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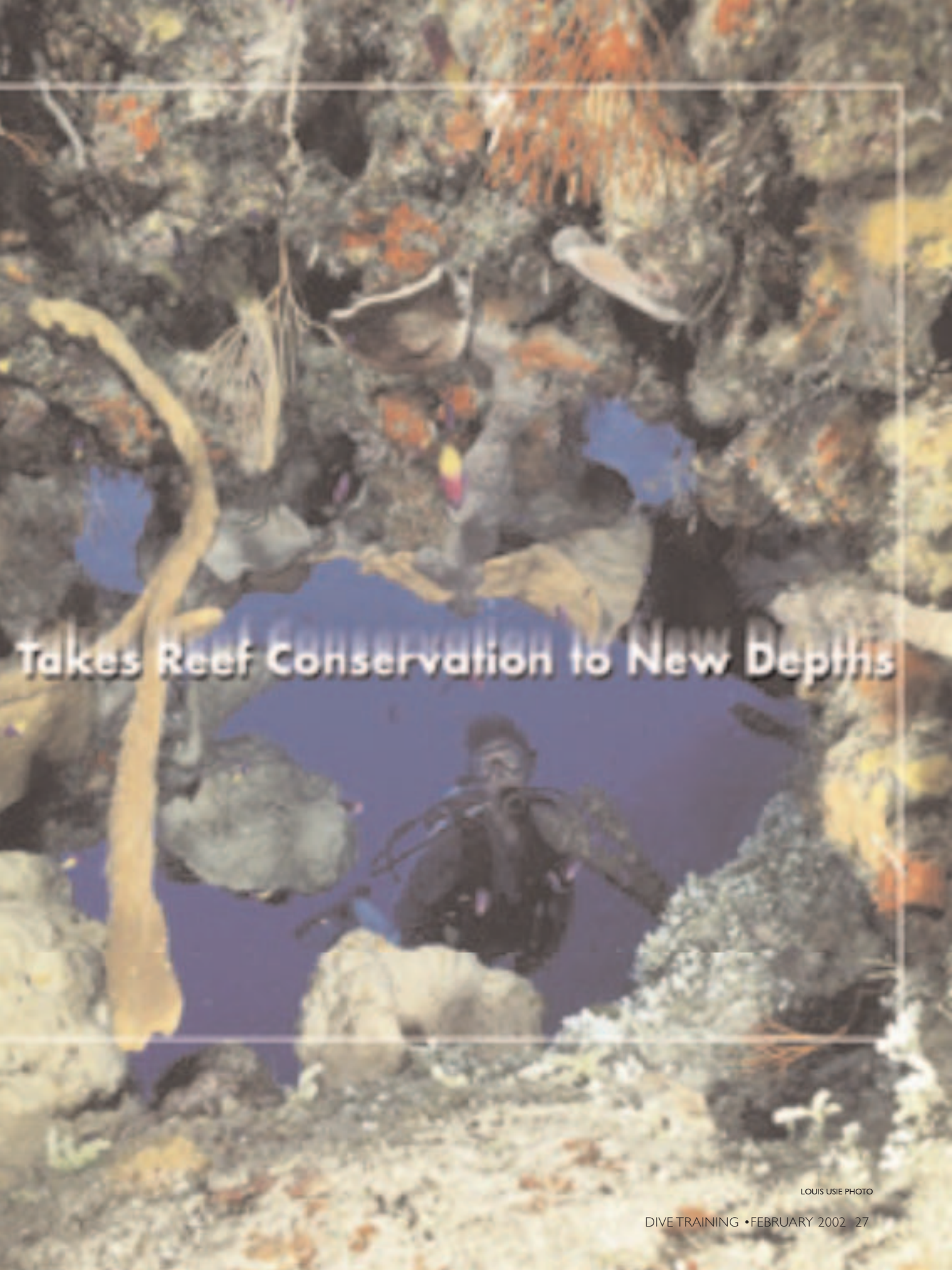
The Ocean Conservancy

If you're a diver, and you haven't spent the last year or two on the moon or in some Turkish prison, you probably know that coral reefs are in serious trouble. And with all of the depressing news about the decline — if not outright demise — of these spectacular cities beneath the sea, it's easy to become discouraged. But if you're also the type who's willing to roll up your sleeves and go to work, there may be reasons for hope.

Too often the only recourse that many of us feel we have in helping to save the world's coral reefs and other marine ecosystems is to write a check. While that's certainly helpful, merely subsidizing the work of others can feel a bit hollow, leaving us with a longing to participate more directly. Unfortunately, many assume that there's little that an individual can do in the way of direct action. After all, we're not marine scientists.

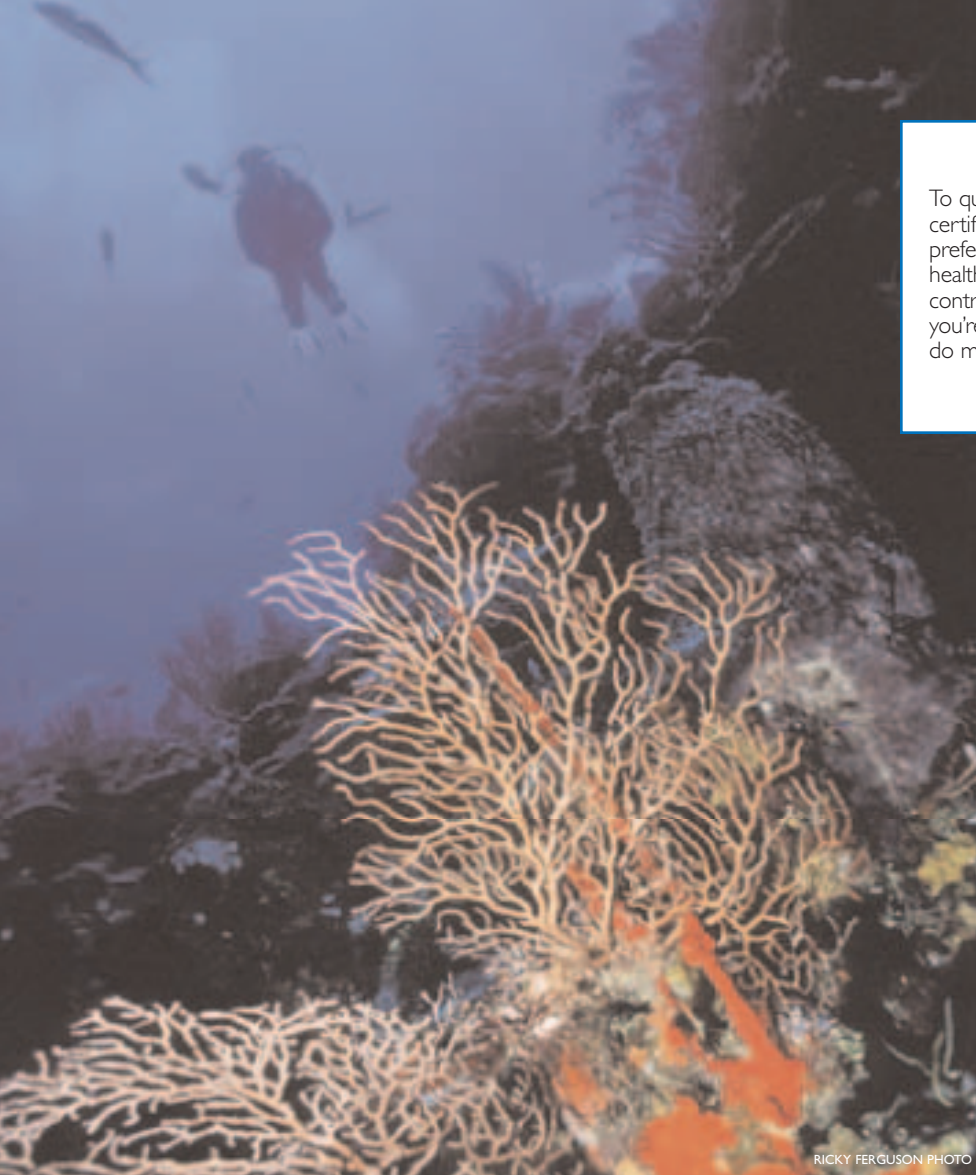
Recently, I learned that direct action doesn't require a graduate degree, but merely a willingness to get involved and a c-card. Several weeks ago I had the opportunity to participate in one of the most innovative and potentially important marine conservation programs ever to come along. The program, developed by The Ocean Conservancy (formerly the Center for Marine Conservation), is called the RECON (Reef Condition) Monitoring Program.

By Alex Brylske



Takes Reef Conservation to New Depths

LOUIS USIE PHOTO



RICKY FERGUSON PHOTO

LOUIS USIE PHOTO



To qualify as a RECON diver you need a scuba certification and have logged at least 10 dives (25 preferred). In addition, you'll need to be in good health and be able to maintain good buoyancy control to prevent damage to the organisms you're surveying. Obviously, survey divers shouldn't do more harm to the reef than good.

Divers Doing Science

There's nothing new about using recreational divers to act as the eyes and hands of scientists. Programs such as the Earthwatch Institute have long used nonspecialist volunteers to assist scientists with field research. Many of these programs have involved coral reef research using recreational divers. (For more information, see "Volunteer Vacations: Fun and Fulfilling Travel Options," *Dive Training*, April 2001.) More recently, reef monitoring programs such as Reef Check, ReefKeeper International, CEDAM, Coral Cay Conservation and Operation Wallacea have focused their attention on using volunteer divers to survey and monitor coral reefs. Perhaps the largest and best-known North American organization using divers for scientific data collection is REEF (Reef Environmental Education Foundation). Since its inception more than a decade ago, REEF has had outstanding success in fostering the interest of committed divers in collecting data on fish distribution and abundance.

It's against this backdrop of activism that The Ocean Conservancy conceived the idea of using its considerable experience with volunteer-based programs to monitor coral reefs. Recognizing that divers are often the first to see changes in coral reef communities, The Conser-

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vancy contacted the Environmental Protection Agency (EPA) about financing such a project. (It may sound odd to think of the EPA as a financing source for a volunteer program, but it actually has significant experience with citizen volunteer water quality monitoring programs; and it has an extensive program focusing on coral reef health.)

What Does RECON Involve?

The Ocean Conservancy describes RECON quite accurately as a low-tech rapid monitoring protocol for divers and students with an interest in reef conservation. It's "low-tech" in the sense that the only equipment needed for a RECON survey is a specially designed data sheet, a slate, pencil and a 10-meter survey line (which you receive when you go through training). "Rapid" implies that once you've learned the protocol, you should be able to complete a RECON survey during a 40- to 45-minute dive. (Air consumption shouldn't be a concern; RECON surveys are limited to no deeper than 60 feet [18 m].)

Development of the RECON program has been proceeding for more than three years through The Conservancy's Pollution Prevention and Monitoring Office in Virginia Beach under the capable hands of Program Director Seba Sheavly and Program Coordinator Lisa Monk. Serving as scientific adviser is Dr. Judy Lang who recently retired from The University of Texas. She is one of the world's premier coral reef ecologists. The long, thorough process of development was due not only to the need to refine the training process, but to garner the participation and support of the scientific and diving communities. In fact, along the way RECON has established a very impressive committee of advisers from throughout the United States and Caribbean region. More importantly, the results of the long developmental process were well worth the wait; RECON training is one of the most effective educational programs I've ever encountered.

Two Days in the Life...

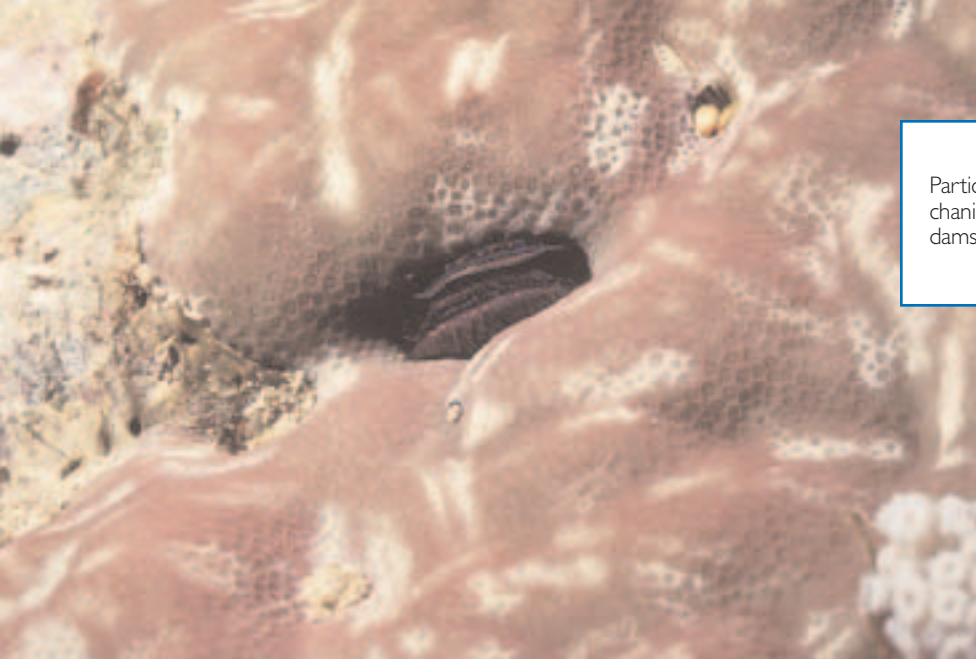
My own RECON training began one Sunday evening back in November at the Florida Keys National Marine Sanctuary office in Key Largo. I, along with a group of 20 enthusiastic divers from throughout Florida, began the first of two classroom training sessions. We started with a brief overview of the program and a discussion of RECON standards and procedures. But the bulk of the lesson focused on the RECON procedure, or more formally what scientists call "protocol." As RECON is concerned primarily with assessing the health of the reef "benthos" (the scientific term for bottom), the bulk of the first classroom session centers on coral identification. Interestingly, there are only four key types of corals surveyed in the RECON protocol, but there are several species that are easily confused with one or another of these coral types. So much of our time was spent looking at photographs and distinguishing between the target and nontarget species. Consistent with good educational practice, a training dive would follow the next morning where we could put what we learned into practice.

Sure enough, 7:30 the next morning my blurry-eyed group assembled at the dock of our host facility, Kelly's on the Bay, for a thorough orientation by the very capable staff of Aqua Nuts Divers. Kelly's, by the way, was a convenient venue for our course, but aside from convenience, it also has a long history of supporting marine conservation efforts in the Keys. Furthermore, as one of the Aqua Nuts instructors had already completed RECON instructor training, he served as staff for the open water portion of our training. He was joined by several other RECON instructors, so that our 20-person group of students was ably taught through a student-to-instructor ratio of two (or rarely, three) to one.

Our first dive took us to Key Largo Dry Rocks where we learned to correctly identify the four target corals — great star (*Montastraea cavernosa*) and mountain star (*Montastraea faveolata*), mustard hill (*Porites astreoides*), and

any species of brain coral. We also learned to identify encrusting organisms that are often mistaken for hard corals, such as sponges, zooanthids (colonial anemones), gorgonians (soft corals) and tunicates (sea squirts). After the I.D. portion, we were taught the first half of the RECON protocol. This involves a controlled swim, stopping at live coral colonies that are at least 10 inches (25 cm) in diameter. On finding an acceptable coral colony, and after taking a depth reading, we learned to identify colony boundaries and determine the percentage of dead or bleached vs. live tissue. We were also taught how to identify signs of mechanical damage, predation from parrotfishes and damselfishes, and signs of disease. Finally, we were shown how to look for other signs of coral reef health, including small coral colonies, and the presence of black spiny sea urchins (*Diadema anthillarum*) or lobsters (*Panulirus* sp.). Once each team had an opportunity to evaluate several colonies (under the watchful eye of an instructor), we returned to the boat for debriefing.

That same afternoon the group convened for another classroom session. Here we reviewed the second portion of the protocol. We learned to identify various forms of algae including y-branched (*Dictyota*), watercrest (*Halimeda*), jointed red (*Jania*, *Galaxaura* and others), pink cements (*Porolithon* and others), turf algae and cyanobacteria. Once we could identify these rarely noticed seaweeds, we proceeded to the transect portion of the training. Here, we learned how to use a 10-meter measuring tape to quantify regions of mud/sand patches, live stony corals or macroalgae. Also using the tape, we were taught how to conduct a belt transect technique (1 meter wide on each side of the tape) so that we could identify the most common macroalgae. During the transect swim we were also instructed to observe signs of bleaching, disease and other human or natural damage. Lastly, we were shown how to look for important indicator species of reef health such as black spiny sea



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RICKY FERGUSON PHOTOS

urchins, queen conch (*Strombus gigas*), spiny lobsters, large fish (20 inches [50 cm] long), turtles and, however unlikely, marine mammals. A final segment of the data protocol had us identify signs of human presence such as boat wreckage, anchors, fishing lines and traps, and even note the presence of line or spear fishermen.

At 7:30 the next morning, we were off to French Reef to practice the second half of the protocol. As accomplished survey divers, the session went even smoother than on day one, and we soon finished the training exercise in well under the one-hour allotted bottom time. Back on board, after a short debriefing and hearty congratulations on completing the two training dives, we returned to the water for the first of two full survey dives. Just like open-water divers practicing newfound skills, this was an opportunity to conduct actual surveys while still under the tutelage of experienced instructors. These final two dives are also required



RECON students are shown how to look for important indicator species of reef health such as black spiny sea urchins, queen conch, spiny lobster, large fish, turtles and marine mammals.

for RECON certification. We exited the water just ahead of the setting sun, completely exhausted but bolstered by the idea that, this time, our data would actually become part of the official RECON database.

But we weren't quite finished. There was still one more formality before adding the RECON card to our wallets — the dreaded written test. While the thought of being tested caused some in our class to stress, and

recall those sleepless nights in the college dormitory, it turned out to be completely unnecessary. The training materials are so well designed, and instructors so capable, that if you just pay attention and read your materials, the 50-item multiple choice assessment is a piece of cake. Besides, the final validation that you really do know your stuff is really a highlight of the course.

The next morning I bid my fellow classmates and instructors farewell, and returned home tired but with a new sense of empowerment. I was now able to do something concrete to protect the coral reefs that, for more than 30 years, have been so much a part of my life. However, many of my intrepid classmates would remain in Key Largo for three additional days of training to earn RECON instructor credentials (which involves 10 more dives, two additional classroom training sessions and another exam). And, incidentally, you don't have to be a certified scuba instructor to become a RECON instructor.

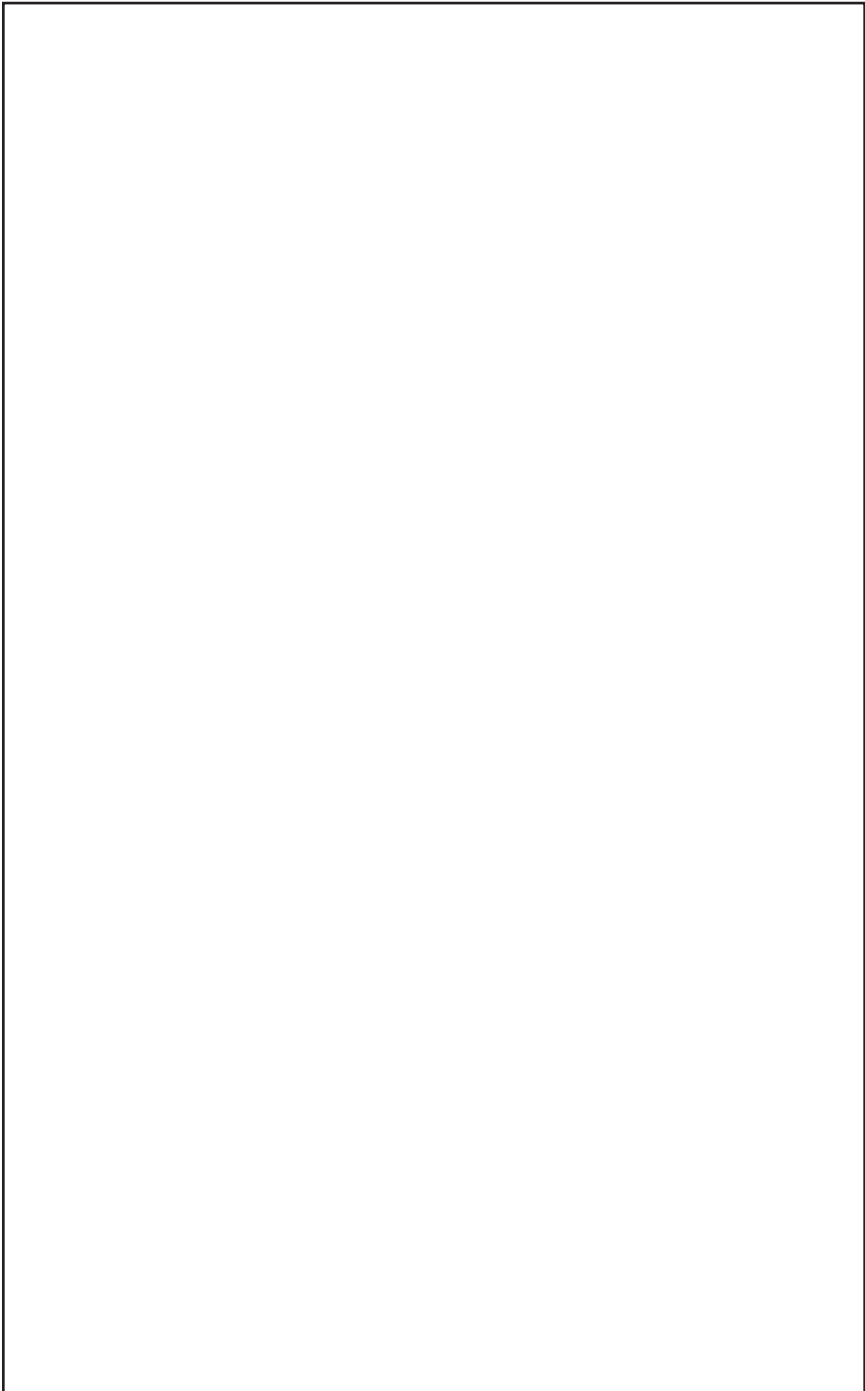
Some Clarifications and Concerns

With your newly acquired RECON skills, you may be tempted to run right out and survey the first reef that you come upon. Unfortunately, it doesn't work that way. RECON surveys can only be conducted at locations that have been evaluated and registered. Sites are approved only after thorough documentation and registration using a "RECON Survey Site Description" form. As only RECON staff, instructors or advanced RECON divers are qualified to conduct these site descriptions, for those really committed to RECON, it's a powerful rationale to continue in the program. Furthermore, RECON surveys are limited not only to preapproved sites; they're limited exclusively to the Caribbean and western Atlantic region. While there are plans to expand the protocol into the Indo-Pacific, that step is probably several years away.

In case you're still on the fence, there are even more incentives to become a

RECON instructor. First, the only cost is a nominal charge for materials. (Travel, lodging and meal expenses are, of course, your own responsibility.) Grants and other subsidies cover tuition and the numerous boat trips. However, this does not necessarily mean that, in turn, a RECON instructor will be able to provide diver training free of charge.

Where grants and other subsidies don't exist, as with other scuba instruction, divers should expect to pay for their training. Perhaps the biggest benefit of all is marketing assistance. All RECON instructors and participating dive centers are listed on the Web site maintained by The Ocean Conservancy. So any diver interested in RECON training



is only a mouse-click away from finding a qualified teacher.

If you're not ready for the instructor role, don't be discouraged. To qualify as a RECON diver you need a scuba certification and at least 10 dives (25 dives preferred) to your credit. In addition, you'll need to be in good health and be able to maintain good buoy-


ancy control to prevent damage to the organisms you're surveying. Obviously, survey divers shouldn't do more harm to the reef than good. Therefore, your skill training will begin with a brief skill assessment and, if necessary, some remedial training in buoyancy control. But here, too, RECON training has a tool. Each RECON instructor

receives a copy of the outstanding new training video, "*Protect the Living Reef*," produced by Oceanwatch in association with the Project AWARE Foundation. This short, 12-minute video is packed with useful information on reef conservation and tips on low-impact diving techniques.

Finally, one question asked by some who have looked into volunteer research programs is, for what are the data being collected? Indeed, collecting data merely for the sake of storing it in some database would be the height of uselessness. But that's not an issue with RECON. First, the database itself will be housed at ReefBase, a project maintained by the International Centre for Living Aquatic Resource Management (ICLARM). It will also be stored in Jamaica at the Caribbean Coastal Data Center of the University of the West Indies. In turn, the data will be available to reef scientists and managers from around the world, and used in everything from scientific investigations to guiding decisions in reef management. But the information flow doesn't stop there. The data that you collect will also be archived on a Web site maintained by The Conservancy; and, unlike some other programs that merely maintain a collection of raw data, The Conservancy's site will provide a limited analysis. The RECON effort is also designed to complement other reef monitoring programs such as the Reef Check program, ReefKeeper International, the Caribbean Coastal Marine Productivity Program (CARICOMP), and the Atlantic and Gulf Rapid Reef Assessment (AGRRA). Finally, as RECON has been developed in close association with REEF, several joint RECON/REEF training seminars have been planned throughout the Caribbean for this year.

RECON: The Real Message

Certainly, the work done by The Ocean Conservancy through RECON will make an incalculable contribution to coral reef science and management. But in the final analysis, its mission is

even more important. In my view, the essence of RECON was summed up in comments made by Project Coordinator Lisa Monk. I asked her to think into the future a few years and describe for me what she'd consider "success" for the RECON program. "Success," she said, "would be twofold. First, it would be an indication that RECON somehow instilled a sense of stewardship for coral reefs by promoting closer ties between the scientific community and divers or others who share a willingness to act. But even more so, success would mean that we inspired divers to look at the reef in a whole new way — to appreciate the intricacies and interactions — and have them understand that what happens to coral reefs could be a harbinger to what happens to the entire earth." Indeed, as I finally realized, what you learn from RECON is a lot more than how to survey coral reefs. 

For More Info

To find out more about the programs and organizations mentioned in this article, check out these Web sites:

Atlantic and Gulf Rapid Reef Assessment (AGRR)

www.coral.aoml.noaa.gov/agra/

Caribbean Coastal Marine Productivity (CARICOMP) Programme

www.ima.gov.tt/caricomp.htm

CEDAM

www.cedam.org

Coral Cay Conservation

www.coralcay.org

Earthwatch Institute

www.earthwatch.org

Kelly's on the Bay

www.kellysonthebay.com

**The Ocean Conservancy/
RECON Program**

www.oceanconservancy.org

Operation Wallacea

www.opwall.com

Oceanwatch

www.oceanwatch2000.com

Florida Keys National Marine Sanctuary

www.fknms.nos.noaa.gov

Project AWARE Foundation

www.projectaware.org

REEF www.reef.org

ReefBase www.reefbase.org

Reef Check www.reefcheck.org

ReefKeeper International

www.reefkeeper.org

U.S. Environmental Protection Agency Coral Reef Program

www.epa.gov/OWOW/oceans/coral/