

CORAL CURRENT

The Newsletter of The Coral Reef Alliance



Working Together to
Keep Coral Reefs Alive

AN EDUCATED TOURIST IS NO ACCIDENT

CORAL Leadership Network: CORAL and Hawaiian Partners Launch Innovative New Program to Create an Educated Public

As you step off the plane, the warm Maui air envelops you. You head to your hotel and grab your suit. On an impulse, you grab some snorkeling gear from a little rental hut on the beach.

A local youth hands you a bagged set of gear. He smiles and says, *"Please watch the coral on the way in and make sure to adjust your fins before swimming over the reef. Mahalo."*

Unpacking your gear, you notice a list of guidelines attached to your snorkel bag also advising reef friendly behaviors.

Stay horizontal in the water when near or above a reef. Take nothing living or dead out of the water except garbage. Feeding fish

can hurt them and cause biting.

Mask in place, you carefully pick a sandy entrance in which to adjust your fins. The cool water washes away the day's travels and the sun warms your back. Moving over the reef, you avoid touching it. And although you are tempted, you resist tucking that beautiful cowrie shell in your pocket. In the corner of your eye, you see some movement. A turtle!

CORAL Leadership Network

Our exciting new project, the **CORAL Leadership Network** aims to provide environmental education to every Maui visitor. With help from our partners,

the Maui Reef Fund and the Department of Aquatic Resources (DAR), Hawaii's reefs will benefit from the success of this project for many years to come.

Tourism ranks highly as a threat to Hawaii's reefs. Some beaches receive upwards of 2,000 visitors a day. One person touching a reef or collecting some shells may not

Hannah Bernard, Maui Reef Fund Coordinator, says "The CORAL Leadership Network is a shared dream for most of us in the field of marine education here in Hawai'i. We're thrilled to be part of an international effort to increase environmental awareness in marine tourism."

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Thousands of tourists visit Maui daily. The CORAL Leadership Network uses innovative ways to promote reef friendly behaviors.



have noticeable impact. However, 2,000 visitors each day touching reefs, kicking coral, or stirring up sediment can destroy a hundred year-old reef in just a few short years.

Studies show that even one educational interaction can reduce harmful tourist contact. Education prevents further reef damage and can allow it to recover faster from other natural stresses like rising sea temperatures. (cont'd pg.3)

CORAL REEF ALLIANCE
417 Montgomery St. Suite 205
San Francisco, CA 94104
www.coral.org

NOTES FROM THE REEF

CORAL STAFF

Brian Huse

Executive Director

Janine Kraus

Development Director

Rick MacPherson

Program Director

Tom Meshishnek

Finance & Administration Director

Sherry Flumerfelt

Program Manager

Rich Wilson

Program Manager

Eileen Weckerle

Membership & Communications Manager

Reena Cornejo

Dive In To Earth Day Coordinator

Kate Dillon

Development Coordinator

Michelle Mulholland

Administrative Associate

Sirilo "Didi" Dulunaqio

Field Representative: Fiji

Johnny Singh

Field Representative: Fiji

Liz Foote

Field Representative: Hawaii

Kenneth Johnson Diaz

Field Representative: Mexico

Cam Hollows

Field Representative: Papua New Guinea

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Project for Sustainable Marine Business Standards Overcomes Obstacles

CORAL Looks to Find Cost-Effective Means of Gathering Feedback from Mesoamerican Countries and Finds a Digital Divide

Sometimes, small obstacles can slow progress; a bump in the road can bring things to a screeching halt. In Mesoamerica, we came across one serious bump.

The Digital Divide

CORAL knows from experience that you need to involve everyone affected when creating a set of standardized practices.

While helping the countries of Mexico, Belize, Guatemala, and Honduras to create sustainable marine business standards, CORAL set out to gather information from every group. This included dive and snorkel businesses, marine park managers, academics, conservation groups, and government officials.

With the help of software provided by Underwriters Laboratories Inc., we found a way to get that information in the most cost effective way possible—through the internet.

Rich Wilson, CORAL Program Manager for Mesoamerica, was excited by how many people had agreed to participate in the standards process. But he was equally dismayed at the limited activity post sign-up. Without the participation of these groups, the standards would have little chance of being used.

CORAL Workshop Conquers the Divide

Wilson discovered that participants were having a series of small but incapacitating setbacks.

Some people were not entirely comfortable working on computers, others lived in areas where phone service was intermittent, and still others reported that they found the standards software overly complicated.

To resolve this issue, Wilson created impromptu workshops in each area to help participants get started.

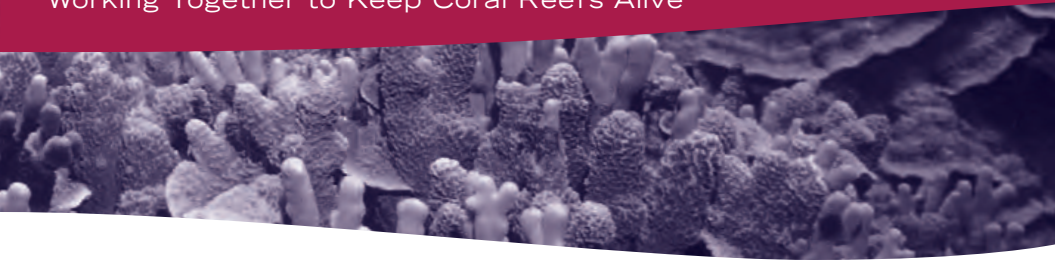
"Sometimes it's hard to get started on something completely new. The unfamiliar can be a big obstacle. This is especially true when asking extremely busy people to volunteer their time. Once we were able to sit down and work through the process face-to-face, we started to get a lot more participation," says Wilson.

Wilson adds that the idea of helping reefs in other countries also motivated participants, "...when people in Belize started to see comments on the standards from Honduras and Mexico, it really hit them that this project could have wide-reaching affects."

In addition to the workshops, Wilson worked extensively with Underwriters Laboratories to make the software more user-friendly. CORAL also translated the entire system into Spanish.

The efforts resulted in participation from nearly 200 people of diverse interest groups across the four countries. During this process, they remotely created, modified, and approved standards for sustainable marine tourism businesses in diving, snorkeling, and boating.

Hearing of CORAL's success in Mesoamerica, government and business groups in Maui are also interested in developing similar standards. CORAL is currently beginning work on this project and will hold meetings to enlist participation in December 2006.



Raja Ampat, CORAL's Newest Project Site Containing Highest Diversity Threatened by Logging and Mining

Raja Ampat: A Reef Untouched

Raja Ampat, an archipelago of islands located off the western edge of Papua, have flourished in their remoteness. Until recently, they have remained almost untouched.

Reef surveys of Raja Ampat done by CORAL partner, Conservation International (CI), report an absolutely astounding diversity of life.

Over the past two years, 50 new species have been discovered. Additionally, 600 different kinds of corals and 1,200 species of fish have been identified. It has the highest number of fish species (283) seen during a single dive and two types of "walking sharks" that use their fins to move across the ocean floor!

CORAL Leadership Network (cont'd)

Overcoming Turnover

CORAL, DAR, and members of the Maui Reef Fund all have extensive experience in outreach and education. We have had great success in training tourism employees in delivering efficient and effective environmental education for visitors. However, the need for training new employees is never-ending.

CORAL's new Leadership Network aims to meet this need by training a select group of leaders in Maui's marine environmental education community to become CORAL Leaders. These leaders will become CORAL's partners on the ground, providing continual training for Maui's tourism employees as CORAL Associates.

New and Imminent Threats

These isolated islands are virtual species factories. However, CI researcher and senior advisor, Mark Erdmann explains that the region faces immediate threats such as the use of dynamite and cyanide by locals to stun and capture live fish for export.

Erdmann said that a potentially greater problem could be the introduction of commercial fishing. One Chinese fishing company may add 100 vessels to the area over the next two years to target offshore fish stocks. This level of fishing could collapse the fishery within three to five years.

Indonesia and its provinces rely on selling their natural resources to maintain their economy. Our challenge is to help local governments develop sustainable tourism that reduces the need for immediate but unsustainable income from logging, mining, and commercial fishing rights.

CORAL Associates, such as dive and snorkel guides, boat captains, kayak operators, kiosk attendants, and concierges will be well versed in supplying every tourist with quick environmental education.

Liz Foote, CORAL Program Manager and Hawaiian resident, sees a day when "...every visitor to Maui will interact with a CORAL Associate and choose environmentally friendly behaviors like no-contact snorkeling. They would understand the harm created by touching coral or feeding animals."

After piloting this program in Maui, CORAL Program Director, Rick MacPherson, says he's ready to replicate the CORAL Leadership Network in the Big Island of Hawaii, another area

A PLAN TO PROTECT

Currently, CORAL is working with Conservation International to increase support for conservation with local villagers by helping them develop ideas for sustainable livelihoods related to tourism.

Papuan dive operators and resorts would like to see locally guided tours of caves and indigenous flora, farms to provide fruit and vegetables for live-aboard dive vessels, and organized handicraft production.

An additional project may include training local Papuans as guide interns through live-aboard dive vessels and resorts.



Next year, Chinese fishing companies may add 100 vessels off the shores of Raja Ampat's islands if revenue besides granting fishing licenses is not developed. This could collapse the fisheries in three to five years.

where we have well-established local partners. "I can see this model working everywhere tourists and reefs meet."

Generous support from the Environmental Protection Agency, the National Oceanic and Atmospheric Administration, and from CORAL members like you have made this project possible.

If becoming a CORAL Leader or Associate interests you or you would like to be informed of businesses that train their employees as CORAL Leaders and Associates please contact Eileen Weckerle at eweckerle@coral.org or call 415.834.0900 ext 315.

CRITICAL REEF UPDATE

BELIZE

FAST FACTS

SIZE

Reef area : 1330 km²Mangrove area : 719 km²

Reefs at Risk: 63%

BIODIVERSITY

57 species of coral

317 species of fish

5 species of mangroves

REEF THREATS

RECREATIONAL DAMAGE

Due to a drop in sugar and banana trade, tourism has become more important to Belize's economy and is on the rise. Reefs in tourism sites are beginning to show damage from trampling, repetitive anchoring, and boat collisions.

NATURAL DISTURBANCES

Hurricanes, coral diseases, and coral bleaching due to rising sea surface temperatures all create stress for coral reefs.

FISHING INDUSTRIES

Lobster, conch, and grouper are some of Belize's top earning exports. Although legislation exists to sustainably manage these fisheries, illegal fishing is threatening these populations and the role they play in the balance of coral reef health. Each organism has a function in maintaining a healthy ecosystem.

CORAL RESULTS AND PLANS

Creating and Testing Sustainable Marine Business Standards

Businesses, government officials, and marine park managers in Mexico, Belize, Guatemala, and Honduras approved a set of sustainable marine business standards in a year-long process facilitated by CORAL. Businesses in Placencia and Hol Chan Marine Reserve will be testing and modifying the standards over the next year.

Preventing Anchor Damage Through Mooring Installations

Placencia and Hol Chan Marine Reserve both identified anchor damage as a problem for their reef. CORAL provided \$16,000 to buy installation and mooring equipment. CORAL also hopes to train locals in installation and maintenance for future projects.

Strengthening Marine Protected Areas

Studies on reefs all over the world, as well as in the Hol Chan Marine Reserve, show that reefs within well managed marine protected areas recover more quickly from natural disturbances. They are also more able to withstand diseases.

Supporting No-Take Reserves

Strategically placed areas where fishing is prohibited can help threatened fish populations stabilize. CORAL partner, Hol Chan Marine Reserve works closely with local tour guide and fishermen associations. Tour guides play an important part in the success of the no take zone through voluntary compliance and assisting staff in minimizing illegal activities in the area.

Helping Protect Grouper Spawning

Grouper gather by the thousands to reproduce in mass spawnings. These gatherings are easily overexploited. CORAL partners, The Nature Conservancy, Wildlife Conservation Society, and Friends of Nature have been instrumental in researching and protecting these sites.

Hol Chan Marine Reserve BELIZE



CORAL Looks to Strengthen Ambergris Caye Reserve's Proven Success with Newly Approved Sustainable Marine Business Standards

The talcum powder beaches surrounding the little town of San Pedro slide gently into a calm sea. From the boardwalk you can peer into unbelievably transparent waters and see the blue and yellow stripes of schooling grunts, rays poking out of the sand, and trumpetfish trying to be inconspicuous.

San Pedro rests at the southern tip of Ambergris Caye just off the coast of Belize and is home to Hol Chan Marine Reserve, CORAL's partner in marine conservation.

CORAL Program Manager, Rich Wilson, is excited to strengthen this partnership. "Hol Chan Marine Reserve has a lot of momentum and support. We began our partnership with two microgrants totaling \$6,000. The reserve is using the funds to install mooring buoys and wants to use this momentum to increase community support for coral reef conservation."

Miguel Alamilla, the marine reserve manager, would like to see newly approved sustainable marine business standards support the reserve's management plan. Businesses, government officials, and marine park managers throughout the four countries along the Mesoamerican reef approved these business standards in a year-long process facilitated by CORAL.

Examples of some of these voluntary standards include: limiting underwater tour groups to eight or less; providing environmental briefings to all dive and snorkel guests; and implementing procedures to ensure no one is left at sea.

Wilson remarks that, "We found that we—CORAL, the marine

reserve managers, tour operators, and tourists—all want the same thing. We want to keep Belize reefs healthy. CORAL can help make that a reality."

He reflects that "We want to start by using these business practices to support the reserve's management plan because it lessens recreational damage and increases industry support for the reserve. Using standards that all reef users had a voice in creating unites them in the common goal for reef conservation. This type of cooperation is critical to a marine reserve's success."

This past decade marked a decline in Belize reefs with increased fishing pressures and several natural disasters. As much as 62% of some reef areas never recovered from a 1998 bleaching event.

More recently, Belizean reefs have been attacked by diseases which

may be exacerbated by increasing sea surface temperatures, agricultural runoff, and sewage.

The reserve, created in 1987, conserves a small but complete portion of this reef ecosystem including reef, lagoon, and mangrove habitats.

Despite mounting threats, the Hol Chan Marine Reserve has shown continued success. Surveys show that fish remain larger and more numerous both in the reserve and nearby areas. Reserve reefs also have fewer diseases and recover more quickly from bleaching.

Wilson states, "Hol Chan has had a history of environmental successes and CORAL looks forward to building on them. We see Hol Chan becoming a model and a resource for newer and less developed marine reserves in the area."

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ASK CORAL



Q: **Is Buying Coral Jewelry Illegal or Just a Bad Decision?**

A: In the jewelry showcase of a busy department store sits a beautiful necklace. Roughly shaped red stones offset Balinese silver beads. It is at once exotic, primitive, and elegant.

Unfortunately, as I look closer, I realize that these are not stones but pieces of coral. I imagine how it once looked; alive and vibrant red against a school of yellow fish flitting amongst its branches.

Red coral, *Corallium rubrum*, is in the subclass of corals called Gorgonians and looks similar to sea rods or sea fans. This particular species is mostly mined off the coasts of the Mediterranean, China, and Japan.

I have also noticed bead stores selling “dyed” coral. This is derived from a branching coral known as bamboo coral and is also found in non-tropical waters such as New Zealand.

Is it illegal to import coral? Is it sustainable?

It is generally thought that these types of non-tropical corals mature in five to seven years. At that rate, coral growth can't keep pace with commercial mining and will eventually become endangered. What's more, demand for red coral is increasing.

Several years ago, black coral, which grows at a similar rate to red coral, became a popular jewelry item. Today it is endangered. **As such, it is illegal to import this type of coral (*Antipatharia*), as well as any stony coral, under the Convention on International Trade in Endangered Species (CITES).**

Unfortunately, due to lack of information on the effects of red coral trade and mining, it is not yet listed under CITES and is still legal for trade. Seaweb, a public awareness organization, is currently compiling research and has proposed that red coral trade also be restricted.

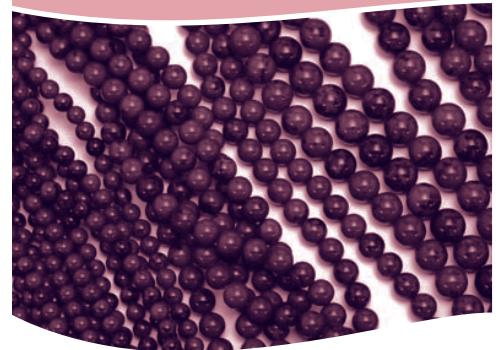
Whether or not coral trade is legal, we know that it is not good for the ecosystem. If you are buying a piece of jewelry with red beads, please ask about the stone's origins and refrain from buying coral pieces. Let other interested people know about this dilemma by passing on this article (also available online) www.coral.org.

For more information on how CITES operates please visit www.cites.org.

Looking for the perfect piece of red jewelry for yourself or for a gift?

Try these bead options:

- Carnelian
- Cherry Quartz
- Fire Agate
- Goldstone
- Mookaite
- Mahogany Obsidian
- Orange Calcite
- Red Botswana Agate
- Red Aventurine
- Red cast resin
- Red glass beads
- Red Jade
- Red Jasper
- Rubylite



“In the last 10 years, coral has started to get hot because of perceived limit on supply. It is like ivory, but no one has a stigma against buying coral. No customer shuns it or is offended.”

- Antique Dealer,
New York City

REEFS IN THE NEWS

Phytoplankton Less Able to Store CO₂ Due to Iron Deficiency, Global Climate Change Models May Need Adjustment

Phytoplankton plays a critical role in the storing the earth's excess carbon dioxide (CO₂), a greenhouse gas contributing to global climate change. New calculations indicate that plankton may be storing up to two billion tons less CO₂ annually. To reduce this much CO₂, approximately 563 million people would have to drive their cars 12,000 miles less each year.

Predictions on global climate change are partially based on how much CO₂ the oceans can store. However, a recent paper in the journal *Nature* reports that in certain ocean regions plankton are

storing less CO₂ than previously thought. And lack of iron seems to be the reason. If these new assumptions are correct, scientists will need to adjust current climate change predictions for the worse.

Ocean Anemia

Iron deficiency, which causes anemia in humans, also limits plankton growth and their ability to store CO₂. Iron gives a boost to the plankton's ability to use the sun's energy to draw CO₂ from the ocean. This allows the ocean to store up to 80 times more CO₂ than air.

Some ocean regions are naturally iron deficient. Until today, the extent of that deficiency and its effect on plankton's ability to store CO₂ had not been accurately assessed.

The Geritol Effect

To determine if iron was a crucial factor in plankton growth, scientists tried supplementing low plankton

areas with iron to see if it would boost production.

Known as "The Geritol Effect," the tests had immediate and surprising results. "We could see immediately how the phytoplankton responded to the iron. Their photosynthetic efficiency increased tremendously in the first 48 hours," says Behrenfeld. The effect lasted two weeks.

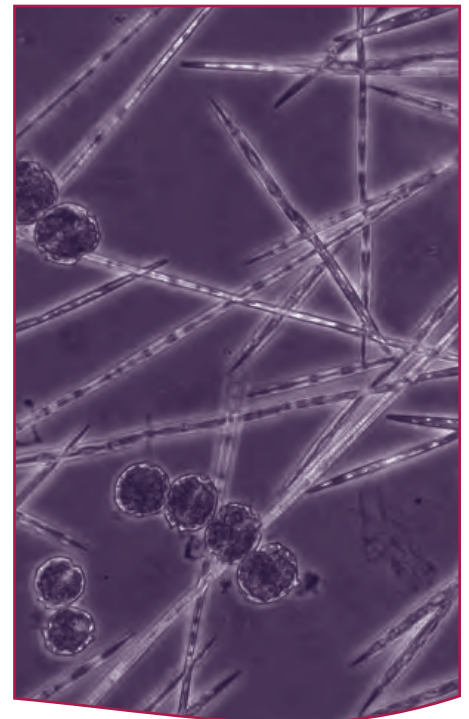
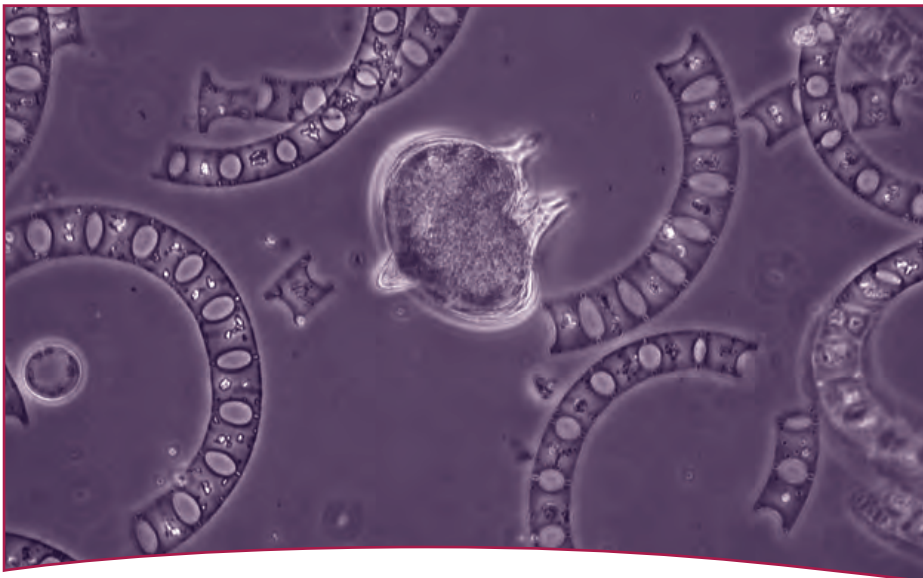
However, giving the ocean iron supplements is no quick fix to dealing with the world's overproduction of CO₂.

Behrenfeld adds that, "Too many factors would erase any increase in CO₂ absorption, not to mention the risks of such a huge environmental manipulation."

Source: AAAS, *Science* 312: 1750-1751 Coral Reefs and the Global Network of Marine Protected Areas.

Mora, C., Andréfou, S., Costello, M.J., Kranenburg, C., Rollo, A., Veron, J., Gaston, K.J., Myers, R.A.

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Photos: Top - Mike Hurley; Bottom - Brian Bill NOAA Fisheries

Member's Support for Papua New Guinea Project Pours In

Many thanks to each of you who gave a special gift to protect Papua New Guinea's reefs. **Your support, totaling almost \$19,000**, brought us very close to our goal of \$25,000. These gifts will supply 105 new boat mooring sites, training for locals to become environmental guides, and funding for patrol boats to stop illegal fishing fleets. Special thanks to one member, who prefers to remain anonymous, for her gift of \$5,000 towards this effort.

Quick and Easy Gifts for This Holiday Season

Why not give CORAL gift memberships this holiday season? You can purchase them online or by phone and **notify your special someone instantly with one of our beautiful new underwater e-cards!** They will also receive a welcome packet including a 2007 coral reef wall calendar, members-only newsletter, and membership materials. Great for teachers, mail carriers, and neighbors too! Contact (415) 834.0900 ext. 314 or www.coral.org/joingive



Electronic gift memberships to CORAL are an easy and meaningful way to take care of your holiday giving. Notify your lucky recipient instantly with one of our new electronic cards.

NEW LEAF PAPER ENVIRONMENTAL BENEFITS STATEMENT				
The Coral Reef Alliance saved the following resources by using New Leaf Sakura 100 made with 100% post-consumer waste and processed chlorine free.				
trees	water	energy	solid waste	greenhouse gases
8 fully grown	2,501 gallons	4 million BTUs	361 pounds	701 pounds
Calculation based on research by Environmental Defense and other members of the Paper Task Force. ©2006 New Leaf Paper www.newleafpaper.com 888.989.5323				

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DESIGN {DAMIEN SCOGIN | dls4@mac.com}



CORAL REEF ALLIANCE
417 Montgomery St. Suite 205
San Francisco, CA 94104
www.coral.org

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