

REEF

notes

REEF ENVIRONMENTAL EDUCATION FOUNDATION

PROTECTING MARINE LIFE THROUGH EDUCATION, SERVICE AND RESEARCH

REEF

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Anthony's Key Resort
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Rodale's Scuba Diving
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Anthony's Key Resort, Roatan, Honduras Bay Islands
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 The Marine Conservation Network, Danville CA
 Underwater Explorers Society (UNEXSO), Freeport, Bahamas
 VI Divers, Christiansted, St. Croix, USVI
 Walker's Key Undersea Adventures, Bahamas
 W W Diving Company, Humble TX

Keys Marine Wildlife Survey Needs Volunteers In 1994

In 1989 the US Congress established the Florida Keys National Marine Sanctuary to manage the country's only extensive coral reef ecosystem. The 200 mile reef tract, encompassed by the Sanctuary's boundaries, extends from Key Largo past Key West and on to the Tortugas. For the past four years NOAA personnel have closely counseled with user groups that will be impacted by new management regulations to be implemented later this year. The process has not been easy. A storm of protest has swirled around the government's attempt to further regulate the region's major socio-economic resource. Local enterprises that have freely used and often abused the reef for generations have firmly dug their sandals

into the sand on this volatile matter. The final management plan has certainly not made everyone happy, but it is a welcomed step toward halting or slowing the degradation of south Florida's marine wilderness.

Sanctuary Superintendent Billy Causey presented an overview of the new management and zoning strategy at a forum concerning the global aspects of coral reefs held this past summer at the University of Miami's Rosenstiel School of Marine and Atmospheric Science. The plan establishes numerous Sanctuary Preservation Areas—small, well-defined zones designed to protect specific reefs. These areas are vital for sustaining important marine species

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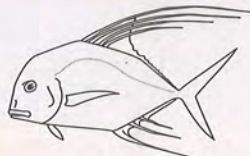
AFRICAN POMPANO

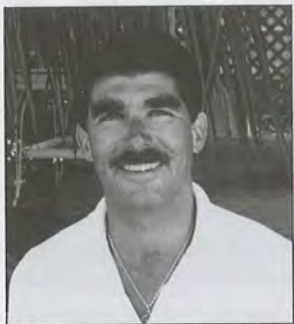
Alectis cinitus



What a fish! On a 90 foot dive just off Walker's Cay in the Bahamas a school of ten to twelve African Pompanos swept by during our descent. The following day we dived the same site but never got near the bottom. Instead, we drifted thirty feet down tethered to a large orange float. Within minutes the school swam into view and boldly paraded past only feet away. These are powerful open-water fish, with steep, rounded foreheads, and flat, high bodies that reflect a burnished silver sheen like crinkled, slightly scorched tinfoil.

A single fish trailed a spectacular set of threadlike fin rays from both the dorsal and anal fins. The remainder of the school had lost all but a few inches of the long filaments that were over three times their bodies' length when they were juveniles. During our 30 minute drift the school reappeared several times. Most individuals could be recognized on subsequent passes by distinctive white scars on their sides or by the length of their fins. Although the species is reported to grow to forty inches and weigh 40 lbs., those observed at Walker's were just over two feet long. African Pompano seldom swim over shallow reefs but are occasionally sighted over deepwater outcroppings. These impressive, robust creatures are easily identified but impossible to forget.





Director's Note

Laddie Atkins,
Executive Director of REEF

Well, now you've done it. You have decided to learn more about the marine environment, and, at the same time, become part of a large corps of divers with similar interest, collecting some very useful information along the way. I applaud your choice. Hats off! A standing ovation! Now what?

The obvious first step is to become familiar with the fishes. At first this seems a daunting task, but, as you become involved, you will find the learning process a delight rather than a burden. An excellent way to get started is by taking a Reef Fish Identification or Environmental Awareness course at a local dive retailer. These brief, one or two night introductions to fishwatching present an overview of the basic fish families and teach the fifty most commonly sighted species on the reef. If an ID course is not available in your area, simply purchase a few good fish ID books and do some home study. There are several excellent publications on the market. Highly recommended is Reef Fish Identification by Paul Humann. This comprehensive visual ID book is specifically written for divers. You might also be interested in picking up a copy of Joseph Stokes' Sea Life of the Caribbean, Florida, Bahamas, and Bermuda and John Randall's Caribbean Reef Fishes. An excellent idea for fish review is P&B Productions three video set that closely follows the outline of the Humann book.

So now you've taken a course, studied up and are ready to identify some fishes. Your REEF membership packet contains a REEF Fish Survey Form and instructions describing how to conduct a fish survey. Be sure to review this information just before your first survey dive. Ready! Then grab your underwater ID slate and head for the reef.

The first few minutes of an ID dive are usually spent on a clear sandy area getting comfortable and jotting down the more commonly sighted species. After a few minutes it will be time to go exploring. Your hunt will have you peering under ledges, roaming reef tops, searching in the branches of soft coral, and up into the water column; anything you can spot and ID anywhere on the reef or in adjacent habitats, such as grass beds or rubble fields, is fair game. This technique is called the "roving diver" — kind of a cross between treasure hunting and the Discovery Channel.

The more the merrier. One of the benefits of volunteers collecting ID data is sharing your finds with others. And there is nothing like the excitement of sorting out the identity of a Mystery Fish with your friends once you are back on board. Besides, the larger the group the more complete and accurate your survey will be.

On your first dives you will probably identify 10, 20 or even 30 species. What a hoot! Where else can you have such "first time" fun and success? The number, however, is not nearly as important as the accuracy of your identifications. You may include Mystery Fish IDs made from the book after the dive, but care should be taken not to include guesses. Remember, even a dive where eight or ten fish are positively identified is valuable information in these early stages of the Reef Fish Survey Project.

Near the end of your dive (I like to do this during my safety stop.) run down your fish list and record the relative abundance of each species by marking the appropriate code on the slate. Single (only a single member of a species sighted), Few (2-10), many (11-100), or abundant (over one hundred). Remember, you are not counting fish on your survey dive, just recalling the approximate number of each species you correctly identify.

The final step is transferring the sighting information onto the REEF Fish Survey Project scansheet and sending it to REEF Headquarters in Key Largo. Feel proud, you have just made a dive for the future, learned even more about marine life, and had a blast. A word of caution to leave you with — marine life identification is habit forming; as soon as you begin growing your lifelist of personal sighting, you will be hooked — there is no turning back once the adventure begins. 📌

REEF Fish Field Surveys 1994

May 15-21 Sun.-Sat.

BIMINI

\$660 Price includes: hotel (6 nights), transfers, diving and seminars.

Contact Scuba Bimini
(800) 848-4073

June 6-10 Mon.-Fri.

KEY LARGO \$290

Price includes: diving and seminars.
Contact REEF Hqtr. (305) 451-0312.

June 20-24 Mon.-Fri.

DRY TORTUGAS \$590.

Liveaboard Spree leaves from Key West.
Price includes: food, diving and seminars.
Contact REEF Hqtr. (305) 451-0312.

July 18-22 Mon.-Fri.

KEY WEST \$290.

Price includes: diving and seminars.
Contact REEF Hqtr. (305) 451-0312.

August 1-5 Mon.-Fri.

ISLAMORADA \$290.

Price includes: diving and seminars.
Contact REEF Hqtr. (305) 451-0312.

August 15-19 Mon.-Fri.

MARATHON \$290.

Price includes: diving and seminars.
Contact REEF Hqtr. (305) 451-0312.

September 3-10 Sat.-Sat.

BELIZE

Liveaboard Wave Dancer
\$1750. - \$1850. Contact
Lisa Diaz, American Express
(800) 752-9438

Sept. 19-23 Mon.-Fri.

CAYMAN ISLAND

Price to be announced Jan. 1994.
**INSTRUCTORS SEMINAR/
ADVANCED FIELD SURVEY**
Contact REEF Hqtr. (305) 451-0312.

From Bubbles to Bytes

A Brief History of the
REEF Fish Survey Scansheet
by Ken Marks



I first met Paul Humann on a dive vacation in the Turks and Caicos a couple of years back. My wife Tammy and I booked a trip with Paul to hear his popular series of marine life identification lectures. This would also give us the opportunity to dive with the author of my two favorite books *Reef Fish Identification* and *Reef Creature Identification*. Little did I know what I was getting myself into.

Between dives, Paul kept busy writing the text of the *Reef Coral Identification* on his laptop computer which seemed to get as much use as his diving gear. While we discussed the relative merits of the new generation of laptop computers, I mentioned that I worked with computers for a living — writing software in Chicago while dreaming of my next dive outing. During our talks Paul described an idea that he and his editor and long time dive companion, Ned DeLoach, had been kicking around. The concept was simple — involve recreational divers in the gathering of much needed scientific and ecological data during their diving vacations. What an enriching underwater activity for both newly certified divers as well as the dive-weary old salts! I was immediately captured by the Audubon-like concept for the underwater world. Too often it seems environmental interests are steeped in conflict and compromise. This seemed to be one of those rare “win-win” situations — good for the environment, good for the dive industry, and good for the divers.

Paul previously worked on the idea with both computer experts and marine biologists, but was having difficulties marrying computer and biological sciences with the human nature of recreational divers. I took this unique problem as an open invitation to volunteer my services.

Our priority was to create a user-friendly format for surveyors that would incorporate the myriad information requested by the scientific community. A scannable form seemed to be the most sensible way to organize and transmit the large amount of data required to make the program a success. As soon as I returned to Chicago, I started formatting the first version of the scansheet. With much research and guidance the form slowly evolved. After 17 major revisions, countless minor enhancements, and intense field testing by volunteer divers, the final version was published just a over a year after its first draft.

To help accommodate all the parties interested in using the database we incorporated two different surveys into the single sheet. The first, called the Species & Abundance (S&A) Survey, provides a clearer picture of fish populations and their fluctuations over the years and between seasons. This data is particularly important to marine life management concerns. A S&A Survey is completed on a single dive. Your survey will give a marine wildlife “snapshot” of the area dived at the time and date completed.

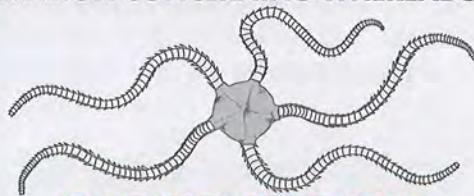
Information from a Species Only (S) Survey will help scientists gain a clearer picture of the geographical distribution of each fish species. Data for the Species Only (S) Survey can be gathered on several dives within a single geographic zone covering a period up to one month. Survey-

ors can actively hunt for new species in a single or wide range of habitats during the day, at night, or both, in an attempt to sight as many different species as possible. The two surveys will not only provide additional information desired by scientists, but also give divers an option of how intently they want to collect data during a particular dive. For instance, during a typical week long dive vacation, a REEF surveyor might choose to dedicate only two or three dives to an all-out S&A Survey effort, but continue to carry an ID slate on subsequent dives in order to jot down the names of additional fish species sighted. In other words, a Species Only Survey is a combination of not only all the species recognized during S&A Surveys, but also additional species spotted while engaged in other underwater activities.

The form's front and back pages contain information about the surveyor and pertinent data about the location and physical characteristics of the surveyed site. If you are a REEF member and have not changed your address recently, you can complete all personal data by simply entering your membership number. When possible, fill in all physical information, such as navigational coordinates, temperature, and visibility. The two inside pages are devoted to the names of nearly 400 species of fish that are likely to be sighted while diving the reefs of Florida, the Caribbean and the Bahamas. The species appear as they are listed in *Reef Fish Identification* by Paul Humann.

When returned to REEF, your completed surveys will be interpreted by an optical mark recognition scanner which turns each mark into meaningful data. Using custom software, the information is then imported into a database where it is combined with the handwritten data. The knowledge base built by thousands of volunteer divers will provide marine scientists, environmental groups and management personnel an enhanced tool for identifying trends, testing hypotheses and providing insights into the natural history of marine wildlife population. 📌

WANTED! INFORMATION CONCERNING WHEREABOUTS OF



GAUDY BRITTLE STAR

Dr. Gordon Hendler, with the L.A. Museum of Natural History, and Dr. David Pawson, with the Smithsonian National Museum, are interested in learning the geographical distribution of the Gaudy Brittle Star, *Ophioderma ensiferum*. The species was recently described from specimens collected in Belize. It has also been sighted in the Cayman Islands and off Grand Turk.

The Gaudy Brittle Star is easy to identify with its pink central disc and yellow arms (refer to photograph in *Reef Creature Identification*, Paul Humann, page 285, middle). Please report sighting information to REEF Headquarters, Box 246, Key Largo FL 33037. If possible, also include exact location, depth, habitat, associated organism, time of sighting and date. If a photograph is available, please include a duplicate slide or print. 📌

Diseased Reef Fish in Florida Sighting Data Needed

A stress related illness affecting several species of tropical fish along Florida's Palm Beach County and the Lower Keys was reported in the Fall of 1993. The epidemic, which is often fatal, appears as a white velvet film on all or a portion of the skin of large angelfish, especially French, Grays and Rock Beauties. It has been sighted in a few cases on members of the surgeonfish family and Blue Chromises. Other species might also be affected. Diseased individuals become lethargic, twitch, and spend a great deal of time at cleaning stations. As the disease advances, open bloody sores may develop, tail and trailing fins decay, and the fish floats to the surface while still quivering. Researchers from the Florida Marine Research Institute have collected several diseased fish in an attempt to determine the pathogen causing the epidemic. There appears to be a wide range of organisms involved. In the case of angelfish, a single-cell parasite, known as *brooklynella*, is the culprit, while other families and species are being affected by an assortment of bacteria, protozoa, and fungi.

Although a similar outbreak occurred in the summer of 1980, marine biologists have insufficient data necessary to develop a theory as to which environmental factors might contribute to the problem. The Florida Marine Research Institute is extremely interested in receiving any sighting data for the present, past or future outbreaks. Associated information, such as the location, species, depth, adjacent habitats, water clarity, algae cover on nearby reefs, or any obvious signs of stress, would be helpful. Please direct your correspondence to: Jan Lansberg, The Florida Marine Research Institute, 100 8th Ave SE, St Petersburg FL 33701. 📧

Keys Marine Wildlife Survey *Continued from front page.*

and reducing conflicts between consumptive and non-consumptive users.

The management of marine wilderness areas does not have a long history with a wealth of data to guide decisions, but pioneering efforts, during the last decade, have clearly demonstrated positive results. It is hoped that the Sanctuary's approach may serve as a model for other high population areas seeking to manage coral reef environments.

During the summer of 1994 REEF volunteers will compile the first fish species sighting data from proposed Preservation Areas throughout the Sanctuary. The information will provide Sanctuary biologists a valuable species list and inventory record as they begin to implement their new management policies. This critical environmental project — with generous funding from Rodale's Scuba Diving magazine and the Nature Conservancy — requires over a hundred volunteer divers and 1,500 hours of underwater surveying time to complete.

REEF is currently registering divers for the five REEF Fish Field Surveys scheduled for the

Sanctuary. No prior experience in fish identification is necessary; however, all volunteers are expected to be experienced divers. Each five day field survey (Monday - Friday) includes training in fish identification and proper survey techniques. REEF personnel, as well as graduate students and marine biologists from the University of Miami, will act as technical divers assisting in the collection of data. Methods used in the Keys will serve as a prototype for volunteer fish surveys in managed coral reef parks throughout the Caribbean and Bahamas in 1995 and 1996.

In addition to the five Keys field surveys in 1994, REEF has scheduled additional surveys in Bimini, the Turks and Caicos, Belize, and an Instructors Seminar/Advanced Field Survey in the Cayman Islands. REEF Fish Field Surveys offer an excellent learning vacation coupled with a lot of diving, and an opportunity to personally collect historical and environmental data that will significantly contribute to the understanding of our coral reef ecosystems. 📧

We Speak Fish! REEF FIELD STATIONS

If you are interested in marine life, the dive businesses listed as REEF Field Stations on the front page speak your language. Because of their commitment to marine wildlife preservation, each has agreed to act as a field station for the Reef Environmental Education Foundation.

Charter REEF Field Stations will actively recruit divers for the project and function as distribution points for Marine Wildlife Survey scansheets for the REEF Fish Survey Pro-

ject and related support materials. If you are interested in becoming a research diver for REEF, simply stop in at any of our Field Stations and pick up a membership application.

Dive retailers and resorts are invited to become REEF Field Stations. For a contribution of one hundred dollars or more you will demonstrate to your customers and community your active support for the future of our coral reef ecosystems. For information contact REEF, PO Box 246, Key Largo, FL 33037. 📧

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