

reef notes



Reef Environmental Education Foundation

Protecting Marine Life Through Education, Service and Research

An Active Organization of Divers Committed to the Preservation of the Marine Environment

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It's Cool to Dive Cool!



The elusive and charismatic Pacific spiny lumpsucker is at the top of the wish list for all Pacific Northwest fish watchers. It is a member of the snailfish family and has modified pelvic fins that act as suckers. Photo by Keith Clements.

The experience of diving in the cool waters of the US and Canadian west coast is like no other. Dramatic forests of kelp, large and colorful invertebrates, and intricate rocky reefs form the backdrop for REEF surveyors from California to British Columbia. These waters are home to hundreds of species of fish, from the majestic angel shark to the elusive Pacific spiny lumpsucker. We at REEF are always encouraging our volunteers to experience all of our project regions and to learn the fish peculiar to each. One of the easiest and most enjoyable ways to do this is to participate in a REEF Field Survey. This year, we have scheduled three projects along the west coast.

In April, the waters off historic Monterey Bay, California, are the destination. Dive the amber kelp forests and experience the majestic central California coast. These remarkably productive waters are home to nearly 40 rockfish and dozens of other fish species. The package includes luxury lodging just minutes from Cannery Row, four days of diving, and a behind the scenes tour of the Monterey Bay Aquarium.

In September we will join staff and researchers from the Channel

Islands National Marine Sanctuary aboard the *M/V Conception* for five days of diving around the islands. This trip has an added objective, as we will be conducting surveys inside and



Whitespotted anemone – one of the 44 invertebrates monitored in the Living Reef Project.
Photo by Kim DeCrane.

outside of newly created no-take reserves (see related story on page 3). The Channel Islands sit at the junction of warm and cold ocean streams, offering a unique marine environment that provides exceptional habitat and breeding areas for many aquatic creatures.

And finally, in October we will be on Quadra Island in British Columbia. This area features some of the most beautiful and dramatic cold water diving in the world. Rockfish, wolf eels, sculpins, and more are waiting to be seen. Because REEF monitors both fish and invertebrates in the Pacific Northwest, Field Survey



A diver descends through a forest of kelp.
Photo by Kip Evans. Courtesy of CINMS.

participants will enjoy learning about both of these diverse groups. Home base for this project is the serene Abyssal Diving Lodge, set in a wooded area and the project includes home cooked, family style meals.

So why not join in and take a dive vacation that counts!

These west coast projects offer something for everyone and we know you won't be disappointed. If you have never surveyed fish in this area before, you are in for a whole new adventure of exciting finds and mystery fishes. To find out more, see the Field Survey schedule on page 4. If you are interested in finding out what it's like to go on a REEF Field Survey, be sure to check out the Log at

<http://www.reef.org/member/forum/fslog.htm>.

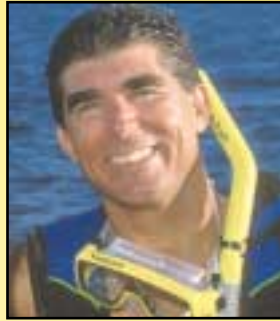


Participants in the 2002 Field Survey to God's Pocket Resort in British Columbia.

Director's Corner

My how time flies.

This year will mark REEF's 10th year of volunteer fish surveying! Over the ten years, REEF as an organization has grown to more than 25,000 members and enabled volunteers to take part in more than 53,000 fish surveys. We've expanded the Fish Survey Project to the entire tropical Western Atlantic, all of coastal North America (including Canada), the tropical Eastern Pacific and Gulf of California, and the Hawaiian Islands. REEF has organized and led more than 150 Field Surveys and supported many more projects in partnership with other organizations. We've taken on numerous assessments of artificial reefs, spawning aggregations and exotic species as well as managed the Great Annual Fish Count. REEF has received more than a dozen awards for our grassroots efforts. Throughout the year, in various REEFNotes and website communications, we'll be sharing bits and pieces of the last ten years with you. The honor is yours and we truly thank you for your continued and active support.



Speaking of communications, the Nielsen Company, who has graciously contributed the printing of this newsletter over the past two years, has come up with a wonderful suggestion leading to the newest version of REEFNotes...in color! To keep costs down, we've shortened the printed length of the newsletter, but provided full-length stories on the REEF website. We think you'll receive greater benefit from the color images, particularly when it comes to fish identifications. For complete story articles, extra images and a downloadable .pdf format, go to www.reef.org/webres/notes/spring03.htm. Enjoy!

A few other changes you'll notice on the REEF masthead. Alex Score, REEF's Education and Outreach Coordinator, has taken a new position with Florida Sea Grant. Alex will be the outreach coordinator working with the S. Florida Ecosystem Restoration project, the largest ecosystem restoration in the world! Alex is still in Key Largo and will continue to take part in REEF projects and activities and we wish her the best at her new position. Carol Lorenz has also taken a new job with demanding time requirements and has stepped down from the Board of Trustees. Carol will remain on REEF's Advisory Panel and will rejoin the Board at a future date. Finally, one more addition to the REEF family took place in December...Gracie Xavier Semmens came into the world, bringing us all cause for celebration. Congratulations, Brice and Christy and welcome Gracie!

Thanks again to all of you for your dedication and commitment to a sound REEF program and a sound marine environment. We look forward to seeing you in the water in 2003!

Best Fishes,



Lad Akins
Executive Director
REEF



Photo by Janna Nichols

Doing Scanforms Right

Do you enjoy filling in the scan forms? Probably not! You're tired. You need to drive home. Your gear needs to be cleaned. And yet scanforms are one of the most important parts of a critter survey. They communicate what you have seen to REEF's database.

How can you make sure that your scanform is filled in right?

What to do:

- Record the "admin stuff" - time, date, location, habitat, depth, current, temp, etc. on your underwater form as you are doing the survey or immediately after you get out of the water so that you have this data handy to fill out the scanform. Fill in only one habitat bubble, one dive start time bubble, one depth bubble. If you report temperature in Celsius, mark the Celsius bubble on the scanform. Surface temperature is the temperature of the surface of the water, not of the air.
- Use a number 2 pencil (one that has not been underwater).
- Completely fill in each bubble.
- Carefully erase any stray pencil marks that may appear on the form or any bubbles that have been filled in by mistake. Use an eraser that completely removes the lead and does not leave a smear mark.
- Accurately describe/name the dive site. Print out the list of sites from the REEF database. For sites not on the list, provide the local name for the site, the geographic sub region (4 digit zones) that it is in and the island/region/state/country. If you are going to give latitude and longitude for a site that is not already in the REEF database: remember that latitude and longitude are given as degrees minutes and hundredths of minutes and not as degrees minutes and seconds.
- Check all of the information as a last step. Check the critter data against your underwater form and make sure that you have bubbled in the correct species and abundance. Check that all site data has been entered.

What not to do:

- Spill coffee on a form or use it as a coaster.
- Get the forms wet from rain or water dripping off your wetsuit/exposure suit or wet pencil.
- Let the dog eat the form.
- Check or put Xs in the bubbles instead of filling them in solidly.
- Use a pen instead of a number 2 pencil.
- Doodle or make other markings on the form.
- Crumple the form up. A few neat folds are OK.

— by Wesley E. Nicholson



Like many rockfish species along the west coast, bocaccio populations have experienced severe declines.

MPA 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. In each issue of REEFNotes, the MPA News feature brings you recent and noteworthy happenings.

California Creates a Network of Marine Reserves Around the Channel Islands

Earlier this year, a California commission implemented the largest system of marine reserves off the U.S. west coast. Thirteen separate areas around the five northern Channel Islands (Santa Barbara, Anacapa, Santa Cruz, Santa Rosa, and San Miguel) have been designated as areas where most or all fishing is prohibited. The action is aimed at helping to reverse the alarming drop over the past decade in the population of several marine species. Many species of groundfish, a complex of fishes that include rockfish and lingcod, have reached "over-fished" status along the west coast. Because these fish are long-lived with life spans measured in decades, once depleted it can take years for their populations to recover. Many groundfish species also reproduce slowly, taking many years to become mature enough to spawn. Bocaccio rockfish, one of the hardest hit species along central and southern California, have declined to 5 percent of their original abundance. To find out more about the new marine reserve, visit

<http://www.cinms.nos.noaa.gov/marineres/main.html>.

Similar to our work in the Florida Keys, it is hoped that REEF surveys will serve as a valuable tool in evaluating the effects of these reserves over time. During the 2002 Field Survey to the Channel Islands, REEF volunteers conducted 246 fish surveys inside and outside of the then planned marine reserve sites. A return trip is scheduled for September 2003 to sample the areas now that the reserves have been implemented. Please consider joining in on the important project. For more information, see the Field Survey schedule on page 4.

REEF Database Tops 50,000 Surveys!

Last November, the 50,000th survey was entered into REEF's database. At the cornerstone of REEF's activities, the Fish Survey Project has become one of the most successful marine citizen-science programs in the world. The dedication of our members has enabled the creation of a database that is second to none and one that is becoming increasingly useful in addressing a variety of research and management questions. In addition to the papers and reports that REEF generates in-house, an increasing number of researchers and groups have requested data from REEF. Beyond the basic information of species distribution and abundance patterns, applications of the data have included evaluating the effects of harvest restrictions, analyzing trends over time, identifying areas of high diversity for eco-regional planning, fisheries-independent assessments of populations, evaluation of the biogeography of fishes, and the discovery of rare, new, and non-native fishes. All of us at REEF would like to thank the thousands of dedicated volunteers who send in surveys each year, making this all possible. To learn more about the ways that REEF data are being used, visit the Monitoring and Research section of our website at <http://www.reef.org/data/research.htm>.

Grouper Moon Project 2003

The lifecycle of a grouper begins when roe and milt meet in the water and develop into fertilized eggs. Eggs hatch 23-40 hours later. The inch-long larvae float in the ocean currents for up to 42 days. During that time, a small number of the larvae will end up in the relative safety of mangroves where they will settle to the bottom and continue growing for the next few years. When they are 4-5 years old, Nassau grouper move onto the shallow reefs to continue their growth. They are solitary, territorial reef fish and can usually be spotted in the same area day after day. When they are 5-7 years old, Nassau grouper begin making the annual pilgrimage to a spawning site.

It is this stage of a Nassau grouper's life that the 2003 Grouper Moon Project team was watching for as the divers floated out over the walls of Little Cayman's reefs to look for migrating and aggregating groupers. The project team consisted of REEF members and staff, staff from the Cayman Islands Department of the Environment (CIDOE), and North Carolina State University (NCSU) researchers. All of the aggregation research that was started in the 2002 project was continued and several new components were also added, including time-lapse video surveys, under-

water measurement of fish using lasers, and individual behavior documentation. Several REEF volunteers stayed at the Southern Cross Club and conducted Grouper Migration surveys during their daytime dives. These surveys included visual length estimates, a skill that the divers mastered above the water using life-size fish models. The REEF volunteers also conducted Roving Diver surveys, documenting 150 fish species. The research team from NCSU, led by Dr. David Eggleston, conducted acoustic and 3-D video surveys to gather information on spatial distribution and numbers of fish in the aggregation. And because 2003 was a non-fishing year in the newly implemented



Aggregating Nassau grouper at Little Cayman's west end. Courtesy of CIDOE.



REEF Volunteers and the CIDOE team.

Cayman Islands grouper aggregation conservation law, the CIDOE worked with the Caymanian fishermen to explain and implement the closure. Almost 4,000 Nassau groupers were harvested from Little Cayman's west end aggregation between the years 2000 and 2002. The alternate fishing year strategy protects eight aggregation sites within the Cayman Islands. As a testament to the CIDOE's outreach to the Caymanian public, no illegal fishing has been reported this year.

To view more pictures and to read about the comparison between this year's observations from those in the 2002 Grouper Moon Project, please visit <http://www.reef.org/webres/notes/spring03.htm>.

REEF Field Surveys

Reef Environmental Education Foundation (REEF) trips are your opportunity to take a vacation that counts! These week-long diving adventures are not only lots of fun, but they are educational and environmentally important. And there is no better way to improve your fish identification skills. An additional \$200 REEF fee will be added to each trip to cover the cost of the group leader, seminars, and survey materials (*Fee is lower on shorter trips). Prices do not include airfare. Please call Dive Reservations, Inc. at 888-363-3345 or email reef@diveres.com to find out more about a specific trip or to reserve a spot. For more information on REEF, please visit www.reef.org.

Marine Conservation Internship

Got energy? Got a SCUBA card?

These and a little bit of college education under your belt are all it takes to be a REEF Marine Conservation Intern. Lucky for REEF, all our interns come armed with these skills and much more. We have hosted world travelers, Our World-Underwater scholars, future fish scientists, and outdoor enthusiasts. Since the program's inception in 1995, interns from Montana to Wisconsin to Denmark have assisted REEF staff in virtually every part of the organization. In fact, two of our current staff were once REEF interns! While day-to-day duties at REEF HQ include managing member services, processing merchandise orders, and helping QA/QC fish survey data, interns spend a portion of their time in Key Largo reaching out to local partners by teaching fish identification seminars and volunteering at other local environmental non-profits. All agree the most rewarding aspect of the internship is the time underwater. Besides weekly dives to improve their fish ID skills, interns participate in local monitoring projects (M/V Wellwood, U.S.S. Spiegel Grove), artificial reef monitoring for the State of Florida, and any other special dive projects that come up during the semester. REEF provides interns with free housing and a modest stipend for one of three semesters: spring (January-May), summer (May-September), or fall (September-December). Most recently, Sarah Goldman and Julie Fleming joined the REEF team for the fall 2002 semester. Highlights included diving and teaching fish ID with local field stations and a bike ride from Key West to Key Largo to help raise money for REEF. For full intern bios, please visit the Intern website. If you are or know someone with a passion for marine conservation, join the REEF team as a Marine Conservation Intern! For more information and to apply, visit www.reef.org/intern.

Monterey Bay National Marine Sanctuary • Monterey Plaza Hotel & Cypress Charters • April 15-20, 2003

Dive the amber kelp forests and experience the majestic central California coast. The remarkably productive waters off Monterey are home to over 40 species of rockfish and dozens of other fish species.

4 nights/5 days - \$775 (per person, double occupancy, includes luxury lodging just minutes from the Cannery Row, and 4 days diving (three 2-tank AM boat dives, one day 3-tank dive, and optional shore dives) with Cypress Charters. A behind the scenes tour of the Monterey Bay Aquarium is also included. (non-diver price \$454, diving-only price \$321) *REEF Fee is \$100. Day Diver prices available.

Fernando de Noronha Islands National Park, Brazil • Atlantis Divers & Pousada do Rocha Apr. 25-May 3, 2003 • FULL

Cat Island, Bahamas • Hawk's Nest Resort • June 7-14, 2003

This boot-shaped, untamed island is one of the most beautiful and fertile of the Bahamas. A lush sanctuary, it provides tranquility, incredible 100-foot visibility, blue holes, and some of the most pristine reefs in the world.

8 days/7 nights - \$1,470 includes accommodations, 5 days of 2 tank dives, all meals, and roundtrip air and ground transfers from Nassau (non-diver price \$1,010).



Photo by Ken Marks

Kona Coast, Hawaii • Eco-Adventures Diving and King Kamehameha Kona Beach Hotel • June 21-28, 2003

Come dive the reefs, walls, arches, and lava tubes of the Kona Coast and add whitetip reef shark, manta ray, sea turtles, turkey lionfish, and large pelagics to your life list. Accommodations are in a quiet, sheltered bay with balmy trade winds and long days of golden sunshine.

8 days/7 nights - \$947 (per person, double occupancy) includes accommodations, 5 days of 2 tank dives, and airport transfers.

Coiba National Park, Panama (Pacific side) • M/V Coral Star • July 18-26, 2003 • FULL

Channel Islands National Marine Sanctuary • M/V Conception • September 16-21, 2003

Come enjoy the warmer water (between 60° and 70° in Sept.) and diversity of the Southern California kelp forests and rocky reefs. During this trip, you will visit several islands and conduct surveys inside and outside the newly created no-take reserves. Lucky divers may chance upon giant black sea bass, a sarcastic fringehead, and a slew of rockfish species.

5 days/4 nights - \$540 includes all meals, diving and lodging on liveaboard dive boat. *REEF Fee is \$100.

Southern Gulf of California/Sea of Cortez • M/V Don Jose • October 19-26, 2003

Baja's Sea of Cortez offers world class diving. This year's trip is a custom itinerary designed for REEF to capture some of the unique areas in the southern Gulf of California. Join us for this weeklong fishwatching expedition to see giant schools of jacks, manta rays, and many colorful reef fish.

8 days/7 nights - \$1,522 includes lodging, food, and unlimited diving, aboard an 80 foot long liveaboard dive boat.

Quadra Island, British Columbia • Abyssal Diving and Lodge • Fish and Invertebrates • October 7-12, 2003

This area of British Columbia features some of the most beautiful and dramatic cold water diving in the world. Participants will enjoy learning about both the diverse fish life and colorful invertebrates. In the crevices, you'll see wolf eels, huge lingcod, tiger rockfish, and the elusive giant Pacific octopus. In the forest of bull kelp, you'll see tiny fish finding safety from spiny dogfish and salmon.

8 days/7 nights - \$473 USD includes lodging, all meals, and 4 days of 2 tank diving. * REEF Fee is \$100.

Barbados • High Tide Watersports • November 8-15, 2003

Best known for its year round sunshine, friendly people and white sandy beaches, Barbados has long been the dive secret of the Caribbean. Rigid with fringe and barrier reefs, this coral island, swept by nutrient rich currents, offers healthy corals and multi-colored tropical fish.

8 days/7 nights - \$645 includes diving (6 days of 2 tank boat dives plus up to 6 shore dives diving), double occupancy lodging at the Bellairs Research Institute, breakfast, and airport transfers.

Provo, Turks & Caicos REEF Discovery Tour (led by Paul Humann) • Big Blue Unlimited • November 1-8, 2003



Cooled by the trade winds and refreshed by the open Atlantic, this mass of low lying islands are the best kept secret to the beachcomber, sun seeker, swimmer, snorkeler, diver, and stargazer alike.

8 days/7 nights - \$1,206 includes diving (5 days of 2 tank boat dives), lodging, continental breakfast, and airport transfer. This week is for divers and snorkelers who are interested in learning more about marine life and seeing more in the water, several short slide presentations will be scheduled during the week to teach and discuss reef fish and creature identification and behavior.

REEF's Field Survey to Baja, California - October 2002.

Fourth Fish and Benthic Monitoring Workshop Held in Puerto Rico

With funding from NOAA's Coastal Zone Management Program, REEF partnered with The Ocean Conservancy's RECON program to hold the fourth in a series of workshops targeted at Caribbean island diving communities. The week long, free workshop was held on the west side of Puerto Rico in October of 2002 and featured classroom and field training on the identification



Members of REEF's AAT who participated in the week-long workshop in Puerto Rico and special trip to Mona Island.

and surveying of fish, corals, and algae. As in previous workshops, six members of REEF's Advanced Assessment Team (AAT) assisted in the training and conducted surveys. Their participation in the project provided high quality baseline data from the area and they served as role models to the workshop participants, proving that one doesn't have to be a marine biologist to be a valuable member of the REEF surveying community. At the end of the workshop, the REEF AAT and staff spent three days on Mona Island camping and conducting surveys. This remote uninhabited island, located 40 miles off the west coast of Puerto Rico, features dramatic 200 foot cliffs and is home to dozens of endemic terrestrial species. At the end of the 12 days, just under 200 REEF surveys were

completed and 224 species of fish documented. Some of the most exciting finds included large schools of school bass, pirate blennies, and a barred clingfish. Past workshops have been held on the south side of Puerto Rico, St. Thomas, and San Andres, Colombia. To read all of the workshop project summaries, visit <http://www.reef.org/data/projects.htm>

Georgia's Underwater Secret: Gray's Reef National Marine Sanctuary

Gray's Reef is one of 13 National Marine Sanctuaries administered by the National Oceanic Atmospheric Administration (NOAA). Located 17.5 nautical miles off Sapelo Island, Georgia, Gray's Reef is one of the largest near shore live-bottom reefs of the southeastern United States. It is composed of 17 sq. nautical miles of intermittent sandstone outcroppings with an attached carpet of sponges, barnacles, sea fans, corals, and sea stars. These "live-bottom" reefs support a variety of invertebrates and fish.

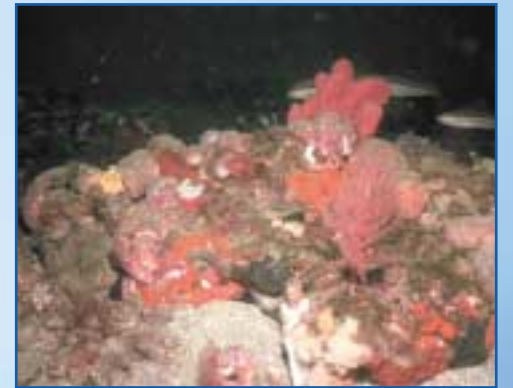
REEF's Advanced Assessment Team (AAT) members Michael Paller, James Brooke, Steve Gittings, Scott Fowler, Alex Score, David Preston, Carol Lorenz, Walter Briney, and invited local volunteers Raymond Rhodes and Jill A. Mashburn participated in the first Gray's Reef Advanced Assessment project August 14-17, 2002. The purpose of this project was to develop a comprehensive fish species list to assist Gray's Reef in their overall long-term monitoring project. Over the course of the project, REEF completed 67 surveys, surveyed three new ledges within the sanctuary, and recorded 82 species of which 3 were new to Gray's Reef species list. The data can be viewed from REEF's project page at <http://www.reef.org/data/projects.htm>.

"The fish diversity is not what we see in other locations, such as the Caribbean, Florida, and Gulf of Mexico, but I was impressed at the abundance of the most common species", reported Carol Lorenz, AAT volunteer and REEF Advisory Panel member. "Also the experience of diving where the most common species is not the bicolor damselfish, or the bluehead wrasse was great, although somewhat 'mind bending' at first! I think I added about 25 new species to my life list".

REEF plans to continue working with Gray's Reef and other National Marine Sanctuaries in future AAT projects. REEF volunteers that achieve Expert status (Levels 4 and 5) are extended an invitation to be part of the AAT to participate in special opportunities such as monitoring contracts and requests to participate in research expeditions.



The dramatic topography of Mona Island, Puerto Rico, extends down into the water, a spectacular backdrop for diving.



A scene from Gray's Reef live bottom reef. Courtesy of Gray's Reef NMS.

ID Books and CD-Roms

Caribbean & North Atlantic Guides

Reef Fish Identification –

Florida, Caribbean, Bahamas -
3rd Edition - \$39.95
Paul Humann and Ned DeLoach

Caribbean Reef Creature ID -

2nd Edition - \$37.95
Paul Humann and Ned DeLoach

Caribbean Reef Coral ID -

2nd Edition - \$32.95
Paul Humann and Ned DeLoach

The Reef Set - \$115

Paul Humann and Ned DeLoach

Stokes Fishes of the Caribbean - \$12.95

F. Joseph Stokes

Reef Fish Behavior - \$39.95

Ned DeLoach

Marine Life of the North Atlantic - \$30.00

Andrew Martinez

Temperate & Tropical Pacific Guides

Coastal Fish ID (California - Alaska) - \$32.95

Paul Humann, with Howard Hall and
Neil McDaniel

Rockfishes of the Northeast Pacific -

\$24.95 ****NEW****
Milton Love, Mary Yoklavich, and
Lyman Thorsteinson

Whelks to Whales: Coastal Marine Life of the Pacific Northwest - \$19.95

Rick Harbo

Shore Fishes of Hawai'i – \$19.95

John Randall

Other Guides

Anemone Fishes and their Host Sea

Anemones - \$29.95

Daphne Fautin and Gerald Allen

A Guide to Angelfish and Butterflyfish -

\$39.95

Gerald Allen, Roger Steene, Mark Allen

Coral Reef Animals of the Indo-Pacific -

\$44.95

Terrence M. Gosliner, David W. Behrens,
Gary C. Williams

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

Helmut Debelius

Snorkeling Guide to Marine Life –

Florida, Caribbean, Bahamas - \$12.95

Paul Humann and Ned DeLoach

In-a-Pocket Waterproof Identification Booklets - \$10

These handy guides fit right in your
BCD pocket:

- Caribbean Fish-in-a-Pocket
- Caribbean Creature-In-A-Pocket
- Indo-Pacific Fish-In-A-Pocket.

Identification CD-ROMs

ReefNet Fish ID CD-ROM (2nd Edition) - \$64.95

Reef Fish ID CD-ROM - \$39.95

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

Just For Kids

Under the Waves, Episodes 1 – 4,

educational videos - \$19.95 each

Jump into Science: Coral Reefs book

Sylvia Earle and Bonnie Matthews
Ages 4-10, \$16.95.

**For more details, or to
place an order, visit REEF's
online store at
www.reef.org or call
REEF HQ at 305-852-0030.**

Survey Materials

Survey Forms (Scanforms) - free

The basis of the REEF monitoring program, you can get these by either calling REEF HQ, sending an email, or using the online store. Please specify which region.

REEF Starter Kit

The basic kit for all fishwatchers. Contains REEF underwater slate, underwater survey paper, 2 REEF scanforms, and a REEF BC tag. A waterproof color ID card is also included in all regions except the tropical western Atlantic Kit, which contains the waterproof Fish-in-a-Pocket.

- Tropical Western Atlantic (Caribbean, Florida, Bahamas, Gulf of Mexico, Mid-Atlantic States) - \$25.00 (includes Fish-in-a-Pocket)
- Northeast US & Canada (Virginia - Newfoundland) w/ cold water slate- \$20.00
- California - \$15.00
- California w/cold water slate- \$20.00
- Pacific Northwest (Oregon, Washington, and British Columbia)- \$15.00
- Pacific Northwest w/cold water slate - \$20.00
- Tropical Eastern Pacific (Gulf of California to the Galapagos Islands) - \$15.00
- Hawaii - \$15.00



Survey Slates

REEF Yellow Fish ID Slate - \$9.95

Slate has 60 spaces to list fish sightings and blank profiles to sketch "mystery fish". Includes attachable pencil and is designed to work with REEF waterproof survey paper.

Cold Water Survey Slate - \$15

Specifically designed for conducting a survey in high currents and cold water, this slate is slightly larger than our regular yellow slate and features a lanyard, an attached pencil and bolts to secure the waterproof paper and color id card.

Waterproof Survey Paper - \$0.60

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

Project AWARE

Identification Courses - \$105.

Courses include curriculum, slides, sample starter kit, and introductory video. Courses are available for the following regions: Tropical Western Atlantic (also available in Spanish), Mid-Atlantic, Northeast US, Flower Garden Banks NMS, Northern Gulf of Mexico, Gulf of California, Southern California, Northern California, Pacific Northwest Fish, Pacific Northwest Invertebrates, and Hawaii.

REEF Wearables

REEF T Shirt - \$15

REEF Golf Shirt - \$35

REEF Cap - \$15



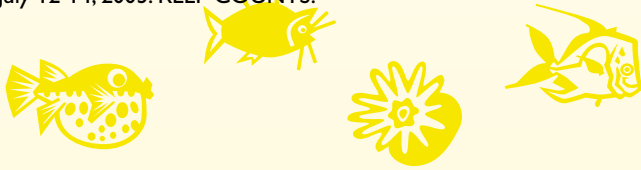
The ornate butterflyfish is one of the 24 butterflyfish that REEF surveyors can see in Hawaii. To learn more about Hawaii's fishes, consider joining us on the Field Survey to Kona Island this June.

Survey Numbers & Field Stations



A Decade of Counting: July 19, 1993 - July 19, 2003

It's celebration time! On July 19, 1993, sixteen REEF members participated in the first ever REEF survey in Key Largo, covering eight sites and identifying 160 species. Now, ten years later, we are going to do it all over again. Stay tuned to the REEF website, www.reef.org/10years for further details about the "Decade of Counting" anniversary survey event this July 12-14, 2003. REEF COUNTS!



COMING SOON!!
REEF Corporate Partnership Program.
 Contact REEF HQ (305-852-0030; reefhq@reef.org) for information on how your company can become a Partner of the Reef Environmental Education Foundation.

Field Stations

USA and Canada Field Stations

California			
Oceanside - Under Water Schools of America	760-722-7826	usascuba.com	
Riverside - Scuba Schools of America	909-689-2422	www.ssa-riverside.com	
Connecticut			
New England Ski & Scuba LLC	860-872-0013	www.newengland	
skiandscuba.com			
Florida			
Gainesville - Water World	352-377-2822	www.H2Oworld.com	
Islamorada - Lady Cyana Divers	800-221-8717	www.ladycyana.com	
Islamorada - Florida Sea Base	305-664-5625	www.bsaseabase.org	
Key Largo - Dive In	305-852-1919	www.diveinflkeys.com	
Key Largo - Diver's Direct Outlet	305-451-8034	www.diversoutlet.com	
Key Largo - Amy Slate's Amora Dive Resort	305-451-3595	www.amoradive.com	
Key Largo - Horizon Divers	305-453-3535	www.horizondivers.com	
Key Largo - It's A Dive	305-453-9881	www.itsadive.com	
Key Largo - Kelly's On the Bay/ Aquanut Divers	305-451-1622	www.aquanut.com	
Key West - Florida Keys Community College	305-296-9081x426	www.fkcc.cc	
Marathon - FL Keys Nat'l Marine Sanctuary	305-743-2437	www.fknms.nos.noaa.gov	
Orlando - Northwest Divers	407-658-9464	www.nwdivers.com	
Tampa - Depth Perception Dive Center	813-689-3483	www.depthperception.com	
Tavernier - Conch Republic Diver, Inc.	305-852-1655	conchrepublicdivers.com	
Georgia			
Lawrenceville - Dive.Dive..Dive...	678-407-2442	www.diveatlanta.com	
Gulf Coast States (LA, AL, FL)			
New Orleans - REEF Field Station of Northern Gulf of Mexico	504-276-4887	www.reefngom.org	
Hawaii			
Honolulu - Island Divers Hawaii	808-947-6583	www.islanddivershawaii.com	
Kona (Kailua) - Jack's Diving Locker	(808) 329-7585	www.jacksdivinglocker.com	
Maui - Project S.E.A.-LINK		www.projectsealink.org	
Maryland			
Baltimore - National Aquarium	410-576-3800	www.aqua.org	
Michigan			
Ann Arbor - Huron Scuba Adventures	734-994-3483	www.huronscuba.com	
New Jersey			
Belle Mead - The Scuba Connection	908-359-1250	www.tscscuba.com	
New York			
Rome - Delta Divers	315-337-2300	www.deltadivers.com	
Texas			
Houston - SCUBA Houston	800-781-7821	www.scubahouston.com	
Houston - Texas Gulf Coast Council	713-726-9737	www.tgccdiveclubs.org	
Humble - WW Diving	281-540-1616	www.wwdive.com	
Washington			
Western Washington - Pacific Northwest Scuba	360-798-6414	www.pnwscuba.com	
Canada, British Columbia			
Victoria - Living Oceans Society	250-920-0733	www.livingoceans.org	

Survey Numbers

TWA top 25 surveyors			PAC top 25 surveyors			Top TEP surveyors		
Laddie Akins (846)	Rachid Ferretti (193)	Richard Baker (134)	John Williams (108)	Janna Nichols (95)	Kandie Vactor (120)	Beth Bruton (45)	Paul Humann (35)	Walter Briney (33)
Linda Schillinger (707)	John Williams (108)	Kandie Vactor (120)	Janna Nichols (95)	Kirby Johnson (87)	Beth Bruton (45)	Paul Humann (35)	Walter Briney (33)	Warren Hinks III (32)
Leslie Whaylen (664)	John Williams (108)	Beth Bruton (45)	Janna Nichols (95)	John Wolfe (77)	Paul Humann (35)	Walter Briney (33)	Warren Hinks III (32)	Sandra Percell (31)
Judie Clee (564)	Kirby Johnson (87)	Paul Humann (35)	Kirby Johnson (87)	Matthew Dowell (67)	Walter Briney (33)	Warren Hinks III (32)	Sandra Percell (31)	Janet Earnshaw (24)
Deena Wells (542)	John Wolfe (77)	Walter Briney (33)	John Wolfe (77)	Alan Dower (65)	Warren Hinks III (32)	Sandra Percell (31)	Janet Earnshaw (24)	Clive R. Wood (22)
Joe Thomas (519)	Matthew Dowell (67)	Warren Hinks III (32)	Matthew Dowell (67)	Alan Dower (65)	Sandra Percell (31)	Janet Earnshaw (24)	Clive R. Wood (22)	Leslie Whaylen (22)
Sheryl Shea (478)	Alan Dower (65)	Sandra Percell (31)	Alan Dower (65)	Wes Nicholson (64)	Janet Earnshaw (24)	Clive R. Wood (22)	Leslie Whaylen (22)	
Cathy Coughlin (461)	Wes Nicholson (64)	Janet Earnshaw (24)	Wes Nicholson (64)	Mike Delaney (62)	Clive R. Wood (22)	Leslie Whaylen (22)		
Jean Kirkpatrick (459)	Mike Delaney (62)	Clive R. Wood (22)	Mike Delaney (62)	Bryan Nichols (56)				
Christy Semmens (446)	Bryan Nichols (56)		Bryan Nichols (56)	Olga Khainova (53)				
Linda Baker (426)	Olga Khainova (53)		Olga Khainova (53)	Alex Khain (53)				
Peter Leahy (413)	Alex Khain (53)		Alex Khain (53)	Tom Dakin (52)				
Jessica Armacost (359)	Tom Dakin (52)		Tom Dakin (52)	Bruce Higgins (46)				
Monty Doyle (331)	Bruce Higgins (46)		Bruce Higgins (46)	Dana Haggarty (46)				
Emily Schmitt-Lavin (316)	Dana Haggarty (46)		Dana Haggarty (46)	Kawika Chetron (44)				
Brice Semmens (308)	Kawika Chetron (44)		Kawika Chetron (44)	Christy Semmens (40)				
Elaine Morden (307)	Christy Semmens (40)		Christy Semmens (40)	Kurt Steinbach (38)				
Ken Deaver (306)	Kurt Steinbach (38)		Kurt Steinbach (38)	Kim DeCrane (38)				
John Pitcairn (303)	Kim DeCrane (38)		Kim DeCrane (38)	Brice Semmens (37)				
Edwin Steiner (293)	Brice Semmens (37)		Brice Semmens (37)	Paul Weakliem (35)				
Ken Marks (283)	Paul Weakliem (35)		Paul Weakliem (35)	Heather Holmes (34)				
Joyce Schulke (276)	Heather Holmes (34)		Heather Holmes (34)	Michael Guardino (31)				
Patricia Ayers (275)	Michael Guardino (31)		Michael Guardino (31)	Sarah Tamblin (29)				
Bruce Purdy (272)	Sarah Tamblin (29)		Sarah Tamblin (29)	Leon Garden (27)				
Kris Wilk (271)	Leon Garden (27)		Leon Garden (27)					

Top HAW surveyors

James Vaughn (44)
 Michele Vaughn (44)
 Chatten Hayes (34)
 Fred Litt (34)
 Liz Foote (33)
 Lynn Hodgson (26)
 Wayne Batzer (25)
 Douglas Harder (23)
 Patricia Richardson (20)
 Robin Newbold (20)

To view the full list, go to www.reef.org/webres/notes/spring03.htm

Overseas Field Stations

Bahamas			
Paradisa - Windie's WaterSport	297-872281	www.windieswatersport.com	
Bahamas			
Cat Island - Dive Cat Island	800-688-4752	www.hawks-nest.com	
Nassau - Custom Aquatics	242-362-1492	www.bahamasvg.com/aquatic.html	
Belize			
Seasports Belize	501-2-35505	www.seasportsbelize.com	
Bermuda			
Flats - Bermuda Aquarium, Museum & Zoo	441-293-2727	www.bamz.org	
Bonaire			
Kralendijk - Photo Tours Divers	599-717-3460	www.bonphototours.com	
British Virgin Islands			
Peter Island - Paradise Watersports	284-495-9941	www.bviwatersports.com	
Cayman Islands			
Little Cayman - Southern Cross Club	345-948-1099	www.southerncrossclub.com	
Grand Cayman - Wall to Wall Diving	345-942-6608	www.walltowalldiving.com	
Cuba			
Salty Dog Adventures	636-677-7504	www.sdaive.com	
Curacao			
Curacao Sea Aquarium	0599-9-461-6666	www.curacao-sea-aquarium.com	
Dominica			
Roseau - Scots Head Soufriere Marine Reserve	767-488-0140	www.virtualdominica.com/SSMR	
Honduras			
Utila - Laguna Beach Resort	800-668-8452	www.utila.com	
Utila - Utila Lodge Resort	504-425-3143	www.roatan.com/utilalodge.htm	
Mexico			
Yucatan Peninsula - Akumal Dive Adventures	505-992-3333	www.akumaldiveadventures.com	
Cozumel - Aqua Safari	011-52-987-872-0661	www.aquasafari.com	
Puerto Aventuras - Dive Aventuras	011-52-987-35129	www.diveaventuras.com	
Puerto Rico			
Guaynabo - Scuba Dogs	787-783-6377	www.scubadogs.net	
Rincon - Oceans Unlimited	787-823-7436	www.oceans-unlimited.com	
US Virgin Islands			
St Thomas - St. Thomas Diving Club	340-776-2381	www.st-thomasdivingclub.com	
West Indies			
St. Vincent - Dive St. Vincent	784-457-4928	www.divestvincent.com	

An article by the REEF Field Station of Northern Gulf of Mexico is posted on www.reef.org/webres/notes/spring03.htm.





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A heart-felt "Thank You!" to our core group of REEF contributors without whose generosity REEF could not do all that it does:

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Special Thanks to:

- Pac NW REEF Members Wes Nicholson and Janna Nichols for coordinating the Critter Watchers quarterly dives and listserv.
- Bruce Pritchard for donating his artwork for the 2003 Field Survey T-Shirt.
- Ken Sinibaldi for his generous support of the 2003 Grouper Moon Project.
- Dr. Michael Coyne for his continuing assistance with REEF's database programs.
- Ken Smith for volunteering hours every month on yard work at the REEF office.
- Carol Lorenz for editing REEF newsletter.
- Bill Tucker of Nielsen Company with help on the newsletter's new look.
- Audrey Smith for her continuing volunteer help in the REEF office.
- Ken Marks for donated books.
- Jose Kirchner for donation of computer monitors at REEF HQ.