors Can Help Oceans, by Interview Location
 All Visitors
 (In Percent of visitors who gave each response)

	Entrance	Exit	Total
<i>Individual Action</i>	49	51	50
Volunteer Own Time/Act	5	7	6
Prevent/Stop Pollution	19	23	21
Join Environmental Organization	3	3	3
Contribute To Environmental Organization	2	2	2
Support Environmental Organization, NEC*	11	11	11
Political Action Personal	13	13	13
Enforce Environmental Laws	1	1	1
Monitor Industrial Practices	0	1	1
Political Action General	4	3	4
Establish Animal Sanctuaries	0	0	0
Save Animal Species	0	1	1
<i>Educate Self/Others</i>	26	29	28
Increase Own Awareness	13	13	13
Educate Others/Children	14	19	17
<i>Change Consumption</i>	14	27	22
Change Personal Behavior	10	20	16
Change Economic Behavior	1	7	4
Change Ocean Use Practices, Personal	1	2	1
Change Economic Behavior/Boycott	2	2	2
Change Ocean Use Practices, Global	0	1	1
<i>Stop Pollution</i>	19	17	18
Conserve Resources/Reduce Waste	17	13	15
Recycle/Reuse	0	0	0
Start/Support Community Recycling	0	0	0
Stop Polluting	3	3	3
<i>Clean Up</i>	9	9	9
Clean Up Environment, Self	9	7	8
Clean Up Environment, Others	0	2	1
<i>Nothing</i>	6	7	6
<i>Other</i>	4	5	5
Improve Technology	1	0	1
Other	3	5	4
<i>Don't Know</i>	12	8	10

*NEC = Not Elsewhere Classified.

Table 4
How Oceans Affect Visitors' Lives, by Visitor Type
 Entrance Survey
 (In Percent of visitors who gave each response)

	New Visitors	Returning Visitors	Frequent Visitors	Total
<i>Products/Extraction</i>	40	45	48	43
Chemicals and Minerals	1	1	4	2
Economy and Resources	2	2	3	2
Food	36	42	42	39
Medicines	4	3	2	3
Occupation	2	1	3	2
Oil/Energy	2	2	0	1
Products, NEC*	2	0	1	1
<i>Use</i>	40	49	40	42
Education	0	3	2	1
Lifestyle	15	13	12	14
Recreation/Entertainment	28	32	28	29
Transportation	3	6	7	5
<i>Ecosystem</i>	21	48	40	33
Hydrologic System	3	10	9	7
Ecosystem, NEC*	3	13	6	6
Sea Life	5	5	4	5
Size of Oceans	0	2	1	1
Tides and Current	1	1	3	1
Weather and Climate	8	29	21	17
Oxygen	3	3	3	3
<i>Does Not Affect Life</i>	27	14	14	20
No, Geography	24	13	13	19
No, Other Reason	3	1	1	2
<i>Conservation</i>	0	4	6	3
Conservation of Ocean Life	0	1	3	1
Human Actions/Pollution	0	2	3	1
<i>Aesthetics/Beauty</i>	3	3	1	3
<i>Other</i>	3	2	4	3
<i>Everything</i>	1	6	1	2
<i>Don't Know</i>	8	7	6	7

*NEC = Not Elsewhere Classified.

Table 5
How Oceans Affect Visitors' Lives, by Visitor Type
 Exit Survey
 (In Percent of visitors who gave each response)

	New Visitors	Returning Visitors	Frequent Visitors	Total
<i>Products/Extraction</i>	51	61	57	56
Chemicals and Minerals	0	1	1	1
Economy and Resources	5	2	3	4
Food	42	49	48	46
Medicines	3	7	3	4
Occupation	4	6	2	4
Oil/Energy	2	1	0	1
Products, NEC*	9	19	14	13
<i>Use</i>	40	42	38	40
Education	1	3	1	1
Lifestyle	13	15	12	13
Recreation/Entertainment	25	32	26	27
Transportation	6	0	8	5
<i>Ecosystem</i>	24	28	41	30
Hydrologic System	6	5	11	7
Ecosystem	1	4	11	5
Sea Life	2	2	5	3
Size of Oceans	0	0	0	0
Tides and Current	2	1	1	1
Weather and Climate	13	18	20	17
Oxygen	2	0	3	2
<i>Does Not Affect Life</i>	21	7	6	13
No, Other Reason	4	3	0	2
No, Geography	18	4	6	11
<i>Conservation</i>	5	14	14	10
Conservation of Ocean Life	2	5	4	3
Human Actions/Pollution	3	10	11	7
<i>Aesthetics/Beauty</i>	4	1	4	3
<i>Other</i>	2	4	5	3
<i>Everything</i>	1	2	6	3
<i>Don't Know</i>	6	7	5	6

*NEC = Not Elsewhere Classified.

Table 6
Classification of Ocean Problems, by Visitor Type
 Entrance Survey
 (In Percent of visitors who gave each response)

	New Visitors	Returning Visitors	Frequent Visitors	Total
<i>Pollution</i>	94	91	92	93
Air Pollution/Atmospheric Changes	3	1	3	2
Chemical Pollution	14	23	15	17
Oil Pollution/Drilling	22	29	29	25
Sewage/Dumping	6	6	7	6
Solid Waste Pollution	29	22	31	28
Non-Point Source Pollution	1	0	0	1
General Pollution, NEC*	49	44	37	45
<i>Exploitation of Resources</i>	25	35	29	29
Fishing Practices	24	27	25	25
Overfishing	0	4	3	2
Overuse/Exploitation	2	10	2	4
<i>Human Actions</i>	12	12	18	13
Commercial Activities	1	0	1	1
Dangerous To Humans	0	1	0	0
Government Activities	0	0	2	0
Human Action	3	1	9	4
Human Ignorance	2	1	3	2
Industrial Activities	2	1	1	2
Ecosystem Destruction	2	2	0	1
Prediction Of Future	1	0	0	0
Overpopulation	0	5	0	2
Tourism	0	0	0	0
Development	0	0	2	0
Atomic Testing	3	0	3	2
Social Problems, NEC*	0	1	0	0
<i>Extinction</i>	5	7	5	6
Extinction Of Animal Species	2	6	2	3
Habitat Loss	3	1	3	2
Loss Of Biodiversity	0	0	1	0
<i>Ecosystem Problem</i>	1	1	8	3
Alien Species	0	0	0	0
Global Warming	1	1	7	2
Ozone Hole	0	0	1	0
<i>Other</i>	5	3	0	3
Other Problems	1	2	0	1
Positive Statement/Progress	4	1	0	2
<i>Don't Know</i>	1	2	1	1

*NEC = Not Elsewhere Classified.

Table 7
Classification of Ocean Problems, by Visitor Type
 Exit Survey
 (In Percent of visitors who gave each response)

	New Visitors	Returning Visitors	Frequent Visitors	Total
<i>Pollution</i>	86	93	93	90
Air Pollution/Atmospheric Changes	1	2	1	1
Chemical Pollution	22	12	30	22
Oil Pollution/Drilling	29	24	26	27
Sewage/Dumping	7	7	7	7
Non-Point Source Pollution	2	3	4	3
Solid Waste Pollution	29	35	27	30
General Pollution, NEC*	32	39	33	34
<i>Exploitation of Resources</i>	23	39	32	30
Fishing Practices	22	35	27	27
Overfishing	0	4	1	2
Overuse/Exploitation	1	5	3	3
<i>Human Actions</i>	29	21	36	29
Commercial Activities	4	3	2	3
Dangerous To Humans	0	0	1	0
Government Activities	0	0	3	1
Human Action	13	7	13	11
Human Ignorance	6	8	3	6
Industrial Activities	3	2	9	5
Ecosystem Destruction	0	0	3	1
Prediction Of Future	0	0	0	0
Overpopulation	3	3	5	4
Tourism	1	0	4	2
Development	2	2	0	1
Atomic Testing	0	0	0	0
Social Problems, NEC*	0	0	0	0
<i>Extinction</i>	6	5	10	7
Extinction Of Animal Species	3	1	5	3
Habitat Loss	2	4	4	3
Loss Of Biodiversity	1	0	1	1
<i>Ecosystem Problem</i>	4	6	5	5
Alien Species	0	0	1	0
Global Warming	2	3	1	2
Ozone Hole	2	2	4	3
<i>Other</i>	1	4	3	3
Other Problems	0	0	0	0
Positive Statement/Progress	1	4	3	2
<i>Don't Know</i>	3	1	0	1

*NEC = Not Elsewhere Classified.

Table 8
How Visitors Can Help Oceans, by Visitor Type
 Entrance Survey
 (In Percent of visitors who gave each response)

	New Visitors	Returning Visitors	Frequent Visitors	Total
<i>Individual Action</i>	50	51	47	50
Volunteer Own Time/Act	4	4	6	5
Prevent/Stop Pollution	22	20	14	19
Join Environmental Organization	3	2	4	3
Contribute To Environmental Org.	2	4	1	2
Support Environmental Org., NEC*	11	10	11	11
Political Action Personal	11	15	14	13
Enforce Environmental Laws	1	2	0	1
Monitor Industrial Practices	0	1	0	0
Political Action General	4	1	7	4
Establish Animal Sanctuaries	0	0	0	0
Save Animal Species	0	0	1	0
<i>Educate Self/Others</i>	24	22	37	27
Increase Own Awareness	13	11	17	13
Educate Others/Children	12	14	19	15
<i>Change Consumption</i>	11	17	17	14
Change Personal Behavior	6	14	15	10
Change Economic Behavior	1	0	2	1
Change Ocean Use Practices, Personal	2	1	0	1
Change Economic Behavior/Boycott	2	3	0	2
Change Ocean Use Practices, Global	1	0	0	0
<i>Stop Pollution</i>	18	16	28	20
Conserve Resources/Reduce Waste	15	16	25	18
Recycle/Reuse	0	0	0	0
Start/Support Community Recycling	0	0	0	0
Stop Polluting	3	2	3	3
<i>Clean Up</i>	9	8	7	8
Clean Up Environment, Self	9	8	7	8
Clean Up Environment, Others	0	0	0	0
<i>Nothing</i>	5	9	4	6
<i>Other</i>	4	6	3	4
Improve Technology	1	2	2	1
Other	3	5	3	3
<i>Don't Know</i>	12	17	7	12

*NEC = Not Elsewhere Classified.

Table 9
How Visitors Can Help Oceans, by Visitor Type
Exit Survey
(In Percent of visitors who gave each response)

	New Visitors	Returning Visitors	Frequent Visitors	Total
<i>Individual Action</i>	43	49	66	52
Volunteer Own Time/Act	3	9	10	7
Prevent/Stop Pollution	19	23	28	23
Join Environmental Organization	3	1	4	3
Contribute To Environmental Org.	2	0	5	2
Support Environmental Org., NEC*	10	8	16	11
Political Action Personal	9	13	18	13
Enforce Environmental Laws	1	0	2	1
Monitor Industrial Practices	0	2	0	1
Political Action General	4	2	4	3
Establish Animal Sanctuaries	0	0	0	0
Save Animal Species	1	2	1	1
<i>Educate Self/Others</i>	27	30	30	29
Increase Own Awareness	13	15	12	13
Educate Others/Children	19	18	22	19
<i>Change Consumption</i>	21	28	34	27
Change Personal Behavior	14	20	25	19
Change Economic Behavior	3	8	10	7
Change Ocean Use Practices, Personal	3	0	1	2
Change Economic Behavior/Boycott	1	4	3	3
Change Ocean Use Practices, Global	2	0	1	1
<i>Stop Pollution</i>	15	16	19	17
Conserve Resources/Reduce Waste	11	12	17	13
Recycle/Reuse	0	0	0	0
Start/Support Community Recycling	0	1	0	0
Stop Polluting	5	2	3	4
<i>Clean Up</i>	7	10	10	9
Clean Up Environmental, Self	5	8	9	7
Clean Up Environmental, Others	1	3	1	2
<i>Nothing</i>	8	5	7	7
<i>Other</i>	3	8	6	5
Improve Technology	1	0	0	0
Other	2	8	6	5
<i>Don't Know</i>	12	4	6	8

*NEC = Not Elsewhere Classified.

Table 10
How Oceans Affect Visitors' Lives, by Age
 Entrance Survey
 (In Percent of visitors who gave each response)

	<u>Age</u>				Total
	0 to 11	12 to 19	20 to 34	35 and Older	
<i>Products/Extraction</i>	32	31	44	48	43
Chemicals and Minerals	3	4	2	1	2
Economy and Resources	0	0	2	3	2
Food	29	31	37	44	38
Medicines	0	2	5	3	3
Occupation	0	0	3	3	2
Oil/Energy	0	0	2	1	1
Products, NEC*	0	2	3	0	1
<i>Use</i>	56	39	37	42	41
Education	0	0	1	2	1
Lifestyle	0	0	10	25	14
Recreation/Entertainment	56	39	25	20	28
Transportation	6	0	4	6	5
<i>Ecosystem</i>	32	22	26	40	32
Hydrologic System	10	3	4	8	7
Ecosystem	0	0	8	8	6
Sea Life	17	10	3	2	5
Size of Oceans	0	0	0	2	1
Tides and Current	0	0	0	3	1
Weather and Climate	6	12	12	25	17
Oxygen	0	4	3	4	3
<i>Does Not Affect Life</i>	17	25	21	21	21
No, Geography	17	23	18	20	19
No, Other Reason	0	3	3	1	2
<i>Conservation</i>	3	0	1	4	2
Conservation of Ocean Life	3	0	0	2	1
Human Actions/Pollution	0	0	1	2	1
<i>Aesthetics/Beauty</i>	0	0	2	4	2
<i>Other</i>	5	6	3	2	3
<i>Everything</i>	0	2	1	4	2
<i>Don't Know</i>	11	8	10	3	7

*NEC = Not Elsewhere Classified.

Table 11
How Oceans Affect Visitors' Lives, by Age
Exit Survey
(In Percent of visitors who gave each response)

	Age				Total
	0 to 11	12 to 19	20 to 34	35 and Older	
<i>Products/Extraction</i>	56	43	52	61	55
Chemicals and Minerals	0	2	0	1	1
Economy and Resources	0	0	3	6	4
Food	50	39	41	50	45
Medicines	2	0	7	4	4
Occupation	0	1	5	6	4
Oil/Energy	3	0	0	2	1
Products, NEC*	6	7	14	17	13
<i>Use</i>	36	33	36	47	40
Education	1	1	3	1	1
Lifestyle	0	4	17	17	13
Recreation/Entertainment	34	24	20	33	27
Transportation	1	4	5	8	6
<i>Ecosystem</i>	10	18	30	40	30
Hydrologic System	6	1	9	7	7
Ecosystem	4	1	6	5	5
Sea Life	8	6	1	2	3
Size of Oceans	0	0	0	0	0
Tides and Current	0	0	1	2	1
Weather and Climate	4	11	16	23	17
Oxygen	2	0	0	3	2
<i>Does Not Affect Life</i>	5	21	15	10	13
No, Geography	4	17	14	8	11
No, Other Reason	1	4	2	2	2
<i>Conservation</i>	8	9	6	15	10
Conservation of Ocean Life	3	2	3	3	3
Human Actions/Pollution	4	7	4	11	7
<i>Aesthetics/Beauty</i>	1	0	3	5	3
<i>Other</i>	2	0	5	3	3
<i>Everything</i>	0	0	5	3	3
<i>Don't Know</i>	10	18	5	3	6

*NEC = Not Elsewhere Classified.

Table 12
Classification of Ocean Problems, by Age
 Entrance Survey
 (In Percent of visitors who gave each response)

	Age				Total
	0 to 11	12 to 19	20 to 34	35 and Older	
<i>Pollution</i>	98	95	90	93	93
Air Pollution/Atmospheric Changes	0	2	2	3	2
Chemical Pollution	10	13	17	18	16
Oil Pollution/Drilling	36	19	26	23	25
Sewage/Dumping	3	11	6	6	6
Solid Waste Pollution	54	27	22	25	27
Non-Point Source Pollution	0	0	0	1	1
General Pollution, NEC*	28	47	47	49	46
<i>Exploitation of Resources</i>	10	19	38	29	29
Fishing Practices	0	17	37	25	25
Overfishing	4	0	2	1	2
Overuse/Exploitation	6	1	2	5	4
<i>Human Actions</i>	2	9	15	17	13
Commercial Activities	0	0	0	1	1
Dangerous To Humans	0	2	0	0	0
Government Activities	0	0	1	0	0
Human Action	2	0	2	8	4
Human Ignorance	0	0	2	2	2
Industrial Activities	0	2	3	2	2
Ecosystem Destruction	0	5	2	0	1
Prediction Of Future	0	0	0	0	0
Overpopulation	0	0	1	3	2
Tourism	0	0	0	0	0
Development	0	0	1	2	1
Atomic Testing	0	0	3	2	2
Social Problems, NEC*	0	0	1	0	0
<i>Extinction</i>	0	10	6	5	6
Extinction Of Animal Species	0	0	5	3	3
Habitat Loss	0	10	2	1	2
Loss Of Biodiversity	0	0	0	0	0
<i>Ecosystem Problem</i>	0	7	2	3	3
Alien Species	0	0	0	0	0
Global Warming	0	6	2	3	2
Ozone Hole	0	1	0	0	0
<i>Other</i>	5	0	6	1	3
Other Problems	0	0	3	0	1
Positive Statement/Progress	5	0	4	1	2
<i>Don't Know</i>	2	2	2	1	1

*NEC = Not Elsewhere Classified.

Table 13
Classification of Ocean Problems, by Age
Exit Survey
(In Percent of visitors who gave each response)

	Age				Total
	0 to 11	12 to 19	20 to 34	35 and Older	
<i>Pollution</i>	90	91	95	89	92
Air Pollution/Atmospheric Changes	4	1	0	1	1
Chemical Pollution	28	20	20	24	22
Oil Pollution/Drilling	60	28	19	24	27
Sewage/Dumping	4	0	9	7	7
Solid Waste Pollution	35	37	28	28	30
Non-Point Source Pollution	0	0	6	4	4
General Pollution, NEC*	21	38	39	33	34
<i>Exploitation of Resources</i>	1	28	29	39	30
Fishing Practices	1	25	26	35	27
Overfishing	0	4	1	2	2
Overuse/Exploitation	0	1	4	4	3
<i>Human Actions</i>	25	17	29	32	28
Commercial Activities	4	3	3	2	3
Dangerous To Humans	0	0	0	0	0
Government Activities	0	0	1	2	1
Human Action	2	11	12	13	11
Human Ignorance	0	1	7	8	6
Industrial Activities	16	2	5	2	5
Ecosystem Destruction	0	0	0	3	1
Prediction Of Future	0	0	0	0	0
Overpopulation	2	0	3	6	4
Tourism	0	5	0	2	2
Development	0	0	0	1	0
Atomic Testing	0	0	0	0	0
Social Problems, NEC*	0	0	0	0	0
<i>Extinction</i>	7	8	9	5	7
Extinction Of Animal Species	2	4	4	2	3
Habitat Loss	0	4	4	3	3
Loss Of Biodiversity	5	0	1	0	1
<i>Ecosystem Problem</i>	4	1	3	7	5
Alien Species	0	0	1	0	0
Global Warming	0	1	2	3	2
Ozone Hole	4	0	2	4	3
<i>Other</i>	0	2	2	4	3
Other Problems	0	0	0	0	0
Positive Statement/Progress	0	2	2	3	2
<i>Don't Know</i>	4	2	0	1	1

*NEC = Not Elsewhere Classified.

Table 14
How Visitors Can Help Oceans, by Age
 Entrance Survey
 (In Percent of visitors who gave each response)

	<u>Age</u>				Total
	0 to 11	12 to 19	20 to 34	35 and Older	
<i>Individual Action</i>	45	53	52	45	48
Volunteer Own Time/Act	3	14	5	2	5
Prevent/Stop Pollution	38	17	17	16	19
Join Environmental Org.	0	14	2	1	3
Contribute To Environmental Org.	0	0	4	2	2
Support Environmental Org., NEC*	0	8	14	12	11
Political Action Personal	0	4	15	17	13
Enforce Environmental Laws	2	0	1	1	1
Monitor Industrial Practices	2	0	0	0	0
Political Action General	0	4	3	6	4
Establish Animal Sanctuaries	0	0	0	0	0
Save Animal Species	2	0	0	0	0
<i>Educate Self/Others</i>	13	13	21	38	26
Increase Own Awareness	3	2	16	15	13
Educate Others/Children	10	11	6	23	14
<i>Change Consumption</i>	18	10	14	15	14
Change Personal Behavior	12	8	10	11	10
Change Economic Behavior	0	0	1	2	1
Change Ocean Use Practices, Personal	6	0	1	1	1
Change Economic Behavior/Boycott	0	3	2	2	2
Change Ocean Use Practices, Global	0	0	1	0	0
<i>Stop Pollution</i>	24	23	15	22	20
Conserve Resources/Reduce Waste	18	20	14	20	18
Recycle/Reuse	0	0	0	0	0
Start/Support Community Recycling	0	0	0	0	0
Stop Polluting	6	3	1	4	3
<i>Clean Up</i>	23	24	3	4	9
Clean Up Environment, Self	23	24	3	4	8
Clean Up Environment, Others	0	0	0	0	0
<i>Nothing</i>	2	6	6	7	6
<i>Other</i>	0	2	7	4	4
Improve Technology	0	0	3	1	1
Other	0	2	6	3	3
<i>Don't Know</i>	10	16	18	8	13

*NEC = Not Elsewhere Classified.

Table 15
How Visitors Can Help Oceans, by Age
Exit Survey
(In Percent of visitors who gave each response)

	<u>Age</u>				<u>Total</u>
	0 to 11	12 to 19	20 to 34	35 and Older	
<i>Individual Action</i>	59	57	43	55	51
Volunteer Own Time/Act	1	18	6	5	7
Prevent/Stop Pollution	47	28	19	18	23
Join Environmental Org.	0	5	4	2	3
Contribute To Environmental Org.	0	1	3	3	2
Support Environmental Org., NEC*	8	3	8	17	11
Political Action Personal	6	3	13	16	13
Enforce Environmental Laws	0	1	1	1	1
Monitor Industrial Practices	0	0	1	1	1
Political Action General	0	1	3	6	3
Establish Animal Sanctuaries	0	0	0	0	0
Save Animal Species	4	2	0	1	1
<i>Educate Self/Others</i>	0	26	30	35	28
Increase Own Awareness	0	6	14	17	13
Educate Others/Children	0	20	21	22	19
<i>Change Consumption</i>	18	17	29	31	27
Change Personal Behavior	12	11	23	21	20
Change Economic Behavior	0	6	7	8	7
Change Ocean Use Practices, Personal	6	2	1	1	2
Change Economic Behavior/Boycott	0	3	1	4	3
Change Ocean Use Practices, Global	0	1	1	1	1
<i>Stop Pollution</i>	19	14	19	15	17
Conserve Resources/Reduce Waste	15	13	13	13	13
Recycle/Reuse	0	0	0	0	0
Start/Support Community Recycling	0	0	1	0	0
Stop Polluting	5	1	4	3	4
<i>Clean Up</i>	31	8	3	8	9
Clean Up Environment, Self	24	8	1	7	7
Clean Up Environment, Others	7	0	2	1	2
<i>Nothing</i>	0	6	6	10	7
<i>Other</i>	2	4	5	7	5
Improve Technology	0	2	0	0	0
Other	2	1	5	7	5
<i>Don't Know</i>	8	12	12	3	8

*NEC = Not Elsewhere Classified.

Table 16
Visitor Rating of the Future of the Oceans, by Interview Location
 All Visitors
 (In Percent)

		Entrance Survey	Exit Survey	Total
1	Dismal	4	6	5
2		4	5	4
3		10	13	12
4		13	15	14
5		28	30	29
6		12	12	12
7		10	11	11
8		10	5	7
9		1	2	1
10	Bright	8	2	4
Total		100	100	100

Table 17
Visitor Rating of the Future of the Oceans, by Age
 All Visitors
 (In Percent)

		Age 12 and Younger	Older than Age 12	Total
1	Dismal	7	5	5
2		2	5	4
3		13	12	12
4		18	14	14
5		21	30	29
6		10	12	12
7		7	11	11
8		9	7	7
9		2	1	1
10	Bright	12	4	4
Total		100	100	100

Table 18
Exhibition Contents that Emphasized the Future of Oceans
 Exit Survey Only, All Visitors
 (In Percent)

<i>Contents</i>	<i>Percent</i>
<i>Exhibition</i>	44.6
Already knew	1.1
Comments about interactive/computers	3.9
Everything in exhibition	1.5
Exhibition presentation, Exhibition content, NEC*	2.5
General assessment of exhibition	0.0
Learned something new	0.2
Specific element in exhibition	34.5
Exhibition reinforced opinion	1.0
<i>Pollution</i>	33.4
Pollution effects	1.1
Pollution from specific source	21.5
Pollution, NEC*	13.4
<i>Extinction</i>	22.1
Extinction, Loss of Sea Life Diversity	4.7
Habitat loss	2.3
Overfishing	15.1
<i>Social problems</i>	13.6
General concern for future	5.1
General indictment of humanity	4.1
Government action/legal action	0.0
Population growth	4.9
Prediction of future state	0.7
Coastal Development/Land Use Problems	0.9
<i>Progress</i>	6.7
General faith in humanity	0.0
Positive statement/progress	6.7
Species recovery	0.0
<i>Other</i>	4.6
<i>Ecosystem</i>	1.9
Alien species	0.0
Global Warming	0.5
Ozone hole	1.4
<i>Don't Know</i>	0.6

*NEC = Not Elsewhere Classified.

Table 19
What Visitors Found Most Interesting and Emotional
Exit Survey Only, All Visitors
(In Percent)

	Most Interesting		Most Emotional		
	% of Total, All Visitors	% of Category	% of Total, All Visitors	% of Total, Excluding "Nothing"	% of Category
<i>Specific Exhibition Section</i>	55		38	56	
<i>Ocean Science</i>	1	100	0	0	100
Entire Section	0	0	0	0	0
Marine Biodiversity	1	100	0	0	100
Recent Discoveries	0	0	0	0	0
<i>Ship Lab</i>	5	100	1	2	100
Entire Section	0	6	0	0	0
Ocean Currents	1	27	1	2	89
El Nino	3	67	0	0	11
Remote Sensing	0	0	0	0	0
Case Studies	0	0	0	0	0
<i>Exploring the Deep Sea</i>	9	100	1	2	100
Entire Section	1	6	0	0	0
The Sea's the Limit	0	1	0	0	0
Under Water Fly-by	0	3	0	0	0
Sea Link Mock-Up	1	6	0	0	0
Diving Conditions	1	9	0	0	0
Sea-Link Sequence	7	76	1	2	100
<i>Sea People</i>	4	100	4	6	100
Entire Section	1	18	0	0	3
Community	0	6	0	0	0
Sea Album	3	76	2	3	63
Knowledge	0	0	0	0	0
Risk	0	0	1	2	34
<i>Sea Store</i>	15	100	1	2	100
Entire Section	1	7	0	0	0
Sea Store Introductory Panel	0	0	0	0	0
Pharmasea	3	20	0	0	0
Seafood Counter	0	0	0	0	4
Inspiration	0	0	0	0	0
Shipping	0	3	0	0	0
Recreation & Tourism	0	0	0	0	0
Smart Shopping	0	2	0	0	13
Product Pyramid	10	69	1	1	83

(Continued)

Table 19. Continued.

	Most Interesting		Most Emotional		
	% of Total, All Visitors	% of Category	% of Total, All Visitors	% of Total, Excluding "Nothing"	% of Category
<i>Threats</i>	4	100	0	0	0
Entire Section	0	3	0	0	0
Intertidal	0	0	0	0	0
Untreated Waste	0	0	0	0	0
Coral Reefs	2	67	0	0	0
Mangroves	0	0	0	0	0
Polar Ecosystems	0	3	0	0	0
Kelp Forests	1	27	0	0	0
<i>Oceans in Peril</i>	11	100	23	34	100
Entire Section	2	18	1	2	5
Marine Debris	1	7	7	11	32
Toxics	1	9	1	1	3
Oil Pollution	1	5	3	5	13
Mining and Dumping	0	3	1	2	5
Nonpoint Source Pollution	0	2	0	0	0
America's Watersheds	0	0	0	0	0
Alien Species	0	0	0	0	0
Raw Sewage	0	3	0	1	2
Bad Sports	0	4	2	3	8
Dams	0	0	0	0	0
Lost Forests	0	0	0	1	2
Lost Wetlands	0	0	0	0	0
Overfishing	2	18	1	1	3
Chain Reactions	0	0	1	1	3
Terrible Tackle	0	0	0	0	1
Bycatch	0	0	0	1	2
Ozone Hole	2	17	1	2	5
Growing Pains	0	4	2	3	9
Swarming Shores	0	2	0	0	1
Climate Change	0	0	0	0	0
Heroes	1	8	2	2	7
<i>Reflections</i>	5	100	7	11	100
Entire Section	0	0	0	0	0
Sculpture Globe	5	100	7	10	96
What You Can Do	0	0	0	0	4
<i>Resource Room</i>	1 ⁺	100	0	0 ⁺	0
Entire Section	1	68	0	0	0
Ocean Voyager	0	14	0	0	0
Turning the Tide	0	0	0	0	0
Reading Ledge	0	0	0	0	0
Mountains to Monsoons	0	18	0	0	0
Life Down Under	0	0	0	0	0
Newsstand	0	0	0	0	0

⁺In Figures 16 and 19, *Resource Room* and *Computers, NEC* are combined as *Resource Room*.
(Continued)

Table 19. Continued.

	Most Interesting		Most Emotional		
	% of Total, All Visitors	% of Category	% of Total, All Visitors	% of Total, Excluding "Nothing"	% of Category
<i>Generic Exhibiton Elements</i>	19	100	4	6	100
Computers, NEC*	3 ⁺	17	2	3 ⁺	43
Interactives, NEC*	5	26	0	0	0
Photographs, NEC*	1	3	1	1	19
Objects, NEC*	2	11	0	0	0
Demonstrations	0	0	0	0	0
Fish/Animals	5	25	0	1	11
Pollution, NEC*	3	18	1	2	27
<i>General Responses</i>	---		3	5	100
Need for individual responsibility	---		1	1	25
Positive statement	---		2	3	75
<i>Emotional Responses</i>	6	100	10	15	100
General concern/anger over human actions	---		2	3	22
Interest indanger to sea life	---		3	4	29
Interest in danger to ecosystem	---		1	2	11
Concern over overpopulation	---		1	1	7
Concern over pollution	---		2	3	22
Concern over pollution	---		0	1	5
Interest in/concern over fishing	---		0	1	4
<i>Comments About Exhibition</i>	---		5	8	100
Pos. assmnt., exhibition presentation	---		1	2	23
Pos. assmnt., exhibition content	---		1	2	24
Neg. assmnt., exhibition presentation	---		0	0	4
Neg. assmnt., exhibition content	---		0	1	7
Interactives	---		1	1 ⁺⁺	14
Good for kids	---		0	1 ⁺⁺	7
Videos, NEC*	---		1	2 ⁺⁺	21
<i>Personal Interest</i>	---		0	0	100
<i>Everything</i>	5	100	4	5	100
<i>Other</i>	8	100	2	3 ⁺⁺	100
<i>Nothing</i>	---		32	---	100
No/Nothing-Not enough time	---		2	---	8
No/Nothing	---		30	---	92
<i>Don't know/no response</i>	7	100	1	2	100

⁺⁺In Figure 19, all these categories are included as "Other."

*NEC = Not Elsewhere Classified.

Table 20
Visitor Descriptions of Most Interesting Element
 Exit Survey, All Visitors
 (in Percent)

	% of Total	% of Category
<i>New Information</i>	29	100
Learned something new	12	41
New experience/presentation	4	13
New information	5	18
Number of products from ocean	8	29
<i>Positive statement About Exhibition</i>	27	100
General positive statement	10	39
Positive statement about exhibition content	6	21
Positive statement about exhibition presentation	11	40
<i>Description of Exhibition Element</i>	21	100
Activities for children	4	19
Fun activities	3	13
Interesting exhibition	7	34
Specific element in exhibition	7	34
<i>Other</i>	8	100
<i>Ecology</i>	9	100
Effects of human activity	5	56
Diversity of sea life	1	9
Illustrates interdependence in ecosystems	2	18
Role of oceans in daily life	2	17
<i>Negative statement about Exhibition</i>	3	100
Negative statement about exhibition presentation	2	74
Negative statement about exhibition content	1	26
<i>Appreciation</i>	2	100
Beautiful	2	100
Feel part of the ocean	0	0
<i>Don't Know</i>	1	100

Table 21
Visitor Descriptions of Most Interesting Section
Exit Survey, All Visitors
(in Column Percent)

Section	New Information	Positive Statement	Description of Exhibition	Other	Ecology	Negative Statement	Appreciation	Don't Know	Total
Ocean Science		0	2	1	1	7	0	0	2
Ship Lab		5	3	13	1	0	0	0	6
Exploring the Deep Sea		14	13	12	13	2	7	0	12
Sea People		3	2	10	9	12	0	0	5
Sea Store		37	7	10	3	31	0	0	18
Threats		0	9	1	21	0	0	0	4
Oceans in Peril		16	12	7	4	20	0	0	12
Reflections		2	7	5	1	0	0	82	6
Resource Room		5	4	11	5	0	0	0	5
Interactives, NEC*		3	5	13	0	0	0	0	5
Photographs, NEC*		1	1	0	0	0	0	0	1
Objects, NEC*		0	3	5	4	2	0	0	2
Fish/Animals		6	5	3	5	7	0	18	5
Pollution, NEC*		2	2	6	3	4	0	0	3
Other		3	9	2	22	11	0	0	6
Everything		1	6	1	0	0	0	0	2
Emotional Response		2	10	2	4	3	75	0	6
Don't Know		0	0	0	4	0	18	0	1
Total		100	100	100	100	100	100	100	100

*NEC = Not Elsewhere Classified.

Table 22
Demographic Characteristics
 Visitors to Ocean Planet Exhibition
 (in Percent)

Characteristics	Summer			Autumn			Total
	Exit	Entrance	Total	Exit	Entrance	Total	
<u>Gender</u>							
Male	51.3	51.2	51.3	57.9	54.5	56.7	53.3
Female	<u>48.7</u>	<u>48.8</u>	<u>48.7</u>	<u>42.1</u>	<u>45.5</u>	<u>43.3</u>	<u>46.7</u>
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<u>Age</u>							
0 to 11	14.3	15.3	14.7	11.9	11.5	11.7	13.6
12 to 19	11.4	14.2	12.4	9.1	7.1	8.4	10.9
20 to 24	12.2	13.8	12.8	13.8	8.0	11.9	12.5
25 to 34	19.9	20.7	20.2	22.9	23.4	23.1	21.3
35 to 44	21.9	18.6	20.7	19.3	16.8	18.5	19.9
45 to 54	15.4	13.0	14.5	15.5	16.4	15.8	15.0
55 to 64	2.7	1.2	2.1	4.4	9.7	6.2	3.6
65 Or up	<u>2.1</u>	<u>3.3</u>	<u>2.6</u>	<u>3.2</u>	<u>7.1</u>	<u>4.5</u>	<u>3.3</u>
Total	99.9	100.1	100.0	100.1	100.0	100.1	100.1
<u>Race/Ethnicity</u>							
Non-Minority/White	75.9	77.1	76.4	81.4	77.7	80.1	77.8
Minority	<u>24.1</u>	<u>22.9</u>	<u>23.7</u>	<u>18.6</u>	<u>22.3</u>	<u>19.9</u>	<u>22.3</u>
Total	100.0	100.0	100.1	100.0	100.0	100.0	100.1
<u>Residence</u>							
Foreign	20.1	18.0	19.3	10.2	17.0	12.4	16.8
Other United States	60.3	60.0	60.2	57.9	61.6	59.1	59.8
Washington, D.C.	3.6	2.6	3.2	4.6	1.3	3.5	3.3
MD/VA Suburbs	<u>16.0</u>	<u>19.4</u>	<u>17.3</u>	<u>27.4</u>	<u>20.1</u>	<u>25.0</u>	<u>20.1</u>
Total	100.0	100.0	100.0	100.1	100.0	100.0	100.0

(Continued)

Table 22. (Continued)

Characteristics	Summer			Autumn			Total
	Exit	Entrance	Total	Exit	Entrance	Total	
<u>Education (Age 25 and over)</u>							
Less Than High School Grad	0.6	0.6	0.6	2.5	0.0	1.6	1.0
High School Graduate	32.7	32.9	32.7	16.7	23.6	19.3	27.1
Bachelor's Degree	36.4	39.7	37.8	40.3	49.2	43.6	40.2
MA/Ph.D./Professional	<u>30.3</u>	<u>26.9</u>	<u>28.9</u>	<u>40.5</u>	<u>27.2</u>	<u>35.6</u>	<u>31.7</u>
Total	100.0	100.1	100.0	100.0	100.0	100.1	100.0
<u>Occupation (Age 18 and over)</u>							
Executive/Management	8.6	15.2	11.3	13.8	18.5	15.4	12.9
Professional Specialties	35.6	31.8	34.1	42.1	38.1	40.8	36.7
Sales, Technical/Admin.	16.9	16.3	16.7	9.2	9.4	9.3	13.7
Other	13.7	15.8	14.4	25.0	21.2	23.7	18.1
Non-Labor Force	<u>25.2</u>	<u>20.9</u>	<u>23.5</u>	<u>9.8</u>	<u>12.9</u>	<u>10.9</u>	<u>18.5</u>
Total	100.0	100.0	100.0	99.9	100.1	100.1	99.9
<u>Group Composition</u>							
Alone	11.3	9.0	10.4	16.7	15.2	16.2	12.5
Two Adults	26.2	27.2	26.6	32.1	37.6	33.9	29.2
3+ Adults	9.6	10.7	10.0	11.3	8.8	10.5	10.2
Adults and Kids	46.3	47.7	46.8	33.1	30.1	32.1	41.5
Kids and Teens	4.7	2.7	3.9	3.1	2.9	3.1	3.6
School/Tour Group	<u>2.0</u>	<u>2.8</u>	<u>2.3</u>	<u>3.6</u>	<u>5.6</u>	<u>4.3</u>	<u>3.0</u>
Total	100.1	100.1	100.0	99.9	100.2	100.1	100.0
<u>Visitor Type</u>							
New	46.3	49.0	47.4	38.8	56.3	44.5	46.3
Repeat	28.3	29.0	28.6	26.3	17.6	23.5	26.6
Frequent	<u>25.4</u>	<u>22.0</u>	<u>24.0</u>	<u>34.9</u>	<u>26.0</u>	<u>32.1</u>	<u>27.1</u>
Total	100.0	100.0	100.0	100.0	99.9	100.1	100.0

Table 23
Demographic Characteristics
 Visitors to Ocean Planet Exhibition and National Museum of Natural History (NMNH)
 (in Percent)

Characteristics	<u>Ocean Planet</u>			<u>NMNH (1994-95)</u>		
	Summer	Autumn	Total	Summer	Autumn	Total
<u>Gender</u>						
Male	51.3	56.7	53.3	50.5	54.3	51.8
Female	<u>48.7</u>	<u>43.3</u>	<u>46.7</u>	<u>49.5</u>	<u>45.7</u>	<u>48.2</u>
Total	100.0	100.0	100.0	100.0	100.0	100.0
<u>Age</u>						
0 to 11	14.7	11.7	13.6	18.1	14.0	16.7
12 to 19	12.4	8.4	10.9	15.0	8.0	12.5
20 to 24	12.8	11.9	12.5	7.1	6.9	7.0
25 to 34	20.2	23.1	21.3	13.4	19.7	15.6
35 to 44	20.7	18.5	19.9	22.8	19.7	21.7
45 to 54	14.5	15.8	15.0	14.4	15.6	14.8
55 to 64	2.1	6.2	3.6	5.2	9.0	6.5
65 Or Over	<u>2.6</u>	<u>4.5</u>	<u>3.3</u>	<u>4.0</u>	<u>7.0</u>	<u>5.1</u>
Total	100.0	100.1	100.1	100.0	99.9	99.9
<u>Race/Ethnicity</u>						
Non-Minority, White	76.4	80.1	77.8	80.4	84.7	81.9
Minority	<u>23.7</u>	<u>19.9</u>	<u>22.3</u>	<u>19.6</u>	<u>15.3</u>	<u>18.1</u>
Total	100.1	100.0	100.1	100.0	100.0	100.0
<u>Residence</u>						
Foreign	19.3	12.4	16.8	9.8	12.2	10.7
Other United States	60.2	59.1	59.8	73.5	62.8	69.7
Washington, D.C.	3.2	3.5	3.3	2.8	4.7	3.5
MD/VA Suburbs	<u>17.3</u>	<u>25.0</u>	<u>20.1</u>	<u>13.9</u>	<u>20.3</u>	<u>16.2</u>
Total	100.0	100.0	100.0	100.0	100.0	100.1

(Continued)

Table 23. (Continued)

Characteristics	Ocean Planet			NMNH (1994-95)		
	Summer	Autumn	Total	Summer	Autumn	Total
<u>Education (Age 25 and over)</u>						
Less Than High School Grad	0.6	1.6	1.0	2.9	2.5	2.8
High School Graduate	32.7	19.3	27.1	35.5	28.9	33.2
Bachelor's/Some College	37.8	43.5	40.2	30.8	33.9	31.9
MA/Ph.D./Professional	<u>28.9</u>	<u>35.6</u>	<u>31.7</u>	<u>30.8</u>	<u>34.7</u>	<u>32.2</u>
Total	100.0	100.0	100.0	100.0	100.0	100.1
<u>Occupation (Age 18 and over)</u>						
Executive/Management	11.3	15.4	12.9	16.4	12.6	15.1
Professional Specialties	34.1	40.8	36.7	33.1	44.6	37.2
Sales, Technical/Admin.	16.7	9.3	13.7	17.1	15.5	16.5
Other	14.4	23.7	18.1	13.5	15.6	14.2
Non-Labor Force	<u>23.5</u>	<u>10.9</u>	<u>18.5</u>	<u>20.0</u>	<u>11.8</u>	<u>17.1</u>
Total	100.0	100.1	99.9	100.1	100.1	100.1
<u>Group Composition</u>						
Alone	10.4	16.2	12.5	8.9	18.8	12.4
Two Adults	26.6	33.9	29.2	17.7	26.0	20.6
3+ Adults	10.0	10.5	10.2	9.8	14.9	11.6
Adults and Kids	46.8	32.1	41.5	53.7	30.9	45.7
Teens/Child(ren)	3.9	3.1	3.6	4.5	3.2	4.0
School/Tour Group	<u>2.3</u>	<u>4.3</u>	<u>3.0</u>	<u>5.3</u>	<u>6.1</u>	<u>5.6</u>
Total	100.0	100.1	100.0	99.9	99.9	99.9
<u>Visitor Type</u>						
New	47.4	44.5	46.3	51.3	47.7	49.9
Repeat	28.6	23.5	26.6	27.6	27.4	27.5
Frequent	<u>24.0</u>	<u>32.1</u>	<u>27.1</u>	<u>21.1</u>	<u>25.0</u>	<u>22.5</u>
Total	100.0	100.1	100.0	100.0	100.1	99.9

Introductory Note

Tracking Study Tables

Tables 24-29 following this text are based on the Tracking Study. Table 24 lists all of the exhibition elements included in the tracking protocol and information about them. In this and in most of the subsequent tables, Column 1 is a location identifier in the space and Column 2 lists a Descriptive Label associated with each element. The identifiers were assigned beginning with the first gallery, *Ocean Science*. A map of the exhibition is in Appendix A, page 38.

In Tables 24 and 25, Column 3 shows the percent of visitors who stopped at the element, followed by summary statistics for the amount of time visitors spent viewing the element.* (A "stop" was defined as a pause of at least three seconds in duration.) Column 4 gives the average length of those stops, Column 5 the standard deviation and Column 7 the Median time (i.e., half of visitors made shorter stops and half longer). The information in Tables 24 and 25 is identical; however, the former is in spatial order of the exhibition, while Table 25 is in rank order based on the percent of visitors who stopped at that location.

In Table 26, the first three columns are the same as in the previous tables. Column 4 shows the number of stops made by different visitors, while Column 5 is the number of return stops by visitors who stopped previously. The last column is the total of unique and return stops, i.e., the sum of Columns 4 and 5.

In Table 27, the first two columns are the same as in the previous tables. Column 3 shows the percent that stops at each element are of the total number of stops, in spatial order of the exhibition. This is quite different than the percent of all visitors who stopped at each element, shown in Tables 24-26. For example, while in Table 24 we see that 26.8 percent of all tracked visitors stopped at A10, *Ocean Currents*; in Table 27 we see that those stops were 2.8 percent of all stops.

Table 28 provides information about the time that the different quota groups spent in the exhibition. The groups are listed, followed by the number of stops they made and statistics about the stops (average, standard deviation, median, and the maximum time) within each quota group.

The last table, Table 29, also provides information for each of the quota groups. The first two columns show the location codes and the element descriptions. The next eight columns show the distribution of stops for each of the groups. These are followed by a total and the number of stops involved. For example, we see that of the 508 stops in *Ocean Science*, males visiting alone made 13.0% of the stops, while women visiting alone made 9.6%.

* "Return stops" have been excluded from this table. The exclusion allows us to accurately discuss the number of different visitors who made each stop.

Table 24
Stops in the Ocean Planet Exhibition : Spatial Order

1	2	3	4	5	6
			Unique Stops:Statistics		
Location	Description	Percent Who Stopped at Each Exhibit	Average Stop Time (Minutes)	Standard Deviation	Median
Exhibition=246 Visitors					
A	Ocean Science				
A10	Ocean Currents	26.8	0.92	0.78	0.81
A11	Sea Link Mock-Up	25.6	0.38	0.47	0.25
A31	The Sea's the Limit	4.9	0.74	0.75	0.38
A40	Recent Discoveries	4.5	1.83	1.82	1.42
A41	Remote Sensing	6.1	0.63	0.88	0.28
A42	Diving Conditions	17.5	0.91	1.19	0.47
A43	Marine Biodiversity (Front)	30.9	0.48	0.66	0.29
A44	Marine Biodiversity (Back)	6.5	0.79	1.22	0.20
A79	Ocean Planet Cart	1.6	0.76	1.12	0.28
A90	El Nino	16.7	1.60	1.56	0.93
A91	Case Studies	6.5	0.36	0.29	0.30
A92	Sea-Link Sequence (video)	47.6	1.90	2.23	0.83
A93	Under Water Fly-by	11.4	0.75	0.69	0.47
B	Sea People				
B50	Community	19.5	0.47	0.60	0.27
B51	Knowledge	17.9	0.44	0.36	0.34
B52	Risk	41.5	0.66	0.59	0.43
B90	Sea Album	47.6	1.48	2.28	0.60
C	Sea Store				
C20	Inspiration	11.0	0.29	0.41	0.13
C30	Sea Store, Intro	3.3	0.26	0.28	0.19
C31	Shipping	8.9	0.32	0.21	0.26
C32	Smart Shopping	23.2	0.57	0.68	0.43
C50	Pharmacy	22.8	0.93	0.93	0.53
C51	Seafood Counter	33.7	0.60	0.50	0.43
C52	Recreation & Tourism	16.7	0.36	0.32	0.23
C79	Sea Store Cart	4.9	0.98	1.67	0.29
C80	Product Pyramid	92.3	0.86	0.82	0.53

(cont.)

Table 24. (Continued)

1	2	3	4	5	6
		Unique Stops: Statistics			
Location	Description	Percent Who Stopped at Each Exhibit	Average Stop Time (Minutes)	Standard Deviation	Median
D	Oceans in Peril				
D20	Intertidal	4.9	0.18	0.07	0.17
D21	Untreated Waste	2.8	0.24	0.17	0.20
D22	Coral Reefs	3.3	0.12	0.06	0.11
D23	Mangroves	2.4	0.15	0.07	0.15
D24	Polar Ecosystems	1.6	0.16	0.10	0.15
D25	Kelp Forests	2.8	0.21	0.20	0.12
D40	Hero's	24.4	0.77	0.72	0.48
D7A	Oil Pollution	16.3	0.64	0.62	0.44
D7B	Toxics	25.2	0.65	0.76	0.41
D7C	Marine Debris	24.0	0.71	0.61	0.50
D7D	Mining and Dumping	11.0	0.50	0.50	0.23
D7E	Nonpoint Source Pollution	10.6	0.41	0.59	0.22
D7F	Raw Sewage	9.3	0.63	0.59	0.50
D7G	Alien Species	21.5	0.82	0.89	0.53
D7H	America's Watersheds	11.4	0.69	0.65	0.52
D7I	Lost Wetlands	2.8	0.34	0.46	0.20
D7J	Bad Sports	28.0	0.66	0.52	0.50
D7K	Lost Forests	19.1	0.42	0.42	0.33
D7L	Dams	29.3	0.44	0.32	0.30
D7M	Overfishing	24.0	0.87	0.82	0.68
D7N	Chain Reactions	13.0	0.36	0.44	0.19
D7O	Terrible Tackle	5.3	0.49	0.43	0.38
D7P	Bycatch	9.3	0.68	0.67	0.42
D7Q	Climate Change	3.3	0.73	0.59	0.45
D7R	Ozone Hole	8.5	0.35	0.22	0.30
D7S	Swarming Shores	5.7	0.55	0.36	0.57
D7T	Growing Pains	12.2	0.62	0.49	0.60

(cont.)

Table 24. (Continued)

1	2	3	4	5	6
			Unique Stops:Statistics		
Location	Description	Percent Who Stopped at Each Exhibit	Average Stop Time (Minutes)	Standard Deviation	Median
E	Reflections				
E10	What You Can Do	32.1	0.38	0.40	0.23
E30	Benches	2.4	1.53	2.49	0.69
E56	Reading Ledge	8.9	1.42	2.71	0.51
E70	Sculpture Globe	9.3	0.29	0.22	0.20
E80	Life Down Under	6.9	1.31	1.77	0.42
E81	Mountains to Monsoons	6.1	2.60	3.65	1.18
E82	Turning the Tide	9.8	3.12	3.27	2.32
E83	Ocean Voyager	8.1	1.51	3.04	0.51
	Total Stops, without "Returns"	2375			
	Total Visitors Tracked	246			

Table 25
Stops in the Ocean Planet Exhibition : Rank Order
 (% of Visitors)

1	2	3	4	5	6
			Unique Stops:Statistics		
Location	Description	Percent Who Stopped at Each Exhibit	Average Stop Time (Minutes)	Standard Deviation	Median
Exhibition=246 Visitors					
C80	Product Pyramid	92.3	0.86	0.82	0.53
A92	Sea-Link Sequence	47.6	1.90	2.23	0.83
B90	Sea Album	47.6	1.48	2.28	0.60
B52	Risk	41.5	0.66	0.59	0.43
C51	Seafood Counter	33.7	0.60	0.50	0.43
E10	What You Can Do	32.1	0.38	0.40	0.23
A43	Marine Biodiversity (Front)	30.9	0.48	0.66	0.29
D7L	Dams	29.3	0.44	0.32	0.30
D7J	Bad Sports	28.0	0.66	0.52	0.50
A10	Ocean Currents	26.8	0.92	0.78	0.81
A11	Sea Link Mock-Up	25.6	0.38	0.47	0.25
D7B	Toxics	25.2	0.65	0.76	0.41
D40	Hero's	24.4	0.77	0.72	0.48
D7C	Marine Debris	24.0	0.71	0.61	0.50
D7M	Overfishing	24.0	0.87	0.82	0.68
C32	Smart Shopping	23.2	0.57	0.68	0.43
C50	Pharmacy	22.8	0.93	0.93	0.53
D7G	Alien Species	21.5	0.82	0.89	0.53
B50	Community	19.5	0.47	0.60	0.27
D7K	Lost Forests	19.1	0.42	0.42	0.33
B51	Knowledge	17.9	0.44	0.36	0.34
A42	Diving Conditions	17.5	0.91	1.19	0.47
A90	El Nino	16.7	1.60	1.56	0.93
C52	Recreation & Tourism	16.7	0.36	0.32	0.23
D7A	Oil Pollution	16.3	0.64	0.62	0.44
D7N	Chain Reactions	13.0	0.36	0.44	0.19
D7T	Growing Pains	12.2	0.62	0.49	0.60
A93	Under Water Fly-by	11.4	0.75	0.69	0.47
D7H	America's Watersheds	11.4	0.69	0.65	0.52
C20	Inspiration	11.0	0.29	0.41	0.13
D7D	Mining and Dumping	11.0	0.50	0.50	0.23
D7E	Nonpoint Source Pollution	10.6	0.41	0.59	0.22

(cont.)

Table 25. (Continued)

1	2	3	4	5	6
			Unique Stops:Statistics		
Location	Description	Percent Who Stopped at Each Exhibit	Average Stop Time (Minutes)	Standard Deviation	Median
E82	Turning the Tide	9.8	3.12	3.27	2.32
D7F	Raw Sewage	9.3	0.63	0.59	0.50
D7P	Bycatch	9.3	0.68	0.67	0.42
E70	Sculpture Globe	9.3	0.29	0.22	0.20
C31	Shipping	8.9	0.32	0.21	0.26
E56	Reading Ledge	8.9	1.42	2.71	0.51
D7R	Ozone Hole	8.5	0.35	0.22	0.30
E83	Ocean Voyager	8.1	1.51	3.04	0.51
E80	Life Down Under	6.9	1.31	1.77	0.42
A44	Marine Biodiversity (Back)	6.5	0.79	1.22	0.20
A91	Case Studies	6.5	0.36	0.29	0.30
A41	Remote Sensing	6.1	0.63	0.88	0.28
E81	Mountains to Monsoons	6.1	2.60	3.65	1.18
D7S	Swarming Shores	5.7	0.55	0.36	0.57
D7O	Terrible Tackle	5.3	0.49	0.43	0.38
A31	The Sea's the Limit	4.9	0.74	0.75	0.38
C79	Sea Store Cart	4.9	0.98	1.67	0.29
D20	Intertidal	4.9	0.18	0.07	0.17
A40	Recent Discoveries	4.5	1.83	1.82	1.42
C30	Sea Store, Intro	3.3	0.26	0.28	0.19
D22	Coral Reefs	3.3	0.12	0.06	0.11
D7Q	Climate Change	3.3	0.73	0.59	0.45
D21	Untreated Waste	2.8	0.24	0.17	0.20
D25	Kelp Forests	2.8	0.21	0.20	0.12
D7I	Lost Wetlands	2.8	0.34	0.46	0.20
D23	Mangroves	2.4	0.15	0.07	0.15
E30	Benches	2.4	1.53	2.49	0.69
A79	Ocean Planet Cart	1.6	0.76	1.12	0.28
D24	Polar Ecosystems	1.6	0.16	0.10	0.15

Table 26
Unique and "Return" Stop Data for Ocean Planet Exhibition Elements
at Which at Least 20.0% of All Visitors Stopped

1	2	3	4	5	6
Location	Exhibition Element	Percent of Visitors Who Stopped	Unique Stops*	Return Stops**	All Stops
Exhibition = 246 Visitors					
C80	Product Pyramid	92.3	227	27	254
A92	Sea-Link Sequence (video)	47.6	117	29	146
B90	Sea Album	47.6	117	27	144
B52	Risk	41.5	102	5	107
C51	Seafood Counter	33.7	83	7	90
E10	What You Can Do	32.1	79	8	87
A43	Marine Biodiversity (Front)	30.9	76	1	77
D7L	Dams	29.3	72	2	74
D7J	Bad Sports	28.0	69	5	74
A10	Ocean Currents	26.8	66	5	71
A11	Sea Link Mock-Up	25.6	63	6	69
D7B	Toxics	25.2	62	3	65
D40	Hero's	24.4	60	3	63
D7C	Marine Debris	24.0	59	3	62
D7M	Overfishing	24.0	59	9	68
C32	Smart Shopping	23.2	57	3	60
C50	Pharmacy	22.8	56	1	57
D7G	Alien Species	21.5	53	4	57
	Total for table	97.6	1477	148	1625
	All Stops		2375	206	2581

*Stops made by different visitors.

**Return stops by visitors who stopped previously.

Table 27

Unique Stops in the Ocean Planet Exhibition: Spatial Order

1	2	3	4
Location	Description	Percent of All Stops	Percent of Stops in Section
A	Ocean Science	21.4	100.0
A10	Ocean Currents	2.8	13.0
A11	Sea Link Mock-Up	2.7	12.4
A31	The Sea's the Limit	0.5	2.4
A40	Recent Discoveries	0.5	2.2
A41	Remote Sensing	0.6	3.0
A42	Diving Conditions	1.8	8.5
A43	Marine Biodiversity (Front)	3.2	15.0
A44	Marine Biodiversity (Back)	0.7	3.1
A79	Ocean Planet Cart	0.2	0.8
A90	El Nino	1.7	8.1
A91	Case Studies	0.7	3.1
A92	Sea-Link Sequence	4.9	23.0
A93	Under Water Fly-by	1.2	5.5
B	Sea People	13.1	100.0
B50	Community	2.0	15.4
B51	Knowledge	1.9	14.1
B52	Risk	4.3	32.8
B90	Sea Album	4.9	37.6
C	Sea Store	22.4	100.0
C20	Inspiration	1.1	5.1
C30	Sea Store, Intro	0.3	1.5
C31	Shipping	0.9	4.1
C32	Smart Shopping	2.4	10.7
C50	Pharmacy	2.4	10.5
C51	Seafood Counter	3.5	15.6
C52	Recreation & Tourism	1.7	7.7
C79	Sea Store Cart	0.5	2.3
C80	Product Pyramid	9.6	42.6

(cont.)

Table 27. (Continued)

1	2	3	4
Location	Description	Percent of All Stops	Percent of Stops in Section
D	Oceans in Peril	34.4	100.0
D20	Intertidal	0.5	1.5
D21	Untreated Waste	0.3	0.9
D22	Coral Reefs	0.3	1.0
D23	Mangroves	0.3	0.7
D24	Polar Ecosystems	0.2	0.5
D25	Kelp Forests	0.3	0.9
D40	Hero's	2.5	7.3
D7A	Oil Pollution	1.7	4.9
D7B	Toxics	2.6	7.6
D7C	Marine Debris	2.5	7.2
D7D	Mining and Dumping	1.1	3.3
D7E	Nonpoint Source Pollution	1.1	3.2
D7F	Raw Sewage	1.0	2.8
D7G	Alien Species	2.2	6.5
D7H	America's Watersheds	1.2	3.4
D7I	Lost Wetlands	0.3	0.9
D7J	Bad Sports	2.9	8.4
D7K	Lost Forests	2.0	5.8
D7L	Dams	3.0	8.8
D7M	Overfishing	2.5	7.2
D7N	Chain Reactions	1.3	3.9
D7O	Terrible Tackle	0.5	1.6
D7P	Bycatch	1.0	2.8
D7Q	Climate Change	0.3	1.0
D7R	Ozone Hole	0.9	2.6
D7S	Swarming Shores	0.6	1.7
D7T	Growing Pains	1.3	3.7

(cont.)

Table 27. (Continued)

1	2	3	4
Location	Description	Percent of All Stops	Percent of Stops in Section
E	Reflections	8.7	100.0
E10	What You Can Do	3.3	38.3
E30	Benches	0.3	2.9
E56	Reading Ledge	0.9	10.7
E70	Sculpture Globe	1.0	11.2
E80	Life Down Under	0.7	8.3
E81	Mountains to Monsoons	0.6	7.3
E82	Turning the Tide	1.0	11.7
E83	Ocean Voyager	0.8	9.7
Total Stops, without "Returns"		2375	
Total Visitors Tracked		246	

Table 28
Decomposition of Stop Time : Ocean Planet Exhibition

Quota Group	Unique Stops	Unique Stops: Statistics			
		Avg. Stop Time (Minutes)	Standard Deviation	Median	Maximum
Male Alone	250	0.9	1.0	0.5	6.4
Female Alone	225	0.8	1.1	0.4	7.5
Male Adult Group	279	0.7	1.1	0.4	9.4
Female Adult Group	415	0.8	1.0	0.4	9.8
Adult(s) & Child(ren)/Adult Male*	341	0.8	1.2	0.4	13.9
Adult(s) & Child(ren)/Adult Female*	267	0.7	1.1	0.3	11.1
Adult(s) & Child(ren)/Male Child*	297	0.9	1.5	0.4	14.0
Adult(s) & Child(ren)/Female Child*	301	1.0	1.6	0.5	14.0
All Stops	2375	0.8	1.2	0.4	14.0

*Observed individual in a group of Adult(s) and Child(ren).

Table 29
Distribution of Stops, by Quota Group*

1	2	3	4	5	6	7	8	9	10	11	12
Location	Male Alone**	Female Alone	Male Adult Group	Female Adult Group	AdKid Adult Male	AdKid Adult Female	AdKid Male Child	AdKid Female Child	Total (Percent)	Total (Number of Stops)	
All Stops	10.5	9.5	11.7	17.5	14.4	11.2	12.5	12.7	100.0	2375	
A00 Ocean Science	13.0	9.6	11.6	18.1	11.4	12.4	12.4	11.4	100.0	508	
A10 Ocean Currents	13.6	12.1	7.6	22.7	4.5	15.2	13.6	10.6	100.0	66	
A11 Sea Link Mock-Up	7.9	4.8	12.7	12.7	14.3	12.7	20.6	14.3	100.0	63	
A31 The Sea's the Limit	8.3	8.3	16.7	16.7	8.3	16.7	8.3	16.7	100.0	12	
A40 Recent Discoveries	18.2	18.2	18.2	27.3	0.0	18.2	0.0	0.0	100.0	11	
A41 Remote Sensing	33.3	13.3	6.7	26.7	0.0	6.7	0.0	13.3	100.0	15	
A42 Diving Conditions	23.3	7.0	11.6	14.0	18.6	2.3	14.0	9.3	100.0	43	
A43 Marine Biodiversity (Front)	10.5	14.5	10.5	18.4	10.5	11.8	10.5	13.2	100.0	76	
A44 Marine Biodiversity (Back)	12.5	12.5	0.0	31.3	18.8	18.8	0.0	6.3	100.0	16	
A79 Ocean Planet Cart	0.0	0.0	0.0	0.0	25.0	50.0	25.0	0.0	100.0	4	
A90 El Nino	17.1	7.3	7.3	22.0	9.8	19.5	4.9	12.2	100.0	41	
A91 Case Studies	0.0	12.5	6.3	18.8	6.3	18.8	25.0	12.5	100.0	16	
A92 Sea-Link Sequence	12.8	7.7	19.7	17.1	11.1	9.4	12.0	10.3	100.0	117	
A93 Under Water Fly-by	7.1	10.7	3.6	10.7	25.0	10.7	17.9	14.3	100.0	28	
B00 Sea People	8.7	12.2	15.4	15.4	17.0	9.6	9.6	11.9	100.0	311	
B50 Community	6.3	12.5	8.3	25.0	16.7	10.4	10.4	10.4	100.0	48	
B51 Knowledge	13.6	13.6	15.9	9.1	20.5	6.8	9.1	11.4	100.0	44	
B52 Risk	7.8	10.8	17.6	15.7	14.7	11.8	11.8	9.8	100.0	102	
B90 Sea Album	8.5	12.8	16.2	13.7	17.9	8.5	7.7	14.5	100.0	117	

(cont.)

Table 29. (Continued)

1	2	3	4	5	6	7	8	9	10	11	12
	Location	Male Alone**	Female Alone	Male Adult Group	Female Adult Group	AdKid Adult Male	AdKid Adult Female	AdKid Male Child	AdKid Female Child	Total (Percent)	Total (Number of Stops)
C00	Sea Store	8.6	8.8	13.1	16.9	15.2	10.3	14.3	12.8	100.0	533
C20	Inspiration	11.1	3.7	7.4	14.8	14.8	14.8	14.8	18.5	100.0	27
C30	Sea Store, Intro	0.0	25.0	25.0	25.0	25.0	0.0	0.0	0.0	100.0	8
C31	Shipping	9.1	4.5	22.7	22.7	22.7	0.0	13.6	4.5	100.0	22
C32	Smart Shopping	12.3	12.3	22.8	14.0	12.3	8.8	7.0	10.5	100.0	57
C50	Pharmacy	7.1	16.1	17.9	23.2	10.7	8.9	10.7	5.4	100.0	56
C51	Seafood Counter	9.6	8.4	16.9	16.9	10.8	12.0	10.8	14.5	100.0	83
C52	Recreation & Tourism	7.3	4.9	12.2	19.5	14.6	14.6	9.8	17.1	100.0	41
C79	Sea Store Cart	0.0	16.7	16.7	33.3	8.3	8.3	8.3	8.3	100.0	12
C80	Product Pyramid	8.4	7.0	7.5	14.1	18.1	10.6	19.8	14.5	100.0	227
D00	Oceans in Peril	11.4	8.8	10.3	19.1	13.6	11.5	11.9	13.5	100.0	817
D20	Intertidal	16.7	8.3	8.3	25.0	8.3	8.3	0.0	25.0	100.0	12
D21	Untreated Waste	28.6	0.0	0.0	14.3	28.6	28.6	0.0	0.0	100.0	7
D22	Coral Reefs	12.5	25.0	37.5	12.5	12.5	0.0	0.0	0.0	100.0	8
D23	Mangroves	0.0	33.3	16.7	33.3	16.7	0.0	0.0	0.0	100.0	6
D24	Polar Ecosystems	0.0	0.0	50.0	50.0	0.0	0.0	0.0	0.0	100.0	4
D25	Kelp Forests	42.9	14.3	28.6	14.3	0.0	0.0	0.0	0.0	100.0	7
D40	Hero's	10.0	3.3	21.7	35.0	11.7	13.3	0.0	5.0	100.0	60
	<u>Buoy Panels</u>	11.1	9.0	8.7	17.5	13.9	11.6	13.6	14.6	100.0	713
D7A	Oil Pollution	15.0	15.0	5.0	25.0	7.5	7.5	12.5	12.5	100.0	40
D7B	Toxics	9.7	9.7	8.1	21.0	11.3	11.3	14.5	14.5	100.0	62
D7C	Marine Debris	11.9	5.1	13.6	22.0	20.3	6.8	10.2	10.2	100.0	59
D7D	Mining and Dumping	25.9	11.1	7.4	25.9	11.1	0.0	7.4	11.1	100.0	27
D7E	Nonpoint Source Pollution	3.8	11.5	15.4	23.1	19.2	11.5	7.7	7.7	100.0	26
D7F	Raw Sewage	17.4	17.4	8.7	21.7	13.0	8.7	4.3	8.7	100.0	23
D7G	Alien Species	7.5	9.4	7.5	11.3	9.4	11.3	20.8	22.6	100.0	53

(cont.)

Table 29. (Continued)

1	2	3	4	5	6	7	8	9	10	11	12
	Location	Male Alone**	Female Alone	Male Adult Group	Female Adult Group	AdKid Adult Male	AdKid Adult Female	AdKid Male Child	AdKid Female Child	Total (Percent)	Total (Number of Stops)
	<u>Buoy Panels</u>	11.1	9.0	8.7	17.5	13.9	11.6	13.6	14.6	100.0	713
D7H	America's Watersheds	21.4	7.1	10.7	14.3	25.0	7.1	7.1	7.1	100.0	28
D7I	Lost Wetlands	14.3	14.3	0.0	14.3	0.0	42.9	0.0	14.3	100.0	7
D7J	Bad Sports	10.1	5.8	11.6	11.6	13.0	8.7	17.4	21.7	100.0	69
D7K	Lost Forests	4.3	6.4	4.3	17.0	8.5	19.1	17.0	23.4	100.0	47
D7L	Dams	4.2	5.6	6.9	12.5	13.9	16.7	18.1	22.2	100.0	72
D7M	Overfishing	6.8	10.2	8.5	6.8	11.9	10.2	25.4	20.3	100.0	59
D7N	Chain Reactions	9.4	15.6	6.3	18.8	18.8	15.6	15.6	0.0	100.0	32
D7O	Terrible Tackle	30.8	15.4	7.7	30.8	0.0	7.7	0.0	7.7	100.0	13
D7P	Bycatch	13.0	21.7	8.7	17.4	17.4	13.0	8.7	0.0	100.0	23
D7Q	Climate Change	12.5	0.0	0.0	25.0	25.0	25.0	0.0	12.5	100.0	8
D7R	Ozone Hole	4.8	0.0	4.8	38.1	14.3	23.8	4.8	9.5	100.0	21
D7S	Swarming Shores	14.3	7.1	7.1	28.6	7.1	7.1	14.3	14.3	100.0	14
D7T	Growing Pains	23.3	3.3	16.7	10.0	26.7	10.0	3.3	6.7	100.0	30
E00	Reflections	8.7	9.2	8.7	14.1	18.4	12.1	15.0	13.6	100.0	206
E10	What You Can Do	8.9	8.9	13.9	19.0	10.1	15.2	10.1	13.9	100.0	79
E30	Benches	16.7	0.0	16.7	16.7	50.0	0.0	0.0	0.0	100.0	6
E56	Reading Ledge	4.5	9.1	0.0	9.1	36.4	9.1	18.2	13.6	100.0	22
E70	Sculpture Globe	8.7	4.3	4.3	21.7	21.7	21.7	4.3	13.0	100.0	23
E80	Life Down Under	11.8	17.6	5.9	0.0	29.4	11.8	11.8	11.8	100.0	17
E81	Mountains to Monsoons	6.7	13.3	6.7	6.7	20.0	6.7	26.7	13.3	100.0	15
E82	Turning the Tide	4.2	12.5	8.3	8.3	12.5	12.5	16.7	25.0	100.0	24
E83	Ocean Voyager	15.0	5.0	5.0	15.0	15.0	0.0	40.0	5.0	100.0	20

*As shown in Appendix C, the quota groups were of slightly different sizes. However, when the data in this table are adjusted for differences in group size, the pattern of differences between quota groups remains essentially the same. Data on file, ISO.

** See Table 28 for complete titles of quota groups.

Appendix C.

Study Methodology: Ocean Planet

The *Ocean Planet* Study is one of a series conducted by the Institutional Studies Office (ISO) to profile visitors to Smithsonian museums, to increase our knowledge of the visit experience and to provide information for future exhibition planning. Each study is designed to meet the particular needs of the sponsor and the resources available for the study. This appendix contains the rationale for the sample design, a discussion of the questionnaires, and information about the study's implementation.¹

Goals

The central goals of this study can best be phrased as questions:

1. To what extent are the exhibition's key curatorial messages communicated to visitors?
2. Are visitors' attitudes towards ocean problems being changed by the exhibition; and if so, in what ways?
3. What overall ideas are visitors coming away with?
4. To what degree are these responses significantly affected by the elements that people see in the exhibition or by the time that they spend with them?

Overall Design

Data for the study were collected in personal interviews with a systematic scientific sample of visitors at the exhibition entrance (Entrance Survey) and at the exhibition exit (Exit Survey). During the same time frame, but not at the same time as the interviews were conducted, we observed (unobtrusively tracked) a sample of visitors through the entire exhibition and noted the overall time they spent in the exhibition as well as the time and location of each stop. Interviewing was conducted during two time periods, between August 16 and August 28 (Summer visitors) and between October 23 and November 5 (Autumn visitors).

Interview Study (Entrance Survey and Exit Survey). For this project we used a "continuous sampling" technique, a special procedure developed for sampling a mobile population.² This allowed us to maximize resources by selecting individuals whenever interviewers were available and then adjusting the sampling weights for every fifteen-

¹ For additional background about the study, see the Introduction to this report.

² The procedure and its rationale are described in Doering, Z. D., Kindlon, A. E., & Bickford, A. (1993). *The Power of Maps: A Study of an Exhibition at the Cooper-Hewitt National Museum of Design* (Report No. 93-5). Washington, DC: Smithsonian Institution.

minute period, according to the number of people who passed the interviewing location during that period.

For this study, we used teams of three at both entrance and exit (one counter plus two interviewers). There were three interviewing sessions within each day of the week (11:00 - 12:30, 1:30 - 3:00, 3:30 - 5:00). Exit and Entrance Surveys were coordinated so that the same people could not be selected for both, and so that Exit and Entrance Surveys were conducted during all periods of the day.

Visitor cooperation with the study was high, 88.3% of eligible respondents completed interviews in the Entrance Survey and 78.9% in the Exit Survey, for an overall response rate of 82.5%.³ A total of 406 interviews were completed in the Entrance Survey, 572 interviews in the Exit Survey, and 246 visitors were observed in the tracking portion of the study. The intercepted individuals represent a population of over 21,000 visitors to the exhibition during the survey period. In appreciation for their cooperation, respondents were given a booklet about the exhibition.

Observations (Tracking Study). Individuals were selected on the basis of an eight-cell quota sample designed to select approximately equal numbers of men and women, as well as equal numbers of visitors entering the exhibition alone, with other adults, and in groups of adults and children. Visitors in adult-children groups were selected so that about half of the trackings focused on the viewing behavior of a child in the group and half focused on the viewing behavior of an adult. See Table C.1 for a listing the tracking quotas and their disposition.

Table C.1
Composition and Disposition of Quota Groups, Tracking Study

Gender	Group Composition	Summer			Autumn			Total Study		
		Desired	Achieved	% Diff.	Desired	Achieved	% Diff.	Desired	Achieved	% Diff.
Female		60	56	-6.7	60	65	8.3	120	121	0.8
	Single Adult	15	11	-26.7	15	17	13.3	30	28	-6.7
	2+ Adults	15	15	0.0	15	16	6.7	30	31	3.3
	Adults & Kids (Choose Adults)	15	14	-6.7	15	17	13.3	30	31	3.3
	Adults & Kids (Choose Kids)	15	16	6.7	15	15	0.0	30	31	3.3
Male		60	63	5.0	60	62	3.3	120	125	4.2
	Single Adult	15	17	13.3	15	14	-6.7	30	31	3.3
	2+ Adults	15	15	0.0	15	19	26.7	30	34	13.3
	Adults & Kids (Choose Adults)	15	17	13.3	15	15	0.0	30	32	6.7
	Adults & Kids (Choose Kids)	15	14	-6.7	15	14	-6.7	30	28	-6.7
Total		120	119	-0.8	120	127	5.8	240	246	2.5

³ See below for a discussion of these response rates and the response bias in the study.

Questionnaire Development

The primary objective of the study was to collect data with which to address the exhibition's communication effectiveness and, if possible, to detect changes resulting from a visit to the exhibition. A secondary objective was to relate the visitors' experience to specific objects and display strategies. Third, we needed a profile of visitors to the exhibition to determine if the exhibition's audience differed from the overall visitorship to the National Museum of Natural History. In addition, we needed to compare data collected in this study with a background study conducted for *Ocean Planet* in 1994. The questionnaires for the study, then, had to collect information with which to assess the extent to which the exhibition successfully communicated its messages, the changes in visitor perspectives as a result of a visit, the impact of exhibition components, and the audience profile, while allowing for comparison with the earlier study.

The initial portion of the questionnaire collected general information about the visit. Aside from asking for residence (Q1) and prior visits to NMNH (Q2) and other museums (Q3), we asked for the visitors' sources of information, if any, about the exhibition and what they had heard (Q4). After establishing some rapport with visitors, we asked whether they or their family members worked in occupations directly dependent upon the ocean (Q5). These questions (Q1-Q5) were identical on both the Entrance and Exit Surveys.

All visitors were asked the four central substantive questions, "Can you describe how, if at all, oceans affect your daily life?" (Q6), "How would you rate the future of oceans?" (Q7), "What do you think are the most serious problems affecting oceans?" (Q8), and "What do you think someone like you can do to help solve ocean problems?" (Q10). Responses to Questions 6, 8 and 10 were recorded by the interviewers and later coded by ISO staff. Responses to Question 7 were keyed to a ten-point scale, where higher scores connoted more optimism about the future of the oceans.

The remaining substantive questions, asked of exiting visitors only (Exit Survey), focused on the exhibition. Finding a way to assess the respondents' understanding of the curator's point of view was the most challenging part of developing the questionnaire. After exploring several measurement options, the approach we settled on relied primarily on open-ended items. We asked exiting visitors whether their rating of the future of the oceans was affected by anything they saw in the exhibition (Q7A). We also asked exit respondents which exhibition element they found most interesting (Q9) and most emotionally powerful (Q18), and why. Finally, we asked exiting visitors to estimate the amount of time they spent in the exhibition galleries (Q11).

The interview ended with a set of standard ISO demographic questions: who accompanied the respondent to the museum (Q12), occupation (Q13), age (Q14), educational attainment (Q15), racial/ethnic identification (Q16) and gender (Q17). These were asked in both Entrance and Exit Surveys.

The wording of several questions was simplified, so that they could be answered by young children (questions 6, 8 and 10 on both questionnaires and Q18 on the Exit Survey).

The questionnaire also included a section for recording administrative information that is necessary for empirical analysis. This included the time, date and location of the interview, and the reason, if applicable, that an interview was not completed (e.g., Smithsonian employee). Interviewers were trained to administer the survey with the aid of a manual developed for the study.⁴

Questionnaire development included experimentation with the order of the exhibition items. That is, we tried not only different items but also different orders.⁵ The order used in the final questionnaire asks several subjective, open-ended questions about the exhibition before objective forced choice items. In determining the final order of the items in the questionnaire, we sought to maximize the internal consistency of responses, while minimizing respondent fatigue and the respondents' feeling that they were being tested.

Sample Design and Selection

Survey Schedule. Resource and schedule constraints restricted the data collection to seven days during August and an identical period in late October. Within each day, the schedule covered only six hours instead of the 8.5 hours in which the museum was open. (Summer hours were from 10:00 AM to 6:30 PM). The actual schedule takes into account resource limitations as well as hypothesized variations in visitor types during different days of the week and times of the day.⁶ During each data collection period of the study, the schedule translates into approximately a 25.0% sample of hours.

Sample Selection.⁷ Within each time interval selected for the survey, a team of three interviewers were assigned to the exhibition Exit (or Entrance). A team leader, or "counter," used a mechanical counter and a stop watch to keep track of the number of persons exiting (or entering) the exhibition and maintained a record of the number of people exiting within 15 minute intervals. The counter also identified the visitors to be intercepted whenever an interviewer had completed one interview and was ready to begin the next. (This method of selecting a sample keeps the interviewers fully occupied, compared to an equal interval selection method; the counter is essentially incorporating a self-adjusting selection interval.)

⁴ General interviewing instructions were based on Institutional Studies Office. (1988). *A Manual for Interviewers*. Prepared for the 1988 National Air and Space Survey (Report No. 88-3). Washington, DC: Smithsonian Institution. The general instructions and question-by-question specifications for this study are available from the Institutional Studies office.

⁵ Approximately 50 preliminary questionnaires were administered by Institutional Studies staff as part of questionnaire development.

⁶ Schedule on file in the Institutional Studies Office.

Everyone, except those in escorted groups, was counted and the information recorded on a Sample Selection Form. In addition, when intercepts were made, the number on the mechanical counter ("count number") was recorded on both the Sample Selection Form and by the interviewer on the questionnaire.

Office Procedures. The questionnaires were reviewed in the office and prepared for data entry. The main purpose of this review was to ensure that the data file included the appropriate information for weighting the data. The weight for each questionnaire was defined as: the number of visitors counted in a specific 15 minute interviewing segment divided by the number of intercepts in the segment. For example, each of 4 questionnaires filled out in a given 15 minutes during which 40 visitors exited would be assigned a weight of 10, irrespective of when it was conducted during the 15 minutes (e.g., if the "count numbers" were 5, 12, 28 and 40). In the analysis, these weights were assigned to individual records, since respondents were not selected with equal probability throughout the survey.

Completion Rates and Response Bias

As shown in Table C.2, overall, 11.7% of all persons intercepted in the Entrance Survey and 21.1% in the Exit Survey refused to participate in the survey. The overall refusal rate was 17.5%. While a few refusals were due to language difficulties (36.7%), the majority of refusals (63.3%) were for "other" reasons (e.g., visitors in a hurry, not wanting to detain companions, etc.).

We compared separate demographic characteristics of visitors between those who completed interviews and those who refused for any reason. There were statistically significant differences between those who completed and those who refused in three variables: type of interview (more refusals in the Exit Survey), residence (more refusals among Foreign residents), and among visitors 35 years old and older (more refusals for visitors ages 35 and older). Because of the relatively small number of refusals due to language differences, it was not possible to examine these types of refusals independently.⁸

However, when we look at characteristics together, i.e., in a multivariate statistical model, we find the following: overall, all else being equal, individuals exiting the exhibition were 3.9% more likely to refuse when compared to those entering. In addition, all else being equal, foreign residents were 5.7% more likely to refuse in comparison to visitors who live in the United States. Finally, persons age 35 and older were 3.1% more likely to refuse than younger visitors.⁹

The high response rate and the results of these logistic regression models suggest that there is no need to weight for non-response.

⁷ The discussion is restricted to the mechanics of sample selection, rather than the rationale. See Doering, Z. D., Kindlon, A. E., & Bickford, A. (1993). *The Power of Maps: A Study of an Exhibition at the Cooper-Hewitt National Museum of Design* (Report No. 93-5). Washington, DC: Smithsonian Institution.

⁸ Data on file, ISO.

⁹ Data on file, ISO.

Table C.2
Results of Data Collection: Ocean Planet
(in percent)

Type	Entrance		Exit		Total	
	N	%	N	%	N	%
SUMMER						
A. Disposition, All Eligible Visitors						
Interviews	235	86.7	295	76.4	530	80.7
Non-Interviews	36	13.3	91	23.6	127	19.3
Total	271	100.0	386	100.0	657	100.0
B. Disposition of Non-Interviews						
Refusal, Language Difficulty	19	52.8	31	34.1	50	39.4
Refusal, Other Reason	17	47.2	60	65.9	77	60.6
Total Non-Interviews	36	100.0	91	100.0	127	100.0
C. Response Rates						
All Eligible Visitors		86.7		76.4		80.7
AUTUMN						
A. Disposition, All Eligible Visitors						
Interviews	171	90.5	277	81.7	448	84.8
Non-Interviews	18	9.5	62	18.3	80	15.2
Total	189	100.0	339	100.0	528	100.0
B. Disposition of Non-Interviews						
Refusal, Language Difficulty	5	27.8	21	33.9	26	32.5
Refusal, Other Reason	13	72.2	41	66.1	54	67.5
Total Non-Interviews	18	100.0	62	100.0	80	100.0
C. Response Rates						
All Eligible Visitors		90.5		81.7		84.8
TOTAL STUDY						
A. Disposition, All Eligible Visitors						
Interviews	406	88.3	572	78.9	978	82.5
Non-Interviews	54	11.7	153	21.1	207	17.5
Total	460	100.0	725	100.0	1185	100.0
B. Disposition of Non-Interviews						
Refusal, Language Difficulty	24	44.4	52	34.0	76	36.7
Refusal, Other Reason	30	55.6	101	66.0	131	63.3
Total Non-Interviews	54	100.0	153	100.0	207	100.0
C. Response Rates						
All Eligible Visitors		88.3		78.9		82.5

Appendix D

A walk through the *Ocean Planet* exhibition*

A World Worth Our Attention

After centuries of seafaring, we're only now beginning to plumb the workings of our watery planet. The deeper we go, the clearer it becomes that no matter who we are or where we live, we all have a hand--and a stake--in what happens in the seas.

The difficulties of diving into complete darkness, frigid water, and extremely high pressures hobbled exploration in the past. But new sophisticated submersibles and precise remote sensing have revolutionized oceanography. Researchers are discovering exciting fundamental facts about the oceans and the teeming life the seas support.

With this knowledge has come recognition that even landlubbers take much from the sea. Often unwittingly, we are imperiling the oceans. More than three-quarters of coastal ocean pollution originates on land. Unhealthy oceans hold hidden dangers for everyone.

This exhibition reminds us that in ways we may never have even considered, we're all seafarers, and it offers us ways to become more seaworthy--to think about what everyone can do to conserve the *Ocean Planet*.

Gallery 1: Ocean Science

Over 99 percent of living space on earth is ocean, all habitable by plants and animals. Marine life is astounding in its diversity. In 1986, biologists identified the thirty-third major group, or phylum, of animals--loriciferans, microscopic creatures that live between sand grains. The seascape is equally intriguing: the longest sea-floor mountain range is more than four times as long as the Andes, Rockies, and Himalayas combined. The exhibition opens by immersing visitors in the remote reaches of the *Ocean Planet*:

- An intricate, visually arresting sculpture represents the oceans' biodiversity with an unusual or beautiful example of phyla of plants, animals, marine fungi, blue-green algae, and bacteria.

* This description was prepared by the Environmental Awareness Project as part of the exhibition promotional materials. A floor plan of the exhibition is in Appendix A, page 38.

- An animated "fly-by" takes visitors from a point in space above North America to soar over the Pacific, then to dive near Hawaii and "fly" underwater past Japan, through the Mariana Trench, to resurface near New Guinea.
- Photo panels with newspaper-style headlines and copy spotlight recent advances and late-breaking news (e.g., the world's largest concentration of active volcanoes-- 1100 active cones covering an area the size of New York state--was discovered in 1993)
- A life-sized model of the pilot's sphere of the Johnson *Sea Link* and a videotape research expedition captures the excitement of diving in a submersible to see Bahamas' deep-sea dwellers at close range--an experience that few people will ever have in real life.
- The bow of a ship hosts videos, objects and photo panels focusing on contemporary research and satellite monitoring, and points out how ocean currents profoundly affect us.

Gallery 2: Sea People

Listening to seafarers reveals common themes: maritime communities feel a strong sense of unity; they integrate their traditions with current technology and information; and their work is extremely risky, both financially and physically. Decisions about ocean conservation will need to address their social and economic concerns.

We're all sea people, in the sense that our lives or livelihoods take us to the beach or sea, The exhibition introduces visitors to other *sea people*:

- A sea-album video presents a range of people whose lives and livelihoods take them to sea: tourists on a beach, oil-rig workers, students collecting specimens, fishermen, etc., with related quotes, music, and conversation (open captioned).
- Objects and photos describe customs of sharing the catch, and the roles of men and women among many cultures (Inupiat whalers, Maine lobstermen, Micronesian clans who control fishing areas, African women fish dealers, etc.).
- Fishing boats, traps, hooks, paddles, and nets from around the world show the integration of traditional experience and modern methods.
- Charms, amulets, and protective totems used in many fishing societies (from a ceramic model of a Catholic saint to wooden carvings from Kenya and the Pacific) testify to the dangers fishermen face.

Gallery 3: Sea Store

Unless you eat seafood everyday, you might not necessarily think that you depend on sea "services" daily. Ocean plants, animals, minerals, and seawater itself provide a staggering list of essential products. To help recognize them, the exhibition invites visitors to browse in the *sea store*:

- Sea shoppers can choose from many departments:
 - seafood* (natural history of the fish and shellfish we eat)
 - pharmacy* (drugs, surgical aides, traditional remedies, medical research)
 - products* (marine components in food and beverages, clothing and accessories, personal care, hobbies)
 - power tools* (energy sources from the sea)#
 - recreation and tourism* (what to take and what not to bring back)
 - shipping* (the most important economic use of the oceans)
 - inspiration* (books, music, art, religion)
 - recycling center* (water, carbon, phosphorus and nitrogen cycles)#
- "Product information labels," with bar codes that can be read by hand-held bar-code readers, identify many likely and not-so-likely sea products.
- A check-out counter tallies the global bill for sea items used locally every day by everyone. As they leave, visitors can "check out" the value of shipping on the global market, or the number of people who rely on seafood diets.

Gallery 4: Oceans in Peril

Beyond their obvious beauty, marine habitats such as coral reefs, mangrove forests, kelp forests, estuaries, the polar ecosystems, and the deep sea furnish far-reaching support for human endeavors. The exhibition sounds a wake-up call about world-wide *threats*:

- Panoramic color photomurals of threatened marine habitats remind visitors of what is at stake.

Signals Ahead

While oil spills and beach trash regularly make the evening news, other warning signs aren't as easy to name. It's clear that overfishing and dumping raw sewage cause problems; it's not as immediately apparent that automobile exhaust and pesticide-laden water from fields far away are equally troublesome. To help visitors navigate the shoals, life-sized models of buoys mark the course through *oceans in peril*:

Not mounted during survey periods.

- For each hazard, a buoy explains the threat, illustrates its effects, and outlines current responses, using graphics, objects, and hands-on activities.
- Buoy 1 covers oil pollution (oil spills are not the largest source), toxic chemicals and metals, and garbage, especially plastics.
- Buoy 2 examines coastal-water problems: agricultural run-off, air pollution, sewage, and alien species (non-local species released in ships' ballast water).
- Buoy 3 investigates the effects of inland and coastal habitat alteration: tourism, inland deforestation, and dammed rivers.
- Buoy 4 reports on overfishing, habitat-destroying fishing (with cyanide and dynamite), and by-catch (non-target animals such as turtles trapped in shrimp nets).
- Buoy 5 summarizes global warming, sea-level rises, ozone depletion, and coastal development and population growth.

Gallery 5: Reflections

The dangers to the ocean planet are dire, but it's not too late! Taking small measures in our daily routines can vastly improve the oceans' outlook. The exhibition closes with opportunities for *reflections*:

- Profiles of people helping the oceans-- from kids' groups cleaning up beaches, to scientists, to international-treaty negotiators show that all efforts are important, and give each exhibition venue the opportunity to honor local "heroes".
- A striking sculpture of the ocean planet designed to encourage reflection on the exhibition's messages complements panels answering "What can you do?"
- At the exit, visitors can answer "What will you do?" by taking a list of suggestions or by leaving a message in a bottle--a call to action for the *Ocean Planet*.

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*In percent of all visitors who gave each response.

+In percent.