

Coral Reef Conservation through Outreach Education

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Abstract

Climate change, overfishing, destructive fishing practices, pollution, and habitat degradation threaten coral reefs and undermine the capability of tropical coastal populations to meet basic health, economic, and social needs. An informed public is needed to bring about change and conservation. A traveling exhibit of lightweight modular design that can be easily transported and displayed in a wide diversity of settings (e.g., airports, ecological centers, cruise ships, auditoriums, libraries, museums, banks, community centers) can be targeted to reach all age groups, societal groups, and educational backgrounds. Qualified scientists and educators can collaborate to develop exhibit content around specific local or regional threats. Key themes can be updated by simple replacement of display elements. Our broad-based education and public awareness project is designed to recreate the most successful features of the 1996 exhibition (*Nuestros Arrecifes: Unidos por el Caribe/Our Reefs: Caribbean Connections*) produced by the Smithsonian Tropical Research Institute and opened in Panamá during the 8th International Coral Reef Symposium (ICRS). With newer production materials, the exhibit can be more easily modified, transported, and displayed than the original. Its content is being revised to accommodate the many ecosystem and societal changes of the last eight years. This exhibit offers a scientific perspective of the continued deterioration of many coral reefs in the Western Atlantic and presents community-based attempts to conserve, sustainably utilize, or restore reefs and related ecosystems. Its content is readily identifiable to inhabitants and of immediate relevance to visitors. This project can serve as a model for any regionally focused educational exhibit.

Key Words:

Public Awareness, Traveling Exhibit, Caribbean Coral Reefs, Model for Outreach Education, Coral Reef Conservation, Regionally Focused Educational Exhibit

Introduction

As witnessed by hundreds of presentations made at this 10th International Coral Reef Symposium (ICRS), coral reefs are being degraded, and the health, economic and societal needs of tropical coastal populations are being undermined by the effects of climate change, overfishing, destructive fishing, pollution, and habitat degradation. An informed public is needed to bring about change and conservation.

Nuestros Arrecifes: Unidos por el Caribe/Our Reefs: Caribbean Connections was the name of the Smithsonian Tropical Research Institute's bilingual traveling exhibit (Fig. 1) that debuted in Panamá during the 8th ICRS in 1996. For several years, the exhibit visited multiple venues in the United States, Honduras, Jamaica, Puerto Rico, and Belize before being retired back to Panamá. A new broad-based educational and public awareness project is designed to recreate the most successful aspects of the 1996 exhibit. The Smithsonian Institution has encouraged the new work and provided very helpful logistical information.



FIGURE 1. The original, 1996 exhibition (*Nuestros Arrecifes: Unidos por el Caribe/Our Reefs: Caribbean Connections*) produced by Smithsonian Tropical Research Institute and opened in Panamá during the 8th International Coral Reef Symposium (ICRS).

Both exhibits are modular in design and purposefully flexible to be adaptable to various architectural features and spaces (Fig. 2). The first exhibit visited a variety of venues, including airports, nature centers, a shopping mall, a bank lobby, a church hall, a train station, a school gymnasium, and other public exhibition areas. The new project is intended to increase the range of locations, in order to reach an even larger diversity of age groups, educational backgrounds, and societal levels. A goal is to meet a broad spectrum of people in their own usual meeting places, where they may comfortably gather to interact with each other, with the new exhibition as a focal point for exchange of ideas and information.



FIGURE 2. A modular design permits part of an exhibit to be wrapped around support columns to fit in small architectural spaces.

Challenges in Concept and Execution

Scientists and educators are collaborating to develop exhibit content around specific local or regional threats to the health of coral reefs in the greater Caribbean region. Each module begins with an introduction to a problem, presented as neutrally and anonymously as possible to minimize embarrassment to any particular individuals or communities. Without oversimplifying the difficulties, nor claiming that there are any easy answers or quick fixes, specific, local attempts to conserve, sustainably use, or restore reefs and related ecosystems will be shown within each topic module (Fig. 3).

Currently the list of topics to be covered in the exhibit modules include the effects on reefs and related ecosystems of global climate change, fishing, the aquarium/curio trades, marine aquaculture, land-based sources of pollution, tourism, and bioprospecting. Marine protected areas and other “management” strategies will also be discussed, along with an introduction to coral reef biology and geology.

It is critical to stress the importance of the “localness” not only of the threats depicted, but also

of their attempted resolution. The philosophy behind the exhibit is that public knowledge and awareness of coral reef ecosystems, and issues regarding their long-term conservation, are most effectively achieved when they are connected to identifiable, local examples of regional (or even global) problems and solutions. Thus, as in the original, illustrated examples in the new exhibit will collectively embrace all the major peoples of the wider Caribbean.



FIGURE 3. Local attempts to conserve, sustainably use, or restore reefs and related ecosystems are shown within each topic module. This panel from the new exhibit illustrates the benefits to coral reefs and tropical communities obtained when terrestrial hillsides are reforested.

Local participation

An integral component of this project is encouraging organizations in the communities visited to contribute their own displays, touch tanks, or, as shown in Figure 4, from the original exhibit, a marine aquarium.



FIGURE 4. A marine aquarium on display with the original exhibit in the Miami International Airport.

Locally recruited volunteer docents (Fig. 5), who were instructed to adopt a conversational style appropriate for the age and educational level of their audiences, were invaluable resources as they helped explain the content of the first exhibit during peak visitation hours at most venues. They held out for closer display, corals of kinds that were similar to the ones shown in a case that traveled with the exhibit. At the last two venues there was also a “treasure trunk” of educational materials for young children. The docents also provided much-needed feedback regarding the local reception to the exhibit, its strong points and its weaknesses. Plans for the new exhibit include developing docent-specific training materials, dedicating more time for their training, and increasing the diversity of occupations (or, for students, of major disciplines) represented in the docent pool.



FIGURE 5. A student volunteer docent uses the exhibit as a backdrop to talk about the threats facing reefs to Panamanian school children in 1996.

Another strategy that we hope to expand in the new exhibit is interaction with local officials and other community leaders. When they are invited to participate in public ceremonies associated with the opening of an exhibition, the excitement and attention that is thereby generated sometimes presents local organizations with opportunities to achieve long-sought preservation, conservation, or restoration goals.

Materials and Methods

The original exhibit was constructed of wooden panels. It was transported between venues in heavy wooden crates requiring a crane to load and unload and small crews to assemble and disassemble. New technologies available to us include lightweight, modular panel systems, which can be transported in aluminum carrying cases (Fig. 6) and quickly assembled or taken apart by two people without tools (Fig. 7). Although technologies behind professional trade-show display systems such as these have not

changed significantly in the past few years, design, creation-process, and archival techniques that are now more widely available, will greatly reduce the time between content changes and changes within the exhibit. Hence, when conditions change (as happened dramatically after the 1998 ENSO event) and the content of any module needs revision, new posters can easily replace the ones in current use at that time. Given all the improvements in production materials, the new exhibit will be more easily and more inexpensively modified, transported, and displayed than the original.



FIGURE 6. Lightweight aluminum carrying cases will replace the heavy wooden crates constructed for the first exhibit. (Photos of this Scenario brand product courtesy of the manufacturer, MBA.)



FIGURE 7. The modular panel system for the second exhibit is easily assembled. (Photos of this Scenario brand product courtesy of the manufacturer, MBA.)

The widespread adoption of the Internet throughout the Americas has greatly decreased the amount of money being spent in collecting content and illustrations for the new exhibit. Increased use of the Internet has also decreased the number of trips, and thereby travel expenses, required for collaborations. Drafts of texts, figures, and display

layouts are emailed back and forth or posted at web sites for input, editing, and approval. The use of information design clustering techniques, simulated lighting effects, larger inset photographs, and large background photographic compositions in the new exhibit should significantly enhance the learning experience as well as the aesthetic experience for its audiences.

Unchanged, however, are the enormous efforts involved in procuring accurate, up-to-date information and relevant illustrations, and in creating designs that will capture the public's interest and attention. For example, the scientific perspective that will be applied to all the themes, and the entire content of the exhibit, will be the result of hundreds of communications with dozens of members of the reef science community, giving the audience an authentic connection to contemporary reef scientists and their research. Equally important as sources of information are contacts engaged in a wide range of environmentally responsible tourism, agriculture, and other commercial enterprises, or associated with governmental or non-governmental organizations.

As of this writing, the draft of one module has been successfully "road-tested" at the March (2004) *White Water to Blue Water* Conference in Miami. Much useful feedback was received and many new contacts were made that will facilitate the future travel of the new exhibit.

Conclusions

Traveling exhibitions can provide a focal point for discussion among many members of society in order to deepen public understanding of complex issues that span the interfaces of science, technology, economics, and society. Exhibit content can be developed around specific local or regional threats. Not only is it easier a to start an educational experience on common

ground with a known or recognizable example, but it is also easier to build ownership of a problem when the subject matter is familiar to the audience. Once there is local ownership, then the chances for local action and for energizing the public at large to initiate, promote, and support reef environmental conservation, are increased.

The purpose of this paper is to encourage other groups of individuals or organizations to consider the value of creating a museum display or traveling exhibit to reach a broad spectrum of the public, to educate and inform the public of not only what threatens their coral reefs, but also of examples of what their neighbors are doing to address the problems and to ameliorate similar conditions.

We hope this project will serve as a model for regionally focused educational exhibits in other geographic areas, and help take the scientific perspectives shared during the recent ICRS and communicate them to local communities. In turn, this may facilitate the initiation or continuation of community-based attempts to conserve, sustainably utilize, or restore reefs and related ecosystems.

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