

REEF NOTES



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Protecting Marine Life Through Education, Service and Research

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What's Happening Now ?

REEF Tours California

In early March, Christy Semmens, REEF's Scientific Coordinator, and Julie Dutcher, Education Outreach Coordinator, spent a week on the coast of California presenting REEF fish ID seminars, preparing divers for the Great American Fish Count in July and for year-round fish monitoring activities. The seminars were well received and the excitement and enthusiasm of the West Coast divers were apparent. As a result, several groups are planning to do regular monitoring in their areas and to participate in the Great American Fish Count in July.
(continued on page 3)



Workshop participants enjoyed a day of survey diving on Anacapa and Santa Cruz Islands



LBAOP staff Sandy Trautwein and Margaret Brewer fill out their scanforms in between dives on Anacapa Island



Divers in California gear up for a fish survey



LBAOP staff Margaret Brewer and volunteer Steve Guest look up a mystery fish after a dive on Santa Cruz Island

The Great American Fish Count is Here!

DIVE IN and start counting! REEF's 2001 Great American Fish Count (GAFC) is underway. For the entire month of July, divers and snorkelers will be attending REEF fish ID seminars and conducting REEF fish surveys for the Great American Fish Count. The GAFC is coordinated by the Reef Environmental Education Foundation with support from NOAA's National Marine Sanctuaries Program. (continued on page 3)



Director's Corner

Remember the buffalo – the largest land mammal on North America? Only 150 years ago this magnificent beast was on the brink of extinction, the massive herds decimated by greedy hunters using advanced technology for the time. The senseless slaughter of millions of buffalo was for the most part ignored by the general public. Only when dwindling numbers threatened the species with extinction did we finally begin protecting the few remaining buffalo from the guns of the hunters.



Move forward to modern times. Remember the groupers – the top-of-the-line reef dwelling predators? They are suffering the same fate that the buffalo endured. With the aid of modern technology, the hunters (fishermen) are beginning to decimate the grouper population. In the US, 9 of 11 grouper species are already designated by the National Marine Fisheries Service as over-fished! Yet the hunters are still fighting to keep the fisheries open and the minimum size limits small, and to subvert the establishment of harvest refuge areas anywhere in the vast US territorial waters. They even want permission to catch groupers in the throes of passion – the most efficient way to annihilate the species.

Marine protected areas, or no-take zones, are the focus of intense battles among harvesters and those advocating conservation. Commercial fishermen, recreational fishermen, spearfishers, divers, and businesses are all fighting over the remaining fish. Shouldn't that say something in itself? Of course it does: demand is beginning to exceed supply. And it is much more than just the grouper. Fish stocks around the world are dropping due to relentless fishing pressure. They all need our attention.

But we need a banner to carry and groupers should be close to our heart. If you have ever dived on Little Cayman or Grand Turk with the pet groupers, you know these fish are like puppy dogs. They are gentle, charismatic and even affectionate. They also are slow growing and spawn only one time each year, congregating in specific locations and numbering into the thousands. They spawn in winter under the full moon. The certain timing and the site fidelity of these aggregations are making them easy, although declining, targets. Falling to high tech global positioning systems (GPS) and fish-finding electronics, known spawning aggregations are disappearing at an alarming rate.

While their reproductive strategy makes them vulnerable to harvest, it also makes them prime candidates for protection. And we believe it's time to spread the word that they need to be protected. REEF is working with a number of organizations, including the Center for Marine Conservation, DEMA, CORAL and others to help protect the spawning aggregations of groupers in the Caribbean. We are organizing special trips this winter to key spawning locations to document spawning aggregations and spread the word on Guarding Grouper. If you are interested in joining us, please don't hesitate to drop us an e-mail and we'll get you the plan. If you're not able to join on a project, please do your part by spreading the word. Groupers need help. They need harvest refuge. They don't need to be yanked from the water during their once a year spawning activity. And by working for the grouper, we'll be working to protect the entire marine environment through education and effective management strategies.

See you in the water!

A handwritten signature in black ink, appearing to read "L. Akins". The signature is fluid and cursive.

Laddie Akins
Executive Director



REEF NOTES

REEF Tours California *continued from page 1*

The first stop of the week was the Monterey Bay Aquarium and the Monterey Bay National Marine Sanctuary (MBNMS). Twenty volunteer and local divers attended a REEF fish ID seminar held at the Aquarium. The Monterey Bay Aquarium volunteer divers made plans for regular monitoring within the MBNMS throughout the year.

Next stop was Long Beach, California, where Christy and Julie provided a fish ID seminar to the volunteer divers of the Long Beach Aquarium of the Pacific (LBAOP). Thirty-six interested divers attended. What a lively bunch they were!

The final stop was in the warm waters of the Channel Islands off Santa Barbara. The REEF team held a seminar for a group of 15 divers and educators of the Channel Islands National Marine Sanctuary (CINMS). A fish survey trip aboard Truth Aquatics' Conception was organized by the CINMS and LBAOP. Over 30 Volunteers from the LBAOP and CINMS joined REEF in collecting fish survey data in the Channel Islands of Santa Cruz and Anacapa. Seventy-six surveys were conducted and 56 species of fish were recorded.

REEF will be returning to California in July for the Great American Fish Count. In preparation for the Count, seminars will be scheduled throughout California during June and July. REEF will present a fish ID seminar at the CINMS July 7 and then join divers July 8-9 and July 12 at the CINMS to collect fish survey data. The Monterey Bay Sea Otters Club and the MBNMS have also scheduled seminars. REEF hopes to provide seminars in the San Diego area as well. Keep checking the Fishcount Website: www.fishcount.org regarding these and other upcoming seminars.



The Great American Fish Count *continued from page 1*

The GAFC serves to introduce and inspire recreational divers and snorkelers to participate in REEF's year-round volunteer fish monitoring program. The REEF fish survey data provide researchers, marine resource managers and policy makers with valuable information for making decisions regarding our marine resources. Your volunteer efforts really do make a difference.

The GAFC was started in 1992 by Dr. Gary Davis at the Channel Islands National Park. Fifty divers, including park biologists, participated in the first GAFC on Anacapa Island in the Channel Islands. Today the number of participants has grown to over 300. REEF hopes to see the GAFC grow with many more seminars and dives being organized in all of REEF's geographic regions.

For those interested in counting fish for the GAFC or all year round, REEF has survey materials for the Pacific Northwest, Northern California, Southern California, Gulf of California, Hawaii, Florida, Caribbean, South Atlantic, Northeast and the Gulf of Mexico. Whew!

So...do you need another good reason to join the Great American Fish Count? How about a dive vacation for two? Enter the GAFC Challenge! Each fish survey you conduct on a sanctioned GAFC dive or snorkel is one entry into a grand prize drawing for a week-long dive/accommodation package at one of two beautiful tropical resorts.



A BIG THANKS goes to two of our REEF Field Stations: Aquasafari in Cozumel, Mexico, www.aquasafari.com and the Southern Cross Club on Little Cayman, Cayman Islands, www.southerncrossclub.com, for donating these wonderful dive packages. Additional prizes will also be drawn for selected geographic regions. There are many chances to win, so dive into the Great American Fish Count and start counting! If you would like to organize an event or participate in an already scheduled event, it's not too late! For more information see the Fishcount Webpage at www.fishcount.org, contact Julie at GAFC@reef.org or call 305-451-0312.



SCIENCE UPDATE

Fish and Benthic Monitoring Workshop Conducted in La Parguera, Puerto Rico

Through an exciting partnership with the Center for Marine Conservation (CMC) and NOAA's Coastal Zone Management (CZM) Program, a monitoring workshop for local stakeholders was held in May in La Parguera, Puerto Rico. Local educators, dive industry professionals, college students, resource agency staff, and conservation leaders attended the week-long program. The workshop featured classroom and field training in taxonomic identification of local fishes, corals, algae, and key invertebrates in the survey methodologies of REEF's Fish Survey Project and CMC's Reef Ecosystem Condition Program (RECON). RECON enlists trained volunteer divers to collect information about the reef environment, the health of stony corals, the presence of key reef organisms and obvious human-induced impacts.

The purpose of the workshop was two-fold: 1) to enable a local corps of divers to provide on-going fish and benthic condition data for the reefs of Puerto Rico and 2) to collect a baseline of information on the fish populations of the area. To achieve this second goal, six members of REEF's Advanced Assessment Team (AAT) conducted fish surveys throughout the week. The AAT members were also instrumental in assisting the workshop leaders with field and classroom training. This successful workshop is the first in a series of workshops that the CZM will sponsor in the US Island Territories, and REEF is very excited for the opportunity to become active at the local level. REEF would like to thank Lisa Monk and Judy Lang from CMC, the AAT members who participated (especially to Ken Deaver who helped organize the workshop registration), the local dive operators Paradise Divers and Parguera Divers, the workshop participants, and to the CZM for making this project a success.

Marine Protected Area News

REEF believes that Marine Protected Areas (MPAs) are an important tool for the protection of marine ecosystems, and we urge our members to stay informed of MPA initiatives and funding issues. In each issue of REEF Notes, the MPA News feature brings you recent and noteworthy happenings.

New Reports Provide Evidence of the Utility of MPAs

Evidence that coastal habitats and marine life populations are under increasing threat and decline is prevalent in many scientific findings and in our own dive logs. Who hasn't said or heard someone say, "Wow, you should have seen this place 10 years ago?" While the concept of a marine reserve may seem obvious to some, there hasn't been much in the way of hard evidence for their effectiveness. However, the science of marine reserves, the "where, how big and how many," recently took a major leap forward with the release of two reports from prominent scientific groups that provided compelling scientific evidence that no-take areas conserve both biodiversity and fisheries.

A committee of the US National Research Council assessed the scientific basis of techniques used for the location, design, and implementation of reserves, drawing on examples from throughout the world. Their findings, released in a report last November, support the use of marine reserves as a supplement to conventional management tools and argue that the lack of experience with marine reserves should not stop managers from implementing them in an adaptive manner. A separate effort was undertaken by a team of researchers based at the National Center for Ecological Analysis and Synthesis (University of California, Santa Barbara), to examine the effects of reserves on fish populations. The team's study of more than 100 reserves from around the world indicated that after one to two years of protection, these reserves averaged a 91% increase in population density, 192% increase in biomass, and 23% increase in species diversity as compared to reference sites. The study concluded that networks of reserves, rather than isolated single reserves, are necessary to buffer against environmental variability and catastrophes. Both reports are available online: NRC- <http://www.nap.edu/books/0309072867/html/> • NCEAS- <http://www.nceas.ucsb.edu/Consensus/consensus.pdf>
If you are interested in reading more MPA News, visit www.mpanews.org.

Tortugas Ecological Reserve Becomes a Reality for the Florida Keys National Marine Sanctuary!

After years of planning, rules designed to protect the diverse marine life and lush coral reefs of the Dry Tortugas in the southern end of the Florida Keys went into effect March 8th. The federal portion of the Tortugas Ecological Reserve includes all of Tortugas South (60 square nautical miles that includes the critical spawning grounds of Riley's Hump) and 13.8 square nautical miles in the northwest corner of Tortugas North. Protection includes the prohibition of taking any marine life and the restriction of vessel discharge. In addition, all vessels entering Tortugas South must stay in continuous transit and SCUBA diving is prohibited. At the time of this writing, there are still two actions pending by the State of Florida and the Tortugas National Park that, if passed, will further expand the reserve. These combined actions would result in a world-class "no-take" ecological reserve in the Tortugas and the process to develop the reserve has drawn accolades as a model for collaborative reserve design. REEF members played an important role along the way by voicing their support and we thank you.



Workshop participant Ralph Clark gets some last minute help before conducting a RECON Survey dive



Some of the workshop participants and staff at the end of a day of diving



AAT Members & Staff - Brice Semmens, Ken Deaver, Will Ruggles, Douglas Rankin, Jesse Armacost, Cathy Coughlin, Julie Dutcher and Christy Semmens



MEMBER ARTICLE

By Les Wilk, REEF Member

Fish identification is a skill that takes time to develop. Here are a few tips that may help you better enjoy fish watching and become more proficient at fish identification.

Below are excerpts from Les' article.

For the full article, please visit REEF's website at <http://www.reef.org/member/forum/forum.htm>.

Relax

Apprehension will prevent you from noticing things. As you gain confidence and start to take a deeper interest in the marine life around you, you will notice that the disciplined act of careful observation has its own calming effect.

Develop Good Buoyancy Control

Strive to be as unobtrusive as possible as you observe marine life by minimizing your physical activity. Learn to move methodically. Glide. Practice it.

Get Close

Keys to identification usually include subtle markings, color differences, details of fin structures, body appendages, etc., most of which will only be apparent up close. A fish's reaction to a close approach (aggressive, passive, fearful) may also provide a clue to its identity.

Approach Cautiously

There are two reasons for approaching a fish cautiously: (i) to avoid frightening it, and (ii) to avoid an aggressive reaction. You are bigger than most fish --- they may consider you a predator.

Don't Chase

Chasing is futile. Do not chase fish --- you will not catch up to them, but you will succeed in making them fear people even more.

Be Patient

If you spook a fish into hiding, don't give up. The fish was out in the open for a reason and will probably return if you let it. Back off and wait, motionless. For example, when you frighten a yellowhead jawfish it will retreat (tail-first) into its burrow, but in less than a minute it will cautiously poke its head out to see if there is still danger. If you don't make any sudden moves or noises it will gradually come out again. The blue goby, on the other hand, will require much more patience. Once alarmed, it will not reappear for many minutes.

Look Everywhere

The next time you dive, look around you and find the ugliest-looking part of the dive site. Perhaps it's some coral rubble, or mud, or seagrass. Go there and look carefully. You'll be amazed by the interesting fish and creatures that you will find.

Don't Rush

Skimming a reef is like skimming a book --- you get the general idea but you miss the richness of the experience. Pick a small part of the dive site and dawdle. Look under overhangs. Peek into crevices. Look into sponges. Get your face down near the sand and scan the bottom for movement.

Carry a Slate or Fish Identification Card

Many fish look almost the same. To distinguish between them you need to observe small differences in colors, markings, etc. You could try to memorize what you saw, but chances are that you'll get the details all mixed up before the end of the dive.

Light, Mirror, Loupe

Carry a small dive light even during the day. Some of the most interesting fish and creatures are very shy, and tend to hide within dark recesses. If you want to positively identify a pikeblenny you'll need to see its raised dorsal fin. One way to accomplish that is to bring a mirror close to its burrow or tube and elicit a territorial response. When it sees its image it will put on a display for the "intruder", and let you get a good look. For really tiny things, like gobies, blennies, shrimps, and some crabs, it is useful to carry a loupe. Make sure it's made of glass, not plastic. Some plastics have an index of refraction close to that of water, which makes the loupe nearly useless underwater.

Take Photos or Videos

Short of capturing a specimen, there is no better way to identify a fish than by photographing or videotaping it. The strobe or video light will bring out the true colors, and more detail will be captured than you could possibly remember or record manually.

REEF NEWS



REEF Wins Gulf Guardian Award

On April 28, 2001, REEF received a first place 2001 Gulf Guardian Award in Austin, Texas, at the Texas Environmental Trade Fair. Gulf Guardian awards stem from the Gulf of Mexico Program, a partnership formed in 1988 to develop strategies to protect, restore, and maintain the health and productivity of the Gulf of Mexico ecosystem. Entries came from the five states bordering the Gulf of Mexico—Texas, Louisiana, Mississippi, Alabama and Florida. Jim Giattina, program director of the Gulf of Mexico Program stated, "We began the Gulf Guardian Awards to highlight and honor some of the partnership and other projects that are helping the environment ... in Texas, other Gulf states, and in the Gulf of Mexico. We are all one Gulf community and have only one Gulf of Mexico."

A big thanks to REEF Advisory Board member, Dr. Carol Lorenz, for writing the winning proposal! Carol focused the application towards REEF survey efforts in the Flower Garden Banks National Marine Sanctuary, located 100km from the Texas coast. Annual surveys in the FGBNMS were initiated in 1993 to aid in the management of the Sanctuary by providing a consistent, reliable count of fish assemblages found in its waters. NOAA now relies on REEF members to conduct annual fish surveys to provide data on fish populations as a complement to their own researchers' studies. To date, 184 divers have identified 259 species of fish in the Sanctuary. These data constitute a benchmark critical to the determination of any future change in this unique ecosystem and are considered an invaluable source of early indicators of change. In turn, this allows National Marine Sanctuary personnel to manage and protect the resource, and to justify the necessity of the continued sanctuary designation. For more information please visit <http://www.gmpo.gov/gulfguard.html> or contact REEF HQ.

REEF Internship

REEF's intern for Spring 2001 was Jennifer Stuart from St. Joseph, Missouri. Jennifer was born and raised in California but now lives in Missouri and attends Truman State University in Kirksville, MO. In 2003 she will receive a B.S. degree with a major in biology and minors in chemistry and physics. She arrived at the REEF headquarters in Key Largo, FL, just after the New Year. During her semester-long stay, Jennifer performed REEF surveys, worked with the Coral Shores High School SCUBA club in monitoring their artificial reef ball, participated in REEF's AAT monitoring in the Dry Tortugas, and led fish identification games for a Key Largo Girl Scout Troop. Once a week, Jennifer volunteered at the Marathon Turtle Hospital, helping with the strange "loggerhead disease series" that struck throughout Florida. Sick turtles began appearing in October. An estimated 300 turtles per day washed up on Florida's shores.



Jennifer at REEF Headquarters

The turtles were sluggish, unresponsive, unable to lift their heads, eat, and some unable to open their mouths to eat. As a result of their weakened condition, many turtles succumbed to pneumonia. Jennifer aided in administering IVs, tubing nutrient fluids into the turtles and working with the loggerheads as they regained their strength. Across Florida, thousands died but a few have been rehabilitated and will be returned to the wild when fully recuperated. The number of strandings decreased in early spring. However, the cause of this illness is still unknown.

Jennifer has returned to spend the summer with her family in Missouri and hopes to continue her education after graduation with a PhD in Marine Biology or Marine Ecology. Eventually, she wishes to focus on field research in the coral reefs and perhaps teach marine biology at the university level.

Meet REEF's Office Manager

In February 2001, REEF welcomed Caryn McLaughlin as REEF's Office Manager. Caryn has an associate's degree in business administration and is currently working towards a bachelor's degree in the same subject. Caryn is no stranger to REEF HQ. She has been REEF's part-time bookkeeper since March 1999. As Office Manager, Caryn will be busy with REEF's membership database, contributions, orders, bookkeeping, invoicing, Sustainers' Event, and answering phone calls and e-mails. When you call REEF HQ and hear a new voice, be sure to say hello! Although Caryn obtained her diver certification in 1989, she has not been diving for many years. However, she recently took a refresher course in SCUBA. Her first dive back into Keys water was during Earth Week. Caryn, REEF staff, and 20 other divers conducted fish surveys with Horizon Divers on April 20, 2001.



Caryn at REEF Headquarters

REEF NOTES

School Groups Participate in Fish Survey Project

Several high school and college groups visit the Florida Keys each year during their break. As a part of their education, these groups contact REEF HQ, schedule fish identification seminars, and order survey materials. REEF staff train the students in fish identification during seminars lasting from one to three hours. Students receive starter kits to begin their fishwatching experience. Following the classroom lecture, the students conduct REEF fish surveys during their dives or snorkels. As with all REEF surveys, the data are scanned and uploaded to REEF's database at www.reef.org. Each student is assigned a REEF membership number. Students can view their own data using their membership number or can view the survey project's group data.

John Wear, director of Catawba College Center for the Environment in Salisbury, North Carolina, is an associate professor of biology and environmental science. He teaches Environmental Science, Ecology, Aquatic Ecology, and Coral Reef Ecology and is involved in other field-oriented seminars such as Tropical Biology. John has been coming to the Keys for years but has brought students for the last two years. Over a dozen students have taken the REEF course and conducted a REEF survey. John reports, "My students have been intensely interested in the ecology of reefs and environmental problems now facing our coral reef ecosystems. By their involvement in the REEF surveys, they feel they are contributing to the welfare of this fragile system." An article with a picture can be found on the Center website at <http://www.catawba.edu/enviro/exped.htm>.

Dorna Schroeter is the Director of Environmental Education Program for Putnam Northern Westchester BOCES (Board of Cooperative Educational Services) in Yorktown Heights, NY. Dorna has been bringing students to the Florida Keys for 10 years. Six years ago, Dorna implemented the REEF course and surveys into the week-long curriculum. Each spring, Dorna brings a high school group and each fall, she brings a middle school group. Students apply from the 40 school districts that participate in the program. Students must be juniors or seniors and have a serious interest in marine biology. Over 125 students have participated in REEF seminars and surveys. In addition to the REEF program, students participate in NOAA's Coral Reef Classroom, swim with dolphins at Dolphins Plus, and kayak to spend a night on a mangrove island. The group stays at the Sunset Cove Motel where students can snorkel in the bay at night to learn about bioluminescence. This year, the students had the opportunity to interact with manatees at the hotel dock. Dorna reports, "Participating students have said they learned more in this one week than they learned in a semester of marine biology."

Steve Sirrico is the Science Department Head at Thayer Academy in Braintree, Massachusetts. Thayer Academy is a private, independent school. Steve teaches a twelve-week biology class consisting of 80% marine biology with a winter unit on coral reef ecology. This June, Steve will be bringing down students for the 7th year. Over the past five years, approximately 120 of his students have participated in REEF surveys and seminars. Steve reports, "Project REEF has added greatly to my curriculum. The annual trip to the Keys is a highlight of the year for the 24 students who get to go. I have to do a lottery every year to pick out the kids because I can't take any more. We rent vans in Miami, stay at the Hojo's in Key Largo, do the REEF course with Laddie, snorkel 2 days with two separate locations each – the kids learn a lot. We also swim with the dolphins at Dolphins Plus. I can also tell you that when the kids leave the middle school as 8th graders many of them put as their highlight of the three years the trip to the Keys."

Husband and wife team, Dr. Emily Schmitt and Craig Lavin, teach at Chaminade-Madonna College Preparatory (High School) in Hollywood, FL. Emily and Craig lead a week-long special seminar course held through the school. Although the course has been offered for 2 years, Emily has been bringing students to the Keys for 5 years. Forty students have been involved in the course each year (80 total so far). All students attend a 12-hour lecture course, with a 50 species test at the end of the course. Students participate in 2 days of snorkeling at Biscayne National Park during which they practice taking fish survey information.



Dorna Schroeter's classroom of students attend fish ID seminar



Students from Chaminade-Madonna enjoy a snorkel survey

REEF NOTES

Vandenberg Survey Project

Artificial Reefs of the Keys (ARK) is a non-profit organization planning the sinking of a large decommissioned military vessel as an artificial reef approximately 6 miles off Key West. Resource Control Corporation (RCC) is a full service environmental consulting firm based in Rancocas, NJ, and is managing the project. The sinking of the 550-foot long, 75-foot wide, 10-story-high ex-USS Vandenberg is a monumental effort due, in part, to the sensitive nature of the proposed sinking site, which is located within the Florida Keys National Marine Sanctuary (FKNMS). ARK and RCC are presently working on many aspects of data collection to assist with the permitting required for the sinking. Approximately 18-19 sites have been identified and are located near the proposed sinking site of the Vandenberg. These sites will be monitored before and after the sinking event, scheduled for 2002. The data collected from these sites during monitoring are of two types: 1) Usage data (i.e. how many people visit these sites, their activities, etc.) and 2) Biological data - including fish and benthic surveys. Florida Keys Community College (FKCC) is committed to operating these ongoing monitoring programs through its Marine Data Collection, Research Diving Techniques and Marine Biology courses.

During March 30-April 3, 2001, Tim Taylor, of Taylor Made Excursions, graciously donated his time and his liveaboard dive boat to assist with the collection of fish survey data. The focus of this trip was to collect information regarding the resident populations of fish at the identified sites using REEF's roving diver technique. The four days were a great opportunity to help ARK with its goals in sinking the Vandenberg, learn more about local area fishes, and contribute to REEF's international fish survey database. Fish ID seminars were conducted nightly aboard the M/V Tiburon and survey dives took place each day. In total, 31 local Key West divers conducted 165 surveys at 15 sites over the four days of diving. Over 160 species of fish were documented. The data will be uploaded to REEF's database and can be viewed by anyone with Internet access.

The Vandenberg survey project will open new horizons for local divers and diving students at FKCC. Several dive shops and dive operators in Key West have pledged free or minimally charged dives to local divers who conduct REEF fish surveys during their dive/snorkel. For more information please contact Joe Weatherby of ARK at www.bigshipwrecks.com or 305-296-7088, Jeff Dey of RCC at 609-261-3388, or REEF at www.reef.org or 305-451-0312. Ongoing fish ID seminars are taught at Florida Keys Community College to the college scuba club, FKCC staff and faculty, the Key West community, and visitors. For more information, please visit www.fkcc.cc or call Tracy Hamilton at 305-296-9081, extension 242.



USS Gen Hoyt S. Vandenberg
(scale drawing showing diver-safety cutting plan)



The USS Vandenberg in operation years ago

You're Never Too Old... or Too Young

REEF fishwatchers range from snorkelers to divers, warm waters to cold waters, and in age from young to old. REEF's newest fishwatcher is five-year-old Garrett Taylor of Key West, Florida. Garrett is the son of Tim Taylor, owner and captain of the M/V Tiburon, a liveaboard dive boat operating out of Key West. On the recent Vandenberg survey project aboard the Tiburon, Garrett took part in the fish identification seminars. Oftentimes, Garrett would call out the fish names before the adults in the group! On the third evening, Garrett took the Level 2 experience exam. At age five, Garrett cannot yet read or write so he called out the answers to be written down for him. This amazing little fishwatcher passed the exam with a score of 94%. In order to become a full-fledged Level 2 fishwatcher, Garrett next needed to conduct 2 underwater fish surveys. The next afternoon, Garrett went on 2 snorkels on Western Sambos. Again, he had to be accompanied by an adult who wrote down his sightings as he called them out. His sightings included stoplight parrotfish, blue tang, porcupinefish, black grouper, and several other species. Garrett's favorite fish to spot is the hammerhead shark. When asked what he wanted to be when he grew up, Garrett responded, "A policeman on a boat." Congratulations to this new fishwatcher, Garrett Taylor!

For more information, please contact REEF HQ at 305-451-0312 or www.reef.org.



Garrett gears up for fish surveying

REEF NOTES

Recycling

Recycling— Have you thought about it lately? Now that most communities have undertaken recycling efforts for their residents, it's tempting to take recycling for granted and move on to more pressing environmental concerns. But for all of us who care about our world, recycling should be tucked away in a corner of our minds, ready to surface when we see empty soda cans, stacks of used paper, and plastic containers. Since REEF headquarters is located in the Florida Keys, we are especially conscious of the importance of recycling in our limited environment so close to the sea. We would like you to know about the methods we use in order to reassure you that we are an environmental organization in practice as well as theory, and perhaps to generate some ideas for use in your own home and workplace.

REEF, like most offices, generates a great deal of paper. We buy only recycled paper for our copy needs, and we reuse one-sided sheets for our fax machine. We reuse most boxes and packing materials that come in for out-going orders and storage. We recycle all cans, bottles and containers on a regular basis. We have a 30 gallon trash can for paper that can't be reused, and we are currently tracking how often we empty it at the recycling center. Julie Dutcher, our Education Coordinator, is working on a plan to collect out-dated fish ID books and CD-Roms for reuse in places where the cost of a new book would be prohibitive.

The publisher of our newsletter, The Nielsen Company, recycled over 10,000 tons of paper in the year 2000. That's approximately 860 tons per month that isn't sent to a landfill! Their excellent environmental policy includes safe and effective use of raw material chemicals, recycling of used inks, and collection of waste chemicals for reblending and recycling or destruction through a reputable waste treatment facility. They do not believe in landfilling any of their waste or spent chemicals. Our newsletter is printed on paper that can be recycled in any recycling facility, after, of course, you have read it thoroughly and passed it along to all interested parties!

We are always looking for new ideas to prevent waste, so if you know of a great recycling tip that we haven't thought of, please e-mail us. We truly do believe that if you're not recycling, you're throwing it all away!

Books Benefit

Julie Dutcher just returned from a training seminar in Cozumel. She was working with the marine park's key volunteers to get them up to speed on their fish ID and training skills. The project went very well, but when Julie returned she commented that many of the volunteers needed reference materials (books and CDs) but didn't have funding to buy them. We know that many of you go through your books on a regular basis, so we've come up with a great plan for your old reference ID books.

For any new book or CD-Rom you purchase, REEF will give you a \$5.00 discount if you send us your old, useable book or CD. We will package them up and send them to local marine parks, libraries and other distribution avenues to go out to volunteers that need materials. This keeps your references new and gets materials down to our partners that need them.

To qualify, references must be complete and in decent, usable condition. Make sure to include a note so we can let our partners know where the books have come from. We'll give you immediate credit on your replacement purchase.

For more information contact Caryn at Caryn@reef.org.



REEF NOTES

FIELD STATIONS

USA and Canada Field Stations

California

Riverside - Scuba Schools of America 909-689-2422

Florida

Bonita Springs – Eagle Ray Dive Center 941-992-2237
Islamorada – Lady Cyana Divers 800-221-8717
Juno Beach - Marine Life Center 561-627-8280
Key Largo- Diver's Outlet 305-451-8034
Key Largo – Amy Slate's Amoray Dive Resort 305-451-3595
Key Largo – Horizon Divers 305-453-3535
Marathon – FL Keys Nat'l Marine Sanctuary 305-743-2437
Riviera Beach – Jim Abernethy Adventures 561-691-5808

Hawaii

Honolulu - Midway Phoenix Corporation 808-599-5400
Kailua, Kona – Eco Adventures 808-329-7116

Louisiana

New Orleans – 504-276-4887

Michigan

Ann Arbor – Huron Scuba Adventures 734-994-3483

Minnesota

Rochester - MDC Sports 507-288-8802

New Jersey

Belle Mead - The Scuba Connection 908-359-1250

Texas

Lancaster – Island Time 972-227-6678

Washington

San Juan – Emerald Seas 360-378-5040
Vancouver - Thunder Reef Divers 360-573-8507
Canada, Alberta
Lethbridge – Anderson Aquatics 403-328-5040

Canada, British Colombia

Victoria – Living Oceans Society 250-920-0733

Overseas Field Stations

Aruba

Paradera - Windie's WaterSport 297-872281

Bahamas

Nassau – Custom Aquatics 242-362-1492

Belize

M/V Wave Dancer (Peter Hughes Diving) 800-9DANCER
Seasports Belize 501-2-35505

Bermuda

Bermuda Aquarium, Museum & Zoo 441-293-2727

Bonaire

Kralendyk – Plaza Resort Bonaire 599-717-2500
Kralendyk – Green Submarine 599-717-2929
Kralendyk – Sand Dollar 800-288-4773
Kralendyk – Buddy Dive Resort 599-717-5080

British Virgin Islands

Tortola – Baskin in the Sun 284-494-2858

Cayman Islands

Little Cayman - Southern Cross Club 345-948-1099

Honduras

Utila – Utila Lodge Resort 504-425-3143

Mexico

Cozumel - Aqua Safari 529-872-0101
La Paz – Baja Quest 521-123-5320

Chinchorro – Maya Ha 529-831-0065

Netherland Antilles

Curacao – Curacao Sea Aquarium 0599-9-461-6666

Puerto Rico

Culebra – Reeflink Divers 787-742-0581

Turks and Caicos

M/V Wind Dancer (Peter Hughes Diving) 800-9DANCER
M/V Sea Dancer (Peter Hughes Diving) 800-9DANCER
Providenciales - Big Blue Unlimited 649-946-5034

US Virgin Islands

St Croix – St Croix Ultimate Blue Water Adventures 340-773-5994
St Thomas – Aqua Action Dive Center 340-775-6285

Venezuela

Puerto La Cruz - Horisub 58-81-814878
Los Roques – M/V Antares (Peter Hughes) 800-9DANCER



FIELD SURVEYS

REEF 2001 Trip Schedule

REEF Field Surveys are your opportunity to take a vacation that counts! These week-long diving adventures are not only fun, but educational and environmentally important. And there is no better way to improve your fish identification skills.

Dates, lodging and diving accommodations are given for each trip. Prices do not include airfare. An additional \$200 REEF fee will be added to each trip to cover the cost of the trip leader(s), seminars, and survey materials needed throughout the week. The \$200 REEF fee is tax-deductible since REEF is a non-profit organization.

Visit the REEF website for the complete schedule or contact the REEF office. You can call Dive Reservations, Inc. at 888-363-3345 (toll free) or e-mail them at reef@diveres.com to learn more about a specific trip or to reserve a spot.

REEF Field Surveys

Utila, Honduras

•Utila Lodge • June 16-23 (FULL)

Little Cayman

•Southern Cross Club • July 14-21 (FULL)

Flower Gardens

•M/V Spree • August 8-12 (FULL)

Catalina Island/Channel Islands

•Southern California • August 31-September 4
5 days/4 nights - \$725 per person (double occupancy) includes lodging and diving (3 days of 2 tank am diving)

Gulf of California, Baja

•M/V Don Jose • September 9-16
8 days/7 nights - \$1395-\$1595 per person includes lodging, food, and diving

Bermuda

•Bermuda Biological Station for Research • September 22-29
8 days/7 nights - \$1225 per person (double occupancy) includes lodging, diving, and all meals

Curacao

•Ocean Encounters • November 3-10
8 days/7 nights - \$753 per person (double occupancy) includes lodging at Lion's Dive Resort, breakfast daily, transfers and diving (5 days of 2 tank am diving and unlimited shore diving)

St. Vincent

•Dive St. Vincent • December 1-8
8 days/7 nights - \$874 per person (double occupancy) includes lodging at Lagoon Marina and Hotel, breakfast daily, and diving (5 days of 2 tank am diving)

REEF Discovery Tour

Bonaire

•Captain Don's Habitat • July 28-August 4 • Led by Paul Humann
8 days/7 nights - \$873 per person (quad occupancy) includes lodging at Captain Don's Habitat, breakfast daily, and diving (6 days of 2 tank am diving and unlimited shore diving)



REEF Field Survey to Cozumel in December 2000

THANK YOU

BRONZE SUSTAINERS

(\$100.00 or more)

BARBARA ABELES
RENAY ADKINS
DANA AFRICA
TODD AIKINS
MARY ALEXANDER
STEVE AMOS
ROGER ANDERSON
ROBERT ANTONELLI
CHERYL ARSCOTT
BRUCE ASMUSSEN
KEN BAILEY
BARRY BAIN
DAVID BARR
BARBARA BAUCOM
MICHEL BAUMEISTER
ALAN BEADLE
CHRIS BEAMER
DOUG BECKER
IRA BELL
MARGARET BIERWIRTH
PAUL BILODEAU
BOB BISHOP
DAVID BISHOP
KENT BLUMBERG
MARK BOARDMAN
MARK BOEHM
NORRIS BOONE
ALLEN BOORSTEIN
EDWIN BOYNTON
MARGARET BRADLEY
PHILLIP BRADLEY
CHRIS & MARLA BRANAS
BECKY BRENNER
WENDY BRODY
JUDY BROWN
BETH BRUTON
MICHAEL BRYANT
DON BUCK
STEVEN BUNN
JOHN BURDAKIN
HELGA BURRELL-SAHL
ANGUS CAMPBELL
KAREN CAMPBELL
LYNN CAREY
BEV CHADWELL
STEPHEN CHANDLER
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ROBERT CORBELL
FRED CORN
COY CORRELL
JOSEPH COULTER III
BOBBY CRAVEN
WILLIAM CRAWFORD
JONATHAN CREIGHTON
BRUCE CUNNINGHAM
MICHAEL DALEIDEN
ELLEN DANDORPH
DAWN DAVIS
RALPH & GAY DICKERSON
BRUCE DICKSON
CHARLES S. DIEDERICH
ROBERT DONALDSON
MONTY DOYLE

MIKE DUPES
PIETER DYKEMA
BARBARA EATON
DONN ELLERBROCK
NAOMI ESMON
DENA EVANS
DON EVANS
MARTIN FARBER
FIONA FEIN
MIKE & LIZ FINLAY
GARY FINN
STEPHEN FITZPATRICK
JAMES L. FOGHT
CHARLES FRIERSON
DR. JULIAN FUERST
MICHAEL GAGLIANO
STEVE GANON
KAREN GARCIA
JEAN GASEN
JOHN GEARY
DARLENE GEHRINGER
FRED GENTRY
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ANNE C. GIBSON
LARRY A. GILBERT
BOB GILLMAN
DR. STEPHEN GITTINGS
BARBARA GOLDSTEIN
WILLIAM GOODALL
PATRICE GOUVEIA
DON E. GREGORY
THOMAS GRUBBS
DAVE HAGEMEIER
GARY HAGUE
SEYMOUR & CORRINE HALBERG
DON HALL
RICK HALPERN
MICHAEL HANEY
L.G. HANLEY
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GORDON HENDRICKSON
CALVIN HILL
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BRENDA HITT
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TIM IAGUILLI
FRED IMMERMANN
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JEFFREY JEWETT
DAVID JOHNSON
ED JOHNSON
EDWARD JOHNSON
DEBRA JOHNSTON
BLAIR JONES
BRANT JONES
SHAZ KAHNG
JOYCE KAY
DEXTER KELLY
TERRI KELLY
MAJA KIETZKE
MURRAY KILGOUR
BETH KLOPMAN
LOIS KONG
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BETH KRUSE KLOPMAN
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LAUREN LA FOSSE
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JOHN LANZ
MICHAEL LAZAR
PETER LEAHY
RUSSELL LEISNER
BEVERLY LEONARD
HELAIINE LERNER
JOANNE LIGHTNER
GEORGE LINDLEY
CLOTILDE LUCE
CHIP LYNCH
HUGH LYNCH
JAMES MAHON
HERMAN MARGGRAFF
JEFF MARTIN
KENT MAURER
THOMAS MAWN
C B MAXEY
SHARON MAYNARD
JOHN MCDONALD
LESLEY MCGALLIARD
WAYNE MCNAB
DIANA MCOAHAE
NANETTE MELLGREN
ALICIA MEREL
ROBIN MILLER
HOLLY MIRCHEL
BARBARA MODAFARI
HARLEY MOODY
JIM MORABITO
ALLEN MORRIS
JOHN MULDER
ROB MUSTARD
DAVID NANK M.D.
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DAVID M. NICKLE
NICHOLAS NOMICOS
JILL OST
ROBERT OTTENS
JOSHUA PADDOCK
STEPHEN PETREE
KITTY PHILIPS
MARY PIEL
VALORIE POWERS
RICK RABE
LOU RADENHAUSEN
S. RAMACHANDRAMURTHI
DOUGLASS RANKIN
GINA RAZETE
ROBERT REID
RICHARD RETHORST
RICHARD REVENTLOW
CHRISTOPHER RIDDER
MARK ROBBIN
LARRY ROBERTS
PAMELA ROBERTS
ANTHONY RODGERS
DR. PAMELA ROE
CAROL ROSS
ELLIOTT ROSS
JOHN ROTHHAAR
ANTHONY RUE
WILL RUGGLES
JAY SALZMAN
DAVID SAYLES
JEFF SCHEER
SEBASTIAN SCHULHERR
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SUZANNE STATON
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DARCY STOTTELMYER
AUDREY STROJNY
CYNTHIA SULLIVAN
KATHLEEN SULLIVAN
JOSEPHINE TEMPLETON
MARGARET TERHAR
ALAN THAYER
JAMES THOMAS
STEPHEN S. TITLEMORE
JEFFREY TONN
NICHOLAS TORRE
JANET TREER
RICHARD TRIMPI
JIM VAZQUEZ
DANA VIHLEN
ELIZABETH WAGNER
PAUL WALUKEWICZ
TOM WATSON
JAMES WATTS
DAVID WELLS
VALERIE WHITING
TOM R. WICKS
JOHN WILLIAMS
DONALD WILSON
CLIVE R. WOOD
STUART E. WUNSH MD
MARJORIE WYATT
ANNE YOUNGSTROM
JACK ZERCHER
DON ZIPERMAN

SILVER SUSTAINERS

(\$250.00 or more)

KATHY AGUILAR
CLAY BIBERDORF
MARTIN GIESECKE
STEPHANIE GREEN
BRIAN HEATH
DAVID MATTHEWS
ERIC MCCLARY
JOHN PEEBLES
KEN PUGLISI
LAURIE RAIMER
DOUG ROREX
JULIE ROSENFELD
LINDA SCHILLINGER
JOHN STUART
JODI WILLIAMSON

Special thanks extended to:
Sunshine Athletic Association, Inc.
SCUBA Club for their \$100 donation to REEF in April, to Youngstown State University Scuba Club for their \$222.32 donation to REEF in May, and Seaspace for their \$400 donation to REEF in April.

GOLD SUSTAINERS

(\$500.00 or more)

PATRICIA AYERS
MARK BACHMANN
BRENDA BERLINER
WALTER BRINEY
FRED INGHAM
PATRICIA ORR
NEAL RAKOV
GREGORY ROCHE

PLATINUM SUSTAINERS

(\$1,000.00 or more each year)

DARCY CHARLIER
MINDY COOPER-SMITH
KEN DEEVER
NED & ANNA DELOACH
STEVEN DINGELDEIN
NEIL ERICSSON & KAREN FLORINI
MUNS FARESTAD
CARL FROST
DAVID HERRO
PAUL HUMANN
MARK KAEHLER
BOB & JEAN KIRKPATRICK
ANN KUGEL
FRED MCCONNAUGHEY
JOE & LINDA MEYER IV
FEODOR U. PITCAIRN
JOHN PITCAIRN
CAROL LORENZ & DAVID PRESTON
DENNIS SCHNEIDER
WILLIAM SHEPPARD
KENNETH SINIBALDI
HILTON C. SMITH JR.
ED & DORIS STEINER
ANNE WALTON
DON & CAROL WHAYLEN
CLINT & CAROL WHITAKER

SPECIAL THANKS TO THE FOLLOWING:

- Dr. Jennifer Ruesink for donating artwork for the Field Survey t-shirt
- Ken Marks for help with GAFC CDs
- Sandra Nitchie at National Marine Sanctuaries for designing the GAFC banner
- Lindycal Sun Screenprinting, Inc. for donation of five GAFC banners
- Barbara Doernbach for graphic design of REEF's newsletters
- ReefNet Software and Paul Humann for donated fish slides
- Claudia Obregon and Sheryl Shea for translations
- Volunteers at REEF's booth at Oceanfest (Lauren Penner, Audrey Smith, and Lorrí McLaughlin)
- Oceanfest for the Silent Auction during the festival
- To those who donated to REEF's Silent Auction:
Divers Direct, ReefNet Software, Dacor, Dan Wagner, Prescription Dive Mask, Tom Isgar, Paul Humann, Subway, Atlantis Customs, Key Lime Products, Dive Training Magazine, Lassen and Atlantis Gallery - Key West, Bonica Precision Inc., and SunTease Protective Swimwear.

SURVEY NUMBERS

TWA

(Tropical Western Atlantic)

Over 100

Laddie Akins (714)
Linda Schilling (562)
Joe Thomas (453)
Deena Wells (448)
Leslie Whaylen (387)
Jean Kirkpatrick (355)
Christy Semmens (353)
Emily Schmitt Lavin (300)
John Pitcairn (300)
Cathy Coughlin (274)
Edwin Steiner (271)
Sheryl Shea (261)
Monty Doyle (240)
Clive Petrovic (234)
Peter Leahy (222)
Brice Semmens (213)
Elaine Morden (208)
Ann Knollenberg (190)
Ken Deaver (186)
Ken Marks (185)
Patricia Ayers (180)
David Preston (170)
Carol Lorenz (169)
Jerry Ligon (163)
Joyce Schulke (160)
Darlene Gehringer (157)
Bruce Purdy (154)
Tom Isgar (152)
Julie Overing (149)
Doug Rorex (148)
Judie Clea (146)
Randy Keil (135)
Will Ruggles (129)
Douglass Rankin (128)
Barbara Modafari (121)
Clint Whitaker (116)
Betsy Saunders (116)
Pamela Bezuidehout (107)
Bob Bishop (106)
Cindy Snell (105)
Jim Morabito (104)

Over 50

Jessica Armacost (100)
Don Buck (100)
Douglas Harder (99)
James Brooke (99)
Carol Reichert (98)
Denise Mizell (97)
Hilary Harder (95)
Kitty Phillips (89)
Dr. Stephen Gittings (87)
Shelley Tyre (85)
Carol Whitaker (85)
Jim Modafari (84)
Chris Koepfer (84)
Currier Randall (84)
Margaret Cowin (80)
Kirsten Basson (80)
Pamela Cefaratti (80)

Mark Kaehler (79)
Jean Gasen (77)
Kathleen Scott (77)
Greg Bunch (77)
Paul Humann (76)
Tony Sebastian (76)
Lorraine Sommer (76)
Connie Bishop (74)
Kris Wilk (74)
Tracy Siani (70)
Linda Baker (70)
Dave Downs (64)
Robyn Osborn (63)
Lauren Penner (62)
Monica Vega (62)
Janet Earnshaw (62)
Jacquie Tinker (61)
Ditte Preker (60)
Cheri Arnold (60)
Connie Dolan (60)
Kathie Comerford (60)
Karen Garcia (60)
Edgar Tomei (60)
Robert Antonelli (59)
Marjorie Nelson (59)
Charles Hersey (58)
Richard Hitt (58)
Gail Tomei (58)
Anthony Kajfrez (56)
Brenda Hitt (56)
Rick Halpern (55)
Corinne Halberg (54)
Woody Brooks (53)
David Mulvey (53)
Chuck Jirka (52)
Michael Phelan (52)
Noreen Downs (52)
Glen Thiel (51)
Jonathon Tromm (51)

Over 25

Jane Rorex (50)
Scott Fowler (49)
Robert Winters (49)
Jonathan Edwards (48)
Dave Grenda (48)
Donella Wilson (47)
Neil Ericsson (47)
Dennis Schneider (46)
Todd Aikins (46)
Sara Thomas (46)
Cristi Korbeck (44)
Joseph Froelich (44)
Anna Deloach (43)
Walter Briney (43)
Peter Rennemann (43)
Karen Florini (43)
Eric Riesch (42)
Steve Ganon (41)
Audrey Smith (41)
Andy Dehart (41)
Lillian Kenney (39)
Mike Chambers (39)
Sanford Robbins M.D. (39)

Pug Pugliese (38)
Shawn Edwards (38)
William Horn (38)
Joe Meyer IV (38)
Denny Lutz (37)
Donna Gerrard (37)
John Kelly (37)
Emma Hickerson (37)
Linda Meyer (37)
Ed Gerrard (36)
Wade Bevier (36)
Robert Draper (36)
Wes Nicholson (36)
Kathleen Gunderson (35)
Jo Ann Nucifora (35)
Muns Farestad (34)
Mark Springer (34)
Lynn Hubert (34)
Jeana Hodges (34)
Brett Sussman (33)
Joseph Thomas (32)
Ralph Dickerson (32)
Brenda Berliner (32)
Melissa Keyes (32)
Ann Outlaw (32)
Eddie Gerrard (32)
Robert Burnett (32)
Jose Kirchner (31)
Robert Schauer (31)
Arnold Walker (31)
John Stuart (31)
Kathy Aguilar (30)
Beth Bruton (30)
Jesse Meyer (30)
Kevin Buch (30)
Katia Pronzati (30)
Steve Boutelle (29)
Mark Bailey (29)
Gary Lenning (29)
Sandra Percell (29)
Kern Spencer (29)
Ronald Moss (29)
Van Duncan (29)
Cathy Springer (28)
Bob Bonanno (28)
Sascha Steiner (28)
Barbara Kirchner (28)
Patricia Pachuta (28)
Roxanne Chavanne (27)
Cassandra Warn (27)
Kathy Bonanno (27)
Keith Phillips (27)
Christy Sims (27)
Pete Wyman (26)
Blair Bertaccini (26)
Rebekah Moore (26)
Claudia Campos (26)
Matthew S. Kendall (26)

Leda Cunningham (26)
Jeffrey Nehms (26)
Belal Hansrod (26)
Mark Mcalpin (26)
Lana Smithson (26)
Jessica Lorek (25)
Sharon Stockholm (25)
Roger Stockholm (25)
Susan Siegel (25)
Kathleen Wean (25)
Kristi Klomp (25)
Randy Holley (25)
Dillon Harder (25)

PACIFIC

Over 100

Rachid Feretti (141)

Over 50

John Williams (65)
Kirby Johnson (60)

Over 25

Matthew Dowell (36)
Sarah Tamblin (29)
Kurt Steinbach (28)
Christy Semmens (25)

TEP

(Tropical Eastern Pacific)

Over 25

Kandie Vactor (29)



South Bahamas Field Survey Participants - Anna & Ned DeLoach, Karen Florini, Neil Ericsson, Margaret Cowin, Sandra Percell, Cassandra Weith, Lin Creel, Judie Clea, Cathy Coughlin, Kathy Aguilar, and Tony Ramirez

Survey Recognition

Based on the number of surveys you have conducted, certificates of merit and matching fish pins are available upon request. You must have at least 25 surveys in REEF's database. Please email reefhq@reef.org.

Books and CD Roms



Reef Fish Identification Book - \$39.95

Florida, Caribbean and Bahamas, 2nd edition, a fish ID book designed for divers, includes 670 photographs of 494 species.
Code BKB

Reef Creature Identification Book - \$37.95

Florida, Caribbean and Bahamas - 478 color photographs illustrate the most common marine invertebrates sighted by divers.
Code BKC

Reef Coral Identification Book - \$32.95

Florida, Caribbean and Bahamas - 375 color photographs will help you sort a stony coral from a gorgonian.
Also includes 100 color photos of marine algae.
Code BKD

Snorkeling Guide to Marine Life - \$32.95

Florida, Caribbean and Bahamas - 280 color photos illustrate marine life seen in 15 ft. or less of water including corals, fish and invertebrates.
Code BKE

Reef Fish Behavior Book - \$39.95

Florida, Caribbean and Bahamas, has 475 marine life photos, many capturing spectacular fish behaviors never before documented. Chapters, including reproduction, life cycles, feeding, colors, camouflage and many more, help divers learn where and when to observe many of the most dramatic behaviors.
Code BKF

Reef Fish Identification Galapagos - \$34.95

A comprehensive fish identification guide for the Galapagos Islands - the world's most spectacular natural aquarium. 260 beautiful color plates display the famous archipelago's fabulous fish life. This guide can also be used for Gulf of California divers.
Code BKG

Coastal Fish Identification - \$32.95

California to Alaska - a comprehensive fish identification guide for the West Coast of North America.
Over 250 colorful photos.
Code BKH

In-a-Pocket Guides - \$10

These new waterproof guides are a companion to Reef Fish Identification and fit right into your BC pocket!
Contains over 100 color photos.

"Fish-In-a-Pocket" (Code FIP)

"Creature-In-a-Pocket" (Code CIP) "Indo-Pacific-in-a-Pocket" (Code IIP).

Reef Fish Identification CD-ROM - \$39.95

The ultimate fish ID learning tool with more than 1,600 images, interactive fish ID learning games, scientific pronunciation, virtual dives, fish finder, log book and more.
Code CDF

A Guide to Angelfishes & Butterflyfishes - \$39.95

This book is the definitive guide to all known marine angelfish and butterflyfish. Features detailed explanations of each species, with information on their habitat, natural history and aquarium care. The book contains 280 photos and 256 pages.
Code BKJ

Anemone Fishes & Their Host Sea Anemones - \$29.95

The only comprehensive field guide to the fascinating world of the anemonefish and their host anemones. A revised, award-winning book. The book is 160 pages (6 3/4"x9 3/4").
Code BKK

Coral Reef Animals of the Indo-Pacific - \$44.95

This comprehensive reference covers more than 1,100 marine animals from all major invertebrate groups. Includes: Africa to Hawaii with a special emphasis on the western Pacific. This paperback book is 314 pages (8"x10").
Code BKL

Nudibranchs and Sea Snails Indo-Pacific Field Guide - \$44.95

A comprehensive guide to nudibranchs and living sea snails. Mother Nature at her creative best - more than 1,000 photos of shelled and shellless snails - the most exquisitely decorated animals on the reef. This book features 100 photos on 320 pages (6"x9").
Code BKM

Reef Creature/Coral Identification CD-ROM - \$39.95

Learn to identify more than 500 reef creatures and corals as well as pronounce their names! Interactive learning games and more than 2,300 spectacular images add to the fun of this long-awaited CD-ROM.
Code CDC

* NEW * 2nd Edition

ReefNet Fishes of the Caribbean and Adjacent Waters CD-ROM - \$64.95

More than 200 video clips, 1400 photographs, descriptions of nearly 500 species, and a customizable slide show.
Code CDF2

REEF has an online store where you can order supplies!
Visit www.reef.org.

Survey Materials

Get ready to count fish on your dive vacation!

REEF Starter Kit

The basic kit for all fish-watchers. Contains REEF Underwater slate, waterproof fish ID card, underwater Fish-in-a-Pocket booklet, BC Tag, 1 waterproof log sheet and 2 REEF Scanforms Caribbean - \$25

Code SKC

California (with fish id card) - \$15

Code SKP

Tropical Eastern Pacific (with fish id card) - \$15

Code SKT

Hawaii (with fish id card) - \$15

Code SKH

Northeast (with fish id card and coldwater slate) - \$20

Code SKNE

Pacific Northwest (with fish id card and coldwater slate) - \$20

Code SKNW

Survey Slate and Fish ID Card - \$10.95

Yellow fish ID slate has 60 spaces to list fish sightings and blank profiles to sketch "mystery fish". Includes attachable pencil and waterproof fish ID card with 30 photos of commonly sighted fish.

Code SL

Underwater Paper - \$0.60

One sheet of double-sided waterproof paper - good for 2 surveys. Please specify region.

Code UWP

PADI Project AWARE Courses - \$105

Courses include curriculum, slides, sample starter kit, and introductory video. Courses are available for the following regions: Tropical Western Atlantic, Northern California, Southern California, Pacific Northwest, South Atlantic, Gulf of California, Hawaii, and Northeast.

Codes PPA-TWA, PPA- NC, PPA-SC, PPA-PNW, PPA-SA, PPA-GC, PPA-HAW, PPA-NE

REEF T Shirts - \$15

100% cotton T-shirt displaying the REEF logo on the back, underscored by "We Speak Fish". Sizes: M, L, XL

Code CLT

OTHER REEF GEAR

NEW REEF

Golf Shirts - \$35

100% heavyweight cotton pique short sleeved dark teal blue with REEF logo embroidered on front. Sizes: M, L, XL

Code CLG

REEF Caps - \$15

Six panel, 100% cotton deluxe pigment-dyed cap with embroidered REEF logo on front and "We Speak Fish" in semicircle over back opening.

Available in 3 color combinations: Forest crown with Sand visor, Khaki crown with Forest visor, Khaki crown with Navy visor. Please specify color choice when ordering. One size fits all.

Code CLC



Order Information

Code	Description	Quantity	Price
____	_____	_____	_____
____	_____	_____	_____
____	_____	_____	_____

Subtotal _____

Florida Residents add 7.5% Sales Tax: _____

Add \$4.50 Shipping & Handling _____
(plus \$1 each additional item)

Total _____

Name _____

Address _____

Email _____

Phone _____

Mail to: REEF, P.O. Box 246, Key Largo, FL 33037
or e-mail: reefHQ@reef.org

For any communications contact REEF at: P.O. Box 246, Key Largo, Florida 33037
305-451-0312 • www.reef.org • e-mail: reefhq@reef.org

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acct # _____ exp date _____
Please charge my _____ VISA _____ M/C _____ Discover _____
City _____ State _____ zip _____
Address _____
Name _____
_____ \$20 _____ \$30 _____ \$100 _____ Other _____ \$1000 Sustainers Club

I want to help REEF with its 2001 urgent preservation program!
Please put my tax-deductible contribution to immediate use.

If you would like to help the reefs and fishes, please send in the coupon below with your much appreciated and tax deductible contribution!



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