Bill's Cave Diving Lexicon

120 Rule: Noticing from the Navy NDL table that, for certain depths, depth + bottom time = 120 so that the NDL can be determined by subtracting the depth from 120.

200 DIN: Thread depth in a DIN valve and associated pressure (200 BAR) that can be handled. This size (7 threads) allows for a DIN to yoke conversion.

300 DIN: Thread depth in a DIN valve that provides the most secure (9 threads) connection and can withstand 300 BAR pressure.

5 nines pure: 99.999% pure, as in a gas.

50-50: Gas mix of 50% oxygen and 50% nitrogen used for decompression gas.

6351-T6 Aluminum Alloy: Alloy that has had problems with tank ruptures.

Absolute Pressure: Total pressure being exerted on a diver At sea level Absolute pressure is 1 ATA and it increases by 1 ATA for each 33fsw (34ffw).

ADDD (Air, Duration, Depth, Distance): Limits for dive termination acronym minimum Air volume/pressure, maximum Duration of dive, maximum Depth of dive, and maximum Distance of penetration.

ADV (Automatic Deflation Valve, and Automatic Diluent Valve): Device on a buoyancy compensator that allows for rapid air purging, and device on a rebreather that dilutes the breathing mix.

AGE (Arterial Gas Embolism): A lung expansion injury. A condition in which gas bubbles enter the arterial system and cause damage by blocking blood flow to vital organs, most commonly the brain. This is generally caused by air passing through the walls of the alveoli into the bloodstream.

Air: A gas mixture of Oxygen (21%), Nitrogen (78%), and other gasses (1%, Helium, Argon, etc.). Simplified, air is 20% oxygen and 80% nitrogen. Precisely, with a standard atmosphere (15 degrees Celsius, 29.92 inches Hg, and at sea level), Air has: 20.9476% Oxygen, 78.084% Nitrogen, 0.934% Argon, 0.0314 % Carbon Dioxide, 0.000524% Helium, and small amounts of Neon, Methane, Krypton, Hydrogen, and Xenon.

Air Dome: A section of cave, usually dome shaped in which air/gas collects.

AKA (Also Known As).

AL (Aluminum): Metal used to manufacture scuba cylinders. Most common size is 80 cubic feet at 3000psi (12 liter, 210 bar) and used mainly by open water divers and as a

stage or buddy bottle for cave diving. The tank is negatively buoyant when full and positive when empty or nearly empty.

Alpine: After a mountaineering style where the diver is self sufficient, aka solo.

Anchialine: From the Greek meaning “near the sea” and refers to coastal caves formed in limestone or volcanic rock that are flooded with seawater.

ANDI (American Nitrox Divers International).

AOW (Advanced Open Water).

Aquaclude: An earth layer that precludes or inhibits the passage of water. For example, shale, unfractured igneous and metamorphic rocks, and so forth.

Aquifer: Groundwater storage area. In Florida the Floridan Aquifer underlies most or the peninsula.

Argon: Gas for filling dry suit that has relatively good thermal properties and is inert. Argon bottles generally range from about $6ft^3$ to $14ft^3$ and are most efficient with rated pressures close to 2000psi, as argon is typically supplied at a lower pressure. Divers generally secure the argon bottle to the side of the tanks but occasionally may place smaller bottles on the harness waist strap.

Ascent Rate: The rate in feet per minute at which a diver rises to the surface. The prescribed rate for safe offgassing is 30 feet per minute.

ASTM (American Society for Testing and Materials): ASTM 568A is an industrial sizing standard used with O-rings. An AS568A number is a three-digit suffix that identifies the O-ring's size. Technically, an O-ring size is listed as AS568A-016, AS568A-112, etc., but most people use just the three-digit number. The first digit denotes the O-ring cross section width: 0xx = 1/16-inch, 1xx = 3/32-inch, 2xx = 1/8-inch. Also has measures of O-ring hardness (an ASTM type-A durometer, of 75 is “soft” or the more rare rating of 90 for a “stiff” ring).

ATA: Atmosphere of pressure 1 ATA is 33fsw or 34ffw, 10msw. Also 1 ATA is 14.7 psi.

A-Yoke: Tank valve aka compressed O-ring valve. Provides a high pressure seal between the tank valve and the regulator first stage and works by compressing an O-ring between two metal seats. The Yoke assembly holds the seal in place.

Back-gas: In many instances this is the gas mix that will be breathed during the primary portion of the dive and carried in back mounted cylinders. It should be noted that in stage diving Back-gas can be used as reserve breathing gas and that when diving sidemount there are no tanks mounted on the diver’s back.

Back-mount: Tank configuration where the tanks are attached on the divers back via a harness and backplate. See Side-mount.

Backplate: Aluminum, steel (7 pounds), or molded plastic plate through which the harness is thread and the tanks and BC mounted. Original design was by Greg Flannigan in 1979.

Backup Light: At least two should be carried on each time with one having fresh non-rechargeable (disposable) batteries. Burn time should be twice the planned dive. Aka reserve lights.

Backup Regulator: The regulator coming from the left post that is necklaced. This regulator has been called a secondary and a safe second.

Balanced Regulator: Regulator design to achieve a constant demand effort when breathing as the tank pressure diminishes.

Ballast: A part of a dive light.

Bands: Metal straps used to connect two tanks to form a set of "doubles" and provide for a means of attaching a harness/backplate. The bolts that compress the bands and provide the backplate/harness attachment points are 11 inches apart.

Bar: Measure of pressure…one bar is 1.013 ATA. Imperial unit of measure.

Baseline: Numeric value computed for a tank(s) that relates volume and pressure. Computed by dividing tank volume by stamped fill pressure to express cubic feet of volume per psi of fill pressure (sometimes multiplied by 100 to give cubic feet per 100 psi). Used to convert psi to volume for dissimilar tank thirds computation. Aka Tank Factor.

BC (Buoyancy Compensator): See BCD.

BCD (Buoyancy Compensator Device): Also just BC. Jacket or wings that provide lift capacity and buoyancy control for obtaining proper trim.

Bedding Plain: Cave formation in the form of a widened horizontal crack.

Belt Slide: Hardware item with two slots that harness webbing slides through. Used to attach a D ring or as a stop. Aka a weight stop.

Bends: Another term for decompression sickness or illness.

Billy Ring: Three D rings welded together along their straight side so that one is perpendicular to the other two. Named after Captain Billy Deans who invented the idea

and results in an upright ring to clip stage cylinders on while using the two flat rings to maintain the position on the harness waist belt.

Bitching: Usually pronounced, Bitchin' and is a descriptive expression for a fine section of cave or a good cave dive.

Blind Traverse: When a diver proceeds to another exit without having done an entry from both sides.

Blue Hole: Very plentiful in the Bahamas. A sink hole in a lake or in open water that is often the entrance to a cave. Blue holes are subject to tides so that their flows regularly reverse.

BOLT: Mnemonic for the in water check prior to a dive: Bubbles (manifold and valve check), Out of air (S-drill), Lights, Turn Time (Thirds).

Bolt Snap: Hardware item that has a spring loaded thumb gate, can be double ended or have a swivel on one end, also known as a piston bolt. Used to clip items to the harness and can be brass or stainless steel (ss); the stainless are of higher quality and last longer.

Boot: Plastic footing for a scuba tank that allows a rounded bottom tank to be stood upright. Not found on tanks to be used for cave diving as they are an entanglement hazard.

Booty: Unexplored cave, aka virgin, the exploration of which is scooping booty.

Bottle: Term used for a compressed gas cylinder, usually either aluminum or steel.

Bottom Gas: A gas mixture used for breathing during the main part of the dive that is being spent at the maximum depth.

Bottom Time: Total elapsed time from the point at which a descent is begun to the point when a direct ascent to the surface is initiated.

Bottom Timer: Clock device, analog or digital, for measuring time spent underwater.

Bounce: Dive where the diver descends to a particular depth and immediately returns to the surface. Sometimes referred to as a yo-yo-dive.

BOW (Basic Open Water). Initial SCUBA certification.

Bowline: Fundamental knot for making a non-slipping loop in the end of a rope or line. Most often used for the loop in the end of the line on a reel or spool.

Boyle's Law: Pressure and volume are inversely proportional at a constant temperature.

Breakdown Room: An area in a cave where a large amount of material has fallen from the ceiling. A collapsed roof rock area in a cave.

Breathing Loop: The hoses, canister, and counterlung in a rebreather along with the diver's lungs.

BSAC (British Sub-Aqua Club): The governing body for underwater sports in the U.K. that publishes decompression dive tables.

BT (Bottom Time): The actual time spent at depth.

Buddy: Your diving partner or team member.

Buddy Bottle: A spare air cylinder, usually an al80, carried in addition to doubles when diving solo.

Buhlmann: Algorithm for computing decompression stops. An implementation of the Haldanian disolved gas model. Named for Dr. A.A. Buhlmann, the German author of diving medicine books.

Bungee Cord: Stretchable nylon coated elastic cord with numerous uses, for example a necklace for keeping the backup regulator in place and as keepers for backup lights on the harness. Also called shock cord.

Buoyancy: An upward lifting force exerted on a diver. Can be negative (the diver sinks), neutral (the diver remains stationary), or positive (the diver ascends). Buoyancy is controlled by inflatable bladders in the wings or vest compensator (BC) and a drysuit.

Burn Tester: A device for checking the actual capacity of a battery relative to its boilerplate capacity and the associated burn time for the device that the battery is powering.

Burn Time: The amount of effective use time that a battery operated device yields. The term refers mainly to primary lights and scooters.

Burst Disk: Designed to release pressure from an overfilled or overheated tank prior to a catastrophic failure. Rupture pressure is usually in the 3600-4000psi range but higher rupture pressure discs are available, ie, 5500psi. Aka a safety disk. Sometimes doubled.

Butt Plate: Metal plate used in the configuration of a sidemount harness and wing system.

Butterfly Clip: Hardware item for attaching stage and deco bottles to harness D-rings. These clips have a wide angled gate opening and are operated with a thumb slide.

Calcite ($CaCO_3$): The most common of the carbonate minerals that comprise cave decorations such as stalactites and stalagmites; usually colorless or white.

Cam Bands: A type of band used to attach the tanks to a harness.

Canister: Tube like container that holds the batteries for the primary dive light and to which the light head is attached.

Canister Light: Primary dive lights where the batteries are placed in a canister worn usually on the harness belt and the light head is attached with an electrical cable/cord and attached to the diver's hand using a handle.

Carbonic Acid (H2CO3): Carbon dioxide plus water. This solution dissolves limestone as a part of the cave formation process.

CAS (Critical Air Supply): Dive turning point using the thirds rule, one third in, one third out, and one third, for an emergency (e.g., delays, buddy air requirements, etc.).

Cascade System: A tank filling system where several tanks are hooked up via a hose manifold. The idea with a cascade is that a tank is filled with the lowest psi tank first then worked up to the highest psi cylinder.

Caustic Cocktails: A corrosive mixture produced in rebreathers when water came in contact with the scrubber medium.

Cave: A naturally occurring room or passage in bedrock, large enough to be entered by a human. Also an underwater passage not illuminated by natural daylight. The Florida legislature, Statute 810.13, defines a cave as: any void, cavity, recess, or system of interconnecting passages which naturally occurs beneath the surface of the earth or within a cliff or ledge, including natural subsurface water and drainage systems but not including any mine, tunnel, aqueduct, or other manmade excavation, and which is large enough to permit a person to enter. The word "cave" includes any cavern, natural pit, or sinkhole which is an extension of an entrance to a cave.

Cave Country: In North Florida refers to the Santa Fe and Suwannee river areas. The Branford, Luraville, High Springs area.

Cave Fill: When low pressure steel PST 104's are filled to a psi in excess of their rated 2640psi (2400+); usually 3500 psi or so.

Cave Patterns: Branchwork, network, anastomotic, spongework, and ramiform.

Cave Types: Coral, sea or littoral, lava-tube, and solution.

Cavern: Two or more interconnected underground rooms or passages in bedrock, each large enough to be entered by a human. Also the initial room of an underwater cave system that is illuminated by natural daylight.

Cavern Dive: Visibility greater than 40 feet, Maximum penetration of 130 feet, Maximum depth of 70 feet, and always within the ambient sunlight area. No passing through restrictions.

CC (Closed Circuit): A rebreather that does not release any gases from the unit except on ascent from depth as the counter-lung expands with the reduction in ambient pressure. The CC advantage is the maximum use of the onboard Oxygen and the best physiological benefits. The CC disadvantage is the added complexity of electronics and mechanics to monitor the ppO2 and to inject the proper amounts of diluent and O2 into the breathing loop.

C Card: Certification Card.

CCR (Closed Circuit Rebreather): Breathing device that cleans exhaled air of CO2 so that it can be breathed again.

CDF (Cave Diver's Forum): Internet site devoted to the discussion of cave diving. http://cavediver.net.

Ceiling Push-off: Aka roof walking. Heels used to push off the ceiling of the cave.

Cenote: Pronounced see no tay. A sinkhole in Mexico. Generally vertical walled or overhanging shafts with water that serve as an entry to a cave system.

CF: A cluster f**k. An expression to denote a situation that is or has become hazardous.

CGA (Compressed Gas Association): A group that establishes grades for gases including air, helium, and oxygen.

Charles' Law: Volume and temperature of a gas are directly related at a constant pressure.

Chimney: A segment within a cave that is a vertical or near vertical and shaft like.

Chokes: A symptom of DCS where it is difficult to breathe.

Christo-Lube MCG 111: Lubrication alternative to silicone for O2 clean requirements.

Circuit: Dive in which there is a one way passageway segment. Can be simple or complex depending on whether only one jump or multiple jumps are involved.

Clothespin: Spring loaded wood or plastic clip for use as a non-directional, temporary line marker. These are being replaced by cookies.

Cluster: Non offensive (to some) term for a cluster fuck or disaster.

CNS (Central Nervous System): Brain and spinal chord.

CNS Oxygen Toxicity (Central Nervous System) Oxygen Toxicity: Occurs with high oxygen partial pressures of 1.5ATA and above where the diver may display seizure or convulsion and other symptoms. Partial pressures of over 1.6 can be extremely dangerous. 1.4 should be considered the maximum for a working dive and it is reasonable to use 1.1 or 1.2 as a standard.

CO2: Carbon Dioxide. A waste gas produced by the metabolism of oxygen in the body.

Come to Jesus Dive: When a dive results in a close encounter with death.

Command Signal: A signal from one diver that requires a response from another diver. There are three, OK, Hold, and Surface. OK is connecting the thumb and forefinger in a circle with the other three fingers extended or a circular motion of the dive light. Hold is a closed fist, and Surface (turn the dive and exit/surface) is an upward pointing thumb with the other fingers in a fist, aka thumbing the dive.

Conduits: Tunnels or passages in cave systems.

Conservation: Acting to preserve the beauty and splendor of the cave. For example the NSS-CDS motto is: "Take nothing but pictures . . .Leave nothing but bubbles . . .Kill nothing but time."

Constriction: A narrow section of cave, see restriction.

ConVENTID: Mnemonic for seven symptoms of Oxygen Toxicity: Convulsions, Visual changes, Euphoria, Nausea, Twitching, Irritability, and Dizziness.

Cookie: A circular non-directional line marker that is used to mark a direction taken, furthest penetration, the first dive turn point in establishing a circuit, another user on a primary reel (with permission) and so on. It has an attachment slot similar to a line arrow and is therefore more reliable than the clothespin which it is replacing.

Counter-lung: A sealed flexible bag which inflates as the diver exhales and deflates as the diver inhales. It acts as a storage area for breathing gases. The positioning of this bag within the breathing loop influences breathing effort.

CPR (Cardiopulmonary Resuscitation): A combination of regular chest compressions and rescue breathing to keep a victim's vital organs functioning until medical assistance arrives.

Crotch Strap: Bottom strap on harness that connects, through the legs, the front of the harness to the backplate or back portion of the harness system. A scooter/DPV ring is often attached to the front part.

DAD (Distance, Azimuth, Depth): Data items recorded at a survey station.

Dalton's Law: The total pressure of a gas mixture is the sum of the partial pressures of the gases that make up the mix.

Dalton's Triangle: Useful mechanic for mixed gas computations that visualizes the fact that in an A=BC relation if two values are known the third can be computed either through multiplication or division. PO2=FO2*D.

DAN (Divers Alert Network): Operates a 24-7 emergency hotline 919.684.8111 and provides other resources and medical research activities for divers and diving.

Dangly: Anything that hangs off a diver's gear that could result in silting or an entanglement hazard. Examples include knobs attached to exhaust valves, consoles, and lanyards.

DCAP (Decompression Analysis and Computation Program): Decompression planning program from Bill Hamilton.

DCI (Decompression Illness): DCI is a broad term used to classify both decompression sickness (DCS) and Arterial Gas Embolism (AGE). DCI symptoms usually appear within 20 minutes of surfacing and include: pain, numbness, dizziness, weakness, extreme fatigue, headache, nausea, and itching. O2 is the recommended first treatment. Handle using the 4 R's: Recognize Symptoms, Respond with O2, Relay with EMS/DAN, Recompress.

DCIEM (Defense and Civil Institute of Environmental Medicine): Decompression dive tables from Canada. The DCIEM decompression theory is based on the Kid-Stubbs model, which was developed in 1962 according to U.S. Navy dive tables and considering multi-level and repetitive dives. Their approach was to dive the model and, when symptoms of DCS occurred, to change the parameters of the model making it more conservative. They went through several variations of their air decompression model, improving the safety of the model with each iteration. They came to realize that the human body is better represented by a series arrangement of tissues. By 1967, over 5,000 experimental dives had been conducted to validate the K-S (Kidd-Stubbs) model. In 1971, the K-S decompression model was approved in Canada as a safer alternative to the U.S. Navy tables. In 1979, DCIEM initiated a critical reevaluation of the K-S model using digital computers to control the dives and specially-designed Doppler ultrasonic bubble detectors to evaluate the severity of the dive profiles. Then, thousands of verification dives and many improvements of the theory were made and the dive table for air diving was released in 1992. The present DCIEM theory is represented in this dive table.

DCS (Decompression Sickness): Aka DCI, Bends, Caisson Disease. A syndrome caused by bubbles of inert gas forming in the tissues and bloodstream during or after ascent from a dive. DCS is manifested in two major forms, DCS I and DCS II. DCS I: Decompression

sickness involving only muscle and joint pain, fatigue and/or skin symptoms (itching, rash). DCS II: Decompression sickness that includes symptoms involving the central nervous system, respiratory system or circulatory system.

Deco: Abbreviated term for decompression.

Decompression: Techniques for the controlled removal of nitrogen from body tissue on ascent. Either continuous or staged, most dive plans call for staged decompression or timed stops at various depths.

Deep Air: The practice of diving to depths greater than 132 feet using air as a breathing gas. Subjects the diver to nitrogen narcosis. Aka the Wah-wah after a sound that is heard when very deep on air.

Deep Stop: Decompression practice of making a stop from a deep dive at a depth greater than one recommended by an algorithm (eg. one stop at half the deepest depth for one minute). A method for incorporating deep safety stops from Richard Pyle is: 1**)** Calculate a decompression profile for the dive you wish to do, using whatever software you normally use. 2) Take the distance between the bottom portion of the dive (at the time you begin your ascent) and the first "required" decompression stop, and find the midpoint. You can use the ambient pressure midpoint if you want, but for most dives in the "technical" diving range, the linear distance midpoint will be close enough and is easier to calculate. This depth will be your first deep safety stop, and the stop should be about 2-3 minutes in duration. 3) Re-calculate the decompression profile by including the deep safety stop in the profile (most software will allow for multi-level profile calculations). 4) If the distance between your first deep safety stop and your first "required" stop is greater than 30 feet, then add a second deep safety stop at the midpoint between the first deep safety stop and the first required stop. 5) Repeat as necessary until there is less than 30 feet between your last deep safety stop and the first required safety stop. Deep stops have been included in more recent tables and dive computer algorithms.

Delrin: Delrin acetal resin is a hard and light material used for spools, backup light bodies, and primary light canisters. The material was manufactured by chemists at Dupont in 1952 when they synthesized an inflexible polymer from formaldehyde that was termed "synthetic stone" and DuPont named it Delrin.

DEMA (Dive Equipment & Marketing Association). Organization that outs on an annual trade show event where new dive equipment is introduced.

Denitrogenation: The reversal of nitrogen absorption with the beginning of an ascent (off gassing).

Depth: For a dive is the maximum depth reached during the course of the dive.

Depth Blackout: Situation, usually 150 feet or deeper where the diver appears to go to sleep. Diver continues to breathe but stops and remains motionless.

Depth Gauge: Instrument used to measure depth.

Diluent: The gas used in a closed circuit rebreather to make up volume in the breathing loop as the diver proceeds to deeper depths and the gases in the breathing loop are compressed. The gas used for diluent can be air or any mix.

DIN (Deutsche Industrie Normal): German Standards Institute. Term for a threaded valve type.

DIN-Valve: European tank valve to regulator connection that allows for higher operating pressures. Regulator first stage is screwed into the valve face of the manifold or valve. Two general types in use with differing thread depths (200 and 300).

DIR (Doing it Right): Gear configuration philosophy and, some might say, a marketing strategy by Halcyon to segment the dive gear market. Standardization, minimalist, redundancy, efficiency, and risk management. An evangelistic movement within diving whose proponents suggest that if you do not believe as they do then you are a stroke. Some DIR lore: Rule #1 - Don't dive with strokes; Rule #2 - Don't listen to strokes; Rule #6 - always look cool; Option #1 - Don't dive - usually used when strokes are present or conditions aren't optimal for a safe dive.

DIRF (Doing it Right Fundamentals): Course offered by GUE teaching the fundamentals of the DIR diving philosophy.

Dive Rite: Cave gear manufacturer and reseller.

Dive Voyager: Dive Rite decompression software.

DIY (Do It Yourself).

DM (Dive Master).

DNAx (De-Nitrogenated Air nitrox) Process that produces any blend of Nitrox from 21% through 40% oxygen by de-nitrogenating (removing nitrogen) instead of enriching standard air with high pressure oxygen.

Dolomite: A type of limestone rock important in cave formation.

Dome. An area in the roof of a cave that is the shape of an inverted bowl. Often contains trapped exhaust gas, air, or other gasses that may not be breathable.

Dorf: A plastic arrowhead shaped line marker use on guidelines to indicate the direction to the exit. Also called a line arrow and developed by Forrest Wilson and named for Lewis Holtzendorf who developed a tape arrow of the same name. Named by Wilson

after a request from Sheck Exley to honor Holtzendorf. The line arrow has two slots for attaching to the line.

DOT: The U.S. Department of Transportation. Regulates the interstate transportation of tanks and bottles that store compressed gasses.

Double Fisherman's Knot: A knot used to join two ends of cord or rope. Aka grapevine.

Doubles: Two tanks combined together with bands and a manifold (can be used independently without a manifold although this practice is generally not recommended for backmounted tanks due to gas management issues).

Downstream Design: Regulator design where air is forced to flow through the regulator and out the mouthpiece.

DPV (Diver Propulsion Vehicle): See Scooter.

Drapery: Cave decoration consisting of smooth calcite with ripples that resemble drape; similar to curtains.

Drift Dive: A dive in which the divers are drifting with the current and a boat follows the free drifting divers.

D-ring: Metal ring in the shape of a capital D, used on the harness for clipping items. Chest D-rings are often bent outward to aid in the clipping process.

Drop Weight: An extra weight carried to reach a depth at which it is no longer needed due to compression.

Dry Suit: An exposure suit that prevents water from entering using neck and wrist seals and a water tight zipper.

Dump Valve: Valve on a BC or dry suit that allows gas to be vented from the bladder or suit.

Durometer: The Shore hardness of rubber or plastic is measured with an apparatus known as a Durometer and consequently is also known as "Durometer hardness." The hardness value is determined by the penetration of the Durometer indenter foot into the sample. Because of the resilience of rubbers and plastics, the indentation reading my change over time, so the indentation time is sometimes reported along with the hardness number. The ASTM test method designation is ASTM D2240 00.

EAD (Equivalent Air Depth): Converting nitrox to air so that air tables can be used for planning.

EAN (Enhanced Air Nitrogen): Nitrox, breathing gas usually with an enhanced percent of O2 to reduce nitrogen content.

Ear Beer: A 50/50 mixture of alcohol and vinegar (5% acetic acid) used as a drying agent to treat the inner ear after fresh water exposure to avoid ear infection.

END (Equivalent Nitrogen Depth). Can be computed simply as: END = (D + 33) (1 - FHe) – 33

Equalize: To eliminate a pressure differential (squeeze) formed by descending under water.

ESA (Emergency Swimming Ascent).

Extended Range: A Trimix certification level that allows operation at depths deeper than 130 feet.

Faber: Italian manufacturer of steel tanks.

FFM (Full Face Mask): A mask with a single airspace that covers the eyes, mouth, and nose into which gas is delivered. Also there is a half mask that divides the airspace in two, one for the mouth, and one for the eyes and nose.

FFW (Feet Fresh Water): Unit of depth in fresh water. Requires an additional foot of depth, relative to saltwater, to equal one atmosphere of pressure (34 feet versus 33 feet).

Fin Keepers: A piece of rubber used on dry suit boots to keep air out of the feet. When placed on the boot one part of the keeper is around the ankle and the other part around the bottom of the foot in front of the heel.

First Stage: The part of a regulator that attaches to the tank valve and meters the gas at both high and low pressure levels.

FKM (Fluorocarbon Elastomers) O-ring Material that are the preferred choice for oxygen and nitrox compatiblity in SCUBA diving applications. Even for use with ordinary air, most experts agree that FKM O-rings outperform common Nitrile O-rings.

Flow: Termed use to describe the motion of water through a cave/spring system. Similar in meaning to a current.

Flutter Kick: Vertical full leg up and down fin motions for diver propulsion, typically used by open water divers. Use modified flutter to avoid silting.

FO2 (Fraction of O2). Proportion of total gas mixture that is oxygen.

Frog Kick: Horizontal leg motion at knees for diver propulsion, results in less silting as the backwash is directed behind the diver and not down towards the floor.

FSW (Feet Salt Water) measure of depth in salt water as opposed to FFW, MSW, and MFW.

Gap: Area or distance between the end of one line and the beginning of another.

Gas: The breathing mixture being used by the diver.

Gas Reversal Point: The point during ascent where the pressure (depth) is reached at which more gas is leaving tissue compartments than is arriving.

Gator: Fabric wrapped around the calves of a driver in a dry suit to prevent air from entering the legs and feet. Also results in a more streamlined profile when swimming. Sometimes used to refer to alligators that often live in the vicinity of springs and University of Florida athletic teams.

Gauge Mode: Dive computer mode where the computer serves as a depth gauge and a bottom timer.

Gavin: A brand of scooter or DPV named after William Gavin, an early director of the WKPP.

General Gas Law: A combination of Boyle and Charles that relates temperature, pressure, and volume of a gas.

Gnarly: An expression used to describe a particularly difficult section of cave (low, tight, silty, etc.).

Goethite (aka phreatite). Pronounced gerthite. Delicate, reddish black or brown, rustlike material/mineral found on cave walls and floors.

Golden Rule: In cave diving, anyone can turn the dive at any time for any reason.

Gold Line: The permanent mainline in a cave system that usually starts near but not at the entrance to the cave. Usually maintained by local divers or dive organizations. The line used is kernmantle line and usually is yellow/gold in color.

Goodman Handle: Handle design for sealed beam lights that was adopted for the light head on an HID. An adjustable mounting plate which allows the light head to be attached to the back of your hand without losing hand functions and range of motion.

Gradient: The difference in pressure, oxygen tension, or other variable as a function of distance, time or other continuously changing influence.

Grapevine: See Double Fisherman's Bend.

Grim Reaper Sign: Stop sign that has been placed in the cavern zone area of caves to prevent OW divers from continuing into the cave. The sign has a picture of the grim reaper beckoning with his index finger and the skeletal remains of three OW divers at his feet and the following text: STOP PREVENT YOUR DEATH! GO NO FARTHER. FACT: More than 300 divers, including open water scuba instructors, have died in caves just like this one. FACT: You needed training to dive. You need cave training and cave equipment to cave dive. FACT: Without cave training and cave equipment, divers can die here. Fact: It CAN happen to YOU! **THERE'S NOTHING IN THIS CAVE WORTH DYING FOR! DO NOT GO BEYOND THIS POINT.** This and other signs have been installed in caves for your safety. Please heed them! A diver safety message from NACD-NSS-CDS-PADI.

Grotte: French word for cave.

Grotto: An opening in a dry cave similar to a cavern. Also the term for a regional NSS organization.

Groundwater: Water in a below ground aquifer. Groundwater flows from high areas to low areas (like surface water) and a pressure gradient causes the water to move. The speed of movement is related to magnitude of the pressure gradient and the permeability of the aquifer. Groundwater intersects the surface through features like springs, streams, rivers, lakes, swamps, and so forth.

GUE (Global Underwater Explorers): Not for profit diving organization associated with the DIR philosophy and the WKPP.

Guy-Lussac: Gas law regarding temperature and pressure relationship.

Haldane: Decompression method using a dissolved gas transfer equation upon which the original Navy decompression tables were based. Named for J.S. Haldane, a physiologist who pioneered work on staged decompression issues in the early 1900s.

Half +200: An alternative reserve calculation method to thirds for breathing stage bottles. The tank is breathed down to half plus 200 psi of its starting pressure so that an 80 cubic foot aluminum stage bottle filled to 3000 psi would be breathed down to 1700 psi before being dropped.

Halocline: The boundary area between layers of salt and fresh water, where the salinity of the water changes. Noted by a visual distortion in the water.

Halcyon: Cave gear manufacturer, associated with the DIR philosophy.

Hang: Term used when a diver stays stationary at a particular depth in a particular location, especially when performing staged decompression.

Harness: Made of webbing (2 inch wide) that the diver wears to which is attached the BC (Wings) and the system (bands) for attaching a tank(s).

Haskel Pump: An air powered pump where 100psi of air is used to create 4000psi. A Haskel pump is a very large piston connected to a very small piston. Air is put behind the big piston and it pushes the small one. A drawback is that the pump is expensive. Often just termed Haskel.

Heliox: A gas mixture of helium and oxygen that eliminates nitrogen and its effects.

He (Helium): A non-toxic, colorless, odorless, tasteless, inert, lightweight, non-explosive, and expensive gas used in producing reduced nitrogen breathing gasses, especially trimix.

Henry's Law: Gas solubility; the amount of gas that will dissolve in a liquid is directly proportional to that gases partial pressure with temperature constant.

HID (High Intensity Discharge): Dive light typically used as a primary light, most commonly 10W or 18W and uses gell cell, lead acid, or nickel metal hydride batteries. There is some uncertainty regarding the 18W light as the manufacturer of the 18W light bulb has discontinued the product.

HP (High Pressure).

Hogarthian Gear Configuration: Technical gear configuration strategy named after William Hogarth Main and is focused on simplicity, streamlining, and functionality with a prime focus on minimalism. Elements of the configuration include using the long hose for the primary regulator and giving it away in an air sharing situation. The primary light canister is hip mounted.

Hood: Neoprene or latex head protection.

HPNS (High Pressure Nervous Syndrome): A medical problem associated with using a trimix (helium) gas mixture at depths below 400 feet.

H-valve: A tank valve that allows two first stages to be used independently with a single tank.

Höhle: German word for cave.

Höhlentauchen: German word for cave diving.

Hoover: A diver with a large air consumption rate.

Hot Mix: A gas mixture that has a relatively large percent of O2 in the mix for the depth being operated at. Using a gas mix at close to its MOD.

Hydrilla (Hydrilla verticillata): An aquatic macrophyte vascular plant from Asia that was introduced to Florida in the 1960s and is an invasive species that has spread throughout most freshwater habitats in the southeast. The plant can grow up to an inch a day.

Hydro: Required DOT pressure test for scuba tanks. Required every five years.

Hyperbaric Chamber: A large adjustable pressure vessel within which a person can be placed for recompression or pressure research.

Hypercapnia: The physiological condition that results from to much C02 (carbon dioxide). Symptoms include shortness of breath, headache, dizziness, nausea, and a feeling of warmth, among others.

Hyperoxic: A breathing mix with a high O2 content; a PO2 of more than 1.4 atm.

Hyperventilation: Rapid shallow exhalations that result in a CO2 buildup and possible loss of consciousness.

Hypothermia: A lowering of the body's core temperature below 95 degrees. Results in circulation restrictions that yield confusion, apathy, drowsiness and a lack of coordination, slowing erratic heart rate and death follow.

Hypoxemia: Inadequate oxygen supply in the arterial blood.

Hypoxia: Medical condition that results from a lack of oxygen or CO2 buildup and can cause euphoria and loss of consciousness. Inadequate oxygen supply to the body tissues.

Hypoxic: A breathing mix with a low O2 content; a PO2 less than .16 atm.

IANTD (International Association of Nitrox and Technical Divers).

Imperial Measurement System: U.S., feet, and psi. See metric.

Inflator: Valves with push button operation connected to low pressure ports on the first stage and used for dry suit or BCD/Wing air cell inflation.

Injured Diver: Any diver with a physical or equipment impairment is considered "injured" and placed in the front position on exit from the cave.

IP (Intermediate Pressure): The pressure being delivered to the second stage by the first stage of a regulator. Measured with an intermediate pressure gauge.

Isolator: A valve in the center of a manifold that connects two tanks and allows the isolation of tanks so they can be used individually.

IUCRR (International Underwater Cave Rescue and Recovery): The mission of the IUCRR is to support all public safety agencies in the rescue and/or recovery of victims in an underwater environment (with an overhead obstruction such as caves, caverns, mine shafts, etc.).

Jon Line: A line used to connect a diver to an anchor or ascent line during decompression stages. Especially useful when a number of divers are maintaining the same depth.

Jump: A path from a point along the mainline to the beginning of another line. Or a "gap" between the mainline and a side passage.

Jump Reel/Spool: A reel or spool used to connect the mainline to the beginning of another line so that one continuous line to the surface is maintained.

J-valve: A tank valve that has an on off valve and a reserve valve that results in an out of air situation at 250psi and when the reserve valve is activated the remaining gas is available for use. Not used for cave diving.

Karst: A landscape formed by the dissolving of bedrock, usually limestone or dolomite, that is characterized by the presence of sinkholes, sinking streams, dry valleys, caves, large springs and the rapid flow of water through drainage networks.

Karst Plain: Ground water drainage area for a karst system.

Karst Window: Cavern collapses that reveal a stream segment that is normally underground. Characterized by an upstream and downstream cave segment termed spring and siphon.

Kernmantle Line: Mountaineering line with a core used for the gold/permanent line in cave systems.

Kit: Dive gear. This is a UK expression/term.

Kitting Up: Putting on your gear. Taking the gear off is termed unkit.

K-valve: A simple tank valve that has only an on and off valve.

Landowner: The person who owns the land containing the cave or access to the cave whose permission must be obtained before diving the site.

Lark's Foot: Knot used to attach the divers reel or spool line to another line that is made when the loop in the end of a reel or spool is placed over a line and the reel or spool is passed through the loop forming the attachment. Aka a girth hitch.

LDS (Local Dive Shop): Very often a retail outlet catering only to open water divers and with very little understanding of cave or technical diving.

LED (Light Emitting Diode): A bulb used in dive lights (mainly backup lights) that has reduced energy requirements and resulting longer life.

Lift Bag: Usually made of plastic coated fabric and comes most often in either 50 or 100 pounds of lift versions. Often has a dump mechanism. Bags are use to lift objects to the surface or provide an ascent line to the surface in open water.

Light Saber: Term often used to describe the output of an 18w HID primary dive light.

Limestone: Rock that is found throughout karst terrain and is easily dissolved by acidic water to form voids that evolve into caves. Aka limerock.

Line: Most cave divers use a relatively thin, braided nylon line on their reels. The most commonly used is a #24-size line. Some wreck divers will use a thicker line to counter the sharp angles and edges found in these metallic environments. Commonly, this line may be #36 or even #42.

Line Markers: Plastic line arrows (Dorf markers) are used to mark the way to the exit and are placed every 100-500 feet along the primary line. Back to back they indicate midway point between two entrances. Two in the same direction indicate a jump point. Clothes pins or cookies are used as temporary, non-directional, jump markers. In many European caves these line markers are replaced by knots that show direction and distance (in meters) to the exit. In Mexican maze caves, double arrows point to the nearest air.

Line Trap: When the guide line gets into a crevice or a crack through which the diver can not pass (eg., a crack near a curtain formation that is only 6 inches wide). This term came from an experience by Forrest Wilson in a Georgia cave and he included the concept into the NSS-CDS standards in 1978.

Long Hose: The primary regulator first stage on the right shoulder post is connected to the second stage via a seven foot hose that is relatively “long” compared to other hoses on the backup and stage/deco bottle regulators. Cave divers breathe the long hose which is the one that will be donated to an OOA diver.

Loop Volume: The volume of gas in the breathing loop of a rebreather.

Lost Buddy Drill: Procedure to follow when you buddy is no longer in sight. Stop and do a limited search in the area blacking out your light with your hand. If your buddy is not found, recompute thirds to establish a time span for the search. Attach a line arrow pointing in the direction of the exit and tie the safety real into the line arrow. Begin a search for your buddy on all sides. If found, place the buddies hand on the safety line, terminate the dive, and exit. If buddy not found by the recalculated thirds point, reel back to the mainline and exit the cave.

Lost Line Drill: Procedure to follow when the guideline to the surface has been lost, usually in low or zero visibility. Tie in the safety reel and begin a search along floor holding one hand at the floor and the other up. A compass can be used to search at right angles to the cave passage. Once a search direction is chosen if it does not produce the line, return to the starting point and leave on a perpendicular (90 degree) path to your last choice. Continue searching until a wall is encountered and then proceed up the wall to the ceiling and back in the opposite direction. Once the other wall is reached, proceed along the floor back to the safety reel tie in point reeling the safety reel line in. The guideline should have been encircled by the safety reel line. Once the guideline is found short the safety reel and wrap it around the guideline leaving it hang. Place a line arrow in the direction to the exit and exit the cave. If another line arrow is encountered that indicates an opposite direction exit, turn and exit the cave.

LP (Low Pressure). Used to refer to a particular type of scuba cylinder that is filled to less than 2500psi. Also a type of port available on a regulator first stage used for wing, and dry suit inflation and for attachment of the second stage.

Manifold: Dual Valve Manifold, A-yoke and DIN. A valve device that combines the supply of two, usually back mounted cylinders. The manifold allows the diver to breathe from two cylinders at the same time. Modern manifolds contain three valves, two tank valves, and an isolator valve that allows the tanks to be selected individually for breathing.

Martini's Law: Each 50 feet of depth breathing air is the equivalent of one martini consumed on an empty stomach. Usually very noticeable at depths of 100fsw and below.

Maze Cave: A type of cave characterized by a complex of many branching network like passages that form a complex mazelike system.

Metric measurement system: Europe, Meters and bar. See Imperial.

Milky: Term used to describe slightly less then pristine visibility conditions. The water has a white tint.

Mix: Short term for trimix breathing gas.

Mixed Gas: Any breathing medium that was mixed using oxygen and other gases, most commonly, helium, nitrogen, or air. Mixed gas could have only a single inert gas (e.g., heliox, nitrox) or multiple inert gases (e.g., trimix: nitrogen, helium, and oxygen mixes).

MOD (Maximum Operating Depth): Maximum depth at which a particular gas mix can be breathed (for 100% O2, MOD is 20 feet). MOD=[(PO2/FO2)*33]-33.

Modified Flutter Kick: Diver propulsion that avoids silting. Lower legs used (knees bent) in tandem where calves do not pass below the diver's longitudinal axis (centerline). One leg version has one fin stationary below the moving fin deflecting downwash.

Multilevel Dive: A dive in which the diver remains at several depths for a period of time before beginning final ascent to the surface: this contrasts with square dive, which involves a singe depth (see next page). Many different levels can be visited in one dive before finally ascending -- for example, a diver descends to 60 feet / 18 meters and stays for 10 minutes then descends to 80 feet / 24 meters and stays for five minutes, ascends to 50 feet / 15 meters for 10 minutes and then to 20 feet / 6 meters for five minutes before surfacing.

Mung: A type of silt, biological in origin, usually on the ceiling of a cave. Brown in color it often is dislodged from the ceiling by exhaust bubbles and gives the impression of snow.

Murphy's Law: If anything can go wrong, it will. The origin of this was at Edwards Air Force Base in 1949. It was named after Capt. Edward A. Murphy, an engineer working on Air Force Project MX981, a project designed to see how much sudden deceleration a person can stand in a crash. One day, after finding that a transducer was wired wrong, he cursed the technician responsible and said, "If there is any way to do it wrong, he'll find it." The contractor's project manager kept a list of "laws" and added this one, which he called Murphy's Law.

Murphy's Law's: A collection of laws pertaining to risk and probability. Sometimes stated as: "if anything can go wrong, it will," "if there is a possibility of several things going wrong, the one that will cause the most damage will be the one to go wrong ," "if anything just cannot go wrong, it will anyway," "if you perceive that there are four possible ways in which something can go wrong, and circumvent these, then a fifth way, unprepared for, will promptly develop," "left to themselves, things tend to go from bad to worse," "if everything seems to be going well, you have obviously overlooked something," and "nature always sides with the hidden flaw."

M-value: Decompression values for tissue compartments where M stands for Maximum. Maximum nitrogen tension for a particular tissue type. There are slow tissues (fat) and fast tissues (lungs).

NACD (National Association for Cave Diving).

NAUI (National Association of Underwater Instructors).

NDL (No Decompression Limit): Depth and time values published in table form by the U.S. Navy and other organizations within which a direct ascent to the surface can be made. However, a safety stop is still recommended. The NDL values are dependent on the breathing mix and tables for various gas mixtures are available.

Neoprene: Neoprene or polychloroprene is an extremely versatile synthetic rubber used in the manufacture of wet suits and drysuits for underwater exposure protection.

Nervous System: Two subsystems, the central nervous system (CNS) and the peripheral nervous system (PNS).

NiCad (Nickel Cadmium): Battery type for dive lights.

NiMH (Nickel Metal Hydride): Battery type for rechargeable dive lights that is an improvement over NiCad.

Nitrale: Material used to manufacture o-rings.

Nitrogen: A component gas of air, approximately 80%. Causes narcosis at depth and is an inert gas so that it is absorbed into tissue at depth and must be removed on ascent.

Nitrogen Narcosis: aka Inert Gas Narcosis, and rapture of the deep: Any gas that is not metabolized will produce a narcotic effect under pressure. This is a mental function impairment which ranges from a mild euphoric feeling (60'-90'), slowing of mental activity (100'-130'), memory impairment and task fixation (140'-160') tingling in lips, legs and feet, severe drop in intellectual capacity (170'-200'), Voice reverberation, stupor and a sense of impending doom (200'+).

Nitrox: A gas mixture of nitrogen and oxygen. Nitrox 1: 32% Oxygen, 68% Nitrogen and Nitrox II: 36% Oxygen, 64% Nitrogen. See also EAN and EANx.

Nitrox Stick: A system designed to blend Nitrox into tanks not oxygen cleaned using a standard compressor.

NOAA Diving Manual: 1991 National Oceanic and Atmospheric Administration.

No Mount: The tank(s) are carried without attachment to the diver.

Normoxic: This is the term used to describe the normal mixture of gases found in the atmosphere. More specifically it refers to the percent of Oxygen in the mix. Since the atmosphere has 21% Oxygen, a mixture of gas with 21% Oxygen would be called normoxic. This is contrasted with hyperoxic and hypoxic.

Normoxic Trimix: A breathing mixture that has 21 percent O2.

NPC (Normalized Pressure Consumption).

NSS (National Speleological Society).

NSS-CDS (National Speleological Society-Cave Diving Section).

O2: Oxygen: A colorless, odorless, tasteless gas essential to life making up approximately 21 percent of air.

OC (Open Circuit): A standard scuba rig where spent air and CO2 are exhausted through a regulator second stage after each breath and air is delivered to the second stage through a first stage attached to the tank valve.

Octopus: Term sometimes used to refer to a backup or secondary regulator, usually attached to the same first stage as the primary regulator and especially used by OW divers.

ODIGTML (On Deco I Go Through My Life): Mnemonic for predive planning: O – O2 exposure (CNS clock and OTUs), D - Decompression planning, I - Inert gas, G - Gas supply, T - Time calculation (based on RMV, depth, etc.), M – Mission, L – Logistics.

Off Gassing: Denitrogenation or removing nitrogen from various body tissues.

OHH (Oxygen Hacker's Handbook): A popular book about gas mixing from Vance Harlow.

OMS (Ocean Management Systems): Dive equipment manufacturer.

On Gassing: The absorption of nitrogen into various tissues that takes place as the partial pressure of nitrogen increases with depth.

OOA (Out of Air). An emergency situation where the diver has no breathing gas.

OPV (Over Pressure Valve).

O-ring: A rubber ring that is compressed to achieve a watertight seal between materials. Rated by the ASTM.

OSHA (Occupational Safety and Health Administration): Federal organization that establishes rules and regulations for commercial diving operations.

OTU (Oxygen Toxicity Unit): Also called UPTD (Unit Pulmonary Toxic Dose). A rough measurement of long term low ppO_2 oxygen exposure. The units are only viewed as guidelines to help gauge whole body oxygen toxicity. They are based on the exposure to 1 ata of oxygen for 1 minute, that is 1 ata for 1 minute = 1 OTU.

Overhead: Term used to describe a diving situation in which the diver cannot make a direct ascent to the surface because of an obstruction.

OW (Open Water).

OxTox: See Oxygen toxicity.

Oxygen: One gas in air that can be toxic if breathed at high pressures or for extended periods. Approximately 20% (20.9%) of air and is often used for shallow decompression off gassing.

Oxygen Analyzer: Used to measure the percent O2 in a gas mixture. Usually consists of a sampling device, display unit, and an oxygen sensor. The sensor reacts with the oxygen producing a voltage that is read by the display unit and converted to a corresponding percentage. Analyzers need to be calibrated prior to each use.

Oxygen Toxicity: Oxygen toxicity of the brain, commonly referred to as central nervous system (CNS) oxygen toxicity can occur during diving. Some symptoms of CNS oxygen toxicity include flashing lights in front of the eyes, tunnel vision, loud ringing or roaring in the ear (tinnitus), confusion, lethargy, a feeling of nausea or vertigo, areas of numbness or tingling, and muscular twitching, especially of the lips. Oxygen toxicity in the lungs (pulmonary oxygen toxicity) is like getting a bad case of the flu, but it will rarely cause permanent damage. The most common situation in which pulmonary oxygen toxicity might occur is during very long recompression treatments.

PADI (Professional Association of Diving Instructors).

Partial Pressure: The pressure of a specific gas in a mix or the percent of that gas in the total volume of the mix. The sums of which is the total pressure of the gas, Dalton's Law. The partial pressure of a gas is a measure of the number of molecules in a given volume - the molecular concentration.

Percolation: Air exhaust bubbles rising and striking the ceiling.

Perphyton: Refers to aquatic plants growing around (on) solid surfaces. Recently, the term "periphyton" has been extended to include the entire community of microorganisms that live attached to or on solid submerged surfaces, generally above the depth of light extinction. The term encompasses not only algae but associated bacteria, fungi, protozoans, rotifers, and other small organisms.

PFO (Patent Foramen Ovale): A heart condition that influences bubble lodging with DCS.

Phreatic Tube: A cave passage or tunnel that has a large vertical component or keyhole shape.

Phreatic Zone: The water saturated zone directly beneath the vadose zone.

Phreatite: reddish-brown to black iron oxide deposit on cave walls. Aka goethite.

Placements: Securing the primary guideline in various places as it is being run and the choice of primary and secondary tie offs.

Pony Bottle: Air cylinder, usually 40 cubic feet or less capacity, that is designed as a separate air supply to be used in an emergency.

PPO or PPO2 (Partial Pressure of Oxygen).

Premix: Nitrox that has been blended with a particular O2 percentage. Avoids having to add pure oxygen to achieve a nitrox blend with the corresponding O2 cleanliness requirements.

Primary Dive Light: Usually a system that contains a rechargeable battery in a watertight canister with an HID light head connected to the canister via a plastic coated wire. Burn time should be equal to or greater then the planned dive time.

Primary Regulator: The regulator that is on the long (seven foot) hose that is given away to an out of air diver in an emergency.

Primary Tie-off: This is the first tie off in the cavern zone where an unobstructed ascent to the surface can be made. The line is run inside the cave and a secondary tie-off is made and the line is then run until contact with the gold line is made.

Pressure Gauge: See SPG.

Progressive Penetration: An incremental approach to cave exploration. Each dive go a bit further so that familiarization with features is enhanced. In earlier wreck diving this process was advocated without or in lieu of a guideline.

PRV (Pressure Relief Valve). Valve used to exhaust gas from a drysuit or bc/wing air cell.

PSA (Professional Scuba Association).

PSI (Pounds per Square Inch): Units for measuring pressure of a gas. Sometimes psig where g=gauge.

PST (Pressed Steel Tanks). Manufacturer of high and low pressure gas cylinders.

Pulmonary Oxygen Toxicity: Breathing oxygen above a .5 ATA partial pressure for an extended period.

Purge Valve: Valve on the front of a regulator second stage that when depressed provides a burst of gas that purges the second stage of any water that might have entered the mouthpiece.

P-valve or Pee valve: A valve in a dry suit that allows for male urination, can be balanced or unbalanced, sometimes called an overboard discharge valve.

Quick Link: Hardware item that is elliptical in shape with an opening and a screw down lock.

RBT (Residual Bottom Time): Additional time already spent on the bottom when computing no decompression limits for another dive in a repetitive dive situation.

Rams Head: Protection for tank valve from external shocks. Aka cobra guards.

Rapid Ascent: The currently recognized recommended ascent rate is no faster than 60 feet / 18 meters per minute. A rapid ascent occurs when a diver ascends faster than the recommended rate. Rapid ascents are often uncontrolled and can be caused by over inflation, poor buoyancy control, being underweighted or panic.

Rebreather: Device that is used to reuse breathed air by removing CO2. A self-contained device used to recirculate and regulate breathing gases for the purposes of extended diving times and quiet operation. On a fully-closed circuit rebreather this is accomplished by scrubbing CO_2, and adding O_2 as necessary to maintain a constant partial pressure of Oxygen. On most semi-closed systems a portion of each breath is released to the water and the same portion of new breathing gases are injected into the system. The semi-closed system also uses a scrubber.

Recalculation Dive: Dive where thirds are recalculated during the course of a dive, usually at or near another exit.

Recharge Zone: The area surrounding a spring from which rainfall permeates through the ground to replenish that portion of the aquifer from which a spring emanates.

Recompression: Taking a diver with decompression sickness/illness back down to depth so that a proper decompression sequence can take place. This is usually done in a “dry dive” context within a chamber. Has also been attempted in the water by going back to depth but this is not recommended.

Reel: Used to manage guideline. Safety (100-150 feet of line), Jump (30-50 feet of line) or Gap, Primary (300-500 feet of line), and Explorer (600-1500 feet or more of line). Line is usually #24 or #30 nylon braid.

Regulator: Device for transferring breathing gas from a tank to the diver includes a first stage high pressure attachment at the tank (to the tank valve) and a second stage low pressure delivery system with a mouthpiece for the diver to breathe from. In an unbalanced first stage, the spring pressure is a constant pushing in one direction, and the gas coming from the cylinder is a variable pushing in the other direction. For example, when the cylinder is at 3000psi, the intermediate pressure might be 135psi, but when it drops to 500psi the IP might be 110psi. On the other hand, in a balanced first stage the gas from the cylinder pushes against (in a piston regulator) the piston, but gas also flows through the piston so that it comes around and pushes against the piston in the opposite

direction, thus “balancing” it. The spring then determines the intermediate pressure, solely. In this example, IP might be 135 at 3000psi, and 135 at 500psi.

Remipede: Swimming centipede like creature found in caves that are in the crustacean order, one species is Godzillius.

Repetitive Dive: More than one dive in a 12 hour period where dives are separated by a surface interval of more than 10 minutes.

Restriction: A narrowing that is not large enough for two divers to swim through together (this is a minor restriction). A major restriction requires gear removal to negotiate. Other terms have also been used to refer to a restriction, for example, constriction, tight, squeeze, sidemount passage, no mount.

Reverse Jump: Method to avoid leaving reels and maintaining a continuous line to the surface. Can be used in the case of a removed primary reel. Leave buddy at line termination point. Attach safety reel line to buddy and have them hold. Search for exit. When found give three tugs on line and reel buddy to exit.

RGBM (Reduced Gradient Bubble Model): Decompression planning algorithm from Dr. Bruce Wienke.

Rimbach System: Method of touch contact communication, push forward=go, pull back=backup, squeeze=hold.

River Intrusion: A reduction in cave visibility due to tannic river water flowing into the cave as its associated river rises.

RMV (Respiratory Minute Volume). The amount of gas that you breathe out in one minute. The main controller of RMV is work rate. The harder you work the higher the RMV. The increase in RMV is driven by the increase in CO2 with higher work rates. Increasing levels of CO2 is the primary signal the body uses to tell us to breathe.

Roll Off: When a valve is turned off, usually from repeated contact with the ceiling. Usually the left shoulder post is rolled off resulting in an inoperative backup regulator. Some valve knobs have been developed to reduce this risk.

SAC (Surface Air Consumption).

SADDDD (Sequence, Air, Depth, Duration, Distance, and Direction): Mnemonic for predive planning.

Safe Second: Archaic term for the backup regulator.

Safety Reel: Reel, usually carried on the right hip D-ring behind the primary light canister to be used in an emergency (lost line, lost buddy, etc.).

Safety Stop: A decompression stop at 20 feet for 3 minutes even within no decompression limits.

Scooping Booty: Converting unexplored cave to explored cave.

Scooter: Aka DPV. A battery operated propeller driven vehicle to extend the range of penetration in caves.

Scooter Ring: A metal ring on the crotch strap used for attaching to scooter.

SCR (Semi-closed Circuit Rebreather): A rebreather which vents part of the exhaled gases from the breathing loop as a function of each breath, RMV, or some other method. CO_2 produced by metabolic processes is absorbed by a scrubber. Because most semi-closed rebreathers do not monitor ppO2, they are primarily used with a premix of nitrox or trimix which in turn is mixed for the planned MOD. This may be contrasted with a fully-closed circuit rebreather.

Scrubber or (C02 scrubber): The part of a rebreather that removes excess CO2 from the breathing loop. This is accomplished through the chemical bonding of the CO2 with a reactive substance. In most current rebreathers the substance used is Soda Lime. There are a number of designs of scrubbers, but the two most widely used are axial and radial scrubbers.

SCUBA (Self Contained Underwater Breathing Apparatus). Aka aqua-lung: A category of diving where you carry you own breathing gas in tanks with a regulator and do not rebreathe your air, open circuit.

S-drill: An air sharing drill deploying the long hose that is performed before each dive.

Scientific Diving: Research diving that does not require compliance with OSHA and commercial diving regulations.

SEABAG (Signals, Emergency procedures, Activities, Buoyancy, Air, Gear): Mnemonic for predive briefing checklist.

Second Stage: That portion of the regulator system that the diver breathes from and is attached to the first stage using a low pressure hose (seven foot hose for the primary regulator).

Shallow Water Blackout: Loss of consciousness due to CO2 buildup and resulting hypercapnia.

Shock Cord: See bungee cord.

Shoot a Bag: When a diver inflates and releases a lift bag.

Short the Reel: Pull the reel tight just short of wrapping it around the line to which it will be attached, locking the reel, and then attach wrap it twice around the line. Shorting the real avoids having slack in the guideline.

SI (Surface Interval): Time spent at the surface between dives. If less than ten minutes then the second descent counts as an extension of the firs.

Side-mount: Tank configuration where the tanks are attached to the side of the diver between the arms and torso. Used for low bedding plane passages with very little vertical clearance where the Back-mount configuration is problematic. See Back-mount.

Silent Submersion: A type of dpv/scooter, manufactured by Rodney Nairne.

Silt: Classified by chemical composition, inorganic or organic and by particle size: Sand, clay, and mud. Reduces visibility in a cave. See also mung.

Siltout: Total loss of visibility due to silting.

Simple Green: Cleaning solution used to remove oil residue from materials to be used in an O2 environment.

Sink: Short for sinkhole.

Sinkholes: Aka dolines. Depressions in the ground formed by collapse of a cave roof forming a cavern-collapse sinkhole, acidic water solution erodes a depression forming a solution sinkhole, or debris and material flowing into voids in the bedrock causing the surface to subside and forming a subsidence sinkhole.

Siphon Point: That point where some or all of the water in a surface stream sinks into the ground, aka a swallow hole or ponor.

Skip Breathing: Technique where the diver holds breath to conserve air. Can cause CO2 buildup and hypercapnia resulting in loss of conciousness; shallow water blackout.

Slate: Plastic/pvc material used for underwater writing with a graphite pencil.

Slob Knob: Term for cable device that allows the isolator knob on a manifold to be turned on and off remotely.

Slug: Term for part of a dive light head. The slug holds the lamp and/or electronics, less the test tube and reflector.

Snap: Stainless steel or brass hardware item with a ring on one end and a spring loaded thumb gate (piston) on the other or two ends with thumb gates.

Sneak Dive: A dive into an area where you do not have landowner permission.

Snow: Silt particles (often mung) that are dislodged from the ceiling of a cave by exhaust bubbles and fall to the fall, reducing visibility and giving the appearance of a snow fall.

Sofnolime: Brand of soda lime material used in rebreathers for scrubbing out the CO2.

Soda-Lime (aka hydrated lime): A chemical agent which reacts and bonds with CO2 and is commonly used in the scrubbers of rebreathers.

Solenoid: Valve on a rebreather that injects O2 into the breathing loop.

Solution Tube: Cave tunnel shape.

Speleogens: Dissolution features in the bedrock including, but not restricted to, anastomoses, scallops, rills, flutes, spongework, or pendants.

Speleologist: Someone who engages in the scientific study of caves.

Speleology: The study of caves.

Speleothems: Mineral deposits and formations that form in caves. Include calcite crystals or spar, bulbous calcite deposits or cave clouds, twisted calcite rods or heligmite bushes, spherical calcite balls or cave pearls, and encrusted iron oxide or phreatite. Other formations include stalactites, stalagmites, soda straws, draperies, curtains, bacon, columns, anthodite, helictites, flowstone, dripstone, popcorn (coral). Speleothems are commonly composed of calcite, epsomite, gypsum, aragonite, celestite, or other similar carbonate minerals.

SPG (Submersible Pressure Gauge) Gauge that indicates the pressure in a tank. Cave diving requires an all metal body and units in hundreds of psi. Gauge is connected to the regulator first stage by a hp hose and clipped to the left hip or chest D-ring.

Spool: An alternative to a reel for holding cave line. Especially for jumps and gaps. Requires a double ended bolt snap.

Spring Point: That point where a concentrated flow of water emerges from underground.
First Magnitude: Spring classification if the discharge is more than 100 cubic feet per second or 64.4 million gallons per day. There are 27 first magnitude springs in Florida, 15 in Oregon, 14 in Idaho, 8 in Missouri, and 4 in California. Aka a resurgence.

Spring Run: The channel that connects a spring to a river.

Spring Straps: Fin strap that uses a spring to secure the foot.

Spring Types: Free-Surface Gravity-fed, inverted siphon, ebb and flow estavalles.

Squeeze: Pressure effects from depth on spaces that contain air (e.g., mask, dry suit, middle-ear, etc.). Also a term used for a restriction or small opening where the diver is "squeezed" on the way through.

Station: A fixed point in the cave from which a new azimuth is taken during a survey.

Squirrel: Sheck Exley term for a skittish neophyte diver.

Stage: Stage Diving Provides an extended supply of breathing gas as extra tanks are carried, usually side mounted and a third of that gas is used on the way in (sometimes half+200). The tank is then clipped to the guide line and left to pick up and for emergency use on exit.

Stage Bottle: Tank used to carry extra gas. Usually an 80 cubic feet aluminum tank because of its buoyancy properties and is dropped at a point during the dive to be picked up later on exit.

Staged Decompression: Regular timed stops at particular depths upon ascent to allow for nitrogen off-gassing.

Stalactite: An icicle like cave decoration composed of calcite that hangs from the ceiling.

Stalagmite: An icicle shaped cave decoration composed of calcite that grows up from the floor.

Stroke: A diver with an unsafe attitude. Also used as an insult applied to all non-DIR divers.

Stroke Pit: A place where strokes congregate.

Sucking O's: Breathing pure O2 at deco or as a remedy given DCS symptoms.

Suicide Clip: A hardware item also referred to as a marine snap or boat clip that has a spring loaded angular gate. Can automatically engage and attach the diver to an object. Can also accidentally come off of a line.

Sump: Water filled portion of cave passages within a dry cave.

Surface Interval: Time spent at the surface between dives during which off-gassing takes place.

Syphon: Reversed flow, water flows inward or downstream into the system.

T: Point where one guideline terminates onto another…can be either a perpendicular or can be a split (Y).

Tannic Acid: Produced by decaying vegetation is the cause of reduced visibility via a brownish (tea color) water discoloration (aka black water). Also fulvic acid or dissolved organic carbon.

TDI: (Technical Diving International).

Team: A group of 2 or more cave divers. The optimum team size is usually considered to be three due to the risk reduction associated with the larger volume of breathing gas available to the divers. Increasing team size increases communication difficulties.

Tech Ring: D-ring welded to a belt slide, used at the hip for clipping stage and deco bottles.

Technical Diving: Diving with breathing mixtures other than air.

Thank Goodness All Divers Live: Mnemonic for accident analysis results: Training, Guideline, Air, Depth, Lights. Also, Two Guys All Day Long. I suggest to the first one change Live to Like Sex for Lights and Scooter/Solo.

Thermister (Thermal Resister): A type of resister that is sensitive to temperature. The resistance of a thermister changes with a change in temperature. Used in battery charging systems.

Thermocline: The horizontal boundary between two layers of water with different temperatures.

Thirds: Practice of dividing the volume of air (in cubic feet or psi) into thirds with one third for the penetration, one third for the exit, and one third for emergency use.

Thumb the Dive: To terminate the dive and signal exit to surface.

Tissue Compartment: Body tissues are divided into groupings with similar ongassing and offgassing half rates.

Touch Contact: Signals Go-Push, Stop-Pull, Back up-several rapid pulls. Used in a low visibility situation.

Transfill Whip: Fill hose used to connect two tanks and transfer from higher pressure to lower.

Trauma Sheers: Hardened scissors that can be used to cut metal leader fishing line.

Travel Gas: Breathing mixture used for descent and ascent.

Traverse: Entering at one point and exiting at another; simple if via one passageway, complex if via multiple passageways.

Trigger Snap: Hardware item used to attach gear to harness. Has a swivel on one side and a split circular other end with one side of the split being a spring loaded lever (trigger).

Trilaminated: Method for drysuit manufacture. A shell suit.

Trimix: A breathing gas mixture of oxygen, nitrogen, and helium. In expressing the particular mix, eg. 17/50 , the oxygen content (17%) is expressed first and is followed by the helium pecent (50%) and the remaining 33% is nitrogen. There are HPNS issues when using trimix at extreme depths. Trimix was actually developed to reduce HPNS caused by breathing Heliox below 400 feet. The nitrogen acts as a narcotic to reduce the stress of HPNS.

Trim Weight: Weights attached to allow adjustment for trim and swimming position.

Troglobite: Living organisms found in caves, the crayfish (Procambarus orcinus) is an example. Spends entire life in the cave. Literally, “cave dweller.” See also troglophiles and trogloxenes.

Troglophiles: Organisms that can live in caves, eg. Eels or American eels (Atigitilla rostrata). Literally. “cave lover.” Spends much time in the cave but also has a part of the life cycle outside the cave. The cave diver species falls into this naming convention as well.

Trogloxenes: An organism that does not reside permanently in a cave. Literally, “cave guest.” Examples are cave crickets and bats.

Trust Me Dive: Any time you are diving a new system with someone who has already been there or are accepting information from another diver without verifying it for yourself.

Turning the dive: Beginning the return portion of the dive after reaching the maximum duration or distance point (usually when one third of the smallest volume tank has been used). Similar to a call or termination but a normal as opposed to an abnormal exit.

Twilight Zone: Deeper than 200 feet (61 m) in the ocean. Area within a cavern that contains some ambient light. Also a tv series from Rod Serling.

Upstream: Swimming in the opposite direction of the flow. Swimming into the flow. Preferred method for entering a waterfilled cave.

Vadose Zone: In a karst plain the near surface area characterized by porous material through which water drains. See phreatic zone and water table.

Valsalva Maneuver: The forced inflation of the middle ear by exhaling with the mouth closed and the nostrils pinched.

Valve: Used to turn gas on and off. Should be opened all the way. Coff (clockwise=off) or rightie tightee, leftee, loosee.

Valve Cage: Used to protect the tank valve or manifold from external physical shocks. See also Rams Head.

Van-der-Waal's Law: The universal gas equation.

VGE (Venous Gas Emboli).

VIP (Visual Inspection Program): Annual visual inspection for corrosion on the inside of a tank.

Visual Gap: When the distance between the end of one line and the beginning of another can be seen. Also refers to the situation when the diver makes the crossing without deploying a gap reel.

Visual Jump: When the distance between a point along one line and the beginning of another can be seen. Also refers to the situation when the diver makes the crossing without deploying a jump reel.

Viton: Viton is DuPont Dow's brand name for FKM O-ring seals. However, DuPont Dow is not the only company that manufactures FKM products. There are different types of Viton O-rings intended for various different applications. Many people incorrectly refer to any and all FKM O-rings or even generic "oxygen-compatible" O-rings as Viton.

VPM (Varying Permeability Model): Decompression computation model used in the V-Planner software.

Water Table: Separates the vedose and phreatic zones. It is the top surface of the saturated zone and its position fluctuates with stored water.

Wet Notes: Brand name for waterproof paper used for underwater writing with a graphite pencil.

Whip: Hose for filling tanks.

Wings: Inflatable bladders (air cells) that ride on either side (surrounding) of back mounted tanks and have a specified lift capacity, generally from 35 to 100 pounds.

Vis: Short for visibility. The distance that you can see in the water.

WKP (Woodville Karst Plain): An area just south of Tallahassee Florida that drains the Leon Sinks System of which Wakulla Spring is a part.

WKPP (Woodville Karst Plain Project): Diving and cave exploration project at Wakulla Springs.

Wrap: Technique for attaching guideline to a rock, especially at the secondary tie-off.

YMCA: Open water certification agency.

Y-Valve: Slingshot valve.

ZH-L8 ADT: Buhlmann adaptive decompression calculation model.

Zip Tie: Plastic strip that is used to attach accessory items to a bolt clip. Cave line can also perform this function.

Z-knife: Line cutting knife with a razor blade inside a slot.