

## Teachers Guide: Introduction to Exhibit Panels



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## How to Use this Exhibit

We recommend hanging the exhibit in the following order:

Panel 1: "Coral Reefs: Nurseries of the Sea"

Panel 2: "Corals are Amazing!"

Panel 3: "Coral Reefs are in Danger"

Panel 4: "10 Things YOU Can Do"

The exhibit can be absorbed in a short amount of time. However, if you have more time, let the students really study and get lost in the images on the panels.

Activities related to the exhibit are found in this *Teachers Guide* documents and well as more information about the panels themselves.

Any topic presented on the panels can be expanded upon in the classroom through use of the supplemental materials. The exhibit can also be used in conjunction with just about any subject being taught. Spelling words, math problems, cultural studies, can all be inspired by, and connect back to, the exhibit.

## P1 Coral Reefs: Nurseries of the Sea

This is the largest panel in the exhibit and serves to demonstrate a vibrant coral reef environment. This particular reef-scape could be found in the Pacific Ocean near Hawaii, but is made of a composite of species digitally painted by the artist, Paly.

### **Art as Persuasion**

Art has been a vehicle for opinion and persuasion for thousands of years. By using this piece of art in our exhibit, we are expressing our opinion that coral reefs are natural treasures and trying to persuade the audience of the exhibit to believe the same.

Another art project aimed at educating people about coral reefs is called [The Crochet Coral Reef](#). We have seen this exhibit installed and were impressed by its profound beauty.

We recently saw this “art wall” in a lower elementary classroom and enjoyed its unique “biodiversity”.



### **Humans Need the Reef**

The intrinsic beauty of coral reefs has not been enough to protect them from real or potential economic gain. In this panel, we answer the question “What’s in it for me?” Use this panel to ask students, “What would happen to people around the world if all the coral reefs were gone?”

### **Wave Reduction**

The hard exoskeletons of millions of years of coral reef growth have a profound and measureable effect on waves. Wave reduction protects people living on the coasts (including the United States) from the powerful storms that would otherwise wipe out whole cities.

### **The Food We Eat**

1 billion people depend on fish and seafood for their protein needs. However, billions of people around the world eat fish and seafood. Without the protection of coral reefs when animals are young, the most commonly consumed fish and seafood would die out. People without alternate means of protein would also die out.

A chain reaction could cause heavier consumption of beef and other animals which have their own environmental impacts (rainforests are commonly chopped down to create cattle ranches, for example).

### **Health and Medicines**

It is estimated that we have only scratched the surface of the potential medicinal and health benefits to be gained by studying coral reef plants and animals. It would be detrimental to human health and longevity if coral reefs were wiped out before we could learn more. The current economic benefit of medicines from coral reef species is estimated at \$5 billion per year.

### **Biodiversity**

Coral reefs are thought to be the second most biodiverse ecosystem in the world (only slightly behind rainforests). But it is also thought that 90 percent of species on earth have yet to be discovered! The benefits to humans that these additional discoveries could provide are potentially endless. However, current estimates suggest that such biodiversity has an economic benefit of \$5 billion per year.

### **Eco-Tourism**

Reef destruction, fueled by thoughtless coastal development and bad cruise ship practices (dropping anchors on coral reefs, for example) is slowly giving



way to eco-tourism, the practice of conserving the reef in order for people to enjoy it for generations to come. No one will pay money to stay at a clear-cut forest. The same is true of coral reefs.

In addition, conservation organizations have invested heavily in areas such as the Coral Triangle, where colonialization has disrupted indigenous ways of life, leading to destructive practices as a way to earn a living. Such organizations spend tremendous effort and dollars developing eco-tourism as not only an alternative to previous practices, but actually an improvement – eco-tourism is sustainable, and thus, generates more revenue over time. This improves the lives of coastal peoples *and* saves coral reefs at the same time.

The economic value of eco-tourism is estimated to be about \$9 billion per year.

## P2 Corals are Amazing!

For the second panel in this exhibit, we chose to highlight some of our favorite facts about corals and coral reefs. It is important for students to know that corals have been alive on our planet for a very long time. They are animals, yet their exoskeletons grow to tremendous lengths and shapes. Corals hunt their food, but they also have a symbiotic relationship with algae in order to survive. Corals are amazing!

## P3 Coral Reefs are in Danger

This panel demonstrates the ways humans put coral reefs at risk. Scientists believe that all coral reefs will be in danger by 2050 and that it is quite possible that climate change alone can drive corals, and species dependent on corals, to extinction. This is because corals are very sensitive to changes in water temperature and chemistry. The excess of carbon dioxide in our atmosphere, one of the causes of climate change, is killing off corals at an alarming rate. Even as humans race to reduce the amount of carbon dioxide we produce, the damage may have already been done.



Likewise, humans have out-fished the most commonly consumed species of fish. Other species of fish have been overfished due to bycatch (the name given to all unwanted fish that are caught along with the targeted species). Sustainable fishing methods allow for the repopulation of fish, but whether or not this is enough remains to be seen.

Despite these very overwhelming problems, there is some hope. It is our desire with this panel, not only to demonstrate many of the dangers affecting coral reefs, but to show the specific things people are doing to help coral reefs. Many of these programs have had profound effects on segments of coral reefs throughout the world and it is our hope that all coral reefs will be saved.

Please review the ["Save the Reef!" game](#) for more information on the specific content on this panel.

## P4 10 Things YOU Can Do

This panel is quite possibly the most inspirational panel in the exhibit. In it, we demonstrate two types of "Nature Heroes", a "professional nature hero", someone who had dedicated her life to saving the ocean and its ecosystems, and "everyday nature heroes", anyone anywhere who wants to help save coral reefs.

This panel provides ten specific ways "everyday nature heroes" can help save coral reefs, but of course there are many more. The ten things were chosen for their ability to be completed by individuals, as a team/classroom, or small group such as a club.

See the Teachers Guide: Activities document for even more ideas.

