

# Evaluating the Kelp Forest Feeding Program at the Monterey Bay Aquarium

*Simone Mortan and Steven Yalowitz*

## BACKGROUND

This evaluation project was conducted to measure the effectiveness of particular communication strategies in the Kelp Forest feeding program at the Monterey Bay Aquarium. During the Kelp Forest program a volunteer guide (docent) delivers a narration about the Kelp Forest exhibit and has a conversation with a diver feeding the fish in the exhibit. The program concludes with the diver and the volunteer taking questions from the audience. The communication strategies measured in this study were identified by The Ocean Project (TOP), a collaborative initiative where the Monterey Bay Aquarium is a supporting partner.

As described on the Ocean Project's web page: "The Ocean Project is an unprecedented collaboration of more than 400 aquariums, zoos, science, technology and natural history museums, as well as conservation organizations and others. The aquariums, zoos, and museums collectively reach 140 million visitors annually. We (TOP) are a new initiative that intends to create in people a lasting, measurable, top-of-mind awareness of the importance, value, and sensitivity of the oceans. We believe that the single greatest impediment to healthy and productive marine and coastal areas is the public's low level of ocean awareness." (www.theoceanproject.org, 2002)

The Ocean Project worked with Belden Russonello & Stewart (BSR) and American Viewpoint to review existing public opinion data on the oceans and to conduct a nationwide

public opinion survey. The review of existing data focused on public opinion surveys conducted between 1992 and 1999. They also reviewed two intercept surveys done at the Monterey Bay Aquarium and at the National Museum of Natural History (The Ocean Project, 2003a).

Finally, BSR along with American Viewpoint conducted six focus groups with adults who had visited a zoo, aquarium or science museum in the past two years. These focus groups "explored the public's connections, values, attitudes, and knowledge relating to the oceans. Our goal was to better understand what needs to be communicated to build awareness and to increase people's concern about the health of the oceans" (The Ocean Project, 2003b).

Through analysis of this research, TOP has identified three communication strategies they are promoting, with the help of collaborating institutions.

- **Strategy 1:** Appeal to, and promote, positive emotional connections to the ocean that most people possess.
- **Strategy 2:** Convey information through a "balance of nature" framework that conveys the importance of the interconnectedness of all life, which holds high credibility with most people.
- **Strategy 3:** Emphasize the importance and power of individual responsibility in protecting oceans for the future.

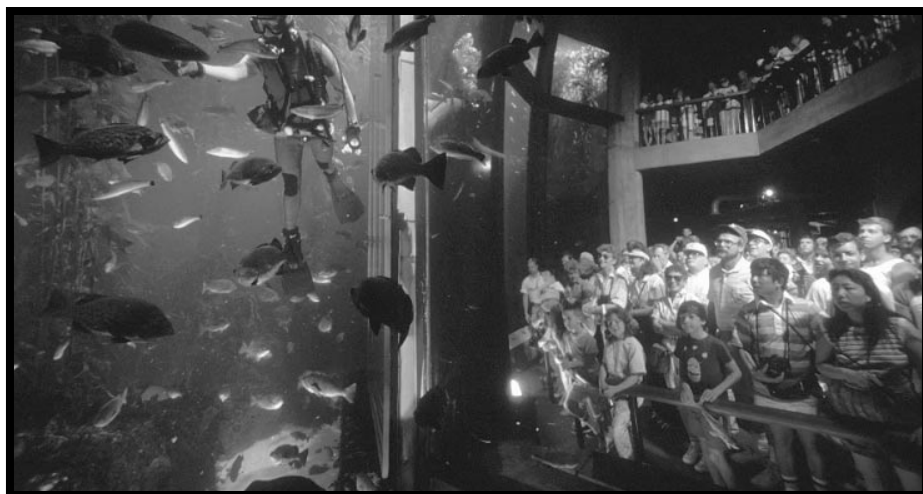
Each supporting partner of TOP has been charged with contributing to the understanding of the effectiveness of

these communication strategies. In a newspaper column Jim Hekkers (currently Monterey Bay Aquarium's Executive Vice-President) reviewed six program case studies which employ these communication strategies (The Ocean Project, ND). In one example from the Vancouver Aquarium of Marine Science, a new exhibit was completely redone after only nine months to reflect these strategies. Exhibit evaluation showed that the original exhibit was not engaging visitors.

At the Monterey Bay Aquarium, our project to evaluate the effectiveness of the communication strategies in the Kelp Forest program is a first step in understanding how these strategies, both individually and cumulatively, contribute to visitors' perception of and caring for the world's oceans.

## METHODS

During a Kelp Forest feeding, there is a volunteer guide (docent) outside the tank conducting the program with a diver inside the tank, who has a microphone to communicate with the guide and answer questions. Five Kelp Forest narration programs were videotaped, and at the end of the narrations short surveys were given to visitors who had seen the show. The same survey was given to a control group who had not seen the show during their visit. For each videotape, two scorers independently rated the number of times a narrator used each of the following strategies: emotional connection (to the visitor), balance of nature and personal responsibility. Any differences between scorers were discussed and rectified.



*Kelp Forest Feeding Show*

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The total score for each narration represents the number of statements made during the program that relate to one of the three strategies.

## MAIN SURVEY ITEMS

Visitors rated the following statements from “strongly disagree” to “strongly agree.”

1. Small actions like picking up trash can make a big difference for animals living in the ocean.
2. It is important to choose seafood that was caught or raised in a way that protects oceans.
3. The plants and animals living in the kelp forest need each other to survive.
4. People rely on and utilize the kelp forest in many ways.

From the following list, visitors circled the three words or phrases they would use to best describe the kelp forest:

Beautiful	Swaying
Cold	Scary
Peaceful	Community
Important	Multi-layered
Lots of life	Majestic
Interesting	Productive

The answers on the above items were compared using the following variables:

- whether they saw a narration (*versus the control group*)
- which narration they saw
- the narration total score
- scores for each of the three strategies (emotional connection, balance of nature, personal responsibility)
- if they had seen a Kelp Forest feeding during a previous visit
- if they had been to the aquarium previously.

## SUMMARY OF FINDINGS

### *Previous Visitation*

Since half of the aquarium’s visitors are repeat visitors and the Kelp Forest feeding is one of the most popular programs, some visitors have had multiple exposures to the narration. In fact, people who had seen a Kelp Forest feeding previously were more likely to say that people rely on the kelp forest than those who were seeing it for the first time.

Additionally, comparisons were made between those who had seen the feeding, either during that visit or on a previous visit, and those seeing the program for the first time. Visitors were split into three groups to examine this possible effect: 1) those who had just

seen the program and had seen a program on a previous visit, 2) those who had just seen the program for the first time, and 3) those who had never seen the program (the control group).

Increased exposure to the Kelp Forest feeding program did result in increased support for the statement: “It is important to choose seafood that was caught or raised in a way that protects the oceans.” There seems to be a cumulative effect of seeing this particular program at the aquarium. However, it is possible that other factors during previous visits also contributed to this effect.

### *Effects of the Narration*

Of the four statements, visitors generally saw the importance of small human actions, choosing seafood, and the relationship between plants and animals as most important. Less obvious to visitors was the reliance of humans on the kelp forest. There were some differences on the dependent measures based on whether someone saw a narration. Compared to the control group, those who saw a narration:

- thought it was more important to choose sustainable seafood
- were more likely to describe the kelp forest as a “community”
- were more likely to describe the kelp forest as “important.”

### *TOP Communication Strategies*

All of the programs employed all three communication strategies, but there was some variation in the degree to which different narrators used these strategies. The highest scoring program received a total score of 24 and the lowest scored a 9. Scores for the communication strategies ranged from a low of 1 (personal responsibility) to a high of 15 (emotional connection).

The narrations differed significantly on all four scores: emotional connection,

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*Kelp Forest Feeding Show*

Narration #	Emotional Connection	Balance of Nature	Personal Responsibility	Total Score
1	15	4	5	24
2	8	3	1	12
3	4	4	5	13
4	3	2	8	13
5	3	3	3	9

**TABLE 1.** Narration scores on the three communication strategies and total score.

*NOTE: Each score refers to the number of times a narrator said something related to the category (e.g., in narration 1, the narrator refers to the role of personal responsibility 5 times during the narration).*

balance of nature, personal responsibility, and total score. Of the three strategies, the emotional connection score had the biggest impact on responses to the main survey items:

1. The narration's emotional connection score affected visitors' agreement that small actions make a big difference. The higher the emotional connection score, the more likely they were to agree with that particular statement.
2. The narration's emotional connection score affected visitors' agreement that it is important to

choose sustainable seafood. The higher the emotional connection score, the more likely they were to agree with that particular statement.

### CONCLUSIONS

**I**t is difficult to assess the impact of a single program on a visitor's perception of the ocean. From exit surveys we have learned that attendance at programs increases visitor satisfaction. Through this study we are seeing some evidence that the use of TOP communication strategies can positively

influence visitors' view of the importance of choosing sustainable seafood and the interdependence of plants and animals in the kelp forest habitat.

Across the entire sample people described the exhibit using emotional terms. The top three selected words were beautiful, peaceful and interesting. The emotional connection made during the program seemed to have the strongest influence on visitors' agreement with statements promoting personal action for ocean conservation.

It is interesting to note that the emotional connection score had a greater influence on visitor response to personal responsibility statements than the frequency of references to personal responsibility during the program. Further research should be conducted to examine which types of emotional connection messages are the most effective.

There is evidence that as a result of the Kelp Forest program visitors see the kelp forest as a community or habitat, as well as understand the importance of this community. Visitors who had just seen a narration program were more likely to describe the kelp forest as a "community" and "important." This focus on the habitat theme should continue in future training materials for volunteer guides.

Despite the significant difference in narration scores for TOP communication strategies, there appeared to be little relationship between visitors' response to the surveys and the narration's overall score. However, future training of volunteer guides and divers should promote TOP strategies to ensure consistency. Content guidelines for this program should be revised to reflect this focus.

Other institutions and supporting partners are beginning to think about and examine the effects of TOP's

## Presenting Results

communication strategies on the visitor experience. As information is shared and a knowledge base built, it will be interesting to see which similarities and differences are revealed between institutions and programs. Certainly, this is a project that has broad implications for how messages are effectively communicated.

### REFERENCES

Hekkers, Jim. (ND). *The Ocean Project Case Studies*. On the TOP website: [http://www.theoceanproject.org/what\\_we\\_do/communication.html](http://www.theoceanproject.org/what_we_do/communication.html)

The Ocean Project (August 23, 2002). *Our Mission*. On the TOP website: <http://www.theoceanproject.org/about/mission.html>

The Ocean Project (January 27, 2003a). *What We Do*. On the TOP website: [http://www.theoceanproject.org/what\\_we\\_do/research.html#analysis](http://www.theoceanproject.org/what_we_do/research.html#analysis)

The Ocean Project (January 27, 2003b). *Summary of Analysis of Six Focus Groups*. On the TOP website: <http://www.theoceanproject.org/images/doc/focusgroup.doc>

### THE AUTHORS

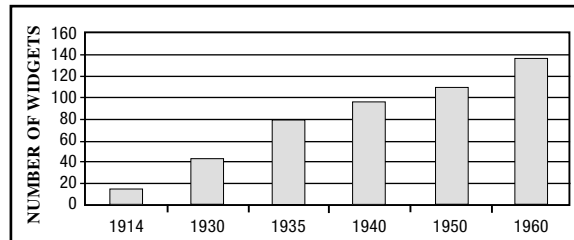
**SIMONE MORTAN**, at the Monterey Bay Aquarium for six years, is currently the Assistant Manager for Visitor Programs. During this time she has conducted evaluations that have informed changes in both volunteer training and Kelp Forest and Sea Otter feeding programs. [smortan@mbayaq.org](mailto:smortan@mbayaq.org)

**STEVEN YALOWITZ** is the Audience Research Specialist at the Monterey Bay Aquarium. He completed his Ph.D. in Applied Social Psychology at Colorado State University in 2001, examining the sensory and informational factors for visitor satisfaction at an aquarium, art museum, and nature and science museum (in *VSToday!*, Spring 2002). [syalowitz@mbayaq.org](mailto:syalowitz@mbayaq.org)

### Don't Fool with Graphs

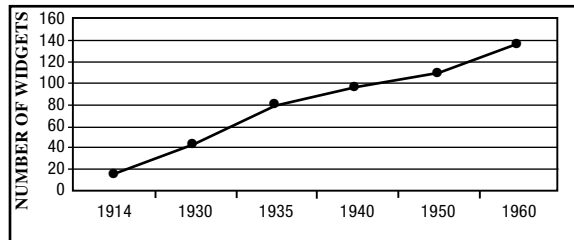
The Figure 1 bar chart hangs on the wall of a museum I visited this year (the labels have been changed here to mask identity). The chart illustrates a common error made when creating charts in Microsoft® Excel. This problem often occurs when the data available are for irregularly spaced time periods.

Figure 1. Bar chart of time data



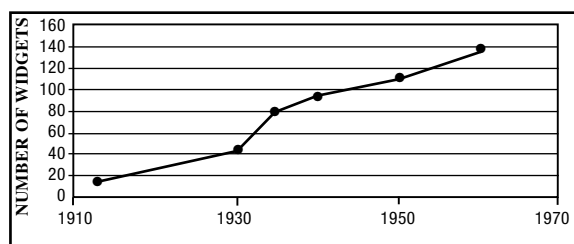
Readers may mentally draw a line through the top of the bars to see how the numbers increase. Figure 2 shows what this might look like as a corresponding line chart.

Figure 2. Line chart of same data using default settings in Microsoft® Excel



Figures 1 and 2 are drawn in Microsoft® Excel using the default for the Category X labels. The shape of the line is misleading since it does not account for the varying time intervals. There are several ways to correct this problem. Using the Chart Wizard, find the scale tab in Step 3 and change the scale to a time scale. Another way that I find easier is to use an XY chart, Microsoft® Excel's name for a scatterplot. Figure 3 is drawn using an XY chart.

Figure 3. An XY or scatterplot correctly accounts for the irregular time intervals



The problem with Figures 1 and 2 is that quantitative data (years) are treated as categorical data. In Microsoft® Excel, the default for the independent variable for bar charts and line charts is categorical. XY charts in Microsoft® Excel assume that the data are quantitative so that irregularly spaced data are handled properly.

When using Microsoft® Excel it is important to think about your data carefully and choose your chart according to your type of data rather than the look of the finished chart. Don't allow yourself or your audiences to be fooled by graphs.

**Naomi Robbins**, President, NBR  
[n.robbs@att.net](mailto:n.robbs@att.net)

*Note: E-mail questions about presenting results to Naomi or Beth Lisberg Najberg for future columns.*