

Circle the Words that hold interest for you

Label all words according to your understanding:
SF or **SL** **S**cience-**F**ield, **S**Lab; **T**echnology, **E**ngineering, **A**rts/Media,
Math—You may use more than one to describe your understanding

accuracy

the closeness by which a set of measurements approaches the true value

acid

a substance that increases the hydrogen ion concentration in a solution

acoustic tag

a sound transmitter attached to an aquatic animal to track its movements



Radio tag (anterior) and acoustic tag (posterior) attached to a loggerhead turtle.
(Photo: Alan Rees/ARCHELON)

adaptive bleaching hypothesis (ABH)

a coral bleaching hypothesis wherein under changing environmental conditions, the loss of one or more kinds of zooxanthellae is rapidly followed by the formation of new symbiotic cnidarian-algal relationships with different zooxanthellae that are more suited to the new conditions in the habitat.

ahermatypic coral

a coral that lacks zooxanthellae and does not build reefs

ampullae of Lorenzini

small vesicles and pores around the head of a shark that form part of an extensive subcutaneous sensory network system that detects weak magnetic fields produced by other fishes, at least over short ranges. This enables the shark to locate prey that are buried in the sand, or orient to nearby movement. The ampullae may also allow the shark to detect changes in water temperature



The ampullae of Lorenzini are small vesicles and pores that form part of a subcutaneous sensory network of sharks. These vesicles and pores are found around the head of the shark and are visible to the naked eye. They appear as dark spots in this photograph of a porbeagle shark head. (Photo: Dr. Steven Campana, Bedford Institute of Oceanography)

anemone

a cnidarian of the class Anthozoa that possesses a flexible cylindrical body and a central mouth surrounded by tentacles



A sea anemone of the Phylum Cnidaria, Class Anthozoa. The tentacles bear stinging cells which are used for food capture and defense

animated GIF (Graphics Interchange Format) file

a graphic image on a Web page that moves

Anthozoa

a class of Cnidaria that includes the stony corals, soft corals, sea anemones, gorgonians, and corallimorpharians



A deep-sea anemone photographed by the *Alvin 2001* during a survey of Blake Ridge off the U.S. Georgia coast (Deep East expedition).

anthropogenic climate change

climate change due to human activities

apex predator

an organism at the top of the food chain, relying on smaller organisms for food



This large blue shark is an apex predator in the ocean. (Photo: Greg Skomal, NOAA/NOS National Marine Sanctuaries)

aquaculture

the growing of aquatic organisms in controlled environments for any commercial, recreational, or public purpose; sector of fisheries that includes the rearing or raising under controlled conditions of aquatic products such as fishes, mollusks, crustaceans, sea weeds and other aquatic resources in sea, lakes and rivers. Aquaculture is widespread, and in tropical countries has been a significant source of pollution in coastal waters and also contributes to the destruction of mangrove forests

Aquarius

Aquarius is an underwater ocean laboratory located in the NOAA Florida Keys National Marine Sanctuary. The laboratory is deployed three and half miles offshore, at a depth of 60 feet, next to spectacular coral reefs. Scientists live in *Aquarius* during ten-day missions using saturation diving to study and explore the coastal ocean. *Aquarius* is owned by NOAA and is operated by the National Undersea Research Center at the University of North Carolina at Wilmington



The *Aquarius*, an underwater ocean laboratory located in the NOAA Florida Keys National Marine Sanctuary. (Photo: NOAA/OAR National Undersea Research Program)

aqueous solution

a solution in which water is the solvent

ArcIMS

ESRI software that allows for centrally hosting and serving GIS maps, data, and applications for use on the Internet

arterial gas embolism

a hazardous condition for scuba divers that is characterized by air bubbles released from ruptured lung air pockets (alveoli) into the pulmonary circulation. The bubbles then travel to the arterial circulation, where they may block blood flow in the small arteries or capillaries of the brain or heart. The results may be fatal. Arterial gas embolism in divers may be caused by holding one's breath during an ascent, wherein the lungs expand to the danger point

Arthropoda

an animal phylum that contains lobsters, crabs, shrimp, mantis shrimp, barnacles and copepods, fairy shrimp (all crustaceans), insects, centipedes, millipedes, spiders, scorpions, horseshoe crabs, pycnogonids (sea spiders), ticks and mites. Approximately three quarters of a million species are described, many more than all the other animal phyla combined. The crustaceans are the arthropods associated with coral reefs



A spiny lobster (phylum Arthropoda).

artificial reef

an artificial structure placed on the ocean floor to provide a hard substrate for sea life to colonize. Artificial reefs are constructed by sinking dense materials, such as old ships and barges, concrete ballasted tire units, concrete and steel demolition debris and dredge rock on the sea floor within designated reef sites



These concrete blocks were the first artificial structures deployed to provide a substrate for reestablishing colonies of *Oculina* coral (*Oculina varicosa*) and simulating fish habitat on Oculina Bank (central Florida Atlantic coast), which were destroyed by bottom trawling in the 1990s.

astern

behind the vessel; toward the rear of the vessel

asymmetric competition

competition between two organisms (or species) in which one is much more adversely affected than the other

ata (atmosphere absolute)

one (1) ata is the atmospheric pressure at sea level

atmospheric pressure

the pressure of the atmosphere at any given altitude or location; it is synonymous with barometric pressure

atramentous necrosis (AtN)

a coral disease characterized by spreading black lesions, often covered by a white film

axial swimming

the predominant swimming mode of fishes. This swimming movement involves lateral bending of the body caused by contractions of the lateral body musculature and oscillating movements of the caudal fin

azure

light or sky blue color

bacterial bleaching

loss of zooxanthellae with resultant bleaching caused by a specific bacterial infection, as opposed to environmental stress. The bacteria (*Vibrio sp.*) produce a toxin which cause lysis of the zooxanthellae.

band

a thick, pigmented vertical marking that encircles the circumference of an organism's body



Chaetodon striatus, the banded butterfly fish, has two black bands of pigment encircling its body. (Image: NOAA)

bar

a thick, pigmented vertical marking that does not encircle the body of an organism; an elongate submarine shoal



The royal gramma, *Gramma loreto*, has a darkly pigmented bar across its eye.

barbel

a slender elongate sensory structure protruding from the lips or jaws of certain fishes, such as catfishes, goatfishes, drums, cods, and many deep-sea fishes. Barbels may appear singly or in groups. They are primarily tactile in function but may also bear tastebuds, allowing the fish to taste its environment



A yellow goatfish with two prominent barbels protruding from its chin. (Photo: NOAA)

barrier reef

a long, narrow coral reef, roughly parallel to the shore and separated from it by a lagoon of considerable depth and width. It may lie a great distance from a continental coast. It is often interrupted by passes or channels



Healthy *Acropora* coral in Australia's Great Barrier Reef. (Photo: Ray Berkelmans/Great Barrier Reef Marine Park Authority)

Batesian mimicry

a type of mimicry in which a harmless species resembles a different species that is unpalatable, poisonous, or otherwise noxious or harmful to a predator

bathymetric map

a map which delineates the form of the bottom of a body of water by the use of depth contours (isobaths)

baud

unit of data transmission speed of one bit per second

benthic

bottom dwelling; living on or under the sediments or other substrate

beta particle

a high-speed particle, identical to an electron, emitted from an atomic nucleus

Big Old Fat Fecund Female (BOFFF)

hypothesis

in all species of fishes, the older larger females produce more eggs than the younger smaller ones. In some species, the larger older females can produce exponentially greater quantities of eggs. The BOFFF hypothesis refers to this phenomenon

bioacoustics

a discipline of zoology that is concerned with sounds of biological origin: their mechanisms of production, physical properties, receptors and reception physiology, and the role of the sounds in behavior

biochemical oxygen demand (BOD)

the amount of oxygen taken up by microorganisms that decompose organic waste matter in water. It is therefore used as a measure of the amount of certain types of organic pollutant in water. A high BOD indicates the presence of a large number of microorganisms, which suggests a high level of pollution

biodiversity

the total diversity and variability of living things and of the systems of which they are a part. This includes the total range of variation in and variability among systems and organisms at the bioregional, ecosystem and habitat levels, at the various organismal levels down to species, populations and individuals and at the level of the population and genes



A coral reef contains a great variety of species of all major kingdoms of living forms. (Photo: Dr. Anthony Picciolo)

biometrics

the use of statistics for the study of biological events

biopharming

to genetically engineer an organism to produce a pharmaceutical drug, vaccine or industrial substance

bioremediation

the use of organisms such as plants or microorganisms to aid in removing hazardous substances from an area

biostimulation

with reference to an oil spill, the method of adding nutrients such as phosphorus and nitrogen to a contaminated environment in order to stimulate the growth of the microorganisms capable of biodegradation; also known as nutrient enrichment

biotechnology

biological techniques used in applied research and product development. In particular, the use by industry of recombinant DNA, cell fusion, and new bioprocessing techniques; any technology that is applied to living organisms to make them more valuable to humans

bit

the smallest unit of information that a computer can store and process. A bit has two possible values, 0 or 1, which can be interpreted as yes/no, true/false, or on/off

bitmap image

also called raster or paint images. They are made of individual dots called pixels (picture elements) that are arranged and colored differently to form a pattern. Compared to a vector image, bitmap images are great for photographs because they tend to offer greater subtleties for shading and texture but require more memory and take longer to print. Vector images are best for drawings that need sharper lines, more detail, and easy modification. Vector images require far less printing resources than bitmap images

Bivalvia (Pelecypoda)

a class of Mollusca that includes clams, oysters and mussels. Bivalves are laterally compressed and possess a shell composed of two valves that hinge dorsally and enclose the body. They are



common inhabitants of coral reefs

A scallop (class Bivalvia) displays its rows of light-sensitive eyespots.

bleaching

the process in which a coral polyp, under environmental stress, expels its symbiotic zooxanthellae from its body. The affected coral colony appears whitened

blog (weB LOG)

basically a journal that is available on the web. The activity of updating a blog is "blogging" and someone who keeps a blog is a "blogger"

boom

a temporary floating barrier used to control the spread of spilled oil to reduce the possibility of polluting shorelines and other resources, as well as to concentrate oil in thicker surface layers, making recovery easier

booties

short "boots" usually made of neoprene, worn inside open-heel fins. they protect a scuba diver's feet from rubbing against the fins while swimming, as well as protecting the entire foot while walking to and from a dive site. Booties also provide warmth



A pair of booties worn by scuba divers under an open-heel fin.

boring sponge

a marine sponge that chemically digests the limestone skeletons of corals and other calcareous organisms and structures during its search for food and living space. These "boring" activities can damage a coral reef; also called "excavating sponge"

bottom trawler

a fishing vessel that uses an open-mouthed fishing net drawn along the sea bottom. This type of fishing is destructive to shallow water and deep sea coral reef communities



Small stern trawler fishing. (Photo: David Comb/New England Biolabs)

bow

the front part of a vessel

breaker zone

the area of a coral reef most exposed to breaking waves

browser

a herbivore that feeds on a variety of plant foods; a software program, such as Netscape Navigator or Microsoft Internet Explorer, that allows one to view pages on the Internet

buddy

a scuba diving partner. For safe diving, a pair of divers (buddies) stay close to each other in order to offer assistance if needed



buoyancy

the tendency of object to float or sink when placed in a liquid. Positively buoyant objects float, negatively buoyant objects sink, and neutrally buoyant objects stay in place

buoyancy control device (BCD)

the BCD is a mandatory piece of equipment for SCUBA diving. It is an expandable bladder, most commonly worn as an expandable vest, that can be inflated with air from the tank to increase buoyancy while diving. To decrease buoyancy, the BCD is deflated through special air-dump valves or hoses. It provides positive buoyancy for resting, swimming or lending assistance to others under water. The BCD allows maintenance of neutral buoyancy at any depth simply by adding or releasing air. It is also called a buoyancy compensator (BC)



A buoyancy control device (BCD). It is a vest-like expandable bladder that can be inflated with air to increase or decrease a scuba diver's buoyancy while diving.

bycatch

organisms taken in a fishery which are not of the species intended for harvest. For example, mammals or turtles captured in trawl or seine fishing

byte

a memory and data storage unit composed of contiguous bits, usually eight. For example, file sizes are measured in bytes or megabytes (one million bytes). Bytes contain values of 0 to 255 and most often represent integer numbers or ASCII characters

c-card

a scuba diving certification card from scuba certifying agencies, such as NAUI, BSAC, NOAA, PADI, etc.

calcium carbonate (CaCO₃)

a molecule consisting of calcium, carbon and oxygen secreted by corals to their skeleton. It is also secreted by mollusks to form their protective shells



This Queen Conch (*Strombus gigas*) utilizes calcium carbonate in forming its protective shell. (Photo: Andy Bruckner)

calibrate

to check or adjust the graduations of a quantitative measuring instrument

calicle

one of the small cuplike cavities, often with elevated borders, covering the surface of most corals. Each is formed by a coral polyp; the calyx

cay

a small, low coastal island or emergent reef of sand or coral; flat mound of sand and admixed coral fragments built upon a reef flat or just above high tide level. A synonym of **key**, as in the Florida Keys

centrifugation

the spinning of a mixture at very high speeds to separate substances of different densities

Cephalopoda

a class of the phylum Mollusca that includes squids, octopods, cuttlefishes and nautili. Many species are inhabitants of coral reefs



Squid (class Cephalopoda) with egg mass.

cetacean

a marine mammal of the Order Cetacea. The Cetacea includes whales, dolphins and porpoises



The killer whale is actually a dolphin in the cetacean family, Delphinidae

Chaetodontidae

a family of fishes (butterfly fish) whose number and behavior may serve as indicators of reef health



A pair of butterfly fishes (Chaetodontidae). Their presence and behavior serve as biological indicators of reef health

chlorofluorocarbons (CFC)

gases that can be dissociated by solar radiation, which release chlorine, which in turn destroys ozone

climate-induced bleaching

coral bleaching as a result of changing climate patterns, e.g., temperature

Cnidaria

a multicellular animal phylum, with a tissue grade of construction, that contains the stony (hard) corals, anemones, sea fans, sea pens, hydroids, and jellyfish

coastal reef

a coral reef occurring near and parallel to a coastline

coliform bacteria

bacteria whose presence in water is an indicator of pollution and of potentially dangerous contamination



A coliform-caused fish kill. Fecal coliforms originate from sewer overflows, septic tank seepage and animal defecation. They are indicators of fecal contamination which could also contain bacteria and viruses responsible for cholera and typhoid infections, hepatitis and gastroenteritis.

conservation biology

a multidisciplinary science that deals with the conservation of genes, species, populations, communities, and ecosystems that make up the Earth's biodiversity. Its goals are to investigate human impacts of biodiversity and to develop approaches to prevent extinction of species through stewardship of entire biological communities

controlled experiment

a scientific experiment, in which results from an experimental group with variable conditions, is compared with a control group with non-variable conditions

coral

a general term used to describe a group of cnidarians; indicates the presence of skeletal material that is embedded in the living tissue or encloses the animal altogether

coral bleaching

the process in which a coral polyp, under environmental stress, expels its symbiotic zooxanthellae from its body. The affected coral colony appears whitened



Bleached *Acropora* coral in Florida Keys (Photo: Larry Benvenuti)

coral reef

a wave-resistant structure resulting from cementation processes and the skeletal construction of hermatypic corals, calcareous algae, and other calcium carbonate-secreting organisms

coral rock

products used in the aquarium trade. Coral rock is consolidated material, greater than 3 cm in diameter, formed of fragments of dead coral and which may also contain cemented sand, coralline algae and other sedimentary rocks. 'Live rock' describes pieces of coral rock to which are attached live specimens of invertebrate species and coralline algae

counter shading

protective body coloration where the dorsal surface (above) is dark and the ventral surface (below) is lighter



Counter shading in a white shark. The darker dorsal surface and lighter ventral surface allows the shark to blend in with the environment when viewed from above or below. (Photo: NOAA)

critical habitat

the ecosystem upon which endangered and threatened species depend; habitat crucial to the survival of the species

damselfish

a large family (Pomacentridae) of bony fishes which are abundant and common inhabitants of coral reefs. They possess robust, deep, and laterally compressed bodies. The majority of damselfishes do not have particularly brilliant markings or coloration. Exceptions are the brilliantly colored anemone fishes, the banded sergeant major, and the bright orange garibaldi, Many species of damselfishes are highly territorial

data management

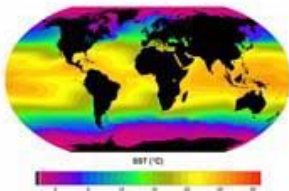
the act, process, or means by which data are managed. This includes the planning, collection, compilation, archival, safeguarding, listing, organization, extraction, retrieval, manipulation, and dissemination of data

database

a structured file of information or a set of logically related data stored and retrieved using computer-based means

Day/Night SST

observations of sea surface temperature obtained during both daytime and nighttime orbits from the Advanced Very High Resolution Radiometer (AVHRR) on NOAA's polar satellite



1985-2000 average sea surface temperature from AVHRR Pathfinder.

deep fore reef

the deepest seaward part of a coral reef; a vertical cliff beginning at a depth of about 60 m

diversity index

a mathematical index of species diversity within a community

drift net

a fishing net, often miles in extent, arranged to drift with the tide or current and buoyed-up by floats or attached to a boat



A marine turtle is caught in a drift net. (Photo: NOAA)

ecological restoration

the process whereby an entire ecosystem is brought back to healthy condition

ecosystem restoration

actions taken to modify an ecosystem for the purpose of re-establishing and maintaining desired ecological structures and processes



Two divers work to reattach a large fragment of elkhorn coral, *Acropora palmate*

eelgrass

a common seagrass (*Zostera marina*) distributed from Greenland to Florida that serves as an important habitat for fishes and shellfish. Unfortunately, approximately 90 percent of all eelgrass throughout its range along the Atlantic coast has been destroyed

extinct species

species for which there are no living representatives

extinction

the evolutionary termination of a species caused by the failure to reproduce and the death of all remaining members of the species; the natural failure to adapt to environmental change



Manatees are threatened with extinction from both habitat destruction and direct effects from human encroachment, such as serious wounds from boat propellers.

fathom

is a unit of length often used to measure depth of water and is equivalent to 6 feet or 1.8 meters

field research

the study of organisms in their natural habitat

fire wall

a combination of hardware and software that separates a network into two or more parts for security purposes

Florida Reef Tract

the third largest barrier reef in the world, running from the Miami area southwest to the Dry Tortugas

flotsam

wreckage or discarded material, e.g. garbage, found floating on the surface of the ocean or washed up on the beach



Seahorses caught in flotsam off the Colombian/Panamanian coast. (Photo: NOAA)

fringing reef

a shelf reef that grows close to shore. Some develop around oceanic islands. A synonym of shore reef



global change

a transformation which occurs on a worldwide scale (for example, an increase in CO₂ in the atmosphere) or exhibits sufficient cumulative effects to have worldwide impact (for example, local species extinction resulting in global loss of biodiversity)

global warming

an increase in temperature that occurs globally

hypothesis

a tentative assumption made for the purpose of empirical scientific testing. A hypothesis becomes a scientific theory when repeated testing and the great body of evidence suggests that the hypothesis has a strong probability of being correct

ichthyology

the scientific study of fishes

indigenous

native to a particular country or area

invertebrate

an animal that lacks a vertebral column (backbone)



Feathery invertebrate tube worms in the Caribbean Sea (Photo: Dr. Anthony Picciolo).

isotope

one of two or more species of atoms of the same chemical element that have the same atomic number and occupy the same position in the periodic table. They are nearly identical in chemical behavior, but they differ in atomic mass or mass number. Therefore, they behave differently in the mass spectrograph, in radioactive transformations, and in physical properties, and may be separated or detected by means of these differences

knot

The unit of speed used in navigation that is equal to 1 nautical mile (6,076.115 ft or 1,852 m) per hour

lead line

a line with a lead weight on the end used to measure depth. The lead is dropped into the water and marks on the line are read to determine the current water depth. The lead usually has a cavity to return a sample of the bottom type (mud, sand, etc.)

LIDAR (Light Detection And Ranging)

a remote-sensing technique that uses a laser light source to probe the characteristics of a surface target. A laser emission may be

directed downward from a low flying aircraft. Information about the target is derived from back-scattered reflectance or fluorescence of the target. Chlorophyll pigments in coral reef organisms (e.g., algae, seagrasses, coral), when excited by shorter (blue or green) wavelength light, emit light at longer (red) wavelengths, i.e., fluoresces

linear transect

a line of specified length laid out within a study site. They are generally positioned parallel to the shore along depth contours. Measurements and observations may be taken along the entire surface beneath the line (line intercept transect) or at specified intervals along the line (point intercept transect)



A NOAA scientist laying out a linear transect line.

Lionfish

They appear to be reproducing along the southeastern U.S. coast; Other common names are turkeyfish, dragonfish, and firefish



maximum sustainable yield

the maximum number of a food or game population that can be harvested without harming the population's ability to grow back; the largest average catch or yield that can continuously be taken from a stock under existing environmental conditions

methane

an odorless gas produced by the decomposition of organic matter

mineral accretion

a technique used to grow corals on artificial reefs using electricity to accrete minerals thereby cementing coral colonies to the substrate. Applying a low voltage to a metallic structure causes calcium carbonate (CaCO_3) to build on the metal, upon which coral larvae can attach, settle and feed. This greatly speeds the coral reef growth process. The voltage is low enough that it can easily be generated by floating solar panels or from wave action

monitoring

the systematic collection of data over time

moray eel

any of numerous chiefly tropical, brightly colored marine eels of the family Muraenidae that commonly inhabit coral reefs

mycosporine-like amino acids (MAA)

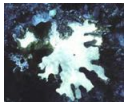
MAAs are a family of compounds which act as nature's sunscreen in the marine environment. Shallow-water environments of tropical coral reefs are characterized by high levels of ultraviolet-A and ultraviolet-B radiation. Corals have developed an efficient defense against the potential damage of long-term solar irradiation, which often includes the production of natural "sunscreen"-type UV-absorbing compounds and related antioxidants.

natant

swimming or floating

necrosis

the death of living tissues due to infection or injury



Elkhorn coral, suffering from recent necrosis.

nonbiodegradable material

a material that cannot be broken into simpler chemicals by living organisms

nondegradable pollutant

a polluting substance that is not broken down by natural processes

nonrenewable resource

an environment resource which is not replaced or replenished by natural processes at a rate comparable to the use of the resource; a resource depleted or exhausted by use

ocean acidification

ocean acidification occurs when CO₂ from the atmosphere is absorbed into the ocean and reacts with water to create carbonic acid. This decreases both ocean pH and the concentration of the carbonate ion, which is essential for calcification by calcifying marine organisms such as corals

Octocorallia

a subclass of the Anthozoa that contains the sea pens, sea pansies, sea fans, whip corals, and pipe corals. Octocorals always possess 8 tentacles and 8 complete septa (hard corals and anemones possess 12 or more tentacles and septa). They are colonial cnidarians whose polyps are connected by a tissue mass called the coenenchyme. This tissue connects the gastrovascular (digestive) cavities of all the polyps in the colony



An octocorallian (sea fan) with brain coral (sceractinian) in the foreground.

open circuit scuba

a diving apparatus in which exhaled air is expelled into the water as bubbles; no part is rebreathed by the diver. It is most commonly used in recreational scuba diving

palmata zone

the region of a reef crest of a bank or barrier reef that is closest to the water surface. It is composed almost completely of elkhorn coral (*Acropora palmata*) in the Caribbean



Acropora palmata in a shallow reef zone.

paradigm

a pattern or model that provides a framework for interpreting observations

phenology

the science dealing with the relationships between climate and periodic biological phenomena that are related to or caused by climatic conditions, such as the seasonal budding of trees and migration of birds

plankton

the passively floating or weakly motile aquatic plants (phytoplankton) and animals (zooplankton)



polyp

an individual of a solitary cnidarian or one member of a cnidarian colony



Cnidarian polyp.

Porifera

an animal phylum that contains the sponges. They are the most primitive of the multicellular animals. Sponges assume many sessile body forms, such as finger, branching, bushy, spherical, tubular, vase and tube-like, encrusting, amorphous and massive. Some bore into coral and mollusk shells. Many of the 5,000 species are colorful and prominent inhabitants of coral reefs



A barrel sponge (Porifera). (Photo: Dr. Anthony Picciolo)

protocols

the selections of methods and how they are used to gain data and information at a site

radial symmetry

a basic morphological plan of organisms that have their body parts arranged around a central axis. Such organisms tend to be circular or cylindrical in shape, e.g., a coral polyp, or have projections around a central disc, e.g., starfish



Radial symmetry, illustrated by this starfish (Echinodermata).

red-band disease

a disease of corals manifested by a narrow band of filamentous cyanobacteria that advances slowly across the surface of a coral, killing tissue as it progresses. The band is reddish to maroon in color



Red-band disease on a sea fan. (Photo: Dr. A. Bruckner)

restoration

the return of an ecosystem or habitat to its original community structure, natural complement of species, and natural function



A diver prepares to reattach an elkhorn coral fragment in a Mona Island, PR, reef as part of restoration work performed after the 1997 grounding of the *Fortuna Reefer*. (Photo: Erik Zobrist, NOAA Restoration Center)

Roving Diver Technique (RDT)

a visual survey method specifically designed for REEF volunteer data. During RDT surveys, divers swim freely throughout a dive site and record every observed fish species that can be positively identified. The search for fishes begins as soon as the diver enters the water. The goal is to find as many species as possible so divers are encouraged to look under ledges and up in the water column. At the conclusion of each survey, each recorded species is assigned one of four abundance categories based on about how many were seen throughout the dive [single (1); few (2-10), many (11-100), and abundant (>100)]

rugosity

an important coral reef parameter that describes the amount of "wrinkling" or roughness of the reef profile. It is an index of substrate

complexity. Areas of high complexity are likely to provide more cover for reef fishes and more places of attachment for algae, corals and various sessile invertebrates

safety stop

on ascending from a dive, a safety stop is a specified time spent by a scuba diver at a specific depth, for nitrogen off-gassing. While not mandatory during a no-decompression dive, it is a sound safety practice. A safety stop may be 3-5 minutes at 10-15 ft below the



surface

school

a social group of fishes (and some other aquatic animals), usually of the same species, which tends to orient and move in the same direction

science

a method of learning about the physical universe by applying the principles of the scientific method, which includes making empirical observations, proposing hypotheses to explain those observations, and testing those hypotheses in valid and reliable ways; also refers to the organized body of knowledge that results from scientific study

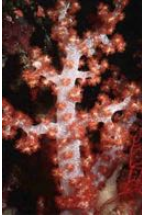
SCUBA (Self-Contained Underwater Breathing Apparatus)

a diving mode independent of surface air supply in which the diver uses open circuit self-contained underwater breathing apparatus which supplies air or breathing gases at ambient pressure

Sea a subdivision of an ocean

soft coral

common name for species of the anthozoan order Alcyonacea of the subclass Octocorallia. In contrast to the hard or stony corals, most soft corals do not possess a massive external skeleton



Beautiful specimen of soft coral

starboard

the right side of a vessel to someone facing the bow or front

stern

the rear (back) end of a vessel

thermal stress anomaly (TSA)

an area of the ocean surface which is experiencing warmer sea surface temperatures (SSTs) than the typical maximum temperature reached at that location. The typical maximum temperature, which generally occurs in late summer, is important because this is the highest temperature to which corals in a particular location are accustomed. So, when the SST exceeds this by some threshold (typically one degree C) corals are in danger of bleaching. Many factors such as salinity, insolation, winds, and local currents play a role in coral reef bleaching, but clearly extreme SSTs are a critical factor; also called "hotspots"

vertebrate

an animal that possesses a vertebral column (back bone), such as fishes, amphibians, reptiles, birds and mammals



white skeleton

the exposed white calcium carbonate skeleton of a coral colony

wrasse

a large family (Labridae) of brightly-colored bony fishes which are common inhabitants of coral reefs. Many have spiny fins, thick lips, and strong teeth. They range in size from about three inches to three meters. Some species of small wrasses are "cleaners," which regularly remove ectoparasites from the skin and gills of larger fishes

yellow-band disease

a coral disease characterized large rings or patches of bleached, yellow tissue on Caribbean stony corals, although tissue loss is minimal (cm/yr). It affects the star corals, *Montastraea annularis* and *M. faveolata* and is widespread throughout the Caribbean region. No pathogen has been isolated.

zoology

the scientific study of animal life. Zoological sciences include the studies of evolution, systematics, cell biology, biochemistry, micro and macro anatomy, development, genetics, physiology, ecology, biogeography, biodiversity, behavior and sociobiology

zooxanthellae

a group of dinoflagellates living endosymbiotically in association with one of a variety of invertebrate groups (e.g., corals). In corals, they provide carbohydrates through photosynthesis, which are used as one source of energy for the coral polyps. They also provide coloration for the corals

