



## News from the Reef Check Global Network

### Site Spotlight: Aceh Province

The December 26, 2004 earthquake and tsunami precipitated one of the greatest humanitarian crises in history with an estimated 232,000 lives lost and 400,000 people left homeless. It was also feared that the giant tsunami waves, reaching as high as 20 meters in some areas, had damaged coral reefs. One of the most severely impacted regions was the west coast of Aceh Province, Sumatra, Indonesia. During the month of October, Reef Check joined forces with the Living Oceans Foundation and The World Conservation Union (IUCN) to assess the extent of damage done to coral reefs along over 660 kilometers of Aceh's Western coastline and near-shore islands. Despite high seas and tough weather, the efforts of the international team of researchers proved fruitful. In addition to observing corals overturned by the tsunami, the group also encountered tilted islands



Overturned table coral, Pulau Rondo  
Photo: A. Hagan

and raised reefs. Despite concentrated damage in some areas, the study's findings suggest that sedimentation (exacerbated by the tsunami), overfishing, and damaging fishing methods have caused greater damage to Aceh's reef ecosystems than did the tsunami of 26 December, 2004. A complete report will be published in January. The following participants made this expedition possible: Cipto A. Gunawan (expedition coordinator), Dr. Annelise Hagan (Living Oceans Foundation), Nishan Perrera (IUCN), Dr. Onny Prabowo (hyperbaric doctor), Cerman Simamora (Metro TV), Hasan Nugraha (diving technician), and RC scientists Yunaldi Yahya, Yan Manuputty, Ivan Silaban, Ibnu Hazam, and Robert Foster.



Aceh Expedition Team

Photo: Chris

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#### Inside this issue

<i>Site Spotlight</i>	1
<i>Reef Check Champion</i>	1
<i>Letter from the Director</i>	2
<i>Reef Check News</i>	2
<i>RC Teams in Action</i>	4
<i>California Corner</i>	6
<i>Mark Your Calendars</i>	6
<i>Coral Reefs in the News</i>	6
<i>Support Reef Check</i>	7
<i>What You Can Do</i>	8

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### Reef Check Champion: Cipto Aji Gunawan

In all of the Indonesian Archipelago there is perhaps no individual as capable as coordinating a research expedition as Cipto, a Reef Check Indonesia volunteer and advisor. But our request put even his skills to the test: "Organize an expedition to Aceh from your base in Bali so that the underwater damage created by last year's earthquake and tsunami can be surveyed." In a matter of weeks Cip, pronounced "Chip", procured a compressor, a spare compressor, and a boat registered to work in Aceh waters -- where civil unrest was recently in progress. He also took on the arduous tasks of navigating the Indonesian bureaucracy to obtain the required research permits and choosing from dozens of potential RC Indonesia scientists to assemble a team that could work during Ramadan.

Cipto was born and raised in Pekalongan, Central Java, and attended university in Jakarta. After receiving a masters degree in engineering, Cipto's passion for diving took him to Bali, where he has been an active member of the tourist diving industry and has demonstrated an intense commitment to coral reef conservation. In addition to working as a course director at ADA (Air Diving Academy), Cip also works as a consultant to develop sustainable ecotourism opportunities throughout Indonesia. His most recent project, "Adopt A Coral" has already demonstrated successes in northern Bali. If this weren't enough, Cipto is also well known for his underwater video work. His latest documentary film -- on artisanal aquarium fisheries of Indonesia -- was nominated as a finalist at Singapore's 2005 "Celebrate the Sea" film festival.

Cipto's successes in coordinating and organizing every detail of Reef Check's Aceh Expedition are a true reflection of his many talents and his stalwart dedication to marine conservation. We are extremely grateful for his help. Thank you, Cipto!



## Letter from the Director



In 1996, I began to design a method to survey the world's coral reefs using volunteer recreational divers. Like with any new idea, there were many scientists who said it would never work and couldn't be done. Since 1997, when we carried out the first global survey of coral reefs, the program has grown dramatically to hundreds of teams surveying reefs in over 80 of 101 coral reef countries. Our highly respected survey results have been used to move the science of coral reef conservation forward, and to pressure international organizations and national governments to allocate more resources for coral reef conservation.

The Reef Check Foundation was established in 2000 in California as a non-profit marine conservation organization. During the past five years, the Foundation has grown dramatically from a staff of two, to a staff of over 30 spread through offices in four other countries (Indonesia, the Philippines, Dominican Republic, and Australia).

Since our start, Reef Check focused on volunteer monitoring and has always been inundated with requests from all over the world to help set up Reef Check teams and implement local reef monitoring programs and conservation measures. After years of providing free training and supplies to individuals and teams that met the criteria, it became obvious that the only sustainable way to fulfill these requests would be to provide tools to the teams to support their own programs. Thus the Reef Check Eco Action Program was born. You can read more about this unique self-sustaining business model and our exciting EcoExpeditions

programs on pages 4 and 6 in this newsletter.

Unfortunately, 2005 has seen some dramatic impacts on coral reefs starting with the massive December earthquake and tsunami in Sumatra. As part of a humane mission sponsored by our partner Quiksilver, Reef Check was one of the first scientific organizations at the scene to assess the damage near the epicenter, documenting huge stretches of reefs lifted completely out of the water and killed. Recently we returned to Sumatra to complete a comprehensive survey that indicates that the reefs remaining underwater were damaged far less by this dramatic natural event than first expected (page 1).

Photo: Howard Hall Productions



On the other side of the world, a record number of hurricanes smashed Caribbean reefs from Florida to Cozumel, but worse was yet to come—2005 is now officially the hottest year on record, and a related coral "bleaching" event is just ending in the Caribbean and may leave 30-50% of the affected corals dead in its wake (page 6). Unfortunately, as global warming steadily increases, these events are becoming more frequent and more damaging to reefs. Now it's more important than ever to have our dedicated teams in the Caribbean surveying their local reefs to assess the global warming impact and protect the remaining reefs from other man-made threats. However, there are several locations in the Caribbean where we

still don't have active teams, so we are launching a campaign in 2006 to raise funds to get our survey teams to those affected areas. You can help now by making a donation to Reef Check's Caribbean Campaign.

While Reef Check continues to operate at the grassroots level with community-based monitoring and management, we also engage with governments and the United Nations. At the November International Coral Reef Initiative meetings in Palau, Reef Check helped to draft resolutions that: 1) will declare 2007 as the International Year of the Reef and 2) addressed the seriousness of the 2005 Caribbean bleaching event and requested all nations to help assess the damage.

Finally, we were extremely pleased this year to launch our long-planned Reef Check California program (page 6). The problems facing California marine life are no different from those in tropical countries – overfishing, coastal development and pollution. The new RC California program also offers a link between California ocean lovers and those overseas – and provides a mechanism for everyone to become directly involved in saving reefs.

None of this work could have been done without the thousands of supporters and volunteers who define Reef Check and the hard working staff who facilitate our conservation activities. Thank you and we look forward to your continuing support for coral reefs and California marine life in 2006. For more information about our work and ways you can help, please visit our website .

*Gregor Hodgson*

## Reef Check News

### Meet Our New Staff Members



#### Dr. Craig Shuman - Director of Reef Check California

Craig comes to us with expertise in marine ecology and wetland restoration. He received a bachelors degree in Environmental Science from the University of California, Santa Barbara in 1995, a Masters degree in biology from UCSB in 1998, and a doctorate degree in Environmental Science and Engineering from UCLA in 2003. Dr. Shuman's academic research focused on a variety of topics including wetland restoration monitoring in Southern California, marine ecological monitoring in the California Channel Islands and Santa Barbara nearshore regions, evaluation

of US EPA bioassay protocols, and the ecological impacts of the marine aquarium trade in Southeast Asia with an emphasis on sustainable management. Following extensive field research on coral reefs in numerous countries throughout the Indian Ocean and South Pacific, Dr. Shuman took a position at Heal the Bay to administer the design of the Malibu Lagoon restoration plan and work on marine conservation issues. Dr. Shuman is currently developing the Reef Check California Program to implement a volunteer sub-tidal rocky reef monitoring program in California.



Photo: Howard Hall Productions

**Scott Sheckman - Director of PR and Development**

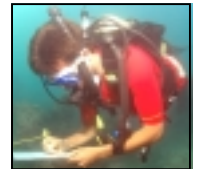
A native of the East Coast, Scott has always lived close to an ocean. His childhood fascination with marine life led him to become the youngest salt-water tank manager at Philadelphia's largest merchant aquarium. While graduating Temple University in 1990 with a Communications degree, he became SCUBA certified and has dived tropical and temperate reefs

around the globe. Relocating to Los Angeles in 1991 to pursue a career in Hollywood, he helped produce five seasons of the hit TV show "Baywatch" and served five years as a business affairs specialist at NBC. Scott has volunteered for many local marine conservation organizations and left the entertainment industry three years ago to devote his skills to help save the world's threatened oceans, starting as Communication Director for Sea Shepherd Conservation Society. He is looking forward to making Reef Check a household name.

**Robert Foster - Program Manager**

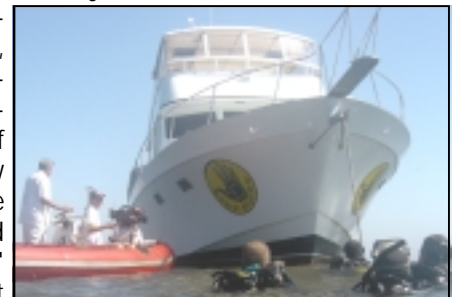
Bob received his undergraduate degree from Reed College in 1999 and an MSc in Biodiversity, Conservation, and Management from Oxford University in 2004. During the course of his masters work Bob led an expedition to the never-before-surveyed reef ecosystems of Southeastern Cuba, where he studied the impacts of human stressors on local reef habitats and worked with local managers, fishermen, and scientists to

initiate a long-term monitoring program. Prior to joining the staff at Reef Check HQ, Bob spent seven months at sea as RC's resident marine scientist aboard Quiksilver's Indies Trader. When not at the office Bob is usually in the ocean or plugging away on a book about his two-year, 23,000 kilometer, around-the-world bicycle odyssey.

**Huell Howser Dives In With Reef Check California**

Bob Meistrell discusses California marine life with Huell Howser & Gregor Hodgson

Upon learning about Reef Check's vanguard California rocky reef monitoring program launched this summer, PBS legend Huell Howser (host of the long running syndicated show "California Gold") was excited to film our Los Angeles-based team for his new environmental program, "California Green". In September, Body Glove co-founder, Bob Meistrell, generously donated his 75-foot yacht and excellent captain skills for a special Reef Check expedition off the coast of Palos Verdes in search of both healthy and unhealthy kelp reefs to show Huell. To get up close and personal with the divers, Huell donned a Body Glove wetsuit and braved the cold water to perform "sea-level" interviews with Dr. Craig Shuman. From 60 feet below, divers brought up a few of the kelp-



The team prepares to dive near the Body Glove Boat

munching purple & red urchins that are devouring the kelp at rapid pace. Back on deck, Huell talked at length with staff about the serious issues facing reefs in California and worldwide, such as global warming and overfishing - one of the reasons why urchins have been able to retain a destructive foothold in California. An ocean lover and pioneer scuba diver since the 1950's, Bob Meistrell shared old photos of giant sea bass and abalone that exemplified the shifting baselines in the region - these animals are now very difficult to find in Southern California mainly due to overfishing and habitat destruction. Despite the persistent Red Tide (tremendous algae bloom) that severely limited underwater visibility and hampered the dive, the shoot was a success and Huell may join us again in the Spring for a follow-up dive to film Reef Check in action underwater. Many thanks to Huell Howser, Bob Meistrell, Christine Braun, Body Glove, and the volunteer dive support from Jason Qunclair of Sherwood Scuba, Mike Segda of ScubaHaus and Sarah Townsend. The air date will be listed on our website as soon as it's available.

**La Jolla Welcomes Reef Check for Reef Rescue 2005**

As Reef Check expands its new California monitoring program up and down the Golden State, people from far and wide are eager to learn about our mission and show their support. On a picture-perfect Saturday afternoon in November, over 80 people from the San Diego area joined Reef Check at a lovely La Jolla estate to meet our local scientists and staff for an intimate Reef Rescue 2005. While being entertained by the live music of international recording artist Daize Shayne (also a two time longboard champion) and her guitarist/manager Ken Tamplin, guests enjoyed the fine food kindly donated by Hamilton Meats & Provisions (deliciously prepared at the scene by Chef Chris Mesa), the Bare Back Grill, and the amazing dessert options offered by the Chocolate Monkey. Everyone toasted the classic California sunset with a variety of spirits including Rodnik Vodka and local favorite Stone Brewing Co. Reef Check expresses our sincere gratitude to Dr. Virginia Foster and Rev. Arthur Hammons who kindly opened their beautiful home for the event, and San Diego Event Chairperson Mary Ellen Bloomingdale. Special thanks to everyone that helped make the event a success on all levels, especially Dovi Kacev, Leslie Abelow-Sheckman, Eric Lane, and Pat Zabrocki. More fabulous fundraising and awareness events are being planned in California and around the world for 2006 -please check the RC website and upcoming newsletters for announcements!



The Foster-Hammonds Estate- our beautiful venue for the night

## Reef Check Teams in Action

### Reef Check "audits" environmentally managed dive center in the Red Sea

Story By Georg Heiss and Cornelia Roder

Reef Check Germany was contracted by SUBEX Red Sea Diving Centers to carry out an audit of the health of a "house-reef" in El Quadim Bay in El Quseir, Egypt. El Quseir is a city about 120km south of the major resort town of Hurghada, and has only limited diving activities. The SUBEX dive center is associated with the Green Globe certified Mövenpick El Quseir Resort, which has been designed to minimize its impact on the environment—the number of divers registered at the center is limited to 120 at a time with no more than 200 dives daily. The divers have to pass an intro check dive, where special attention is given to check their buoyancy abilities.

A team led by Georg Heiss, Director of RC Germany, arrived in early October to carry out Reef Check surveys and biodiversity assessments on the reefs. With excellent support from the dive center staff, despite a very busy season, they were able to complete an ambitious program within two weeks. First impressions and analyses of the data gave a rather positive picture of the health status of the reef, with a very diverse and abundant fish and coral fauna, and a relatively low impact of



Pair of masked butterfly fish at the reef crest in El Quseir  
Photo: Georg Heiss

diving activities. The results of the study will be presented in December during a Symposium in El Quseir to celebrate the 40th anniversary of the SUBEX company and the 10th anniversary of the dive center in El Quseir, and promote sustainable diving tourism. The report will be available in English and German on SUBEX and Reef Check Germany websites. Contact for [info@reefcheck.de](mailto:info@reefcheck.de) more information, or visit: Reef Check Germany: [www.reefcheck.de](http://www.reefcheck.de)  
SUBEX Red Sea Diving Centers: [www.subex.org](http://www.subex.org)

### News and Notes

-The Editor's Choice Award in the November 2005 issue of *Scuba Diving Magazine* recognized the ICRAN Meso-American Reef Project as the best environmental initiative. Reef Check is one of the partners in this project funded by USAID and UNF.

- Mario Marababol, Program Manager of RC Philippines, was chosen as one of the Most Outstanding Youth Leaders in the Philippines. He was awarded at Malacañang, the Presidential Palace in Manila.

- Durham University Coral Awareness and Research Expeditions (DU-CARE), with the help of the Coastal Dynamics Foundation of Cebu, finished their second year of surveys in the Philippines. The group resurveyed sites from their 2004 expedition, and added a new monitoring site in Moalboal for a total of 53 surveys in 2005.

- RC South Africa coordinator Dr. Michael Schleyer recently held his first RC certification training. A leading enviro-dive operator and six skilled and enthusiastic divers attended a series of training sessions and three transect dives.

### Reef Check Introduces EcoAction Program

The **EcoAction Program** is a self-financing mechanism for Reef Check teams. It is a multi-level coral reef education program that targets kids to adults, and includes certification as a Reef Check diver. By selling this program to visitors, our local teams can create their own revenue to support their conservation activities creating a win-win situation. Dive shops and resorts can earn revenue and support our local teams while educating and enhancing the dive experience of their guests. We are also offering **EcoExpeditions** in 2006 to some of the best diving destinations on earth, so that divers can become Reef Check certified, and participate in surveys as part of their diving experience. Our April Cayman Islands EcoExpedition is ready to book now. Your support for these new programs will help us to help our developing country teams who do not have the resources to take care of their reefs. Contact Chris Knight at [chrisknight@reefcheck.org](mailto:chrisknight@reefcheck.org) or visit [www.reefcheck.org/events/eco\\_expeditions.asp](http://www.reefcheck.org/events/eco_expeditions.asp) for more details on these two new exciting programs.

### Number of Surveys Received Since July 2005

<u>Atlantic Ocean/Caribbean:</u>	<u>Pacific Ocean:</u>	<u>Indian Ocean:</u>	
Bahamas	Cook Islands	Christmas Island, Australia	4
Belize	French Polynesia	Maldives	4
British Virgin Islands	Hong Kong	Mayotte	3
Cuba	Japan	Reunion	3
Dominican Republic	Kosrae	South Africa	3
Jamaica	Malaysia	Tanzania	4
Mexico	Philippines		
Mustique	Solomon Islands		
	Thailand		5



2005 is quickly coming to an end! Make sure to send in your surveys to [rcdata@reefcheck.org](mailto:rcdata@reefcheck.org).

**RC Thailand collaborates with local dive shops***Submitted by Suchana Apple Chavanich*

Participants test what they learned during the workshop *Photo: Suchana Apple Chavanich*

Reef Check coordinators carried out a training course during the workshop "Long-term coral reef monitoring along the Thai Andaman Coastline," held at the Phuket Marine Biological Center, Phuket, Thailand, July 26-29, 2005. Financial and logistic support were provided by the CHARM Project (Coastal Habitats and Resources Management) and Reef-Watch Worldwide Inc. A total of 49 divers from the dive business participated in the workshop, which aimed to establish a long-term coral reef monitoring program through the private dive-business sector, benefiting local coral reef and dive-tourism management. The workshop addressed how to use RC for long-term surveys, how dive shops can integrate the RC method into their business, and how the dive business can benefit from long term data. Seven new Reef Check teams were formed during the workshop and it is hoped that the participating dive shops will be able to smoothly integrate the RC method into their normal dive trips. The CHARM project (which focuses on promoting a co-management approach at the national, provincial, and local levels between the Royal Thai government, private sector, and local communities) will run through the year 2007. It is hoped that by the end of the project, locals will be engaged in a sustainable process of co-management of their reefs. Tourist season has just begun in Phuket and participants are anxiously awaiting the first signs of success.

Participants test what they learned during the workshop *Photo: Suchana Apple Chavanich*

**RC Eastern Caribbean Project***Submitted by Andre Miller*

RC Barbados coordinator Andre Miller recently completed the Reef Check Eastern Caribbean Project, launched in March 2004.

The program was part of the Regional Coordinating Unit of the Caribbean Environment Programme of the United Nations Environment Programme (UNEP-CAR/RCU's) sub-programme "Conservation and Sustainable Use of Major Ecosystems in the Wider Caribbean." The primary goal was to establish and monitor two offshore sites in six islands of the Eastern Caribbean: St Vincent, Grenada, Dominica, Antigua, St Kitts and Tobago. A government agency or Non-Governmental Organization was selected to continue monitoring. It is expected that additional monitoring sites will be established in more pristine and remote reefs to allow scientists and reef managers to gather "baseline" information of reefs that have not been overly stressed.

As stated in the final report: "Reef Check stands to play a vital role in the Caribbean, with minimal expenditure from the various governments, by establishing a cadre of volunteers from the recrea-

tional, fishing and scientific community who can compile extremely useful information. This information can be directly compared between islands (inter-governmental), and clearly show trends of recovery or depletion of resources. Knowing the actual status of the benthic resources surrounding their islands is the only way that the respective stakeholders will make even stronger efforts to protect them."



The group in Scotts Head MPA in Dominica *Photo: Andre Miller*

The report in its entirety can be read in the online version of our newsletter: [www.reefcheck.org/news/newsletter.asp](http://www.reefcheck.org/news/newsletter.asp).

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**RC Indonesia Offers Reef Check Specialty Training***Story by Pariama Hutasoit, Program Manager for Education and Tourism*

RC Specialty Divers take a break from training *Photo: Pariama Hutasoit*

Beach. The training taught three different levels of divers. The **RC EcoDiver** course taught divers how to conduct a Reef Check survey, while participants in the **RC Team Leader** course also learned how to organize a survey. The **RC Trainer** course covered the first two levels and also taught participants how to certify an EcoDiver.

Fourteen divers successfully completed the certification process and received certificates: 7 RC Trainers, 2 RC Team Leaders and 5 RC EcoDivers.

The Reef Check Specialty courses are part of the new EcoAction program (page 4) for the tourism industry. This program was

designed as an effort to raise the awareness of the private sector to the increasing threats to coral reefs and also to inspire their support for positive change. Indonesia (Bali) is the first to conduct this program in the world.

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On September 5 & 6, 2005, Reef Check Foundation Indonesia conducted a Reef Check Specialty program for dive guides and divers in Bali in the tourist area, Sanur

## California Corner

By Craig Shuman, Director, RC California



Our new California rocky reef monitoring program is out of the gates and off to a great start. Thanks to the help of our scientific review team and dedicated volunteers, the California survey methodology and species lists have been reviewed and field tested at several locations

throughout the central coast. To date, we have been in the water with experts from the California Department of Fish and Game, Monterey Bay National Marine Sanctuary, Monterey Bay Aquarium, Santa Monica Baykeeper, UCLA, UCSB, and UCSC. We have also conducted three orientations in Monterey to introduce local divers to the program. These activities have provided us with valuable feedback to help ensure our scientific and educational objectives are met.

Our most recent training was completed at a sheltered spot at Santa Cruz Island that provided great conditions despite the large northwest swell. We introduced volunteers Gery Cox, Andrew

Harmer, Shelly Peters and Elise Watson (*pictured below*) to the Reef Check California methods. They are professional marine biologists who work for Tenera Environmental, an environmental consulting firm in San Luis Obispo, and are well on their way to being our first official Reef Check California team. Our first "official" survey was completed by Reef Check staff with the assistance of volunteer Dan Abbott at Whaler's Cove in the Pt. Lobos State Reserve.

We are currently developing our training materials to enable participants to become certified to perform Reef Check California surveys and get involved with our regional monitoring efforts. The final protocol and training dates are now available

online at [www.reefcheck.org/california/](http://www.reefcheck.org/california/)



If you are interested in volunteering, send an email with your name, address, phone number, dive experience, and any other comments to [california@reefcheck.org](mailto:california@reefcheck.org).

## Mark Your Calendars

### Reef Check Grand Cayman EcoExpedition: April 1-8, 2006; Cost \$2995



Looking to get more involved with Reef Check and still have a fun and relaxing dive vacation? Then join us for the first Reef Check EcoExpedition of 2006 to Grand Cayman Island. We're running this trip in conjunction with our friends at Reef Seekers in Beverly Hills, so this will combine recreational diving with actual scientific data collection at one of the most popular dive spots in the world. Prior to the trip, we'll have a complete Reef Check training in Los Angeles where you'll learn fish ID and monitoring techniques to survey the ocean life around Grand Cayman. Once we reach our accommodations at the Sunset House, the general plan

will be two recreational boat dives each day to some of Cayman's best spots: Eden Rock, Bonnie's Arch, Hepp's Pipeline, Eagle Ray Pass, Ghost Mountain, and - of course - Stingray City. In the afternoon, we'll be back at Sunset House, the ultimate diver destination, where we can have lunch and then do a research dive on the house reef. After that, there will be time to do another day dive or even a night dive, to see how the reef changes once the sun goes down. This trip includes airfare, diving and accommodations, daily breakfast, crew tip, and airport transfers. It also includes the pre-trip training in Reef Check EcoMonitoring techniques. Plus, we'll conduct daily seminars while in Cayman so you can learn more about what's really happening on the reef right before your very eyes. It's going to be a great trip you don't want to miss. Sign up today by contacting Reef Seekers at 310-652-4439 or [reefseekers@aol.com](mailto:reefseekers@aol.com), or visit [www.reefcheck.org/events/eco\\_expeditions.asp](http://www.reefcheck.org/events/eco_expeditions.asp)



Photo: Ruben Torres

## Coral Reefs in the News

### Special Report: Massive Coral Bleaching Event Hits Caribbean

This year is the hottest year on record, and despite all those hurricanes to stir things up, bleaching started in the Caribbean in August and is still going on now, with up to 90% of corals bleached from the Dominican Republic down to Venezuela. Our Caribbean network of Reef Check teams responded quickly to this potential disaster and have been monitoring reefs continuously to determine what percentage of affected corals will die.

While most tropical corals can tolerate water temperatures between 18°C and 30°C,



the Caribbean has seen temperatures higher than normal that have lasted 15 weeks. Duration of the elevated temperatures plays a

large role in determining the extent of coral bleaching. A NOAA website ([http://www.osdpd.noaa.gov/PSB/EPS/SST/dhw\\_retro.html](http://www.osdpd.noaa.gov/PSB/EPS/SST/dhw_retro.html)) developed by Dr. Alan Strong shows the results of above normal temperatures in map format. This is essential information that can be used to predict when and where bleaching will occur. The latest Caribbean map is shown at: <http://www.osdpd.noaa.gov/PSB/EPS/SST/data2/dhwa.12.13.2005.gif>

*Cont'd on next page*

**What is coral bleaching?**

Coral bleaching occurs when corals are stressed by environmental conditions such as unusually high sea temperatures, low salinity, and exposure to toxic chemicals. It is characterized by the loss of microscopic algae called zooxanthellae that live within the tissues of most corals, and which not only provide corals with a food supply, but are also responsible for giving corals their distinctive green and brown coloration.

Keep in mind that just because a coral is bleached does not necessarily mean that it is dead, however bleaching does leave corals more susceptible to diseases (our BVI coordinator Trish Baily reports that in Anegada, much of the bleached coral also had black band disease). Dead corals break down and there is a loss of habitat such that the reef is less able to support the diversity of species that it once could. This lack of species abundance will affect local fisheries, subsistence needs, and the tourism industry. Coastal communities are also more susceptible to storm damage if these reefs break down as was seen in the tsunami damage in Sri Lanka last year.

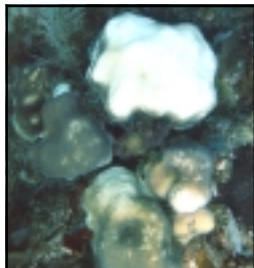


Photo: Ruben Torres

Looking ahead, global climate change has important implications for coral reef ecosystems because sea temperatures are predicted to rise by 0.6°C to 2.4°C during the 21st century, potentially increasing the number of major bleaching events. In 1997-98, a wave

of mass coral bleaching affected reefs around the globe. This was followed by another major bleaching event on the Great Barrier Reef in 2002. So this prediction is unfortunately coming true. Reef Check will be reporting on the results of the bleaching in a report early in 2006, and is collaborating with NOAA and other environmental organizations to track this event. The following are sample reports from RC teams:

Country	Bleaching Level
British Virgin Islands	90%+
Dominica	40%
Dominican Republic	40-80%
Jamaica	95%
Saba	massive
St. Eustatius	massive
St Lucia	50-88%
St Maarten	massive

There are several locations in the Caribbean where we still don't have active teams. In 2006, we are launching a campaign to raise funds to get our survey teams to those affected areas. You can help now by making a donation to Reef Check's Caribbean Campaign: [www.reefcheck.org/participate/membership.asp](http://www.reefcheck.org/participate/membership.asp)

**Support Reef Check**

The holidays are here, and with them comes shopping for gifts. This year make someone happy while contributing to the conservation of coral reefs. Purchase our Reef Check items, or offer your friends and/or family members an RC membership.

RC T-shirt M-L-XL: \$10\*

Quantity \_\_\_\_\_

Size \_\_\_\_\_



Front



Back

Reef Check Hats: \$15\*

Quantity \_\_\_\_\_



\* Please include \$2.00 shipping & handling for each item, contact us for international orders

A tax deductible gift of \$25 or more entitles you to all the benefits of a Reef Check Membership:

- RC's quarterly newsletter, The Transect Line.
- RC pin and sticker
- Invitations to trainings, special events and other RC activities.

**Sign up for a \$50 membership & receive a free t-shirt or hat!! Offer good until 1/31/06.**

Name \_\_\_\_\_

Mail/Billing Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip/Postal Code \_\_\_\_\_ Country \_\_\_\_\_

E-mail \_\_\_\_\_ Phone No. \_\_\_\_\_

Credit Card No.  Check Enclosed Exp. Date \_\_\_\_\_

\$25  \$50  \$75  \$100  \$250  \$500  \$Other \_\_\_\_\_

Signature X \_\_\_\_\_

By signing here, I agree to the above charges being made to my credit card.

**Detach & Mail to: Reef Check | P.O. Box 1057 | Pacific Palisades, CA 90272-1057 | USA | Tel 310-230-2371 | Fax 310-230-2376**

## Tahitian Reefs to Determine Climate History

In October 2005, an Integrated Ocean Drilling Program (IODP) "Tahiti sea level" expedition composed of 24 international scientists arrived in Tahiti, French Polynesia, to investigate global sea level rise since the last ice age, 23,000 years ago. The expedition, led by Gilbert Camoin of the French National Center of Scientific Research (CNRS), took samples of coral fossils on three sites of the Tahitian seafloor to analyze environmental records. This coral reef drilling expedition aimed at learning about past global sea level change, including El Niño Oscillations, to better understand present and future sea level rise due to greenhouse emissions. Since Tahiti is remote from major centers of pollution and is located in a stable tectonic region, data collected on these reefs can only relate to global changes. The fossils collected will be examined in February 2006 in Germany, and the conclusion of the expedition will be released in 2009 in Tahiti.

## What You Can Do To Help Coral Reefs

The end of the year is synonymous with family get-togethers, gifts, and well-deserved vacations. Although a time for fun and rejoicing, don't forget about good sustainable and ocean-friendly habits. Here are a few tips worth looking into:

### Travel:

When visiting a reef:

- Help keep it healthy by respecting all local guidelines
- Always wear waterproof sun block
- Wear a flotation device so you will not get tired and step on corals, which you could break or damage
- Never take a piece of the reef
- Don't feed the fish
- Hire local guides and support a non-consumptive economy around the reef
- Support reef-friendly businesses: let them know how you are an informed customer and care about reefs
- Check our website to contact and support our RC teams.

### Making ocean-friendly choices at the dinner table:

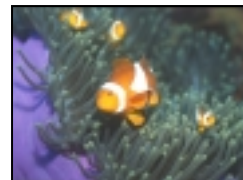
The choices we make as consumers make a difference! Support fisheries and fish farms that are better for the environment.

For more information on seafood friendly options, visit:

- <http://www.seafoodwatch.org> for US options
- <http://www.amcs.org.au> for Australian options

### Gifts:

- Only buy marine aquarium fish you know have been collected in an ecologically sound manner: in some areas, marine fish harvested for the pet trade are stunned with sodium cyanide, which harms the coral. See [www.aquariumcouncil.org](http://www.aquariumcouncil.org) for more information.
- Buy cultured live rock
- Consider carefully the coral objects that you get: ask the store manager from what country the coral is taken and whether or not that country has a management plan to insure that the harvest was legal and sustainable
- Give a Reef Check gift by either purchasing an RC clothing item or by giving someone a gift RC membership. You will help coral reef conservation by spreading the knowledge of coral reef ecology



### The Reef Check Foundation

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